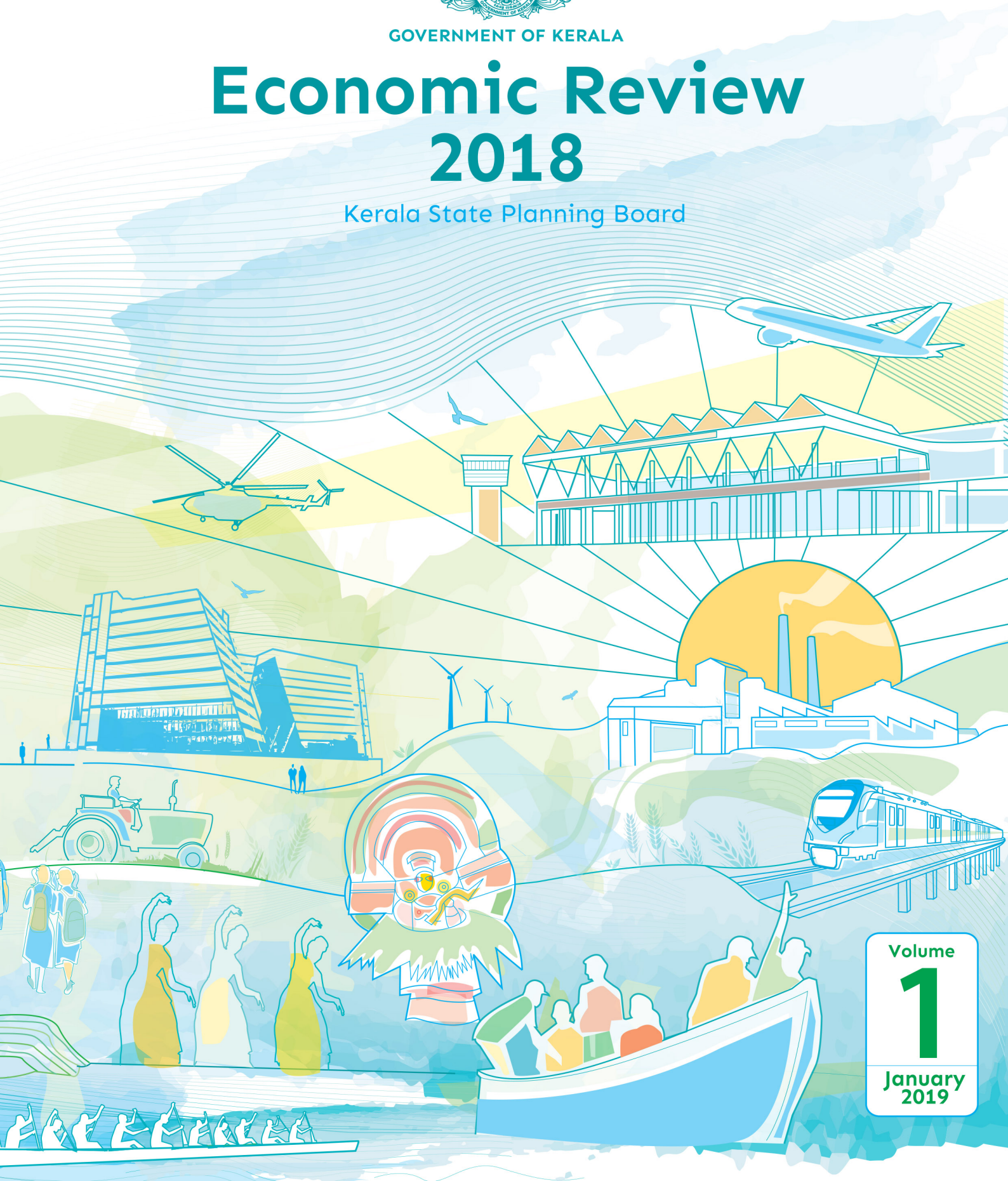
GOVERNMENT OF KERALA

Economic Review 2018

Kerala State Planning Board



Volume 1

January 2019

GOVERNMENT OF KERALA

ECONOMIC REVIEW 2018

State Planning Board, Thiruvananthapuram, Kerala, India
January 2019

Volume One

Economic Review 2018
Kerala State Planning Board, Thiruvananthapuram, Kerala, India

Design & Layout : C-DIT, www.cdit.org
Illustrations : Prasanth V

FOREWORD

In 2018, Kerala was affected by the worst floods and landslides that it has experienced since 1924. The natural disaster of August 2018 resulted in the loss of lives, livelihoods, and caused damage to houses, roads, and other infrastructure. The productive sectors of the economy including agriculture, industries, and tourism, suffered substantial losses.

The State of Kerala – its government and people – demonstrated exceptional capability in undertaking immediate rescue and relief work during the crisis. The response to crisis was one of widespread and selfless public action by the administration and citizens. The spontaneous social commitment and the spirit of fraternity shown by fishworkers and youth, who led some of the most heroic rescue and relief efforts, were exemplary. The speedy, meticulous, and people-oriented handling of crisis by the State has won admiration from other parts of India and the world.

The full impact of the floods and landslides on economic growth will be revealed in coming months. The *Economic Review 2018* covers the trends in the Kerala economy in 2018. In 2017-18, the Kerala economy grew at 7.18 per cent (at constant prices) as against 6.22 per cent (at constant prices) in 2016-17. The positive trend in agriculture and allied sectors continued in 2017-18 with 3.64 per cent growth. The manufacturing sector also exhibited a positive growth of 9.22 per cent (at constant prices) in 2017-18. Public investment in health and education continues to yield results. The enrolment of students in Government and Government aided schools has increased. There is a marked shift to Government schools from private schools. The strong disease surveillance system in the State was demonstrated by the successful control and prevention of the spread of Nipah virus in May 2018. The suppression and control of epidemic disease in Kerala in the aftermath of the floods is a historic achievement.

We have introduced new sections on “Public Services” and “Kerala’s Four Missions for Development” in *Economic Review 2018*. The section on “Public Services” deals with citizen-centric services provided by departments such as Survey and Land

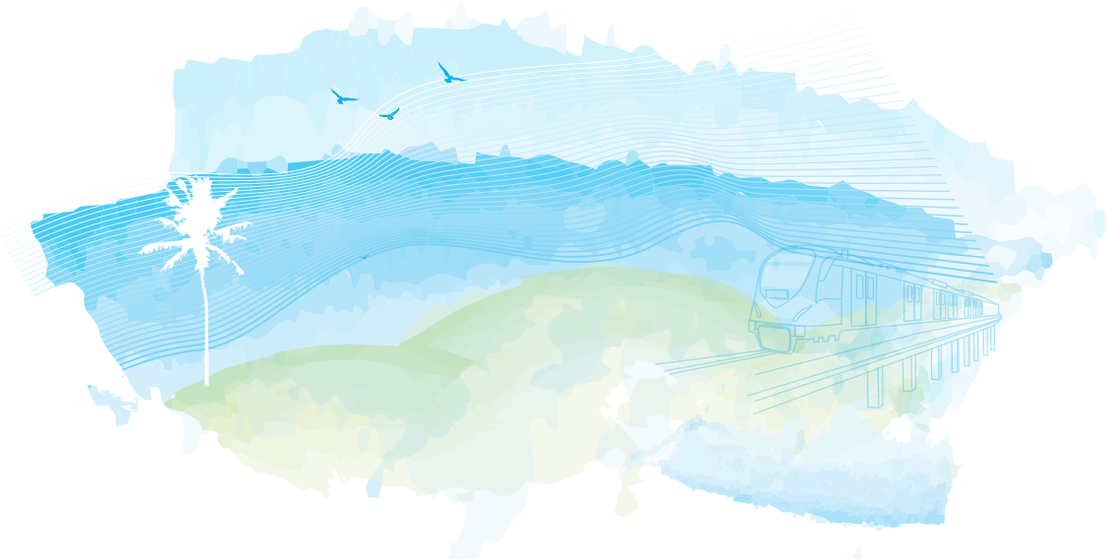
Records, Registration, Excise, and Police. The achievements and progress of the four development missions have been documented in the section on "Kerala's Four Missions for Development." This year's *Review* begins with an overview of the developments in Kerala economy in brief in the section "Kerala at a Glance."

The second phase of democratic decentralisation has made significant advances in terms of the preparation and implementation of Plans. In 2018-19, the guidelines were modified and issued in time for Local Governments to get approval for their Plans for 2018-19 well before the beginning of the financial year. As a consequence, 1,147 Local Governments in the State were able to complete the process of formulation of their Annual Plan 2018-19 before April 1, 2018 leaving a full year for Plan implementation. Local Governments were thus able to integrate their Annual Plans with the Budget, for the first time since the implementation of decentralisation in its present form.

The theme chapter of *Economic Review 2018* is about building a new Kerala in the aftermath of the floods of August 2018. The Government has taken this crisis as a challenge and an opportunity to rebuild the State to ensure better standards of living to all sections of society. The Government has laid out a vision for a more climate-resilient and progressive State. The State will draw upon its success in planned economic development, social justice and gender equality, and democratic decentralisation to build a better Kerala.

The *Economic Review 2018* includes information on policies and programmes of the Government departments. It discusses the performance of various departments and the issues to be addressed in coming years. As in previous years, the Review is presented in two volumes. Volume I covers the policies, programmes, and achievements of Government departments and Volume II provides the corresponding datasets. *Economic Review 2018* is published in English and Malayalam. A digital version will be uploaded at the State Planning Board website **www.spb.kerala.gov.in**.

Thiruvananthapuram
January 16, 2019



CONTENTS

KERALA AT A GLANCE

KERALA'S ECONOMIC AND SOCIAL INDICATORS – A QUICK LOOK

DISTRICTS – AN OVERVIEW

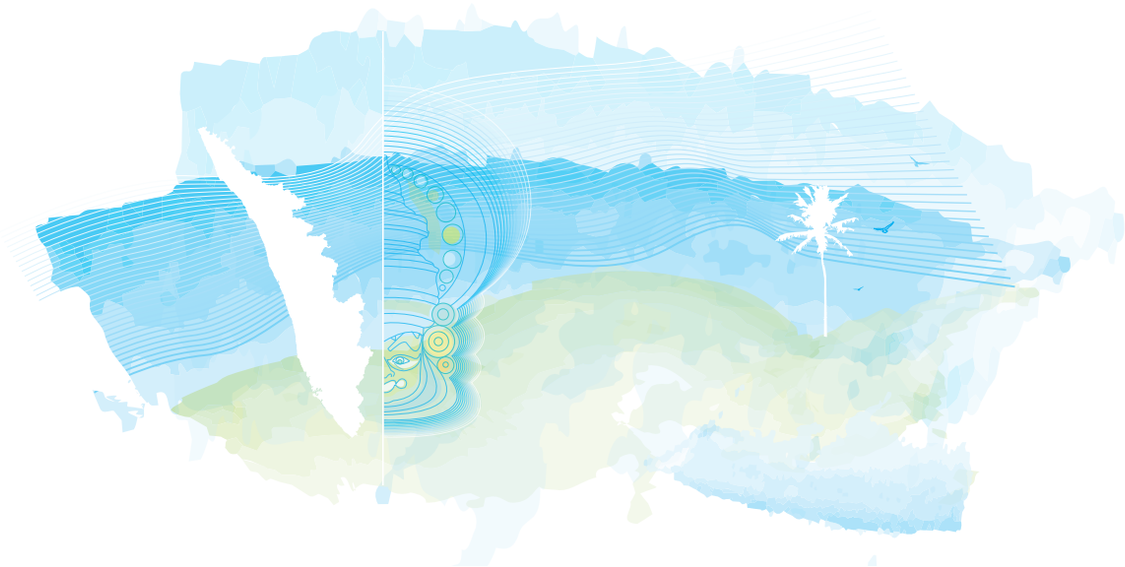
LIST OF TABLES

LIST OF BOXES

LIST OF FIGURES

CHAPTER 1	**KERALA ECONOMY**	**01**
	Recent Trends in Macro-Economic Aggregates	03
	Demographic Profile	14
	Indicators of Poverty	18
	Role of Financial Institutions in Development Initiatives	21
	State Finances	28
	Plan Outlay 2018-19	44
CHAPTER 2	**AGRICULTURE AND ALLIED SECTORS**	**47**
	Agriculture	49
	Co-operation	65
	Livestock	68
	Fisheries	79
	Water Resources	86
	Forestry and Wild Life	92
	Environment	96
	Food Security and Public Distribution System	102
CHAPTER 3	**MANUFACTURING SECTOR**	**110**
	Kerala's Industrialisation	111
	Manufacturing	115
	Public Sector Undertakings	119

	Micro Small and Medium Enterprises	131
	Food Processing	141
	Traditional Industries	143
CHAPTER 4	**SERVICE SECTOR**	**169**
	Education	171
	Health	190
	Impact of Changing Demographic Profile	211
	Information Technology	217
	Scientific Services and Research	229
	Tourism	243
	External Trade	253
	Public Services	263
	Outreach to Public	269
CHAPTER 5	**LABOUR AND EMPLOYMENT**	**271**
	Labour Welfare	273
	Employment	290
	Skill Development	300
CHAPTER 6	**INITIATIVES FOR SOCIAL INCLUSION**	**305**
	Gender and Development	307
	Addressing Socio-Economic Vulnerabilities	320
	Social Security Measures	338
CHAPTER 7	**ART, CULTURE AND SPORTS**	**353**
	Art and Culture	355
	Sports and Youth Affairs	361
CHAPTER 8	**KERALA DIASPORA**	**365**
CHAPTER 9	**INFRASTRUCTURE**	**375**
	Transport	377
	Energy	415
	Communication	431
	Drinking Water	434
	Housing	441
	Kerala Infrastructure Investment Fund Board	447
CHAPTER 10	**LOCAL GOVERNMENTS AND DECENTRALISED PLANNING**	**451**
CHAPTER 11	**KERALA'S FOUR MISSIONS FOR DEVELOPMENT**	**477**
CHAPTER 12	**BUILDING A NEW KERALA**	**487**
	GLOSSARY	**499**
	ABBREVIATIONS	**503**



KERALA AT A GLANCE

Kerala's Gross State Domestic Product (GSDP) grew at 7.18 per cent in 2017-18 in constant (2011-12) prices, which is higher than the 6.22 per cent growth recorded in 2016-17. At current prices, the growth rates of GSDP in 2017-18 and 2016-17 were 11.42 per cent and 9.67 per cent respectively. The growth rates of Gross Value Added (GSVA) at basic prices in constant (2011-12) prices were 5.94 per cent and 4.67 per cent in 2017-18 and 2016-17 respectively. The GSVA growth rate in current prices was 10.37 per cent in 2017-18 and 8.62 per cent in 2016-17. Per capita GSDP in real terms grew at 6.65 per cent in 2017-18 as against 5.70 per cent in 2016-17.

In 2017-18, the contribution from primary, secondary, and tertiary sectors to the GSVA at constant prices (2011-12) was 10.85 per cent, 27.40 per cent and 61.75 per cent respectively. At current prices, the primary, secondary, and tertiary sectors contributed 13.20 per cent, 24.24 per cent and 62.56 per cent respectively to the GSVA during this period.

The GSDP in real terms for agriculture and allied activities (livestock, forestry and logging and fishing and aquaculture) registered a growth rate of 3.64 per cent in 2017-18. This is a substantial improvement from 0.02 per cent in 2014-15, (-)5.10 per cent in 2015-16 and 0.08 per cent in 2016-17.

The GSDP growth in the manufacturing sector was 9.2 per cent in real terms in 2017-18. The corresponding figure was 7.8 per cent in 2016-17. The GSDP of secondary sector as a whole rose to. 6.52 per cent in 2017-18 from 4.81 per cent in 2016-17. The tertiary sector GSDP recorded a growth rate of 5.84 per cent in 2017-18; the corresponding figure in 2016-17 was 5 per cent.

Kerala has been ahead of other Indian States in achieving demographic and human development indicators. In achievement of Sustainable Development Goals (SDGs 2018) by the States in India as computed by the NITI Aayog, Kerala ranks first along

with Himachal Pradesh, with a score of 69 against national average of 57. Kerala ranks first in SDGs relating to health, education, and gender equality. Public investment in educational infrastructure and quality is a priority and as a consequence the enrolment of students in Government and Government aided schools has increased. The Government of Kerala is committed to providing quality health care through public institutions for all sections of the people. The successful efforts of the State to prevent the spread of communicable diseases in the post-flood period and to contain the spread of the Nipah virus are noteworthy.

The State has reached a stage of demographic transition in which it has a larger proportion of population above 60 years than the rest of the country. It is thus not able to reap a demographic dividend in the same way as other States. The demographic structure of the State brings new fiscal, social and health issues to the fore. The State has to tackle these with the active cooperation and involvement of the people at large.

Although there has been substantial reduction in absolute poverty, Kerala faces the problem of income inequality and deprivation among certain sections of the people of the Scheduled Tribes (STs) and fisherfolk. The State Government is addressing these issues and is implementing four missions, namely, Haritha Keralam, Livelihood, Inclusion and Financial Empowerment (LIFE), Education Rejuvenation Mission, and AARDRAM.

The State Government recognises the importance of e-governance and the need to address issues of the digital divide in society. Policies are framed in order to make the objective of internet as a citizen's right a reality.

Measures have been taken to facilitate ease of doing business through transparent procedures and speedy clearances for entrepreneurs who want to make investments in the State. At the same time, the State is committed to implementing labour and environmental laws. The State envisions an industrial policy that focuses on knowledge-based and non-polluting enterprises. The Government of Kerala seeks to run Public Sector Undertakings (PSUs) profitably and under professional management. The results of the policy initiatives are visible in the turnaround of loss making PSUs.

With respect to democratic decentralisation, the State has devolved around a quarter of its Plan resources to Local Governments (LGs). This is in addition to devolving general purpose and maintenance grants as a share of State's own tax revenues based on the recommendations of the State Finance Commissions (SFCs). The spending efficiency has improved because of early formulation of Plans by the LGs.

For two consequential financial years, viz. 2017-18 and 2018-19, the State was affected by the shocks of Ockhi cyclone and unprecedented floods, but these challenges were met with exemplary courage and determination by the Government and the citizens. The floods have had a severe adverse impact on the livelihood of a large number of people, especially the vulnerable sections. It has also caused substantial loss to the economy of the State. The Post Disaster Needs Assessment (PDNA) of the United Nations Development Programme (UNDP) estimates the State's losses at ₹ 31,000 crore. The State Government has laid down a comprehensive vision for building a new Kerala, which would be resilient to any such disasters that might occur in future. The Government has also submitted a detailed memorandum to the Centre outlining the fiscal requirements of the State. A request made by the State for levying a cess on GST for finite period to finance the rehabilitation efforts has been accepted by the GST Council.

The State finances which had been witnessing a slowdown in Own Tax Revenue (OTR) growth rate was expected to enter a phase of consolidation. But the unexpected policy shocks and natural disasters have delayed this. The implementation glitches of Goods and Services Tax (GST) at the national level and the unfavourable rate apportionment between the Centre and the States have resulted in the expected revenue gain not accruing to the States including Kerala. This along with additional revenue expenditure burden is expected to strain the State finances, especially in the light of the special needs of the State in the post-flood situation.

According to the Approach Paper of Thirteenth Five-Year Plan, Kerala has been, and remains, the most important example in independent India of the power of public action to improve the well-being of the people and to transform social, political, and cultural conditions in a State. In recent years, the policies of economic liberalisation have resulted in lower revenue mobilisation powers for States in India. This has in turn restricted their ability to invest in rapid and large scale projects for social and economic transformation. Within these limits, the Government of Kerala is making conscious efforts to focus on a revenue-led fiscal consolidation without retreating from social and infrastructural spending that are essential for economic growth.

KERALA'S ECONOMIC AND SOCIAL INDICATORS – A QUICK LOOK

Sl. No.	Item	Units	1960-61	1970-71	1980-81	1990-91	2000-01	2010-11	2016-17	2017-18
1	Geographical Area	Sq.Km.	38856.7	38864	38863	38863	38863	38863	38863	38863
Administrative Setup										
2	Revenue Divisions	No.						21	21	21
3	Districts	No.	9	10	12	14	14	14	14	14
4	Taluks	No.	55	56	58	61	63	63	75	75
5	Villages	No.		1326	1331	1364	1452	1532	1664	1664
6	Towns	No.	92	88	106	197	159	520	520	520
Population as per Census			1951	1961	1971	1981	1991	2001		2011
7	Total	(in 000s)	13549	16904	21347	25454	29099	31844		33406
8	Males	(in 000s)		8362	10588	12609	14289	15469		16027
9	Females	(in 000s)		8542	10760	12885	14810	16373		17379
10	Rural	(in 000s)		14351	17880	20682	21618	23574		17471
11	Urban	(in 000s)		2552	3467	4771	7018	8267		15935
12	Scheduled Castes	(in 000s)		1422	2002*	2549	2887	3124		3040
13	Scheduled Tribes	(in 000s)		208	193*	261	321	364		485
14	Density of Population	No. Per Sq.Km.		435	549	655	749	819		860
15	Literacy Rate	Percentage		55	60	70	90	90		94
16	Sex Ratio	Females per 1000 males		1022	1016	1032	1036	1058		1084
17	Urban Population	Percentage		15	16	19	24	26		48
GSDP - at constant prices			1960-61	1970-71	1980-81	1990-91	2000-01	2009-10	2016-17	2017-18
18	GSDP	₹Crore	462	1255	3823	12195	63715	180812	480878	513695
19	Primary Sector (GSVA)	₹Crore	241	653	1682	4756	14017	15966	47846	48920

20	Secondary Sector (GSVA)	₹Crore	68	163	841	3171	14017	38249	108667	123501
21	Tertiary Sector (GSVA)	₹Crore	153	439	1300	4268	35680	126597	268075	278324
22	Percapita Income	₹	276	594	1508	4207	19951	47360	140107	148927
Agriculture			1960-61	1970-71	1980-81	1990-91	2000-01	2009-10	2016-17	2017-18
23	Net Area Sown	'000 Ha.	1923	2171	2180	2247	2206	2079	2015	2040
24	Gross Cropped Area	'000 Ha.	2349	2933	2885	3020	3022	2669	2584	2579
25	Gross Irrigated Area	'000 Ha.			381	385	460.3	458	497	540
26	Gross Irrigated Area to Gross Cropped Area	Percentage			13	13	15	18	19	21
Gross area under principal cropes			1960-61	1970-71	1980-81	1990-91	2000-01	2012-13	2016-17	2017-18
27	Paddy	'000 Ha.	779	875	802	559	347	197	171	189
28	All Pulses	'000 Ha.	44	40	34	23		3	2	2
29	Sugarcane Harvested Area	'000 Ha.	9	8	8	8	3	2	1	0.4
30	Rubber	'000 Ha.	133	188	238	384	474	545	540	551
31	Tea	'000 Ha.	40	37	36	35	37	30	30	30
32	Coconut	'000 Ha.	501	719	651	870	926	798	781	760
33	Arecanut		54	86	61	65		102	98	95
34	Groundnut	'000 Ha.	16	15	9	13		0.7	0.4	0.11
35	Pepper	'000 Ha.	100	12	108	169	202	85	85	85
36	Cardamom	'000 Ha.	29	47	56	67	41	42	39	39
37	Ginger	'000 Ha.	12	12	13	14	12	5	5	4
Production of Principal Crops			1960-61	1970-71	1980-81	1990-91	2000-01	2012-13	2015-17	2017-18
38	Rice	'000 tonnes	1068	1298	1272	1087	751	509	436	521
39	All Pulses	'000 tonnes	18	13	22	17		3	2	2
40	Sugarcane	'000 tonnes	38	38	48	52	28	17	11	5
41	Rubber	'000 tonnes	24	88	140	308	560	800	540	541
42	Tea	'000 tonnes	39	43	48	63	69	63	62	62
43	Coconut	In million nuts	3220	3981	3008	4232	5536	5799	5379	5230
44	Arecanut	'000 tonnes	8	13	11	13		118	117	109
45	Groundnut	'000 tonnes	14	16	8	10	10	9	0.5	0.1
46	Pepper	'000 tonnes	27	25	29	47	61	46	34	38
47	Cardamom	'000 tonnes	1	1	3	3		10	17	18
48	Ginger	'000 tonnes	11	20	32	46	42	22	20	19
Live Stock Census			1977	1982	1987	1996	2003	2007		2012
49	Total Livestock	in lakh	53	56	55	56	35	36		27
50	Total Poultry	in lakh		152	185	308	139	127		243
Forest			1960-61	1970-71	1980-81	1990-91	2000-01	2011-12	2016-17	2017-18
51	Forest Area	'000 Ha.	1056	1056	1082	1082	1082	1082	1131	1131

Factories			1971	1981	1991	2001	2011	2012	2017	2017-18
52	Working Factories	No.	3024	9106	13255	18554	19676	20473	22998	23335
53	Employees	No.	206839	300515	368738	436410	644606	644802	678058	698679
54	Employees per lakh population	No.	969	1181	1267	1370	1930	1930	1976	2026
Electricity			1970-71	1980-81	1990-91	2000-01	2009-10	2011-12	2016-17	2017-18
55	Total Generation	Mu	2126	5242	5491	7656	6495	8351	4380	5506
56	Total Consumption	Mu		2869	5282	10319	12878	16182	20038	20998
57	Industrial Consumption	Mu		2025	2697	3784	4002	4926	5260	5648
58	Agricultural Consumption	Mu		125	288	350	225	286	322	346
59	Domestic Consumption	Mu		409	1621	4688	5931	7706	10281	10575
Education			1970-71	1980-81	1990-91	2000-01	2009-10	2012-13	2016-17	2017-18
60	Primary Schools	No.	9437	9605	9682	9714	9828	9737	9861	9852
61	Enrolment	'000s	4156	4284	4402	3637	3015	2545	2398	2428
62	High Schools	No.	1199	1971	2451	2596	2814	2890	3021	3119
63	Enrolment	'000s		1310	1498	1611	1443	1426	1365	1276
Health			1970-71	1980-81	1990-91	2000-01	2009-10	2011-12	2016-17	2017-18
64	Hospitals	No.	553	746	1199	1319	1254	1255	1463#	1463
65	No. of Beds	No.	21777	32447	38726	38242	37021	37388	56257#	56541
Vital statistics (Demographic Status)			1970-71	1980-81	1990-91	2001	2009	2010	2011	2017##
66	Birth Rate	per 1000 population	32	26	20	16	15	15	15	14
67	Death Rate	per 1000 population	9	6	6	7	7	7	7	8
68	Infant Mortality Rate	per 1000 population	61	37	21	11	12	14	13	10
Transport			1970-71	1980-81	1990-91	2000-01	2010-11	2011-12	2016-17	2017-18
69	Railway Route Length	Kms.	892	921	988	1148	1257	1257	1257	1257
70	Total Road Length	Kms.	18037	94145	128403	125835	151652	244373	218942	229349**
71	Motor Vehicles	'000s	86234	195000	648000	2111885	6072019	8048673	11030037	12042691
Local Governments			1990-91	2000-01	2006-07	2007-08	2008-09	2010-11	2016-17	2017-18
72	District Panchayats	No.		14	14	14	14	14	14	14
73	Block Panchayats	No.		152	152	152	152	152	152	152
74	Grama Panchayats	No.	983	990	999	999	999	978	941	941
75	Municipalities	No.	58	53	53	53	53	60	87	87
76	Corporations	No.	3	5	5	5	5	5	6	6

#Modern Medicine and Ayush included:
##SRS 2017 September
**Base year 2011-12*
*** excludes LSGD non pucca roads*

DISTRICTS – AN OVERVIEW

Sl.No.	Items	TVM	KLM	PTA	ALP	KTM	IDK	EKM
1	Area (sq Km)	2192	2491	2637	1414	2208	4358	3068
2	Forest Cover (sq. Km) *	1327	1356	1830	68	967	3139	1273
3	Population 2011 (in Lakh)	33.01	26.35	11.97	21.28	19.75	11.09	32.82
	Rural	15.3	14.48	10.66	9.8	14.09	10.56	10.47
	Male	7.25	6.81	5	4.65	6.93	5.27	5.18
	Female	8.05	7.67	5.66	5.15	7.16	5.29	5.29
	Percentage Decadal Growth (2001-2011)	-28.6	-31.7	-4	-34.2	-14.8	-1.4	-35.7
	Urban	17.72	11.87	1.32	11.48	5.66	0.51	22.34
	Male	8.57	5.66	0.62	5.48	2.76	0.25	11.01
	Female	9.15	6.21	0.7	6	2.9	0.26	11.33
	Percentage Decadal Growth (2001-2011)	62.3	154.8	6.3	84.8	88.6	-9.6	51.3
	Density	1508	1061	452	1504	895	255	1072
	Fishermen Population, in number	164883	123100	2073	167794	24420	691	133387
	SC population as % of Total Population	11.3	12.5	13.7	9.5	7.8	13.1	8.2
	ST population as % of Total Population	0.8	0.4	0.7	0.3	1.1	5.0	0.5
4	Literacy Rate (2011)							
	Male	94.2	95.8	97.7	97.9	97.2	94.8	97.1
	Female	90.9	91.9	96.3	94.8	95.7	89.6	94.3

Sl.No.	Items	TVM	KLM	PTA	ALP	KTM	IDK	EKM
5	Percentage of Dropouts 2017-18							
	Lower Primary	0.20	0.10	0.11	0.05	0.12	0.72	0.23
	Upper Primary	0.11	0.07	0.02	0.01	0.07	0.39	0.22
	High School	0.17	0.09	0.07	0.05	0.21	0.41	0.18
6	GSVA 2017-18 (Quick)							
	GSVA at Basic Prices (` in lakh)	4987667	4219147	1312928	3295183	2880198	1501022	5682082
	Share in Percentage							
	Primary	7	10	23	5	14	32	9
	Secondary	26	28	24	36	23	22	26
	Tertiary	67	62	53	59	63	46	65
7	Production of Rice in Kerala (17-18) in Tonnes	4551	4302	8843	105676	49509	2293	12888
8	Net Area Irrigated (2017-18) in ha	7584	5220	5331	35861	16364	44743	23944
9	Number of Commercial Banks	711	381	380	379	498	174	1004
10	CD ratio	70.08	64.28	27.14	46.12	48.42	84.86	89.76
11	No. of Registered SSI/MSME 17-18	1656	1063	833	1315	913	248	1895
12	Length of Roads ** (km)	2557.44	2202.869	2031.372	1472.334	3456.214	2867.366	3085.281
13	No. of Motor Vehicles	1523414	868077	502032	830790	744817	241623	1796868
14	Tourist Arrivals 2017							
	Foreign (in no.)	420719	6227	2003	75037	32350	42285	453973
	Domestic (in no.)	2505333	381829	164494	433456	468593	1090086	3285088

** open forest included , ** excludes LSGD non pucca roads*

DISTRICTS – AN OVERVIEW

Sl.No.	Items	TSR	PLK	MLP	KKD	WYD	KNR	KSD	TOTAL
1	Area (sq Km)	3032	4480	3550	2344	2131	2966	1992	38863
2	Forest Cover (sq. Km)*	1152	1826	1811	1484	1580	1561	947	20321
3	Population 2011 (in Lakh)	31.21	28.1	41.13	30.86	8.17	25.23	13.07	334.04
	Rural	10.24	21.31	22.95	10.14	7.86	8.82	7.99	174.67
	Male	4.88	10.31	10.95	4.85	3.86	4.26	3.88	84.08
	Female	5.36	11.01	12	5.29	4	4.56	4.11	90.6
	Percentage Decadal Growth (2001-2011)	-52	-5.7	-29.8	-43	-4.6	-26.3	-17.7	-25.9
	Urban	20.96	6.77	18.17	20.72	0.31	16.41	5.09	159.33
	Male	9.92	3.28	8.65	9.86	0.15	7.56	2.41	76.18
	Female	11.04	3.49	9.52	10.86	0.16	8.85	2.68	83.15
	Percentage Decadal Growth (2001-2011)	149.7	89.8	410.2	88.2	6.6	35.3	117.8	92.8
	Density	1031	627	1157	1316	384	852	657	860
	Fishermen Population, in number	90306	2534	82044	106613	230	60208	43342	1001625
	SC population as % of Total Population	10.4	14.4	7.5	6.5	4.0	3.3	4.1	9.1
	ST population as % of Total Population	0.3	1.7	0.6	0.5	18.5	1.6	3.7	1.5
4	Literacy Rate (2011)								
	Male	96.98	92.27	95.78	97.57	92.84	97.54	93.93	96.1
	Female	93.85	84.99	91.55	93.16	85.94	93.57	86.13	92.1

Sl.No.	Items	TSR	PLK	MLP	KKD	WYD	KNR	KSD	TOTAL
5	Percentage of dropouts 2017-18								
	Lower Primary	0.05	0.35	0.09	0.07	0.25	0.12	0.08	0.15
	Upper Primary	0.02	0.11	0.08	0.06	0.31	0.07	0.17	0.10
	Higher Secondary	0.19	0.27	0.09	0.09	1.92	0.24	0.46	0.22
6	GSVA 2017-18 (Quick)								
	GSVA at Basic Prices (₹ in lakh)	4422083	3091906	4367750	3719432	865101	3160540	1569461	45074499
	Share in Percentage								
	Primary	8	14	9	8	20	10	18	11
	Secondary	26	27	25	30	21	32	31	27
	Tertiary	66	59	66	62	59	58	51	62
7	Production of Rice in Kerala (17-18), in Tonnes.	69114	198626	23571	3960	21792	11318	4867	521310
8	Net Area Irrigated (2017-18) in ha	63354	74312	26149	4980	12718	14322	57124	392006
9	Number of Commercial Banks	722	423	440	445	120	384	220	6281
10	CD ratio	54.99	58.02	59.77	70.62	108	54.84	79.78	63.9
11	No. of Registered SSI/MSME 15-16	1836	1907	1243	1200	302	710	347	15468
12	Length of Roads **	2064.216	2184.693	2680.152	2454.647	1029.314	2265.242	1460.662	31812.106
13	No. of Motor Vehicles	1248317	818617	1097058	1114491	176093	739595	340899	12042691
14	Tourist Arrivals 2017								
	Foreign (in No:s)	10775	1711	18451	13106	8995	5123	1115	1091870
	Domestic (in No.s)	2642546	474180	520832	932345	815624	695655	263459	14673520

** open forest included , ** excludes LSGD non pucca roads*

LIST OF TABLES

Sl.No.	Item	Page
Table 1.1	Gross National Income, Gross Domestic Product and per capita income at 2011-12 prices and current prices, all India, in ₹ crore	5
Table 1.2	State domestic product and per capita income of Kerala	6
Table 1.3	District-wise distribution of gross state value added	8
Table 1.4	District-wise per capita Gross State Value Added at basic price, constant, 2011-12 prices	9
Table 1.5	Wholesale price inflation, base:2011-12=100, year on year per cent	11
Table 1.6	District-wise distribution of the population in different age groups-2011	17
Table 1.7	Proportion of poor in India and in Kerala, 1973-74 to 2011-12	18
Table 1.8	Banking group-wise details under SC/ST advance as on March 2018, in crore	21
Table 1.9	Performance of co-operative sector, in ₹ crore	24
Table 1.10	Performance of co-operative sector, in ₹ crore	27
Table 1.11	Trends in deficit indicators, in per cent	28
Table 1.12	Major revenue, expenditure, deficit and debt indicators of Kerala, in ₹ crore and per cent	29
Table 1.13	Major revenue, expenditure, deficit and debt indicators of Kerala, in ₹ crore and per cent	31
Table 1.14	Trends in deficit indicators, in per cent	31
Table 1.15	Components of central resource transfer, in ₹ crore	33
Table 1.16	Components of central resource transfer, in ₹ crore	34
Table 1.17	Proportion of flexible and tied part in central resource transfer, in per cent	34
Table 1.18	Share of general, social, economic services and grants in aid in revenue expenditure, in per cent	36
Table 1.19	Revenue expenditure and growth rate, in ₹ crore and per cent	37
Table 1.20	Development expenditure by Local Governments as a share of grants-in-aid, in per cent	38
Table 1.21	Share of salaries, pension and interest in revenue expenditure, in per cent	38

Table 1.22	Trends in components of subsidies, in ₹ crore	39
Table 1.23	Components of capital expenditure, in ₹ crore	39
Table 1.24	Share of capital expenditure in total expenditure, in per cent	40
Table 1.25	Ratio of interest payments to revenue receipts, in per cent	40
Table 1.26	Composition of borrowings and liabilities, in per cent	41
Table 1.27	Guarantees outstanding by the GoK, in ₹ crore	41
Table 1.28	Annual Plan 2017-18 and 2018-19 sector-wise outlay comparative statement, ₹ in crore	45
Table 2.1	Share of agriculture and allied sectors in GVA – National and State level, constant prices (base 2011-12)	49
Table 2.2	Commodity and crop-wise consumption of indigenous and imported pesticides, Chemical and Bio, in the year 2017-18, Unit MT, Technical Grade	57
Table 2.3	Livestock and poultry population in India and Kerala, in ₹ lakh	69
Table 2.4	Details of incidents of Human-animal Conflict reported and compensation paid in 2017-18 Incidents	94
Table 2.5	Category-wise distribution details of food grains under NFSA, as on December 2018	104
Table 2.6	Subsidy spent by GoK for various card holders	105
Table 3.1	Revenue from minerals, in ₹ crore	117
Table 3.2	Financial performance of State PSUs under Industries Department	122
Table 3.3	Plan outlay and expenditure, KSIDC, in ₹ crore	125
Table 3.4	Plan outlay and expenditure, KINFRA, in ₹ crore	127
Table 3.5	Estimated employment in MSME sector, broad activity category-wise	132
Table 3.6	Plan outlay and expenditure of village and small enterprises Annual Plan 2017-18 and 2018-19, in ₹ crore	134
Table 3.7	The number of MSME enterprises affected by the floods	138
Table 3.8	Skill development and training institutes in Kerala	139
Table 3.9	Outlay and expenditure for major schemes in handloom sector, in ₹ lakh	148
Table 3.10	Production, sales and employment generation in khadi and village industries sector	153
Table 3.11	Fund allocated to and expenditure incurred by Khadi and Village Industries Board in Kerala, in ₹ lakh	153
Table 3.12	Major scheme-wise outlay, expenditure and physical outcomes in 2018-19, in ₹ lakh	154
Table 3.13	Outlay and expenditure during 2017-18 and 2018-19 for the major schemes in coir sector, in ₹ lakh	159
Table 3.14	Production of cashew nut in selected countries, from 2012 to 2017, in metric tonnes	163
Table 3.15	Plan outlay and expenditure during 2017-18 and 2018-19, in ₹ crore	165
Table 3.16	Achievements of CAPEX for the last 6 years, in ₹ crore	167
Table 4.1	Status of special literacy programmes, 2017-18	173
Table 4.2	Number of persons who enrolled in higher secondary and 10th equivalency courses	173

Table 4.3	Net increase in enrolment of students in schools from 2016-17 to 2018-19	175
Table 4.4	Proportion of SC/ST students in schools, 2017-18	176
Table 4.5	Stage-wise dropout ratio in schools, Kerala	177
Table 4.6	District-wise dropout ratio in 2017-18	177
Table 4.7	Enrolment of students in arts and science colleges	182
Table 4.8	Per cent of SC/ST students in higher education	184
Table 4.9	Placement details of students of various engineering college in 2017-18	188
Table 4.10	Per cent SC/ST students in polytechnics	188
Table 4.11	Demographic, socio-economic and health profile of Kerala as compared to India	191
Table 4.12	Department-wise outlay and expenditure, Annual Plan 2014-19, in ₹ lakh	195
Table 4.13	Prevalence of communicable diseases in Kerala	198
Table 4.14	Physical and financial achievements of RSBY/CHIS	203
Table 4.15	Major achievements of the drugs control department in 2017-18	206
Table 4.16	Details of the Government, aided, and unaided colleges affiliated under various streams, number as on October 2018	207
Table 4.17	Age composition of senior citizens in Kerala, in numbers	212
Table 4.18	Marital status of Kerala's senior citizens	212
Table 4.19	Plan outlay and expenditure, in ₹ Lakh	218
Table 4.20	Technopark's contribution to the State economy	222
Table 4.21	Land available with Technopark, in acres	222
Table 4.22	Land available with Infopark	225
Table 4.23	Overall performance of R&D institutions	232
Table 4.24	Profile of RCC in 2017-18 at a glance	236
Table 4.25	New cases registered in RCC during the last 5 years from 2013-14 to 2017-18	237
Table 4.26	New cases registered in RCC during the last 5 years from 2013-14 to 2017-18	237
Table 4.27	Cases registered in speciality clinics, gender-wise, 2016-17 and 2017-18	238
Table 4.28	System-wise distribution of cancer patients by gender, in per cent	239
Table 4.29	Site-wise distribution of patient registration by gender, 2017-18	239
Table 4.30	Number of cases refereed to RCC in 2017-18	239
Table 4.31	Central and State Government schemes, 2017-18	240
Table 4.32	Outlay expenditure of science and technology sector, 2013-14 to 2017-18, in ₹ crore	242
Table 4.33	Month-wise foreign tourist arrivals in India and Kerala in 2017, in number	244
Table 4.34	Month-wise arrival of domestic tourists in Kerala in 2016 and 2017	247
Table 4.35	State Plan outlay and expenditure, 2013-14 to 2017-18, in ₹ crore	249
Table 4.36	Centrally sponsored projects sanctioned in 2017-18, in ₹crore	250
Table 4.37	Cargo handled at Cochin Port in 2013-14 to 2017-18, in lakh MT	254
Table 4.38	Export of marine products in India and Kerala 2011-12 to 2017-18, in ₹ crore	255
Table 4.39	Export of cashew kernels, Kerala and India, 2011-12 to 2017-18, in ₹ crore	258
Table 4.40	Export of tea from Kerala ports and India, 2011-12 to 2017-18, in ₹ lakh	261

Table 4.41	Export of spices, India and Kerala, from 2013-14 to 2017-18, in ₹ lakh	261
Table 5.1	Labour market dynamics, Kerala and all India level, 2004-05 to 2015-16	282
Table 5.2	Public sector employment – women participation	293
Table 6.1	Table 6.1 Enrolment of girls and boys at different levels 2017-18	309
Table 6.2	Table 6.2 Health status of women in India and Kerala	309
Table 6.3	Table 6.3 Work Participation Rate of men and women in Kerala	311
Table 6.4	Table 6.4 State-wise distribution of workers according to broad employment status,2011-12, in per cent	312
Table 6.5	Table 6.5 Unemployment rates, 2011-12, in per cent	312
Table 6.6	Table 6.6 Women's participation in decision making	314
Table 6.7	Table 6.7 Women's representation in decision making bodies	315
Table 6.8	Table 6.8 Population of Scheduled Caste and Scheduled Tribes in total population in India and Kerala	320
Table 9.1	Outlay and expenditure in the transport sector in 2017-18 and 2018-19, in ₹ lakh	379
Table 9.2	Department-wise outlay and expenditure of the road transport	379
Table 9.3	Agency-wise distribution of State roads in Kerala in 2016-17 and 2017-18	380
Table 9.4	National Highways (NH) in Kerala	381
Table 9.5	Major projects with State fund, 2017-18, in ₹ crore	382
Table 9.6	Major projects with State fund, 2017-18, in ₹ crore	383
Table 9.7	Outlay and expenditure of motor vehicles department in 2017-18 and 2018-19, in ₹ lakh	388
Table 9.8	Accident trend in Kerala in 2010 -2017	390
Table 9.9	Outlay and expenditure of KSRTC in 2017-18 and 2018-19, in ₹ lakh	392
Table 9.10	Performance appraisal of KRDCL project in 2017-18	395
Table 9.11	Details of Kochi Metro, in ₹ crore	395
Table 9.12	Water Metro-Funding Pattern, ₹ in crore	396
Table 9.13	Cargo traffic in Cochin Ports, in MMT	400
Table 9.14	Outlay and expenditure of port sector, in ₹ lakh	403
Table 9.15	Financial progress, ₹ in crore	406
Table 9.16	Outlay and expenditure of State water transport department in 2017-18 and 2018-19,in ₹ lakh	410
Table 9.17	Outlay and expenditure of inland water transport, in ₹ lakh	411
Table 9.18	List of canals declared as national waterways	411
Table 9.19	Business details of KSINCL in 2016-17 and 2017-18, in ₹ lakh	412
Table 9.20	Details of project works in progress 2018-19, as on October 25, 2018, in ₹ lakh	413
Table 9.21	All India installed capacity as on October 31, 2018	415
Table 9.22	All India installed capacity as on October 31, 2018	415
Table 9.23	Outlay and expenditure in the Annual Plan 2017-18 and Annual Plan 2018-19, in ₹ lakh	417
Table 9.24	KSEBL internal generation	417
Table 9.25	Ongoing hydro electric projects in the State	418

Table 9.26	Table 9.26 Consumption of electricity in Kerala	419
Table 9.27	Transgrid 2.0 project	420
Table 9.28	Outlay and expenditure of ANERT in 2017-18 and 2018-19, in ₹ lakh	425
Table 9.29	Outlay and expenditure of EMC in 2017-18 and 2018-19, in ₹ lakh	426
Table 9.30	Outlay and expenditure of electrical inspectorate in 2017-18 and 2018-19, in ₹ lakh	428
Table 9.31	Rural water supply schemes under various tranches sanctioned so far	437
Table 9.32	Japan International Cooperation Agency assisted water supply projects	437
Table 9.33	Data on homeless population in Kerala and India	441
Table 9.34	Percentage distribution of houses received assistance from housing scheme by present status of house for each household social group	442
Table 9.35	Amount approved by KIIFB, in ₹ crore	448
Table 10.1	Award of development fund for Local Governments, 2012-17, in ₹ crore	454
Table 10.2	Sector-wise share of expenditure to total expenditure in 2016-17 and 2017-18,in per cent	461
Table 10.3	SCSP and TSP release and expenditure, 2016-17 and 2017-18, in ₹ crore	463
Table 10.4	Expenditure for Special Sector Plan in 2017-18, in ₹ crore and per cent	464
Table 10.5	Total number of households and population as per Census 2011, in lakh	465
Table 10.6	Solid waste management – details of fund utilisation, in ₹ lakh	468
Table 10.7	Physical achievements of DAY-NRLM	473
Table 11.1	Freedom from the waste campaign, progress, as on November 30, 2018	480
Table 12.1	Estimation of damage consequent to floods, 2018, in ₹ crore	494

LIST OF BOXES

Sl.No.	Item	Page
Box 1.1	Efficacy of monetary policy of inflation targeting	10
Box 1.2	Sustainable Development Goals (SDGs) index of States in India	20
Box 1.3	E Shakthi	25
Box 1.4	Goods and Services Tax (GST)	32
Box 1.5	The Terms of Reference (ToR) of the 15th Finance Commission and the implications for States	35
Box 1.6	Co-integration between revenue receipts and revenue expenditure	42
Box 2.1	20th Livestock Census	69
Box 2.2	State Cattle Breeding Policy-2018	77
Box 3.1	Encouraging trends in PSUs performance	123
Box 3.2	Ongoing projects initiated by KSIDC	125
Box 3.3	Ongoing projects of KINFRA	128
Box 3.4	MSME data bank	132
Box 3.5	Draft industrial and commercial policy 2017, MSME sector	136
Box 3.6	Kerala bamboo fest 2017	145
Box 3.7	School uniform project	151
Box 3.8	Major schemes and physical achievements in 2017-18	155
Box 3.9	Achievements through State schemes in coir industry in 2017-18	162
Box 3.10	Major developmental activities undertaken in coir sector in 2017-18	162
Box 4.1	National Achievement Survey (NAS), 2017-18	172
Box 4.2	Little KITES IT clubs, India's largest students' ICT network	179
Box 4.3	Hello English, project of Sarva Siksha Abhiyan	180
Box 4.4	DISHA-2017	181
Box 4.5	Sastrayan, festival of knowledge	183
Box 4.6	Production and training centres in polytechnics	187
Box 4.7	Health system response in flood 2018	192

Box 4.8	Non Communicable Diseases in Kerala	199
Box 4.9	The digital divide	217
Box 4.10	Major programmes of KSITM	219
Box 4.11	Academic programmes of IIITM(K)	221
Box 4.12	World Health Organisation (WHO), global initiative for childhood cancer	235
Box 4.13	Jatayu earth centre project	249
Box 4.14	Kerala Tourism Policy 2017, highlights	251
Box 4.15	Major activities of Department of Information and Public Relations (I&PRD), 2017-18	269
Box 5.1	Definitions in Industrial Disputes Act, 1947	277
Box 5.2	Concepts as defined in Industrial Disputes Act, 1947	286
Box 5.3	Employability centre	297
Box 5.4	Innovative steps implemented in 2018-19	301
Box 5.5	Major milestones in 2017-18	302
Box 6.1	Establishment of women and child department in Kerala	313
Box 6.2	Nirbhaya	317
Box 6.3	Sadhayiryam Munnottu	319
Box 6.4	Major institutions under Scheduled Caste Development Department	323
Box 6.5	Major schemes of SC development	324
Box 6.6	Major achievements of SC Development Department in 2017-18	326
Box 6.7	Valsalyanidhi scheme	327
Box 6.8	Flood disaster-2018, physical loss and damages of Scheduled Caste communities	328
Box 6.9	Major schemes of ST Development Department	329
Box 6.10	Institutions under Scheduled Tribes development department	330
Box 6.11	Particularly Vulnerable Tribal Groups (PVTGs) – Tribal Survey 2008	331
Box 6.12	Flood-2018	332
Box 6.13	The Scheduled Castes and the Scheduled Tribes Prevention of Atrocities Amendment Act, 2018	335
Box 6.14	ANUYATRA-M Power	342
Box 6.15	Scheme for transgender	344
Box 7.1	Initiatives taken by Archives Department to restore damages due to floods	356
Box 7.2	Sports Act, 2000	362
Box 8.1	Loka Kerala Sabha	372
Box 9.1	Major initiatives of PWD, roads and bridges in 2017-18	381
Box 9.2	Major activities of RICK in 2017-18	384
Box 9.3	Major activities of DRIQ board and KHRI in 2017-18	386
Box 9.4	Major internal indicators of KSRTC, in 2017-18	392
Box 9.5	Policy on electric mobility	393
Box 9.6	Vega 120	409
Box 9.7	Modern hydraulic silt pusher	413

Box 9.8	Filament free Kerala	426
Box 9.9	Jagratha programme	427
Box 9.10	Major activities of Kerala postal circle	431
Box 9.11	Status of telecom sector in Kerala as on March 31, 2017	432
Box 9.12	Impact of 2018 floods in drinking water and sanitation	438
Box 9.13	Adverse impact of floods, 2018 in the housing sector	446
Box 10.1	State of democratic decentralisation in India, experts' view	456
Box 10.2	Silver jubilee declaration on Panchayati Raj, Thiruvananthapuram, April 25, 2018	457
Box 10.3	Flood related activities of MGNREGA scheme	472
Box 12.1	Trends in southwest monsoon, extreme events	492
Box 12.2	Dams and floods – findings by researchers	493
Box 12.3	Role of Kudumbashree during floods, 2018	494
Box 12.4	Post-flood scenario: initiatives by university students and teachers	495
Box 12.5	Co-operative alliance to rebuild Kerala, CARe Kerala	496

LIST OF FIGURES

Sl.No.	Item	Page
Figure 1.1	Growth rate of GSDP at constant (2011-12) prices, Kerala, in per cent	6
Figure 1.2	Per capita NSDP and per capita NDP at constant 2011-12, prices in ₹	7
Figure 1.3	Sectoral distribution of GSVA current and constant 2017-18 at basic prices, in per cent	8
Figure 1.4	Price received and price paid by farmers	12
Figure 1.5	Proportion of child population in Kerala, per cent	15
Figure 1.6	Age group distribution Kerala 1961-2011, in per cent	16
Figure 1.7	The growth of bank deposit in Kerala from 2009-2017	22
Figure 1.8	District-wise distribution of deposits and credit of scheduled commercial banks in Kerala as on March 2018	26
Figure 1.9	Growth rate of revenue receipts, in per cent	31
Figure 1.10	State's non tax revenues, with and without lotteries as a proportion of GSDP, in per cent	33
Figure 1.11	Proportion of flexible and tied grants in central resource transfer	34
Figure 1.12	Growth rate of revenue expenditure, in per cent	37
Figure 1.13	Proportion of salary, pension and interest in revenue expenditure	38
Figure 2.1	Southwest monsoon rainfall received from June 1 to September 30, 2018	50
Figure 2.2	Northeast monsoon rainfall from 1st October to 31st December 2018	51
Figure 2.3	Land use pattern of Kerala 2017-18	52
Figure 2.4	Season-wise area and production of rice in Kerala, 2015-16 to 2017-18	53
Figure 2.5	Agriculture advances in Kerala, 2013-14 to 2017-18	61
Figure 2.6	Share of production and investment credit in total agriculture credit in Kerala	62
Figure 2.7	Sub-sector-wise ground level investment credit disbursed	62
Figure 2.8	Agency-wise, sub-sector-wise flow of investment credit	63
Figure 2.9	Production of milk, egg, and meat during 2012-13 to 2017-18	70
Figure 2.10	Species-wise milk production in Kerala (2017-18)	71

Figure 2.11	Species-wise poultry production in Kerala	72
Figure 2.12	Backyard poultry in India and Kerala	72
Figure 2.13	Details of species-wise meat production in Kerala	73
Figure 2.14	Trend in average prices of livestock products from 2012-13 to 2017-18	76
Figure 2.15	Fish production in Kerala, 2013-14 to 2017-18	79
Figure 2.16	Fish production in India and Kerala, share of marine and inland fishing	80
Figure 2.17	Fishing harbours in Kerala	83
Figure 2.18	Live storage position in the reservoirs, 2016-2018	86
Figure 2.19	District-wise forest cover, area in sq km	92
Figure 2.20	Forest revenue in Kerala, 2012-13 to 2017-18	95
Figure 2.21	Annual average values of air pollutants at 10 monitoring stations in residential areas of Kerala 2017	97
Figure 2.22	Annual average values of air pollutants at 3 monitoring stations in 'Sensitive' area of Kerala 2017	98
Figure 2.23	Annual average values of air pollutants at 11 monitoring stations in 'Industrial' areas of Kerala 2017	98
Figure 2.24	Biological Oxygen Demand levels at selected river stations for 2012 and 2017	99
Figure 2.25	Category-wise card holders in Kerala as on 30-11-2018, in per cent	104
Figure 2.26	Mid-day meal programme 2011-12 to 2018-19 (up to August 31, 2018)	107
Figure 3.1	Growth rate of gross value added, at constant prices, in per cent	115
Figure 3.2	Annual rates of growth of manufacturing sector in Kerala, at constant prices, in per cent	116
Figure 3.3	Annual rates of growth of income from mining and quarrying sector in Kerala, in per cent	117
Figure 3.4	Share of Kerala in investment by Central PSUs, in percent	120
Figure 3.5	Performance trend of PSUs under Industries Department	120
Figure 3.6	Value of production and turnover of State PSUs under Industries Department, GoK	121
Figure 3.7	Net profit/loss made by State PSUs under industries department	122
Figure 3.8	Distribution of estimated MSMEs by nature of activity, in per cent	131
Figure 3.9	Number of micro, small and medium units registered under manufacturing and services sector for the year 2017-18	133
Figure 3.10	Production and value of production in the handloom sector	149
Figure 3.11	Employment generated in the handloom sector	149
Figure 3.12	Export of coir and coir products by State PSUs, 2013-14 to 2017-18, in lakh	160
Figure 3.13	Growth rates of export of State PSUs and National PSUs in coir sector, in percent	161
Figure 3.14	Shares of selected countries in total cashew production in the world	163
Figure 3.15	Shares of different States in raw cashew nuts production in India	164
Figure 3.16	Area under cultivation and production of cashew in Kerala	165
Figure 4.1	Management-wise number of schools in the State, 2017-18	174
Figure 4.2	Stage-wise enrolment of students in schools in Kerala, in lakh	175
Figure 4.3	Sex-wise enrolment of students to degree courses	182

Figure 4.4	Per cent of SC/ST students in degree and PG courses	184
Figure 4.5	Growth of built up space in Technopark	223
Figure 4.6	Number of companies in Technopark	223
Figure 4.7	Export from Technopark	224
Figure 4.8	Growth of employment	224
Figure 4.9	Achievements of KSCSTE research fellows in 2017-18	233
Figure 4.10	Speciality clinic-wise number of new patients registered in 2017-18	237
Figure 4.11	Age and gender-wise new cases registered in 2017-18	238
Figure 4.12	Number of cases referred to RCC in 2017-18, in per cent	240
Figure 4.13	Annual growth rates in the arrival of foreign tourists in India and Kerala from 2008 to 2017, in per cent	243
Figure 4.14	Month-wise comparison of foreign tourist arrival in Kerala from 2008 to 2017, in number	245
Figure 4.15	Share of foreign tourist arrival from top ten countries of the world to Kerala during 2016 and 2017, in per cent	245
Figure 4.16	Region-wise foreign tourist visits in Kerala in 2017, in per cent	246
Figure 4.17	Month-wise arrival of domestic tourists in Kerala from 2008 to 2017, in number	247
Figure 4.18	Share of domestic tourist arrival from top ten States to Kerala during 2016 and 2017, in per cent	247
Figure 4.19	Region-wise domestic tourist visits in Kerala in 2017, in per cent	248
Figure 4.20	Total revenue generated from tourism during 2008 to 2017, in ₹ crore	248
Figure 4.21	Trend in the quantity of export of marine products, India and Kerala, 2011-12 to 2017-18	255
Figure 4.22	Market share of item-wise export of marine products from India 2017-18, in per cent	256
Figure 4.23	Item-wise export of marine products from Kerala 2017-18, in per cent	256
Figure 4.24	India's market-wise export of marine products 2017-18, in per cent	257
Figure 4.25	Kerala's market-wise export of marine products 2017-18, in per cent	257
Figure 4.26	Trend in export of cashew kernels from India and Kerala in terms of quantity (MT)	258
Figure 4.27	Item-wise export of coir and coir products from India 2017-18, in per cent	259
Figure 4.28	Export trend of coir and coir products from India and Kerala through Cochin Port, from 2012-13 to 2017-18, quantity in lakh MT	260
Figure 4.29	Trend in growth of export of spices and spice products from India and Kerala, 2014-15 to 2017-18, in quantity in per cent	262
Figure 4.30	No. of FMB sheets scanned 2015-2017	264
Figure 5.1	Average daily wage rate of male agricultural workers in rural Kerala, as on August 2018, in ₹	274
Figure 5.2	Average daily wage rate of female agricultural workers in rural Kerala, as on August 2018, in ₹	274
Figure 5.3	Wage gap among male and female rural agricultural workers, in per cent	275
Figure 5.4	Average daily wage rate of non-agricultural workers in rural Kerala, in ₹	275
Figure 5.5	Growth rate of wages in Kerala from August 2017 to August 2018, in per cent	276

Figure 5.6	Person-days lost due to strikes, in number	276
Figure 5.7	Person-days lost due to lockouts in Kerala, in number	277
Figure 5.8	Person-days lost due to lay off, in number	278
Figure 5.9	Number of working factories in Kerala	278
Figure 5.10	Number of factory workers	278
Figure 5.11	Industrial disputes, 2011-2012 to 2017-2018	279
Figure 5.12	Rate of industrial settlements	279
Figure 5.13	District-wise Employees State Insurance dispensaries in Kerala	280
Figure 5.14	State-wise details of migrant workers in Kerala, in per cent	281
Figure 5.15	District-wise inter-State migrant workers in Kerala, in per cent	282
Figure 5.16	Labour Force Participation Rate for persons aged above 15 as per usual principal status	284
Figure 5.17	State-wise female labour force participation rate, in per cent	285
Figure 5.18	Worker Population Ratio for persons aged above 15 as per usual principal status	285
Figure 5.19	Gender gap among self-employed persons in labour force, in per cent	287
Figure 5.20	Workers available for twelve months but actually worked, in per cent	287
Figure 5.21	Workers available for twelve months but actually worked, gender-wise, in per cent	287
Figure 5.22	Workers other than self-employed availing of social security, in per cent	288
Figure 5.23	Casual workers receiving paid leave and social security, in per cent	288
Figure 5.24	Unemployment rate in major States in India (Usual Principal Status Approach), in per cent	290
Figure 5.25	Unemployment rate in Kerala, in per cent	291
Figure 5.26	Unemployment rate of the youth in Kerala and India as per UPSS approach	292
Figure 5.27	Employment in the organised sector, Kerala, in lakh	292
Figure 5.28	Distribution of employment in the public sector	293
Figure 5.29	Major sectoral distribution of employment in the organised sector, March 2018, in per cent	294
Figure 5.30	Work seekers in Kerala, in lakh	295
Figure 5.31	Work seekers in Kerala, qualification-wise, in lakh	295
Figure 5.32	Job seekers in Kerala as on October 31, 2018, status of men and women	296
Figure 5.33	Details of placement through employment exchanges in Kerala, 2008 to 2017, in numbers	298
Figure 6.1	Gender gap in literacy, all India and Kerala	308
Figure 6.2	Indicators of maternal care	310
Figure 6.3	Labour Force Participation Rate for Kerala and India, in per cent, urban and rural, PS+SS	311
Figure 6.4	Average wage/salary received per day by regular wage/salaried employees of age 15-59 years, in ₹ crore	313
Figure 6.5	Number of total crimes	316
Figure 6.6	Population of SCs and STs to total population in Kerala, in per cent	320

Figure 6.7	SCSP/TSP, year-wise outlay, in ₹ crore	322
Figure 6.8	Housing programmes undertaken by SC Department 2013-18, in ₹lakh	325
Figure 6.9	Persons who received treatment grant from SC Department 2014-15 to 2017-18	325
Figure 6.10	Outlay and expenditure on housing programmes undertaken by ST Development Department from 2012-13 to 2018-19	330
Figure 6.11	Allocation and expenditure under corpus fund, 2012-13 to 2018-19, ₹ in crore	331
Figure 6.12	Number of victims registered under Atrocities Act and compensation granted to SCs 2013-14-2017-18, in ₹ lakh	334
Figure 6.13	Number of victims registered under Atrocities Act and compensation granted to STs 2013-14 to 2017-18, in ₹ lakh	334
Figure 6.14	Beneficiaries of pension schemes in Kerala through Local Governments up to November 2018, in per cent	340
Figure 8.1	District-wise NRKs in Kerala	368
Figure 8.2	Trends of District-wise NRKs in Kerala 2013-2018	368
Figure 8.3	District-wise emigration from Kerala	369
Figure 8.4	District-wise proportion of emigrants from Kerala	369
Figure 8.5	Number of return emigrants in Kerala	370
Figure 8.6	District-wise trends of return emigrants 2013 - 2018	370
Figure 8.7	Country-wise destination of emigrants from Kerala, in per cent	371
Figure 8.8	District-wise NRKs working in different jobs in 2013	371
Figure 9.1	Growth of motor vehicles since last ten years	387
Figure 9.2	Distribution of motor vehicles registered by type in 2017-18	388
Figure 9.3	Trend of motor vehicle accidents in Kerala	390
Figure 9.4	Details of road accident by vehicle type in Kerala, in 2017-18	391
Figure 9.5	Cargo traffic in major ports in India 2007-2018	399
Figure 9.6	Cargo traffic in southern major ports of India, 2007 to 2018	399
Figure 9.7	Commodity-wise exports through Cochin Port in 2017-18, quantity in MT	400
Figure 9.8	Commodity-wise imports through Cochin Port in 2017-18, quantity in MT	400
Figure 9.9	Trend of cargo handled at non-major ports of Kerala	402
Figure 9.10	Installed capacity, mega watt	416
Figure 9.11	Electrical energy consumption in Kerala	419
Figure 9.12	Aggregate Technical and Commercial (AT&C) losses, and transmission and distribution losses, in per cent	422
Figure 10.1	Local Government Plans: share of various sources in the total expenditure-2016-17 and 2017-18, in per cent	458
Figure 10.2	Performance of various Local Governments with regard to utilisation of the Development Fund, 2016-17 and 2017-18, in per cent	459
Figure 10.3	Category-wise expenditure of Local Governments in 2017-18,in per cent to released amounts	460
Figure 10.4	Sector-wise share of total expenditure incurred by Local Governments under Development Fund, in per cent	460

Figure 10.5	Sector-wise share of expenditure to total expenditure during 2016-17 and 2017-18,in per cent	461
Figure 10.6	Sub sector-wise expenditure share of productive sector in 2017-18, in per cent	462
Figure 10.7	Sub-sector expenditure share of service sector in 2017-18, in per cent	462
Figure 10.8	Sub- sector expenditure share of infrastructure sector in 2017-18, in per cent	463
Figure 10.9	Details of roads completed under PMGSY scheme, length in km	470
Figure 10.10	Person days generated in Kerala under MGNREGA scheme from 2013-14 to 2017-18,in crore	471
Figure 10.11	Details about material cost and skilled wages under MGNREGA scheme of Kerala from 2014-15 to 2017-18, in ₹ crore	472
Figure 11.1	Enrolment of students	483
Figure 12.1	Three day cumulative rainfall of August 15-17, 2018	490

CHAPTER

01

KERALA ECONOMY

CHAPTER 01

Kerala Economy

Recent Trends in Macro-Economic Aggregates

"In conceptual terms, gross domestic product is a product, although in mathematical terms it is actually a sum total. The idea of GDP is based on the supposition that one can grasp all the goods produced and services provided in a country as a single aggregate asset, the monetary value of which can be calculated. This also explains why the term is used in the singular and one never talks of a country's "gross domestic products" (Lepenies 2016).

Global Economic Scenario

As we enter the year 2019, the outlook for economic growth in the major capitalist countries is one of a slowdown in 2019-20 and a possible global recession of some severity. Roberts (2018) points out that 2018 has ended with real GDP growth starting to slow nearly everywhere. It has further been pointed that: ". . . the leading European economies, France and Germany, have slowed, while the weaker ones like Italy have slipped back into recession. UK real GDP growth is also dropping fast as companies apply an investment strike due to uncertainty over Brexit. The Eurozone economy is now growing at only 1.6 per cent compared to nearly double that rate this time last year." (*ibid*.) Japan, the only G7 country from Asia, saw stagnation in GDP in the third quarter of 2018. (*ibid*.)

Since the global financial and economic crisis of 2008, the rates of economic growth of the advanced countries have been very modest. In some years and in some countries, growth rates have been close to zero or even marginally negative. Though the US economy has seen significant growth in the last year and may continue to grow in 2019 as well, Hatzius *et. al* (2018), "Beyond 2019, the risk of a global recession is likely to rise . . . ." The global economic expansion under way since 2016 " . . . has become less balanced and may have peaked in some major economies." (IMF 2019) At the end of 2018, stock markets suffered the deepest fall since the global financial crash in 2008 (Roberts 2018).

A feature of the global economy over the last three decades and more has been the dominance of finance capital, and its relatively unregulated movement across country borders, together with unrestrained financial liberalisation. The dominance of finance capital has led to the pursuit of neoliberal policies that have greatly increased economic inequality both within nations and among nations. Increasing inequality has dampened economic growth everywhere. The crisis of profitability has also been an important factor in the frequent recurrence of downturns. The decade since the global economic crisis of capitalism that burst upon the world in 2008 has been characterised not only by slow growth and frequent downturns, but also by persistent unemployment and weakening of social protection for working people as a result

of the pursuit of policies of austerity. This decade has also seen the rise once again of serious macroeconomic vulnerabilities, an expression of which is the sharp rise in both public and private debt. As the Secretary-General of United Nations Conference on Trade and Development (UNCTAD, Mukhisa Kituyi has pointed out, *"Private debt has exploded, especially in emerging markets and developing countries, whose share of global debt stock increased from 7 per cent in 2007 to 26 per cent in 2017, while the ratio of credit to non-financial corporations to GDP in emerging market economies increased from 56 per cent in 2008 to 105 per cent in 2017. Vulnerability is reflected in cross-border capital flows, which have not just become more volatile but turned negative for emerging and developing countries as a group since late 2014, with outflows especially large in the second quarter of 2018"* (Kituyi Mukhisa 2018). These make the developing countries particularly vulnerable to economic shocks.

The Bank for International Settlements (BIS) has also warned that the global economy may see a severe credit crunch (Roberts 2018).

The other important risk to the prospects of global economic growth comes from the aggressive protectionism and trade war that the US has sought to unleash on its major trading partner China. Though there is a temporary truce, the issue may flare up before long, and will have international implications.

The general point is that growth prospects for the advanced capitalist economies are uncertain and fraught with serious problems. The risks of a recession in 2020 have increased. All these have negative consequences for the developing countries. This weakening of an expansion of the advanced economies has implications for India and Kerala. Export markets for Indian products may be affected. The outlook for primary commodity prices remains uncertain. The slowdown in the advanced economies may have some negative implications for remittances into India from Indian workers and professionals abroad. The continuing rise in interest rates in the US as part of the reversal of monetary easing will lead to significant outflow of portfolio capital from India.

One policy implication of the scenario described above is that economic growth in India will require a more active role for the state in undertaking public investments in infrastructure including in the domain of human resources. This demands the reversal of the policy regime in place since the economic liberalisation of the 1990s which has been characterised by a reduction in Central Government spending as a share of GDP along with an erosion of the financial powers of the States through implementation of uniform rates through Goods and Services Tax (GST) and likely further incursion into States' autonomy implicit in the Terms of Reference for the 15th Finance Commission.

An important lesson, however, from the global and national impact of neoliberal policies pursued for many years now, is that for the growth that occurs to be sustainable, issues of inequality have to be addressed. Despite the limited powers of a State Government in the Indian polity and economy, the present Government in Kerala has been trying to address these issues, with some modest success. It is to be hoped that, in the midst of this global and all-India situation, the State of Kerala will still be able to make further progress on a path that delivers both better growth and contributes to lessening inequalities and enhancing welfare.

The Indian Context

The Central Statistics Office (CSO), Ministry of Statistics and Programme Implementation (MoSPI), has released the estimates of national income for the financial year 2017-18 both at constant (2011-12) and current prices. The Gross National Income (GNI) at 2011-12 prices is estimated at ₹128.64 lakh crore in 2017-18, as against the previous year's estimate of ₹120.51 lakh crore. In terms of growth rates, the gross national income has increased 6.7 per

cent in 2017-18, compared to 7.1 per cent in 2016-17. In 2017-18 the GNI at current prices grew 10 per cent to ₹165.87 lakh crore from ₹150.77 lakh crore a year earlier. The Net National Income (NNI) at current prices is estimated at ₹148.49 lakh crore in 2017-18, compared to ₹134.92 lakh crore in 2016-17, an increase of 10.1 per cent. Details are given in Table 1.1.

The Gross Value Added (GVA) at basic constant (2011-12) prices for 2017-18 is estimated at ₹119.76 lakh crore, a 6.5 per cent growth over the GVA for 2016-17 at ₹112.47 lakh crore. The GVA at current prices is estimated at ₹151.82 lakh crore in 2017-18, compared to ₹138.41 lakh crore in 2016-17, an increase of 9.7 per cent.

The GDP at constant (2011-12) prices for 2017-18 is estimated at ₹130.10 lakh crore, 6.7 per cent growth over ₹121.96 lakh crore in 2016-17. The GDP at current prices in 2017-18 is estimated at ₹167.73 lakh crore, showing a growth rate of 10 per cent over the estimates of GDP for 2016-17 at ₹152.53 lakh crore. The per capita GDP in real terms (at 2011-12 prices) in 2017-18 is estimated at ₹98,867 as against ₹93,888 in 2016-17, registering an increase of 5.3 per cent. The per capita GDP at current prices is estimated at ₹1,27,456 in 2017-18 as against ₹1,17,427 for the previous year, showing a growth of 8.5 per cent.

The details of GDP, NDP, GNI and NNI at current and constant (2011-12) prices from 2012-13 to 2017-18 with percentage change over the previous year are given in Appendix 1.1, 1.2, 1.3 and 1.4. The sector-wise distribution of GVA at the basic constant (2011-12) prices and current prices with percentage change over the previous year is given in Appendix 1.5 and 1.6.

Trends in Kerala's Economic Growth

The quick estimate of Gross State Domestic Product (GSDP) at constant (2011-12) prices is ₹5,13,69,589 lakh in 2017-18 as against the provisional estimate of ₹4,79,28,990 lakh in 2016-17, registering a growth rate of 7.18 per cent in 2017-18 compared to 6.22 per cent in 2016-17 (Figure 1.1). At current prices, the GSDP is estimated at ₹6,86,76,443 lakh (quick estimate) in 2017-18 as against the provisional estimate of ₹6,16,35,704 lakh in 2016-17 showing a growth rate of 11.42 per cent.

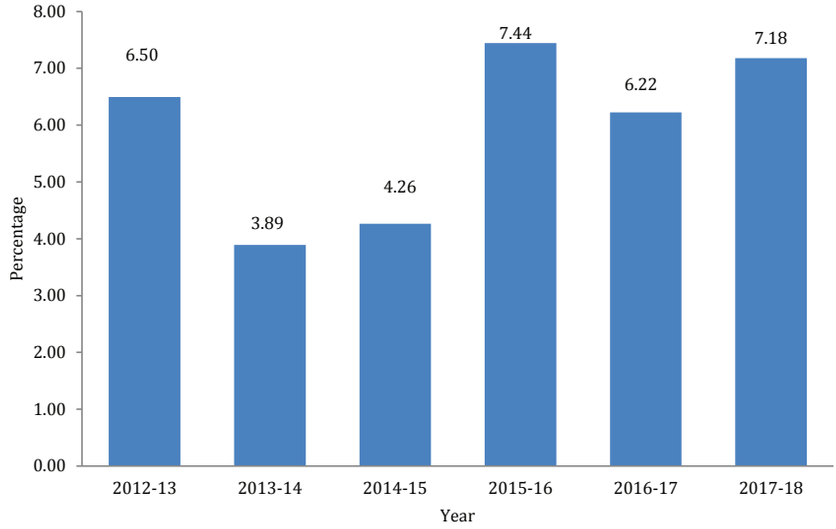
The quick estimate of Net State Domestic Product (NSDP) at factor cost at constant prices

Table 1.1 Gross National Income, Gross Domestic Product and per capita income at 2011-12 prices and current prices, all India, in ₹ crore

Sl. No	Item	At 2011-12 Prices			At Current Prices		
		2015-16	2016-17	2017-18 (PE)	2015-16	2016-17	2017-18 (PE)
1	GVA at basic prices	1,05,03,348	1,12,47,629 (7.1)	1,19,76,155 (6.5)	1,25,66,646	1,38,41,591 (10.1)	1,51,82,371 (9.7)
2	Gross National Income (GNI)	1,12,51,420	1,20,51,525 (7.1)	1,28,64,227 (6.7)	1,36,04,258	1,50,77,384 (10.8)	1,65,87,278 (10.0)
3	Net National Income (NNI)	9,985,060	1,06,81,594 (7.0)	1,14,05,563 (6.8)	1,21,54,034	1,34,92,657 (11.0)	1,48,49,045 (10.1)
4	Gross domestic product (GDP)	1,13,86,145	1,21,96,006 (7.1)	1,30,10,843 (6.7)	1,37,64,037	1,52,53,714 (10.8)	1,67,73,145 (10.0)
5	Net domestic product (NDP)	1,01,19,785	1,08,26,074 (7.0)	1,15,52,178 (6.7)	1,23,13,813	1,36,68,987 (10.8)	1,50,34,912 (10.0)
6	Per capita Gross Domestic Product (₹)	88,746	93,888 (5.8)	98,867 (5.3)	107,280	117,427 (9.5)	127,456 (8.5)
7	Per capita Net domestic product (₹)	78,876	83,342 (5.6)	87,783 (5.3)	95,976	1,05,227 (9.6)	1,14,248 (8.5)

Note: The figures in parenthesis shows the percentage change over the previous year.
PE- Provisional Estimate
Source: Central Statistics Office.

Figure 1.1 Growth rate of GSDP at constant prices 2011-12, Kerala, in per cent



Source: Department of Economics and Statistics

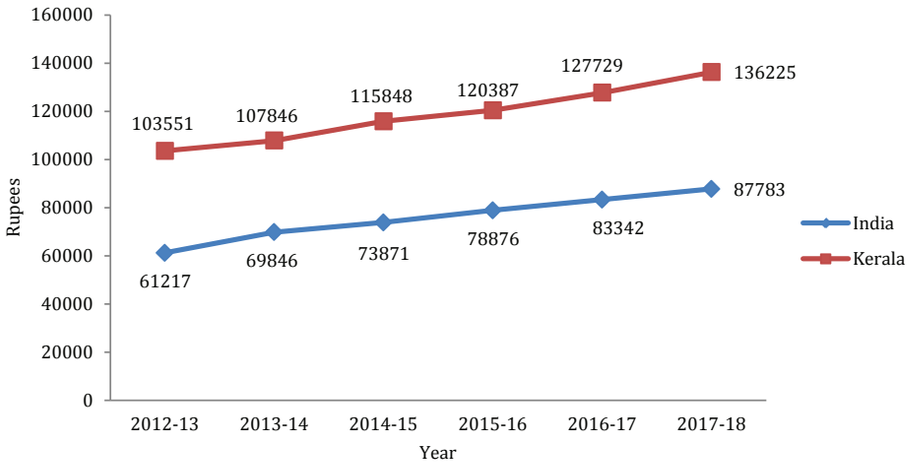
Table 1.2 State domestic product and per capita income of Kerala

Sl. No	Item	Income (₹ Lakh)			Growth Rate (%)	
		2015-16	2016-17 (P)	2017-18 (Q)	2016-17 (P)	2017-18 (Q)
1	**Gross State Domestic Product**					
	a) At Constant (2011-12) prices	4,51,21,002	4,79,28,990	5,13,69,589	6.22	7.18
	b) At Current prices	5,61,99,361	6,16,35,704	6,86,76,443	9.67	11.42
2	**Net State Domestic Product**					
	a) At Constant (2011-12) prices	4,11,15,015	4,38,39,422	4,69,88,233	6.63	7.18
	b) At Current prices	5,05,90,997	5,55,95,370	6,19,23,259	9.89	11.38
3	**Per Capita GSDP (₹)**					
	a) At Constant (2011-12) Prices	1,32,116	1,39,645	1,48,927	5.70	6.65
	b) At Current Prices	1,64,554	1,79,580	1,99,101	9.13	10.87
4	**Per Capita NSDP (₹)**					
	a) At Constant (2011-12) Prices	1,20,387	1,27,729	1,36,225	6.10	6.65
	b) At Current Prices	1,48,133	1,61,981	1,79,523	9.35	10.83

Source: Department of Economics and Statistics
P: Provisional Estimate, Q: Quick Estimate

(2011-12) is ₹4,69,88,233 lakh in 2017-18 compared to the provisional estimate of ₹4,38,39,422 lakh in 2016-17, recording a growth rate of 7.18 per cent in 2017-18. At current prices, the NSDP is estimated at ₹6,19,23,259 lakh (quick estimate) in 2017-18 compared to the provisional estimate of ₹5,55,95,370 lakh in 2016-17. The growth rate of NSDP at current prices is 11.38 per cent in 2017-18 compared to 9.89 per cent in 2016-17. Details are given in Table 1.2.

Figure 1.2 Per capita NSDP and per capita NDP at constant 2011-12, prices in ₹



Source: Central Statistics Office and Department of Economics and Statistics
NSDP- Net State Domestic Product, NDP- Net Domestic Product

Per Capita State Income

As per the quick estimates, the per capita GSDP at constant (2011-12) prices in 2017-18 was ₹1,48,927 as against the provisional estimate of ₹1,39,645 in 2016-17, recording a growth rate of 6.65 per cent in 2017-18. At current prices, the per capita GSDP in 2017-18 was ₹1,99,101 registering a growth rate of 10.87 per cent over the previous year's estimate of ₹1,79,580. At constant (2011-12) prices, the quick estimates of per capita NSDP in 2017-18 was ₹1,36,225 as against the provisional estimate of ₹1,27,729 in 2016-17, recording 6.65 per cent growth in 2017-18. Figure 1.2 shows that between 2012-13 and 2017-18, the per capita NSDP at constant prices was higher than the per capita NSDP at all India level.

Sectoral Distribution of Gross State Value Added (GSVA)

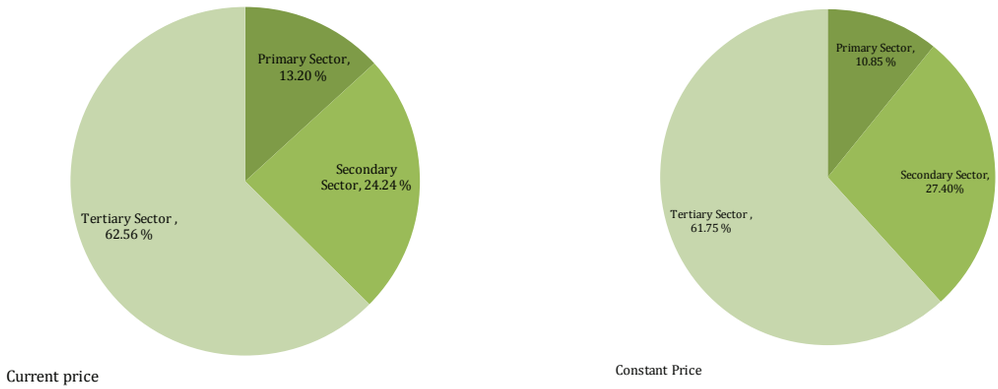
In 2017-18, the contribution from primary, secondary and tertiary sectors to the GSVA at constant prices (2011-12) was 10.85 per cent, 27.40 per cent and 61.75 per cent respectively. At current prices, the primary, secondary and tertiary sectors contributed 13.20 per cent, 24.24 per cent, and 62.56 per cent respectively to the GSVA in this period. Details are given in Figure 1.3.

The contribution to GSVA (at current prices) of the tertiary sector and primary sector slightly increased from 62.35 per cent in 2016-17 to 62.56 per cent in 2017-18 and from 13.14 per cent in 2016-17 to 13.20 per cent in 2017-18. In the corresponding period, the contribution of the secondary sector declined from 24.51 to 24.24 per cent.

The analysis of annual sectoral growth rate of GSDP shows that secondary sector recorded the highest rate of growth of 6.52 per cent in 2017-18 at constant (2011-12) prices followed by tertiary sector (5.84 per cent) and primary sector (5.09 per cent). At current prices, the tertiary sector grew 10.75 per cent, primary sector 10.88 per cent and secondary sector 9.14 per cent in 2017-18.

The details of the sectoral distribution of GSVA in the last three years are given in Appendix 1.7 and 1.8. GSDP with percentage change over the previous year during the last three year is given in Appendix 1.9 and the details of GSVA, NSVA at

Figure 1.3 Sectoral distribution of GSVA current and constant 2017-18 at basic prices, in per cent



Source: Department of Economics and Statistics

Table 1.3 District-wise distribution of gross state value added

Sl. No	District Name	Gross State Value Added at Basic Price (₹ in Lakh)					
		At Current Prices			At Constant Prices		
		2016-17 (P)	2017-18 (Q)	Growth Rate (%)	2016-17 (P)	2017-18 (Q)	Growth Rate (%)
1	Thiruvanantha-puram	57,58,627	66,73,985	15.9	44,30,535	49,87,667	12.57
2	Kollam	50,19,580	57,00,584	13.57	38,38,210	42,19,147	9.92
3	Pathanamthitta	16,76,705	17,91,694	6.86	12,57,748	13,12,928	4.39
4	Alappuzha	39,58,230	43,29,246	9.37	30,75,291	32,95,183	7.15
5	Kottayam	34,38,994	37,46,874	8.95	27,50,556	28,80,198	4.71
6	Idukki	20,39,381	21,17,065	3.81	14,44,605	15,01,022	3.91
7	Ernakulam	69,04,548	74,86,789	8.43	54,35,176	56,82,082	4.54
8	Thrissur	54,71,281	59,99,079	9.65	42,23,847	44,22,083	4.69
9	Palakkad	40,61,074	43,43,604	6.96	30,74,134	30,91,906	0.58
10	Malappuram	53,51,303	60,17,802	12.45	40,85,393	43,67,750	6.91
11	Kozhikode	46,52,059	51,81,664	11.38	35,87,776	37,19,432	3.67
12	Wayanad	11,33,809	12,36,536	9.06	8,13,572	8,65,101	6.33
13	Kannur	39,04,893	42,98,716	10.09	30,49,817	31,60,540	3.63
14	Kasaragod	19,30,886	21,14,086	9.49	14,79,208	15,69,461	6.1
	GSVA	5,53,01,370	6,10,37,724	10.37	4,25,45,868	4,50,74,499	5.94

Source: Department of Economics and Statistics, (P: Provisional Q: Quick)

Table 1.4 District-wise per capita Gross State Value Added at basic price, constant prices, 2011-12

Sl. No.	District	2016-17 (P) ₹	Rank	2017-18 (Q) ₹	Rank	Growth Rate (%)
1	Thiruvananthapuram	1,32,694	5	1,49,074	4	12.34
2	Kollam	1,44,110	2	1,58,109	2	9.71
3	Pathanamthitta	1,06,793	11	1,11,814	11	4.7
4	Alappuzha	1,43,833	3	1,53,982	3	7.06
5	Kottayam	1,38,487	4	1,44,860	5	4.6
6	Idukki	1,31,568	7	1,36,953	7	4.09
7	Ernakulam	1,60,625	1	1,66,996	1	3.97
8	Thrissur	1,31,785	6	1,37,306	6	4.19
9	Palakkad	1,05,216	12	1,05,076	12	-0.13
10	Malappuram	92,673	14	97,836	14	5.57
11	Kozhikode	1,11,890	9	1,15,193	9	2.95
12	Wayanad	97,039	13	1,02,711	13	5.84
13	Kannur	1,17,844	8	1,21,559	8	3.15
14	Kasaragod	1,08,136	10	1,13,793	10	5.23
	State	**1,23,960**		**1,30,677**		**5.42**

P: Provisional
Q: Quick
Source: Department of Economics and Statistics

constant and current prices during 2011-12 to 2017-18 are given at Appendix 1.10, 1.11, 1.12, and 1.13.

District-Wise GSVA

District-wise distribution of GSVA at the basic price at current prices shows that Ernakulam District continues to have the highest income of ₹ 74,86,789 lakh in 2017-18 as against ₹69,04,548 lakh in 2016-17, registering a growth rate of 8.43 per cent. At constant (2011-12) prices, this amounts to ₹56,82,082 lakh in 2017-18 compared to ₹54,35,176 lakh in 2016-17. The District-wise GSVA details are given in Table 1.3.

District-Wise Per Capita Income (GSVA)

The analysis of District-wise per capita income reveals that Ernakulum District continues to stands first with the per capita income of ₹1,66,996 at constant (2011-12) prices in 2017-18 against ₹1,60,625 in 2016-17. The District-wise per capita income with corresponding rank and growth rate is given in Table 1.4.

Table 1.4 reveals that the Districts of Kollam, Alappuzha, Malappuram, Thiruvananthapuram, Wayanad had a much higher growth than the State average growth rate in per capita income in 2017-18. However, the Districts of Palakkad, Kozhikode, Ernakulam, Kottayam, Idukki, Thrissur, and Pathanamthitta Districts showed lower per capita income growth compared to the State average growth. District-wise and sectoral distribution of GSVA from 2015-16 to 2017-18 at current and constant (2011-12) prices are given in Appendix 1.14, 1.15, 1.16, 1.17, 1.18 and 1.19.

Inflation – Recent Trends

All India

Commodity price trends are affected by demand and supply-side factors. Disruptions in the supply chain and exploitation by middlemen result in

price rises more often than demand-side factors like rising money supply. Inflation targeting is now the prime objective of the Reserve Bank of India (RBI) and the target band is 2 to 6 per cent with a median rate of 4 per cent. Presently, the Monetary Policy Committee (MPC) headed by the Governor of the RBI, decides on the quarterly credit policy factoring in inflationary expectations. But it needs to be taken note that with several supply-side bottlenecks, inflation in India is not always a monetary phenomenon. The official Wholesale Price Index (WPI) for 'All Commodities (Base: 2011-12=100) for September 2018 rose 0.7 per cent to 120.8 (provisional) from 120.0 (provisional) in August 2018. The annual rate of inflation, based on monthly WPI, stood at 5.13 per cent (provisional) for September 2018 over September 2017. It was higher compared to 4.53 per cent (provisional) in August 2018 and 3.14 per cent in August 2017. Build up inflation rate in the financial year so far was 3.87 per cent compared to a build-up rate of 1.50 per cent in the corresponding period of the previous year.

The index for 'Food Articles' group declined 0.2 per cent to 144.5 (provisional) in September 2018 from 144.8 (provisional) in August 2018 due to lower price of fish-marine (12 per cent), egg and urad (3 per cent each), gram and ragi (2 per cent each) and fruits and vegetables and peas/chawali (1 per cent each). However, the price of betel leaves (18 per cent), tea and pork (4 per cent each), beef and buffalo meat and bajra

Box 1.1 Efficacy of monetary policy of inflation targeting

The following are excerpts from Working Paper No 07/2016 from "Inflation-Forecast Targeting for India: An Outline of the Analytical Framework", RBI Working Paper series, Department of Economic and Policy Research, November, 2016

"The move towards a flexible inflation targeting framework was formalised through an agreement between the RBI and the Government in February 2015. As the economy remained within the path of broad-based disinflation, with a view to support growth, in a scenario of renewed concerns on the strength of recovery of global economy, the policy repo rate was reduced by 150 bps during January 2015 to April 2016.The Finance Act 2016 of May 2016 amended the Reserve Bank of India Act, 1934 to state price stability as the primary objective of the monetary policy, adoption of flexible inflation targeting with CPI as the nominal anchor for monetary policy along with the setting up of a Monetary Policy Committee (MPC) to set the policy rate to achieve the inflation objective (GoI, 2016). The amended RBI Act came into effect in June 2016. In August 2016, the Government notified an inflation target of 4.0 per cent, with 6.0 per cent and 2.0 per cent as the upper and lower tolerance levels respectively, for the period up to March 31, 2021. The Government and the Reserve Bank constituted the six member MPC in September 2016." Historical experiences of countries which have adopted inflation targeting have shown that having a credible policy with an emphasis on strong nominal anchor can reduce the impact of supply shocks to inflation and improve macroeconomic stability. However, its effectiveness in Indian context is constrained by the following reason: "First and foremost, it is imperative to take into account the key India specific characteristics of the monetary policy transmission mechanism. Monetary policy transmission process is found to be having multiple channels with interest rate emerging as the most important monetary policy transmission channel. Bank lending channel was also seen to exist and complement the interest rate channel. Asset price and exchange rate channel of monetary policy transmission, however, were found to be feeble in India. On the interest rate transmission channel, historically while the transmission of policy rates to money markets and financial market rates has been fairly."

Source: State Level Bankers Committee, Kerala, March 2018

Table.1.5 Wholesale price inflation, base:2011-12=100, year on year per cent

Commodity	Weight	2016-17	2017-18	Aug.2018	Sep.2018
All commodities	100	1.73	2.96	4.53	5.13
I Primary Articles	22.62	3.45	1.32	-0.15	2.97
I (A) Food Articles	15.62	4	2.07	-4.04	-0.21
II Fuel and power	13.15	-0.23	8.11	17.73	16.65
III Manufactured Products	64.23	1.37	2.8	4.43	4.22

Source: Office of the Economic Advisor,Department of Industrial Policy and Promotion, Government of India

(3 per cent each), fish-inland, condiments and spices, maize and poultry chicken (2 per cent each) and arhar, barley, mutton, wheat, masur and moong (1 per cent each) moved up. On the other hand, 'Non-food articles' group declined by 0.2 per cent to 124.8 (provisional) in September 2018 from 125.0 (provisional) in August 2018 due to the lower price of raw skins (5 per cent), hides (raw) and industrial wood (4 per cent each). However, the price of floriculture (18 per cent), niger seed (7 per cent), gingerlly seed (6 per cent), raw jute and sunflower (5 per cent each) etc., moved up.

Inflation measured in terms of WPI increased to 1.7 per cent in 2016-17 from (-)3.7 per cent in 2015-16 and 1.2 per cent in 2014-15. It averaged 2.9 per cent in 2017-18 (April-January) and stood at 2.8 per cent in January 2018. The details of WPI in 2016-17, 2017-18 and August 2018 and September 2018 are given in Table 1.5.

Consumer Price Index (Combined) (CPI-C) inflation (Base 2012=100) for 2016-17 declined to 4.5 per cent from 4.9 per cent in 2015-16 and 5.9 per cent in 2014-15. It averaged 3.4 per cent in 2017-18 (April-January) and stood at 5.1 per cent in January 2018. Food inflation based on the Consumer Food Price Index (CFPI) declined to 4.2 per cent in 2016-17 from 4.9 per cent in 2015-16 and 6.4 per cent in 2014-15. It averaged 1.6 per cent in 2017-18 (April-January) and was 4.7 per cent in January 2018.

Price Level in Kerala

The WPI for agriculture commodities in Kerala in food crops increased to 9,904.67 in July 2018 from 9,863.08 in July 2017. The price of rice, and condiments and spices increased 2.95 per cent and 24.14 per cent respectively. These were the major factors behind the rise in the price of food crops in 2018. On the other hand, WPI of non-food items has increased by 38.96 per cent from 6,741.03 in July 2017 to 9,367.64 in July 2018. Of which, the price of oil and oilseeds increased to 11,693.06 in July 2018 from 7,866.25 in July 2017. Altogether, the WPI of all crops has increased 11.3 per cent over the same period the in the previous year. The WPI of all items during the period from 2013 to 2018 is given in Appendix 1.20. The month-wise WPI of agriculture commodities in Kerala shows that index of food items has increased to 10,998.12 in July 2018 from 9,959.71 in June 2018, while the index of non-food items declined to 8,588.78 in July 2018 from 8,986.27 in June 2018. In 2018, WPI of condiments and spices increased consistently from January and it reached at 23,665.23 in July 2018. But in the case of rice, WPI was decreased slightly from 8,021.21 in January 2018 to 7,639.90 in July 2018. WPI of all items has increased substantially in 2018 over the previous year. The month-wise WPI of agriculture commodities in Kerala in 2017 and 2018 (upto July 2018) is given in Appendix 1.21 and 1.22.

Consumer Price Index (CPI)

The annual average CPI (Base 2011-12=100) in Kerala was estimated at 155.1 in 2018 against 151 in 2017. The variation in per cent in 2018 over the previous year is 2.77. In 2018, the highest rate of inflation was registered in

Thrissur (4 per cent) followed by Kozhikode (3.92 per cent) and Kasaragod (3.90 per cent). The lowest rate of inflation in per cent was registered in Kollam at 2.67 per cent. The District-wise annual average CPI and percentage variation are shown in Appendix 1.23.

Retail Prices

While analysing the retail prices of essential commodities from January 2018 to December 2018, the price of rice-matta, black gram, black gram without husk, coconut without husk, and with husk has declined considerably. The per kg price of rice in January 2018 was ₹41.84 and it decreased to ₹39.34 in August 2018 and fell further to ₹36.38 in September 2018. Price of coconut without husk (10 numbers) has also decreased by 23.84 per cent from ₹243.41 in January 2018 to ₹185.38 in September 2018. The monthly retail prices of certain essential commodities in the State are given in Appendix 1.24.

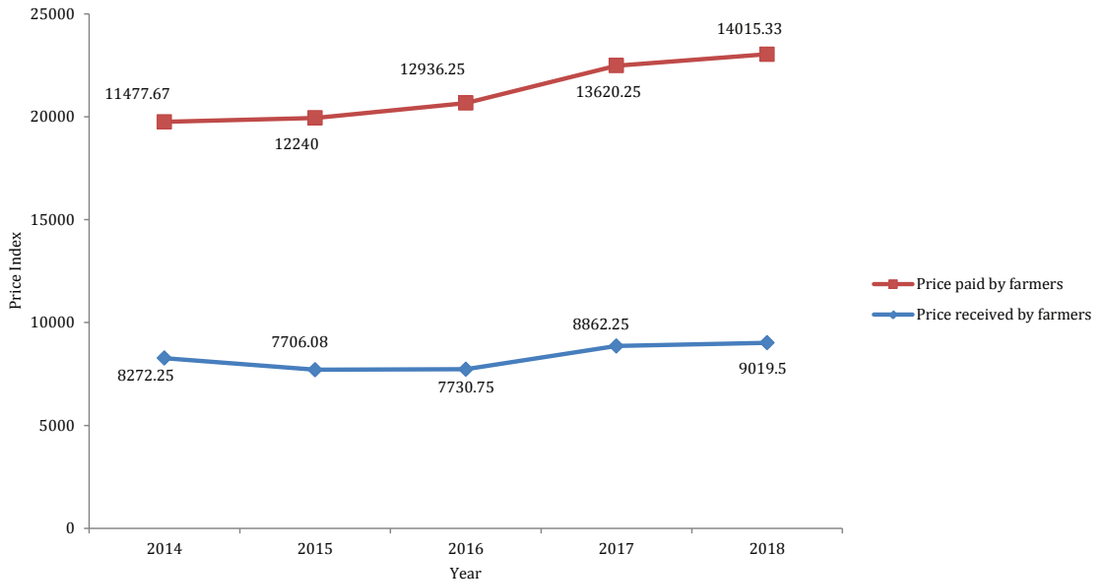
Parity Index

Parity index estimates the income and expenditure of the farmers from their cultivation. From 2007 onwards, cultivation cost has exceeded the revenue of the farmers. In 2018 (up to June) parity index has been estimated at 64.17 against 65.08 in 2017. In 2016, the cultivation cost index of the farmers was 12,936.25 and their income was only 7,730.75. The parity index was 59.83. In 2017 and 2018, the index of price received by farmers was 8,862.25 and 9,019.5 against their farm expenses index of 13,620.25 and 14,015.33 respectively. These indicate that the farmers are distressed heavily due to the high cost of farm input, exorbitant transportation cost, and steep hike in the wages of labourers. The yearly average price received and paid by farmers is shown in Appendix 1.25 and its graph representation is also given in Figure1.4.

Wages

Average daily wage rate of skilled workers in the agriculture sector has increased in 2017-18 over the previous years. Daily wage rates of carpenters and masons have increased to ₹841.17 and ₹834.83 from ₹792.83 and ₹789.50 in 2016-17 respectively. The daily wage rate of a carpenter has increased by 6.09 per cent in 2017-18 and that of a mason has increased by 5.74 per cent in 2017-18. The average daily wage rate of skilled workers in the agriculture sector from 2006-07 to 2017-18 is given in Appendix 1.26.

Figure 1.4 Price received and price paid by farmers



Source: Census 2001 and 2011

The average daily wage rates of male unskilled workers in 2006-07 were ₹179.01 and female unskilled workers was ₹123.96. After a decade, the wage rate has changed significantly with the wage of male workers increasing 266.9 per cent to ₹656.79 in 2017-18. On the other hand, the female workers' wage rate has also risen by 289.9 per cent and reached ₹480.90. While analysing the wage rate among the male and female workers, gender disparities are discernible. The average daily wage rates of unskilled workers in the agriculture sector from 2006-07 to 2017-18 is given in Appendix 1.27.

Interventions in the Market for Price Control

At the national level, the measures taken for price control include a) implementing a price stabilisation fund (PSF) to control price volatility of agricultural commodities like pulses, onions etc. by building a buffer stock of pulses up to 20 lakh tonnes, b) imposing a 20 per cent duty on export of sugar for enhancing availability and moderating price rise, and c) restricting the export of edible oils. But chronic issues like inadequate coverage of Public Distribution System (PDS) continue. There is also discontent among farmers in not getting remunerative prices for their produce. These reflect the need for more effective policy interventions at the national level.

The Government of Kerala has taken several measures to contain price rise in the State like fixing procurement price for paddy and a mechanism for timely procurement. The intervention in the market for providing consumers commodities at fair prices is done with the help of co-operative institutions like Supplyco and Consumerfed. This is a major relief for the poor and fixed income groups, especially during festival seasons. Besides, the State Government offers substantial budgetary support to the PDS.

The volatility in the trend of global fuel prices and rupee exchange rate could be major factors shaping inflationary expectation in the immediate future. Substantial demand-side interventions are beyond the scope of a State Government in the present division of constitutional powers. States can intervene mainly in the supply side subject to their resource constraint. Kerala is one such State which has been making consistent supply-side interventions to control prices of essential commodities.

Demographic Profile

Population Profile of the State

As per the Census of India 2011, the population of Kerala was 3,34,06,061 or 2.76 per cent of India's population. Out of the State's total population, 52 per cent are women and 48 per cent are men.

The decadal growth rate of Kerala's population was 4.9 per cent, the lowest among the Indian States. Among the Districts of the State, Malappuram has the highest growth rate (13.4 per cent), and Pathanamthitta has the lowest growth rate (-3.0 per cent). Idukki also has seen a decline in population negative growth rate (-1.8 per cent). The growth rate of population is lower in six southern Districts (Idukki, Kottayam, Alappuzha, Kollam, Pathanamthitta and Thiruvananthapuram) than in other Districts of the State.

Child Population

The Census data shows an absolute decline in the number of children (0-6 years) in the State. Kerala's total child population in 2011 was 34,72,955 (10 per cent of total population) as against 37,93,146 (12 per cent of the total population) as per the 2001 Census data. At the all India level child population as per 2011 census was 13.1 per cent while it was 15.9 per cent as per Census 2001. The Census 2011 data also reveals that the child population as a proportion of the total population is below the national average for Tamil Nadu (9.56 per cent), Karnataka (11.21 per cent) and Andhra Pradesh (10.21 per cent). Figure 1.5 presents the District-wise picture of propotion of child population in Kerala as per Census data of 2001 and 2011. The highest proportion of child population was in Malappuram District and the lowest proportion was in Pathanamthitta District. A decreasing trend in the proportion of child population is seen in all Districts of the State (Appendix 1.29). The southern Districts of Kerala witnessed 2 per cent decline except for Kollam, in which there was a decline of 1 per cent in the proportion of child population, while the northern Districts in Kerala showed 1 per cent decline in the proportion of child population. But Wayanad District had a decline of 2 per cent.

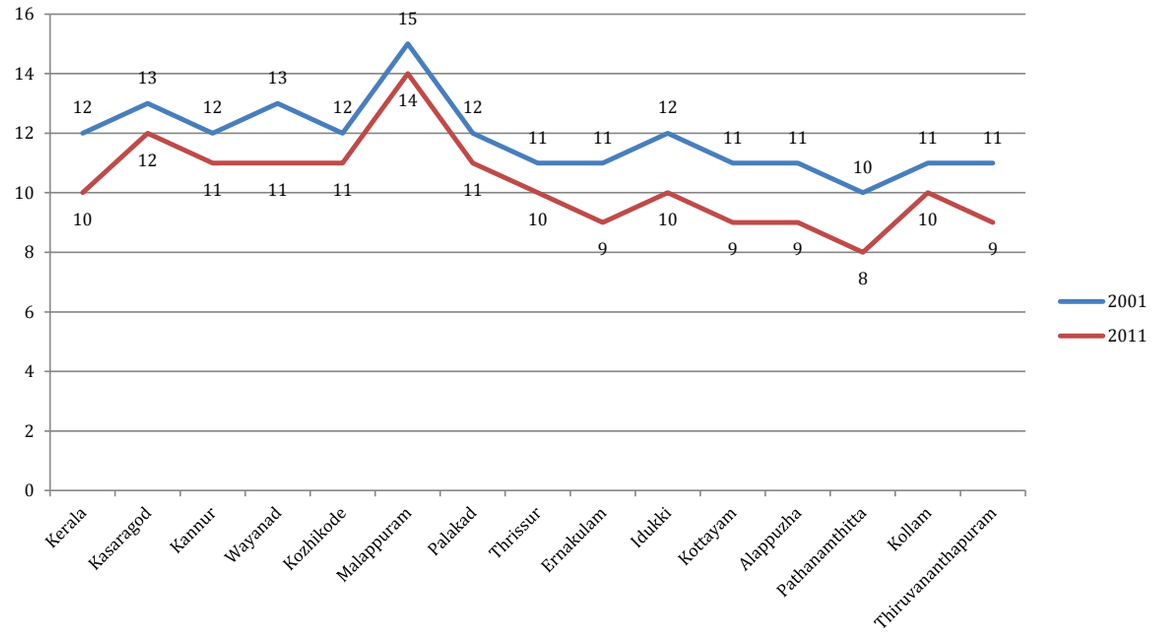
Urbanisation

The share of urban population in Kerala was 47.7 per cent of the total population, representing a decadal increase of 21.74 per cent between 2001 and 2011. As many as 1,59,349,26 persons in the State were living in urban areas. The rural population was 1,74,711,35. The District in which the proportion of urban population to total population is highest in Ernakulum (68 per cent). The share of urban population is lowest in Wayanad (3.9 per cent).

Literacy

Kerala has the highest proportion of literate persons in the population among the Indian States. The effective literacy rate is 93.91 per cent as per Census 2011. In Kerala, 96.02 per cent men and 91.98 per cent of women are literate as against 82.14 per cent of men and 65.46 per cent of women at the all India level. Among Districts, Kottayam tops in literacy with 97.2 per cent followed by Pathanamthitta with 96.5 per cent. Lowest literacy rates are in Wayanad and Palakkad with 89 per cent and 89.3 per cent respectively. Even the lowest literacy rate of Wayanad (89 per cent) is higher than the national average. As compared to 2001, the literacy rate of all the Districts has improved (Appendix 1.29).

Figure 1.5 Proportion of child population in Kerala, per cent



Source: Census 2001, 2011

Sex Ratio

The sex ratio (number of females per thousand males) of Kerala according to Census 2011 is 1,084 and has improved by 26 points since 2001. It increased from 1,032 to 1,036 from 1981 to 1991. The sex ratio of Tamil Nadu is 996, of Karnataka is 973, of Andhra Pradesh is 993 and at all India level is 943.

Among the Districts, Kannur has the highest sex ratio (1,136) followed by Pathanamthitta (1,132). Idukki has the lowest sex ratio (1,006). The sex ratio of Ernakulum is 1,027. All the Districts have sex ratio above 1,000. In 2001, only Wayanad had a ratio below 1,000 (994). The difference between the lowest (Idukki, 1,006) and highest (Kannur, 1,136) is 130 points. Details are given in Appendix 1.28.

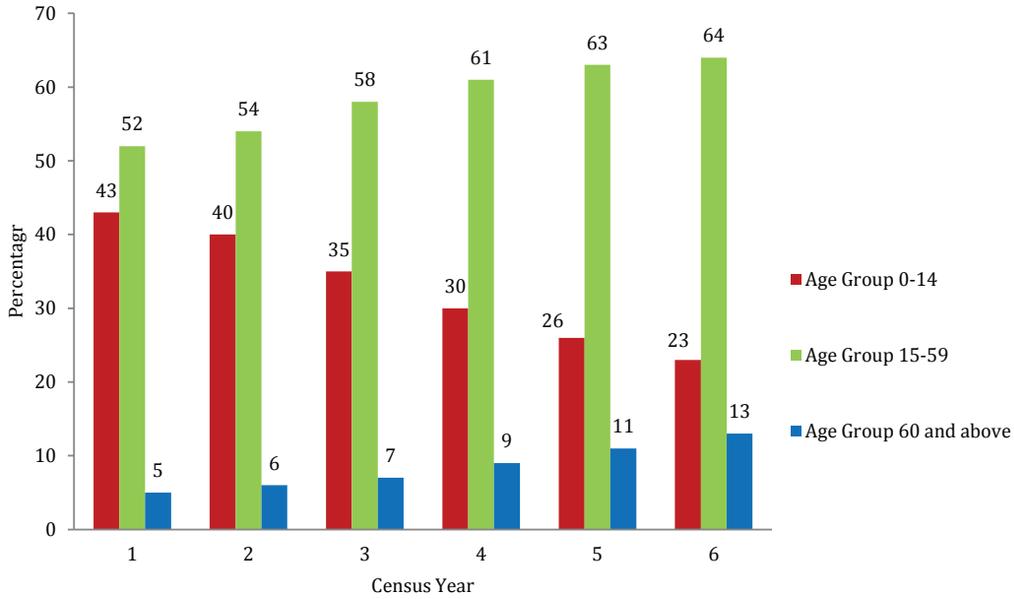
Child Sex Ratio (0-6 Years)

Child sex ratio in Kerala is 964 as per the 2011 Census data. It was 960 in 2001. The child sex ratio in Tamil Nadu is 943, Karnataka 948, Andhra Pradesh 939 and the all India average is 919. Among Districts, Pathanamthitta has the highest child sex ratio (976) followed by Kollam (973) and Kannur (971). Thrissur has the lowest ratio (950), and Alappuzha is just above with a ratio of 951. The difference between the lowest and highest is 26 points. All Districts have a ratio below 1,000. When analysing the decadal change, the highest increase is in Kollam (13) followed by Kozhikode (10). The decadal change in other Districts is below 10. Thrissur (-)8, Idukki (-)5 and Alappuzha (-)5 have a negative decadal change in child sex ratio (Appendix 1.28).

Density of Population

Kerala's density of population as per 2011 census is 860 persons per sq. km. While the density of population in Tamil Nadu is 555, Karnataka 319, Andhra Pradesh 308, and that of India is 382. Thiruvananthapuram is the most densely populated District (1,508) while, Idukki is the least densely populated District (255). The density of population increased in all Districts between the Census of 2001 and 2011, other than in Pathanamthitta and Idukki. Details are given in Appendix 1.29.

Figure 1.6 Age group distribution Kerala 1961-2011, in per cent



Source : Census 1961,1971,1981,1991,2001,2011

Age Group Distribution 1961-2011

The proportion of the population in the age group of 0-14 years has declined from 43 per cent in 1,961 to 23 per cent in 2011 in Kerala. Due to increasing life expectancy and availability of health facilities, the proportion of the population in the old age group (60 years and above) is showing an increasing trend from 6 per cent in 1,961 to 13 per cent in 2011 (Figure 1.6).

If this trend continues, the addition to the working age group of population (15-59) will decrease in the near future, as the proportion of the population in the age group of 0-14 is declining. The increasing proportion of the old age group (60 and above) would place higher social security obligations on the Government.

District-Wise Age Group Distribution

District-wise distribution of population among different age group as per 2011 census is given in Table 1.6. The State has 64 per cent of its population in the working age group of 15-59. When compared with 23 per cent and 13 per cent in 0-14 age and 60 and above age groups respectively. Among Districts, Idukki has the highest per cent of the working population (66 per cent) while Malappuram has the lowest (61 per cent). All the Districts of Kerala have a working population of 60 per cent and above. In the age group of 60 and above Pathanamthitta has the highest per cent (18 per cent), while Malappuram has the lowest per cent (9 per cent). At the same time, Malappuram has the highest proportion of the population, in the 0-14 group at 30 per cent, while Pathanamthitta has a proportion of 19 per cent.

If the actual number is taken, Malappuram has the highest number both in 0-14 and 15-59 group (12.4 lakh and 25.2 lakh). While the Ernakulam District abodes the highest number of people in the elderly group of 60 and above. Wayanad has the lowest number in all age groups, as the District has the least number of total population.

Table 1.6 District-wise distribution of the population in different age groups-2011

	Unit	Numbers in Different Age Group in total District population			% of Different Age Group in total District population		
		0-14	15-59	60+	0-14	15-59	60+
1	Kasaragod	3,42,696	8,35,111	1,29,568	26	64	10
2	Kannur	5,94,411	16,06,593	3,21,999	23	64	13
3	Wayanadu	2,12,246	5,26,414	78,760	26	64	10
4	Kozhikode	7,49,692	19,72,762	3,63,839	24	64	12
5	Malappuram	12,41,491	25,26,407	3,45,022	30	61	9
6	Palakkadu	6,78,192	17,95,096	3,36,646	24	64	12
7	Thrissure	6,88,592	20,01,050	4,31,558	22	64	14
8	Ernakulam	6,93,215	21,35,689	4,53,484	21	65	14
9	Idukki	2,47,338	7,32,193	1,29,443	22	66	12
10	Kottayam	4,13,849	12,47,065	3,13,637	21	63	16
11	Alappuzha	4,46,279	13,57,100	3,24,410	21	64	15
12	Pathanamtitta	2,32,670	7,50,202	2,14,540	19	63	18
13	Kollam	5,83,023	17,00,534	3,51,818	22	65	13
14	Thiruvanathapuram	7,07,280	21,60,992	4,33,155	21	66	13
	Kerala	78,30,974	2,13,47,208	42,27,879	23	64	13

Source: Census 2011

Indicators of Poverty

Historically, Kerala has followed a development path quite different from that of other Indian States. The focus on education and healthcare has resulted in a faster reduction of the poverty ratio in Kerala compared with the other Indian States. According to the official figures, the absolute poverty ratio in Kerala is lower than 12 per cent in 2011-12 and has shown a sharp reduction over the last forty years. The absolute poverty ratio (GoI, 2014) in Kerala and at all India level from 1973-74 to 2011-12 are given in Table1.7.

The incidence of poverty in Kerala was 59.79 per cent in 1973-74 which came down to 11.3 per cent in 2011-12. At the all India level, the ratio of poverty was 54.88 per cent in 1973-74 (which was lower compared to Kerala) and it reduced to 29.5 per cent in 2011-12. Kerala has also made a substantial improvement in reducing the incidence of both rural and urban poverty. In Kerala, from 1973-74 to 2011-12, rural and urban poverty ratio has declined from 59.19 per cent to 7.3 per cent and from 62.74 per cent to 15.3 per cent respectively, whereas in India these figures declined from 56.44 per cent to 30.9 per cent for rural people and 49.01 per cent to 26.4 per cent for urban people. The challenge before Kerala is to bring it down further and continue the numerous programmes which have made the achievement possible.

Socio-Economic and Caste Census (SECC), 2011, was the latest exercise conducted by the Government of India (GoI) mainly aimed at ranking households based on their socio-economic status. SECC becomes very crucial for India because it gives a broader and dynamic definition of poverty. SECC estimates a deprivation index based on seven criteria.

Table 1.7 Proportion of poor in India and in Kerala, 1973-74 to 2011-12

Year	Kerala			India		
	Rural	Urban	Total	Rural	Urban	Total
1973-74	59.19	62.74	59.79	56.44	49.01	54.88
1977-78	51.48	55.62	52.22	53.07	45.24	51.32
1983	39.03	45.68	40.42	45.65	40.79	44.48
1987-88	29.10	40.33	31.79	39.09	38.20	38.86
1993-94	25.76	24.55	25.43	37.27	32.36	35.97
1999-00	9.38	20.27	12.72	27.09	23.62	26.10
2004-05	13.20	20.20	15.00	28.30	25.70	27.5
Rangarajan Committee Estimates						
2009-10	9.7	23.7	16.00	39.6	35.1	38.2
2011-12	7.3	15.3	11.30	30.9	26.4	29.5

Source: Planning Commission, GoI, 2014 (Lakdawala Methodology is used from 1973-74 to 2004-05)

According to the SECC (2011) data, out of the 76.99 lakh households in Kerala, 63.19 lakh (82.08 per cent) live in rural areas. Of this, 10.32 per cent are SC households and 1.63 per cent are ST households. Out of the total rural households, 19.16 lakh (30.33 per cent) rural households are deprived. The highest deprivation rate is in Palakkad (42.33 per cent) followed by Thiruvananthapuram (38.36 per cent) and Wayanad (36.33 per cent) Districts. And the lowest deprivation rate is in Ernakulam (20.30 per cent), Kottayam (23.02 per cent) and Kannur (24.25 per cent) Districts. Out of the total rural SC and ST households, 57.66 per cent of SC households and 61.68 per cent of ST households are included under the deprived category. District-wise details of the per cent of deprived rural households in Kerala against their total number of rural household across different categories are given in Appendix 1.30.

While considering the different indicator-wise deprivation rates among the rural households in Kerala, the highest deprivation was recorded in the indicator, 'landless households deriving major part of their income from manual casual labour' (18.86 per cent) followed by 'SC/ST household' (7.11 per cent) and 'female-headed households with no adult male member between age 16 to 59' (3.65 per cent) respectively. The lowest deprivation was reflected in the indicator, 'disabled member and no able-bodied adult member' (0.19 per cent) followed by the indicator ónly one room with kacha walls and kacha roof' (1.43 per cent) and 'no literate adult above 25 years (1.81 per cent). District-wise details of the per cent of deprived rural households based on the deprivation index are given in Appendix 1.31.

According to the SECC data, the main breadwinner of the 70.75 per cent of the rural households in Kerala earns less than ₹5,000 per month, while at all India level, the corresponding share was 74.52 per cent. This ratio was the highest in Wayanad (79.67 per cent), followed by Malappuram (75.55 per cent) and Palakkad (74.38 per cent) Districts. The ratio was the lowest in Ernakulam (64.37 per cent), followed by Kottayam (64.46 per cent) and Pathanamthitta (64.66 per cent) Districts.

In Kerala, 50.61 per cent and 10.26 per cent of the rural households depend on manual casual labour and cultivation as their most important source of household income. At the all India level, the corresponding shares are 51.18 per cent and 30.10 per cent respectively. District-level data about the source of household income show that, in the case of manual casual labour, the highest rate is in Malappuram (65.05 per cent) and the lowest rate is in Pathanamthitta (31.71 per cent). In the case of cultivation, the highest rate is in Idukki (32.49 per cent) and the lowest rate is in Alappuzha (4.86 per cent).

In Kerala, the factors such as land reforms, the spread of education, and health care, decentralisation, pension schemes, public distribution system, Kudumbashree programmes and the implementation of the Plan schemes have played an effective role in reducing the poverty ratio in rural and urban areas. Even though Kerala is better off than most other States in India in terms of average poverty estimates, there are still several pockets of deprivation in the State. Poverty in Kerala is mainly concentrated in some social categories and groups such as SCs, STs, fisher-folk, potters and artisans. It points to the need for actions focussed on these groups under different central and State schemes and redesigning livelihood programmes in these areas to eliminate absolute poverty from the State. The SC development department, ST development department and the fisheries department are implementing several poverty reduction/ livelihood programmes for uplifting people in these communities. Though the extent of poverty has been reduced, focused action to alleviate deprivation among marginalised sections is the urgent task of the State.

Box 1.2 Sustainable Development Goals (SDGs) index of States in India

The SDGs are a universal set of 17 Goals and 169 targets to help organise and streamline development actions for greater achievement of human wellbeing, while leaving no one behind – by 2030. The 2030 Agenda for Sustainable Development, which was adopted by 193 Member States at the United Nations General Assembly Summit in September 2015 came into effect on January 1, 2016.

The SDG -wise scores of Kerala and all India levels

SDG Item	Aim	Kerala's Score	All India Score
1	Ending poverty in all its forms	66	54
2	End to all forms of hunger and malnutrition	72	48
3	Attain a level of health enabling to lead economically and socially productive life	92	52
4	Inclusive, equitable and quality education to all including technical and vocational training	87	58
5	Gender Equality	50	36
6	Clean Water and Sanitation	62	63
7	Access to affordable, reliable and modern energy sources	60	51
8	Decent work and Economic growth	61	65
9	Industry, Innovation and Infrastructure	68	44
10	Reduced Inequalities	72	71
11	Sustainable cities and communities	46	39
15	Protect, Restore and Promote sustainable use of terrestrial ecosystems	75	90
16	Peace, Justice and Strong Institutions	82	71

The State-wise index has been computed as a composite score for each State and Union Territory (UT) of India based on their aggregate performance across 13 of the 17 SDGs. The value of the score indicates the average performance of the State/UT towards achieving the 13 SDGs and their respective targets. The score ranges between 0 and 100. If a State achieves a score of 100, it signifies that the State has achieved the national target set for 2030. On the other hand, if a State achieves a score of 0, it signifies that the State was the worst performer.

The SDG Index Score for Sustainable Development Goals 2030 ranges between 42 and 69 for States and between 57 and 68 for UTs. Among the States, Kerala and Himachal Pradesh are the front runners with an SDG India Index score of 69. Among the UTs, Chandigarh is a front runner with a score of 68. Kerala ranks first in SDGs concerning health, education and gender equality.

Source: SDG India Index, Baseline Report, 2018, *www.niti.gov.in*

A scheduled commercial bank falling within the purview of the Banking Regulation Act, 1949 is an institution which accepts deposits for the purpose of lending. The Reserve Bank of India exercises overall supervision and control of the banks with the aim of ensuring their solvency. Since the 1970s, banks are also important institutions in developing financing and giving care to the vulnerable sections of society.

The Spread of Banking – All India and State Level

As per the State Level Bankers Committee (SLBC) data, the total number of bank branches as on March 2018 is 7,332 including public sector commercial banks, private sector commercial banks, RRB, small finance banks and co-operative banks. Of the total number of bank branches, only 7 per cent are in rural areas. 62 per cent of the total bank branches are in semi-urban areas and the balance 31 per cent are in urban areas. The spread of banks, category-wise in Kerala is shown in Table 1.8. As per the SLBC report, Kerala has 6,256 scheduled commercial bank branches (which include only public sector commercial banks, regional rural banks and private sector commercial banks) as on March 2018 against 6,332 bank branches as on March 2017, showing a decline of 1 per cent. Kerala Gramin Bank increased its number of branches in the semi-urban area from 525 in March 2017 to 540 at the end of March 2018, a 2.9 per cent increase. As per the RBI Quarterly statistics, March 2018, there are 1,40,133 bank branches in India. Kerala has the largest number of bank branches (4,499) among the semi-urban areas in the country (Appendix 1.32).

Deposits

As per the SLBC data, the total bank deposits (includes public and private sector banks) in Kerala as on March 2018 amounts to 4,45,401 crore, an 8.5 per cent increase over March 2017. This comprises 2,75,457 crore domestic deposits and ₹1,69,944 crore NRI deposits. The volume of domestic deposits grew 6.71 per cent in March 2018 is compared 14.23 per cent in March 2017. The volume of NRI grew 11.55 per cent in March 2018 compared to 12.34 per cent in March 2017. Domestic deposits constitute 62 per cent of the

Table 1.8 Banking group-wise branch network in Kerala

Sl. No	Banking Group	Number of Branches				
		Rural	Semi-urban	Urban	Total	Per cent
1	Public Sector Commercial Banks	145	2,463	896	3,504	47.79
2	RRB-Kerala Gramin Bank	51	540	39	630	8.59
3	Private Sector Commercial Banks	139	1,493	490	2,122	28.94
4	Small Finance Banks	23	52	17	92	1.25
5	Co-operative Banks	117	28	839	984	13.42
	Total	475	4576	2,281	7332	100

Source: State Level Bankers Committee, Kerala, March 2018

total deposits in the State while the NRI deposits constitute the balance 38 per cent. The growth of bank deposits in Kerala is shown in Figure 1.7 and Appendix 1.33.

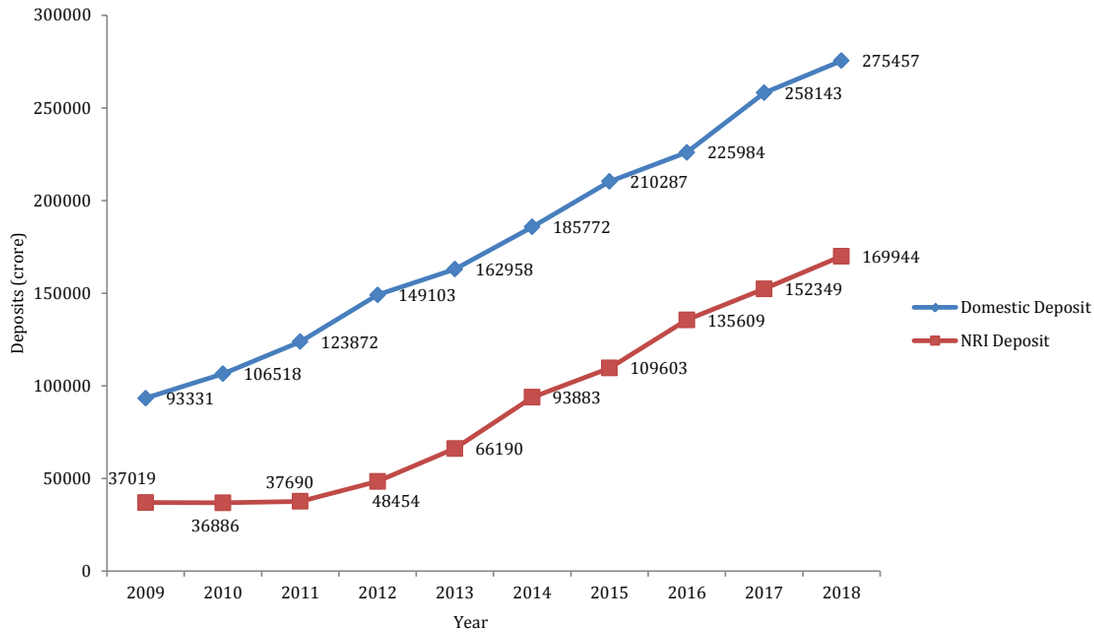
Deposits in Scheduled Commercial Banks

As per the RBI data, the total bank deposits in all scheduled commercial banks (including public sector banks, private sector banks, foreign banks, regional rural banks (RRBs) and small finance banks) in Kerala in March 2018 increased to ₹4,40,361 crore (6.75 per cent)compared to ₹4,12,503 in March 2017. Maharashtra has the highest share of deposits (19.94 per cent) in the country. The share of deposits in scheduled commercial banks in Kerala to the total deposits in the country as on March 2018 is 3.84 per cent (Appendix 1.34). According to the RBI data, the total deposits at the end of March 2018 in the country increased 7 per cent over the previous year. The total deposits slowed down to 7 per cent at the end of March 2018 from 11.30 per cent at the same time the previous year.

NRI Deposits

The large-scale migration of Malayalis to the Gulf region and the remittances sent by them have played a significant role in the economic development of the State. According to the data furnished by SLBC, the total NRI deposit in public sector banks in Kerala (as on March 2018) was ₹90,461 crore and in private sector banks was ₹78,532 crore. The inflow of NRI deposits increased 11.5 per cent from ₹1,52,349 crore in March 2017 to ₹1,69,944 crore in March 2018. Domestic deposits grew 7 per cent in March 2018to ₹2,75,457 crore from ₹2,58,143 crore in March 2017. With 56.23 per cent share of NRI deposits, Federal Bank remains in the first position among the public and private sector banks. The percentage share of the NRI deposit in public sector banks is 35.6 per cent and 45.07 per cent is in private sector banks. Among public

Figure 1.7 The growth of bank deposit in Kerala from 2009-2017



Source: State Level Bankers Committee Report, March 2018

sector commercial banks, State Bank of India has the highest NRI deposit base of ₹54,573 crore (Appendix 1.35).

Advances

According to SLBC data, as on March 2018, banks in Kerala including the commercial banks and co-operative banks disbursed ₹3,34,513 crore as advances as compared to ₹2,98,092 crore in March 2017. All Commercial banks including public sector commercial banks and private sector commercial banks and RRBs together disbursed ₹2,86,735 crore as advances at the end of March 2018. Out of this the advances of public sector commercial banks, private sector commercial banks and RRBs were ₹1,60,562 crore, ₹1,09,853 crore and ₹16,320 crore respectively.

Advances for Agricultural Purposes

As per SLBC report 2018, the bank group-wise disbursement of agricultural advances shows that total agricultural advance including that by co-operative banks as on March 2018 reached ₹76,626 crore. This was ₹68,787 crore in March 2017. The per cent of agricultural advance to total advance is 23 per cent. From the SLBC data, it is clear that RRBs provide the highest amount of advances to agriculture (63 per cent) out of their total advances followed by public sector commercial banks (25 per cent) and private sector commercial banks (18 per cent). The major State-wise advances financed by scheduled commercial banks are given in Appendix 1.36.

Advances to SCs/STs and Weaker Sections

As per SLBC data, in March 2018, an amount of ₹5,457 crore and ₹1,348 crore was disbursed to SC and ST persons respectively in the State by various banks as against ₹ 4,549 crore and ₹1,172 core as on March 2017. Compared to the previous year there is a 15 per cent increase in the advances given to Scheduled Caste and a 12 per cent increase in the advances given to Scheduled Tribe persons. The bank group-wise advances given to SC and ST are given in Table 1.9.

As per SLBC data, in March 2018, ₹68,434 crore has been disbursed to weaker sections in the State which shows a 7 per cent increase as compared to March 2017 (₹63,877).

Housing Loans

As per SLBC data (March 2018), banks in Kerala including commercial banks and co-operative banks sanctioned ₹39,829 crore to 7,06,734 beneficiaries as housing loan against ₹37,644 crore to 7,31,427 beneficiaries in March 2017. There was a 6 per cent growth in total housing loan sanctioned. As compared to March 2017 the per cent growth of housing advances has decreased from 11.6 per cent to 6 per cent. As on March 2018, public sector banks disbursed ₹25,760 crore to 3,58,521 beneficiaries, RRBs disbursed ₹2,436 crore to 53,285 beneficiaries, private sector commercial banks disbursed ₹3,985 crore to 58,676 beneficiaries, small finance banks disbursed ₹0.09 crore to 6 beneficiaries and co-operative banks disbursed ₹7,648 crore to 2,38,246 beneficiaries. Public sector commercial banks provided housing advances to more than half of the total beneficiaries (51 per cent) followed by co-operative banks (33.7 per cent). The major share of housing loans was disbursed through public sector commercial banks (64.68 per cent) followed by co-operative Banks (19.2 per cent)

Educational Loans

It is observed that as on March 2018, ₹9,694 crore was sanctioned to 3,40,301 students as educational loans against ₹8,995 crore to 3,69,041 students in 2017. Even though the number of students benefited decreased from the previous year, the total educational loan disbursed increased by 7.8 per cent. As per the SLBC data, public sector commercial banks disbursed ₹7,637.57 crore to 2,59,037 students, which accounts for 79 per cent of the total educational loan provided. RRBs disbursed

Table 1.9 Banking group-wise details under SC/ST advance as on March 2018, in crore.

Sl. No	Bank	SC Advances		ST Advances	
		Number	Amount	Number	Amount
1	Public Sector Commercial Banks	291,425	4,925.27	76,866	1,205.38
2	RRB	32,230	188.32	16,099	94.12
3	Private Sector Commercial Banks	11142	132.84	1154	18.31
4	Small Finance Banks	349	0.1	47	0.07
5	Co-Operative Banks	12,145	211.06	3,145	30.21
	Total banking sector	347,291	5,457.57	97,311	1,348.09

SC- Scheduled Caste, ST- Scheduled Tribes
Source: State Level Bankers Committee, Kerala, March 2018

₹910 crore to 32,458 students, private sector commercial banks disbursed ₹1,064 crore to 44,823 students and co-operative banks disbursed ₹83 crore to 3,983 students in March 2018. The per cent share of educational loan NPA in total outstanding education loan shows a substantial increase from 13 per cent in 2017 to 38 per cent in 2018.

Micro Finance

Micro finance, also known as micro credit, is a financial service that offers loans, savings and insurance to entrepreneurs and small business owners who don't have access to traditional sources of capital, like banks or investors. The goal of micro-financing is to provide individuals with money to invest in themselves or their business. Micro finance is available through micro finance institutions, which range from small non-profit organisations to larger banks. Commercial banks, RRBs, cooperative societies and other large lenders have played an important role in providing refinance facility to micro finance institutions (MFIs). MFIs serve as a supplement to banks. Since inception, micro finance has been the basic thrust of Kudumbashree to address the challenge of poverty. It has been evident that micro finance is an effective tool for development and contributed to the women and economic development of society to a great extent. As per SLBC data, in Kerala, around three lakh Self Help Groups (SHGs) maintain their savings bank account with 1,500 crore in various banks as on March 2018. The bank group-wise data shows that the public sector commercial banks have the highest number of accounts (60 per cent) followed by RRBs and private sector commercial banks with 20 per cent accounts each. 85 per cent of the total deposits of the SHGs are maintained with public sector commercial banks and 8 per cent with RRBs and 7 per cent with private sector commercial banks.

Credit-Deposit Ratio

According to the RBI quarterly statistics,the credit-deposit (CD) ratio of the banking sector in India of scheduled commercial banks at the end of March 2018recorded a slight increase to 75.64 per cent from 73.73 per cent in March 2017. Among the major States, Andhra Pradesh has the highest CD ratio (112.27 per cent) followed by Telangana (106 per cent) and Maharashtra (105.04 per cent).

As on March 2018, the CD Ratio in Kerala of scheduled commercial banks increased to 63.90 per cent from 59.71 per cent in the previous year (Appendix 1.37). The total deposits of scheduled commercial banks in Kerala is ₹4,40,361 crore and total credit is ₹2,81,384 crore as on March 2018.

The CD Ratio of the banking sector in India of public sector banks as on March 2018 is 71.07 per cent. It was 69.64 per cent in March 2017. Among the States, Telangana has the highest CD

Ratio (113.15 per cent) followed by Maharashtra (111.85 per cent) and Tamil Nadu (107.90 per cent). The CD Ratio of public sector banks in Kerala decreased from 63.04 per cent to 61.86 per cent in March 2018. (Appendix 1.38).

District-Wise Analysis of Banking Statistics

The District-wise analysis of banking statistics in Kerala by RBI reveals that Ernakulum has the highest number of branches (1,004) followed by Thrissur (722) and Thiruvananthapuram (711). The lowest number of branches is in Wayanad (120). In Kerala, Wayanad has the highest CD ratio (108 per cent) and Pathanamthitta has the lowest (27.14 per cent) (Appendix 1.39). As on March 2018, the maximum share of deposits remains with Ernakulam District. District-wise distribution of deposits and credit of scheduled commercial banks in Kerala as on March 2018 is shown in Figure 1.8.

The Co-operative Banking Sector in Kerala

Kerala State Co-operative bank is the apex bank of the short-term cooperative credit in Kerala. It also acts as a central balancing centre to absorb surplus funds of District cooperative banks, Primary Agricultural Cooperative Societies (PACS) and other co-operative institutions. According to SLBC data for March 2018, out of a total of 7,332 branches consisting of commercial, co-operative banks and small finance banks, 984 branches are in the co-operative banking sector. Of the total 984 branches in the co-operative sector, 117 are in rural, 28 are in the semi-urban area and 839 are in the urban area.

The total deposits of commercial and co-operative banks as on March 2018 was ₹5,15,119 crore. The deposits of co-operative banks as on March 2018 were ₹69,718 crore, which is 14 per cent of the combined deposits of commercial

Box 1.3 E Shakthi

In line with GoI's mission for creating a "Digital India", NABARD launched a pilot project titled E Shakti for digitisation of all SHGs in selected Districts. The perceived benefits of the project are

- Improve the quality of book keeping.
  - Provide credit to SHG based on its real-time performance
  - Reduce saving credit linkage gap
  - The track credit history of members
  - Transparency through real-time SMS alert to members on updation.
  - Convergence of SHG with other Government programmes and integration of members with larger Financial Inclusion Agenda

The programme is being implemented in Kasaragod, Kottayam, Idukki, Malappuram and Kannur

Advantages of E Shakti

Details of meetings, loans, etc. can be viewed. The branch manager will be able to view information pertaining SHG linked to his/her branch. Corporate logins have been given to most of the Bank's Senior Officers for viewing all India/State-wise/District-wise status regarding SHG linkages. Banks are requested to start utilising the E shakti portal data for increasing the pace of credit linkage and progression from micro credit to micro finance and micro enterprise.

Source: State Level Bankers Committee, Kerala, March 2018

banks and co-operatives. The total advances from both commercial banks and co-operatives in the State were ₹3,34,512 crore in March 2018. Of this, the share of cooperatives is ₹47,777 crore which accounts for 14 per cent of the total advances of commercial and co-operative banks in the State. The total agricultural advances from commercial and co-operative banks in the State as on March 2018 was ₹76,621 crore and the share of co-operatives is ₹7,283 crore (10 per cent). The volume of total banking business in the State was ₹7,72,718 crore in March 2017 which increased to ₹8,49,631 crore in March 2018 (Table 1.10).

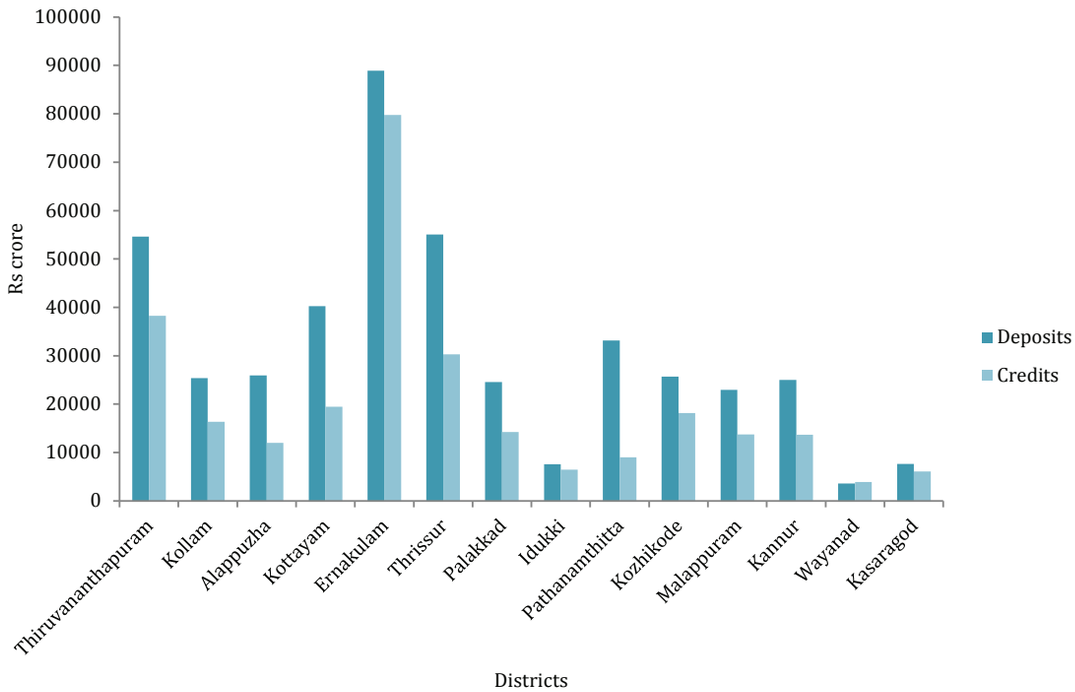
Non-Banking Financial Institutions/ Companies

Non-Banking Financial Companies (NBFC) are establishments that provide financial services and banking facilities without meeting the legal definition of a scheduled bank. They are covered under the regulations laid down by the Reserve Bank of India Act, 1934 and provide banking services like loans, credit facilities, retirement planning, investing and stocking in the money market. However, they are restricted from taking any form of deposits from the general public. These organisations play a crucial role in the economy, offering their services in urban as well as rural areas, mostly granting loans allowing for the growth of new ventures. NBFCs also provide a wide range of monetary advice like chit-reserves and advances.

Kerala State Financial Enterprises Ltd. (KSFE)

Kerala State Financial Enterprise (KSFE) is a fully State Government owned miscellaneous non–banking company, incorporated under Companies Act 1956. The main product of the company is

Figure 1.8 District-wise distribution of deposits and credit of scheduled commercial banks in Kerala as on March 2018



Source: Reserve Bank of India-Quarterly statistics on Deposits and Credit of Scheduled Commercial Banks, March 2018

Table 1.10 Performance of co-operative sector, in ₹ crore

Sl. No.	Parameter	March 2018			The share of co-operative to Total (%)
		Co-operative Sector	Commercial Banks	Commercial Bank and Co-operative Bank	
1	Branches	984	6,256	7,240	14
2	Total Deposits	69,718	445,401	515,119	14
3	Total Advances	47,777	286,735	334,512	14
4	Total Business	117,495	732,136	849,631	14
5	Priority sector advances	29,646	166,843	196,489	15
6	% Priority sector advances	62%	58%	59%	....
7	Agriculture Advances	7,283	69,339	76,621	10
8	% Agriculture Advances	15%	24%	23%	....
9	MSME Advances	1,269	47,193	48,462	3
10	% MSME Advances	3%	16%	14%	.....
11	CD Ratio	68.53	64.38	64.94	.....

Source: State Level Bankers Committee, Kerala, March 2018

chitty business. KSFE is also engaged in lending activities (viz., Gold Loan scheme, KSFE personal loan, consumer/vehicle loan, special car loan, KSFE housing finance scheme, flexible trade loan, tax planning loan scheme, fixed deposit loan scheme, Sugama (Akshaya) over draft scheme, etc.) and acceptance of deposit from the public (under Government guarantee). KSFE also offers fee-based activities like Western Union Money Transfer–as sub-agent of EBIX Money Express Private Limited and X press Money transfer.

As per the latest Annual Report 2016-17 published by KSFE on 16 June 2018, the company is operating through its 568 units and 11 regional offices. In 2016-17, the company made a profit of ₹85.27 crore. The total turnover of the company in 2016-17 is ₹22,504.49 crore and its fixed deposits (includes short-term deposits and *chitty* security deposit in trust) are ₹9,801.75 crore. Total deposit at the end of March 2017 was ₹10,490.14 crore. The total sale of *chitties* conducted from all the branches put together rose to ₹1,520.54 crore as against ₹1,432.43 crore at the end of the previous year, registering an increase of 6 per cent in the year under report. Total loan disbursed as on March 2017 was ₹4,783.75 crore.

Kerala Financial Corporation (KFC)

Kerala Financial Corporation (KFC) is one of the premier financial institutions in Kerala extending long-standing contributions towards the economic, industrial and social development of the State. It was incorporated under the provisions of the State Financial Corporation Act 1951 in order to provide medium and long-term credit to industrial undertakings. The corporation is engaged in extending financial assistance to Micro, Small and Medium Enterprises in manufacturing and Service sector in the State. Net profit in 2017-18 is ₹8.30 crore. The total loan provided by KFC as on March 2018 was ₹2,451.8 crore

State Finances

"The masses which eventually acquired greater power in the state saw themselves cheated of their prize when they got not the rich state but the poor one. The poor State can calmly be allowed to fall into the hands of the people, which thereby acquire nothing but empty coffers." (Goldscheid 1967)

Brief Background since the 1990s

Public finances of Kerala entered into a crisis along with most other States in India during the second half of the 1990s, with revenue and fiscal deficits rising, Own Tax Revenue (OTR) and Central devolution declining and revenue expenditure, especially interest payments increasing. During the early years of 2000s, deficit targeting was attempted through passing legislation, namely, Fiscal Responsibility and Budget Management (FRBM) Act. To achieve the targets, expenditure compression was resorted to. This led to protests by sections of the society, who were adversely affected and the measures could not be continued beyond a very short period. Realising that the fiscal consolidation needs to be revenue led, the Government took several proactive steps for increasing the growth of OTR since 2006-07. By 2010-11, Revenue Deficit (RD) (in other words borrowing for financing current expenditure) as a proportion of the borrowings in the financial year, which is called Fiscal Deficit (FD) came down, when compared to the previous five year period (Table 1.11). However, this trend in revenue led fiscal consolidation, which is evident from the reduction in all deficit indicators could not be sustained during the period since 2011-12 (Table 1.12).

The OTR growth rate declined to an average of 10 per cent since 2013-14, when compared to around 18 per cent during 2006-07 to 2012-13. The growth rate of revenue expenditure however was downwardly inflexible. Renewed efforts for fiscal consolidation are being made by the State Government since 2016-17, by aiming at 20 per cent growth rate in OTR and rationalisation in revenue spending by making procedures transparent. But due to factors beyond the control of the State Government like demonetisation, ignoring the principle of revenue neutrality in apportioning rates of GST between the Centre and the States and the implementation problems in GST, the slowdown in growth rate of OTR continued in 2016-17 and 2017-18 also. Added to this is the stress on expenditure consequent to natural calamities like Ockhi cyclone and the floods of 2018. In the absence of adequate Central aid and approval for enhancing

Table 1.11 Trends in deficit indicators, in per cent

Period	RD/GSDP	FD/GSDP	PD/GSDP	RD/FD
2000-01 to 2005-06	3.39	4.36	1.37	77.82
2006-07 to 2010-11	1.85	3.08	0.7	60.18
2011-12 to 2016-17	2.31	3.65	1.8	63.09

Source: Budget Documents, Government of Kerala

borrowing limit, this would impede the aim of Kerala in building better and faster. Given this background, the trends in major indicators of State finances are analysed.

Table 1.12 Major revenue, expenditure, deficit and debt indicators of Kerala, in ₹ crore and per cent

	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18 RE	2017-18 Actuals	2018-19 BE
Revenue Receipts	38,010	44,137	49,177	57,950	69,033	75,612	88,267	83,020	1,02,801
% of GSDP	10.44	10.70	10.57	11.31	12.28	12.27	12.86	12.09	
State Tax Revenue	25,719	30,077	31,995	35,233	38,995	42,176	48,823	46,460	58,588
% of GSDP	7.06	7.29	6.88	6.87	6.94	6.84	7.11	6.77	
State Non-Tax Revenue (SNTR*)	2,592	4,199	5,575	7,284	8,425	9,700	11,729	11,200	14,271
SNTR as % of GSDP	0.71	1.02	1.20	1.42	1.50	1.57	1.71	1.63	
SNTR net of Revenue Expenditure on Lotteries (Net SNTR)	1,690	2,116	2,372	2,799	3,302	3,708	4,878	3,572	6,397
Net SNTR as % of GSDP	0.46	0.51	0.51	0.55	0.59	0.60	0.71	0.52	
Central Govt. Transfers	9,700	9,862	11,607	15,434	21,612	23,735	27,715	25,361	29,942
% of GSDP	2.66	2.39	2.50	3.01	3.85	3.85	4.04	3.69	
Central Tax Devolution	5,900	6,841	7,469	7,926	12,691	15,223	16,892	16,833	19,932
% of GSDP	1.65	1.66	1.61	1.55	2.26	2.47	2.46	2.45	
Central Grants	3,710	3,021	4,138	7,508	8,921	8,510	10,823	8,528	10,009
% of GSDP	1.02	0.73	0.89	1.46	1.59	1.38	1.58	1.24	
Capital Receipts	12,284	15,685	17,050	17,719	17,965	26,763	23,392	27,221	24,217
% of GSDP	3.37	3.80	3.67	3.65	3.20	4.34	3.41	3.96	
Total Receipts	50,295	59,823	66,227	76,670	86,998	1,02,374	1,106,59	1,10,241	1,27,018
% of GSDP	13.82	14.51	14.24	14.96	15.48	16.61	16.12	16.05	
Total Expenditure	50,896	59,228	66,244	76,744	87,032	1,02,383	1,11,352	1,10,238	1,27,093
% of GSDP	13.98	14.36	14.24	14.97	15.49	16.61	16.22	16.05	
Revenue Expenditure	46,045	53,489	60,486	71,746	78,689	91,096	1,01,346	99,948	1,15,661
RE as % of GSDP	12.65	12.97	13.01	14.00	14.00	14.78	14.76	14.55	
Plan RE	5,327	6,849	7,074	10,283	12,077	13,492	14,021	16,182	19,421
Plan RE/GSDP	1.46	1.66	1.52	2.01	2.15	2.19	2.04	2.36	
Non Plan RE	40,717	46,639	53,412	61,464	66,611	77,605	87,325	83,767	96,240
Non Plan RE/ GSDP	11.18	11.31	11.49	11.99	11.85	12.59	12.72	12.20	

	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18 RE	2017-18 Actuals	2018-19 BE
Expenditure on Lotteries in RE	902	2,083	3,203	4,485	5,123	5,992	6,851		7,874
Capital Expenditure	3,853	4,603	4,294	4,255	7,500	10,126	8,668	8,749	10,320
% of GSDP	1.06	1.12	0.92	0.83	1.33	1.64	1.26	1.05	
Loan Disbursements	999	1,136	1,464	743	842	1,160	1,337	1,541	1,102
Plan CE	3,398	3,466	3,498	3,881	6,518	8,946	7,253	7,994	8,694
Revenue Deficit	8,034	9,351	11,309	13,796	9,657	15,485	13,080	16,928	12,860
% of GSDP	2.21	2.27	2.43	2.69	1.72	2.51	1.91	2.46	
Fiscal Deficit	12,815	15,002	16,944	18,642	17,818	26,448	22,774	26,837	23,957
% of GSDP	3.52	3.64	3.64	3.64	3.17	4.29	3.32	3.91	
Primary Deficit	6,521	7,797	8,679	8,872	6,708	14,332	9,248	11,718	9,019
% of GSDP	1.79	1.89	1.87	1.73	1.19	2.33	1.35	1.71	
Balance in Current Revenue (BCR)	5,449	4,973	6,917	9,533	1,322	5,252	6,292	4,166	1,547
Outstanding Debt	89,418	1,03,561	1,19,009	1,35,440	1,57,370	1,86,454	2,10,789	2,10,762	2,37,266
% of GSDP	24.56	25.12	25.59	26.42	28.00	30.25	30.70	30.68	
GSDP (Current Prices)	3,64,048	4,12,313	4,65,041	5,12,564	5,61,994	6,16,357	6,86,498	6,86,764	

Source: Finance Accounts, C&AG and Budget Documents, GoK and Department of Economics and Statistics, Kerala

Revenue Receipts

The largest component of revenue receipts of the State is OTR, though its shares declined since 2013-14. (Table 1.13) The decline in share of OTR in revenue receipts in 2014-15 to 60.79 per cent from 65.06 per cent in 2013-14 is due to the rise in share of Central grants to 12.96 per cent from 8.41 per cent in 2013-14. The rise in share of Central grants is due to change in procedure of routing Central share in Centrally Sponsored Schemes (CSS) through the State Budgets instead of directly to implementing agencies since 2014-15. The further fall in share OTR in 2015-16 is due to rise in share of Central taxes as 14th Finance Commission (FC) raised the share of States to 42 per cent in taxes collected by the Centre from 32 per cent and Kerala's inter se share going up from 2.34 per cent to 2.5 per cent.

The Central devolution of taxes went up in 2015-16 consequent to 14th FC award, even though OTR growth stagnated. But this one time jump in Central devolution of taxes was not there in 2016-17. As OTR growth rate continued to be slow after shock impact of demonetisation, the growth rate of revenue receipts had a marked decline to 9.53 per cent in 2016-17. The downward trend continued in 2017-18 with revenue receipts growing at 9.8 per cent (Table 1.14, Figure 1.9).

Own Tax Revenue (OTR)

The growth rate of OTR for 2016-17 was 8.16 per cent. It rose to 10.16 per cent in 2017-18. This indicates that the slowdown in growth rate of OTR since 2013-14 still continues.

The major component of OTR is commodity taxes, that is, Goods and Services Tax (GST)/Value Added Tax (VAT) and sales tax on petroleum and alcoholic liquor for human consumption. This comprised 78.75 per cent of OTR in 2017-18.

Table 1.13 Major revenue, expenditure, deficit and debt indicators of Kerala, in ₹ crore and per cent

Year	OTR	ONTR	Central Tax	Central Grants
2011-12	67.66	6.82	15.76	9.76
2012-13	68.14	9.51	15.5	6.85
2013-14	65.06	11.34	15.19	8.41
2014-15	60.79	12.57	13.68	12.96
2015-16	56.49	12.2	18.38	12.92
2016-17	55.78	12.83	20.14	11.25
2017-18	55.96	13.49	20.28	10.27
2018-19 BE	56.99	13.88	19.39	9.74

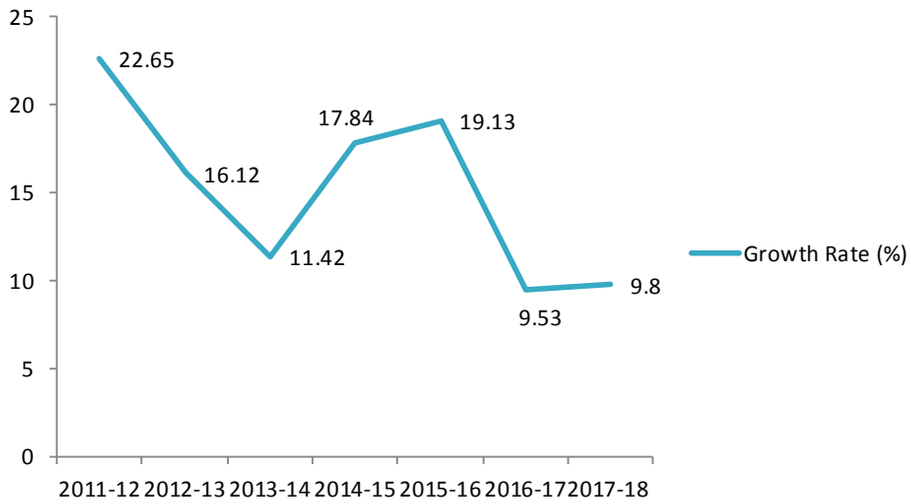
Source: Budget Documents, GoK

Table 1.14 Trends in deficit indicators, in per cent

Year	Revenue Receipts (₹ crore)	Growth Rate (%)
2011-12	38,010	22.65
2012-13	44,137	16.12
2013-14	49,177	11.42
2014-15	57,950	17.84
2015-16	69,033	19.13
2016-17	75,612	9.53
2017-18	83,020	9.8

Source: Budget Documents, GoK

Figure 1.9 Growth rate of revenue receipts, in per cent



Source: Budget Documents, GoK

The receipt from State's OTR in 2017-18 was ₹46,459.61 crore. In 2017-18 receipts from Sales Tax and VAT ₹24,577.81 crore) contributed 52.90 per cent of the total OTR, followed by 25.85 per cent from State Goods and services tax (₹12,007.69 crore), 7.88 per cent from Taxes on Vehicles (₹3,662.85 crore), 7.43 per cent from Stamp Duties and Registration Fees (₹3,452.56 crore), 4.82 per cent from State Excise Duties (₹2,240.42 crore), and 0.35 per cent from Land Revenue (₹162.16 crore). The growth rate of OTR in 2017-18 was 13.96 per cent.

The GST introduced with effect from July 1, 2017, recorded a growth rate of 17.39 per cent during July-March 2017-18 when compared to the same period in 2016-17 under VAT regime. The growth rate of, VAT during April-July 2017-18, was 8.71 per cent when compared with the corresponding period of 2016-17. Overall, growth rate of VAT/GST in 2017-18 was 15.24 per cent when compared 10.01 per cent in 2016-17 (Table 1.15). Though the growth rate of revenue from commodity taxes has gone up due to receipt of compensation[1], it is clear that for a top ranking consumer State like Kerala, GST has not brought in the expected gains. This is mainly due to fall in the rate at which most of the commodities are taxed, (which is now 9 per cent for the States[2] as against 14.5 per cent under VAT), apportionment of tax rates unfavourable to the States, complex return filing procedure and doing away with check posts while delaying implementation of e-way bill. The situation is expected to improve in future.

Non-Tax Revenues

Non-tax revenues of the State showed a growth rate of 15.46 per cent in 2017-18 (RE) over 2016-17. During 2016-17, the growth rate was 15.13 per cent. It needs to be taken note of that gross receipts from lotteries is the major component of State's non-tax revenue. If we net the expenditure

Box 1.4 Goods and Services Tax (GST)

After thirteen years of discussions and deliberations GST came into effect on July 1, 2017. The Value Added Tax (VAT) levied on intra-State transactions of goods by the respective States, Central Sales Tax (CST) levied and collected by the State in which the transactions originated were the major State taxes subsumed in GST. As regards Central taxes, central excise and service tax were subsumed in GST. Several other cesses and duties were also merged with GST. According to Article 366 (12A) supply of all goods and services except alcoholic liquor for human consumption fall in the purview of GST. Petroleum products would continue to be outside GST, till they are notified by the GST Council.

With GST coming in to being almost 44 per cent of the States OTR has been subsumed, while only 28 per cent of the Central Taxes has been merged with GST. But while apportioning the rates it has been 50:50 between Centre and the States. This is despite the recommendations of the committee on Revenue Neutral Rates (RNR) in 2015, headed by Chief Economic Advisor, GoI, that the apportionment should be 40:60 between Centre and States.

Though the Centre has many other buoyant sources of revenue left, the States have very little options left in the post-GST scenario. Tax rates of goods and services cannot be varied as these are recommended by the GST Council, which is formed body under Article 279A of the Constitution. The revenue performance of GST during the initial period has not been very encouraging for States including Kerala. This is due to the inbuilt bias in rates structure and implementation glitches.

Source: Memorandum submitted to the 15th Finance Commission by GoK

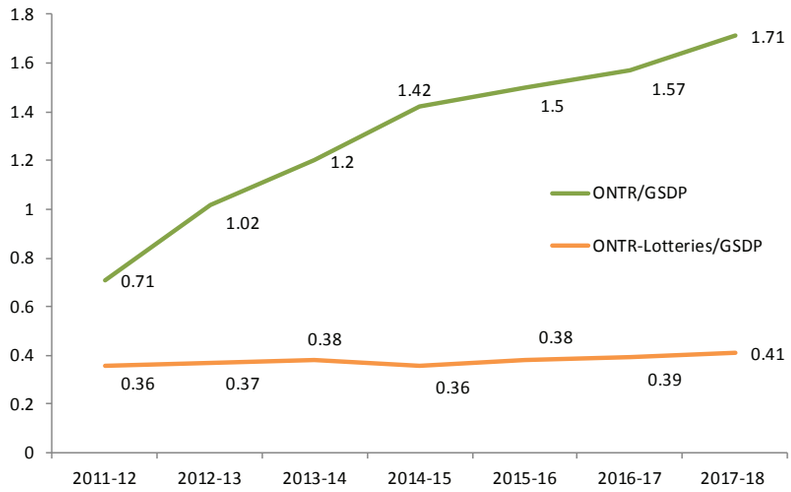
1 The compensation ensures a growth rate of 14 per cent per annum for taxes subsumed in GST with 2015-16 as the base. The compensation would be available for five financial years since 2017-18.
2 Under GST 80 per cent of the commodities are taxed at 18 per cent out of which 9 per cent is the State's share and the other 9 per cent is the Centre's share.

Table 1.15 Trends in VAT/GST revenue 2016-17 and 2017-18, ₹ in crore

	VAT Revenue in 2016-17	VAT/GST Revenue in 2017-18
	17,854	20,575
Growth Rate (%)	10.01	15.24

Source: GST Department, GoK

Figure 1.10 State's non tax revenues, with and without lotteries as a proportion of GSDP, in per cent



Source: Table 1.12

on lotteries, which constitutes prize money and commission, the growth rate of non-tax revenue in 2017-18 (RE) was 14.34 per cent as against 16.30 per cent in 2016-17. It can be seen that the rise in State's non-tax revenue as a proportion of GSDP since 2013-14 is due to increase in gross receipts form lotteries (Figure 1.10) In the State Budget 2018-19, measures to increase non-tax revenue in a gradual manner has been announced.

Central Resource Transfer

The two major components of Central devolution are share of taxes and grants as recommended by the FCs and grants disbursed by GoI. Within Central devolution, share of taxes to be devolved on the formula recommended by the FC as mandated in Article 280 of the Constitution. The FC also recommends grants-in-aid under Article 275 of the Constitution to bridge post-tax devolution revenue deficits. Besides, FC also devolves sector specific grants. The 14th FC did away with sector specific grants, except for Local Governments and for disaster response. The tax devolution and revenue deficit grants from the flexible part of Central resource transfer. The other components like Central share in CSS are tied grants over which States have no flexibility in spending. The trend in Central resource transfer to Kerala is presented in Table 1.16. The columns 2 and 3 represent flexible part of Central resource transfer and others tied part.

The share of tied part increased significantly in 2014-15 to 48.65 per cent from 35.65 per cent in 2013-14 due to rerouting of Central share in CSS through the Budget than directly to the implementing agencies. The increase is not actual but is due to the amounts, which were earlier given directly to the implementation agencies getting reflected in the Budget. The flexible part

Table 1.16 Components of central resource transfer, in ₹ crore

Year	Tax Devolution	FC grants (general)	FC grants (specific)	Non-Plan grants other than FC	State Plan grants	CSS/CS	Central Resource Transfer
1	2	3	4	5	6	7	8
2011-12	5,990	0	1174	259	904	1,372	9,699
2012-13	6,841	0	611	57	1,163	1,201	9,863
2013-14	7,469	0	1,568	111	1,154	1,305	11,607
2014-15	7,926	0	1,574	410	1,555	3,969	15,434
2015-16	12,691	4,640	531	6	60	3,684	21,612
2016-17	15,225	3,350	1,605	296	158	3,101	23,735
2017-18 RE	16,892	1,529	1,660	400	133	7,101	27,715

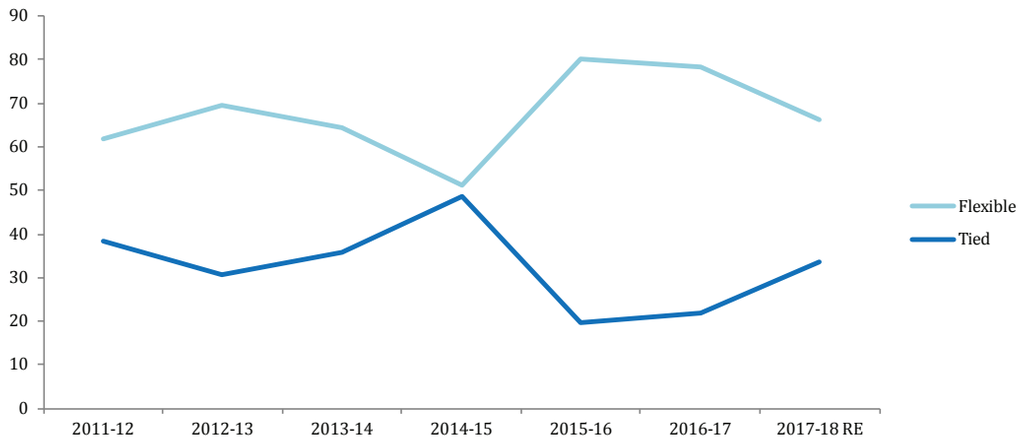
Source: Budget Documents, GoK; Report of the 14th FC

Table 1.17 Proportion of flexible and tied part in central resource transfer, in per cent

Year	Flexible	Tied
2011-12	61.76	38.24
2012-13	69.36	30.64
2013-14	64.35	35.65
2014-15	51.35	48.65
2015-16	80.19	19.81
2016-17	78.26	21.74
2017-18 RE	66.37	33.63

Source: Budget Documents, GoK and Report of the 14th FC

Figure 1.11 Proportion of flexible and tied grants in central resource transfer



Source: Table 1.17

recorded a marked increase to 80.19 per cent of the Central resource transfer in 2015-16 because of two reasons consequent to 14th FC award, a) the share of States in Central tax devolution was raised to 42 per cent of the Net Proceeds[3] of the taxes collected by the Union and Kerala's inter se share going up to 2.5 per cent from 2.34 per cent recommended by the 13th FC and b) Kerala getting RD grants amounting to ₹4,640 crore, ₹3,350 crore and ₹1,529 crore for three

Box 1.5 The Terms of Reference (ToR) of the 15th Finance Commission and the implications for States

As required under Article 280 of the Constitution, the President shall appoint a Finance Commission (FC) quinquennially to recommend the per cent of taxes collected by the Union to be distributed to the States, to recommended grants-in-aid for States in need and how the taxes and grants are to be distributed among the States. As per presidential notification S.O 3755 (E) dated November 27, 2017, the 15th Finance Commission has been constituted for making recommendations on the above subject for the period 2020-21 to 2024-2025.

Unlike in the past, certain items of the ToR of the 15th FC have evoked sharp reactions from some of the stakeholders. A group of State Finance Ministers have jointly submitted a memorandum to the President of India requesting reconsideration of certain items of the ToR, which are discussed below.

ToR 8 of the 15th FC mandates the Commission to use the population based on the Census 2011 while making its recommendations. Till now FCs were using Population based on the Census 1971 as one of the criteria for tax devolution. However, the 14th FC gave 10 per cent weightage for population based on the Census 2011. The argument of the States which have made substantial progress in attaining favourable demographic indicators following the National Population Policy, 1977, is that their share will precipitously fall resulting in their getting penalised for effectively implementing the national policy. Though States with higher population share need to get a larger share, it is contrary to the principles of equity and efficiency to reduce the share the States which have implemented the National Population Policy effectively. In short, the mandate of ToR 8 stymies the degrees of freedom of the FC to ensure delicate balancing of varying interests of different States.

ToR 5 of the 15th FC requires the Commission to examine whether revenue deficit grants should be given at all. This according to States like Kerala is beyond the constitutional mandate of the Commission.

Items in ToR of the 15th FC have sought to introduce a number of sector specific grants based on certain conditions. ToR 7 (viii) mentions "Control or lack of it in incurring expenditure on populist measures". At the same time, the States' achievement in flagship schemes of the GoI are sought to be rewarded. This ToR is discriminatory with regard to the welfare measures of democratically elected State Governments. The ToR is also oblivious of the historical background that many of the national flagship schemes were successfully implemented at the States' level before they became national flagship schemes.

The Group of Finance Ministers have expressed their concerns on many of the items of the ToR including ToR 6 (iv) which mandates the 15th FC to consider the impact of the recommendations of the 14th FC. This according to their joint memorandum is unwarranted.

Source: Memorandum submitted to the 15th Finance Commission by GoK

[3] Net Proceeds are Gross Tax Revenue of the Union less (surcharges and cesses + cost of collection of Union taxes). A share of Net Proceeds is devolved to the States based on recommendations of the Finance Commission constituted every five years as required under Article 280 of the Constitution.

Table 1.18 Share of general, social, economic services and grants in aid in revenue expenditure, in per cent

Year	General Services	Social Services	Economic Services	Grants in Aid
2011-12	44.09	35.24	13.32	7.36
2012-13	42.6	35.29	14.6	7.51
2013-14	43.99	34.69	13.11	8.22
2014-15	43.81	33.06	14.21	8.92
2015-16	45.86	35.08	14.1	4.96
2016-17	45.22	37.07	11.7	6.02
2017-18 RE	45.6	36.09	12.38	5.93

Source: Budget Documents, GoK

financial years 2015-16, 2016-17 and 2017-18 respectively. The State's Plan grants have become negligible since 2015-16, as the Centre did away with the Normal Central Assistance (NCA) based on Gadgil formula. As per 2017-18 (RE) the share of flexible part has come down to 66.37 per cent from 78.26 per cent in 2016-17 due to progressive reduction in RD grants from ₹3,395 crore in 2016-17 to ₹1,529 crore in 2017-18. (Table 1.17, Figure 1.11).

Revenue Expenditure

There is no major change in the shares of General, Social and Economic services and Grants-in Aid in revenue expenditure. General Services are predominately, general administration, police, jails and pensions other than social security pensions. Economic services include agriculture, irrigation, industries etc. and social services are mainly education and public health (Table 1.18).

As regards grants in aid, Kerala devolves substantial funds and functions to the Local Governments (LGs). The funds devolved are categorised as General Purpose, Maintenance and Development grants. A share of the OTR is assigned to the LGs for the first two grants and the third is a part of the State Plan funds is allotted to Local Governments. The action taken report on the latest State Finance Commission (SFC) report has stated that

a) General Purpose Fund will be 3.5 per cent of the State's OTR
b) Maintenance Fund will be 5.50 per cent, 5.60 per cent 5.75 per cent, 5.90 per cent and 6 per cent of the State's OTR for 2016-17, 2017-18, 2018-19, 2019-20 and 2020-21 respectively.
c) As regards, Development Fund, it will be linked to the State Plan size (23 per cent in 2016-17 which would increase to 25 per cent in 2020-21)

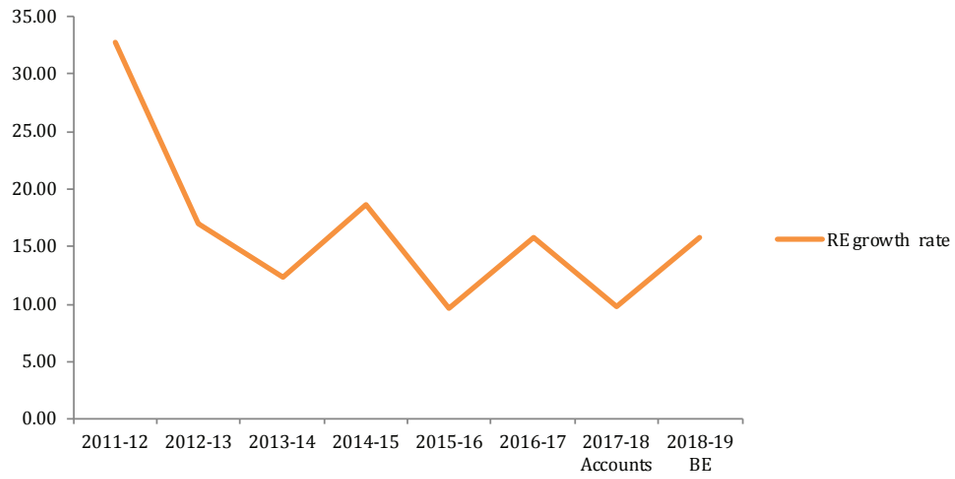
Revenue expenditure growth becoming very high in 2011-12 was due to the impact of implementation of the 9th pay commission recommendations. The growth rate rose to 18.62 per cent in 2014-15 and fell to 9.68 per cent in 2015-16. The fall in 2015-16 is due to postponement of expenditure including accepting and deferring implementing the pay commission award. This led to stress on revenue expenditure in 2016-17, when it rose to 15.77 per cent. The 10th pay commission recommendations are being implemented in three financial years, namely, 2016-17, 2017-18 and. 2018-19. The flood relief and rehabilitation would result in additional revenue expenditure burden in the coming financial years since 2018-19. However, it is to be taken note of that revenue expenditure growth rate in 2017-18 was contained at 9.71 per cent. While the Plan revenue expenditure grew at 19.94 per cent whereas non-Plan revenue expenditure growth rate was slower at 7.94 per cent (Table 1.19, Figure 1.12). The share of non-Plan component in revenue expenditure in 2017-18 was at 83.81 per cent which was slightly

Table 1.19 Revenue expenditure and growth rate, in ₹ crore and per cent

Year	Revenue Expenditure	Growth Rate of Revenue Expenditure	Plan Revenue Expenditure	Plan Revenue Expenditure Growth Rate	Non-Plan Revenue Expenditure	Non-Plan Revenue Expenditure
2011-12	46,045	32.83	5,327	26.95	40,717	33.63
2012-13	53,489	16.17	6,849	28.57	46,639	14.54
2013-14	60,486	13.08	7,074	3.29	53,412	14.52
2014-15	71,746	18.62	10,283	45.36	61,464	15.08
2015-16	78,689	9.68	12,077	17.45	66,611	8.37
2016-17	91,096	15.77	13,492	11.72	77,605	16.5
2017-18	99,948	9.71	16,182	19.94	83,767	7.94

Source: Budget Documents, GoK

Figure 1.12 Growth rate of revenue expenditure, in per cent



Source: Table 1.19

less than 85.1 per cent in 2016-17 (Table 1.19). The median growth rate of revenue expenditure of Kerala during the period 1987-88 to 2016-17 is 13.88 per cent. For a revenue led fiscal consolidation, there is a need for revenue receipts to grow at 16 to 18 per cent per annum and revenue expenditure growth to be at 14 per cent per annum in the medium run of next 5 years.

The spending social and economic services are classified as development expenditure and those in general services and grants in aid are categorised as non-development expenditure. But LGs spend a substantial portion of the grants on development expenditure (Table 1.20), which is not reflected in the Budget, leading to underestimation of development expenditure in the Budget.

Committed Revenue Expenditure

Revenue Expenditure has a committed and a flexible portion. The committed portion comprises salary, pension and interest payments and cannot be reduced in the short or medium term. The share of the committed portion in the

Table1.20 Development expenditure by Local Governments as a share of grants-in-aid, in per cent

Year	Grants to LGs	Development Expenditure of LGs	Share of Development Expenditure %
2011-12	3,389	2,714	80.08
2012-13	4,017	3,203	79.74
2013-14	4,971	4,012	80.71
2014-15	6,397	5,267	82.34
2015-16	3,903	3,061	78.43
2016-17	5,481	4,183	76.32
2017-18 RE	6,012	4,565	75.93
2018-19 BE	9,130	7,563	82.84

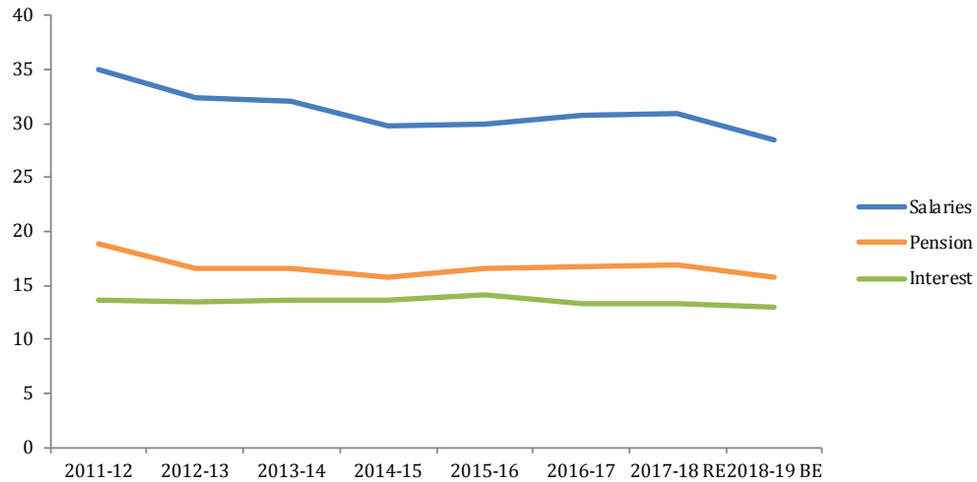
Source: Budget in Brief, GoK, 2018-19

Table 1.21 Share of salaries, pension and interest in revenue expenditure, in per cent

	Salaries	Pension	Interest	Total
2011-12	34.93	18.89	13.67	67.49
2012-13	32.37	16.58	13.47	62.41
2013-14	31.97	16.49	13.66	62.12
2014-15	29.84	15.68	13.62	59.14
2015-16	29.87	16.6	14.12	60.59
2016-17	30.69	16.77	13.3	60.76
2017-18 RE	30.93	16.84	13.35	61.12
2018-19 BE	28.47	15.75	12.92	57.14

Source: Budget Documents, GoK

Figure 1.13 Proportion of salary, pension and interest in revenue expenditure



Source: Table 1.21

revenue expenditure is coming down (Table 1.21, Figure 1.13). Besides, Kerala Government is committed to devolve resources to LGs and to ensure timely disbursement of social security pensions. This explains the preponderance of revenue expenditure in total expenditure.

Explicit Subsidies – Components and Trends

Food subsidy is the dominant part of the explicit subsidy and comprises of 86 per cent of the total. It is spent for supplies, the Public Distribution System (PDS) in the State. Over all, explicit subsidies as a proportion of GSDP is at 0.28 per cent in the State, compared to 2.25 per cent at all India level (Table 1.22).

Capital Expenditure

Let us look at the trends in capital expenditure, which is the total of capital outlay and loans and disbursements by the Government. It is to be noted that, the Kerala Infrastructure Investment Board (KIIFB) gives approval for capital expenditure, which is not reflected here (Table 1.23).

The share of capital expenditure has been around 9 per cent of the total expenditure (Table 1.24) At present, around 57 per cent of borrowed funds is utilised for revenue expenditure (2018-19 BE). If the process of fiscal consolidation aiming at higher growth in revenues and rationalisation of revenue expenditure is successful, a higher share of borrowings in the financial year can be used for capital expenditure.

The sector-wise share of capital expenditure reveals that the major component is economic services followed by general and social services. But in 2017-18 (RE) and 2018-19 (BE), the share of social sector is increasing and this indicates higher investment in education and public health infrastructure. The public works continued to remain the major segment of capital outlay with 27.19 per cent of the total capital outlay in 2017-18 followed by, Agriculture and allied

Table 1.22 Trends in components of subsidies, in ₹ crore

Year	Food	Power	Others	Total	Subsidy/GSDP %
2011-12	700	55	260	1,015	0.28
2012-13	895	75	297	1,267	0.31
2013-14	903	150	226	1,279	0.28
2014-15	1,027	50	176	1,253	0.24
2015-16	1,106	1.27	266	1,372	0.25
2016-17	1,492	1.03	238	1,731	0.28

Source: Finance Accounts, C&AG

Table 1.23 Components of capital expenditure, in ₹ crore

Year	Capital Expenditure	Loan Disbursements	General	Social	Economic
2011-12	3853	999	162	595	3096
2012-13	4603	1136	147	562	3894
2013-14	4294	1464	148	617	3529
2014-15	4255	743	135	875	3245
2015-16	7500	842	257	1035	6208
2016-17	10126	1160	211	1293	8622
2017-18 RE	8668	1337	280	1791	6597
2018-19 BE	10330	1102	328	2978	7024

Source: Budget Documents, GoK

Table 1.24 Share of capital expenditure in total expenditure, in per cent

Year	Capital Expenditure/Total Expenditure
2011-12	9.53
2012-13	9.69
2013-14	8.69
2014-15	6.51
2015-16	9.59
2016-17	11.02
2017-18	7.94
2018-19 BE	8.99

Source: Budget Documents, GoK

Table 1.25 Ratio of interest payments to revenue receipts, in per cent

Year	Interest Payments/ Revenue Receipts
2011-12	16.56
2012-13	16.32
2013-14	16.81
2014-15	16.86
2015-16	16.09
2016-17	16.03
2017-18 RE	15.32
2018-19 BE	14.53

Source: Budget Documents, GoK

activities (7.20 per cent), Industries (6.26 per cent) and Irrigation (6.22 per cent) (*Source*: Finance Department, GoK).

Out of the total expenditure of ₹1,10,237.82 crore in 2017-18, non-Plan and Plan expenditure stood at ₹84,681.58 crore and ₹25,556.24 crore respectively. Of the total expenditure non-Plan expenditure constitutes 76.82 per cent and Plan expenditure 23.18 per cent.

Debt Stock

Kerala's debt stock was at 30.25 per cent of GSDP in 2016-17. It was projected at 30.70 per cent in 2017-18 (RE). It is at 30.68 per cent as per 2017-18 (actuals). During 2011-12, debt-GSDP ratio had come down to 24.56 per cent and it rose to 28 per cent in 2015-16, before reaching 30.25 per cent in 2016-17. The reduction in ratio of debt stock to GSDP after 2011-12 is bacause of GSDP becoming larger as a result of shifting of its base from 2004-05 to 2011-12 prices.

Borrowings and Liabilities as a Proportion of Revenue Receipts[4]

This is an indicator of debt stress and this ratio has been coming down steadily during 2011-12 to 2018-19, as seen from (Table 1.25). This indicates the trend towards sustainability (Ratio of Interest Payments to Revenue Receipts). The ratio of interest payments to revenue receipts, which is used as a sustainability indicator, has been declining since 2014-15. The C&AG Report on State finances, 2016-17, has pointed out as follows and this is another favourable indicator.

[4] There is a difference between debt stock and borrowings and liabilities. The latter includes certain Public Account deposits, remittances and balances in suspense account.

"Interest payments as a percentage of revenue receipt showed a decreasing trend during the last two years, which indicated that State's interest liability was not growing with increase in debt liability."

Changing Composition of Borrowings and Liabilities

The composition of Borrowings and Liabilities has shifted markedly towards market borrowings, which has a lower interest burden. The share of Central loans have come down. The share of Small Savings and Provident Funds has been fluctuating and has come down as per 2018-19 BE (Table 1.26). The former declined as GoI discontinued with the passing of external assistance as Central loans, with a grant component[5]. The change in composition has helped in reducing the burden of interest payments and is a movement towards fiscal consolidation.

Guarantees given by the Government of Kerala

The Audit Report in State finances by C&AG (2017) has given details of guarantees issued and outstanding. The Kerala Ceiling in Government Guarantees Act, 2003 initially fixed the limit of Government guarantees at ₹14,000 crore. This was amended in 2015 and the ceiling was raised to ₹21,000 crore. The guarantees issued and outstanding for the period 2011-12 to 2016-17 is in Table 1.27.

It can be seen that the guarantees outstanding have been below the ceiling prescribed in the Kerala Ceiling in Government Guarantees Act, 2003, as amended in 2015. The State Budget 2018-19, has proposed more flexibility in guarantees by making it a per cent of total borrowings and liabilities, to facilitate the State's borrowing for infrastructural needs while keeping fiscal consolidation as a priority.

Table 1.26 Composition of borrowings and liabilities, in per cent

Year	Market borrowings	Loans from Centre	Small savings and PF
2011-12	41.12	6.86	29.64
2012-13	44.95	6.1	28.84
2013-14	48.49	5.37	28.64
2014-15	50.66	4.97	27.67
2015-16	52.82	4.5	29.66
2016-17	52.42	4.01	31.9
2017-18 RE	54.8	4.09	30.1
2018-19 BE	57.25	3.95	28.51

Source: Budget Documents, GoK

Table 1.27 Guarantees outstanding by the GoK, in ₹ crore

Year	Guarantee Outstanding	Guarantee Ceiling
2011-12	8277.44	14000
2012-13	9099.5	14000
2013-14	9763.36	14000
2014-15	11126.87	14000
2015-16	12538.52	21000
2016-17	16245.56	21000
2017-18	17052.96	21000

Source: Table 1.12and C&AG, Audit Report No 2 of 2017, State Finances

5 This was based on the recommendations of the 12th Finance Commission

Box 1.6 Co-integration between revenue receipts and revenue expenditure

To test sustainability of debt, the long run association between revenue receipts and revenue expenditure was tested for the thirty year period 1987-88 to 2018-19. (the figures for 2017-18 are Revised Estimates and for 2018-19 are Budget Estimates. The figures for the remaining years are Budget Actuals).

The null hypothesis is that there is unit root and the time series variable is not stationary. Non-stationarity is taken as an indicator of non-sustainability. When the variables are co-integrated, they move in the same direction during the time period.

Revenue receipts and revenue expenditure from 1987-88 to 2018-19 are stationary at first difference of their logarithmic transformations at 1 per cent level of significance and the residuals are stationary at levels at 1 per cent level of significance. The revenue receipts and revenue expenditure are co-integrated at their logarithmic first differences or in other words, their growth rates. This indicates long-run movement in the same direction of the two variables. This is an indicator of non-divergent movement of the two variables in the revenue account and this is a positive indicator.

Results of Stationarity and Co-integration Tests for Revenue Receipts and Revenue Expenditure

	t-ADF 1% and 5 %	t-ADF value
Constant	5% -3.591% -4.76	2.074
Revenue Receipts	5% -3.60 1%-4.37	-4.681**
Revenue Expenditure	5% -3.60 1%-4.37	-5.578**
Residuals	5% -3.60 1%-4.37	-4.374**

Stationarity Test for Borrowings and Liabilities – An Analysis

Whether Borrowings and Liabilities are stationary or not during the period 2000-01 to 2018-19 was tested using Augmented Dicky Fuller (ADF) tests. The null hypothesis is that there is unit root and the time series variable is not stationary. Non -stationarity is taken as an indicator of non -sustainability. When stationarity of Borrowings and Liabilities for the period 2000-01 to 2018-19 was tested using ADF test, it was found that its logarithmic transformation was stationary at first difference at 5 per cent level of significance.

Details of major physical indicators are given in Appendix 1.40, 1.41, 1.42, 1.43, 1.44, 1.45, 1.46, and 1.47.

The Way Ahead

Kerala's renewed efforts for fiscal consolidation since 2016-17 through higher mobilisation of own revenues received major setbacks from policy measures beyond the control of the State Government like demonetisation, non-revenue neutral rate apportionment and implementation problems in GST. Besides, the State faced unprecedented natural calamities like ockhi cyclone and heavy floods. These not only slowdown the revenue potential but also put substantial additional expenditure burden. Additional borrowing limits and grants have been requested from the Centre and GST Council was approached for levy of GST cess for a limited period as envisaged under Article 279A(4)(f) of the Constitution. Delay in acceding to

these requests would adversely affect the fiscal consolidation efforts of the State. The report of the FRBM Review Committee (2017), which has recommended debt-GDP and FD ratios of 20 and 1.7 per cent respectively for States would impede the development and capital expenditure of all States, especially States like Kerala. Co-operative federalism would be meaningful, only when adequate fiscal support is forthcoming in times of distress. Fiscal consolidation is the aim in the medium run, but when rebuilding the State is the most important priority, annual deficit targets need to be relaxed at least for a year. Dalton (1951) aptly remarked "There is no special sanctity in the period in which the earth revolves round the sun". A higher deficit needs to be incurred when the State has to recover and build a New Kerala. Fiscal Deficit targets can be for a cycle, especially in a situation like one which Kerala is in today.

Plan Outlay 2018-19

Consequent to the inception of National Institution for Transforming India (NITI) Aayog at the Centre, Government of India did away with the Five-Year Plans. But, Government of Kerala has resolved to proceed with the Five-Year Plan and Annual Plans. The State Planning Board has formulated the 13th Five-Year Plan (2017-22).

The Annual Plan 2018-19 was the second year of the 13th Five-Year Plan. Scrupulous compliance of guidelines and appraisal of all ongoing schemes have been ensured. Unwanted or non-productive programmes have been discarded and in view of better coherence, schemes of same or common nomenclatures were merged. New schemes have been incorporated on a priority basis as announced in the Budget.

In the Annual Plan 2018-19 the aggregate outlay was ₹37,247.99 crore which includes the State Plan of ₹29,150 crore and Central assistance of ₹8,097.99. The total State Plan outlay for 2018-19 at ₹29,150 crore, reflected an increase of 10 per cent over the outlay of ₹26,500 crore for 2017-18. Out of the State Plan outlay ₹7,000 crore was earmarked for assistance to Local Governments and the remaining ₹22,150 crore was for State sector schemes. ₹2,859.62 crore was allocated to Special Component Plan (SCCP) and ₹826.19 crore was to Tribal Sub Plan (TSP). An amount of ₹1,588.31 crore was proposed for major infrastructure development projects. ₹3,240.33 crore of State Plan outlay was exclusively earmarked for the benefit of girls/women, which includes ₹4.2 crore for the Trans Gender community. In 2018-19 the total allocation of resources intended for benefiting children was ₹1,820.58 crore. The sector-wise comparative statement on the outlays of Annual Plan 2017-18 and 2018-19 given in Table 1.28.

Digitalisation of Monitoring Mechanism

Plan Space –District Roll out

As a measure to strengthen the Plan monitoring and evaluation mechanism in the State, a software called "PLANSPACE – System For Progress Analysis And Concurrent Evaluation" was developed by the State Planning Board with the technical support of IIITM-K. It is web based online management information system that can monitor and evaluate the progress of implementation of each and every Plan scheme across all departments in the State on a real time basis.

The system captures the relevant details about a Plan scheme/project, its various components, physical/financial progress and implementation status at different levels and generated dynamic, customised reports for various stakeholders. By providing real time information, the system acts as a supporting tool for the Government, State Planning Board, Head of departments, Secretaries and various departments to facilitate and improve the planning and decision making process. The Annual Plan proposals for the year 2018-19 were received online from head of departments and implementing agencies through Planspace. The system was also integrated with the Treasury Information System.

Table 1.28 Annual Plan 2017-18 and 2018-19 sector-wise outlay comparative statement, ₹ in crore

SL No.	Sector	2017-18			2018-19			% of increase over 2017-18
		Outlay	CSS	Aggregate	Outlay	CSS	Aggregate	
1	2	3	4	5	6	7	8	9
I	Agriculture and allied activities	1,571.65	408.38	1,980.03	1,750.80	405.68	2,156.48	8.91
II	Rural Development	973.72	3,522.71	4,496.43	1,183.10	3,278.05	4,461.15	-0.78
III	Special area programmes	404.02		404.02	420.68		420.68	4.12
IV	Irrigation and flood control	676.21	86.02	762.23	557.03	101.57	658.6	-13.6
V	Energy	1,629.29		1,629.29	1,784.11		1,784.11	9.5
VI	Industry and Minerals	888.77		888.77	979.81		979.81	10.24
VII	Transport	1,735.08		1,735.08	1801.37		1801.37	3.82
VIII	Science, Technology and Environment	994.89	68.1	1,062.99	1,096.55	154.25	1,250.80	17.67
IX	General Economic Services	2,383.71	32.08	2,415.79	2,604.97	96.05	2,701.02	11.81
X	Social services	8,929.16	3,885.66	12,814.82	9,879.39	4,026.39	13,905.77	8.51
XI	General Services	86	36	122	92.2	36	128.2	5.08
	Total-I to XI	20,272.50	8,038.95	28,311.45	22,150.00	8,097.99	30,247.99	6.84
XII	LSGD	6,227.50		6,227.50	7,000		7,000	12.4
	Grand Total	26,500.00	8,038.95	34,538.95	29,150.00	8,097.99	37,247.99	7.84

With a view to strengthen the District Level Plan Monitoring System, Planspace has been rolled out to all the Districts in the State in 2015-16. The system enables implementing officers at District and sub-District levels to directly feed in data into the system, thus further enhancing its accuracy and timeliness. The integration of District level data to State level was done in 2017-18.

References

Dalton, Hugh (1951) *'Principles of Public Finance'*, Routledge and Kegan Paul Ltd., London

Goldscheid, Rudolph (1967) "A Sociological Approach to Problems in Public Finance" in the *'Classics in the Theory of Public Finance'*, edited by Richard A Musgrave and Alan T Peacock., Macmillan

Government of India (2014), "Report of the Expert Group to Review the Methodology of Poverty", Chairman Dr C Rangarajan.

Hatzius, Jan, Jari Stehn, Sven, Fawcett, Nicholas, Radde, Soeren, and Chaudhary, Manav (2018) "Landing the Plane Global Economic Analyst", Technical paper, Goldmansachs, November 2018, available on *www.goldmansachs.com/insights/pages/outlook-2019/global-outlook/report.pdf*

International Monetary Fund (2018), "World Economic Outlook: Challenges to Steady Growth", Washington, DC, available on *www.imf.org/en/Publications/WEO/Issues/2018/09/24/world-economic-outlook-october-2018, updated January 2, 2019*

Kituyi Mukhisa (2018), "Address to the International Monetary and Financial Committee and Development Committee", Bali, Indonesia October, available on *http://documents.worldbank.org/curated/en/504081539872309936/text/dcs2018-0061-10132018-636754107315160275.txt*

Lepenies, Phillipp (2016), "*The Power of a Single Number, A Political History of GDP*", Colombia University.

Roberts, Michael (2018), "Forecast for 2019", December 28, available on *www.thenextrecession.wordpress.com/2018/12/28/forecast-for-2019/*

CHAPTER

02

AGRICULTURE AND ALLIED SECTORS

CHAPTER 02

Agriculture and Allied Sectors

Agriculture

Trends in Growth Rate

Despite its declining share in the Gross Domestic Product (GDP) of the country, agriculture continues to play a crucial role in providing food, nutrition and livelihood to the millions. The agriculture sector in Kerala has been facing challenges with regard to its growth. According to the data from the Directorate of Economics and Statistics (DES), the annual growth rate (GSVA at constant 2011-12 prices) of agriculture and allied activities (including crop, livestock, forestry and logging and fishing and aquaculture) was (-)6.31 per cent in 2013-14, 0.02 per cent in 2014-15, (-)5.10 per cent in 2015-16 and 0.08 per cent in 2016-17. The sector witnessed a growth of 3.64 per cent in 2017-18. The all India growth rate of agriculture and allied sectors was 5.57 per cent, (-)0.22 per cent, 0.59 per cent, 6.29 per cent and 3.37 per cent in 2013-14, 2014-15, 2015-16, 2016-17 and 2017-18 respectively. The growth rate of agriculture and allied sectors in Kerala was lower than the all India growth rate till 2017-18. In 2017-18, the growth rate in Kerala was ahead of the growth rate at all India level. The share of Agriculture and allied sectors in total GSVA (at constant 2011-12 prices) of the State has witnessed a secular decline from 13.77 per cent in 2012-13 to 10.04 per cent in 2017-18. Details are provided in Table 2.1.

Monsoon 2018

Indian agriculture has been historically described as a gamble with the monsoon because agricultural activity in most parts of the country is dependent on the monsoon.

Table 2.1 Share of agriculture and allied sectors in GVA/GSVA National and State level, constant prices 2011-12

Sl.No	Year	Share of Agriculture and allied sectors in Total GVA (India)	Share of Agriculture and allied sectors in GSVA (Kerala)
1	2012-13	17.8	13.77
2	2013-14	17.7	12.37
3	2014-15	16.5	11.92
4	2015-16	15.4	10.74
5	2016-17	15.3	10.26 (P)
6	2017-18	NA	10.04 (Q)

(P) Provisional, (Q) Quick
Source: National Accounts Statistics 2018, GoI and Directorate of Economics and Statistics, GoK

The season (June-September) rainfall over the country as a whole in 2018, was 91 per cent of its Long Period Average (LPA), which shows an overall deficiency of 9 per cent. This at all India level deficiency is mainly attributed to the very large rainfall deficiency observed over northeast India (24 per cent). Out of the total 36 meteorological subdivisions, 23 subdivisions constituting 68 per cent of the total area of the country received normal season rainfall, 1 subdivision (Kerala) received excess rainfall (1 per cent of the total area), and 12 subdivisions (31 per cent of the total area) received deficient season rainfall. southwest monsoon current reached south the Andaman Sea and the Nicobar Islands on May 25 (5 days later than its normal date), but further advance was relatively faster.

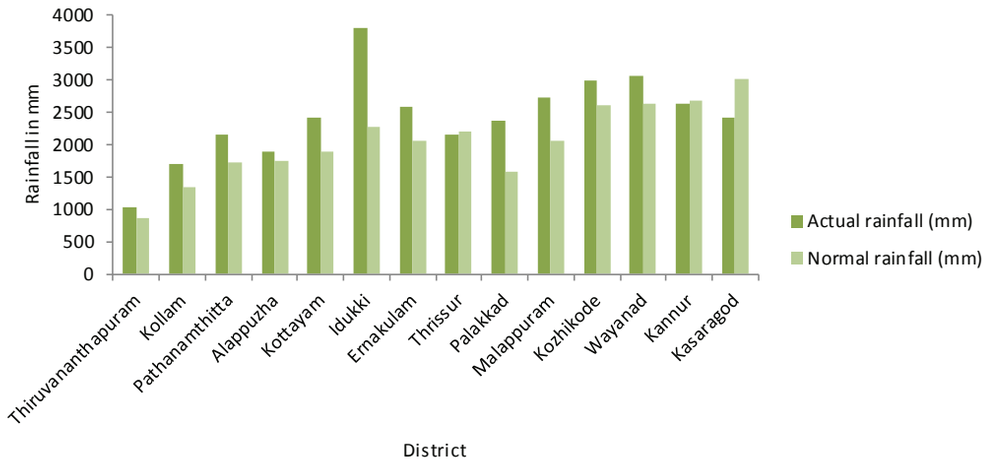
In Kerala the southwest monsoon had set in on May 29, 2018, three days ahead of its normal date of June 1, 2018. The southwest monsoon covered the entire country June 29, 2018, two weeks earlier than the normal date of July 15, 2018. In the recent past, 2015 and 2013 had also witnessed rapid advance of southwest monsoon when it covered the entire country on June 26 and June 16 respectively. The 2018 season was characterised by large day to day variability within the season.

The actual rainfall received in Kerala during southwest monsoon season (June 1 to September 30, 2018) was 2,515.7 mm as against the normal rainfall of 2,039.7 mm showing (+)23 per cent departure from normal. Out of the 14 Districts, seven Districts received normal rainfall and the other seven Districts received excess rainfall. The highest rainfall of 3,794 mm was recorded in Idukki District showing (+)67 per cent departure from the normal, were the lowest rainfall of 1,023.7 mm was recorded in Thiruvananthapuram District showing departure of (+)17 per cent from the normal (Figure 2.1).

In 2018, Kerala experienced one of the worst floods in the last nine decades, due to frequent heavy rain spells and several extremely heavy rain events, especially during the first half of August. Most noticeable feature of rainfall distribution in August, 2018 was the large spatial variability with excess rainfall recording 196 per cent of the LPA.

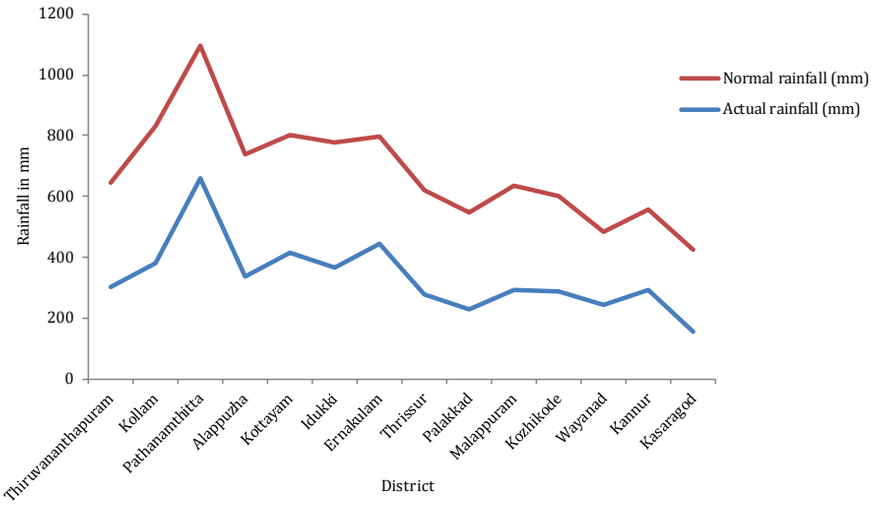
During the northeast monsoon season 2018 (October 1 to December 31, 2018) the State received 465.5 mm of rainfall. This was (-)3 per cent from the normal rain fall of 480.7mm. Seven Districts in Kerala received normal rainfall during this season. Kollam,

Figure 2.1 Southwest monsoon rainfall received from June 1 to September 30, 2018



Source: IMD, Thiruvananthapuram

Figure 2.2 Northeast monsoon rainfall from October 1 to December 31, 2018



Source: IMD, Thiruvananthapuram

Thrissur, Palakkad and Kasaragod recorded deficient rainfall. Percentage departure from the normal was highest in Kottayam District (+)49 per cent, which recorded excess rainfall (Figure 2.2). District-wise rainfall distribution in the State in 2018 is given in Appendix 2.1.

The pre-monsoon rainfall received in the State from March 1, 2018 to May 31, 2018 was excess with a departure of (+)37 per cent from the normal. The actual rainfall received in the period was 521.8 mm against the normal of 379.9 mm. Out of the 14 Districts, 10 Districts received excess rainfall. Thiruvananthapuram and Alappuzha Districts recorded negative departure of (-)1 and (-)5 per cent respectively from the normal. The percentage departure from normal was highest in Kozhikode (93 per cent) followed by Palakkad (69 per cent) Malappuram (65 per cent), Wayanad (64 per cent) and Kasaragod (61 per cent) Districts.

The winter rainfall for the period January 1 to February 28, 2018 in Kerala was deficient with a departure of (-)30 per cent from the normal.

The agriculture sector in Kerala has been badly hit by the extreme rainfall of July-August 2018. The crop loss subsequent to the floods is estimated at ₹3,558 crore. Steps have been taken by the State Government to mitigate the impact by providing financial and technical assistance.

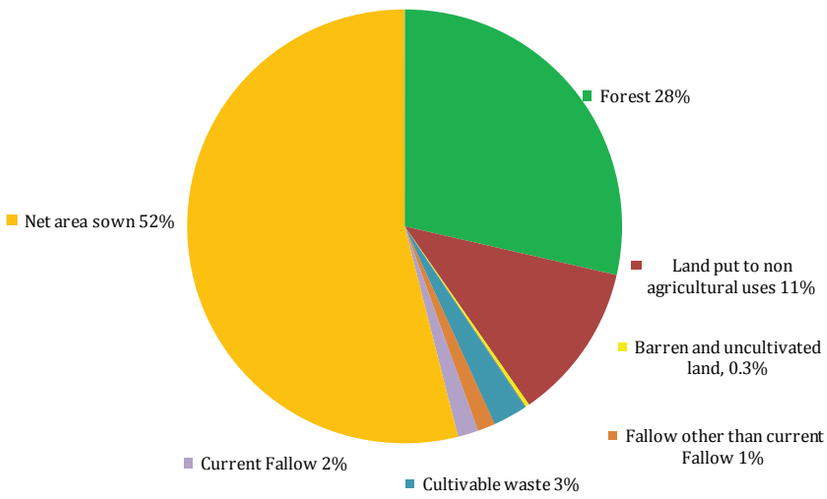
Land Use

Changes in land use and cropping pattern in Kerala pose a challenge not only to food security but also to the ecological sustainability of the State. An analysis of changes in land use pattern over a period of time helps us to comprehend the present scenario of agricultural land utilisation. Data on land use pattern and number of operational holdings for the year 2017-18 is given in Appendices 2.2 and 2.3.

As per the land use data of 2017-18, out of a total geographical area of 38.86 lakh ha, total cultivated area is 25.79 lakh ha (66 per cent) and the net area sown is 20.40 lakh ha (52 per cent). Land put to non-agricultural use stands at 11 per cent and forest area is 28 per cent. The cultivable waste and current fallow constituted 3 and 2 per cent respectively.

As compared to 2016-17, there is a decline in area under barren and uncultivated land, cultivable waste, fallow other than current fallow and current fallow by 8 per cent, 5 per cent, 11

Figure 2.3 Land use pattern of Kerala 2017-18



Source: Directorate of Economics and Statistics

per cent and 20 per cent respectively. The land use pattern is shown in Figure 2.3.

Cropping Pattern

Kerala has unique and diverse agro-climatic specialities, which enable it to cultivate many types of crops. In the earlier days agricultural land utilisation was according to the agronomic conditions of land and food crops occupied a major part of cultivated land. There has been a gradual shift from the food crops to cash crops and at present the cropping pattern in Kerala is dominated by cash crops.

Food crops comprising rice, tapioca and pulses accounted for just 10.12 per cent of the total cropped area in 2017-18 while cash crops (cashew, rubber, pepper, coconut, cardamom, tea and coffee) constituted 61.6 per cent. The area under crops like rubber, coffee, tea and cardamom was 27.3 per cent of the total cropped area.

Coconut occupies the largest area with 29.5 per cent coverage followed by rubber with 21.4 per cent. Rice comes third with 7.3 per cent of the total cropped area. An increase of 10.3 per cent, 14.6 per cent and 2.2 per cent respectively has been recorded for the area under the food crops rice, pulses and tapioca in 2017-18. Even though there is an increase in area under food crops in 2017-18 compared to 2016-17, there has been a decline from the 2015-16 levels. Except for rice, pulses, banana, turmeric, tapioca and rubber, all other crops recorded a declining trend in area under cultivation. There is no change in the area cultivated under coffee, tea and cardamom (Appendix 2.4).

Crop-Wise Analysis

Rice

Rice is the major food crop cultivated in the State occupying 7.3 per cent of the total cultivated area. On analysing the area under cultivation for the last 10 years, the area under paddy cultivation was highest in 2008-09 recording an area of 2.34 lakh ha., which was 8.69 per cent of the total cropped area. The area under paddy cultivation in Kerala in 2017-18 was 1.94 lakh ha of which 1.89 lakh ha was wetland paddy. The production in 2017-18 was 5.21 lakh tonnes which shows

a decline of 11.7 per cent compared to 2008-09 levels. While the area under wetland paddy increased by 17,688 ha (10.3 per cent) over 2016-17, there is a decline of 7,784 ha (3.9 per cent) compared to 2015-16[1].

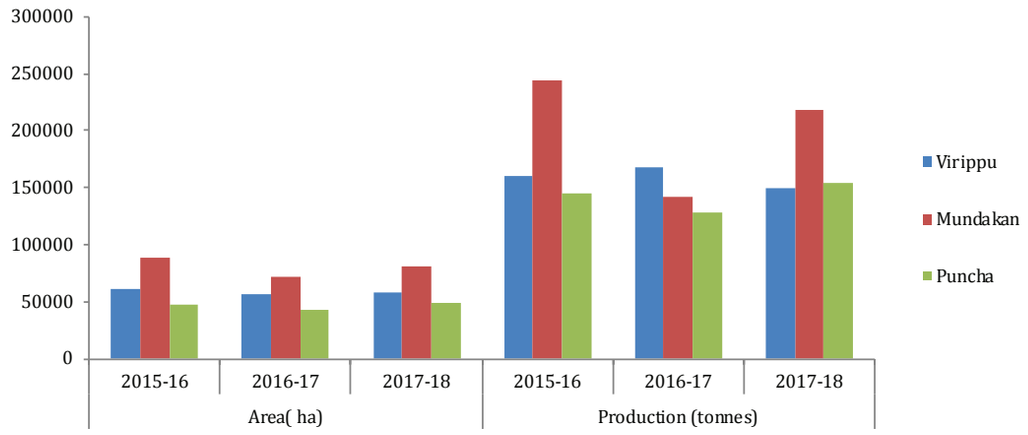
With respect to production, an increase of 19 per cent (5.21 lakh tonnes) was recorded in 2017-18 compared to 2016-17, but a decline of 5.1 per cent when compared to 2015-16 (Appendix 2.5). The productivity of rice had shown an increase from 2,547 kg/ha in 2016-17 to 2,757 kg/ha in 2017-18.

There are three main rice growing seasons in the State: (a) *Virippu* season/Autumn season/ First crop season, which starts in April-May and extends up to September-October; (b) *Mundakan* season/Winter season/Second crop season, which starts in September-October and extends up to December-January; and (c) *Puncha* season/ Summer season/Third crop season, which starts in December-January and extends up to March-April. Season-wise trends reveal that the area under *virippu, mundakan* and *punja* has increased over the previous year, but not reached the level of 2015-16 except for *puncha* (Figure 2.4). *Mundakan* and *puncha* crop showed an increasing trend in production and productivity compared to 2016-17. The productivity of *Puncha* was the highest among the three seasons and 2017-18 recorded the highest yield over the last three years. *Mundakan* crop is prominent in the State (Appendix 2.6). While *Puncha* crop is dominant in Alappuzha District, *Mundakan* crop is prominent in Palakkad District (Appendix 2.8).

Palakkad, Alappuzha, Thrissur and Kottayam accounted for about 79.6 per cent of the total area of rice in the State, their individual shares being 39.8 per cent, 19.2 per cent, 11.5 per cent and 9.2 per cent respectively. These Districts contributed 81 per cent of the total rice production in the State. Palakkad and Alappuzha Districts stood first and second with respect to area and production of rice in the State. But with respect to productivity, Thrissur and Malappuram hold the first and second position. Hence, measures to increase the productivity need to be chalked out in the Districts with dominant rice production. A decline in productivity was recorded in Pathanamthitta, Alappuzha and Kannur Districts in 2017-18 compared to 2016-17 (Appendix 2.7).

Interventions to promote paddy cultivation by providing assistance to undertake fallow land cultivation, upland cultivation, conversion of

Figure 2.4 Season-wise area and production of rice in Kerala, 2015-16 to 2017-18



Source: Directorate of Economics and Statistics

1. The Department of Agriculture had conducted an assessment and found that the area under wetland paddy cultivation in 2017-18 was 2.2 lakh ha which is 0.31 lakh ha more than the figure estimated by the DES.

single crop to double crop and promotion of specialty rice helped to achieve increase in area under rice over the previous year.

Key initiatives for Paddy development in 2018-19 include:

- Input assistance @ ₹5,500/ ha.
- Paddy cultivation in fallow lands, uplands and in urban areas.
- "Rice Innovation Fund" for new, ecofriendly and sustainable technologies.
- Focused interventions in seven Special Agriculture Zones for paddy viz., Kuttanad, *Onattukara, Pokkali, Kole,* Palakkad, Wayanad and *Kaipad* to enhance production and productivity of rice and augment farmers' income.

Coconut

Although coconut is one of the principal crops, its cultivation in the State has not been encouraging over the years. Kerala's share in area as well as production of coconut in the country, which stood at for 69.58 per cent of the area and 69.52 per cent of the production in 1960-61, has declined to 37.6 per cent and 31.9 per cent respectively in 2016-17. A further decline of 2.8 per cent in production is recorded in the State in 2017-18 over 2016-17. Among the four major coconut producing States in the country, Kerala stands first with respect to area and production, but in productivity it is fourth, next to Tamil Nadu, Karnataka and Andhra Pradesh.

(*Source:* Coconut Development Board Statistics 2016-17).

Coconut, cultivated in 7.60 lakh ha occupies 29.5 per cent of the gross cropped area. Compared to the area under coconut cultivation in 2008-09, a 3 per cent decline has been observed during the last decade in the State. The decline in production was 9.85 per cent during the last decade indicating the comparatively low per hectare productivity of coconut in the State. A decline of 2.7 per cent in area, 2.8 per cent in production and 0.16 per cent in productivity has been observed in 2017-18 compared to 2016-17 (Appendix 2.9).

The decline in area could be attributed to high labour cost, shortage of skilled labour, non-remunerative price and lack of promotional programmes for marketing coconut products. The main cause for falling productivity is the prevalence of root wilt disease, poor management and prevalence of senile and unproductive palms, especially in the southern region. Hence, massive replanting of root wilt palms by elite palms and elimination of senile palms by replanting and under planting, setting up of nurseries for production of quality seedlings and their subsequent distribution is required for increasing productivity. The isolated attempts of production of dwarf coconut seedlings and hybrids need to be scaled up substantially with the support of research and development institutions. Entrepreneurial ventures for the production of value added products like desiccated coconut, beverages, shell based products, coconut cream, Neera etc has to be promoted with appropriate tie up with credit and marketing agencies.

The initiative taken by Government in promoting Neera and value addition, Keragramam programme for the integrated management of coconut gardens on cluster basis and massive replanting strategy to replace senile and diseased palms in the State in a time bound manner is expected to revive coconut sector of the State in the near future.

Pepper

India's pepper production in the recent years had been stagnant around 50,000 tonnes and the country has been losing its status as leading producer and exporter of pepper. Pepper production in India in 2016-17 was estimated around 55 thousand tonnes compared to 48.5 thousand tonnes in 2015-16 (United Planters Association of Southern India (UPASI) Annual Report). Kerala accounts for 59 per cent of the national production in 2017-18 with 37,955 tonnes. This is 11.4 per cent increase in production over 2016-17 (Appendix 2.4).

There has been a rallying in pepper price since 2011 and it increased consistently upto 2016 as

the price averaged ₹697.69 per kg, an increase of ₹50.9 per kg. However, the prices declined by ₹1,68.1 to ₹529.59 in 2017 indicating a halt in increasing price trend. The decline in pepper prices was largely on account of imports of pepper into the country.

(*Source*: UPASI Annual Report 2017-18).

In order to revive spices development in the State, pepper rehabilitation programme through decentralised pepper nurseries, establishment of new pepper gardens, and revitalisation of existing gardens are being carried by the Department of Agriculture. Integrated pepper development in Idukki, assistance for area expansion, support to secondary and micro nutrients, soil ameliorants and revitalisation of pepper samithies are the key initiatives to promote pepper production in the State.

Cashew

India being one of the largest producers of raw cashew nuts in the world stood to Vietnam and Nigeria in cashew production in 2016 contributing to 15 per cent of the world production. The production of raw cashew nuts increased from 779 thousand metric tonnes in 2016-17 to 817 thousand metric tonnes in 2017-18. The area under cashew cultivation also recorded an increase from 1,035 thousand hectares to 1,041 thousand hectares in the respective years.

Among the cashew growing States in India, Maharashtra stands first in area and production contributing a share of 18 per cent and 33 per cent followed by Andhra Pradesh contributing to 18 per cent and 14 per cent respectively. Kerala's share to national cashew area and production was 3.8 per cent and 10.79 per cent respectively in 2017-18.

(*Source*: Directorate of Cashewnut and Cocoa Development, CEPCI).

In the last one decade in Kerala, there has been a continuous and considerable decline in both area and production of cashew. It's distressing to note that the production which stood at 42 thousand metric tonnes in 2008-09 declined to 25.6 thousand metric tonnes in 2017-18, with a decline in the area from 53 thousand hectares to 39.7 thousand hectares during the same period. Productivity of the crop which was around 799 kg per hectare in the 2008-09 also showed a decline to 645 kg per hectare in 2017-18 seriously affecting the prospects of the crop (Appendix 2.10).

Plantation crops

Plantation crops are high value commercial crops of great economic importance and play a vital role in the Indian economy, in view of their export and employment generation potential and capacity for poverty alleviation, particularly in rural sector. Each of the four plantation crops of South India has its distinct characteristics and economic problems.

Kerala has a substantial share in the four plantation crops of rubber, tea, coffee and cardamom. These four crops together occupy 7.05 lakh ha, accounting for 34.6 per cent of the net cropped area in the State (Appendix 2.4). Kerala's share in the national production of rubber is 78 per cent, cardamom 88 per cent, coffee 21 per cent and tea 4.7 per cent in the year 2017-18 (Appendix 2.11).

Rubber

India is currently the sixth largest producer of Natural Rubber (NR) in 2017 with a share of 5.3 per cent of world production. The production of NR in India in the year 2017-18 was 6.94 lakh tonnes, registering a marginal growth of 0.4 per cent compared to 6.91 lakh tonnes produced a year ago. The tapped area in the year was only 78 per cent of the tappable area while the expected ratio was 90 per cent. The country has consumed 11.12 lakh tonnes of NR in 2017-18 placing it second with 8.2 per cent of the world consumption. It is up by 6.5 per cent from the quantity of 10,44,075 tonnes consumed in 2016-17. The country imported 4.70 lakh tonnes of NR in 2017-18 as compared to 4.26 lakh tonnes imported in the previous year. Import of

NR touched all-time high in 2017-18, an increase by 10.2 per cent as compared to 2016-17. Annual average price for domestic RSS 4 grade rubber for the year 2017-18 was ₹129.80 kg compared to ₹135.49/kg in 2016-17 (Appendices 2.12, 2.13, and 2.14).

Rubber occupies the second largest area in the State next to Coconut with 21 per cent of the gross cropped area. No considerable change with respect to area and production is observed in the State in 2017-18 compared to 2016-17 (Appendix 2.11). Kerala's share to country's rubber production was 78 per cent in 2017-18. Though, Rubber Board had taken several measures to increase rubber production and productivity in 2017-18 as in 2016-17, the unexpected heavy rainfall from June 2017 onwards together with low rubber prices affected the production sector adversely and the targeted production could not be achieved.

Coffee

Domestic coffee production for the year 2017-18 was 316 thousand tonnes with Arabica production 95,000 tonnes (30.1 per cent) and Robusta at 221 thousand tonnes (69.9 per cent). This represent an increase of 4 thousand tonnes compared to 2016-17.

With regard to Kerala, the production of coffee registered a slight increase from 63,476 MT in 2016-17 to 66,465 MT in 2017-18 with no change in area (Appendix 2.11). The productivity of the crop in terms of bearing area in Kerala is 782 kg/ha, which is higher than the national level of 765 kg/ha in 2017-18 (Coffee Board, 2018). Among the coffee producing States, Kerala stands second next to Karnataka contributing 21 per cent of national production.

Tea

India is the second largest producer of tea in the world and accounts for the highest tea consumption globally. Around 80 per cent of the total tea produced in India is consumed by the domestic population.

As one of the largest tea producing countries, India accounts for 23.2 per cent of the total world production. The Tea Board had revised the production figures in 2011 by bringing within the net all segments of tea producers, both organised and unorganised, especially North India, many of whom were not reporting their crop production details earlier. This helped India in reaching the 1 billion mark. The domestic tea production in 2017-18 compared to 2016-17 was higher by 5.96 per cent recording 1,325 million kg. Tea production has recorded an increase of 10.43 per cent during the last five years (Appendix 2.15).

Kerala accounts for 4.69 per cent of the total domestic production of tea in the country. The production of tea in the State is showing a marginal increase since 2015-16 despite the area under the crop remaining the same. Tea production recorded an increase of 1.2 per cent in 2017-18 compared to 2016-17.

The major issues affecting the tea industry are stagnant productivity, acute labour shortage, high cost of machines, and lack of indigenous machinery.

Cardamom

India is the second largest producer of cardamom and plays an important role in the international trade due to the unique aroma and flavour of Indian cardamom. The output of cardamom is dependent on the prevailing climatic conditions as the cardamom plant requires intermittent spells of rains and good sunshine during the growth stage. Cardamom production in India in 2016-17 was 17.99 thousand tonnes which is a decline of 5.9 thousand tonnes compared to 2015-16. Turn round in cardamom prices since 2006-07 continued upto 2016-17 reaching the highest level. During the season 2017-18 (August-May) the prices had declined by ₹135.12 per kg to reach ₹953.34 per kg.

Source: UPASI Annual report 2017-18.

Kerala topped the position in cardamom production contributing to 88 per cent of the total production. The cardamom production in the State has increased by 7 per cent in 2017-18 compared to 2016-17 recording 18,350 metric tonnes.

Consumption of Fertilisers and Pesticides

The total indigenous pesticide consumption is 1,691.47 MT with chemical pesticides being 523.42 MT and bio-pesticides being 1,168.04 MT. The highest chemical pesticide usage is in banana and bio pesticide usage in vegetables. Imported pesticide consumption is 143.1 MT (Table 2.2).

The consumption of nitrogenous fertilisers has increased considerably in 2017-18 compared to 2016-17 with 49 kg/ha contributing to 53 per cent of the total nitrogen, phosphorus and potassium fertilisers. The consumption of phosphorus and potassium was 16 kg/ha and 27 kg/ha respectively together contributing 47 per cent of total consumption in 2017-18 (Appendix 2.16).

Collective Farming through Kudumbasree

Collective farming is an important area of Kudumbasree, which aims at food security both at household and community level. The major crops cultivated are paddy, vegetables, banana, pineapple and tubers. In 2017-18, the area brought under cultivation of paddy was 11,337.9 ha, vegetables 17,621.3 ha, banana 5,869.77 ha and other crops was 17,661 ha. Details of area covered are given in Appendix 2.17.

Major Achievements of Department of Agriculture 2017-18

During the Annual Plan 2017-18, out of ₹667.04 crore earmarked for the Department of

Table 2.2 Commodity and crop-wise consumption of indigenous and imported pesticides, chemical and bio, in the year 2017-18, MT, technical grade

INDIGENOUS				
Commodity	**Crop**	**Chemical Pesticides**	**Biopesticides**	**Total**
Cereals	Paddy	37.15	153.37	190.52
Vegetables		110.98	394.95	505.94
Spices		59.76	156.23	215.99
Coconut	Coconut	139.93	228.99	368.91
Arecanut	Arecanut	20.45	48.6	69.051
Banana	Banana	155.14	185.9	341.04
TOTAL		523.42	1,168.04	1,691.46
IMPORTED				
Cereals	Paddy	34.18	22.14	56.32
Vegetables		1.96	15.11	17.08
Spices		6.36	19.79	26.15
Coconut	Coconut	2.82	14.44	17.26
Arecanut	Arecanut	0.056	7.297	7.353
Banana	Banana	1.503	17.42	18.93
TOTAL		46.87	96.209	143.1

Source: Department of Agriculture, Kerala

Agriculture under the State Plan, the expenditure incurred was ₹541.27 crore (81 per cent). The key achievements of the Department of Agriculture in 2017-18 were the following:

- For rice development, assistance was given for sustaining rice cultivation in 1.82 lakh ha through group farming and for speciality rice cultivation in 1,182.92 ha. The department established 145 rice mills and 16 processing units under rice development scheme.

- As a part of germplasm conservation, 20 MT of traditional and indigenous varieties of rice were procured and cultivation of traditional varieties was promoted in 341.6 ha.

- For coconut development, the Department established 10 coconut nurseries and 302 organic manure production units, established 44 Keragramams and extended irrigation facilities to 1074 ha. 3.92 lakh coconut seedlings were produced.

- For vegetable development, 998 ha of fallow land was brought under vegetable cultivation. Vegetable cultivation was undertaken in 67,858.37 ha with a production of 10.12 lakh MT.

- For pepper development, 72.76 lakh disease free rooted pepper cuttings were produced for distribution to farmers and 2,472 ha of pepper garden were revitalised. Area under pepper was expanded to 2,150 ha and 44 pepper development samithies were strengthened.

- 50 new Plant Health Clinics were established in addition to the existing 152 for monitoring pest and disease attack through 2020 surveillance plots.

Key Initiatives of the Department of Agriculture 2018-19

Schemes formulated for 2018-19 mainly concentrated on the thrust areas and aimed at attaining self-sufficiency in vegetable production and increasing production of rice, millets, pulses and tubers. The key initiatives of the Department of Agriculture in 2018-19 for the improvement of agricultural sector included integrated food crop production programme focusing on increasing rice production and self-sufficiency in vegetable production, holistic development of coconut sector through Keragramams, production and distribution of quality planting materials, comprehensive fallow land cultivation with people's participation, modernisation and establishment of labs, institutional mechanism for marketing, strengthening extension activities, Agricultural Technology Management Agency (ATMA) plus model of extension, rejuvenation of spices economy, quality control of agricultural inputs and outputs and effective programs for soil and root health management, crop health management covering pests and disease surveillance, promotion of organic farming and safe food production, crop insurance, establishment and strengthening of Agro Service Centres (ASCs) for improved service delivery and revival package for pepper in Wayanad. The activities from production to value addition and marketing will be facilitated for the specified crops in the Special Agricultural Zones so as to intensify production and productivity of the crops. Activities in integration with Haritha Keralam will also be undertaken.

Crop Insurance Schemes

In Kerala, majority of the agricultural producers are small farmers and agriculture is heavily dependent on the weather. The uncertainty of the weather makes agriculture a highly risky venture. Thus the uncertainty of crop yields is one of the basic risks that every farmer has to face. As crop production is affected by the vagaries of nature and damages occur due to droughts, floods, attacks of pests and diseases, crop insurance can play a vital role in sustaining farms income.

In 2017-18, in addition to 25 crops covered during the previous years, mango and millets are included. For paddy, crop loss assistance due to pest and disease attack and insurance for crops cultivated in non-reserve forest

area is also included. In 2017-18, under the restructured crop insurance scheme 91,473 farmers were enrolled and an amount of ₹275.72 lakh disbursed towards claim amount for 3,450 farmers insured under the scheme.

Under Restructured Weather Based Crop Insurance Scheme (RWBCIS), in Kharif 2017 season, 20,914 farmers were insured covering an area of 15,738 ha and an amount of ₹6.5 crore was paid as claims to 17,853 farmers and in Rabi season, 17,882 farmers were insured covering an area of 14,608 ha. Under Coconut Palm Insurance Scheme (CPIS) a total claim of ₹3.4 lakh was settled covering 212 palms for 28 beneficiaries from among 117 insured farmers. In 2017-18 Rabi season, the State Government had notified the scheme Prime Ministers Fasal Bima Yojana (PMFBY) covering the crops such as paddy, banana, tapioca and plantain. 8,279 farmers were insured covering an area of 9,992 ha and an amount of ₹98.8 lakh paid as claims. In Kharif season, 7,446 farmers were insured covering 7,137 ha and an amount of ₹1.47 crore paid as claims to 1,124 farmers.

(*Source*: Department of Agriculture, GoK).

State Horticulture Mission (SHM)

The SHM was formed in 2005 to implement the programme of the National Horticulture Mission, a CSS, with 85 per cent central share and 15 per cent State share. This has been restructured as the Mission for Integrated Development of Horticulture from 2014-15 onwards. In 2015-16, GoI changed the sharing pattern of the scheme as 60 per cent central share and 40 per cent State share. The main objective of the mission is a holistic development of the horticulture sector covering fruits, plantation crops, spices, flowers, aromatic and medicinal plants and mushroom. The important programmes under the mission include production and productivity improvement, post-harvest management and marketing.

In 2017-18, a total amount of ₹48.33 crore was released to SHM including State share and central share and the total expenditure incurred was ₹32.40 crore. The components undertaken in this mission include establishment of nurseries for production and distribution of quality seeds and planting material, establishment of new gardens, water harvesting structures, protected cultivation of flowers, integrated pest and disease management, organic farming, apiculture, mechanised cultivation of horticultural crops, post-harvest management including sorting and grading units, cold storage units etc, establishment of rural markets, strengthening wholesale markets, market intelligence, extension quality awareness and market led extension activities for fresh and processed foods.

Vegetable and Fruit Promotion Council, Kerala (VFPCK)

Vegetable and Fruit Promotion Council, Kerala (VFPCK) formed in 2001, has been implementing various schemes in fruits and vegetable sector with the financial assistance from State and Central Governments. Its mandate is to support commercial fruit and vegetable growers in Kerala in various farm operations from seed to marketing in a sustainable way. The major activities of the council are formation of self help groups (SHGs), awareness creation on Participatory Guarantee System (PGS), dissemination of participatory technology development, campaigns/training/capacity building programmes, production of quality seeds and planting materials, participatory credit and insurance support, group marketing and Haritha Nagari programmes for the promotion of vegetable cultivation in urban areas.

In 2017-18, VFPCK has inducted 4,381 new farmers and formed 168 new SHGs thereby increasing the database of farmers to 11,94,283 and SHG's to 9708. With respect to production of planting material 92.73 MT of seeds, 4.84 lakh tissue culture plantlets and 40 lakh vegetable seedlings through hi-tech plug nursery were produced and distributed. Regional Centre for Organic Farming has accepted VFPCK as the Regional Council for Organic Certification.

Organic Certificate has been awarded to 19 farmers. Council distributed 57 lakh vegetable seed packets as part of *Onathinu Orumuram Pachakkari* under Harithanagari scheme. Credit disbursement to the tune of ₹75.34 crore under Kissan Credit Card (KCC) at affordable interest rate were extended to farmers. A total of 25.77 lakh banana plants and 423 ha of vegetables were covered under crop insurance scheme. Trading through Swashraya Karshaka Samithies was ₹302.2 crore for 1,00,966 MT of fruits and vegetables. A system of branding for VFPCK products and services named Thalir started functioning at Kottarakkara. Establishment of Soil Testing Labs at Alappuzha and Malappuram for soil test based nutrient application and pack house in Wayanad are the other major achievements in this year. Twenty-six automated weather stations were installed for weather forecasting which is done in collaboration with Kerala Agricultural University. Other details of the sector are given in Appendices 2.18, 2.19, 2.20, 2.21, and 2.22.

Agriculture Research and Education

Agricultural research and education in Kerala are spearheaded by the Kerala Agricultural University, in the seven colleges, six Regional Agricultural Stations, 17 Research Stations and five Instructional Farms across the State. The thirty one ICAR supported all India Co-ordinate Research Projects/all India Network Project implemented at various colleges/research stations also have a significant role in the technology development and national testing of Kerala Agricultural University technologies and genotypes.

Major achievements

- Released 23 improved varieties for major crops like rice, vegetables, tapioca, cardamom, black pepper, garcinia, and ginger.
- A seed bank project was set up with an intention of collection and maintenance of germplasm of all the cultivated spices of the crops in the State and to conserve our natural capital base.
- Developed ready to use micro nutrient mixtures, rechristened as 'Sampoorna' for paddy, vegetables and banana and 'Ayar' for banana.
- Olfactory repellents BoRep and DeeRep against wild boar and sambar bear respectively and bio bird repellent and automated cracker station against predatory birds have been developed for management of vertebrate pests.
- GI registration obtained for *Pokkali* rice, *Kaipad* rice, Wayanad *Jeerakasala* rice, Wayanad *Gandhakasala* rice, *Vazhakkulam* pineapple, Central Travancore jaggery, *Chengalikodan Nendran* banana and *Nilambur teak.*
- Developed ad-hoc package of practices for cultivation of vegetables under protected environment in poly-houses, rain shelters and for open field precision farming.
- Rendered 65 new technologies including process protocols for production of biocontrol agents, botanicals, organic inputs, health drinks, nutrient mixtures, cattle feed, processed products of fruits and vegetables, safe to eat foods, farm machinery/ equipments, Hazard Analysis and Critical Control Point (HACCP) protocols, protocols for enhancing shelf life of processed products, equipments for post-harvest handling of various crops, low cost organic fertigation systems etc for transfer to prospective entrepreneurs.
- Developed innovative farm machinery including power operated paddy dibbler, simple pedal operated coconut husking tool, jackfruit harvester, banana chipper, herbicide applicator, a self-centering basin lister, tractor operated ditcher cum bed former, light weight direct driven weeder and a software "e-DID" (e-tool for Drip Irrigation Design) to support farmers in installation and maintenance of drip irrigation.
- Awarded degrees to 309 undergraduate, 292 post graduates and 40 PhD students in 2017-18
- Innovative interventions like Mukhamukham, Krishi Sasthra Sameeksha, Unnat Bharat

Abhiyan Programme etc were introduced for effective transfer of technology and extending technology support to Local Self Government Institution.

Financing Agriculture

Three main factors contributing to agricultural growth are a) increased use of agricultural inputs, b) technological change and c) technical efficiency. As savings are negligible among the small farmers, agricultural credit is an essential input along with modern technology for higher productivity. Credit flow to agricultural sector is vital for small and marginal farmers for their survival and for the farmers who are relatively better off for enhancing their income. Since independence, credit has been occupying an important place in the policy framework for development of agriculture (RBI, 2009).

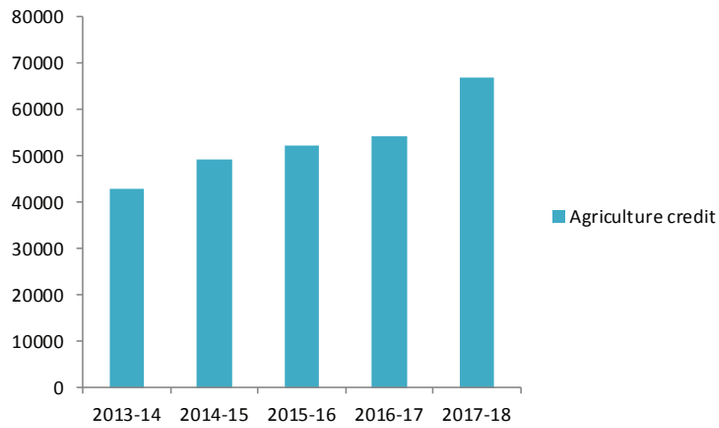
Agricultural credit flow in India has increased from ₹7.30 lakh crore to ₹11.79 lakh crore (as on October 2017) during the last five year period. For 2017-18, the target had been fixed at ₹10,00,000 crore against which an amount of ₹11,79,428 crore (provisional) was disbursed. Commercial banks continue to dominate by disbursing 75 per cent of the total credit followed by RRBs and co-operatives that disburse 12 and 13 per cent respectively. The share of term loan after declining steadily from 30.2 per cent in 2008-09 to 22.1 per cent in 2012-13 has shown a reversal of trends since 2013-14 and has touched 35.6 per cent in 2017-18.

In Kerala too, advances to agriculture sector has increased significantly in the last ten years. The figures of the 12th Five-Year Plan reveal that it has risen from ₹42,891 crore in 2013-14 to ₹54,270 crore 2016-17. It constituted 5.68 per cent of the total agricultural credit in the country. Out of this, (-)33,802 crore (62.2 per cent) was disbursed by commercial banks, ₹8,515 crore (15.6 per cent) by RRB and ₹11,953 crore (22.2 per cent) by co-operative banks. Thus, commercial banks continue to play a predominant role in the advance of credit to agriculture and allied activities (Figure 2.5). In 2017-18, there has been a 23.62 per cent increase in agriculture credit flow from ₹54,270 crore in 2016-17 to ₹67,089 crore in 2017-18.

Investment credit

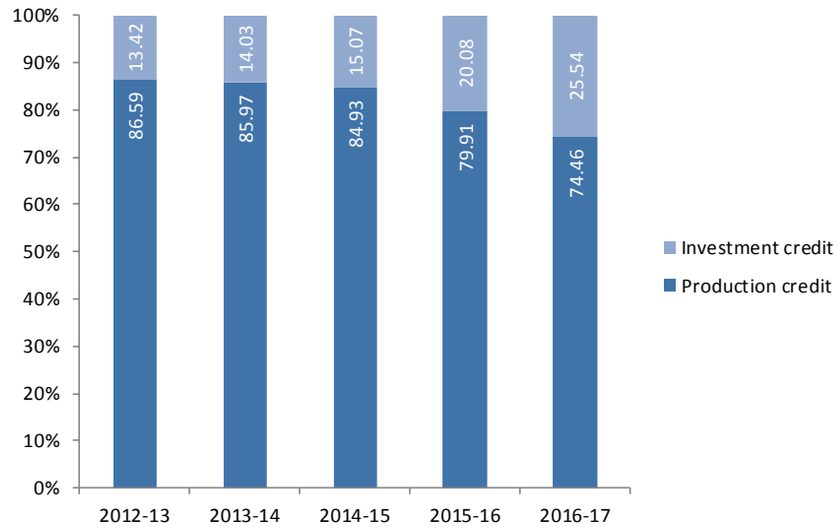
As regards the breakup of total agriculture credit to production and investment credit, it can be seen that the share of investment credit has increased to 28.09 per cent of the total credit from 14.03 cent in the beginning of the 12th Plan period (Figure 2.6 and Appendix 2.23). This is definitely a positive development given the fact that share of investment credit had been consistently declining over the years from 22 per

Figure 2.5 Agriculture advances in Kerala, 2013-14 to 2017-18



Source: SLBC

Figure 2.6 Share of production and investment credit in total agriculture credit in Kerala

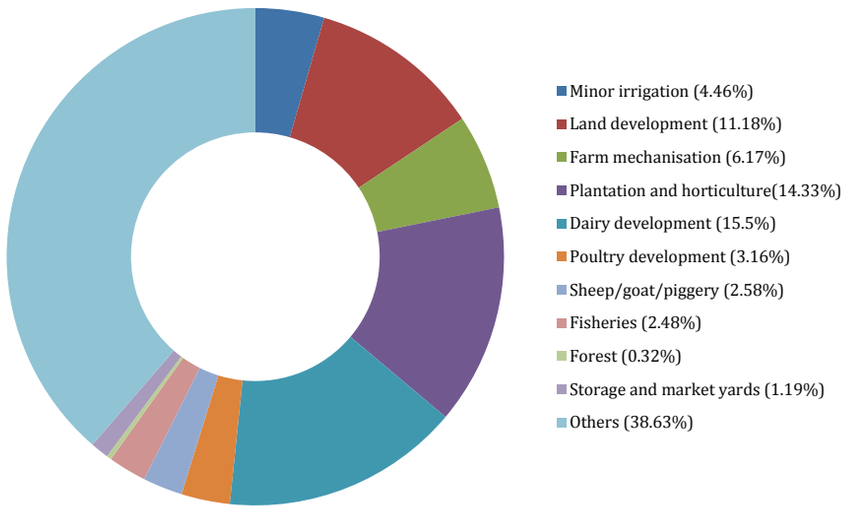


Source: SLBC

cent in 2008-09 to 11 per cent in 2011-12. The skewed ratio in favour of short term crop loan or production credit has resulted in low investment in capital/productivity enhancing assets. Hence, a segmentation approach could be adopted in credit delivery whereby the segment/sector-specific credit requirements are assessed and differential rates of interest are enabled through subvention (keeping in view the net income per unit from a particular segment/sector/activity), to support activities that are critical but not picking up (State Focus Paper, NABARD-2017-18). In 2016-17, ₹13,860.40 crore was disbursed as investment credit in the State, commercial banks ₹9,066.86 crore, co-operative banks ₹3,193.55 crore and RRBs ₹1,599.55 crore.

Analysis of the flow of investment credit to various sub-sectors revealed that in 2016-17, largest allocation was for dairy development (15.50 per cent), plantation and horticulture (14.33 per cent) and land development (11.18 per cent). It is to be noted that the share of dairy development has overtaken the share of

Figure 2.7 Sub-sector-wise ground level investment credit disbursed



Source: State Focus Paper NABARD, 2018-19

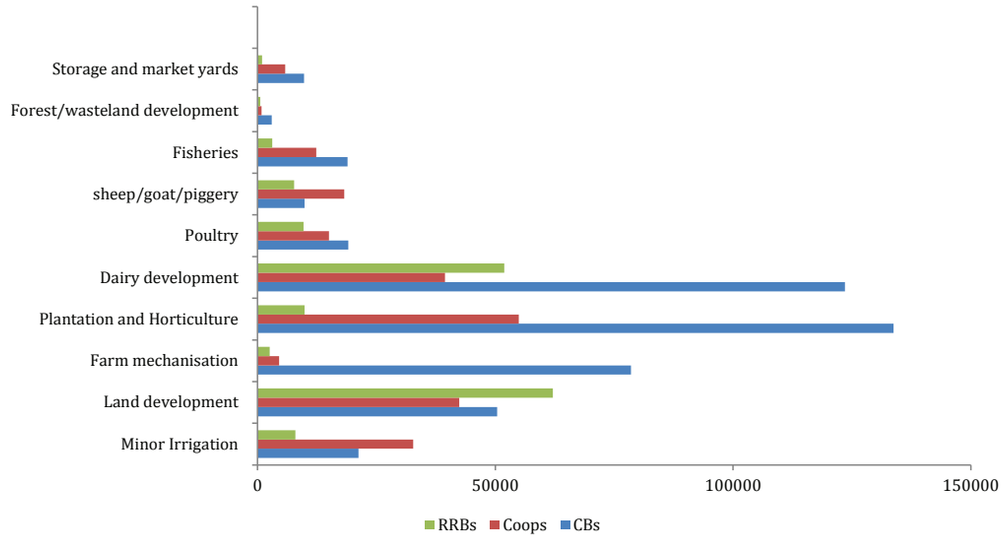
plantation and horticulture in 2016-17. Farm mechanisation and minor irrigation accounted for 6.17 per cent and 4.46 per cent respectively. Other productive sectors like fisheries, poultry, sheep, goat and piggery accounted for less than 5 per cent (Figure 2.7 and Appendices 2.24 and 2.25).

Agency-wise flow of investment credit showed that as mentioned earlier, commercial banks have disbursed the largest amount of credit (65.41 per cent) followed by co-operatives (23.04 per cent) and the rest by RRBs. Year on year there has been a slight increase in the share of commercial banks as well as co-operatives in the total investment credit disbursed while the share of RRBs have fallen. However, if we examine the area-wise disbursement it can be seen that commercial banks and co-operatives have mainly focused on sectors like plantation and horticulture, dairy development, farm mechanisation and land development (Figure 2.8). RRBs have given primary emphasis to land development and dairy development. Thus it can be inferred that the productive sectors like fisheries, sheep/goat/piggery and poultry development have been largely neglected from the point of view of investment credit.

Long Term Rural Credit Fund (LTRCF)

As the share of long term investment credit in agriculture is declining over the years, hampering the asset creation in agriculture activities and having an adverse effect on productivity in agriculture, GoI has set up a "Long Term Rural Credit Fund" with NABARD. This is to provide long term refinance support for investment credit in agriculture activities exclusively for Co-operative Banks and Regional Rural Banks (RRBs) at a concessional rate of interest. All State Co-operative Banks, State Co-operative Agriculture Development Banks (SCARDBs) and RRBs which are eligible to avail refinance facilities from NABARD, subject to their satisfying the eligibility criteria, are eligible for LTRCF. Automatic Refinance Facility will be extended without any upper ceiling of refinance quantum, bank loan or total financial outlay for all projects under agriculture sector. In 2015-16, Kerala had disbursed ₹750 crore to Kerala State Co-operative Agriculture and Rural Development Bank (KSCARDB), ₹181.00 crore to Kerala State Co-operative Bank (KSCB) and ₹38.00 crore to Kerala Gramin Bank under LTRCF.

Figure 2.8 Agency-wise, sub-sector-wise flow of investment credit



Source: State Focus Paper NABARD, 2018-19

Kissan Credit Card (KCC)

KCC is an effective credit delivery tool for providing hassle-free timely and adequate credit. As per the reports available with the State Level Bankers Committee (SLBC), 4,96,025 Kisan Credit Cards (KCCs) with an amount of ₹6,640.87 crore have been issued in the 2016-17 in the State. As per the revised guidelines for KCC, the KCC should be a smart card cum debit card which could be used in the ATMs/hand held wwipe machines etc. RuPay has come out with its RuPay KCC, which leverages the benefits of both KCC and RuPay. Unlike normal KCC which serves only as an identity card and facilitates recording of transactions on an ongoing basis, RuPay KCC is actually a smart card that can be used at the nearest ATM/PoS for withdrawing cash. It removes the necessity of going to PACS or a bank branch to operate the account. At present issuance of RuPay KCC is on a pilot stage in Kerala.

Assistance from NABARD

NABARD, Kerala disbursed financial assistance of ₹5,820 crore in the State in the year 2015-16. Of the above, ₹5,090 crore was disbursed as refinance to banks, ₹600 crore to State Government under Rural Infrastructure Development Fund (RIDF), ₹115 crore as direct assistance to Cooperative Banks and ₹15 crore as grant assistance from dedicated funds to various agencies for various developmental and promotional activities. Out of ₹5,090 crore disbursed as refinance, ₹2,390 crore was for long term investment credit and ₹2,700 crore was towards short term assistance to banks. The refinance for long term agriculture investment of cooperative banks was resumed in 2016-17 after a gap of 10 years. Under RIDF, new projects worth ₹710 crore were sanctioned to State Government in the year.

Rural Infrastructure Development Fund (RIDF)

NABARD, since inception, has prioritised its strategies for facilitating credit flow to rural infrastructure sector to fulfill its mission of rural prosperity through credit and related services. From the year 1995 onwards, NABARD is funding rural infrastructure projects through its flagship programme of RIDF and as on date projects worth ₹2.602 lakh crore have been assisted throughout the country. In Kerala, State projects with a total financial outlay of ₹10,585 crore involving RIDF loan of ₹8,848 crore have been assisted. The corpus of RIDF XXIII is ₹25,000 crore. In Kerala during the XXIII tranche an amount of ₹495.56 crore was sanctioned and ₹99.11 crore was disbursed. The tranche-wise sanction and disbursement under RIDF are shown in Appendices 2.26, 2.27 and 2.28.

Co-operation

Co-operatives in Kerala plays a vital role in the economy of the State because of its vast spread, especially in the rural areas. They account for approximately 15 per cent of the State's total agricultural credit. They have significant reserves, and often lend money to fuel area specific development. At a time when there is a need for inclusive growth as per the requisite for alleviating socio-economic disparities, co-operatives are the best organisations to achieve this objective. They have strong roots and are participatory in nature.

At present, there are 15,624 co-operative societies functioning under the Registrar of Co-operative Societies out of which 11,892 are working satisfactorily. Out of these, majority are consumer co-operatives (3,847) followed by credit co-operatives (3,345) and women co-operatives (885). In addition, there are marketing, health and SC/ST co-operatives nearly half of which are either dormant or in loss. Details of the various types of co-operative societies are given in Appendices 2.29 and 2.30.

Despite the increase in the credit flow, one of the major issues is the outreach of adequate credit to the needy in time. The credit flow to the sector has been distorted by indiscriminate issue of agricultural gold loans without reckoning the end use of such credit. Keeping this in view, there is a need to look into the end use of the credit from the banks towards crop loan. The co-operative institutions, which are more close to the farmers, are not able to meet the requirements of the farmers due to issues such as lack of manpower for technical appraisal of projects and regulation such as the exposure norms.

The co-operative institutions have to be equipped with adequate technical and managerial capacity to suite the emerging needs of the rural sector such as project financing. The sector needs infusion of technology to equip for the future. It is expected that the Kerala Bank will provide much needed leadership to this sector.

Credit Co-operatives

As on March 2017, the Short Term Co-Operative Credit Structure (STCCS) in the country comprises 93,367 Primary Agricultural Credit Societies (PACS), 370 District co-operative Banks (DCBs) and 33 State co-operative Banks (SCBs). The long term credit structure include 13 State co-operative Agriculture Rural Development Banks (SCARDBs) with 673 branches and 601 Primary Co-operative Agriculture and Rural Development Banks (PCARDBs).

The credit co-operative societies are the most vibrant and viable ones in the State. The co-operative credit structure in the State comprises short term and long term credit. The short term agricultural credit structures mainly comprises the Kerala State Co-operative Banks (KSCB) at the apex level, 14 DCBs. Besides, there are 1,644 PACS at the grassroots level. These co-operatives are basically self-governing institutions with total accountability to the borrower members and in whose management they have a say. In addition to the three-tier co-operative banking, there is a well-developed network of Urban Co-operative Banks (UCBs) in the State.

In the case of long-term credit, Kerala State Co-operative Agriculture Rural Development Banks (KSCARDB) is at the apex level while the 78 Primary Co-operative Agricultural Rural Development Banks (PCARDB) form the lower level. KSCARDB plays an important role in promoting capital formation in agriculture and rural sectors in the State through its long term investment loans. The survival of KSCARDB and affiliated PCARDBs in the long-run depends on their ability to raise funds at reasonable cost that permits financing of farmers and other rural sections at affordable interest rates and in offering a complete range of credit and financial services to them.

The efficiency of the co-operative credit movement rests with the PACS functioning at the grass root levels. There are 1644 societies functioning in the State with a membership of 2.71 crore. During the period under review, the share capital of the societies has increased from ₹1,802.81 crore to ₹2,049.06 crore. The deposits during the year have increased from ₹83,157.38 crore to ₹88,824.91 crore while the loans amount issued has increased from ₹75,350.90 crore to ₹76,539.19 crore. Out of the total loans issued, the share of agriculture loans comes to around 12.39 per cent. While short term loan for agriculture has increased both medium term and long term loans have shown a downward trend in 2017-18. Selected indicators and credit operations of PACS are given in Appendices 2.31, 2.32 and 2.33. In 2017-18, an amount of ₹52.30 lakh had been sanctioned to 53 PACS as share capital assistance, ₹11 lakh being the highest sanctioned amount to Palakkad District.

Consumer Co-operatives

The main aim of the consumer co-operative societies is to supply essential commodities at affordable prices to the consumers. These societies act as principal agents in the public distribution system by providing essential consumer articles to the general public at a reasonable rate, than the rate prevailing in the open market. The organisational set up under the consumer co-operative segment consists of the Kerala State Cooperative Consumer Federation (KSCCF) at the State or apex level, with 14 District wholesale stores and 643 primary consumer stores at base level. The KSCCF makes bulk procurements and supplies these to District wholesale stores, department stores named *Triveni* and primary stores. The District whole sale stores and primary stores in turn cater to the needs of the consumer through their own outlets, super markets, and departmental stores.

Triveni super markets are an important segment under consumer co-operatives intending to save the public from the exploitation of middlemen by dealing with wholesale of food and groceries, cosmetics, household and electrical, textiles etc. There are 196 *Triveni* Super markets in addition to mobile *Triveni* units and floating *Triveni* super stores for supplying essential items to the public.

The *Neethi* Scheme started as per directions of GoK in 1998 is being successfully implemented through 1,000 odd selected PACS in all the Districts of Kerala for the distribution of consumer goods at the lowest prices, especially in rural areas. *Neethi* medical stores were started for–providing medicines at subsidised rates. Consumerfed procures and distributes medicines at whole sale rates as per the requirement of the *Neethi* medical stores. At present there are 96 *Neethi* Medical Stores directly run by Federation in addition to the 600 odd stores run by primary co-operative societies.

Deposit Mobilisation Campaign by Co-operative Societies

Deposit Mobilisation campaigns by co-operative credit institutions continued during the year under report. During this period the co-operatives could mobilise ₹6,373.67 crore as against the target of ₹5,000 crore in 2017-18. Year-wise target and achievement is given in Appendix 2.34.

Achievements in 2017-18

- Muttathe Mulla scheme was started as a pilot project in Palakkad involving disbursement of loans at low rate of interest to common people through Kudumbasree. Under the scheme ₹1,000 to ₹25,000 will be given to the needy at a rate of interest of 12 per cent with a maximum repayment installment of 52 weeks.
- Distribution of pension arrears to Kerala State Road Transport Corportaion (KSRTC) pensioners was started in February 2018 assisting 39,045 KSRTC pensioners
- ₹7 crore was allocated for providing 5 per cent interest relief on agriculture loans taken from co-operative credit societies
- Revitalised 112 weak Vanitha Co-operative Societies by providing assistance of ₹549.131 lakh.

Formation of Kerala Bank

GoK has initiated the steps for forming the Kerala Bank as a single entity by amalgamating the 14 District Co-operative Banks with branches across the State as well as the State Co-operative Bank. With a large deposit base and considerable share in the total banking transactions in Kerala, the Kerala Bank is poised to become the second biggest bank-second to the State Bank Group. The co-operative sector is presently having a substantial share of the banking business in the State and it could further grow, diversify, and fill the gaps left by the State Bank of Travancore following its merger with the State Bank of India and non-sufficient presence of other scheduled commercial banks in rural areas. The Kerala Bank and the PACS would function in a complementary manner. The PACS would continue their current banking operations and the Kerala Bank would focus on value-added services and specialised banking products.

Support by National Co-operative Development Corporation (NCDC)

National Co-operative Development Corporation (NCDC), a statutory organisation established by the GoI under an act of Parliament, is given the function of planning and promoting programmes for the production, processing, marketing, storage, export and imports of agricultural produce and notified commodities and for distribution of agricultural production requisites through co-operatives. NCDC has emerged as a developmental and promotional financing institution for the co-operative sector in the country. It has disbursed a cumulative financial assistance of ₹7,665.08 crore for various co-operative development projects as on 31 March 2018. Of this ₹1,797.64 crore is through State Government and ₹5,867.44 crore is via direct funding. Also, out of the ₹7,665.08 crore, ₹1,582.35 crore comes under long term loan and only ₹67.59 crore comes under subsidy. The amount given as working capital was ₹6,015.14 crore. Types of NCDC assistance are shown in Appendix 2.36. Sanctions and release of NCDC funds to Kerala for 2017-18 was ₹1,526.89 crore and ₹928.94 crore respectively. There has been an increase of 152 per cent and 100 per cent in the sanction and release amount by NCDC in 2017-18 when compared to 2016-17. It is due to the increase in the sanction to coir co-operatives (₹200 crore), service co-operatives (₹120.56 crore) and working capital (₹120.25 crore). Details of NCDC assistance are given in Appendices 2.35, 2.36 and 2.37.

Livestock

Animal husbandry and dairying have a significant role to play in the socio-economic development of the country and the State. Besides providing cost effective and nutritious food to crore of people, the sector plays a prominent role in supplementing family income and generating gainful employment to the rural household, particularly for the landless, labourers, small and marginal farmers and women. Animal husbandry and agriculture are closely linked. Livestock is an important livelihood option of a majority of small holders among the farmers in Kerala.

Contribution to the National and State Economy

Livestock sector is an important sub-sector of the agriculture sector of the Indian economy. At national level, the contribution of this sector is estimated to be about 26.2 per cent of the total value of output of agriculture sector. The share of agriculture (including crops, forestry, livestock and fishing) has declined in total Gross Value Added (GVA) of the country (at constant prices and current prices) since 2012-13, but the share of livestock in total GVA has remained unchanged at 4 per cent at constant prices and increased from 4 per cent to 4.6 per cent in 2016-17 at current prices. Moreover, the share of GVA of livestock sector to the agriculture sector has increased from 22.6 per cent in 2012-13 to 26.2 per cent in 2016-17 at constant prices, and at current prices the share increased from 22.0 per cent to 25.8 per cent.

In Kerala, the livestock sector is one of the fastest growing sectors of the State's rural economy. The share of livestock in Gross State Value Added (GSVA) from agriculture sector is just above 27 per cent, slightly higher than that at the all India level. However, it has shown a marginal fall from 27.97 per cent in 2016-17 to 27.49 per cent in 2017-18. Though GSVA from the sector has increased in absolute numbers, its share in total GSVA of the State has also declined marginally from 2.87 per cent in 2016-17 to 2.76 per cent in 2017-18.

Livestock Population

India has vast animal resources. These play a vital role in improving the socio-economic conditions of the rural masses. The livestock population of the country is 51.21 crore in 2012 (as per 19th Livestock Census). It includes 29.99 crore bovines, 6.51 crore sheep, 13.52 crore goats and about 1.03 crore pigs. Compared to the 18th Livestock Census (2007), when the livestock population of the country was 52.97 crore, the total livestock population of the country showed a marginal decline by 3.33 per cent. However, the number of buffaloes has registered slight increase. The goat and pig population has declined by 3.82 per cent and 7.54 per cent respectively over previous census. The population of poultry has shown an increase of more than 12 per cent from about 64.9 crore to 72.9 crore.

As per the 19th Livestock Census (2012), the livestock population in the State was 27.35 lakh. It is 24 per cent less as compared to previous census (2007). The primary reason for decline is the reduction in the population of cattle and goats (which form the majority share) by 23.65 per cent and 27.94 per cent respectively. Amongst the cattle, 12.51 lakh (94 per cent) are cross bred and only 77,000 are indigenous, the indigenous breed recording decline of 35.18 per cent as compared to the previous census. The poultry

Table 2.3 Livestock and poultry population in India and Kerala, in ₹ lakh

	Kerala		India	
	18th Census (2007)	19th Census (2012)	18th Census (2007)	19th Census (2012)
Cattle	17.4	13.29	1,990.75	1,909.04
Buffaloes	0.58	1.02	1,053.42	1,087.02
Sheep	0.01	0.02	715.58	650.69
Goats	17.29	12.46	1,405.37	1,351.73
Pigs	0.59	0.56	111.33	102.94
others			20.51	19.15
Total (Livestock)	35.87	27.35	5,296.96	5,120.57
Total (Poultry)	156.85	242.82	6,488.29	7,292.09

Source: 19th All India Livestock Census-2012

population of Kerala as per 19th Livestock Census (2012) is 242.82 lakh, which accounts for 3.3 per cent of the total poultry population in the country. It registered 54 per cent increase over the 18th Livestock Census. Growth rate of poultry population in Kerala is higher than the growth rate recorded at the national level. Kerala ranks 8th among States in poultry population of the country. Details of species-wise livestock and poultry population in India and Kerala are provided in Table 2.3.

Employment in Livestock Sector

As per estimate of 68th Round (July 2011-June 2012) survey on Employment and Unemployment by NSSO, 164.4 lakh workers as per usual status (principal status plus subsidiary status) were engaged in the activities of farming of animals, mixed farming, fishing and aquaculture in India. The livestock sector holds a considerable share in it. According to NSSO 70th round (land and livestock holdings

Box 2.1 20th Livestock Census

The 20th Livestock Census will be conducted in all districts of all States and Union Territories. The enumeration will be done in all villages and urban wards. Various species of animals (cattle, buffalo, mithun, yak, sheep, goat, pig, horse, pony, mule, donkey, camel, dog, rabbit, and elephant)/poultry (fowl, duck, emu, turkeys, quail, and other poultry birds) possessed by the households, household enterprises/non-household enterprises and institutions will be countered at their site.

The major thrust of 20th Livestock Census is electronic data collection through tablets/ computers. The 20th Livestock Census will be a breed-wise Livestock Census which will be helpful for framing policies or programmes for breed improvement. Breed-wise information on livestock and poultry will collected from every survey unit. The breeds of various major species including poultry as registered by the National Bureau of Animal Genetic Resources (NBAGR) will be covered in the Livestock Census.

The Livestock Census has been conducted in the country periodically since 1919-20. The Livestock Census usually covers all domesticated animals and head counts of those animals are to be carried out during a specific time period. So far 19 such censuses have been conducted.

Source: Press Information Bureau, GoI

survey) conducted in January 2013 to December 13, around 1.75 per cent of the rural households derived the major income from self-employment in livestock farming, which comprises around 27 lakh rural households. As per the survey, in Kerala 2.4 per cent of the total rural households earn major portion of their income from self-employment in livestock farming, which is above the national average.

Major Livestock Products in Kerala

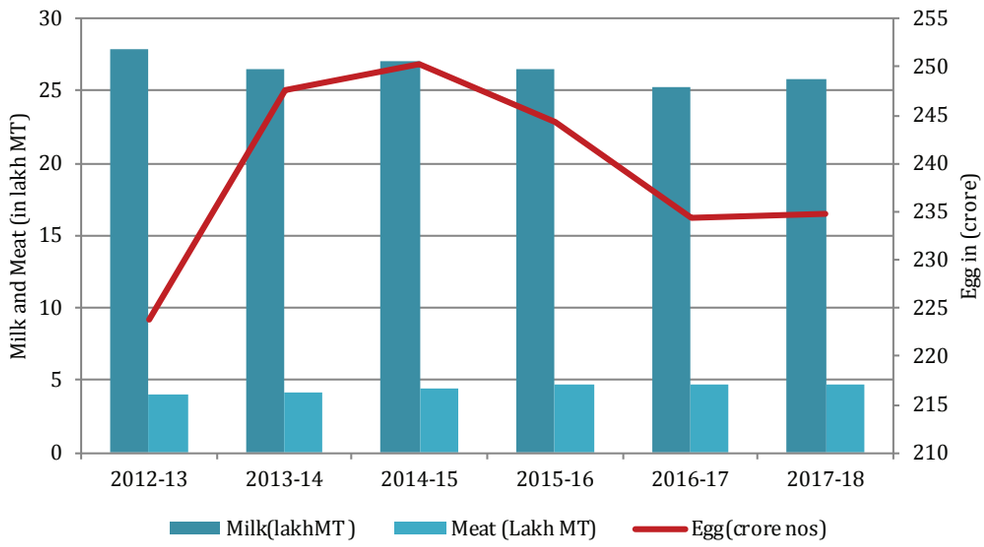
Milk, meat and egg are the major livestock products in the State. The production of milk and egg has shown a marginal increase during the year and the production of meat has shown an increase of 40 tonnes. The production of these three livestock products during 2012-13 to 2017-18 is shown in Figure 2.9.

Milk production

India continued to be the largest milk producing nation in the world. At the national level, the milk production has increased from 16.54 crore tonnes in 2016-17 to 17.63 crore tonnes in 2017-18, registering a growth of 6.6 per cent, sustaining the trend over the past three decades. The per capita availability of milk has been increasing in India over the years. It has increased from 355 gm per day in 2016-17 to 375 gm per day in 2017-18. The highest per capita availability is in Punjab (1120 gm per day). The highest producer of milk is Uttar Pradesh with 16.5 per cent of the total milk production in the country, followed by Rajasthan (12.7 per cent). The species-wise milk production shows that nearly 35 per cent of the total milk production is contributed by indigenous buffaloes followed by 26 per cent by cross-bred cattle. The indigenous cattle contribute 11 per cent of the total milk production.

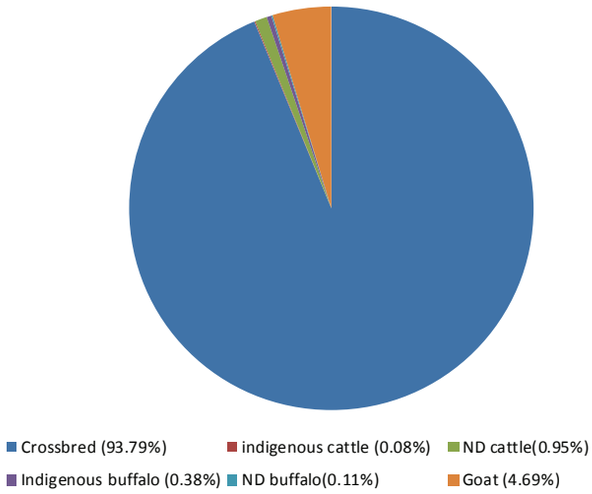
Among the milk producing States in the country, Kerala ranks 14th, with a share of just 1.5 per cent of the total milk production in the country. The production of milk in Kerala has increased from 25.20 lakh MT to 25.76 lakh MT in 2017-18. The per capita availability of milk in Kerala has been declining during the 12th Five-Year Plan period. It decreased from 202 gm per day in 2016-17 to 192 gm per day in 2017-18 (which is just above half of the national average).

Figure 2.9 Production of milk, egg, and meat during 2012-13 to 2017-18



Source: Department of Animal Husbandry, GoK

Figure 2.10 Species-wise milk production in Kerala, 2017-18



Source: Department of Animal Husbandry

Out of the 25.76 lakh MT of milk produced in the State, majority share is produced by cross bred cows (93.8 per cent). Indigenous cows produce just 2,050 MT of milk (0.08 per cent).The production of milk from goat is 1.21 lakh MT (4.7 per cent). The rest is contributed by non-descript cattle, indigenous buffalo and non-descript buffalo. Details regarding species-wise milk production in Kerala in 2017-18 are provided in Figure 2.10.

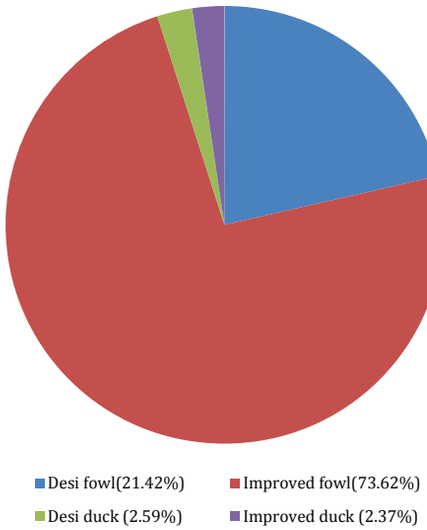
Egg production

Poultry development is one of the important activities of livestock sector. Egg production in India has increased substantially since 2000-01. Total egg production in India has increased from 8810 crore in 2016-17 to 9,520 crore in 2017-18, registering a growth of 8.06 per cent. Similarly, there has been a steady increase in per capita availability of egg since 2000-01. It has increased from 69 eggs per annum in 2016-17 to 74 eggs per annum in 2017-18. The largest producer of egg is Andhra Pradesh which produces 18.7 per cent of the total egg production in the country followed by Tamil Nadu (18.3 per cent). The highest per capita availability of egg is in Andhra Pradesh (341 eggs per annum) which is significantly higher than the national average. The improved fowl breeds contribute 86.99 per cent of the production of egg and 11.83 per cent is from indigenous fowls. The indigenous duck and improved duck breeds contribute 0.91 per cent and 0.26 per cent respectively with respect to total egg production.

The production of egg in Kerala has witnessed drastic changes during the 12th Five-Year Plan period. The total egg production in the State was at 224 crore eggs in the year 2012-13 and then continued to rise over the period and reached at 250 crore eggs in the year 2014-15. Since then, it declined to 244 crore in 2015-16 and further to 234 crore in 2016-17. In 2017-18, the total eggs produced has increased 36.87 lakh to 234.8 crore. Kerala ranks 10th among States of India in egg production. However, the per capita egg availability has fallen to 69 eggs per annum in 2016-17 and further to 64 eggs per annum in 2017-18.

About 74 per cent of the total eggs produced in the State is from improved fowl and around 21 per cent is from desi fowl. The contribution of desi duck and improved duck to the total egg production of the State is 2.59 per cent and 2.37

Figure 2.11 Species-wise poultry production in Kerala

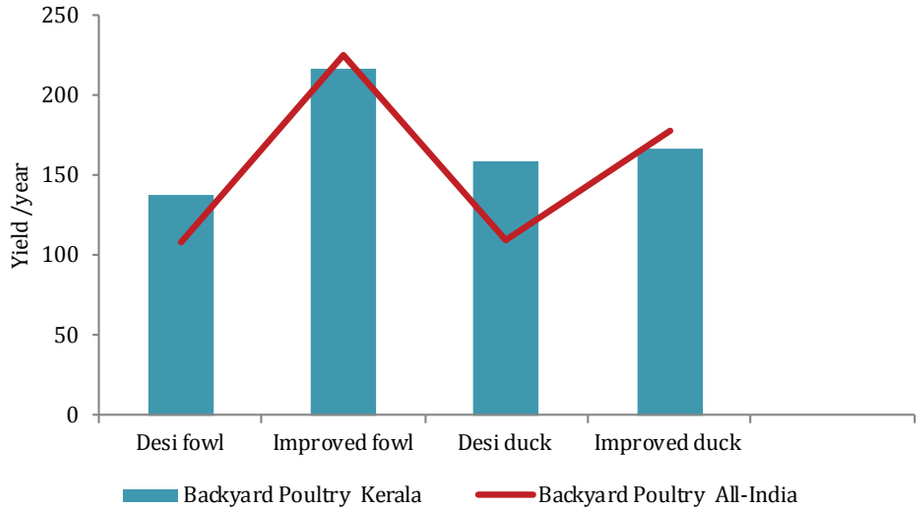


Source: Department of Animal Husbandry, GoK

per cent respectively. Details of species-wise poultry production in Kerala are provided in Figure 2.11. Also as much as 99.81 per cent of the eggs produced in the State come from backyard poultry. Commercial poultry contributes only a very small share, warranting emphasis on backyard poultry in future.

With regard to the share of State in the total egg production in the country, Kerala accounts for just 2.5 per cent of the total egg production while it accounts for 3.3 per cent of the total poultry population (*Source:* Livestock Census 2012). For backyard poultry, the average yield per year for desi fowls and desi ducks are 137 eggs and 159 eggs per year which is higher than the respective national average of 107 eggs and 109 eggs per year. In respect of improved fowls, the average yield is 216 eggs per year while the national average is 225 eggs per year. Details of backyard poultry in India and Kerala are provided in Figure 2.12.

Figure 2.12 Backyard poultry in India and Kerala



Source: Department of Animal Husbandry, Basic Animal Husbandry and Fisheries Statistics

Meat production

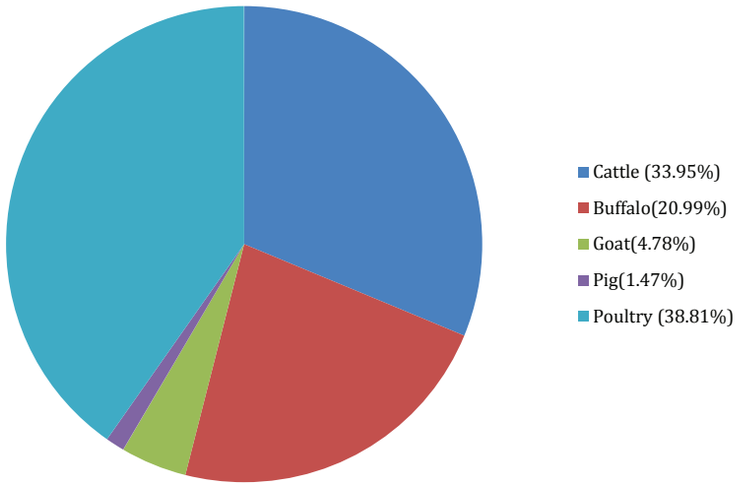
At the national level, meat production has witnessed a steady increase since 2007-08. The total meat production in the country increased from 74 lakh tonnes in 2016-17 to 77 lakh tonnes in the year 2017-18, witnessing a growth rate of 4.05 per cent. The species-wise meat contribution shows that nearly 50 per cent of the meat production in the country is contributed by poultry. Buffaloes and goats contribute 19 per cent and 14 per cent respectively to the total meat production of the country.

In the years 2016-17 and 2017-18 the meat production in the State has shown a stagnant level of 4.69 lakh MT. Kerala is the 8th largest meat producing State in the country contributing 6.1 per cent of the meat produced in India. Out of the total meat produced, 38.8 per cent is poultry meat, 33.95 per cent is sourced from cattle and 20.99 per cent is from buffalo. Goat and pig contributes just 4.78 per cent and 1.47 per cent of the total meat production in the State. Details of species-wise meat production in Kerala are provided in Figure 2.13.

Milk Marketing

Kerala is one of the States, which gives highest price for milk to the farmers in the country. The demand for milk is increasing day by day and the sale of Kerala Co-operative Milk Marketing Federation (MILMA) milk showed improvement in the current year. In 2017-18, a total of 6,622 lakh litres of milk was procured by the dairy co-operative societies in the State of which 4,430 lakh litres were sent to the dairies and 2,192 lakh litres were marketed locally by the societies. The average milk procured per day by Anand Pattern Co-operative Societies (APCOS) in the year 2017-18 showed an increase to 1,262 MT against the previous year average of 1,082 MT. The procurement/day/society in 2017-18 was increased to 414 litres from 360 litres in 2016-17. The procurement of milk by Kerala Co-operative Milk Marketing Federation (KCMMF) showed an increase to 4,509.09 lakh litres against the sale of 4,727.76 lakh litres in 2017-18. Except in Ernakulam, Palakkad and Wayanad, sales of milk exceeded procurement. The shortfall between milk procurement and sales was met by arranging milk mostly from State milk federations of Karnataka, Tamil Nadu,

Figure 2.13 Details of species-wise meat production in Kerala



Source: Department of Animal Husbandry

and purchase of skimmed milk powder. Details on procurement and sale of milk by different dairies of KCMMF, performance of KCMMF and milk procured by APCOS are shown in Appendices 2.38, 2.39 and 2.40. The price revision and price spread of milk from 2010 onwards is given in Appendices 2.41 and 2.42 respectively.

Feed and Fodder Base

Special focus has been given to fodder and feed production in Kerala to support the development of the livestock sector considering the wide gap in the availability of these two critical inputs. The dairy development department is the nodal agency for fodder development activities in the State. Under the scheme, production and conservation of fodder in farmer fields and dairy co-operatives, commercial and massive fodder production in barren lands and wastelands has been initiated. Those lands which are fertile yet remain under utilised under the ownership of progressive farmers, other individuals, LSGDs, PSUs etc. will be selected and intensive fodder cultivation activities will be taken up. In the year 2017-18, fodder cultivation was taken up for 2,250 Ha of land and 320.50 lakh fodder root slips/stem cuttings was supplied. Besides, assistance has been provided to farmers for Azolla cultivation, mechanisation of fodder cultivation and harvesting, irrigation facilities etc. Innovative fodder development programs under Integrated Dairy Development Program have been implemented in the Districts of Kollam and Ernakulam. The total production of cattle feed in 2017-18 was 3.53 lakh metric tonnes as against 3.71 lakh MT in 2016-17. The production of feed and fodder are shown in Appendices 2.43, 2.44, and 2.45.

Establishing Distinct Dairy Zones in the State

Under the scheme, Commercial Dairy Milk and Milk Shed Development Programme, distinct dairy zones programme has been implemented in 50 potential dairy extension units coming under 14 Agro Ecological Unit (AEU). As part of the programme, in 2017-18, 4,122 new animals and 1,170 heifers were inducted to the State from neighbouring States, 675 progressive farmers were assisted for mechanisation and automation of farm activities. Also, assistance was provided to 144 farmers for the construction of scientific cattle shed, 225 farmers for purchase of milking machine, mineral mixture to 10,512 farmers and 13,230 farmers in other items related to the sector.

Breeding Support

Kerala Livestock Development Board (KLDB) is involved in the production and distribution of frozen semen. Compared to 2016-17, semen production increased from 27.66 lakh doses to 30.16 lakh doses in 2017-18. The distribution inside and outside the State decreased from 16.62 lakh doses to 14.41 lakh doses and 4.94 lakh doses to 2.95 lakh doses respectively during this period. Details are shown in Appendix 2.46.

The number of artificial insemination (AI) centres in the State in 2017-18 was 2,515. The number of inseminations done in 2017-18 was 11.13 lakh and calving recorded was 2.98 lakh. The average number of inseminations needed for producing one calf is 4. The details of AI are shown in Appendix 2.47. The quality of AI is not improving and so measures to improve the quality of semen supplied needs to be taken up immediately. Activities of the KLD Board are given in Appendix 2.48.

Special Livestock Breeding Programme (SLBP)

The calf rearing programme by subsidising cattle feed for rearing cattle up to 32 months along with health cover and insurance has been under implementation since 1976 onwards. In 2006-07, the scheme was extended to buffalo calves also as a measure to curtail the drastic reduction in the buffalo population. Enrolment of buffalo calves shows a decreasing trend and no buffalo calves were enrolled between 2014-15 and 2017-18. In 2017-18, the number of calves enrolled under

this programme is 45,070 against 73,538 calves in 2016-17. Year-wise details from 2007-08 onwards are shown in Appendix 2.49.

Animal Health Care

The animal husbandry department provides veterinary care mainly through 14 District veterinary centres, 50 veterinary polyclinics, 215 veterinary hospitals, 885 veterinary dispensaries, 38 regional animal husbandry centres, 1,359 veterinary sub-centres, 9 mobile veterinary hospitals, 7 mobile farm aid units and 1 motorboat veterinary hospital. Effective and timely action was taken by the Animal Husbandry Department in liaison with respective administrations and Local Governments to eradicate contagious diseases. Currently mass campaign vaccination programmes like foot and mouth disease control programme, rabies free Kerala vaccination programme and ASCAD poultry vaccinations are being conducted regularly. Cases of hemorrhagic septicaemia and foot and mouth disease were reported in 2017-18. Number of attack of hemorrhagic septicaemia reported is low in 2017-18 compared to 2016-17. Data regarding outbreaks, attacks and deaths of major contagious diseases of animals in Kerala for the period from 2011-12 to 2017-18 are given in Appendix 2.50.

Emergency veterinary service during night hours

The service of a veterinary doctor is available only in the day time and it is difficult to get the service during odd hours of the day. Hence a project was formulated to provide the expert veterinary care at block level from 6 pm to 6 am. The service of a registered veterinary practitioner is provided on contract basis. The unit is functioning under the direct supervision of one identified veterinary institution of the block area. Medicines are made available to them. Emergency night veterinary service was established in 85 selected blocks of the State up to 2017-18 and in 2018-19 this was extended to 105 blocks.

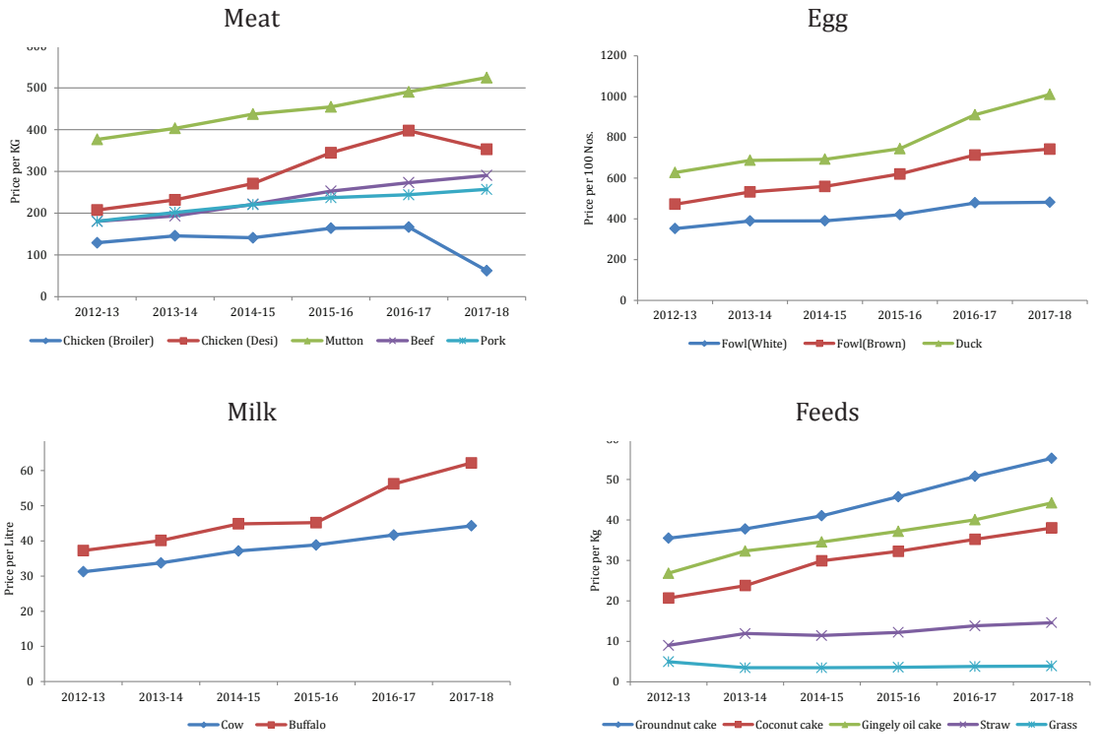
Gosamrudhi – comprehensive livestock insurance scheme

Gosamrudhi, a comprehensive livestock insurance scheme, was introduced in 2017-18. This was aimed at management of risk and uncertainties by providing protection mechanism to the farmers against any eventual loss of their animals due to death or permanent total disability resulting in total loss of production or infertility through insurance coverage. The maximum insured value of animal is ₹50,000. The premium rate is around 3 per cent of the cost of the animal and the subsidy rate towards premium is 50 per cent and 70 per cent for SCs/STs. One time insurance of an animal up to a maximum period of three years will be provided. The United Insurance Company was selected for implementing the scheme. In 2017-18, a total number of 54,696 animals were insured under the programme.

Production of vaccine in Institute of Animal Health and Veterinary Biologicals, Palode

The Institute of Animal Health and Veterinary Biologicals, Palode is the sole agency engaged in the production and distribution of animal vaccine in the State. The production details of vaccines manufactured are shown in Appendix 2.51. In 2017-18, the production of poultry vaccine was 184.05 lakh doses and livestock vaccine was 3.79 lakh doses. Compared to the previous year, production of poultry vaccine decreased by 5.6 per cent and livestock vaccine decreased by 13 per cent. Number of vaccinations done in 2017-18 was 29.25 lakh for livestock and 40.68 lakh for poultry. Compared to the previous year, vaccination to cattle increased by 9.31per cent and vaccination to poultry decreased by 41.48 per cent. Anti-Rabies Vaccinations done on dogs decreased from 2.83 lakh to 1.98 lakh in 2017-18. Details are given in Appendix 2.52.

Figure 2.14 Trend in average prices of livestock products from 2012-13 to 2017-18



Source: Animal Husbandry Department

Prices

Average price of important inputs and products of livestock sector for the last seven years is presented in Appendix 2.53 and all the products except chicken (broiler and desi) recorded increase in prices during the period. The price of chicken broiler and chicken (desi) decreased by 2.6 per cent and 11.21 per cent respectively than previous years. The average price of mutton increased by 6.95 per cent, beef by 6.25 per cent and pork by 5.31 per cent. In 2017-18, the highest increase in price was in the case of mutton (6.95 per cent), followed by beef (6.25 per cent). Compared to 2016-17, the price of fowl-white egg increased by 0.63 per cent, brown egg by 4.07 per cent and duck egg by 10.99 per cent in 2017-18. Compared to 2016-17, the price of cow milk increased by 6.26 per cent and buffalo milk by 10.60 per cent in 2017-18.

On the input side, the price of straw increased by 5.56 per cent and grass by 3.16 per cent in 2017-18. Compared to the previous year, the price of groundnut cake increased by 8.83 per cent, coconut cake by 7.98 per cent and gingelly oil cake by 10.41 per cent in 2017-18. The increase in the price of inputs is a serious threat to dairy farming and hence the possibility of indigenous source of feeds is to be explored. The trend in average prices of livestock products from 2012-13 to 2017-18 is shown in Figure 2.14.

Physical Achievements in 2017-18

- Provided emergency veterinary service during night hours at block level. Service was available in 85 blocks of the State
- Mobile veterinary clinic with tele-medicine facility and advanced diagnostic facilities functioned at Kollam District. The unit was attached to District Veterinary Centre, Kollam.
- 54,696 animals insured under the Comprehensive Livestock Insurance programme - Gosamrudhi.

Box 2.2 State Cattle Breeding Policy-2018

The existing State cattle breeding policy 2008 of the State has been modified in 2018 for meeting the current challenges in the dairy sector. The recommendations of the State Breeding Policy 2018 are:

- Only Foreign breeds of Jersey and Holstein Friesian shall be continued to be used as exotic donor.
- The germplasm provided by Kerala Livestock Development Board alone may be used and the level of exotic inheritance shall be limited to around 50 per cent for small holding. However for farmers with good resources and those involved in commercial/semi commercial dairying could be provided with semen from bulls with exotic inheritance up to 75 per cent.
- Present Progeny Testing Programmes shall continue and include more parameters like milk constituents and type characters for bull selection process.
- For next generation bull calf production, Embryo Transfer Technology, In vitro fertilisation and sexed sorted semen technology shall also be used. Top 10 per cent of cows with respect to production, reproduction and milk constituent yield shall only be selected as donor cows for embryo production.
- Female sex sorted semen shall be provided for the production of female calves as per the need of the farmers, without subsidy.
- Semen of proven bulls with known breeding value shall be used in Premium Bull Scheme to the maximum.
- Conservation programme for indigenous breeds like *Vechur*.
- Expand Artificial Insemination facility and continue existing selection and breeding programmes of *Malabari goat.*
- Conservation and dissemination of *Attappady goat.*
- 'Feed and Fodder policy' to be formulated for which an expert committee may be constituted.
- Legislation for testing and controlling the quality of compounded cattle feed distributed in the State.
- 'Mediclaim' model Livestock health Insurance.
- Mission mode project for Mastitis control and vaccination programme against Brucellosis
- Compulsory covering of a minimum of 50 per cent calves born, under Special Livestock Breeding Programmes.
- Molecular Biotechnology for selection of breeding bulls
- Formulation and implementation of field level research activities in cattle breeding, breeding bull selection etc. with the cooperation of Kerala Veterinary and Animal Science University.

Source: Animal Husbandry Department

- Foot and mouth disease vaccination campaign was conducted and 12.31 lakh animals were covered in the campaign.
- Enrolled 35,070 new calves under Govardhini and SLBP schemes and second year assistance for 73,538 calves enrolled during previous year was given. A total of 1,08,608 calves were benefited.
- Implemented poultry rearing scheme through school children. 905 schools were covered under the scheme. A total of 45,250 students were benefited. 2.26 lakh chicken were distributed through the scheme.
- 920 goat satellite units established.
- 7 viral vaccines and 5 bacterial vaccines produced.

- 46 new dairy co-operatives were registered and 57 number of dormant dairy co-operatives were revived.
- Fodder cultivation was taken up for 2,250 ha of land.
- Financial assistance was extended for induction of 6,667 milch animals and 3,055 number of heifers.
- 900 dairy farmers were assisted for purchase of milking machine.
- 92 dairy co-operatives were assisted for establishing hygienic milk collection room.
- Massive fodder cultivation was implemented in 94 ha of barren land in selected Panchayats. 74 number of beneficiaries were selected under this programme.
- Ksheera Gramam Project was implemented in 5 selected Panchayats.
- Special Onam quality control drive was carried out at 5 check post (Walayar, Meenakshipuram, Kumily, Aryancavu and Parassala) and 14 District QC units.
- Permanent milk testing facility was established in Meenakshipuram Check Post, Palakkad District.

Key Initiatives in 2018-19

- Animal Resource Development - The scheme with livelihood objective, for providing assistance to farmers for ventures in the areas such as commercial goatery units, male calf fattening units, interest subvention for loans of animal husbandry ventures, and support for marketing outlets was implemented.
- Emergency veterinary service during odd hours extended to 105 selected blocks of the State
- Scaled up scientific calf rearing programmes for achieving self-sufficiency in milk production.
- Establishing 5 heifer park with 100 heifers each in one park
- Calf adoption programme - 2,000 calves
- Assistance to dairy co-operative societies for installation of pollution control systems, solar energy conservation systems and systems for tapping regenerative heat from bulk milk coolers.
- Comprehensive health insurance programme covering cattle and cattle owners through Dairy Department.
- Special rehabilitation programme of ₹22 crore for flood affected dairy farmers, including assistance for inducting 3000 new milch animals, distribution of mineral mixture at subsidised rate and construction/ modernisation/renovation of cattle shed.

Fisheries

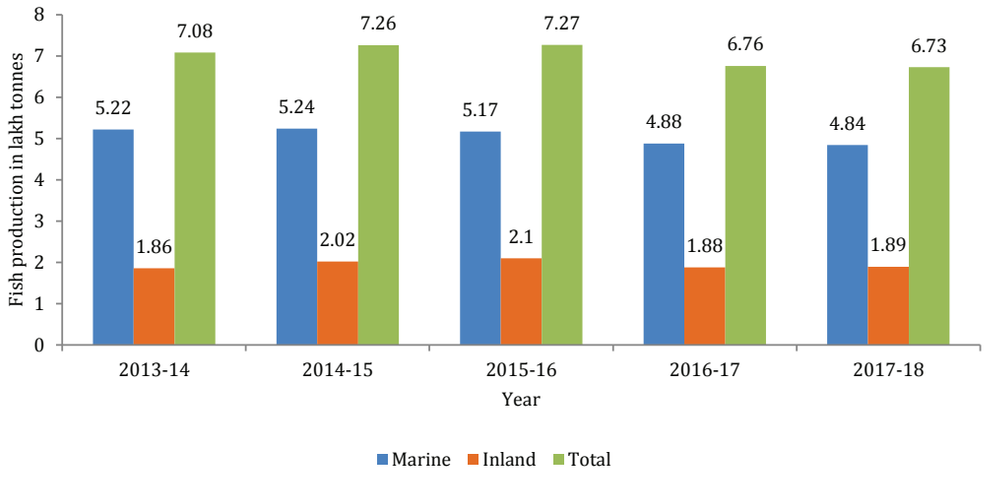
Fisheries are an important sector in the national and the State economies. Apart from its contribution to GDP and employment, the sector catalyses growth in a number of industries. It is a source of cheap and nutritious food and also earns foreign exchange for the economy.

India is the second largest producer of fish and freshwater fish in the world (Annual Report 2017-18, Department of Animal Husbandry, Dairying and Fisheries, GoI). According to the 'The State of World Fisheries and Aquaculture 2018-Meeting the sustainable development goals' published by Food and Agriculture Organisation (FAO), among the countries in the world, India ranks second in inland waters captured fish production and sixth in marine captured fish production. India is also a major producer of fish through aquaculture and ranks second in the world after China. The total fish production in 2016-17 (provisional) was 114.09 lakh tonnes with a contribution of 77.79 lakh tonnes from the inland sector and 36.3 lakh tonnes from marine sector. Inland fish production constitutes more than 68 per cent of the total fish production in the country and the annual growth rate of production has also been high. The growth rate was 8.5 per cent in 2016-17. Though marine fish production has increased during the recent years, the growth rate is marginal during the last three years.

Fisheries engage over 145 lakh people at the primary level and many more along the value chain. In the financial year 2016-17, exports from fisheries sector was ₹37,870.90 crore, which is about 0.92 per cent of all-India Gross Value Added (GVA) and 5.23 per cent of the agriculture GVA (2015-16).

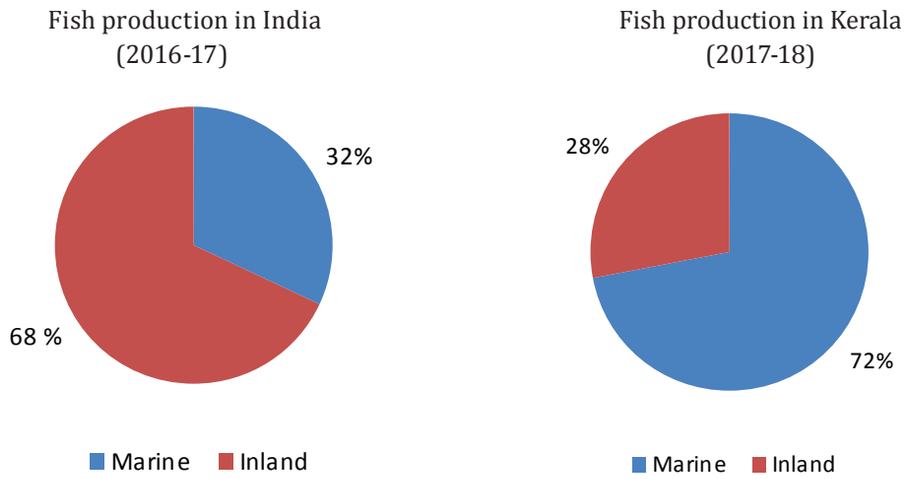
The total fish production in Kerala in 2017-18 was 6.73 lakh tonnes, of which Marine fish landings were 4.84 lakh tonnes and Inland fish production was 1.89 lakh tonnes. Details are provided in Appendix 2.54. Year-wise details of fish production in Kerala are provided in Figure 2.15.

Figure 2.15 Fish production in Kerala, 2013-14 to 2017-18



Source: Department of Fisheries, GoK (2018)

Figure 2.16 Fish production in India and Kerala, share of marine and inland fishing



Source: Department of Animal Husbandry Dairying and Fisheries, GoI (2018) and Department of Fisheries, GoK (2018)

Total fish production in the State has been declining during the past two years. Marine fish production is decreasing since 2014-15. High-value species among the marine fish catch is less. However, significant among them are Seer fish, Prawn, Ribbon fish and Mackerel. The quality of these high-value species in the total catch is the crucial determinant of the income of the fish workers. The species-wise marine fish landings in Kerala from 2014-15 to 2017-18 are shown in Appendix 2.55.

At national level about 68 per cent of the total fish production is contributed by the inland sector, however, at the State level, the share of the inland sector is only 28 per cent. The difference in the composition of total production in India and Kerala is brought out in Figure 2.16.

The species-wise details of inland fish production in Kerala from 2014-15 to 2017-18 are shown in Appendix 2.56. Inland fish production had improved during the period 1999-2000 to 2015-16 and has been declining thereafter. A marginal increase was seen in 2017-18 when compared to 2016-17. According to the Annual Report of the Department of Animal Husbandry Dairying and Fisheries, Government of India (2017-18), inland water resources of Kerala constitute over 7 per cent of the same in the country. However, according to statistics from Indian Agricultural Statistics Research Institute (ICAR), the share of Kerala in total inland fish production (2014-15) is only about 2.4 per cent. States with smaller inland water resource endowment like Assam, Chhattisgarh and Uttar Pradesh have shown better inland fish production. Kerala has scope to improve the utilisation of its potential in Inland fishing.

The population of Kerala is 334 lakh according to Census 2011 and the fisherfolk population in 2017-18 is estimated to be around 3.1 per cent of Census population. They reside in 222 marine fishing villages and 113 inland fishing villages of the State. The fisherfolk population of the State for 2017-18 is estimated at 10.34 lakh. Out of this, 7.96 lakh belong to the marine sector while 2.38 lakh belong to the inland sector. Alappuzha (1.92 lakh) is the district with largest fisherfolk population, followed by Thiruvananthapuram (1.71 lakh) and Ernakulam (1.37 lakh). Wayanad is the district with the lowest fisherfolk population. The district-wise details of fish workers are given in Appendix 2.57.

The number of active fish workers in the State in 2017-18 was 2,38,173 of which 88 per cent (2,10,085) were males. Thiruvananthapuram District had the largest number of active

fish workers, followed by Alappuzha and Malappuram. Active fish workers are those fish workers who are engaged in fishing for their livelihood and are registered with Kerala Fishermen's Welfare Fund Board. In 2017-18, the number of allied workers in fisheries in Kerala was 78,856 of which 80 per cent (63,235) were women. Their number was highest in the District of Alappuzha, followed by Kollam and Ernakulam. Allied workers are those engaged in fishery-related activities for livelihood and are registered with Kerala Fishermen's Welfare Fund Board (KFWFB).

Fisheries and aquaculture contribute around 9.2 per cent of the Gross State Value Added (GSVA at constant prices) from the primary sector. The GSVA of the State has been growing over years, but the share of primary sector has been declining. The share of the fisheries sector has remained around 1 per cent of GSVA. The share of the fisheries sector in the GSVA had declined from 1.12 per cent in 2011-12 to 0.95 per cent in 2016-17. However, it has improved to 1 per cent in 2017-18. Details regarding the contribution of the fisheries sector in GSVA are given in Appendix 2.58.

An analysis of the figures of District-wise fish production in Kerala shows that Kollam is the leading producer of marine fish followed by Thiruvananthapuram and Ernakulam. These 3 Districts together contribute around 79 per cent of the total marine fish production in the State. Kasaragod, Kottayam and Alappuzha are the leading Districts in the case of inland fish production occupying the first, second and third positions respectively. In the case of total fish production, the leading producer is the District of Kollam followed by Ernakulam and Thiruvananthapuram respectively. Details are provided in Appendix 2.59.

Kerala has made vital contributions to the export of marine products from the country. In 2017-18, export of marine products from Kerala was 1,78,646 tonnes valued at ₹5,919.03 crore. Quantity and value of exports of marine products from Kerala have been increasing since 2015-16. However, the share of Kerala in the total export of marine products from India is falling, in terms of quantity and value. Details are provided in Appendix 2.60.

Key Initiatives in 2018-19

Inland fish production is an area which holds promise for future in Kerala. Insufficient availability of good quality fish seeds has been identified as a major problem. To increase the production of good quality fish seeds, it is required to strengthen the existing hatcheries, nurseries, fish farms and construct new units to the existing infrastructure. In 2018-19, an amount of ₹76.40 crore was allocated for inland fisheries, which includes ₹48 crore specifically for Aquaculture. In order to eliminate the problem of loss of life while fishing at sea, ₹5 crore has been provided for procurement of sea rescue craft.

In order to address the relative economic and social backwardness of the fishing community, the GoK had initiated a new scheme 'Basic infrastructural facilities and human development of fishworkers in 2015-16. The outlay to the scheme is ₹237.60 crore in 2018-19 of which ₹150 crore is provided exclusively for rehabilitation of fish workers who stay within 50 meters from the coast and are vulnerable to sea erosion. Provision for the purchase of land and construction of the house is built into the scheme.

Performance Review of Annual Plan 2017-18

The total outlay under State Plan for Fisheries and Coastal Area Development in 2017-18 was ₹461.58 crore. Total expenditure incurred is ₹405.25 crore, which is about 88 per cent of the State Plan outlay. The outlay on CSS schemes was ₹99.51 crore and the expenditure during this period was ₹28.66 crore (28.80 per cent). CSS schemes include a scheme where NCDC Assistance is received. The outlay was ₹17 crore and expenditure was ₹3.65 crore (21.4 per cent).

Major Developmental Programmes

The Plan schemes of the Government under Fisheries sector can broadly be classified into the following categories -

1. Marine fisheries development
2. Inland fisheries development
3. Blue Revolution (CSS)
4. Extension, training and service delivery
5. Modernisation of markets and value addition
6. Social Security to fish workers
7. Development of fishing harbours and management (includes CSS components)
8. Scheme for the Fisheries University
9. Coastal Area Development

In the public sector, 144.82 lakh carps/ scampi/mahseer, 89.21 lakh shrimp and 13.3 lakh brackish water fish were stocked. The department was able to produce about 418 lakh fish seeds in various facilities. The fish culture was undertaken in about 980 hectares of small and large ponds, and 1851 hectares of padasekharams. Shrimp culture was undertaken in about 470 hectares. About 600 rescue operations were undertaken and 5,481 persons were rescued during the year.

As a part of addressing issues prevailing in the housing sector of fish workers, assistance at the rate of ₹4 lakh is provided to fish workers for construction of new houses. First stage allocation was provided to 400 fish workers, while 2nd and 3rd stage allocation were provided to 94 and 29 fish workers respectively. A maximum of ₹6 lakh per fish worker is also provided for those ready to relocate to areas beyond 50 meters from the coast. 750 fish workers have benefitted from the scheme.

Harbour Engineering Department and Fishing Harbours

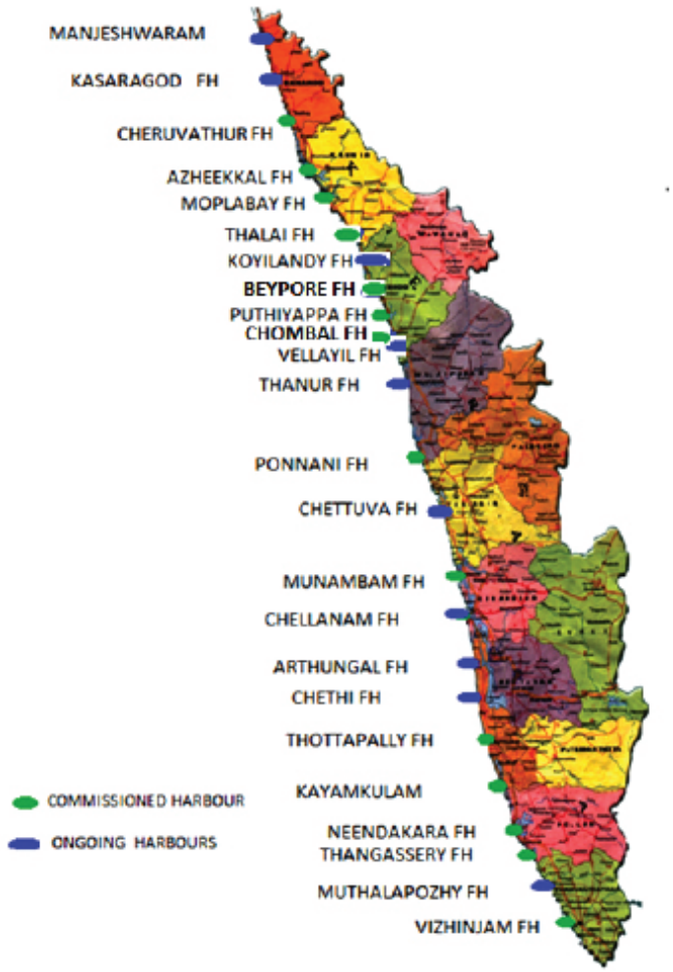
The GoK has so far completed construction work of 14 fishing harbours and the works of another 10 are progressing. Thalai fishing harbour in Kannur District was commissioned on 18 May 2018. The completed fishing harbours are Vizhinjam, Thankassery, Neendakara, Kayamkulam, Thottappally, Munambam, Ponnani, Beypore, Puthiyappa, Chombal, Thalai, Moplabay, Azheekal and Cheruvathoor. The ongoing fishing harbour works are Muthalapozhy, Chethi (I and II), Arthungal (II), Chellanam (I and II), Chettuva, Thanur, Koyilandi, Vellayil, Manjeswaram and Kasaragod. The location of fishing harbours in Kerala are provided in Figure 2.17.

In 2017-18, Plan support was extended for construction of fishing harbours like Arthungal, Vellayil, Thanoor, Manjeswaram, and Koyilandi; and Munakkakadavu Fish Landing Centre. In addition to these, funds were provided for completion and operationalisation of Chettuvai, Cheruvathur and Thalai fishing harbours. Support was provided for management of fishing harbours. In order to keep the fishing harbours operational throughout the year, support was also provided for carrying out capital repairs and maintenance dredging. In 2017-18, ₹49.50 crore was provided exclusively for fishing harbours under the State Plan. Expenditure incurred was ₹11.38 crore.

Construction of fishing harbours was previously undertaken with the help of State funds, funds from Central Government (50 per cent and 75 per cent CSS), funds under central schemes like Rashtriya Krishi Vikas Yojana (RKVY), and funds from agencies like NABARD (under RIDF). However, Central Government has introduced some changes in the funding pattern of CSS schemes and the receipt of Central funds in recent years has been very low. This is having an adverse impact on the completion of fishing harbours in Kerala. The State would find the funding of such big projects a big hurdle. Time bound completion schedules for all ongoing fishing harbours needs to be worked out. Steps need to be taken to ensure that all fishing harbours of the State are fully operational throughout the year. The progress of ongoing fishing harbours is shown in Appendix 2.61.

Total revenue collected from fishing harbours and fish landing centres has shown a sharp increase

Figure 2.17 Fishing harbours in Kerala



Source: Harbour Engineering Department, GoK

from ₹302.53 lakh in 2016-17 to ₹849.07 lakh in 2017-18. Highest revenue collection has been from Thottapally Harbour. Neendakara harbour which had been an important revenue generator since 2012-13 is in the second position in 2017-18. Together, Thottapally, Neendakara and Kayamkulam contributed about 80 per cent of the total revenue collection from fishing harbours and fish landing centres in Kerala. It is understood that revenue collection depends on the quantity of marine fish catch. Marine fish production is falling, but sharp fall and reason for large fluctuations in the revenue earnings from fishing harbours need to be explored in detail. The details of earnings from fishing harbours are given in Appendix 2.62.

Apart from the construction of new fishing harbours, NABARD funds have been used for works like the modernisation of existing fishing harbours, construction of fish landing centres, roads, bridges, locker rooms, walkways, etc. Eleven projects including 7 bridges, fish landing centres and walkway amounting to ₹62.91 crore was sanctioned under RIDF XVII. Six works have been completed, and the rest are progressing. 24 works were sanctioned under RIDF XIX of which 13 were completed, 9 have been dropped and 2 are ongoing. Works for 2 roads and a bridge totalling ₹7.82 crore have been sanctioned under RIDF XX and work is progressing. 4 proposals with a total cost of ₹25.37 crore have been sanctioned by NABARD under RIDF

XXIII. An outlay ₹35 crore was provided in 2017-18 for NABARD assisted RIDF projects and an expenditure of ₹10.42 crore has been incurred.

Kerala State Coastal Area Development Corporation (KSCADC)

Kerala State Coastal Area Development Corporation (KSCADC), a fully owned State Government Company formed with the aim of integrating the development activities in the coastal area of the State and for undertaking projects in coastal infrastructure development, fisheries infrastructure development, technology acquisition, commercial operation and consultancy. Since 2007, KSCADC has completed 697 projects worth ₹431.72 crore funded by State Government, Central Government, NFDB, and NABARD. In 2017-18, KSCADC has completed 52 projects worth ₹85.62 crore. It includes a housing scheme (192 flats), 11 drinking water supply projects, 9 electrification projects, 7 health infrastructure projects, 11 educational infrastructure projects, 4 anganvadi projects, 1 fish landing centre, 2 net mending yards, 3 fisheries stations and 2 fish markets. About 43 projects worth ₹110 crore are ongoing.

State Government has spent a considerable amount of money during the 12th Plan period for the development of coastal infrastructure including social infrastructure. It is found that a large number of these works are still incomplete. The progress of schemes has to be evaluated. Schedule for time-bound completion of schemes has to be prepared and implemented.

Social Security and Livelihood Support to Fish workers Community

GoK has placed emphasis on various schemes implemented to ensure social security and livelihood support to fish workers community. Apart from the Fisheries department, Kerala Fishermen's Welfare Fund Board (KFWFB) and Matsyafed also implement such schemes. Plan support is also available for many such schemes. Some of these schemes are Centrally Sponsored. The schemes include those for housing, insurance, pension etc apart from those which enable fish workers to earn a livelihood on a continuous basis. 2.37 lakh fish workers benefitted from the Group Accident Insurance Scheme. Additionally, 78,979 allied workers also benefitted from this Scheme. Old age pension was provided to 50,340 fish workers. The number of beneficiaries under the scheme Pension for wives of deceased fish workers was 8,962. More than 1.9 lakh fish workers were provided support during the 'off season' under the 'Saving cum Relief Scheme'. Details of such schemes implemented by the Fisheries department and KFWFB are provided in Appendices 2.63 and 2.64 respectively. The State has been able to provide greater assistance to fish workers and expand the social security net over the years.

Matsyafed

Matsyafed is an apex federation of 652 primary level Fish workers Development Welfare Co-operative Societies, of which 338 are in the marine sector, 193 are in the inland sector and 121 are women co-operative societies. The total membership in these societies is more than 4.45 lakh. The authorised share capital of the federation is ₹150 crore. Matsyafed has organised SHGs within the fishing community and has developed among them, the habit of savings. By providing micro finance and interest free loans, Matsyafed has made an impact in the area of micro credit. In 2017-18, micro finance support was provided to SHGs which has benefited 25,318 beneficiaries. 12,397 women fish workers were provided interest free loans. Matsyafed has also been successful in enabling fish workers access to vital fishing inputs. 586 fish workers have benefited from the scheme providing the subsidy for the purchase of fishing gear. 289 fish workers were provided assistance for modernising the traditional crafts. The achievement of various programmes implemented by Matsyafed is given in Appendix 2.65.

Society for Assistance to Fisherwomen (SAF) and Women Empowerment

Society for Assistance to Fisher women (SAF) is an agency established to enable the overall development and empowerment of women fish workers in the State. It extends financial, technological and managerial support to women fish workers to organise group activity, start micro-enterprises and run the businesses in a sustainable manner. In order to promote alternative livelihood activities especially for the development of micro-enterprises among women fish workers, assistance was provided to 181 beneficiaries. Capacity building training was provided to 209 beneficiaries. 500 women fish workers were beneficiaries under awareness campaigns while 312 women fish workers benefitted from the Theeranaipunya scheme, which seeks to equip women fish workers below the age of 30 for the future. The achievement of various programmes implemented by SAF is given in Appendix 2.66.

In the 11th Five-Year Plan, the marine fishery sector achieved growth especially in the area of infrastructure development. The 12th Plan strategy was to ensure sustainable growth of fish and fisheries for nutrition, food security and economic growth by ensuring proper utilisation of infrastructure created in the previous Plan. Special emphasis was given to conservation and management of inshore fishery resources, enhancement of offshore marine fish production, maximum utilisation of harvested fish and value addition. As the State progresses during the 13th Five-Year Plan, the emphasis needs to be on a) nutritional security through enhancing fish production, and b) poverty reduction among fish workers by ensuring distribution of production benefits to the community on a sustainable and equitable basis.

Climate change and degradation of environment pose significant challenges to the sector. In addition, two natural disasters, namely cyclone Ockhi (November 2017) and floods (August 2018) have adversely affected this sector during the recent past. While cyclone Ockhi crippled marine fisheries, heavy rains and floods have debilitated inland fisheries. Reaching the pre-disaster levels and moving still further are significant challenges in the near future. However, the resource base of the State offers ample scope for growth of fisheries. Aquaculture, especially in the inland waters offers new opportunities for the future. An active role and contribution from Local Governments can bring a revolutionary change in this direction. Resource conservation and elimination of harmful fishing practices need greater emphasis in the future endeavours, to ensure a sustainable catch in the future. With new initiatives of funding, adequate technological support and enhanced extension activities, the sector can be expected to do well and be a sunrise sector in the coming years.

Water Resources

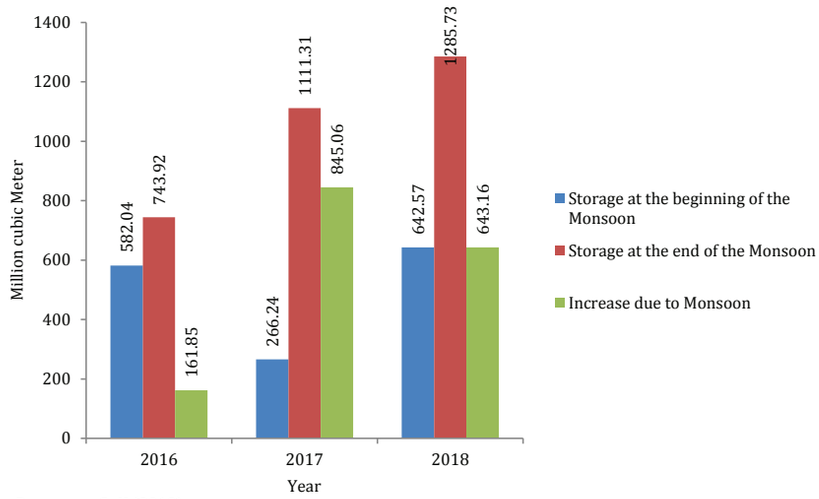
Access to clean water and sanitation are basic prerequisites for life. Water scarcity is one of the gravest contemporary global challenges. It affects all segments of society. Relentlessly increasing demand on freshwater resources necessitates the need for immediate institutional mechanisms for sustainable management of water resources. Highly uneven temporal and spatial distribution of water resources, rapidly increasing stress on water resources due to population growth, rising living standards and economic expansion and the creeping impact of climate change adversely affect the viability of water resources and underscores the urgency for sustainable water resource management.

In order to accelerate efforts towards meeting water-related challenges, the United Nations General Assembly declared 2018-2028 as the International Decade for Action on Water for Sustainable Development. The Water Action Decade began on World Water Day, 22 March 2018, and will end on World Water Day, 22 March 2028.

Live Storage Capacities of Reservoirs maintained by Irrigation Department

There are 54 dams in the State. Out of this, 14 dams and 6 barrages are maintained by the Irrigation Department. The live storage of reservoirs under Irrigation Department in the State is estimated as 1431 Mm^3. The live storage position of the reservoirs at the beginning and end of the monsoon during the period 2016 to 2018 is shown in Appendix 2.67. In 2018, at the beginning of the monsoon (01/06/2018), the total storage was 642.57 Mm3 and at the end of the monsoon October 1, 2018, the level was raised to 1285.73 Mm^3, as against the previous year levels of 266.24 Mm^3 and 1,111.31 Mm^3 respectively. Compared to 2017, the year 2018 is a wet year and hence there is an increase in storage in most of the dams. The storage position of reservoirs post monsoon during the past three years is shown in the Figure 2.18.

Figure 2.18 Live storage position in the reservoirs, 2016-2018



Source: Department of Water Resources, GoK (2018)

Major and Medium Irrigation Projects

The 4 ongoing projects viz., Muvattupuzha, Idamalayar, Karapuzha and Banasurasagar that commenced in 1970s and 1980s, but still continuing with consequent time and cost over runs. The unprecedented delay in implementation is the result of administrative and technical factors. The status of these irrigation projects is given in Appendix 2.68.

To assess the status of implementation of works and to frame a time schedule for its completion, a Technical Committee was constituted by the State Planning Board. The committee submitted its report on August 2018. Some of the common setbacks observed for these long pending irrigation projects are

- Poor quality of technical appraisal that preceded the preparation of project proposals.
- Slow pace of land acquisition process
- Inordinate delay in preparing revised estimates and in obtaining revised Administrative Sanction.
- Lack of proper monitoring system at the State level.

The Muvattupuzha Valley Irrigation Project (MVIP)

The Muvattupuzha Valley Irrigation Project (MVIP), one of the major projects in Kerala envisages the utilisation of the tailrace discharge[2] from the Moolamattom power House of the Idukki Hydro-Electric Project and the dependable runoff from the catchments of Thodupuzha river. MVIP was started in 1974 with an estimated cost of ₹20.86 crore and was approved by the Planning Commission in June 1983 at an estimated cost of ₹48.08 crore. The project was partially commissioned in 1994. Out of the total ayacut of 35,619 ha, an ayacut of 32,627 ha was created up to August 2018. 100 per cent works of main canal and branches and 90 per cent works of distributaries have been completed. Two works viz., construction of Ezhuthonipadam aqueduct over railway portion and Manjoor distributary pipeline crossing in railway portion has been completed this year. Water distribution will be commenced this year itself, and an ayacut of 1,335 ha can be utilised for irrigation. The estimated cost of the project based on 2015 Delhi Schedule of Rate (DSR) is ₹945.00 crore and the expenditure up to August 31, 2018 is ₹970.58 crore.

Flood Damages to MVIP Canals

Main damages to MVIP canals are due to breach of Peruva distributary. A breach had occurred at Ch[3]. 1,795 m of Peruva distributary during flood. Due to heavy down pour lately, about 50 m of the left bund of the canal has been damaged. Out of this, about 30 m has been fully washed away to the nearby land causing heavy damage to the farmers. Water from the damaged portion of the canal has flooded the nearby agricultural area completely. Karikkode distributory tail end collapsed for 250 m. In addition to the above, landslides to the canals and bund road collapse added to the damages.

Idamalayar Irrigation Project (IIP)

Idamalayar irrigation project (IIP) is a scheme for diverting water of Periyar river for irrigating 14,394 ha of cultivable lands in Periyar and Chalakudy basins. The work commenced in 1981 at an estimated cost of ₹17.85 crore. Main components of the project are – (1) A head regulator across the main canal at its starting point. (2) Canal system consisting of – Main canal (32.278 km), low level canal (27.25 km), and link canal (7.575 km).

Main Canal for a full length of 32.278 km had been completed. Works of low level canal is completed up to 15th km except at MC road crossing (Ch. 10,490 m to 10,599 m) and Railway crossing (Ch. 13,818.5 m to 13,879.50 m). After completing these two works, water distribution is possible upto 15th km of Low level canal which will benefit the agricultural and drinking

2. Tailrace discharge is water discharged from the turbine after production of energy.
3. Ch. denotes Chainage or length of the canal.

water need of Angamaly Municipality and Nedumbassery Panchayat. Construction works of link canal is completed from Ch. 445 m to 608 m. The total ayacut achieved is 3,048 ha and the expenditure up to August 31, 2018 is ₹350.83 crore.

Flood Damages to IIP Canals

Due to the torrential rain fall in August 2018, IIP canals were flooded. Due to overflow of Mullasserythodu, the canal bund road got damaged. Huge accumulation of debris and silt led to severe damages in both main canal and low level canals. The temporary shutters provided for the flush escape at Ch. 16,360 m of main canal was removed to divert water to the nearby natural thodu. Though most of the shutters were opened before the flood, some damages has occurred to the shutters and operating arrangements.

Karapuzha Irrigation Project (KIP)

Karapuzha Irrigation Project (KIP) is the first medium irrigation project in the Kabini Sub Basin of Cauvery river. Cauvery Water Disputes Tribunal (CWDT) has awarded 2.80 TMC of Cauvery water to Karapuzha. Karapuzha Irrigation Project is one of the 99 prioritised projects under Accelerated Irrigation Benefit Programme (AIBP). This project consists of an earthen dam with concrete spillway across Karapuzha river at Vazhavatta in Vythiri Taluk of Wayanad District for providing irrigation to a net ayacut of 5221 ha Cultivable Command Area (CCA) in Vythiri, Sulthanbathery and Mananthavady taluks of Wayanad District. Reservoir has a gross storage capacity of 76.50 Million Cubic Meter (MCM) with live storage capacity of 72.00 MCM.

This project was approved by Planning Commission in 1978 and administrative sanction was issued for ₹7.60 crore envisaging irrigation to Cultivable Command Area of 5,600 ha with ultimate irrigation potential of 8,721 ha. Karapuzha Irrigation Project was partially commissioned on 20th June 2010. Rectification of two main bottle necks were completed – (1) Rectification of breach in RB main canal at Edakkaravayal Ch. 7673 m-7888 m completed and is ready for water distribution from 2018 onwards (2) Rock portion in Padinjaraveedu branch canal near Ch. 330 m which off takes from the tail end of Left bank Main canal also cleared and connection made between the existing canal on both sides. From March 2017 onwards, water distribution through Left Bank Main Canal is carried out up to 15.30 km in trial basis. 1st phase of tourism project in Karapuzha was completed and the park and garden were opened to the public in June 2017. The present cost of the project is ₹560 crore (as per DSR 2014). The expenditure incurred up to August 31, 2018 is ₹322.69 crore. The total CCA created is 601 ha and the corresponding irrigation potential is 938 ha.

Flood Damages

Left Bank Main canal near Ch. 4,800 m breached during flood for a length of 60 m.

Banasurasagar Irrigation Project

Banasurasagar Irrigation Project is the second irrigation project in Wayanad District. This Irrigation Project is in the Karamanthodu basin which is a tributary of Panamaram river. The project commenced in 1979 to irrigate an area of 2,800 ha (net) agriculture land for the second and third crops in two taluks of Wayanad District.

The main canal is 2.73 km long and there are two branch canals – Padinjarathara branch canal having a length 9.030 km and Venniyode branch canal with a length of 5.390 km. Of the total main canal, 2,360 m canal works were completed. Works of both branch canals – Padinjarathara and Venniyode are in progress. The revised estimate of the project as per 2016 DSR is ₹165.98 crore and the total expenditure up to August 31, 2018 is ₹59. 18 crore.

Flood Damages

Landslides occurred at Ch. 1,130 m of the main canal, at Ch. 4,350 m of Venniyode branch canal and two landslides at Ch. 2,300 m and 2,350 m of Kappumkunnu distributory.

Kuttanad Flood Management Component

Kuttanad Wetland System comprises of 32 Panchayats of Alappuzha, 27 Panchayats of Kottayam and 5 Panchayats of Pathanamthitta. In order to mitigate the agrarian distress, a package was implemented with a total cost of ₹1,840 cr (2007 price level). Out of this, schemes related to flood control, salinity management and drainage were undertaken by the Irrigation Department for an amount of ₹1,517.90 crore. Four schemes were sanctioned by GoI under Flood Management Programme:- KEL[4] -I – Mitigation of floods (14 padasekharams), KEL II -Mitigation of floods (9 padasekharams), KEL III -Mitigation of floods (231 padasekharams), KEL IV-Mitigation of floods in 12 watersheds. All the works under KEL-I and KEL II were completed. Under KEL III, out of the 57 works arranged, 46 works completed. Under KEL IV, out of the 21 works arranged, 9 works completed.

Works of KEL-I was completed thereby protecting an area of 574.83 ha of paddy fields by constructing/strengthening 39.93 km of bund. In KEL-II, 65.25 km of bund were strengthened/ constructed to protect 3266 ha of paddy field. 128.64 km and 33.20 km of bund completed under KEL-III and KEL-IV respectively. The modernisation works of Thanneermukkom bund to manage salinity and to minimise ecological decay is in progress (overall physical progress of the work as on August 31, 2018 is 91.3 per cent). The construction of pile and slab for the protection of the breached outer bund of D block in Puthanarayiram Padasekharam is progressing (Physical progress as on August 31, 2018 is 25 per cent).

4. Acronym for Kerala used in Kuttanad package.

Irrigation Status

Source-wise net irrigated area in 2017-18 is given in Appendices 2.69 and 2.70. The net irrigated area has fluctuated during the period 2015-16 to 2017-18. The net irrigated area that was 4.13 lakh ha in 2015-16, declined to 3.77 lakh ha in 2016-17 and showed an increase of 4 per cent to 3.92 lakh ha in 2017-18. During the period under review, wells contributed the major source of irrigation benefiting 1.23 lakh ha followed by irrigation canals which served an area of 0.76 lakh ha.

The gross irrigated area increased from 4.83 lakh ha in 2015-16 to 4.97 lakh ha in 2016-17 and further showed an increase of 8.4 per cent to 5.39 lakh in 2017-18. Details of Gross Irrigated area and the crops benefited out of this are shown in Appendices 2.71 and 2.72. Among the crops, coconut is most benefited due to irrigation (1.58 lakh ha) followed by paddy (1.45 lakh ha) and banana (0.48 lakh ha). A comparison with 2016-17 data shows that, the extent of area irrigated for coconut decreased from 1.59 lakh ha to 1.58 lakh ha while that of paddy increased from 1.31 lakh ha to 1.45 lakh ha in 2017-18. The irrigated area for banana increased from 0.44 lakh ha in 2016-17 to 0.48 lakh ha in 2017-18. Thus, the gross irrigated area to gross cropped area increased from 18.4 per cent in 2015-16 to 19.25 per cent in 2016-17 and further increased to 20.92 per cent in 2017-18.

Minor Irrigation

Minor Irrigation schemes are those schemes having a Cultivable Command Area (CCA) up to 2,000 ha. These schemes play an important role in Kerala due to various reasons such as lesser investment per hectare, easier returns and management, and its suitability to agro ecology. Minor irrigation scheme comprises of surface water schemes like minor irrigation tanks and canal systems, diversion weirs, lift irrigation schemes and sub-surface schemes. During the 12th Plan period, focus was given to this sector

with special emphasis to the development of tanks and ponds, lift irrigation and other minor irrigation structures. Despite having a conducive environment in the State, Minor Irrigation schemes failed to achieve the full potential due to various reasons. A total amount of ₹1,231.50 crore was expended on Minor Irrigation sector up to the 12th Plan period with a cumulative physical achievement of 3,25,565 ha (net). 43,699 hectares of ayacut could be achieved during the 12th Plan period.

Minor Irrigation works are classified into MI Class I (ayacut area of 50 ha or more) and MI Class II (ayacut area below 50 ha) works. In addition to this, Lift Irrigation works and repairs to MI structures were carried out during the Plan period. The ayacut area of Minor Irrigation over the last three years shows a fluctuating trend. The ayacut (net area) which was 7,409.01 ha in 2015-16 increased to 13,531.70 ha in 2016-17, but it declined to 8,006.64 ha in 2017-18. Details of physical achievements of Minor Irrigation schemes for the period from 2015-16 to 2017-18 is given in Appendix 2.73.

NABARD also provides loan assistance, by way of reimbursement, for minor irrigation works under Rural Infrastructure Development Fund through RIDF Tranche 1 to XXIII. Works under RIDF XVIII to XXIII are in progress. 1331 works were completed under various tranches. There has been an increase in the sanctioned amount under RIDF during the last three tranches (from Tranche XXI to XXIII). Under RIDF XXII, sanction was issued to 3 projects at an estimated cost of ₹27.50 crore. Out of this, 2 works are in progress and remaining one work is under the process of tendering. Under RIDF XXIII, Administrative Sanction accorded to 7 projects for an amount of ₹65.41 crore. Details are given in Appendix 2.74.

Ground Water Development

Over exploitation of groundwater and consequent water shortage are the major problems across countries. Groundwater is the principal source of water for domestic use in towns and cities. Agricultural sector is the largest user of groundwater. The ground water estimation in the State is being done jointly by State Ground water Department and Central Ground Water Board. The estimation is being done based on the groundwater levels of the area.

As per the data on Dynamic Ground Water Resources of Kerala (2013), total annual ground water recharge of the State is 6,251.31 MCM and the net annual ground water availability is 5,651.53 MCM. The existing Gross Ground water draft for Irrigation is 1,181.77 MCM and the existing gross ground water draft for all uses is 2,634.91 MCM. The net ground water availability for future irrigation development is 2,944.62 MCM. The stage of ground water development of our State is 46.62 per cent. Kasaragod leads with 69.81 per cent followed by Thiruvananthapuram with 60.27 per cent. The stage of ground water development is least for Wayanad District (19.48 per cent). Details are given in Appendix 2.75.

Major schemes implemented by the department are Investigation and Development of Ground Water Resources and scheme for ground water conservation and artificial recharge. In 2017-18, ground water investigation was done for 2,585 dug wells and 10,183 drilled wells. The financial achievement of the scheme is 70 per cent. With the objective of preventing adverse environmental impacts of over exploitation of ground water and to ensure equitable distribution of resources to all, ground water control and regulation is being enforced. In 2017-18, 759 permits were issued and 25 numbers of NOC were issued for groundwater extraction for packaged drinking water units. Detailed physical achievement in the year under report is given in Appendix 2.76.

Performance of Irrigation Sector in 2017-18

In 2017-18, the total outlay for irrigation sector was ₹676.21 crore. Major and medium irrigation comprised the largest share of the outlay (61 per cent). The total expenditure incurred in this

sector for the period was ₹495.57 crore (73.28 per cent). Outlay and expenditure details of the sector in 2017-18 are shown in Appendix 2.77.

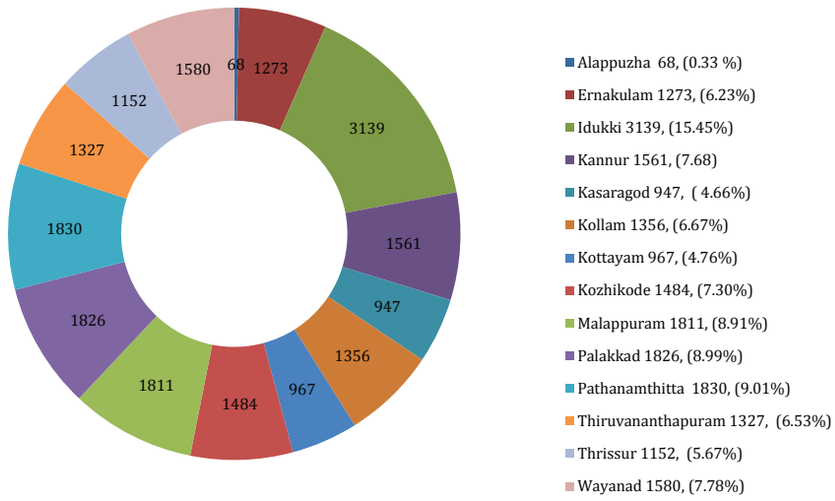
The details about water conservation and natural resources management under Haritha Keralam Mission are given in Chapter 11.

Forestry and Wild Life

Forests are fundamental for environment, food security and improved livelihoods. Forests of the future will increase the resilience of communities by providing food, wood energy, shelter, fodder and fibre, generating income and employment to allow communities and societies to prosper and harbour biodiversity. The concept of "forest health" is very important for its management. India is one of the few countries of the world to have a robust and scientific system of periodic forest cover assessment and inventory of forest and trees outside forest. Forests in the country vary from the tropical evergreen forests in the Andaman and Nicobar Islands, the Western Ghats and the north eastern States, to dry alpine scrub high in the Himalayan region. Between the two extremes, the country has semi evergreen forests, moist deciduous forests, thorn forests, sub-tropical pine forests in the lower mountain zone. As per India State of Forest Report (2017), the total forest and tree cover of the country is 8,02,088 sq km, which is 24.39 per cent of the total geographical area of the country. This includes 93,815 sq km of tree cover and 7,08,273 sq km of forest cover. The total forest cover comprises of 98,158 sq km of very dense forest, 3,08,318 sq km of moderate dense forest and 3,01,797 sq km of open forest.

Forests and tree resources in the State can be broadly grouped into (a) those that are categorised as forests primarily under Government ownership and management and (b) trees outside forests. The recorded area of reserved forests in the State is 11,309 sq km contributing about 29.11 per cent of the State's geographical area. As per the 2017 assessment made by the Forest Survey of India, the total forest cover in the State including plantations is 20,321 sq km which is about 52 of State's geographical area. On comparing 2017 FSI report with 2015, it is found that in the case of forest

Figure 2.19 District-wise forest cover, area in sq. km



Source: India State of Forest Report (ISFR), 2017

cover within recorded forest area, the extent of open forests and moderately dense forest in Kerala has dwindled whereas the area under dense forest has moderately increased. In the case of forest cover outside recorded forest area, a slight increase in area in the year 2017 over 2015 is found in all the three categories, viz., very dense forest, moderately dense forest and open forest (FSI Reports 2017, 2015).

Out of the total forest cover in the State, Idukki District is having the highest forest cover with 3,139 sq km, followed by Pathanamthitta (1,830 sq km) and Palakkad (1,826 sq km) (Figure 2.19). District-wise details of forest cover in Kerala is given in Appendix 2.78. On comparing the 2017 FSI data with 2015, increase in forest cover is recorded in 9 Districts viz., Ernakulam, Kannur, Kasaragod, Kottayam, Kozhikode, Malappuram, Palakkad, Pathanamthitta and, Thrissur, while decrease is observed in Alappuzha, Idukki, Kollam and Wayand Districts, it remained the same in Thiruvananthapuram District.

Management of Natural Forests

Natural forests in Kerala are being managed mainly for sustaining life support systems and biodiversity conservation. Major activities initiated in 2017-18 were survey of forest boundaries, forest protection and regeneration of denuded forests. During the period, as part of boundary demarcation, 12,697 km cairns and 2 km stone wall were constructed. Further, in order to regenerate denuded forests, gap filling was done in an area of 7.1 ha and fire protection for 228.52 km in and around degraded forests in 2017-18. As part of fire protection activities, 4,470.10 km of fire lines were created and 81,352 fire protection watchers were engaged. During the last two decades, an area of 57,130 ha of degraded area was augmented under compensatory afforestation.

Productivity of Plantations

In Kerala, early plantation efforts were focused on teak and this has remained the most preferred species because of its versatility and superior properties. Emerging demand for industrial raw material in recent years led to increase in establishing pulpwood yielding plantations. In order to meet the requirement, Hardwood species were newly raised in 411.38 ha and 638.36 ha were maintained in 2017-18. It is to be noted here that in the year 2016-17 hardwood species were newly raised in 763.06 ha and maintained in 2,499.48 ha. Further, industrial raw materials were newly planted in 838.20 ha and 667.05 ha were maintained in 2017-18. In year 2016-17, it was 967.9 ha and 1,280.78 ha respectively. Regarding non-wood forest species, new plantations and maintenance were carried out in 210.08 ha and 1,125.69 ha respectively in 2017-18, while it was 124.9 ha and 544.4 ha respectively in 2016-17. Species-wise area under forest plantation is given in Appendix 2.79.

Human-Animal Interface

Human Animal Interface occurs when the wildlife requirements overlap with those of human population, creating costs for both communities. With increasing population and pressure on forest areas, human wildlife interaction and the resultant conflict is also increasing. This human animal conflict is reflected in the form of human causalities, injuries, crop damage, cattle lifting, damage to houses and property. Recent statistics revealed that Human Animal Interface was increasing at an alarming rate in our State. In 2017-18, 7,229 incidents of human animal conflicts were reported and an amount of ₹10.18 crore was paid as compensation to the victims of wild life attack (Table 2.4).

Causes, Magnitude and Remedial Measures Initiated

In Kerala, human-animal interface is common among the fringes of the forest and is estimated roughly to a linear distance of 6,000 km. The conflict takes various forms such as human-elephant, human-wild boar, human-monkey, human-tiger, and human-snake. The major causes for the conflict includes habitat fragmentation,

Table 2.4 Details of incidents of human-animal conflict reported and compensation paid in 2017-18

Incidents	Snake Bite (in nos)	Elephant attack (in nos)	Wild Boar attack (in nos)	Wild Gaur attack (in nos)	Tiger Attack (in nos)	Leopard Attack (in nos)	Others (in nos)	Total Incidents (in nos)	Compensation paid (in ₹)
Human Death	92	21	3	1	2	0	0	119	1,98,21,250
Human Injured	649	45	103	3	12	1	33	846	2,70,75,366
Cattle Death	15	166	1	2	97	192	88	561	6,327,110
Crop Damage and Property Loss	0	3,236	1194	4	190	7	1,072	5,703	4,86,44,565
Total	756	3,468	1,301	10	301	200	1,193	7,229	10,18,68,291

Source: Forest and Wildlife Department, GoK

degradation of forests, loss of corridors, change in agriculture and land use pattern, and climatic change.

The conflict is in alarming stage at some pockets. The incidence of crop damage and human casualities due to the attack of wild animals especially wild elephants is frequent in Wayanad, Idukki and Palakkad Districts. Department has reported that in 2017-18 thirteen people were killed in wild elephant attacks in Wayanad, Munnar, Agali range and Palakkad. A squad of forest officials tranquilised and radio-collared an elephant which had been constantly encroaching and attacking the human habitats at Vadakkanad in Wayanad. In Munnar division and Agali range wild elephants causing havoc were trapped using *kumki* elephants (trained captive elephants). The amount of money being paid as compensation is increasing year by year, thereby reflecting the intensity of the situation. In the year 2017-18 119 incidents of human death, 846 incidents of human injury, 561 cases of cattle death and 5,703 cases of crop damage and property loss were reported.

Action Taken

Kerala Forest and Wildlife Department is attempting several measures to curb the problem of human-animal conflict. In the year 2017-18, the major preventive measures attempted by the department includes erecting solar fencing (2,093.60 km), elephant proof trenches (618.40 km), elephant proof walls (177.01 km), stone pitched trench (6.30 km), biofence (26.67 km) and erecting kayyalas (248.82 km).

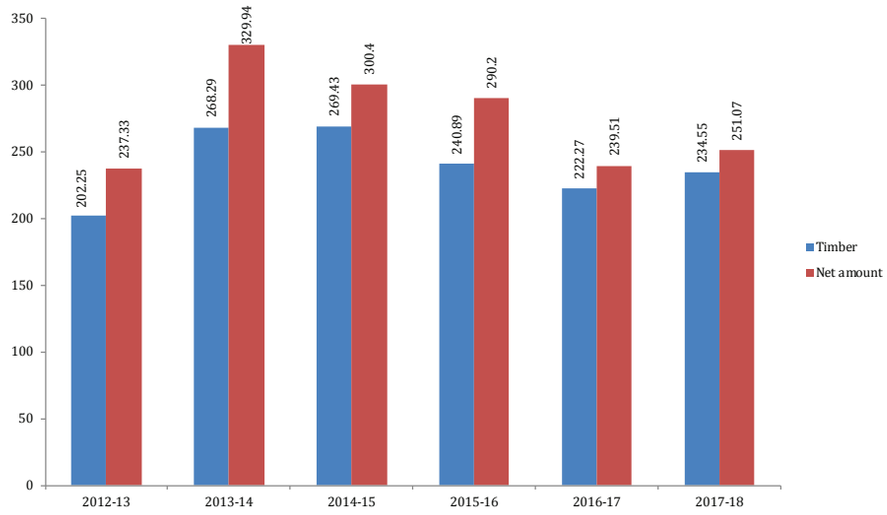
Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Right) Act, 2006

The Forests Rights Act 2006 envisages recognition of rights of forest dependent communities. The Act recognises the rights of the forest dwelling scheduled tribes and the responsibility and authority for sustainable use, conservation of biodiversity and maintenance of ecological balance of dependent communities in terms of individual and community rights. Accordingly, 25,327 titles were issued for individual rights, 164 titles for community rights and 460 claims were settled for Development Rights. Details on Individual Rights are given in Appendix 2.80.

Major Forest Produce and Revenue from Forests

On analysing the production of major forest produce, it is seen that timber, sandal wood and honey occupies the top position. It is to be noted that, in 2017-18, production of timber was

Figure 2.20 Forest revenue in Kerala, 2012-13 to 2017-18



Note: Net amount includes revenue from both timber and other forest products
Source: Forest and Wildlife Department, GoK

reduced to 28,818.29 cum from 31,134.51 cum in the previous year. However, there is an increase in the production of sandalwood to 8,10,169.02 kg (2017-18) from 52,102.35 kg (2016-17). Meanwhile, honey production decreased to 41,729 kg from 60,390.05 kg during the review period. Production of major forest produce in 2016-17 and 2017-18 is shown in Appendix 2.81. Recent statistical data shows a revival trend in the revenue from timber. The revenue from timber which had declined from ₹269.43 crore in 2014-15 to ₹222.27 crore in 2016-17 showed a 5.52 per cent increase to ₹234.55 crore in 2017-18.

Trend in revenue from timber and other forest products in the period 2012-13 to 2017-18 is shown in Appendix 2.82. Figure 2.20 depicts the revenue from forests in Kerala in the period 2012-13 to 2017-18. Net Amount includes revenue from timber as well as revenue from other products such as firewood and charcoal, livestock, and interest on forest due.

In 2017-18, the share of forestry and logging in total GSVA at basic prices was 0.92 per cent as against 0.98 per cent in 2016-17. The share of primary sector in GSDP has decreased from 9.71 per cent (2016-17) to 9.52 per cent in 2017-18. Contribution of Forestry sector in GSVA is shown in Appendix 2.83.

Biodiversity Conservation and Management of Protected Areas

Forests in Kerala form part of one of the 32 biodiversity hotspots in the world. Improved biodiversity management will help to reduce long term economic and ecological vulnerabilities, ensuring that the unique plant and animal wealth are sustainably managed for the economic development of the State. The State has a well-established system of protected areas consisting of sanctuaries, national parks and community reserve covering an area of 3,211.737 sq km. List of Wildlife Sanctuaries and National Parks in Kerala is shown in Appendix 2.84.

Social Forestry

Haritha Keralam scheme was started with the objective of greening Kerala by activities such as distributing seedlings free of cost to schools, higher educational institutions, and planting in public lands etc. So far, nine phases of Haritha Keralam scheme have been implemented. In the year 2017-18 (Phase IX), 66.12 lakh of valuable seedlings have been distributed to public and planted all over the State involving various agencies. Details of seedlings distributed through social forestry are given in Appendix 2.85.

Environment

The Approach Paper to the 13th Five-Year Plan lists that "a clean, healthy, and sustainable environment is now recognised globally and nationally as a basic entitlement of the people." However, shifts in land use, overexploitation of natural resources, air and water pollution, climate change and its consequences are affecting our environment, biodiversity and human life adversely. In the last few years, the State has experienced the impact of climatic vulnerabilites in the form of shortfalls in monsoon, extreme warm weather and rise in frequency of natural disasters like the extremely heavy rainfall and cyclones.

Climate Change

Climate is a critical factor affecting the livelihood of all people. There has been a rise in global temperature of 0.9 degree centigrade over the period 1901-2012, which is mainly attributed to anthropogenic activities (The Intergovernmental Panel on Climate Change (IPCC) 2013). Further the latest report of IPCC (2018) on the 'Impacts of global warming' indicates that we could cross the 1.5°C mark in rise of global temperature as early as 2030. India's climate ranges from continental to coastal, from extremities of heat and cold, from high aridity and negligible rainfall to excessive humidity and torrential rainfall. The rainfall pattern in India shows great variation, unequal seasonal and geographical distribution and frequent departures from the normal. The annual mean, maximum and minimum temperatures during the period 1901-2010 for India, showed an increase of 0.60°C, 1.0°C and 0.18° per hundred years, respectively. However, for the 1981-2010 period, the mean, maximum and minimum temperatures increased almost at an equal rate of around 0.2°C per decade, which is much higher than the trends for the period 1901-2010. Daily rainfall observations during the period 1901-2004 indicate that the frequency of extreme rainfall events (rain rate > 100 mm/day) has a significant positive trend of 6 per cent per decade. (Economic Survey 2018, GoI).

The report of IPCC (2018) makes a specific mention that India would be one of countries worst hit by climate change with the consequences such as decline in crop yields, unprecedented climatic extremities, and increase in incidence of poverty by 2050. The Global Climate Risk Index, 2018, has put India amongst the six most vulnerable countries in the world. Given that a sizeable part of population who is not well to do, live in areas prone to climatic shifts and is engaged in occupations that are highly climate-sensitive, future climate change is bound to have significant implications on their livelihood. The long-term trend of rising temperatures, decline average precipitation, and increase in extreme precipitation events could lead to reduction in annual agricultural incomes in the range of 15 per cent to 18 per cent on an average, and up to 20 per cent to 25 per cent for unirrigated areas.

Kerala has a tropical monsoon climate controlled by its orographic features. The spatial variation in annual mean temperature ranges from 25.5 to 27.5°C in the coastal belt, 27.5 to 29.5°C in the central region and 17.5 to 21.5°C in the hilly regions. The total annual rainfall varies from 360 cm in the extreme northern parts to 180 cm in the southern parts. The State is highly vulnerable and susceptible to climatic variations on account of its high population density, dependency on climate sensitive sectors like agriculture, fisheries and forest, a long coastline, presence of fragile ecosystems such as mangroves, tropical evergreen forests, river azhi and pozhi as well

as biodiversity rich areas. Besides, the State is also prone to hazards like cyclones, drought and floods.

The annual mean temperature is shown to increase by 0.01 degree celsius every year during the period 1950-2010 in all the seasons, as per the report on the State Level Climate Change Trends (IMD 2013). According to IMD, during the last 43 years, an increase in average temperature by 0.6 degree celsius is noticed all over Kerala. Under the projected climate change scenario, the temperature is likely to increase to 20 Celsius by 2050 and sea level would rise by 100 to 200 mm over the next 100 years. Coastal region would be vulnerable to climate change and anticipated risks. The high dependency on climate sensitive sectors like agriculture, fisheries, forest, water resources and health make the State vulnerable to climate change causing drastic changes in the development process of the State. (State Action Plan on Climate Change (SAPCC) 2014).

Environment Quality

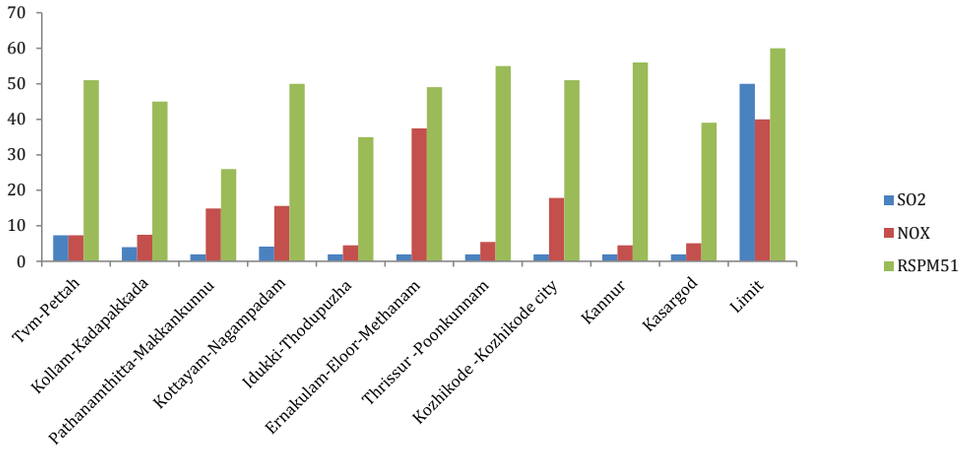
Environmental pollution is a major concern in Kerala. A large number of environmental issues continue to demand attention, ranging from river pollution by sewage, other waste generated by urban and rural settlements, intense noise pollution. Such a wide range of issues demand concretive attention by regulatory authorities. The Kerala State Pollution Control Board (KSPCB) with the mandate to prevent and control the water and air pollution and maintain and restore the wholesomeness of water, air, soil and environment has strengthened its initiatives for generating baseline data and periodical monitoring of the air and water quality.

Air Quality Monitoring

Air quality monitoring is carried out in 30 locations of industrial and residential and 3 locations under sensitive areas in the State under the National Ambient Quality Monitoring Programme (NAMP) and the State Ambient Air Quality Monitoring Programme (SAMP) by recording Sulphur Dioxide (SO2), Oxides of Nitrogen (NOX) and Respirable Suspended Particulate Matter (RSPM) contents in the air.

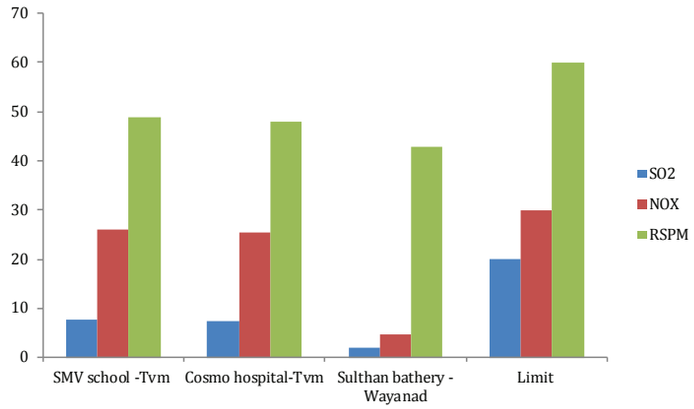
Among the 10 monitoring stations selected for measuring the annual average concentration of SO_2, oxides of Nitrogen and Respirable Suspended Particulate Matter (RSPM) in residential and respectively, the levels were within the permissible limit in all the Districts except Thiruvananthapuram, Thrissur and Kannur where RSPM is nearing the limit

Figure 2.21 Annual average values of air pollutants at 10 monitoring stations in residential areas of Kerala 2017



Source: Water and Air Quality Directory 2017, KSPCB

Figure 2.22 Annual average values of air pollutants at 3 monitoring stations in 'Sensitive' area of Kerala 2017

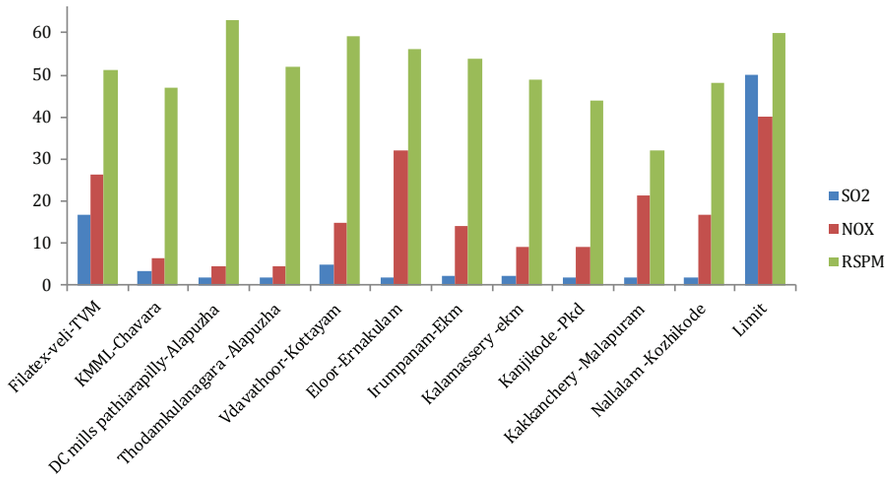


Source: Water and Air Quality Directory 2017, KSPCB

(Figure 2.21) In the sensitive category, air quality is well within the limits in Wayanad and Thiruvananthapuram, where the monitoring stations are situated, however, the Nitrogen Oxides (NO_x) and RSPM levels are nearing the limits in Thiruvananthapuram District (Figure 2.22). In the industrial category, out of the 11 monitoring stations, Alappuzha District alone, exceeded the limits, that too with respect RSPM values. The Sulphur Dioxide (SO_2) and NO_x were within the limits in all Districts with NOx nearing to the limit in Ernakulam District. (Figure 2.23).

Kerala State Pollution Control Board (KSPCB) is monitoring water quality at 65 river, 3 fresh water lakes, 8 estuarine lakes, 6 reservoir stations, 3 canals, 2 ponds and 34 well stations in the State. Central Pollution Control Board (CPCB) has evolved a concept of Designated Best Use (DBU) to define the level of wholesomeness of the different water bodies to be maintained or restored, according to the primary use of water body.

Figure 2.23 Annual average values of air pollutants at 11 monitoring stations in 'Industrial' areas of Kerala 2017



Source: Water and Air Quality Directory 2017, KSPCB

With regards to lakes out of 10 lakes monitored Vellayani, Sasthamkotta and Pookode fall in C category (which implies Total Coliforms organism MPN/100 ml shall be 5,000 or less Ph between 6 and 9, Dissolved oxygen 4 mg/l or less, BOD 5 days 20 C 3 mg/l or less) while all others fall in below E category Ph bw 6.0 to 8.5 Electrical conductivity at 25 C micro mhos/cm Max 2,250). Among the 6 reservoirs monitored Malampuzha and Karapuzha reservoir fall in Category B (Total Coliforms organism MPN/100 ml shall be 500 or less, Ph bw 6.5 and 8.5, Dissolved oxygen 5 mg/l or more, BOD 5 days 20 C 3 mg/l or less) while Pazhassi and Periyar reservoir fall in Category C and Bhoothathankettu and Edamalayar fall in below E category.

With regard to rivers the Biological Oxygen Demand (BOD) is plotted in the Figure 2.24. It shows that BOD is highest for Bharathapuzha and also it is significantly higher than 2012. There is also an increase in BOD for Chalakudy, Chandragiri, Kadalundi and Kallada when compared to 2012.

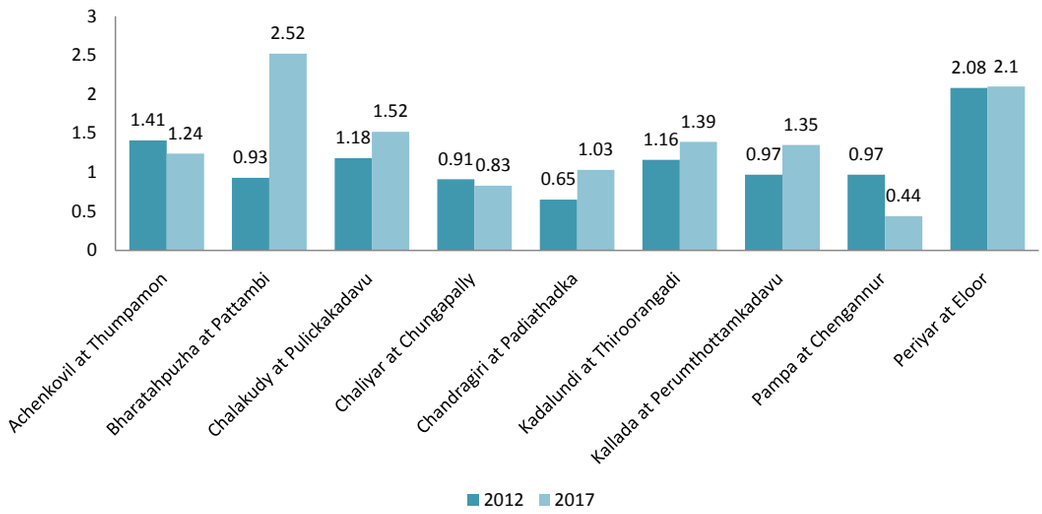
Biodiversity of Kerala

India, a country with only 2.4 per cent of the world's land area, but has high degree of diversity in various aspects. It accounts for 7-8 per cent of all recorded species, including over 45,000 species of plants and 91,000 species of animals. It is situated at the tri-junction of the Afrotropical, Indo-Malayan and Palaearctic realms, all of which support rich biodiversity. Being one of the 17 identified mega diverse countries, India has 10 biogeographic zones and is home to 8.58 per cent of the mammalian species documented so far, with the corresponding figures for avian species being 13.66per cent, for reptiles 7.91 per cent, for amphibians 4.66 per cent, for fishes 11.72 per cent and for plants 11.80 per cent.

Source: India's Fifth National Report to the Convention on Biological Diversity

Kerala with 1.2 per cent of India's landmass harbours 25.69 per cent of flowering plant species and 26.59 per cent of Pteridophytes recorded in India. Vertebrate diversity of Kerala

Figure 2.24 Biological Oxygen Demand levels at selected river stations for 2012 and 2017



Source: Water and Air Quality Directory 2017, KSPCB

is represented by 1,847 species in 330 families and 81 orders with Fishes (freshwater and marine) the most diverse group of vertebrates (905 species), followed by birds (500 species), reptiles (173 species), amphibians (151 species) and mammals (118 species).

Source: 13th Plan Working group Report on Biodiversity

Biodiversity hotspot sites support nearly 60 per cent of the world's plant, bird, mammal, reptile, and amphibian species, with a very high share of endemic species. Western Ghats, one of the globally identified four biodiversity spots in India stretches along the eastern side of Kerala and is rich in biodiversity. Out of the thirty nine places inscribed in the UNESCO World Heritage Sites of 2012 based on the outstanding universal value and high levels of endemism, 19 are located in Kerala. Of terrestrial vertebrates, 36 per cent are endemic to Western Ghats and Kerala. Out of the amphibians comprising 90 per cent endemic species, 66 per cent have home in the Western Ghats, while 24 per cent are endemic to Kerala. Of 1,847 vertebrates of Kerala, 205 (approximately 11 per cent) species are listed as threatened in the International Union for Conservation of Nature (IUCN) Red List of Threatened Species. Among this, 23 are categorised as Critically Endangered, 90 are Endangered and 92 are Vulnerable.

Out of 779 marine species, 93 per cent is not included in any Schedules of Wildlife Protection Act. The highest level of endemism (between 77-102 species per sub basin) and highest species richness (133-160 species per sub basin) is found in the west flowing rivers namely Chaliyar, Bharatapuzha, Chalakkudy, Periyar, and Pamba with point endemics in certain cases.

The Kuttanad below sea level farming has been recognised as a Globally Important Agricultural Heritage System (GIAHS) considering the agricultural biodiversity, resilient ecosystems and varietal cultural heritage.

Major initiatives and activities of the Departments

Article 48A of the Constitution of India under Part IV, Directive Principles of State Policy, authorises that "The State shall endeavour to protect and improve the environment and to safeguard the forests and wild life of the country". Accordingly, Environmental Management Agency, Kerala was constituted in 2007, which was subsequently transformed into the Directorate of Environment and Climate Change in 2010. The GoK implements several regulatory and promotional measures for environmental protection and conservation mainly through the Environment Department. The directorate initially started an assessment of effectiveness of the sectoral environment management programmes and formulated strategies for undertaking key environmental initiatives. Major thrust was given on the environment management ensuring a balanced approach towards economic development and cleaner environment. Besides environment management, programmes implemented by different institutions like Kerala State Pollution Control Board and Kerala State Bio diveristy Board are being coordinated by the Environment Department.

During the 12th Five-Year Plan, in order to encourage environmental protection activities, the Department established eco-clubs, named Bhoomithrasena in colleges across the State in all Districts. These clubs have undertaken environmental protection activities in their surrounding areas. Other activities include eco-restoration of wetlands, promoting research and development in environmental sciences, climate change environment management and related engineering and technology. Some of the studies supported by the department include carbon sequestration status of selected forest ecosystems of Kerala, development of a native micro algal system for the removal of Greenhouse gases from flue gas and its optimisation studies for biofuel production,

studies on the effect of plant secondary metabolites on the control of mosquito vectors etc. In 2017-18, budgeted outlay for the three institutions, that is Directorate of Environment, Kerala State Biodiversity Board, Kerala State Pollution Control Board, together was ₹33.01 crore, of which an amount of ₹21.57crore was utilised (65.34 per cent) for implementing various schemes. Details of Annual Plan 2017-18 outlay and expenditure are given in Appendix 2.87. The other major initiatives in the financial year 2017-18 by the Directorate of Environment and Climate Change are a) project to mitigate drought in Vadakarapathy Panchayat, Palakkad District by adopting soil and water conservation measures, b) preparation of the draft Coastal Zone Management Plan (CZMP) of ten coastal Districts in the State and c) conducting public hearing for finalising the draft CZMP, d) starting the implementation of Management Action Plan for the rejuvenation of the three Ramsar Wetlands-Ashtamudi, Sasthamkotta and Vembanadu.

The Kerala State Biodiversity Board has prepared 892 People Biodiversity Registers (PBR). 1030 Biodiversity Management Committees (BMC) were reconstituted in 2017-18, consequent to change in elected people's representatives of Local Governments. In 2017-18, 275 biodiversity clubs were also newly registered in various educational institutions. Santhisthal, a man made woodlot of Rare, Endangered and Threatened (RET) plants was established in 2.45 acres and financial assistance were given to 17 institutions for establishing 'Santhisthal'. Kerala Biodiversity Park was established at Vallakadavu.

Inspite of the fact that major initiatives have been taken, more efforts are still required to implement biodiversity related initiatives based on the information and knowledge obtained through the Peoples' Bio Diversity Registers (PBRs). There is a considerable scope for enhancing revenue from the Access and Benefit-sharing (ABS) provisions of biodiversity legislation and rules.

Food Security and Public Distribution System

Food security as defined by the UN's Committee on World Food Security is said to exist when all people, at all times, have physical, social, and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. The four pillars of food security are availability, access, utilisation and stability. The nutritional dimension is integral to the concept of food security. In order to achieve the concept of zero hunger, the UNO declared its aim to end hunger, achieve food security and improved nutrition and promote sustainable agriculture as one of the Sustainable Development Goals (SDGs). In line with the UN declaration, the GoK has announced a scheme aiming at a hunger-free State.

The number of undernourished people in the world has increased to an estimated 82.08 crore in 2017. According to a report published by the Food and Agriculture Organisation (FAO). Out of this, 51.5 crore live in Asian countries. The incidence of poverty in India is estimated at 26.49 crore in 2011-12. Further, the calorie and protein intake of a large number of people in India, especially in rural areas, is far below the normal level. As per the state of food insecurity in the World 2018 (FAO, 2018 Report), the number of undernourished people in India is estimated at 19.59 crore which is around 14.8 per cent of the world's total undernourished population. There is a strong correlation between stability in agricultural production and food security. Therefore, along with the provision of food subsidies, stability in agricultural production and strengthening of supply chain management needs to be addressed in order to ensure food security. The three-pronged focus has to be on increasing production, ensuring remunerative prices and making available food grains and other commodities at affordable prices to the customers. The GoI has enacted the Food Security Act in 2013.

Kerala is a State which has had a deficit in food production. Of the total requirements of food grain, only 15 per cent is being produced in the State. In the case of vegetables, the State heavily relies on its neighbouring States. Although Kerala is high in the achievement scale of education, healthcare facilities and awareness among beneficiaries, unless nutritional security of the most vulnerable sections of the population is addressed, it would be difficult to fulfil the aim of a hunger-free Kerala. There are various schemes, State and Central, in the State for poverty alleviation. Kerala has Public Distribution System (PDS) with a wide coverage, Besides, Integrated Child Development Scheme (ICDS) and Mid-Day Meal schemes, which approach food security through a life cycle approach, are also functioning. They need further strengthening, integration, modernisation and monitoring. One of the main objectives of the 13th Five-Year Plan is to make Kerala a hunger-free State by supplying meals at nominal prices to the needy. The activities of Haritha Keralam mission, one of the four pillars of the Navakerala Karma Padhathi, are directly linked with food security.

National Food Security Act, 2013

The National Food Security Act (NFSA), 2013 was introduced by the GoI to ensure food security for the vast majority of the population belonging to middle and lower classes of the society. The objective of the Act is "to provide food and nutritional security in human life cycle approach by ensuring access to adequate quantity of

quality food at affordable prices to people". Under the NFSA-2013, the State Government shall be responsible for implementation and monitoring of the schemes of various ministries and departments of the Central Government in accordance with the guidelines issued by the latter for ensuring food security to the targeted beneficiaries of the State.

The National Food Security Act, 2013 is an Act of the Parliament of India which aims to provide subsidised food grains to approximately two-thirds of India's 120 crore people. It was signed into law on 12 September 2013, with retrospective effect from 5 July 2013. GoK started NFSA implementation in the State with effect from November 1, 2016. Under the NFSA end to end computerisation of the entire chain of the PDS has been planned with the objectives of reducing leakages, improving targeting and reducing the economic cost of distribution. It also involves introduction of electronic point of sale (e-pos) at the Authorised Retail Distributors (ARD) supply chain management from the FCI to the ARD level, biometric authentication for retail and wholesale transactions, providing decision support systems in a GIS-based graphics interface to ensure an effective, responsive, transparent, efficient and corruption-free PDS.

Keeping in line with the NFSA, the GoK took measures to identify eligible households. In Kerala, the process of renewal of existing ration cards coincided with the statutory provisions of the NFSA. As mandated in the NFSA, 'priority and 'non-priority' ration cards will replace the BPL and APL cards respectively. The NFSA has fixed a ceiling cap on the rural and urban population to be included in the priority list at 75 per cent and 50 per cent respectively. Under these criteria, a number of poor households, which have been covered by the PDS would become ineligible for subsidised ration and other benefits. Hence, State-wise ranking of the beneficiaries was conducted under the initiative of the present Government in Kerala prior to ration card renewal process. Installation of E-Pos machines in ARDs which is a part of NFSA operations has been completed and fitting of GIS in the vehicles transporting food grains is in progress.

Supplyco has been entrusted with the implementation of the doorstep delivery of rationed articles under the PDS in Kerala. The food grains allocated to the State either through Food Corporation of India (FCI) or from Compact Multi Roller (CMR) mills have to be lifted from respective godowns and delivered at the doorstep of the Fair Price Shops (FPS) after storage at interim godowns.

Supplyco has started PDS depots (NFSA intermediary Godowns) in all 75 talks in the State for storage of food grains lifted from FCI Depots/CMR mills which are to be delivered at the doorstep of FPS. At present Corporation has hired 148 Godowns with 10,40,000 sqft area which can store about 1.6 lakh MT of food grains. Due to switching over to NFSA operations, the operations in the existing 11 sub depots have been converted as NFSA godowns.

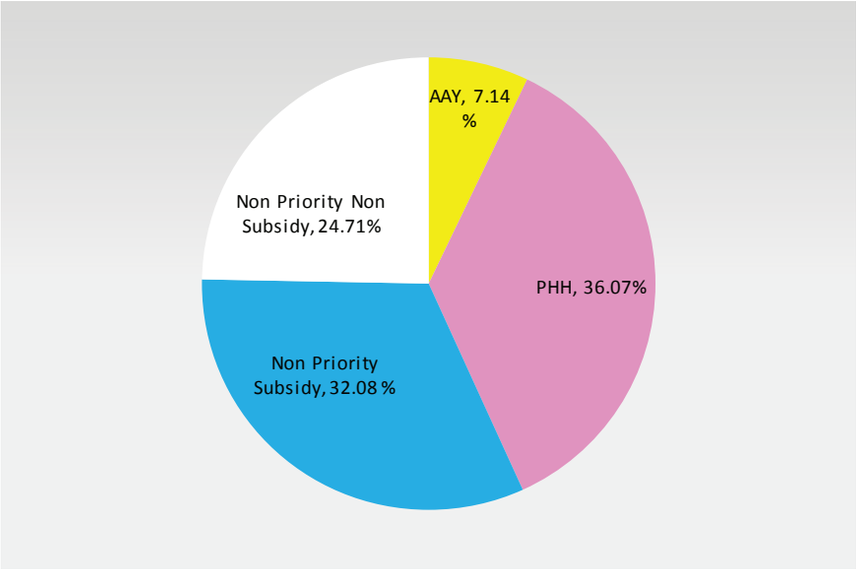
The government has provided necessary budgetary assistance to Supplyco for the implementation of NFSA operations and construction of godowns. All the facilities required for the NFSA operations were arranged by the Corporation.

Distribution of Ration Cards

In pursuance of the Essential Commodities Act 1955 enacted by GoI, the PDS was started in the State on 1st July 1965. The timely lifting of commodities allocated from the central pool and ensuring the effective distribution of the same through 14,317 ration shops is the major responsibility of the PDS. Kerala made pioneering achievements in the implementation of a universal rationing system, much before NFSA 2013 was enacted.

The number of ration cardholders in the State increased from 80.18 lakh in 2017-18 to 81.92 lakh in 2018-19 (as on November 2018). Out of the 81.92 lakh ration cards, 35.40 lakh cards

Figure 2.25 Category-wise card holders in Kerala as on November 30, 2018, in per cent



Source: Civil Supplies Department

come under NFSA and 46.52 lakh come under non NFSA. The NFSA section includes 5.85 lakh AAY cards, 5,726 Annapoorna card holders and 29.55 lakh priority cards. The non-NFSA section includes 26.27 lakh on priority subsidy group and 20.24 lakh on priority group. The entire PDS underwent a major transformation consequent to the implementation of NFSA 2013. In Kerala, four types of ration cards with different colour codes for households came into existence. The yellow colour code represents the AAY card, pink colour represents priority cards, blue colour represents-priority subsidy card and the white colour represent the non-priority non-subsidy cards (Figure 2.25). In addition to this, there are 3,095 ration permits for institutions. These permits are issued to institutions/organisations which work in the area of humanitarian aid and charity. They get food grains at subsidised rates.

The GoK published a draft priority list of 1.54 crore members from 35.08 lakh households in the State, who will be covered under NFSA subsidies. From the remaining 1.87 crore

Table 2.5 Category-wise distribution details of food grains under NFSA, as on December 2018

Sl No	Category	No. of Ration Cards	Rice	Wheat	Fortified Atta
1	AAY	585312	30 kg/Month (@ free of Cost)	5kg/Month (@ free of cost)	
2	Priority	2955348	4 kg/Member/ Month (@ ₹ 1.00/kg)	1 kg/Member/ Month (@ ₹1.00/kg)	
3	Non Priority (Subsidy)	2627760	2 kg/Member/ Month (@ ₹3.00/kg)		1 kg/Month (@ ₹16.00/kg)
4	Non Priority (Non-Subsidy)	2023986	₹9.90/kg as per the availability of Stock	₹7.70/kg as per the availability of Stock	2 kg/Month (@ ₹16.00/kg)
5	Annapoorna	5726	10 kg/month (@ free of cost)		

Source: Civil Supplies Department 2018

members in the State, covering 45.16 lakh households, 1.21 crore members from 29.35 lakh households come under non priority-subsidies (State Subsidy). Details of the number of cardholders and quantity of food grains available to each category are given in Table 2.5 and Category-wise card holders and subsidy amount spent by Government of Kerala for distribution of food grains in 2017-18 are given in Appendix 2.86.

Subsidy Spent by GoK for Various Card Holders

In 2017-18, a total of ₹47,372.05 lakh was spent on various card holders as subsidy. Details are shown in Table 2.6. A total of 45.92 per cent of subsidy was for priority card holders. The subsidy amount for priority card holders increased by 11.72 per cent while the subsidy amount spent for AAY and non-priority decreased by 3.75 per cent and 13.09 per cent respectively. The total subsidy amount also decreased by 1.64 per cent (Table 2.6 and Appendix 2.86).

Allotment of Food Grains

In 2017-18, rice distribution to APL and BPL card holders was 3.31 lakh MT and 5.94 lakh MT respectively. In 2018-19, up to August 31, 2018, 2.90 lakh MT of rice and 0.71 lakh MT of wheat was distributed to AAY and ANP. At the same time, 1.48 lakh MT of rice and 859.29 MT of wheat was distributed to the non-NFSA group. Details of the distribution of commodities through the PDS are given in Appendix 2.87. District-wise details of distribution of food grains under AAY and ANP schemes as on August 31, 2018 are given in Appendix 2.89.

Anthyodaya Anna Yojana (AAY) and Annapoorna Scheme (ANP)

Under this scheme, 35 kg of rice per month is provided to the poorest of the poor families under NFSA and the scheme has been implemented in the State since December 2001. There are 5.96 lakh Anthyodaya Anna Yojana (AAY) card holders in 2017-18 (As on March 2018). In 2017-18, the allotment of rice under AAY was 2,02,639.88 MT. The GoI supplies food grains under AAY to the State @ ₹3/kg and the State Government, in turn, provides it to the beneficiaries free of cost (Appendix 2.88).

The Annapoorna scheme provides 10kg of rice per month free of cost to destitute people aged 65 years and above who are not in receipt of any of the pensions from the Government. The targeted number of beneficiaries approved by the GoI is 44,980. But the number of beneficiaries identified in the States decreasing periodically, from 23,322 in 2015-16 to 5,726 in 2017-18. Details of distribution of food grains under AAY and ANP schemes in 2017-18 are given in Appendix 2.88. Details up to August 31, 2018 in 2018-19 are given in Appendix 2.89.

Central Allotment of Sugar and Kerosene

The GoI has dispensed with the scheme of the issue of sugar through PDS w.e.f March 1, 2017. During Onam, 1 kg sugar/ card was issued to all cardholders @ ₹22/ kg in 2017-18 by State Government. As on August 31, 2018, 2917 MT of sugar has been distributed. Allotment of kerosene to Kerala decreased by 45.84 per cent in

Table 2.6 Subsidy spent by GoK for various card holders

Category	Amount (₹ in lakh)		Percentage of total		Change over year
	2016-17	2017-18	2016-17	2017-18	
AAY	7,305.21	7,031.11	15.17	14.84	-3.75
Priority	19,472.72	21,754.44	40.43	45.92	11.72
Non-Priority	21,385.94	18,586.50	44.4	39.24	-13.09
Total	48,163.87	47,372.05	100	100	-1.64

Source: Civil Supplies Department 2018

2017-18. The allotment was 45,832.39 KL in 2017-18 as against 84,628.45 KL in 2016-17. Up to August 31, 2018, 20,990.63 KL Kerosene has been distributed in the State.

The Kerala State Civil Supplies Corporation (KSCSC) limited is the nodal agency, authorised by the GoK, for the procurement and distribution of levy sugar to the ARDs. The levy system of allocation of sugar from the sugar mills to the State Governments has been abolished by the GoI effective from1st June 2013 with direction to all the State Governments to devise a transparent system for procurement of sugar directly from the open market/sugar mills from June 2013 onwards. The monthly quota fixed by GoI for GoK is 4,103 MTS which is meant for the distribution to BPL and AAY cardholders through PDS @₹13.50 per kg. Supplyco gets central subsidy @₹8.50 per kg and ₹13.35 per kg while issuing sugar to the ARDs. The annual festival quota fixed by the GoI is 3,600 MT. During the festival, season requirement is more than 3,600 MTs and the additional need has to be borne by the State Government.

District-Wise Distribution of Food Grains

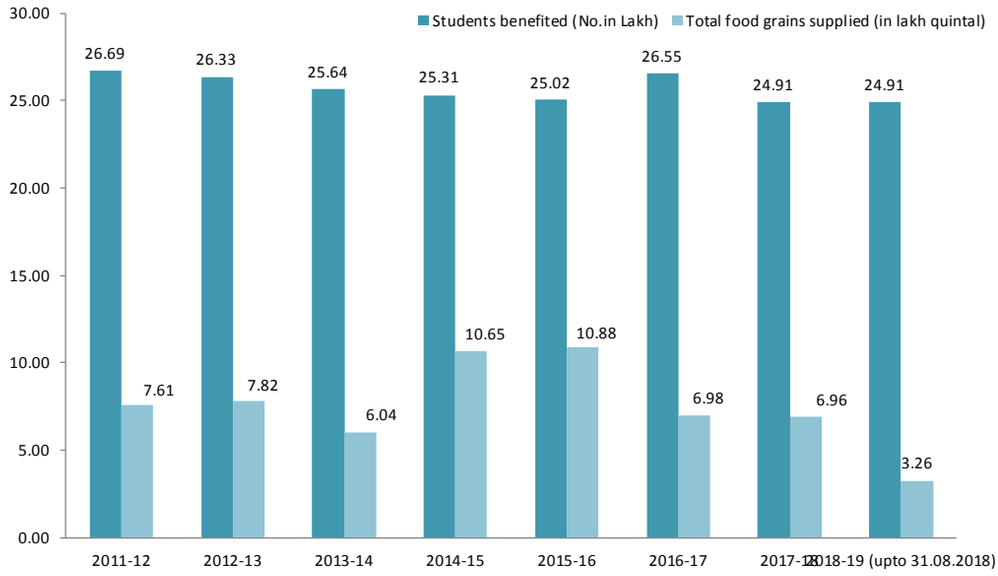
During 2017-18, the off take of NFSA rice was highest in Malappuram district with 14.77 per cent followed by Palakkad and Thiruvananthapuram Districts with 10.3 per cent each of the total of 5,93,792.76 MT. In the case of NFSA wheat, Malappuram had the highest of taking of 15 per cent followed by Palakkad (10.35 per cent) and Kozhikode (9.83 per cent). The least share of NFSA rice and wheat was for Wayanad district with 1.71 per cent and 1.77 per cent respectively. In the case of non-NFSA rice, Malappuram District had a higher off-take of 12 per cent followed Ernakulam (10.3 per cent) and Thrissur (9.75 per cent). In the case of non-NFSA wheat, Ernakulam has the highest off take of 18 per cent followed by Kozhikode with 10.8 per cent. The least share of non-NFSA rice was to Wayanad (2.25 per cent). Details are given in Appendix 2.90 and Appendix 2.91.

Kerala State Civil Supplies Corporation (Supplyco)

Kerala has one of the best PDS networks in India. The Supplyco forms the second line of the PDS and is instrumental in stabilising the prices of essential commodities in the State. It was set up in 1974 to provide food security in the State. Kerala, being a predominantly consumer State, the control of rise in prices is not possible without a wide-coverage of PDS that intervenes in the open market effectively throughout the year. The system ensures the distribution of essential items through FPS and Supplyco outlets to every person in the State. Supply Co is mandated to control the prices of 13 essential commodities by distributing it at subsidised prices through its 1406 stores spread across the State.

Supplyco has its headquarters in Kochi and operates through 5 regional offices, 56 depots and 1,100 plus retail outlets. Details of the outlets opened are given in Appendix 2.92. Its remit includes retailing of Fast Moving Consumer Goods (FMCG) at lower prices, conducting special fairs in order to check undue rises in prices during festival seasons, retailing of medicines through State-run medical stores, procurement of paddy, processing and distribution of wheat and its products, acting as a dealer of petroleum products like kerosene, petrol, diesel and LPG and also acting as a nodal agency in implementing the programmes of the GoI in the State such as starting of Micro Biology Laboratory and Food Processing Units. In 2017-18, 16 Maveli stores, 13 supermarkets, 1 People's bazaar and 1 Maveli superstore were opened by the Supplyco. The sales turnover of the corporation has increased from ₹2,223 crore in 2010-11 to ₹3,857 crore in 2015-16. The number of FCI sub depots as on 1st April 2017 was 21; a number of wholesale shops was140 and the number of retail shops was 11,572 (Appendix 2.92).

Figure 2.26 Mid-day meal programme 2011-12 to 2018-19, up to August 31, 2018



Source: Supplyco

Mid-Day Meal Programme

The Mid-day Meal Programme in schools is implemented in the State with the financial support of the State Government and Central assistance. The programme was introduced in 1995 by the Ministry of Human Resources Development (MoHRD), GoI, to provide nutritional support to primary school going children and to boost universalisation of primary education by increasing enrolment, retention and attendance.

Supplyco is entrusted with the responsibility of providing commodities to the Mid-Day Meal Programme in the State. The required quantity of rice is taken from the FCI. In 2016-17, the Corporation supplied 57,494 tonnes of rice and, 12,333.5 tonnes of special rice benefiting 26.55 lakh children. In 2017-18, 69,558 MT food grains were supplied for 24.91 lakh students. During 2018-19, as on August 31, 2018, the corporation supplied 1,32,84.28 MT of rice and 34,27.27 MT of special rice. There has been no distribution of pulses from 2013-14 onwards. The number of children benefiting from the Mid-Day Meal Programme is given in Figure 2.26 and the details of the supply of food grains from 2007-08 to 2017-18 are shown in Appendix 2.93.

CHAPTER

03

MANUFACTURING SECTOR

CHAPTER 03

Manufacturing Sector

Kerala's Industrialisation

A striking feature of Kerala's economy is the relatively low size of its manufacturing sector. Although manufacturing contributed only 7.5 per cent to Kerala's GSDP, this sector employed approximately 14.0 per cent of the State's total workforce in 2011-12. In comparison, the manufacturing sector's shares in GDP and employment were 15.8 per cent and 13.0 per cent respectively at the national level. This points to a relative lopsidedness in the structure of Kerala's manufacturing sector.

Out of a total manufacturing workforce of 18 lakh (in 2011-12) in Kerala, only 3.8 lakh workers (in 2012-13) were employed in the factory sector. The rest of the manufacturing workers in Kerala were engaged in the unorganised or unregistered sector. Coir and cashew processing, two major traditional industries, employed 3.8 lakh and 2.5 lakh workers respectively in Kerala. Most of the workers in coir and cashew processing in Kerala are women.

Workers engaged in cashew processing accounts for a large share of employment even within the factory sector in Kerala. This is one of the reasons why the average wage of a factory-sector employee in Kerala is 30 per cent less than the corresponding wage at the national level (in 2011-12).

Given the nature of Centre-State relations in India, State Governments have had only limited degrees of freedom to intervene in industrial development. With the economic reforms in 1991, States have greater functional autonomy in the areas like giving clearances to industrial projects. At the same time, there has been a sharp fall in public investment in India since the 1990s. As a result, States in India have been competing with one another to attract investments by foreign and large Indian corporations, mainly by granting tax and other concessions in the form of lax implementation of environment and labour regulations. Kerala, however, has not indulged in this. In 2013-14, Kerala's share in total investment by Central Government public sector enterprises was only 1.9 per cent. Despite the relatively low investment by the Central Government, there were 96 State-level public sector units (PSUs) in Kerala in 2014-15. These included 62 PSUs that were fully owned by the State Government and eight PSUs that were jointly owned by the Central and State Governments.

There is a relatively large presence of micro and small industries in Kerala, especially in its rural areas. In 2010-11, rural Kerala accounted for a share of 8.6 per cent of all non-agricultural establishments in rural areas of the country (Kerala's share in India's population was only 2.8 per cent in 2011).

The Way Ahead

It is widely agreed that Kerala, which has vast tracts of eco-sensitive areas is not suited for

industrial units that require vast tracts of land, establishments that degrade environment, or entities that are based solely on cheap and unskilled labour. Given this background and the overall context discussed above, Kerala should aim to set up a modern industrial sector that builds on the distinctive advantages of land and people in this State. Industrial sector in Kerala should make effective use of advanced technologies, including biotechnology and nanotechnology. It should comprise units that are relatively small (with respect to the requirements of land and capital), and yet could be characterised as 'smart' (given their flexibility in production and adaptability to market conditions).

The strategy for building a strong manufacturing base needs to focus on industries (both existing and future) that have deep linkages with Kerala's agricultural and natural resources. Kerala produces a rich variety of agricultural products, including rice, coconut, rubber, pepper, cardamom, banana, and pineapple. The State has enormous forest and marine resources. Kerala's traditional industries, such as coir and cashew processing, emerged in the State mainly on account of the local availability of raw material (coconut and cashew respectively).

Kerala should take steps to modernise the traditional industries in the State, including coir, cashew and handloom. As already noted, these industries continue to employ a substantial part of the State's total workforce. Modernisation of traditional industries will include (but not limited to) mechanisation of production processes in these industries. Moreover, with modernisation, Kerala's traditional industries will strive to diversify into new products (such as geo-textiles in the coir sector), and evolve effective marketing and distribution strategies. Rather than displacing workers (a strategy involving mechanisation alone may result in this), modernisation will lead to overall expansion of the industry and the creation of greater value addition per worker.

Kerala should try to promote the manufacturing of food and agro-based products in the State. There are enormous possibilities in the State in the storage, processing and value addition of vegetables, fruits, fish and meat. There exists huge potential, in particular, for the processing of coconut, jackfruit, banana, pineapple, and tapioca. Wood and bamboo based industries can also be developed in selected regions of the State. The promotion of food and agro-based industries should become an essential complement to the mission. It is important to note that a relatively large market for food and agro-based products exists within Kerala. Average per capita consumption expenditure in rural Kerala is almost twice the average per capita consumption expenditure in rural India (in 2011-12, according to National Sample Survey data). As of now, a large part of the domestic demand for consumer goods in Kerala is met by imports from other Indian States and countries. Kerala's industries, especially food and agro-based industries, can tap into this domestic market.

The products of Kerala's traditional, food and agro-based industries will also find buyers in the export markets, especially from the large community of overseas Malayalees. The growth of traditional, food and agro-based industries and of tourism can go hand in hand in Kerala, feeding on each other to create a globally recognised niche for the State in these sectors. Kerala can learn lessons from countries such as Thailand, Malaysia and Vietnam in successfully combining agriculture, agro-based industries and tourism.

Local Governments, empowered with adequately large funds devolved to them, should provide the pillar for rural industrialisation in Kerala. Activities ranging from agro-processing to tour operation can be carried out under the coordination of Panchayats, with the active enterprise and participation of local population, and making effective use of new technologies including IT, biotechnology and nanotechnology.

Another important component of an industrial strategy for Kerala relates to the promotion of (a) specific segments of chemical, electronic and engineering industries, and (b) enterprises that are based on advanced technologies such as biotechnology, nanotechnology and life sciences. The revival of a number of existing public sector units in the State will be crucial to this strategy. The emerging modern industries in Kerala will have much to gain from and contribute to the health and education sectors in the State.

As already noted, Kerala has a number of State and Central public sector units engaged in diverse areas of manufacturing, mainly chemicals, engineering and electronics. Some of the PSUs in the State, such as Travancore Cochin Chemicals (TCC) and Keltron, have been pioneers in the country in their respective fields of production (caustic soda and electronics respectively). However, the performance of many of the PSUs in Kerala has been rather lacklustre during the recent times.

A long-term revival of manufacturing PSUs in Kerala will require many of these units to rethink their product lines and technologies. Some of the units engaged in the manufacture of inorganic chemicals may have to diversify their production into specialty chemicals and biochemicals. Keltron will have to find some new areas for itself in industrial or power electronics.

It is not enough that these PSUs turn themselves into profit-making entities. They should play a larger role by transforming themselves as facilitators for high technology enterprises in the private sector. They should deepen their linkages with the State's economy, sourcing more of their raw material from Kerala and aiding the creation of downstream industries.

Kerala should try to make use of the latest advances in biotechnology, biomedical sciences and biochemical engineering to come up with new and more value-added products based on its agricultural products and natural resources. Biotechnology, which involves the exploitation of biological processes for industrial and other purposes, has enormous applications in the fields of agriculture, medicine, industry and environment.

Multi-National Corporations (MNCs) have been the dominant players in research and development in biotechnology and its applications. This needs to change. Developing countries such as China and Cuba have already devoted large amounts of public funds on biotechnology and biomedical sciences. It is important that India, and Kerala in particular, should set up research institutes in the development and applications of biotechnology.

Modern industries in Kerala should capitalise on the State's strengths in the areas of health and education. For instance, there are significant opportunities in Kerala for the manufacture of pharmaceuticals and medical equipment. These industries will have much to gain from the large numbers of hospitals, doctors and nurses in Kerala and also from the rising demand for health products in the State.

For a positive transformation of the industrial scene in Kerala, the Government should seek ways to promote entrepreneurship in the State. There are at least three groups of people who can potentially make vital contributions to the State's industrial growth. First is the large body of Malayalee engineers and professionals who have worked with the latest technologies and management practices in different parts of the world. The Government should encourage some of them to return to Kerala and start enterprises in the State. Some of these non-resident Keralites can act as mentors to technology start-ups from the State, providing technology, expertise and financial assistance to young entrepreneurs.

Secondly, women's self-help groups, notably Kudumbashree, can play an important role in Kerala's industrialisation drive. Many Kudumbashree groups are already engaged

in food processing activities (such as pickle manufacturing), but mostly in the low end of the value spectrum. They should now try to establish their presence in higher value adding industries.

A third group that promises much potential with respect to entrepreneurship is students, especially those enrolled in technical institutions across the State. There should be specific programmes (initiated by, among others, State PSUs) to promote manufacturing start-ups among students.

MANUFACTURING

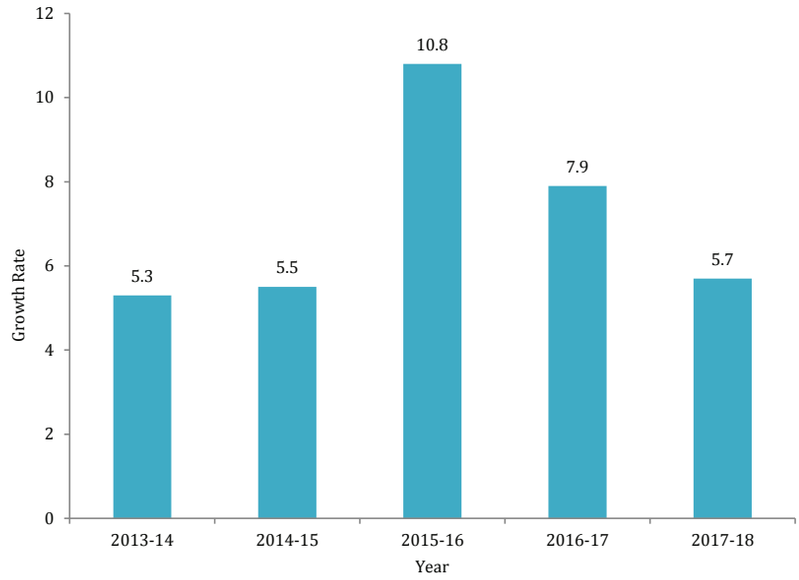
A strong and robust manufacturing sector is crucial for the promotion of domestic production, exports and employment growth. As per the provisional data from the Central Statistics Office (CSO), the growth of India's manufacturing sector has been estimated at 5.7 per cent in 2017-18 as against the previous year's growth rate of 7.9 per cent. The trends in year-on-year growth of the manufacturing sector in India as per provisional estimate of Gross Value Added (GVA) at constant prices from 2013-14 to 2017-18 is exhibited in Figure 3.1.

Manufacturing Sector in Kerala

As per data from the Annual Survey of Industries (ASI), GoI on the organised manufacturing sector, there were 6,890 operating factories in Kerala in 2015-16. These units provided employment to 3.39 lakh persons and contributed ₹15,970 crore of net value added in the manufacturing sector in 2015-16. Fixed capital invested in these factories in Kerala was estimated at ₹38,442.9 crore. The total output and Net Value Added (NVA) in these factories in Kerala in 2015-16 were ₹1,22,691.7 crore and ₹15,970 crore respectively.

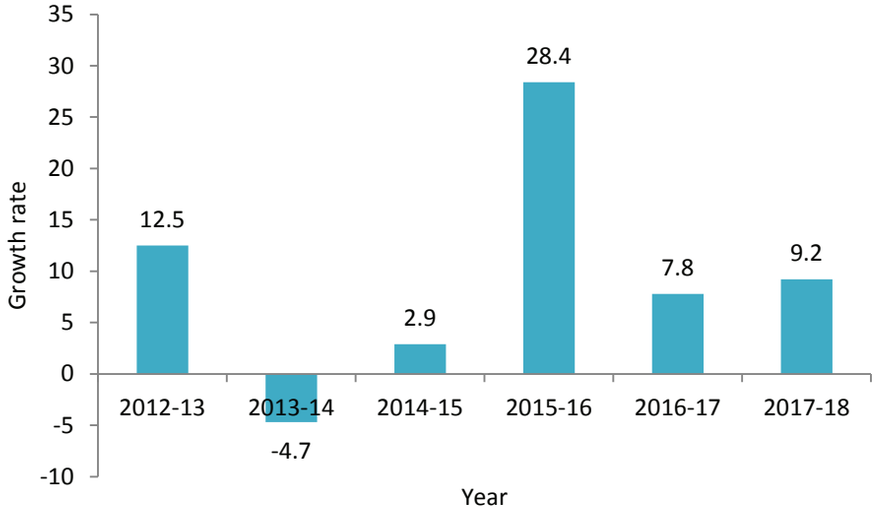
As per quick estimates of Kerala's Gross State Value Added (GSVA) for 2017-18 by Department of Economics and Statistics, the manufacturing sector of Kerala grew at 9.2 per cent at constant prices (2011-12) in 2017-18 compared to 7.8 per cent in the previous year. The shares of manufacturing sector to GSVA in Kerala at

Figure 3.1 Growth rate of gross value added, at constant prices, in per cent



Source: Central Statistics Office, 2018

Figure 3.2 Annual rates of growth of manufacturing sector in Kerala, at constant prices, in per cent



Source: Department of Economics and Statistics

constant and current prices in 2017-18 were 12.7 per cent and 10.2 per cent respectively. The growth of manufacturing sector Kerala from 2013-14 to 2017-18 is given in Appendix 3.1.

The trend in growth rate of GSVA of manufacturing sector in Kerala on the basis of GSVA at constant prices for the period from 2012-13 to 2017-18 is shown in Figure 3.2.

The GSVA of manufacturing sector in Kerala, which registered 12.5 per cent growth in 2012-13 witnessed a decline in 2013-14 (-)4.7 per cent. The growth of GSVA of manufacturing sector was 2.9 per cent in 2014-15, 28 per cent in 2015-16, 7.8 per cent in 2016-17, and 9.2 per cent in 2017-18.

Mining Sector in Kerala

The contribution of mining and quarrying sector to Gross State Value Added (GSVA) of Kerala at constant prices is estimated at ₹3,658 crore in 2017-18, registering a growth of 27 per cent compared to the previous year. The share of mining and quarrying in GSVA at constant prices increased from 0.7 per cent in 2016-17 to 0.8 per cent in 2017-18.

The growth of income from the mining and quarrying sector in Kerala at constant prices (2011-12) from 2013-14 to 2017-18 is depicted in Figure 3.3

The income from mining and quarrying sector in Kerala at constant prices registered rates of growth of 50.1 per cent in 2013-14, 60.8 per cent in 2014-15, (-)67.9 per cent in 2015-16, 62.2 per cent in 2016-17 and 27.1 per cent in 2017-18.

In 2017-18, 10 mining leases for major minerals, 153 quarrying leases for minor minerals, and 1,366 dealers' license were granted. In this period, there were 179 registered metal crusher units in Kerala and one prospecting license was granted for minor and major minerals.

In Kerala, the total area covered by mining leases as on August 2018 was 2187.5 hectares, of which mineral sand accounted for 354.6 hectares, limestone 245.7 hectares, lime shell/seashell 1,345.1 hectares, iron ore 86.1 hectares, china clay 84.5 hectares, silica sand 31.9 hectares, and quartz 6.8 hectares. Area covered by mining lease for graphite was 1.3 hectares. Mineral-wise details of area covered by mining lease are given in Appendix 3.2.

Figure 3.3 Annual rates of growth of income from mining and quarrying sector in Kerala, in per cent

Source: Department of Economics and Statistics

Mineral-Wise Production and Revenue Collection 2017-18

The Government gets revenue from minerals mainly by way of royalty. About 95 per cent of the revenue comes from minor minerals and rest from major minerals. In 2016-17 an amount of ₹138.7 crore was received as revenue from minerals and it increased to ₹152 crore (9.6 per cent) in 2017-18. Of this ₹8.5 crore was received from major minerals and ₹143.5 crore from minor minerals. In 2017-18, the highest revenue received among major minerals was from lime stone (₹4.1 crore) followed by Ilmenite (₹2.0 crore). Among minor minerals, granite building stone contributes the highest (₹92.6 crore) followed by ordinary earth (₹23.2 crore) and laterite (building) (₹8.4 crore) in 2017-18.The revenue from minerals during the last 5 years is shown in Table 3.1.

In 2017-18, 583.5 lakh tonnes of major and minor minerals were produced in Kerala. Among major minerals, limestone topped the list with 5.2 lakh tonnes followed by ilmenite (1.3 lakh tonnes). Among minor minerals, the highest production was from granite building stone (385.7 lakh tonnes) followed by ordinary earth (115.8 lakh tonnes). The production of and royalty received from minerals in the State in 2017-18 is given in Appendix 3.3.

Table 3.1 Revenue from minerals, in ₹ crore

Sl No	Year	Major Minerals	Minor Minerals	Total
1	2013-14	12.4	41.8	54.2
2	2014-15	13.9	56.7	70.6
3	2015-16	13.4	126.3	139.7
4	2016-17	6.4	132.3	138.7
5	2017-18	8.5	143.5	152

Source: Mining and Geology Department

District-Wise Analysis of Revenue Collected from Major/Minor Minerals

District-wise analysis of revenue collection for the year 2017-18 shows that Ernakulum District had the highest collection of ₹33.6 crore (22.1 per cent of total revenue) followed by ₹19.6 crore (12.9 per cent) in Palakkad and ₹14.3 crore (9.4 per cent) in Thiruvananthapuram. The least revenue collection of ₹2.1 crore (1.4 per cent) was from Wayanad. The District-wise collection of revenue from major and minor minerals is furnished in Appendix 3.4.

Implementation of e-Governance Projects

The Kerala Online Mining Permit Awarding Services (KOMPAS) is an online system which is implemented through the National Informatics Centre. It is implemented in all Districts. As on July 2018, 4,15,701 e-passes were generated and printed. So far 24,300 vehicles have been enrolled in KOMPAS portal.

Mineral Based Industries in Kerala

Some of the industries based on major minerals are Indian Rare Earths Ltd, Kerala Minerals and Metals Ltd, Malabar Cements, Travancore Cements Ltd, Kundara Ceramics, English Indian Clays Ltd, Excel Glass Industry, and Kerala Clays and Ceramic Products Ltd. The major industries based on minor minerals are stone crushers, units of production of manufactured sand, brick factories as well as tile factories. Due to recent spurt in infrastructure development, a number of granite building stone crushers as well as sand production units have come up in the State.

Mining and quarrying are important economic activities, although the impact they may have on the environment needs to be closely monitored. The Government is therefore diligent in adopting and implementing regulations to moderate the negative impacts of mining operations. Modern technologies and practices have, to a great extent, reduced the risks associated with mining and quarrying to the environment and economy.

Public Sector Undertakings

Public Sector Undertakings (PSUs), both at the Central and State level, have played an important role in the industrialisation and the overall development of the country. They were set up with the objective of helping the country achieve self-sufficiency in manufacturing and technology and were intended to achieve commanding heights in the Indian economy. PSUs have been key and strategic actors in the nation's economy producing essential goods and services and maintaining a dominant market position. However, since the 1990s, economic reforms in India have been emphasising a greater role for markets and a policy of Government disinvesting its stake in the PSUs at the national level. However, contrary to the Central Government policies, the GoK aims to strengthen the public sector, run PSUs professionally, and help them earn profits and contribute to the larger development of the industrial sector and the economy.

Central Public Sector Undertakings

As on March 31, 2017, there were 331 PSUs under the administrative control of various ministries/departments of the GoI. Out of these, only 257 were in operation in that year. In 2016-17, 174 Central PSUs in India generated a combined profit of ₹1.53 lakh crore while there were 82 sick Central PSUs in the economy, which incurred a combined loss of ₹25,045 crore.

Central Sector Investment

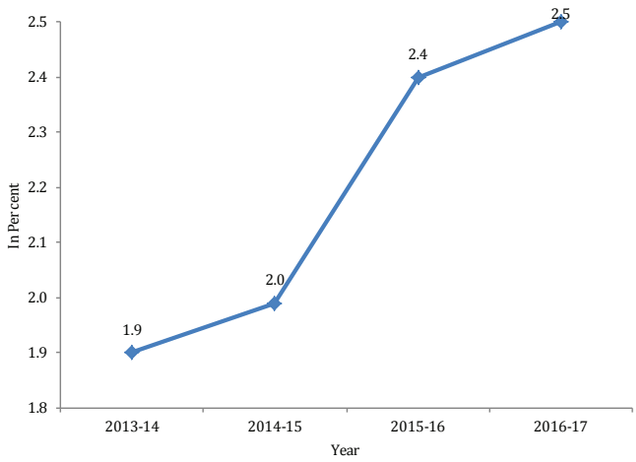
The aggregate real investment in Central PSUs in India, measured in terms of 'gross blocks', increased from ₹16.65 lakh crore in 2015-16 to ₹18.08 lakh crore in 2016-17, registering a growth of 8.6 per cent over the previous year. The investment by Central PSUs in Kerala in terms of gross block grew by 11.7 per cent from ₹40,317.5 crore in 2015-16 to ₹45,016.4 crore in 2016-17. The State's share in total investment by Central PSUs increased from 2.4 per cent in 2015-16 to 2.5 per cent in 2016-17 (Public Enterprises Survey 2016-17). Among Indian States, Maharashtra was ranked first with respect to shares in investment by Central PSUs (with a share of 9 per cent) followed by Orissa (share of 6.3 per cent) and Uttar Pradesh (6.2 per cent). Details of Central sector investment in Kerala from 2013-14 to 2016-17 are given in Appendix 3.5 and Central sector investment in selected States as on March 31, 2017 are given in Appendix 3.6.

Kerala's share in investment by Central PSUs from 2013-14 to 2016-17 is illustrated in Figure 3.4. It may be seen that the share of Kerala's investment started increasing from 2013-14 onwards.

State Public Sector Undertakings

In Kerala, State PSUs play a crucial role in the development of the economy, especially in the manufacturing sector. PSUs consist of State Government companies and Statutory Corporations established to carry out activities of commercial nature. As per the report of the Comptroller and Auditor General of India on PSUs in Kerala, there were 130 PSUs as on March 31, 2017. Out of the 130 Government companies, 115 (111 Government companies and 4 statutory corporations) are currently working while 15 are non-working. The working PSUs in Kerala registered a combined turnover of ₹26,463.3 crore (which was equivalent to 4 per cent of State's GSDP) in 2016-17. The total investment as on March 31, 2017 in 130 PSUs was ₹27,106.9

Figure 3.4 Share of Kerala in investment by Central PSUs, in percent



*Excluding KINFRA
Source: Public Sector Restructuring and Internal Audit Board

crore. An analysis of the latest finalised accounts of all working PSUs in the State revealed that the total profit generated by 45 PSUs was ₹382.8 crore whereas the total losses incurred by 64 PSUs was ₹2,216 crore. Two working Public Sector Undertakings had no profit or loss.

State Public Sector Undertakings under Industries Department

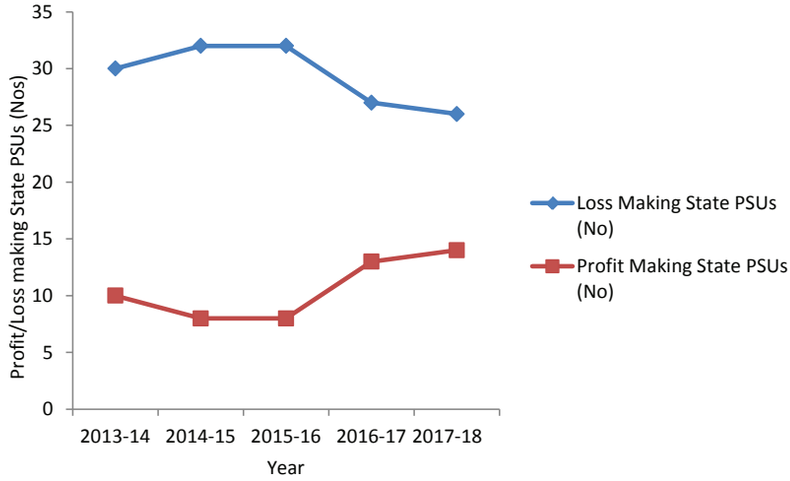
Under Industries Department, GoK, there are 40 PSUs, of which 7 are in the chemical sector, 4 in electrical sector, 6 in engineering sector, 3 in electronic sector, 8 in textile sector, 2 in ceramic sector, 6 in traditional sector, 1 in wood based sector and 3 in development sector.

Performance of State PSUs under Industries Department in 2017-18

In 2017-18, State PSUs under Industries Department made some remarkable achievements when compared to the previous year.

- Total Turnover: ₹2,978.54 crore (increased 9.5 per cent from 2016-17)
- Profit making units increased to 14 from 13 in 2016-17

Figure 3.5 Performance trend of PSUs under Industries Department*



*Excluding KINFRA
Source: Public Sector Restructuring and Internal Audit Board

- Profit of profit making (14) units: ₹303.74 crore
- Loss of loss making (26) units: ₹196.83 crore
- Net profit: ₹106.91 Crore
- Turn around Units – Kerala State Drugs and Pharmaceuticals Ltd, Kerala State Industrial Enterprises Ltd.
- Chemical sector contributes to 48 per cent of the overall turnover

Performance trend of 40 State PSUs under Industries department from 2013-14 to 2017-18 is depicted in Figure 3.5.

The combined value of production and turnover of 40 State PSUs under the Industries department from 2013-14 to 2017-18 are shown in Figure 3.6.

The combined net profit made by all 40 State PSUs under the Industries department was ₹110.41 crore in 2012-13. However, from 2013-14 onwards, the combined net profits of these State PSUs has been negative. Their combined losses amounted to ₹131.9 crore in 2015-16 and ₹80.7 crore in 2016-17. But in 2017-18, there was a remarkable increase in net profit (₹106.9 crore) made by these State PSUs. The performance of State PSUs under Industries Department during the last 5 years is given in Appendix 3.7.

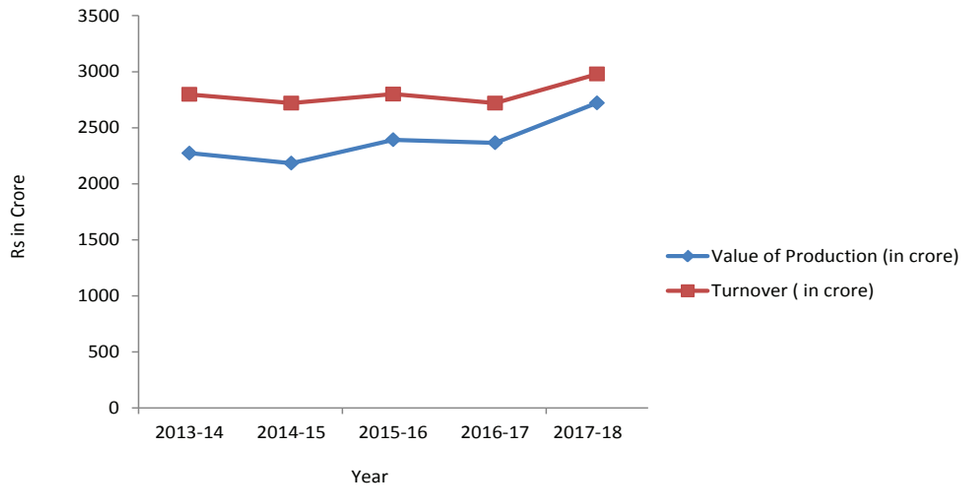
The trend of net profit/loss made by State PSUs during the last five years is shown in Figure 3.7.

The sector-wise financial performance of State PSUs under Industries department during the last six years is shown in Table 3.2. PSUs under chemical and electronic sectors contributed to the better performance of State PSUs in the industry sector in 2017-18. At the same time, PSUs in the textile sector recorded large losses, pulling down the overall performance of PSUs. Encouraging trends in PSU's performance is shown in Box 3.1

The total value of production in the 40 State PSUs under the Industries department increased from ₹2,365.6 crore in 2016-17 to ₹2,721.5 crore in 2017-18, registering a growth of 15 per cent. Turnover of these State PSUs also increased by 9.5 percent in 2017-18 compared to its previous year. Details of PSU-wise turnover and profit/loss in 2017-18 and 2018-19 (as on August 31, 2018) are shown in Appendix 3.8

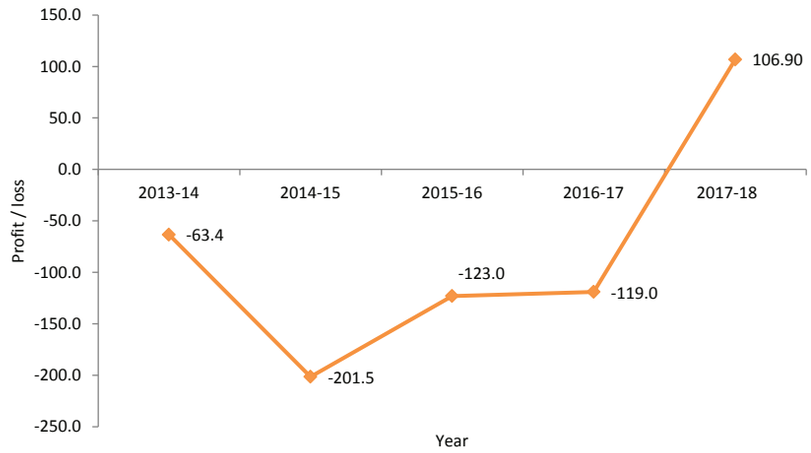
The increased dependency on budgetary support even for continuing with regular operations of PSUs was a major concern during the Twelfth Five-Year Plan period. However, from the last year of the 12th Five-Year Plan period (2016-17) onwards, major initiatives for

Figure 3.6 Value of production and turnover of State PSUs under Industries Department, GoK*



*Excluding KINFRA
Source: Public Sector Restructuring and Internal Audit Board

Figure 3.7 Net profit/loss made by State PSUs under Industries Department



Source: Public Sector Restructuring and Internal Audit Board

Table 3.2 Financial performance of State PSUs under Industries Department

Items	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19 as on 31/08/18
Chemical (7 units)							
Plan fund allocation, ₹ crore	5.5	9.4	19	19.1	19.7	19.5	15.7
Turn over, ₹crore	1,132.90	1,216.70	1,123.10	1,153.60	1,266.40	1,424.80	658.7
Net profit, ₹ crore	106.1	16.3	-46.8	11.9	31.6	240.6	79
Textile (8 units)							
Plan fund allocation, ₹ crore	27.6	49.8	20.3	22.2	34.8	22.3	15.4
Turn over, ₹ crore	167.3	148.1	138.4	96.3	82.3	116.5	52.6
Net profit, ₹ crore	-23.1	-47.1	-56.1	-72.3	-73.9	-76.8	-32.4
Engineering (6 units)							
Plan fund allocation, ₹ crore	35.1	20.5	13.7	6	12.9	29.4	23.9
Turn over, ₹ crore	135	133.8	131.4	121.5	116.2	126	51.7
Net profit, ₹ crore	-14.9	-24.4	-23.7	-34.2	-32.2	-32.4	-17.3
Electronics (3units)							
Plan fund allocation, ₹ crore	6.2	11.3	7	1.5	2.8	2.7	5.6
Turn over, ₹ crore	379.5	381	368.5	484.8	450.8	479.9	135
Net profit, ₹ crore	4.6	-3.8	-14.1	13.4	-4.1	2.5	-14.2
Electrical (4 units)							
Plan fund allocation, ₹ crore	23.1	18.8	12	18.5	15.5	17.9	17.4

Turn over, ₹ crore	262.7	379.6	360	398.6	424.1	395.1	160.4
Net profit, ₹ crore	-17.2	-21.9	-62.7	-47.2	-20.7	-24.59	-20.2
Traditional and wood based (7 units)							
Plan fund allocation, ₹ crore	12.3	25.8	32.5	14	4.9	7.1	5
Turn over, ₹ crore	91.4	120.6	138.8	146.6	139.7	129.3	54.6
Net profit, ₹ crore	-10	-18.3	-17.1	-20.7	-21.4	-20.6	
Ceramic (2 units)							
Plan fund allocation, ₹ crore	6	6.9	2	2	4.9	4.9	7.9
Turn over, ₹ crore	9.4	12.3	15.2	5.5	4.7	5.1	2.1
Net profit, ₹ crore	-3.8	-5	-6.5	-11	-10.9	-9.9	-4.32
Development (3 units)							
Plan fund allocation, ₹ crore	0	0	0	0	5.5	0	0
Turn over, ₹ crore	321.2	404.75	444.1	393	235.2	301.9	65.2
Net profit, ₹ crore	68.6	40.9	25.4	37	12.7	28.1	-3.2

Source: Public Sector Restructuring and Internal Audit Board

Box 3.1 Encouraging trends in PSUs performance

State PSUs under the Industries Department have been showing signs of improvement from 2016-17 onwards. Fourteen State PSUs under the Industries Department reported profits in 2017-18 as against thirteen in 2016-17. The total profits made by the profit-making PSUs increased from ₹88.4 crore in 2016-17 to ₹303.7 crore in 2017-18. Major profit making units in 2017-18 were Kerala Minerals and Metals Limited (₹195.8 crore), Kerala State Industrial Development Corporation Ltd (₹36.2 crore), Travancore Cochin Chemicals Ltd (₹33.2 crore) and Travancore Titanium Products Limited (₹18.8 crore).

The number of loss-making State PSUs decreased from 27 in 2016-17 to 26 in 2017-18, and the total losses made by loss-making State PSUs also decreased from ₹207.4 crore to ₹196.8 crore in this period. Major loss-making State PSUs in 2017-18 were Kerala State Textile Corporation Ltd. (₹31.6 Crore), Electrical and allied Engineering Company Ltd (₹17.4 crore), SAIL-SCL Kerala Ltd (₹14.9 crore) and the Auto Cast Limited (₹12.2 crore).

Source: Public Sector Restructuring and Internal Audit Board

strengthening and revamping of PSUs under the Industries department are being undertaken. Two units namely Kerala State Drugs and Pharmaceuticals Ltd and Kerala State Industrial Enterprises Ltd have been turned around in 2017-18.

Future Plans

PSUs should be transformed from purely profit-making ventures to institutions that create an enabling environment for high technology enterprises, in private and public sector. There is need to increase the linkages between PSUs and the State's economy. For this, raw material should be procured as much as possible from the State itself and measures will be taken to help and support the development of ancillary and downstream industries.

GoK is committed to the development and rejuvenation of PSUs. Professional managers

have been appointed to oversee the operations of PSUs. A permanent Public Enterprises Selection Board is being set up for selecting a cadre of top managers in a transparent manner. Convergence and mergers of PSUs manufacturing similar products will be undertaken to bring about efficiency in their operations.

Public Sector Restructuring and Internal Audit Board (RIAB)

RIAB, which is functioning under the Industries department, is the agency for undertaking reform initiatives in State owned enterprises. RIAB has been playing a major role in the rejuvenation and revival of PSUs under the Industries department. Major responsibilities of the agency include performance planning and monitoring of PSUs, enterprise reconstruction, capacity building, recruitments in PSUs and governance advisory support to State PSUs.

Joint Stock Companies

There were 30,720 Joint Stock Companies in Kerala as on March 2018, of which 28,910 (94.1 per cent) were private limited companies and 1,810 (5.9 per cent) were public limited companies. In 2017-18, 3,934 companies were newly registered (3,775 Private Limited and 159 public limited). The number of companies wound up/dissolved/struck off/amalgamated in 2017-18 were 4,204. Two public limited companies were converted to private limited companies and 6 companies were converted from private limited to public limited companies. Total number of Government companies as on March 2018 was 157 (82 Public Limited and 75 Private Limited companies). Details of joint stock companies working in Kerala are given in Appendix 3.9.

Industrial Financing

The main industrial financing agencies of the State are Kerala State Industrial Development Corporation (KSIDC), Kerala Financial Corporation (KFC), Small Industries Development Bank of India (SIDBI) and State level Bankers Committee (SLBC).

Kerala State Industrial Development Corporation (KSIDC)

KSIDC is a wholly owned company of GoK, established in 1961, for the promotion and development of medium and large-scale units in the State. KSIDC initiated major industrial and infrastructure projects, which are strategically important for Kerala's industrial and economic development. KSIDC also plays a vital role in the State by financing and promoting industrial projects, spearheading investment promotion initiatives, creating sector-specific industrial infrastructure and ecosystem, and nurturing entrepreneurship and start-ups. As the nodal agency for foreign and domestic investment in Kerala, KSIDC provides comprehensive support for investors, helping them access various incentives and schemes and facilitating constant interaction between the Government and the industrial sector.

In 2017-18, KSIDC sanctioned projects worth of ₹305.5 crore, with direct term loan assistance of ₹150.2 crore. These projects are expected to generate employment for 2,400 persons directly and indirectly. The Corporation achieved ₹75.3 crore of disbursements, and a total amount of ₹81.4 crore was recovered by way of principal and interest. The operating profit of the Corporation in 2017-18 was ₹35 crore. Currently there are 40 projects under various stages of implementation with a total investment of ₹4,564.1 crore, which would create employment for around 5,730 persons. The physical and financial performance of KSIDC in 2017-18 and 2018-19 (as on August 31, 2018) is given in Appendix 3.10.

The Plan outlay for and expenditure by KSIDC from 2015-16 to 2018-19 are shown in Table 3.3. Besides financing several industrial units and implementing various mega projects, KSIDC had also taken up many activities. The major ongoing projects initiated by KSIDC are shown in Box 3.2.

Table 3.3 Plan outlay and expenditure, KSIDC, in ₹ crore

Sl. No	Year	Outlay	Expenditure	%
1	2015-16	74	29.1	39.3
2	2016-17	87.5	50.2	57.3
3	2017-18	96.3	171.7	178.4
4	2018-19*	134.4	16.4	12.2

Source:-Budget Estimate
*Expenditure as on August, 2018

Box 3.2 Ongoing projects initiated by KSIDC

- Mega Food Park, Cherthala with major thrust on the processing and export of sea food items.
- Investment facilitation and Industrial Promotion Activities
- Entrepreneur support through mentoring
- Angel/seed fund scheme
- Electronic Hardware Park at Kochi – a world class manufacturing and R&D facility for the Electronic Sector.
- Life Science Park– for setting up a geographical cluster of industries and R&D institutions in the life sciences sector.
- Second phase of Light Engineering Industrial Park, Palakkad.
- Infrastructure development at Industrial Growth Centres
- Business Incubators
- Medical devices Park (Med Spark)

Source: KSIDC

Major Initiatives of KSIDC

Ease of Doing Business (EoDB)

EoDB is an index to rank countries across the world based on the business reform measures of World Bank. In India EoDB is an initiative by the Department of Industrial Policy and Promotion (DIPP), GoI, for ranking states annually based on the Business Reform Action Plan. M/s KPMG was appointed as consultant by KSIDC to undertake a study and submit a report on necessary reforms required in the existing rules and acts relating to clearance procedures for starting an industrial unit in Kerala. The report has been submitted and based on the recommendation of the study report; amendment to seven Acts has been approved by the State Cabinet. As part of EoDB, the State Government published the Kerala Investment Promotion and Facilitation Act 2018.

Online Single Window Clearance Mechanism (KSWIFT)

The GoK has introduced the 'Single Window Clearance System' to ease the setting up of industrial projects in the State. KSIDC is the nodal agency for the scheme and National Informatics Centre (NIC) has been engaged for the development of online clearance mechanism and online common application form. Over 40 awareness and training sessions were conducted for officials.

Intelligent Building Plan Management System (IBPMS)

Implementation of online Building software for providing layout approvals and building permits from 92 Urban Local Bodies (ULBs) and Chief Town Planner (CTP) has been done in the State. Test launch conducted in Varkala Municipality and Thiruvananthapuram Corporation.

Entrepreneurship Support through Mentoring

The third edition of Young entrepreneurs Summit was held at Kochi in September 2017. The theme of the summit titled 'YES 3D' was: Disrupt an existing process; Discover an alternate Technology, Develop better products/services. The aim of this flagship event is to foster the growth of entrepreneurship in young minds and to promote an enabling environment for entrepreneurship across all sectors.

Angel Fund/Seed Fund

KSIDC has also initiated a special finance assistance scheme known as "Angel Fund/Seed Fund" to promote entrepreneurship among the youth of the State by making them job providers rather than job seekers. It aims to support scientific, technological and innovative projects promoted by young entrepreneurs which are commercially viable. As on July 31, 2018, KSIDC has sanctioned seed fund assistance to 85 innovative start-ups for an amount of ₹18.23 crore.

Industrial Growth Centres (IGC)

KSIDC has developed key infrastructure facilities in its IGCs at Kannur, Kozhikode and Alappuzha Districts. Total numbers of operational units in these IGCs as on August, 2018 are 33, 32 and 19 respectively and corresponding jobs created are 1,150, 1,400 and 800 respectively.

Land Available with KSIDC

The total land available with KSIDC is 1,450 acres. Of this, land available for industrial development purposes was 1,204.6 acres. Out of the land available for industrial purposes, 615.4 acres have already been allotted to industrial units. The remaining land is still available with KSIDC for allotment to industrial units. Details of allotment of land in KSIDC Industrial Parks as on August 31, 2018 is shown in Appendix 3.11.

Main Targets for 2019-20

- Completion of construction of 81,000 sq.ft building at Life Sciences Park in all respect
- 40 per cent progress in construction of two buildings in the Life Sciences Park with a total area of 5 lakh square feet (Innovation Hub and MedSpark)
- Commencement of functioning of Institute of Advance Virology and a private, major anchor-unit in the Life Sciences Park
- 100 per cent land allotment in phase-I of Life Sciences Park; completion of land acquisition, development of masterplan and commencement of works in Phase-II of the Park
- Completion of land acquisition, development of masterplan and completion of basic infrastructure in the Electronic Hardware Park
- Completion of second phase of Light Engineering Park
- 50 per cent completion of 1,00,000 square feet SDF at KSIDC Industrial Space Kasaragod
- Incremental direct employment generation of 600 in the Industrial Parks of KSIDC
- Expected investment of ₹300 crore from prospective companies

Kerala Financial Corporation (KFC)

KFC is a government owned non-banking financial company in the State. KFC has been playing a major role in the industrialisation of Kerala. The main objective of KFC is to extend financial assistance to micro, small and medium enterprises (MSMEs) in the manufacturing and services sectors. Financial assistance is provided in the form of term loans, working capital loans and special schemes. KFC is a member of Credit Guarantee Fund Trust for Micro and Small Enterprises. The major activities of the Corporation are the following:

- Sanction of term loans to new micro, small and medium enterprises in the manufacturing and services sector.
- Sanction of term loans to existing industrial concerns and services sector units for expansion/modernisation/diversification.
- Sanction of working capital loans to meet working capital requirements of industrial/ service enterprises under special schemes.
- Special schemes for financial assistance to civil contractors.
- Special scheme for financial assistance for producing feature film and TV serials.
- Special scheme for modernisation, upgradation and expansion of existing cinema theatres and establishment of new multiplexes.
- Special scheme for purchase of lab equipments/waste management.
- Scheme for Funding Venture Debt for IT Hardware and Software Enterprises.
- Scheme for Financing Working Capital Requirements of Start-ups for executing purchase orders

In 2017-18, the operating profit of KFC increased by 156.5 per cent to ₹20.19 crore and the net profit by 45.9 per cent to ₹8.3 crore. The Corporation sanctioned financial assistance amounting to ₹723.93 crore in 2017-18 as against ₹385.3 crore in the previous year. Amount of ₹600.2 crore was disbursed in 2017-18 as against ₹655.3 crore in 2016-17. The total recovery in the year 2017-18 was ₹944.7 crore compared to ₹874.2 crore in 2016-17. The challenging economic situation aggravated by demonetisation and implementation of GST resulted in added slowdown tendencies during 2016-17 and 2017-18 for all financial and other institutions. The changes in the Government policies and other external factors affected business in certain sectors. Performance of KFC during the last five years is given in Appendix 3.12. The details of loan operations and industry-wise classification of loans in 2017-18 of KFC are shown in Appendix 3.13 and 3.14.

Kerala Industrial Infrastructure Development Corporation (KINFRA)

KINFRA was setup in 1993 aiming at acceleration of industrial development in the State by providing basic infrastructure for setting up industries in the State, promoting private investment and generating employment and creating of land bank for future industrial growth. KINFRA specifically aims at the economic development of the industrially backward regions of the State by setting up industrial parks/ townships/zone, which provide all the facilities required for the entrepreneurs to start an industry. The Plan outlay for and expenditure by KINFRA from 2015-16 to 2018-19 are shown in Table 3.4.

The industrial parks developed by KINFRA have facilities such as developed land, built up space, dedicated power supply, continuous water supply and communication facilities, in addition to the supporting social infrastructure facilities such as administrative block, bank, post office and security. KINFRA industrial parks provide a

Table 3.4 Plan outlay and expenditure, KINFRA, in ₹ crore

Sl. No	Year	Outlay	Expenditure	%
1	2015-16	55.1	44.8	81.3
2	2016-17	101.2	37	36.5
3	2017-18	111.3	81	72.7
4	2018-19*	96	47	49

Source: Budget Estimate

*Expenditure as on August, 2018

readymade manufacturing environment for easy starting up of industrial units with minimum time and cost.

Land Available with KINFRA

KINFRA has been acquiring land at various locations in the State with the objective of orderly development of industries, also considering social, regional and ecological factors. The total land acquired by KINFRA is 1,639.7 acres. Of this, land available for industrial development purposes is 1,186.7 acres, of which, 971.6 acres have already been allotted to industrial units. The remaining land (215.1 acres) is still available with KINFRA for allotment to industrial units. The details of allotment in KINFRA industrial parks as on August 31, 2018 are given in Appendix 3.15.

KINFRA has promoted investments in the State and created investment friendly climate within its parks, contributing significantly to the State's economy. In this regard, 757 industrial units have been allotted land in the various industrial parks of KINFRA with a total investment of ₹1,815.8 crore, providing direct employment of 20,590. KINFRA has also implemented a single window clearance system in all the parks. The single window clearances system operating in the parks is helping investors to establish their units without hassles. KINFRA has created world – class infrastructure in 24 industrial parks, of which 9 are catering exclusively to the small and medium enterprises. Some of the notable achievements are:

- KINFRA has successfully completed India's first International Apparel Park at Thiruvavavthapuram, Export Promotion Industrial Park at Ernakulam; Infotainment Park, the Film and Video Park at Thiruvavavthapuram, and Food Processing Industrial Park at Malappuram.
- KINFRA has developed small Industries Park at Thiruvavavthapuram, Pathanamthitta, Ernakulam, Thrissur, Kannur, Wayanad and Kasaragod.
- Industrial Park, Ottapalam:- Construction of Standard Design Factory completed and allocation of built-up space under progress. Internal roads and other common facilities have been completed. The major ongoing projects of KINFRA are shown in Box 3.3.

Box 3.3 Ongoing projects of KINFRA

- Industrial water supply project, Palakkad
- KINFRA integrated industrial and textile park, Palakkad
- Construction of Standard Design Factory, Ottappalam
- Industrial park, Ottappalam
- Water supply and road works for Infopark, Smart city and KEPIP
- Upgradation of existing industrial infrastructure, KSIP, Koratty
- Global Ayurveda Village, Thiruvananthapuram
- Industrial park, Mattannur
- Green field electronic park, Ernakulam
- Food and spices Park Muttom, Idukki
- Nano-tech Zone, Hi-tech Park, Kalamassery
- Petro chemical Park, Kochi
- Advanced Technology and Industrial Park, Puzhakkal, Thrissur
- Defence Park, Ottapalam
- Mega food Park, Palakkad

Source: KINFRA

Industrial Policy 2018

The industrial policy of the Kerala Government focuses on increasing domestic and foreign investment in the State. The new industrial policy visualises setting up industrial parks on Public Private Participation (PPP) mode with an objective to achieve 10 per cent industrial growth rate in the coming 2 years. Under the new policy, regulatory process for setting up industries in Kerala will be relaxed with the objective of making Kerala an industrial investment friendly State.

Vision

The vision is to transform Kerala in to a vibrant investment destination with an effervescent entrepreneurial society through inclusive, eco-friendly and sustainable economic growth with the creation of employment opportunities with reasonable wages. Kerala aims to become one of the top 10 ranking States in the country as far as Ease of Doing Business is concerned.

Objectives

- Empower people and generate employment for sustainable overall development through industrial growth.
- Simplify regulatory procedures and provide time bound approvals and clearances for setting up new enterprises.
- Strengthen existing industries and make them more efficient
- Mobilise MSMEs particularly in rural areas to achieve employment generation and utilisation of local resources.
- Ensure greater national and international investment in industrial sector
- Facilitate PSUs and other production units so as to attain their set objectives
- Ensure higher value addition of the locally available resources.
- Create employment opportunities for skilled human resources within the State.
- Encourage young entrepreneurs, women entrepreneurs, prospective NRK investorsand ex-servicemen interested in setting up business.
- Improve industrial, allied and ancillary infrastructure through public and PPP modes.
- Ensure sufficient land availability through land acquisition, land pooling, and private Industrial Parks/Estates.
- Provide trunk infrastructure for pooled industrial land, Private Industrial Parks/ Estates.
- Accelerate development of industrial clusters in the State in line with National Manufacturing Policy, Petroleum, Chemicals and Petrochemical Investment Regions, Electronic Manufacturing Clusters, MSME-Cluster Development Programme.
- Strengthen the Services and Commerce sectors and create employment for the skilled and semi-skilled manpower in the State.
- Introduce globally accepted standards in Technology, Quality and Management to rejuvenate the Public Sector Enterprises in the State.
- Encourage environment-friendly practices in enterprises
- Adopt participatory approach in industrial and infrastructure investments.
- Ensure a space for Kerala in national and international markets through increased production of high-quality products at reasonable price
- Enhance technical skills of young generation for improving their employment opportunities.
- Ensure respectable wages and income for those engaged in traditional manufacturing activities.
- Increase the industrial potential through the development of logistics sector.

Strategy and Approach

- While Kerala's educated and skilled work force is quick to learn and adapt to new production techniques, Kerala offers an eco-system where economic activity can be undertaken in a socially and environmentally responsible manner. Hence, it is proposed to implement the practice of ethical manufacturing, which

is value addition without exploitation of labour including child labour and other repressive practices, and in harmony with the environment.

- An Empowered Committee (comprising high level officers and technical experts) with adequate powers will be constituted to monitor and suggest amendments and to intervene in times of need in the functioning of concerned departments and agencies. This Policy aims to eliminate corruption and inefficiency and to move forward by ensuring transparency and efficiency. Online facilities will be created for entrepreneurs and department heads for monitoring licensing and other statutory certification process.

- A Committee shall be constituted by incorporating General manager, DIC as the Convenor and representatives from industrial associations and trade unions in the respective industrial estates as members for solving disputes if any between entrepreneurs and workers in the industrial parks/estates/areas.

- Face to face discussions/interactions will be conducted involving minister, high level officials and entrepreneurs at regular intervals

- Skill development and employment opportunities will be encouraged in the industrial Sector

Thrust Sectors

- Agro and Food Processing
- Garments and Textiles
- Electronics
- Bio Technology and Nano Technology
- Food Processing
- Mining
- Petro Chemical Complex in Kochi
- Export oriented Production

Way Forward

The vision of the Government is to transform Kerala into an investor friendly destination through inclusive, eco-friendly and sustainable economic growth, with a focus on the creation of employment opportunities. Adoption of new technologies in various stages of production, design and marketing are needed to increase the productivity in this sector.

The challenge before the State Government is to offer gainful employment to the youth of the State. To meet this challenge the Government aims to create an enabling environment for entrepreneurship in the State. There are approximately 2 lakh youngsters coming out of technical education institutions every year in the State. Many of these young professionals have the potential to become entrepreneurs. Kerala Government seeks to create a new generation of job providers rather than job seekers.

Micro Small and Medium Enterprises

Micro Small and Medium Enterprises (MSMEs) sector has emerged as a vibrant and dynamic sector of the Indian economy. MSMEs play a crucial role in providing large employment opportunities, next only to agriculture, given their comparatively low capital costs. MSMEs are complementary to large industries as ancillary units, and this sector contributes significantly to the socio-economic development of the country. It contributes to 37.54 per cent of India's GDP. The share of MSME manufacturing output in the total manufacturing output of the country is to the tune of 37.33 per cent as per the latest available information.

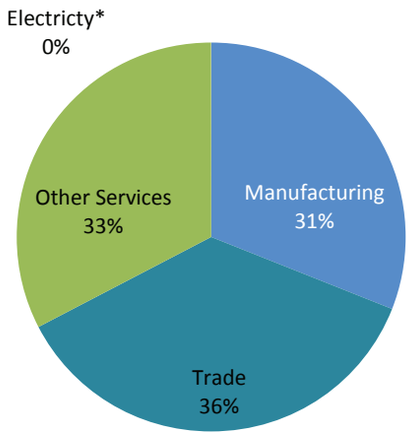
(*Source*: 'LaghuUdyogSamachar: GST and MSME: Development Commissioner (MSME), Ministry of Micro Small and Medium Enterprises, GoI).

As per the National Sample Survey (NSS) 73rd round, conducted by National Sample Survey Office, Ministry of Statistics and Programme Implementation in 2015-16, there were 633.88 lakh unincorporated non-agricultural MSMEs in the country engaged in different economic activities (196.65 lakh in manufacturing, 230.35 lakh in trade and 206.85 lakh in other services and 0.03 lakh in non-captive electricity generation and transmission). Figure 3.8 shows the category-wise distribution of MSMEs activity.

It is seen that 31 per cent of MSMEs were found to be engaged in manufacturing activities, while 36 per cent were engaged in trade and 33 per cent in other services

(*Source*: Annual Report 2017-18, Ministry of Micro, Small and Medium Enterprises, GoI).

Figure 3.8 Distribution of estimated MSMEs by nature of activity, in per cent



*Non-captive electricity generation and transmission and distribution by units not registered with the Central Electricity Authority (CEA)
Source: Ministry of Micro,Small and Medium Enterprises, GoI

Table 3.5 Estimated employment in MSME sector, broad activity category-wise

Broad Activity Category	Employment (in lakh)			Share (%)
	Rural	Urban	Total	
Manufacturing	186.56	173.86	360.41	32
Trade	160.64	226.54	387.18	35
Other Services	150.53	211.69	362.22	33
Electricity	0.06	0.02	0.07	0
All	497.78	612.1	1,109.88	100

*Non-captive electricity generation and transmission
Source: GoI, Ministry of Micro, Small and Medium Enterprises

Micro Small and Medium Enterprises (MSMEs) in India

The MSME sector in India is diverse in terms of size, levels of technology employed, and products. As per the 73rd round of NSS data for 2015-16, MSME sector provided employment for 11.09 crore workers (3.60 crore in manufacturing, 3.87 crore in trade and 3.62 crore in other services and 0.007 crore in non-captive electricity generation and transmission) in the rural and urban areas across the country. Table 3.5 shows the distribution of MSMEs activity-wise.

Out of the 11.09 crore workers in India in 2015-16 in the MSME sector, 8.45 crore (76 per cent were male and remaining 2.64 crore (24 per cent) were females. The micro sector with 633.88 lakh estimated enterprises provided employment for 1,076.19 lakh persons, thus accounting for around 97 per cent of total employment in the sector. Small sector with 3.31 lakh and medium sector with 0.05 lakh estimated MSMEs provided employment for 31.95 lakh (2.88 per cent) and 1.75 lakh (0.16 per cent) persons respectively. Till end of December 2017, 38.99 lakh MSMEs have already registered on Udyog Aadhar Memorandum (UAM).

Among Indian States, Uttar Pradesh had the largest number of estimated MSMEs (89.99 lakh) with a share of 14.20 per cent out of 633.88 lakh MSMEs in the country. Kerala comes eleventh (23.79 lakh) with a share of 3.75 per cent

(*Source*: Annual Report 2017-18, GoI, Ministry of Micro, Small and Medium Enterprises).

MSME Sector in Kerala

Kerala, with its excellent connectivity, communication network, availability of highly

Box No. 3.4 MSME data bank

For facilitating the promotion and development and enhancing the competitiveness of MSMEs, the Ministry of MSME vide Gazette Notification No. 750(E) dated 29.07.2016 had notified the MSME Development (Furnishing of information Rules, 2016) under which all MSMEs are to furnish information relating to their enterprises online to the Central Government in the data bank maintained by it at *www.msmedatabank.in.* This data bank will enable the Ministry to streamline and monitor the schemes and pass on the benefits directly to MSMEs. It will also provide real-time information about the status of MSMEs under various parameters. Data Bank is helpful to MSME units,which can now update their enterprise information as and when required without visiting any Government office and also update information about their products/services, which can be accessed by Government departments to do procurement under Public Procurement Policy of GoI. More than 1.22 lakh units have been registered (up to December 2017) under MSME Data Bank since issuance of its notification

Source: Annual Report 2017-18, Ministry of Micro, Small and Medium Enterprises, GoI

skilled human resources and relatively good industrial infrastructure, is highly suited for the growth of the MSME sector. The micro small and medium enterprises sector helps in industrialisation of rural and backward areas and provides employment to youth and socially disadvantaged groups such as SC, ST, women and physically challenged persons. The sector contributes to the socio-economic development of the State.

The Directorate of Industries and Commerce (DIC) acts as a facilitator for the growth of the MSME and traditional industrial sectors in Kerala. The agencies under the Directorate are: Directorate of Handloom and Textiles, Directorate of Coir Development and Khadi and Village Industries Board.

Udyog Aadhar Memorandum (UAM) in the State

Under the UAM scheme, which was notified in September 2015 under section 8 of the MSME Development Act 2006, MSME entrepreneurs need to file an online entrepreneurs' memorandum to instantly get a unique Udyog Aadhaar Number (UAN).

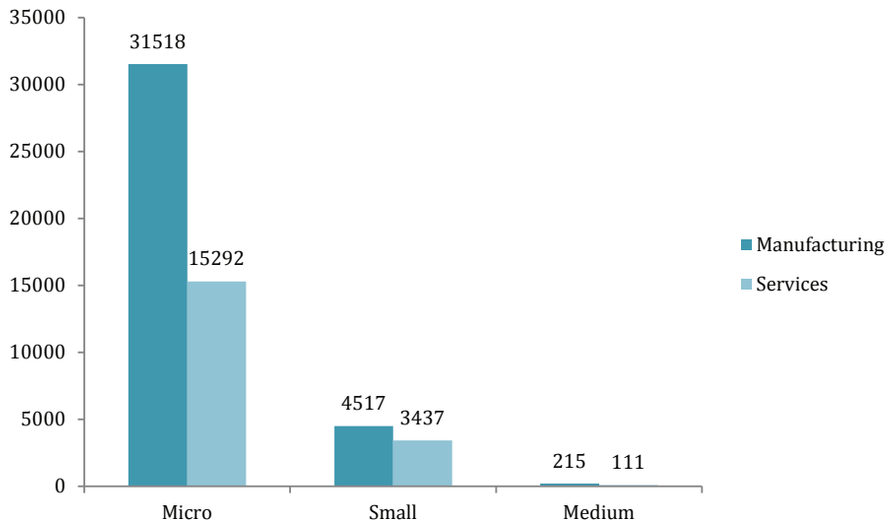
In Kerala, DIC discontinued the practice of filing EM Part II from September 18, 2015, and in its place, started online registration in Udyog Aadhar. As on March 31, 2018, the total number of Udyog Aadhar Memorandums filed was 55,090, under which the number of micro, small and medium units in the manufacturing sector were 31,518, 4,517 and 215 respectively (totalling 36,250 numbers). In addition, there were 15,292, 3,437, and 111 micro, small and medium units respectively in the service sector, amounting to a total of 18,840 numbers (Figure 3.9). The details are given in Appendix 3.16.

(*Source*: Directorate of Industries and Commerce).

Performance of the Sector

According to DIC, 15,468 new MSME units operations started in Kerala in 2017-18 with a total investment of ₹1,24,961.00 lakh, and generating employment for 51,244 persons. Ernakulam occupies the highest position in new MSME units generating 1,895 jobs, while Palakkad tops in employment generation with 6,391 new jobs. Idukki was at the lowest position with 248 new MSME units, generating employment for 692 persons. The details are given in Appendix 3.17.

Figure 3.9 Number of micro, small and medium units registered under manufacturing and services sector for the year 2017-18



Source: www.udyogaadhar.gov.in; Directorate of Industries and Commerce

State Budget (2018-19)

In Kerala, the MSME sector has consistently been registering higher growth rates compared to other sub sectors in the industrial sector.

In the State Budget for 2018-19, an outlay of ₹445.06 crore was provided for Village and Small Enterprises and the expenditure up to 31, October 2018 is ₹176.12 crore (39.57 per cent).

In the Annual Budget 2018-19, an amount of ₹160.01 crore was provided under the MSME Sector. Due importance was also given to gender budgeting. Three new schemes viz., Insurance Scheme for MSMEs, State Sponsored Cluster Development Programme (SS CDP) and Revival of MSMEs with Stressed Assets have been taken up in the year 2018-19. The details are given Table 3.6.

Major State Plan Schemes and Achievements

In 2018-19, State Government implemented various schemes successfully for improving the industrial environment of the State through development of industrial infrastructure, promotion of entrepreneurship and by providing skill development. Following are the major schemes and achievements.

Infrastructure Development Schemes/ Programmes (DAs/DPs)

These schemes intend to promote development of infrastructure in the industrial parks, estates, Development Areas (DAs)/Plots (DPs) including roads, power, water and facilities for waste management. Also provisions are there to develop new multi-storied industrial buildings (SDF's), industrial parks, and common facility centres for clusters. There are 39 DA/DPS working within an area of 2,424.26 acres and with 2,205 working units. Works on 8 DA/DPs were completed and works on 17 projects are going on. In 2017-18, Administrative Sanction was accorded for the infrastructure development of the industrial plot at Varavoor in Thrissur. Development activities are also going on in the DA at Kattippara in Kozhikode District. Modernisation of the Common Facility Service Centre (CFSC) at Changanassery was completed. Work on three Standard Design Factory (SDF) at Puzhakkalpadom Phase I and II and Punnapra are

Table: 3.6 Plan outlay and expenditure of village and small enterprises Annual Plan 2017-18 and 2018-19, in ₹ crore

Sl. No.	Sector/Sub sector	Annual Plan (2017-18)		Annual Plan (2018-19)	
6.1	Village and Small Enterprises	Outlay	Expenditure	Outlay	Expenditure (as on 31.10.2018)
i	Small-scale Industries	128.06	92.52	151.06	39.17
ii	Commerce	4	3.96	4.4	2.58
iii	Handicrafts	5.95	5.01	4.55	3.38
	Sub Total (MSME)	138.01	101.51	160.01	45.14
iv	Handloom and Powerloom	71.92.	92.06	70.92	28.49
v	Coir industry	128.12	98.75	141.08	71.99
vi	Khadi and Village Industries	16.91	7.23	18.6	5
vii	Cashew Industry	49.5	79.13	54.45	25.5
	Total (Village and Small Enterprises)	404.46	378.71	445.06	176.12

Source: Budget 2018-19; Plan space

going on. An outlay of ₹25 crore was provided for the scheme in 2017-18.

Industrial Co-operative Societies

In Kerala, the total number of working industrial co-operative societies as on March 31, 2018 was 394 as against 430 in the previous year (8.37 per cent decrease). Kannur has the largest number of working societies with 101 societies. Out of 394 societies, 90 Societies were registered by women. The details are given in Appendix 3.18. In 2017-18, 15 societies were registered.

Industrial Development Plot/Areas

The Directorate of Industries and Commerce (DIC) develops infrastructure facilities for small-scale industries in the State. At present,there are 39 Development Area/Development Plots under DIC, having a total acquired area of 2,424.26 acres. A total of 2,205 units are functioning in these DA/DPs in 2017-18 compared to 2,595 units in the previous year. The details are given in Appendix 3.19.

Mini Industrial Estates

As on March 31, 2018, there were 88 mini industrial estates and 799 SSI units in these estates, providing total employment to 4,016 persons. The details are given in Appendix 3.20.

Industrial Estates Under SIDCO

Kerala Small Industries Development Corporation (SIDCO) provides infrastructure facilities such as land, work shed, water, distribution of scarce raw material to the units in the small scale sector. There are 17 major industrial estates, which comprise 881 working units, under the administrative control of SIDCO. These working units provide employment to nearly 7,456 workers (as on March 31, 2018). Besides, there are 36 mini industrial estates and 7 Industrial Parks (*Source*: www.keralasidco.com) under SIDCO in which about 1,339 employees are working in 311 working units all over the State. The total turnover in 2017-18 of SIDCO was ₹2.69 crore. It has been suffering losses from 2012-13 onwards. Details of industrial estates under SIDCO are given in Appendix 3.21, 3.22 and 3.23.

Entrepreneur Support Scheme (ESS)

The scheme intends to provide extensive support to MSMEs and give one time support to entrepreneurs, especially women and persons belonging to SC and ST community. An outlay of ₹56 crore was provided in 2017-18 under ESS scheme. Following activities were carried out during this period:

- Assistance given to 107 units for an amount of ₹13,98,503 and provided employment to 4725 persons.
- Assistance given to 1,146 units for an amount of ₹5,57,090 under Nano House Hold Scheme and provided employment to 500 persons.
- Total no. of units in 2017-18 was 1,146 Nos.
- ESS support was given to 328 Women entrepreneurs

Promotional Events/Exhibitions– Achievements of the MSME Sector in 2017-18

The Directorate of Industries and Commerce conducted/participated in 20 Exhibitions/ Fairs/Expos inside Kerala with 958 stalls in 2017-18 and generated an income of ₹2.21 crore. Two exhibitions each were held at Kollam, Kottayam, Thrissur, Palakkad and one each in other 8 Districts. The maximum number of stalls, 122, was put up in Kasaragod District. DIC represented Kerala in the India International Trade Fair (IITF) at Pragathi Maidan, New Delhi with 4 stalls. Details are given in Appendix 3.24. Following are the major promotional activities undertaken by the Department of Industries in 2017-18.

- Machinery Expo 2018 at Kochi from January 12-15, 2018 in which 134 machine

manufacturers and distributers participated in the Expo.

- Industrial expo in all Districts. This has facilitated MSMEs to introduce their products among public society and enhance their sales.
- Participated in various national/international industrial expos.
- Malabar Craft Mela from January 16-30, 2018 at Palakkad in association with K-bip. This facilitated the artisans to sell their products and share experiences.
- Participated in National Level Vendor Development Programme (NLVDP) conducted by MSME DI, Thrissur.
- Participated in Mannarkad Agrifest and Uthralikkav Pooram trade fair.

Box No. 3.5 Draft industrial and commercial policy 2017 – MSME sector

Financial Incentives

Government will launch a special support mechanism to revive incipient sick units. Entrepreneur Support Scheme (ESS) will be introduced for Plastic waste Recycling, Bio Degradable Plastics and Renewable energy based MSMEs. Loans at affordable interest rates will be made available from Kerala Financial Corporation for MSMEs.

Household Nano Enterprises

Government will promote decentralised manufacturing in homesteads. This will enable people to work from homes, with flexible hours, without neglecting their families. It will help foster an industrial climate in the State at the grassroots.

E-Commerce Portal

E-commerce portals will be developed as a virtual showroom for handicraft and other Kerala specific products. Government will provide adequate marketing support to MSME's through subsidies and incentives for participation in National and International Trade fairs and B2B meets. Special measures will be taken for branding of handicrafts and ethnic products.

Price preference

Goods manufactured by MSMEs located in the State will be allowed price preference of 15 per cent in purchases by Government Departments and State PSUs.

Timely Payment to Small Enterprises

Government Departments and PSUs purchasing goods and services from MSMEs shall be required to make payments within 45 days of acceptance of supplies. The mechanism under the Director of Industries and Commerce for this purpose shall be strengthened.

Dovetailing with GoI Schemes

The policy intends to dovetail the State policies with the existing GoI's schemes such as Credit Guarantee Fund Trust Scheme, Credit liked Capital Subsidy Scheme for Technology Upgradation, National Manufacturing Competitiveness Programme, Marketing Assistance Scheme,Lean Manufacturing Scheme and various promotional schemes of Ministry of MSME and other Ministries. A separate cell under the Chairmanship of Director of Industries and Commerce will be set up for creating awareness,and to co-ordinate and monitor implementation of GoI Schemes/ Programmes.

Kerala Institute of Entrepreneur Development (KIED)

KIED will be elevated to the status of an institution providing skill development and research facilities as per the needs of the industry.

Industrial cluster Development

Formation of Industrial Clusters will be encouraged enabling the MSMEs to reduce the cost of inputs,and to provide assistance in marketing so that they can compete with the bigger firms. Government will provide the matching contribution of 20 per cent of the total Project cost towards setting up Common Facility Centres in the State under MSE-CDP Scheme.

Traditional sectors

Schemes will be implemented for developing strategies for effective marketing of the innovative new products produced by traditional industries. Modernisation will be implemented in traditional industries for overall expansion of these industries and increasing value addition per worker without laying off workers.

Source: *www. industry.kerala.gov.in*

Vyavasaya Jalakam, Kerala MSME Geoportal

Micro, Small and Medium enterprises play a major role in the sustainable development of the State's industrial sector. They are making value added products from locally available raw material with low investments especially from the rural areas. For effective implementation of various schemes for the development of MSMEs, it is important to develop an extensive database of all MSMEs in the State. The field officers of the industries Department could visit units for liaisoning and hand holding along with data collection.

For the effective liasoning and interventions, the State Industries Department has deviced a mobile application system which would facilitate the collection of data with spatial coordinates about the units. Through this application, Industries Extension Officers can collect and upload more than 100 details of units including the sector to which the unit belongs, products manufactured, number of employees, financial health of the unit and also its location on map with the help of GPS. The mobile application created for the purpose would be utilised by the field officers for data collection. The entrepreneur could also self-declare the unit details by visiting the department website.

A State wide industrial data store is then mapped on a geoportal with these data, which will help the Plan formulation, statistics regarding industrial promotional facilities available in the State including estates, incubation centres, traditional sector (handloom/coir/handicraft) skills availability, cluster development etc. At present, more than one lakh units have been registered under 'Vyavasayajalakam' Database.

Capacity Building Programme

The scheme intends to promote entrepreneurial/ industrial promotional activities and skill development training for Micro, Small and Medium Enterprises. Under the scheme an outlay of ₹8 crore was provided in 2017-18 and the following programmes were carried out.

- Two websites *www.keralasme.org* and *www.keralasme.com* were created for accessing national and international markets
- For easy issuance of license and clearances in relation to industrialisation, awareness programmes has been conducted for LGs.

Kerala-Post Disaster Needs Assessment

Kerala experienced the worst ever floods in its history between June 1 and August 18, 2018. As the unprecedented floods have caused huge damages and losses to every sector of the State economy, the natural calamity has also taken its toll on the State's MSME sector. The ravages of the calamity suffered by the MSME sector include damages and losses to factory buildings, plant and machinery, inventory etc. A number of clusters are in Aluva in Ernakulam District. These were severely affected by the floods. The Department of Industries and Commerce made a quick assessment of the damages and supplied a summary statement of the number of enterprises and number of workers affected by the floods, and also made an estimate of the losses suffered by plant and equipment. They estimated that floods caused damages to 3,590 enterprises and affected 17,413 workers. The base data for this is the master file on MSME enterprises (both manufacturing and services) under their jurisdiction. The number of MSME enterprises affected by the floods is given in Table 3.7.

(*Source*: Kerala – Post Disaster Needs Assessment – Floods and landslides-Report undertaken by World Bank and Asian Development Bank and Directorate of Industries and Commerce).

Departmental Interventions on Rebuild Kerala

The flood affected units can be assisted under the existing Entrepreneur Support Scheme (ESS) with relaxation of financial ceilings for already availed units.

Flood affected units in the MSME sector may be assisted with 6 per cent to 8 per cent interest subvention by reimbursement of interest payable to Bank every year for a period of 3 years. Maximum amount eligible per unit per year will be limited to ₹5 lakh.

(*Source*: Directorate of Industries and Commerce).

Industrial Financing for the MSME Sector

State Level Bankers' Committee (SLBC)

As per the State Level Banker's Committee (SLBC) report, the outstanding bank credit by the commercial banks in Kerala to various sectors increased to ₹2,56,075 crore at the end of March 2017 as against ₹2,32,418 crore in the previous year, an increase of 10.17 per cent. The

Table 3.7 The number of MSME enterprises affected by the floods

District	All MSME enterprises	No. of enterprises affected by floods	Total estimated losses (₹ in lakh)	Persons affected
Thiruvananthapuram	9,647	10	192	50
Kollam	7,300	41	510	220
Pathanamthitta	4,509	410	3,101.48	1500
Alappuzha	7,831	820	5,260.99	3625
Kottayam	7,979	204	745.62	980
Idukki	4,533	79	879.82	368
Ernakulam	16,547	1,126	39,180.44	6400
Thrissur	15,250	630	11,857.82	2910
Palakkad	8,732	59	499.43	300
Malappuram	21,914	97	372.9	504
Kozhikode	10,445	52	410.17	298
Wayanad	3,200	61	377.18	255
Kannur	6,415	1	3.95	3
Kasaragod	3,423	0	0	0
Kerala	127,725	3,590	63,391.81	17,413

Source: Kerala– Post Disaster Needs Assessment –Floods and landslides-Report undertaken by World Bank and Asian Development Bank

outstanding flow of credit to the MSME sector in March 2017 was ₹39,408 crore, a decrease of 0.13 per cent, compared to ₹39,463 crore in March 2016. The status of flow of credit to various sectors is given in Appendix 3.25.

The Small Industries Development Bank of India (SIDBI)

The Government encourages SIDBI to refinance credit institutions, which provide unsecured loans, at reasonable interest rates, to borrowers based on their transaction history. The outstanding assistance to the MSME sector through various products was ₹117.55 crore as on March 31, 2018. Details are given in Appendix 3.26.

Industrial Cluster Development

Industrial clusters have an important role in the promotion of small and medium-sized enterprises mainly due to their inclusiveness, technology absorption, efficiency improvement and availability of common resources. The Ministry of Micro, Small and Medium Enterprises (MSMEs) adopted the cluster approach as a key strategy for enhancing the productivity and competitiveness as well as capacity building of small enterprises.

The State has already adopted the cluster development approach for industrialisation to reap the benefits of agglomerations through transformation of the traditional systems of activities or industrial Districts to new networks ready for competition and innovation. The State supports cluster development through MSME-DI, GoI, Thrissur and Kerala Bureau of Industrial Promotion (K-bip). The Common Facility Centres which are in various stages of development in the State are in the areas of wood, plywood, furniture, rubber, textile, rice mill, plastic, printers, ethnic food, agriculture implements and general engineering. Works of Offset Printers Cluster at Elayavoor, Kannur was completed and commissioned on March 26, 2018 with a total cost of ₹1,222.14 lakh. The activities for setting up Common Facility Centres (CFCs) in Wood Furniture Cluster, Thaliparamba, Kannur, Wood Furniture Cluster, Chevoor, Thrissur and in Plywood Cluster, Idukki Parliament Constituency, Ernakulam District are progressing.

(*Source*: Kerala Bureau of Industrial Promotion).

Ministry of MSME, under MSME Development Institute Scheme is assisting 19 Cluster CFC in Kerala. MSME-DI, Thrissur is actively engaged in the promotion and development of clusters in the State in close liaison with the State Government and other stake holders. The entire machinery of

Table 3.8 Skill development and training institutes in Kerala

MSME Development Institute, (MSME-DI), Thrissur, GoI	The institute under the Ministry of MSME, GoI provides techno-economic and managerial consultancy services to the MSME sector in Kerala and the Union Territory of Lakshadweep. It also conducts various training programmes viz., Industrial Motivation Campaigns, Entrepreneurship Development Programme (EDPs), Entrepreneurship Skill Development Programme (ESDP), Management Development Programmes (MDPs) and Skill Development Programmes under PD Account (SDPs). In 2017-18 (up to 31.8.2018), 28 courses were undertaken and 676 persons were trained under ESD Programme.
Kerala Academy of Skill excellence (KASE)	GoK has setup three Kaushal Kendras under KASE at Kollam, Kozhikode and Palakkad to provide career guidance and industrial training to young workers, improving their employability. In the year 2017-18 a total of 3038 candidates and for the period 2018-19 up to 31.8.2018, 454 candidates were registered and trained at Kaushal Kendras.
Kerala Institute of Labour and Employment (KILE)	Constituted by GoK, KILE is an institute for training and research in labour and allied subjects. In 2017-18 various programmes were conducted by KILE including Training, Workshops, Seminars, Publications and Research studies. The beneficiaries through these programmes were 3478. In 2018-19, 14 training programmes were conducted (as on 31.8.2018) and the beneficiaries are 916, which is 26.10 per cent higher than the previous year.

Wood Furniture Cluster, Kannur was purchased and the GoI released third installment of ₹162.334 lakh to K-bip and in principle approval was given to the Plywood Cluster, Muvattupuzha under MSE-CDP Scheme

(*Source*: Annual Report 2017-18, MSME Development Institute, Thissur).

Promoting Entrepreneurship and Skill Development

Promotion of local entrepreneurship can help to improve and create more sustainable consumption and production systems. Entrepreneurial education fosters innovation and helps entrepreneurs build better products, processes, and services. It is especially effective when it takes into account the social, economic and ecological complexities of development, the values of sustainability, and a long-term perspective. The details of Skill Development and Training Institutes in Kerala are shown in Table 3.8.

Staff training, vocational and continuous on-the-job training ensures a constant upgrading of workers' skills. MSME-Development Institute (MSME-DI), Thrissur, GoI has conducted 74 courses in 2017-18, benefiting 9,876 potential entrepreneurs. In 2018-19 (up to August 31, 2018) 1,680 persons were benefited from the skill development programmes. Details are given in Appendix 3.27.

Package for Rural Industries-Prime Minister's Employment Generation Programme (PMEGP)

'Prime Minister's Employment Generation Programme (PMEGP)' is a credit linked subsidy scheme at the national level, which aims to generate employment opportunities by setting up of micro-enterprises in the non-farm sector in rural as well as urban areas. In 2017-18, the banks sanctioned 1307 applications and provided Margin Money of ₹2433 lakh. The comparable figures for 2016-17 were 783 applications and ₹991.88 lakh respectively. Banks sanctioned loans for the highest number of applications in Thiruvananthapuram District with 126 numbers, followed by Thrissur with 124 and Idukki with 113 numbers. Details are given in Appendix 3.28.

Food Processing

In India, the food sector has emerged as a high growth and high-profit sector due to its immense potential for value addition, particularly within the food processing industry.

Food processing in India covers fruit and vegetables, plantations, grain processing, spices, milk and dairy products, meat and poultry, fisheries, non-alcoholic and alcoholic beverages, as well as other consumer product groups such as confectionery, chocolates, cocoa products, soya-based products, mineral water and high protein foods.

The Indian food processing industry accounts for 32 per cent of the country's total food market and is one of the largest industries in India with respect to production, consumption, export and future potential for growth. The sector constitutes around 8.80 per cent and 8.39 per cent of GVA in manufacturing and agriculture respectively, 13 per cent of India's exports and 6 per cent of total industrial investment.

(*Source*: Food processing: A ready beckoner for FDI in India, Ministry of Food Processing Industries, GoI).

Food processing industry has been recognised as a priority sector in Kerala due to its potential for future growth and possibility of generating substantial employment. Kerala Industrial Infrastructure Development Corporation (KINFRA) has been playing a proactive role for the promotion of food processing industry in the State. KINFRA has set up a number of food theme based parks in the State. Being a priority sector, KINFRA has also set up industrial parks to suit the specific needs of the food processing sector.

KINFRA Food Processing Park, Kakkancherry, Malappuram

The KINFRA Food Processing Park at Kakkancherry, Malappuram District, set up in an area of 72 acres has 42 working units. In 2017-18, the park has attracted investment of ₹13,376.86 lakh and created 2,800 jobs.

Food and Spices Park, Muttam, Idukki

This project is located in 15 acres of land at Muttam, Idukki District, to be implemented under MSME-Cluster Development Programme (MSME-CDP), Ministry of MSME, GoI. It envisages full-fledged common infrastructure facilities for Food and Spices and its allied activities. GoI has accorded "in-principle approval for the project".

KINFRA Mega Food Park, Palakkad

KINFRA Mega Food Park Palakkad is being implemented in accordance with the Mega Food Park Scheme (MFPS) of Ministry of Food Processing Industries (MOFPI), Govt. of India. The project involves the setting up of a Centralised Processing Center (CPC) in an area of about 79.42 acres at Elapully and Pudussery villages near Walayar in Palakkad and four Primary Processing Centers (PPCs) in Ernakulum, Thrissur, Malappuram and Wayanad. It is estimated that the park would employ about 1,500 people by way of direct employment and 5,000 people by way of indirect employment. Details of KINFRA food processing units in parks are given in Appendix 3.29.

Establishment of Food Safety and Quality Laboratory at Vellanikkara, Thrissur

This project is to establish food safety and quality laboratory for export promotion at Kerala Agricultural University Vellanikkara, Thrissur, with the assistance of Ministry of Commerce, GoI under the Assistance to States for Developing Export Infrastructure and Allied Activities (ASIDE) scheme. This project envisages the exploration of the opportunities to improve the State's food safety and quality information system through a pro-active and systematic multi-disciplinary approach to enhance the export potential.

Implementation of Food Safety System through NCHC

National Centre for HACCP Certification (NCHC) associated with K-BIP is in the process of auditing, certification and recertification of various food processing and allied units in Kerala and outside the State. National Centre for HACCP Certification (NCHC) in association with Kerala Commissionerate of Food Safety organises awareness programmes on Food Safety to the MSMEs in the Food Processing and Allied Sectors of the State.

Traditional Industries

The handicraft sector contributes to export growth while preserving the country's cultural heritage and provides employment to a large number of craft person. However, it suffers from weaknesses such as the unorganised nature of the industry, low levels of education of workers, low capital base, poor exposure to new technologies, absence of market intelligence, and poor institutional framework. Series of efforts have been taken by the Government to redress these problems and the sector has witnessed good growth in 2017-18 in terms of product development, domestic sales, and exports.

In India, the handicrafts sector employs 68.86 lakh artisans, out of which 30.25 lakhs are male and 38.61 lakhs are female artisans. The export of handicrafts from India during April-November 2017 was ₹21,201 crore and in 2016-17 was ₹34,394.30 crore. The sector grew at 10.8 per cent per annum.

(*Source*: Annual Report 2017-18, Ministry of Textiles, GoI).

Handicraft Industry in Kerala

Handicraft industry is one of the traditional industries of Kerala. Kerala has the tradition of making beautiful handicrafts with ivory, bamboo, palm leaves, seashells, wood, coconut shells, clay, cloth, coir, metals, stone, lacquer ware, and so on. Many old handicraft classics can be seen in palaces, old heritage homes and museums across the State. A vast majority of the traditional artisans belong to socially and economically backward classes.

Importance of Handicraft Industry

Kerala State Handicrafts Apex Co-operative Society (SURABHI), Handicrafts Development Corporation of Kerala (HDCK), and Kerala Artisans Development Corporation (KADCO) are the major agencies for the promotion of the handicraft industry in Kerala.

Kerala State Handicrafts Apex Co-operative Society (SURABHI)

SURABHI is the apex organisation of primary handicrafts co-operatives established with a view to uplift the artisans by marketing their products and supporting them through the welfare schemes of GoK and GoI. There are 46 Co-operative societies under SURABHI. The turnover of the society in 2017-18 was ₹288.7 lakh. The Apex society received an amount of ₹92.00 lakh in 2017-18 as assistance from the State Government. This was primarily used for conducting exhibitions and for the repair works of the showrooms. SURABHI made a profit of ₹2.75 lakh from 9 exhibitions and fairs in the year 2017-18. The total employment provided during the period was 30,000. Details are given in Appendix 3.30.

Handicrafts Development Corporation of Kerala (HDCK)

HDCK is engaged in procuring and marketing handicraft products, and thereby ensuring fair returns to artisans. HDCK's showroom includes Sree Moolam Shashtyabdapurthi Memorial Institute (SMSMI) in Thiruvananthapuram and Kairali emporia spread across State and other major locations in India. At present, it is having a network of 19 such sales emporia other than SMSMI. Apart from marketing, HDCK is supporting artisans through welfare schemes of GoK and GoI and has been running a Common Facility Service Centre (CFSC) at Thiruvananthapuram for artisans who engage in development of wood crafts. Establishment of

Common Facility Service Centres and assistance to Apex Organisation in the Handicrafts Sector are the Plan schemes implemented through HDCK in 2018-19. Total turnover of the Corporation in 2017-18 was ₹1,202.00 lakh. Details are given in Appendix 3.31.

The Kerala Artisans Development Corporation (KADCO)

KADCO Ltd, a welfare corporation, was incorporated in 1981, as a fully owned Kerala Government company registered under Companies Act, 1956. The main objective of the Corporation is the upliftment of indigenous artisans in Kerala including carpenters, goldsmiths, blacksmiths and those engaged in pottery, masonry, work using copper/bronze and other handicraft work. The identification of different types of artisans and promotion of the crafts undertaken by them is the primary objective of KADCO.

Bamboo Industry

Bamboo is a highly useful renewable and eco-friendly resource which has several applications. It is widely used in environment protection, as a nutrient food, high-value construction material, and in about 1,500 other applications. It is estimated that about 250 crore people use bamboo in one form or the other at the global level. Advanced research activities are being taken upto utilise bamboo for efficient fuel generating system.

In Kerala, 28 species of bamboo are found. Bamboos from Kerala forests are being supplied mainly for the pulp and rayon units under concessional rates. It is estimated that there are about one lakh people in the State dependent on bamboo for their livelihood. A unique feature of Kerala is that 67.3 per cent of the extracted bamboo comes from home gardens rather than from forests. The weaving sector artisans around Angamaly region is supported by the Kerala State Bamboo Corporation. Recent data from the Panchayats indicate that from the early seventies onwards there has been a great drain in the number of artisans from the sector to semi skilled and unskilled jobs in the tertiary sectors like construction etc.

(*Source*: www.keralabamboomission.org.).

The Kerala State Bamboo Mission (KSBM)

KSBM being the Bamboo Development Agency (BDA) of the State was constituted in 2003 with the aim to marshal the scattered resources of the State and adopt a focused approach to revitalise the Bamboo Sector, promoting value addition, enhancing income generation and alleviating poverty. The interventions initiated by KSBM through K-BIP includes promotion of bamboo cultivation, creation of new designs for innovative products in the handicrafts sector, appropriate skill development, and promotion of bamboo based modern industries supported by technology adaptation and development.

The major activities of KSBM in 2017-18 were:

i. Participated in national and regional trade fairs/exhibitions at the India International Trade Fair IITF), Bangalore and Vanitha Max-Consumer exhibitions held at Kollam, Kannur, Thiruvalla, Thiruvananthapuram, Kottayam and Thrissur.
ii. Organised State level Technical Workshop on various applications of Bamboo in building sector at Kochi.
iii. Skill development/Training programmes conducted for Bamboo Artisans at the Bamboo Innovation Centre, Angamaly.
iv. Supplied Tools/Equipments to Groups as Common facilities to make the standardised products.
v. Aiding the development of Bamboo Supply Chain to ensure the availability of raw/treated bamboo to the artisans/craftsmen in various location of the State.
vi. Given financial support for procurement of machines and accessories for the Common Facility Centre (CFC) of Kerala State Bamboo Corporation at Mananthavady in Wayanad District (May 2018).

Box: 3.6 Kerala bamboo fest 2017

On behalf of the Department of Industries and Commerce, Kerala State Bamboo Mission (KSBM) organised the 14th edition of 'Kerala Bamboo Fest 2017 at Marine Drive, Ernakulam from December 1 to 5, 2017. The products exhibited in the fest were mementos/trophies, various other handicraft items, furniture, interior decoration designs including lamp shades, kitchen utensils, curtains and flooring tiles and food products using bamboo rice and shoots. There were in total 148 stalls displaying bamboo and related products. The products of 186 artisans/craftsmen/NGOs and 46 craftsmen from North east Kerala were displayed at the event. Various food products made using bamboo were also made available in the food stalls set up by the participants.

Source: Kerala State Bamboo Mission

The Kerala State Bamboo Corporation

The Kerala State Bamboo Corporation is an Undertaking established in 1971, for the welfare, development and upliftment of traditional bamboo workers in the State. The main objective of the Corporation is to develop and promote Industries based on Bamboo, Reed, Cane and Ratton and to undertake manufacture and trading of the above products, provide financial, technical and other assistance and guidance to the traditional bamboo workers. The Corporation is serving about 10,000 bamboo workers in Kerala. A majority of these workers are poor and belong to socially and economically backward, SC/ST Communities.

The main activities of the Corporation include the collection of good quality of reeds from Government forests and distribution of these reeds to traditional bamboo weavers at a subsidised rate on credit basis and also the procurement of woven mats from the weavers.

In 2017-18, the Corporation extended Minimum Wages (DA) as per the Government guidelines to the traditional Bamboo workers with effect from 2013 onwards.

Problems/Issues in the Sector

The major issues faced by the sector are:

- Shortage of skilled workers in the sector such as bamboo
- Rules relating to cutting of and procuring bamboo from forests.
- Absence of a proper supply chain (for bamboo)
- Shortage of working capital and credit for artisans/NGOs/MSMEs
- Limited entrepreneurship, insufficient skill development programmes and lack of modernisation in designs and products.
- Lack of awareness about technology, designs and developing tools.
- Standardisation and packaging technology
- Inadequate marketing facilities/handholding support for forward and backward linkages

Way Forward

Kerala's industrial sector needs to take advantage of the educated and skilled work force. Kerala needs to create an eco-system where economic activities can be undertaken in a socially and environmentally responsible manner. Emphasis should be given to the practice of ethical manufacturing, which is value addition without exploitation of labour and in harmony with the environment. Online facilities are to be created for entrepreneurs and department heads for monitoring licensing and other statutory certification process.

Textile Industry

Indian textile industry is one of the largest and oldest industries in the world. It provides employment directly and indirectly to 4.5 crore people in India. The strength of the sector lies in its variety with hand woven sector on the one hand and the most modern powerloom sector on the other. It contributes considerably to the output, employment and export earnings of our economy.

Handloom, Powerloom and Mill Sectors

Indian textile industry has inherent linkages with agriculture, culture and traditions of our country creating a versatile spread of products appropriate for both domestic and export markets. In India, the mill sector constitute 3,400 textile mills having installed capacity of more than 5 crore spindles and 8,42,000 rotors is the second largest in the world. The traditional sector is the biggest source of employment to people in rural and semi urban areas. The textile industry contributes to 7 per cent of industry output in value terms, 2 per cent of India's GDP and to 15 per cent of the country's export earnings.

The decentralised powerloom sector is also an important segment of the textile industry in terms of fabric production and employment generation. It provides employment to 44.18 lakh persons. More than 60 per cent of fabric meant for exports is also sourced from powerloom sector. There are approximately 1.50 lakh shuttle less looms in this sector. GoI launched 'Power Tex India' and 'SAATHI' schemes for infrastructure development of the sector.

Handloom sector in India provides direct and indirect employment to 43 lakh people in India. It contribute 15 per cent of cloth production in the country and 95 per cent of the world's hand woven clothes.

(*Source*: Annual report 2017-18, Ministry of Textiles)

Kerala Scenario

The handloom sector in Kerala stands second to the coir sector in providing employment among the traditional industries of the State. The handloom industry is mainly concentrated in Thiruvananthapuram and Kannur Districts and in some parts of Kozhikode, Palakkad, Thrissur, Eranakulum, Kollam and Kasaragod Districts. The Industry is dominated by the co-operative sector covering 98 per cent of total looms. The remaining 2 per cent of handlooms units is owned by industrial entrepreneurs. The co-operative sector consists of factory type and cottage type societies. There were 611 registered primary Handloom Weavers Co-operative Societies (PHWCS) in the State of which 172 are factory type and 139 are cottage type societies. Out of 611 registered handloom weavers co-operatives, 406 were working.

The major varieties produced in the handloom sector of the State are dhotis, furnishing material, bed sheets, shirting, saree and lungi. Considering the traditional value and heritage, the following products of the State are registered under the Geo Indication Act of India.

1. Balaramapuram Sarees and Fine cotton Fabrics
2. Kasaragod Sarees
3. Kuthampully Sarees
4. Chendamangalam Dhoti
5. Cannannore Home Furnishings

Directorate of Handlooms and Textiles and Agencies in Handloom Sector

The Directorate of Handlooms and Textiles, Kerala has the overall responsibility to support the areas of infrastructure, marketing, human resource development, conservation and preservation of traditional skills and products, finance, design input, raw material supply, modernisation, welfare programmes, price stability to equip the segment to compete with the global environment.

Kerala State Handloom Weaver's Co-operative Society (HANTEX)

HANTEX was registered in 1961, as the apex body of handloom co-operatives established for distribution of required inputs to primary co-operative societies. It is involved in the procurement, of high quality yarn and raw materials for societies, marketing of goods, exploring new business opportunities and promoting handloom products through exports. Currently, HANTEX comprises 518 primary co-operative societies as members. Out of this, 180 are engaged in production and

procurement processes with most modern infrastructure to produce hand crafted fabrics, garments, furnishings, made-ups, sarees and traditional wears in tune and harmony with eco-friendly norms for internal and export market. Hantex collects the yarn, chemicals and dyes from NHDC with Government subsidy and distribute among the members.

Currently, there are 92 sales outlets and 4 regional offices to coordinate the activities in Kerala. All the production, collection activities are regulated through the 7 production centres. The processing house, garment unit, weaving factories and pattern weaving factories are directly controlled and managed by HANTEX.

HANTEX achieved a sale of ₹36 crore in 2017-18. HANTEX distributed materials worth ₹11.98 crore and yarn worth ₹2.35 crore for various Government departments. The accumulated loss of Hantex in 2017-18 is ₹4.4 crore. During the recent floods the HANTEX showrooms at Aluva, Moovattupuzha, Ranni, Pandalam, Pathanamthitta, Kozhencherry, Chalakkudy, were destroyed and are to be renovated. Through the 'School Uniform Scheme', HANTEX distributed 7,70,515.50 meters of materials to 893 schools. In order to promote handloom products, HANTEX introduced E-card system to give handloom products to Government and semi Government employees on credit basis. Details of HANTEX are given in Appendix 3.32.

Co-operative Sector

The co-operative sector consists of factory type and cottage type societies. The number of registered primary handloom weavers co-operative societies in the State in 2017-18 is 611 as against 625 in 2016-17. Of this, 185 are factory type and 439 are cottage type societies. Of these 611 societies, 406 are in working condition in 2017-18. The number of factory type co-operative societies functioning at present is 98 (16.04 per cent) and cottage type societies is 308. Details are given in Appendix 3.33.

Kerala State Handloom Development Corporation (Hanveev)

Hanveev, wasincorporated in 1968, for the welfare and development of traditional weavers in the unorganised sector. It is engaged in the manufacturing and marketing of wide range of handloom products. It is an agency functioning for the upliftment of traditional handloom weavers, providing continuous employment ensuring statutory benefits. At present, Hanveev has 49 own showrooms, 5 exclusive agency showrooms and 34 production centres. In 2016-17, sales turnover of Hanveev was ₹1558.87 lakh, increased to ₹1,837.86 lakh, in 2017-18. The accumulated loss was ₹8,454.81 lakh in 2016-17, increased to ₹8,708.07 lakh (provisional) in 2017-18. Details of Hanveev is given in Appendix 3.34 and 3.35.

Indian Institute of Handloom Technology (IIHT) Kannur

Indian Institute of Handloom Technology is the nodal agency in the State for giving input of science and technology to the traditional handloom textile industry. The Institute was established in 1987 in the name of Institute of Handloom and Textile Technology (IHTT). Now, the INTTs is amalgamated to the IIHT which is working on the guidelines of Indian Institute of Handloom Technologies (IIHTs), Ministry of Textiles and Govt. of India.

Performance of the Handloom Sector

The total Plan outlay and expenditure in Handloom sector in the Annual Plan 2017-18 was ₹4,008 lakh and ₹4,670.81 lakh (116.54 per cent) respectively. The total outlay provided in the Annual Plan 2018-19 is ₹3,972 lakh and the expenditure up to October 2018 was ₹986.9 lakh (21.13 per cent). Outlay and expenditure for major schemes in the Annual Plan 2017-18 and 2018-19 is given in Table 3.9.

Physical Analysis of Major Schemes in the Handloom Sector in 2017-18

1. **Modernisation of handloom co-operative societies and promotion of value added products**
   Assistance is given for producing innovative, value added products, modernisation of pre loom and post loom facilities to develop brand equity, improving marketing skills of persons working in show rooms and renovation of show rooms.
   In 2017-18, assistance given for work shed renovation of 7 PHWCS, 224 weavers, assistance to dye house modernisation of 6 PHWCS.

2. **Skill upgradation training for handloom weavers**
   Objective of this scheme is to develop inherent artistic skills of the traditional weavers to develop unique designs and value added and diversified handloom products. Skill development training given for talented weavers in 2017-18. Total 8 designers were appointed temporarily.

3. **Capital support schemes**
   Under this scheme, various programmes for infrastructure development were undertaken in PHWCS and apex societies. Also, technology up gradation, revitalisation and development of favourable working condition in the units are also taken up. In 2017-18 share participation assistance was given to 21 PHWCS and HANTEX and Hanveev.

4. **Incentive schemes**
   Large number of weavers benefited through different incentive schemes such as Weavers/ Allied Workers Motivation Programme, Income Support Scheme, 3223 weavers benefited through weavers/allied weavers motivation programme. Contributory Thrift Fund Scheme and Group insurance scheme. 3223 weavers benefited through weavers/ allied workers motivation programme. 596 weavers were benefited under Contributory Thrift Fund Scheme and 10,000 weavers covered under Group insurance scheme.

5. **Marketing and trade promotion schemes**
   As part of this scheme, assistance was given for renovation of show rooms and for conducting Handloom Expos.

Overall Performance of Handloom Industry in Kerala

An amount of ₹1,828.41 lakh was provided to Handloom Sector by way of loan and grant in 2017-18. The details are shown in Appendix 3.36. The total value of production in the sector showed a decrease of 73 per cent from ₹233.58

Table 3.9 Outlay and expenditure for major schemes in handloom sector, in ₹ lakh

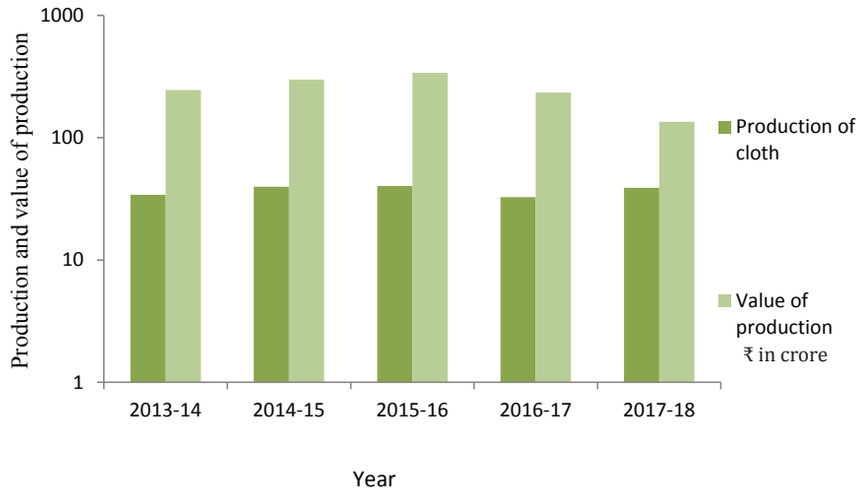
Sl. No	Schemes	Annual Plan 2017-18			Annual Plan 2018-19		
		Outlay	Exp.	%	Outlay	Exp.	%
1	Modernisation of Handloom co-operative societies and promotion of value added products	1,000	254.9	25.49	1,200	135.2	11.27
2	Training and Skill Development Programme	225	204.74	95	200	0.35	15
3	Capital Support Schemes	450	2,430.9*	540.2	450	196.74	43.72
4	Incentive and Welfare Schemes	106	96.2	90.75	118	69.5	58.89
5	Marketing and Export Promotion Scheme	400	262.8	65.7	620	78.01	12.58

Note: *Expenditure includes Supplementary Demand for Grants (SDGs)
Source: Plan Space

crore in 2016-17 to ₹134.96 crore in 2017-18. The total number of weavers employed declined from 20,378 in 2016-17 to 14,171 in 2017-18. The number of women employed decreased from 13,780 in 2016-17 to 11,553 in 2017-18. The total employment generated in the sector also decreased from 65.34 lakh person days in 2016-17 to 55.46 lakh person days in 2017-18. Total turnover for the handloom industry was ₹78.94 crore, in 2016-17 increased to ₹93.8 crore in 2017-18, which includes money, man, and material costs. Details regarding production in handloom industry in Kerala is given in Appendix 3.37 and in Figure 3.10. Figure 3.11 shows employment generated (lakh person days) in the handloom sector.

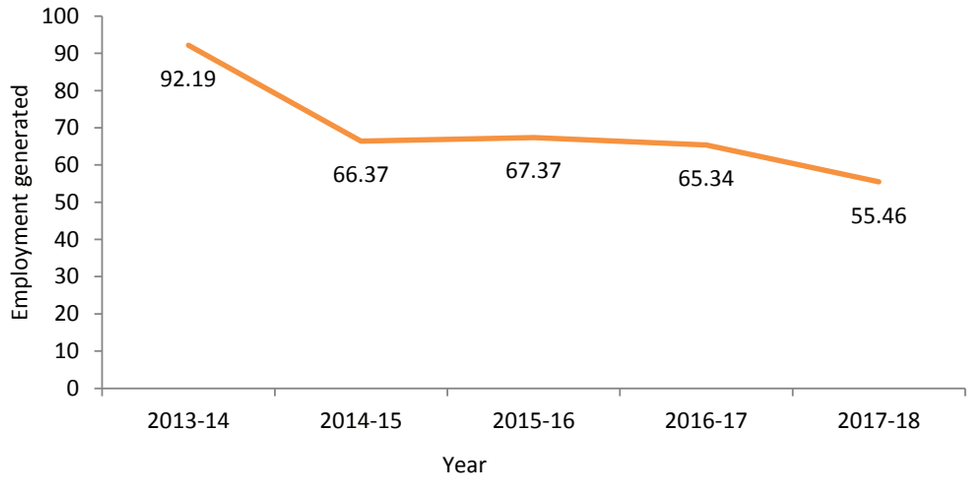
There was an increase in quantity and value of production in the handloom sector from 2013-14 to 2015-16, and a decline in 2016-17 and 2017-

Figure 3.10 Production and value of production in the handloom sector



Source: Directorate of Handloom and Textiles, Govt. of Kerala

Figure 3.11 Employment generated in the handloom sector



Source: Directorate of Handloom and Textiles, GoK

18. Employment increased in 2013-14. But in 2014-15 employment decreased and showed a slight increase in 2015-16, After that the employment showed a decreasing trend.

The challenges faced by the handloom sector include the shortage of workers mainly due to low wages in this sector, low productivity, lack of technological interventions, competition from power looms and competition from textile units from other States. Other issues include the lack of product diversification in accordance with new trends, shortage of working capital and fluctuations in prices of hank yarn and cotton.

The strengths of the handloom sector are in its ability to produce intricate woven fabric, its versatility and wide variety, diverse design base and ability to switch to new designs. Workers in the handloom sector have specific skills. The sector makes use of eco-friendly technologies and processes.

Textile Sector-Spinning and Weaving Mills

The textile industry in Kerala is organised into public sector units, co-operatives, and units that are jointly owned by public and co-operative sectors. There are 17 spinning mills functioning in the public/co-operative sector under the State Government

Kerala State Textile Corporation Limited (KSTC)

KSTC, a GoK undertaking, was incorporated in 1972 with the main objective of setting up and running textile mills in the State. The Corporation has four mills and one research and testing centre. Mills under KSTC are, Prabhuram mills, Kottayam Textiles, Edarikkode Textiles, and Malabar Spinning and Weaving Mills. Two other units, Sitaram Textiles and Trivandrum Spinning Mills Limited are now under the administrative control of KSTC. In addition to the above, Corporation has under its fold a research and testing division (CARDT – Centre for Applied Research and Development in Textiles), located at Balaramapuram, Thiruvananthapuram.

Kerala State Co-operative Textile Federation Limited (TEXFED)

TEXFED was established in 1992 as a body to plan, assist and supervise the setting up and management of co-operative textile units in Kerala. TEXFED is the apex body of co-operative spinning mills and Integrated Powerloom Co-operative Societies in the State. It integrates all the segments of the textile industry including spinning, weaving, processing and garmenting. There are seven co-operative spinning mills as members of TEXFED. Five of them are administered by the State Government and two by elected boards.

Mills involved in spinning and weaving in Kerala have been facing problems of both demand and supply. Out-dated machinery, stiff competition, high cost of raw material, low productivity, decreasing profits and lack of working capital are also issues of concern for the textile sector in Kerala. A majority of textile spinning mills in the State are over 25 years old and they use obsolete technologies and equipment. Partial modernisation was attempted in certain units, but it was not at par with the industry standards.

Modernisation of Co-operative Spinning Mills

The textile sector in Kerala is spread over in public sector as well as in co-operative sector and there exists 13 spinning mills jointly in the public/co-operative sector. Kerala Co-operative Textile Federation (TEXFED) has 7 co-operative spinning mills in its member fold. 5 of them are administered by the Government and two have elected board. Due to various reasons, consequent to globalisation, spinning industry was facing deep crisis and the mills in co-operative sector slipped into huge accumulated losses. From 2006 onwards the Government interfered in the day to day activities of these mills and turned around the units in a big way enforcing financial as well as technical discipline.

The main handicaps faced by the mills were the lack of working capital and availability of raw material. The Government through a centralised purchase system, procured cotton for the entire textile sector through professionally constituted committee comprising RIAB, TEXFED, and KSTC and Managing Directors of spinning mills. Also the sale of yarn carried out through depot system is being monitored by the same committee. Due to this, raw material cost was brought down heavily and sufficient savings in this area accelerated revenue and turn over.

Majority of textile spinning mills in the State have a life span of 25 years. Though partial modernisation has been done in certain units, it was not at par with the industry standards. Government constituted an expert committee to study the crisis prevailing in the mills due to obsolete technology and the committee recommended for modernisation of 5 cooperative spinning mills in the State.

Government considered the modernisation of Malappuram co-operative spinning mills, Cannannore cooperative spinning mills, PRICO and Quilon cooperative spinning mills. First phase of Malappuram and Kannur has been completed. Second phase of modernisation of the mills started. In 2017-18 for the renovation of spinning mills under TEXFED, an amount of ₹2,000 lakh was provided. Government is considering the modernisation/expansion of Thrissur, Alleppey and Quilon co-operative spinning mills with NCDC loan assistance. In 2017-18, an amount of ₹700 lakh has been provided for Mala, PRICO and Alleppey Co-operative spinning mills and the whole amount has been utilised.

Powerloom Industry

Per capita consumption of cloth in Kerala is substantially higher than the national average. Though the State has infrastructure for production of yarn, the State lacks weaving initiatives. To promote this, the four integrated powerloom co-operative societies in the State have been set up by providing budgetary support. In 2017-18 an amount of ₹346.50 lakh had been

Box 3.7 School uniform project

In order to rejuvenate the handloom sector, provide more wages and to create employment opportunities to the handloom weavers and allied workers, 'Handloom School Uniform Project' was introduced in 2016-17

Phase I
In the academic year 2017-18 as first phase, 92,69,922.70 meters of uniform was distributed to 2,689 Govt. school from class I to V. An amount of ₹21.57 crore was expended as phase I

Phase II
Additional quantity of 33,052.63 meters of uniform distributed to 1,904 Government schools in 2017-18 expended an amount of ₹75.01 lakh

Phase III
Till May 31, 2018, 35.26 lakh meters of fabric was weaved and 4,605 weavers participated in weaving. 20,09,677.05 meters of handloom uniform was distributed to 3,578 Govt. schools from class I to VII through 163 distribution centres. ₹46.82 crore expended for the production and distribution of 20,09,677.05 meters of handloom school uniforms. By the end of Phase III, 4,605 looms actively involved and distributed 27.69 crore as wages.

Source: Handloom and Textiles Directorate

provided for modernisation of powerloom. After the modernisation of looms, productivity has increased. Earlier two looms were attended by one weaver. After modernisation 8 looms could be attended by one weaver. Hence productivity and wages of the weavers has increased. All the powerloom societies are working profitably.

Currently there are 46 powerloom co-operative societies in the State. The co-operative sector owns 860 looms out of a total of 874 power looms in the State. Total value of production in the powerloom industry in 2017-18 was ₹813.28 lakh and productivity was 6,482.84 metre/ loom. Total turnover in the period was ₹276.28 crore. The year-wise details of production and productivity under powerloom industry for the period from 2013-14 to 2017-18 is given in Appendix 3.38.

Problems related to marketing and lack of finance, raw material, technological up gradation, fabric processing facilities, and awareness among the weavers about the facilities are some of the problems faced by the powerloom industry.

Conclusion

Several measures are needed to modernise the textile sector. Technology needs to be upgraded to ensure improvements in product quality and productivity. The sector has to be developed in such a way that the workers receive decent incomes, other assistance and social security benefits. The handloom co-operative societies should be reconstituted. The handloom sector should explore the possibility of introducing Kerala-specific brands and modern marketing strategies, including online marketing options. There should be a continuous effort to bring in improvements in the products with assistance from designers and with an eye on the changes in the nature of the market.

Khadi and Village Industries

Khadi and Village Industries Sector in India

Khadi and village industries have the potential to create employment for rural artisans with a very low capital investment. It also had a pre-eminent position in the nationalist struggles against the imperial British rule. Khadi and Village Industries Commission (KVIC), GoI is a statutory organisation having the role of promoting the production and sale of Khadi. There is a total of 2,375 khadi institutions in the country that employ a total of 4.56 lakh artisans engaged in production activities under KVIC, a majority of which (over 70 per cent) are women.

Khadi and village Industries production and sales have grown consistently over the recent years at the all India level. From a production value of ₹27,669.4 crore in 2014-15, it rose to ₹42,631.09 crore in 2016-17 and ₹45,725.69 crore in 2017-18 (up to December 31, 2017). Similarly, sales of khadi and village Industries have shown growth from ₹33,135.9 crore in 2014-15 to ₹52,138.21 crore in 2016-17 and ₹55,750.40 crore in 2017-18. KVIC has provided cumulative employment to 137.79 lakh persons (up to December 31, 2017) at the national level.

(*Source*: Annual Report: 2017-18, Govt. of India, Ministry of Micro, Small and Medium Enterprises).

Kerala's share in production, sales and employment in India has been smaller than Kerala's share in India's population (see Table 3.10).

Kerala Khadi and Village Industries Board (KKVIB)

KKVIB is a statutory body vested with the responsibility of organising, developing and promoting khadi and village Industries in Kerala. In 2017-18, fully owned units of KKIVB in Kerala produced goods valued at ₹179.08 crore. The Board had implemented various schemes under State Plan including Special Employment

Table 3.10 Production, sales and employment generation in khadi and village industries sector

Year	Production (₹ crore)		State Share	Sales (₹ crore)		State Share	Cumulative Employment (in lakh Person)		State Share
	National	Kerala	%	National	Kerala	%	National	Kerala	%
1	2	3	4	5	6	7	8	9	10
2014-15	27,569.40	136.4	0.5	33,135.90	170	0.5	134.3	1.1	0.8
2015-16	34,490.20	160.4	0.5	41,894.60	161.3	0.4	137.8	1.1	0.8
2016-17	42,631.09	172.08	0.5	52,138.21	163.76	0.4	136.4	1.06	0.8
2017-18 (up to 31.12.2017)	45,725.69	179.08	0.4	55,750.40	170.8	0.3	137.79	1.06	0.8

Source: Annual Report 2017-18, Ministry of Micro, Small and Medium Enterprises,GoI and Khadi and Village Industries Board, Kerala

Generation Programme (SEGP) (EnteGramam), Prime Minister's Employment Generation Programme (PMEGP) of KVIC. The Board had conducted District level awareness camp and exhibitions, issued notices and printed materials regarding the implementation of the schemes under 'EnteGramam' and PMEGP schemes.

Total employment in khadi and village Industries in Kerala declined from 1.1 lakh in 2015-16 to 1.06 lakh in 2016-17. It remained at 1.06 lakh in 2017-18 (up to December 31, 2017). Production increased during the period, but sales of the sector within the State showed a downward trend. Introduction of minimum wages, implementation of the support and production incentives etc. helped the growth in khadi sector. Modernisation of production and introduction of improved implements have helped the growth in khadi Sector. The allocation of funds from various sources to KVIB and the expenditure incurred by the Board during 2016-17 and 2017-18 is shown in Table 3.11.

Budget 2018-19

The outlay provided in the Annual Plan 2018-19, for the sector is ₹1,860.00 lakh and the expenditure up to August 31, 2018 is ₹187.10 lakh (10.06 per cent). The number of schemes

Table 3.11 Fund allocated to and expenditure incurred by Khadi and Village Industries Board in Kerala, in ₹ lakh

Particulars	2016-17		2017-18	
	Receipt	Expenditure	Receipt	Expenditure
State Government Grant – PLAN				
1. Administrative Expenses (Budget provision)	1,399.00	1,010.00	1,183.00	1,183.00
2. Income Support Scheme (Fund through DIC)	2,964.50	2,964.50	2,450.00	2,450.00
State Government Grant –Non-Plan				
1. Non-Plan – Administrative Expenses	3,493.00	3,845.10	4,016.72	4,792.08
2. Non-Plan– Special Rebate	785	785	900+1,050	1,950.00
KVIC Grant				
1. PMEGP– Margin Money	848	994.7	700.12	360.69
2. Grant for District Awareness Camps and District Level Exhibition of PMEGP	2.2	2.2	0	0
3. Grant for stationery, Publicity, TA, Expense for the Scheme PMEGP	2.5	2.5	0	0

Source: Khadi and Village Industries Board, GoK.

implemented in the sector is 12, which include a new scheme 'Mini Cotton Processing Unit at Kollam' (Table 3.12).

Income Support Scheme

In 2017-18, the State Government had provided ₹24.50 crore under income support scheme. The Board has implemented the minimum wages by disbursing it to 13,600 Khadi artisans. Utilising the amount, the Board has implemented the minimum wages ordered by the Government by disbursing to 13,600 numbers of artisans in the Khadi sector.

Kerala-Post Disaster Needs Assessment

Due to Kerala floods, buildings of khadi production centres under KVIB were severely damaged. Charkhas and looms, furniture and fittings with stock were also damaged. The damages mainly happened to buildings and implements. Six khadi showrooms were damaged. Showroom, furniture and fittings along with the stock were damaged and have suffered a loss of ₹108.11 lakh production centres of KKVIB, Charkhas and looms, sliver etc. were also damaged. Due to the above damages, 540 khadi artisans lost their employment. Some sales outlets in the Districts of Pathanamthitta, Ernakulam, Alappuzha and Palakkad were severely damaged. The above showrooms had high marketing potential and were earning high profit for the Board. Units occupied by the entrepreneurs financed by KVIB under SEGP, were damaged in the floods. Fixed assets and equipment's with stock were also ruined.

Departmental Interventions

One time working capital assistance of ₹10 crore lakh is needed for reviving the sector.

Table 3.12 Major scheme-wise outlay, expenditure and physical outcomes in 2018-19, in ₹ lakh

Sl. No.	Name of Scheme	Outlay	Expen diture	Physical outcomes
1	Expansion and Modernisation of Sliver Project at Etukudukka in Kannur District	100	0	The scheme intends to enhance the production of sliver products by developing the existing sliver project at Etukudukka in Kannur District. It aims to supply quality sliver at affordable price required for the spinners in the departmental production centres. The scheme includes purchase of machinery, procurement of raw materials and provision of infrastructure facilities etc. 2,06,986 kg of sliver valuing ₹3.93 crore was produced in the plant in 2017-18.
2	Production/Festival Incentive to Khadi Spinners and Weavers	500	187.1	The scheme aims to provide production incentives to spinners and weavers in the Khadi sector. In addition to this, festival allowance is also given to khadi artisans during onam season. The production incentive to spinners is @60 paise per hank produced and to weavers is @ 180 paise per hank consumed.
3	Establishment and Strengthening of Departmental Village Industries Units	70	0	The scheme is intended to strengthen the activities of handmade paper unit, studio pottery unit, oil units and ready made garments units.
4	Special Employment Generation Programme.	280	0	It proposes to provide margin money subsidy to small entrepreneurs and traditional artisans for bank linked projects (based on appraisal of the project by competent authority).
5	Development of Bee keeping Industry	17	0	This scheme aims to promote bee-keeping activities by supplying bee boxes with colony at subsidised rate to motivate bee keepers. It also imparts training in bee keeping. The scheme also envisages establishing 2 permanent bee keeping centres with a bee nursery in two Districts in 2018-19.
6	KhadiGramam Programme	432	0	This programme aims at providing 3000 charkhas and 2000 looms at household levels which would create employment opportunities for 5,000 people in five years.

Source: KKVIB and PlanSpace

Box 3.8 Major schemes and physical achievements in 2017-18

Sl. No	Scheme	Physical achievements
1	Expansion and Modernisation of Sliver Project at Etukudukka in Kannur District	· Electrification, compound wall and building maintenance works were completed at Ettukudukka.
2	Information and Publicity and Training	Sales increased due to product publicity and participated in IITF New Delhi and conducted Gandhijayanthi quiz
		· Provided training to 140 employees and 61 khadi workers, fund transferred to various District offices, Process of selecting entrepreneurs by task force committee is going on.
3	Computerisation of Khadi board Offices	· Purchased 21 computers and developed software.
4	Development and Strengthening of Departmental Village Industries	· Maintenance work done at honey processing units Neryamangalam and Pathanamthitta.
		· Established Bee Nursery and permanent training centre at Kannur.
		· Purchased equipment's and maintenance of building done at Readymade Garment Unit, Kollam.
		· Purchased powerghani for oil unit Kozhikode.
5	Financial Assistance Khadi Co-operatives	· Provided financial assistance to 4 Khadi Co-operative Societies.
6	Production/Festival incentives to Khadi Spinners and Weavers	· Disbursed production/festival incentive to 12789 Khadi artisans.
7	Strengthening and Modernisation of Departmental Khadi Production Centres	· Revitalisation done at 37 departmental khadi production centres and work sheds.
8	KhadiGramam Programme	· Purchased 250 charkas and 50 looms, repaired 100 charkas and set up spare parts go down under Khadi Gramam programme.

Source: PlanSpace

Steps have been taken to modernise the damaged sales outlets and godowns of the Khadi Board. Strengthening and Modernisation of departmental khadi production centres and SEGP schemes can be linked for reconstructing the damaged Khadi sector. Khadi Board may be inducted to the web portal "VyvasayaJalakam", a geo portal, run by the Industries and Commerce Department, to gather data about industrial ventures and about the problems that they face in the State.

(*Source*: Khadi and Village Industries Board).

Village Industries

Goods worth ₹517.80 crore has been produced through the aided units of the KVIB and goods worth ₹575.55 crore has been sold including the closing stock of previous year, there by providing employment to 1,34,846 persons. It is observed that the productivity per person is much higher in KVIB aided units than in KVIB departmental units. The production, sales and wages paid and employment generated during 2016-17 and 2017-18 is provided in Appendix 3.39. District-wise details of departmental sales outlets and sales under Khadi and Village Board for 2016-17and 2017-18 is provided in Appendix 3.40.

Prime Minister's Employment Generation Programme (PMEGP)

PMEGP has been launched for generating employment opportunities through establishment of micro-enterprises in rural

as well as urban areas. Under this Scheme the Government subsidy will be distributed to the beneficiaries/entrepreneurs in their bank accounts. In 2017-18, 139 projects were taken up and ₹360.67 lakh was disbursed as margin money grant and 1101 employment opportunities were created. The small scale entrepreneurs and traditional labourers, who did not get the benefits under PMEGP, were put under Special Employment Generation Programme (SEGP) scheme, in which financial support has been given to the small scale entrepreneurs and traditional labourers. KVIB implemented the scheme as 'EnteGramam' in 2017-18. The total project cost for the programme in 2017-18 was ₹1,294.23 lakh. The programme helped the creation of 461 units and generation of employment for 1,440 people. The details of District-wise achievement under self-employment generation programme in 2017-18 is provided in Appendix 3.41.

Marketing in 2017-18

The KVIB has 209 sales outlets for khadi and village goods. (Khadi Grama Soubhagya 44, Khadi Soubhagya 53, Grama Soubhagya (GS Depot) 87and mobile sales van 3). The Board has conducted Onam Melas during the Onam in 2017. Sales through this in 2017 was ₹33.49 crore against the target for ₹36.50 crore. The State level Onam Melas 2018 was held in Thiruvananthapuram and the sales target was ₹69.30 crore. District-wise sales achievements for the year 2017-18 (Up to March 31, 2018) are given in Appendix 3.42.

Constraints and Strategies of Khadi and Village Industry

In khadi sector, no power is used for production. This is one of the major constraints in the industry which lead to low productivity, which in turn results in low wages to artisans. Research and development activities need to be undertaken for increasing productivity of traditional charkhas and looms. KKVIB is taking all efforts for increasing productivity in the sector. Another important problem is the market potential of the products in the traditional industry is constrained by their quality. The Khadi Board has given much importance and is taking good effort to strengthen the market output of khadi and village industries Products.

Traditional village industry needs special attention as it provides employment to a large number of people in rural areas. Board has a significant role in creating more employment opportunities to the new entrepreneurs through the PMEGP and its own Special Employment Generation Scheme "EnteGramam".

Way Forward

To promote niche products under khadi and village industries, State Government is planning to introduce innovative programmes by engaging prominent designers or design institutions. To encourage and sustain the sector, automation will be implemented in line with the principles of khadi, so as to alleviate the drudgery and increase productivity. Special branding will be introduced to ensure quality of Khadi products. Schemes will be formulated in association with LGs for promoting the sector.

Coir Industry

India accounts for more than two-thirds of the worldwide production of coir and coir products. But not more than 28 per cent of the coconut husks produced in the country are utilised in the coir industry, the remaining being used as fuel or as a waste material. The development of the coir sector is the top agenda of sustainable development as it creates environment friendly products. Their application for domestic use along with the usage in housing, building, agriculture, horticulture, and infrastructure production are significant.

(*Source*: Coir Board Report on 'Coir industry in India').

Coir Industry is a major traditional industry of Kerala in terms of the employment generation and foreign exchange earnings. Kerala accounts

for 61 per cent of coconut production and about 85 per cent coir products in India. (*Source*: Status of Coir Industry in India- study by Centre for Market Research and Social Development, New Delhi for Coir Board, Cochin). The availability of coconut husks, the natural retting facilities present in the lakes, lagoons and backwaters and the traditional expertise of the people were the reasons for the concentration and the growth of the industry in the State, especially in the coastal areas. This agro-based rural industry provides subsistence to around 2 lakh families in the coastal belt of Kerala. Estimates suggest that 3.75 lakh persons are employed in the coir sector, both in the co-operative and private sectors, of which 80 per cent are women. This highlights the importance of this industry for Kerala's economy.

Directorate of Coir Development and Agencies in Coir Sector

The development activities and programmes of the coir sector in Kerala are co-ordinated by the Directorate of Coir Development, GoK. The Directorate also acts as a facilitator for the promotion of coir industry in the State. Kerala State Coir Corporation, Foam Mattings (India) Ltd., COIRFED, National Coir Research and Management Institute (NCRMI), Kerala State Coir Machinery Manufacturing Company, Kerala State Coir Workers Welfare Fund Board are the important agencies functioning for the promotion of coir industry. Coir Board at Cochin is the arm of the Central Government for the development and promotion of the industry in the State.

Kerala State Co-operative Coir Marketing Federation (COIRFED)

COIRFED is the apex federation of primary coir co-operative societies spread all over Kerala. Its main objective is the procurement of the entire product of the member societies and marketing the same through its sales outlets throughout the country, thereby aiding employment growth and ensuring fair wages and better living conditions for the poor coir workers. At present, COIRFED has 47 showrooms and more than 100 retail outlets to sell the products and two factories engaged in the manufacture of value added products – one producing rubberised coir products and the other rubber backed coir mats. COIRFED also has 4 defibering units. In the financial year 2017-18, an amount of ₹51.97 lakh has been sanctioned for various projects of COIRFED (Appendix 3.43).

Co-operatives in Coir Sector

Coir co-operative societies play substantial role in collecting husk, defibering and producing varieties of coir products in Kerala. There are 1,190 co-operatives registered in the coir sector as on March 31, 2018 as against 1,002 in the previous year, thus, showing an increase of 188 numbers in 2017-18. Details of the coir co-operative societies are shown in Appendix 3.43. The activities of coir co-operative societies are shown in Appendix 3.44.

Kerala State Coir Corporation (KSCC)

KSCC was established in 1969 to cater the needs of more than 4000 small-scale coir manufacturers by providing them facilities for manufacturing and marketing. It has production facilities in its 3 units in Kerala. Establishment of one more unit in Adoor, is in progress. Corporation has vast infrastructure in terms of land and building and allied facilities like unique dye house, computer aided design facility and 10 show rooms across the country. It is the agency responsible for implementing Purchase Price Stabilisation Scheme (PPSS) in coir sector. Under the scheme, KSCC will directly procure coir products from small scale producers, mats and mattings co-operatives and alike, thereby avoiding middle men. In the financial year 2017-18, an amount of ₹169.15 lakh has been sanctioned for 2 projects of KSCC. The value of exports by the corporation has increased from ₹10.16 crore in 2016-17 to ₹11.31 crore in 2017-18. The total turnover of KSCC for 2017-18 is ₹11500 lakh. The profit during the same period is ₹150 lakh and the net loss is ₹165.82 lakh.

Foam Mattings (India) Limited (FOMIL)

FOMIL, which was established in the year 1979 is engaged in the production, manufacture and marketing of coir, jute and sisal products. FOMIL caters to the needs of domestic and international markets with a wide range of products – mattings, door mats, rugs, carpets, carmats, coir tiles, coir geo-textiles and a host of other environment friendly products. The authorised capital of the company is ₹550 lakh and the paid-up capital is ₹512.23 lakh. Company has state-of-the-art manufacturing facilities such as latex backing plant, modern dye house, fully automatic powerloom, semi-automatic looms, auxiliary facilities and an indigenous power source for uninterrupted production. The latex backing plant, which was imported from Denmark, is one of its kinds in India. The company has a modern dye house, powerloom and matting plant mainly to cater the needs of exporters. In the financial year 2017-18, an amount of ₹317.27 lakh has been sanctioned for proposals submitted by Foam Mattings. The value of exports by corporation have decreased from ₹ 5.64 crore to ₹ 1.88 crore in 2017-18.

There is an increase in matting plant production to 2,88,000 sq.m. compared to 1,22,678 sq.m in 2016-17. Income from domstic sale and dyeing and bleaching doubled to ₹966.83 and 205.83 lakh compared to 413.17 and ₹96.97 lakh. The turnover in 2017-18 is ₹106.54 lakh compared to the loss of ₹185.88 lakh in 2016-17.

New factory set up for the manufacture of coir composite board at a cost of ₹18 crore. and trial production started. Coir composite board is a wood substitute and is expected to revolutionise the coir sector.

National Coir Research and Management Institute (NCRMI)

NCRMI was set up in 1994 to strengthen the research and development activities in coir sector and enable the industry to produce more value added and new design products at a reasonable cost. For having competitive prices in order to have an upper hand in the domestic and in the international market. NCRMI has been conducting studies for the development of new coir technologies in collaboration with similar research organisations across the country and abroad. An amount of ₹444 lakh has been sanctioned for various projects of NCRMI in 2017-18.

Kerala State Coir Machinery Manufacturing Company Ltd. (KSCMMC), Alappuzha

KSCMMC has been set up in 2014 to manufacture machinery needed in coir sector in Kerala. Company provides electronic ratts, automated spinning machines, defibering machines, integrated coir processing unit,willowing machine and allied machines. The main aim of the company is the speedy mechanisation to overcome the present crisis ofcoir sector in the State. In the financial year 2017-18 an amount of ₹ 621 lakh has been allotted for various projects to be carried out by KSCMMC. The total turn over for the financial year 2017-18 is ₹5.67 crore including tax.

Central Coir Research Institute,GoI

CCRI established in 1959 at Kalavoor, Alappuzha District,is an important research centre of the Coir Board (Recognised by the Department of Science and Technology, GoI). It aims at conducting research investigations related to problems in extraction and processing of coir fibre into yarn and products covering improved methods of extraction of coir, processing of coir fibre and yarn, product betterment/ diversification, identification of prospective new areas, formulation of standards for coir products etc.

Performance of Schemes, Programmes in Coir Sector

The total outlay provided in the Annual Plan 2018-19 for the coir sector is ₹141.08 crore

and the expenditure incurred up to October 2018 is ₹74.76 crore (53 per cent) Outlay and expenditure for major schemes during Annual Plan 2017-18 and 2018-19 up to October 30, 2018 is given in Table 3.13.

1. Mechanisation and infrastructure development of coir industry

The scheme is for modernisation and revival of the infrastructural facilities of coir cooperatives. As part of the scheme, assistance given to 43 societies, FOMIL and COIRFED in 2017-18. 2,500 electronic ratts distributed to various societies, started DF units by Kudumbashree at Ammanappara, Kannur, having capacity to defibre 8000 husk daily, installed heavy duty DF machines at PCPCI, assistance given to 73 societies for husk collection programme.

2. Marketing, publicity and propaganda, trade exhibition and assistance for setting up showrooms

The scheme is for popularising and strengthening the various marketing activities in the sector. Conducted Coir Kerala, assistance given to KSCC for Coir carnival, assistance given to NCRMI for participating in Exhibitions, assistance to COIRFED for e-marketing and undertaken various promotional activities.

3. Production and marketing incentive

The scheme is for providing assistance to promote production, marketing and export of coir and coir products. An amount of ₹550 lakh has been sanctioned and released to 396 societies, promoted sustainable production, marketing and export of coir and coir products by the societies and facilitated the sale by PSUs.

4. Marketing Development Assistance

The scheme is for publicity, opening of new showrooms, renovation of existing outlets; go down, market study and market strategies. An amount of ₹12.80 crore has been released to 26 Coir Matt and Matting Societies, Coir Corporation, Foam mattings (India) Ltd and COIRFED for the year 2017-18.

5. Price Stabilisation Scheme for the sale of Coir and Coir Products

An amount of ₹4,870 lakh has been sanctioned and disbursed to COIRFED and KSCC for the procurement of coir and coir products in the financial year 2017-18 under Price

Table 3.13 Outlay and expenditure during 2017-18 and 2018-19 for the major schemes in coir sector, in ₹ lakh

Sl. No.	Schemes	Annul Plan 2017-18			Annual Plan 2018-19		
		Outlay	Exp.	%	Outlay	Exp. *	%
1	Mechanisation and Infrastructure Development of Coir Industry	4,500	1,650.70	36.7	6,077	1,370	22.5
2	Marketing, Publicity, Propaganda Trade Exhibitions and Assistance for Setting up of Showrooms	880	275.4	31.3	970	688.69	71
3	Price Fluctuation Fund	4,870	4,870	100	4,500	3,693.30	82.1.
4	Coir Geo Textiles Development Programme	30	21.1	70.3	100	0.5	5
5	Production and Marketing Incentive scheme	550	550	100	400	840.5	210.1
6	Market Development Assistance for the Sale of Coir and Coir Products	880	880	100	800	0	0

*expenditure up to 30.10.2018
Source: Plan Space

Stabilisation Scheme. One lakh quintal coir yarn and coir products worth ₹100 crore have been procured by these institutions.

6. Coir Geo Textile Programme

The department is promoting applications of coir geo textiles for soil and water conservation and as a mulching material for agricultural purpose and construction of roads. An amount of ₹21.1 lakh sanctioned and disbursed towards the projects being implemented through NCRMI in 2017-18. MOUs were signed with Local Governments during 'Coir Kerala' for the supply of 1,66,54,893 sq.m of Geo-textiles for use in MNREGA schemes' related works, which translates to about ₹110 crore.

Export of Coir and Coir Products

The export of coir and coir products from India in the year 2017-18 was 10,16,564 MT valued at 2,532.27 crore as against 9,57,045 MT valued at ₹2,281.64 crore during 2016-17. There is an increase of 6.2 per cent in quantity and 11 per cent in value over the export of previous year. Coir pith, coir fibre, tufted mat, handloom mat geo textiles, coir yarn, curled coir, handloom matting and rubberised coir constitutes the major export items of the industry in 2017-18. The details of export of coir and coir products during last 5 years by public sector undertakings/COIRFED in Kerala are given in Appendix 3.45 and Figure 3.12.

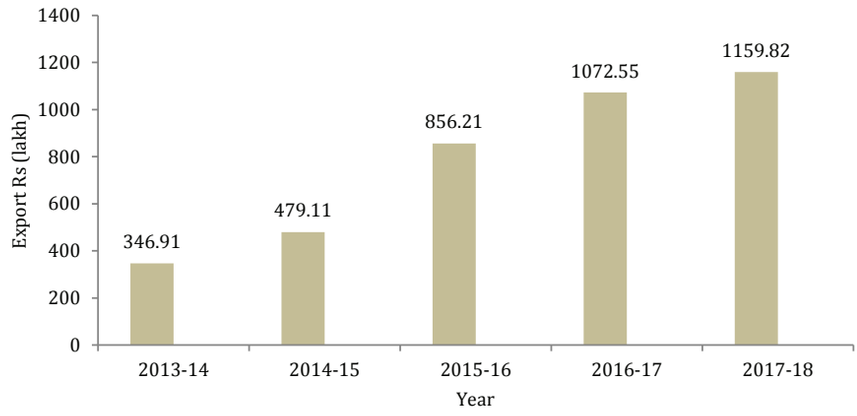
The export of coir and coir products of PSUs in Kerala shows a positive trend from 2013-14 to 2017-18. As compared to the previous year, export shows a hike of about 8.1 per cent in 2017-18. Figure 3.13 provides a comparison of the growth of exports PSUs of Kerala and at the national level.

Central Government Schemes in Coir Sector

Coir Udyami Yojana

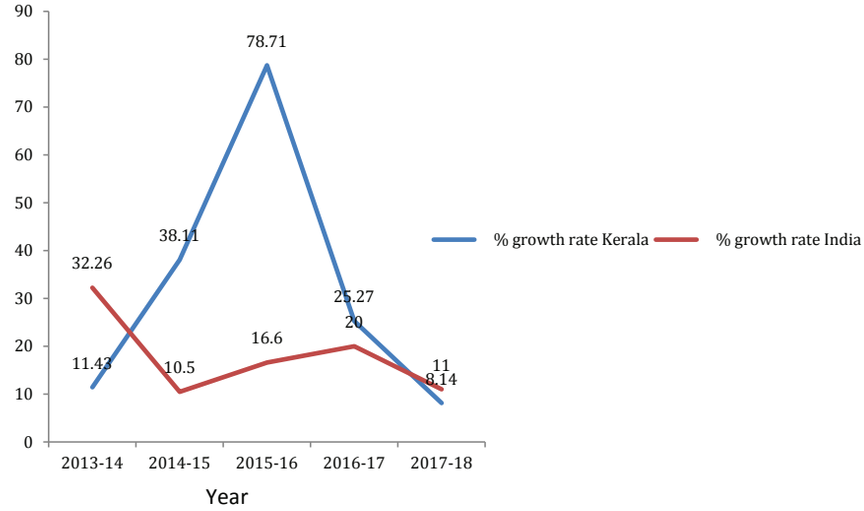
This is a credit linked subsidy scheme for setting up of coir units with project cost up to maximum of ₹10 lakh plus one cycle of working capital, which shall not exceed 25 per cent of the project cost. The aim of the scheme is the rejuvenation and modernisation and technology up gradation of coir industry. Individuals, Companies, Self Help Groups, Non-Governmental Organisations, and Institutions registered under Societies Registration Act 1860, production co-operative societies, joint liability groups and charitable trust can apply for the scheme.

Figure 3.12 Export of coir and coir products by State PSUs, 2013-14 to 2017-18, in lakh



Source: Directorate of Coir Development, GoK.

Figure 3.13 Growth rates of export of State PSUs and Central PSUs in coir sector, in percent



Source: Coir Board Statistics andDirectorate of Coir Development

Coir Vikas Yojana

Production infrastructure

Under this scheme, Coir Board extends financial assistance for setting up of coir units and modernisation of existing units. Subsidy to the tune of 25 per cent of the cost of equipment and other infrastructural facilities subject to a maximum of ₹6 lakh for setting up of defibering unit, ₹4 lakh for Automatic Spinning Unit and ₹5 lakh for others will be provided. For a composite or a multiple unit the maximum ceiling of assistance would be ₹9 lakh. In the case of modernisation of existing unit, the subsidy will be limited to 25 per cent of the cost of modernisation equipment and infrastructural facilities subject to a maximum of ₹2 lakh.

Skill upgradation

Under the scheme the Coir Board conducts various programmes like entrepreneurship development programme, awareness programme, workshop, seminar, exposure tour, etc. for attracting more entrepreneurs to start coir processing units. In order to create skilled man power required for the coir industry various value added products training programmes will be conducted.

Mahila Coir Yojana

Mahila Coir Yojana is a scheme exclusively for rural women artisans. Under the scheme, training is given in spinning of coir yarn/various coir processing activities to rural women in regions producing coir fibre in the country. Motorised ratts/motorised traditional ratts and other coir processing equipment will be distributed to women at 75 per cent subsidy subject to a maximum of ₹7,500 after completion of the 2 months training programme. During the training period, the women artisans are given stipend amounting ₹1,000 per month.

Conclusion

With the growing awareness about conservation of nature and with the rising demand for environmentally friendly products, coir and coir products will continue to occupy a pride of place. The coir industry in Kerala has been facing stiff competition, especially other Indian States. For the revival of this traditional sector, there is an urgent need to under take a twin strategy: one of complete modernisation of this sector and the

Box 3.9 Achievements through State schemes in coir industry in 2017-18

- ₹86.33 crore has been released as pension and matching grant to coir workers in 2017-18
- ₹12.50 crore has been sanctioned to 23,045 coir workers towards Income Support in 2017-18.
- A detailed proposal for availing a loan of₹200 crore was submitted to National Cooperative Development Corporation (NCDC), for enhancing the resources of the State for implementing the activities envisaged in the 13th Five-Year Plan.
- Assistance to the tune of ₹876 lakh was extended to 417 Societies to improve productivity and to enable enhanced employment to workers in the sector under Working Capital Support to Coir Societies.
- 127 sales outlets were set up throughout the State by KSCC, COIRFED and FOMIL during onam season offering a discount of 50 per cent on the price of coir products, the carnival, resulted in sales to the tune of ₹1,200 lakh.
- 'Managerial Subsidy Scheme' aimed at augmenting the salary of Secretaries and Business Managers of coir cooperative societies was launched. Assistance to the tune of ₹2,072 lakh released in 2017-18.
- Conducted 'Coir Kerala 2017'
- Disbursed ₹1.78 crore under Husk Collection Scheme.

Source: Coir Directorate

Box 3.10 Major developmental activities undertaken in coir sector in 2017-18

'Coir Kerala'

The Coir Development Department has organised 'Coir Kerala 2017' an international event on coir and natural fibre products at Alappuzha in October 2017. This fair witnessed participation of buyers from various countries apart from those within India. During the event, MOUs were signed with Local Government for the supply of 1,66,54,893 sq.m of Geo-textiles for use in MNREGA related works, which translates to about ₹110 crore. It also witnessed the launch of "2nd reorganisation of the Coir sector" aimed at increased mechanisation and diversification of the coir industry.

Husk Collection Scheme

The existing husk collection scheme was modified and a revolving fund to the tune of ₹2,00,000 can be sanctioned to societies for meeting the working capital requirement. The person who collects green and dry husk will be given a financial assistance as incentive. Additional wages of ₹160 for collecting 400 Green husks and ₹150 for collecting 600 Dry husks will be given, when the workers of D.F Mill is collecting husk for the society. Fibre subsidy ₹3 per kg is given for the fibre from Green husk and dry husk. In the financial year 2017-18, an amount of ₹ 1.78 crore has been sanctioned and disbursed for the scheme.

Source: Coir Directorate

other of offering social security protection for its workers. As part of this strategy, it is important to establish greater number of fibre extraction units, and adopting a decentralised pattern for the collection of husks, thereby reducing the sector's dependence on other States for raw material. The production of more value added products and the use of better marketing strategies are important. There is also a need to encourage the widespread use of coir geo textiles for soil and water protection. As coir industry is a source of livelihood for a large number of people who generally belong to the socio-economically weaker sections of the society, revival and sustenance of this industry is of great socio economic importance.

Cashew Industry

In the international market, cashew kernel production reached nearly 7,90,000 MT in 2017-18 i.e., increase of 32 per cent when compared to the average for the previous decade. India continues to be one of the largest producers of raw cashew nuts in the world. The other major countries producing raw cashew nut include the Western African countries of Ivory Coast, Guinea Bissau and Nigeria and Tanzania in Eastern Africa (Figure 3.14). According to the Statistics, the production of raw cashew nuts in India in 2017-18 was 8,17,045 MT as against the estimated production of 7,79,335 MT in 2016-17. The production of cashew nuts in selected countries from 2012 to 2017 is given in Table 3.14.

(*Source*: Statistical Year Book 2017, International Nuts and Dried Fruit council)

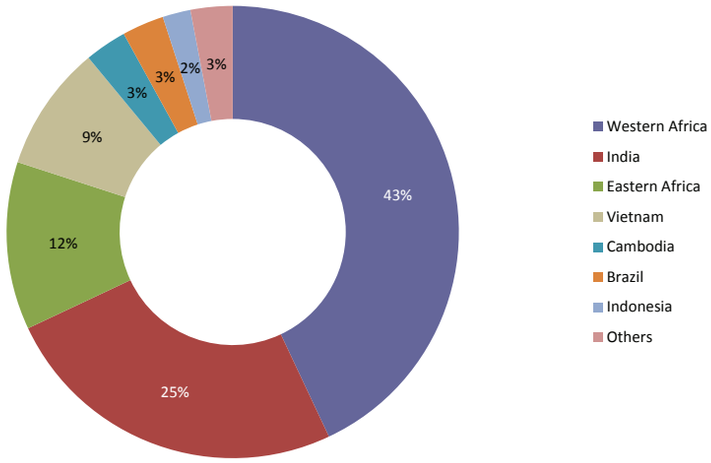
In India, the major cashew producing States are Kerala, Karnataka, Goa, and Maharashtra along west coast of the country, as well as Tamil Nadu, Andhra Pradesh, Orissa, West Bengal, Chhattisgarh, Gujarat, Jharkhand and the North Eastern States. Maharashtra has the largest share of production with 32.98 per cent in 2017-18 followed by Andhra Pradesh (14.31 per cent) Orissa (12.07 per cent) Karnataka (11 per cent) and Kerala (10.8 per cent) (*Source* DCCD). More than 3,900 cashew processing units are functioning in India under organised and unorganised sectors with a processing capacity of 16.43 lakh MT per year. The domestic availability of raw cashew nut is almost 50 per cent of the total demand and India has to depend on imports from Asia and the African countries to bridge the gap between demand and supply. (*Source*: DCCD).

Table 3.14 Production of cashew nut in selected countries, from 2012 to 2017, in metric tonnes

Countries	2012	2013	2014	2015	2016	2017
India	704,500	737,000	730,000	670,300	780,000	817,045
Ivory Coast	460,000	525,000	460,000	599,999	701,400	683,760
Vietnam	264,810	252,000	425,000	474,999	403,200	244,020
Guinea Bissau	176,400	158,000	220,000	224,998	235,200	254,100
Tanzania	130,000	126,000	120,000	147,840	226,800	234,360

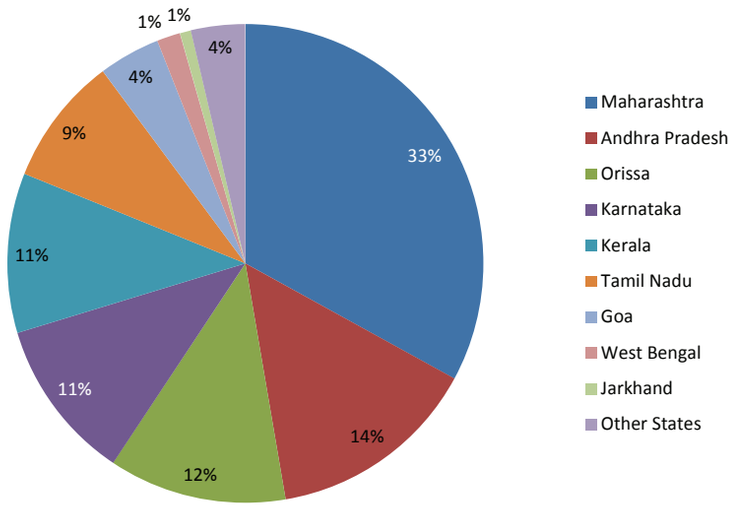
Source: Cashew Export Promotion Council, Kollam

Figure 3.14 Shares of selected countries in total cashew production in the world



Source: Statistical Year Book 2017-International nuts and Dried Fruit council

Figure 3.15 Shares of different States in raw cashew nuts production in India



Source: CEPCI, Kollam

The total raw cashew nuts imported to India in 2017-18 was 6,49,050 MT valued ₹8,850.03 crore against the import of 7,70,446 MT valued at ₹8839.42 crore in 2016-17. Figure 3.15 shows the shares of different States in India of the raw nut production.

According to DGCI&S figures (Source: CEPCI, Kollam), cashew kernels exported from India during 2016-17 and 2017-18 amounted to 82,302 MT and 84,352 MT respectively and they were valued at ₹5,168.78 and ₹5,870.97 crore. Compared to 2016-17, exports in 2017-18 increased by 2.5 per cent in quantity and increased by 13.6 per cent in value. The major international markets for cashew kernels processed in India in 2017-18 were, United Arab Emirates (UAE), United States of America (USA), Japan, Saudi Arabia, Netherlands, France, Korea Germany, Belgium, Kuwait, Spain. UAE continues to be the largest importer of cashew kernels from India and USA is the second largest. UAEs share is 21 per cent and that of USA is 16 per cent among the major markets. Netherlands, Japan, Saudi Arabia, Germany, Spain, France, Kuwait, UK, Singapore, Qatar, Greece, Turkey Canada. Malaysia and Trinidad recorded increase in the quantity of cashew kernels imported from India. But other major markets showed a decline. Foreign exchange earnings of India from cashew industry, for the period from 2008-09 to 2017-18 is given in Appendix 3.46.

In India, among the major raw cashew producing States, the production of and productivity in cashew cultivation is the highest in Maharashtra. The average productivity in cashew cultivation in Maharashtra is 1,262 kg/Ha. The State-wise estimated area and production of raw cashew nut in India is given in Appendix 3.47.

Cashew Industry – Kerala Scenario

Cashew processing is a highly labour intensive industry and has a long history of employing a large number of workers. One of the unique features of this industry is that an overwhelming majority (more than 90 per cent) of workers are women belonging to the economically and socially disadvantaged strata of society. The State of Kerala accounts for the highest proportion of cashew workers in India. The cashew processing industry in Kerala currently employs nearly 1.5 lakh workers. As per the data from Department

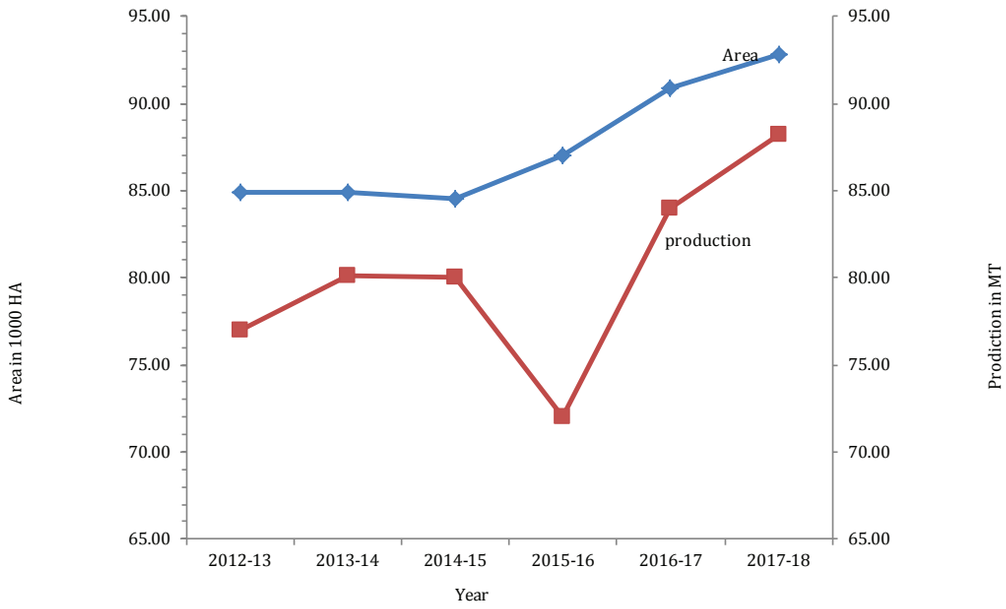
of Economics and Statistics (DES), the area under cashew cultivation in Kerala in 2017-18 is 41,661 ha and the productivity is 27,944 MT. As per the estimate of DCCD the total area under cashew cultivation in India is 92,810 HA, with a production of 88,180 MT and the productivity is 962 kg/HA.

In 2017-18, the export of cashew and cashew kernels through Cochin Port was 37,656 MT. compared to 38,668 MT. during the previous year, thus registering a negative growth of 2.62 per cent. There was no import of cashew nuts through Cochin Port during 2016-17 and 2017-18.

The production of cashew for the period from 2012-13 to 2017-18 are depicted in Figure 3.16.

In 2017-18, an amount of ₹49.50 crore has been provided to cashew sector and the expenditure was ₹135.65 crore. In 2018-19, an amount of ₹54.45 crore is provided to this sector and the expenditure as on October 31, 2018 is ₹61.11 crore. The agency-wise outlay provided and the expenditure to cashew sector during 2017-18 and 2018-19 are given in Table 3.15.

Figure 3.16 Area under cultivation and production of cashew in Kerala



Source: Directorate of Cashew nut and Cocoa Development; CEPCI

Table 3.15 Plan outlay and expenditure during 2017-18 and 2018-19, in ₹ crore

		2017-18			2018-19		
Sl. No.	Agency	Outlay	Expenditure	%	Outlay	Expenditure	%
1	KSCDC	40.6	105.6	260.1	21.5	34	158.1
2	CAPEX	2.4	29.15	1,172.9	8.5	17.61	207.2
3	KSACC	6.5	1.9	29.23	7.15	0	0
4	KCB	0	0	-	17.3	9.5	54.91
	Total	49.5	135.65	274	54.45	61.11	112.23

Source: Accounts and Plan Space, State Planning Board

Agencies in Cashew Processing in Kerala

Kerala State Cashew Development Corporation (KSCDC), Kerala State Cashew Workers Apex Co-operative society (CAPEX), are the two Government agencies involved in the processing of cashew in the State. Kerala State Agency for the Expansion of Cashew Cultivation (KSACC), Special Officer, Cashew, Cashew Export Promotion Council of India (CEPCI), Directorate of Cashew and Cocoa Development (DCCD) are the other agencies involved in cashew promotion.

Kerala State Cashew Development Corporation (KSCDC)

KSCDC was incorporated in the year 1969 as a Government company, mainly to protect the interests of workers and provide maximum employment with statutory benefits. To increase the production of indigenous raw nuts the corporation has started cashew plantation in the State. Corporation has also introduced various value added products of cashew in the market.

KSCDC has 30 factories with about 21,500 people as workers and staff. There was 139 working days in factories in 2017-18 as against 75 days in 2016-17. The corporation provided employment to 11,929 people in 2017-18 as against 10,769 in 2016-17. The total turnover achieved was ₹173.49 crore, which is 104.1 per cent higher than in the previous year of ₹84.99 crore. The Corporation incurred a loss of ₹30.45 crore, in 2017-18 which was 56.6 per cent higher than the losses it made in the previous year of ₹19.44 crore. The performance of KSCDC over the last 9 years is given in Appendix 3.48.

The major challenges faced by KSCDC are the paucity and high cost of raw cashew nuts, tough competition faced from India and international markets and lack of working capital. In order to overcome the issue of paucity of raw material, Government of Kerala has been actively promoting cashew cultivation in the State. To reduce the cost of production, in the value chain, the State Government formed Kerala Cashew Board to avoid middle men while importing raw nuts. In order to face the competition, KSCDC is planning to focus more on 'Direct to consumer' products which give them a better margin. To increase the productivity, KSCDC is modernising and upgrading its factory facilities, but the fund provided for this is being diverted as working capital.

Kerala State Cashew Workers Apex Industrial Co-operative Society Ltd. (CAPEX)

CAPEX was set up in 1984 to work as an apex society to take care of the operations of the 10 primary co-operative societies under Government of Kerala. It procures raw nuts, distribute the same to the primary societies and get them processed, and markets the kernels. These are done with the aim of bringing down the processing costs, providing continuous employment and fair wages to the workers. The combined employees' strength of the 10 CAPEX factories is above 5000. In the factories at Chengamanadu, Chathannoor, Eruva, Pathiyoor, more than 90 per cent of the workers are women and they belong to the backward classes. CAPEX purchases and imports raw cashew and exports the kernels in large quantities with the capacity to process 18,000 MT of raw cashew nuts per annum.

There was 178 working days in factories in 2017-18 as against 165 days in 2016-17. CAPEX has appointed 17 active franchisees functioning out of 70 franchisees to market CAPEX branded cashews. The total turnover achieved in 2017-18 was ₹86 crore (provisional), which was 87.40 per cent higher than in the previous year of ₹45.89 crore. The loss of the company is ₹9.82 crore in 2016-17, which is less, compared to the loss at ₹16.41 crore in 2015-16. The performance of CAPEX over the 5 years is given in Appendix 3.49.

At present in all the 10 factories, 490 cutting machines have been installed in shelling section

Table 3.16 Achievements of CAPEX for the last 6 years, in ₹ crore

Year	Domestic Sales	Export Sales	Total Turnover
2012-13	53.1	15.73	68.83
2013-14	42.31	21.17	63.48
2014-15	59.46	14.4	73.86
2015-16	59.07	14.65	73.72
2016-17	26.27	19.58	45.85
2017-18	81.55	5.32	86.87
Total	321.76	90.85	412.61

Source: CAPEX, Kollam

which is approximately 40 per cent of the total shelling volume. Earlier, 6 persons were engaged in processing one bag (i.e., 80 kg) of raw cashewnut which has been reduced to 4.5 persons per bag. All statutory benefits of the workers and staff have been fully remitted without arrears. The sale, export and turnover of CAPEX are given in Table 3.16.

CAPEX is facing shortage of working capital. Given limited access to bank finance, it fully depends on the Plan funds for its working capital needs. Another problem is the non-receipt of funds in time, which slows down the timely procurement of cashew nuts when seasons are on.

A minimum 13,000 MTs of raw nuts is necessary for giving continuous employment to the workers for more than 250 days. CAPEX is trying to ensure continuous supply of raw nuts through dynamic procurement strategies from domestic sources and through imports.

Kerala State Agency for the Expansion of Cashew Cultivation (KSACC)

Government of Kerala constituted KSACC in 2007 with a view to promoting the cultivation of cashew in the State and for the introduction of the high yielding cashew grafts. KSACC started the project 'Cultivation of Organic Cashew' and 'Establishment of raw nut bank' from 2017. In 2017-18, a total number of 2,11,645 grafts were distributed to farmers up to 31st August 2018. The recent flood and landslides affected 50 per cent of the total cashew plantation in the State. Also, the phytophthora fungus attacked the plants in the flood affected Districts. Despite these challenges, KSACC is targeting to expand the cashew cultivation to around 6,641 Ha by the end of 2018-19.

Kerala Cashew Board (KCB)

KCB was established by the State Government in 2017 as a special purpose vehicle as private limited company with an equity contribution of 49 per cent by the State Government and balance 51 per cent by KSCDC, CAPEX and similar other agencies and individuals to procure and import raw cashew and to supply to domestic processors at fair prices and to promote scientific cultivation of cashew. KCB started its commercial operation by importing 3,000 tonnes of RCN from the African country of Guinea-Bissau, which involved a business activity of ₹40 crore. KCB being the direct importer of raw cashew nuts, it gets a price advantage while placing orders for imports as no other middle men are involved in this process. The RCN availability in factories of KSCDC will provide continuous employment to about 12,000 workers for 30 days.

The cost of raw cashew nuts procured through KCB in September-October 2018 was ₹132.50/kg triggering a downward trend in raw cashew nut prices despite severe exchange rate fluctuations. The presence and intervention of KCB has started yielding positive results in terms of reasonable prices for raw cashew nuts, to benefit the industry.

Cashew Export Promotion Council of India (CEPCI)

CEPCI established by Government of India, aims to promote the export of cashew kernels and cashew nut oil liquid. The Council serves as an intermediary between importers of cashew kernels and exporters who are members of the council. It also deals with disputes on exports/ imports arising due to quality standards and breach of contractual obligations, among others. It undertakes numerous activities, such as organising global buyer-seller meets as well as studies on nutritional aspects of cashew, and providing support to cashew processors and exporters for improving infrastructure. In 2017-18 the Council participated in 4 international exhibitions and attended one international conference. Laboratory and research institute at Kollam analysed 8,529 samples for various parameters during this period. A sum of ₹4 crore was released to 57 member exporters as grant in aid for modernisation under the medium framework scheme of GoI.

Directorate of Cashewnut and Cocoa Development (DCCD)

DCCD is the subordinate office of the Department of Agriculture, Co-operation and Farmers Welfare of the Government of India. It is the nodal agency for accelerating the existing cashew and cocoa nurseries and issue recognition and associate with all the grass root players like departments, research organisations, corporations, local Panchayat and farmers' organisations for implementing various cashew development programmes in the country. According to the data furnished by DCCD, an additional area of 1,947 Ha brought under cashew with clones of high yielding varieties in 2017-18.

Conclusion

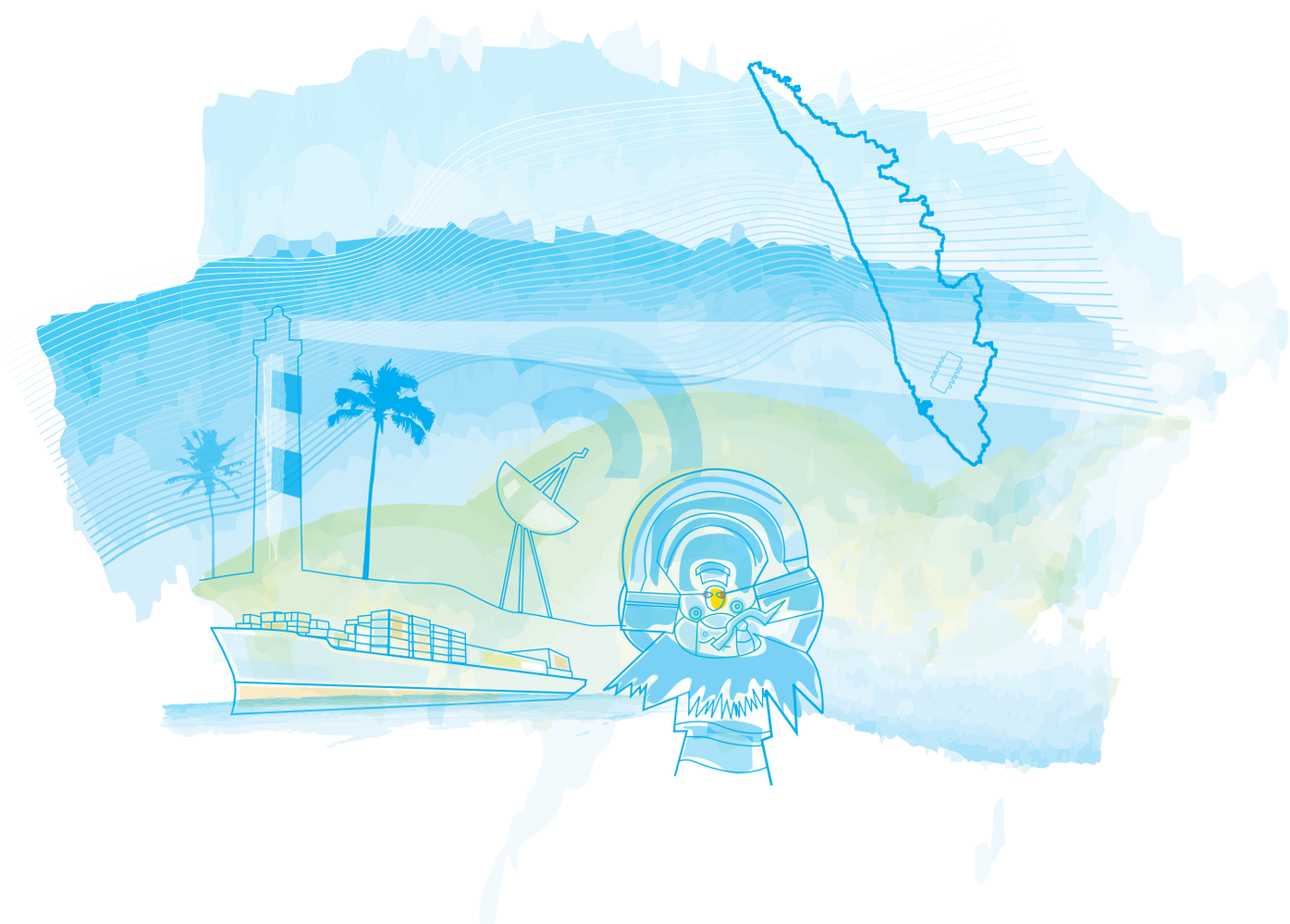
The cashew sector in the State is facing an unprecedented crisis. Many of the private factories in Kerala have closed down, rendering thousands of employees jobless. Bank accounts of many of the entrepreneurs have been classified as either non-performing assets by the banks or under "stressed" accounts. The core problem in cashew industry is that the raw material is scarce and the area under cultivation is becoming less. These have resulted in reduction in indigenous production, making it imperative to import from other countries resulting in higher raw material cost. The high processing cost compared to other States in India is due to lack of modernisation. Also, there is an imposition of import duty on raw cashew coupled with the growth of fully mechanised cashew processing industry in various countries and States and the low price of the processed kernel resulted in the gradual decline of the industry. The cashew processed in India faces stiff competition from Vietnam in the international kernel markets which already has an upper hand globally.

Steps to revive the industry include: procuring cashew nuts directly from cashew exporting countries without involving middle men; and planting high yielding, ultra high density type varieties of cashew saplings on plantation mode in all available places. Coordinated action, both in the short run and in the long run, by the Central and the State Governments is the need of the hour to protect the industry and ensure its sustainable growth, which can provide livelihood to thousands of people who are socially and economically vulnerable.

CHAPTER

04

SERVICE SECTOR



CHAPTER 04

Service Sector

Education

Kerala is, of course, well known for its achievements in social development indicators. The State has taken special care to develop an education system that is inclusive and universally accessible. The State has achieved a near-zero dropout rate, though with a few exceptions in some pockets of population. Kerala still requires some serious interventions to enhance academic quality at school as well as in higher education levels, and to make education even more inclusive at all levels. Some of the areas that need interventions are imparting skills for employability through education, improving academic achievement, updating syllabi by paying heed to emerging demands both at the local levels, and designing new training programmes for teachers to order to raise the standards of teaching and learning in educational institutions. Extracurricular activities in the areas of sports and arts need to be improved. Specifically designed programmes, with professional expertise and assistance, are needed in order to address the needs of children with disabilities.

The 13th Five-Year Plan marked education as one of the main areas for State intervention in India. The 13th Five-Year Plan Working Groups on education — school, higher and technical education — submitted reports with multiple recommendations and project proposals. Serious interventions have already been started through "Pothu Vidyabhyasa Samrakshana Yajnam" for meeting the changing requirements of time and to upgrade classrooms and curriculum. The flow of students from unaided schools to Government and Government-aided schools during the last two years is a signal that Government initiatives have widely been accepted. There has been a good start to quality enhancement in the public schools of Kerala, reflected in the latest National Achievement Survey (NAS) Report (Box 4.1).

Literacy

Effective literacy skills pave the way to more educational and employment opportunities. There are linkages between literacy, education and health. The spread of literacy has played a significant role in the social and economic development of the State. Increased democratisation, rights consciousness and civic awareness in the State are highly correlated to the high level of literacy which has existed for decades. As regards literacy, Kerala ranks first in the country with literacy rate of 93.91 per cent (Census of India 2011). The male-female literacy gap, which was 22 percentage points in 1951, narrowed to 4.41 points in 2011. Kerala holds the first place in the country in female literacy, with 92 per cent (Census of India 2011). Literacy rate of the State from 1951 to 2011 is shown in Appendix 4.1.

Differences in literacy rate among the Districts of Kerala are not significant. While Pathanamthitta District (96.93 per cent) reports the highest literacy rate in the State followed by Kottayam

Box 4.1 National Achievement Survey (NAS), 2017-18

Pothuvidyabhyasa Samrakshana Yajnam has achieved better results not only in terms of increasing enrolment in schools but also in terms of the quality of education. As per the latest NAS Report, the quality of learningstudents of Kerala has improved significantly and is ahead of national average. Kerala was below the national average in some subjects to previous NAS reports and special focus was given after 2016 by the General Education Department, Kerala, to rectify the situation. The recent Survey was conducted from November 2017 to February 2018. The important highlights of the NAS Report are

- Performance of students of Kerala is significantly above the national average in all subjects in all classes except science and social science in class 8.
- In class 3, on an average, children in Kerala responded 72 per cent (Mathematics) 76 per cent (EVS) and 72 per cent (Language) questions correctly. The respective average national scores are 64 per cent, 65 per cent and 68 per cent.
- In class 5, on an average, students in Kerala answered 63 per cent (Mathematics) 65 per cent (EVS) and 69 per cent (Language) questions correctly while the corresponding national averages are 53 per cent, 57 per cent and 58 per cent respectively.
- In class 8, on an average, children responded 63 per cent (Language) 50 per cent (Mathematics), 42 per cent (Science) and 36 per cent (Social Science) questions correctly while the respective national performance are 57 per cent, 42 per cent, 44 per cent and 44 per cent.
- The performance of students in Government schools of the State is significantly higher than that of Aided Schools in standard 3 and 5 while there is no significant difference in standard 8.
- All social groups scored higher than the national average in both language and mathematics, except for ST which scored lower in mathematics (Class 3).

Students' response:

- 97 per cent of children in class 3, class 8 and 95 per cent children in class 5 said that they liked to go to school.
- 90 per cent of children in class 3, 87 per cent of children in class 5 and 75 per cent of children in class 8 said that they understood what teachers taught in the class room.

Teachers' Response:

- 92 per cent teachers in the State opined that they have adequate infrastructural materials and supplies
- 77 per cent teachers fully understand the curriculum goals of the State
- 10 per cent teachers opined that they are overloaded with the work
- 52 per cent teachers are highly satisfied with their job
- 19 per cent teachers responded that the school buildings need significant repair
- 7 per cent teachers responded that there is lack of drinking water facilities
- 10 per cent teachers are of the opinion that there is lack of toilet facilities

Source: Ministry of Human Resource Development (MHRD0, GoI

(96.4 per cent) and Alappuzha (96.26 per cent), Palakkad District has the lowest literacy rate in the State (88.49 per cent). Literacy rate by sex for Districts in 2001 and 2011 are given in Appendix 4.2.

Kerala State Literacy Mission Authority (KSLMA) has been implementing literacy and equivalency programmes by appointing 'Preraks' (representatives of centre for propagating and continuing literacy programmes). Since Kerala has already achieved universal literacy, recently KSLMA has entered into new avenues with focussed and specialised literacy programmes viz., environmental literacy, literacy of SC/ST, literacy programmes for migrant workers, literacy for transgender etc, which are more relevant in the context of Kerala. Changathi, the exclusive programme for migrant workers for making them competent in reading and writing Malayalam was launched in 2016. Now the programme has widely been extended to all Districts and specially designed text book 'Hamari Malayalam' has been well accepted by the migrant workers. This special initiative of the State Government is expected to be beneficial for around 25 lakh workers, who have come to the State from different parts of the country for work. Number of persons who have passed literacy examination through various special literacy programmes is given in Table 4.1.

Number of people benefiting from various programme of Literacy Mission in 2018 is given in Appendix 4.3. Because of the focussed efforts of KSLMA, Preraks could identify the needy persons and enrol them into various levels of equivalency programmes. Table 4.2 shows the details of number of persons who have enrolled in 10th and Higher Secondary equivalency courses.

It is seen that out of the total number of persons benefiting these programmes, SC-ST population constitutes a major portion. Because of the special efforts of KSLMA for the last two years to include transgenders in the programmes, a total number of 79 transgenders could benefit the 10th and higher secondary equivalency programmes. Focus has also been given in the improved participation of differently abled persons.

Elementary Education

There were 12,971 schools in Kerala in 2017-18. Out of this, 4,695 (36.17 per cent) are Government schools, 7,216 (55.63 per cent)

Table 4.1 Status of special literacy programmes, 2017-18

Sl.No.	Name of the Programme	No. of persons passed
1	Aksharalaksham	42,933
2	Attapadi Euivalency Programme I and II Phase)	3,670
3	Wayanad Equivalency Programme (I Phase)	4,309
4	Aksharasagaram (Coastal area literacy Programme – I Phase)	6,599
5	Changathi	7,482
6	Samagra (special tribal project)	2,179
7	Navachethana (special SC projects)	2,024
	Total	69,196

Source:Data provided by Kerala State Literacy Mission Authority.

Table 4.2 Number of persons who enrolled in higher secondary and 10th equivalency courses

Course	Female	Male	Transgender	SC	ST	Differently abled	Total
Higher Secondary	19,702	14,052	39	9,308	1,331	288	33,793
10th	15,225	21,263	40	8,925	1,620	354	36,528

Source: Data provided by Kerala State Literacy Mission Authority.

are aided schools and 1,060 (8.17 per cent) are unaided schools. More Government schools are functioning in Lower Primary (LP) section than Upper Primary (UP) or High School (HS) sections. Aided schools outnumber Government schools in all sections.

Malappuram District has the largest number of schools (1,559) in the State followed by Kannur (1,308) and Kozhikode (1,282). Malappuram also has the largest number of Government (553) and unaided schools (199) in the State. But the largest number of aided schools is functioning in Kannur District (963). Details of District-wise, management-wise and stage-wise number of schools in Kerala in 2017-18 are given in Appendix 4.4.

There are 1,436 schools in the State which are offering syllabi other than the one prescribed by the State Government. These include 1,266 CBSE schools, 162 ICSE schools, 36 Kendriya Vidyalaya and 14 Jawahar Navodayas. One Jawahar Navodaya Vidyalaya school is functioning in each Districts. District-wise details of schools with syllabi other than State syllabus in 2017-18 are given in Appendix 4.5.

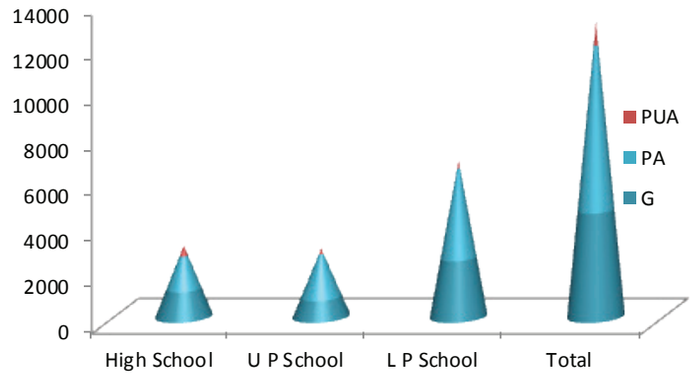
Physical Infrastructure and Facilities in Government Schools

All the Government Schools in Kerala are functioning in pucca buildings. Own buildings have to be constructed for 92 Government schools which are now working in rented buildings. District-wise details of Government schools having building facilities are given in Appendix 4.6. Local governments and programmes like Sarva Shiksha Abhiyan (SSA) have contributed much to the overall development and improvement of physical infrastructure and common facilities in Government schools in the State. Data show that 98.6 per cent of Government schools have access to drinking water and 99.95 per cent have urinals/latrine facilities. District-wise details of Government schools having drinking water/ latrines/urinal facilities in Kerala in 2017-18 are given in Appendix 4.7.

Enrolment of Students

There is an increase in the enrolment of students in 2018-19 to 37.03 lakh from 36.8 lakh in 2017-18. In LP section there is a net increase of 32,575 students from 2017-18 to 2018-19. The net increase in UP Section are 10,995 students in 2018-19, and the HS section shows a decrease of

Figure 4.1 Management-wise number of schools in the State-2017-18



Note: U P School – Upper Primary School, LP – Lower Primary School, PUA– Private Un Aided, PA – Private Aided, G – Government Schools
Source: Directorate of Public Instruction

20,492 students over the previous year. Details are given in Table 4.3. The stage-wise enrolment of students in schools in Kerala from 2013-14 to 2018-19 are given in Appendix 4.8. Details of management-wise and standard-wise enrolment of students in schools in Kerala in 2018-19 are given in Appendix 4.9. District-wise stage-wise and sex-wise enrolment of students in schools in the State in 2018-19 is given in Appendix 4.10. The section-wise in the enrolment of students in schools is shown in Figure 4.2.

In these two years, a positive change happened in terms of enrolment of students in Government and Government Aided Schools. As already stated, because of the impact of *'Pothu Vidyabhyasa Samrakshana Yajnam'* a flow from unaided schools to public schools is seen. In the LP section alone there is a additional enrolment of 36,399 students.

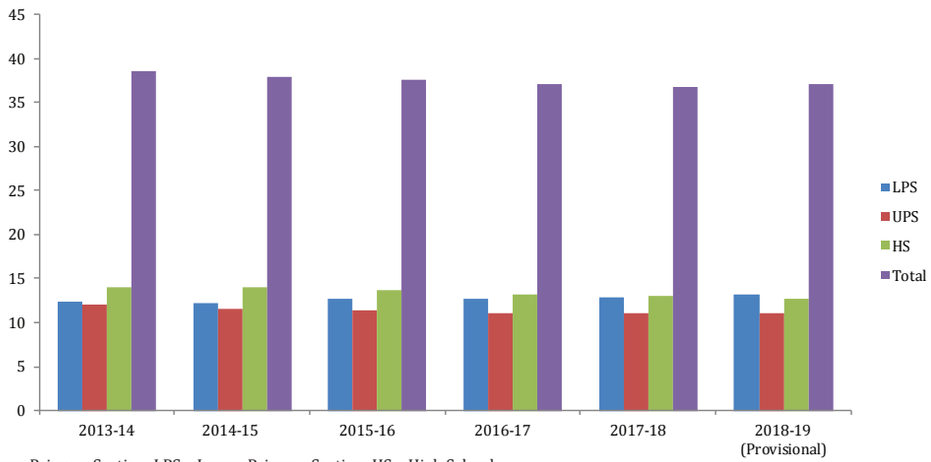
It is to be noted that due to the demographic reason, naturally the students enrolment would decrease as growth rate of population in the State is only 4.9 per cent in 2011. Hence, the increase in enrolment to the public schools is because of shift from unaided schools as well as people's preference for Government or aided schools for new admission.

Table 4.3 Net increase in enrolment of students in schools from 2016-17 to 2018-19

Management	Standards							Total I to X
	I	II	III	IV	Total (!-IV)	V-VII	VIII-X	I-X
From 2016-17 to 2017-18								
Government	5,703	354	1,346	667	8,070	-5,192	-2,409	469
Aided	6,495	-1,243	216	1,302	6,770	-5,798	-17,143	-16,171
Un Aided	-1,122	63	-128	615	-572	-2,834	-1,729	-5,135
Grand Total	11,076	-826	1,434	2,584	14,268	-13,824	-21,281	-20,837
From 2017-18 to 2018-19								
Government	5,784	7,889	2,342	4,434	20,449	5,567	-6,755	19,261
Aided	4,294	8,644	1,007	2,005	15,950	7,927	-10,789	13,088
Un Aided	-1,572	-834	-1,010	-408	-3,824	-2,499	-2,948	-9,271
Grand Total	8,506	15,699	2,339	6,031	32,575	10,995	-20,492	23,078

Source: Data provided by Directorate of Public Instruction.

Figure 4.2 Stage-wise enrolment of students in schools in Kerala, in lakh



Note: UPS – Upper Primary Section, LPS – Lower Primary Section, HS – High School
Source: Data provided by Directorate of Public Instruction.

Enrolment of Girls in Schools

Girls constitute 49.01per cent of the total student enrolment in schools. Boys outnumbered girls in all the Districts. But the gender gap is very narrow in Kerala in terms of enrolment.

Enrolment of Scheduled Caste and Scheduled Tribe Students

In 2018-19, Scheduled Caste (SC) students constitute 10.45 per cent of total students in the State. The per cent of SC students in Government schools, private aided schools and private unaided schools are 13.28 per cent, 11.46 per cent and 4.08 per cent respectively. It is seen that the per cent of SC and ST students in Government schools is higher than that of private aided and private unaided schools.

ST students constitute 2.02 per cent of total enrolment in schools in 2018-19. The per cent of ST students in Government schools, private aided schools and private unaided schools are 3.81 per cent, 1.54 per cent and 0.46 per cent respectively in 2018-19. The standard-wise strength of SC/ ST students in the State in 2018-19 is given in Appendix 4.11. Out of the total number of SC/ ST students in the State, only 4.08 per cent of SC and 0.45 per cent of ST students are enrolled in private unaided schools.

Dropout Rate

As per the Ministry of Human Resources Development (MHRD), GoI report on 'Educational Statistics at a Glance', 2018, the all India average dropout rate of primary students is 4.13 per cent while it is 4.03 per cent in upper primary and 17.06 per cent in secondary levels. Kerala has achieved the distinction of having the lowest dropout rate of school students among the Indian States. In the year 2017-18, dropout ratio among school students in Kerala was 0.16 per cent. The dropout ratios in LP stage and HS stages are higher compared to that of the UP stage. In Kerala, dropout rate is highest among high school students. It can also be seen from Table 4.5 that dropout ratio in Kerala has declined from 0.33 per cent in 2016-17 to 0.22 per cent in 2017-18. The decline is seen at all stages of school. District-wise/stage-wise dropout ratio in schools in 2017-18 is given in Appendix.4.12.

The dropout ratio of SC/ST students has significantly declined over these years. Though dropout ratio of ST students is still higher than that of students from other categories, the status of SC students has improved vis-a-vis that of other category students (see Table 4.6). Dropout ratio among SC students in Kerala in 2017-18 has declined to 0.12 per cent from 0.26 per cent in 2016-17 and that of ST students has declined to 1.42 per cent from 2. 27 per cent.

District-wise and stage-wise details of drop out among SC and ST students in Kerala for the year 2017-18 are given in Appendices 4.13 and 4.14. The dropout ratio of ST students in Malappuram and Wayanad is higher than that of all Kerala average. Likewise, the situation of SC students in Kasaragod, Wayanad and Idukki has to improve much to reach the level of all Kerala average.

Number of Teachers

The number of school teachers in Kerala including Teachers Training Institute (TTI) teachers in 2017-18 was 1,61,951. Out of this 96,067 (59.32 per cent) teachers are working

Table 4.4 Proportion of SC/ST students in schools, 2017-18

Management	Others	SC	ST
Government	82.89	13.28	3.82
Private Aided	88.49	10.13	1.36
Private Unaided	95.46	4.08	0.45
Total	87.53	10.45	2.05

Source: Data provided by Directorate of Public Instruction.

Table 4.5 Stage-wise dropout ratio in schools, Kerala

	2016-17	2017-18
Total	0.22	0.16
L.P	0.2	0.15
U.P.	0.11	0.1
H.S.	0.33	0.22

Source: Data provided by Directorate of Public Instruction.

in aided schools and 15,029 (9.28 per cent) teachers are working in private unaided schools. The remaining 31.4 per cent of teachers are working in Government schools. 51.46 per cent of total teachers in the State are teaching in high schools, 24.58 per cent in upper primary schools, 23.61 per cent in lower primary schools and the remaining (0.35 per cent) in TTI's. 72.66 per cent of total teachers in the State are women. Stage-wise and management-wise number of teachers in Kerala in 2017-18 is given in Appendix 4.15.

Schools with Less Number of Students

In 2017-18, the total number of schools with average strength of less than 25 students were 1,116 and out of these 405 were Government schools and 711 were in the aided sector. There were 46 Government lower primary schools having average number of students with less than 10 while the number of schools in this category was 76 in aided sector. District-wise analysis shows that highest number of schools with less number of students was in Pathanamthitta (195) followed by Kottayam (175) and Alappuzha (161). The highest number of schools with less students in aided sector is in Pathanamthitta (139) followed by Kottayam (125). In the Government sector, Pathanamthitta has the largest (56) number of schools with less number of students followed by Alappuzha (53). Lower primary schools constitute large chunk of the schools with less number of students. Among the Government schools with less number of students, 98.03 per cent are lower primary schools. In the aided sector also 89.17 per cent

Table 4.6 District-wise dropout ratio in 2017-18

District	SC	ST	Others	Total
Thiruvananthapuram	0.14	0.51	0.16	0.16
Kollam	0.1	0.28	0.08	0.09
Pathanamthitta	0.06	0.11	0.07	0.07
Alappuzha	0.02	0	0.04	0.04
Kottayam	0.12	0.51	0.14	0.14
Idukki	0.39	1.2	0.48	0.51
Ernakulam	0.17	0.41	0.21	0.21
Thrissur	0.11	1.13	0.08	0.09
Palakkad	0.18	1.07	0.24	0.25
Malappuram	0.03	2.64	0.08	0.09
Kozhikode	0.07	0.42	0.07	0.07
Wayanad	0.38	2.59	0.26	0.84
Kannur	0.14	0.63	0.13	0.15
Kasaragod	0.41	0.18	0.22	0.23
Total	0.13	1.42	0.14	0.16

Source: Data provided by Directorate of Public Instruction.

of these schools are from lower primary section. District-wise details of schools with less number of students in the State in 2018-19 are given in Appendix 4.16.

Kerala Infrastructure and Technology for Education (KITE)

The beginning of ICT education in the schools of Kerala dates back to 2001-02, when the State Government established IT@School, as a Project under General Education department, to include IT activities in high school classes. In 2017, IT@ School was transformed as a company viz., Kerala Infrastructure and Technology for Education (KITE) in the form of Special Purpose Vehicle (SPV) exclusively for the implementation of hi-tech school programme which was funded by KIIFB (Kerala Infrastructure Investment Fund Board) Through its decade long operations, IT@ School has uplifted the ICT enabled education in the State to un-paralleled heights. Through focussed interventions, KITE has ensured ICT infrastructure upgradation, academic excellence through capacity building, ICT learning environment, monitoring and support systems and e-Governance in the educational system. KITE is implementing the Hi-Tech school project in the State, by which 45,000 classrooms (Standard 8 to 12) in 4,752 Government and aided schools in the State are being made Hi-Tech.

Besides equipping each hi-tech classroom with latest ICT gadgets like laptops, multimedia projectors, sound system, networking etc, KITE has also facilitated the access of Samagra resource portal which has over 20,000 digital resources for all classes from Standard 1 to 12 in the form of videos, pictures, audios, animations, interactive etc. High speed broadband connectivity is also facilitated in all hi-tech classrooms by KITE. Majority of the teachers in the State are technically empowered through ICT trainings equipping them to take the classes effectively by making use of the ICT facilities provided by KITE in their classrooms. Online system for distribution, complaint management portal supported by call centre facility is also set-up by KITE.

Capacity building has been a major focus area of KITE since its inception and over the years, lakhs of teachers in the Kerala schools have been provided with ICT based, content based, subject-wise trainings by KITE through its master trainer network throughout the State. In 2018 alone, KITE has imparted ICT trainings for 9,712 primary teachers, and 1,220 high school teachers and 23,552 higher secondary teachers. Over 57,409 Students have been trained under the Little KITEs programme.

In terms of content development, a major achievement of KITE is the development of Samagra resource portal and this unique State education department-driven resource repository benefits over 50 lakh students and 2 lakh teachers covering 15,000 schools in Kerala. Using internet as a channel, it enables democratisation of education to its most effective level. It also provides academic administration using basic data, field level monitoring and improvement plans through matrix collection, analytics, insight reports etc.

KITE had also implemented several e-Governance initiatives within Education Department in the previous years, such as Sampoorna school management software, online transfer and posting of teachers, noon meal distribution system, scholarships etc. The Government had mandated that any data collection from public schools should be undertaken through Sampoorna alone. This year KITE developed the Sametham school data bank application which details the ready-to-know information of schools with details such as infrastructure, teaching and non-teaching staff, students details (without any personal information) etc.

The VICTERS educational channel under KITE has become the most sought educational channel by the students and parents. During its daily 17 hours telecast (from 6 am to 11 pm), VICTERS airs a plethora of educational video contents, systematically developed and vetted, including regional, national and international contents. Educational video contents which are subject-

wise, pedagogy related, exam oriented, career specific, health etc. are developed by the in-house production crew of VICTERS.

Sarva Shiksha Abhiyan (SSA), Rashtriya Madhyamik Shiksha Abhiyan (RMSA), and Samagra Shiksha Abhiyan

SSA and RMSA were the two major flagship programmes of GoI with the support of State Governments to universalise elementary and secondary education in the country. SSA was introduced in 2000-2001 to provide useful and relevant elementary education for all children in the age group of 6 to 14 by 2010. The activities of SSA comprise providing physical infrastructure to schools, free text book for children, encouraging enrolment of girls and enhancing the quality of teacher training. Within these around two decades of activities, along with the activities and schemes of GoK, SSA could actively engage in the activities for academic enhancement and infrastructural improvement of public schools in the State. SSA could establish 168 Block Resource Centres (BRCs) and 1385 Cluster Resource Centres (CRCs) in the State.

RMSA was initiated in 2009 with the objective of enhancing the quality of secondary education in the country. It aimed to increase the enrolment rate to 90 per cent at secondary and 75 per cent at higher secondary stage, by providing a secondary school within reasonable distance of every home. Both the programmes were implemented with the participation of the community in the management of schools without social, regional, economic and gender barriers. The schemes envisaged universal access, equity and quality, vocationalisation of education and strengthening of teacher education institutions.

The sharing of funds between the central and the State Governments, which was 75:25 has since been modified to 60:40. Now the Central

Box 4.2 Little KITES IT clubs, India's largest students' ICT network

As part of ICT enabled education, KITE rolled out the 'Little KITEs' initiative in 2017-18 to instil genuine interest and creativity among students, by providing specific training in Animation, Cyber Safety, Malayalam Computing, Hardware and Electronics. Later more topics have been added such as Development of Mobile Apps, Programming, Robotics, E-Commerce, E-Governance, Video Documentation, Webin TV etc to the activity bouquet of 'Little KITEs'. The objective of Little KITES is to ignite and streamline the innate skills of students in creatively using the technology that actually contribute in the field like development of new software, platforms, tools other than exam grades. It provides an opportunity for students to learn the different perspectives of ICT tools, so as to make use of them for their learning activities. Little KITEs units are formed in schools after completing the online registration facilitated by KITE. Each school unit consists of 20 to 40 students named as Little KITEs, selected through an aptitude test and is led by an unit leader and deputy leader. Each unit is designated with one KITE Master and KITE Mistress who are qualified High School teachers nominated by the Head Master. The student members are given special training for at least 4 hours a month, without affecting the school activities and by making use of holidays. The performance of the student members would be evaluated at the year end and they would be awarded certificates with Grades of A/B/C. In a short duration of one year from its launching, Little KITEs programme has benefitted 58,254 students from 1,898 schools of Kerala.

Source: Data provided by Kerala Infrastructure and Technology for Education (KITE).

Government has decided to integrate SSA, RMSA and centrally sponsored teacher education programmes into a new project namely, "Samagra Shiksha Abhiyan" and MHRD has approved this project as an integrated scheme for school education extending from pre-primary to higher secondary.

Higher Secondary Education

Higher secondary courses were introduced in the State in 1990-91 to reorganise the secondary level of education in accordance with National Education Policy. There were 2,073 Higher Secondary Schools (HSS) in 2018 in the State. Out of these 817 (39.4 per cent) are Government schools, 846 (40.77 per cent) are aided schools and the remaining 412 (19.86 per cent) are unaided and technical schools. Among the districts, Malappuram has the largest number of HSS (246) in the State followed by Ernakulam (209) and Thrissur (204) respectively.

There are 7,247 batches of higher secondary classes in 2018. The enrolment in HSS was 3,80,120. Malappuram had the largest number of batches (1,052) with an enrolment capacity of 56,407 students. District-wise/management-wise number of HSS and number of batches are given in Appendix 4.17and District-wise enrolment of students in HS are given in Appendix 4.18.

The pass per cent of students in higher secondary courses increased from 70.91 per cent in 2016-17 to 76.56 per cent in 2017-18. In 2018, 15,768 students secured A+ for all subjects and 3,10,389 students were eligible for higher studies. The details are given in Appendices 4.19 and 4.20. The pass per cent of SC and ST students in Higher Secondary schools has increased in 2017-18 compared to 2016-17. The pass per cent of SC students increased from 59.42 per cent to 63.51 per cent and ST students from 58.96 per cent to 62.22 per cent in 2017-18. Details are given in Appendices 4.21 and 4.22.

Vocational Higher Secondary Education

Vocational Higher Secondary Education was introduced in the State in 1983-84. Vocational Higher Secondary Education in the State imparts

Box 4.3 Hello English, project of Sarva Siksha Abhiyan

Hello English is a learning enhancement programme initiated by SSA, Kerala from 2016-17 onwards. The project aims at bringing about confidence in using the English language among students of the primary and upper primary sections by training their teachers to instruct the language more efficiently. Techniques and strategies of *Hello English* have been based on detailed trials at State and District levels involving 50 teachers and more than 500 students. *Hello English* basically adopts a sort of workshop approach in the classroom process. Students learn by "doing" in *Hello English* workshops individually and in groups with the guidance of the teacher. The classroom becomes an interactive place buzzing with various activities of children. The innovative teaching-learning techniques like creative drawing, drama games, making stills and describing, picture interaction, games based on themes, listening to narration, retelling a story, miming an event, story theatre, visualisation, action song, choral singing, choreography etc. are applied. Students get the opportunities to interact, listen, read, speak, write, enact, sing, draw and perform using English. Here the teacher is a facilitator, classroom manager, a guide, a counsellor and above all a co-partner in learning English. Students are encouraged to read non-textbook stories and other texts in English, and also to write on their own through class newspapers, diary entries, and so on. The project, *Hello English* has been acknowledged as one of the best Learning Enhancement Programmes (LEP) by MHRD, GoI. The study conducted by SCERT, Kerala identified the impact of the project in enhancing the English proficiency as well as confidence level of students.

Source: Data provided by Sarva Siksha Abhiyan (SSA).

education at plus two level with the objective of achieving self/wage/direct employment as well as vertical mobility. There are 389 Vocational Higher Secondary Schools (VHSS) in the State with a total of 1,101 batches. Out of these 261 are in the Government sector and 128 in the aided sector. Kollam (52) followed by Thiruvananthapuram (41) has the largest number of Vocational Higher Secondary Schools in the State. District-wise details of VHSS and courses in 2018-19 are given in Appendix. 4.23.

The percentage of students eligible for higher education in VHS examination in March 2018 is 80.4 per cent (including those who appeared for Save An Year (SAY) examination). Details of students who cleared VHS examination during 2012-2018 are given in Appendices 4.24 and 4.25.

University and Higher Education

There are 14 State universities functioning in Kerala. Out of these, four universities namely, Kerala, Mahatma Gandhi, Calicut and Kannur are general in nature and offer various courses. Sree Sankaracharya University of Sanskrit, Thunchath Ezhuthachan Malayalam University, Cochin University of Science and Technology, Kerala Agricultural University, Kerala Veterinary and Animal Science University, Kerala University of Health Sciences, Kerala University of Fisheries and Ocean Studies, Kerala Technological University offer specialised courses in specified subject areas. Besides these, the National University of Advanced Legal Studies (NUALS) established in 2005 and a Central University in Kasaragod District are also functioning in the State.

Arts and Science Colleges

There are 219 Arts and Science Colleges in the State comprising 156 private aided colleges and 63 Government colleges. Apart from these, various un-aided/self-financing arts and science colleges are also functioning in the State with the affiliation of universities. In 2017-18, Ernakulam (26) had the largest number of arts and science colleges in the State followed by Kottayam (23). Thiruvananthapuram and Kozhikode have the largest number of Government colleges (10) in the State. District-wise number of arts and science colleges in the State in 2017-18 is given in Appendix 4.26.

Box 4.4 DISHA-2017

Disha-2017 was a unique experience to the higher secondary students as well as their teachers and parents. The programme was organised as a higher education Expo by Directorate of Higher Secondary Education (DHSE). It was intended to give updated information on different courses which can be chosen according to the tastes of the students after plus two. It was organised as a higher studies Expo of various higher education institutes under Government sector, within and outside State. 33 institutes including universities and 15000 students and their parents participated in Disha-2017 which was organised for six days as a part of State Youth Festival. The expo could give exposure to the parents and students to the recent changes in the disciplines, recently introduced new and innovative courses and multiplicity of career opportunities. Orientation classes by eminent personalities and experience sharing sessions of new entrepreneurs were the most attractive part of the programme to the students. Disha-2017 could give a good disha (direction) to higher secondary students for choosing their way after the course. Understanding the wide acceptance and increasing demand from students, Directorate Higher Secondary Education has planned to continue this programme every year and Disha 2018 will be organised as part of State Youth Festival, 2018.

Source: Data provided by Directorate of Higher Secondary Education (DHSE), GoK

Enrolment of Students

Total number of students enrolled in various arts and science colleges (excluding unaided colleges) under the four general universities in Kerala in 2017-18 is 2.96 lakh. Of this 2.03 lakh (68.68 per cent) are girls.

Out of the total students enrolled for degree courses, 42.62 per cent are enrolled for B.Sc degree courses, 38.71 per cent enrolled for B A and 18.67 per cent enrolled for B.Com degree courses. Girls constitute 78.64 per cent of total enrolment for degree courses. Gender-wise distribution of enrolment reveals boys' preference for B.Sc and B.Com to B.A degree courses while more girls are enrolled in B.A Courses followed by B.Sc and B.Com degree courses.

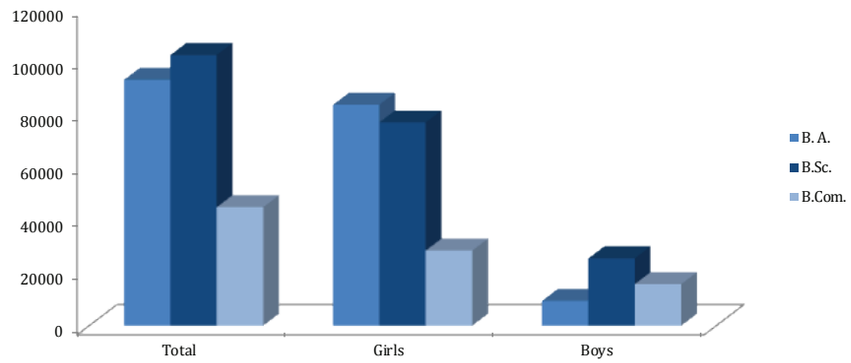
27 subjects are offered for BA degree courses. Among the subjects, English followed by Economics has the largest number of enrolment of students. 31 subjects are offered for BSc course and Physics followed by Mathematics has the largest number of student enrolment. Details of enrolment of students in Arts and Science colleges for BA, BSc and B.Com are given in Figure 4.3, Appendices 4.27, 4.28, 4.29 respectively. Students numbering 38,895 are admitted to post graduate course in the State in 2017-18. 67.01 per cent of those enrolled in PG courses are girls. Details of enrolment of students in Arts and Science colleges for M.A, M.Sc and M.Com courses are given in Table 4.7, Appendices. 4.30, 4.31, 4.32 respectively.

Table 4. 7 Enrolment of students in arts and science colleges

Course	Total	Girls	Boys	% of Girls
B. A.	92,753	83,356	9,397	89.87
B.Sc.	102,134	76,699	25,435	75.1
B.Com.	44,723	28,369	15,700	63.43
Total	239,610	188,424	50,532	78.64
M.A.	14,756	9,703	5,053	65.76
MSc.	18,083	12,102	5,981	66.92
M.Com	6,056	4,259	1,797	70.33
Total	38,895	26,064	12,831	67.01
Grand Total	278,505	214,488	63,363	77.01

Source: Directorate of Collegiate Education

Figure 4.3 Sex-wise enrolment of students to degree courses



Source: Data provided by Directorate of Collegiate Education

Scheduled Caste/Scheduled Tribe Students

The enrolment of Scheduled Caste (SC) students in degree and post graduate course in the State is 35,388 and 5,221 respectively. SC students constitute 14.58 per cent of total students in 2017-18.

The number of ST students enrolled for courses in arts and science colleges in 2017-18 is 6,601. The enrolment of ST students in degree and post graduate courses is 4,977 and 1,624 respectively (Figure 4.4). Enrolment of SC and ST students in Arts and Science Colleges in Kerala in 2015-16 is given in Appendix 4.34. The enrolment of SC-ST students has increased significantly from last year and the proportion of SC-ST students' enrolment is greater than that of their population proportion (Table 4.8).

Scholarships

Central and State sector scholarships of 13 types are given to students. Various scholarships including Kerala State Suvarna Jubilee Scholarship (4,100), District Merit Scholarship (9,906) and Post Matric scholarships (55,941) have been given in 2017-18. The details of number of scholarships offered from 2014-15 to 2017-18 is given in Appendix 4.34.

Teachers

The number of teachers in arts and science colleges in the State in 2017-18 was 9,869, out of whom 56.46 per cent are women. University-wise number of teachers in arts and science colleges during 2014-15 to 2017-18 is given in Appendix 4.35. Around 3,519 (35.66 per cent) teachers in arts and science colleges in the

Box 4.5 Sastrayan, festival of knowledge

Sasthrayaan, the festival of knowledge, is being organised by the Rashtriya Uchchatar Shiksha Abhiyan (RUSA) in association with the Department of Collegiate Education with an aim to convert public educational institutions into centres of academic excellence and public interaction.

The festival involves an open house for the public featuring various achievements of the college/universities in the spheres of arts, sports and scientific inventions, facilities, research projects of various departments, their implementation and future plans

Science exhibitions, literature carnivals, social debates, entrepreneurial initiatives etc. are part of this festival which is organised in association with Local Governments, schools and other nearby educational and research institutions. It provides an opportunity for the entire student community and the public to familiarise with the current trends of educational advancement in higher educational institutions and evolve as a platform for discussing the very relevant local issues which need further research and development.

By making the achievements and research activities of academic institutions accessible to the general public, the project aims at dissemination of knowledge. The public gets to know the institutions of higher education in their locality and experience the developments taking place there through an open house model interaction.

Sasthrayaan initiative includes the seven universities in the State (University of Kerala, MG University, CUSAT, Sree Sankaracharya University, Thunchath Ezhuthachan Malayalam University, Calicut University, and Kannur University) and colleges with NAAC accreditation. It also ensured the participation of PTA, NSS, NCC and other self-governing bodies in the State.

Source: Data provided by Directorate of Collegiate Education, GoK

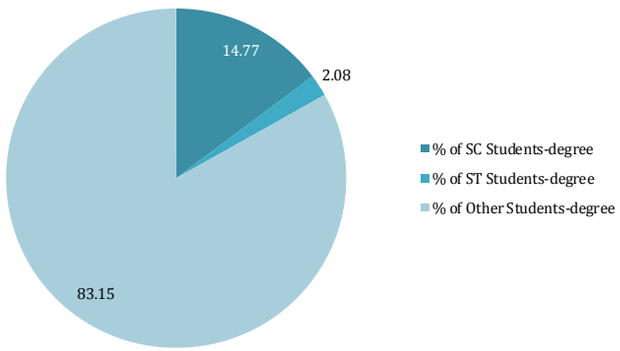
Table 4.8 Per cent of SC/ST students in higher education

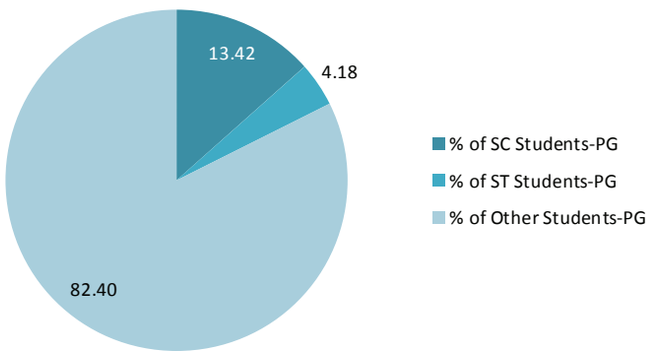
Name of Course	Total Students	SC Students	% of SC Students	ST Students	% of ST Students
B.A	92,753	13,988	15.08	3209	3.46
B.Sc	102,134	15,399	15.08	972	0.95
B.Com	44,723	6,001	13.42	796	1.78
Total	239,610	35,388	14.77	4,977	2.08
M.A	14,756	2,309	15.65	828	5.61
M.Sc	18,083	2,096	11.59	561	3.1
M.Com	6,056	816	13.47	235	3.88
Total	38895	5221	13.42	1624	4.18
Grand Total	278505	40609	14.58	6601	2.37

Source: Data provided by Directorate of Collegiate Education

State have PhD degree. Details are given in Appendix 4.36. A total of 2,844 Guest Lecturers are working in arts and science colleges in the State from 2015 onwards. Details are given in Appendix 4.37.

Figure 4.4 Per cent of SC/ST students in degree and PG courses





Note: PG- Post-Graduate
Source: Directorate of Collegiate Education

Kerala State Higher Education Council

By recognising the importance of State-level planning and co-ordination for effective implementation of national level policies in higher education, the National Policy on Education, 1986 suggested that State Council of Higher Education should be set up in all States. Accordingly, the GoK set up a Higher Education Commission in 2006 under the chairmanship of Dr K N Panikkar for making recommendations for constituting a Higher Education Council. The Kerala State Higher Education Council came into existence on March 16, 2007. The Council is the principal higher education policy input provider of the State and it strives to bring about equity, access and excellence in higher education sector. The major responsibilities of the Council are:

- Act as an agency for formulating higher education policies of the State
- Render advice to the Government, universities and other institutions of higher education in the State
- Co-ordinate the activities of various agencies of higher education in the State
- Initiate new concepts and programmes in higher education
- Provide common facilities in higher education without impinging upon the autonomy of other institutions of higher education

The major activities and achievements of the Council can be summed up as:

- Restructuring of Under Graduate Education (Introduction of Choice Based Credit and Semester System
- Implementation of Higher Education Scholarship Scheme for the meritorious students in Arts and Science Colleges
- Implementation of Cluster of Colleges Scheme
- Implementation of Erudite Scheme (Scheme formulated to arrange opportunity to the students and teachers of the State to interact with internationally renowned academicians and Nobel Laureates)
- Publication of the journal, Higher Education for the Future
- Selected leading colleges of the State have been given autonomous status in accordance with the recommendation of the Council
- Preparation and submission of reports on various issues pertaining to higher education sector

Kerala Council for Historical Research (KCHR)

KCHR is an autonomous academic institution, established in 2001, committed to scientific research in archaeology, history and social sciences. It is a recognised research centre of the University of Kerala and has academic affiliations with and has bilateral academic and exchange agreements with leading universities and research institutes in India and abroad. KCHR is to publish a comprehensive volume on the scientific history of Kerala from pre-historic to the present times.

A sustainable/historical tourism project is conceived in the Kodungallur-Paravur zone and KCHR is identified as the nodal agency to provide technical assistance. From 2006-07 onwards KCHR has successfully undertaken the multi-disciplinary excavation at Pattanam. The excavation has yielded significant evidences for re-conceptualising the early history of Kerala.

Kerala State Skill Development Project and Additional Skill Acquisition Programme (ASAP)

The Kerala State Skill Development Project was launched in July 2012 to enhance the employability of the youth and create opportunities for productive employment within and outside the State. The Asian Development Bank (ADB) through Department of Economic Affairs, GoI have been engaged and partnered by the State for strengthening and scaling up ASAP.

ASAP is designed by the departments of higher and general education to address the issue of low employability of the students. It aims at tackling the problem of educational unemployment by

introducing market-relevant foundation training, vocational training and career counseling alongside the general curriculum at the higher secondary and under graduate levels. ASAP is being implemented in 836 HSS 26 VHSEs and 108 colleges in 2016-17. A total of 29,411 students are undergoing training in 2016-17. More than 200 programme managers have been engaged to help the ASAP Secretariat for running the programme and 1,900 skill development executives have been recruited for providing foundation training in communicative English and information technology. Eighty five skill courses in 30 sectors have been included for training in 2016-17.

Technical Education

Technical education aims at human resource development by way of application of technology for the benefit of the society, in terms of improving the quality of life, enhancing industrial productivity and improving technologies for the overall development of the community. Technical education enables the young generation to contribute to the sustainable development and improvement of quality of life of the society.

Directorate of Technical Education is the nodal department for technical education in the State. Details of technical institutions under the administrative and financial control of Directorate of Technical Education is given in Appendix 4.38

Engineering Colleges

There are 183 engineering colleges in the State with a sanctioned intake of 57,100 in 2018. Out of these engineering colleges 171 (93.33 per cent) are self-financing colleges (unaided), 9 (5 per cent) are Government colleges and 3 (1.67 per cent) are private aided colleges. Largest number of the unaided engineering colleges are functioning in Ernakulam (32) followed by Thiruvananthapuram (25). There is no Government engineering college in Kollam, Pathanamthitta, Alappuzha, Ernakulam, Malappuram and Kasaragod Districts. The District-wise and management-wise details of engineering colleges and sanctioned intake are given in Appendix 4.39. The sanctioned intake of Government colleges in 2018 was 3,340 (5.85 per cent), aided colleges 1,850 (3.24 per cent), and unaided colleges 51,910 (90.91 per cent).

Of the engineering colleges in Kerala, the largest number of branch-wise seats was in Mechanical Engineering (11,194) followed by Electronics and Communication (10,479), Computer Science and Engineering (10,179) and Civil Engineering (10,044). Branch-wise distribution of seats in engineering colleges in 2018-19 is given in Appendix 4.40. The number of students enrolled (joined for first year) in Government and aided engineering colleges for graduate courses in 2018-19 increased to 6,222 from 5,134 in 2016-17. The proportion of girls' enrolment has also increased to 39.86 per cent in 2017-18 from 36.42 per cent in 2016-17. 1,606 students have been admitted in Government and aided engineering colleges for post graduate courses in 2017-18. Girl students constitute 58.78 per cent of total students in Government and aided engineering colleges studying for post graduate courses. Details are given in Appendices 4.41and 4.42.

Academic Excellence in Engineering Colleges

The academic excellence in Government engineering colleges is high and appreciable and this was due to the high pass percentage and increasing placement of students in reputed firms. The placement record of the students in various Government institutions is also relatively high. Students also get the benefit of experience and inputs from visiting faculty. Details of visiting faculty programmes are given in Appendix 4.43. A number of students are also being qualified for higher studies through competitive examinations like GATE, CAT etc. Most of the students get placement in multinational firms like WIPRO, MAHENDRA, TCS, and BOSCH etc. Placement details of students of various Government

Box 4.6 Production and training centres in polytechnics

Production and Training Centre (PAT) are functioning in two polytechnics under the guidance of Directorate of Technical Education. The PAT Centre is a place where production of articles, relevant to the branch of study, takes place in a smaller scale. All the activities in the real industry such as sales forecasting, product design, production planning, production, QC, sales, advertising, marketing and after sales operations, are emulated in PAT Centre. The product has to be market relevant and should be of latest technology. At present the PAT's are functioning in 2 Govt. Polytechnic Colleges in the State, Government Women's Polytechnic College Kozhikode and Government Polytechnic College, Perumbavoor.

Government Women's Polytechnic College, Kozhikode:
The major activity of the centre is related to the manufacturing of LED lamps and tubes. The centre produced 900 LED Lamps of 3,5,7,9 and12 watts capacity in 2015-16. These lamps were later distributed to the institutions under the DTE at free of cost. The facilities of the centre were also utilised for the training of 28 women entrepreneurs by Scheduled Caste Development department under the STEP 4U scheme. In 2017-18, the centre has produced 412 LED tubes and 200 LED lamps during the process of training.

Government Polytechnic College, Perumbavoor:

The PAT unit started functioning in 2017-18. The major production initiatives are Embedded System Trainee Kit (ATMEGA 32) for Electronics Laboratory and Micro Controller (8,051) trainer Kit. The cost of production of these products comes to only 30 per cent of the market cost. In 2017-18, the unit produced 65 Embedded System Trainee Kit (ATMEGA 32) and 60 numbers of Micro Controller Trainer Kits (8,051). These kits were later supplied to Government engineering colleges and Polytechnic colleges as per the direction of the DTE. The training in PTCs has effectively enhanced the skill of the trainees and built confidence for the direct entry to the industry. There are additional incentives to the students in the form of marginal income from the PAT's.

Future Activities:

It is planned to establish 2 more PAT centres in the following institutions
1) Institute of Printing Technology and Govt. Polytechnic College (IPT and GPTC), Shoranur – Printing Technology based products
2) Govt. Polytechnic College (GPTC), Adoor – Reuse of Plastic
The initial activities have already been started.

Source: Directorate of Technical Education, GoK

engineering colleges in 2017-18 are given in Table 4.9.

Polytechnics and Technical High Schools

There are 45 Government polytechnics and 6 private aided polytechnics in Kerala. The annual intake of students in Government polytechnics and private aided polytechnics in 2018-19 are 10,765 and 1,504 respectively. The total number of students in Government polytechnics in 2018-19 is 28,695 and that of private aided polytechnics is 4,163. Details of annual intake and student strength in polytechnics for the year 2015-16 to 2018-19 are given in

Table.4.9 Placement details of students of various engineering college in 2017-18

Sl No.	Name of College	No. of offers
1	College of Engineering, Thiruvananthapuram	549
2	Govt. Engineering College, Barton Hill	112
3	RIT, Kottayam	170
4	Govt. Engineering College, Idukki	21
5	Govt. Engineering College, Thrissur	203
6	Govt. Engineering College, Palakkad	66
7	Govt. Engineering College, Kozhikode	16
8	Govt. Engineering College, Wayanad	3
9	Govt. Engineering College, Kannur	102
	Total	1,242

Source: Directorate of Technical Education, GoK

Appendices 4.44, 4.45 respectively. Details of trade-wise annual intake of students in polytechnics of the State in 2018-19 are given in Appendix 4.46. Student intake is highest in the trade of Computer Engineering (2,010) followed by Electronics Engineering (2,000), Mechanical Engineering (1,660) and Civil Engineering (1,310).

Total number of teachers working in polytechnics of the State is 1,845. Girls constitute 28.42 per cent of the total strength in polytechnics while their proportion in Government and aided polytechnics are 29.14 per cent and 23.47 per cent respectively. The proportion of female teachers is also less and their proportion is 34.9 per cent. In aided polytechnics, female teachers constitute 22.99 per cent while the respective proportion in Government sector is 37.55 per cent which is comparatively high.

Details of number of students and teachers in polytechnics are given in Appendix 4.47. Number of SC/ST students and SC/ST teachers in polytechnics in the reporting year are given in Appendix 4.48. It is seen that the per cent of SC/ ST students is low in Government as well as in aided polytechnics (Table 4.10).

Thirty nine Government technical high schools are functioning in the State. Total number of students in technical high schools in 2018-19 is 7,957, and 768 teachers are working in technical high schools during this period. Women teachers constitute 23.18 per cent of teachers in technical high schools. Number of students and teachers in technical high schools from 2015-16 to 2017-18 are given in Appendix 4.49. Compared to the previous year, the per cent of SC and ST students in technical high schools has declined from 11.71 per cent to 11.67 per cent and from 0.81 per cent to 0.73 per cent respectively. Details are given in Appendices 4.50 and 4.51.

The higher and technical education in Kerala has to be made capable of meeting the increasing opportunities generated by the market. For this, the State has to introduce various industry

Table.4.10 Per cent SC/ST students in polytechnics

Type of Institution	2016-17				2017-18				2018-19			
	SC	ST	Others	Total	SC	ST	Others	Total	SC	ST	Others	Total
1. Government	7.08	0.86	92.06	100	6.86	0.71	92.43	100	7.1	1.03	91.873	100
2. Private (Aided)	5.46	0.38	94.16	100	5.13	0.47	94.4	100	4.59	0.5	94.908	100
Total	6.86	0.79	92.36	100	6.62	0.68	92.7	100	6.78	0.96	92.258	100

Source: Directorate of Technical Education, GoK

based and innovative courses at higher education level. In order to ensure the quality of higher education, serious and focussed attempts have to be taken to ensure that more number of arts and science colleges and engineering colleges have to get accreditation of National Assessment and Accreditation Council (NAAC) and accreditation of National Board of Accreditation (NBA) respectively. Kerala's legacy of increased public investment in human capital over the decades has created a lot of opportunities, which remains untapped. If these opportunities are utilised properly, Kerala can become the higher education capital of India.

Health

Improvement in health status of the people is one of the crucial indicators of social development in a community, and requires that access to health care is ensured especially for the underprivileged sections. Kerala has achieved a good health status compared to other States in India. Easy accessibility and coverage of medical care facilities, apart from other factors such as a high literacy rate, well-functioning public distribution system, exploitation of labour due to the presence of workers organisations have played a leading role in influencing the health system in Kerala. The Peoples Campaign for decentralised planning initiated in 1996 helped to improve infrastructure and service in primary and secondary healthcare institutions and widened healthcare delivery. In Kerala, both modern medicine and indigenous systems play a crucial role in providing universal access and availability to the poorer sections of society.

Kerala has made significant gains in health indices such as high life expectancy, low infant mortality rate, birth rate, and death rate. The State must ensure that these gains are sustained. Besides, the State also needs to address problems of life style diseases (Non Communicable Diseases) like diabetes, hypertension, coronary heart disease, cancer and geriatric problems. Increasing incidences of communicable diseases like chikungunya, dengue, leptospirosis, swine flu are also a major cause of concern. Besides, there are new threats to the health scenario of the State, like mental health problems, suicide, substance abuse and alcoholism, adolescent health issues and rising number of road traffic accidents. The health status of the marginalised communities like adivasis and fishing workers is also poor compared to that of the general population. To tackle these, concerted and committed efforts with proper inter sectoral co-ordination is essential.

Health Indicators of Kerala

Comparative figures of major health and demographic indicators at the State and National level are given in Table 4.11.

AARDRAM Mission

The Aardram Mission has been launched in the health sector to make Government hospitals people-friendly by improving their basic infrastructure and services. Government hospitals can be made people-friendly to a large extent by ensuring quality health care with minimal waiting time for outpatient medical checkup and other investigation facilities. This would also enable to provide adequate attention to inpatient services. Aardram Mission is being implemented in three stages in Government medical college hospitals, District hospitals and taluk and Primary Health Centres (PHCs). The mission aims to improve the efficiency of service and facilities in the Government hospitals with a view to extend treatment at a reasonable cost, time and satisfaction. Details are given in Chapter 11.

Table 4.11 Demographic, socio-economic and health profile of Kerala as compared to India

Sl. No.	Indicators		Kerala	India
	Total population (in crore) (Census 2011)		3.34	121.06
	Decadal Growth (per cent) (Census 2011)		4.9	17.7
	Sex Ratio (Census 2011)		1084	943
	Child Sex Ratio (Census 2011)		964	919
1	Birth Rate #		14.3	20.4
2	Death Rate #		7.6	6.4
		Male	8.5	6.8
		Female	6.7	5.9
3	Natural Growth Rate #		6.8	14
4	Infant Mortality Rate #		10	34
		Male	9	33
		Female	11	36
5	Neo Natal Mortality Rate*		6	24
6	Perinatal Mortality Rate*		10	23
7	Child Mortality Rate*		2	9
8	Under 5 mortality Rate*		11	39
9	Early Neo-natal Mortality Rate*		4	18
10	Late Neo-natal Mortality Rate*		2	5
11	Post Neo-natal Mortality Rate*		4	11
12	Death Rate*			
	(a) Children (0-4)		2.3	9.4
	(b) Children (5-14)		0.2	0.6
	(c) Persons (15-49)		2.5	3.1
	(d) persons (60 and above)		43.5	41.9
	(e) Per cent of death receiving medical attention*			
		Government	41.6	28.5
		Private	35.8	17.7
		Qualified professional	15.7	33.8
		Untrained/others	6.9	20.1
13	Still Birth Rate*		6	4
14	Total Fertility Rate*		1.8	2.3
15	General Fertility Rate*		51.1	74.4
16	Total Marital Fertility Rate*		3.8	4.8
17	Gross Reproduction Rate*		0.8	1.1
18	Female mean age at effective marriage##			
	(a) Below 18		16.9	16.8
	(b) 18-20		19.2	19.1
	(c) Above 21		24.5	24.0
	(d) All age		23.2	22.1

Sl. No.	Indicators		Kerala	India
19	Couple Protection Rate ##		31.8	40.4
20	Maternal Mortality Ratio**		46	130
21	Expectancy of Life at Birth***		75.1	68.7
		Male	72.2	67.4
		Female	77.9	70.2

Special Bulletin on MMR 2014-16/*SRS Life Table 2012-16
Health and Family Welfare Statistics in India 2017
Source: # SRS 2017 September/* SRS Statistical Report 2016

Box 4.7 Health system response in flood 2018

The impact of floods on the health system is multi-fold. It presents varied and considerable health challenges, often lasting for years after the disaster. The contamination of water from mixing of sewage, other waste materials and rodent secretions, water logging, crowding of displaced population in shelters, straining of provisions for proper nutrition and sanitation increase the risk of communicable diseases in the after-math of a flood. Outbreaks of water-borne diseases like diarrhoea, cholera, hepatitis A and leptospirosis have been reported from such events in both developing and developed countries. The floods of 2018 was way beyond the health system preparedness and resources, as the scale of the disaster was unlike any other in the past 90 years. In the place of a few areas affected by isolated minor flood events, 13 out of the 14 Districts in the State were affected. Health care institutions themselves suffered complete/partial destruction and loss of equipment and supplies. The health department worked in co-ordination with the rescue efforts at all levels. Primary response of the health system was on limiting the morbidity and mortality during and after the disaster through co-ordinated action with the rescue and relief teams. To co-ordinate the health system efforts in the situation, a 24x7 Disaster Control Room was set up at the Directorate of Health Services. The risk of injuries, various communicable diseases and mental health problems in the affected population were assessed by the public health team with the assistance of supporting agencies. Communicable diseases like Water-borne diseases (acute diarrhoeal diseases, hepatitis A, hepatitis E, leptospirosis etc.), mosquito bone diseases etc. were anticipated, considering the extent of the floods but no outbreak occurred, except for a few cases of leptospirosis, which too was far lesser than the scenario anticipated. This points to the effectiveness of the preventive measures taken. Problems arising due to loss of medical records and discontinuation of treatment including dialysis and chemotherapy were identified and measures taken to minimise the same. Health care needs of vulnerable groups including children, women, elderly and patients on palliative care were also forecasted. In the post flood period, the areas of action included cleaning, prevention of water-borne diseases, prevention of food poisoning, control of leptospirosis, prevention of other communicable diseases, control of mosquito-borne diseases, control of non-communicable diseases, psychological issues, other anticipated health issues, behavioural change communication, disease surveillance and reporting, legal interventions, and other supporting activities carried out. Public health activities in the flood after-math comprised of monitoring and evaluation of the public health situation, risk assessment including outbreak-prediction, identification of possible solutions and requirements and assisting in the implementation of the necessary actions with inter-sectoral co-ordination.

Source: Directorate of Health Services, GoK

Nipah Virus Disease Outbreak in Kerala 2018

The disease surveillance system has been functioning extremely well in Kerala, with a robust mechanism for early recognition of any communicable disease of epidemic potential, with quickest response to control and prevent its spread. This aspect has been proved once again with the recent incident of detection in the Districts of Kozhikode and Malappuram and prompt response to the first ever Nipah virus disease outbreak in the State which started in May 2018. This has been appreciated by various experts in the field of communicable disease surveillance and control, including GoI and World Health Organisation (WHO).

All contacts of the confirmed/probable cases including the health care providers of various health facilities were listed out, monitored for their health status daily, samples were tested in probable cases, and continuously monitored till they came out of the maximum incubation period. Central surveillance unit and Ministry of Health (MoH) were informed on a daily basis the sequence of events. Expert teams from Delhi, Chennai, Pune and Manipal reached the District for onsite assistance and evaluation of activities. The observations to identify the possible source of infection were on par with the experience on Nipah outbreaks in Malaysia and Bangladesh, as well as north eastern parts of West Bengal, where the prominent reservoir hosts were fruit eating bats.

The disease was previously reported from Asian countries like Malaysia and Bangladesh from 1998 onwards and also recurrent outbreaks have been reported from parts of West Bengal in India from 2001 onwards. But in South India, this was the first instance, and Kerala's disease surveillance system could detect the outbreak in shortest possible time. The outbreak response activities undertaken by Kerala's health system contained the outbreak in a shortest time of 10 days, though we lost 16 very precious lives during the period. The administrative leadership, the political commitment, community's cooperation and the health systems resilience have contributed to this remarkable outbreak response.

e-Health Project

The e-Health Project targets to link health institutions all over Kerala. The project aims to build a database of individual medical records easily accessible to the medical practitioners. It includes unique patient identification in different settings and exchange of data between different health care delivery units at primary, secondary and tertiary level across State. This could avoid the repeated medical tests and can thereby reduce out of pocket expenses arising out of rush to clinics and laboratories. The scheme is being implemented in all the fourteen Districts of Kerala with Thiruvananthapuram as the pilot District.

National Health Policy, 2017

GoI has drafted the National Health Policy twice, once in 1983 and later in 2002, which has guided the approach towards the health sector in Five-Year Plans. Fifteen years later, a revised National Health Policy has been formulated in 2017. It addresses the issues of universal health coverage, reduction in maternal mortality and infant mortality, access to free drugs and diagnosis and changes in laws to make them more relevant. The primary aim of the National Health Policy, 2017, is to strengthen and prioritise the role of the Government in shaping health systems in all its dimensions-investments in health, organisation of healthcare services, prevention of diseases and promotion of good health through cross sectoral actions, access to technologies, developing human resources, encouraging medical pluralism, building knowledge base, developing better financial protection strategies, strengthening regulation and health assurance. Salient features of the National Health Policy 2017 are;

- Increase health expenditure of the Government from the existing 1.1 5 per cent of GDP to 2.5 per cent of GDP by 2025.

- Increase State sector health spending to more than 8 per cent of their Budget by 2020.
- Decrease in proportion of households facing catastrophic health expenditure by 25per cent, by 2025.
- Ensure District-level electronic database of information on health system components by 2020.
- Strengthen the health surveillance system and establish registries for diseases of public health importance by 2020.
- Increase Life Expectancy at birth from 67.5 to 70 by 2025.
- Reduce under Five Mortality to 23 by 2025 and MMR from current levels to 100 by 2020.
- Reduce infant mortality rate to 28 by 2019.
- Reduce neo-natal mortality to 16 and still birth rate to single digit by 2025.
- Increase utilisation of public health facilities by 50 per cent from current levels by 2025.
- More than 90 per cent of the newborn are fully immunised by one year of age by 2025.
- Relative reduction in prevalence of current tobacco use by 15 per cent by 2020 and 30 per cent by 2025.
- Strategic alliance with private sector

State Health Policy

The GoK constituted a 17 member panel headed by Dr B Ekbal, Member, State Planning Board to draft a new health policy for the State. The Committee held sittings in different Districts to get the opinions and suggestions from the common man regarding their needs in the health sector and held consultations with all the experts, professionals and people who are closely associated with the health sector before finalising the draft. The committee laid emphasis on strengthening the primary health sector of the State, which would play a pivotal role in detection of the diseases and the need for strengthening disease surveillance at the grass root level to prevent the spreading of epidemics. Apart from strengthening the treatment facilities, the committee looked into the need for giving thrust for disease prevention. The policy envisages establishing a publicly funded, free, universal and comprehensive health care system, bringing infant, child and maternal mortality to levels in developed countries and to increase the healthy life expectancy of the population. The draft report is submitted to the Government for further action.

Sustainable Development Goals (SDGs): Targets Set by Kerala

The GoK has declared the short and medium term targets to be achieved by the State in the health sector. The SDG framework specifically Goal 3 (Good Heath and Well-Being), set by the United Nations, was chosen as the reference frame for these goals so that targets finalised by Kerala would be aligned to national and international targets. Targets announced by the UN were examined by the working groups for their relevance to the State and were adapted to suit the State's current epidemiological status and capacity. In addition to the targets listed in the UN documents, Kerala has included targets in dental, ophthalmic and palliative care as they are considered important in the State. The working groups also recommended key strategies to achieve these targets. A survey will evaluate the performance of the State in 2021 to assess the baseline values against which to measure progress towards achievement of the targets.

Health Sector Financing during Plan Periods

Health has been a major area of allocation in the State Budget in the past years. Government healthcare expenditure has been showing a steady increase in recent years. Kerala invests approximate five per cent of its total State Plan outlay on health care excluding the contribution of LGs and other line departments. The outlay earmarked for the implementation of schemes during 12th Five-Year Plan was ₹3,31,888 lakh (BE). The total expenditure reported during the Plan period was ₹3,00,600.50 lakh (90.57 per cent). During the first year of 13th Five-Year Plan (2017-18) an amount of ₹1,31,495 lakh was allotted for health sector. Of which 89.42 per cent has been expended. Second year (2018-19)

Table 4.12 Department-wise outlay and expenditure, Annual Plan 2014-19, in ₹ lakh

Department	Annual Plan 2014-15		Annual Plan 2015-16		Annual Plan 2016-17		Annual Plan 2017-18		Annual Plan 2018-19 (Exp. Up to October)	
	Outlay	% Exp.	Outlay	% Exp.	Outlay	% Exp.	Outlay	% Exp.	Outlay	% Exp.
Health Services	29,693	78.9	32,216	67.86	52,174	113.3	72,402	97.74	78,921	42.99
Medical Education	25,750	97.4	26,699	89.69	39,388	77.56	47,009	82.25	49,414	17.44
Indian Systems of Medicine	2,545	78.15	2,670	93.85	3,412	94.06	4,320	81.56	4,820	34.03
Ayurveda Medical Education	2,567	84.1	2,567	94.6	3,364	55.5	4,600	48.51	5,060	20.35
Homoeopathy	1,440	88.76	1,440	91.26	1,983	76.26	2,300	88.37	2,700	52.41
Homoeo Medical Education	945	97.6	945	93.78	990	24.3	864	42.98	1,015	59.35
Total	62,940	87.76	66,537	79.65	101,311	95.24	131,495	89.42	141,930	33.1

Source: PlanSpace

outlay was fixed at ₹1,41,930 lakh and 33.10 per cent expended up to October 2018. Department-wise Plan outlay and expenditure during the last four Annual Plan period and total outlay and expenditure up to October 2018 (2018-19) is given in Table 4.12.

Major Health Problems in Kerala

Communicable Diseases

Kerala is witnessing an increasing burden of communicable and non-communicable diseases. Although the State has been successful in controlling a number of communicable diseases earlier, the emergence of dengue, chikungunya, leptospirosis, malaria, hepatitis, H1N1, in recent years has led to considerable morbidity and mortality. Instances of vector borne diseases like dengue, malaria, Japanese encephalitis, scrub typhus etc. have seen a marked increase in many Districts. Water borne infections like different kinds of diarrhoeal diseases, typhoid and hepatitis are showing persistence in many Districts. Cholera has surfaced in many Districts after few years of relative low incidence. Vaccine preventable diseases like diphtheria and whooping cough are yet to be eliminated despite years of effort.

Dengue

Dengue fever, which surfaced in Kerala as early as 1998, has now become the single largest vector borne disease. Till 2015, the disease was more prevalent in Districts like Thiruvananthapuram, Kollam, Kottayam, Pathanamthitta, Kozhikode and Malappuram. But in 2017, all the Districts reported Dengue in large numbers. Districts located at higher altitudes were having low prevalence, but all others showed high incidence. The main reason for this wide spread distribution is believed to be due to the changes in the environmental factors causing proliferation of the dengue vector-Aedes mosquitoes. These mosquitoes, which in the earlier days seen more in rural settings have now spread to urban areas also.

Leptospirosis

Leptospirosis is another emerging public health challenge faced by the State. Considered as a rare disease in the early 1980's, it has now spread

to all Districts. In 2012-13 a major epidemic of the disease occurred, affecting most of the northern Districts, following which the disease has become endemic in Kerala. The disease is initially a rodent borne infection, spread through urine of the infected rodents, and the consequent contamination of the environment is the factor responsible for the disease. Over the years, the disease has been reported in many domestic animals like cows, dogs, pigs etc. and thus has become an occupational risk for those engaged in agriculture works. People, who have been involved in cleaning of stagnant canals and drains were reported to have contracted the disease. More recently the mortality due to leptospirosis is also on the rise, and joint efforts of veterinary and animal husbandry departments are essential for effective control of this disease.

Out of the 1098 leptospirosis cases reported in 2015, 43 deaths were reported. The number of cases increased to 1,710 with 35 deaths in 2016. In 2017, a total of 1,408 cases were confirmed resulting in 80 deaths. In 2018, there were 625 cases and 30 deaths reported upto September 2018.

Chikungunya

Chikungunya is a newcomer among the vector borne infections. This disease believed to have originated in the remote islands in Arabian Sea in 2005-06 spread rapidly over whole of Kerala within the next two years, affecting more than 80 per cent of our population. Fortunately, the disease is fading out, and has resulted in life long immunity for the affected population, a blessing in disguise. The past two years have seen only sporadic cases in Kerala, annual total being less than 200 cases and no deaths. Here again the vector responsible for disease transmission is the Aedes mosquitoes. Since both dengue and chikungunya are transmitted by same mosquito, and also since the same mosquitoes are responsible for transmission of the potential threat of Zika virus disease and Yellow fever, the State should be vigilant in future.

In 2014, out of the 139 cases of chikungunya reported, 106 were from Thiruvananthapuram. In 2015, 104 cases were reported and 99 were from Thiruvananthapuram District alone, while it was 90 and 67 respectively in 2016-17. It was 54 and 41 respectively in 2017-18. In 2018-19 (upto September) 37 cases reported in which 33 from Thrissur District. A total of 20,46,455 viral fever cases were reported in Kerala during 2014 and in 2015 it was 19,25,690 cases. It was15,41,441 cases in 2016-17 and rose to 34,17,698 in 2017-18. In 2018-19 (upto September), the number of reported cases are 17,86,250. The details of District-wise patients treated for chikungunya and viral fever during 2017-18 and 2018-19 (upto September) is given in Appendix 4.52.

Malaria

Malaria, another vector borne disease, transmitted by Anopheles mosquitoes has been a major public health challenge for our country for the past many decades. Various national programs targeting its elimination have met with limited success. Though Kerala had eliminated the disease in early 1970s, Malaria has now reemerged as a public health challenge. The problem is recently aggravated due to the presence of large scale population movement from malaria endemic states. Proportion of falciparum malaria, the more severe form of the disease is slowly on the rise in Kerala. Though elimination of indigenous form of Malaria has been included in the SDG targets by the State, the issues in its fulfillment are many. Rapid urbanisation, extensive infrastructure development in many Districts, uncontrolled construction works in urban area, and climate related changes in life cycle of mosquitoes are all big hurdles in the attainment of the SDG goals. Annual cases of malaria in Kerala are less than 2,000 and the number of deaths reported is also very low, but the major issue here is the increase in foci of indigenous malaria. Thiruvananthapuram, Kollam, Kozhikode, Malappuram, and Kannur Districts have pockets of indigenous malaria over the past few years. Kasaragod District is persistently having high number of malaria, over many years, because

of its proximity to the highly endemic Districts of Karnataka. Movement of fishermen along the western coast of our State is a potential threat for spread of malaria along the coastal Districts. The incidence of malaria in 2017 is 1,192 and two death were reported. In 2018 number of cases is 551 and no death was reported.

Japanese Encephalitis (JE)

This is a form of encephalitis, an inflammatory disease of brain and its coverings, and is also a mosquito borne infection. Due to the presence of large paddy fields, Kerala is also at risk of this disease, as the virus responsible for the disease is spread by Culex mosquitos, which are bred abundantly in water logged areas like paddy fields. The peculiar nature of the Culex mosquito to breed in contaminated water also, increases the potential threat in other areas as well. Role of migratory birds in transmission of JE is an extra risk for Kerala, because our State has many attractive sanctuaries for migratory birds. But since there is an effective vaccine against JE, we can be optimistic in its control programme, by strengthening the JE vaccination.

Water Borne Diseases

There was a decrease in Acute Diarrhoeal Diseases (ADD) in 2018 compared to previous years. There was a considerable decrease in typhoid in 2018, but death due to suspected Hepatitis increased.

The main reason for waterborne diseases is attributed to the unavailability of safe drinking water in many parts of the District especially in tribal and coastal areas. Unhygienic drinking water sources like wells, pump houses, water supplied through tanker lorry, leaks in public water supply pipes and the consequent mixing of foul water with drinking water, dumping of wastes including sewage in water sources, use of commercial ice in preparation of cool drinks, habit of unsafe water in preparation of welcome drinks etc. are some reasons for spread of water borne diseases. Health Department has formulated a yearlong action plan called "Jagratha" which will be implemented from November 2017 to December 2018 for prevention and control of communicable diseases.

HIV/AIDS

It is estimated that around 24 lakh people in India are currently living with HIV source. Kerala State Aids Control Society is the pioneer organisation in the State working with the objective of controlling the spread of HIV as well as strengthening the State's capacity to respond to HIV/AIDS. The society was formed to implement the National Aids Control Programme in the State.

The prevalence rate of the State continues to decline from 0.21 per cent in 2008-09 to 0.13 in 2010-11 and 0.05 per cent in 2017. In Kerala, the prevalence of HIV/AIDS is 0.41 per cent (4.95 per cent in 2011) among injecting drug users (IDU) which is 6.26 per cent at national level. It is 0.23 per cent (0.36 per cent in 2011) among men having sex with men (MSM) which is 2.69 per cent at national level and 0.10 per cent (0.73 per cent in 2011) among Female Sex Workers (FSW) which is 1.56 per cent in India in 2017 (*Source*: Kerala State AIDS Control Society). In transgender, HIV prevalence rate in Kerala is 0.16 per cent which is 3.14 per cent at national level. HIV prevalence among migrants in India is 0.51 per cent.
(*Source*: Kerala State AIDS Control Society)

Prevalence of Major Communicable Diseases

A comparative analysis of the prevalence of major communicable diseases is given in Table 4.13.

Non-Communicable Diseases (NCD)

Common non-communicable diseases causing great threat to a healthy life are diabetes, hypertension, cardio vascular diseases, cancer and lung diseases. Unless interventions are made to prevent and control non-communicable

Table 4.13 Prevalence of communicable diseases in Kerala

Disease		2014		2015		2016		2017		2018 (Up to October)	
		Cases	Death	Cases	Death	Cases	Death	Cases	Death	Cases	Death
Dengue Fever		2,548	13	4,114	29	7,218	21	21,993	165	3,265	33
Malaria		1,751	6	1,549	4	1,540	3	1,192	2	551	0
Confirmed Chikungunya		264	0	152	0	124	0	54	0	37	0
Japanese Encephalitis (JE)		3	2	0	0	1	0	1	0	5	2
Leptospirosis		1,075	43	1,098	43	1,710	35	1,408	80	625	30
Hepatitis-A		2,833	6	1,980	10	1,351	10	988	24	1,029	44
Cholera		8	1	1	0	10	0	8	1	7	0
Typhoid		1,955	0	1,772	0	1,668	2	3,144	1	98	0
ADD (Diarrhoea)		442,109	5	467,102	4	493,973	14	463,368	8	355,218	10
Scrub Typhus		433	6	1,149	15	633	3	340	5	115	0
Kala Azar		1	0	4	0	2	0	0	0	3	0
Kysanur Forest Disease		6	0	102	11	9	0	0	0	0	0
H1N1		62	15	900	80	22	1	1411	76	15	0
Fever	OP	2,655,507	29	2,676,842	26	2,641,311	18	3,417,968	76	1,786,250	33
	IP	85,959		96,189		80,049		109,974		38,202	
Diarrheal Diseases		-	-	-	-	326,517	10	-	-	-	-
Enteric fever		-	-	-	-	1,192	0	-	-	-	-
Measles		-	-	-	-	870	3	-	-	-	-
Chickenpox		-	-	-	-	12,698	1	27,856	20	20,911	144

Source: Directorate of Health Services, GoK

diseases, their burden is likely to increase substantially in future, due to ageing population and changes in life style. Considering the high cost of medicines and longer duration of treatment, this constitutes a greater financial burden to low income groups. Rampant modernisation and urbanisation, drastic lifestyle changes, heavy dependency on alcohol and tobacco, affinity for white collar jobs, unhealthy eating patterns, low priority for physical exertion, high levels of stress in all strata of population are some of the reasons contributing to the prevalence of non-communicable diseases in the State.

In India, it is estimated that 42 per cent of total death are due to NCDs. In Kerala, the situation is more serious as more than 52 per cent of the total death between the productive age group of 30 and 59 is due to NCD. Hypertension, diabetes mellitus, cardio vascular diseases, stroke and cancer are the major non communicable diseases seen in Kerala. Studies show that 27 per cent of Kerala adult males are having diabetes mellitus compared to 15 per cent at national level. 19 per cent of adult female population is diabetic compared to 11 per cent in India. Genetic predisposition, dietary habits and sedentary lifestyle are considered to be the reason for this phenomenon. 40.6 per cent of adult males and

Box 4.8 Non Communicable Diseases in Kerala

In a recent survey conducted by Achutha Menon Centre for Health Science Studies, Thiruvananthapuram, the NCD scenario in the State has further worsened. The survey reveals that one out of three has hypertension and one out of five has diabetes. The study also revealed that the level of normalcy attained for blood sugar and blood pressure even after early detection and management is significantly low compared to the standards. In adults over 18 years of age, on an average, nearly one of three and one of five adults in Kerala had hypertension and diabetes, respectively. Control status of both hypertension (systolic blood pressure less than 140 mm of hg and diastolic blood pressure less than 90 mm of hg) and diabetes (fasting blood sugar less than 126 mg/dl) were alarmingly low at 13 per cent and 16 per cent respectively of the individuals with hypertension and diabetes. While, the control rates in the western population is over 50 per cent. Additionally, among males, one of four adults reported current use of some form of tobacco and over 30 per cent reported current alcohol use. The proportion of population consuming salt above the recommended level of 5gm/day was 69 per cent. More than three fourth of the study population (77.8 per cent) reported consumption of less than the recommended three servings of vegetables per day and 86per cent participants reported consumption of less than two servings of fruits per day. Reduction of tobacco use in Kerala by about eight per cent as per the latest Global Adult Tobacco Survey figures is one of the achievements in the State. The extremely low rates of control of hypertension and diabetes need to be addressed urgently. Risk reduction strategies for all the NCD risk factors (tobacco, alcohol, unhealthy diet and physical inactivity) are being implemented through Local Governments and schools. However in order to enhance the control rates of diabetes and hypertension secondary prevention will have to be enhanced.

Source: Achutha Menon Centre for Health Science Studies, Thiruvananthapuram

38.5 per cent of adult females are hypertensive compared to 30.7 per cent and 31.9 per cent at national level. Incidents of obesity, hyper lipedemia, heart attack and stroke are also high. Cancer mortality is extremely high in males in Kerala compared to national average.

Kerala COPD Prevention and Control Program – SWAAS

Chronic Obstructive Pulmonary Disease (COPD) is one of the leading causes of mortality and morbidity worldwide. As per the 'Global Burden of Diseases' (Institute for Health Metrics and Evaluation (IHME) at the University of Washington) estimates for India, COPD is the second leading cause of mortality in India. Recently the NCD program has included COPD and Chronic Kidney Disease among the priority NCDs in India. Assuming that the National estimates for Asthma and COPD reflect the situation in Kerala too, the number of COPD cases in Kerala is estimated to be 5,30,000 and the number of Asthma patients among adults is estimated to be 4,80,000. SWAAS is a specific public health program for COPD in Kerala which is implemented from FHC level as part of Aardram Mission.

Cancer

Cancer is a major non communicable disease in Kerala. Every year, 35,000 new cases of cancer are getting detected in Kerala. Nearly 1 lakh people are under treatment for cancer disease annually. Apart from Medical Colleges, Regional Cancer Centre, Malabar Cancer Centre and Cochin Cancer and Research Centre are the major hospitals in Government sector which offer treatment for cancer patients. Apart from these institutions all the major Government hospitals provide cancer treatment. Delay in

early detection, huge treatment cost, minimal treatment centres and lack of awareness contribute to high mortality of the disease.

Malabar Cancer Centre

Malabar Cancer Centre, Kannur an autonomous centre under the GoK, has been established with the aim of providing oncological care to the people of north Kerala. The Centre has bed strength of 200 and many latest facilities for the treatment of cancer patients. In 2017-18, a total of 4,621 in patients and 72,621 out patients were treated in Malabar Cancer Centre in which new cases is 4,496. The average number of new cases detected every year in the centre is 3,660.

Cochin Cancer Research Centre (CCRC)

Growing concerns over the alarming increase in rates of cancer incidence together with the need of a dedicated tertiary cancer care and research centre in Government sector in central Kerala necessitated the birth of Cochin Cancer Research Centre. CCRC is a society registered under Societies Act. At present only outpatient facility is available in the centre. The advanced cancer treatment currently offered at CCRC is chemotherapy. For all the other services, patients are referred elsewhere. Average number of new cases detected in 2017 is 1,085 and in 2018 is 877 (upto to August 31, 2018). Number of patients treated in 2017 is 4,541 and in 2018 is 4,391 (upto to August 31, 2018).

Regional Cancer Centre (RCC)

RCC, Thiruvananthapuram is the premier comprehensive dedicated centre for diagnosis, treatment and control of cancer in Kerala. RCC is rated amongst the top 28 RCCs in the country and maintains a working relationship with international bodies. Daily average patient visits in RCC are 884. Over the past thirty seven years, RCC has been able to contribute significantly to the increasing needs of cancer care to the people of Kerala and adjoining areas of Tamil Nadu and Karnataka at the lowest possible cost.

Mental Health

As per Census of India 2011, 0.20 per cent of the population of Kerala suffers from mental illness and 0.20 per cent suffers from mental retardation compared to a national average of 0.06 per cent and 0.12 per cent respectively. Although Kerala reports higher levels of mental illness compared to all India, less importance is given to the field of mental health in Kerala.

A mental health policy was approved by the State Government in May 2013.The policy suggests that the treatment for mental illness should start from the PHCs making the mental hospitals and the department of Psychiatric Medicines as referral centres by upgrading them. Research should be encouraged for prevention and cure of mental illness. An awareness programme among the general public about mental illness has also been suggested in the policy. Proper training should be imparted to the doctors free of cost, whether they come from public or private sector. The new State Mental Health Policy 2013 envisages convergence of activities of various departments for the care and rehabilitation of the mentally ill.

In Kerala, three mental health centres are functioning with bed strength of 1,366. District mental health programme is functioning in all the Districts with a total of 10,000 out patients per month. Rehabilitation facilities are offered through these centres. Lack of awareness, attitude of general public, neglect of family members and lack of proper follow up etc. are the major problems noticed. State Government has started 26 day care homes and 506 cured mentally ill patients are being given day care.

District Mental Health Programme (DMHP)

DMHP is functioning in all the 14 Districts of the State. Thiruvananthapuram District achieved successful integration of mental health into primary care by 2014. Now mental health clinics are being conducted in all PHCs and CHCs in

the District by trained doctors of the concerned institutions and medicines are made available to patients from their nearest PHCs. Efforts are on to scale it up to the whole State. Around 17,000 patients are receiving treatment every month, from DMHPs in the State. Other activities include information education and communication (IEC) activities for general public to create awareness and reduce stigma, training for doctors, nurses, pharmacists and health workers for integration of mental health into primary care and targeted interventions like substance abuse prevention, suicide prevention, geriatric mental health and stress management. Day care centres were started for mentally ill in remission under Comprehensive Mental Health Scheme. Now 26 day care centres are functioning in the State under the scheme. School mental health Programmes is implemented in the State in association with National Health Mission (NHM).

Mental Health Scenario in Kerala – Survey by Institute of Mental Health and Neurosciences

The National Mental Health Survey (NMHS 2015-16) has provided, for the first time, robust population based data on mental health problems in the country. The survey was conducted in 12 States across the country by the National Institute of Mental Health and Neurosciences (NIMHANS), Bengaluru, in collaboration with 12 partner institutions with financial and logistical support from the Ministry of Health and Family Welfare (MoHW), GoI. The survey was organised in Kerala by the Institute of Mental Health and Neurosciences (IMHANS), Kozhikode. The household survey was conducted among individuals above the age of 18 years in three Districts viz., Thrissur, Palakkad and Pathanamthitta. The mental disorders were grouped as common mental disorders, severe mental disorders for the survey. Neurotic and stress related disorders and depression of all severity without psychotic symptoms and alcohol and other substance use disorders other than tobacco use were categorised as common mental disorders while schizophrenia and other psychotic disorders with bipolar affective disorder and severe depression with psychotic symptoms were clubbed together as severe mental disorders.

The overall current prevalence of any mental disorders in Kerala was found to be 11.36 per cent. Prevalence of common mental disorders was 11.0 per cent with depressive disorder 2.49 per cent, neurotic and stress related disorders 5.43 per cent, and mental and behavioural problems due to psychoactive substance use (including tobacco use disorder) 10.12 per cent, Neurotic and stress-related disorders include phobic anxiety disorders (3.19 per cent), agoraphobia (2.9 per cent), social phobia (0.47 per cent), panic disorder (0.89 per cent), panic disorder with limited symptoms (0.45 per cent), generalised anxiety disorders (0.28 per cent), obsessive compulsive disorder (2.48 per cent), and Post Traumatic Stress Disorder (PTSD) and adjustment disorder (0.36 per cent). Depression was more common in males and substance use disorders were more in males. Substance use disorders included alcohol use disorders (4.82 per cent), tobacco use disorders (7.22 per cent) and other substance use disorders (0.08 per cent). Prevalence of Severe mental disorders was 0.44 per cent. Schizophrenia and other psychotic disorders were present in 0.19 per cent of the population. Bipolar disorders and severe depression with psychotic symptoms were present in 0.17 per cent and 0.08 per cent of the population respectively. Severe mental disorders were more common in men than in women.

The study observed very high suicidal risk among the surveyed population with prevalence rate of 2.23 which is highest among all the other Indian States included in this survey. This finding is significant in view of the high suicide rate in Kerala (23.9 per 1,00,000 population for the year 2014 as per NCRB records which is double the national rates). Some differences were observed when Kerala data was compared with the national prevalence data. The lifetime prevalence of psychiatric disorders together was found to be 14.14 per cent and the current prevalence 11.36

per cent in Kerala. These rates are slightly above the national figures (13.67 per cent and 10.56 per cent respectively). Of the different disorders studied, significantly higher in Kerala were neurotic and stress related disorders (lifetime prevalence in Kerala 5.63 per cent vs 3.7 per cent at national level) and suicidal risk (high risk in Kerala: 2.23 per cent, national 0.9 per cent). Remarkably better situation in Kerala is the rates of tobacco dependence which is 7.22 per cent in the State compared to the national rate of 20.89 per cent. Other remarkable difference is in rate of psychotic disorders the lifetime prevalence of which is 0.6 per cent compared to national rate of 1.41 per cent.

Kerala is the only State in India where District mental health program (DMHP) is available in all the Districts. Number of beds available for mental health inpatient services in Kerala is 5.87 per 1,00,000 population. There are 400 psychiatrists (1.2 per 1,00,000 population, clinical psychologists 211 (0.63/1,00,000 population) but number of psychiatric social workers is far fewer(absolute number 15, i.e., 0.04 per 1,00,00 population). There are three Government mental hospitals in the State and number of beds available in Government hospitals together is 1962. Seven medical college psychiatry departments and 18 general hospital psychiatry units are providing psychiatry services.

Modern Medicine

In Kerala modern medical services are offered by the Directorate of Health Services (DHS) and the concerned education sector is dealt by the Directorate of Medical Education (DME).

Health Care Institutions under DHS

At present there are 1,283 health institutions with 37,945 beds and 5,887 doctors under Health services department consisting of 682 PHCs, 170 FHCs, 224 Community Health Centres (CHCs), 86 taluk headquarters hospitals, 18 District hospitals, 18 general hospitals 3 mental health hospitals, 8 women and children hospitals, 3 leprosy hospitals, 18 TB clinics, 2 TB hospitals, 5 other speciality hospitals and 46 other hospitals. PHCs are institutions providing comprehensive primary care services including preventive care and curative care. CHCs and taluk level institutions form the basic secondary care institutions. District hospitals, general hospitals and maternity hospitals provide speciality services and some super speciality services. In the 13th Five-Year Plan, focus will be on the implementation of the speciality cadre in all health care institutions up to the level of community health centres and modernisation of the functioning of the PHCs as FHCs. The bed population ratio is 880 and the average doctor bed ratio is 6.8. Category-wise major medical institutions and beds in Kerala, details of IP, OP cases, major and minor surgeries conducted and Medical and Para medical personnel under DHS in 2018 are given in Appendices 4.53, 4.54 and 4.55.

Financial Protection Against Catastrophic Health Care Expenditure

Rashtriya Swasthya Bima Yojana (RSBY)

RSBY is a health insurance scheme, sponsored by the GoI, for providing free and quality inpatient care to the families falling below poverty line (BPL) in the society. This was introduced in 2008-2009 in all the 14 Districts of Kerala. The scheme promises inpatient treatment facility upto ₹30,000 on paperless, cashless and floater basis to a maximum of five members in a family, for a period of one year through selected public and private hospitals with a prefixed medical and surgical rates for treatment in general ward. RSBY does not cover outpatient treatment cases. Minimum period of 24 hour inpatient treatment is required for getting the benefit under the scheme. More than 1,100 surgical procedures with prefixed rates are included in the benefit package. GoI pays 60 per cent of the premium and the State pays the remaining 40 per cent. The annual insurance premium is fixed through a tender process. Three important features of RSBY are (i) there is no age limit for joining the

scheme; (ii) it covers existing diseases; and (iii) a transport allowance of ₹100 is being paid in cash to the patient at the time of discharge from the hospital. Maximum transportation allowance payable in a year is restricted to ₹1,000. It has a component to pay the wages foregone as well. As the BPL population according to the definition adopted by the State is more than that of the Planning Commission estimate by 10 lakh, the State Government has formulated its own Scheme for catering to the needs of the additional 10 lakh population. These two schemes are being jointly run under the banner Comprehensive Health Insurance Scheme (CHIS). A special purpose vehicle by name CHIAK (Comprehensive Health Insurance Agency, Kerala) has been formed and entrusted with the task of running the schemes. The beneficiaries to pay only ₹30/- as registration fee. The scheme has been implemented in the State since October, 2008.

GoI has extended the scheme to cover families of the participants of MGNREGA schemes, who have worked for more than 15 days in the previous year, street vendors, and domestic workers etc. Overall, workers in the unorganised sector are being covered by the scheme in increasing numbers. The State has been trying to bring other categories of population into the CHIS net.

Comprehensive Health Insurance Scheme (CHIS)

The non-RSBY population is divided into two categories: (a) those belonging to the BPL (poor) list of the State Government but not to the list as defined by the GoI and (b) APL families that belong neither to the State Government list nor to the list prepared as per the guidelines of GoI. In the case of the families belonging to the category (a), the beneficiaries will have to pay ₹30 per annum per family as beneficiary contribution Smart Card. Under CHIS, a family can avail of in-patient benefit and for upto ₹30,000 as in the case of RSBY. In 2014-15, the Government brought the members of the various welfare fund boards and its pensioners, all Scheduled Caste and Scheduled Tribe population, and families engaged in fishing and workers of various unorganised sectors under CHIS net. Government and private hospital-wise details of utilisation of the scheme is given in the Table 4.14. Given fact that only the empanelled hospitals (public, private and co-operative hospitals) are allowed to extend the RSBY/CHIS benefits, the quality and services is assured. Further, The coverage is likely to be increased to ₹1,00,000.

The two schemes together cover a sizeable proportion of the population in the State. The progress of the scheme is presented in Appendix 4.56. The number of families covered has steadily increased to reach 40.96 lakh by 2018-19. Financial protection in the form of RSBY offered the option of using services of the private sector by all those enrolled in the scheme. Interestingly, instead of the proportion of users of private institutions increasing over the years, the share of the Government hospitals in the total has steadily increased. This is presented in Appendix 4.57.

A new scheme for providing tertiary care treatment with a benefit package of maximum ₹70,000 for critical illness like cancer, cardiac and renal failure to all the RSBY and CHIS card holder families was designed in 2010-2011. The scheme, named as CHISPLUS, was launched by the middle of February 2011. The coverage of CHISPLUS has been extended in 2012 by including diseases relating to liver, brain and

Table 4.14 Physical and financial achievements of RSBY/CHIS

Year	Number of patients in lakh			Amount in crore		
	Public	Private	Total	Public	Private	Total
2016-2017	3.9	1.96	5.86	172.52	94.9	267.42
2017-2018	4.75	2.33	7.08	203.15	110.99	314.14
Total	8.65	4.29	12.94	375.67	205.89	581.56

Source: Labour Commissionerate, GoK

treatment of accident trauma care. The scheme is implemented through all the five Government medical colleges in the State, Regional Cancer Centre, Thiruvananthapuram, Malabar Cancer Centre and all Government District hospitals, general hospitals, and taluk hospitals. The scheme is monitored by CHIAK with the help of software developed by Keltron. The scheme, implemented through a non-insurance route, has benefited 4,66,198 patients till 2017-18 with a total claim of ₹434.50 crore. This is presented in Appendix 4.58.

The RSBY benefit package does not cover tertiary care. The CHIS Plus covers limited tertiary care for the population groups registered under the scheme. This leaves out the other groups for whom tertiary care treatment becomes unaffordable. Many among them would appeal for assistance. Perceiving such a felt need, the State designed a scheme called Karunya Benevolent Fund (KBF) to meet the tertiary care expenditure of deserving individuals. Unlike the CHIS, which is a cashless scheme, the KBF requires a prior authorisation. The amount is paid to the hospital which has to submit the utilisation certificate. In addition, there is also provision to provide a one-time assistance of ₹3,000 per family. Treatment can be availed at all Government hospitals and empanelled private hospitals. In kerala, the department of labour is the nodal agency for implementing the RSBY scheme.

Arogyakiranam

Arogyakiranam is one of the flagship health programmes of the GoK. The program provides free treatment and related medical services to all patients from birth to 18 years, as an entitlement. Expenses covered by this entitlement include costs incurred for OP registration, investigations, drugs/implants/materials used in treatment and procedures. The fund for coverage of treatment expenditure was allotted to Districts, to be maintained as corpus fund, from which all expenses were debited. This scheme so far benefited a cumulative of 2,52,44,268 patients (i.e. IP plus OP cases). In 2017-18 alone, the scheme has benefited 76,73,35,43 patients (i.e. IP plus OP cases).

Ayushman Bharat – National Health Protection Mission

GoI has approved the launch of a new Centrally Sponsored Scheme Ayushman Bharat – National Health Protection Mission (AB-NHPM). The scheme has a benefit cover of ₹5 lakh per family per year. The target beneficiaries of the proposed scheme is expected to be 10 crore families belonging to poor and vulnerable population based on Socio Economic Caste Census (SECC) database. AB-NHPM will subsume the on-going CSS – RSBY and the Senior Citizen Health Insurance Scheme (SCHIS). GoK has decided in principle to implement the scheme. Main features of the programme are given below.

1. This cover will take care of almost all secondary care and most of tertiary care procedures. To ensure that nobody is left out there will be no cap on family size and age in the scheme. The benefit cover will also include pre and post-hospitalisation expenses. All pre-existing conditions will be covered from day one of the policy. A defined transport allowance per hospitalisation will also be paid to the beneficiary.
2. Beneficiary covered under the scheme will be allowed to take cashless benefits from any public/private empanelled hospitals across the country.
3. To control costs, the payments for treatment will be done on package rate basis. For beneficiaries, it will be a cashless, paper less transaction. Keeping in view the State specific requirements, States will have the flexibility to modify these rates within a limited bandwidth.
4. The scheme proposes to ensure appropriate integration with the existing health insurance/protection schemes of various Central Ministries/Departments and State Governments (at their own cost). States will be free to choose the modalities for implementation.

5. States would need to have State Health Agency (SHA) to implement the scheme. States will have the option to use an existing State Nodal Agency to implement the scheme and act as SHA. At the District level also, a structure for implementation of the scheme will need to be set up.

The major criticism against the scheme is that it has not been initiated in accordance with the spirit of co-operative federalism. The Centre has announced this scheme without consultation with the States, while the latter is bound to share 40 per cent of the cost. Besides, many States are already implementing insurance schemes with comprehensive coverage. There are apprehensions among States that those who are covered at present would be left out under Ayushman Bharat, which is based on Socio Economic Caste Census (SECC), 2011. There is also the substantial issue of public sector health care institutions facing neglect in comparison to private sector health institutions, when emphasis is on insurance based health coverage. The budget allocation (₹2,000 crore) to the scheme in the Union Budget, 2018, and the resource constraints faced by the States are factors which would impede the implementation of the scheme.

National Health Mission (NHM)

The GoI has launched the NHM which includes two sub missions NUHM and NRHM. NHM has five financing components to the States, namely (i) NRHM/RCH Flexi-pool, (ii) NUHM Flexi-pool (iii) Flexible pool for communicable diseases, (iv) Flexible pool for non-communicable diseases including injury and trauma and (v) Infrastructure Maintenance. Under the infrastructure maintenance component, support has been given over several Plan periods, to States to meet salary requirement of Schemes viz., Direction and Administration (Family Welfare Bureaus at State and District level), Sub Centres, Urban Family Welfare Centres, Urban Revamping Scheme (Health Posts), ANM/LHV Training Schools, Health and Family Welfare Training Centres, and Training of Multi-Purpose Workers (Male).

NHM is functioning in the State for the development of health institutions with Central Government funding. 40 per cent of the total fund has to be given to the NHM by the State Government as State share. NHM supports the Health Services Department, Directorate of Medical Education and AYUSH Departments. National Rural Health Mission aims to provide accessible, affordable and accountable quality health services to the poorest households in the remote rural regions. Under NRHM, the focus is on a functional health system at all levels, from the village to the District. There are 83 urban PHCs under NHM. Total GoI release to the State in 2015-16 was ₹224.94 crore, in 2016-17, ₹219.19 crore and in 2017-18 it was ₹235.05 crore.

Pradhan Manthri Swasthya Suraksha Yojana (PMSSY)

PMSSY is a GoI supported scheme to improve infrastructure facilities and technology in Government Medical College, Thiruvananthapuram (Phase I) and Kozhikode and Alappuzha (Phase III) with a total outlay of ₹150 crore each, of which ₹30 crore is the State share. The project for Government Medical College, Thiruvananthapuram (Phase I) has already been completed and the rest are ongoing in 2018-19.

State Institute of Medical Education and Technology (SI-MET)

SI-MET was established in the State in 2008 to promote medical education and research. There are seven nursing colleges functioning under SI-MET with an annual intake of 340 students. A total of 957 students are studying in the Nursing Colleges of SI-MET as on October 2018.

Child Development Centre (CDC)

Child Development Centre (CDC) established by the GoK is an autonomous centre of excellence in early child care and education, adolescent care and education, pre-marital counseling, women's welfare and other related fields to reduce

childhood disability through novel scientific initiatives and create a generation of prospective and responsive parenthood through healthy children and adolescents. The number of patients treated in 2016-17 was 15,230 and 2017-18 it is 19,083.Only out-patient services are available and there is no facility for admitting patients. Around 332 medical and nursing students got academic training in 2017-18.

Drugs Control Department

The responsibility of the drugs control department is to ensure the availability of quality drugs to the public and see that the market is free from counterfeit, spurious and substandard drugs and no drugs are sold at a price higher than the retail price marked on the container. The department has 6 Regional Offices, 11 District Offices, 4 ayurveda wing offices and 2 drugs testing laboratories. NABL accredited drug testing laboratories are functioning at Thiruvananthapuram and Ernakulam. Establishment of three more laboratories at Thrissur, Pathanamthitta and Kozhikode is in progress. Major achievements of the department in 2017-18 are given in Table 4.15.

Medical Education

In Kerala, Medical Education is imparted through 9 Medical Colleges at Thiruvananthapuram, Alappuzha, Kozhikode, Kottayam, Manjeri, Idukki, Ernakulum, Kollam and Thrissur Districts and Nursing Education through 6 Nursing Colleges in Thiruvananthapuram, Kozhikode, Kottayam, Alappuzha, Ernakulam and Thrissur Districts. Five Dental Colleges are functioning at Thiruvananthapuram, Kozhikode, Alappuzha, Thrissur and Kottayam Districts. Besides, four colleges of Pharmacy and one Paramedical Institute is also functioning under the Department.

Medical and Para medical courses conducted in Government medical colleges with annual intake of students, details of clinical and non-clinical personnel in Medical Colleges under DME, in 2018-19 are given in Appendix 4.59 and 4.60. A comparative analysis of the status of medical college hospitals and attached institutions during 2017-18 and 2018-19 is given in Appendix 4.61. The bed strength has increased by 414 in 2018-19 in Medical College institutions as compared to the previous year. The number of outpatients and major surgeries conducted has increased in 2017-18. Major achievements of Medical Education Department in 2017-18 include;

- Aardram project progressing in all Medical Colleges
- Biometric punching system established in all Medical Colleges
- e-governance is being implemented under the institutions of DME
- 168 PG seats increased in Medical College, Trivandrum
- 324 new posts created under DME
- 75 per cent construction works of academic block is completed in Medical College, Kasaragod and Pathanamthitta.

Table 4.15 Major achievements of the drugs control department in 2017-18

Number of inspections conducted	14,428
Number of prosecutions initiated	72
Number of sale licences suspended as deterrent measure	396
Number of samples tested	8,257
Number of new manufacturing licenses issued (Allopathy And Cosmetics)	42
Number of price violations detected and reported to NPPA	6
Number of new Blood Bank licenses issued	12

Source: Drugs Control Department

Kerala University of Health and Allied Sciences (KUHS)

Kerala University of Health Sciences was established as per the Kerala University of Health Science Act, 2010 with the aim of ensuring proper and systematic instructions, teaching, training and research in modern medicine, homeopathy and Indian system of medicine and allied health sciences in Kerala. Academic activities of the University commenced in academic year 2010-11. The number of institutions affiliated to University is (upto October 2018) 296 with 37 Government colleges, 5 Government aided colleges and 254 self-financing colleges. The colleges fall under all systems of medicine such as modern medicine, ayurveda, homeopathy, sidha, unami, yoga, naturopathy, nursing, pharmaceutical science and paramedical courses. The total intake of students in 2017-18 is 20,586 (3,724 boys and 17,172 girls) under various health sciences stream. Details of the Government, aided and unaided colleges affiliated under various streams are given in Table 4.16.

KUHS Schools and Centres

1. School of Health Policy and Planning at Thiruvananathapuram – to encourage the formation and implementation of sound clinical health care policies.
2. School of Research in Ayurveda (AYUSH), Ernakulam – to conduct high quality state of art research in literary and pedagogical research, medicinal plant research, pharmaceutical research and clinical/literary research
3. School of Family Health Studies at Kozhikode – to take family as the basic unit and conduct implementation research on providing family doctor and 'safety-net' for the vulnerable families.
4. Academic Staff College – to improve the capacity building of faculty of affiliated colleges and to provide opportunities for professional and academic development.
5. Centre for Interdisciplinary Allied Health Sciences and Technology Studies – to promote interdisciplinary research within the health sector, allied science and with specific focus on technology collaboration with all branches of science and technology relevant to health of people.
6. Centre for History of Medicine Studies and Museum – to conduct research on evolution of medicine, both western and Indian and to establish a state of the art facility to collect, preserve, study, and exhibit materials that advance our knowledge of medical practice.
7. Centre for Health Care Counselling – to create a facility for research and training in the relatively new concept of health care counselling, with focus on simplifying

Table 4.16 Details of the Government, aided, and unaided colleges affiliated under various streams, number as on October 2018

Stream	Government	Aided	Unaided	Total
Modern Medicine	10	0	23	33
Ayurveda Medicine	3	2	12	17
Homoeo Medicine	2	3	0	5
Dental	5	0	20	25
Sidha Medicine	0	0	1	1
Unani Medicine	0	0	1	1
Nursing	6	0	117	123
Paramedical	7	0	41	48
Pharmacy	4	0	39	43
Total	37	5	254	296

Source: Kerala University of Health and Allied Sciences

the technical knowledge into a language understandable by the client, imparted in the context of their perceived needs, thus improving the communication line between the professional and the client.

8. Centre for Basic Science Research and Bioethics – to foster studies in basic sciences as well as ethical, health-related topics through research, educational and clinical activities working in unison, so as to improve the standard of health care research.
9. Centre for studies on Health of Young Adults – to assess the burden and etiology of academic, lifestyle, mental health and reproductive health issues of young adults (15-24 years).
10. Centre for Disability Management Studies – to create a facility for need assessment of persons with disability, desk review of available publications, facility survey in KUHS affiliated institutions, capacity building of health care providers, collating evidence base for prevention, early intervention, remedial teaching, rehabilitation and community support services available and evaluation of governmental programs for disabled for formulating better policy directives.
11. Centre for Gerontological Studies – to promote research in (i) 'healthy ageing' concept and quality of life, (ii) all domains of geriatric health and its determinants and (iii) Community based services including Palliative Care initiatives in Kerala.
12. Centre for Studies in Medical Simulation – to develop a world-class simulation-based learning environment where health science education is enhanced through simulation technology, innovation and research.

Indian System of Medicine (ISM)

Ayurveda is a science dealing not only with treatment of some diseases but also a complete way of life. The department of Indian system of medicine renders medical aid to the people through the network of ayurveda hospitals and dispensaries, grant-in-aid ayurveda, sidha, unami, visha, netra and naturopathy institutions. Specialty hospitals such as mental hospital, panchaksrma, nature cure and marma are functioning under this department. At present there are 128 hospitals and 818 dispensaries under the department. The State Medicinal Plants Board co-ordinates matters relating to cultivation, conservation, research and development and promotion of medicinal plants in the State. List of major institutions and District-wise distribution of institutions, beds and patients under ISM department during 2016-17 and 2017-18 is given in Appendix 4.62.

In 2017-18, ISM Department conducted 618 awareness classes and 624 medical camps which benefited 7109 patients. Special projects were implemented by the ISM department in 2017-18 in addition to the normal medical treatment. They are Balamukulam, Ritu, Prasadam, Koumarashtoulyam, Drishti, Jeevani, Punarnava, Karalrogamukthi, Snehadhara, Geriatric Care, Yoga, Sports Medicine, Panchakarma, Ksharasutra, Manasikam, Vayoamritham, Nirvisha, Jyothirgamaya, Kanyajyothi, varnyam, Amritakiranam, Basti and Bhamini.

AYUSH (Ayurveda, Yoga and Naturopathy, Siddha, Unani and Homoeopathy)

GoI has set up two regulatory bodies to set standards of medical education. The Central Council of Indian Medicine (CCIM) under Indian Medicine Central Council (IMCC) Act, 1970 regulates educational institutions and practitioners in respect of ayurveda, unani and sidha systems of medicines. The Central Council of Homoeopathy (CCH) under Homoeopathy Central Council Act, 1973 regulates educational institutions and practitioners in respect of Homoeopathy system of medicines. At present Yoga and Naturopathy, being drugless systems, are not regulated.

National AYUSH Mission

Department of AYUSH, Ministry of Health and Family Welfare, GoI has launched National AYUSH

Mission (NAM). The basic objective of NAM is to promote AYUSH medical systems through cost effective AYUSH services, strengthening of educational systems, facilitate the enforcement of quality control of ayurveda, sidha, unani and homeopathy drugs and medicinal plants. The funding pattern will be 60:40 by Centre and State. GoK started the Ayush department in the State on August 8, 2015. GoI release in 2016-17 was ₹858.63 lakhs and in 2017-18 it was ₹2,096.20 lakhs. In 2018-19, GoI released an amount of ₹1,556.83 lakh (upto September 30, 2018).

Ayurveda Medicine Manufacturing – Oushadhi

Oushadhi is the largest manufacturer of ayurvedic medicines functioning in India in the public sector. It is one among the few profit making public sector undertakings. Oushadhi is the exclusive supplier of ayurvedic medicines to Government Hospitals and dispensaries of ayurveda department. In Kerala, Oushadhi supplies medicines to State ISM department at 30per cent less than the market price and ISM Department supplies this medicine to the poor patients in the State free of cost. The company also caters to the demand of the public through a network of 600 exclusive agencies spread in and outside the State.

Ayurveda Colleges

There are 3 Government ayurveda colleges situated at Thiruvananthapuram, Thrippunithura and Kannur having bed strength of 1,311. Total number of inpatients treated in 2016-17 was 8,567 and outpatients treated were 5,46,875. It is 9,747 and 4,20,879 respectively in 2017-18. Panchakarma hospital and women and children hospital are also functioning under the Government ayurveda college Thiruvananthapuram. There are two aided ayurveda colleges, 21 self-financing ayurveda colleges, one self-financing sidha college, one self-financing Unani college and 6 paramedical self-financing colleges for imparting medical education in the State. Annual intake of students for UG Degree is 1,080, PG Degree is 186 and Paramedical Courses is 450.

Homeopathy

There are 669 homeopathic dispensaries, 14 District hospitals, 17 taluk hospitals, 2 ten-bedded hospitals and one hospital with total bed strength of 100 under homeopathy department in the State. In addition, Kerala State Homoeopathic Co-operative Pharmacy (HOMCO) Alappuzha, a medicine manufacturing unit is also functioning under the directorate of homeopathy. HOMCO is running in profit for the last 20 years. District-wise distribution of institutions, beds and patients treated under homeopathic department during 2017 and 2018 is given in Appendix 4.63.

Homoeo Medical Education

Homoeo medical education is imparted through two Government homoeopathic medical colleges, at Thiruvananthapuram and Kozhikode. In addition to this, 3 aided colleges and one unaided college are functioning under this Department. Total bed strength of the Government homoeopathic medical college at Thiruvananthapuram is 118 and the patient treated in 2017-18 in IP was 1,192 and OP was 1,14,215. Total bed strength of the Government Homoeopathic Medical college at Kozhikode is 100 and the patient treated in 2017-18 in IP was 1678 and OP was 1,55,093. Annual intake of students and courses in the six Homoeo Medical Colleges are given in Appendix 4.64.

Immunisation Coverage

Immunisation is one of the most successful and cost effective health interventions and prevents debilitating illness, disability and death from vaccine preventable diseases such as diphtheria, hepatitis A and B, measles, mumps, pneumococcal disease, polio, rotavirus diarrhea, tetanus etc. The coverage of immunisation programmes in Kerala during five years from 2014-15 is given in Appendix 4.65.

The Way Ahead

A healthy society can contribute more significantly and effectively to economic development. Long term illness and expensive health care drive non-poor into poverty. High levels of education especially among women and greater health consciousness have played a key role in the attainment of good health standards in Kerala. However, the issues to be addressed are the health problems of the scheduled tribal population, fishworkers etc., Besides re-emergence of communicable diseases, second generation health issues like increasing incidence of life-style diseases, health problems of the aged, women pose a substantial challenge to the State and the society. Public health care system is being strengthened to face these challenges and realise the goal of people having good health with affordable availability of health care facilities.

Impact of Changing Demographic Profile

Introduction

In the Indian context, a person, who has attained the age of sixty years or above is considered as a senior citizen. Since the proportion of ageing population of Kerala is larger than other States of India, the State has a special responsibility in preventing physical, financial and mental abuses against the elderly. These are areas of concern for the law and order as well as counselling agencies. The elderly should be made familiar with their rights, backed by legislation for being able to resist and take remedial steps against the abuses they are facing.

Demographic Transition in Kerala

Kerala, which has achieved below replacement level fertility much earlier than other Indian States, has the highest proportion of elderly among Indian States (12.6 per cent of the population) the State is currently passing through the most critical stage of demographic transition as a result of fertility and mortality changes, and consequent age structure transition. One of its important consequences is ageing of the population is reflected in the relative increase in the number of aged persons. This has substantial implications on Kerala's socio-economic situation.

Demographic Transition – A Comparison of Kerala and the All India Context

As already mentioned, Kerala is ageing faster than the rest of India. In 1961, its 60-plus population, which was 5.1 per cent of the total in 1961, was just below the national level of 5.6 per cent. Since 1980, Kerala has overtaken the rest of India and in 2001 the proportion of old age population rose to 10.5 per cent as against all India average of 7.5 per cent. By 2011, 12.6 per cent of the Kerala population is past 60 years, compared to the all India average of 8.57 per cent. Currently, 42 lakh people of Kerala are aged 60 and above; 13 per cent of them are past 80 years, the fastest growing group among the old. Women outnumber men among the 60 plus and among them, majority are widows. Kerala has got the highest life expectancy at birth. The life expectancy at birth in Kerala is 71.8 years and 77.8 years for males and females respectively as per the SRS Report 2009-13. Generally, life expectancy among women is higher than men at the all-India also, however, it is much higher in Kerala. Men marrying women a few years younger is another cause for the high proportion of widows among the old. It is a worrisome revelation that, NSS Survey 2015 has found that the 65 per cent of the aged population is affected by morbidity.

In Kerala, the culture of sending elderly persons to Old Age Home is fast developing. The number of inmates in the old age homes (under Social Justice Department and Registered Welfare Institutions) is 17,499 in 2015-16, 19,149 in 2016-17 and 27,272 in 2017-18. Majority of old age people in Kerala are widows As per Census 2011, among the old age in the range of 60-69, 23 per cent are widows and among those above 70 years it is 43.066 per cent. By 2025, about 20 per cent of our population would be elderly and the consequent demand on the social security system

would be substantial. The age composition of Kerala's senior citizens and their marital status is given in Tables 4.17 and 4.18 respectively.

The figures for currently married among the 60+ population is misleading. While for 88.9 per cent of the men in age group 60+ their wives are alive, for women the per cent is only 37.8 per cent. This means that for an overwhelming majority of men their wives are alive at older ages. Men marry wives several years younger and when they enter the age of 60, their wives will be much younger (may be in their late fifties).

Kerala Disability Census 2015

According to the Disability Survey, 2015, the number of senior citizens was 42,33,474 (22,98,716 females and 19,34,758 males) constituting 12.36 per cent of the estimated total population of 3,42,54,086,. Among the disabilities affecting aged persons, locomotor disability stands top with 43 per cent and multiple disabilities stands second with 13 per cent (Disability Census 2015).Persons suffering from Alzheimers were 35,041. In Kerala, number of senior citizens having disabilities and living in institutions is 4,260, out of which 2,352 are female and 1,908 are male. In this, there are 570 persons who are more than 80 years old. Number of households in which, all members are senior citizens is 4,32,953 which is 5.27 per cent of total households.

Increasing Old Age Dependency

The ratio of the dependent population to that of the working age population is defined as the dependency ratio and is an important indicator of the economic burden of each worker. Old age dependency is the ratio of persons aged 60 years and above to the working age population. The 'Old' Dependency Ratio of India as per 2011 census is 142 and in Kerala it is 196, which is due to higher life expectancy at birth. The old age dependency ratio shows an increasing trend in Kerala and is highest among Indian States (Elderly in India 2016, Ministry of Statistics and Programme Implementation, GoI). It increased from 166 in 2001 to 196 in 2011. This implies that the responsibility of supporting the larger section of old age people is higher on the working age population, in terms of shelter, daily living, health expenditure and care giving in Kerala.

Table 4.17 Age composition of senior citizens in Kerala, in numbers

Age composition	Total		Men		Women	
Total population	3,34,06,061		1,60,27,412		1,73,78,649	
Total old age population	4,193,393		18,53,595		23,09,798	
60-69	2,416,805	58%	1,114,368	60%	1,272,437	55%
70-79	1,234,739	29%	534,879	29%	699,860	30%
80+	541,849	13%	204,348	11%	337,501	15%

Source: Census of India, 2011

Table 4.18 Marital status of Kerala's senior citizens

	Total	Men	Women
Never married	2.6	1.8	3.3
Currently married	60.8	88.9	37.8
Widowed	35.7	8.8	57
Others	0.9	0.5	1.9
Without partner	39.2	11.1	62.2

Source: Census of India, 2011

Senior Citizens as Experienced Human Resource

The retirement age for the State Government servants in Kerala is 56 years and in most of the public sector undertakings it is 60. Ageing lowers working life of persons. In Kerala, the retired Government staff get pension which helps them to have some financial secuirty. Meaningful deployment of this experienced human power has the potential not only to enhance economic activity, but also help to keep the elderly busy, giving them a feeling of social relevance. But for those people who have no such job or other unorganised sector workers, there is no pension after retirement. Some of the elderly, people, including disabled, widows get only a nominal amount as pension and it will not help even to cover their medical and other essential requirements. In future, the duty of providing them adequate social security would be a challenging task for the Government.

Nutritional Considerations for the Elderly

The number of individuals aged 60 years and above which is increasing is a group most vulnerable to many health risks including those from a nutrient poor diet. A significant number of elderly fail to get the amount and types of food necessary to meet essential energy and nutrient needs. Ageing population in developing countries is currently facing malnutrition due to an inadequate dietary intake and at the same time it is being observed that their diets are becoming higher in fats, animal products, refined foods and are low in fiber, contributing to rapidly increasing prevalence of obesity and type 2 diabetes. Dietary interventions for the elderly therefore require urgent attention. particularly challenging.

Health

Although Kerala has a very good health care system it also has the highest morbidity. The 71st Round of National Sample Survey on Morbidity(January-June 2015) showed that while a total of 89 persons out of 1,000 persons surveyed reported ill during a 15 days period of survey all over India, the number reported from Kerala was 310 out of 1,000. Among the 60+ population, this was 276 for India and 646 for Kerala. Kerala has the largest incidence of Non Communicable Diseases (NCDs) in India. The State is considered to be the diabetes capital of India. The Registrar General of India's Report on Medical Certification of Cause of Death 2013, revealed that while in India only 3 per cent people died due to diabetes in 2013, it was 10.2 per cent for Kerala. The cases of hypertension and cardio vascular diseases are not different. These may be treated as the factors reducing life span and affecting quality of life of the elderly. While these are general problems affecting all age groups in Kerala, it has a higher adverse impact on the old who are a more vulnerable group in matters of health.

Government's Role in Welfare of Aged

Since independence, the Government has been committed to supporting the old people in our society with certain interventionist welfare methods. The year 1999 was declared by the UN as the International Year of Older Persons followed by the GoI which on January 13, 1999, approved the National Policy for Older Persons for accelerating welfare measures and empowering the elderly in ways beneficial to them. Maintenance and Welfare of Parents and Senior Citizens Act, 2007 provides legal sanctions to the rights of the elderly. In addition constitutional provisions for old age security, old age pension, establishing old age homes, expanding geriatric services, liberalising housing policy for elders have also been undertaken.

State's Old Age Policy, 2013

The policy envisages the responsibility of the society in the wellbeing of all the aged people of above 60 years of age in the State. Along with the love and respect to the aged people, special consideration may be given for their health and financial status. The elderly are to be provided with appropriate livelihood activities for being

a respectable member of the society. The policy also includes the various schemes for the welfare of the aged people.

Ministry of Social Justice and Empowerment

The Ministry of Social Justice and Empowerment, GoI, as the name suggests, is to ensure equitable treatment to such sections of society which suffer social inequalities, exploitation, discrimination and injustice. The Social Defense Division of the Ministry mainly caters to the requirements of senior citizens, besides victims of alcoholism and substance abuse, transgender persons and beggars/destitutes. The Ministry develops and implements Acts, Policies and Programmes for welfare of senior citizens in collaboration with State Governments/Union Territory administrations to ensure that senior citizens may lead a secured, dignified and productive life.

National Policy on Senior Citizens, 2011

National policy recognises the rich experience of old persons and hence rightly considers them as important human resource, assures dignified life in their last phase, assures physical and financial security, health care, shelter and acknowledges the need for affirmative action by the Government, especially for the elder women and rural poor. The policy envisaged State support to ensure financial and food security, health care, shelter and other needs of older persons, equitable share in development, protection against abuse and exploitation, and availability of services to improve the quality of life.

The Maintenance and Welfare of Parents and Senior Citizens Act, 2007

The Maintenance and Welfare of Parents and Senior Citizens Act, 2007 was enacted in December 2007, inter alia, to ensure need based maintenance for parents and senior citizens and their welfare. The Act provides for Maintenance of Parents/senior citizens by children/relatives as obligatory and justiciable through Tribunals, Revocation of transfer of property by senior citizens in case of negligence by relatives, Penal provision for abandonment of senior citizens, Establishment of Old Age Homes for Indigent Senior Citizens, protection of life and property of senior citizens, adequate medical facilities for Senior Citizens etc.

Kerala Maintenance and Welfare of Senior Citizens Rules, 2008

Under these Rules the senior citizens or parents who are unable to maintain herself/himself can apply for maintenance to the Maintenance Tribunal. The Revenue Divisional Officers (RDO) are appointed as the Presiding Officers of Maintenance Tribunal under the Act for each sub-division. District collectors are appointed as Presiding Officers of Appellate Tribunal for each District, and District Welfare Officers are designated as Maintenance Officers for each District. Recently the Ministry of Social Justice and Empowerment, Government of India, has finalised the Maintenance and Welfare of Senior Citizens (Amendment) Bill, 2018, expanding the ambit of social security for senior citizens by including distant relatives also responsible for their upkeep, increased the fine and imprisonment for abandoning parents and done away with the cap of ₹10,000 for maintenance. New clauses have been introduced which would make it mandatory to set standards for senior citizens care centres and multi-service day care centres.

Vayoshreshta Samman Award for the Aged

October 1st of every year is celebrated all over the world as International Day of the elderly and as part of this Ministry of Social Justice and Empowerment has been celebrates the occasion by organising a series of programmes and facilitating distinguished senior citizens, organisations and Panchayats with the Vayoshreshta Samman. This is to recognise the services rendered by the elderly, to sensitise the society about their problems and needs and to

reiterate the Government's commitment towards their cause.

Schemes of the Central Government

Rashtriya Vayoshri Yojana (RVY)

As per the data from Census 2011, the population of senior citizens in India is 10.38 crore, out of which 1.13 crore persons are above the age of 80 years. More than 70 per cent of the population of senior citizens lives in rural areas of the country. Around 5.2 per cent of the senior citizens suffer from various age related disabilities. Increased life expectancy and advancements in health care, have resulted in rising proportion of elderly in Indian population. The number of elderly population will increase to around 17.3 crore by 2026. The RVY scheme provides physical aids and life assistance devices for senior citizens suffering from age related disabilities/infirmities, who belong to Below Poverty Line (BPL) category. The Scheme aims to address disability/infirmity low vision, hearing impairment, loss of teeth and locomotor disability.

Integrated Programme for Older Persons

The main objective of this Central sector scheme is to improve the quality of life of the older persons by providing basic amenities like shelter, food, medical care and entertainment opportunities. It aims to achieve productive and active ageing through providing support to Government/Non-Governmental Organisations/ Panchayati Raj Institutions etc.

Schemes of the Government of Kerala

Age Friendly Panchayat

This scheme is implemented by Social Justice Department of Kerala as a new initiative under the State Old Age Policy, 2013. Converting all the Panchayats in the State into age-friendly Panchayats for ensuring good health, participation and assuring quality of life to the Senior Citizens are the objective of the programme.

Vayomithram

Kerala Social Security Mission is implementing this programme in 6 Municipal Corporations and 82 Municipalities of all the 14 Districts. The Vayomithram project provides health care and support to elderly above the age of 65 years residing in Corporation and Municipal Areas in the State. The project mainly provides free medical check up and treatment through mobile clinics. It also provides palliative care, ambulance facilities, counselling and help desk to the old age. The project is implemented with the participation of Local Governments. Vayomithram provides medicines free of cost by conducting mobile clinics in ward basis in the area. Each mobile unit comprises Medical Officer, Staff Nurse and Junior Public Health Nurse (JPHN). Palliative care service provided for the bed ridden patients in the project area. Special trained nurses and JPHNs are available for the service. Vayomithram co-ordinators provide help desk service to the needy old age persons in the area. Cancer detection camps, dental care camps, recreation programmes, are organised for the elderly every year. In 2017-18, the number of beneficiaries of the project was 2,53,503. It has been decided to extend this project to all Block Panchayats in the State. The aim is to start one Vayomithram unit in each Block every District; Kozhikode is the first one where it was started. It is also proposed to start 'Ayurmithram' in 6 corporations, for providing ayurvedic treatment to the elderly.

VayoAmrutham

The Social Justice Department with the support of Indian System of Medicine department implements this initiative in 15 Old age homes for the treatment of inmates who are suffering from various health problems. Majority of cases treated are for ailments like diabetes, asthma, skin diseases, arthritis, eye and ear diseases, etc. Health support given includes palliative care for bedridden and counselling. As part of this scheme, Ayurvedic treatment is being provided to the inmates belonging to all the Government Old Age Homes functioning under Social Justice

Department. The inmate will be provided with the service of a medical officer and an attender. 826 inmates of government old age homes have been provided Ayurveda treatment through this scheme in 2017-18.

Mandahasam

Mandahasam is an initiative by Social Justice Department for giving free set of teeth for the senior citizens. The scheme aims to reduce nutritional, physical and mental problems faced by the elderly people after loss of their teeth. The department would prepare a list of dental colleges and dental treatment centres from where the beneficiaries could avail of treatment. It would also ensure the quality of artificial tooth and quality treatment by setting standards and norms. Senior citizens who fall in BPL category would be eligible for the benefit under this scheme. One beneficiary would get maximum financial assistance of ₹5,000 for fixing the teeth. Assistance provided to 750 old age people through this scheme in 2017-18.

Sayamprabha Home – Comprehensive Scheme for Senior Citizens

Sayamprabha Home project is a new initiative of Social Justice Department that provides day care facilities in co-operation with Local Governments. These day care centres will provide the most required services and help on a barrier free platform in their age of need. These day care facilities will offer an opportunity for the senior citizens to mingle with their own age group and provide solace to elderly who suffer loneliness during daytime. 70 day care homes for the old age under Local Governments were converted to 'Sayamprabha Homes', which will provide counselling programmes and yoga meditation programmes to the Senior Citizens.

Vayomadhuram

Kerala has the largest number of diabetes patients in India. Based on the recent studies conducted by ICMR (Indian Council of Medical Research) 19.4 per cent people have diabetes in Kerala. Among the oldage population of Kerala 80 per cent suffer from diabetes. With the intention of an old age friendly State, the Social Justice Department under GoK has introduced a new initiative titled "Vayomadhuram" which provides glucometers freely to elderly diabetic persons coming under BPL category. Under this scheme, the department will provide glucometers to 1,000 diabetic old age persons in each District.

Old Age Home and Day Care Centre

These institutions are maintained for the care and protection of senior citizens having nobody to look after. The persons seeking admission in these institutions need to submit their application to the Superintendent of the institution. Confirmation of the admission shall be made after getting the enquiry report of the District Probation Officer.

National Old Age Pension Scheme

The Indira Gandhi National Old Age Pension Scheme (IGNOAPS) is a non-contributory old age pension scheme that covers Indian citizens who are 60 years and above and live below the poverty line. The IGNOAPS beneficiaries aged 60-79 receive a monthly pension of ₹1,100. Those 80 years and above receive a higher monthly pension amount of ₹1,500. IGNOAPS is presently handled by Local Governments, along with all social security pensions. The Local Governments receive the application, process them and distribute the pension under the scheme.

Reservation in Public Transport System

Ministry of Shipping, Road Transport and Highways, GoI has directed to provide reservation of two seats in front row of the buses of the State Road Transport Undertakings for senior citizens. This is implemented in all transport buses in Kerala.

Information Technology

Over the last 25 years, Information Technology (IT) and Information Technology enabled Services (ITeS) have developed into an important sector in the Indian economy. IT sector plays a crucial role in provision of services by the Government as well as in the functioning of private sector enterprises. More importantly, ITeS has played the role of a catalyst in the economic transformation of the country. Indian IT's core competencies and strengths have attracted significant investments from major countries. Leading Indian IT firms like Infosys, Wipro, TCS and Tech Mahindra, are diversifying their offerings and showcasing leading ideas in block chain and artificial intelligence to clients using innovation hubs, research and development centres. While the contribution of the sector to the economy, needs mention, the quest for digital inclusiveness has to be addressed in right earnest. Kerala Government has recognised this and has taken steps to provide internet to the maximum possible number of people. The digital divide is a global phenomenon as can be seen from the facts cited in Box.4.9.

India is the leading sourcing destination across the world. Indian IT and ITeS companies have set up over 1,000 global delivery centres in about 80 countries across the world. India's cost effectiveness in providing IT services, at around 60-70 per cent of the cost in source countries, is the main reason guaranteeing it an important space in the global sourcing market. Besides, India is also gaining prominence in terms of intellectual capital with several global IT firms setting up their innovation centres in India. India has become a digital capabilities hub of the world with around 75 per cent of global digital talent present in the country.

Information and Communication Technology (ICT) sector has been playing an important role in the development of the State, since the 9th Five-Year Plan. Realising its potential and

Box 4.9 The digital divide

Since the World Wide Web was launched in 1991, mobile and internet technologies have spread further and faster than any technology in history. The number of people using the internet worldwide has quadrupled to 400 crore in just 13 years. Two thirds of the world's population now own a mobile device. The use of new digital technologies has enabled exciting possibilities for social and economic development.

Digital technologies are used to increase income and employment opportunities, improve civic participation and governance, enhance the provision of healthcare and education, and include more women, people living with disabilities, and rural populations in development processes. However, 360 crore people still have no access to the internet and one third of humanity has no mobile phone. Moreover access alone cannot guarantee that users will gain significant benefits from digital technologies. With this in mind, it is now more important than ever to understand how experiences of poverty are changing as digital technologies are increasingly used not just for communication but for many activities relevant to development and well-being.

Source: "We must address digital inequalities, if we are to 'leave no-one behind'" Published on December 5, 2018 by Kevin Hernandez, Research Officer, available on, ids.ac.uk

critical importance, the State Government has made earnest efforts to create a sound and world class infrastructure for the sector. The Government has also taken initiative to develop the digital technology capacities and resources. This has enabled the State to be in the forefront of implementing ICT projects, e-governance initiatives, e-literacy programmes and in the creation of basic IT infrastructure facilities.

Kerala State Information Technology Mission (KSITM), Indian Institute for Information Technology and Management – Kerala (IIITM-K), Technopark, Infopark, Cyberpark, Kerala State Information Technology Infrastructure Ltd. (KSITIL), International Centre for Free and Open Source Software (ICFOSS), Hardware Mission, Kerala Start-up Mission (KSUM) and Centre for Development of Imaging Technology (C-DIT) are the major agencies involved in the implementation and promotion of IT related activity in the State.

The State Government envisages expansion of IT industry in the State in a manner that benefits all the Districts in the State. A hub and spoke model has been planned. Thiruvananthapuram (Technopark), Kochi (Info Park) and Kozhikode (Cyberpark) will act as hubs and the remaining Districts will be the spokes.

Government of Kerala provided an amount of ₹549.3 crore in the Budget 2017-18, for the development of core IT infrastructure, ITeS, e-governance activities and incentivising investment in the sector, which is 13.75 per cent higher than in the previous year and the expenditure incurred was ₹350.1 crore (63.7 per cent). In the Annual Plan 2018-19, the outlay earmarked for the sector was ₹587.6 crore, which is 6.97 per cent higher than the previous year. The details of Plan outlay and expenditure are given in Table 4.19.

Kerala State Information Technology Mission (KSITM)

KSITM is an autonomous nodal IT implementation agency of the department of information technology, Government of Kerala. It provides managerial and technical support to various initiatives of the department.

Table 4.19 Plan outlay and expenditure, in ₹ Lakh

Sl No	Name of Department/Scheme	Annual Plan 2017-18			Annual Plan 2018-19		
		Outlay	Exp.	(%)	Outlay	Exp*	(%)
1	Kerala State IT Mission	147.5	67.3	45.6	147.5	27.9	18.9
2	Technopark	84	111.8	133.1	84	12.9	15.4
3	Infopark	67.1	54.5	81.2	67.1	7.9	11.7
4	Cyber Park	25.7	0.7	2.7	25.7	4.0	15.5
5	Indian Institute of Information Technology and Management-Kerala (IIITM-K)	52	48.5	93.3	65.5	3.6	5.5
6	Kerala Startup Mission	80	24.6	30.7	80	13.6	17.0
7	Kerala State IT Infrastructure Ltd	55.6	15.3	27.5	52.4	0.00	0.00
8	Indian Institute of Information Technology-Kottayam	22.5	22.5	100	24.5	0.00	0.00
9	C-DIT	10	0	0	6	3.6	60.0
10	International Centre for Free and Open Source Software	5	5	100	5	1.6	62.8
11	Hardware Mission				30	0.00	0.00
	Total	549.3	350.1	63.7	587.6	75.1	12.8

*Expenditure as on August, 2018
Source: Budget estimate, 2018-19, GoK

KSITM performs diverse roles including and enactment of ICT related policies, development of guidelines and standards for e-governance, ICT facilitation for the Government entities. It also provides end to end support and guidance to State departments in digitisation efforts, acts as a bridge between Government and industry, undertake capacity building initiatives, helps bridge the digital divide and establish and sustain common IT Infrastructure and take up various e-governance initiatives. The core activity is delivering the best of the digital services to the citizens keeping in mind "Citizen First" approach.

As a result of these proactive policies and projects, Kerala achieved major progress in the transformational journey towards "Digital State". Some of the major achievements are shown below.

- Kerala declared as the first digital State in the country by GoI in 2016
- Hi-Speed Rural Broadband Network was first commissioned in India at Idukki
- First State in the country to issue over 4 crore e-Certificates.
- 100 per cent of the Grama Panchayats are connected through optical fibre network
- 2,906 Akshaya Centres (Common Service Centres) are functioning in the State. Of which more than 1700 Akshaya Centre act as banking Kiosks for different banks.
- Over 3.44 crore Aadhaar enrolments.
- More than 2,17,827 e-tender transactions amounting ₹56,227.99 crore through a single window for the last two years
- 53 Departments and 216 PSUs/Autonomous bodies utilised the e-tender facility
- 1,000 wi-fi hotspots were established by April, 2018 in Phase I and the Phase II covering additional 1,000 hotspots is in progress

e-Governance Programmes of KSITM

In the present world, e-governance is an important tool for good governance by enabling transparency, reliability, and accountability in rendering services. Kerala has been a forerunner in e- and mobile governance by promoting and developing core infrastructure and e-literacy programmes.

e-Office aims to conduct office procedures electronically thereby transforming Government offices to paperless offices and bringing out the benefits of digital communication that ultimately leads to faster decision making. E-office has been implemented in all 54 departments in Secretariat, 46 Directorates, 14 Collectorates, 12 Revenue Division Offices (RDOs). The Government has decided to roll out e-Office upto grass root level in taluk and village offices and Panchayats in the coming years.

Box 4.10 Major programmes of KSITM

- Construction of Centre for e-Governance
- Computer Emergency Response Team-Kerala (CERT Kerala)
- e-District
- e-Government Procurement (e-GP)
- e-Office
- Friends
- Kerala e-Governance Awards
- Kerala State Spatial Data Infrastructure (KSDI)
- Kerala State Wide Area Network (KSWAN)
- Mobile Governance
- Digital Literacy Programme
- Public Wi-Fi project

Source: KSITM

Core infrastructure for e-governance in the State consists of Kerala State Wide Area Network (KSWAN), Secretariat wide Area Network (SECWAN), State Data Centre and State Service Delivery Gate way (SSDG). KSWAN is the backbone of the State Information Infrastructure (SII), connecting Thiruvananthapuram, Kochi and Kozhikode extending to 14 Districts and 152 Blocks Panchayats and 63 Mini Civil Stations/ revenue towers across the State. Around 3,500 offices of Government departments are connected to KSWAN through wireless and a larger number through leased lines and Local Area Network (LAN). All the Grama Panchayats of Thiruvananthapuram District are connected through the National Information Infrastructure (NII) pilot project by integrating KSWAN with National Optical Fibre Network. Around 470 offices including Akshaya Centres were connected as part of the NII pilot project in Thiruvananthapuram.

e-District, a State Mission Mode project under Digital India, targets delivery of high volume citizen services provided by the District administration, at taluk or village level, through back-end computerisation to enable online availability of these services through Common Service Centres (CSC) and State portal. Some of the major services availed through e-District project are:

- Implemented 24 Revenue Certificate Services across the State
- RTI and Public Grievance Services
- Online utility bill payment systems enabled in e-District portal
- Various services of other Departments are also online/are being integrated with the e-District portal

M-Keralam, the unified mobile application which will bring together all the services rendered by different Government departments under one umbrella was launched on March 22, 2018. Currently, this application (app) is providing 101 services of 18 different departments of Kerala State.

e-Government Procurement (e-GP) is being implemented in the State, 53 Government departments and 216 PSUs/Autonomous Bodies/Government agencies are utilising the common e-Procurement system. 1,764 offices (under various Government departments and Government bodies) have been mapped into the e-Procurement system. 2,17,827 tenders were floated using this platform in last two years and the total value of tenders thus floated is ₹56,227.99 crore. The number of officials got trained in last two years is 4,984.

Friends Janaseva Kendras have been established in all the 14 District headquarters. In 2017-18, an amount of ₹153.63 crore revenue for the Government was collected. The Government is planning to make all services currently available through Akshaya also to be made available to Friends Janasevana Kendras without service charges. It is a single window 'no queue' integrated remittance centre, where the citizens have the opportunity to pay all taxes and other dues to the Government, under one roof, at no extra cost. On an average, 1,000-1,050 people visit each centre every day.

Akshaya is an innovative project launched on November 18, 2002 to bridge the digital divide. It works on public private participation mode. In the initial stages, the objective of the project was to make at least one person in a family e-literate. Gradually focus of Akshaya shifted to citizen service centric mode.

- 2,906 Akshaya Centres are functioning across the State giving employment to 7,942 persons.
- In addition to the existing 818 Aadhaar centres, 363 stations equipped exclusively for child enrolment.
- More than 1,700 Akshaya centres act as banking Kiosks for different banks.
- 55 lakh citizens got enrolled under UID through Akshaya centres.
- Effective Service delivery is ensured at the doorstep of citizen.

- 1,127 centres equipped for demographic data updation and rest of 1,527 ACEs are in process
- ISO initiated in Akshaya and scheduled to implement in 2018.
- E-office implemented in State office and 14 District offices
- To identify e-governance initiatives of departments, a G2C workshop is scheduled with the participation of all Nodal Officers in the State
- Conducted District-wise training with SBI officials on 3 Digital mode payments to all Akshaya Centre Entrepreneurial services (ACEs)

Enrolment under UID through Akshaya is 92.7 per cent against the national average of 62 per cent Akshaya is also a premier agency in UID enrolment having generated 75 per cent of total UIDs in Kerala. The details of Akshaya centres in Kerala are furnished in Appendix 4.66.

Kerala State Spatial Data Infrastructure (KSDI) is a mechanism to provide geo-spatial data sharing at all levels of Government, the commercial sector, the non-profit sector, and academia.

Awards and Accolades

- SKOCH Award 2018:- Order of Merit was conferred to key KSITM projects like Computer Emergency Response Team, Kerala (CERT-K), Kerala Spatial data Infrastructure (KSDI), Akshaya and mkeralam.
- Best Performance Award – Government of Kerala – e-procurement project has been awarded to Kerala by Ministry of Electronics and Information Technology, Government of India under the best performing States category.

Indian Institute of Information Technology and Management – Kerala (IIITM-K)

The IIITM-K was set up in the year 2000 as a premier institution of excellence in science, technology and management. It emphasises on providing quality education to students and developing professionals and leaders of high calibre imbued with values of entrepreneurship, ethics and social responsibility. The institute focuses on education, research, development and training in applied information technology and management. Academic Programmes currently offered at IIITM-K are given in Box 4.11.

The MPhil and MSc degree are awarded by Cochin University of Science and Technology (CUSAT) and post-graduate diploma by Directorate of Technical Education, Government of Kerala. Physical progress of the Plan schemes achieved are the following:

•Construction of Academic and Faculty Block – G 3 floor with a built up area of 7,300 sq. m is in final stage.
•Construction of Students Hostel for 240 students – G 6 with a built up area of 6,500 sq. m is nearing completion.

Box 4.11 Academic programmes of IIITM(K)

- M.Phil in Ecological Informatics
- M.Phil in Computational Science
- Master of Science in Information Technology
- Master of Science in Geo-Informatics
- Master of Science in Computational Science
- Master of Science in Computer Science with specialisation in Cyber Security
- Post Graduate Diploma in e-Governance
- Doctoral Research

Source: Indian Institute of Information Technology and Management – Kerala

Technopark

Electronics Technology Parks – Kerala, popularly known as Techno Park was set up under the auspices of Government of Kerala as an autonomous body to create global standard infrastructure and to provide total support required for development of high technology industries. It was formally dedicated to the nation on November 18, 1995. Since then Technopark has been growing steadily both in size and employees strength. With the commissioning of Phase III, Technopark will become the largest IT Park in India with 330 acres of land, and 97 lakh sq. ft built up area. Through its companies, it currently provides direct employment to 56,000 IT employees and offers an indirect employment for another 1,50,000 persons. With the launch of Technocity project in Kazhakuttam, the largest integrated IT Township in 424 acres of land, the Kazhakuttam-Kovalam (NH 66) has became the first IT Corridor in Kerala. Technopark has charted out an ambitious target of creating 50,000 new jobs by 2021. It has 5 campuses which is spread over 760 acres under various phases of development. Technopark's Contribution to the State economy is shown in Table 4.20 and the details of extent of land in its 5 campuses are shown in Table 4.21. Details of physical achievements and growth of Technopark are given in Appendix 4.67 and 4.68.

Growth of Built-Up Space in Technopark

Technopark currently owns 20 IT buildings within the campus. The built up space in the Technopark has increased from 72 lakh sq. ft in 2015-16 to 97 lakh sq. ft in 2017-18. Out of which Technopark has created 32.82 lakh sq. ft area for industrial modules and total built up space completed by companies is 64.2 lakh sq. ft. The growth of built up space in the Technopark is shown in Figure 4.5.

Companies in Technopark

There has been an increase in the number of the companies working in Technopark during the last 5 years. In 2013-14, there were 336 companies in Technopark. It increased to 400 in 2017-18 and remains the same as on August 31, 2018. The number of companies in Technopark from 2013-14 to 2017-18 is shown in Figure 4.6.

Table 4.20 Technopark's contribution to the State economy

Particulars	Achievements 2016-17	Achievements 2017-18
Total turnover, in ₹ crore	12,000	14,000
Total export, in ₹ crore	5,000	6,452
Total investment, in ₹ crore	4,970	4,970
Total Employment, Nos	52,746	56,000
No of Companies, Nos	370	400
Total land, in acres	760	760
Total built up space, in lakh sq. ft	93	97

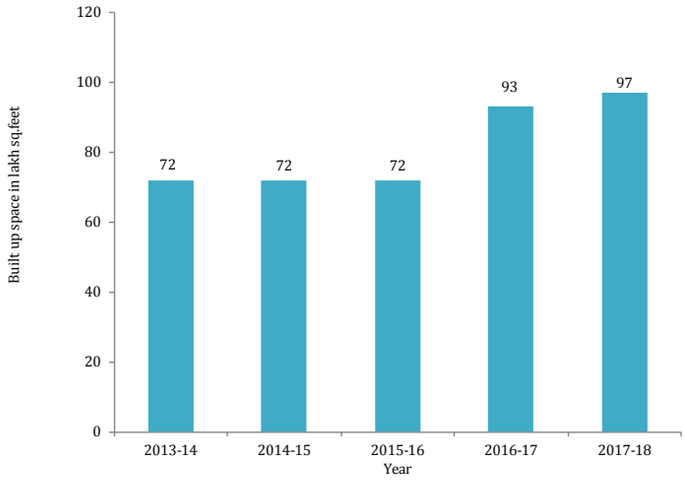
Source: Technopark

Table 4.21 Land available with Technopark, in acres

Phases	Phase I	Phase II	Phase III	Technocity	Technopark, Kollam
Area, in acres	153.54	86	92	424	4.46

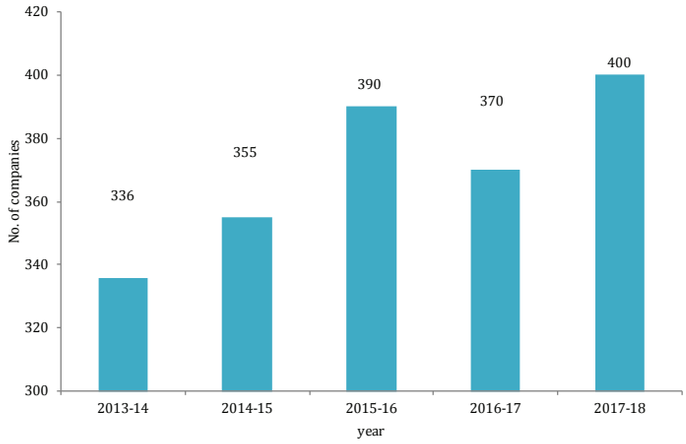
Source: Technopark

Figure 4.5 Growth of built up space in Technopark



Source: Technopark

Figure 4.6 Number of companies in Technopark



Source: Technopark

Growth of Export from Technopark

Export from Technopark increased from ₹4,250 crore in 2013-14 to ₹5,000 crore in 2016-17. In in 2017-18 it increase to ₹6,452 crore a 29 per cent increase over the previous year. The trend in export from Technopark during the last five years is depicted in Figure 4.7.

Growth of Employment in Technopark

The growth of Technopark can also be analysed in terms of employment generated during the last five years. The employment generated increased from 45,395 in 2013-14 to 56,000 in 2017-18 and it remains the same as on August 31, 2018. The growth in employment generation for the last five years is shown in Figure 4.8.

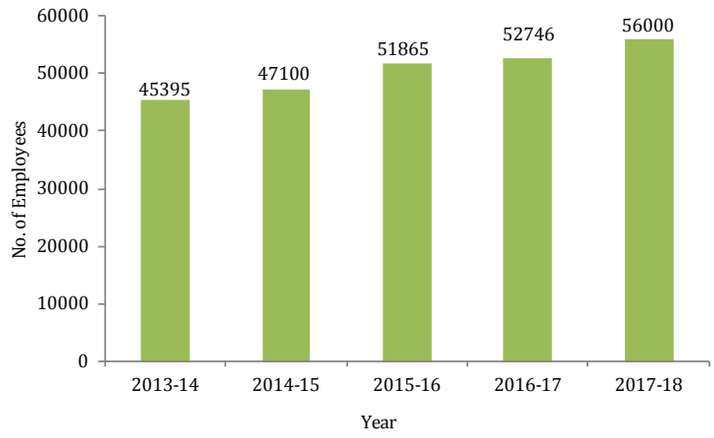
Technocity

Technopark has acquired 424 acres of land at Pallipuram for its Technocity project. Work on basic infrastructure has commenced and land has been allotted to TCS, Infosys, Suntec, KASE, IIITM-K and NISSAN India Digital LLP.

Figure 4.7 Export from Technopark

Source: Technopark

Figure 4.8 Growth of employment



Source: Technopark

Infopark

Infopark, Kochi is the second largest IT hub in Kerala with spokes at Cherthala and Thrissur. The objective of Infopark is creation of state-of-art infrastructure facilities such as space for IT/ITeS companies, supply of power, water and connectivity etc. Since its inception in 2004, Infopark and its co-developers created over 80 lakh sq. ft. built up space and have provided employment to over 37,000 IT professionals through 396 IT companies who have taken space in its Parks.

Land Available with Infopark

Infopark has 5 campuses which is spread over 323 acres under various phases of development. The details of extent of land in its 5 campuses are shown in Table 4.22.

In case of Infopark Technology Business Centre (TBC), a built up partly fitted space of 25,845 sq.

Table 4.22 Land available with Infopark

Phases	Phase I	Phase II	Thrissur	Cherthala	TBC, Kaloor
Area, in acres	102.82	125	30	66	25,845 sq. ft

Source: Infopark

ft at Kaloor International Stadium was taken over from KSITM in the year 2013. Infopark undertook necessary modifications in the fitted out space and now the facility is mainly used for providing office space for start-up companies. Around 400 IT employees are working in Infopark TBC. The physical achievements of Infopark are furnished in Appendix 4.69.

Cyberpark

Cyberpark was established in the lines of Technopark in Trivandrum and Infopark in Kochi based on a hub and spoke model. It was set up to bridge the IT infrastructure gap along the west coast starting from Kochi to Kasaragod. The objective of Cyberpark is to provide cost effective and top of the line infrastructure to the IT/ITeS investors and thereby encouraging, promoting and boosting the export of software/software services and creating employment opportunities in Malabar region. The major achievements of Cyber Park are shown below.

- First IT Building "Sahya" (2.88 lakh sq. ft) completed and started operation
- Total Built up Space – 3 lakh sq. ft
- Total investment – ₹2.39 crore.
- Thirteen companies have already started their operation in SEZ and there by created 266 direct employments
- Leasing of IT space at CFC which started operation during this period.

The physical achievements of Cyberpark are given in Appendix 4.70.

Kerala State IT Infrastructure Ltd (KSITIL)

KSITIL is a public limited company formed under the Companies Act 1956. The company leverages the valuable land assets owned by the Government and through viable financial models, generates funds for building the IT Infrastructure in the State in a Private Public Participation (PPP) model.

The business model of the company is to acquire land and develop basic infrastructure facilities like electricity, water, road and compound wall in the area, obtain Special Economic Zone (SEZ) status and other such Government approvals that may be required and allot land to private developers for development of either IT SEZ or IT parks.

Major ongoing projects of KSITIL are Kozhikode IT Park, Kannur IT Park, Kasaragod IT Park, Koratty IT Park, Technolodges etc.

Institute of Information Technology – Kerala, Pala (IIIT-K, Pala)

Government of Kerala started IIIT-K, Pala, Kottayam District in 2015-16 under PPP mode to lead, organise and conduct research and innovation in IT and allied fields of knowledge. This is a joint initiative between Government of India, Government of Kerala and Industrial Partners with 50 per cent, 35 per cent, and 15 per cent share participation. The approved project cost is ₹128 crore excluding land. Construction of 20,000 sq.m building will be completed in 2018-19.

International Centre for Free and Open Source Software (ICFOSS)

Government of Kerala established ICFOSS as an international centre in collaboration with Free Software Organisations in India and abroad to promote development and application of free software and free knowledge. It is a nodal agency in all matters relating to free and open source software including consultancy, research and development, academics, studies and service, training, publishing, certification, international

co-operation and collaboration. The major achievements of ICFOSS in 2017-18 are the following:

Training Programmes

- 20 faculty development programmes in which 600 teachers participated
- 25 student training programmes in which 750 students participated
- 6 training programmes for Professionals and SMEs in which 200 persons participated
- 10 Scilab training programmes in which 300 students and teachers participated

Conferences and Seminars

- International conference Swathanthra 2017 in which 300 students and professionals participated
- Malayalam computing –150 Participants
- FOSS Meets – 400 students and teachers

Capacity Building

- Capacity building programme for students, employees and candidates

Kerala Start Up Mission (KSUM)

KSUM is the nodal agency of Government of Kerala for implementing the entrepreneurship development and incubation activities in the State. KSUM, formerly known as 'Technopark Technology Business Incubator' is India's first successful non-academic business incubator. It started operations in 2007.

The objective of the Mission is to identify and develop entrepreneurial talents among youth and students in Kerala, address technology based entrepreneurship development requirements in the traditional sectors of Kerala, build appropriate training programmes suitable for Kerala's socio-economic culture, identify market niche for technology products and services, interfacing and networking among academic, R&D institutions, industries and financial institutions, establishing a platform for speedy commercialisation of the technologies developed in the institutes to reach the end-users.

Under the banner of KSUM and several of its sector-specific partner organisations, there are presently more than 1,500 registered start-ups, more than 4 lakh sq. ft of incubation space, more than 30 incubators and more than 200 innovation cells – all of which are evenly distributed across various Districts and cities such as Kochi, Thiruvananthapuram and Kozhikode. Many of these facilities also house advanced labs that focus on sectors such as hardware, biotechnology, electronics and advanced computing etc.

The physical achievements of KSUM in 2017-18 are the following:

- More than 1,400 start-ups operating in Kerala
- Seed loan disbursed amounting to 3.16 crore
- Released patent support to 5 startups
- Established 24 new Incubation and Entrepreneurship Development Cells (IEDC)
- Grant given to 31 existing IEDCs
- Conducted IEDC summit connecting 2,700+ students/nodal officers
- 62 Start ups were supported for participating in various National startup events
- Supported 34 start ups for international events
- Associated with 3 paid delegations with a participant size of 24 under International Entrepreneurial Exchange Programme
- Conducted one Fab Academy Program with a participant size of 14
- Conducted 32 Fab workshops involving 439 participants
- Under Start up Leadership Academy and Training programme, conducted 1 Management Development Programme, 9 Entrepreneurship Awareness Camps with ICT, 4 IEDC Co-ordinator's meet, 1 Product Design and Development Workshop for nodal officers and students, 5 programmes for faculties, 5 community development partners for delivering entrepreneurship/technical workshops for students/start-ups, 7 Let's Talk – Future Tech workshops for start ups
- Established Incubation Centre at Kasaragod

under Open Innovation Collaboration Space
- KSUM launched a Water Innovation Zone with Kerala Water Authority with the objective of identifying and promoting Start ups working on products which will assist KWA. Manhole cleaning robot by Genrobotics was the first project selected.
- Supported KRIBS – BIONEST, biotechnology incubator supported by DBT and RGCB
- Supported Kannur Technolodge, Piravom Technolodge and Muvattupuzha Tehnolodges
- Support given to Nasscom 10K Warehouse and IAMAI Mobile 10X Incubator
- Conducted 64 hackathons, makeathons
- Conducted 1,092 start up events at IEDC s
- Conducted 3 Seeding Kerala Events
- Supported 62 start ups for national level event participation
- 13 Business Promotion Events held at Kerala
- Developed Technology Commercialisation Platform
- 6 start ups provided with Marketing Support
- Conducted Future Sparks Programme at Kasaragod
- Conducted 7 Future XL programs at various colleges
- Conducted reviews with mentors for start ups
- Maker Village, the largest electronic hardware incubator in the country is a joint initiative of Ministry of Electronics and Information Technology (MeitY), Government of India and Government of Kerala with KSUM as the leading partner and IIITMK, Thiruvananthapuram as the implementation agency.

Centre for Development of Imaging Technology (C-DIT)

C-DIT has been functioning as an ICT solutions provider in the Government sector. The major programmes undertaken by C-DIT are:

- Reorganisation of Chief Minister's Public Grievance Redressal system and Chief Minister's Distress Relief Fund assistance mechanism into an integrated online portal
- Design and development of Online Examination modules for Kerala Public Service Commission
- Digitisation of old manuscripts and documents for State Archives and Registration departments
- Design, hosting and maintenance of over 200 Government websites and social media platforms MIS/ERP systems for various Government departments
- In the wake of the recent floods disaster in the State, design and hosting of an online fund collection portal for State Government by integrating more than 15 bank payment gateways, UPIs, valets etc. for receiving donations to Kerala Chief Minister's Distress Relief Fund.

IT Policy 2017

Vision

The vision of the State's policy is to establish Kerala as a knowledge powered digital society by 2020 through the application of digital technologies enabling digital citizenship, digital lifestyle and digital commerce; within the governing principles of freedom, ubiquity, inclusion, transparency, safety and security for all; aligned to technology trends, citizen and industry needs, to provide overall social and economic empowerment of citizens.

Kerala IT – Snapshot

Government of Kerala recognises the critical importance of ICT as the key vehicle for the State's overall equitable development, reiterating its commitment to the sector, the Government revised the Information Technology Policy for the State in 2017. The main agenda of the policy is to establish Kerala as a leading IT destination and generate direct and indirect employment opportunities in the sector, build necessary technological infrastructure for creation of an environment favourable to ICT development, enhance the necessary human capital required to both produce and use innovative technologies through education and skill building and establish Kerala as an IT industry destination by attracting investments from within and outside

Kerala. Further more details are available at *www.itmission.kerala.gov.in.* The State also is conscious of the adverse impacts of digital divide and has undertaken a project to make internet a citizen's right.

Way Forward

To stay competitive as an IT destination, the IT sector in Kerala must significantly enhance the value addition it brings to the State economy. It must attract investment in emerging areas in the IT sector and not rely solely on established IT/ITES activities. As the Indian IT sector as a whole grapples with issues of the changing focus and emerging issues within the global IT sector, Kerala must also keep pace with these changes. At the same time, the considerable advances that have been made in the digital empowerment of the population and the spread of IT awareness and use must continue to be built upon and developed with further investment in appropriate infrastructure. These would continue to serve the State's needs over a period of time and prevent obsolescence.

Though information technology infrastructure sector has achieved a remarkable progress in the State in the hub and spoke model, a proper unified mechanism has to be evolved for the integration of the sector. Education enabled ICT, research and development and innovations need to be identified and promoted to strengthen the State's economy. It is expected that the thrust placed by the Government in infrastructure development, human resource development and overall economic development would open up more and more for the meaningful use of Information Technology. Our leap forward in IT related areas is dependent on attracting substantial investment in this sector and identifying and promoting young entrepreneurs through start ups.

Scientific Services and Research

The schemes and programmes in science and technology are being implemented with a view to promote research, development and scientific temper among the people. Public investment in science and technology sector in Kerala is aimed at balanced and sustainable economic development in the State, with focus on the State's needs, generating new income and employment opportunities leading to enhanced income levels. The various science promotion activities of the GoK are aimed at spreading scientific temper among all sections of the society and provide opportunity for everybody to become scientifically aware. Developing scientific temper is one of the Fundamental Duties of an Indian citizen as is stated in Article 51A(h) in Part IV A of the Constitution of India.

The two major institutions in the Science and Technology sector in the State are the Kerala State Council for Science, Technology and Environment (KSCSTE) and the Regional Cancer Centre (RCC), Thiruvananthapuram.

I. Kerala State Council for Science, Technology and Environment (KSCSTE)

KSCSTE is an autonomous body under the department of Science and Technology, GoK. It is governed by the State Council (SC) with the Chief Minister of Kerala as the President and an Executive Council (EC), chaired by the Executive Vice President of KSCSTE. Presently, there are seven full-fledged Research and Development (R&D) centres, two emerging research centres and two grant-in-aid institutions under the umbrella of KSCSTE.

The main objective of KSCSTE is to Plan and formulate science, technology and innovation policy pertaining to the development of the State. The schemes and programmes of the Council are aimed at the development of high quality science education system in the State.

The KSCSTE also drives the research and development efforts of the R&D Centres and offers assistance for the creation of physical infrastructure and procurement of scientific infrastructure through development and selective augmentation of R&D activities. The other initiatives include

- Science popularisation programmes
- Research development programmes
- Ecology and environment related programmes
- Awards and recognition for science promotion
- Technology development and transfer
- School level promotional activities

There are seven R&D centres under the Council which conducts research and development activities in specific mandated domains. They are: Kerala Forest Research Institute (KFRI), National Transportation Planning and Research Centre (NATPAC), Centre for Water Resources Development and Management (CWRDM), Jawaharlal Nehru Tropical Botanic Garden and Research Institute (JNTBGRI), Kerala School of Mathematics (KSoM), Srinivasa Ramanujan Institute for Basic Sciences (SRIBS) and Malabar Botanical Garden and Institute for Plant Sciences (MBGIPS).

Kerala Forest Research Institute (KFRI)

KFRI is envisioned as a centre of excellence in tropical forestry to provide scientific support for decision making on matters related to forestry, with particular emphasis on conservation, sustainable utilisation and scientific management of natural resources. Working in collaboration with the forest department and other stakeholders, the institute continues to play a key role in improving the science foundation of forest management.

Achievements

- Carried out 24 research projects in 2017-18 and 16 projects are being undertaken in 2018-19.
- Conducted District level survey for studying factors affecting roosting ecology of birds in Kerala
- Published 14 research papers in refereed journals
- Compilation of Indian forestry Abstracts as part of developing a database of forestry. Total 1800 records are created and updated in the database.

National Transportation Planning and Research Centre (NATPAC)

NATPAC is undertaking research and consultancy works in the fields of traffic engineering and transportation planning, highway engineering, public transport system, alternate options for transport system, transport energy, inland water transport, tourism planning and rural roads. The activities of NATPAC range from surveying to preparation of techno economic studies, feasibility analysis, detailed project reports for infrastructure development projects involving multi-modal system of transportation covering road, rail, water, ports/harbours and airports.

Achievements

- Carried out 32 research projects and 16 externally funded projects
- Conducted 13 road safety programmes
- Developed a transport network connecting major tourist destinations in Kozhikode District
- Prepared GIS based Information System for waterways in Kerala
- Prepared database pertaining to road accidents, pavement management system, traveller/tourist information system for Kerala in GIS platform
- Study conducted on the impact of introduction of non-street parking fee on the travel characteristics in the stretch from Kesavadasapuram to East fort in Thirunanthapurarm District.
- Prepared Comprehensive Mobility Plan for Thrissur City

Centre for Water Resources Development and Management (CWRDM)

CWRDM is a premier R&D institution in the water sector under KSCSTE. It provides research inputs for water resources development and management, especially in the humid tropic areas and has expertise in tackling different problems pertaining to watershed development, wetland management, water management for agriculture, forest and urban hydrology, estuarine management, groundwater development, water quality management, water related environmental issues and irrigation and drainage issues. Presently, CWRDM has 9 scientific divisions and 3 sub-centres.

Achievements

- Prepared preliminary investigation report on measures for flood abatement in Upper Kuttanad
- Conducted an open house programme called 'Jaladarshan-2018' for the high school and higher secondary students in Kozhikode District.
- Modified Current Precipitation Index Method for stream flow data generation for humid tropical region

- Organised 24 training programmes, carried out 58 research projects and 16 consultancy projects
- Published 20 research papers in refereed journals.

Jawaharlal Nehru Tropical Botanic Garden and Research Institute (JNTBGRI)

JNTBGRI undertakes research programmes for the sustainable utilisation of resources. The institute is currently conserving more than 4000 species of flowering plants and about 300 species of non-flowering angiosperms, which is the highest number of plant species conserved among the botanic gardens in Asia. The institute has an extension centre viz., Saraswathy Thangavelu Centre at Puthenthope, Thiruvananthapuram where the Bioinformatics Centre is established. The GoI has recognised the JNTBGRI as a national centre of excellence.

Achievements

- Established an integrated R&D centre of JNTBGRI for promoting Green Industry
- Developed an aquatic plant conservatory with 70 aquatic species
- Established eco-physiology laboratory to access the structure and function of different eco systems in Kerala and a centre for producing quality seeds and seedlings of vegetables and pulses for supply to the public
- Carried out 13 research and development and infrastructure projects
- Published 130 papers in refereed journals, 145 papers in conferences, 21 book chapters and 4 books, 22 PhDs produced, 1 Patent filed, trained 200 research persons and 700 technical human power. Out of the 700 technical human power trained, 300 were women from rural areas.

Kerala School of Mathematics (KSoM)

KSoM was established in 2009 as a joint venture between KSCSTE, GoK and Department of Atomic Energy (DAE), GoI for carrying out advanced learning and research in Mathematics. 17 training programmes were conducted in the centre in 2017-18 and were published 4 research papers

Srinivasa Ramanujan Institute for Basic Sciences (SRIBS)

SRIBS is a capacity building institute envisaged for research, teaching and learning in basic sciences. The main objective of the institute is to formulate and implement programmes for capacity building of young faculty members, researchers and post graduate students in contemporary areas of sciences. The institute has organised colloquia, seminars; workshops benefitting students, teachers and researchers in various areas of science. 5 academic programmes were conducted in 2017-18 in which each programme was attended by 60-65 participants across the State.

Malabar Botanical Garden and Institute of Plant Sciences (MBGIPS)

MBGIPS is an institution of KSCSTE dedicated to the conservation and research on aquatic plant diversity, lower group plants, endangered plants of the erstwhile Malabar Region, as well as disseminating knowledge on various facets of plant sciences.

Achievements

- Carried out 8 research projects
- Organised 10 trainings
- Published 20 research papers in refereed journals
- As part of digitisation of plant database of MBGIPS for eco education, 1682 entries were recorded in the plants database

Academic Achievements of R&D Institutions

Research Publications – The research and development institutions of KSCSTE have been

creating the wealth of knowledge in diverse fields. The institutes have produced a good number of publications in refereed journals, published books and chapters in books and research papers in national and international conferences. A total number of 187 papers were published in refereed journals by the institutions in 2017-18. Among the seven R&D institutions under the Council, JNTBGRI and CWRDM rank top with respect to the publication of papers in 2017-18.

With respect to the publication of books in 2017-18, JNTBGRI published 4 books during the period. The institutions altogether presented 246 papers in international/national/regional conferences. The number of PhDs. produced by all the institutions is 34.

Human Resource Training

The role of R&D institutions in promoting up research aptitude and talent has foremost importance in orienting the youth to science, technology, innovations and S&T-based solutions that successfully lead an economy or a State. The R&D institutions of KSCSTE have produced 34 PhDs in 2017-18. The institutes have trained 169 persons in research capacities and 498 in technical capacities. Table 4.23 provides the performance of the R&D institutions collectively in providing quality human power, and producing output in terms of patents and technology transferred.

Achievements of other Schemes and Programmes of KSCSTE

Science Research Scheme (SRS)

It is one of the flagship activities of the Council operating under the Science and Technology Promotion Division (STDP) of the Council. SRS aims towards the promotion of R&D activities in the State both in fundamental and applied research. Under the scheme, research projects in emerging areas of science and engineering are supported by providing financial assistance for implementation. Research projects are supported in University departments, colleges and R&D institutions. 23 new and 67 on-going projects were granted under this programme in 2017-18. 5 patents filed, 149 papers in refereed journals and 210 papers in conference/seminars were published from supported projects. And also 35 PhDs were awarded and 91 persons trained under SRS.

KSCSTE Emeritus Scientist Scheme

The objective of the scheme is to tap knowledge and to provide support to superannuated outstanding scientists to pursue research in their respective field of specialisation and to utilise their talent and experience in addressing important issues at the State level. In 2017-18, 3 patents were filed, conducted 53 conferences/ seminars, 74 papers in refereed journals, 7 books and 2 book chapters were published from supported projects under the programme and the number of PhDs awarded is 10. A total number of 14 scientists were given financial assistance under the programme.

Table 4.23 Overall performance of R&D institutions

R&D Centre	2013-14	2014-15	2015-16	2016-17	2017-18
Ph D Produced	10	11	12	8	34
Research Human power Trained (other than Ph.D.)	1,017	703	534	1,086	169
Technical Human power Trained	283	473	243	488	498
Patent Filed	1	Nil	1	1	4

Source: KSCSTE, Sasthrabhavan, Thiruvananthapuram.

Student Project

Under this project, financial support is given to the students of University departments and colleges in the State to conduct scientific projects and in 2017-18, 27 papers were published from supported projects.

Scheme for Promotion of Young Talents in Science (SPYTis)

The programme is for giving awards for the students of Class VIII-IX for doing a science project (SPYTis I) and for giving financial assistance to those students who have innovative ideas in science and technology and enrolled in polytechnic colleges and undergraduate courses in colleges for conducting projects (SPYTis II). In the year 2017-18, financial assistance was sanctioned to 273 projects. As part of this programme, 14 one day science workshops entitled 'Sastra Sameeksha' was organised for high school students. About 700 students from different parts of the State participated the programme.

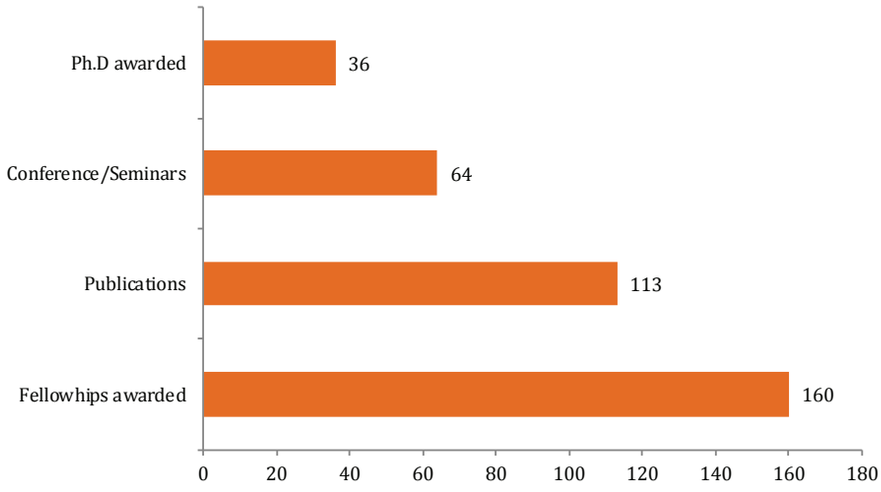
KSCSTE Research Fellowships

In 2017-18, KSCSTE research grants were released to 160 research students and 62 fellowships were sanctioned. 113 papers in refereed journals and 64 papers in conference/ seminars were published and 36 PhDs were awarded under the programme. Figure 4.9 shows the achievements of KSCSTE research fellows in 2017-18.

KSCSTE Post Doctoral Fellowship

With the objective of attracting doctorate holders to remain in Science and Technology, to motivate PhD holders to pursue research and to develop career as scientists, to motivate fellowship receipients and impart the skills needed for them to become lifelong learners and to develop technical and leadership skills, KSCSTE gives post doctoral fellowships. 21 post doctoral fellowships were given, 19 papers in refereed journals, 2 book chapters and 20 papers in Conference/ Seminars were published under the programme in 2017-18.

Figure 4.9 Achievements of KSCSTE research fellows in 2017-18



Source: KSCSTE, Sasthrabhavan, Thiruvananthapuram

Programmes for Infrastructure Development in S&T

In order to provide sufficient infrastructure facilities in universities, colleges and schools for the promotion of scientific activities and augmenting research, the Council has been providing financial assistance for the creation of lab and related facilities in the institutions. Selective Augmentation of Research and Development (SARD) and Sastraposhini are the two schemes implemented by the Council for this purpose. SARD is envisaged to create facilities in colleges and Universities for augmenting research in specified areas. Under this programme, grants will be paid for strengthening the laboratory infrastructure by procuring equipments and also for its maintenance. So far, 62 science post graduate laboratories and research institutions in the State have been augmented. 5 papers were published under this programme. Sastraposhini scheme aims to establish model science laboratories in physics, chemistry and biology to create a better ambience in high schools. Since the very inception of the scheme, 195 schools in Government and aided sector in the State have been supported to establish good science laboratories. In 2017-18, eight Government high schools and 4 model residential schools were selected for implementing this scheme.

Engineering and Technology Programmes (ETP)

ETP intends to encourage and promote research talents for the implementation of high quality research projects in the emerging areas of Engineering and Technology. The scheme is instituted for the faculty of engineering colleges and scientists of R&D institutions in the State. In 2017-18, 8 projects were sanctioned under the programme, 1 patent filed and 5 Ph.Ds were awarded.

Rural Technology Programme (RTP)

RTP scheme is instituted for the purpose of providing assistance in the form of grants to promote and support the traditional rural technology and upgrade them, so that it could be perfected for wider applications and employment generations and to reduce the drudgery of the rural households. The main objectives of this scheme are to encourage and promote grass root innovators and individuals to support them so as to perfect their innovative ideas in rural technology sector and provide technical support to raise their innovations to an enterprise level. In 2017-18, 12 projects were supported under the programme.

Programmes for Women in Science

In Kerala, though the State has the highest women literates, their representation in science research is very low. In order to provide a support system to attract and retain women and girls in science and encourage them to take up science as a career, the women scientists division at KSCSTE has initiated several schemes and programmes to increase their participation in science, technology, engineering, agriculture and medicine. The important programmes carried out by the Council in this area are

Women in Science

i. **Back to Lab Research Fellowship Programme** – 36 back to lab projects were sanctioned under the programme in 2017-18 of which 12 were post-doctoral fellowships and 24 were research fellowship projects. The total number of research publication form the supported projects were 104 and number of patent filed was 1.

ii. **Awareness Programme on "Technological advances in transforming women's lives"**-6 programmes were sanctioned under the project and about 400 to 500 women participants had benefited from the programme on technological advances in sectors such as energy management in household, food and nutrition, soil and water conservation, organic farming etc.

iii. **Project on Preparation of database of 'Women in Science in Kerala'.** – 2,848 registrations were made in the online directory which is developed for obtaining base-line data on the status of women in various sectors of Science in the State.

STARS (Students with Talent and Aptitude for Research in Science)

i. **Pratibha Scholarship Scheme** – 357 students were selected for the scholarship.

ii. **SPEED (Student Programme for Excellence in Experimental Design)** – The number of sanctioned programme in 2017-18 is 2.

Biotechnology Development

The various programmes taken up for promoting biotechnology development include Young Investors Programme in Biotechnology, Industry Linked Biotechnology Research Scheme, Biotechnology Innovations for Rural Development, Biotechnology Training and Workshop Programme, Post-Doctoral Fellowship, Biotechnology Young Entrepreneur Award, Kerala Biotechnology Re-entry Fellowships and Biotechnology Education Programme. In 2017-18, under this programme, 17 papers were published and 2 outreach programmes were conducted.

Regional Cancer Centre (RCC), Thiruvananthapuram

The global cancer burden is estimated to have risen to 181 lakh new cases and 96 lakh deaths in 2018. Europe accounts for 23.4 per cent of the global cancer cases and 20.3 per cent of the cancer deaths the USA account, for 21.0 per cent of incidence and 14.4 per cent of mortality worldwide. But the proportions of cancer deaths in Asia and in Africa (57.3 per cent and 7.3 per cent respectively) are higher than the proportions of incident cases (48.4 per cent and 5.8 per cent, respectively)

Cancer is a leading cause of death for children and adolescents around the world with 3,00,000 new cases diagnosed each year. As per the reports of Word Health Organisation (WHO), in high-income countries more than 80 per cent of children with cancer are cured, but in many low- and middle-income countries only about 20 per cent are cured.

RCC, Thiruvananthapuram is one of the top rated comprehensive cancer centres in the country offering diagnostic and treatment facilities for cancer. Its main objective is to undertake basic, applied and statistical research in various specialities of oncology.

It undertakes basic, translational and clinical research and disseminates knowledge. The centre carries out innovative and pioneering work in

Box 4.12 World Health Organisation (WHO), global initiative for childhood cancer

In September 2018, WHO announced Global Initiative for Childhood cancer with the following objectives:

- To reach at least 60 per cent survival rate for children with cancer by 2030, thereby, saving an additional 1 million lives
- To achieve a doubling of the global cure rate for children with cancer
- To increase prioritisation of childhood cancer through awareness raising at global and national levels
- To expand the capacity of countries to deliver best practices in childhood cancer care.

Source: World Health Organisation(WHO)

cancer control, treatment, research and training. It is rated amongst the top three of the 28 RCCs in the country and maintains a working relationship with international bodies such as the WHO, International Agency for Research on Cancer (France), International Atomic Energy Agency (Vienna), National Cancer Institute (USA), Institute for Cancer Research (UK), University of Leeds (UK), Health Research Foundation (Japan) and a host of other reputed organisations.

Over the past thirty seven years, RCC has been able to contribute significantly to the increasing needs of cancer care of the people of the State of Kerala and adjoining areas of Tamil Nadu and Karnataka providing state-of-the-art diagnostic and treatment facilities at the lowest possible cost. In addition, RCC is committed to cancer control activities among the public, human resource generation in the various specialities of oncology as well as cancer research expected to result in new treatments for cancer.

RCC, Thiruvananthapuram is one of the top rated comprehensive cancer centres in the country offering diagnostic and treatment facilities for cancer. Its main objective is to undertake basic, applied and statistical research in various specialities of oncology.

It undertakes basic, translational and clinical research and disseminates knowledge. The centre

carries out innovative and pioneering work in cancer control, treatment, research and training. It is rated amongst the top three of the 28 RCCs in the country and maintains a working relationship with international bodies such as the WHO, International Agency for Research on Cancer (France), International Atomic Energy Agency (Vienna), National Cancer Institute (USA), Institute for Cancer Research (UK), University of Leeds (UK), Health Research Foundation (Japan) and a host of other reputed organisations.

Over the past thirty seven years, RCC has been able to contribute significantly to the increasing needs of cancer care of the people of the State of Kerala and adjoining areas of Tamil Nadu and Karnataka providing state-of-the-art diagnostic and treatment facilities at the lowest possible cost. In addition, RCC is committed to cancer control activities among the public, human resource generation in the various specialities of oncology as well as cancer research expected to result in new treatments for cancer.

RCC-Profile

The vision of RCC is to emerge as a global leader in cancer control. In 2017-18, 16443 new cases were registered in RCC and the number of daily average patient visit was 884. Table 4.24 provides the profile of the RCC in 2017-18.

Table 4.24 Profile of RCC in 2017-18 at a glance

New Cases Registered	16,443
Review Cases Registered	248,887
In-patient Admissions	11,696
Radiotherapy	7,071
Brachytherapy	1,760
Surgical Procedures	6,271
Endoscopic Procedures	2,243
Chemotherapy Administered	11,406
Bone Marrow Transplantations	36
Cancer Detection Programmes	507
Cancer Education Programmes	292
Ongoing Research Projects	146

Source: Regional Cancer Centre, Thiruvanathapuram

Table 4.25 New cases registered in RCC during the last 5 years from 2013-14 to 2017-18

Year	No. of new cases registered
2013-14	14,985
2014-15	15,940
2015-16	16,042
2016-17	16,255
2017-18	16,443
Total	79,665

Source: Regional Cancer Centre, Thiruvanathapuram

Table 4.26 New cases registered in RCC during the last 5 years from 2013-14 to 2017-18

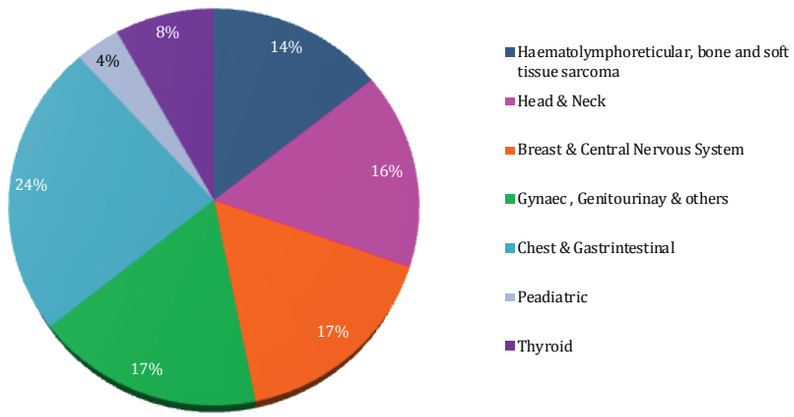
Sl. No	Clinic	2016-17	2017-18
1	Haematolymphoreticular, bone and soft tissue sarcoma	2,378	2,359
2	Head and Neck	2,668	2,637
3	Breast and Central Nervous System	2,621	2,710
4	Gynaec, Genitourinary and Others	2,764	2,860
5	Chest and Gastrointestinal	3,782	3,947
6	Paediatric	620	602
7	Thyroid	1,422	1,328
Total		16,255	16,443

Source: Regional Cancer Centre, Thiruvanathapuram

Cases Registered in RCC

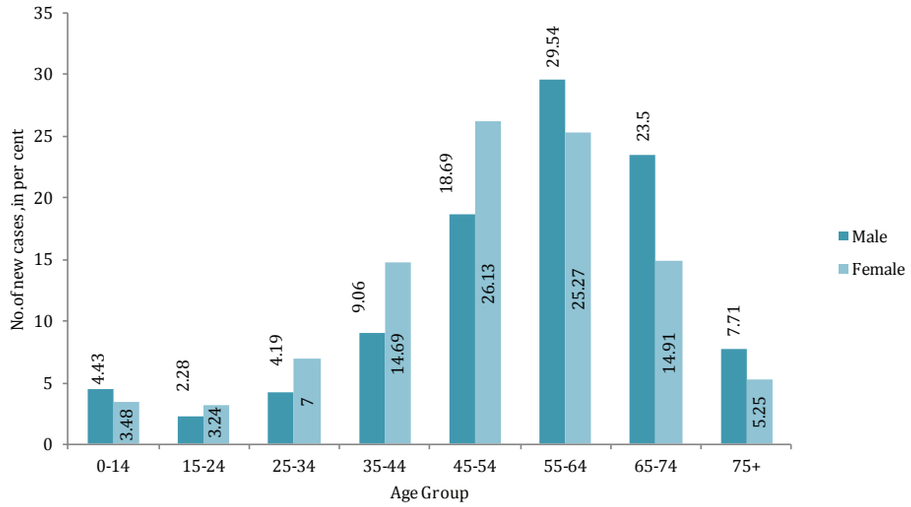
The details regarding cases registered in RCC during the last 10 years show that the number of new cases is increasing every year. The total number of registered cases during the period 2013-14 to 2017-18 is 79665. In 2017-18, 16443 new cases were registered which was 1015 per cent higher than previous year. In 2016-17, the number was 16255. New cases registered during the last 5 years is given in Table 4.25.

Figure 4.10 Speciality clinic-wise number of new patients registered in 2017-18



Source: Regional Cancer Centre, Thiruvananthapuram

Figure 4.11 Age and gender-wise new cases registered in 2017-18



Source: Regional Cancer Centre, Thiruvanathapuram

Cases Registered in Speciality Clinics

The highest per cent of new cancer cases registered were Chest and Gastrointestinal cancers (3,947 cases) in 2017-18 followed by Gynaec, Genitourinary and Others (2,860 cases) and Breast and central nervous system (2,710 cases). The number of new cases registered in speciality clinics in 2016-17 and 2017-18 shown in Table 4.26.

Figure 4.10 has the incidence of cancer to human body parts detailed as per cent of new patients registered in speciality clinics in 2017-18.

Cases Registered (Age and Gender-Wise)

The details of age and sex-wise number of new cases registered in 2017-18 reveals that people in the age group of 55-64 (27.32 per cent) are more prone to cancer diseases. About 29.54 per cent of male in the age group 55-64 are affected by cancer whereas female are affected by cancer during 45-54 age group (26.13 per cent). Figure 4.11 illustrates age and sex-wise new cancer patients registered for treatment in RCC in 2017-18.

Table 4.27 Cases registered in speciality clinics, gender-wise, 2016-17 and 2017-18

Sl.No	Clinic	2016-17		2017-18	
		Male	Female	Male	Female
1	Haematolymphoreticular, bone and soft tissue sarcoma	1,419	959	1,391	966
2	Head and Neck	2,016	652	1,958	678
3	Breast and Central Nervous System	224	2,397	235	2,475
4	Gynaec, Genitourinary and Others	986	1,778	954	1,909
5	Chest and Gastrointestinal	2,698	1,084	2,783	1,164
6	Paediatric	348	272	325	277
7	Thyroid	266	1,156	271	1,057
	Total	7,957	8,298	7,917	8,526

Source: Regional Cancer Centre, Thiruvanathapuram

Table 4.28 System-wise distribution of cancer patients by gender, in per cent

System	Male	Female
	N=7,092	N=7,420
Brain and Nervous System	2.7	1.9
Oral Cavity and Pharynx	20.3	6.9
Thyroid	3.7	13.7
Respiratory System	17.9	3.6
Breast	0.3	29
Oesophagus and Stomach	8.6	2.9
Other Digestive Organs	13.7	7.9
Urinary Tract	3.9	0.8
Reproductive System	5.4	18.7
Bone, Conn. tissue and Skin	3.7	2.8
Leukaemia and Myeloma	9.9	6.9
Lymphoma	6.5	3.2
All Others	3.4	1.8

Source: Regional Cancer Centre, Thiruvanathapuram

Table 4.29 Site-wise distribution of patient registration by gender, 2017-18

Sl.No.	Site	No. of Patients		
		Male	Female	Total
1	Invasive cancers	7,092	7,420	14,512
2	Non-invasive (in-situ, borderline, benign, non-neoplastic, suspicious etc)	825	1,106	1,931
	Total Registered	7,917	8,526	16,443

Source: Regional Cancer Centre, Thiruvanathapuram

Table 4.30 Number of cases refereed to RCC in 2017-18

Sl.No.	District	No. of cases referred
1	Thiruvananthapuram	3,902
2	Kollam	2,937
3	Pathanamthitta	895
4	Alappuzha	1,045
5	Kottayam	622
6	Idukki	331
7	Ernakulam	629
8	Thrissur	1,006
9	Palakkad	1,036
10	Malappuram	908
11	Kozhikode	320
12	Wayanad	88
13	Kannur	259
14	Kasaragod	164

Source: Regional Cancer Centre, Thiruvanathapuram

Gender-Wise New Cases Registered in Speciality Clinics

Out of the total male cases registered in 2017-18, about 35.15 per cent were registered in chest and gastrointestinal clinic. In the case of females out of the total cases registered, 29.03 per cent were registered in breast and central nervous system clinic. Details are given in Table 4.27.

System-Wise Distribution of Cancer Patients

The system-wise percentage distribution of cancer patients show that irrespective of gender disparity in certain type of cancers, the incidence of oral cavity and pharynx cancer and cancers to respiratory system etc. mostly affects men than women. Thyroid cancer is mostly seen in women than men. Details are shown in Table 4.28.

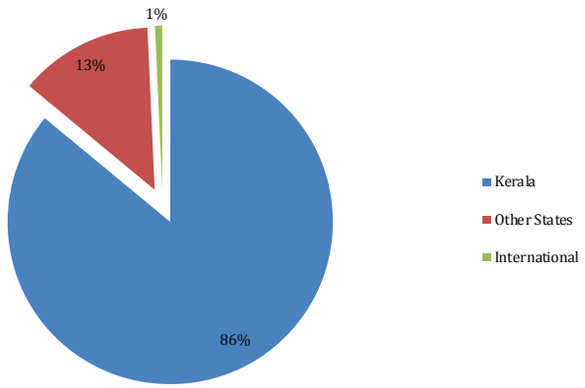
Site-Wise Distribution of Patient Registration

Out of the total 16,443 cases registered in 2017-18, 14,512 were invasive cancer and 1,931 were non-invasive cancer cases. Site-wise distribution of patient registration by gender in 2017-18 is given in Table 4.29.

Referral System

RCC is a tertiary level referral hospital and patients to which patients are referred from other Government and private hospitals. As in the previous year, most of the cases in 2017-18 were referred from Thiruvananthapuram District (23.73 per cent) followed by Kollam (17.86 per cent) and the least number of

Figure 4.12 Number of cases referred to RCC in 2017-18, in per cent



Source: Regional Cancer Centre, Thiruvananthapuram

Table 4.31 Central and State Government schemes, 2017-18

Sl.No	Scheme	Patients enrolled (new cases)	Total no. of people benefited	Amount spent (in crore)
	Central Government Schemes			
1	Prime Minister's Relief Fund	220	1,156	1.94
2	Health Minister's Rashtriya Arogya Nidhi (RAN)		2,054	0.18
3	Health Minister's Discretionary Fund	1	15	0.01
4	Indian Cancer Society	41	238	0.78
5	CSR (HMCFP-CSR Scheme) –Health Minister's Cancer Patient Fund	36	37	0.25

Sl.No	Scheme	Patients enrolled (new cases)	Total no. of people benefited	Amount spent (in crore)
	State Government Schemes			
6	Cancer Suraksha Scheme	542	4,928	6.7
7	Chis Plus	6,017	33,159	16.87
8	Karunya Benevolent Fund	4,425	21,664	32.36
9	Sukrutham	2,270	8,310	17.92
10	Thalolam	8	91	0.03
11	Scheduled Tribe Patient Fund	27	330	0.19
12	Snehasanthwanam for Endosulfan Victims	8	44	0.01
	Total	13,595	72,026	77.23

Source: Regional Cancer Centre, Thiruvanathapuram

cases were referred from Wayanad District (0.54 per cent). The number of cases referred from Thiruvananthapuram in 2017-18 was 3,902 and 3,757 cases were referred in 2016-17. Details are given in Table 4.30.

In addition to this, 1,975 cases were referred from Tamil Nadu, 9 from Karnataka, 10 from Lakshadweep and 189 from other Indian States and 118 persons from Maldives were also referred. Figure 4.12 presents number of referred cases from within the State, outside State and international cases.

Central and State Government Schemes.

Both Central and State Governments have initiated various schemes to ensure free or subsidised treatment for cancer patients. Details are given in Table 4.31.

Major Initiatives of RCC in 2017-18

In addition to the Government supported schemes, RCC provides support to patients and families through various other schemes as detailed below:

1. **Free Drug Bank –** The Free Drug Bank functions according to specific guidelines and is monitored by a committee constituted by the Director, RCC. The drug bank provided full or partial help to 3,440 patients during the reporting period.

2. **Free Food ('Akshayapathram') –** Free food was provided to 6,750 patients belonging to vulnerable socio-economic groups during the report period with the support of many philanthropic organisations.

3. **Support for Paediatric patients –** 'Prathyasa', a voluntary group working in collaboration with paediatric oncology division gives financial and psychosocial support to children and their families.

4. **Indian Cancer Society Support Scheme –** RCC was selected as one of the five cancer centres across India for receiving financial support from the Indian Cancer Society for treatment of cancer. In 2017-18, 238 patients including 41 new patients received support through the scheme.

Human Resource Development

i) **International School of Colposcopy –** 36 doctors were given one-week hands on training and 59 BSc (MLT) students and 9 nurses were given one day orientation programme on VIA, VILI and Colposcopy.

Table 4.32 Outlay expenditure of science and technology sector, 2013-14 to 2017-18, in ₹ crore

Year	Outlay	Expenditure
2013-14	121.37	92.93 (76.57%)
2014-15	131.12	53.16 (40.55 %)
2015-16	153.29	66.29 (43.24 %)
2016-17	159.15	86.01 (54.08 %)
2017-18	175.07	82.00 (46.84 %)

Source: PlanSpace Kerala

ii) **Trainer-Trainee Programmes –** A total number of 4,272 people were trained in 2017-18 through trainer-trainee programmes conducted for health care providers which included doctors, post graduate medical students and paramedical staff from governmental and non-governmental institutions. In 2016-17, the number of people trained was 2,352. Out of the total people trained, more than 50 per cent were community volunteers.

Cancer Control Activities

Early cancer detection

In 2017-18, 4,978 persons attended the early cancer detection clinic of RCC. As a result, 613 cancers and 1,802 pre-cancers were detected.

Cancer Outreach Programmes

A total number of 98 cancer detection camps were conducted in various parts of the State in which 8,658 people underwent screening and 484 Human Papillomavirus (HPV) lesions were detected. A total number of 4,120 trainees were sensitised in cancer control through 29 cancer awareness programmes. Apart from these, a bi-weekly cervical cancer detection clinic was also conducted at Mangalapuam in Thiruvananthapuram District. 12 cancer awareness programmes and 8 cancer detection camps were conducted in Idukki District.

Research and Development Activities

The RCC as a pioneer research institution in cancer research has produced several Ph.Ds in cancer research. In the year 2017-18, around 30 scholars were pursuing Ph.D., 33 residents undertook specialisation in medical, paediatric and surgical oncology super speciality courses and 50 residents undertook postgraduate courses in Anaesthesia, Pathology, Radio diagnosis and Radiotherapy in the centre. The number of on-going research projects is 146.

Outlay and Expenditure of Science and Technology Sector

The details of outlay and expenditure of Science and Technology sector from 2013-14 to 2017-18 are given in Table 4.32.

Way Forward

The State needs to discharge its constitutional obligation by inculcating scientific temper among the people. The institutions in this fields are to be the leading lights in this process. The GoK aims to provide these institutions with high quality research facilities in the areas of modern medicine science and technology.

Tourism

The year 2017 witnessed sustained growth of tourist arrivals in many tourist destinations in the world. International tourist arrivals across the world increased by 7 per cent, the highest in seven years since 2010. It reached a total of 132.6 crore in the year 2017 which is 8.6 crore more than that in 2016. This was the eighth consecutive year of sustained growth in the arrival of international tourists. Europe recorded 67.2 crore (+ 8 per cent), Asia and Pacific 32.3 crore (+ 6 per cent), America 21.1 crore (+ 5 per cent), Africa 6.3 crore (+9 per cent) and Middle East 5.8 crore (+5 per cent) international arrivals in 2017. France is in the top position in the list of most visited countries in the world in 2017 (8.69 crore visitors). (*Source*: United Nations World Tourism Organisation: Tourism Highlights 2018).

In India, the number of foreign tourist arrivals crossed 1 crore mark in 2017 and the sector had contributed 6.88 per cent to its GDP and had a 12 per cent share of jobs in the total employment figures of the country. Around 1.01 crore foreign tourists visited the country in 2017 as compared to 0.88 crore in 2016 showing an increase of 15.6 per cent over the previous year.

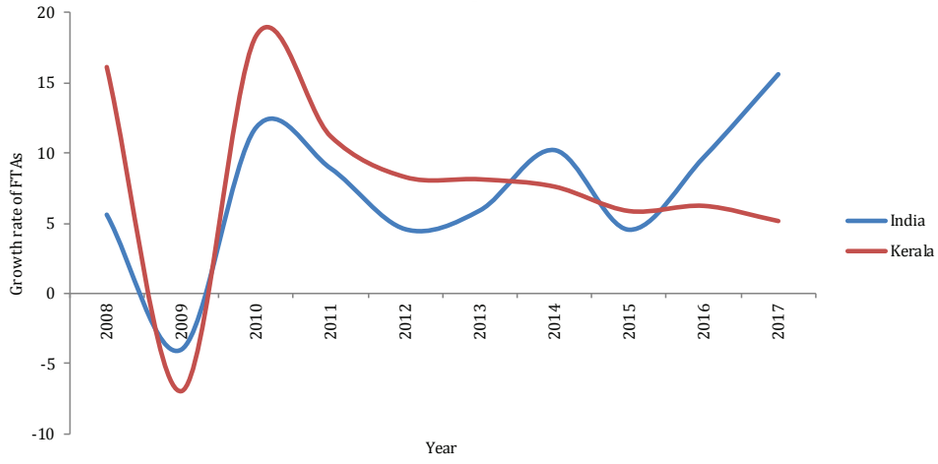
Kerala is an internationally recognised popular tourist destination. The year 2017 witnessed 5.15 per cent growth in foreign tourists arrival and 11.39 per cent growth in domestic tourists arrival in the State. There was 12.56 per cent increase in total revenue from the tourism industry.
(*Source*: Department of Tourism, GoK)

Tourist Arrivals

Foreign Tourists

The share of Kerala in country's tourism in 2017 was 10.73 per cent, which is lower than that of 2016. It was 11.79 per cent in 2016. Figure 4.13 reveals the trends in the arrival of foreign tourists in India and Kerala during the period 2008-2017.

Figure 4.13 Annual growth rates in the arrival of foreign tourists in India and Kerala from 2008 to 2017, in per cent



Source: Department of Tourism, GoK

The growth rate in Kerala with respect to foreign tourist arrivals was lower than that of India in 2016 and 2017. From 2008 to 2013, it was higher than the national average. The State has been witnessing a declining growth rate after 2010. In 2010, the growth rate was 18.31 per cent, which dropped to 5.86 per cent by 2015 and further to 5.15 per cent in 2017. In 2016, the growth rate was 6.23 per cent, higher than that of the previous year. The number of foreign tourists visited Kerala in 2017 was 10,91,870 and 10,38,419 foreign tourists visited the State in 2016. Appendix 4.71 shows the national and State foreign tourist arrivals and annual growth rate from 2008 onwards.

Seasonality in Foreign Tourist Arrivals

The month-wise analysis of foreign tourist arrival in India indicates that in 2017, the maximum number of foreign tourists arrived in the month of December followed by November. A similar trend is visible in the previous year also. In 2017, the maximum number of foreign tourists arrived in Kerala during the month of January followed by December. Month-wise foreign tourist arrival in India and Kerala in 2017 is given in Table 4.33.

In 2017, around 13.81 per cent of the total foreign tourists visited the State during January followed by December and in 2016, February witnessed maximum foreign tourist arrivals in the State followed by January. The lowest foreign tourist traffic in 2017 was registered for the month of June (4.03 per cent) and this trend had been continuing for the last 10 years. Figure 4.14 depicts the month-wise comparison of foreign tourist arrival in Kerala from 2008 to 2017.

Source Market of Foreign Tourist Arrivals

The country-wise details of foreign tourist arrivals in India in 2017 reveals that more number of foreign tourists were from Bangladesh (21.49 per cent) followed by United States (13.72 per cent) and United Kingdom (9.83 per cent). These three countries remained as top source countries for foreign tourist arrivals in India in the previous year also.

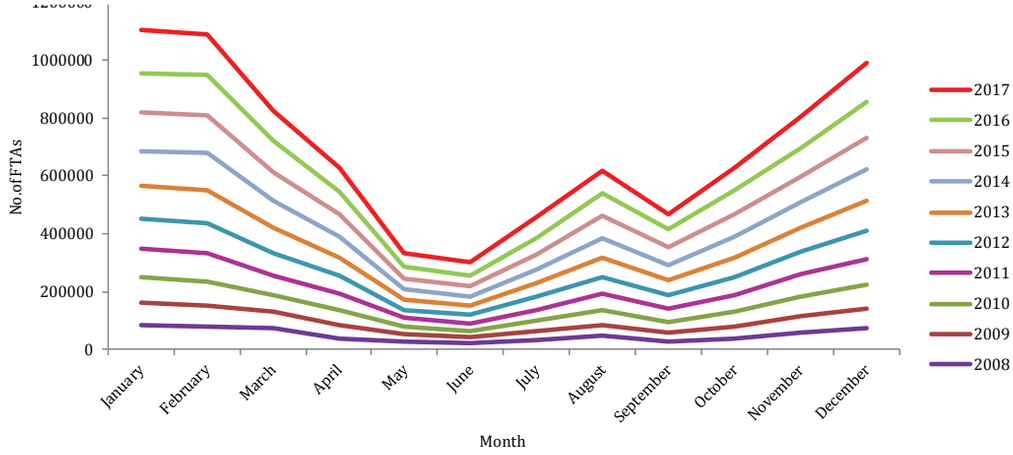
In 2017 United Kingdom, with a percentage share of 16.57 per cent remains at the top of list of the countries from where foreign tourists come to the State. USA occupied the second position with an 8.51 per cent share. In 2016 also, these two

Table 4.33 Month-wise foreign tourist arrivals in India and Kerala in 2017, in number

Sl.No.	Month	No. of FTAs in 2017	
		India	Kerala
1	January	964,109	150,808
2	February	931,025	135,089
3	March	885,936	107,141
4	April	717,899	82,633
5	May	622,408	49,073
6	June	663,470	44,040
7	July	779,309	72,552
8	August	719,129	73,736
9	September	719,964	54,700
10	October	866,976	79,957
11	November	997,738	107,028
12	December	1,167,840	135,113

Source: Ministry of Statistics, GoI and Department of Tourism, Kerala

Figure 4.14 Month-wise comparison of foreign tourist arrival in Kerala from 2008 to 2017, in number



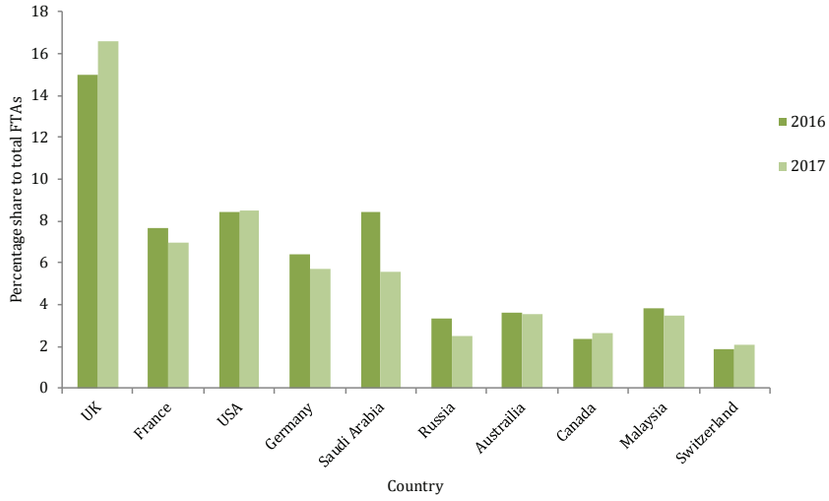
Source: Department of Tourism, GoK

countries remained at the top two positions. In 2017, France (6.9 per cent) and Germany (5.73 per cent) contributed the next major shares of foreign tourist's arrivals. But in 2016, Saudi Arabia and France were in 3rd and 4th position. Appendix 4.72 gives the share of major international source markets of Kerala Tourism in 2016 and in 2017 and Figure 4.15 illustrates the share of foreign tourist arrival to Kerala from top ten countries during 2016 and 2017.

Foreign Tourist Arrival – District-Wise

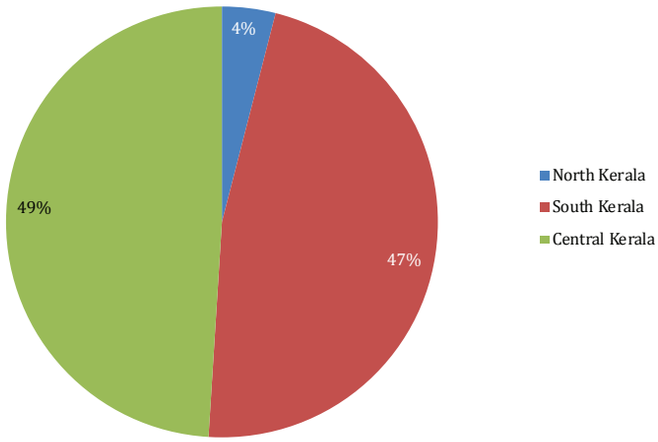
For the last few years, the two Districts which recorded largest foreign tourist arrivals in the State are Ernakulam and Thiruvananthapuram. In 2017, 4,53,973 foreign tourists visited Ernakulam and 4,07,653 tourists visited the District in 2016. In the case of Thiruvananthapuram, the number of foreign tourists visited the District in 2017 was 4,20,719 as against 3,83,608 in 2016. The number of foreign tourists visited these two

Figure 4.15 Share of foreign tourist arrival from top ten countries of the world to Kerala during 2016 and 2017, in per cent



Source: Department of Tourism, GoK

Figure 4.16 Region-wise foreign tourist visits in Kerala in 2017, in per cent



Source: Department of Tourism, GoK

District upto June 2018 is 2,65,019 (Ernakulam) and 1,96,545 (Thiruvananthapuram). The District with least number of foreign tourist arrivals is Kasaragod (1,115) in 2017 and Pathanamthitta (1,131) in 2018 (as on June 30, 2018). In 2016 also, Pathanamthitta (1,620) was the District that recorded least number of foreign tourist arrivals in the State. Details are given in Appendix 4.73.

Region-wise figures of foreign tourists visiting in the State shows that in 2017, about 49 per cent of the total foreign tourists visited central part of Kerala and the number of tourists visited northern Kerala was only 4 per cent. Figure 4.16 presents the region-wise arrival of foreign tourists in Kerala in 2017.

Domestic Tourists

The number of domestic tourist arrivals to Kerala in 2017 is 1,46,73,520, which is 11.39 per cent higher than the previous year. In 2016, the domestic tourist arrival to Kerala was 1,31,72,535. Upto June 2018, 80,26,834 domestic tourists visited the State. Appendix 4.74 gives the details of domestic tourist arrivals to Kerala from 2008 to 2018 (upto June 30, 2018).

Seasonality in Domestic Tourists Arrivals

The month-wise data on the arrival of domestic tourists in Kerala in 2017 shows that the highest inflow of tourists was for the month of December and the lowest was in the month of June. A similar trend is visible in the previous year also. Details are given in Table 4.34.

Figure 4.17 portrays the month-wise arrival of domestic tourists in Kerala from 2008 to 2017.

Source of Domestic Tourism

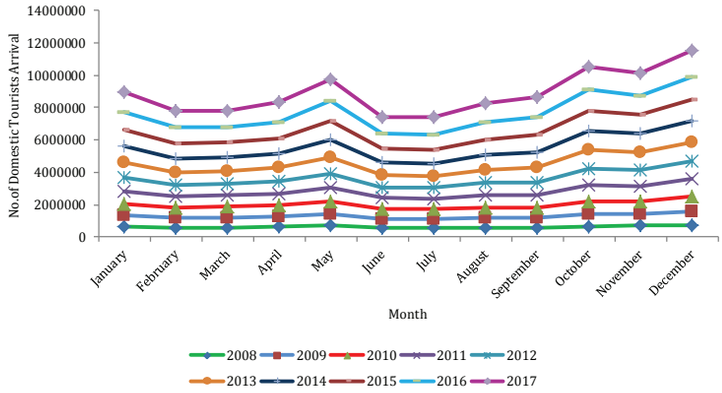
The statistics on the distribution of domestic tourist visits in Kerala by State of origin in 2017 reveals that about 62.93 per cent originated within the State. With respect to the distribution of other States, Tamil Nadu ranks 1st with a share of 8.67 per cent of domestic tourist visits. Karnataka (6.36 per cent) and Maharashtra (3.73 per cent) were the other important States. These States remained as top source areas for domestic tourist arrivals in the State in the previous year also. Appendix 4.75 gives the details of top 15 State-wise share of domestic tourist arrival in Kerala. Figure 4.18 shows State-wise share of

Table 4.34 Month-wise arrival of domestic tourists in Kerala in 2016 and 2017

Sl. No.	Month	No. of Domestic Tourists Arrival	
		2016	2017
1	January	1,077,231	1,221,074
2	February	1,006,111	1,034,563
3	March	960,467	1,014,877
4	April	1,012,844	1,213,252
5	May	1,206,350	1,338,330
6	June	891,614	1,027,361
7	July	913,886	1,083,162
8	August	1,043,362	1,138,533
9	September	1,129,260	1,188,959
10	October	1,337,191	1,379,190
11	November	1,187,620	1,401,610
12	December	1,406,599	1,632,609
	Total	1,31,72,535	1,46,73,520

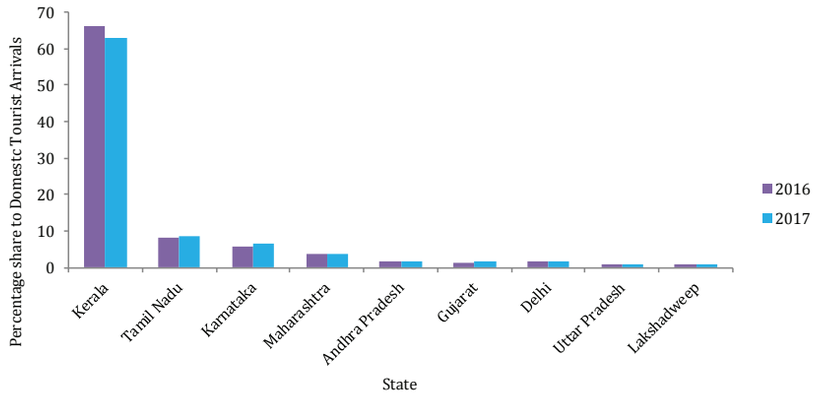
Source: Department of Tourism, GoK

Figure 4.17 Month-wise arrival of domestic tourists in Kerala from 2008 to 2017, in number



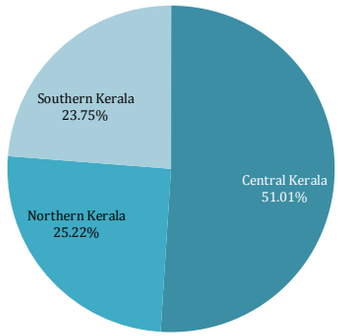
Source: Department of Tourism, GoK

Figure 4.18 Share of domestic tourist arrival from top ten States to Kerala during 2016 and 2017, in per cent



Source: Department of Tourism, GoK

Figure 4.19 Region-wise domestic tourist visits in Kerala in 2017, in per cent



Source: Department of Tourism, GoK

domestic tourist arrivals to Kerala from top 10 States during 2016 and 2017.

District-Wise Arrivals of Domestic Tourists

Regarding the District-wise domestic tourist arrivals in Kerala, Ernakulam and Thrissur were the leading Districts in 2017 and in 2016. In 2018, Ernakulam and Thiruvananthapuram (upto June 2018) are in the top position. Pathanamthitta attracts the lowest number of domestic tourists. Details are given in Appendix 4.76. Region-wise details show that more number of domestic tourists visited central parts of Kerala in 2017. Figure 4.19 illustrates region-wise domestic tourist visits in Kerala in 2017.

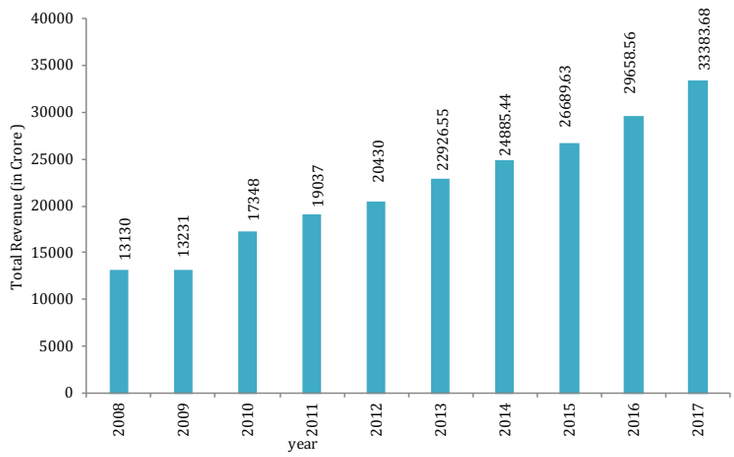
Accommodation Units in Kerala

The total number of tourist accommodation units in the State as on September 30, 2018 is 5,494 with 80,221 number of rooms. Ernakulam is the District having highest number of accommodation units (1,048) and Kasaragod District has the lowest number (83) of accommodation units. Details are shown in Appendix 4.78.

Economic Impact of Tourism

The foreign exchange earnings from tourism in the year 2017 was ₹8,392.11 crore and domestic tourist earnings was ₹17,608.22 crore. Total revenue including direct and indirect means

Figure 4.20 Total revenue generated from tourism during 2008 to 2017, in ₹ crore



Source: Department of Tourism, GoK

Table 4.35 State Plan outlay and expenditure, 2013-14 to 2017-18, in ₹ crore

Year	Outlay	Expenditure
2013-14	189.23	189.78 (100%)
2014-15	206.65	192.17 (93%)
2015-16	223.04	203.63 (91.29%)
2016-17	311.56	285.76 (91.72%)
2017-18	342.73	308.32 (90%)

Source: Plan Space Kerala

was ₹33,383.68 crore showing an increase of 12.56 per cent over 2016. Details are given in Appendix 4.77. Figure 4.20 presents total revenue generated from tourism in Kerala from 2008 to 2017.

State Plan Outlay and Expenditure

The details of Plan outlay and expenditure of tourism sector during the period 2013-14 to 2017-18 are given in Table 4.35. The utilisation of Outlay, though high is showing a downward trend since 2013-14.

Sanctioned Tourism Projects in 2017-18

In 2017-18, 167 projects were sanctioned with an outlay of ₹443 crore in the State and the number of projects sanctioned in 2018-19 (upto August 2018) is 49 with an outlay of ₹132 Crore.

Major Achievements Under Various Plan Schemes

- Cultural initiatives – Onam Celebration 2017, Nishagandhi Festival and UTSAVAM, the Kerala Arts festival for the promotion of local cultural programmes
- Tourism Promotion and Publicity – The department of tourism has undertaken various innovative initiatives in the areas of promotion and publicity. The department has participated in 12 international trade fairs, 25 national travel and tourism fairs, 20 B2B Meets and 21 National partnership meets in 2017-18
- Kerala Tourism Development Corporation (KTDC) had completed upgradation and renovation of 52 rooms in Hotel Chaithram, Thiruvananthapuram
- Development of small and medium entrepreneurs in tourism sector in North Malabar
- Around 522 women were engaged in clean

Box 4.13 Jatayu earth centre project

Jatayu Earth Centre, a unique combination of all aspects of tourism is the first major BOT tourism project in the State which offers a complete Kerala, God's own country experience to every tourist. The project is spread over 65 acres of multi-terrain landscape at Jadayupara near Chadayamangalam in Kollam District. The terrain is 1000 feet above sea level and has diverse geographic features. The giant concrete statue of Jatayu, is built on the rock is 200 feet long, 150 feet wide and 70 feet high. Its features make the statue the largest functional bird sculpture in the world. The Jatayu Adventure Centre offers the largest adventure park within a natural terrain. Paintball, valley crossing, bouldering, zip line, trekking, archery, rappelling, jumaring and wall climbing are among the myriad activities available in the centre. It is a unique combination of artistry, mythology, technology, culture, adventure, leisure, and wellness. The virtual reality museum and the theatrical magic that renders the story of Jatayu add to the magic of the destination.

Source: Department of Tourism, GoK

destination campaign in selected destinations in 14 Districts

- Completed construction of permanent campus for State Institute of Hospitality Management (SIHM), Kozhikode.
- Destination improvement in Thenmala under Eco tourism project
- Responsible Tourism Mission – Responsible Tourism (RT) activities were initiated in the State in 2008 and RT Mission in Kerala has been formed in the year 2017 with the objective of implementing RT activities across the State. The major deliverables of the Mission are initiating community level tourism activities, creating tourism – trading community level linkages and encouraging adoption of RT principles and practices by tourism trade and other stakeholders. The total number of registered RT Mission units is 6,161. 11,835 people directly and 25,958 people indirectly benefitted though 5,965 RT Mission Units. Women Empowerment: Out of the 6,161 units of RT Mission 4,005(65 per cent) units are headed by women and majority of the RT Mission beneficiaries are women. The Mission achieved an amount of ₹5.26 crore of income generation for the local community from tourism related activities.

Details of centrally sponsored projects sanctioned in 2017-18 are shown in Table 4.36.

Awards and Acclaims for Kerala Tourism

Kerala tourism has received several awards and citations as a result of the concerted efforts of both the public and private sector working together to take Kerala tourism to great heights.

2018

- Best Facebook page award
- Das Goldene Stadttor award for Biennale print campaign
- Lonely Planet travel award for best destination

2017

- Better holiday award for India's favorite waterfront destination
- Lonely Planet award for best destination
- Outlook Traveller award for best destination for wellness and spirituality
- PATA Gold award for best consumer travel brochure-film tourism brochure
- International tourism conclave and travel awards-best backwater, Ayurveda and spa and wellness state
- WTM Responsible Tourism Award for Kumarakom

Table 4.36 Centrally sponsored projects sanctioned in 2017-18, in ₹crore

Sl.No.	Name of Project	Amount	Release
1	Ecotourism Circuit Development of Pathanamthitta – Gavi-Vagamon Thekkady as Eco Tourism circuit in Idukki and Pathanamthitta	90.06	49.6
2	Spiritual Tourism Circuit – Development of Sabarimala – Erumeli-Pampa-Sannidhanam-as a spiritual circuit	99.98	19.99
3	Spiritual Tourism Circuit-Development of Sree Padmanabha Aranmula-Sabarimala as a spiritual circuit	92.44	44.75
4	Development of Rural Circuit-Malanad Malabar Cruise Tourism Project	80.37	0
5	Development at Guruvayur Temple	46.14	13.05
	Total	408.99	127.39

Source: Department of Tourism, GoK

Box 4.14 Kerala Tourism Policy 2017, highlights

- To establish a Kerala Tourism Regulatory Authority (KTRA) to ensure quality service for tourists and curb unhealthy practices in the tourism sector which would be responsible in monitoring the functioning of different stakeholders.
- Aiding the participation of the transgender community and differently-abled. in tourism activity.
- Popularising monsoon tourism and experiential tourism.
- Enabling tourists to experience village life for the first-hand experience.
- To double the arrival of foreign tourists and 50 per cent increase domestic tourist arrivals by 2021.
- Creation of new customised products for attracting young travellers, professionals, students and artists to the State.
- Strengthen overseas campaign.
- To address key issues of the tourism industry such as waste management in cooperation with the local bodies.
- Initiate concerted efforts for tackling issues of connectivity to Kerala from major parts of the domestic and international markets.
- Formulation of Kerala Tourism Entrepreneurship Fund(KTEF).
- Preparation of Action Plan for sustainable tourism development.
- Development of tourism projects of international standards in selected destinations through PPP mode.
- Ensuring tourist-friendly, secure and safe destinations

Source: Department of Tourism, GoK

National Tourism Awards

- Best Tourism Promotion and Promotion Publicity Material for Your Next Blockbuster Destination, A Film Brochure by Department of Tourism, GoK
- Excellence in Publishing in foreign language other than English – Reanimar-Enel Propio Pais de Dios (Spanish brochure) by Department of Tourism, GoK
- Best Responsible Tourism Project/Initiative – Responsible Tourism in Kumarakom
- Best State/Union Territory Comprehensive Development of Tourism
- Best Civic Management for Sarovaram Bio Park
- HALL OF FAME AWARD for Most Innovative Use of Information Technology-Social Media/ Mobile App.

Post Flood Scenario in Kerala

- Flood of July-August, 2018, disrupted tourist flow to the State temporarily. Since the monsoon period has a lower rate of tourist arrival than other seasons it may not be too far of the mark to take a 20 per cent to 25 per cent decline in revenue.
- Cancellation of Onam festivities throughout the State was a major setback for the sector.
- Affected a segment of workers i.e., casually employed in hotels and restaurants, self-employed and other workers in small shops and restaurants.

Way Forward

The tourism sector has the potential to earn foreign exchange, create employment opportunities and act as a major driver of economic development of the country and the State. The recent floods occurred in the State adversely affected the tourism industry as many destinations got inundated and roads got damaged. In the post-flood scenario, the possibility of providing livelihood to the affected needs to be considered on priority. It is essential to focus on marketing activities and to concentrate on measures to attract tourist inflow from countries from which the same into the State is relatively low. Other important area of concern are the development and popularisation of lesser known tourist destinations in the State. Kerala, being a State with rich historical and cultural traditions needs to turn attention on eco-friendly tourism and offer tourists world class recreation facilities.

External Trade

External Trade in India

India exports approximately 7,500 commodities to about 190 countries, and imports around 6,000 commodities from 140 countries. As per the statistics published by the Ministry of Commerce and Industry (MoCI), GoI, India's merchandise exports in 2017-18 were at US $303.53 billion registering a growth of 10.03 per cent in dollar terms as against US $275.85 billion in 2016-17. Service exports in 2017-18 was US $174.76 billion as against US $160.68 billion in 2016-17 recording a positive growth of 8.76 per cent.

India's overall exports (merchandise and services combined) in April-October 2018-19 are estimated to be US $308.32 billion, exhibiting a positive growth of 17.17 per cent over the same period in 2017-18. Out of this, merchandise and service exports are estimated to be US $ 191.01 billion and US $117.30 billion with a positive growth of 13.27 per cent and 24.15 per cent respectively.

Overall imports in April-October 2018-19 are estimated to be US $374.88 billion, exhibiting a positive growth of 18.88 per cent over the same period in 2017-18. Out of this, merchandise imports are estimated to be US $302.47 billion and service imports US $72.41 billion registering a positive growth of 16.37 per cent and 30.62 per cent respectively.

India's merchandise exports in October 2018 were US $26.98 billion, as compared to US $22.89 billion in October 2017, exhibiting a positive growth of 17.86 per cent. In October 2018, major commodity groups showing positive growth in exports over the corresponding month of last year are engineering goods (8.87 per cent), petroleum products (49.38 per cent), organic and inorganic chemicals (34.01 per cent), drugs and pharmaceuticals (12.83 per cent), and gems and jewellery 5.48 (per cent).

India's merchandise imports in October 2018 were US $44.11 billion which was 17.62 per cent higher in dollar terms over US $37.50 billion in October 2017. Major commodity groups of import showing high growth in October 2018 over the corresponding month of last year are petroleum, crude and products (52.64 per cent), electronic goods (31.94 per cent), machinery, electrical and non-electrical (12.45 per cent), coal, coke and Briquettes etc. (12.38 per cent) and organic and inorganic chemicals (26.36 per cent).

In the face of challenges in external trade, GoI introduced a new five year Foreign Trade Policy (FTP) for the period 2015-20 with the focus on increasing export of goods and services as well as generation of employment and value addition in the country in pace with the "Make in India" and "Digital India" programmes and the policy has special emphasis on "Ease of Doing Business."

External Trade in Kerala

Cochin Port is the main gate way of Kerala's external trade. Tea, cashew, marine products, coir and coir products, spices, fertilisers, raw materials, food grains, news print, iron steel and machinery are major items of trade. Total traffic handled by Cochin Port, both coastal and foreign, grew by 16.52 per cent in 2017-18 as against 13.16 per cent in 2016-17. In quantitative terms, the total traffic was aggregated to 291.38 lakh MT in 2017-18 as against 250.07 lakh MT in 2016-17.

Table 4.37 Cargo handled at Cochin Port in 2013-14 to 2017-18, in lakh MT

Traffic	Export					Import				
	2013-14	2014-15	2015-16	2016-17	2017-18	2013-14	2014-15	2015-16	2016-17	2017-18
1	2	3	4	5	6	7	8	9	10	11
Coastal	17.18	16.48	12.86	14.18	27.38	60.63	52.15	60.4	56.56	59.17
Foreign	25.32	24.1	26.28	33.41	30.41	105.73	123.22	121.44	145.92	174.42
Total	42.5	40.58	39.14	47.59	57.79	166.36	175.37	181.84	202.48	233.59

Source: Cochin Port Trust

Out of the total traffic, coastal traffic accounts for 86.55 lakh MT in 2017-18 as against 70.74 lakh MT in 2016-17 recording a growth 22.35 per cent as against negative growth of 3.44 per cent in the previous year. Total foreign traffic increased from 179.33 lakh MT in 2016-17 to 204.83 lakh MT in 2017-18, but its growth declined from 21.40 per cent to 14.22 per cent in 2017-18 as compaired to 2016-17 growth (Table 4.37).

Total exports, both coastal and foreign, through Cochin Port rose to 57.79 lakh MT in 2017-18 as against 47.59 lakh MT in 2016-17, registering a growth of 21.43 per cent. Out of total exports, coastal exports accounts for 27.38 lakh MT in 2017-18 with a record growth of 93.09 per cent compared to previous year. But the foreign exports registered a decline of 8.98 per cent with figures of 30.41 lakh MT in 2017-18 as against 33.41 lakh MT in 2016-17. The details of major items exported through Cochin Port are given in Appendix 4.79.

Total import traffic handled by Cochin Port aggregated to 233.59 lakh MT in 2017-18 as against 202.48 lakh MT recording a growth of 15.36 per cent. Coastal imports increased from 56.56 lakh MT in 2016-17 to 59.17 lakh MT in 2017-18 with a growth of 4.61 per cent as against decline of 6.36 per cent in the previous year. Foreign imports accounted for 174.42 lakh MT in 2017-18 as against the 145.92 lakh MT in 2016-17; recorded a slightly lower growth of 19.53 per cent as against 20.16 per cent in 2016-17.

Imports through Cochin Port went up by 233.59 lakh MT in 2017-18 recording a growth of 15.36 per cent compared to previous year's quantity of 202.48 lakh MT. Fertilisers and raw materials, iron, steel and machinery and miscellaneous items including Petroleum, Oil, and Lubricants (POL) were the major items of import in 2017-18 accounting 2,23,357 MT, 59,936 MT and 2,30,75,673 MT respectively as against 2,51,239 MT, 25,153 MT, and 1,97,07,661 MT in 2016-17 and recording a growth of (-)11.10 per cent, 138.29 per cent, and 17.09 per cent respectively. Food grains and newsprint were not imported through Cochin Port in 2017-18 (Appendix 4.80).

Export of Marine Products

Despite the substantial challenges, Indian marine products export touched a new high of 13.77 lakh MT and earned ₹45,106.89 crore in 2017-18 as against 11.35 lakh MT valued at ₹37,870.90 crore in 2016-17 and recording a growth of 21.35 per cent in quantity and 19.10 per cent in value. Marine products' export from Kerala went up both in quantity and value in 2017-18. The quantity aggregated to 1.79 lakh MT valued at ₹5,919.03 crore in 2017-18 as against 1.59 lakh MT valued at ₹5,008.54 crore in 2016-17. Compared to previous year, marine products export from Kerala recorded a growth of 12.26 per cent in quantity and 18.18 per cent in value in 2017-18 (Table 4.38 and Figure 4.21).

In the face of continued challenges in the world market, growth rate of export of marine products from India and Kerala recorded fluctuating trend since 2012-13. It was 7.68 per cent in terms of quantity in 2012-13, declined to 5.98 per cent in 2013-14, slightly went up to 6.86 per cent in 2014-15, again went down to a negative growth of 10.02 per cent in 2015-16 and rose to 19.99 per cent in 2016-17 and to 21.35 per cent in 2017-18. The trend was reflected in Kerala's marine exports also which recorded a growth of

Table 4.38 Export of marine products in India and Kerala 2011-12 to 2017-18, in ₹ crore

Year	India		Kerala		Kerala's Share (%)	
	Quantity (MT)	Value	Quantity (MT)	Value	Quantity (MT)	Value
2011-12	862,021	16,597.23	155,714	2,988.33	18.06	18
2012-13	928,215	18,856.26	166,399	3,435.85	17.93	18.22
2013-14	983,756	30,213.26	165,698	4,706.36	16.84	15.58
2014-15	1,051,243	33,441.61	166,754	5,166.08	15.86	15.45
2015-16	945,892	30,420.83	149,138	4,644.42	15.77	15.27
2016-17	1,134,948	37,870.90	159,141	5,008.54	14.02	13.23
2017-18	1,377,244	45,106.89	178,646	5,919.03	12.97	13.12

Source: The Marine Products Export Development Agency (MPEDA)

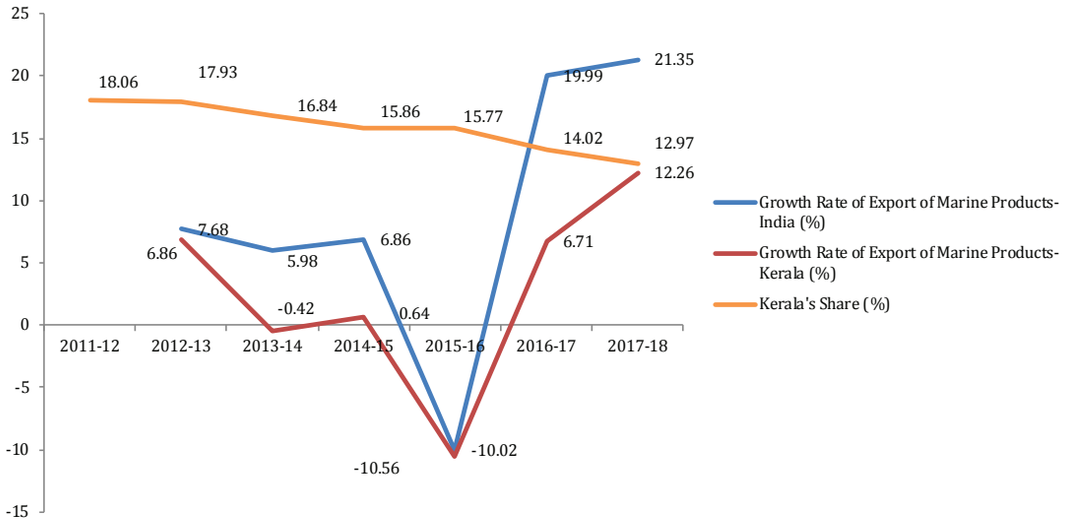
6.86 per cent in 2012-13, a decline of 0.42 per cent in 2013-14, a positive growth of 0.64 per cent in 2014-15 and went up to 6.71 per cent in 2016-17 and again to 12.26 per cent in 2017-18 in terms of quantity.

The share of Kerala in Indian export of marine products shows a decreasing trend in the last several years. It was 18.06 per cent in 2011-12, decreased to 15.77 per cent in 2015-16, 14.02

per cent in 2016-17 and to 12.97 per cent in 2017-18 in terms of quantity (Appendix 4.81).

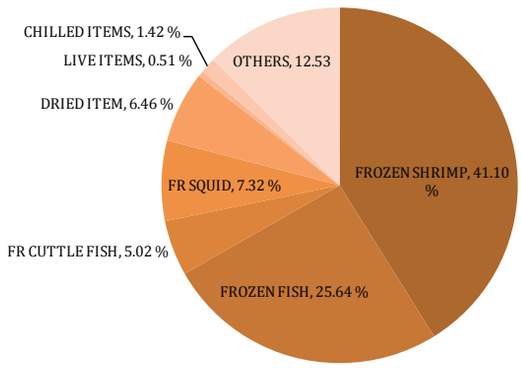
Frozen shrimp continued as top export item of marine products from India in 2017-18 with a market share of 41.10 per cent in quantity and 68.43 per cent in value, followed by frozen fish with a share of 25.64 per cent in quantity and 10.36 per cent in value. India exported frozen shrimp to the tune of 5.66 lakh tonnes valued ₹30,868.17 crore registering a growth of 30.26 per cent in terms of quantity and 24.92 per cent in terms of value. Figure 4.22 depicts market share of item-wise export of marine products from India in 2017-18.

Figure 4.21 Trend in the quantity of export of marine products, India and Kerala, 2011-12 to 2017-18



Source: The Marine Products Export Development Agency (MPEDA)

Figure 4.22 Market share of item-wise export of marine products from India 2017-18, in per cent



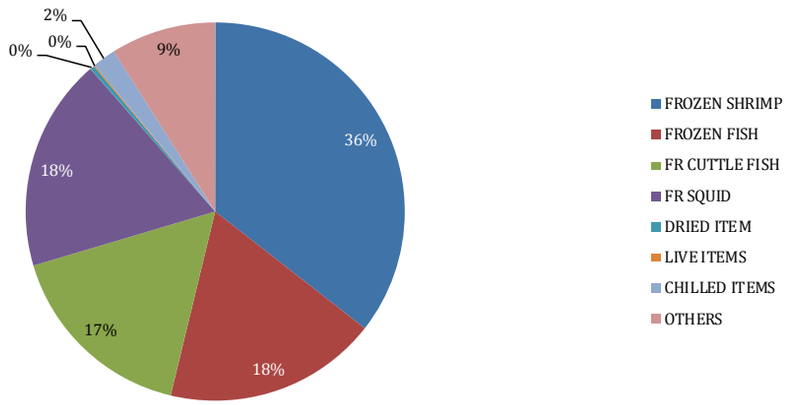
Source: The Marine Products Export Development Agency (MPEDA)

In 2017-18, marine products exports from Kerala aggregated to 1.78 lakh MT valued at ₹5,919.03 crore recording a growth of 12.26 per cent in quantity and 18.18 per cent in value. Frozen shrimps maintained its position as a major item in the export basket accounting for 35.55 per cent in quantity and 49.41 per cent for earnings and recording a growth of 40.70 per cent in quantity and 34.70 per cent in value in 2017-18, followed by frozen fish and squid. Figure 4.23 shows the market share of item-wise exports of marine products from Kerala in 2017-18.

The largest market for India's marine products were South- East Asia (6,16,707 MT), USA (2,47,780 MT), and Europian Union (1,90,314 MT) followed by Japan (85,651 MT), Middle East (62,220 MT), China (49,701 MT) and other countries (1,24,871 MT). Major markets of India's marine products and their share is depicted in Figure 4.24.

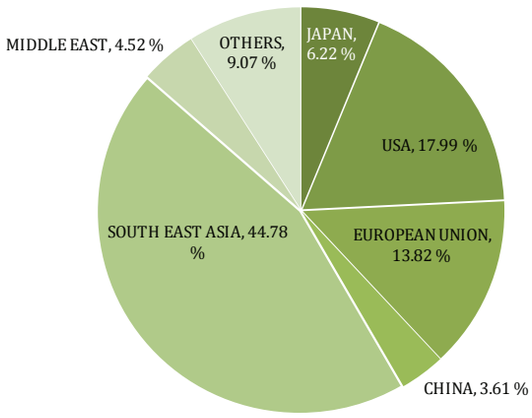
Major importers of Kerala's marine products were South East Asia (66159 MT), European Union (60,749 MT) and USA (14,354 MT) followed by Japan (8,597 MT), Middle East (6,307 MT), China (4,205 MT) and others (18,275 MT). Major markets of Kerala's marine products in 2017-18 and their share are given in Figure 4.25.

Figure 4.23 Item-wise export of marine products from Kerala 2017-18, in per cent



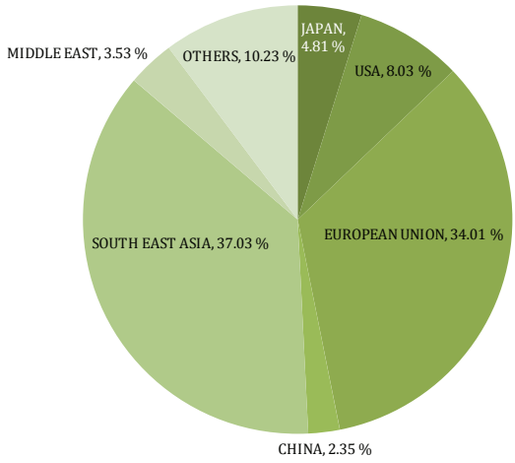
Source: The Marine Export Development Agency (MPEDA)

Figure 4.24 India's market-wise export of marine products 2017-18, in per cent



Source: The Marine Products Export Development Agency (MPEDA)

Figure 4.25 Kerala's market-wise export of marine products 2017-18, in per cent

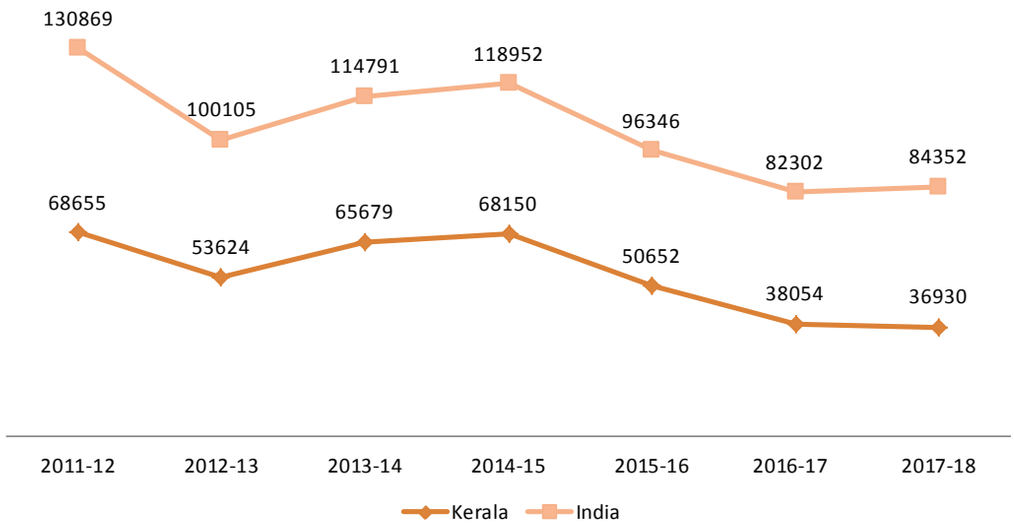


Source: The Marine Products Export Development Agency (MPEDA)

Export of Cashew

As per the export-import statistics of MoCI, GoI, the share of agricultural products in the total export earnings of India in 2017-18 was 6.65 per cent and cashew kernels ranked 6th among them contributing 4.39 per cent of the agricultural product exports. In 2017-18 a total volume of 84,352 MT cashew kernels valued at ₹5,870.97 crore was exported from India recording an increase of 2.49 in volume and 13.59 per cent in terms of value when compared to the export of 82,302 MT cashew kernels valued at ₹5,168.78 crore achieved in 2016–2017. India exported cashew kernels mainly to U.A.E, USA, Netherlands, Japan, Saudi Arabia, Germany, Spain, France, Kuwait, etc. The UAE continued to be the largest importer of Cashew kernels from India accounting for 20.83 per cent of the total followed by USA (15.62 per cent), Netherland

Figure 4.26 Trend in export of cashew kernels from India and Kerala in terms of quantity in MT



Source: Cashew Export Promotion Council of India

(10.25 per cent), Japan (10.09 per cent) and Saudi Arabia (9.28 per cent).

The export of cashew kernels from Kerala in 2017-18 was 36,390 MT valued at ₹2,580.35 crore registering a decline of 2.95 per cent in volume and an increase of 6.83 per cent in value when compared to 2016-17, which recorded an export of 38,054 MT valued at ₹2,415.32 crore. The trend in export of cashew kernels from India and Kerala is depicted in Figure 4.26.

Kerala's share in total export of cashew kernels from India in volume has been declining from 57.29 per cent in 2014-15 to 46.24 per cent in 2016-17 and to 43.78 per cent in 2017-18. In value terms it declined from 57.04 per cent in 2014-15 to 46.73 per cent 2016-17 and to 43.95 per cent in 2017-18 (Table 4.39).

The export of cashew shell liquid from India registered a sharp decline of 27.11 per cent in volume and 25.84 per cent in value in 2017-18. It was 8,325 MT valued at 32.63 crore in 2017-18 as against 11,422 MT valued at ₹44 crore in 2016-17. The cashew shell liquid was not exported from Kerala 2017-18 (Appendix. 4.82).

Table 4.39 Export of cashew kernels, Kerala and India, 2011-12 to 2017-18, in ₹ crore

Year	Kerala		India		Share of Kerala (%)	
	Quantity (in MT)	Value	Quantity (in MT)	Value	Quantity	Value
1	2	3	4	5	6	7
2011-12	68,655	2,295.84	130,869	4,383.82	52.46	52.37
2012-13	53,624	2,138.47	100,105	4,046.23	53.57	52.85
2013-14	65,679	2,861.75	114,791	5,058.73	57.22	56.57
2014-15	68,150	3,098.75	118,952	5,432.85	57.29	57.04
2015-16	50,652	2,579.49	96,346	4,952.12	52.57	52.09
2016-17	38,054	2,415.32	82,302	5,168.78	46.24	46.73
2017-18	36,930	2,580.35	84,352	5,870.97	43.78	43.95

Source: Cashew Export Promotion Council of India

India has maintained its position as the largest producer of raw cashew nuts in the world in 2017-18. The other main raw cashew nuts producing countries are Vietnam, Brazil, Tanzania, Ivory Coast, Guinea Bissau, Mozambique, and Indonesia. In 2017-18, India produced 8,17,045 MT of raw cashew nut as against the estimated production of 7,79,335 MT in 2016-2017, registering an increase by 4.84 per cent.

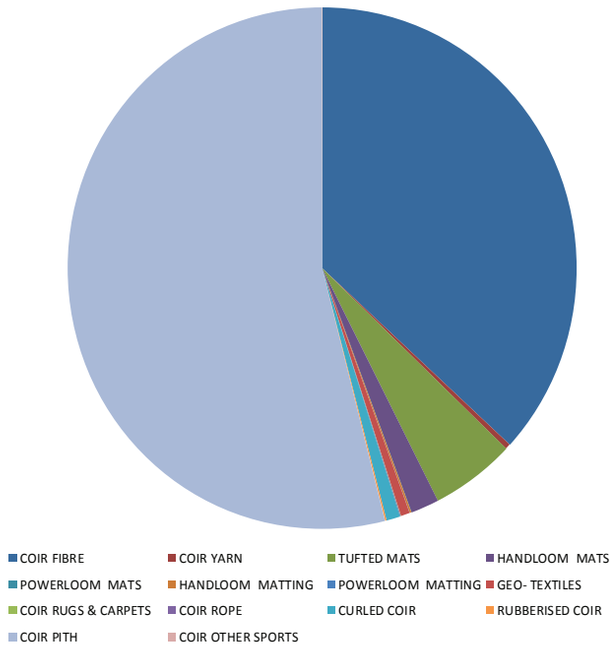
In 2017-18, India exported 5,521 MT of raw cashew nut worth ₹65.61 crore as against 9,718 MT worth 127.45 crore in 2016-17, recording a decline of 43.19 per cent in volume and 48.52 per cent in value.

India imported an volume of 6,49,050 MT of raw cashew nuts valued at ₹8,850.03 crore in 2017-18 against the import of 7,70,446 MT valued at ₹8,839.42 crore in 2016-17 recording a decline of 15.76 per cent in volume and an increase of 0.12 per cent in value. Increase in value was due to increase in the unit value of import price for raw cashew nut from ₹114.73/kg in 2016-17 to ₹136.35/kg in 2017-18. Out of the total import of raw cashew nuts into India, Kerala's share was 63,508 MT valued at ₹895.63 crore in 2017-18 as against 86,821 MT valued at ₹977.79 crore in the previous year.

Export of Coir and Coir Products

In 2017-18, a total quantity of 10,16,564 MT of coir and coir products valued at ₹2,532.28 crore was exported as against the of 9,57,044 MT valued at ₹1,901.42 crore in 2016-17 registering an increase of 6.2 per cent in terms of quantity and 11 per cent in terms of value. Export of coir pith, coir fibre, tufted mat, rubberised coir, coir other sorts, coir rope and power loom matting registered growth, while products like handloom mats, coir geo-textiles, coir yearn, curled coir, handloom matting and power loom mats showed decline in 2017-18. In 2017-18, Coir Pith with 5.48 lakh MT worth ₹1,018.47 crore constituted 53.95 per cent of total export of coir products in terms of quantity from the country. Similarly

Figure 4.27 Item-wise export of coir and coir products from India 2017-18, in per cent



Source: Coir Board

coir fibre with an export of 3.74 lakh MT valued at ₹701.78 crore constituted to 36.82 per cent of coir and coir products export (Figure 4.27.).

Leading market of coir and coir products of India in 2017-18 was China with 4,33,733.54 MT valued at ₹809.12 crore, USA with 1,31,166.88 MT valued at ₹534.50 crore, Netherland 95,461.37 MT valued at ₹211.62 crore, South Korea 87,264.81 MT valued at ₹142.35 crore, Spain 41,479.91 MT valued at ₹84.34 crore, Australia 23905.31 MT valued at ₹78.33 crore and Italy 27,170.86 MT valued at ₹73.19 crore.

Major market of India's coir yarn in 2017-18 was Netherlands with 1,242.42 MT valued at ₹1,048.37 lakh followed by Italy accounting 678.45 MT valued at ₹428.14 lakh. Main market of coir mats/mattings in 2017-18 was USA, UK and Germany. USA imported 31,165.83 MT coir mats from India worth ₹311.73 crore and 640.67 MT of coir mattings worth ₹6.26 crore. UK imported 8,856.16 MT coir mats valued at ₹77.94 crore and 216.55 MT coir mattings worth ₹3.40 crore during period of review. Germany imported 4,277.81 MT of coir mats worth ₹39.51 crore and 140.08 MT coir mattings worth ₹2.77 crore during this period. The export trend of coir and coir products from India and Kerala is given the Figure 4.28.

Export of Tea

India exported 2,56,572 MT worth ₹5,064.88 crore of Tea in 2017-18 as against 2,27,634 MT worth ₹4,632.50 crore in 2016-17 and recorded a growth of 12.71 per cent in terms of quantity and 9.33 per cent in terms of value. Export of tea from Kerala ports increased from 67,431 MT worth ₹1,139.35 crore in 2016-17 to 75,741 MT worth ₹1,232.94 crore in 2017-18 registering a growth of 11.12 per cent in terms of quantity and 8.21 per cent in terms of value. (Table 4.40).

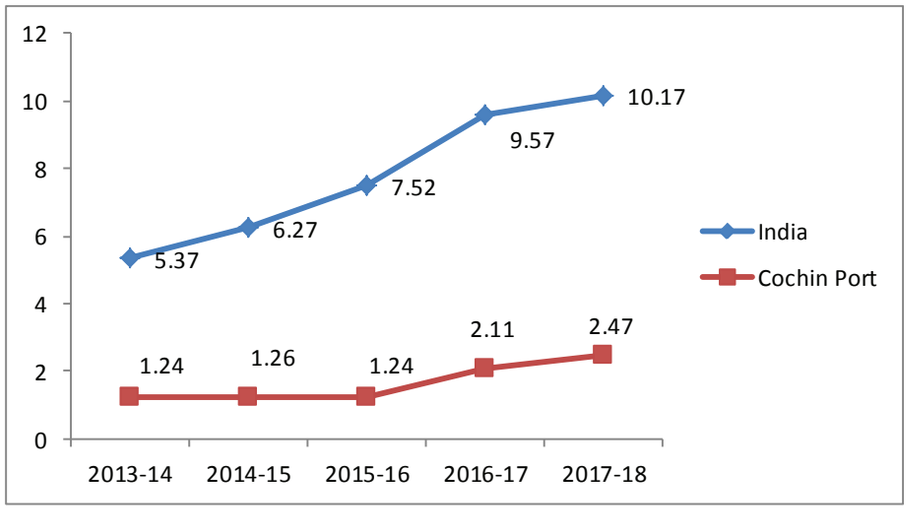
Export of Coffee

In 2017-18, a total quantity of 3,95,014 MT of coffee worth ₹6,210.23 crore was exported from India as against 3,43,933 MT worth ₹5,446.59 crore in 2016-17 registering a growth of 14.85 per cent in terms of volume and 14.02 per cent in value. Export of coffee from Kerala through Cochin Port was 54,220 MT in 2017-18 as against 55,874 MT in 2016-17 registering a decline of 2.96 per cent.

Export of Spices

Indian spices export have been able to continue its increasing trend in 2017-18 also. A total volume of 1,028,060 MT of spices and spices

Figure 4.28 Export trend of coir and coir products from India and Kerala through Cochin Port, from 2012-13 to 2017-18, quantity in lakh MT



Source: Coir Board and Cochin Port Trust

Table 4.40 Export of tea from Kerala ports and India, 2011-12 to 2017-18, in ₹ lakh

Years	Kerala		India	
	Quantity (MT)	Value (in ₹ lakh)	Quantity(MT)	Value (in ₹ lakh)
2011-12	71,784	74,287	214,355	330,483
2012-13	69,017	90,462	216,231	400,593
2013-14	75,036	106,467	225,764	450,909
2014-15	69,343	94,879	199,077	382,364
2015-16	69,706	102,534	232,920	449,310
2016-17	67,431	113,935	227,634	463,250
2017-18	75,741	123,294	256,572	506,488

Source: Tea Board

products worth ₹17,980.16 crore was exported from India in 2017-18 as against 9,47,790 MT worth ₹17,812.24 crore in 2016-17 registering a growth of 8.47 per cent in volume and 0.94 per cent value.

The export of spices from Kerala through Cochin and Thiruvananthapuram ports rose to 95,455.86 MT valued ₹4,152.96 crore in 2017-18 as against 84,418.84 MT valued ₹4,271.20 crore recording an increase of 13.07 per cent in volume and a decline of 2.77 per cent in value due to decrease in prices of spices.

The share of Kerala in Indian export of spices and spices products recorded a slightly fluctuating trend in the last several years. It was 9.96 per cent in 2013-14, slightly declined to 9.12 per cent in 2014-15, went up to 11.87 in 2015-16, declined to 8.91 per cent in 2016-17 and rose to 9.29 per cent in 2017-18 in terms of quantity (Table 4.41).

In the face of continued challenges in the world spices market, growth of export of spices and spice products from India and Kerala registered fluctuating trend. The growth of export of spices and spice products from India was 9.38 per cent in volume in 2014-15, It registered a decline of 5.67 per cent in 2015-16, went up to 12.40 per cent in 2016-17 and 8.47 per cent in 2017-18.

Kerala's export of spices and spice products recorded a growth of 0.18 per cent in 2014-15, rose to 22.71 per cent in 2015-16, went down to a negative growth rate of 15.65 per cent in 2016-17, and went up to 13.07 per cent in 2017-18. Figure 4.29 depicts the trend in growth of export of spices and spice products from India and Kerala.

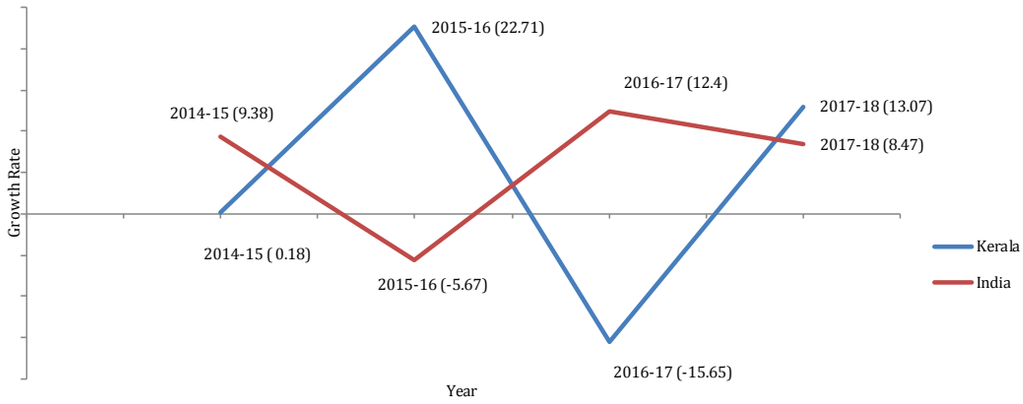
As far as individual spices are concerned, a total volume of 4,434 MT of cardamom (small) valued 497.79 crore was exported from Kerala through Cochin and Thiruvananthapuram ports in 2017-

Table 4.41 Export of spices, India and Kerala, from 2013-14 to 2017-18, in ₹ lakh

Year	*Kerala		India		Kerala's share (%)	
	Quantity (in MT)	Value	Quantity (in MT)	Value	Quantity (in MT)	Value
1	2	3	4	5	6	7
2013-14	81,412.60	325,339.94	817,250.00	1,373,539.26	9.96	23.69
2014-15	81,555.27	328,533.99	893,920.00	1,489,967.53	9.12	22.05
2015-16	100,076.00	390,518.12	843,255.00	1,623,822.99	11.87	24.05
2016-17	84,418.84	427,120.08	947,790.00	1,781,223.59	8.91	23.98
2017-18	95,455.86	415,296.10	1,028,060.00	1,798,016.20	9.29	23.1

Source: Spices Board

Figure 4.29 Trend in growth of export of spices and spice products from India and Kerala, 2014-15 to 2017-18, in quantity in per cent



Source: Spices Board

18 as against 2,390 MT valued ₹285.79 crore in 2016-17, registering an increase of 85.52 per cent in volume and 74.18 per cent in value. Export of chilli increased from 20,786 MT valued 405.42 crore in 2016-17 to 22,895 MT valued 363.38 crore in 2017-18 registering a growth of 10.15 per cent in volume and a decline of 10.38 per cent in terms of value. In 2017-18, export of pepper declined by 6.34 per cent in volume and 30.51 per cent in value. Export of turmeric, coriander, ginger, cumin, fenugreek, other seed spices, nutmeg and mace, other miscellaneous spices, garlic, curry powder/mixture, spice oils and olernes and celery showed an increase in volume during the period of review compared to previous year. In the case of value added products export of curry powder/mixture in 2017-18 was 9,936 MT valued ₹213.79 crore as against 8,422 MT valued 198.36 crore in 2016-17 registering an increase of 17.98 per cent in volume and 7.78 per cent in value. During the period of review, a total volume of 9,076 MT of spice oils and oleoresins valued ₹1,718.94 crore was exported as against 8,125 MT valued ₹1,777.64 crore of previous year registering an increase of 11.70 per cent in volume and decline of 3.30 per cent in value.

Public Services

1. Survey and Land Records

The Department of Survey and Land Records has been constituted for completing the re-survey process of the entire land holdings in the State within a stipulated period. Along with this, the department also works on land management, digitisation of land survey records, survey of land for facilitating distribution of pattayam (ownership deed of land) forest land survey and survey of land for special projects. The department had completed re-survey of land in 903 villages till 2017. In the period of three years (2015-2017), re-survey of land holdings in 35 villages were completed. Details are in Appendix 4.83.

The department also acts as the authority on re-survey appeals and LA (Land Acquisition) appeals. The District Collector takes final decision on the recommendation of District survey superintendent on such appeals. In the year 2017, the District offices have finalised 4,26,543 cases (81 per cent) out of 4,91,691 appeals on re-survey. It also finalised 26 cases out of 376 appeals received on LA. The rate of finalisation in LA appeals are 7 per cent in 2017. Details are shown in Appendix 4.84.

The Survey department imparts training to IAS officers, officials of revenue department, officials of survey department, officials of forest department etc. Details are shown in Appendix 4.85.

Digitisation of Land Records

The Survey department is doing the digitisation of Survey records 338 block maps were prepared in 2017. Details are given in Appendix 4.86. The existing land records are scanned and kept it in digital form. In 2015, 2016 and 2017, the number of Field Measurement Book (FMB) scanned are 3,26,378, 3,68,564 and 78,845 respectively. During this period, most number of FMB was scanned in Kollam District (85,661) and least number of FMB were scanned in Kozhikode District (13,627). Figure 4.30 shows the District-wise details of FMB scanned in three years.

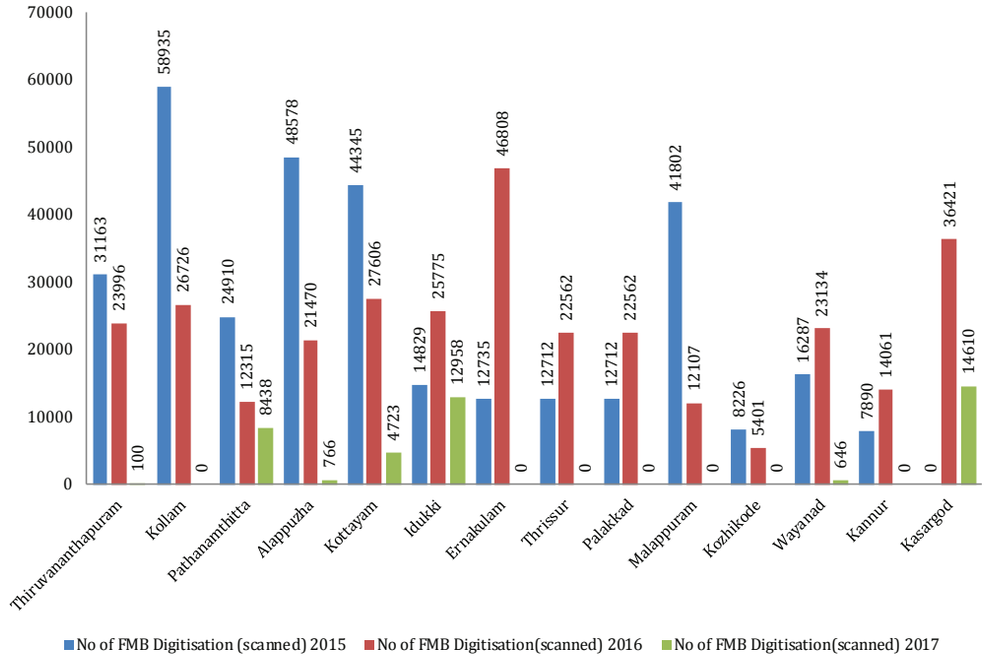
2. Registration Department

The mandate of Registration department is to facilitate registration of documents. The department had successfully implemented e-payment system for the collection of registration fee. In 2017, the department collected a total of ₹3,25,228.30 lakh as document registration fee. Out of this ₹2,63,312.20 lakh is for sale conveyance which is the major component. Details of document registered and fee collected are given in Appendices 4.87 and 4.88. The department also started to digitise old documents.

3.Excise Department

Excise Department has implemented e- payment and e- licensing facilities. The department has 69 Excise circle offices, 138 Excise range offices, 42 Check posts and 19 Special Squads. The awareness programme 'Vimukthi' is being implementd by the Excise Department for the eradication of substance abuse. It detects cases on Abkari Act 1950, NDPS (Narcotic Drugs and Psychotropic Substance) Act 1958, COTPA – Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Act 2003. In 2018, it registered 6,064 cases under Abkari act, 4,953 cases under

Figure 4.30 No. of Field Measurement Book sheets scanned 2015-2017



Source: DSLR

NDPS Act and 44,811 cases on COTPA. It was 21,372, 5944, and 72,077 respectively in 2017. District-wise case details for the year 2016, 2017 and 2018 are in Appendix 4.89.

In the State, number of abkari cases were 23,886 in 2016 and had declined (11 per cent) to 21,372 in 2017. The rate of decline is highest in Ernakulam District (37 per cent). While Thiruvananthapuram (4 per cent), Malappuram (16 per cent) and Kasaragod (33 per cent) showing increase, all other Districts show declining tendency in abkari cases. The NDPS cases, there is an overall increase of 99 per cent from 2016 to 2017. The number of cases have increased in all Districts, highest increase was in Wayanad (199 per cent) and lowest was in Malappuram (44 per cent). In case of COTPA cases, an overall increase of 57 per cent was recorded. All Districts except Palakkad (16 per cent decline) show increasing tendency in COTPA cases. Idukki recorded 149 per cent increase (highest) and Kottayam showed 40 per cent increase (lowest). Details are given in Appendix 4.91. Overall, from 2016 to 2017, abkari cased have declined (11 per cent) while, NDPS cases and COTPA cases have increased by 99 per cent and 57 per cent respectively.

In 2018, the cases registered under all three Acts came down. But in Thiruvanathapuram District, number of cases registered under NDPS increased by 35 per cent. Alappuzha (6 per cent), Palakkad (7 per cent), Malappuram (7 per cent) and Kannur (1 per cent) Districts recorded increase in NDPS cases. All other Districts show declining trend of cases under all three acts. Overall, in 2018, Abkari, NDPS, COPTA cases declined by 72 per cent, 17 per cent, and 38 per cent respectively. Details are shown in Appendix 4.90.

The department seizes and destroys contrabands from various illegal sources. It includes spirit, arrack, IMFL, Toddy, arista, ganja and ganja plants. In 2018, it seized and destroyed 14,003.55 litre of spirit, 10,556.91 litre of arrack, 83,465 litre of IMFL, 46,606 litre of toddy, 39,099 litre

of arista, 33,566 kg of ganja and 4,012 numbers of ganja plants. District-wise details for the year 2017 are in Appendix 4.91.

Excise department conducts public awareness campaign for Schools, Colleges and for Public. A total of 14,992 awareness campaigns were conducted in 2018. It was 10,666 in 2017. District-wise, sector-wise details are in Appendix 4.92.

4.Police Department

Police Department is an important agency of State Government with the main duty of maintaining law and order along with crime investigation. The department has different wings such as General Executive Wing, Crime Branch, Armed Police, State Crime Record Bureau, Training Wing, Special Branch and 11 specialised wings. The specialised wings include Forensic Division, Women Cell, Traffic Police, Watch and Ward, Highway Police, Coastal Police, Temple Police, Tourism Police, Mounted Police, Dog Squad, and Police Band. The General Executive Wing in working among people and it has a Head Quarter in Thiruvananthapuram, North and South Zones, four police ranges and 19 police Districts.

The State Government implement several Plan schemes through police department. The department implements gender sensitive schemes. It has 14 Pink control rooms and 18 Counselling Centres. There are 466 Nirbhaya Voluntaries Working along with police department. Details are in Appendix 4.93. The department works along with people through community policing schemes. Out of 481 police stations, 455 police stations are Janamaithri police stations. There are 7,248 men and 2,181 women in Janamaithri Sureksha Samithi. Details are in Appendix 4.94.

The Student Police Cadet (SPC) Project is a school-based initiative by Kerala Police, implemented jointly by the Departments of Home and Education, and supported by departments of Transport, Forest, Excise and Local Self-Government. The project trains high school students to respect the law, practice discipline and civic sense, and develop empathy for vulnerable sections of society. It also strengthens commitment towards family, community, and the environment, enabling them to resist negative tendencies such as substance abuse, deviant behavior, intolerance, and other social evils. The Project was launched on August 2, 2010 in 127 high schools/higher secondary schools across Kerala. Presently, there are 52,319 cadets in 645 schools in which SPC was implemented. Out of 645 schools 349 are government schools, 271 are aided schools and 25 are unaided schools. Details are in Appendix 4.95 and 4.96.

The NRI cell of police registered 16 cases in 2017-18 details are in Appendix 4.97. The Cyber and high tech enquiry cell had registered 103 cases in 2017-18. Social media abuse, Online cheating, Cyber offences done through Smart phones, Creation, publishing and sharing of child pornography etc. are the major cyber-crime cases reported during the period 2015-16 to 2017-18. Details are given in Appendix 4.98.

Jails

The old School of thought on treatment of prisoners by retributive and punitive methods has given way to modern concept of correction, reformation and rehabilitation. The purpose of imprisonment is correction and reformation of offenders and protection of society from crime. Hence the prison administration is aimed at ensuring the return of offender to the society not only as law abiding citizen, but also one who is able to lead a well-adjusted and self-supportive life. The basic duty and responsibility of prisons department is to provide safe custody of all persons committed to jails. All persons admitted to the jail are entitled to hygienic living conditions, adequate food, clothing and medical care, as envisaged in the law.

The legal and regulatory framework for the Probation system is based on 1958 Probation of Offenders Act, Kerala Borstal School Act,

1961, and the Kerala PO Rules 1960. As of now, there is no state policy for probation and the legal and regulatory framework is based on the previous approach of the then controlled Prison Department. Later, the responsibility shifted to Social welfare department, as it was felt that probation was not only an approach of non-institutional correction and control, but also one of the welfare and care activities. The regulatory and policy framework for this institutional arrangements needs to be modernised and the gap between the conceptual and functional frameworks to be closed.

In Kerala, the jail infrastructure consists of 44 jails (designed to hold inmates awaiting trial or serving a short sentence) and 11 prisons (designed to hold inmates for a longer term convicted of more serious crimes). As on August 2018, there were 7,393 prisoners, of whom 169 are women. The women prisoners in Kerala are marginal (2.5 per cent) compared to other southern States where this proportion ranged from 4 to 6 per cent. Modernisation of Prison and Welfare of Prisoners are the two major schemes implemented by the Prison department. Borstal School is situated at Thrikkakkara, Ernakulam, accommodating 60 inmates. There are 400 prisoners under the age group of 18-21. The mission of the department is to make all efforts to ensure that the prisoners become reformed and self-sustainable individuals with acceptable social behaviour on release after their completion of sentence.

Services Provided by Prisons Department

Kerala Prisons Department is rendering services to protect following rights of prisoners subject to the provisions of law for the time being in force.

a) To live with human dignity.
b) Adequate diet, health and medical care hygienic living conditions and proper clothing.
c) Communication with family members, friends, legal advisors and other persons.
d) Access to legal service and legal aid.
e) Protection against unlawful aggression on his person or against imposition of ignominy in any manner not authorised by law.
f) Protection against unreasonable discrimination.
g) Protection against punishment or hardship except through procedure established by law and do with due opportunity of defense;
h) Pursuing his religious faith
i) Protection against labour not authorised by law or in excess of the prescribed period or without payment of wages at the prescribed rate.
j) Enjoyment of fundamental rights under chapter III of the Constitution of India in so far as they do not become incapable of enjoyment following conviction and confinement; and
k) Effective training in socially demanding vocation.
l) Release on due date.

The Kerala Prisons and Correctional Services (Management) Act, 2010

An Act to provide for the safe custody, correction, reformation, welfare and rehabilitation of prisoners and management of prisons and correctional services in the State and for related matters.

The Kerala Borstal School Act, 1961

An act to make provision for the establishment and regulation of borstal schools in the state for the detention and training of adolescent offenders. Borstal school means corrective institution where-in adolescent offenders, while detained in pursuance of this act, are given such industrial or agricultural training and other instruction and are subjected to such disciplinary and moral influences which would induce their reformation and the prevention of crime. It is the institution meant for housing adolescent offenders between the age of 18 – 21 for better rehabilitation and reformation.

The Probation of Offenders Act, 1958

This act includes the provisions for the release of offenders on probation or after due admonition and for the related matters. When any person is found guilty of having committed an offence punishable under sections of the Indian Penal Code, or any offence punishable with imprisonment for not more than two years, with or without fine under the Indian Penal Code or any other law, and no previous conviction is proved against him and is found guilty court may, instead of sentencing him to any punishment or releasing him on probation of good conduct, release him after due admonition.

Kerala Probation of Offenders Rules 1960

Following the Probation of Offenders Act, 1958, Kerala Probation of Offenders Rules 1960 came into force to exercise the powers conferred by the PO Act. This makes the provisions for the institutional arrangements and functional frameworks in the State. Probation Service is the way in which prisoners are allowed to live in society while retaining the punishment.

Probation

Probation is a non-institutional treatment method designed to facilitate the social re-adjustment of offenders. It developed as an alternative to imprisonment. Probation is a method of dealing with specially selected offenders and consists of the conditional suspension of punishment while the offender is placed under the personal supervision of the probation officer and given individualised treatment. The length of the probation varies and is determined by the court. Moreover, probation is the application of modern scientific casework to individuals, outside institution with the authority of the law behind it. It calls for the careful study of the individual and intensive supervision by the competent, trained probation officers. The object of probation is the ultimate re-establishment of the offenders in the community. During the probation period, the probation officer maintains contact with the offender to ensure compliance with the rules and regulations and also provides various types of assistance to him. Probation helps to recidivism, including incidence of sexual offences, and reduce crimes. It also helps to reduce overcrowding of prisons and thereby providing cost savings to the public.

Plan Schemes for the Welfare Activities of the Prisoners

Modernisation of Prisons

The various infrastructure and development projects are implemented under this scheme. Construction of building for prisons, Quarters for DIG, SP, DJ and staff, multipurpose auditorium, Sub jails, Kitchen blocks, jail museum at Viyyur Central prison compound and other infrastructure works are the activities undertaken for the development in prisons.

Welfare of Prisoners

The scheme envisages projects for the various welfare activities, projects for improving security of jails, Vocational training to inmates, organisation of jail welfare day, re-orientation course and State level seminars, Continuing education programme/yoga class, Purchase of sports equipments for prisoners etc. Details of prisoners in jails are given in Appendix 4.99.

Assistance to After Care and Follow-up Services and Victim Rehabilitation

A large number of ex-prisoners find it difficult to mobilise the capital investment needed to start an enterprise for livelihood. Consequently they are often forced to turn to other socially unacceptable means of livelihood. It is the policy of the government to release the prisoners prematurely based on their good behaviour and efforts to reform. The prisoners who are so released will be under the supervision of probation officers for a certain period.

During this period, they have to be gainfully rehabilitated. For this, financial assistance will be provided to ex-convicts, probationers, ex-inmates, dependent of indigent convicts and Providing skill development training for victims of violence, Educational assistance for the children of prisoners, Aftercare follow up and Financial assistance for setting up of self-employment units or for facilitating placements are activities under this scheme. The social justice department provides ₹15,000 grant to released prisoners for starting livelihood activities.

Educational Assistance to Children of Prisoners

Once persons are lodged in jail, it is their families that suffer the most in many cases. Due to lack of money, their children might be denied education at a very early age itself. This might have adverse repercussions later. Therefore, the government has initiated such a project that aims at bringing these people to the main stream of the society. The monthly assistance (10 months) given is ₹300 for 1st to 5th Std, ₹500 for 6th to 10th Std., ₹750 for +1 and +2 and ₹1,000 for Degree/ Professional course.

Major Achievements

- Various vocational training programmes to train prisoners in knowledge and skills which would strengthen their will to work. These also provide opportunities for the inmates to engage themselves in fruitful pursuits during the term of their sentence in jails and enable them to follow a vocation on release from the jails enabling them to earn a honorable livelihood after their release from prison. The trainings are imparted in beautician course, driving, tailoring, fashion designing, electrical hardware, building construction, food processing, bakery food making, plumping, screen printing, organic farming, computer hardware assembling, lift operation, soft doll making etc. Beauty parlors were started in open prison, Cheemeni and central prison, Kannur. Sales outlet was started in central Prison, Kannur for the sale of garments made by the inmates. Three exhibitions were conducted for the sale of garments in 2017-18.
- As part of providing free meals to poor, "Share a Meal" programme was started at District jail, Ernakulam and Kozhikode and was extended to other jails. At the time of the severe cyclone OCKHI and recent flood, around 5000 food packets were supplied to relief camps for several days from the jail food unit. Outlets for the sale of organic vegetables produced in jails were started in various jails for providing the agricultural products at reasonable rate to public. Organic vegetable farming was started in almost all the jails with the support of Agriculture department. Pisci culture, ornamental fish farming and duck farming etc. have been started in various jails.
- Inmates in central Prison, Thiruvananthapuram were trained in various trades at central Polytechnic and a unit of central Polytechnic was also started in central prison, Thiruvananthapuram.
- Started various clubs for music, drama, sports for inmates and Music band started in Central Prison, Viyyur and District jail, Kozhikode. One Cricket match between prison officials from Sri Lanka and Kerala was also organised at Green Field International Stadium. The department started a mission "Jail Jyothi" to ensure total literacy to prisoners with the support of State Literacy Mission and provides facilities for continuing education and higher education for the inmates.

Outreach to Public

Information and Publicity

The Department of Information and Public Relations is the nodal agency of the Government to disseminate information to the public through various media on government policies, programmes, schemes, initiatives and achievements. The department facilitates feedback from the public and thereby maintains a communication flow between the government and public.

The department undertakes the administrative, technical and promotional affairs of the public and private sector with the help of advanced technologies in the field of visual communication, journalism, etc. The department aims to initiate new strategies for popularising government policies and activities with the support of latest technologies, launching government-media tie-ups, enhancing public relation personnel efficiency and providing better working environment. The details of the activities and programmes undertaken by the department in 2017-18 are summarised in Box 5.19.

Electronic Media Division

Electronic Media Division was formed in October 2008 with four wings viz., news distribution, audio-video documentation, electronic media advertisements and marketing and web and

Box 4.15 Major activities of Department of Information and Public Relations (I&PRD), 2017-18

- Publicising and popularising the policies and programmes of the Government.
- Giving wide publicity of the developmental and welfare programmes undertaken by the Government through print- audio- visual- new media.
- Publishing monthlies, viz., Kerala Calling in English and Samakalika Janapatham in Malayalam. Publishing of brochures on social and developmental subjects.
- Content management of Government web portal and news portal *www.kerala.gov.in, www.keralanews.in* and other websites like *www.prd.kerala.gov.in, www.rti.kerala.gov.in,* and the websites of Ministers.
- Gives feedback on public opinion to Government on its functioning.
- Publishing books on subjects related to culture, education, traditional art forms, eminent personalities, District hand book, Kerala Authentic Hand Book etc.
- Preparation of Chief Ministers Complaint redressal television programme.
- Functioning of information offices and news dissemination centres in all Districts.
- Screening of feature films, documentaries and short films either produced or purchased by the Department in conformity with the social and cultural interests of the State.
- Official agency for the release of Government advertisements.
- Organising publicity programmes with the multi media technology including visual arts.
- Act as the enforcement agency for Cable TV Act and Press and Registration of Books Act.

Source: Public Relations Department, GoK

new media. The major activities include release of video news clippings to media channels and streamlining the production and management of advertisements, documentaries and Chief Minister's Naam Munnottu programme. Electronic Media Division also produces weekly television and radio programs viz., Navakeralam and Priyakeralam.

Media Relations

Press release section of the department issues news reports of government functions and other official notifications regularly. Convening press meets, providing better facilities to media reporters for easy reporting etc are the major activities coming under media relations wing. The scrutiny wing of the department is scrutinises the print and visual media on various government policies, programmes and other issues related to government.

Web and New Media Division

The Web and New Media division undertakes the content management of government web portal (*www.kerala.gov.in*), which is a repository of details on various government departments, their functions and it provides information on the socio-economic, cultural and political history of the State. This portal, also gives access to government orders/circulars and orders issued following Cabinet decisions. Content management of websites of 19 ministers is also undertaken by this division.

Publications

Publications of reference books, magazines, newsletters, pamphlets etc were done in 2017-18. Kerala calling, Jeevithapadam, Padanathin appuram, Samakalika janapadam, Namukorumichu munneram sarkar oppamundu, Navakeralam karmapadhathi etc. are some of them.

Advertisement

Advertisements viz., Display advertisements in newspapers, Electronic media advertisements, Advertisement in magazines, tender advertisements and various types of notifications are being released daily from the department.

Field Publicity, Exhibitions, Special Public Relations, Culture

The field publicity wing organises various awareness programmes and campaigns at State and District levels as well as outside the state, for giving adequate publicity to Government policies and initiatives. Exhibitions, seminars, workshops, social media and multimedia campaigns, art and cultural forms are used for these purposes.

Research and Reference

The Research and Reference wing maintains registers of newspapers and periodicals published in the State. The department introduced Mobile App, PRD Media Handbook and started in-depth training focusing on the new trends relating to the various aspects of public relations and new technological evolutions. The department started District level one day training programme for media people on "Reporting at the Face of Disasters" in collaboration with the professional body of journalists.

CHAPTER

05

LABOUR AND EMPLOYMENT

CHAPTER 05

Labour and Employment

Labour Welfare

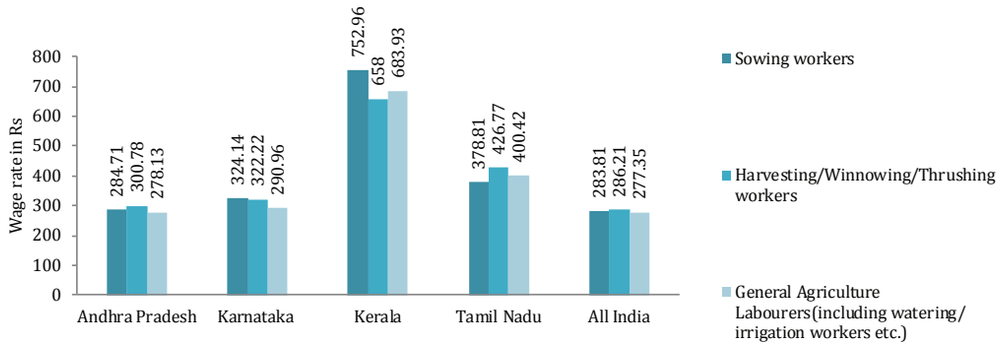
Kerala has followed a rights-based approach that is sensitive to the changing needs of the labour market. The policy initiatives of the Government seek the overall growth and development of the industry and the individual worker. Workers in Kerala have been protected through the constant intervention of the Government on the right to work, right against discrimination, prohibition of child labour, social security, protection of wages, redressal of grievances, right to organise and form trade unions, collective bargaining and participation in management. It is an accepted fact that the labour laws and labour welfare schemes implemented by the State are much wider in scope than that of other parts of the country. The Government is of the view that every employee/worker be a member of a Welfare Board and get lifelong social security. Currently, around 29 labour welfare boards exist in the State, of which 16 are under the Labour Commissionerate.

Kerala has been facing many challenges in the labour sector in terms of unemployment and underemployment, low rate of productive employment creation, inadequate levels of skill creation and training, low level of labour force participation and lesser worker-population ratio. On the whole, the State needs to create additional employment opportunities and employment-intensive growth and for which the labour force has to move from low-value-added to high-value-added activities. The State aims to achieve job induced growth in the economy to create new jobs in both urban and rural Kerala, a unified and consolidated legislation for social security schemes, re-prioritisation of allocation of funds to benefit vulnerable workers, long-term settlements based on productivity, labour law reforms in tune with the times, amendments to Industrial Disputes Act, 1947 and revamping of curriculum and course content in Industrial Training Institutes (ITIs). Monitoring and evaluation have also been considered integral to labour reforms against the backdrop of increasing inter-State and international migration.

Daily Wage Rate

Compared to other parts of the country, reported wage rate of workers in both agricultural and non-agricultural sectors in Kerala is higher. Average daily wage rate of agricultural and non-agricultural workers in India published by Labour Bureau, GoI shows that for male general agricultural workers in rural Kerala, it is ₹683.93 in August 2018. The national average of the wage rate for this category of workers is only ₹277.35. The wage rate in Kerala is over 147 per cent higher than the national wage rate. Figure 5.1 shows the wage rate of male agricultural workers in the rural area in Kerala compared to the national average and the southern States.

Figure 5.1 Average daily wage rate of male agricultural workers in rural Kerala, as on August 2018, in ₹

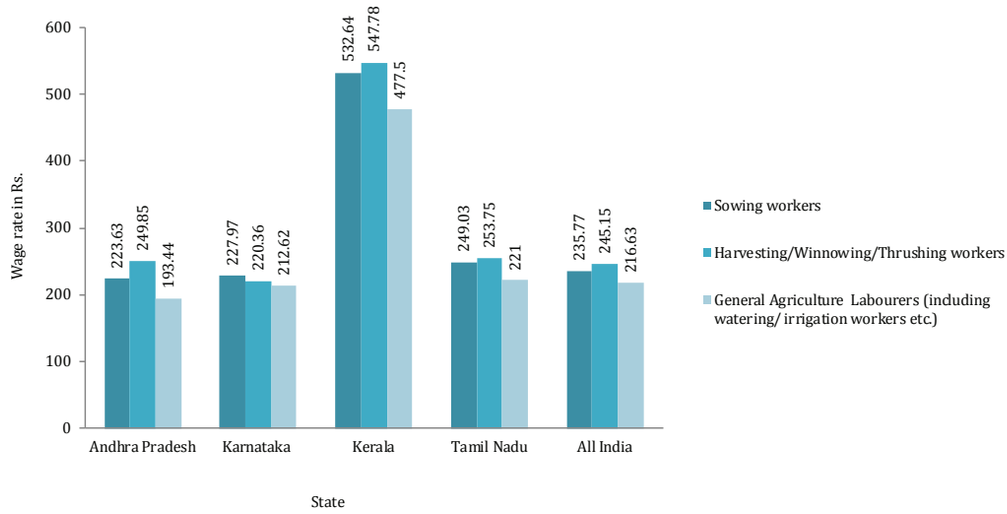


Source: Labour Bureau, Ministry of Labour and Employment, GoI

For female agricultural workers in rural Kerala, ₹477.5 is the average daily wage rate compared to the national average of ₹216.63. For sowing and harvesting workers, the wage rate in Kerala is ₹532.64 and ₹547.78 compared to the national average of ₹235.77 and ₹245.15 respectively. A comparison of daily wage rates of female agricultural workers in southern states is given in Figure 5.2.

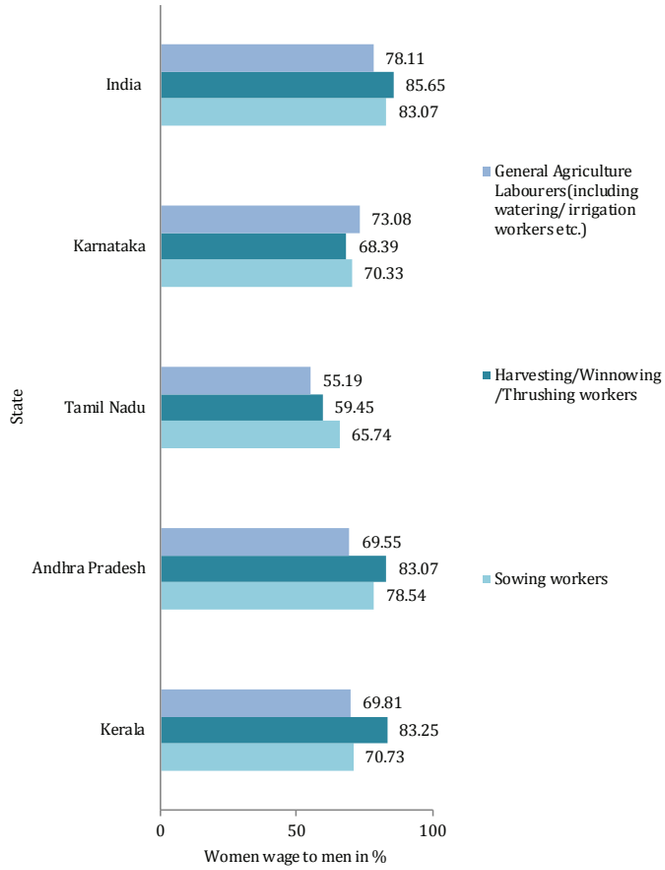
Even though the wage rates of agricultural labourers in rural Kerala are higher than the wages in other parts of the country, the wage disparity among the male and female workers is noticeable. The male-female wage gap among the rural workers engaged in general agriculture is 30 per cent. Figure 5.3 shows the gender-wise wage gap among different categories of agricultural workers in Kerala and other southern States of India.

Figure 5.2 Average daily wage rate of female agricultural workers in rural Kerala, as on August 2018, in ₹



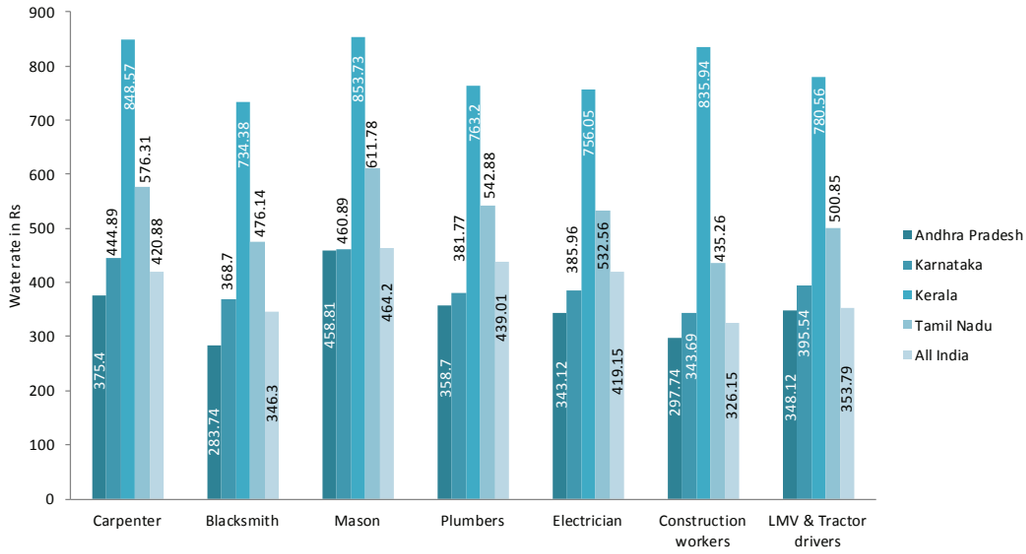
Source: Labour Bureau, Ministry of Labour and Employment, GoI

Figure 5.3 Wage gap among male and female rural agricultural workers, in per cent



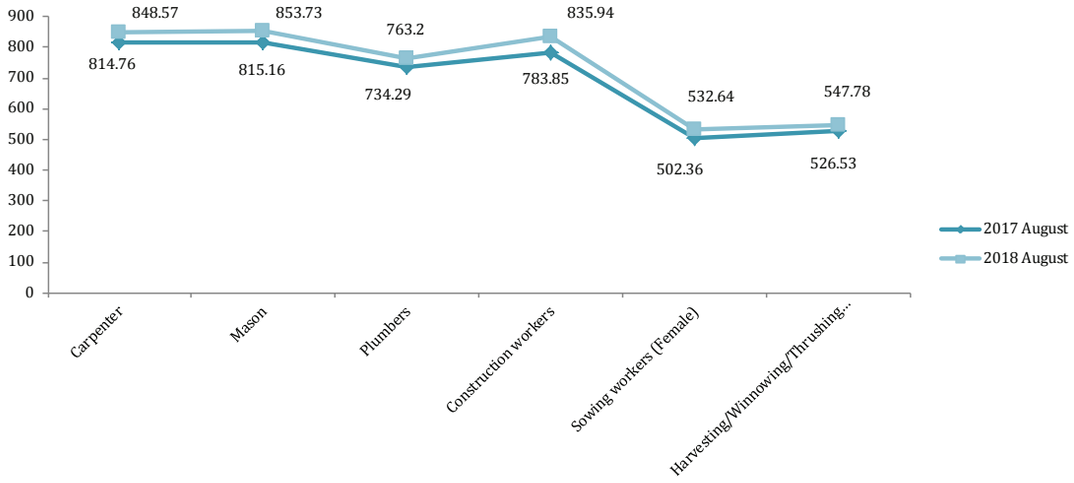
Source: Labour Bureau, Ministry of Labour and Employment, GoI

Figure 5.4 Average daily wage rate of non-agricultural workers in rural Kerala, in ₹



Source: Labour Bureau, Ministry of Labour and Employment, GoI

Figure 5.5 Growth rate of wages in Kerala from August 2017 to August 2018, in per cent



Note: The proportion of sowing (male) workers is insignificant
Source: Labour Bureau, Ministry of Labour and Employment, GoI

The average daily wage rates are much higher than the minimum wages in Kerala that attract in-migrants into the State, especially from States where wage rates are very low. Further, the wide disparity in male-female wage rates is an indication of the fact that the perception of gender equality is far from reality. The average daily wage rate of non-agricultural workers in rural Kerala in August 2018 is shown in Figure 5.4. Wage growth in Kerala between August 2017 and 2018 is given in Figure 5.5.

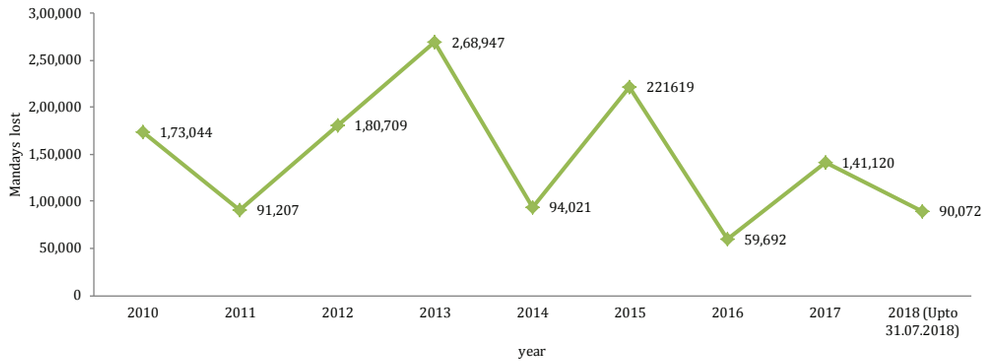
Composition of Workers

The labour community in Kerala mainly consists of those who are engaged in the informal sector (loading and unloading, casual work, construction work, brick making self-employment etc.), traditional industries (coir, cashew, handloom, beedi etc.,), manufacturing sector (small, medium and large industries), IT industry, units in export promotion zones and those who are seasonally employed.

Industrial Relations

Healthy relations between employer and employee are the key to sustained industrial development. The responsibility of the Labour Department is to aid and maintain a harmonious balance between the labourers and management to maintain a conducive atmosphere for achieving the objective of industrial growth and prosperity in the State.

Figure 5.6 Person-days lost due to strikes, in number



Source: Labour Commissionerate, GoK

Box 5.1 Definitions in Industrial Disputes Act, 1947

Strike: Section 2(q) of the Act defines the term 'strike' as cessation of work by a body of persons employed in any industry acting in combination or a concerted refusal, or a refusal under a common understanding of any number of persons who are or have been so employed to continue to work or to accept employment.

Lockout: Lockout, as defined in section 2(1), means the temporary closing of a place of employment, or the suspension of work, or the refusal by an employer to continue to employ any number of personnel employed by him.

Layoff : As per section 2(KKK) of the Act, 'Lay Offs' means the failure, refusal or inability of an employer on account of shortage of coal, power or raw materials or the accumulation of stocks or the breakdown of machinery or natural calamity or for any other connected reason to give employment to a workman whose name is borne on muster rolls of his industrial establishment and who has not been retrenched.

Source: Statistics on Industrial Disputes, closure, retrenchments and layoffs in India in the year 2013, Labour Bureau, Ministry of Labour, GoI

The intensity of labour strikes in the State has reduced significantly over the years. The person-days lost due to strikes in the State for the year 2018 (up to August) is 90.07 thousand against 2.21 lakh in the year 2015. Figure 5.6 shows the person-days lost due to strikes in Kerala. Details are provided in Appendix 5.1.

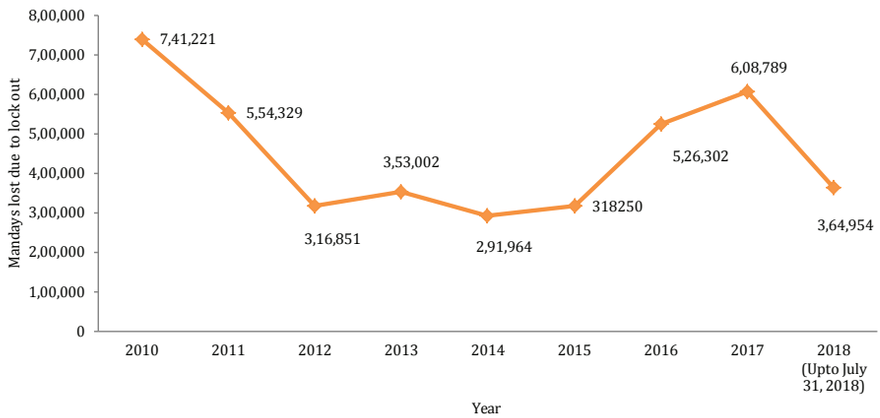
Person-days Lost Due to the Lockout

However, person-days lost due to lockout shows an increasing trend over the last two years. During the year 2015, total person-days lost due to the lockout was 3.18 lakh, which increased to 5.26 lakh in 2016 and again declined to 3.64 lakh in 2018 (up to July). Figure 5.7 shows the details of person-days lost due to the lockout in Kerala. Details are provided in Appendix 5.2.

Person-days Lost Due to Lay Off

The person-days lost due to the lay off were 68.33 thousand in 2014 which increased to 4.24 lakh in 2016 and then declined to 2.91 lakh in 2018 (up

Figure 5.7 Person-days lost due to lockouts in Kerala, in number



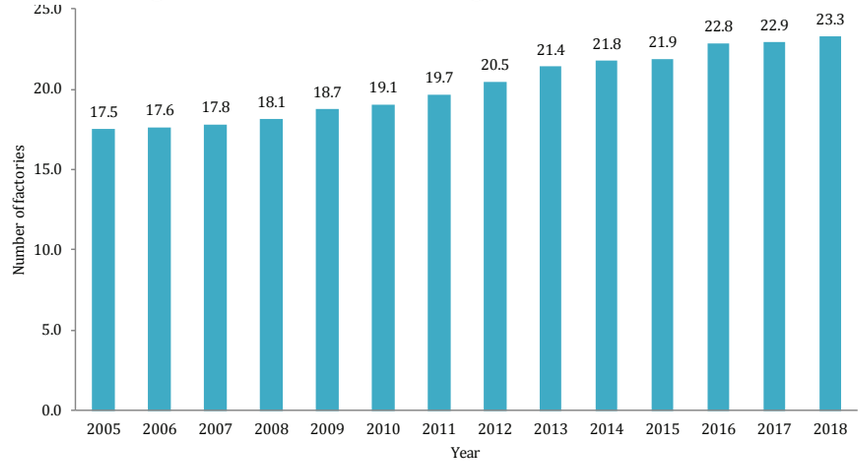
Source: Labour Commissionerate

to July). Figure 5.8 shows the trend of person-days lost due to lay off in Kerala. This is despite the fact that for the last ten years, the number of working factories in the State has steadily increased. Details are provided in Appendix 5.3. A number of factories working in the State in 2015

Figure 5.8 Person-days lost due to lay off, in number

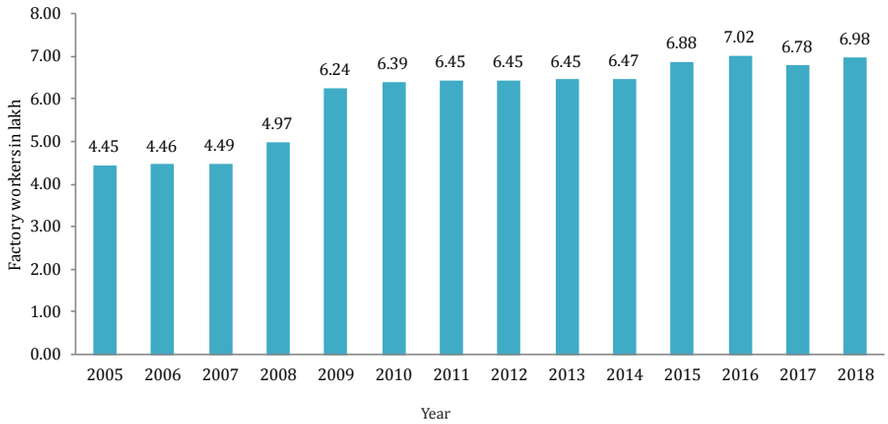
Source: Labour Commissionerate

Figure 5.9 Number of working factories in Kerala



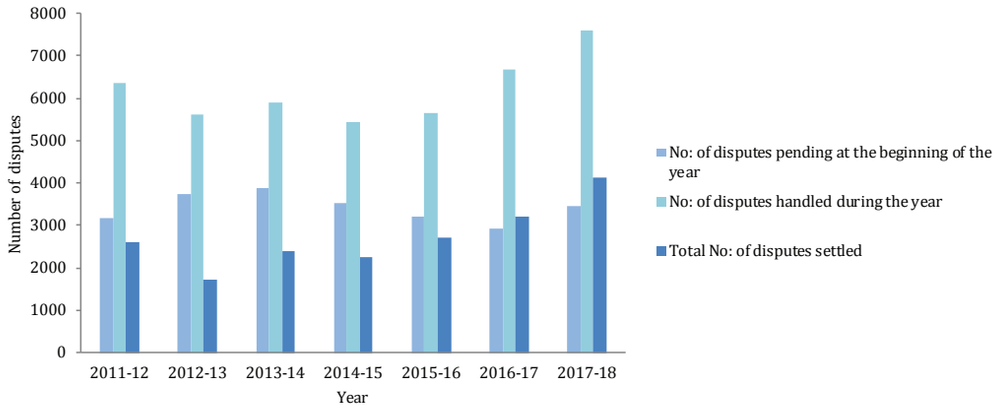
Source: Factories and Boilers Department, GoK

Figure 5.10 Number of factory workers



Source: Factories and Boilers Department, GoK

Figure 5.11 Industrial disputes, 2011-2012 to 2017-2018



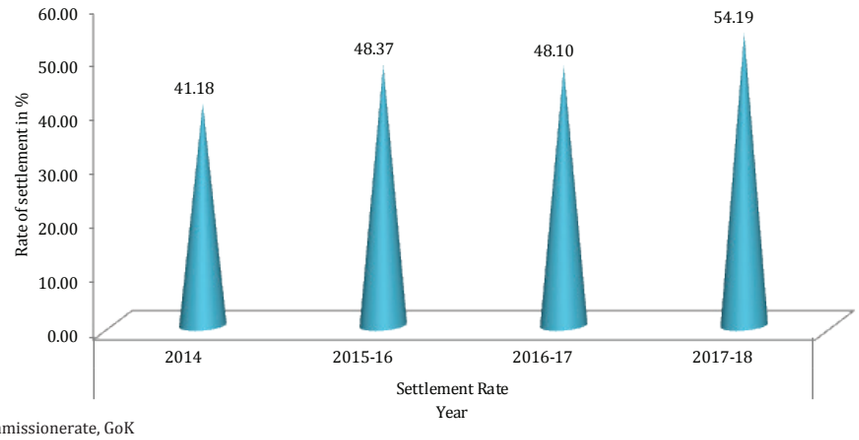
*Source:*Labour Commissionerate, GoK

was 21,850. It has increased to 23,335 in 2018. Subsequently, the average daily employment creation in these factories increased from 6.88 lakh in 2015 to 6.98 lakh in 2018. Figurers 5.9 and 5.10 show the number of working factories and employment details in Kerala. Details of industrial accidents are given in Appendix 5.4.

Industrial Disputes

Providing a platform for raising grievances and settlement of the issues between employee and employer is an essential requirement for ensuring harmonious labour relations in the State. Industrial Disputes Act of 1947, provides the legal framework for the same though it applies only to the organised sector. It also regulates lay off and retrenchment. The number of disputes pending at the beginning of the year decreased from 3,890 in 2013-14 to 3,468 in 2017-18. There is an improvement in settlement rate of disputes as well. The total disputes handled in 2014-15 were 5,445 and the disputes settled for the same period was 2,242, which is 41 per cent of the disputes handled. In 2017-18, the number of disputes handled is 7,608 and settled is 4,123 which is 54 per cent of the disputes handled. Details of the number of disputes and rate of industrial settlements in Kerala are given in Figure 5.11 and 5.12. Details are provided in Appendix 5.5.

Figure 5.12 Rate of industrial settlements



*Source:*Labour Commissionerate, GoK

Safety of the Factory Workers

The department of factories and boilers is the statutory authority to ensure the safety, health and welfare of all workers in factories and the general public, living in the vicinity of factories through implementing various laws. The department carries out various programmes for the safety of the workers. In 2017-18 (up to July 31, 2018), 21 priority inspections have been done for Major Accident Hazard (MAH) factories, 13 air monitoring studies were completed in hazardous factories and 171 inspections of hazardous factories other than MAH factories were carried out. The department has been conducting training programmes not only for factory workers and employees but also for school children and the general public near factory premises. Details are provided in Appendices 5.6, 5.7 and 5.8.

Rashtriya Swasthya Beema Yojana (RSBY)

RSBY is a health insurance scheme which benefits BPL workers and their families in the unorganised sector. The nodal agency for implementing this scheme in the State is the Labour department. The details of the scheme have been discussed in Chapter 4 of this Review. Comprehensive Health Insurance Scheme (CHIS) CHIS is another health insurance scheme implemented by the Labour Department. The details of the scheme have been discussed in Chapter 4 of this Review.

Aam Admi Bima Yojana Campaign (AABY)

AABY is a GoI scheme covering 48 categories of households in the country. This has been implemented in the State since 2007-08. As per the scheme, the head of rural landless families or one earning member in each such family will be insured. This scheme is also implemented through CHIAK. The premium under the scheme will be ₹200. Out of which, 50 per cent shall be a subsidy from the fund created for this purpose by Central Government and the remaining 50 per cent will be contributed by the State Government.

Employees State Insurance (ESI) Scheme

ESI Scheme of the GoI aims at providing assistance to employees in case of sickness, maternity, disablement and death due to employment injury and to provide medical care to insured persons and their families. The comprehensive social security provisions are based on the ESI Act 1948. This scheme covers all the employees working in factories running on non-seasonal power that employ 10 or more persons, and factories not using the power that

Figure 5.13 District-wise employees State insurance dispensaries in Kerala

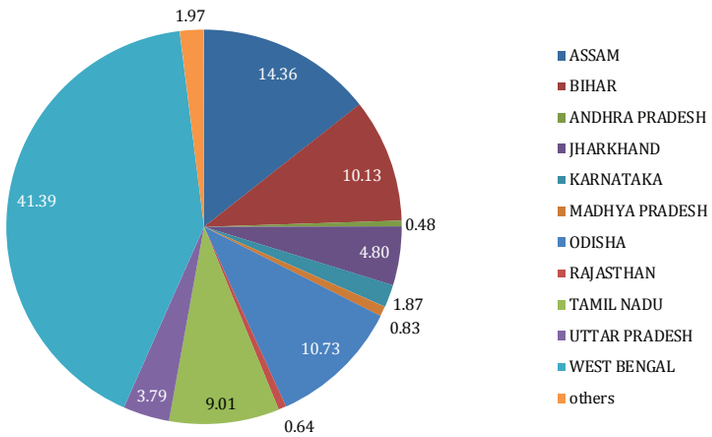
Source: Directorate of Insurance Medical Services, Thiruvananthapuram

employs 20 or more persons. It also includes those working in shops, hotels, restaurants, cinemas, road motor transport undertakings and newspaper establishments. Each insured employee and their employer are required to contribute a certain per cent of their wages to the ESIC every month. The ceiling wage rates are revised from time to time. The ESI Scheme runs like most of the social security schemes. It is a self-financing health insurance scheme and the contributions are raised from covered employees and their employers as a fixed per cent of wages. The payments are to be made on a monthly basis. An employee covered under the scheme has to contribute 1.75 per cent of the wages whereas the employer contributes 4.75 per cent of the wages payable to an employee. The total contribution in respect of an employee thus works out to 6.5 per cent of the wages payable. However, employees earning less than ₹50 a day are exempted from making the contribution. All insured persons and dependants are entitled to free, full and comprehensive medical care under the scheme. This medical care is provided through a network of ESI dispensaries, empanelled clinics, diagnostic centres and ESI hospitals. Super speciality facilities are also offered through empanelled advanced medical institutions. Currently, six types of benefits are provided. These are medical, sickness, maternity, disablement, dependants' and funeral expenses. In Kerala, there are 143 dispensaries whose distribution across the State is given in Figure 5.13.

Migrant Workers

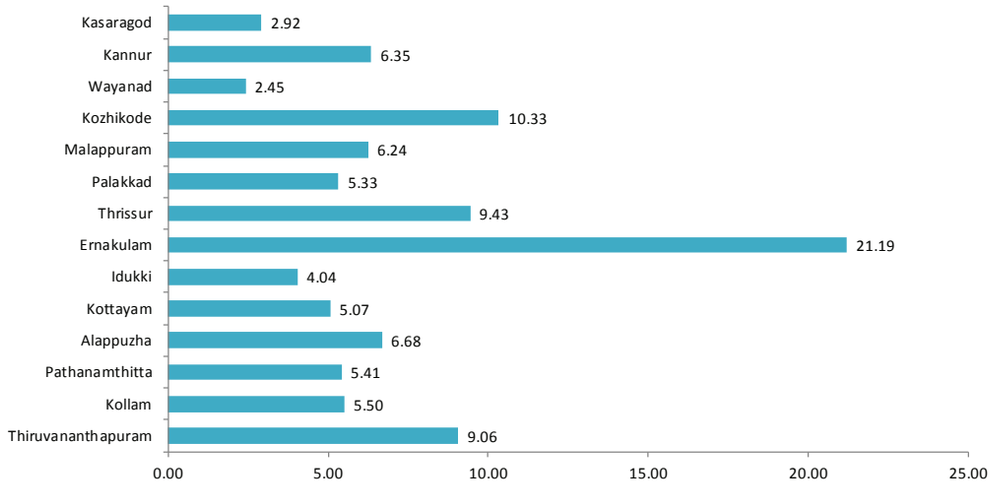
The recent trend in the employment sector in the State shows a large inflow of migrant worker from other States such as West Bengal, Bihar, Odisha, Uttar Pradesh, Chhattisgarh, Jharkhand etc. besides the neighbouring States. Working conditions of the inter-State migrant workers are dealt under the Inter-State Migrant Workmen Regulation of Employment and Conditions of Service Act, 1979. As per the provisions of the Act, the contractor has to obtain a recruitment license from the State from where the workers are recruited (original State) and an employment license from the State where they are employed (recipient State). Accordingly, the contractor and the principal employer become liable for ensuring the provisions envisaged in the enactment as an immediate employer and the principal employer respectively. But usually, these workers cannot be brought under the purview of the enactment due to lack of statutory ingredients required to attract the ambit of the enactment such as an intermediary third party/ contractor between the principal employer and the workmen. These workers are compelled to live in groups in unhygienic conditions near their working place without proper health facilities.

Figure 5.14 State-wise details of migrant workers in Kerala, in per cent



Source: Labour Commissionerate, GoK

Figure 5.15 District-wise inter-State migrant workers in Kerala, in per cent



Source: Labour Commissionerate, GoK

The distribution of migrant worker from different States is given in Figure 5.14. As may be seen out of the total inter-state migrant workers, 41 per cent are from West Bengal followed by Assam (14 per cent) and Odisha (11 per cent). The distribution of District-wise migrant worker in the State shows that Ernakulam has the highest proportion of 21 per cent followed by Kozhikode and Thrissur. Figure 5.15 presents the District-wise inter-State migrant workers. Details are provided in Appendix 5.8.

Table 5.1 Labour market dynamics, Kerala and all India level, 2004-05 to 2015-16

			Agriculture and allied	Mining and quarrying	Manufacturing	Electricity, gas and water supply	Construction	Trade, hotels and restaurants	Transport, storage and communication	Finance, insurance, real estate and	Community, social and personal services
2004-05	Male	India	50.8	0.7	12	0.4	7.5	13.4	5.6	2	7.6
		Kerala	31.6	1.6	11.1	0.3	15.1	18.3	10.7	3.6	7.7
	Female	India	73.9	0.3	11.2	0	1.8	3.9	0.3	0.6	8
		Kerala	45.6	0.2	21.4	0.2	1.9	6.4	1.4	2.3	20.6
2011-12	Male	India	43.6	0.6	12.7	0.4	12.3	13.8	5.9	3.2	7.4
		Kerala	22.8	0.8	11.3	0.5	20.1	19.6	11.9	4.8	8.2
	Female	India	62.8	0.3	13.4	0.1	6.1	4.9	0.3	1.3	10.8
		Kerala	31.9	0.1	19.2	0.3	10.8	8.6	1	4.6	23.5
2015-16	Male	India	41.7	0.4	10.5	0.7	13	14	7	2.6	10.1
		Kerala	21.9	0.4	9.7	0.5	18.8	18.8	14.9	3.8	11.3
	Female	India	60.1	0.2	10.8	0.3	5.2	5.9	1.1	1	15.4
		Kerala	20.7	0.1	17.5	0.5	3.6	10.8	4.2	5.1	37.5

Source: National Sample Survey Organisation(NSSO), Employment Unemployment Survey, 2004 and 2011, Labour Bureau, Employment Unemployment Survey, 2015-16.[1]

[1] Consolidation of the data from NSSO and Labour Bureau was done by Dr. D. Shyjan, Head of the Department of Economics, University of Calicut.

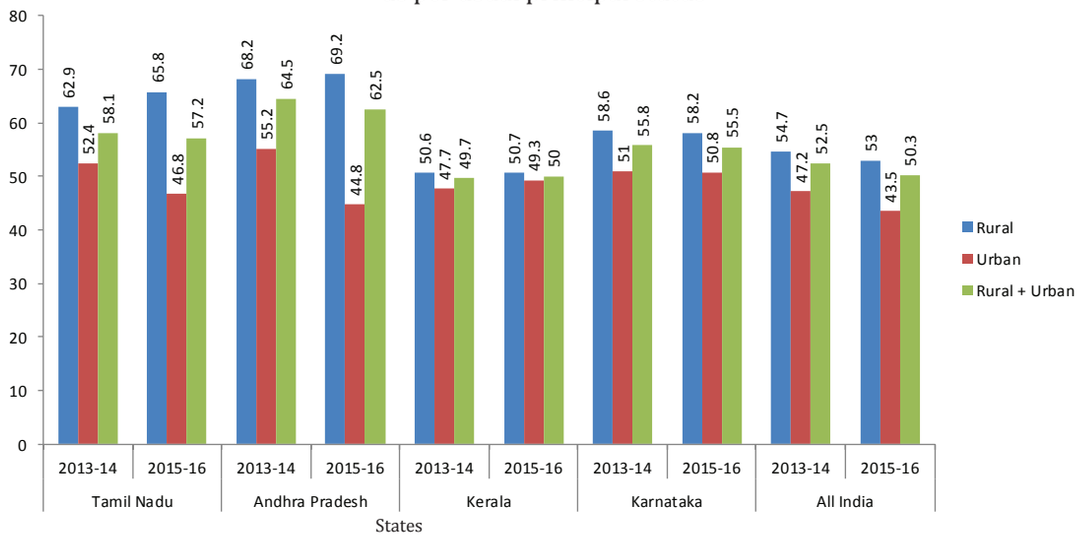
These migrant workers are engaged in different areas such as agriculture, construction, hotel and restaurant, manufacturing and trade. It is seen that 60 per cent of the migrant workers is engaged in the construction sectors, 8 per cent in manufacturing, 7 per cent under hotels and restaurants, 2 per cent each under trade and agriculture and the remaining 23 per cent engaged under other activities.

Table 5.1 gives the distribution of working population sector-wise and gender-wise between period 2004-05 and 2015-16. The data is based on National Sample Survey Organisation (NSSO) data till 2011-12. For 2015-16, data from the Labour Bureau of GoI are used. In agriculture and allied sectors, the male, as well as female worker participation, has declined both at all India and the State level between 2004-05 and 2015-16. The proportion of the working population, engaged in agriculture is less in Kerala than at the all India level, whereas the same is higher in the Services sector. The decline in female worker participation in agriculture and allied sectors has been more marked in Kerala during 2004-05 to 2015-16 at 24.9 per cent as against 13.8 per cent at all India level. In the manufacturing sector, there is a decline in female worker participation at 0.4 per cent at all India level and 3.9 per cent for Kerala. In the construction sector, there has been a rise in female worker participation by 3.4 per cent at all India level and by 1.7 per cent in Kerala. The rise in female worker participation has been higher in Kerala than at all India level in transport and communication (0.8 per cent for all India and 2.8 per cent in Kerala), finance insurance, real estate (0.4 per cent for all India and 2.8 per cent for Kerala) and social and personal and community service sectors (7.4 per cent for all India and 16.9 per cent for Kerala) The higher participation of female workers in service sectors like finance, real, estate and insurance than in low wage agriculture and allied and construction sectors indicates higher quality of employment of women in Kerala compared to all India level. A definite conclusion cannot be drawn about community, social and personal services, which has a high wage as well as low wage sub-sectors, But going by the fact that a larger number of women are employed in this sector in Kerala are in education and public health, it is a positive indicator when compared to all India level.

As regards the trend in male workers participation, there is a decline at the all India and State level in agriculture and allied sectors during 2004-05 to 2015-16. Unlike female worker participation which has fallen sharply in Kerala when compared to all India trends in agricultural and allied sectors during this period, the fall in male worker participation is 9.1 per cent and 9.7 per cent for all India and Kerala respectively, which are not markedly different. Similarly, the fall in the share of male worker participation in the manufacturing sector at all India and Kerala is also not very different at 1.5 per cent and 1.4 per cent respectively. But the fall in the share of the female workforce in the manufacturing sector during the same period is sharper in Kerala. The male workforce participation in the construction sector has risen by 5.5 per cent and 3.7 per cent during 2004-05 to 2015-16 for all India and Kerala respectively. The rise of male worker participation has been sharper in Kerala for transport, storage and communication at 4.2 per cent as against 1.4 per cent at all India level during 2004-05 to 2015-16. For finance, real estate and insurance the rise of male worker force7 has been 0.6 per cent and 0.2 per cent respectively for all India and Kerala. In social, community and personal services, the rise has been 2.5 per cent and 3.6 per cent respectively for all India and Kerala between 2004-05 and 2015-16.

Both at the all India and the State levels, shift to service sector jobs has taken place away from agriculture and allied sectors and construction sector. This is a positive sign and the shift away from low wage subsistence sectors has been sharper in Kerala for the female workforce when compared with that at the all India level.

Figure 5.16 Labour Force Participation Rate for persons aged above 15 as per usual principal status



Source: Labour Bureau, Ministry of Labour, GoI

Labour Force Participation Rate (LFPR)

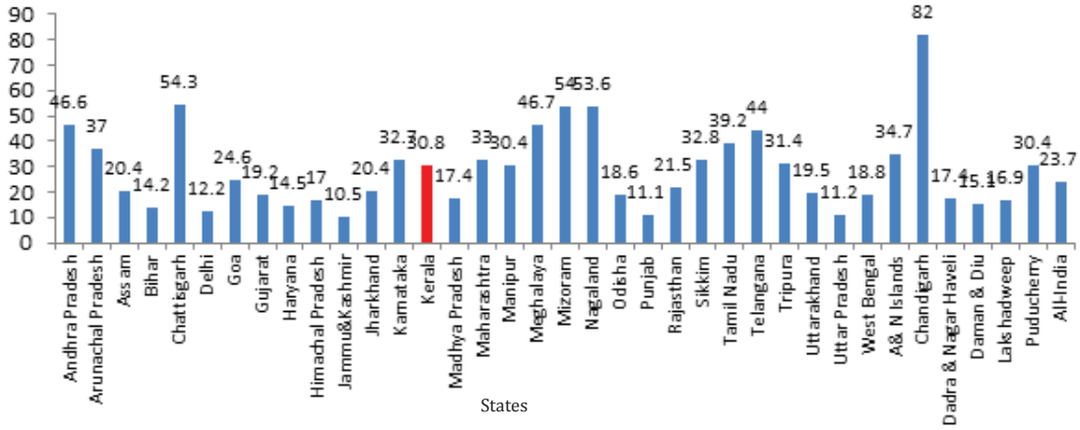
The situation of the labour force in Kerala can be gauged from the indicators such as LFPR, WPR, daily wage rage and trend in industrial relations. Low-level LFPR is the perpetual characteristic of Kerala labour market among Indian States. Apart from a slight increase of LFPR in the urban region, labour force participation has been constant over the last two years. As per the 5th Annual Employment and Unemployment Survey (2015-16) of Labour Bureau, Ministry of Labour, GoI, LFPR in Kerala is 50 per cent under Usual Principal Status (UPS), a marginal increase by 0.3 per cent over the year 2013-14. LFPR in our neighbouring States is higher at 62.5 per cent, 57.2 and 55.5 per cent in Andhra Pradesh, Tamil Nadu and Karnataka respectively. Similarly, in rural areas, Kerala's LFPR (50.7 per cent) is below that of the national average (53 per cent) and that of Andhra Pradesh and Tamil Nadu where the rate is 69.2 and 65.8 per cent respectively. Figure 5.16 shows the LFPR of Kerala and other southern States.

Yet another aspect of significant concern is the low female labour force participation rate. India's rank in female LFPR is 136 among 148 countries. North-eastern and southern States, in general, have a higher LFPR compared to low levels in northern States. In this regard, Kerala's female LFPR at 30.81 is lower compared to other southern States such as Andhra Pradesh (46.6 per cent), Tamil Nadu (39.2 per cent) and Karnataka (32.7 per cent). Female's LFPR is significantly lower compared to males. At all India level, female LFPR is 23.7 per cent as compared to 75 per cent for male and 48 per cent for transgender. There are large inter-State variations in the female LEPR. One of the interesting features of Kerala is that women are found to be well educated. However, among major States, Kerala has the female LFPR of 30.8 per cent as against the all India level of 23.7 per cent. States of Andhra Pradesh, Chhattisgarh, Arunachal Pradesh, Maharashtra, Telangana, Tamil Nadu etc., have a higher female LFPR than Kerala (Figure 5.17).

Worker Population Ratio (WPR)

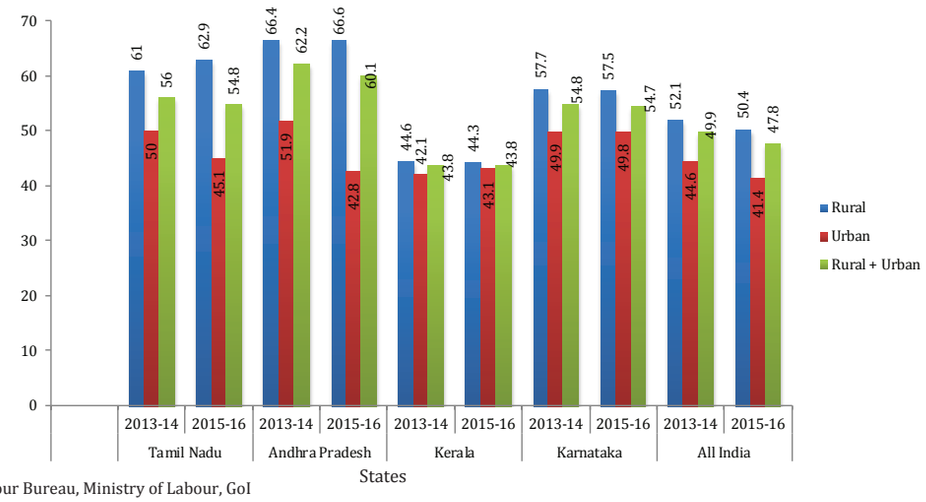
WPR is an indicator used for analysing the employment situation and knowing the proportion of the population actively contributing to the production of goods and services in the economy. The 5th Annual Employment and Unemployment Survey of

Figure 5.17 State-wise female Labour Force Participation Rate, in per cent



Source: Fifth Annual Employment-Unemployment Survey (2015-16), Labour Bureau GoI

Figure 5.18 Worker Population Ratio for persons aged above 15 as per usual principal status



Source: Labour Bureau, Ministry of Labour, GoI

Labour Bureau, Ministry of Labour, GoI shows a declining trend in WPR. Along with national average, the WPR is declining among the southern States. The WPR in Kerala is 43.8 per cent as against the all India average of 47.8 per cent. Among the southern States, the performance of Andhra Pradesh is admirable at 60.1 per cent followed by Tamil Nadu and Karnataka at 54.8 and 54.7 respectively. In rural Kerala, the WPR is reported as 44.3 per cent against 66.6 and 62.9 per cent of Andhra Pradesh and Tamil Nadu. Figure 5.18 shows the trend of WPR in Kerala and other southern States.

Self-Employed Persons in Labour Force

Labour force engaged in self-employment in the State is 27 per cent which is 19.6 per cent lower than the national average. Male-female gap in the self-employment labour force in the State is 9.8 per cent which is 1.3 per cent higher than the national average of 8.5 per cent.

Even if self-employment among the labour force is high in Karnataka, the difference between male and female self-employed persons is high at 14.8 per cent. In Andhra Pradesh, this gender gap is

Box 5.2 Concepts as defined in Industrial Disputes Act, 1947

1. Labour Force Participation Rate:- Labour Force Participation Rate (LFPR) is defined as the number of persons in the labour force per 1,000 persons.

$$\text{LFPR} = \frac{\text{No. of employed persons + No. of unemployed persons seeking employment}}{\text{Total Population}} \times 1000$$

2. Worker Population Ratio:- Worker Population Ratio (WPR) is defined as the number of persons employed per 1000 persons.

$$\text{WPR} = \frac{\text{No. of employed persons}}{\text{Total Population}} \times 1000$$

Measurement of Labour Force

In a country where the majority of the workers are employed in the unorganised sector and pursuing multiple activities, estimating labour force and its derivatives by a single approach is a difficult task. In such cases, no single measure is appropriate to estimate the labour force parameters precisely. As per International practice, Labour Force related parameters can be estimated for both longer reference period and current or shorter reference periods. Accordingly, based on longer reference period, Labour Force related parameters may be derived by the following two different approaches.

i) Usual Principal Status (UPS) Approach

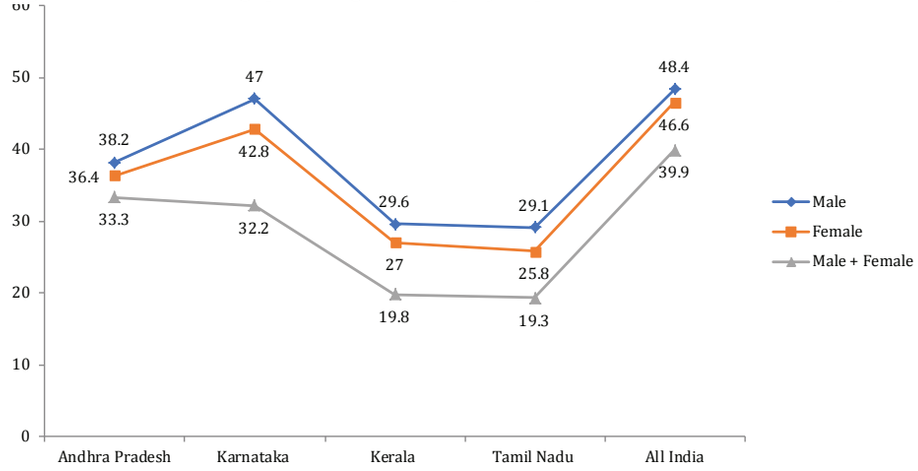
The major time criterion based on the 365 days is used to determine the activity pursued by a person under the usual principal status approach. Accordingly, the major time spent by a person (183 days or more) is used to determine whether the person is in the labour force or out of the labour force. A person found unemployed under this approach reflects chronic unemployment. The usual principal status approach estimates are derived for a moving reference period of the last twelve months.

ii) Usual Principal and Subsidiary Status (UPSS) Approach

The other important approach to measure the labour force parameters is the Usual Principal and Subsidiary Status Approach. This approach is a hybrid one which takes into consideration both the major time criterion and a shorter time period (30 days or more in any economic activity). Thus a person who has worked even for 30 days or more in any economic activity during the reference period of the last twelve months is considered as employed under this approach. In this approach, the reference period is the same as taken in the usual principal status approach (UPS). This approach is also called the Usual Status approach.

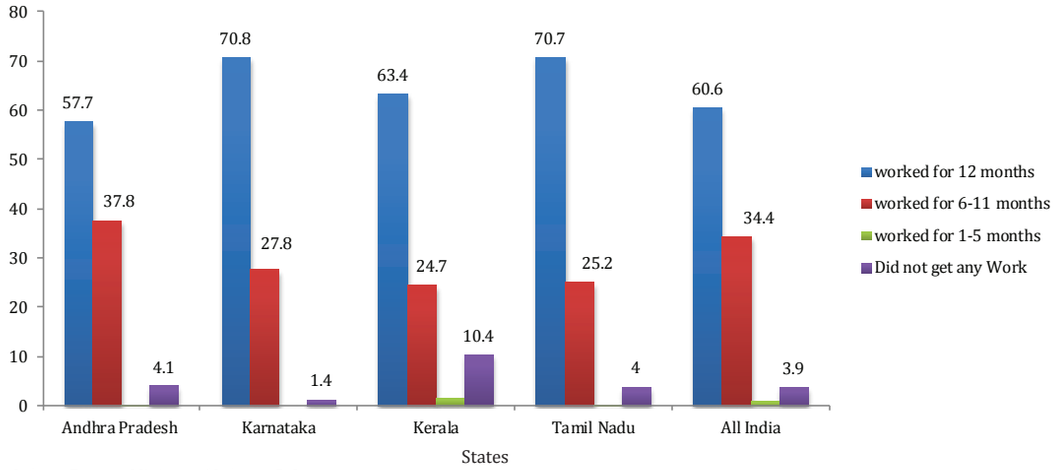
Source: 5th Annual Employment and Unemployment Survey of Labour Bureau

Figure 5.19 Gender gap among self-employed persons in labour force, in per cent



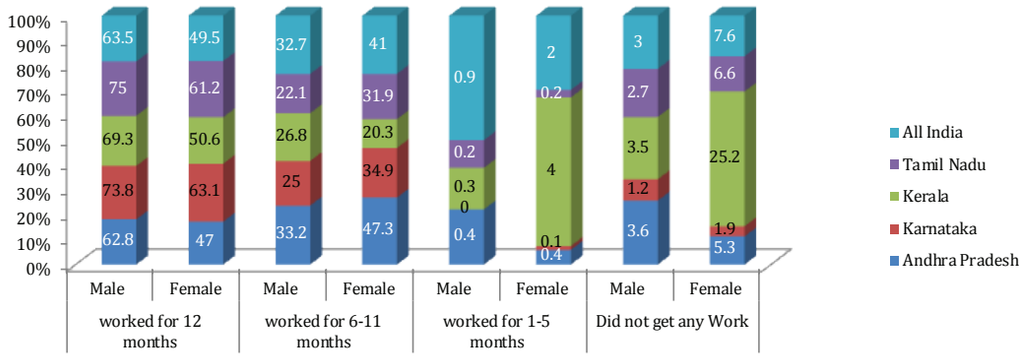
Source: Labour Bureau, Ministry of Labour, GoI

Figure 5.20 Workers available for twelve months but actually worked, in per cent



Source: Labour Bureau, Ministry of Labour, GoI

Figure 5.21 Workers available for twelve months but actually worked, gender-wise, in per cent



Source: Labour Bureau, Ministry of Labour, GoI

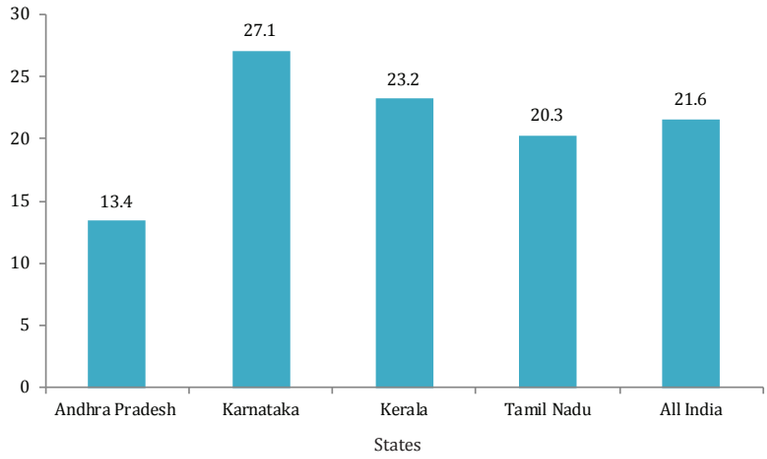
low as 4.9 per cent. Figure 5.19 shows the per cent of self-employed persons in labour force and the gender gap in Kerala and other States.

Workers Available and Actually Worked

Out of the total workforce available for 12 months, the actual per cent of workers engaged in work for 12 months is 63.4 in Kerala. In Karnataka and Tamil Nadu, this status is 70.8 and 70.7 respectively. Period-wise classification in Kerala shows that 24.7 per cent of the workers are engaged in work for a period of 6 to 11 months and 10.4 per cent of workers are engaged in work 1 to 5 months. Figure 5.20 shows the details of workers available for 12 months but actually worked in Kerala and other southern States.

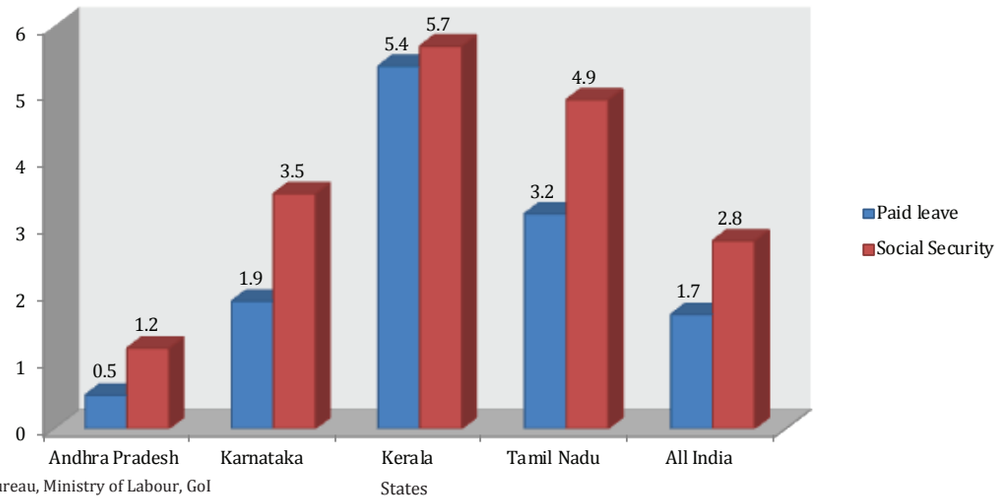
Gender-wise classification shows that male workers actually engaged in works available for 12 months is 69.3 per cent and female workers for the same period is 50.6 per cent in Kerala. Generally, male workers have more days actually worked than female workers. Male - Female

Figure 5.22 Workers other than self-employed availing of social security, in per cent



Source: Labour Bureau, Ministry of Labour, GoI

Figure 5.23 Casual workers receiving paid leave and social security, in per cent



Source: Labour Bureau, Ministry of Labour, GoI

difference for the workers available for 12 months and actually worked in Kerala is 18.7 per cent. This is 8 per cent higher than in Karnataka, 4.9 per cent higher than Tamil Nadu and 4.7 per cent higher than all India average of 14 per cent. Figure 5.21 shows the male-female workers available for 12 months but actually worked in Kerala and other southern States.

Workers Availing of Social Security

Social security plays a vital role in the economic and social livelihood of every worker. A worker in Kerala is relatively protected than other parts of the country. As per the report of 5th Annual Employment and Unemployment survey, the per cent of workers except for self-employed who avail social security in Kerala is 23.2 which is 1.6 per cent higher than the national level and 9.8 higher than Andhra Pradesh and 2.9 per cent higher than Tamil Nadu. Among the southern States, Karnataka provides social security to 27.1 per cent of the workers except self-employed which is 3.9 per cent higher than in Kerala. Figure 5.22 shows the details of workers except for self-employed availing social security in Kerala and other parts of southern India.

Social Security and Paid Leave for Casual Workers

Casual workers are not part of the permanent workforce, but they supply services on an irregular or flexible basis, often to meet fluctuating demand for work. Level of benefits received by the casual workers is the symbol of labour friendly approach of the society. Relatively benefits received by casual workers in Kerala are much better than other States of the country. The casual workers who receive social security in Kerala is 5.7 per cent which is 2.9 per cent higher than the national average. In case of paid leave, 5.4 per cent of the casual workers in Kerala received the benefit which is 3.7 per cent higher than the national average and 4.9 per cent higher than Andhra Pradesh and 3.5 per cent than Karnataka. Figure 5.23 shows the per cent of casual workers received paid leave and social security in Kerala and other parts of south India.

Given the changing employment landscape of the State, the role of the Labour Department is critical to ensure the long-term employer-employee relationship. The issues confronting the vulnerable sections of the labour force are to be addressed through effective implementation of labour laws and focused welfare policies. A realisation has dawned upon all the stakeholders that most vulnerable sections of the labour resources viz., women, migrant worker and the vast mass of labour working in the unorganised sector need special attention.

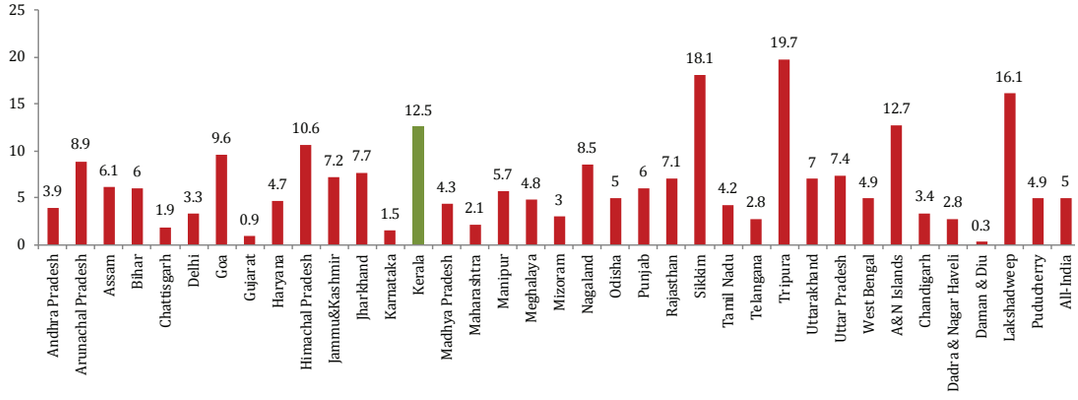
Unemployment in Kerala

The World Employment and Social Outlook Report, 2018, published by International Labour Organisation (ILO) has stated that India's unemployment rate in 2018 will remain at 3.5 per cent, while that of China would edge up from 4.7 per cent to 4.8 per cent. However, 77 per cent of employment in India would remain 'vulnerable' against just 33 per cent in China from 2017 to 2019. Vulnerable employment includes the self-employed or those working in family-run establishments often characterised by inadequate earnings, low productivity and difficult conditions of work that undermine workers' rights for a decent life. It is pertinent to note that while the overall unemployment rate in India would hover around 3.4 per cent to 3.5 per cent in 2017-19, the unemployment among the youth (12-24 age group) comprising 28 per cent of the total population is predicted to increase from 10 per cent in 2014 to 10.7 per cent in 2019.

Unemployment among a large portion of the active labour force has been the most serious socio-economic problem of Kerala. And, job creation has emerged as one of the foremost issues in the State. The incidence of unemployment in the State is nearly two times the all-India average. This problem is more serious among the educated who are unable to utilise their skill and knowledge they have acquired for effecting qualitative changes in the economy and society. The Government has been formulating appropriate policies to utilise the skilled human power which is the most abundant resource in the State.

According to the 5th Annual Employment-Unemployment Survey 2015-16, conducted by Ministry of Labour and Employment, GoI, among the major States, Kerala has the highest Unemployment Rate (UR) of 12.5 per cent as against the all India level of 5 per cent (Appendix 5.9 and Figure 5.24). Among all States, only small

Figure 5.24 Unemployment rate in major States in India, Usual Principal Status Approach, in per cent



Source: Fifth Annual Employment-Unemployment Survey (2015-16), GoI

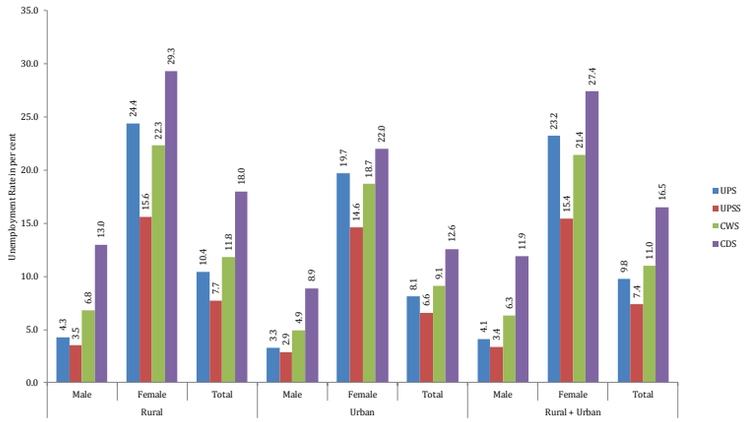
States like Sikkim, Tripura and Himachal Pradesh have a higher unemployment rate than Kerala.

As per Usual Principal Status (UPS) approach, the lowest unemployment rate of 0.3 per cent is estimated in Daman and Diu (UT). Among the States, the lowest unemployment rate is estimated in Gujarat (0.9 per cent). The other major States, which have lower UR than the all India average (5 per cent) are Karnataka (1.5 per cent), Chattisgarh (1.9 per cent), Maharashtra (2.1 per cent), Andhra Pradesh (3.9 per cent), TamilNadu (4.2 per cent), Madhya Pradesh (4.3 per cent) and West Bengal (4.9 per cent).

The unemployment rate, defined as a proportion of the number unemployed to the total labour force (15–60), is measured in terms of Usual Status, Weekly Status and Daily Status. While usual activity status implies regular unemployment, both weekly and daily status represent seasonal/temporary unemployment. Figure 5.25 shows the male and female unemployment rate in Kerala in rural and urban areas as measured by different approaches. In all three approaches, unemployment in Kerala is found to be generally three to four times the all India average. The Unemployment Rate (UR) of Kerala under UPS approach is 9.8 per cent which is a more authentic figure as it is prepared with more scientific basis on a large sample size by NSSO. Female unemployment, particularly in rural areas, is a matter of concern in Kerala. However, the female Labour Force Participation Rate (LFPR) in Kerala is estimated at 30.8 per cent which is higher than the all India level of 23.7 per cent. Different indicators on employment and unemployment pertaining to Kerala and India are shown in Appendix 5.10 and 5.11. As per the survey of Employment and Unemployment Situation in India, (NSS 68th Round), area-wise data shows that the UR is higher in rural areas as compared to urban areas (Figure 5.25).

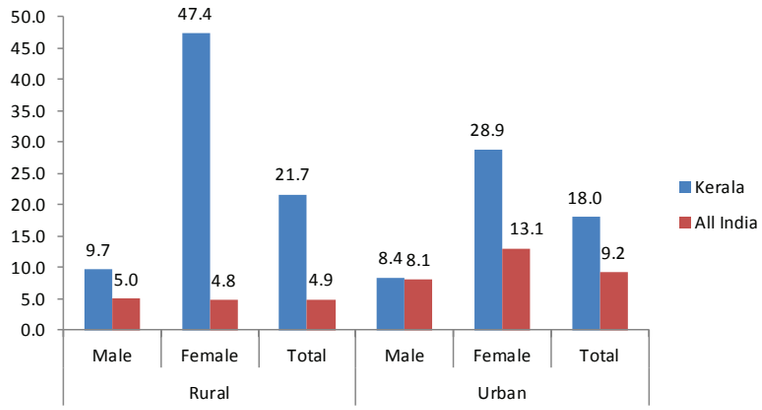
Productive employment of youth is an essential factor for economic development. In Kerala, the youth account for around 23 per cent of the State's population. As per the survey report, the UR among the youth in Kerala is much higher as compared to that of the overall population and it reveals the severity of the unemployment problem among the youth in Kerala. The UR of the youth is 21.7 per cent for rural areas and 18.0 per cent for urban areas. Similarly, the UR among the female youth is also much higher than that of the male youth. Area-wise UR data shows that 47.4 per cent of the female is unemployed in a rural area as against the male of 9.7 per cent (Figure 5.26). Youth unemployment is prevalent in Kerala because young people lack adequate skills, work experience etc. in emerging areas. In order to face the challenges, the ongoing programmes for skill development and

Figure 5.25 Unemployment rate in Kerala, in per cent



Note: UPS- Usual Principle Status, UPSS Usual Principle and Subsidiary Status, CWS- Current Weekly Status, CDS- Current Daily Status
Source: Employment and unemployment situation in India, NSS 68th Round, July 2011 – June 2012 (Age: 15-59 years)

Figure 5.26 Unemployment rate of the youth in Kerala and India as per UPSS approach



Source: Employment and unemployment situation in India, NSS 68th Round, 2011-2012(Age: 15-29 years)

employment generation are to be made effective use of to equip the youth for finding better employment opportunities.

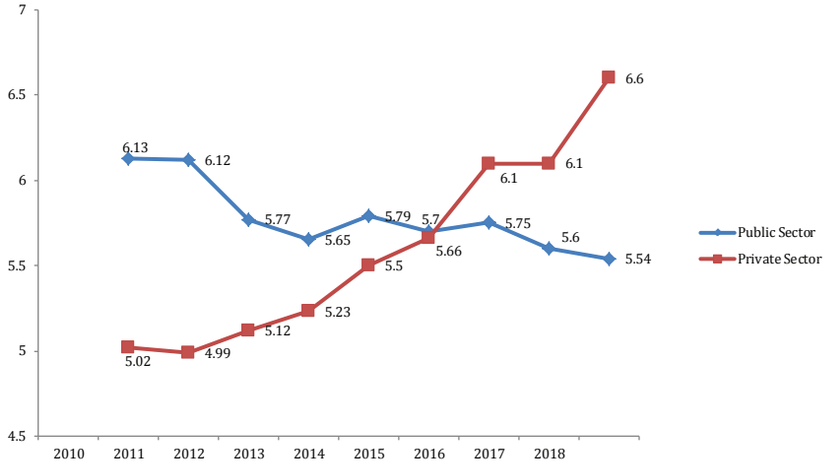
Employment in the Organised Sector

In Kerala, employment in the organised sector has remained more or less stagnant, showing only a marginal increase from 10.89 lakh in 2012 to 12.14 lakh in 2018. The reason behind this trend is due to the movement of the labour force to the sectors which provides more employment in the State.

The organised sector comprises private and public sectors and it is noteworthy that private sector employment is steadily increasing since 2011onwards. In 2018, out of 12.14 lakh persons employed in the organised sector, 5.54 lakh (46 per cent) are in the public sector and 6.60 lakh (54 per cent) are in the private sector. (Appendix 5.12 and Figure 5.27).

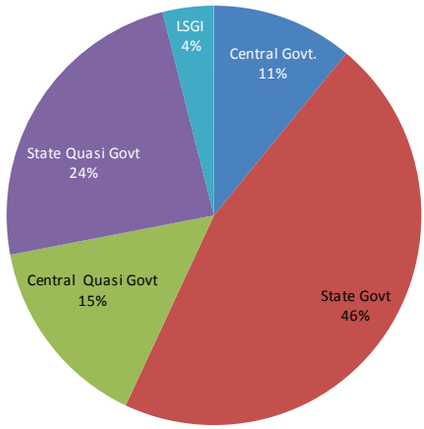
Within the public sector employment 46 per cent are employed in State Government and 11 per cent is in Central Government, 24 per cent are in State quasi-institutions, 4 per cent in LSGIs and 15 per cent are in Central quasi-institutions. (Figure 5.28 and Appendix 5.13).

Figure 5.27 Employment in the organised sector, Kerala, in lakh



Source: Directorate of Employment, GoK, 2018

Figure 5.28 Distribution of employment in the public sector



Source: Directorate of Employment, GoK, 2018

Data on District-wise employment as on March 2018 reveals that Ernakulam and Wayanad are the two Districts which respectively accounted for the highest and lowest employment. Total organised sector employment in Ernakulum District is 2.47 lakh persons, which accounted for 20 per cent of the total employment of the State. Whereas in Wayanad, the employment under the organised sector is 0.35 lakh persons, which accounted for 3 per cent of the total employment (See Appendix 5.14). In Kerala, men outnumbered women in public sector employment and women outnumbered men in private sector employment. The share of men is 66 per cent of public sector employment while that of women is 51 per cent of total private sector employment. Thiruvananthapuram and Idukki are the two Districts which respectively accounted for the highest and lowest women participation in public sector employment. In Thiruvananthapuram, 31,037 women are employed in the public sector followed by Ernakulam (22,849), Thrissur (21,891) and Kollam (18,783). Whereas in Idukki, 3,387 women are employed in the public sector followed by Kasaragod (6,502), Wayanad (6,814), and Pathanamthitta (8,266). Women participation in the public sector employment is shown in Table 5.2.

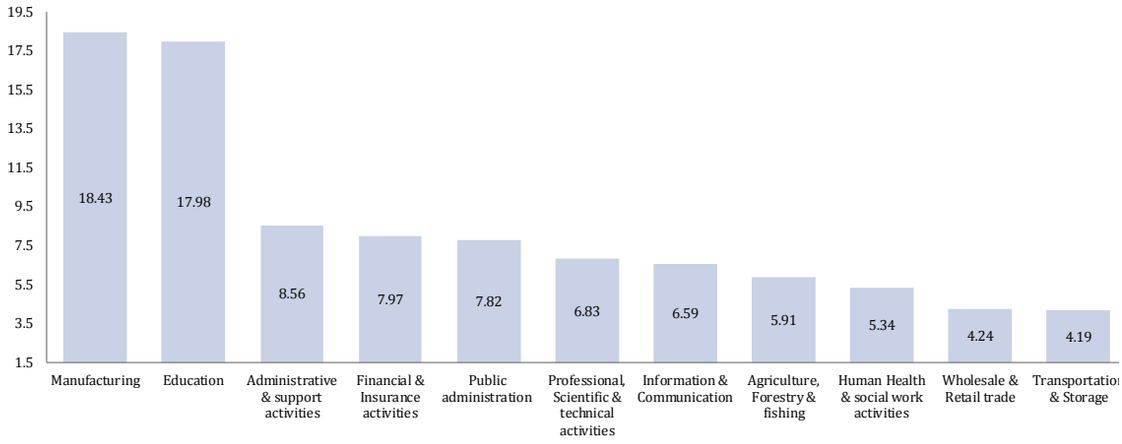
Recent statistics on industry-wise distribution of workers in the organised sector in Kerala indicates that the dependence on the service sector continues to rise whereas the dependence on agriculture continues to decline. Employment in agriculture, relative to other sectors has fallen while the share of employment in manufacturing, education, and financial and insurance activities has risen. (See Appendix 5.15 and Figure 5.29 and Table 5.1).

Table 5.2 Public sector employment, women participation

Sl.No	Branch	No. of Women Employed	Share (%)
1	State Government	101,485	53
2	State Quasi Government Sector	40035	21
3	Central Government	14498	8
4	Central Quasi Government Sector	25252	13
5	LGs	8672	5
	Total	189,942	100

Source: Directorate of Employment, GoK, 2018

Figure 5.29 Major sectoral distribution of employment in the organised sector, March 2018, in per cent



Source: Directorate of Employment, GoK, 2018

Employment in Unorganised Sector

Unorganised sector plays a crucial role in the Indian economy in terms of employment and its contribution to the GDP, savings and capital formation. More than 90 per cent of the workforce and nearly 50 per cent of the GDP is attributable to this sector. A high proportion of socially and economically weaker sections of society are engaged in the unorganised economic activities in India and Kerala. As per the employment and unemployment survey carried out by the NSSO (68th round) based on UPSS approach, it is estimated that self-employed workers in Kerala constituted 37.7 per cent of the total workers, while the share of regular wage/ salaried employee was 22.5 per cent and that of casual labour 39.8 per cent.

Employees of enterprises belonging to the unorganised sector have lower job security, poorer chances of upward mobility, and no paid holidays, lower protection against unfair or illegal practices. In Kerala, Directorate of Employment is the nodal department entrusted with the responsibility to take measures to reduce instances of unfair practices existing in the unorganised sector. In recent years the Kerala Government has initiated several measures to provide social security to workers in the unorganised sector.

Employment Exchanges and their Services

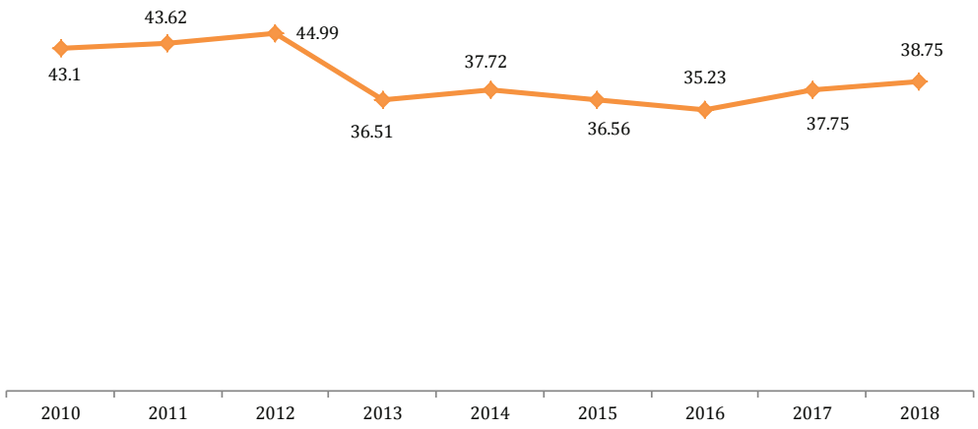
Registered Job Seekers

According to the live register of employment exchanges in Kerala, the total number of job seekers as on December 31, 2012 was 44.99 lakh. But it has now declined to 38.75 lakh as on October 31, 2018, a reduction of about 6.24 lakh. Details of job seekers for various years are given in Appendix 5.16 and Figure 5.30.

Contrary to the all India scenario, women job seekers are found to be more in the live registers in Kerala. Of the total job seekers, 62 per cent are women. The number of illiterate persons in the live register is 899. Distribution of job seekers by educational level indicates that only 9 per cent have qualification below SSLC. About 91 per cent of the job seekers are in the category of qualifications having SSLC and above (Figure 5.31 and Appendix 5.17).

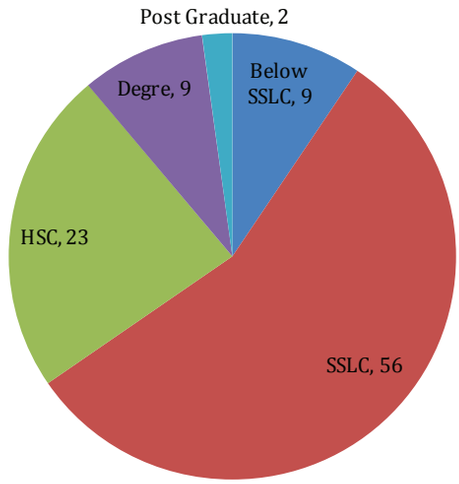
The number of professional and technical job seekers as on October 31, 2018 is 2.87 lakh. Data

Figure 5.30 Work seekers in Kerala, in lakh



Source: Directorate of Employment, GoK, 2018

Figure 5.31 Work seekers in Kerala, qualification-wise, in lakh



Note: SSLC- Secandary School Leaving Certificate; HSC- Higher Secandary School Certificate;
Source: Directorate of Employment, GoK, 2018

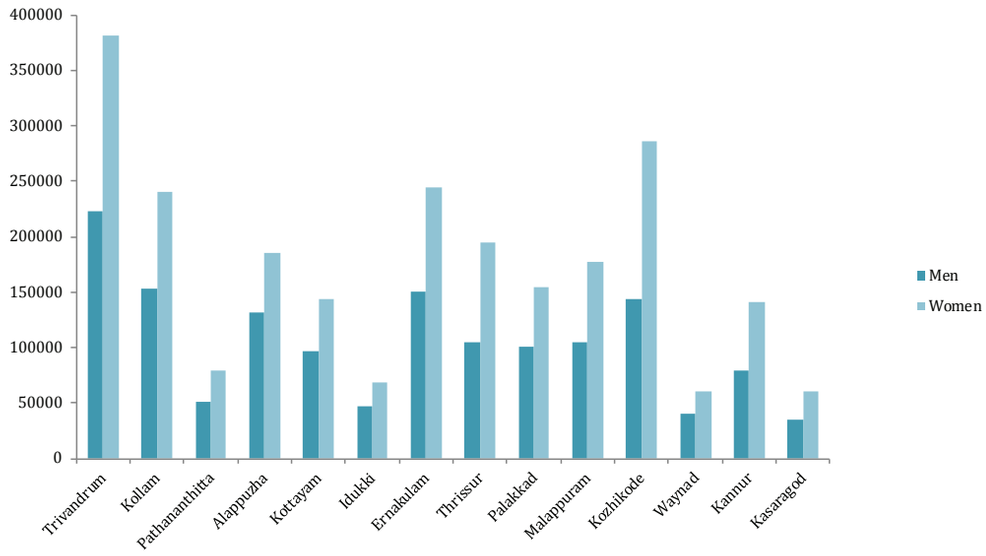
reveals that ITI certificate holders and diploma holders in engineering together constitute 69 per cent of the total professional and technical job seekers. There are 41,483 registered engineering graduates and 5142 medical graduates (Appendix 5.18). The District-wise job seekers in Kerala is shown in Figure 5.32.

Thiruvananthapuram District ranks first in the number of job seekers in general and professional/technical categories as on July 31, 2018. The total number of job seekers in Thiruvananthapuram District is 6.03 lakh; of which 3.80 lakh are women and 2.22 lakh men. The second largest number of job seekers are in Kozhikode District with 4.29 lakh persons. The lowest number of job seekers are registered in Kasaragod District with 95,358 persons, followed by Wayanad District with 1,00,823 persons. (Appendix 5.19).

Kaivalya

Kaivalya was introduced as a holistic framework for achieving the goals of social inclusion and equality of opportunity for all citizens with

Figure 5.32 Job seekers in Kerala as on October 31, 2018, status of men and women



Source: Directorate of Employment, GoK, 2018

disabilities. The scheme was introduced by the employment department of Kerala Government in 2016. The primary objective of the scheme is to create a social and physical environment favouring accessibility, integration and full participation of persons with disabilities. Special employment exchange for differently abled was established at Thiruvananthapuram, Neyyattinkara, Kollam, Kottayam, Ernakulam and Kozhikode. Kaivalya comprises of the following 4 components;

1. Vocational and Career Guidance
2. Capacity Building
3. Training for Competitive Examinations
4. Self Employment Ventures

An amount of ₹100 lakh was spent in 2017-18 for implementing the above activities benefiting 703 persons. In 2018-19 an amount of ₹110 lakh has been sanctioned for implementing above activities.

Self-Employment Schemes

Three self-employment schemes are implemented through the Employment Exchanges in Kerala.

1. **Kerala Self Employment Scheme for the Registered Unemployed (KESRU)** – KESRU is being implemented since 1999 and is intended for unemployed persons in the live register between the age 21-50 years with annual family income not exceeding ₹1.00 lakh. Preference will be given to those with professional or technical qualifications, graduate women and beneficiaries of unemployment dole scheme. Bank loan up to ₹1.00 lakh with a 20 per cent subsidy is given for self-employment ventures. During 2017-18, an amount of ₹1.45 crore was allotted to 745 beneficiaries.

2. **Multi-Purpose Service Centers/Job Clubs (MPSC/JC)** – This is a group-oriented self-employment scheme for the development of enterprises in the unorganised sector. Bank loan up to ₹10 lakh with a maximum of ₹2.00 lakh as subsidy is given for starting self-employment group ventures of 2 to 5 members, who are unemployed persons in the live registers in the age group of 21-45 years. The scheme is incorporated with the Credit Guarantee Scheme. In 2017-18 an amount of ₹10.00 crore was allotted to 66 job clubs.

Box 5.3 Employability centre

The Government of Kerala has taken a substantial step by converting the Employment Exchanges into 'Centres of Skill and Employability Development' (Employability Centre) for identifying the skill sets of youth registered in the Employability Centres. These skills are identified using psychometric tests and the selected persons were provided the skills with necessary training inputs so as to equip them to be placed directly into the workforce. For high-end courses, the candidates will be referred to VTP (Vocational Training Providers) or other institutions. Nine Employability Centres have started functioning along with District Employment Exchanges at Kollam, Alappuzha, Kottayam, Ernakulam, Palakkad, Kozhikkodu, Kannur, Thrissur and Malappuram. Out of 50,640 registered persons, 33,711 were assessed, 29,363 were trained and 6,279 were job offered.

Career Development Centre (CDC)

Career Development Centre (CDC), an initiative of National Employment Service (Kerala) Department, GoK, was started in 2016-17 for rural youth. The centre is envisaged as a place where individuals can obtain solutions for all kinds of career issues faced by them. The main objective of this centre is to help the students in a rural area to acquire necessary knowledge and training based on the latest trends and current developments. The centre adopts the latest technologies and appropriate tools in career management to address the issues of individuals. The ultimate goal of these centres is to link the students with meaningful work, giving them support to shape and manage their careers by building key ingredients necessary for their transformation to become complete professionals. CDCs are functioning with the technical support of KASE. The Department started two Career Development Centres at Perambra in Kozhikode District and Chittur in Palakkad District and those centres are functioning effectively. The candidates registered in Perambra and Chittur Career Development Centres in 2017-18 are 2,188 and 2,239 respectively.

Model Career Centre

As per the Central Government policy to transform all the Employment Exchanges into Career Centres, National Employment Service Department has taken initiative to set up Model Career Centre at University Employment Information and Guidance Bureau, Thiruvananthapuram. It is a joint venture of the Directorate General of Employment and Training, Ministry of Labour and Employment, GoI and the Department of National Employment Service (Kerala). The Centre will act as a one-stop solution centre for all assistance needed to the aspiring youths to find suitable career according to their qualifications and skill set. It provides a variety of employment-related services under one roof to job aspirants at free of cost. The Centre now endeavours increased focus on career counselling as a key activity to enable our aspiring youths to pursue the right career choices according to their aptitude and skill. Activities performed by this centre includes partnering with industry, candidate engagement, job and skill mapping and conducting placement drives/job fairs.

Source: Department of Labour, GoK

3. **Saranya** – Employment Scheme for the 'Destitute Women' aims at uplifting the most vulnerable sections anoung women in the State, such as widows, divorced, deserted, spinsters above the age of 30 and unwed mothers belonging to Scheduled Tribe.

Under this scheme interest-free bank loan up to ₹50,000 with a 50 per cent subsidy (maximum ₹25,000) is given for starting self-employment ventures. In 2017-18, an amount of ₹19.25 crore was allotted to 3828 beneficiaries.

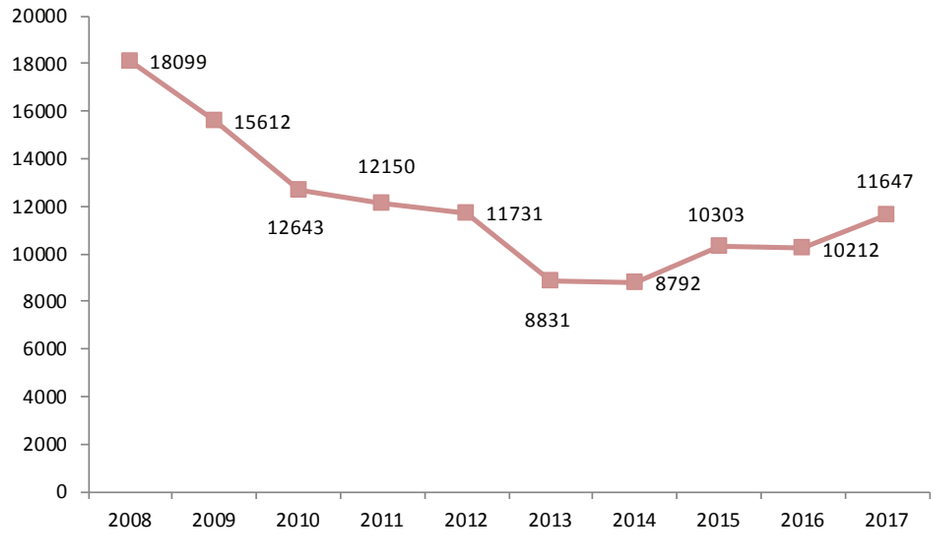
Unemployment Assistance

The Government of Kerala introduced an unemployment assistance scheme in 1982. Under the scheme, unemployed youths remaining in the live registers for over three years (physically challenged two years) after attaining the age of 18 and having passed SSLC (for SC/ST and physically challenged, candidate need to have only appeared for SSLC examination) and having annual family income below ₹12,000 and personal income below ₹100 per month are eligible for an unemployment assistance of ₹120 per month up to the age of 35 years. With the enactment of the Kerala Panchayat Raj Act and the Kerala Municipality Act, the unemployment assistance scheme was transferred to rural and urban Local Governments since 1998. Under the scheme, the eligible candidates shall submit their application for unemployment allowance in the prescribed form to the Local Governments. The Welfare Standing Committee at the Local Governments would finalise the list of candidates based on the eligibility criteria. In 2017, an amount of ₹21.58 crore was disbursed to 1,93,071 beneficiaries as unemployment assistance and ₹24.00 crore to 5,280 beneficiaries as self-employment assistance. In the current financial year, an amount of ₹8.34 crore was disbursed to 1,48,305 beneficiaries as unemployment assistance and ₹13.46 crore to 4210 beneficiaries as self-employment assistance as on September 2018. (Appendix 5.20)

Niyukthi-2018

Niyukthi is the recruitment drive organised by the National Employment Service department with a view to provide employment opportunities in the private sector to the educated and talented youth who are unemployed. Niyukthi 2018 was organised in Thiruvananthapuram, Ernakulam and Kozhikode in the months of January and February 2018. In this mega event 29,043 job seekers and 298 employers participated. Out

Figure 5.33 Details of placement through employment exchanges in Kerala, 2008 to 2017, in numbers



Source: Directorate of Employment, GoK, 2018

of 21,292 vacancies reported, 11,872 jobs were offered and 3,111 placements were provided.

Placement Through Employment Exchanges in Kerala

The total placements through employment exchanges in Kerala have declined from 12,643 in 2010 to 11,647 in 2017 and further to 7,925 as on July 31, 2018. This may be because of temporary posts being filled up on daily wage/contract basis or being kept vacant. The placement through employment exchanges in Kerala since 2008 is given in the Figure 5.33.

Skill Development

Skill development is a critical factor for human resource development and productivity improvement in the economy. Improved skills not only transform the economy but also drive social development. States with better levels of skills adjust more effectively to the challenges and opportunities posed in the world of work. Despite Kerala possessing highly literate human resource, the skill of the labour force needs to be upgraded substantially. The structural transformation of the State's economy has not generated enough employment opportunities in the emerging sectors. As a result, Kerala faces one of the highest unemployment rates in India. The State Government aims to create a skilled and technically qualified workforce who can contribute to the growth and development of both the State and nation, by providing quality training to achieve the national goal of 50 crore skilled persons by 2022. Based on the population of increasing matriculates passing out in Kerala, 1.5 to 2 lakh skilled human power per year has to be trained annually to reach the national target. Potentially, the target group for skill development comprises all those in the labour force, including those entering the labour market for the first time, those employed in the organised sector and those working in the unorganised sector.

Craftsman Training

The craftsman training programme was introduced by the GoI in 1950 to a) ensure a steady flow of skilled workers in different trades for the domestic industry, b) raise quantitatively and qualitatively the industrial production by systematic training and, c) reduce unemployment among the educated youth by providing them employable training. National Council for Vocational Training (NCVT) is the apex authority in the country for the implementation of this scheme. As per the scheme, National Trade Certificate (NTC) is issued to the trainee who completes the training in a particular trade and passes the All India Trade Test. Industrial Training Department of Kerala implements craftsman training scheme. There are 93 Government Industrial Training Institutes (ITIs), one Basic Training Centre. one Staff Training Institute, one Advanced Vocational Training Scheme, and 296 private ITIs. There are 44 ITIs under Scheduled Caste Development Department exclusively for SC and 2 ITIs under Scheduled Tribe development department, exclusively for ST students functioning in the State. There are about 85 trades with allocated seats for Craftsman Training with a total seating capacity of 80550. The details of ITIs and its trade and enrolment are given in Appendix 5.21, 5.22, 5.23, 5.24, 5.25, 5.26, and 5.27.

Apprenticeship Training

The apprenticeship training scheme is conducted as per the Apprentices Act, 1961. This Act was enacted with the objective to regulate the programme of training of apprentices in the industry so as to conform to standard syllabi, periods of training and skill sets etc. while utilising the facilities available in industries for imparting practical training. This scheme aims to meet the requirements of skilled human power for the industry. Apprenticeship is a contract between an apprentice and an employer to provide training in a particular skill in an establishment for a particular period

and providing a stipend stipulated as per the Apprentices Act. The central and the State Governments act as the third party in contract regulating and monitoring the process. It was enacted with the purpose of utilising the facilities available in industries for skill training and certification by the NCVT. Trade Apprenticeship training in Kerala is both a central and State initiative. Apprenticeship schemes in the State are implemented through Related Instruction centres in nine Districts and ITIs in the remaining five Districts.

There are 81 trades in which 10,422 seats have been allocated for apprenticeship training, of which around 4,328 seats are filled. Around 2,000 trainees are qualified to get certification every year under this scheme. Government sector accounts for more than 50 per cent of apprenticeship placements in the State.

Skill Development Initiative Scheme (SDIS)

SDIS aims to give free training in Modular Employable Skill courses (MES) to early school leavers and existing workers, especially in unorganised sectors for employable skills. Existing skills of a potential employee can also be tested and certified through this scheme. Successful trainees will be issued certificates by the NCVT. The Department of Industrial Training is the authority for implementing and monitoring training in the SDIS in Kerala.

Skill Updating Institute for Staff Training (SUIIT)

SUIIT, Kerala was started in 1999 at Kazhakkuttom, Thiruvananthapuram District, to update the technical knowledge of instructional staff and others to keep up with technical

Box 5.4 Innovative steps implemented in 2018-19

India Skills-Kerala 2018

Titled 'IndiaSkills Kerala 2018', the skill competition was held in April 2018 at Cochin. The event provided an arena for celebrating world-class excellence in skills and an avenue to the youngsters to showcase their functional and vocational skills. The winners and runner-ups of the competition were given special training and represented the State for the regional competitions of national competition 'India Skills 2018'.From regional level 20 winners have represented South India and of them, NSDC identified 2 contestants to represent India in Euro Skills 2018.

3 Dimension (3D) Interactive Teaching Aid

The Industrial Training Department has developed 3D interactive visual teaching aid to optimise the use of 3D visuals in training.

- 3D Interactive Teaching Aid has been developed in "Automobile Mechanic", "Engineering Drawing", "Draughtsman Civil" and "Electrician", "Fitter"," Turner", "Machinist", "Mechanic" motor vehicle trade
- The entire programmes are interactive and visually rich to enable the instructor to actively involve the class and increase the attention of the student in the learning program.
- 3D interactive Teaching Aid facilitates in-depth understanding of theory and practice.

ISO certification

Quality has been the hallmark of our Industrial Training Institutes. Various innovative techniques are introduced in training. These initiatives of the department are recognised by awarding ISO certification to 24 ITIs.

ISO Certified ITIs are ITI (W) Kozhikode, ITI Ettumanoor, ITI Mala, ITI (W) Kalamassery, ITI Kozhikode, ITI Kalpetta, ITI Kannur, ITI (W) Kazhakkuttom, ITI Attingal, ITI Chenneerkkara, ITI Kalamassery, ITI (W) Chalakudy, ITI Areacode, ITI Chengannur, Dhanuvachapuram, Chackai, Kollam, Kollam (W), Pallickathode, Kattppana, Chalakkudy, Malampuzha, Kannur(W), Kasaragod.

Technical Exchange Programme

The programme aims to introduce Technical Exchange Programme for ITI Trainees with foreign countries. In this year, 57 trainees have been benefited in this programme. ITE-Singapore had provided training for these trainees.

Naipunya Karmasena

The Naipunya Karmasena was formed by the department to rectify the electrical, plumbing, carpentry issues that emerged following the flood. Besides ITI trainees, a team of officials having technical knowledge have participated in the activities.

Source: Industrial Training Department, GoK

Box 5.5 Major milestones in 2017-18

- India Skills – Kerala 2018.
- Noon meal programme was started in 14 Women ITI s
- Job Fair was conducted in three regions for getting placement. As an outcome, 10,218 trainees were shortlisted and 3,011 trainees got placement.
- Steps initiated to upgrade 10 ITIs into international standard through KIIFB Funding. The selected ITIs are ITI Dhanuvachapuram, ITI Kollam, ITI Chengannor, ITI Ettumanoor, ITI Kattapana, ITI Chalakkudy, ITI Malampuzha, ITI Koyilandi, ITI Kannur, and ITI Kayyur.
- Placement cells were formed in all ITIs and 2,920 trainees were placed in 2017-18.
- Entrepreneur Clubs were constituted in all ITIs in the State to inculcate entrepreneurial culture among youth and equip them with the skills, and techniques to act as a torch-bearers of the enterprises for the new generation.

Source: Industrial Training Department, GoK

developments. The activities of this institute include preparing course designs, conducting research on new teaching methods, updating the skills of technical staff, soft skill training, programmes under State Training Policy at IMG, off-campus training programmes, monitoring virtual class training, and coordinating Distance Learning Programme training of DGE&T.

Kerala Academy of Skills Excellence (KASE)

The Government of Kerala has set up KASE, as a fully Government-owned company and designated as the nodal agency for facilitating and coordinating various skill development initiatives in the State. With this objective, KASE is designated as the State Skill Development Mission. KASE is implementing a centrally sponsored scheme called Pradhan Mantri Kaushal Vikas Yojana (PMKVY). Under PMKVY, 28,580 trainees are targeted in 2019-20. In association with industrial partners, prospective employers and entrepreneurs, KASE initiated iSTEP (International Skill Training and Employability Programme) as a single window program for skill development mission of GoK. Broad objectives of iSTEP are setting up of Centre of excellence, Accreditation of Skill Training and Skill Training Programmes. Indian Institute of Infrastructure and Construction (IIIC) at Chavara, Kollam is functioning under KASE. The aim of IIIC is to offer high-end courses in construction, engineering, and management and also provide skill training for workforce ranging from trades including masonry, carpentry, plumbing, and electrical works etc.

CHAPTER

06

INITIATIVES FOR SOCIAL INCLUSION

CHAPTER 06

Initiatives for Social Inclusion

Gender and Development

"Even at the most primitive stages of family autarky there is some division of labor within the family, the main criteria for the division being that of age and sex.... Both in primitive and in more developed communities, the traditional division of labor within the family is usually considered 'natural' in the sense of being obviously and originally imposed by the sex difference itself." (Boserup 1970, p15)

"The long-term goal, however, remains, and that is the elimination of class and sex hierarchies through a radical transformation of society... We can no longer ignore the questions of what goes on within households, nor the interweaving of gender relations and class relations". (Benería and Sen 2010)

In India, there exists a wide gender inequality measured in terms of all the Gender Indices (GI) developed by UNDP. The Gender Development Index (GDI) value of India is 0.841[1] with low equality in human development achievements between women and men (absolute deviation from gender parity of more than 15 per cent). The GDI measures gender gaps in human development achievements by accounting for disparities between women and men in three basic dimensions of human development-health, knowledge and living standards. In terms of Gender Inequality Index (GII) also, India ranks 127th with a GII value 0.524, while our neighbouring countries like China and Sri Lanka rank 36th (0.152), 80th (0.354) respectively. GII measures gender inequalities in three important aspects of human development-a) reproductive health, measured by maternal mortality ratio and adolescent birth rate, b) empowerment, measured by proportion of parliamentary seats occupied by females and proportion of adult females and males aged 25 years and older with at least some secondary education, and c) economic status, expressed as labour market participation measured by labour force participation rate of female and male population ages 15 years and older.

In terms of latest measure of "life-course gender gap" released by UNDP, India's position is in the "bottom third category". Life-course gender gap contains a selection of 12 key indicators that display gender gaps in choices and opportunities over the life course – childhood and youth (5 indicators), adulthood (6 indicators), and older age (one indicator). The indicators refer to health, education, labour market and work, political representation, time use and social protection. Most indicators (9) are presented as a ratio of female to male values, and three are presented only for women. Based on the performance on each indicator, countries are divided into three groups – the top third, the middle third and the bottom third. India falls in the bottom third category.

As gender inequality remains a harsh reality all over the world, questions involving the status of women and prevailing gender disparities have assumed importance in the development discourse of recent years and an area needing ameliorative action. Governments and policy makers have begun to recognise the demands for

[1] GDI is the ratio of female to male HDIs.

basic rights of women, transgenders and other sexual and gender minorities. The Governments have been compelled to give due attention to the strident voices of activism raised from a range of platforms and movements. There has also been a significant shift of focus from women being mere beneficiaries of Government policies to that of being growth agents in India's political economy across all sectors. The role of women in the development process has shifted from Woman and Development (WAD) to Women in Development (WID), to Gender and Development (GAD) to Women's Empowerment and Agency (WEA).

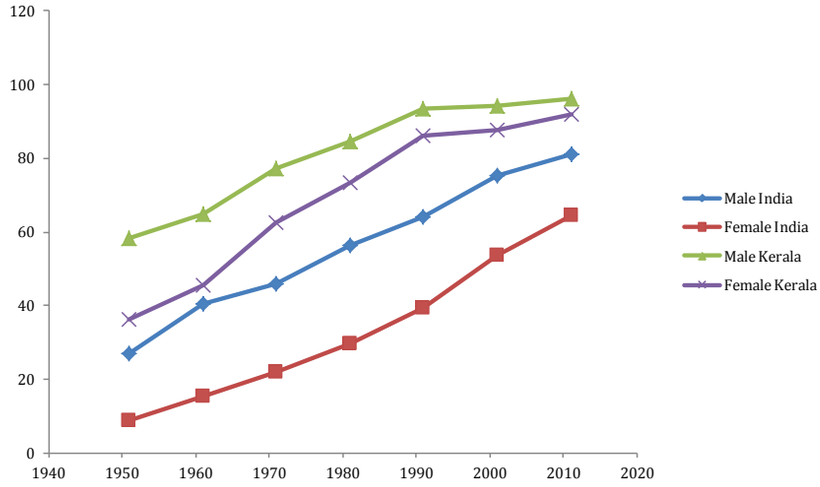
Among the Indian States, Kerala is known for its gender development achievements. The State provides equal opportunities for its people in several aspects of human development. With regard to the GII components, the indicators of maternal mortality rate, adolescent birth rates and proportion of adult females with secondary education are impressive in Kerala. But the indicators of labour market participation and proportion of parliamentary seats occupied by females show that Kerala's performance is poor and is below all India average. At the same time, Kerala is a pioneer in ensuring 50 per cent seats in Local Governments to women. As per the Census 2011, the ratio of women to men for Kerala is 1,084, which is high compared to the national figure of 940. Women constitute 52 per cent of the total population in Kerala. Children aged 0-14 years represent 23.44 per cent of the total population in Kerala, out of this, 48.91 per cent are girls. In contrast to the national average of 11 per cent, 22 per cent of all households in Kerala are female-headed. The State formulated a Policy on Women in 2009 and later a Gender Equality and Women's Empowerment (GEWE) Policy for 2014-2020.

Literacy and Education

Kerala has the highest female literacy rate among Indian States (92 per cent) though a small gender gap exists. High female literacy rate in Kerala can be considered as the basis of 'take-off' for the socio-cultural development achieved by Kerala women (Figure 6.1).

In the case of education, enrolment is universal at the primary level and gender parity has been achieved; girl students constitute 49.01 per cent of the total student enrolment in schools. Girls outnumbered boys in terms of enrolment in higher secondary education at 51.84 per cent Dropout rates are low for both boys and girls. At the tertiary level also, the enrolment of girls is higher than boys. For example, girls constitute

Figure 6.1 Gender gap in literacy, all India and Kerala



Source: Census of India

68.49 per cent of total enrolment for degree courses in various arts and science colleges in Kerala in 2017-18. At the level of post-graduation, the girls' position is highest with 67.01 per cent. But when the intake of girls in engineering colleges and polytechnics is considered, the situation is different. Out of the total enrolled students, girls constitute only 38.24 per cent in engineering colleges and 28.86 per cent in polytechnics Table 6.1.

Health Status of Women in Kerala

Kerala's high social development is mostly reflected in women's high health status in comparison to men in the State as well as to persons in other parts of the country. Most of the health indicators are highly favourable to women in the State. Life Expectancy at birth of women in Kerala at 76.9 years is the highest in India (all India average is 67.7 years). The demographic health indicators seem to be favourable to women of Kerala (Table 6.2).

Low maternal mortality rate and high female life expectancy in Kerala are highly attributed to the extensive public provisioning for maternal care in the State. The universal access to health care institutions helps to ensure maternal care as well as institutional delivery to all. The NFHS, 2015-16, as shown in Figure 6.2, indicates that the institutional delivery and antenatal care in Kerala are very high compared to all India average. Likewise, the adolescent pregnancy is very low in Kerala. For more details see Appendix 6.1. These achievements are the result of decadal long efforts of Kerala Government since its formation.

Morbidity

According to the NFHS report of 2015-16, many of the life style health indicators are not favourable for Kerala women. In Kerala as well as in India, the percentage of women with Body Mass Index below normal is high compared to their male counterparts even though Kerala women are better compared to all India average.

Table 6.1 Enrolment of girls and boys at different levels 2017-18

	Boys	Girls	Total	% of Girls
School Education	1,888,462	1,815,356	3,703,818	49.01
Higher Secondary	183,979	198,072	382,051	51.84
Graduation	86,686	188,424	275,110	68.49
Post-Graduation	12,831	26,064	38,895	67.01
B Tech (Government, aided)	16,953	10,498	27,451	38.24
Polytechnic	7,646	3,103	10,749	28.86

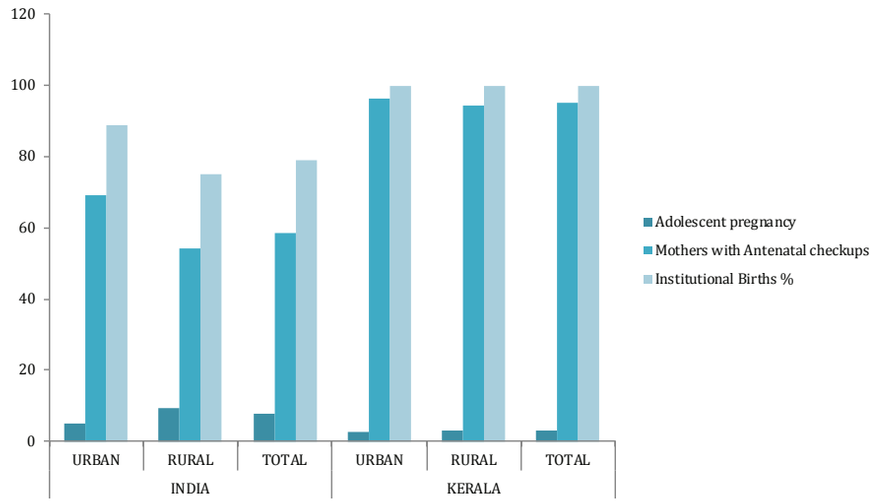
Source: Directorate of Public Instruction; Directorate of Collegiate Education; Directorate of Technical Education, 2018

Table 6.2 Health status of women in India and Kerala

Sl. No.	Indicator		Kerala	India
1	Infant Mortality Rate #		10	34
		Male	9	33
		Female	11	36
2	Mean age at effective marriage 2016*	Female	23.1	22.2
3	Maternal Mortality Rate		46	130
4	Expectancy of Life at Birth	Male	72.2	67.4
		Female	77.9	70.2

* Health management information system, Ministry of Health and Family welfare, GoI.
Source: SRS Bulletin, 2017

Figure 6.2 Indicators of maternal care



Source: NFHS, 2015-16

But in the case of obesity, the percentage of women in Kerala is higher than that of India as well as that of their male counterparts in the State. In the case of anaemia, it is seen the percentage has increased from 2005-06 to 2015-16 though Kerala's situation is better than that of all India average (For more details see Appendix 6.2).

Participation in Economy

Women of Kerala perform better than their male counterparts in terms of many developmental indicators. But in terms of economic participation, the outcome is not favourable to women. According to the 68th Round of NSSO (for the year 2011-12), a wide gap between male and female Labour Force Participation Rates (LFPRs) (principal and subsidiary status) is seen in the State. While the all States' average is 40.3 per cent, female LFPR (per 100 persons) in Kerala is 24.8 per cent and that of male is 57.8 per cent.[2] Himachal Pradesh has the highest female workforce participation rate of 49.8 per cent. The North-eastern States like Nagaland, Sikkim, Manipur, Mizoram, Arunachal Pradesh and Meghalaya have higher FWPRs than Kerala.

Disaggregating by region, we find that the FLFPR in rural Kerala is lower than that of India. But in urban areas, the same is higher in Kerala than at all India level.

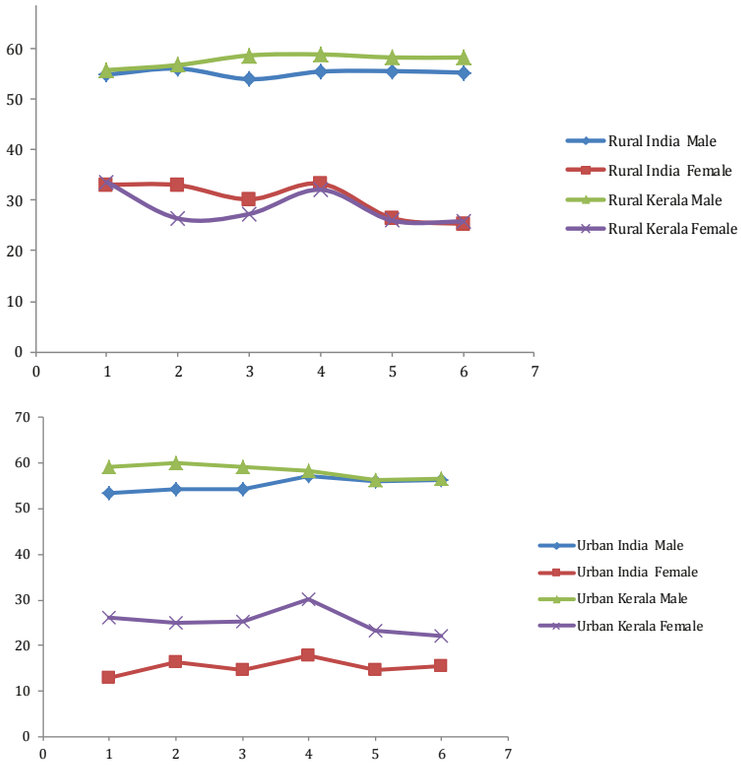
A comparison of labour force participation of males and females in Kerala is shown in the Figure 6.3. It is seen that the gender gap is widening over the period. The gender gap in levels of employment is brought out by the FWPR (Table 6.3). While the male WPRs show a mild upward trend or constancy, there is a declining trend in female WPRs. But Kerala women have a higher participation rate in urban areas vis-a vis that at all India level.

According to NSSO 68th round, Malappuram has the lowest Female LFPR with 12 per cent in rural areas and 8 per cent in urban areas while the respective figures for men are 49 and 43 per cent. Kasaragod and Idukki Districts have lower gender gap in LFPR both in urban and rural areas respectively. The gender disparity in LFPR is highest in Kozhikode both in urban and rural areas with the gaps of 43.6 and 44.5 respectively (Appendix 6.3).

The role of self-employment in enhancing the share of economically active women is very important in a State like Kerala where the educational level of women is relatively high leading to their unwillingness to take

[2] 2015-16 data has been extracted from Labour Bureau, GoI Survey data.

Figure 6.3 Labour Force Participation Rate for Kerala and India, in per cent, urban and rural, principal and subsidiary status



Source: Various Reports of NSSO

Table 6.3 Work Participation Rate of men and women in Kerala

Year	Rural				Urban			
	India		Kerala		India		Kerala	
	Male	Female	Male	Female	Male	Female	Male	Female
1987-88	53.9	32.3	56.7	31.6	50.6	15.2	59.2	21.8
1993-94	55.3	32.8	53.7	23.8	52	15.4	56	20.3
1999-2000	53.1	29.9	55.3	23.8	51.8	13.9	55.8	20.3
2004-05	54.6	32.7	55.9	25.6	54.9	16.6	54.7	20
2009-10	54.7	26.1	56.4	21.8	54.3	13.8	54.7	19.4
2011-12	54.3	24.8	56.5	22.1	54.6	14.7	55.2	19.1

Source: Various Reports of NSSO

up wage employment in low paid informal jobs. Surprisingly, even with a large number of opportunities for self-employment, the share of female self-employed workers seems to be significantly lower in Kerala than many other States in India. The percentage of female self-employed workers (FSEW) in Kerala is 36.7 in rural areas and that in urban areas is 36.1. But in rural areas, percentage of FSEW is 89.5 in Arunachal Pradesh, 87.9 in Himachal Pradesh, 94.9 in Nagaland and 90.2 in Sikkim. In all these North Eastern States, FWPR is above 35 per cent (*Source*: Women and Men in India, 2017).

According to 68th round of NSSO, the sectoral distribution of employment shows that a larger

Table 6.4 State-wise distribution of workers according to broad employment status, 2011-12, in per cent

State/ Country	Rural						Urban					
	Self Employed		Regular wage/ Salaried Employee		Casual Labour		Self Employed		Regular wage/ Salaried Employee		Casual Labour	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Kerala	36.7	38.9	23.1	15.6	40.7	45.7	36.1	36.4	46.6	31.5	17.3	32.1
India	59.3	54.5	5.6	10	35.1	35.5	42.8	41.7	42.8	43.4	14.3	14.9

Source: Women and Men in India, 2017

proportion of women (31.9 per cent) are engaged in the agricultural sector, compared to men (22.8 per cent) while the percentage share of males engaged in service sector (44.8 per cent) is much higher compared to females (37.7 per cent) However, in industry the relative proportions (32.4 per cent and 30.4 per cent for men and women respectively) are not very different; but a further disaggregation would show that this is because large numbers of women are engaged in low productivity, labour intensive traditional industries like handlooms, Khadi, coir, cashew etc. Concentration of women in low remunerative industries would be clear from the membership of females in different Welfare Fund Boards in Kerala. Women's participation in traditional industries is very high in which wage/ remuneration is comparatively low. For example, among cashew workers and beedi workers, women constitute 95 per cent and 99 per cent of the work force respectively (Appendix 6.4).

Together with low and declining female work force participation rates in Kerala, the inferior economic position of women is aggravated further by high rates of unemployment compared to all India average (Table 6.5). Some scholars argue that the decline in female work participation rate could be on account of 'income effect', that is with a growth in household income there is a tendency for women to withdraw from labour force. There is an alternate hypothesis that is due to a 'discouraged worker effect' and a large proportion of women who declare their main occupation as engaged in household duties are in fact engaged in a number of economic activities within the household (*Source*: Table 4.3.9, Economic Review 2017). There is need for further studies in this regard.

Inequality in Wage Rates

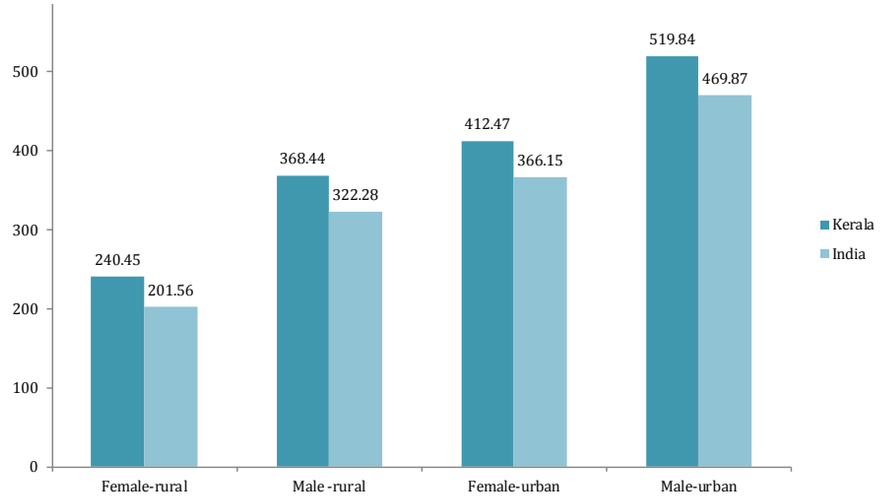
In terms of wages and remuneration, significant gender inequality exists in the State as well as at national level. The prevalence of inequality in the wage rates among men and women especially in unorganised and agricultural works have been detailed in the Chapter 5 of this Review. The gender disparity in wage rate is prevalent not only in informal or unorganised sector but also in regular or salaried employment. This is well explained in the Figure 6.4

Table 6.5 Unemployment rates, 2011-12, in per cent

State/ Country	Rural			Urban		
	Female	Male	Total	Female	Male	Total
Kerala	14.2	3.1	6.8	13.9	2.7	6.1
India	1.7	1.7	1.7	5.2	3	3.4
Unemployment rate (%) for persons aged 15 years and above: 2015-16						
Kerala	24.1	3.5	10.2	25.1	4	11
India	4.7	2.9	3.4	10.9	3	4.4

Source: Women and Men in India, 2017

Figure 6.4 Average wage/salary received per day by regular wage/salaried employees of age 15-59 years, in ₹ crore



Source: Women and Men in India, 2016

Economic empowerment and social empowerment are complementary to each other. The economic empowerment of women is attained when they become an integral part of labour force and be gainfully employed without having to bear the full burden of household and care responsibilities. It is necessary that this is recognised, and efforts are taken to reduce and redistribute unpaid household and care work in more just ways promoting shared responsibility within the household, and the State playing a crucial role in designing appropriate policies/schemes that support its reduction and redistribution.

Women's Participation in Decision Making

Women's participation in decision making is a major indicator to measure their empowerment. Women have to play proactive role in the decision making at home as well as in the policy decisions of the State. Their role at both levels is equally

Box 6.1 Establishment of women and child department in Kerala

State Government established the Department of Women and Child in 2017 as per GO (MS) No.24/17/SJD 30.6.17 bifurcating the Social Justice Department. The Department of Women and Child started functioning on November 24, 2017 for ensuring the holistic, physical, psychological, cognitive and emotional developments of women and children. It also aims at a gender sensitive family and community by implementing programmes and policies for the development and protection of women and children. The Department of Women and Child Development provides policy guidance, designs targeted programs and projects for women and children and strengthens capacity development for gender and child rights mainstreaming.

The main objectives for the formation of a separate department are:

- Elimination of all forms of violence against women and children
- Empowerment of women and children through implementation of laws
- Effective gender rights and child rights mainstreaming in all activities of the department and strengthen capacity of other departments to do the same
- Advocacy of health education to girls and awareness to women at grass root level on personal hygiene, balanced nutrition, environmental cleaning, girl-women friendly sanitation etc.

- Support action research directly contributing to women's mobility, capacity building, leadership skills, entrepreneurship, empowerment, participation and other issues related to protection of children.
- Strengthen capacity and livelihoods for the economically and socially marginalised
- Impart a social responsibility and social consciousness among the various stakeholders in preserving the environment and other resources by consulting and involving women and children.

Women Empowerment Programmes, programmes on gender development, One Stop Centres, Anganwadi Karyakarti Bima Yojana, ICDS Training Programme, Ujjawala, Scheme of Widow Remarriage – Mangalya, Flagship Programme for Gender Awareness, Implementation of Dowry Prohibition Act, One-Day Homes to provide safe accommodation for women, Pradhan Mantri Matru Vandana Yojana, Gender Park, NIRBHAYA, Construction of Nirbhaya Homes Sahayahastham, Swadhar Greh, Working Womens Hostel and Mahila Shakthi Kendra are some of the major schemes under the department.

Source: Women and Child Development Department

decisive for the formation of an equitable and developed society. Women's participation in decision making of the family is considered here in terms of three indicators as provided in NFHS, 2015-16. viz., the percentage of women who usually participate in the household decisions, percentage of women having a bank/savings account operated by themselves and percentage of women having a mobile phone that they themselves use. As shown in Table 6.6, women in Kerala actively participate in the decision making process more than their counterparts at all India level.

The participation of women electors in the Lok Sabha elections has increased over the years from 46.63 per cent in the third Lok Sabha election in 1962 to 66 per cent in the election for 16th Lok Sabha (2014). The participation of women electors in Kerala is very high compared to all India average. But in terms of women's representation in Parliament, Kerala lags behind. In the 16th Lok Sabha, women constitute 12 per cent of the total members of Parliament while one woman MP (5 per cent) is from Kerala.

In case of participation of women in State Assembly in 2014, only 6 per cent of the total members are women (8 out of 140) while all India average (9 per cent) is above the State figure. As per the report of Women and Men in 2017, the proportion of women in legislatures of other States like Bihar (14 per cent), Haryana (14 per cent), Rajasthan (14 per cent), Madhya

Table 6.6 Women's participation in decision making

Indicators	India				Kerala			
	NFHS-4 (2015-16)			NFHS-3 (2005-06)	NFHS-4 (2015-16)			NFHS-3 (2005-06)
	Urban	Rural	Total	Total	Urban	Rural	Total	Total
Currently married women who usually participate in household decisions (%)	85.8	83	84	76.5	91.7	92.4	92.1	88
Women having a bank/ savings account that they themselves use (%)	61	48.5	53	15.1	70.3	70.8	70.6	27
Women having a mobile phone that they themselves use (%)	61.8	36.9	45.9	NA	81.1	81.2	81.2	NA

Source: Women and men in India, 2017

Pradesh (13 per cent), West Bengal (13 per cent), Uttar Pradesh (10 per cent) and Jharkhand (10 per cent) are higher than Kerala.

But the participation of women in Panchayati Raj institutions in Kerala is higher than the all India average. Women outnumbered men in terms of proportion of representation in Local Governments. The representation of women in courts and civil services is also less, when compared with men. Though, percentage of women judges in High Court is higher than that in Supreme Court, the representation is not significant. The existing data throw light on the fact that women in Kerala face a glass ceiling in higher echelons of decision making bodies (Table 6.7).

Crimes Against Women

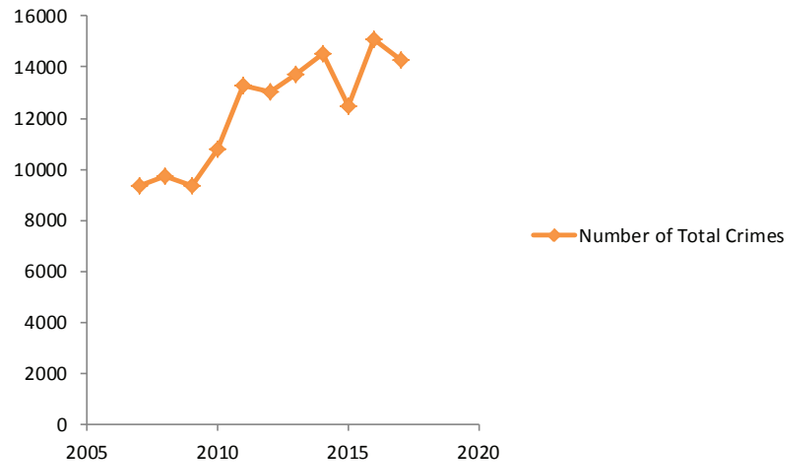
Contrary to the high social development including high educational level, crime against women continues to be a major concern in Kerala. Even when we want women to come out of their homes and take up employment, the safety of women is a serious issue. Greater efforts are required in this direction, to enable women to take up gainful economic activities outside the home. The 'cruelty by husband/ relatives' still constitutes a major component in crime against women. Kerala is among the top ten States in terms of crime rates against women (National Crime Record Bureau, 2017). As per the crime statistics of India in 2016, majority of cases under crimes against women were reported under cruelty by husband or his relatives (32.6 per cent) followed by assault on women

Table 6.7 Women's representation in decision making bodies

16th Lok Sabha		
	Kerala	All India
Per cent of Electors participating in the Election		
Female	74	65.6
Total	74	66.4
Women MPs		
Women MPs	1	64
Total Seats	20	534
% of Women MPs	5	12
Participation of Women in State Assemblies		
Women MLAs	8	359
Total MLAs	140	4,118
% of women MLAs	6	9
Women Representatives in Panchayat Raj Institutions		
Total Elected Representatives	19,089	2,911,961
Women	9,897	1,345,990
% of Women	52	46
Women Judges in Supreme/High Courts		
	Kerala HC	Supreme Court
Approved judge Strength	47	31
Women Judges	5	1
% of Women	14	4

Source: Women and Men in India, 2017

Figure 6.5 Number of total crimes



Source: Crimes Records Bureau, Kerala

with intent to outrage her modesty (25.0 per cent) kidnapping & abduction of women (19.0 per cent) and rape (11.5 per cent;) Uttar Pradesh reported 14.5 per cent (46,972 out of 3,29,067 cases) of total cases of crimes against women followed by West Bengal (9.6 per cent) (33,052 cases) in 2016. Delhi UT reported the highest crime rate (159.9) compared to the national average rate of 53 while it is 53.4 in Kerala which is slightly above the national average.

The total number of crimes in Kerala has decreased between 2016 to 2017 (Figure 6.5). The details of crimes against women in Kerala is given in Appendix. 6.5.

In the Kerala context as outlined in the earlier sections, the two major thrust areas identified on gender in the 13th Five Year Plan are (a) Skill development, employment generation, and livelihood security for women, and prioritising vulnerable women (in the light of declining WPRs of women and high rates of educated unemployment). Since child care and lack of other basic amenities (accommodation, travel, safety/security) hold women back from working outside the home, emphasis is also put on enhancing the reach of creche cum day care centres, hostels and means of travel; and (b) Prevention of gender based violence, redressal and rehabilitation in the context of continuing violence in the State (relating to targets 5.2, 5.4 and 5.5 of the SDGs).

Transgenders (TGs) in Kerala

Kerala is the first State in India which declared a Transgender Policy in 2015. GoK has issued a rights based State Policy for Transgenders within a clear results framework. In addition, consistent with the 2014 Supreme Court judgement, the policy allows for the self-identification of a person as a Transgender. The Policy also recommends the establishment of District-level TG Boards that can register TGs and issue identification cards. Various schemes for the welfare of TGs are being implemented by various departments especially by Social Justice Department. The details of the schemes implemented by Social Justice Department have been given in the section on Social Security Measures in this chapter. Apart from these, Kerala State Literacy Mission Authority (KSLMA) has initiated special literacy programme for TGs and they have joined 4th, 7th, 10th and 12th equivalency programme of KSLMA. In 2017-18, 79 persons have passed the 10th and 12th equivalency programmes.

Box 6.2 Nirbhaya

The programme envisages setting up of Nirbhaya homes for sexually abused women. There are 13 shelter homes in the State (except in Alappuzha, Pathanamthitta, and Kottayam) for protection of victims of sexual abuse. In 2017-18, 372 women benefited under these shelter homes. Three Fast-Track Courts exclusively for women and children have been established in Thiruvananthapuram, Ernakulum and Kozhikode Districts. 13 homes are managed by NGOs and funding for the same is done by State Government through Women and Child department.

Objectives: Nirbhaya Project mainly focuses on a three-point agenda: Prevention, Prosecution and Protection. In prevention, intervention are made for sensitising society, empowering vulnerable groups and targeting contributing factors such as alcoholism, gender discrimination and consumerism. Prosecution is another areas of intervention where strong laws have to be formulated to ensure rigorous punishment for the culprits which will be a deterrent for such criminals. The policy focuses on implementation of laws in the areas of child abuse, commercial sexual exploitation and sex trafficking, which constitute the worst forms of sexual violence in the State. Increased violence against women reveal that women and minor girls are not safe even in their homes and educational institutions. The scheme is being jointly implemented by various Government departments like Social Welfare, SC/ST, Police, Health, Labour, and Local Government in coordination with NGOs.

Source: Department of Women and Child Department, 2018

Gender Budgeting

Strengthening of Gender Budgeting (GB) is essential since policies and programmes have a differential impact on women and men. The Gender Budget Statement is an important tool for bringing together all information regarding allocations for women. It is now considered as an instrument to address gender inequality and reallocate the resources in favour of women. It serves as a reporting mechanism and provides an indication of funds flowing to women. It is a major step in strengthening inclusive growth.

A gender aware Budget was introduced in the State of Kerala at the time of 9th Plan itself with the inclusion of Women Component Plan (WCP) in Local Governments' Annual Plan and by making it mandatory. With the devolution of 35-40 per cent of funds from the State to the Local Governments), the first form of Gender budgeting was seen in the State in 1996 where each Panchayat was directed to prepare a chapter on the status of women in their development Plan document. WCP was introduced during 9th Plan where in 10 per cent of the Plan outlay of the Local Governments had to be set apart for needs of women or women specific projects.

To institutionalise the process of Gender Budgeting, the Gender Budget Statement had been introduced in the Union Budget 2005-06. In Kerala Budget, conscious efforts have been taken to make the Budget gender responsive and gender sensitive. The first gender Budget as a separate document for the State Plan was released in 2017-18 aggregating resources earmarked for girls/women across departments. It can be seen that ₹916.50 crore have been provided for women specific schemes and an amount of ₹1,399.32 crore was available for women in composite schemes. Including both Part A (90-100 per cent women schemes) and Part B (schemes in which women's share is specified or identifiable based on gender disaggregated beneficiary data and is less than the above), a total of ₹2,316 crore flowed to girls/women, which was 11.4 per cent of State Plan outlay of ₹20,273 crore, 4.5 per cent in Part A and 6.9 per cent in Part B (excluding Local Governments).

The thrust areas in the Annual Plan 2018-19 continue to be the economic, social and political empowerment of women with a greater focus on creating an enabling environment for women in the domain of public employment. With this in mind the approach in the Plan is to enhance, every year, allocations for women's wage employment, self-employment and livelihoods, skill development, special facilities at the workplace, child care, working women's hostels, ensuring their security at the workplace and protecting them from violence at home and in the public domain.

It is found that in 2018-19, ₹1,267.28 crore has been provided for women specific schemes and an amount of ₹1,973.05 crore is available for women in composite schemes. Including both Parts A and B a total of ₹ 3,240.33 crore is for girls/women, which is 14.6 per cent of State Plan outlay of ₹22,150 crore, 5.7 per cent in Part A and 8.9 per cent in Part B (excluding Local Governments), a reasonable increase over 2017-18. This includes an amount of ₹4.20 crore allocated for the TG community for providing a Helpline, establishing a cell in the Social Justice Department directorate for organising activities, financial assistance for vocational training/ skill development for self-employment/regular employment, pension for the destitute above 60 years, scholarships, a continuing literacy programme and short stay homes. The major schemes/programmes implemented under various departments using the State Plan fund in 2018-19 are given in Appendix 6.6.

Impact of Flood, 2018

The flood and landslides in Kerala have affected women and children belonging to various social groups differently. Female headed households (FHHs) which have been disproportionally affected by disasters, and have different and uneven levels of resilience and capacities to recover. As per official estimates, 433 lives were lost in the floods and landslides out of which 98 were women. It is estimated that there are 6,77,347 FHHs in the 10 Districts most affected by the floods and landslides. Over 2,03,120 women, 19,432 men and 99,136 children were reported to have been in 3,644 camps across 14 Districts as of August 20, 2018. Only five transgender persons were officially identified as being affected.

A total loss of person-days and wage loss of ₹1,357.90 crore has been estimated in the case of female workers (casual, regular and self-employed workers etc. At least 3,550 women entrepreneurs within Kudumbashree, the State's poverty reduction initiative, were affected. The overall loss of Kudumbashree micro-enterprise units – set up by women using loans received through Kudumbashree – in the State amounts to ₹7.80 crore. Similarly, over 130 enterprises supported by the Society for Assistance to Fisher women (SAF) have been affected, resulting in the need for compensation to the tune of at least ₹1.6 crore. Among SAF beneficiaries, the livelihoods of at least 400 women from the fishing community have been affected. The risk of sexual and gender-based violence is typically elevated in the aftermath of a disaster. Discussions with the District Bhoomika centre counsellors and Women Protection Officers reveal that anecdotal instances of women reporting domestic violence as a result of the frustration of having lost most household belongings are being reported. (The main source of the above note is PDNA Report prepared by UNDP).

Towards a New Awakening

The State's agenda of addressing gender-based inequalities and thereby empowering the marginalised through its programme of development is an on going process. Without doing away with certain blind beliefs regarding women particularly, that menstruation is polluting and impure) and the socially constructed roles for women with the priority accorded to their household and care work, a redressal of gender-based inequalities will continue to be a struggle. It is in this context that Navothana Kerala (Kerala Renaissance) the new, major initiative of the GoK assumes significance for women. It is a massive campaign for creating a gender conscious society.

Box 6.3 Sadhayiryam Munnottu

Sadhayiryam Munnottu is a State wide ongoing project started in the year 2018. It is basically a comprehensive gender awareness program, which has been divided into two sectors. One is the awareness in the Government departments, institutions, public sector and other work places like unorganised and informal sectors. The second sector covers the public and those interacting with the public, men, women, transgenders and other sexual and gender minorities. This awareness campaign has to reach all the areas like Kudumbhasree, ASHA workers, MGNREGA, JPHN, JHN, School mid-day meal workers, ICDS workers etc. including the homemakers. The awareness campaign will be carried out with the help of modules, skits, songs, kalajatha, poster exhibitions, video shows, short film festivals, bringing out small handbooks on women and media, women and law, women and labour, women and society etc. A total of 50 handbooks will be made as a part of the conscientisation programme.

In the education front, gender audit of textbooks will take place. All the schools will have sex-education classes for the high school students with the help of a slide show. Various competitions will be conducted in the schools with the theme "gender" and various aspects on gender. Programs with the help of Transgender Board will be conducted on awareness of both gender as well as transgender people for the police which would sometimes have to be done in police stations.

A major initiative, in the context of *Navothana Keralam* was a programme inaugurated on December 3rd (Human Rights Day) by the Chief Minister in the presence of the Minister for Health, Social Justice and Women and Child Development on the theme "Women, Menstruation and Citizen's Rights". This will be an year-long program which continues even after 2019.

Kerala has been attempting to 'mainstreaming gender' through gender budgeting as an integral part of the planning process, with a much more expansive view on women's lives and roles they play not only in terms of their potential as paid workers but more importantly through their uncounted, unpaid work in social reproduction. It is recognised that the basic inequality of gender roles in society results in women and men occupying different hierarchical social, economic and political positions within the household, workforce and community, which are structured in such a way as to leave women with little power economically, socially and politically. The flip side of this is men's socio-biological drive for mastery, manifested increasingly as violence against women who are also vulnerable in terms of their sex. Given their inherent dependency, women are very often not able to make choices as individuals and what perhaps is in their best interest since they are located within relational and situational contexts which shape their actual choices, rights and entitlements. The State and society have to work for demolishing these hierarchical impediments and expose the obscurantist ideas sought to be relied upon to subordinate women in the society. Kerala, which has a rich tradition of the renaissance movement of the 19th and 20th centuries, has taken up this challenge in right earnest with the State Government leading from the front.

Addressing Socio-Economic Vulnerabilities

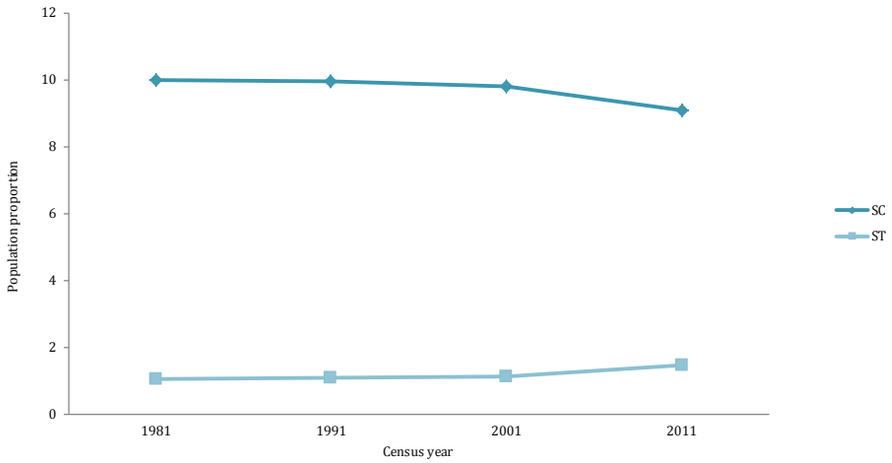
The Indian Constitution ensures justice – social, economic and political – to all citizens and ensures protection for the Scheduled Castes (SCs), Scheduled Tribes (STs) and other weaker sections of society for promoting their educational and economic interests and removing social disabilities. SCs and STs remain the most disadvantaged sections of our society and they still lag behind the rest of the population in terms of both human development and economic indicators despite many schemes to alleviate their backwardness. For the empowerment of the SCs and STs, GoI and GoK have enacted policies and implement various programmes including provision of scholarships for education, financial support and skill building for setting up enterprises, job oriented trainings, reservation in jobs and setting up of special courts and police station for addressing atrocities and violence against them. As per Census 2011 in India, the population of SCs is 16.6 per cent and STs is 8.6 per cent, together forming quarter of the total population. Population of SC and ST as a per cent of total population in India and Kerala is given in Table 6.8.

Table 6.8 Population of Scheduled Caste and Scheduled Tribes in total population in India and Kerala

Year	SC		ST	
	India	Kerala	India	Kerala
1981	15.81	10.01	7.83	1.03
1991	16.48	9.94	8.08	1.1
2001	16.23	9.81	8.15	1.14
2011	16.6	9.1	8.6	1.45

Source: Census 1981,1991,2001,2011

Figure 6.6 Population of SCs and STs to total population in Kerala, in per cent



Source: Census data

As per Census 1981, the SC population was 10.01 per cent of the total population in the State. It fell to 9.10 per cent as per Census 2011. But at all India level, it has increased to 16.60 per cent from 15.81 per cent for the same period. As per Census 2001, SC population in Kerala was 31,23,941 persons comprising 68 communities and it constituted 9.81 per cent of total population. However, over the period of 10 years SC population has declined to 30,39,573 persons (Census 2011) with 53 communities and it constitutes 9.10 per cent of the total population. The proportion of SCs in total population is highest in Palakkad District (13.29 per cent) followed by Thiruvananthapuram (12.27 per cent), Kollam (10.80 per cent), Thrissur (10.67 per cent) and Malappuram (10.14 per cent)Districts. These five Districts together comprise 57.17 per cent of the total SC population in the State. Major problems faced by the SCs are livelihood insecurity and lack of livelihood opportunities, performance challenges in higher education and professional courses, lack of entrepreneurship culture, poor health conditions, lack of proper infrastructure etc. Communities such as Vedar, Nayadi, Kalladi, Arundhathiar/Chakkiliar are identified as the vulnerable communities among SCs. Most of them are concentrated in Palakkad, Malappuram, Kollam and Idukki Districts. Issues faced by these communities are connected with the problem of land, housing, drinking water, electricity, education, job oriented training etc. For addressing the vulnerabilities, State Government implemented various schemes from 1996-97 onwards. Major schemes implemented by the SC Development Department for the rehabilitation of these communities are provision of financial assistance for purchase of land, construction of houses, infrastructure development, integrated development of residential settlement etc.

As per Census 1981, per cent of ST population to total population in the State was 1.03 per cent. But it increased to 1.45 per cent as per Census 2011. As per Census 2001, ST population was 3,64,189 persons, which constituted 1.14 per cent of total population. But it increased considerably to 4,84,839 persons over a period of 10 years resulting in an increase in per cent share of ST population to 1.45 per cent as per Census 2011. The STs in Kerala are not only geographically concentrated, but are overwhelmingly rural. The highest concentration of STs is in Wayanad District (31.24 per cent) followed by Idukki (11.51 per cent), Palakkad (10.10 per cent) and Kasaragod (10.08 per cent).

As per the Report on the Socio-Economic Status of Scheduled Tribes of Kerala (2008) of the Scheduled Tribes Development Department, there are 1,07,965 tribal families residing in 4,762 hamlets in Kerala. About 11 per cent (540) of the tribal habitats are situated within the reserve forests and 20 per cent (948) are in the immediate vicinity of reserve forests.

District-wise Scheduled Caste/Scheduled Tribe population details are given in Appendix 6.7 and 6.8. Compared to the status of SCs at national level, their position is slightly better in Kerala. A comparative picture regarding literacy and sex ratio of SC and ST population in Kerala with national level is furnished in Appendix 6.9. The Work Participation Rate of SCs and STs are given in Appendix 6.10.

Rule 14(a) of the Kerala State and Subordinate Service Rules 1958, provides for 10 per cent reservation (8 per cent for SCs, 2 per cent for STs) in Gazetted, Non-Gazetted and Last Grade categories in Government departments. As per the Annual review on January 01, 2018, the total representation of SCs and STs in public service is 12.11 per cent. Of this, 9.67 per cent are SCs and 2.44 per cent are STs. As on January 01, 2018, reviews of 46 departments has been completed out of the 85 departments. Details of representation of SC/ST employees in Government service is given in Appendix 6.11.

GoI classifies some of its citizens based on their social and economic condition as Other Backward Classes (OBCs), and are statutorily termed as Socially and Educationally Backward Classes (SEBCs). In Kerala, there is a list of OBC as well

as SEBC. There are 83 communities included in the list of OBCs and 93 communities in the list of SEBCs in Kerala. As per Census 2011, the minority population is 44.99 per cent of total population of the State. It consists of 26.56 per cent Muslims, 18.38 per cent Christians and 0.06 per cent others.

Development Programmes for Scheduled Castes and Scheduled Tribes

The State Government earmarks a portion of State outlay annually for the development of SCs and STs as Scheduled Caste Sub Plan (SCSP) fund and Tribal Sub Plan (TSP) fund. These resources are not less than the funds equivalent to the share of the SC and ST population respectively as per latest Census figures. Out of the total SCSP/TSP Plan outlay, a certain per cent of funds are allocated to Local Governments for implementation of schemes under decentralised planning and the remaining to the SC/ST Development departments. The total Plan provision set apart for the development of SCs and STs in 2017-18 was ₹2,599.65 crore and ₹751.08 crore respectively. In 2018-19, ₹2,859.62 crore was allotted to SC department and ₹826.19 crore to ST department. Year-wise details of allocation from 2014-15 to 2018-19 to SC and ST Development departments are given in Appendix 6.12 and in Figure 6.7.

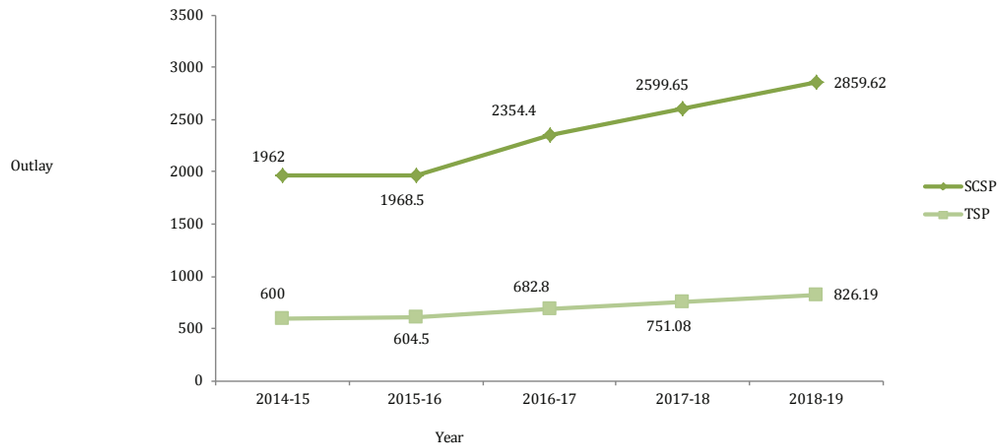
Programmes of Scheduled Caste Development Department

For the development of SCs, Plan funds are allocated to the SC development department and the Local Governments. The department implements Centrally Sponsored Schemes also. Programmes related to training, research etc. are undertaken by various institutions under the department. Major institutions, managed by the department for the welfare of scheduled castes are given in Box 6.4. Figures 6.8 and 6.9 illustrate housing programmes and treatment grants disbursed by the SC Department respectively.

Major Schemes of SC Development Department

SC Development Department undertakes programmes including education, economic development and social welfare, cultural programmes and services. In 2017-18, an amount of ₹1,274.69 crore was expended out of the budgeted outlay of ₹1,427.60 crore (89 per cent). In 2018-19, out of ₹1,570.36 crore, ₹442.84 crore was expended (as on August 31, 2018). Scheme-wise outlay and expenditure of welfare of SCs for

Figure 6.7 SCSP/TSP, year-wise outlay, in ₹ crore



Source: Budget Documents GoK

Box 6.4 Major institutions under Scheduled Caste Development Department

Sl. No.	Name of Institution	No.	Available Facilities/concessions
1	Nursery Schools	85	Admission for 30 students only. Daily feeding charge– ₹30, uniform charge–₹600, Lump sum grant –₹190.
2	Model Residential schools (including Ayyankali Memorial Government Model Residential Sports School)	10	Admission is given for students from 5th standard onwards. Parent's annual income should be less than ₹1.00 lakh. Food allowance is given at the rate of ₹2,500 per month for student's upto 10th standard, ₹2,875 for +2 students, ₹200 per day for sports MRS students. Monthly pocket money of ₹119 up to 10th standard, ₹150 for +2 students. Uniform allowance of ₹3,750 and travelling allowance for home visit during holidays are also provided.
3	Pre-matric hostels for girls and boys	87	Admission from 5th standard. Two sets of uniform, food, chappal, bag, monthly pocket money of ₹130, travelling allowance for home visit during holidays are provided. Food allowance is ₹2,000 per month.
4	Post-matric hostels for girls and boys (10 for boys and 7 for girls).	17	Pocket money of ₹190, travelling allowance for home visit during holidays is provided. Food allowance of ₹2,300 per month is also provided.
5	Pre-Examination Training Centres	4	Training with stipend in medical/engineering entrance, job oriented courses and other competitive examinations
6	Institute of Civil service Examination Training Society (ICSET)	1	Admission for those who are selected in the State level entrance examination, one year training is given for participating in All India level competitions. Accommodation facilities and library facilities are also provided.
7	Industrial Training Institutes	44	Fees concession, uniform allowance ₹900, lump sum grant (₹820 for 1st year and ₹630 for 2nd year) and monthly stipend of ₹630 are provided. Tuition provided to the candidates who have failed in All India level trade test.
8	Centre for Research and Education for Social Transformation (CREST) Kozhikode (an Autonomous Institution)	1	Provide three weeks orientation course to enable students to actively involve in curricular and co-curricular activities in the Engineering Colleges and to improve their learning and communication skills. The candidates will be provided mentoring support from CREST throughout the four year B.Tech Degree course. The expenses of the students towards travel, food and accommodation will be met by CREST.
9	Medical College, Palakkad	1	Admission for MBBS course for 70 SC students, 19 treatment units, 500 beds.
10	Para Medical Institutes	2	Health Inspector Course for 57 (40 SC,9 ST, 8 General) students in Kuzhalmannam, Palakkad and Diploma in Medical Laboratory Training Course in Pilathara, Kannur, 2 batches with 27 students. Lump sum grand ₹850, actual boarding and lodging charge₹3,500, pocket money ₹190 per month provided.
11	Model Residential Polytechnic, Palakkad	1	Admission is given for 30 students.
12	Community College–Vadakkanchery	1	Training is given for 20 students in a modern high-tech course, Certificate Programme in principal machinist including one year institutional training and one year industrial training. Stipend ₹1,500 for hostellers and ₹500 for day scholars, lump sum grant ₹630. Study tour allowance ₹2500 per student provided.
13	Cybersri	1	Special Support and Mentoring Programme for 60 students,₹1,000 monthly stipend provided.

Source: SC Development Department

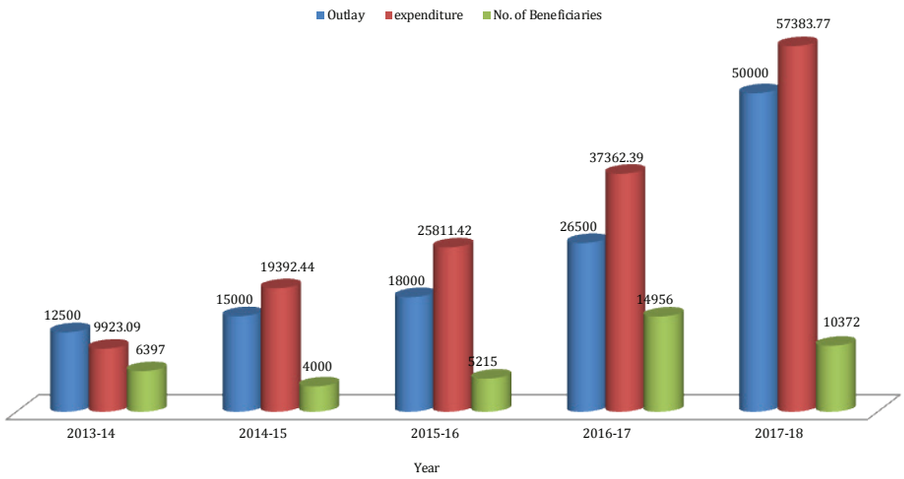
Box 6.5 Major schemes of SC development

Name of Scheme	Objectives	Achievements
Educational Schemes	Provides educational assistance to • Pre-matric and Post-matric studies • Running of Model Residential Schools • Functioning of ITIs	In 2017-18,₹230.11 crore was expended for various educational schemes. Primary education aid was distributed to 1,37,414 students, pre-secondary education aid to 1,53,016 students, Post matric scholarship to 1,73,453 students and pre-matric lumsum grant to 3,75,116 students during the year. In 2018-19, 41,866 students received Post-matric scholarship and 2,36,003 students received pre-matric lumsum grant. ₹405.49 crore was allotted for the scheme in 2018-19 and ₹89.53 crore was expended (as on August 31, 2018).
Housing Scheme	Financial assistance for • House to houseless • Completion of partially constructed houses • Improvement of dilapidated houses • Construction of Padanamuri	In 2017-18, financial assistance was given to 8895 families for construction of new houses 4,457 families for maintenance and 9,957 families for completion of spillover works under this scheme. In 2018-19, sanction was given for the construction of 15,006 houses. Of this, construction of 3,759 houses are progressing (as on August 31, 2018). (Appendix 6.15)
Land to Landless	Purchase of land to the poor and eligible landless SC families for house construction	In 2017-18, an amount of ₹179.28 crore was expended (99.6 per cent) for the scheme benefitting 4,600 persons. An amount of ₹225.00 crore was earmarked for the scheme in 2018-19. The expenditure is ₹54.81 crore benefiting 1,153 persons (as on August 31, 2018) (Appendix 6.16).
Development programmes for the vulnerable communities among Scheduled Castes	Rehabilitation of landless and homeless SCs belonging to vulnerable communities by providing assistance for purchase of five cents of land and assistance for house construction. • Providing infrastructure, connectivity, communication facilities, education, treatment, drinking water, electricity, road etc.	In 2017-18, an amount of ₹16.88 crore (99.29 per cent) was expended for the scheme out of the budgeted amount of ₹17.00 crore. Financial assistance was given for the construction of 324 new houses, 197 spill over houses, 148 house maintenance and 93 families for land purchase. In 2018-19, ₹50.00 crore was allotted for the scheme and ₹4.40 crore was expended (as on August 31, 2018)
Health Care Scheme	• Financial assistance for treatment to deserving individual cases based on proper medical certificate • Recurring expenditure of Homoeo Dispensaries financed by Scheduled Caste Department. • Special mental health programme and Setting up of Old age houses and of Geriatric care • Medical camps and De-addiction programmes in SC colonies/ habitats with the help of Kudumbasree Mission and Health Department.	In 2017-18, ₹36.60 crore was distributed as treatment grant to 24,423 patients and 243 medical camps were conducted. In 2018-19, ₹50.00 crore was allotted under this scheme and ₹18.49 crore expended (as on August 31, 2018)

Name of Scheme	Objectives	Achievements
Assistance for marriage of SC girls	Financial assistance to daughters of SC parents to reduce the burden of marriage expenses@ ₹75,000	In 2017-18, 8,921 families availed marriage assistance and ₹59.46 crore was expended. In 2018-19, 22.71crore was expended and 3,424 families benefited from the scheme (as on August 31, 2018).
Self-Employment scheme	Financial assistance for promoting new ventures by the Scheduled Caste	In 2017-18, ₹2.99 crore expenditure was incurred benefiting 406 persons. In 2018-19, 100 per cent expenditure was incurred and 126 persons benefited from the scheme (as on August 31, 2018) (Appendix 6.17)

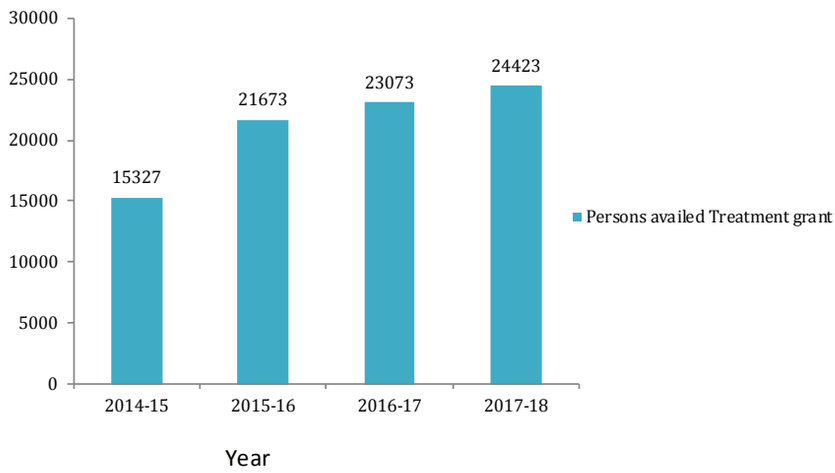
Source: SC Development Department, GoK

Figure 6.8 Housing programmes undertaken by SC Department 2013-18, in ₹lakh



Source: SC Development Department, GoK

Figure 6.9 Persons who received treatment grant from SC Department 2014-15 to 2017-18



Source: SC Development Department, GoK

Box 6.6 Major achievements of SC Development Department in 2017-18

- Given assistance to 2,357 students for purchase of laptop and 377 MBBS students for purchase of Stethoscope.
- 600 students availed B.Tech remedial coaching.
- Given assistance to 9 students for foreign studies and 1388 students' for studying in other States.
- 632 students received medical/engineering entrance coaching.
- 406 persons availed Self employment subsidy.
- 1,444 job seekers obtained employment training
- 446 beneficiaries availed assistance for seeking foreign employment
- 48,039 students in 9th and 10th class availed pre-matric scholarship from Central Government
- Development activities of 50 villages undertaken under the 'Self sufficient Village Development scheme' completed
- 1,048 children of those who engaged in unclean occupation received Pre-matric scholarship from centre.
- 4,403 students availed Ayyankali scholarship.
- Given inter caste marriage assistance to 2,134 couples.
- Constructed 6,615 padanamuri's under the housing scheme.
- 1,919 students benefited from Book Bank scheme
- 4,600 persons availed land for house construction under land to landless scheme.
- Achieved 100 per cent expenditure in schemes such as housing, Corpus fund, financial assistance for marriage, Implementation of Protection of Civil Rights (PCR Act) and Prevention of Atrocities Act and Valsalyanidhi.

Source: SC Development Department, GoK

the years 2017-18 and 2018-19 (as on August 31, 2018) and the physical targets/achievements are given in Appendices 6.13 and 6.14 respectively. Details of major schemes implemented by the SC Development department is given in Box 6.5.

Corpus Fund for Critical Gap Filling

SC Development department earmarks a portion of outlay as Corpus fund in the Budget annually for filling critical gaps identified in the SC Sub Plan schemes. Corpus fund is intended to provide funds for filling any critical gap in the SCSP provision made under various schemes on project basis with emphasis on human resource development, basic needs and economic development.

In 1996-97, a portion of SCP outlay was earmarked for the scheme viz., 'Intensive Habitat Development Programme' meant for filling the critical gap of departments for completing the schemes. But the scheme did not work effectively as intended due to the absence of a project based approach and lack of reallocation of resources to the required areas. For rectifying this, a project based approach was adopted for the implementation of schemes and funded by Corpus Fund. From the year 2002-03 onwards, a portion of SCP outlay was earmarked as Corpus fund under SCSP. From the Corpus fund, two-third of amount was allocated to Districts based on SC population. From 12th Five-Year Plan onwards, one-third of the Corpus fund was allocated to Districts. Administrative sanction for schemes up to ₹25.00 lakh can be accorded at the Districts by District Level Committee for SC/ST headed by President, District Panchayat.

In 2017-18, schemes such as Gandhi gramam, allocation of 1/3rd fund to Districts, self sufficient village scheme, treatment grant, recurring expenditure of vinjanvadi etc. were undertaken and expenditure exceeded 100 per cent in these schemes. In 2018-19, ₹100.00 crore was allotted for the scheme. Outlay and expenditure under the scheme from 2013-14 to 2018-19 is given in Appendix 6.18.

Pooled Fund

Pooled fund is intended to implement special projects for the benefit of SCs by any Government departments/institutions/agencies/NGOs. The departments and agencies furnish projects to State Planning Board for scrutiny. After vetting by State Planning Board, the proposals are forwarded to Scheduled Caste Development Department and then place before State Level/ Special Working Group for approval. In 2017-18, assistance was given for homoeo health centres, animal husbandry and dairy units under this scheme. The scheme recorded 97.74 per cent of expenditure. Outlay and expenditure under the scheme from 2013-14 to 2018-19 are given Appendix 6.19.

Special Central Assistance to Scheduled Caste Sub Plan (SCA to SCSP)

The SCA to SCSP is provided by GoI to States for undertaking mainly economic development programmes for SCs. It is not on a schematic pattern. It helps to fill the gaps which is not met from the Central, State and Local Government Plans. Out of the total funds received under SCA to SCSP, 75 per cent of the fund is distributed to the District Collectors on the basis of SC population in the Districts. The balance 25 per cent is kept with the Director, SC Development department. Activities that can be taken up under SCA to SCSP are assistance to SC families for taking up viable income generating activities, through a mix of institutional finance and subsidy. The outlay and expenditure details of SCA to SCSP from 2013-14 to 2018-19 (as on August 31, 2018) are given in Appendix 6.20.

Programmes of Scheduled Tribes Development Department

The concept of TSP was introduced for the development of ST population during the 5th Five-Year Plan (1974-75). The objective of the TSP was to give a special care to STs through a sub Plan approach. Since 1983-84, the

Box 6.7 Valsalyanidhi scheme

The objective of the scheme is to start insurance linked social security scheme for the SC Girl Child so as to ensure proper education, improve capabilities and social status of girl child. The scheme ensures holistic development of the child from the birth, including birth registration, complete immunisation and school admission and education up to 10th standard. Lumpsum paymentis made at the age of 18. SC Development department deposits ₹1,38,000 in four instalments for the SC girl child, whose parent's annual family income does not exceed ₹1.00 lakh. At the age of 18, she will get an amount of ₹3.00 lakh. Besides this, the family will get insurance benefits on accident and death. Educational assistance (₹1,200 yearly) is also ensured to the beneficiary's brother or sister studying from 9th to 12th standard. Under the scheme ₹9.96 crore was deposited for 2,555 girls as first instalment in LIC in 2017-18 and the scheme benefited 2,538 girls in 2018-19 (as on August 31, 2018)

Source: SC Development Department, GoK

Box 6.8 Flood disaster-2018, physical loss and damages of Scheduled Caste communities

- Flood Affected SC families – 89,158
- Death – 44
- Injuries – 65
- Collapsed houses – 2,632
- Partially collapsed houses – 11,223
- Loss of Agriculture – 527.58 (acres)
- Damaged Wells – 6,800
- Road/Foot path – 487.78 K.M
- Public well – 405
- Drinking Water supply scheme – 107
- Burial ground – 26
- Community hall – 2
- Completely damaged Padanamuri – 21
- Partially damaged Padanamuri – 305

Source: SC Development Department, GoK

strategy has undergone changes and it has been decentralised to the District level. After the 73rd and 74th constitutional Amendments, the local Governments have been entrusted with specified responsibilities relating to development and welfare of STs.

The Tribal Development Block of Attappady was the first Integrated Tribal Development Project (ITDP) in Kerala (1976). Later six more ITDPs were formed with specific jurisdiction for the betterment of tribal population. The development of STs outside the ITDPs is now covered by ten Tribal Development Offices (TDOs).

Due to the typical settlement pattern, cultural practices and traditional identities, the ST population are consolidated in clusters and are concentrated in interior forest and adjoining areas. Considering this, the strategy of TSP was to protect tribal people and thereby attain tribal development. The State Government allocates Plan funds almost two times proportion of the ST population (1.45 per cent) in the State. The TSP provision in the Budget is for the exclusive development of STs in the State. During 2017-18 and 2018-19, about 2.83 per cent of the State Plan outlay was provided under TSP.

The major source of funds for ST developments are (i) State Plan allocation, (ii) Funds under TSP components of CSS (iii) Special Central Assistance to Tribal Sub Plan (SCA to TSP), Grant under Article 275 (1) of the Constitution, other allocation for schemes implemented by Ministry of Tribal Affairs and (iv) Institutional finance.

The expenditure of the ST Development department in 2017-18 was ₹477.19 crore (82.98 per cent) as against the allocation of ₹575.08 crore. The total State Plan provision set apart for the development of ST in 2018-19 was ₹826.19 crore. Out of this, an amount of ₹632.59 crore (76.57 per cent) was earmarked to the ST Development Department and an amount of ₹193.60 crore (23.43 per cent) was provided as grant-in-aid to Local Governments. Under 50 per cent and 100 per cent CSS, the anticipated Central share was ₹15.75 crore and ₹122.16 crore respectively. In addition to this, ₹10.00 crore was anticipated as SCA to TSP. Details of financial achievements are given in Appendix 6.21 and physical achievements of schemes implemented by the department during 2017-18 and 2018-19 (as on August 31, 2018) are given in Appendix 6.22.

Performance of Scheduled Tribes Development Department

The major schemes implemented by ST Development department can be broadly classified as educational programmes, housing, health, socio economic upliftment and legal protection measures. The objectives and achievements of major schemes implemented during 2017-18 and 2018-19 (up to August 31, 2018) are given in Box 6.9 and Figure 6.10.

Corpus Fund

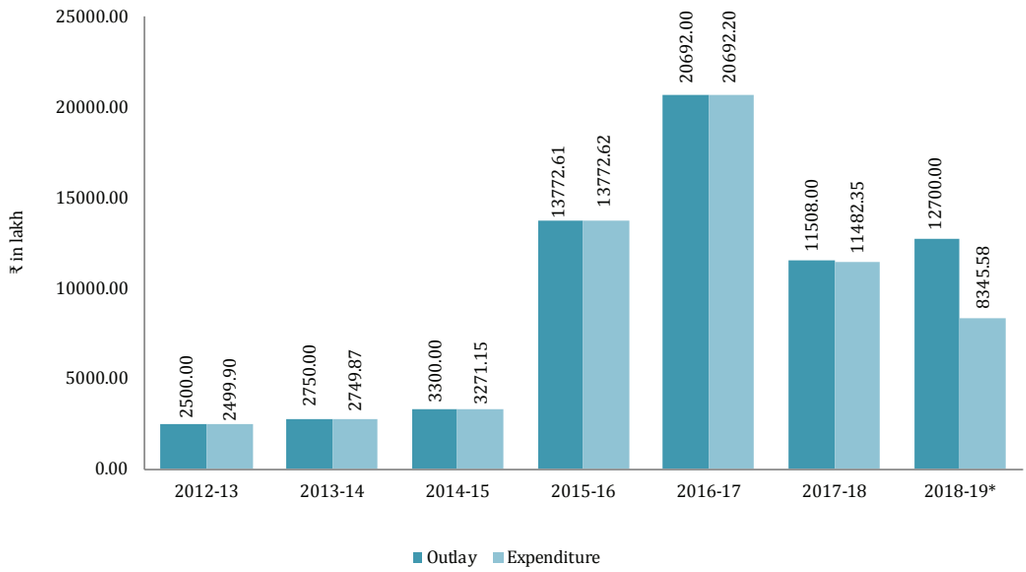
An amount of ₹5,079.00 lakh was provided in 2017-18 for undertaking various development activities under the scheme and the amount expended during the period was ₹5,022.23 lakh (98.88 per cent). The components of the corpus fund include self-employment, skill development, water supply and sanitation, communication facilities, foot bridges, technology transfer, improvement of education, health care etc. Statement showing the outlay and expenditure

Box 6.9 Major schemes of ST Development Department

Name of Schemes	Objectives	Achievements
Educational Programmes	Provide educational assistance to • Pre-matric studies • Post-matric studies • Running of Model Residential Schools	In 2017-18, an amount of ₹3.48 crore has been expended benefitting 14,265 students under pre-matric assistance and an amount of ₹29.05 crore has been expended benefitting 16,111 students under post-matric assistance. In 2018-19 (up to August 31, 2018) an amount of ₹5.00 crore has been expended benefitting 16261 students under post-matric assistance. For the education sector as a whole, in 2017-18, Scheduled Tribes Development Department was provided an amount of ₹170.90 crore and the expenditure was ₹143.33 crore. In 2018-19 (up to August 31, 2018) an amount of ₹34.75 crore has been expended out of the total provision of ₹196.06 crore. (Appendix 6.23, 6.24, 6.25 and 6.26).
Housing Scheme	Financial assistance for construction of new houses for houseless ST families	In 2017-18, an amount of ₹115.08 crore was provided for the general housing scheme and ₹114.82 crore (99.77 per cent) was expended. In 2018-19, under general housing an amount of ₹127.00 crore was provided and expenditure is ₹83.46 crore (65.72 per cent) (as on August 31, 2018) (Figure 6.10, Appendix 6.27 and 6.28).
Health Scheme	Illness assistance for treatment of diseases such as TB, Leprosy, Scabies, Sickle Cell Anaemia, Waterborne Diseases, etc.	In 2017-18, an amount of ₹36.75 crore was provided for health care activities under the Plan and the expenditure incurred was ₹39.58 crore (107.70 per cent). In 2018-19 an amount of ₹42.81 crore was provided to health schemes and ₹19.17 crore (44.78 per cent) has been expended as on August 31,2018 (Appendix 6.29).
Resettlement of Landless Tribes	To provide at least one acres of land per family to landless ST people subject to ceiling of 5 acres based on a master Plan.	As on August 31, 2018, 811 families have been distributed 350.78 acres of land. District-wise details of land distribution are shown in Appendix 6.30.

Source: Scheduled Tribes Development Department

Figure 6.10 Outlay and expenditure on housing programmes undertaken by ST Development Department from 2012-13 to 2018-19*



* Upto August 31, 2018
Source: Scheduled Tribes Development Department, PlanSpace

Box 6.10 Institutions under Scheduled Tribes Development Department

Educational Institutions	Health Institutions
20 Model Residential Schools	1 Ayurveda Hospital
22 Single Teacher Schools	17 Ayurveda Dispensaries
13 Nursery Schools	5 Out Patient Clinics
10Kindergarten	16 Mobile Medical Units
3Balavadies	4 Mid Wifery Centers
1Vikasvadies	
3BalavinjanKendrams	
7 Peripatetic Education Centers for Particularly Vulnerable Tribal Groups	
106 Pre-matric Hostels	
9 Post-matric Hostels	
12 Training Centers	
2 Vocational Training Centers	
1 Industrial Training Institute	

Source: Scheduled Tribes Development Department, GoK

Box 6.11 Particularly Vulnerable Tribal Groups (PVTGs), Tribal Survey 2008

There are five Particularly Vulnerable Groups among Scheduled Tribes in the State viz., Kattunayakan, Kurumbas, Kadar, Koragas and Cholanaickan. According to the Tribal Survey 2008, the PVTG population is 26,273 and there are 6,771 households in 603 settlements.

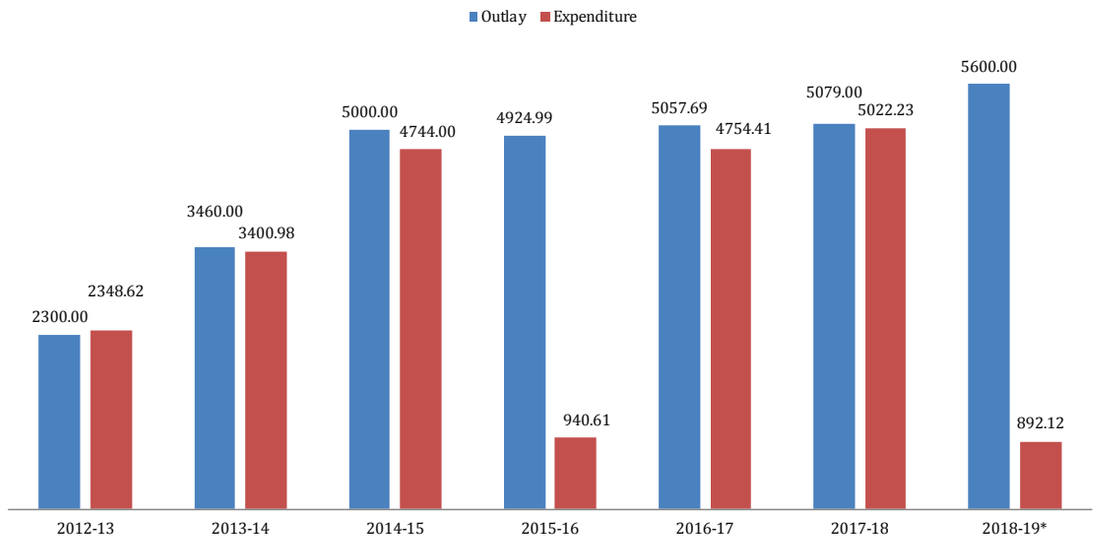
PVTGs constitute 6.17 per cent of the total scheduled tribe population in the State. Among them, the Kattunayakans (76.10 per cent) are concentrated mainly in the Districts of Wayanad, Kozhikode, Malappuram, Palakkad and Idukki. The Cholanaikan community is located in Malappuram District and has the lowest Scheduled Tribe population (1.56 per cent).

Details of PVTG's and their Districts

Sl. No.	Name of PVTG	District	Total Population
1	Kattunayakan	Wayanad, Kozhikode, Malappuram, Palakkad, Idukki	19,995
2	Kurumbas	Palakkad	2,251
3	Kadar	Thrissur, Palakkad, Kozhikode	1,974
4	Koraga	Kasaragod	1,644
5	Cholanaickan	Malappuram	409
Total			26,273

Source: Scheduled Tribes Development Department, GoK

Figure 6.11 Allocation and expenditure under corpus fund, 2012-13 to 2018-19, ₹ in crore



* Upto August 31, 2018
Source: Scheduled Tribes Development Department, PlanSpace

Box 6.12 Flood-2018

The heavy rainfall witnessed in August, 2018 significantly affected the State with widespread flooding of low lying tribal areas. In eleven Districts, altogether 578 settlements were directly hit by the flood, affecting over 10,743 tribal people with 7,664 people requiring shelter assistance at 308 evacuation centres opened throughout the State. Water and electricity supplies have been disrupted and critical infrastructure, especially roads, bridges, soil and crop protection measures have suffered extensive damage. Nineteen settlements in Kottayam, Idukki, Palakkad, Wayanad, Malappuram have been totally devastated affecting 332 families and 8 settlements partially damaged affecting 105 families Preliminary reports shows that 519 houses were damaged totally and 1,334 houses damaged partially.

Source: Scheduled Tribes Development Department, GoK

under corpus fund from 2012-13 to 2018-19 (up to August 31, 2018) is given in Appendix 6.31, Figure 6.11 and District-wise details in 2018-19 are given in Appendix 6.32.

Future Potential

There is a great potential for the development of agriculture and related activities among the Scheduled Tribes in the State. There are substantial tracts of agricultural land that are under the direct control of either people of the Scheduled Tribes or the Scheduled Tribes Development Department. At present, the extent of farm land distributed to individual beneficiaries by the Tribal Resettlement and Development Mission (TRDM) and the extent of land retained as farms by the Scheduled Tribes Development Department is more than 15,000 acres.

These tracts have abundant natural resources and vast potential for the development of agriculture and allied activities. There is immense scope for creating new income opportunities on sustainable basis if modern methods of agriculture and allied activities (for example, animal resources and inland fisheries, supported by minor irrigation) are introduced. Options of alternative menus for raising incomes, taking into consideration the specific agro-ecological conditions of the area, can be developed.

Special Central Assistance to Tribal Sub Plan (SCA to TSP)

The SCA to TSP released by GoI in an addition to State Plan funds and is meant for undertaking programmes of education, health and employment cum income generation activities beneficial to Scheduled Tribes families. The outlay and expenditure under SCA to TSP during 2009-10 to 2018-19 (up to August 31, 2018) is shown in Appendix 6.33.

Kerala Institute for Research Training and Development Studies for SC/ST (KIRTADS)

The institute was established in 1970 as Tribal Research and Training Centre (TR&TC). It subsequently got recognised as the KIRTADS. The Institute conducts research and intensive study on SC and ST population of the State. Anthropological investigation on doubtful community cases as requested by ST Development, SC development department, Revenue Divisional Officers, Tahsildars and District Collectors has also been undertaken by the wing. Details are given in Appendix 6.34.

The training wing of KIRTADS co-ordinates and conducts a large number of programmes to promote Tribal Development. This wing also conducts many orientation programmes,

capacity building programmes, empowerment programmes and educational programmes. The institute also undertakes Adikalagramam programme which include traditional dance and music of the SC and ST communities of the State. The scheme-wise outlay and expenditure of KIRTADS are given in Appendix 6.35.

Protection of Civil Rights and Enforcement of Prevention of Atrocities Act

The SC and ST (Prevention of Atrocities) Act, 1989 was enacted to prevent offences against the members of the SCs and STs. The Act prescribes punishment for the enforcement of any disability arising from the preaching and practice of 'Untouchability' and prevents atrocities against members of SCs and STs. Special Court, one SC Protection Cell and Special Police Stationshave been formed for the trial of offences and provision of relief and rehabilitation of the victims of atrocities.

For offences against SCs, 397 victims were registered under this scheme and an amount of ₹511.99 lakh was disbursed as compensation in 2017-18 Appendix 6.36. The number of victims reported in 2017-18 was highest in Thiruvananthapuram District (74).

There is an increase of 13.4 per cent in the incidence of crime committed against SCs in Kerala over a period of four years. The number of victims reported in 2013-14 was 350. It has increased to 397 in 2017-18. In 2018-19, 321 victims have been registered and ₹391.32 lakh distributed as compensation grant as on August 31, 2018.

For offences against STs, the number of victims were reported was highest in 2014-15. But it has declined to 35 in 2017-18. Details of harassment/ atrocities against SCs and STs in Kerala are given in Appendix 6.36, Figures 6.12 and 6.13.

Kerala State Development Corporation for SCs and STs

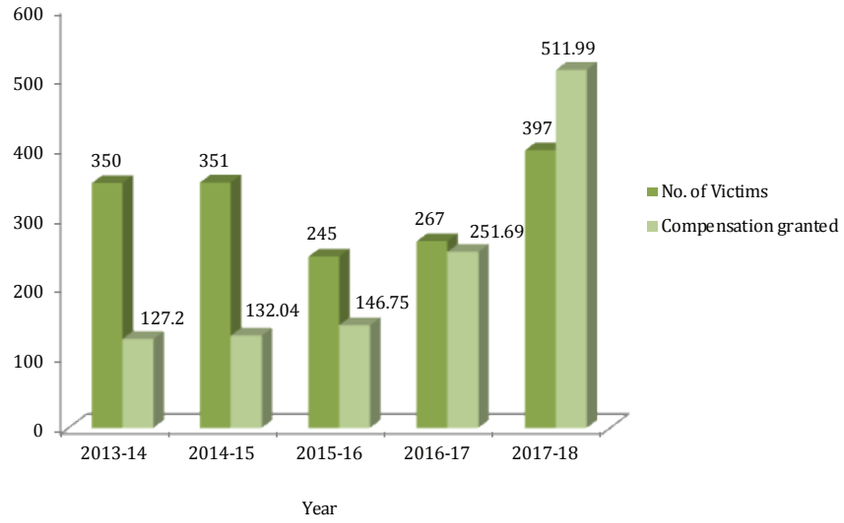
The Kerala State Development Corporation for SCs and STs Limited was incorporated in the year 1972 as a company under the Companies Act, 1956. The corporation implement various income generating and other welfare programmes designed to suit the needs and aspirations of entrepreneurs from SC/ST communities. Schemes being implemented by the Corporation can be broadly grouped as (i) Sole Lending Scheme (ii) Schemes implemented in association with the National Scheduled Caste Finance and Development Corporation (NSFDC) and (iii) Schemes implemented by National Scheduled Tribes Finance and Development Corporation (NSTFDC). In 2017-18, Corporation assisted 4,824 beneficiaries and disbursed an amount of ₹6,249.68 lakh. In 2018-19, assistance has been given to 2,232 beneficiaries as on August 31, 2018. The scheme-wise details of physical and financial achievements of the Corporation are given in Appendix 6.37.

Welfare of Other Backward Classes

As per 'Article 340' of the Indian Constitution and on the recommendation of the Mandal Commission Report, State Government started a separate department named Backward Communities Development department in November 2011 to look after the welfare of socially and economically backward communities of the society. To bring socially and economically backward communities to the main stream of society, department implements various schemes, including educational schemes for OBC as well as OEC students.

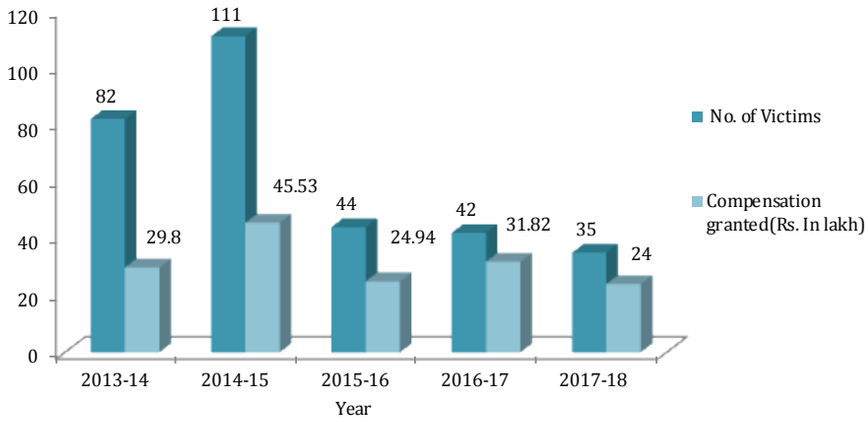
OBC educational schemes include post-matric scholarship and pre-matric scholarship. In 2017-18, a total of 1,55,257 OBC students benefited from post-matric scholarship and 3,42,467 students received pre-matric scholarship. Through OEC educational assistance scheme 2,47,580 students benefited from post-matric

Figure 6.12 Number of victims registered under Atrocities Act and compensation granted to SCs 2013-14-2017-18, in ₹ lakh



Source: SC Development Department, GoK

Figure 6.13 Number of victims registered under Atrocities Act and compensation granted to STs 2013-14 to 2017-18, in ₹ lakh



Source: SC Development Department, GoK

Box 6.13 The Scheduled Castes and the Scheduled Tribes Prevention of Atrocities Amendment Act, 2018

The Scheduled Castes and the Scheduled Tribes (Prevention of Atrocities) Amendment Bill, 2018 was introduced in the Lok Sabha on August 3, 2018 and subsequently passed both by the Lok Sabha and the Rajya Sabha. The Act stipulates that the investigating officer will not require the approval of any authority for the arrest of an accused and preliminary enquiry will not be required for the registration of a First Information Report against a person accused under the Act. The Act states that persons accused of committing an offence under the Act cannot apply for anticipatory bail.

Source: Ministry of Social Justice and Programme Implementation Reports

assistance and 2,26,075 students received pre-matric assistance. Other social welfare schemes include employability enhancement programme, overseas scholarship scheme, career in automobile industry, assistance to traditional occupations and construction of hostel. For protecting the traditional occupations, a scheme named 'Renovation of traditional Barbershop' started from 2016-17 onwards for bringing traditional barbers in the modern scenario. In 2017-18, 1,052 persons benefited from the scheme 'Renovation of traditional Barbershop'. Through the scheme 'Skill Development Training and Toolkit Grant for traditional Craftsmen' 3,100 persons got training and toolkit.

In 2017-18, OBC department expended ₹207.95 crore (128.20 per cent) against the Budget provision of ₹162.20 crore. A total amount of ₹114.20 crore was earmarked by the State Government for the backward classes' development in 2018-19. Of this, ₹28.20 crore is State share for CSS. An amount of ₹50.00 crore is anticipated as 100 per cent CSS in 2018-19. The expenditure incurred as on August 31, 2018 ₹50.67 crore (44.37 per cent). Scheme-wise outlay, expenditure and the physical achievements of the department in 2017-18 and 2018-19 (upto August 31, 2018) are given in Appendix 6.38 and 6.39.

Kerala State Backward Classes Development Corporation (KSBCDC)

KSBCDC acts as a major State level channelising agency of national financial agencies. The Corporation provides financial assistance at lower rate of interest to the members of backward communities living below poverty line. KSBCDC implements various welfare schemes and provides assistance such as marriage assistance, vidhyasree loan, foreign employment loan, suvarnasree loan etc. by utilising State Government assistance and its own fund reserves. The Corporation has disbursed loan worth ₹402.86 crore in 2017-18 benefiting 45,757 individuals, of which 36,933 are women (80.72 per cent). As on August 31, 2018, an amount of ₹148.97 crore was distributed among 10,368 individuals.

The source-wise expenditure and the physical achievements of the Corporation during 2017-18 and 2018-19 (upto August 31) are given in the Appendix. 6.40.

Kerala State Development Corporation for Christian Converts from Scheduled Caste and the Recommended Communities

Kerala State Development Corporation for Christian converts from Scheduled Caste and the Recommended Communities was incorporated in 1980 under the Companies Act 1956. The main objective of the Corporation is to promote the social, educational, cultural and economic upliftment of the converted Christians from SCs and the recommended Communities in a comprehensive manner by ameliorating their living conditions. The source of finance of the Corporation is the share capital assistance/

grant sanctioned by the GoK on annual basis and the loan assistance from National Backward Classes Finance and Development Corporation (NBCFDC). Major schemes implemented by the corporation are agricultural land purchase, foreign employment, housing, cash incentive to students, marriage loan, agriculture and allied sector assistance, small business and educational loan. Details of year-wise disbursement of State Government assisted loan schemes from 2013-14 to 2018-19 (as on August 31) are given in Appendix 6.41. The scheme-wise details of physical and financial achievements of the corporation are given in Appendix 6.42.

Welfare of Minorities

As per Census figures over a period of ten years from 2001 to 2011, proportion of minority population in Kerala has increased from 43.84 per cent to 44.99 per cent. According to National Minority Commission Act 1992, minorities include Muslims, Christians, Buddhists, Sikhs, Jains and Parsis. Among the communities, Muslims are relatively more backward based on the parameters of living standards. For addressing social and economic backwardness of minority communities and the implementation of Justice Rajindar Sachar Committee Report and Paloli Muhammed Kutty committee report, Minority Welfare (MW) Department was formed in the State in 2012. Major schemes implemented by the MW department are educational assistance, housing scheme for divorcees/widows/abandoned women from the minority communities and drinking water supply scheme in minority concentrated areas. In 2018-19 the department has started 4 new schemes. These include APJ Abdul Kalam Scholarship for minority students doing 3 year diploma courses in Government/aided polytechnics, Mother Theresa Scholarship for Nursing Diploma/Paramedical Courses in Government/aided medical institutions, Premarital counselling centre and Minority Research Institute for the welfare of the minorities.

An amount of ₹82.36 crore (83.19 per cent) was expended from the Budget provision of ₹99 crore including central assistance in 2017-18. A total amount ₹90.75 crore was earmarked by the State Government for welfare of Minorities in 2018-19 of which ₹10.00 crore is the State share for CSS. An amount of ₹15.00 crore is anticipated as central assistance in 2018-19 for multi sectoral development programme. Scheme-wise outlay, expenditure and the physical achievements of the department in 2017-18 and 2018-19 (upto August 31) are given in Appendix 6.43 and 6.44.

Kerala State Minorities Development Finance Corporation Limited

The Kerala State Minorities Development Finance Corporation is a fully owned Government Company incorporated on March 22, 2013. The objective of the Corporation is to look into the welfare of minorities communities such as Muslims, Christians, Buddhists, Jains, Parcis and Sikhs. The main schemes implemented by the Corporation are self-employment loan, business development loan, education loan, visa loan, pravasi loan, employee's multi-purpose loan and housing loan for general and madrassa teachers. State Government has so far allotted ₹49.20 crore towards share capital. Corporation received ₹30.60 crore from National Minorities Development Finance Corporation as financial assistance for implementing their various loans and schemes.

An amount of ₹15.00 crore has been provided as share capital contribution to the Corporation in 2018-19. The financial and physical achievements of the Corporation are given in Appendix 6.45.

Welfare of Forward Communities (Samunnathi)

As per Census 2011, Forward Communities constitute around 26 per cent of the total population of Kerala. A substantial number of people among these communities are suffering from severe economic backwardness. Government of Kerala constituted 'Kerala State Welfare Corporation for Forward Communities

Ltd' on November 8, 2012 with the objective of promoting comprehensive development and welfare of economically backward sections among forward communities in Kerala through rendering assistance to their members for improving their educational status, living conditions and over all development.

Major schemes of the Corporation are scholarship, coaching assistance, term loan assistance, skills and entrepreneurship development and renovation of dilapidated agraharas and houses. In 2017-18, an amount of ₹22.27 crore (69.59 per cent) was expended against the Budget provision of ₹32.00 crore. An amount of ₹42.00 crore was earmarked to Corporation in the year 2018-19 for various programmes. The scheme-wise outlay, expenditure and the physical achievements of the corporation during 2017-18 and 2018-19 (up to August 31) are given in Appendix 6.46.

Perspective of the13th Five-Year Plan on SCs and STs

The main thrust area of the SCs and STs Development in the 13th Five-Year Plan are providing land, homesteads and housing, full access to the best educational facilities at all levels, prepare a new generation for modern employment and enabling them to seek employment in Kerala and elsewhere, fill the places reserved for SCs and STs and ensure food security. The planning process is to be worked to protect the rights of the people of the Scheduled Castes and Scheduled Tribes, and to expand their socio-economic achievements in the State. In the 13th Plan, allocations to the SCSP and TSP shall exceed the share of the population of SCs and STs in the State.

The development strategy for OBCs needs to be formulated on the basis of inclusive and sustainable social development of backward classes in the State, keeping in mind the most vulnerable among backward classes. Socio and economic problems of minorities are also to be addressed by providing house to all houseless, quality education, skill development, training and entrepreneurship, employment generating programmes and human resource development. For the welfare of forward communities, the strategy is to address the problems to evolve effective solutions for instituting a number of scholarships and fee reimbursement schemes to those studying from high school level to professional educational level and renovation of agraharas of economically weaker women headed forward families.

Social Security Measures

"Social insurance duly developed may provide income security. It is an attack on want. But want is only one of the five giants on the road of reconstruction and in some ways the easiest to attack. The others are Disease, Ignorance, Squalor and Idleness" (Beveridge, 1942).

Social security to the vulnerable sections of the society is the duty of a State. This assumes more importance in an era when labour markets are becoming less secure, and the scourge of economic inequality is on the rise. The social impacts of the economic policies, which focus on retreat of the State from social sector and welfare measures have become such major challenges that even avowed adherents to the power of the markets are not in a position to oppose State intervention for social security.

There is a growing acceptability to the approach that social security should be in a rights based framework and not a charity from a paternalistic State. Social security is to be considered as a human right. The two aspects of social security are a) "protection" denoting protection against a fall in living standards due to lack of work, ill health, accidents and b) "promotion" focusing on enhanced living conditions, helping people to overcome persistent disabilities because of deprivation.

It is important to ensure comprehensive coverage, identify the need for new interventions if there are critical gaps in coverage, avoid duplications and overlapping in Government for an effective focus for achieving the targets of Sustainable Development Goals (SDGs). GoK has set apart 2.49 per cent and 2.43 per cent of the State Plan outlay in 2017-18 and 2018-19 respectively for activities under social security and welfare.

Kerala has been acclaimed for several achievements in its pioneering efforts in providing social security measures for vulnerable groups like persons with disabilities, aged people or senior citizens, women and children in difficult circumstances. In Kerala, the departments of Social Justice, and Women and Child and its allied agencies are involved in providing social security. The departments and agencies envision a caring and equitable society and their major activities are enumerated in Appendix 6.47.

Categorisation of Social Security Programmes in Kerala

The social security programmes in Kerala can be categorised into two: A. Institutional Care and B. Social Assistance Programmes.

A. Institutional Care

In the State, Government as well as NGOs and other voluntary organisations provide institutional care to the disadvantaged sections of the population. The Social Justice Department (SJD) is the nodal department for the implementation of social security schemes in the State. In 2017-18, in order to give meaningful thrust to the activities aimed at welfare and empowerment of women and children, a separate department of Women and Child Development (WCD) was formed by bifurcating the SJD. This department acts as a nodal agency for matters pertaining to women and children and implements State and central schemes. SJD addresses the needs of people with disabilities, senior citizens and transgenders. There are 29 welfare institutions and 2 vocational training centres under the aegis of SJD for the care, protection and rehabilitation of disabled and senior citizens. Of which, 16 are for senior citizens and 15 for disabled. There are 44 welfare

institutions functioning under the WCD for the care, protection and rehabilitation of children and women. Out of this, 27 institutions are for children and 16 for women. Through institution care and support, SJD and WCD have provided rehabilitation services to more than 2,050 persons in different categories and more than 50,000 persons are benefited every year through the registered institutional support. However, during this period, the number of occupants is less compared to the sanctioned strength of inmates for certain categories of institutions. As against the total sanctioned strength of 91,017 inmates in the registered welfare institutions, the occupants were 50,719 in 2017-18. This is about 56 per cent of the total sanctioned strength of inmates. Among the welfare institutions under the departments, the number of inmates is higher than sanctioned strength in MahilaMandiram, AshaBhavan, Day care centre and Old age home, after care home for adolescents, PratheekshaBhavan and PrathyasaBhavan. In the welfare institutions registered under the departments, the number of inmates is higher than sanctioned strength in Nirbhaya shelter homes but much less in foundling homes (that is homes for abandoned children). However, it is a major concern that the State does not have any care institutions/assisted living homes for children with intellectual disabilities (Autism, Cerebral Palsy, Multiple Disabilities and Mentally Retardation). All these necessitate an integrated policy framework and careful planning for establishing new institutions different from those in the past. The district-wise coverage of beneficiaries in major welfare institutions run by SJD and WCD is given in Appendix 6.48 and that of registered welfare institutions in Appendix 6.49.

B. Social Assistance Programmes

Social assistance programmes aim to reduce poverty and vulnerability among the people having little or no regular means of subsistence. Various social assistance programmes are listed below. Details on welfare of senior citizens are given in Chapter 4 of this Review.

Social Security Pension Schemes through Local Governments

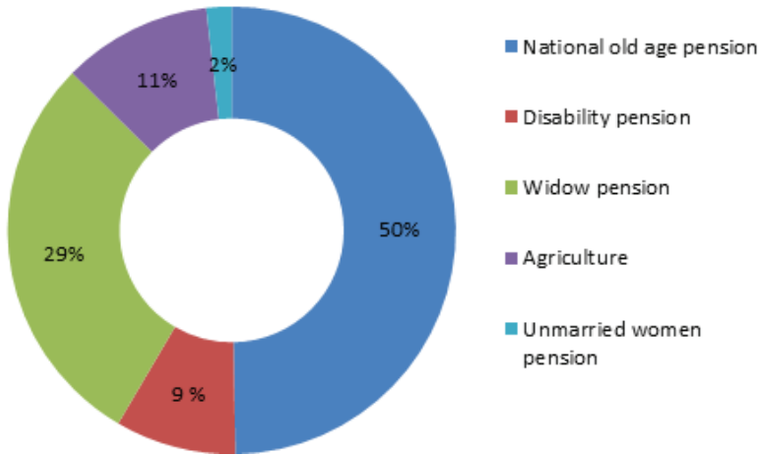
The major pension schemes implemented by the State Government are pension for the aged, pension for persons with disabilities, pension for the widowed, pension for unmarried women above 50 years and pension for agriculture workers. From April 2015, the disbursement of pensions is being done at the State level through the newly introduced Direct Benefit Transfer (DBT) system. As on November 2018, there are 44.20 lakh pensioners in the State. The highest number of pensioners are recipients of old age pension (49.7 per cent) followed by those with widow pension (28.95 per cent) (Figure 6.14).

Among the Districts, Thiruvananthapuram is on top with highest number of beneficiaries and Wayanad has the least number of beneficiaries. The District-wise coverage is given in Appendix 6.50.

Welfare of Persons with Disabilities (PwDs)

Services to persons with disability also form a focus area. As being discussed globally, overcoming disability should no more be viewed merely from the welfare prism but recognised as a human rights and development issue. From being passive beneficiaries of doles, the disabled have to be considered as citizens who can be equal stake holders in development. The State accepts a rights based comprehensive life cycle approach to the services for persons with disabilities which has been given due importance in the 13th Five-Year Plan. This includes prevention initiatives, early screening, early intervention through District Early Intervention Centres (DEICs) and other health and social sector institutions, education support through special anganwadis, Buds Schools, Model Child Rehabilitation Centres, Special Schools, inclusive education and vocational training, Community based rehabilitation and assisted living projects among others. While schools admit students with disabilities, appropriate mechanisms have to be

Figure 6.14 Beneficiaries of pension schemes in Kerala through Local Governments up to November 2018, in per cent



Source: Information Kerala Mission, Sevana Pension 236

put in place to make them inclusive. Teachers, in general, need to be sensitised to the needs of such students. Special education training needs to be more practice based like nursing training attached to hospitals. Special attention should be given to cognitive disability. Diversity in cognitive disability should be emphasised. Individual care Plan formulation and follow up shall be another major initiative. This requires convergence of services, resources and institutions.

In Kerala, a State wide Census of PwDs was undertaken by the Kerala Social Security Mission in 2015, the first of its kind in India, covering 22 types of disabilities. As per the survey, 7.94 lakh people equivalent to 2.32 per cent of the total population of the State are disabled, of whom, females constitute 44.57 per cent, SC 10.93 per cent and ST 2.15 per cent. The highest number of disabled persons is in Malappuram District (12.15 per cent) followed by Kozhikode (9.89 per cent) and the lowest in Wayanad District (2.91 per cent). Regarding type of disabilities, locomotor disability stands at the top with 32.89 per cent and multiple disabilities is second (17.31per cent).

State Policy for Persons with Disabilities

GoK enacted a policy for PwDs in the year 2015 recognising the necessity and inevitability of including disability dimensions in the development agenda, programmes and action Plans of the State. Participation of PwDs in the developmental process, viewing disability as a human rights issue, protection from abuse and creating a positive environment and attitude for inclusive development and empowerment of PwDs are the key strategic focal dimensions of the policy. From being passive beneficiaries, the disabled have to be considered as equal stakeholders and contributors to development.

Institutions for Empowering Persons with Disabilities

National Institute of Speech and Hearing (NISH)

NISH is a premier institute in the area of disability for Disability Studies and Rehabilitation Sciences to provide an excellent environment for pursuit of higher studies for people with disabilities. The programmes of the NISH

include early intervention programme and extension services, hearing and speech language disorders programme, medical, psychology and allied services, academic programmes, training and industry placement and volunteering and Internship opportunity etc. From April 2017 to March 2018, NISH has attended to 194 students under early intervention programmes, 17,253 cases seen/sessions given under hearing and speech language disorders programme and 12,526 cases under medical, psychology and allied services. The academic programmes conducted by NISH benefited 239 students. The training and industry placement benefited 26 persons and the volunteering and internship opportunity benefited 4 persons.

Kerala State Handicapped Persons Welfare Corporation

The Corporation provides economic empowerment and rehabilitation to persons with disabilities. In 2017-18, the Corporation supplied equipments like tricycle, wheel chair, hearing aid, etc. to 5,559 differently abled persons and issued motorised scooter subsidy of ₹10,000 to 9 such persons. Also, the Corporation distributed loans to 220 disabled persons for self-employment from the funding provided by National Handicapped Finance and Development Corporation. In addition, the Corporation itself distributed bank loan subsidy to 143 differently abled persons across the State for self-employment. The Corporation also assisted 237 children through the fixed deposit scheme of ₹20,000 for severely disabled children.

State Commissionerate for Persons with Disabilities

The State Commissionerate was set up as per the Persons with Disabilities Act (PwD Act) enacted by the GoI in 1995. Co-ordinating the programmes implemented by different departments and monitoring the utilisation of funds for the benefit of the disabled in the State are the functions of the Commissionerate. The other functions of the Commissionerate are conducting awareness camps, redressal of the complaints of disabled persons, inspection of institutions for disabled, etc.

National Institute of Physical Medicine and Rehabilitation (NIPMR)

NIPMR is an institute under SJD dedicated to the assessment and therapy of children and adults with multiple disabilities especially cerebralpalsy and other associated disorders. An average of 20 clients mostly children are attending the speech therapy sessions under the Audiology and Speech Language Pathology department. The persons affected with stroke, accidents etc. are also to be treated with available facilities in NIPMR. Modernisation of prosthetic and orthopedic department is being done and mobile intervention unit has started functioning. Institute for Cognitive and Communicative Disorders and Neuro Sciences (ICCONS) and Child Development Centre are the other major institutions working in this area. The particulars of these institutions are given in the chapter four of this Review.

Programmes for Persons with Disabilities

The schemes for the welfare of persons with disabilities are being implemented through Social Justice, Health and Education Departments. The schemes implemented through SJD and KSSM are listed below.

Issuing Disability Certificate to Differently Abled

According to the 2015 Disability Survey, total number of disabled in Kerala is 7.9 lakh. According to the Persons with Disability Act, 1995 it is mandatory to provide disability certificate to all the disabled. From 2009 to March 2015, Kerala Social Security Mission distributed 2,83,277 identity cards through 1,495 disability certification camps across the State. In 2017-18, Mission distributed 19,143 identity cards through 141 disability certification camps. The impact of

such camps is that it reduces the difficulties faced by PwDs to travel to distant places for getting medical certificates.

Aswasakiranam Scheme

The scheme is implemented to provide monthly assistance to care givers of the following categories of patients like 100 per cent blind, bedridden patients suffering from cancer, cerebral palsy, autism, mental illness, mental retardation and bedridden due to old age, who need a full time caregiver. The number of beneficiaries in 2017-18 was 1,02,952.

Hunger Free City Scheme

The scheme is to provide free food at least once in a day to those who reach cities and are in need of food. Kozhikode is the first city to introduce this scheme. The scheme is implemented in Kozhikode Medical College Hospital, District Homeo hospital, Malappuram, Medical college and SAT hospital, Thiruvananthapuram, District and taluk hospitals, Kollam and Government General Hospital. The number of beneficiaries under this scheme in 2017-18 was 25,89,181.

State Initiative on Disabilities (SID)

This is a special initiative of the Government for prevention, detection, early intervention, education, employment and rehabilitation of the persons with disabilities through Social Justice Department with the joint support of Education and Health Departments. The major achievements are:

- **MMR Vaccination**

  MMR vaccination was started and given free of cost to new-borns from January 2014 onwards in Government Maternity Hospitals. In 2017-18, 3.3 lakh doses of vaccines were supplied.

- **Universal Hearing Screening**

  Hearing screening of new born babies has been established in 64 Government delivery points. Software based data capturing and sharing facility has been established. The project is implemented by converging the services of NISH and ENT department of Medical Colleges of the State. KSSM has conducted 733 cochlear implantations sofar. In 2017-18, the number of neonates screened was 38,143 of which 3,144 babies were referred for further check-up and correction.

Box 6.14 ANUYATRA-M Power

Since 2017-18 all activities under the State Initiative on Disabilities along with many other interventions have been given a new approach and a campaign mode by name *"Anuyatra"*, a rights based and comprehensive life cycle approach to disability management right from primordial prevention to sustainable rehabilitation of PwDs. The activities of Anuyatra are formulated considering the latest developments in disability prevention and management across the globe and in the country in harmony with Rights of Persons with Disabilities Act 2016. A unique project, M Power was taken up this year under Anuyatra. In this project, 23 intellectually disabled children were trained in magic by the Academy of Magical Sciences, Trivandrum which runs the Magic Planet. They performed before Mr. Hamid Ansari, the erstwhile Vice President of India. Later a study was undertaken by the Child Development Centre (CDC) to study the impact of this learning on the children. It revealed a very positive overall effect on them, improving their everyday living and making them less dependent on others. Some of them are now employed in the Magic Planet and perform for the public.

Source: Social Justice Department, GoK

- **District Early Intervention Centres**

  Sanction for setting up of organised network for early intervention in disability was received and implementation started. The network comprises of disability prevention through IEC activities, new born screening for congenital anomalies causing disabilities, early intervention and management and support services by helpline services.

- **Establishing of Special Anganwadies for Pre-school Children with Disabilities**

  The project initiated by Department of Social Justice to take care of the special needs of pre-school children with mental disability and developmental delay is being piloted in Kozhikode District. This programme has had a great impact on the children in performing their Activities of Daily Living (ADL) by enabling them on their own to become more accommodative in their further schooling. This makes it easier to main stream them. This will be extended to Kannur, Wayanad and Malappuram Districts with necessary changes based on the findings of an evaluation of the pilot project.

State Initiative on Dementia

The Department of Social Justice has started a day care centre in Thrissur Municipality and a full time centre at Edavanakkad old age home for the rehabilitation of dementia patients in the State.

Insight Project

The Insight programme was started in 2007 to explore ways in which information and communication technology (ICT) can be leveraged to address challenges faced by people with disabilities. The initial phase of the programme focused on visual impairment. In 2009, it was extended to include an experimental programme for children with cognitive challenges. The programme was funded by Kerala State IT Mission and conceived and executed by SPACE, a non-profit organisation. In 2013, the programme was handed over to department of Social Welfare with the objective of scaling it up. The execution of 'Insight Programme' for the visually challenged was transferred to Kerala Federation of the Blind and SPACE continued the execution of Insight programme for cognitively challenged children.

It harnesses a blend of new technologies and traditional systems to train the children. New technological tools and practices are being developed and experimented at SPACE. By supporting and strengthening the activities for the knowledge transfer, the benefits of the programme can reach more people.

Transgenders (TGs)

Kerala is the first State to establish a policy for transgenders in the country. The survey estimates that there are more than 25,000 TGs in the State. Many of them are reluctant to reveal their identity. Transgenders are very much struggling for their day-to-day life activities. This group needs more attention for acceptance into the society. As per the disability Census conducted in Kerala in 2015-16, there are 1,187 disabled transgenders in Kerala. Various schemes are proposed to be implemented in 2017-18 for the welfare of transgenders. Department was able to provide scholarship assistance to three students and also conducted District level workshops for assessing the livelihood training required and other matters relating to main streaming of transgenders. The scheme for transgenders in 2018-19 includes the components enumerated in Box 6.14.

Welfare of Women

A new department is formed for the welfare of women and children in the year 2017-18. This department implements all the activities related with the welfare and empowerment of women and children in the State. In the State, Government as well as NGOs and voluntary organisations provide institutional care to the women and children of the population.

Box 6.15 Scheme for transgender

Transgender Helpline (24x7) and crisis management centre with the help of NGOs (working in the field of transgenders)/CBOs.

- To give financial assistance for vocational training and self-employment.
- Pension for destitute transgender above the age of 60 years
- Organising welfare programmes with NGO and CBOs working for the welfare of transgender population
- Establishing TG Cell in SJD Directorate for design, coordination and implementation of various activities for the transgender welfare
- Provide financial assistance for proper education as incidence of school drop-out is high, sex re-assignment surgery (SRS) in Government Hospital based on medical advice, opening HIV zero surveillance centre for Transgender.
- Sensitise the public especially parents and family members, teaching and non-teaching staff and student community of educational institutions, officers of health services, LSGD, Employment Department and Labour Department.
- Scholarship for transgender students.
- Short Stay Homes for TGs.
- Formulation and implementation of medical insurance scheme.

Source: Budget Documents, 2018-19 GoK

Women constitute 52 per cent of State population and the overall sex ratio of Kerala is 1,084 females per 1,000 males. Female literacy rate is 92 per cent which is highest in India. Maternal mortality rate was much lower in Kerala when compared to the situation in India. The present status of women in Kerala is given in the section on Gender and Development of this chapter. However, the activities of the institutions for women empowerment and major schemes promoting social and economic rehabilitation of women are as follows.

Institutions for Welfare and Empowerment of Women

Kerala Women's Commission

The Commission was established in 1996 to improve the status of women in Kerala and enquire into unfair practices against women and recommend remedial measures. The Commission implements gender awareness programmes and undertakes legal workshops/seminars, adalaths, DNA test, etc. In 2017-18, the Commission had conducted 146 seminars, 37 counselling/skill training programmes for Panchayat Jagratha Samithis on various laws related to women and other legal procedures and disposed of 951 petitions through 81 adalaths. Under gender awareness programme, the Commission undertook 20 pre-marital counselling sessions across the State with the participation of women NGOs and conducted KalalayaJyothi in 199 educational institutions. In 2017-18, the Commission received 6943 complaints; the nature of complaints shows that harassment of women, domestic violence and family problems dominate. The category-wise and District-wise details of complaints received as on March, 2018 are given in Appendix 6.51.

Kerala State Women's Development Corporation

Self-employment schemes for women, flagship programme on gender awareness and Finishing School are the major programmes of the

Corporation. The Corporation distributed over ₹3.5 crore from National Corporations to 4,748 women under self-employment loan scheme, ₹3crore to 135 women in general category through Plan fund and educational loan of ₹22.80 crore to 10 girl students for facilitating their education.

The Corporation has so far installed 58 She-toilet units across the State. Under the flagship programme on finishing schools, the Resource Enhancement Academy for Career Heights (REACH) at Thiruvananthapuram and Kannur imparted skill training to 1,857 students and the EDP/Vocational training programme benefited 300 women across 10 Districts. As part of gender awareness programme, KSWDC has started women cells in 52 women colleges with over 5,000 members. The main objective of the women cell is to make the youth aware of the issues in the society and to equip them with adequate management skills to handle day to day affairs. The Corporation proposes to start women cells in mixed colleges too, to promote the idea of gender equality and create gender friendly campuses in the State. In 2017-18, educational scholarships were distributed to 2 women cell members from the 52 colleges. The help line service as envisaged by the Ministry of Women and Child Development, GoI is an emergency response system for women in distress. Mithra Helpline (181) was launched in Kerala on March 27, 2017 and is presently functioning successfully as a 24/7 accessible and emergency response service for women in need. Help line has provided effective intervention in over 16,000 cases so far.

The corporation with the objective of reaching out to ST women, a marginalised section of the society, has set up an integrated skill development centre for ST women, on a pilot basis in Chakkitappara tribal settlement in Kozhikode for developing sustainable livelihood options in the tribal hamlet. In 2017-18, 25 women and their families have availed the service of the centre. As part of Menstrual Hygiene Management Programme, around 8 lakh packets of sanitary napkins and 550 incinerators in more than 750 schools of 132 Panchayats in the State were distributed.

Gender Park

Gender Park, at Kozhikode was conceptualised by the Department of Social Justice in 2013 (though its genesis goes back to 2011) as a platform for learning and research on gender equality and empowerment of women. It provides a space for all gender identities to overcome the socio-economic and political boundaries imposed on them by society and contribute to the economic, cultural, and social aspects of the State and society. The main activities envisaged are:- action research for policy making; Skill Development Centre and a Production Centre which can be an outlet of the SDC or can be independent in nature; Library and documentation centre; Heritage Museum to maintain a historical legacy of women there; a cultural space for women to express their creativity in drawing, painting, dance and music, martial art and other areas of culture. It already has an amphi-theatre and a Centre for Gender Jurisprudence.

Programmes for the Welfare and Empowerment of Women

The schemes for the welfare and empowerment of women are being implemented through Women and Child Department. The schemes implemented through WCD and KSSM are listed below

Pradhan Manthri Mathru Vandana Yojana/Indira Gandhi Matritva Sahyog Yojana

This CSS provides financial assistance to pregnant women and lactating mothers for the first living child. The financial assistance of ₹5,000 is given in three instalments. The total number of beneficiaries as on August 31, 2018 is 62,153.

Snehasparsham

This scheme implemented by KSSM aims to address the problem of unwed mothers. A monthly assistance of ₹1,000 is given to all unwed mothers. The assistance increased to ₹2,000 since July 07, 2018 and benefited 2,075 women in 2018-19 up to July 31, 2018

Women Development Programme

This is a major programme of WCD focusing on implementation of dowry prohibition, protection of women from domestic violence and sexual abuse, rehabilitation of victims including health care and compensation, economic support to women headed families and women belonging to BPL families and assistance to low salaried women for self-improvement through capacity building.

Nirbhaya Programme

Nirbhaya programme of Women and Child Department envisages setting up of 'Nirbhaya Homes' for sexually abused women. There are 13 shelter homes in the State (except in Alappuzha, Pathanamthitta and Kottayam) for protection of victims of sexual abuse. In 2017-18, 371 women benefited under these shelter homes. Three Fast-Track Courts exclusively for women and children have been established in Trivandrum, Ernakulam and Kozhikode Districts.

One Stop Centre

One Stop Centres (OSCs) are intended to support women affected by violence, in private and public spaces, within the family, community and at the workplace. The OSC scheme will be implemented by States through the Nirbhaya Fund. In 2018-19, GoI sanctioned One Stop Centre in 9 Districts (Kollam, Alappuzha, Pathanamthitta, Kottayam, Idukki, Ernakulam, Palakkad, Kasaragod, Kozhikode).

Welfare of Children

As per Census 2011, the children in the age group 0-18 constitute less than 30 per cent of the State's total population and children in the age group 0-6 to State's population is 10.4 per cent. As per the NFHS-4 report, the under-five mortality in the State is 7 deaths per 1,000 live births. Kerala has achieved marked improvement in promoting survival, protection, development and participation rights of children in a holistic manner.

Major Programmes on Child Protection, Care and Development

The programmes and schemes related to protection, care and development of children are being implemented by the Department of Women and Child Development and KSSM. The major Acts, policies and programmes in addressing the rights of children are detailed below.

Children's Right to Protection

Child protection means to create a safe and caring environment for all children, free from neglect, violence, abuse and exploitation. Kerala performs much better than other States in protecting children from all kinds of ill-treatment and violence. However, following constraints remain which prevent the State from providing social safety net for children, in particular those specifically vulnerable.

Crimes Against Children

Crimes against children continue to show an upward trend, with rising figures for kidnapping and rape. As per the report published by the State Crime Records Bureau, the crimes against children in the State are recorded as 2,881 cases in 2016, 3,478 cases in 2017 and 1,931 cases up to June 2018.

Girl Child

The decline in the Child Sex Ratio (0-6 years) at the all India level from 927 females per 1,000 males in 2001 to 919 in 2011 is a major indicator of women dis-empowerment. As per Census 2011, the child sex ratio for the State is 964 which is four points higher than in Census 2001(960); however in the Districts of Alappuzha (951), Ernakulam (961), Kasaragod (961) and Thrissur (950) the ratio is below the State average which is quite alarming. Discouraging the use of sex selection techniques, rewarding the girl child and awareness creation are the interventions needed to promote the girl child.

Child Marriage

Child marriage is a violation of child rights. As per the 'Report on India child marriage and teen age pregnancy based on NFHS-4' of the National Commission for Protection of Child Rights (NCPCR), a comparative analysis of child marriage for 15-19 year old girls as reported in NFHS-3 and NFHS-4 reveals that it has fallen from 6.2 per cent in NFHS-3 to 2.4 per cent in NFHS-4 against the national average of 11.9 per cent

Child Abuse

Child abuse cases especially incidence of sexual abuse of girl children are on the increase. As per the State Crime Records Bureau, 754 sexual abuse cases were reported in Kerala up to July, 2017. The growing tendency, especially in adolescence, towards substance abuse, use of alcohol and cyber abuse is another key area of concern.

Children's Right to Development

Early childhood is the most significant developmental period of life. Holistic development of children up to 18 years includes all areas of growth-physical, mental, emotional and social development. Kerala has always been in the forefront for promoting the above four domains of child development. However, some lacunae in early childhood care remain. As per the NFHS-4 report, the State shows a high level of immunisation coverage, though short of 100 per cent (full immunisation coverage for 12-23 months is 82.5 per cent) Exclusive breastfeeding (first six months of infancy) rates in Kerala show decrease (exclusive breast feeding among 0-6 months is 56.2 per cent and 53.3 per cent in NFHS-3 and NFHS-4 respectively). Unhealthy feeding practices such as pre-lacteal feeding practice, late initiation of breast milk and bottle feeding practices are noted in several research studies in Kerala. In the case of children of age 6-59 months anaemic rates show an improvement in health status (the rate is 35.7 in NFHS-4 and 44.5 in NFHS-3). Absence of universal pre-school education in the State is another major issue which requires much attention. As per Rapid Survey on Children (RSOC) 2013-14, 26.2 per cent of children in the age group 3-6 years are not attending pre-schools. Convergence of preschools with anganwadis with scientifically prepared curriculum is being discussed for providing pre-school education to all children.

Children's Right to Survival

Infant mortality and prevalence of low birth weight babies are the two major determinants of child survival. The State's Sustainable Development Goals target for IMR is to reduce it from 12 per 1,000 live births to 8 per 1,000 live births, MMR from 66 to 30 per 1 lakh live births and U5MR from 14 to 9 per 1,000 live births by 2020. Although the State has done well in above parameters, the prevalence of malnutrition (NFHS-4, around 16.1 per cent children below 5 years are underweight and 19.7 per cent are stunted), anaemia (NFHS-4, 35.7per cent have anaemia), shortfall in full immunisation (17.9 per cent of children in the State do not get all 5 vaccines in the age 12-23 months) are high in certain Districts of the State, particularly in the tribal population. All of these present a challenge for the Government to achieve the target of SDG.

Children's Right to Participation

Right to participation provides children with an environment to participate in decision making processes and gives them an opportunity to express their views freely. Kerala's model of Bala Sabha and Bala Panchayat as a neighbourhood network of children under the Local Governments for holistic development of children's health has been widely acknowledged.

Protection of Children from Sexual Offences (POCSO) Act, 2012

The Act deals with child abuse and provides protection to children from the offences of sexual assault, sexual harassment and pornography. Steps have been taken in the State for the effective implementation of the Act.16. 'Women and Children Home' have been set up to provide care and protection to children covered by this Act in all Districts. Out of which,Pathanamthitta, Alappuzha, Kottayam, Kannur homes will start functioning by December 2018. Special Juvenile Police Units are being set up in all Districts. To expedite the trial of cases registered under the Act, Special courts have already been notified in the courts of Thiruvananthapuram, Ernakulam and Kozhikode for the trial of cases regarding sexual harassment and abuse against Women and Children.

Kerala State Commission for Protection of Child Rights

The Commission functioning as a statutory body has the mandate to examine and review the existing laws for the protection of child rights, inquire into cases of violation of child rights, look into factors inhibiting the enjoyment of those rights and suggest remedial measures etc. In 2017-18, 2,402 complaints were received by the Commission and 953 cases were disposed. Of the complaints received, 170 cases are related to the Protection of Children from Sexual Offences (POCSO) Act, 280 cases are related to Right to Education (RTE) Act, 12 cases related to Juvenile Justice(JJ) Act, and the remaining to child rights violation.

Adoption Services

There are 17 specialised adoption agencies, functioning in Kerala for helping the State Adoption Resource Agency. During 2013-14 to 2017-18, 764 in-country and 74 inter-country adoptions took place. In 2017-18, 164 children were adopted in Kerala, out of which 84 were females (141 in-country adoptions and 23 inter-country adoptions). Details of adopted children are given in Appendix 6.52.

Child Line Services

Child line system is a 24-hour toll free telephone service (1,098) for children in distress. The service is now available in 430 cities in India and 14 in Kerala. Child line service would be strengthened further in consultation with NGOs and other voluntary organisations.

Integrated Child Development Services (ICDS)

ICDS, one of the flagship programmes of GoI, aims at early childhood development by providing an integrated package of services such as Supplementary Nutrition, Immunisation, Health Check-up, Referral Service, Health and Nutrition Education and Pre School education to children less than 6 years along with pregnant and lactating mothers. In 2017-18, 33,115 Anganwadi centres are operational across the State, covering 9.75 lakh beneficiaries under Supplementary Nutrition Programme and 3.17 lakh children in the age group 3-6 years under pre-school education. Of the beneficiaries of SNP, 2.71 lakh were pregnant and lactating women. District-wise coverage is given in Appendix 6.53.

With State Government support, the LSGIs have initiated various innovative practices under ICDS. To improve nutritional status of children in the tribal areas, Kudumbasree has established production units in Wayanad for micronutrient fortification of Amrutham Nutrimix. To combat severe malnourishment, a community based nutrition rehabilitation programme has been

introduced in the Attappady tribal project area with UNICEF support. GIS based Jatak and Janani for monitoring of under 5 year children on real-time basis, through mobile telephony comprising voice file, picture and location is functioning in Attappady, Mananthawady, Devikulam and Iritty. Social Audit was also done in all 33,115 AWCs in the State. Anganwadi Welfare Fund Board is constituted in Kerala for the welfare of Anganwadi Workers and Helpers. The Early Childhood Care and Education (ECCE) Scheme provides early childhood care and education for children of pre-school age through anganwadis.

Integrated Child Protection Scheme

This centrally sponsored scheme provides preventive, statutory care and rehabilitation services to children who are in need of care and protection and children in conflict with law. Child Protection Units, Child Welfare Committees, Special Juvenile Police Units, State Child Protection Society and District Child Protection Units and Juvenile Justice (JJ) Boards have already been established in the State to speed up implementation of the provisions contained in the JJ Act. The programmes related to various social legislations like Child Marriage Restraint Act, Kerala Beggary Prevention Act, programmes on Child Rights Convention, adoption related laws, etc. are also being implemented under the scheme. Special courts have started in the State to expedite the trial cases registered under POCSO Act. In implementation of the Shafeeq Committee report, the GoK has issued a 'model' protocol on Balasuraksha detailing (1) implementation of measures to prevent violence against children (2) identification of cases and intervening early (3) provide care and protection to the victim and (4) preventing reoccurrence of abuse. During 12th Plan, Social Justice Department has taken several steps to prevent child abuse under ICPS; in the 13th Plan also some innovative schemes have been proposed. Measures have been taken for identification of vulnerable families, capacity development of front line agents, prevention of child sexual abuse, programmes like capacity development of teachers, training programmes for teachers in prevention and reporting of child sexual abuse.

Scheme for Adolescent Girls (Erstwhile Rajeev Gandhi Scheme for Adolescent Girls)

A centrally sponsored scheme, implemented in all the Districts, aims at empowering the nutritional and health status of the adolescent girls limited to the age group of 11-14 years who are out of school.

Cancer Suraksha and Thalolam Schemes for Child Patients

These schemes of KSSM give free treatment through Government approved hospitals to children below 18 years who are suffering from cancer and life threatening diseases. The Cancer Suraksha Scheme is being implemented through 12 Government hospitals and Thalolam Scheme is being implemented through 15 Government hospitals in the State. In 2017-18, the Cancer Suraksha scheme benefited 6,000 children and the Thalolam scheme benefited 14,571 children.

Snehapoorvam

Kerala Social Security Mission provides financial support to children who lost both parents or either of them and the other parent is not in a position to look after the child due to financial constraints. The scheme aims to give educational assistance to children up to degree level. HIV/AIDS affected students are also included under this scheme. This programme benefited 58,106 in 2017-18.

Snehasanthwanam

The scheme, acts as a relief measure to endosulfan victims in the State. The financial assistance under this scheme is being provided to endosulfan victims. It also provides educational assistance to children studying in class I to XII. The number of beneficiaries under the scheme in 2017-18 is 8,833.

Our Responsibility to Children Kerala (ORC)

Our Responsibility to Children (ORC) is an integral project of Integrated Child Protection Scheme (ICPS), under Department of Women and Child Development Department, Kerala. ORC is a school based partnership effort of different Government/Non-Government agencies responsible for protection and development of children such as Departments of Education, Health, Home, LSGD and Civil Society. It aims at better protection and development of children through enhancing life skills, nurturing strengths, addressing vulnerabilities, and promoting mentoring and good parenting. ORC project is now being implemented in 304 schools and also in 20 model residential schools under Scheduled Tribe Development Department.

Psycho Social Services for Adolescent Girls

This Scheme of WCD provides counselling and guidance support to adolescent girls. The Psycho Social Counselling Centres were started in 666 selected schools with the support of Education Department. Full time school counsellors were posted in each school for giving counselling and guidance support to children. Action for increasing the counseling centres from 666 to 1,012 has been taken.

Cochlear Implantation in Children

The project of KSSM provides cochlear implant to children in the age group of 0-5 years selected by regional and State level technical committees and provides financial support for Auditory Verbal Habilitation (AVH) to operated children through empanelled hospitals. In 2017-18, a new project named 'Dhwani' to provide free speech processor upgradation to the children with implants was launched. While 55 beneficiaries were benefited under Dhwani, the cochlear implantation project assisted a total of 102 children in 2017-18.

First 1,000 Days Programme for Infants in Attappadi

This is a special programme of the WCD for infants in Attappadi focusing on early initiation of breast feeding, timely introduction of complementary foods at six months, hygienic complementary feeding practices and full immunisation and Vitamin A supplementation with de-worming etc.

GIS Based Mother and Child Health Tracking System in Mananthawadi Block

This is a programme run by WCD for tracking the health status of pregnant women and children in Mananthawady block of Wayanad District with the support of the JATAK and JANANI software applications.

Social Support Scheme for Children Affected with Juvenile Diabetes (Mittayi)

The scheme is to provide comprehensive care to the children/adolescents with type-1 diabetes. This endocrine disorder mainly affects children of age group 5-18 years. Awareness about this illness is very little among the public and also among caregivers. Insulin is the only treatment option and frequent monitoring is the only way for good glycemic control.

Saranabalyam

Saranabalyam is a project to ensure that State is free from child labour, child begging, trafficking and children in street situation. It provides emergency services for such children at risk. Six rescue officers have been appointed under this project in four Districts (Kollam, Pathanamthitta, Alappuzha and Kottayam). 65 children were rescued in the four Districts over a three month period and 11 FIRs were registered. 37 children were repatriated to their States.

Vigjana Deepthi

The scheme provides ₹2,000 per child per month for supporting education. It helps to prevent institutionalisation and restore children in their own homes. 1,000 children are supported under this programme.

Bala Nidhi (Juvenile Justice Fund)

The objective is to mobilise maximum resources for the well-being of children. The programme was started in 2017-18 and financial support of ₹5.24 lakh given to 14 children.

Registration of Child Care Institutions in Kerala

In Kerala, 1,154 institutions were functioning under the control of orphanage control board, registered as per the Orphanage control Act 1961 and financially assisted through orphanage control board. As per the Government order to register under section 41 of JJ Act, nearly 720 institutions had registered under the Act, 2015.

Mangalya

This scheme provides financial assistance of ₹25,000 to widows for their re-marriage. In 2017-18, assistance was given to 114 beneficiaries.

Welfare of Ex-Servicemen and War Widows

The Department of Sainik Welfare is looking after the welfare and rehabilitation of ex-servicemen and their dependence. The department intends to train the ex-servicemen and widows for competitive examinations for re-employment and self-employment. Rehabilitation training on vocational/professional/technical courses for equipping the ex-service men/war widows and their dependence is a major programme. In 2017-18, the computer training centres at Thiruvananthapuram, Kozhikode and Thrissur provided rehabilitation training to 247 beneficiaries, of whom, 64 were women.

References

Benería, Lourdes, and Sen, Gita (2010), *"Accumulation, Reproduction, and Women's Role in Economic Development: Boserup Revisited"*, available at *www.womin.org.za*

Beveridge, William (1942), *"Social insurance and allied services"*, London, HMSO, 1942

Boserup Esther (1970), *Woman's Role in Economic Development*, George Allen & Unwin, London.

CHAPTER

07

ART, CULTURE AND SPORTS

CHAPTER 07

Art, Culture and Sports

Art and Culture

Kerala has a rich tradition of diverse art forms. The popularity of its art forms – for example, Kathakali and Mohiniyattam – has long brought scholars and visitors to the State.

There are many institutions in the State working to promote and propagate its cultural heritage. They include academic institutions for the performing arts and the institutions for the promotion of art and culture. Financial assistance to this sector is mainly provided through the Directorate of Culture. The major implementing departments in this field are the Directorate of Culture, Department of Archaeology, Department of Archives, Department of Museum and Zoos, the Kerala State Film Development Corporation etc. Important institutions coming under the Department of Cultural Affairs include the Kerala State Chalachitra Academy, Kerala Folklore Academy, Kerala Sahitya Academy, Kerala Sangeetha Nataka Academy, Kerala Lalitha Kala Academy, Margi, Bharath Bhavan, Kumaranasan National Institute of Culture, Vasthuvidya Gurukulam, Kerala Kalamandalam, Vyloppilli Samskrithi Bhavan, Guru Gopinath Natana Gramam, Jawahar Balabhavan, State Institute of Languages, and Kerala Book Marketing Society. This sector requires mechanisms to coordinate and evaluate the activities of these diverse institutions. An apex body of culture needs to be formed to co-ordinate the activities, monitor and evaluate programmes and select the institutions for the distribution of financial assistance.

The major achievements in the art and culture sector in 2018-19 are presented below.

Archaeology Department

There are 12 archaeological museums and 180 protected monuments under the Archaeology Department. One of the major achievements of the department is the establishment of District Heritage Museums. The work of District Heritage Museum at Thrissur has been completed and the museum has been opened to the public. The work of District Heritage Museums is progressing in the Districts of Thiruvananthapuram, Pathanamthitta, Idukki, Ernakulam, Palakkad and Wayanad. The Department conducted urgent renovation work at Shreekumara Mangalam Subrahmanya temple, Trikkodithanam temple (Kottayam), Saraswathi Vilasam Palace, Vennimala Sree Rama Lakshmana Swami temple, the old police station at Payyannur and hanging bridge at Punalur. The department also conducted exhibitions and seminars at various schools and conducted training for its staff. Under the scheme, "Development Plan for Archaeology," an expert committee was constituted to suggest improvements in the functioning of the department. And the committee has submitted its draft report.

As per quick assessment, damage to the Department as a result of the recent flood, are estimated at ₹107.41 crore. The damage

is because of dampness, fissures/cracks, loss of cement plaster/lime plaster, biological degradation, leakage of tiled roof, and damage to wooden items of the protected monuments. The department has undertaken urgent maintenance works for these damages in monuments and repair works at Hosdurg fort, Kanjangad and Karumadikkuttan monument at Ambalapuzha.

Archives Department

Archives Department is the custodian of all non-current records of permanent value belonging to the State Government and its various departments, institutions and individuals. As the custodian of records of historical value, suchas Government records, palm leaf, manuscripts, etc, the department conserves such documents and protects them scientifically so that they are preserved for reference purposes. During 2018-19, the major achievements of the department are:

- The works for developing an interactive online archives website for making the digital records and services of the department available to the research students, historians, teachers and public is in final stage.
- In association with other departments under Cultural Affairs, Archives department organised archival exhibitions, seminars, awareness programmes at Kannur, from March 10 to 12, 2018.
- 47 important historical documents were selected by Department for mural painting in association with Vasthuvidhya Gurukulam and the work is in progress.
- Community archives programme was undertaken with the participation of public under which department can conserve many private records. The first phase of this programme was completed in 2018.
- Scientific conservation of 55,000 historic documents including 20 manuscripts of Shri Kumaranasan has been done. 18,75,000 paper documents and 2 lakh palm leaves were digitised through C-DIT.
- Final construction works of Archives museum and Heritage centre at Idukki is progressing.

Directorate of Culture

The Directorate was formed for effectively co-ordinating and regulating the activities of all the art, literary and cultural institutions, which were functioning under various departments. The directorate is also entrusted with the task of distribution of financial assistance/award amount to persons of art and letters, pension to indigent artists, widows of renowned artists and writers and employees of various cultural institutions and academies. Achievements of various schemes of the directorate in 2018-19 are given below.

- **Diamond Jubilee Fellowship for young artists**

  This scheme has twin objectives of encouraging young artists on the one hand and promoting local cultural development on the other. Under this scheme, diamond jubilee fellowships are issued to 1,000 young artists graduating from recognised institutions in

Box 7.1 Initiatives taken by Archives Department to restore damages due to floods

Department took over records which need urgent retrieval from 15 banks at Pathanamthitta, various Government offices at Alappuzha and Paliam Palace, Chendamangalam. Under the guidance of staff of Archives, thousands of registers of Perinadu Sub registrar office and Alangadu sub registrar office were transferred to safe place. 5,000 books of Chendamangalam library and rare palm leaf collections of Chempolakalari at Alangadu were transferred to Archives Directorate for preservation. Disaster management team of the department cleaned, preserved and arranged the records of Devaswom office, Aranmula and these records were arranged in the record room.

the State. The State Government will ensure a monthly fellowship of ₹10,000 to the awardees. The fellowship will be operational when a local host undertakes to provide local hospitality to the fellowship holder is identified. Schools and Local Governments will be encouraged to host the fellowship holder and provide local hospitality. This scheme would in turn transform the community centres in the Local Governments to active centres of art. Directorate of culture has so far (up to September, 2018) selected 976 artists, of which 649 are male and 327 are female. They have been given field study assignments and sent for a 4 day training prior to their final deployment. Artists who have received fellowships have been deployed across the State under the Municipal Corporations, Municipalities and Block Panchayats. For co-ordinating and monitoring the activities of fellowship artists in each District, co-ordinators have been appointed in all 14 Districts. District-wise details of Diamond Jubilee Fellowship to 976 artists in 237 art forms selected across the State are given in Appendix. 7.1.

- **Diffusion of Kerala's Culture**

  The scheme envisages promotion of awareness of the rich cultural heritage of Kerala and aims to strengthen the art forms of Kerala. Historic events like Swami Sree Narayana Guru's "namukku jathiyilla vilambaram," 125th anniversary of Swami Vivekananda's Kerala visit and Delhi Cultural Heritage Fest for creating cultural awareness among NRKs were organised under this scheme.

- **Livelihood for artists/rural art hubs**

  In order to improve the living condition of folk artists and craftsmen, a project to create rural art hubs, to help the folk artists and craftsmen enhance their skill, save them from exploitation from middlemen and strengthen their livelihood. Capacity building and direct market linkage has be given priority. Collaboration with other States and countries will help to create new avenues for the artists and craftsmen. Uralungal Labour Contract Society is the implementing agency of this scheme. Based on a primary survey, 20 art and craft villages in Kerala and 10 stage performing art forms have been selected under this scheme. For completion of the first phase of the scheme, ₹85 lakh has been handed over to the agency.

Directorate of Museums and Zoos

The Directorate has its Head Office, Museums and Galleries, Zoological Park in Thiruvananthapuram City, Art Gallery and Krishna Menon Museum in Kozhikode, State museum and Zoo in Thrissur and Heritage museum in Kukichira (Wayanad). These institutions are functioning as major centres of tourist attraction. Major achievements of the department in 2018-19 include the following. Action has been initiated to construct an interpretation centre in the campus to provide awareness and knowledge regarding wild animals to the visitors, and conversion of old bird cages to new ones in Thiruvananthapuram zoo. A food shelter with roof for visitors has been constructed and maintenance and repair works of the snake cage at State museum and zoo, Thrissur has been done.

Kerala Kalamandalam

Poet laureate Vallathol Narayana Menon founded Kerala Kalamandalam in 1930 for the preservation and promotion of Kerala's traditional performing arts such as Kathakali, Mohiniyattam, Koodiyattam and Thullal and their music-vocal and instrumental versions. Kerala Kalamandalam, which is a centre for promoting the traditional art forms of Kerala attained the status of a Deemed University in 2007 which necessitates higher level of artistic and academic activities. During 2017-18, existing musical instruments were repaired and new musical instruments purchased for the departments of Kathakali, Koodiyattom, Chenda and Mridangam by spending an amount of ₹10

lakh. The construction work of 10 class rooms and new mess complex is progressing, for which an amount of ₹287 lakh has been expended. Kalamandalam organised programmes like national dance festival named 'sapthabhangi' from October 3-6, 2017 and Kathakali ashdakam from November 19 to February 18, 2018. Four days Nila national dance music festival organised from March 28-31, 2018 by including national level famous artists.

Kerala State Chalachitra Academy

The Kerala State Chalachitra Academy was established in 1998 with the aim of promoting good cinema in Malayalam. The Academy helps the Government in formulating policies regarding Cinema and Television. Three film festivals viz., International film festival of Kerala, National Film Festival of Kerala, International Documentary and Short film festival of Kerala are the main festival organised by Kerala State Chalachitra Academy. The Academy organised National Film Festival from June 9 to 13, 2018 at Payyannur, in which 28 films were exhibited. Academy organises touring talkies (mobile film shows) of 300 films in association with film societies, schools, colleges, cultural association etc. Chalachitra Academy in association with Kerala State Council for Child Welfare organised film appreciation camps for children at Thiruvananthapuram, Idukki, Thalasseri and Wayanad.

Malayalam Mission

Malayalam Mission was started in 2009, with the aim to acquaint the children of Non Resident Keralites with Kerala culture and Malayalam language. One of the main objectives of Malayalam Mission is to institute, supervise and co-ordinate Malayalam study centres in various parts of India and abroad with the co-operation of non-resident Malayalees across the world. 'Whereever there are Malayalees, there is Malayalam' is the slogan of the Mission. At present, the Mission has more than 1,000 study centres in 14 regions of India. Study centres are also functioning in Singapore, Oman, UAE, Germany, Japan, Bahrain, Kuwait, UK, Australia, Ireland, Kenya, Finland, Hongkong etc. In 2018-19, training was given to the teachers of various study centres in India and study centre in Kuwait, annual examinations have been conducted in Delhi, Mumbai, Gujarat, Banglore, Pune and Bahrain. Kanikkonna textbook, hand book, Soorya Kanthi text books have been printed and issued to the centres, and massive open online course have been implemented.

Margi

Margi, an institution for teaching Kathakali, started functioning in the year 1970 and is a cultural centre for promoting Kathakali, Koodiyattam and Nangiarkoothu. The institution functions as a 'Kaliyogam' (training cum performing group). Margi gives free training in Kathakali vesham, Sangeetham, Chenda and maddalam to school students on Saturdays and Sundays. Koodiyattom section functions in collaboration with central Sangeetha Nataka Academy. Seminars and classes are conducted for the promotion of Koodiyattom. The Kerala Kalamandalam Deemed University of Art and Culture has recognised Margi as a 'resource centre' for research scholars in Koodiyattam. Margi has been empanelled by the Indian Council for Cultural Relations, GoI as an institution for training foreign students.

Kerala Lalithakala Academy

The Kerala Lalithakala Academy conducts programmes for promoting the talent of artists especially painters and sculptors. It gives assistance to artists for organising exhibitions and provide scholarships to students of fine arts. As part of drama fest "Gramakom 2018", Academy organised a painting camp from April 6 to 10. As part of Loka Kerala Sabha, Academy organised national painting camp at Kanakakkunnu palace and paintings created in the camp named "Sargayanam" were exhibited from May 8 to 14, 2018 at Darbar Hall Kalakendra, Ernakulam.

Kumaranasan National Institute of Culture

Kumaranasan National Institute of Culture was founded in 1958 to establish an appropriate memorial for this great poet and social reformer, who was in the forefront of Kerala renaissance movement. The main aim of this institute is to propagate the ideas and literary works of Kumaranasan across the world, protect the cultural heritage of India, organise university level academic programmes and research on diversity of Indian culture. Asia's largest museum of mural art is situated here. The museum showcases paintings based on poems of Asan, such as Veenapoovu, Leela, Chinthavishtayaya Seetha, Chandalabhikshuki, Duravastha and Karuna. The Institute organised 145th birth anniversary of Kumaranasan in April 28-29, 2018 with Kavyarchana and Udayasthamaya Kavya Pooja, in which hundreds of poets from across Kerala participated and presented poems. For the career development of children, Balashree, an association for children is functioning from 1988 on second Saturdays and vacations. Experts give training in academic and extra curricular activities to children in Balashree. In addition to the authentic editions of Asan's works, the Publication Division has also brought out a biography of the poet, and a three-volume compilation of his essays, collected from the various magazines where they appeared.

Kerala State Jawahar Balabhavan

Jawahar Balabhavans are institutions functioning at the State and national levels to develop and encourage the creative talents of the children in the areas of art, literature, culture and science. The Kerala State Jawahar Balabhavan is located near Kanakakunnu Palace at Thiruvananthapuram. There are also District Balabhavans at Kollam, Alappuzha, Kottayam and Thrissur. In State Jawahar Balabhavan, in 2017-18, 192 children participated in the regular classes and 62 children enrolled in the nursery class. In 2018-19, vacation classes started on April 4, 2018 and 1,688 children enrolled in the morning and afternoon batches. Various workshops and interactions with experts were conducted.

Guru Gopinath Natana Gramam, Vattiyoorkkavu

Guru Gopinath Natana Gramam was established as a centre for learning, training and research in various Indian dance forms. The institution conducts dance and musical instrument classes for children. Seminars on dance forms of Kerala are also conducted regularly. In 2018-19, development works were done in National Dance Museum and various programmes like monthly programme, poli, veerashringala exhibition, trainings of dance, music and musical instrument classes were conducted.

State Central Library

The State Central Library is one of the oldest libraries in India. It is the first one of its kind in the nation which is fully computerised and has latest Radio Frequency Identification System and digital wing. There is also facility to renew books online by the members. At present the State Central Library, Thiruvananthapuram has more than 96,500 members and a collection of around 5 lakh books on various subjects. A separate block has been opened for children to cultivate reading habit. The block is in a new heritage model building. A well-furnished reference and information centre is functioning in the library. Rare and precious old books, back volumes of journals and dailies are also kept in the closed reference section for reference. Library has a digital collection in searchable format of nearly 1,200 books, including English and Malayalam books. The digital library of Kerala Government Gazettes from 1903 onwards is also available on the website. The modernisation of the State Central Library is in progress. At present, State Central Library is fully computerised and books and periodicals are issued through the open source software. Digitisation of old and rare books has been taken up in a phased manner and nearly 1,200 books have been digitised and

opened for the use of public. The State Central Library conducts summer school programmes during summer vacations and the subjects include cultural, educational, recreational activities and general awareness.

Kerala State Library Council

The Kerala State Library Council seeks to establish an integrated public library system in the State. It takes up activities mentioned in the Kerala Public Libraries Act, 1989 and other activities of social importance. Universalisation of library service, facilitation of modern amenities for acquisition of knowledge, improving educational standard of low achieving students, special library service for women, children, aged and prisoners are the main activities of the Library Council. Kerala State Library Council provides its services through model village libraries and academic study centres in 14 districts of Kerala. The students and teachers of parallel college institutions and schools are the main beneficiaries of the academic study centres. It provides Jail library service at 15 jails and envisages to extend services to 3 more jails, 5 juvenile homes, 7 hospitals and 4 orphanages.

Sports and Youth Affairs

Sports person from Kerala have excelled in national and international level competitions and have brought laurels to our country. In the Asian Games 2018, sports persons from Kerala won 9 medals out of a total tally of 69 won by India. Kerala needs policy initiatives to enhancing the level of performance of its youth in sports. To fulfil this objective, the GoK has initiated many innovative training programmes, aimed at nurturing youngsters with potential to achieve the highest international standards.

Directorate of Sports and Youth Affairs (DSYA)

DSYA, established in 1986, is the torch-bearer of development and promotion of sports and games in Kerala. Its activities cover promotion and development of sports and games in the State through providing appropriate and good quality infrastructure, imparting awareness among public on the importance of sports, providing facilities for training and grooming of sports persons to achieve international standards. Besides this, DSYA takes up activities to bring in latest technologies and innovations in sports to provide and augmenting the competitive skills of sports persons from Kerala.

Based on the recommendation of Kerala State Sports Commission, the Directorate has set up a Sports Development Fund Trust (SDFT) with the aim of mobilising funds from various sources including private sector and from corporate social responsibility (CSR) funds in addition to Government funding. Every year, financial assistance is being provided to selected institutions/individuals for the procurement of sports equipment, conduct of competitions and coaching camps. Rajiv Gandhi Sports Medicine Centre is lending scientific and prompt medical assistance, rehabilitation and recuperation therapy to sports persons in need. Swim and Survive (renamed as Splash) aims to ensure that every child between 5 and 12 years of age has basic skills to survive drowning. The community sports aims to help the people to lead a healthy life and mitigate the menace of lifestyle diseases. 'Multi-Sport Play Spaces' are available grounds and play spaces ideally for multi-sport usage including volleyball, basketball, tennis and other games using modern synthetic surfaces. Besides, promotion of indigenous games is a new area of priority.

Play for Health

'Play for Health' is being implemented in schools for developing sports from the primary school level and encouraging physical activity as a daily routine. The programme aims to utilise schools as sporting hubs and ensure regular physical activity among school children along with curricular activities. Primary focus is to help children develop an aptitude for a variety of games, which could later be harnessed through systematic and scientific training.

The Kick Off

'Kick Off' is a grass-root level training programme, aimed at popularise football by identifying talents among children from sub urban, rural and tribal and other less tapped areas by catching them young. Sports Promotion and Education Trust (STEP) has been identified as expert body for identifying talented children through careful scrutiny at selection trials.

Box 7.2 Sports Act, 2000

By amending Sports Act 2000, GoK aims to restructure Sports Council in a democratic way. By keeping the spirit of universal sports culture, the Government aims to extend the sports activities to the grass roots level. As a part of this, Government envisages an extension of the Sports Councils to Panchayat-Municipality-Corporations levels.

Karate, Judo and Taekwondo

Government envisages promotion of new sports disciplines like karate, judo and taekwondo among school children. Taekwondo training programme aims to train school children below the age of 18 years. In 2017-18, Taekwondo training has been given in 88 centres. Judo training has been given to students of 51 schools in the State and Karate training has been given to the inmates of Sreechitra Home and Abhaya.

Kerala State Sports Council

Kerala State Sports Council is a statutory body formed as per Kerala Sports Act 2000 (Act 2 of 2001). Kerala State Sports Council was established in 1954 under Charitable Societies Registration Act and reconstituted in 1974 for promoting sports in Kerala under the name of Kerala Sports Council. The Kerala Sports Council was dissolved and Kerala State Sports Council came into existence and is at present functioning as per Kerala Sports Act 2000 and Kerala Sports Rules 2008. There are 28 centralised sports hostels, 53 college sports hostels and 26 school sports hostels functioning under the aegis of Kerala State Sports Council. Different training schemes in various disciplines are also being conducted.

Operation Olympia – 2024

Operation Olympia 2024 envisages grooming of 250 top and potential sports person from 11 sports disciplines across the State and train them with state of art infrastructure and training facilities including services of foreign coaches, exposure to international events etc. The focused disciplines are athletics, archery, boxing, badminton, cycling, canoeing and kayaking, fencing, swimming, shooting, rowing, and wrestling.

Kayika Kshmatha Mission

Kerala, the first State to achieve 100 per cent literacy, now is on an ambitious endeavour to become the first State in the country to achieve 100 per cent awareness about physical fitness and promote physical activities through Kayika Kshmatha Mission. As part of phase 1 of the project, overall fitness of the students in the schools was assessed. In the assessment it was found that fitness level of most of the students in schools was below desirable standards. Hence, the phase 2 of the Kayika Kshmatha Mission envisages the improvement of physical fitness level of the students as well as the general public and also creating awareness about physical fitness. For the programme the entire population of the State will be categorised into four, for the ease of implementation and monitoring. They are

- Nursery to 4th standard students
- 5th standard to plus two and University Students
- Youth and working professionals
- Senior citizens

This programme is being implemented in collaboration with various departments such as Kerala State Sports Council, Department of Education, and Department of Local Self Government.

Youth Affairs

Youth represents the hope and future of a country. They have a vital role to play

in fostering and strengthening social consciousness against all social evils and lead the country to unity and prosperity. The immense resources of youth, if galvanised, can work as a major catalyst for socio-economic change. Focus on youth is needed to create increasing opportunities to develop their personality, functional capacity, to preserve their legitimate rights and avoid any possible exploitation.

Kerala State Youth Commission

Kerala State Youth Commission is formed to evolve and implement programmes for educating and empowering the youth and to function as a guarantor of their rights. It is a quasi-judicial institution, which started functioning through a legislative act. In the 13th Five-Year Plan, the Commission aims to empower the youth and make them aware of their duties and responsibilities by focusing on eschewing communalism, alcohols, drugs and cyber-crimes.

Kerala State Youth Welfare Board

Kerala State Youth Welfare Board is an autonomous body incorporated under the auspice of GoK in 1985. The main objective of the Board is to co-ordinate youth welfare and development activities. The board consists of 21 members of whom there 11 are ex-officio members and 10 members are nominated by the Government.

Keralotsavam

Keralotsavam, a rare and unique youth festival, conducted mainly for the youth who have no proper platform to present their cultural and physical talents. In this festival, youth in the age group of 15-35 can participate in cultural, arts and sports competitions at Block, District and State levels. There are some selected cultural items, which are not popular in mainstream cultural scene, included in this festival. Keralotsavam is now a widely accepted festival among the youth of Kerala. Through this, every youngster in the State is getting a chance to project her/his talents. Kerala has created a model for the nation by initiating this colourful youth festival which is conducted with gaiety and fanfare every year. In 2017, more than 5 lakh youth participated in Keralotsavam.

Yuva Sakthi

Yuvasakthi is a project initiated by the Kerala Youth Welfare Board for tapping the potential of youth in Kerala. The new project, being implemented in association with Local Governments will institute coordination committees at the Panchayat and Municipality level. Hundred Village Panchayats and five Municipalities of every District would benefit from the scheme. This project would help strengthen Government aided youth activities under various Local Governments. The coordination committee comprises 11 members including three subject experts. A youth co-ordinator will also be selected from each of these Local Governments. Yuvasakthi will enlist the help of registered youth clubs and associations to bolster up its activities.

Youth Clubs

Kerala State Youth Welfare Board has been establishing youth clubs at socially and economically backward villages with focus on Scheduled Caste, Scheduled Tribe dominant areas, coastal regions and hill areas. There are 500 youth clubs that have been established in 14 Districts in 2017 and around 1,000 youth clubs are targeted to be established during 13th Five-Year Plan. The clubs will be functioning in accordance with the guidelines of Kerala State Youth Welfare Board. Region specific activities will be designed for the clubs by utilising the potentials of youth. Major activities coming under the clubs are sports and games, awareness programmes, competitive examination trainings, health camps, environment friendly activities, job training, and promotion of traditional arts.

HIV/AIDS Prevention Programme

Several steps have been taken by the Government for the prevention and awareness regarding HIV/AIDS. The Youth Welfare Board envisages a network of action throughout the State/District Youth centres, besides forming Youth Clubs at grass root levels, it can function effectively in combating this dreadful disease. The activities are being done in collaboration with National AIDS Control Organisation (NACO), UNAIDS, State AIDS Cell, and other voluntary organisations.

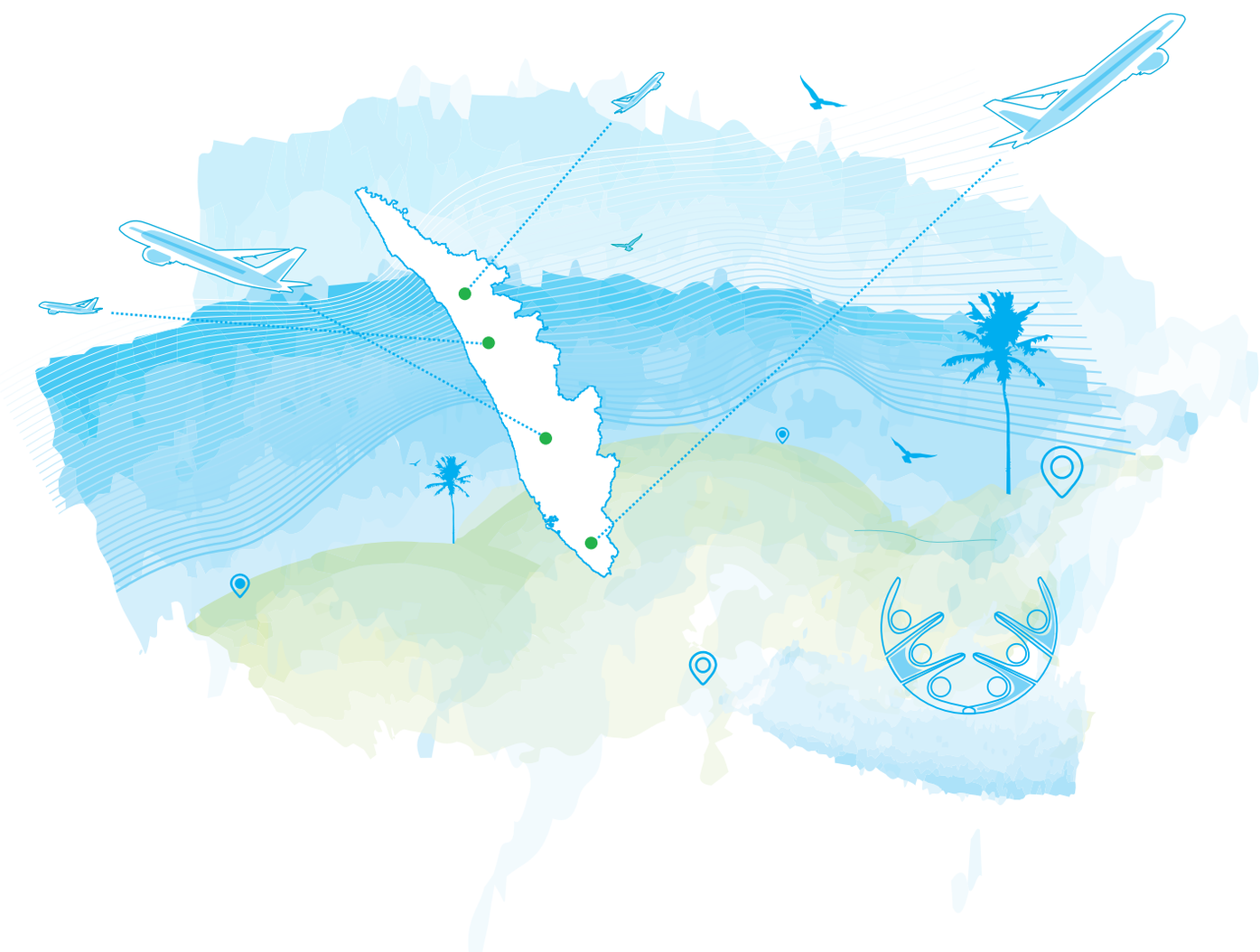
Adventure Activities

Government of India provides support for youth adventure activities through the State Governments. The Kerala State Youth Welfare Board also gives support for the youth adventure training programme, which is intended to infuse the spirit of adventure among the youth. The third National Adventure Academy has been established at Devikulam, Munnar in Idukki. The Academy conducts an adventure training programme for paragliding, mountaineering, trekking etc. The outcome of these policy initiatives are evident from a large number of entries for the bravery awards from Kerala.

CHAPTER

08

KERALA DIASPORA



CHAPTER 08

Kerala Diaspora

The role of our State's diaspora in the economic and social progress of Kerala has been very crucial the past five decades. Over the years, GoK has undertaken a series of steps to ensure the welfare of non-resident Keralites (NRKs) and to gain from the benefits of enhanced engagement with the diaspora. In order to have a sustainable partnership with our diaspora, the Non-Resident Keralites Affairs (NORKA) department was established on December 6, 1996. As part of addressing important issues connected with NRKs and welfare of the return migrants, GoK formed NORKA ROOTS under Section 25 of the Companies Act 1956.

Although workers from all parts of India migrate for employment, migrants from Kerala have certain comparative advantages. Coming as they do from a State with a strong educational tradition, they have special skills. They are adaptable to technically sophisticated and changing work environment, and have shown themselves capable of mastering new technologies. In countries of the Gulf and elsewhere the contributions of migrant workers is distinct and identifiable.

As per Kerala Migration Survey 2018, the number of NRKs is estimated to be 34.17 lakh in 2018 which has decreased from 36.5 lakh in 2014. The number of emigrants for the same period declined to 21.2 lakh from 24 lakh. The number of return emigrants (REM) according to the same survey was 12.94 lakh in 2018, up from 11.5 lakh in 2008. It is observed that many workers who returned did not get the opportunity to utilise their newly acquired skill and work experience. This situation adversely affects their employability. A mechanism for assessing the skill of the return migrants will make it easier to reintegrate them into the labour market or to become self-employed.

District-Wise Details of NRKs

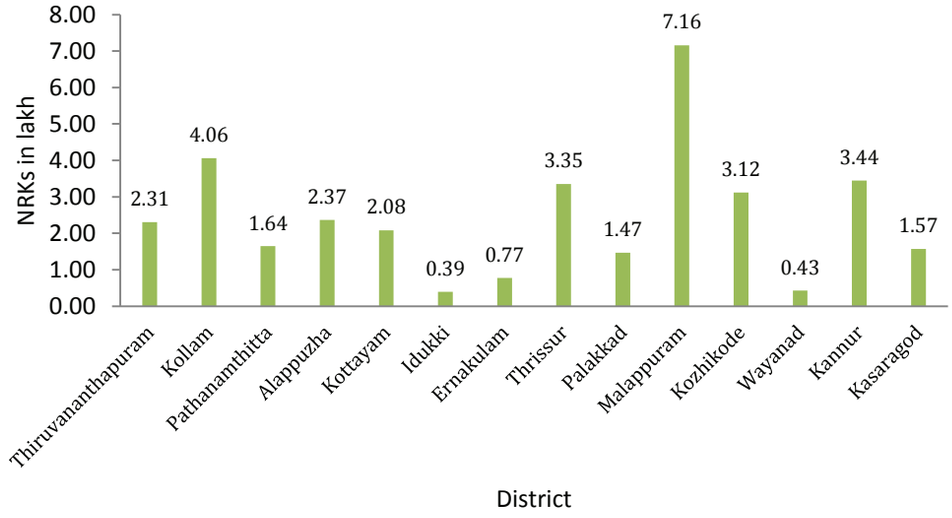
Malappuram District has the largest number of residents who have ever lived outside India with a total NRK population of 7.16 lakh in 2018. Kollam (4.06 lakh) and Kannur (3.44 lakh) are the second and third highest in NRK population. District-wise status of NRKs are given in Figure 8.1.

During 2013-2018, the number of NRKs has decreased by 2.36 lakh. The highest decrease was in Thiruvananthapuram, followed by Ernakulam and Kannur. District-wise increase and decrease of NRKs in the State is given in Figure 8.2. Details of NRKs over the period across the State are given in Appendix 8.1.

Emigration from Kerala

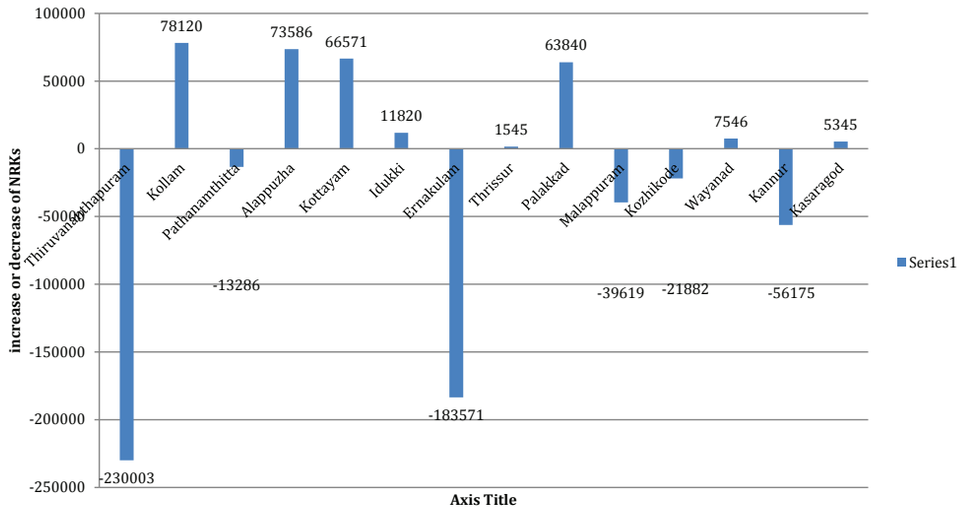
As already seen, the flow of emigrants from Kerala to other parts of the world has been declining over the years. As compared to the period 2008-13, the number of additional emigrants from Kerala has reduced by 2.78 lakh during 2013-18. District-wise number of emigrants from Kerala during different periods are given in the Figure 8.3 and Appendix 8.2.

Figure 8.1 District-wise NRKs in Kerala



Source: Kerala Migration Survey, 2018, CDS, Thiruvananthapuram

Figure 8.2 Trends of District-wise NRKs in Kerala 2013-2018



Source: Kerala Migration Survey, 2018, CDS, Thiruvananthapuram

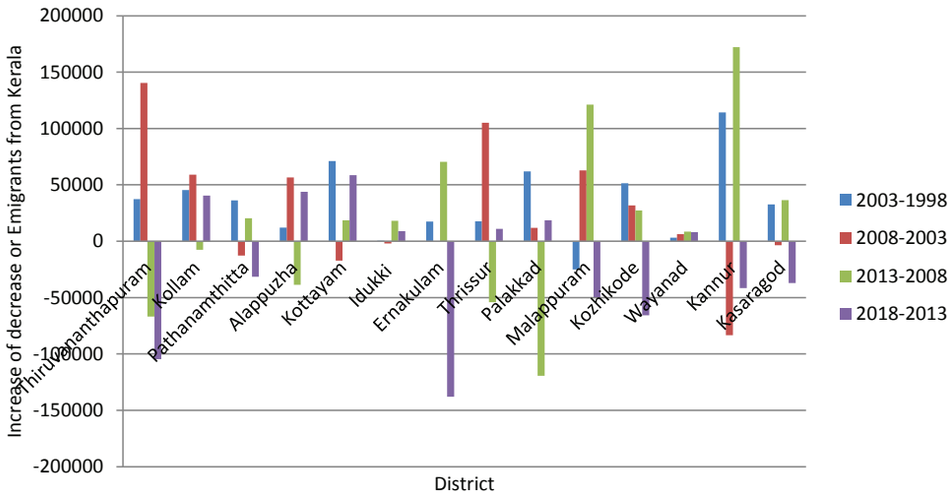
District-Wise Proportion of Emigrants in Kerala

District-wise proportion of emigrants from Kerala is given in Figure 8.4. Malappuram District with 21 per cent ranks top followed by Thiruvananthapuram with 13 per cent and Kannur with 11 per cent.

Return Emigrants

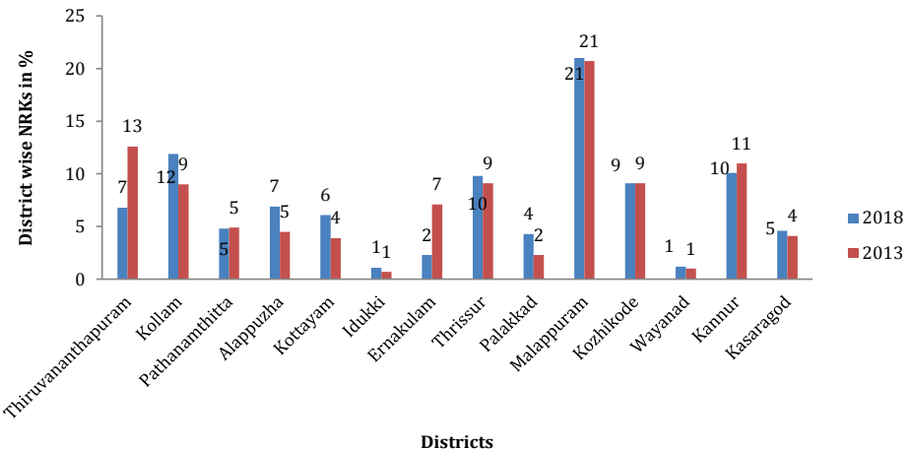
Due to the citizen preference in employment polices of Gulf countries and slowdown in global economic growth, the number of return emigrants to Kerala is on the rise. Total return emigrants increased from 7.3 lakh in 1998 to 12.9 lakh in 2018. Figure 8.5 shows the increasing trend of return emigrants to Kerala.

Figure 8.3 District-wise emigration from Kerala



Source: Kerala Migration Survey 2018, CDS, Thiruvananthapuram

Figure 8.4 District-wise proportion of emigrants from Kerala



Source: Kerala Migration Survey, 2018, CDS, Thiruvananthapuram

The highest number of return emigrants is from Malappuram followed by Thiruvananthapuram and Kottayam. The District-wise trend of return emigrants to the State is given in Figure 8.6. The details of the return emigrants during different periods are given in Appendix 8.3.

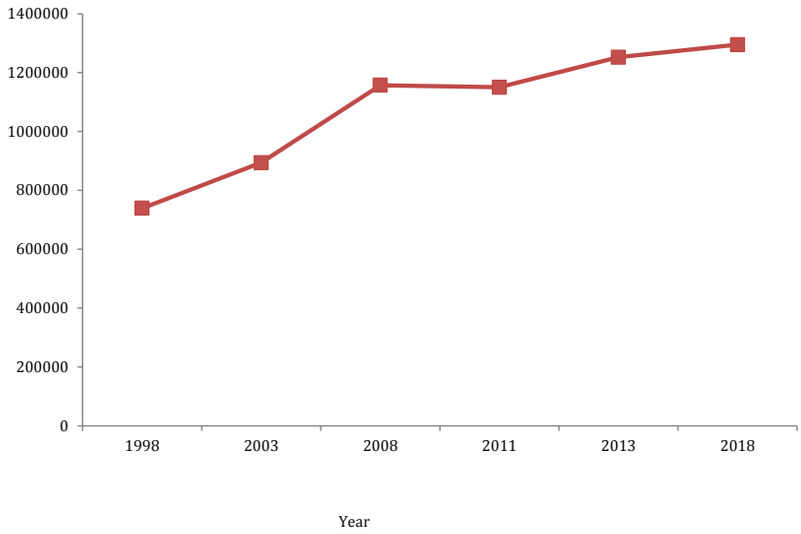
Destination of Emigrants of Kerala

Country-wise destination of emigrants from Kerala shows that 39.1 per cent are in the United Arab Emirates (UAE) and 23 per cent are in Saudi Arabia. The countries in the Gulf region account for 89.2 per cent of Kerala's emigrant population. Country-wise destination of total emigrants from Kerala in 2018 is given in Figure 8.7.

Profession-Wise NRKs

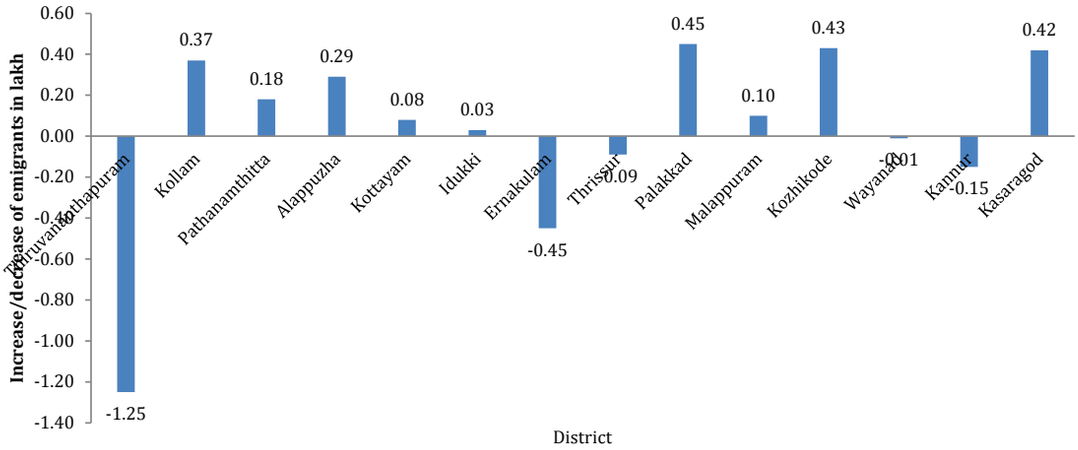
As per the Pravasi Census 2013 of Economics and Statistics Department, GoK, there has been a change in the choice of the professions which the emigrants seek abroad. In the 1970s, the proportion of skilled workforce in the total

Figure 8.5 Number of return emigrants in Kerala



Source: Kerala Migration Survey, 2018, CDS, Thiruvananthapuram

Figure 8.6 District-wise trends of return emigrants 2013 - 2018

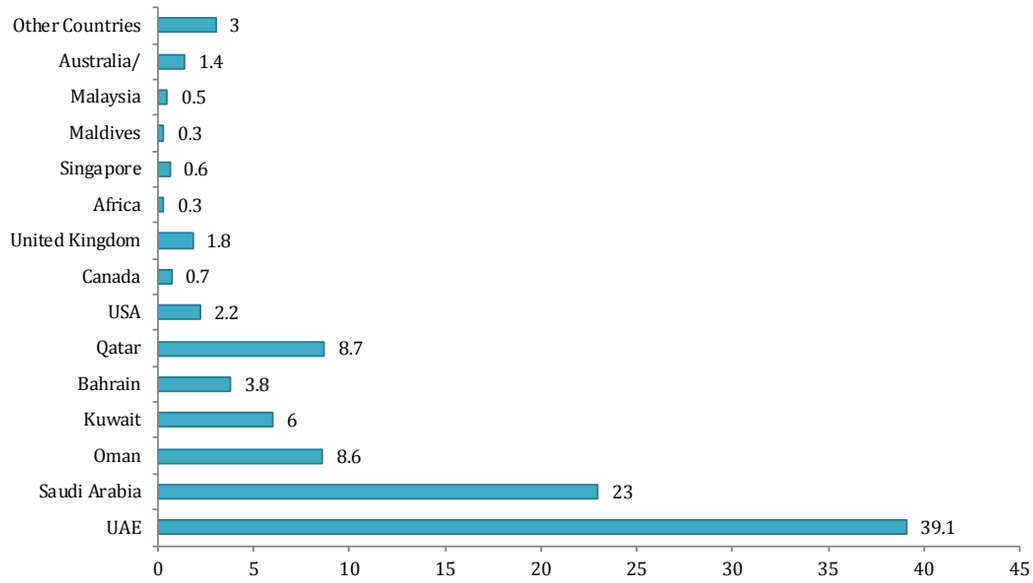


Source: Kerala Migration Survey, 2018, CDS, Thiruvananthapuram

emigrants was very small. Now, larger number of skilled workforce from different professions such as doctors, nurses, engineers, IT professionals, teachers etc. are seeking employment outside the country. Distribution of NRKs by profession showed that 67.78 per cent are professionals like businessmen, teachers, bankers etc; 3.78 per cent are working as engineers, 0.53 per cent as doctors, 6.37 per cent as nurses, 2.23 per cent as IT professionals, 11.85 per cent as drivers, and 10.99 per cent as salesmen.

Among the doctors, the largest number is from Thiruvananthapuram at 14.39 per cent followed

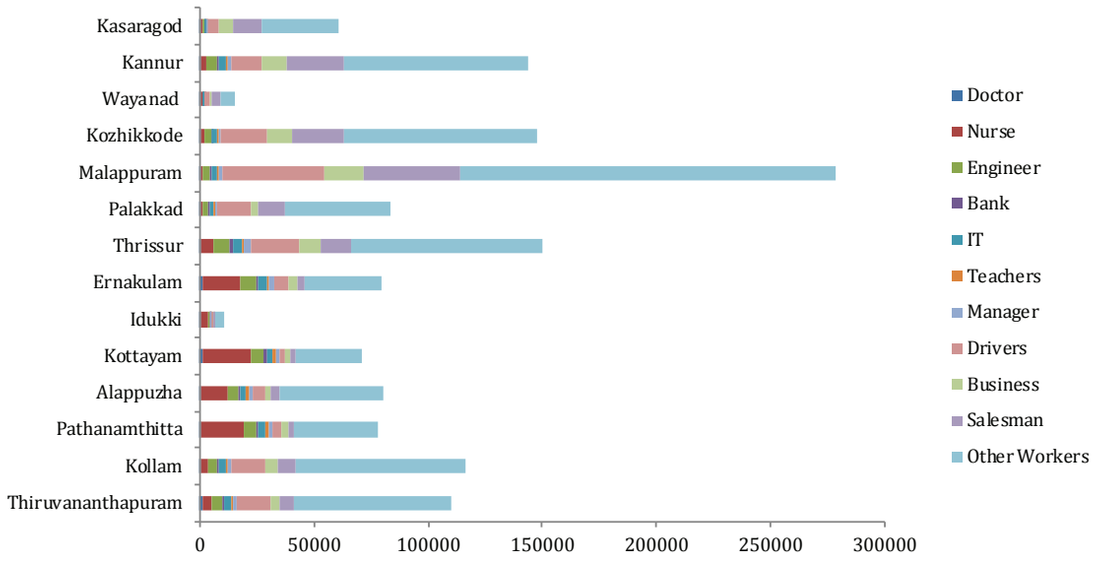
Figure 8.7 Country-wise destination of emigrants from Kerala 2018, in per cent



Source: Kerala Migration Survey, 2018, CDS, Thiruvananthapuram

by Kottayam and Ernakulam at 14.38 per cent and 14.34 per cent respectively. In case of nurses, the highest proportion is from Kottayam at 23.73 per cent followed by Pathanamthitta (20.75 per cent) and Ernakulam (18.16 per cent). In case of engineers, the highest proportion is from Ernakulam (13.47 per cent), followed by Thrissur (13.23 per cent) and Kottayam (10.11 per cent) Among teachers, Pathanamthitta has the highest share of 16.69 per cent followed by Alappuzha at 15.99 per cent and Kottayam at 9.74 per cent Figure 8.8 shows the District-wise number of NRKs working in different jobs abroad. Country wise details of emigrants are given in Appendix 8.4.

Figure 8.8 District-wise NRKs working in different jobs in 2013



Source: Economics and Statistics Department, GoK.

Plan Schemes, Services and Project Offered by NORKA ROOTS for Rehabilitation of Return Migrants

The aim of the scheme is to reintegrate and rehabilitate return migrants by helping them to find suitable employment or self-employment. The Government has formulated Non-Resident Keralite Affairs (NORKA) Department Project for Return Emigrants (NDPREM) to develop sustainable business models. The project envisages providing a capital subsidy of 15 per cent of the total project cost as a backend subsidy and 3 per cent interest subvention to eligible entrepreneurs among return emigrants who wish to start their own ventures in the field of agri-business, training, services and manufacturing.

Santhwana

This scheme is for providing financial assistance to NRKs (returnees) whose minimum period of service abroad is two years and the period after return does not exceed 10 years. For medical assistance ₹50,000 is provided and a maximum ₹1,00,000 is provided as death assistance. Marriage assistance provided under the scheme is ₹15,000 and for wheel chair crutches and artificial limbs, ₹10,000 is provided as assistance. There are 2,700 NRKs who have benefited from the scheme during the period 2015-16 and 2016-17.

Box 8.1 Loka Kerala Sabha

The Government of Kerala constituted Loka Kerala Sabha in order to strengthen relations between Keralites working outside the State and those living in the state. The Loka Kerala Sabha will also work to promote the unique culture and heritage of Kerala among Malayali expatriates. Loka Kerala Sabha comprises all members of the State Legislature, Members of Parliament representing Kerala and persons elected from NRKs living within and outside India. The Loka Kerala Sabha has 351 members.

The Chief Minister and the Leader of the Opposition are the leader and deputy leader respectively of Loka Kerala Sabha. The Sabha, which will meet at least twice in a year, will be advisory in nature and will provide a forum to voice the concerns of NRKs and also contribute towards policy formulation.

The first Loka Kerala Sabha was conducted successfully on January 12 and 13, 2018, at Legislature Complex, Thiruvananthapuram. The event brought together persons of eminence in various walks of life to discuss issues concerning Kerala's diaspora. Several suggestions emerged with regard to the social, economic, cultural, and science and technology sectors. Government constituted seven subjects-based standing committees. These were as follows : Loka Kerala Sabha Administration and Kerala Development Fund Creation, NRK Investment and Security, Rehabilitation and Post Return Income Generation Programmes, Quality and Prospects of Migration, Migrants' Law and Welfare of Migrant women, Migration and Cultural Exchange, Issues of Keralite Diaspora within India.

Each committee is to write a detailed sector report and submit it to Government. A Loka Kerala Sabha secretariat has also been formed for the time bound implementation of recommendations of the standing committee.

Source: NORKA ROOTS

Swapna Saphalyam

The lower segments of non-resident Keralites working abroad especially in Gulf countries are subjected to various miseries due to lack of labour protection rules. It is estimated that 1200 Indians are jailed in Saudi Arabia alone, of which 50 per cent are NRKs. The scheme is to address those NRKs jailed abroad for no willful default on their part and aims to provide free air tickets when they are released from jails and are not able to afford the tickets.

Pravasi Legal Assistance (Pravasi Legal Aid Cell)

One of the major problems faced by the migrant workers from Kerala to the Countries in the Gulf region are the court cases and other legal problems they get into. In the absence of any sort of legal help, the poor workers end up in jail. This happens even in cases of minor offence or sometimes where no offence has been committed. The Government propose to extend legal assistance, including appearance in courts abroad, through the Indian Diplomatic Missions or through advocates empanelled by the Indian Mission.

24 Hours Help Line/Call Centres

The scheme intends to disseminate information on various schemes/projects implemented by Government and NORKA ROOTS, redress grievances of NRKs, conduct counselling to NRKs who are in distress, create awareness among emigrants and prospective emigrants against illegal exploitation, migration etc. and to act as a frontline service facilitator/one point client interaction point for NRKs. It is also envisaged to provide need based information and assistance to emigrants through the proposed helpline.

Pre-Departure Orientation Programme

There is lack of awareness among people in matters about emigration in general and overseas jobs in particular. The scheme is intended to impart orientation and training to prospective emigrants before they depart to their destination countries so that legal migration is ensured. The widespread rural penetration of this scheme is expected to limit cases of illegal migration and exploitation by unscrupulous recruiting agents.

The State Government has a vital role in involving the Kerala diaspora in the social, economic, political, and cultural development of the State. The Government is committed to addressing all their concerns and to utilising their talents and experience in building a new Kerala.

CHAPTER

09

INFRASTRUCTURE

CHAPTER 09

Infrastructure

Infrastructure comprises basic facilities and services that are necessary for carrying out economic activities. This sector focuses on major infrastructure like roads, railways, telecommunication systems, waterways, airways, electricity, water supply and sports. The changing infrastructure landscape in the State has generated significant interest from external investors.

Kerala government is striving towards achieving an integrated development of every stratum of society and sustainable growth of the economy. Special emphasis is given to industrial and infrastructure development to accelerate sustainable growth in the economy. Government has already mandated Kerala Infrastructure Investment Fund Board (KIIFB) to act as the nodal agency to scrutinise, approve and fund major infrastructure projects with its target of ₹50,000 crore, to provide investment for projects in sectors such as transport, water, sanitation, energy, social and commercial infrastructure, IT and electronic industry etc.

Infrastructure development in the State, of late, has been receiving a much needed thrust. Several major projects will become operational in the coming years. Through KIIFB, the State is aiming to address the constraints of resource availability in financing infrastructure projects. This has been one of many innovative and decisive steps taken by the State.

Transport

Transport plays a significant role in the economic development of a region. India has an extensive road network, which provides mobility to millions of people every day. It has the third largest road network in the world stretching 48.8 lakh km in length. According to World Bank, National Highways in India account for 92,851 km, which constitute mere 2 per cent of the total road network, but carry about 40 per cent of the total road traffic in India. Only 24 per cent of the total national highways network has four-lane carriage way and the rest are of single-lane or two-lane standards. Indian Railway is the second largest rail transport system in the world under single management (66,687 km of route length). Freight accounts for 67 per cent of total revenue of the Railways. Civil aviation is gradually gaining importance in passenger movement with an increase in private participation of operating airlines and gradual improvements in airport infrastructure.

Other transport modes like inland waterways and coastal shipping are significantly used for freight transport. With an extensive coastline of 7,512 km, India has 12 major ports and 200 minor

ports, of which, only 30 ports handle cargo traffic. The total traffic carried by both major and non major ports in recent years was estimated to be 53 million tonnes. However, in terms of domestic freight movement, coastal shipping and inland water transport meet only about one per cent of the total freight traffic demand.

Major transport infrastructure of the State consists of 2.29 lakh km of road, 1588 km of railways, 1687 km of inland waterways and 18 ports with 585 km coastal route and 3 airports. Roads play a prominent role in public transportation vis-a-vis-other modes of transportation owing to the geographic peculiarities of Kerala with a comparatively lesser rural urban divide and limited geographical area of 38,863 Sq. km. Kerala has a total fleet of 25,449 buses; of which 19,496 are private buses (77 per cent) and 5636 buses belonging to Kerala State Road Transport Corporation (KSRTC) buses (22.15 per cent). Private buses dominate transport in all districts of Kerala except Thiruvananthapuram. The State has a rail network of 1,257 km route length with a total track length of 1,588 km, operating under the control of Palakkad and Thiruvananthapuram the Railway Divisions. In Kerala, there are many water bodies like rivers, lakes, estuaries, backwaters etc. providing adequate scope for Inland Water Transport (IWT) system having a length of 1,895 km to connect the rivers from one to another. Transportation by IWT is considered as the most efficient economic and environment friendly means of transportation. Transportation by coastal shipping is the mode for most bulk commodities and long hauling traffic. Kerala has the advantage of a 585 km coast line through which bulk cargos can be transported using multi –modal transshipment points along the coastline.

Kerala has one major port at Kochi, 17 minor ports and an upcoming international shipping terminal at Vizhinjam. Out of the 17 minor ports in Kerala, four are considered intermediate ports viz., Vizhinjam, Beypore, Azhikkal and Kollam based on berthing, cargo handling and storage facilities available in them. Kerala has three international airports viz., Thiruvananthapuram, Kochi and Kozhikode and a new one in Kannur has become operational in December, 2018. All civilian airports functioning in the State are international airports, a feature unique to Kerala. Upon completion of Kannur international airport, Kerala will join Tamil Nadu as the State with the maximum number of international airports. Realising the advantages of mass transport system in meeting the intra city commuter needs of major cities, GoK has embarked on Metro Rail Project for Kochi. With the commissioning of Mass Rapid Transit System (MRTS), major urban corridors are expected to be decongested in these cities.

Road Transport Sector

Roads are being maintained by various agencies in Kerala, like Local Governments, Public Works Department (PWD) (Roads and Bridges) and National Highways, Municipalities, Corporations, Irrigation, Forests, Railways etc. Other agencies involved in the road transport sector are National Transportation Planning and Research Centre (NATPAC), Motor Vehicles Department, KSRTC, Roads and Bridges Development Corporation of Kerala (RBDCK), Kerala State Transport Project (KSTP), Kerala Road Fund Board (KRFB) and Road Infrastructure Company Kerala (RICK) Ltd.

The outlay and expenditure in the transport sector in the Annual Plan 2017-18 and 2018-19 (expenditure upto October 2018) are given in Table 9.1.

Financial Performance of First Two Years of 13th Five-Year Plan

An amount of ₹1,35,094 lakh was provided as outlay in 2017-18 for roads and bridges sector and the expenditure reported during that period was ₹1,84,846.11 (136.83 per cent). An amount of ₹8,286.00 lakh was provided as outlay in 2018-19 for road transport sector and the expenditure reported during that period was ₹3,869.57 lakh (46.7 per cent).

Table 9.1 Outlay and expenditure in the transport sector in 2017-18 and 2018-19, in ₹ lakh

Sl. No	Sub Sectors	Annual Plan 2017-18		Annual Plan 2018-19	
		Budgeted Outlay	Expenditure	Budgeted Outlay	Expenditure as on 10/18
1	Port Department	13,811.00	21,358.55* (154.65 %)	12,642.00	13,168.19 (104.2 %)
2	Roads and Bridges	135,094.00	1,84,846.11 (136.83 %)	145,432.00	93,710.25 (64.43 %)
3	Road Transport	8,286.00	3,869.57 (46.7 %)	9,115.00	964.3 (-)10.58%
4	Inland Waterways	16,307.00	3,179.45 (19.5 %)	12,938.00	1,421.22 (10.98 %)

Source: State Budget 2017-18 and 2018-19 and Planspace

*The expenditure includes the expenditure of ₹10,000 lakh for Vizhinjam International Sea Port Ltd (Major Infrastructure Development Project) for which the Outlay is only a token provision of ₹1lakh.

Roads and Bridges Sector

An analysis of expenditure shows that major share of expenditure (53 per cent) incurred was for the development and improvement of Major District Roads (MDRs), (6.76 per cent) for the construction of rural roads and bridges under NABARD assistance and 15.42 per cent for development and up gradation of roads under Kerala State Transport Project (KSTP) with World Bank assistance.

The major road network of Kerala, though well connected, faces severe constraints due to the urban sprawl and the haphazard ribbon development all along the routes. The existing traffic levels at most stretches are excessive and beyond the road capacity. The traffic on roads is steadily increasing at a rate of 10 to 11 per cent a year. Capacity augmentation of existing roads is beset with problems relating to limited right of way and land acquisition. The department-wise outlay and expenditure of the transport sector in the Annual Plan 2017-18 and 2018-19 are given in the Table 9.2.

The major development indicators of transport and communication sector in the State since 2010 are given in Appendix 9.1. On the road front, traffic has been growing at a rate of 10 to 11 per

Table 9.2 Department-wise outlay and expenditure of the road transport sector in the first two years of 13th Five-Year Plan, in ₹ lakh

Sl. No	Departments	Annual Plan 2017-18		Annual Plan 2018-19	
		Outlay	Expenditure	Outlay	Expenditure as on 10/18
1	PWD (Roads and Bridges)	125,072.00	1,69,291.60 (135.35 %)	134,408.00	75,888.38 (56.46 %)
2	PWD (NH)	10,022.00	15,554.51 (155.20 %)	11,024.00	4,191.57 (38.02 %)
Sub Total: PWD		135,094.00	1,84,846.11 (136.83 %)	145,432.00	8,00,079.95 (55.06 %)
3	Kerala State Road Transport Corporation (KSRTC)	4,468.00	2,960.00 -66.25%	4,915.00	483.90 (9.85 %)
4	Motor Vehicles Department	3,818.00	656.27 (17.2 %)	4,200.00	480.40 (11.44 %)
	Sub Total : Transport	8,286.00	3,616.27 (43.64 %)	9,115.00	964.30 (10.58 %)

Source: State Budget 2017-18 and 2018-19, and PlanSpace

Table 9.3 Agency-wise distribution of State roads in Kerala in 2016-17 and 2017-18

Sl.No	Name of Department	Length (km) 2016-17	%	Length (km) 2017-18	%
1	Panchayats (LSGDs)	152,777.21	69.79	163,183.99	71.15
2	PWD (R and B)	31,812.11	14.54	31,812.11	13.87
3	Municipalities	18,411.87	8.41	18,411.87	8.03
4	Corporations	6,644.00	3.03	6,644.00	2.9
5	Forests	4,575.77	2.07	4,575.77	2
6	Irrigation	2,611.90	1.19	2,611.90	1.14
7	PWD (NH)	1,781.57	0.82	1,781.57	0.78
8	Others (Railways, KSEB etc.)	328	0.15	328	0.14
	Total	218,942.43	100	229,349.21	100

Source: Various Departments, GoK

cent every year, resulting in excessive pressure on the roads of the State. Total road length in Kerala in 2017-18 is 2,29,349.21 km. This includes classified and non-classified roads as stipulated by Indian Road Congress. Road density in the State is 590.14 km/100 sq. km and it is far ahead of the national average of 387 km/100 sq. km. The length of road per lakh population is 686.55 km and almost 90 per cent of the road network is single lane. The National Highways, considered to be the primary network, carries 40 per cent of the total traffic, and the State Highways and Major District Roads (MDRs) – the secondary road network – carries another 40 per cent of the road traffic. Thus less than 10 per cent of the road network handles almost 80 per cent of the total traffic. Roads maintained by different agencies of the State are given in Table 9.3.

The roads maintained by different Local Governments in 2017-18 is 1,63,183.99 km (71.15 per cent), of which 91,630.69 km (56.15 per cent) are black topped, 11,013.88 km (6.75 per cent) are cement concrete, 42,600.34 km are earthen roads (26.10 per cent), 9,112.16 km metalled roads (5.58 per cent) and others 8,826.92 km (5.40 per cent) with varying standards.

Public Works Department (PWD)

Roads and Bridges wing of PWD is mandated to look after State Highways, MDRs and other District roads in the State. PWD roads constitute 15 per cent of the total road network in the State carrying nearly 80 per cent of the road traffic within the State. The total length of roads maintained by PWD (Roads and Bridges) is 31,812.106 km in 2017-18, of which 4,341.651 km (13.65 per cent) is State Highways and 27,470.455 km (86.35 per cent) is Major District Roads (MDRs). Out of the State highways of 4,341.651 km, only 1640 km of roads is standard double lane and 2,404 km of roads is standard single lane and the rest is below standard single lane. Out of the 27,470.455 km of MDRs, only 1,310 km are standard double lane and 26,160 km are standard single lane. The total length of double lane PWD roads is 2,950 km which is only 9.27 per cent of the roads owned by PWD.

Out of the total roads maintained by PWD (31,812.106 km), Kottayam District has the major share with a length of 3,456.214 km (10.86 per cent). Wayanad District has the lowest share with a length of 1,029.314 km (3.24 per cent). Details of District-wise and category-wise length of roads maintained by PWD (Roads and Bridges) as on March 31, 2018 is given in Appendix 9.2.

As on March 31, 2017, there are 2,529 bridges and 51,400 culverts on the PWD roads. Of them, 162 bridges need reconstruction/renovation and 1,557 culverts are not in good condition. Details are given in Appendices 9.3, 9.4, 9.5 and 9.6. Major Initiatives of PWD (Roads and Bridges) in 2017-18 is given in the Box 9.1.

Box 9.1 Major initiatives of PWD, roads and bridges in 2017-18

- Project Preparation Unit has been formed in PWD
- Road Infrastructure Company Kerala Ltd (RICK) designated for implementing State Road Improvement Project (SRIP) on Annuity mode.
- Government has taken up a new initiative of designed roads using KIIFB assistance to infrastructure development works
- Environment Cell to conduct EIA and monitor major projects.
- Development of PRICE software- IInd phase
- Quality control units in all Districts and 3 Regional laboratories.
- Remarkable achievements in the use of Waste Plastic, Natural Rubber Modified Bitumen (NRMB) and Coir in road construction.
- Engineer's Congress, an annual event from 2016 onwards, where engineers and experts take technical sessions.
- Strengthened design wing with technical officers and engineers
- New web portal with online reservation for PWD Rest House booking

Source: PWD (Roads and Bridges), GoK

The State PWD is responsible for policy, planning, design, construction and maintenance of the State Highways, MDRs and the National Highways on behalf of the National Highway Authority of India (NHAI). State PWD performs an extremely vital role in the systemic provision of road infrastructure. However, they need to be reoriented to the current needs with emphasis on private sector participation and implementation of large scale projects through multilateral assistance from agencies like Japan Bank for International Cooperation (JBIC), World Bank and Asian Development Bank (ADB).

In 2017-18, development and improvement of 1,893.63 km of State Highways and MDRs has been completed by PWD (R and B). This includes a total length of 893.73 km of Bitumen Macadam and Bitumen Concrete (BM and BC) surfacing and 999.9 km of normal surfacing. Roads and Bridges wing has completed the works of five bridges. Development and improvement work completed of 112.93 km rural roads including 105.69 km of BM and BC under NABARD assistance.

National Highways (NH)

The NH Wing of State PWD is responsible for the upkeep and development of NHs in the State, mainly through GoI assistance. There are 11 NHs comprising 1,781.50 km length within the State, of which 1,339 km (76.6 per cent) are under various stages of development by the NHAI. Development of the remaining 408 km, is under the control of the State PWD. The details are presented in Table 9.4.

Table 9.4 National Highways (NH) in Kerala

Sl. No	New No.	Old No.	From	To	Length of New NH in Kerala (km)	
1	66	NH 17	Thalappadi	Edappally	420.777	
		NH 47	Edappally	Kaliyikkavila	248.66	669.437
2	544	NH 47	Walayar	Edappally		168.14
3	85	NH 49	Bodimettu	Kundanoor		167.593
4	744	NH 208	Kollam	Kazhuthuruthy		81.28
5	766	NH 212	Kozhikode	Muthanga Kerala– Karnataka Border		117.6

Sl. No	New No.	Old No.	From	To	Length of New NH in Kerala (km)
6	966	NH 213	Kozhikode	Palakkad	125.3
7	183	NH 220	Kollam	Theni (Tamil Nadu Border)	216.3
8	966 B	NH 47 A	Wellington Island	Kundanoor	5.92
9	966 A	NH 47 C	Vallarpadam	Kalamassery	17.2
10	183 A	NH	Bharanikkavu	Pathanamthitta (via) Vandiperiyar	116.8
11	185	NH	Adimaly	Painavu (via) Kumili	96
	Total				1,781.50

Source: PWD (NH)

Among the 11 NHs the Vallarpadam – Kalamassery NH 47 C (New NH 966 A) is being developed by the NHAI. Upkeep of the highways, except 203 km, is being done by State PWD with the fund allocated from Ministry of Road Transport and Highways (MoRTH), GoI. Routine maintenance, traffic safety works in National Highways, junction improvement works, urban by pass link roads in the State are being carried out with State's budgetary support. Central road fund allocation is also used for the development of State roads, ie State Highways and MDRs. 31 ongoing works and 16 new works have been arranged during the period. Major Projects with State fund are given in Table 9.5.

Kollam and Alappuzha By Passes

Kollam and Alappuzha by passes on the NH 47 are being implemented on a cost sharing basis between Central and State governments. The total cost of the project is ₹700.48 crore and an amount of ₹350.24 crore as State share is included in the major infrastructure development project by the State Government.

The total length of Alappuzha by pass (₹348.43 crore) is 6.8 km, of which 3.2 km is an elevated highway, from Kommady Junction to Kalarkode. The work commenced on 16.03.2015 under Engineering, Procurement and Construction (EPC) mode and is progressing. M/s RDS CVOC (JV) is the contractor of this time bound EPC Project with a contract sum of ₹274.34 crore and the project is targeted for completion by February 2019 of which 96 per cent of the work is completed.

The Kollam By pass, which starts from Kavanad and ends at Mevaram, is 13 km long with aggregate cost of ₹352.05 crore, and includes 3 major bridges, new 7 km road and widening of 4 km existing road. The work commenced on May 27, 2015 under EPC mode and has made good progress and is scheduled to be completed by December 2018 of which 90 per cent of the work is completed.

Table 9.5 Major projects with State fund, 2017-18, in ₹ crore

Sl.No	Name of Work	AS amount	Exp.
1	Kollam by pass – 50 per cent cost sharing (13 km)	352.05	81.05
2	Alappuzha by pass-50 per cent cost sharing (6.80 km)	384.43	57.89
3	Improvements to Thalassery-Nadapuram road	8	7.75
4	Improvements to Chirakkal Kattampally Mayyil Kololam road	25	24.49
5	Improvements to Chelerimukku Kolacherymukku Nellikkapalam Chekkikkulam Nayattupura	26.8	14.27

Source: PWD (NH), GoK

Kerala State Transport Project (KSTP)

KSTP-II is a World Bank assisted project and bank has approved a cost of ₹2,403 crore (US$445 million) for the project. Though the loan agreement with the Bank was signed on June 19, 2013, the effective date of the agreement was September 2013. The loan closure date is April 2019. The disbursement ratio is 56 per cent by World Bank and 44 per cent by GoK for the eligible items (except land acquisition and operation cost). The State Government accorded sanction for the project for an amount of ₹2500 crore.

The objective of the project is to improve the riding quality of 363 km road section with enhanced road safety provisions. The project has three components. (1) Upgradation of 363 km of road, (2) road safety management, and (3) institutional strengthening. The roads identified for improvement passes through about 87 villages covering eight districts. The project include innovative components like development of a demonstration safe corridor of 80 km, strengthening of Kerala Road Safety Authority and other institutions including PWD Road Safety Cell, Community Participatory Road and Asset Management Programmes, strengthening of Public Information and Grievance Redressal Cell in PWD and the pilot project on Road improvement through Public Private Partnership (PPP).

The following works are progressing under the project. The details are presented in Table 9.6.

Kerala Road Fund Board (KRFB)

KRFB is a statutory body under the State Government established by the Kerala Road Fund (KRF) Act 2001. The Board mainly

Table 9.6 Major projects with State fund, 2017-18, in ₹ crore

Sl.No	Name of work	Revised contract amount	Financial Progress as on 07/2018	Physical Progress (%)	Remarks
1	UG – 1 Kasaragod – Kanghangad Road (27.78 km)	114	100.89	97.28	Only finishing work left
2	UG – 2 Pilathara – Pappinisserry Road (20.90 km)	102	91.37	97	Only finishing work left
3	UG – 3A Thalassery – Kalarode Road (28.80 km) (Re-arranged)	156	38.64	48.5	Re arranged
4	UG – 3 B-Kalarode – Valavupara Road (25.20 km) (Re-arranged)	200	129.81	62.61	Re arranged
5	UG – 4-Chengannur Ettumanoor Road (45.40 km)	288	267.5	100	Completed
6	UG – 4 A Thiruvalla By pass (2.3 km)	70	17.19	64	Being Re arranged
7	UG -5-Ettumanoor – Muvattupuzha Road (40.96 km)	159	115.69	100	Completed
8	UG – 6-Ponkunnam –Thodupuzha Road (50 km)	270	210.15	99.2	Disputed payment to be given
9	UG – 7-Perumbilavu – Perintalmanna Road (41 km)	210	7.5	100	With limited scope of overlay in existing surface – completed and expenditure is only ₹10.00 Cr and savings ₹210.00 Cr
10	Safe Corridor Demonstration Project Kazhakuttam – Adoor	142.67	51.05	35	Work in progress

*Source:*KSTP

implements the city road improvement projects on Public Private Participation (PPP) mode. The Thiruvananthapuram city road improvement project has been implemented by KRFB on PPP (annuity) mode involving the development of more than 43 km of roads in the capital city and its maintenance for 15 years after construction. The construction works under the project have been completed, and now maintained on annuity payment mode.

KRFB has initiated the Kozhikode city road improvement project, which involves development of 30.55 km of road (7 numbers) at a total cost of ₹401.42 crore. The project is being taken up on Design, Build, Finance, Operate, Transfer (DBFOT) – annuity mode. Administrative Sanction has been accorded for land acquisition. Other projects initiated by KRFB are Alappuzha City Road Improvement Project on DBFOT Hybrid Annuity mode, Ramanattukara Flyover, Thondayad Flyover, Valiyazheekkal Bridge across Kayamkulam lake, Nadukani-Parappanangadi road and Kannur Highway.

Road Infrastructure Company Kerala Limited (RICK)

RICK Limited is a special purpose vehicle incorporated under Indian Companies Act, 1956 by KRFB. GoK had taken initiative to implement State Road Improvement Project (SRIP) aimed at the development of selected State Highways and MDRs. There are two packages under the SRIP-Rehabilitation under PPP annuity mode and the Up gradation with funding from multilateral funding agencies. The Rehabilitation package is intended to improve 106.2 km of roads in two packages A and B in Thiruvananthapuram, Kottayam and Kasaragod Districts at a total cost of ₹209.91 crore.

Government had approved the lowest bid of package – A (modified) and package – B at semi annuity of ₹10.73 crore and ₹18.70 crore respectively. The concessionaires are to be given grants of ₹14.9 crore and ₹21.5 crore respectively for Package – A (Modified) and Package – B in 5 instalments during construction period according

Box 9.2 Major activities of RICK in 2017-18

1) Rehabilitation Package under DBFMT – Annuity mode

(a) Package A under State Road Improvement Project

Construction of two roads under Package A – Uppala – Kaniyana Road (9.4 km) and Vidya Nagar – Seenthangoli Road (15.6 km) with Project cost of ₹81.00 crore. The work started on 26.8.2016 with one year construction period and 14 years of maintenance period. The preliminary works of shifting of utilities, cutting of trees has been completed and the construction of road under this package are progressing.

(b) Package B under State Road Improvement Project

Construction of two roads under Package – B, commenced on August 2016. Kanjirappally-Kanjiramkavila Road (36.10 km) and Vellanad-Arynadu – Chettachel Road (21.90 km) at a Project cost of ₹128.91 crore). The construction period is two years and maintenance period is 13 years. 90 per cent of the work is completed.

(2) New Schemes in State Road Improvement Project

- Karamana – Vellarada Road
- Vypin – Munambam Road
- Alappuzha – Thanneermukkom – Madura road
- Kayamkulam town – road development and flyover

Source: Road Infrastructure Company Kerala Limited

to the phase of completion of works. Major activities of RICK in 2017-18 are given in Box 9.2.

Research and Development in Road Sector

Research and development activities play an anchoring role in developing innovative models and techniques to address the challenges in modernising the road system in general and technology up gradation with cost effective infrastructure measures in particular. Design, Research, Investigations and Quality Control Board (DRIQ Board), Kerala Highway Research Institute (KHRI) and National Transportation Planning and Research Centre (NATPAC) are the research organisations engaged in research and development of the road sector at present.

(a) DRIQ Board

In 2017-18, the design wing of DRIQ Board completed 8 building designs and 22 building designs partially, structural designs of 44 bridges, 13 general design and 31 detailed designs. Moreover, the research and project preparation unit of DRIQ Board prepared 11 projects.

(b) Kerala Highway Research Institute (KHRI)

KHRI, the regional office is the quality control wing mandated with the task of assuring quality in works undertaken by PWD. Quality control sub division of Pathanamthitta, Alappuzha, Kollam Districts are under the jurisdiction of KHRI. KHRI conducts training programmes for technical and non-technical staff of PWD. The activities of KHRI and DRIQ Board in 2017-18 are given in Box 9.3.

(c) National Transportation Planning and Research Centre (NATPAC)

NATPAC is the research centre conducting research and development and extension activities in the field of transportation and allied areas under the administrative control of Kerala State Council for Science, Technology and Environment (KSCSTE) under the Science and Technology department. The broad areas of activities by NATPAC includes transportation, planning and road safety, regional transportation, highway planning and development, traffic management, water transport and providing consultancy services to various user agencies in the domain area.

In the year 2017-18, NATPAC carried out 32 research projects, studies on 16 externally funded projects and 13 road safety programmes sponsored by Kerala Road Safety Authority (KRSA). Several road safety training materials have also been developed by NATPAC. The Plan programmes are mostly R and D projects to address the traffic and transportation issues of the State. The externally funded projects are need based studies entrusted to NATPAC by government agencies like, PWD, Transport, Tourism, Water Resources, Town Planning Department and other Organisations like Kochi Metro Rail Company, National Highway Authority of India (NHAI), Roads and Bridges Development Corporation, Kerala (RBDCK), Techno Park, Kerala Rapid Transit Corporation Limited (KRTL), Infrastructure Kerala Limited (INKEL) and Inland Water Ways Authority of India (IWAI).

NATPAC developed a transport network connecting major tourist destinations with recommendations to improve the existing transport facilities for promoting tourism taking Kozhikode District as a case study. A comprehensive mobility Plan for Thrissur city has been prepared. The Centre is in the process of formulation of guidelines on the infrastructural and operational aspects of public bus transport in Kerala especially the bus terminals and allied facilities. NATPAC has estimated the trip generation rates of different land uses like residential centres, work centres, official complexes, shopping centres, institutional campuses and other land use developments in Thiruvananthapuram city. The Centre has prepared data base pertaining to

Box 9.3 Major activities of DRIQ board and KHRI in 2017-18

DRIQ Board

- DPR preparation of Ottappalam-Perinthalmanna road in Palakkad has been completed (under KIIFB)
- DPR preparation for KIIFB Projects viz., KRIP Karamana – Vellarada road (35.5 km (RICK), KIIFB improvements to Adoor Thumpamen Kozhenchery road in Pathanamthitta, New Byepass road from Chithrapuzha Junction to Thiruvankulam Mamala Junction in Ernakulam etc
- Design works of 121 Bridges completed in various districts except Wayanad District.

Kerala Highway Research Institute (KHRI)

- As part of upgradation of KHRI as Quality Control Unit (1) Laboratory Information Management System was implemented (2) Modernisation of office facility and lab facility of KHRI
- Accident prone road stretch identified (Karamana and Nemom along the newly upgraded Karamana – Pravachambalam Road [NH -66]) with recommendations.
- R and D on concrete waste to replace fire and coarse aggregate in concrete construction
- Effect of fibre additives on the drain down characteristics of stone matrix asphalt mixture

Source: Design, Research, Investigations and Quality Control Board; Kerala Highway Research Institute

road accidents, pavement management system, traveller/tourist information system etc. for Kerala in GIS platform. NATPAC is in the process of developing an accident information system in GIS environment using geo-informatics tools for Kerala. During 2017-18, the centre has completed several road safety projects/programmes pertaining to Schools, Panchayats, drivers and other road users reaching a target of more than 3000 road users.

Post Flood Scenario in Kerala

About 2004 km of State Highways and 13,246 km of MDR across 14 districts have suffered varying degree of damages during the recent floods. The NH wing has estimated damage of about 580 km of NHs. The post flood impact analysis indicates heavy damages due to land slide/slips in the roads in four hill Districts of Idukki, Wayanad, Pathanamthitta and Palakkad, whereas roads in the seven Districts of Alappuzha, Thrissur, Ernakulam, Kozhikode, Malappuram, Kollam and Kottayam have sustained flash floods, erosion, water stagnation and other flood induced damages. The roads in Thiruvananthapuram, Kasaragod and Kannur Districts have sustained minimal damage.

1,090 km of State Highways and 6,527 km of MDRs have sustained light damages and would largely require pavement rehabilitation through patching, shoulder repairs and limited debris clearance. 734 km of State Highways and 6,463 km of MDRs have sustained medium to heavy pavement damages and would require re-laying of surfacing and limited repair of drainage, cross drainage and protection works. 179 km of SH and 256 km of MDR have been fully damaged and would require full pavement reconstruction, significant repair/reconstruction of drainage, cross drainage and slope protection works and limited road raising and new cross drainage works.

The overall cumulative damages for State Highways and MDR are estimated to be ₹7,647 crore and for NHs an additional need of ₹911

crore has been assessed. The State Government has started providing immediate short-term repair of pavements and cross drainage structure, clearance of debris and temporary protection works to restore the access and keep the roads traffic worthy. The rehabilitation of the lightly damaged roads is largely through measures like pothole patching, to keep the roads traffic worthy.

7,197 km of roads (734 km of State Highways and 6,463 km of MDR) are severely damaged but are recoverable. 36 major and 178 minor bridges, 362 culverts, 43 km length of retaining wall and 169 km of roads side drainage works are severely damaged. Reconstruction of bridges/ culverts needs to be assigned priority followed by adequate hill slope protection and flood protection works.

Road Transport

Road transport activities in road sector are carried out by KSRTC and Motor Vehicles Department (MVD) in the State. In Kerala, the road transport industry is dominated by private service providers. The road freight services are wholly owned and operated by the private sector.

Motor Vehicle Department

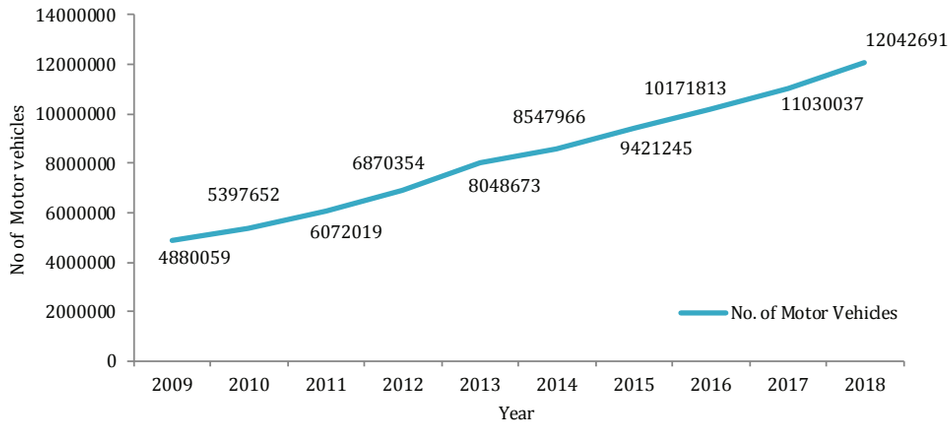
Kerala has 120.42 lakh registered motor vehicles as on March, 2018. For the last two decades it has experienced a compounded annual growth rate of above 10 per cent. The number of vehicles per 1,000 population for Kerala as on March 2018 is 361. According to world development indicators (2015), number of vehicles per 1,000 population in India is 18, China 47 and United States 507.

The growth of vehicle population in Kerala is eight per cent over the previous year. The growth of Motor Vehicles during last ten years is shown in Figure 9.1.

The number of motor vehicles having valid registrations as on 31.03.2018 is 1,20,42,691 as against 1, 10, 30,037 in the previous year. The details are in the Appendix 9.7. The number of newly registered vehicles is 10,38,261 in 2017-18 (9,39,580 in 2016-17) and the details are given in Appendix 9.8. Personal vehicles have recorded a faster growth rate over the previous year. The percentage of category-wise motor vehicles registered in 2017-18 is shown in Figure 9.2.

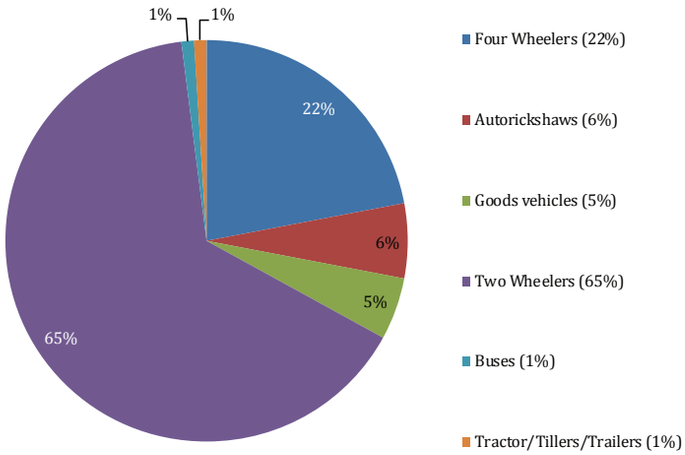
The District-wise growth of motor vehicles numbers in Kerala is given in Appendix 9.9.

Figure 9.1 Growth of motor vehicles since last ten years



Source: Motor Vehicles Department, Government of Kerala

Figure 9.2 Distribution of motor vehicles registered by type in 2017-18



Source: Motor Vehicles Department, Government of Kerala

The highest vehicle population was recorded in Ernakulam District with 17,96,868 vehicles (14.9 per cent) followed by Thiruvananthapuram with 15,23,414 (12.7 per cent). Wayanad District has the lowest number of 1,76,093 (1.5 per cent) vehicles. Category-wise growth of motor vehicle registrations in Kerala during 2010 to 2018 is given in Appendix 9.10. The mismatch between growth in motor vehicles and the capacity augmentation of roads has resulted in increasing traffic congestion and road accidents throughout Kerala. The revenue earned by Kerala Motor Vehicles Department has risen from ₹1,831.15 crore in 2012-13 to ₹3,651.80 crore in 2017-18. Major schemes implemented by Motor Vehicles Department are road safety measures, establishment of vehicle testing stations and modernisation of check posts. Department has started driver testing tracks at Chevayoor (Kozhikode), Elavayoor (Kannur) and Parassala (Thiruvananthapuram). The works of three tracks, one each at Muvattupuzha, Muttathara and Monuppally are going on. Radar surveillance system (Speed Camera System) was installed at

Table 9.7 Outlay and expenditure of motor vehicles department in 2017-18 and 2018-19, in ₹ lakh

Sl No	Schemes	Annual Plan 2017-18			Annual Plan 2018-19		
		Outlay	Expenditure	%	Outlay	Expenditure upto October 2018	%
1	Road Transport Safety Measures	1,350.00	634.57	47.01	1,825.00	170.68	9.35
2	Implementation of E-governance in the M.V. Dept.	22	22	100	24	8.9	37.08
3	Vehicle cum Driver Testing Stations	2,444.00		0	1,700.00	296.48	17.44
4	Modernisation of Check Posts	1		0	500	4.34	0.87
5	Setting up of Model Inspection and Certification Centre	1		0	1	0	0
6	Motor Vehicle Department-Establishment of new Sub Offices				150	0	0
	Total	3,818.00	656.57	17.2	4,200.00	480.4	11.44

Source: Planspace

Palakkad, Thrissur, Kollam, Kottayam, Ernakulam and Kannur. A new initiative by the department was 'Third Eye Enforcement". Through the scheme, the public can assist the enforcement team of the department by capturing and sending the traffic violation in terms of video clips, images etc in real time through an exclusive public web portal. Road Safety suggestions/feedbacks from the public are also incorporated in this project.

The scheme-wise outlay and expenditure of Motor Vehicles Department in 2017-18 and 2018-19 (expenditure upto October 2018) is given in Table 9.7.

E-Governance Initiatives

Government aims to strengthen web based database of the vehicles and adopt E-Governance for online payment of taxes, registration, modern methods of vehicle tracking and monitoring systems, covering Electronic Road Pricing (ERP) system to decongest and reduce accident prone locations.

Automatic Driver Licensing System and Automatic Vehicle Testing System

1. All RTOs to install automatic driver licensing systems and vehicle testing systems accompanied by live road test.
2. Strict test and usage of indicators and seatbelt.
3. Piloted Vahan for Vehicle registration and Sarathy for driver licenses.

Motor Vehicles (Amendment) Bill 2016, GoI

The Motor Vehicles (Amendment) Bill 2016, GoI, aims to amend 68 sections out of the total 223 sections. The important provisions are the following

1. **Higher Penalties**- The minimum fine for being caught driving under the influence of alcohol or drugs has been increased from ₹2,000 to ₹10,000 and for rash driving from ₹1,000 to ₹5,000
2. **Cashless treatment** for road accident victims.
3. **Increased compensation for family of the deceased** – If an individual dies in hit and run case, the central Government is required to provide a compensation of ₹2.00 lakh or more to their family
4. **Inclusion of Good Samaritan Guidelines** – to protect good Samaritans (bystanders who come, forward, in good faith, to help road accident victim) from civil and criminal liability and make it optimal for them to disclose their identity to the police or medical personnel.
5. **National Transportation Policy** – Central Government is required to develop a 'National Transportation Policy' to establish a framework for road transportation planning, granting of permits and prioritisation of the road transport system
6. **Compulsory Insurance** – Central Government to set up a 'Motor Vehicle Accident Fund' that will provide an automatic cover for all road accident victims in India
7. **Automated Fitness Training for Vehicles** – Introduction of an automated process to test the fitness of motor vehicles by October 1, 2018
8. **National Registry for Licenses and Registrations**-Creation of a 'National Register for Driving License' and a 'National Register for Vehicle Registration' through Vahan (for vehicle registry) and Sarthi (for driving licenses) platform
9. **Electronic Monitoring** – Government to ensure proper electronic surveillance on National and State highways and urban roads.

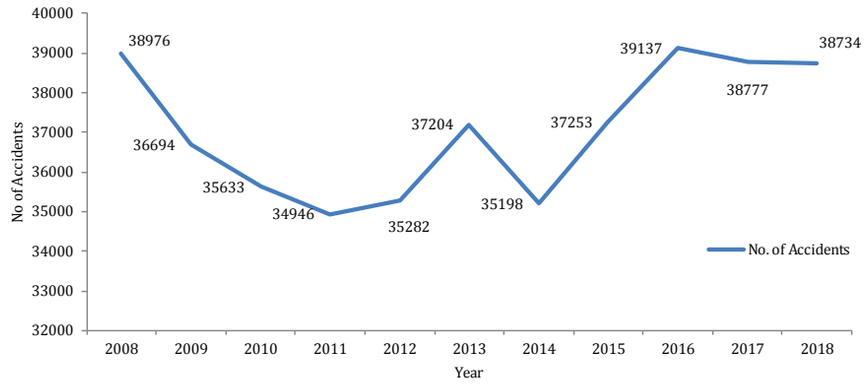
Vahan-4 (web based application software intended to carry out the works related to Vehicle registration) and Sarathi-4 (a web based application software intended to carry out the works related to Driving Licenses) are intended for use across the country. Vahan and Sarthi facilitated with Smart Card/Plastic Card based licenses and Registration certificates are far superior than current laminated cards.

Road Accidents

Even though several initiatives have been taken by the Police to enforce road discipline and enforcement of rules by Motor Vehicles Department, road accidents are increasing. The increasing trend of traffic accidents is a matter of great concern. The analysis of figures from 1980-81 onwards shows that an increase in the number of accidents was steady from 7,064 in 1980-81 to 20,900 in 1990-91 and 34,387 in 2000-01 and 35,282 in 2010-11 and 39,137 in 2015-16. The number of accidents decreased to 38,734 in 2017-18. The bigger States like Uttar Pradesh, Gujarat and Rajasthan report far less number of accidents compared to Kerala. The District-wise motor vehicle accidents in Kerala and the category-wise details of motor vehicles involved in road accidents are given in Appendices 9.11 and 9.12 respectively.

In 2017-18, Kerala registered 38,734 accidents (106 per day). Accidents due to KSRTC buses were 1,161 in 2017-18 (3 per day) and other bus was 2,917 buses (8 per day). The number of two wheelers has increased from 65.77 lakh in 2017 to 77.97 lakh in 2018, recording average annual growth rate of 18.6 per cent. The number of traffic crashes involving two wheelers has increased from 15,033 (41 per day) in 2017 to 34,473 (94 per day) in 2018. Bike accidents account for nearly 55 per cent and Motor Cars for 21 per cent respectively of the total accidents reported in the State. Trend of Motor Vehicle Accidents in Kerala is presented in Figure 9.3.

Figure 9.3 Trend of motor vehicle accidents in Kerala



Source: State crime Records Bureau

Table 9.8 Accident trend in Kerala in 2010 -2017

Year	No. of Motor Vehicles	No. of Accidents	Accidents/lakh vehicle
2010	5,397,652	35,633	660
2011	6,072,019	34,946	576
2012	6,870,354	35,282	514
2013	8,048,673	37,204	462
2014	8,547,966	35,198	412
2015	9,421,245	37,253	395
2016	1,01,71,813	39,137	385
2017	1,10,30,037	38,777	351
2018	1,20,42,691	38,734	322

Source: Motor Vehicles Department, State Crime Record Bureau

The accidents per lakh vehicles registered in the State was 322 in 2017-18. Growth of accidents in the State during the last eight years is given in Table 9.8. It can be seen that the accident occurrences had exhibited fluctuation during various time periods although not showing any definite patterns of growth or decline. But it is to be highlighted that there is a constant decrease in accidents/lakh vehicles every year since 2010.

Most of the accidents are attributable to the fault of drivers as per records available with traffic police. However, deficiencies in road design also affect motor vehicles, a fact generally overlooked as bad road conditions. Road safety training for various categories of road users, rectification in road design, deficiencies in inclusion of road safety aspects in the planning and operation stages of road construction are the primary facts to be taken up for reducing accidents. The percentage of vehicle category-wise accidents in Kerala in 2017-18 is shown in Figure 9.4.

Kerala State Road Transport Corporation (KSRTC)

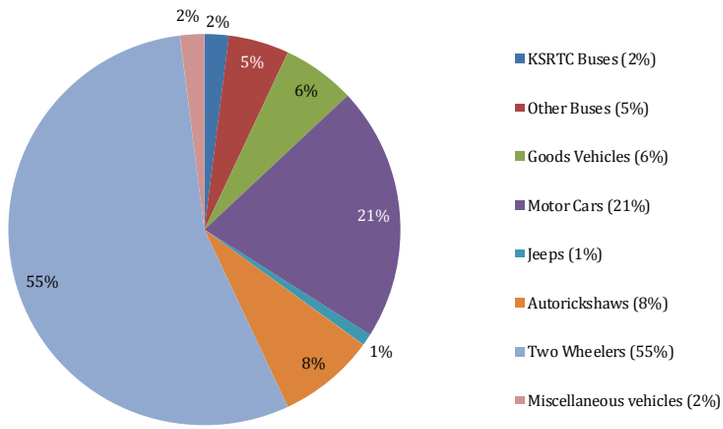
KSRTC is the single largest public sector undertaking, carrying out passenger transport operations in the State. The gross revenue earning of KSRTC increased from ₹1,827.45 crore to ₹2,006.37 crore in 2017-18. The gross revenue expenditure in 2017-18 is ₹2,621.00 crore compared to ₹2,367.60 crore in 2016-17 and operating loss in 2017-18 period is ₹614.93 crore compared to ₹540.15 crore in 2016-17.

Out of 5,635 buses of KSRTC, 1,204 (21.37 per cent) buses are of ten or more years vintage. The age-wise details of buses owned by KSRTC are given in Appendix 9.13. The average earning per vehicle per day on road of the corporation has increased from ₹10,925 in 2016-17 to ₹11,872 in 2017-18. During the period, 359 buses were taken out of service. The major indicators showing operational efficiency and District-wise operational statistics of KSRTC are given in Appendices 9.14 and 9.15 respectively.

The fares charged by KSRTC were 70 paise per km in ordinary and city buses in 2017-18. The fares of super-fast buses are 78 paise per km, 100 paise to super deluxe services, 120 paise for A/C Air bus and 145 paise for high-tech Volvo buses. The fare structure of KSRTC is given in Appendix 9.16.

As part of fleet renovation KSRTC has introduced multi axle buses like Scania on wet lease basis

Figure 9.4 Details of road accident by vehicle type in Kerala, in 2017-18



Source: State Crime Records Bureau

Box 9.4 Major internal indicators of KSRTC, in 2017-18

- Average Fleet held : 5636
- Average Fleet operated : 5635
- Average age of Fleet (Years) : 7
- Over aged vehicles : 54 per cent
- Staff strength : 38486
- Staff per bus ratio (fleet held) : 6.04
- Staff per bus ratio (fleet operated) : 7.55
- Staff productivity (km/staff/day) : 46.77
- Fuel efficiency (km/litre of HSD) : 4.5/ltr
- Occupancy Ratio : 75.09 per cent

Source: Kerala State Road Transport Corporation

from its dealers and operated in inter -State routes. All major workshops of KSRTC were renovated by providing modern equipments as per the recommendation of the Hanumantha Rao report on modernisation of workshops.

Inter-unit analysis of KSRTC reveals that about 30 per cent of the units of the State exhibit poor performance. The District-wise details of operational statistics are given in Appendix 9.17. Financial performance of KSRTC is not in tune with its physical achievements due to an increase in operating expenditure, hike in pension commitments, increase in interest payments, operation in uneconomic routes and the granting of concessional travels leading to increasing losses for the corporation.

Though the occupancy ratio in KSRTC has increased from 67.14 per cent in 2009-10 to 75.09 per cent in 2016-17, it is still not a significant increase considering the higher occupancy in private carriages and inadequate road infrastructure in Kerala which results in lesser use of public modes of transport. Private operators are dominant in passenger transport operation in the State. Fleet utilisation of KSRTC is only 81 per cent. More than 12 per cent of the buses are under repair and 25.9 per cent of the vehicles are over aged. Staff per bus ratio is as high as 6.04. The number of breakdowns per lakh km in KSRTC is around 6 while that of neighbouring Karnataka RTC (KnRTC) and Bangalore Metropolitan Transport Corporation (BMTC) is less than one. The number of buses

Table 9.9 Outlay and expenditure of KSRTC in 2017-18 and 2018-19, in ₹ lakh

Sl No	Schemes	Annual Plan 2017-18			Annual Plan 2018-19		
		Outlay	Expenditure	%	Outlay	Expenditure upto Oct 2018	%
1	Development of Infrastructure and Modernisation of workshops	990	450	45.45	3,464.00	482.7	13.93
2	Total Computerisation and E-Governance in KSRTC	1,210.00	49 5	40.91	1,330.00	0	0
3	Providing Training to Drivers, Technical Personnel and Officers	110	110	100	120	1.2	1
4	Modernisation and Qualitative Improvement of Fleet	2,158.00	2,158.00	100	1	0	0
	Total	4,468.00	3,213.00	71.91	4,915.00	483.9	9.85

Source: PlanSpace

owned by KSRTC is given in Appendix 9.18. During the period, 72 new buses were put on road. The major internal indicator of KSRTC is given in Box 9.4. The operational efficiency of KURTC is given in Appendix 9.19.

Heavy losses due to operational inefficiency, high bus/staff ratio, operation in uneconomic routes and unviable depots are some of the issues/ challenges faced by KSRTC. A professional techno economic study needs to be done to identify and suggest measures to deal with the critical issues/ challenges faced by KSRTC.

The scheme-wise outlay and expenditure of KSRTC in 2017-18 and 2018-19 (expenditure upto October, 2018) is given in Table 9.9.

Activities Initiated by KSRTC in 2017-18

1. As part of the implementation of revival package announced by the GoK, KSRTC has initiated steps for swapping of existing borrowings having higher rate of interest and lesser re-payment period by availing of a term loan to the tune of ₹3,100 crore from consortium of banks with the interest rate of 9.20 per cent and 20 years re-payment period, thereby making a savings of ₹60 crore per month on account of re-payment of loans.

Box 9.5 Policy on electric mobility

Kerala, which is in forefront in any innovation, initiated early steps in the development of forming a road map to an Electric Vehicle (EV) policy for the State. Accordingly, the GoK has appointed a Special Task Force under the Chairmanship of Prof. Jhunjhunwala, Principal Advisor to the Minister for Power, GoI for framing a draft EV policy. The committee prepared a draft policy and submitted before the Government. The Government have approved the draft EV policy (vide G.O (MS) No: 58/2018/Trans dated 29.9.2018). Major highlights of the policy are given below:

Vision

To embrace electric mobility as a tool to promote shared mobility and clean transportation and ensure environmental sustainability, pollution reduction, energy efficiency and conservation and to create an ecosystem for manufacturing EV components in Kerala.

EV Population targets

2022: 1 million EV's on the road
2020: Pilot Fleet of 2,00,000 two-wheelers, 50,000 three wheelers, 1,000 goods carriers, 3,000 buses and 100 ferry boats.

Strategic Initiatives

The policy aims at improving affordability and acceptance leading to adoption of electric vehicles through the following strategic initiatives:

1. Addressing the viability gap for buses and government fleet (if any)
2. Creating adequate charging infrastructure that are interoperable with several models of EVs,
3. Promotion of local manufacturing,
4. Awareness creation and promotion of shared mobility
5. Human capacity building and re-skilling

Source: G.O. (MS) NO.58/2018/TRANS dated 29.09.2018 and Draft EV policy

2. As per the recommendations of Prof. Susheel Khanna, appointed by the State Government as Consultant for study and report on the functioning of KSRTC, the schedules/routes having lesser earning per kilometre have been rationalised suitably for achieving better revenue.

3. Single duty system has been implemented thereby reducing the staff per bus ratio expecting as per national level.

4. Professionals have been appointed in the key-posts in KSRTC management level.

Issues, Challenges and Way Forward in Road Transport Sector

Most of the roads in the State do not have adequate width to address the existing level of traffic, only one fourth of the roads have either two lanes or four lane capacity while most of the roads have single lane or intermediate lane capacity. In the case of National Highways, only about 12 per cent of the roads have four lane capacities while the remaining roads have only two lanes or intermediate lane capacity. Bulk of the inter-city and interstate traffic is carried out by the National and State Highways which are only 8 per cent of the total network. Considering the demand supply gap, there is a huge need for up gradation of existing road network. The existing road network has to undergo a qualitative improvement with the aim to reduce traffic congestion and delay, easy access to destinations and reduction in accident risks. Most of the PWD roads have to undergo massive upgradation with widening and incorporating road safety features.

An action plan should be made for prioritising the road works in the State. Major emphasis should be given to widening the State Highways and MDRs along with professional design and adequate drainage facilities. The new road development initiative like the hill highways, coastal highways, by passes etc needs to be completed during the 13th Five-Year Plan period.

There is a need to undertake planned development of State Highways, important MDRs and city roads in the State, which addresses geometrical improvement, junction improvements, covering pedestrian facilities, utility ducts, re-laying the roads incorporating technical corrections and entering into maintenance contracts. Road side parking is another issue to be addressed to improve the level of service.

Co-ordination between the physical infrastructure providers – PWD, Railways, Inland Transport Authority, Airports and Coastal Shipping Agencies to build transport infrastructure, operate and maintain the existing ones are required. Physical infrastructure has to be designed to support an intermodal transport network.

Railways

The Indian Railway system is the second largest network in the world under a single management. It provides one of the cheapest means of transport in India. The Railways network comprise 90,803 km of track over a route of 66,030 km and 7,137 stations. It is the fourth largest network in the world after USA, Russia and China. Kerala occupies a significant position on the Indian Railways map with 1,257 route km and 1,588 km of total track. Thiruvananthapuram and Palakkad divisions of the Southern Railways are the administrative Divisions. Palakkad Division operates 76 express and 49 passenger trains and carries 2.16 lakh passengers. Thiruvananthapuram division operates 80 express trains and 60 passenger trains and carries 2.6 lakh passengers daily. All the railway lines passing through the State have been converted into broad gauge. There are about 200 railway stations in the State. Doubling and electrification works are in progress in various parts of the State. Feasibility studies for some new lines are also underway in the rail sector.

Table 9.10 Performance appraisal of KRDCL project in 2017-18

Sl.No	Projects	Performance Appraisal
1	Construction of New BG line between Thalassery and Mysore via Mananthavady	The feasibility report of the project was submitted to Railway Board in December 2017. Railway Board instructed to submit the DPR before November 2018 which is being prepared by Konkan Railway corporation. The target date for submission of DPR is subject to clearances from Karnataka Government for conducting survey in their State.
2	Proposed construction of 3rd and 4th Broad Gauge Railway Line from Thiruvananthapuram to Kasaragod	The pre-feasibility report of the project was submitted to Railway Board in December 2017 and the Board insisted for submission of a DPR as per existing norms and practices for Railway projects.
3	Development of New Terminus Station at Ernakulam (ERG) with Commercial Development Plan	The DPR prepared by KITCO Cochin has been approved by KRDCL. Railway Board insisted for submission of a detailed project report. KRDCL addressed the issue before Railway and citing it as property development. The matter is pending with Railway Board.
4	Construction of new BG Line from Nilambur to Nanjangud	KRDCL has already applied permission from Forest authorities to do a detailed survey in Karnataka portion as insisted by them. The DPR of the proposal will be taken up by KRDCL through agency.
5	Construction of ROBs/RUBs in Kerala coming under both Railway Division of Palakkad and Thiruvananthapuram	Construction of 27 numbers of ROBs/RUBs has been entrusted to KRDCL as per the joint meeting between Chief Secretary of Kerala and General Manager/Southern Railway in April 2018 and KRDL has already awarded for preparing Estimate.

Source: Kerala Rail Development Corporation

Kerala Rail Development Corporation (KRDCL)

KRDCL, a joint venture (JV) company between GoI and GoK, has been formed with the objective of taking up major railway infrastructure development projects in Kerala on a cost sharing mode. The Joint Venture (JV) is registered with an equity share of 51 per cent and 49 per cent between GoK and GoI and proposes to take up the upcoming railway projects in Kerala through project specific SPVs.

The JV Company has an initial paid up capital of ₹100 crore based on the quantum of projects to be undertaken. The authorised equity share capital and paid up capital can be enhanced from time to time with the approval of Ministry of Railways (Railway Board) and the State Government. List of projects identified by KRDCL in 2017-18 and the performance appraisal is given in Table 9.10.

Kochi Metro Rail Project (KMRP)

KMRP is the flagship project of the GoK designed to address the transportation woes of Kochi City. The project is implemented through the Kochi Metro Rail Ltd (KMRL) which is a SPV jointly owned by the GoK and GoI through equity participation. The GoI gave sanction for the project in July 2012 at a total cost of ₹5,181.79 crore for Aluva-Pettah 25.6 km stretch. KMRL has signed an agreement with GoI and Delhi Metro Rail Corporation Ltd (DMRC) for executing the project as per the tripartite agreement signed

Table 9.11 Details of Kochi Metro, in ₹ crore

Sl.No	Connected places	Length (km)	Project Cost (in crore)
Phase I	Aluva to Pettah (22 stations)	25.6	5,181.79 (original cost) 5,687.79 (revised cost)
Phase I (A)	Pettah to S.N. Junction (Extension)	2	359
Phase I (B)	S.N Junction to Thripunithura	1.2	355.7
Phase II	JLN Stadium to the IT city Kakkanad	11	2,310.00

Source: Kochi Metro Rail Ltd

between Govt. of India, Govt. of Kerala and KMRL. The details of the ongoing project are given in Table 9.11.

Reach I-from Aluva to Palarivattom, with a section length of 13.4 km and 11 stations was commissioned on 19.06.2017. Reach II A-from Palarivattom to Maharajas College a section length of 4.892 km and 5 stations was commissioned on 03.11.2018. The work of Reach 2 B from Maharajas College to Petta with a section length of 7.32 km and 6 stations is in progress and expected to be commissioned in 2019. The Board meeting of KMRL held on 30.05.2017 has considered the revision of the total project cost of Phase I from Aluva to Petta and the revised cost is estimated as ₹5,687.79 crore for which Administrative Sanction is being awaited from GoK. The financial progress of phase I up to 31.08.2018 based on original sanctioned cost is 95.27 per cent and based on revised cost is 86.79 per cent. The physical progress so far in Maharajas to Petta phase is 47.55 per cent.

Light Metro Rail Projects at Thiruvananthapuram and Kozhikode

Light Metro Rail Project is a Mass Rapid Transit System (MRTS) proposed to be implemented in the cities of Thiruvananthapuram and Kozhikode through a SPV, Kerala Rapid Transit Corporation Limited (KRTL). The DPR has been prepared by DMRC. GoK has accorded administrative sanction for the light metro projects at a total cost of ₹6,728 crore in which GoK's share is ₹1,619 crore, GoI's share is ₹1,278 crore and loan component is ₹3,831 crore.

A new metro rail policy has been announced by GoI in August 2017, which specified guidelines to be followed in the preparation of proposals for new metro projects in the country that seek financial assistance of the GoI. These guidelines are also applicable to all existing proposals for metro rails, being processed by the GoI. The proposal for the Light Metro projects in Thiruvananthapuram and Kozhikode will also have to be revised as per the guidelines of this new policy. Subsequent to the clearance by the State Government, the revised proposal will be sent to the Ministry of Housing and Urban Affairs (MoHUA) for the approval of GoI.

Administrative Sanction was accorded for the construction of flyovers at Sreekariyam, Pattom and Ulloor, which are major preparatory works in connection with the Light Metro project at Thiruvananthapuram. The estimated cost for the work is ₹272.84 crore, which includes the cost of acquisition of 2.77 Ha of private land. The funds for the work of flyovers are being availed from KIIFB. Administrative Sanction has also been accorded for widening of Mananchira – Meenchanda road, along the proposed Light Metro corridor in Kozhikode.

Water Metro Project

Kochi Water Metro Project was sanctioned in November 2015 at a total project cost of ₹748 crore envisaging a route length of 76 km in 16 routes covering 38 Jetties. Administrative Sanction was accorded for ₹682.01 crore, of which ₹579.71 crore is loan component and ₹102.30 crore is State share for implementing the project. The tri party agreement between GoI, KfW (Germany) and KMRL was signed in June

Table 9.12 Water Metro-Funding Pattern, ₹ in crore

Source	Phase I	Phase II	Ancillary infrastructure	Total
Loan	181.81	132.78	265.12	579.71
Equity	32.08	23.43	46.79	102.3
Total	213.89	156.21	311.91	682.01

Source: Kochi Metro Rail Ltd

2016 for 85 million Euro. General consultancy has been awarded to AECOM Consortia and agreement with the consultancy was signed on June 2, 2017. The details are given in Table 9.12.

Initial Investigation works have been started. Various surveys viz., hydro-graphic, topographic, geo-technical and topographic survey conducted and is completed for Phase I. M/s Wapcos Ltd was appointed for making Environmental Impact Study and completed 90 per cent of work. 'Consent to Establish' was received from Pollution Control Board on July 03, 2018. Cumulative Physical Progress of work is 18.64 per cent.

Air Transport

Air transport is coming of age and meeting a bulk of international trips and limited inter-State trips. Inter-city services within the State have just started. Unlike other States, where the capital city has the highest air traffic, in Kerala, air traffic is distributed evenly over the three airports. Despite this, all three international airports of Kerala are among the top 15 busiest airports in India. More than eight lakh domestic passengers and 50 lakh international passengers are using these airports facilities in the State every year.

Kerala has four international airports viz., Thiruvananthapuram, Kochi, Kozhikode and Kannur. All civilian airports functioning in the State are international airports, a feature which is unique to Kerala. Thiruvananthapuram international airport is one of the major airports in south India. It plays a major role in the world aviation map, connecting and controlling about nine international air-routes and eight domestic air-routes and provides approach control service to eight major and minor aerodromes. CIAL was ranked the third best airport in the 50 to 150 lakh passengers category based on the 2016 Airport Service Quality (ASQ) Survey conducted by Airports Council International (ACI), Montreal, Canada. CIAL is experimenting with innovative models which are comprehensive, sustainable and cost effective. Kozhikode International Airport is the twelfth busiest airport in India and the third in Kerala. Upon completion of Kannur International Airport, Kerala will join Tamil Nadu as the State with the most number of international airports.

Kannur International Airport Limited (KIAL)

Kannur International Airport Limited (KIAL) was set up by GoK to build and operate Kannur International airport. The Kannur airport project is being developed in two phases by KIAL. The first phase is envisaged to span from financial year 2016-17 to financial year 2025-26 and second phase would be from financial year 2026-27 to financial year 2045-46. In phase I, the airport would have flight movements of 39,638 numbers (peak hour's 18 nos) p.a with 4.67 million passengers and 60,758 tonnes of cargo. The facilities in the airport include a runway length of 3,050 m, with a terminal building of 96,000 sq.m, 20 parking stands (apron), and 22,000 sq.m Car/Bus Parking, 1200 sq.m. ATC/ Technical Building and around 7,750 sq.m near the apron area of Ground Service Equipment Parking area.

The Board of Directors decided to extend the length of runway from 3,050 m to 3,400 m and the land acquisition processes are in progress for this.

Water Transport

Water transport provides a cheap mode of transport, is safe and energy efficient, more environment friendly and causes least carbon emission. In Kerala, water transport is a viable supplement to road and rail transport. It has the largest carrying capacity and is most suitable for carrying bulky goods over long distances. There are three primary categorisation for water transport, namely ocean transport, inland water transport and coastal shipping. The complex network of connections between coastal ports, inland ports, rail, air, and truck routes forms a foundation of material economic wealth worldwide. By enhancing the efficiency

and sustainability of water transport, a comprehensive normative framework for the key aspects of navigation need to be established. This section deals with the review of various Government Plans and policies aimed at the overall development of ports and inland waterways facilitating and promoting coastal shipping, foreign trade and inland water transport.

Port Sector

The world trade activities gained momentum in the recent past as the economic activities in both the developing and developed nations have picked up. The fact that over 80 per cent of global trade by volume and more than 70 per cent of its value being carried on board ships and handled by seaports worldwide, reveals the importance of maritime transport for trade and development.

The world shipping fleet provides not only transport connectivity to global trade but also livelihood to those working in maritime business. The Review of Maritime Transport, 2018 (United Nations Conference on Trade and Development (UNCTAD)) states that the outlook for global-port handling activities remains positive over all, supported by projected economic growth and port infrastructure development plans. The global maritime trade is expected to grow by 4 per cent in 2018 and world seaborne trade is projected to expand at a compound annual growth rate of 3.8 per cent between 2018 and 2023. As per the Economic Survey 2018 around 95 per cent of India's trade by volume and 68 per cent in terms of value are transported by sea. This shows the importance of the infrastructure development of sea transportation.

Ports in India

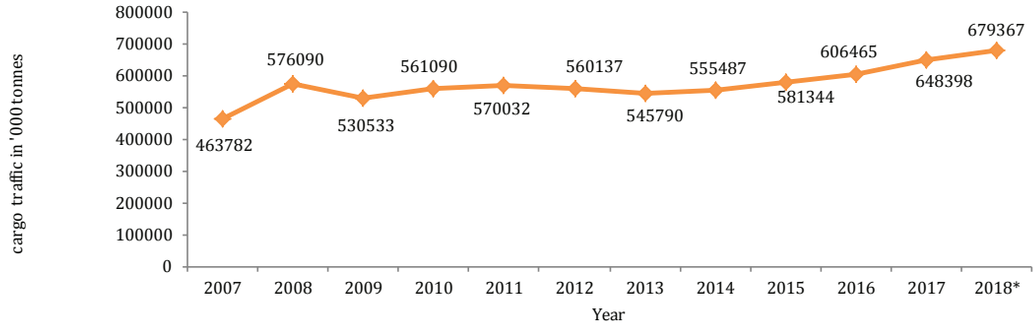
India has a coastal line which is more than 7,500 km long. Most cargo ships that sail between East Asia and America, Europe and Africa pass through Indian territorial waters. India is the largest importer of thermal coal in the world. The GoI has initiated the National Maritime Development Programme (NMDP), an initiative to develop the maritime sector; the planned outlay is US dollar 11.8 billion (around ₹83733 crore as per current rate). The main aim is to create port capacity of around 3,200 Million Metric Tonnes (MMT) to handle the expected traffic of about 2,500 MMT by 2020. There are 12 major ports in the country; 6 each on the eastern and western coasts. India has about 200 non-major ports of which one third are operational. The major ports are under the jurisdiction of the Central Government and non-major ports come under the jurisdiction of the respective State Governments' Maritime Boards (GMB). The major ports include Chennai, Kamarajar (Ennore) and V.O Chidambaranar (in Tamil Nadu), Cochin (in Kerala), Kandla (in Gujarat), Kolkata (in West Bengal), Mumbai and Jawaharlal Nehru Port Trust (JNPT) (in Maharashtra), Mormugao (in Goa), New Mangalore (in Karnataka), Paradip (in Orissa) and Vishakhapatnam (in Andhra Pradesh).

Cargo Traffic in Major Ports of India

The composition of cargo traffic handled in 2017-18 at major ports of India as a percentage of total cargo handled shows that Petroleum, Oil and Lubricants (POL) has the highest share (31.55 per cent) followed by coal (21.47 per cent) and container (21.01 per cent). Other miscellaneous cargo (13.62 per cent), iron ore (7.15 per cent), and fertiliser (2.22 per cent) are the other components. The data of Indian ports for the period from 2007 to 2018, shows that the per cent share is slightly decreased in the case of POL, where as it is increased in the case of coal and container. The share of POL was 33.28 per cent in 2007, which decreased to 31.55 per cent in 2018. The share of coal and container was 12.93 per cent and 17.03 per cent in 2007 that increased to 21.47 per cent and 21.01 per cent respectively in 2018. Figure 9.5 shows the total traffic handled by major ports in India from 2007 to 2018.

The growth in cargo handled in major ports of India was 4.77 per cent in 2018. As per the data from the Indian Ports Association, the growth in

Figure 9.5 Cargo traffic in major ports in India 2007-2018



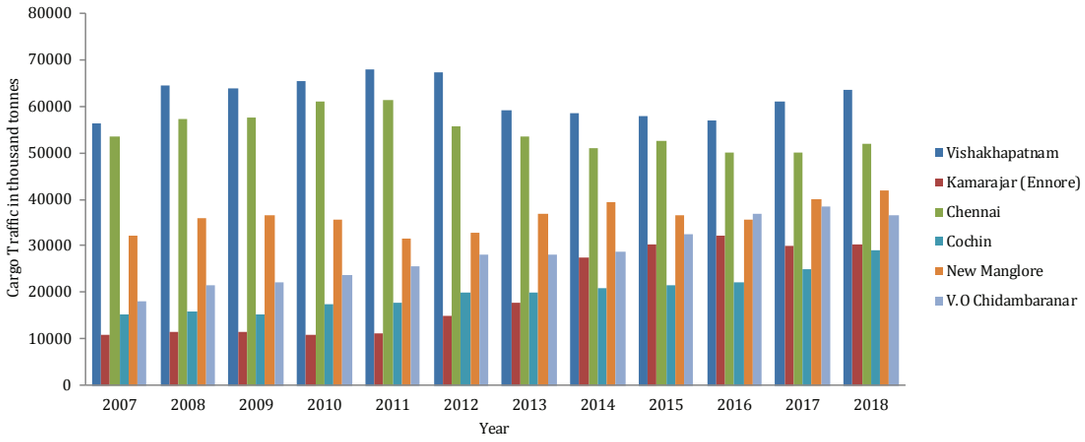
Note: Data for 2018 is provisional
Source: India Ports Association

2017 was 6.91 per cent and in 2016-17 it was 4.3 per cent. In 2017-18, the growth recorded highest in Cochin Port (16.52 per cent) followed by Paradip port (14.68 per cent). Cochin Port shows an increasing growth rate in the case of cargo traffic. The growth in 2015-16, 2016-17 and 2017-18 are 3.39 per cent, 13.16 per cent, and 16.52 per cent respectively. It is an indicator of development of Cochin Port. The growth rate of cargo handled in Kolkata (13.61), JNPT (6.20 per cent), New Mangalore (5.28 per cent), Vishakhapatnam (4.12 per cent) and Chennai (3.32 per cent) shows a positive growth whereas V.O Chidambaranar (-4.91 per cent), Mumbai (-0.35 per cent) and Mormugao (-18.94 per cent) shows a negative growth in 2017-18. Cargo traffic at major southern ports of India from 2012-13 to 2017-18 is given in Appendix 9.20 and cargo traffic from 2007-18 of major southern ports is depicted in Figure 9.6.

Cargo Traffic in Cochin Port

The total cargo traffic handled by the Cochin

Figure 9.6 Cargo traffic in southern major ports of India, 2007 to 2018



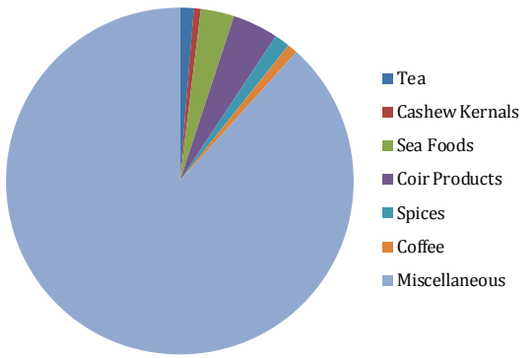
Source: India Ports Association

Table 9.13 Cargo traffic in Cochin Ports, in MMT

Year	Cargo handled
2012-13	19.85
2013-14	20.89
2014-15	21.6
2015-16	22.1
2016-17	25.01
2017-18	29.14
2018-19 (Upto Aug 31st)	13.14

Source: Cochin Port Trust

Figure 9.7 Commodity-wise exports through Cochin Port in 2017-18, quantity in MT



Source: Cochin Port Trust

Figure 9.8 Commodity-wise imports through Cochin Port in 2017-18, quantity in MT

Source: Cochin Port Trust

Port in 2017-18 was 29.14 MMT as against 25.01 MMT in 2016-17. This shows an increase of 16.52 per cent over the previous year. The major components of import commodity include other cargo including fertilisers and raw materials, food grains, iron, steel and machinery etc. Tea, cashew kernels, sea foods, coir products, spices, coffee and miscellaneous items are the major components of exports. Cargo traffic at Cochin Port from 2012-13 to 2018-19 (upto August 31) is given in the Table 9.13 and commodity-wise export/import data from Cochin Port in 2017-18 is depicted in Figure 9.7 and 9.8.

The total export cargo traffic handled by the port in 2017-18 recorded an increase of 21.44 per cent to 57.79 lakh (Metric Tonnes) MT as against 47.59 lakh MT handled over the preceding year. The import traffic in 2017-18 was 233.59 lakh MT, an increase of 15.37 per cent as compared to 202.48 lakh MT in 2016-17. The major components of import include miscellaneous including P.O.L, which shows 17.09 per cent growth compared to previous year. The other import commodities that shows 138.29 per cent growth in 2017-18 is iron, steel and machinery. The import of commodities such as fertilisers, raw materials and cashew nuts show a negative growth rate in 2017-18.

Non-Major Ports in India

There are 12 major and about 200 minor and intermediate ports including 69 operational non-major ports, spread along the 7,500 km coastline of India. Cargo traffic handled by non-major ports in India for the year 2016-17 was 485.21 Million Tonnes (MT). Cargo traffic of non-major ports of the country from 2007-08 to 2016-17, shows an increasing trend. The non-major ports of the States of Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Orissa and other states (including Pondicherry and Andaman and Nicobar and Lakshadweep) of the country shows that the major share of cargo traffic is handled by Gujarat (72.61 per cent). Andhra Pradesh stood second with a traffic of 14.04 per cent. Kerala is at the bottom with a negligible per cent of cargo traffic (0.04 per cent). Kerala shows a decreasing growth in cargo handled from 2008-09 to 2012-13. Though a slight increase is seen in 2013-14, there is a declining tendency of growth from 2014-15 to 2016-17. Gujarat shows consistency in growth of cargo traffic while Kerala, Goa, Karnataka and Tamil Nadu shows decreasing growth; Orissa and Maharashtra shows increasing growth. Cargo traffic for the year 2014-15, 2015-16 and 2016-17 in non-major ports of Kerala is 0.155 MT, 0.144 MT and 0.141 MT respectively. The infrastructure development of non-major ports in Kerala has to be considered as a task which should be addressed on emergency basis to improve cargo movements in and out of State so as to improve the economy of the State. The State-wise traffic handled at non major ports in India is given in Appendix 9.21.

Ports in Kerala

Kerala has a coastal length of approximately 585 km. There is one major port at Cochin and 17 non-major ports. Out of 17 minor ports in Kerala, four are considered as intermediate ports based on berthing, cargo handling and storage facilities available in them. They are Vizhinjam, Beypore-Kozhikode, Azheekal and Kollam ports. The remaining 13 minor ports in the State are Neendakara, Alappuzha, Valiyathura, Kayamkulam, Manakkodam, Munambam-Kodungallur, Ponnani, Thalasserry, Kozhikode, Kannur, Cheruvathoor-Neeleswaram, Kasaragod and Manjeswaram. Regular services connecting Lakshadweep occurs at Beypore port. Vizhinjam port serves weekly vessel operations to Maldives. Ports are being developed on priority basis for coastal shipping operations.

Currently, the majority of the coastal cargo especially containerised traffic is routed through Cochin Port, from where it is dispatched to its final destination in the State by road. By developing the non-major ports in Kerala as coastal gateways, the coastal cargo can be offloaded at the nearest non-major port of the intended destination thereby reducing logistics cost.

Cargo Traffic in Non-Major Ports of Kerala

The cargo traffic in non-major ports of Kerala is 1,38,794.38 tonnes in 2017-18 as against 1,40,542.9 tonnes in 2016-17 according to the data received from the Director of Ports, Kerala. The data shows that 95.63 per cent of total commodities is handled through Kozhikode-Beypore port. The commodities handled in Kozhikode port are machinery, POL, tiles and bricks, animals and miscellaneous items. Vegetables and fruits is the only commodity, handled through Vizhinjam port in 2017-18. Commodity-wise cargo handled at the intermediate and minor ports in Kerala is given in the Appendix 9.22. The total revenue collected through different non-major and intermediary ports in the State is ₹26.72 crore in 2017-18, of which major share (₹11.69 crore) is from the sale of dredged material. Category-wise break-up of revenue collected at the intermediary and minor ports of Kerala in 2017-18 is given in Appendix 9.23.

Container movement in non-major ports in 2017-18 happened only through Beypore-Kozhikode port. An approximate number of 400 containers were handled through Beypore in 2017-18. The container service was between Kochi-Beypore and Mumbai-Beypore. Majority of the cargo mix in this category included ceramic tiles, sanitary wares, veneer for plywood manufacturing. The regular shipment from Beypore to Lakshadweep includes perishables, construction materials, livestock etc. The average annual cargo volume handled at Beypore is approximately 1 lakh tonnes. Vizhinjam port serves a weekly movement to Maldives and this accounts on an average of 10,000 tonnes per annum. Total number of vessels called at intermediate and minor ports of Kerala (Azhikkal, Kozhikode, Kollam and Vizhinjam) is 486 in 2017-18 while it was 495 in 2016-17. The details of number and tonnage of steamers and sailing vessels through non-major and intermediary ports is given in Appendix 9.24.

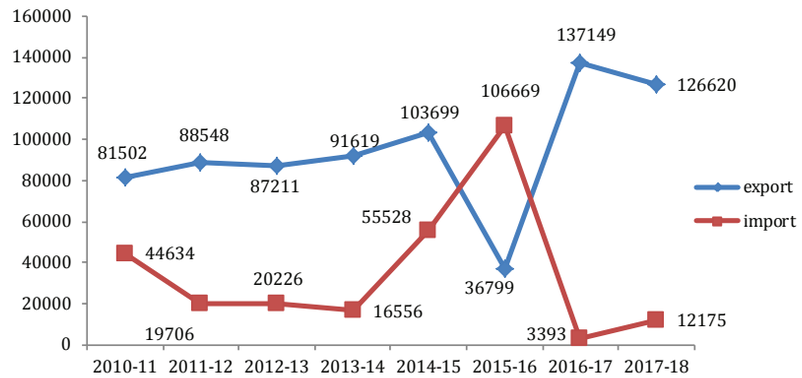
The trend of cargo handled at non-major ports of Kerala is given in Figure 9.9.

The trend of cargo handled in non-major ports shows that import was 12,175 tonnes in 2017-18, higher than 3,393 tonnes in 2016-17.

Port Department

The Port department under the GoK administers the non-major ports in the State. At present there are 17 notified non-major ports in Kerala.

Figure 9.9 Trend of cargo handled at non-major ports of Kerala



Source: Cochin Port Trust

Kerala Industrial Infrastructure Development Corporation (KINFRA), a GoK undertaking, owns 49 per cent stake in the inland port at Naattakam in Kottayam District. The main function of the Department of Ports is to conserve the assets of the non-major ports in the State. Though the State has a 585 km long coastline, the maritime activities and real time shipping operations comparable to acceptable standards and performance were concentrated at Kochi alone. Nine out of fourteen districts of the State are along the coast. The optimum and sustainable utilisation of the maritime resources of the State would unveil enormous opportunities for its economic growth. To achieve this objective, the maritime activities concentrated at Cochin port need to be replicated or redistributed at other locations along the entire coast. Hence, a project for the development of coastal shipping was designed and a business plan for the strategic implementation of the same was prepared. The project envisaged the diversion of significant volume of cargo/passenger from road/rail to coastal waterways through the non-major ports of Kerala. The project was planned in such a way that it would transform the transportation/ logistics sector of the State. Coastal shipping project, being implemented under Department of Ports, is the first of its kind in the country and would secure cross sectoral gains by integrating it with fisheries, industries, maritime education and tourism. The Director, Port department is also responsible for the implementation of Kerala Inland Vessels Rules (KIV Rules) in the State. Outlay and expenditure for the financial year 2017-18 and 2018-19 (August) of agencies involved in the development of ports are given in Table 9.14.

The expenditure for the year 2017-18 was only 48.75 per cent for all agencies under port sector. Hydrographic Survey Wing expended only 19.75 per cent of the total outlay for the year 2017-18. The expenditure of the ports department was 49.38 per cent in 2017-18 and in 2018-19, the expenditure is 42.26 per cent (as on August 2018). The infrastructure of ports in the State is given in the Appendix 9.25.

Kerala Inland Vessel (KIV) Rules, 2010

On September 15, 2010, KIV Rules came into existence. The Director, Port department is the implementing authority. As per the KIV Rules, there are 6 port of registries including Vizhinjam, Kollam, Alappuzha, Kodungallur, Beypore and Azhikkal. As per the KIV Rules, the registration period of vessels is decided as 5 years and the annual survey certificate is valid for 1 year. These two certificates are essential for operation of the vessel. In addition, the vessels should be surveyed in dry dock once in 3 years. As per the KIV Rules, survey certificates should be provided to houseboats only on providing viability certificate for 3 years from pollution control board and third party insurance for one year period.

There are 928 vessels registered at various ports of Kerala (from 2010 to November, 2018) i.e., Vizhinjam (301), Kollam (32), Alappuzha (292), Kodungallur (237), Azhikkal (34) and Beypore (32). More registration of vessels is done at

Table 9.14 Outlay and expenditure of port sector, in ₹ lakh

Implementing Agency	2017-18			2018-19 (as on 31/08/2018)		
	Outlay	Expenditure	Expenditure (%)	Outlay	Expenditure	Expenditure (%)
Ports Department	41,786	20,633.39	49.38	1,098.50	4,626.92	42.26
Vizhinjam International Seaport Limited (VISL)	Within Port Department			2,001	6,954.37	347.54
Harbour Engineering Department (Port)	1,465	614.55	41.95	1,437.50	63.58	4.42
Hydrographic Survey Wing	560	110.61	19.75	255	10.33	4.05
Total	43,811	21,358.55	48.75	4,792	11,655.21	243.222

Source: PlanSpace

Vizhinjam followed by Alappuzha. At Azhikkal and Beypore comparatively lesser number of vessels are registered. The type of vessels registered includes passenger vessel, speed boat, house boat, cargo vessel, floating resort, motor boat, cutter section dredger, jankar, shikkaras, tug, jetski, rescue boat, cruise 11 etc. Total number of vessels registered in 2016 is 102, and 81 each in 2017 and 2018. Number of passenger vessels and house boats registered altogether from 2010 to 2018 (November) are 556 and 139 respectively.

Physical Achievement of Port Department

2017-18

1. Berth construction worth ₹11.00 crore completed at Kollam port.
2. Development of roads to seaward and leeward wharf at Vizhinjam Port is in progress.
3. Acquisition of Land for Beypore Port development is in progress.
4. Procurement of tugs for Beypore and Azhikkal Port is in progress.
5. Construction of KMI Neendakara nearing completion.
6. Beypore Port master Plan development in progress.

2018-19

1. Construction of Passenger cum Multi-purpose berth at Kollam Port Phase 1 (100 metre) nearing completion.
2. Government share capital assistance to Azhikkal Port Limited
3. Maintenance dredging at Azhikkal is in progress.
4. Tugs for Beypore and Azhikkal Port under construction
5. Land acquisition (Kovilakam land) for Beypore Port worth ₹25 crore done.

Issues/Challenges in Coastal Shipping

Kerala's logistics sector is dominated by road and rail systems. The contribution of waterways in the transportation sector is considerably low on account of multifarious reasons like low accessibility, reliability, cost and convenience. The hurdles of this sector have been enlisted in the Costal Shipping Summit held on September 22, 2017. These include,

1. Labour issues in the Ports are one of the major problems for the successful implementation of the Coastal Shipping Project. Frequent strikes, high labour charges and over time charges, non-supportive attitude of labour at port are some of the major issues that hold back cargo owners from resorting to this economical mode of transportation.
2. Inadequate availability of ships for operation.
3. Threats from fishermen and fishing boat owner's community.
4. Competition from road and rail modes of transport.
5. Kerala being a consumer State, has sufficient quantity of cargo coming in to the State but the vessels are empty in the return trip.
6. Lack of Disaster Management System.
7. Inadequacy in skill updation of port staff.
8. Lack of sufficient land availability near Ports.
9. Huge costs for dredging and inadequate marine/land infrastructure.
10. Threats from local community against the development/land acquisition in certain ports.
11. Road connectivity with constraints which restrict free movement of containers. Narrow and bad conditioned road with obstructions like electric lines, poles, trees, sharp bends etc. cause difficulty for container transportation.

Harbour Engineering Department

Harbour Engineering Department functions under the Department of Fisheries, GoK. The harbour engineering department acts as a service department of the Fisheries, Port and Tourism Departments. In addition, it manages all fishing harbours in the State except Munambam fishing harbour.

The major task of the department is to investigate, explore, develop and execute new methods and technology for creating infrastructure development in marine sector. It provides technical support to Fisheries Department, Port Department and Tourism Department in coastal sector.

Major Achievements of Harbour Engineering Department

2017-18

1. e-office implemented at CE's Office for speedy and transparent administration.
2. Acquired Mike-21 Software, a Numeric Modelling Software, for model study of harbour Projects.
3. Quality Control wing started functioning with the scientific instruments and equipments.
4. Construction of Eravipuram-Paravur coastal road nearing completion.

Hydrographic Survey Wing

Hydrographic Survey Wing was founded in 1967 with the objectives of investigation and collection of Hydrographic Survey data for inland navigation and development of all non-major ports in the State. Since its formation, the Wing has been conducting regular pre-dredging, post-dredging, pre-monsoon, post-monsoon surveys to ascertain various aspects such as requirement of dredging, bathymetric data required for the infrastructure development like, construction of fishing harbours, fish landing centres, small ports, and bathymetric data required for the navigational, recreational and research purposes. The Wing mainly works for Port department and harbour engineering department. The Wing also undertakes survey works for other departments such as the Irrigation, PWD, Fisheries, Tourism, Inland Navigation, other major organisations such as Kerala Water Authority, Kerala Electricity Board, Kerala State Maritime Development Corporation Ltd., and various research institutions such as Kerala Engineering Research Institute, CWRDM and CESS. The tidal and hydrographic information requested by the Naval Hydrographic Office at Dehra Dun (Indian Navy) for updating the Indian Admiralty Charts (Navigational Charts, published by Naval Hydrographic Office) are also forwarded by the Hydrographic Survey Wing.

Physical Achievements of Hydrographic Survey Wing

Under the scheme, pre and post dredging survey and pre and post monsoon survey, data was collected, verified, systematised, compiled and survey charts were prepared. The survey wing conducted 45, 44, 36, and 23 surveys in 2015-16, 2016-17, 2017-18 and 2018-19 (upto October 2018) respectively.

1. Hydrographic Survey Institute-The Kerala Institute for Hydrography and Advanced Studies (KIHAS), established in 2013 and registered under the Travancore Cochin Literary Scientific and Charitable Societies Registration Act 1955 has been functioning at fisheries University Campus in Kochi. The Institute conducts basic hydrographic course for a duration of six months. During this year, course for two batches were conducted. 22 students completed this course and certificates were given to them. Most of the students who have completed this basic hydrographic Survey course got employment in India and abroad. The KIHAS is also conducting course in Total Station. Steps being taken to affiliate this institution with Kerala University of Fisheries and Oceanography (KUFOS). From 2013 to 2017, 88 students completed hydrographic survey course and 46 students got job. In 2018, the course work of 6th ongoing batch with 17 students is in progress.
2. Government accorded sanction for the purchase of 1 DGPS, 2 ATGs, 3 Hypack Softwares, and 1 Echo sounder for a total amount of ₹69.11 lakh.
3. Administrative Sanction obtained for special repair of vessels M.V. Nirdheshak and M.V. Surveyor and repair work is progressing.

Vizhinjam International Seaport Ltd (VISL)

The first phase of the port is planned with a container handling capacity of 1 Million TEU (Twenty Foot Equivalent Units) with 800 m berth length with future expansion plans to 3 Million TEU/2,000 m berth length in successive phases. The total estimated cost of the first phase of the project is ₹7,700.00 crore with (i) ₹4,089.00 crore as PPP component (ii) ₹1,463.00 crore as funded work of breakwater (iii) ₹1,808.00 crore for external infrastructure and land acquisition (iv) ₹340.00 crore for Resettlement and Rehabilitation (R and R) for Project Affected People (PAP) and for general administration expenses.

This is the first port project in the country being executed in Public Private Partnership (PPP) model with Viability Gap Funding (VGF) from GoI and first such project in the State. Out of the PPP component of ₹4,089.00 crore, investment of ₹1,635.00 crore is the VGF part (with ₹817.8 crore from GoI and ₹817.2 crore by GoK) and the investment of ₹2,454.00 crore is by the Concessionaire, Adani Vizhinjam Port Private Ltd. (AVPPL).

The port construction works was initiated in December 2015 and construction works of 565 m length of breakwater, 800 m long berth, container yard, boundary walls and access roads are in progress. 3.3 Million Litres Per Day (MLD) water treatment plant and 11 KV power substation works are completed. The total amount invested by GoK in the project till date is ₹1,100.00 crore. Financial progress of the project is depicted in the Table 9.15 given below.

The estimate for the year 2018-19 from GoK is at ₹237 crore, out of which ₹80 crore is received and ₹20 crore is being approved for release. Additionally an amount of ₹77 crore is required for releasing advance to Konkan Railway Corporation Limited (KRCL) for starting rail construction work and an amount of ₹60 crore is estimated for R and R for PAP's and social welfare measures. In 2018-19, an additional amount of ₹366 crore is estimated to be raised as loan from HUDCO towards payment of 1st instalment of funded work.

Status of Port Construction – Up to August 31, 2018

1. 565 m length of breakwater (out of 3,100 m) completed.
2. 33 Ha of reclamation (out of 53 Ha) for container yard completed.

Table 9.15 Financial progress, ₹ in crore

		Expenditure			
Sl No	Particulars	2016-17	2017-18	2018-19 (upto August 31, 2018)	Total (upto August 31, 2018)
1	Funded work – Construction of Breakwater and Fishing Harbour	146.3	146.3	-	292.6
2	Land	596.46	26.06	17.65	640.17
3	Water	7.28	-	-	7.28
4	Power	51	-	-	51
5	Rail connectivity	4.09	-	10.46	14.55
6	R and R for PAP's	20.39	11.37	36.01	67.77
7	Administrative and other expenses	72.93	6.2	2.33	81.46
	Total amount spent	898.45	189.93	66.45	1,154.83
	Amount received from Government	931.57	141.11	80.69	1,153.37

Source: Vizhinjam International Seaport Ltd

3. 358 numbers of piles (out of 615 numbers) for 800 m long berth made.
4. Casting of 6,878 number of Accropode-II (out of approximately 17,000 numbers) for breakwater etc., have been completed.
5. Concrete pre-casting works of structural members of berth, construction of boundary walls, preliminary works for 2 km long access road etc. are progressing.

Azhikkal Port Ltd.

Azhikkal Port Limited, an SPV formed, with Hon'ble Chief Minister as Chairman and Hon'ble Minister for Ports as Vice Chairman was incorporated on March 6, 2018 for the development of Azhikkal port. The Authorised Capital of the Company is ₹100 crore and the initial paid up capital will be ₹25 crore. It is wholly owned by GoK registered under Companies Act 2013. The Technical Consultancy Services has been awarded to M/s HOWE Engineering projects India Pvt Limited on April 23, 2018 and the agreement was entered on May 9, 2018.

The port will have facility to cater to vessels with draught of 14.5 meter. Port shall have 2-3 berths in Phase 1 and augmented further in next phases. LNG facility shall be considered in future phases. The possibilities of developing dedicated terminals for bulk handling of food grains, cement, edible oil etc. will be explored.

Kerala State Maritime Development Corporation Ltd (KSMDCL)

KSMCL is a fully owned State Government undertaking engaged in maritime activities mainly dredging. The Corporation was formed in 1994 as per Companies Act 1956. The Company is formed with the Share capital of ₹10.00 crore and it has been enhanced subsequently to ₹15.00 crore. The paid up Share Capital of the Company as on March 31, 2016 is ₹9,99,98,000. The release of the enhanced share capital is pending with the Government. The company owns and operates different types of dredgers namely CSD Neendakara, CSD Chandragiri and TSD Sindhuraj.

In 2016 -17 KSMDCL performed Kodungalloor port Dredging II Phase and Ponnani fishing harbor dredging. In 2017-18 conducted emergency dredging at Beypore port, and Azhikkal port. ln view of the situation after the devastating floods in Kerala, there is abundant requirement of dredging, de silting, cleaning of canals, and rivers. Navigational channels are to be made fully operational. KSMDCL is involved in cleaning of the dredged material and is executing the sale of sand through Department of Ports Web portal. Currently, KSMDCL is in the process of liquidation and will be merged to the Kerala Maritime Board.

Kerala Maritime Board

Kerala Legislature passed the Kerala Maritime Board Act, 2017 (Act 16 of 2017), and published in the official gazette on September 16, 2017. Subsequently, Government as per G.O. (Ms) 1/2018/F and PD dated 2.2.2018, constituted the Kerala Maritime Board. The Board is constituted for Development of Minor Ports and Harbours to promote cargo movement with a view to boost the economic activity along the coastline. As per section 106 of Kerala Maritime Board Act, the Government may by notification make rules for carrying out the purpose of this act. Accordingly, special rules have been prepared by the administrative department and the same is with law department for scrutiny. Notification to transfer and vesting the assets and liabilities of the government undertakings is also submitted for approval. The Chairman and the Board Members have assumed charge with effect from July 25, 2018 at the Regional Office of Kerala Maritime Board, Thiruvananthapuram. The Board consists of Chairman, Vice chairman, 3 ex-officio members, representative of Indian Navy, representative of Indian Coast Guard, Chief executive officer, VISL and selected 4 members.

Inland Water Transport (IWT)

IWT is a viable alternative or friendly mode of transportation in addition to road, rail transport or air counterparts. Though environmentally-

friendly and most economical mode, it remains largely under-exploited. By enhancing the efficiency and sustainability of inland water transport, around 20 per cent cargo movement can be shifted reducing the traffic on roads. State Water Transport Department (SWTD), Coastal Shipping and Inland Navigation Department (CSIND) and Kerala Shipping and Inland Navigation Corporation (KSINC) are the major agencies under IWT.

Inland shipping differs widely from country to country, but in almost all regions this mode of transport provides the least expensive means of transport. In general, inland waterway systems are found in areas with large rivers. Canals extend and improve the use of those transportation systems.

India has an extensive network of inland waterways in the form of rivers, canals, backwaters and creeks. The total navigable length is 14,500 km, out of which about 5,200 km of the river and 4,000 km of canals can be used by mechanised crafts. Freight transport by waterways is highly under-utilised in India compared to other large countries and geographic areas such as the United States, China and the European Union. The total cargo moved (in tonne kilometres) by inland waterways was 0.1 per cent of the total inland traffic in India, compared to the 21 per cent in the United States. Cargo transport in an organised manner is confined to a few waterways in Goa, West Bengal, Assam and Kerala.

Inland waterways in India consist of the Ganges-Bhagirathi-Hooghly rivers, the Brahmaputra, the Barak river, the rivers in Goa, the backwaters in Kerala, inland waters in Mumbai and the deltaic regions of the Godavari-Krishna rivers. About 44 million tonnes of cargo is moved annually through these waterways using mechanised vessels and country boats.

Considering the above benefits, GoK is giving top priority to the development of the West Coast Canal connecting the National Waterway-III. Waterways in the State include the main arterial Waterway, West Coast Canal (WCC) and feeder canals. The total length of the potential Inland Waterways in the State is 1,687 km. Total length of WCC is 590 km. There are 1,100 km feeder/link canals connecting WCC and important destinations like commercial centres, ports and tourism spots. Out of the total length of 590 km, three portions between Mahe and Valapattanam having total length of 26 km are uncut portions. Further extension for 41 km from Neeleswaram to Kasaragod is also under consideration. Portion of the West coast canal from Kollam to Kottappuram was earlier declared as National Waterway-III. Portion of WCC from Kottappuram to Kozhikode and six feeder canals were also declared as national waterways. WCC can broadly be divided into five sections namely (1) Kovalam-Kollam (74.18 km), (2) Kollam-Kottappuram (Kodungallur)(168 km), (3) Kottappuram-Kozhikode (160 km), (4) Kozhikode-Neeleswaram (187.82 km) and (5) Neeleswaram-Kasaragod (41 km) respectively. Entire navigation canal system in Kerala can ensure sufficient water throughout the year and can be developed as Smart Waterways. The Inland Waterways Authority of India (IWAI) holds the reach from Kollam to Kozhikode and the remaining stretches are under State waterways.

The development of State Waterways is done jointly by CSIND and Kerala Waterways and Infrastructure Ltd (KWIL), a Special Purpose Vehicle formed by the State Government and Cochin International Airport Ltd (CIAL) as a major partner. With KIIFB assistance, KWIL will take up the development activities in Parvathy Puthanar, Kovalam-Akkulam stretch, Varkala tunnels, Canoli canal in Kozhikode town, Mahe-Valapattanam (uncut portion) reach and development of Neeleswaram –Bekal-Kasaragod reach. The other development works are being taken up through CSIND.

Most of canals were silted up and suffer from many navigation constraints like shallow depth and narrow width, bank erosion, absence of infrastructural facilities like jetties and

terminals and navigation aids and needed development. National waterway-III between Kollam and Kottappuram and the feeder canals of Champakkara and Udyogmandal were developed in Class-3 standard and barge services are operating in these canals. Passenger boat service is provided in Kollam, Alappuzha, Ernakulam, Kannur and Kasaragod. Besides that, various type of boats including house boats, shinkar boats, speed boats, etc are plying in these canals and back waters for tourism. Jhankar service is provided at needed places. Systematic development of potential waterways in class -3 standards is essential to achieve the goals in water transport sector including modal shift of cargo transportation and tourism development. The detail of operational statistics of Inland Water Transport agencies is given in the Appendix 9.26.

A road map in three phases is planned for the development of waterway system in the State is as follows:

Phase I-WCC will be developed with possible width in the available land to be completed in the year 2020.

Phase II- The rehabilitation of encroachers, land acquisition and widening of canal will be completed in 2020-22.

Phase III- The extension of WCC up to Bekal in Kasaragod District, development of feeder canals and amenities for cargo transportation and tourism facilities will be achieved during 2022-25 period. Navigation aids and signals will be positioned for Smart waterways to enable permanent and round the clock navigation.

1. State Water Transport Department

The State Water Transport Department was formed in 1968, with its headquarters (Directorate) in Alappuzha. During the formation, the service operation was only in the districts of Alappuzha, Kottayam and Kollam. The nerve centre of all the functions and activities back then was the Head at Alappuzha. Later the functions and activities were extended by establishing an office for the Mechanical Engineer and three Regional Offices in the districts of Ernakulam, Kottayam (Changanassery) and Kasaragod, headed by three Senior Superintendents. Now, the department has fourteen Station Offices.

The department caters to the traffic needs of the inhabitants in waterlogged areas for the districts of Alappuzha, Kottayam, Ernakulam, Kannur and Kasaragod. Even though it is a commercial department, its functions are similar to a service department. Ever since 'transportation' came under 'essential service', this Department has taken shape as an Essential Service Department. The scheme-wise outlay and expenditure of State Water Transport Department in 2017-18 and 2018-19 (expenditure up to August 2018) is given in Table 9.16.

The department transports about 150 lakh passengers per annum using wooden/steel and fibre glass passenger boats. Presently 51 passenger boats and 5 rescue boats are operated

Box 9.6 Vega 120

Kerala State Water Transport Department has launched Vega 120, Kerala's first partly air-conditioned fastest ferry (speed of 14 kilo meters) connecting Kochi and Vaikom on November 4, 2018. It is aimed at both tourists and daily commuters. The journey time between Ernakulam and Vaikom through, Vega 120 is estimated to be 90 minutes, as compared to 2 hours taken by buses. Presently, the services are scheduled according to the normal office timing. This is a two cabin boat, with toilet and cafeteria. AC cabin can accommodate 40 passengers and ordinary cabin can accommodate 80 passengers.

Source: Kerala State Water Transport Department

Table 9.16 Outlay and expenditure of State water transport department in 2017-18 and 2018-19, in ₹ lakh

Sl No	Schemes	Annual Plan 2017-18			Annual Plan 2018-19		
		Outlay	Expenditure	Expenditure %	Outlay	Expenditure upto August 2018	Expenditure %
1	Land, Building and Terminal Facilities	110	179.75	163.41	400	4.69	1.17
2	Acquisition of Fleet and Augmentation of Ferry Services	1,815	1,154.70	63.62	1,600	352.87	22.05
3	Workshop Facilities	165	159.42	96.62	270	0	0
4	Purchase of new Engine and Reconstruction of old Boats	110	46.12	41.93	150	35.71	23.81
	Total	2,200	1,540	70	2,420	393.27	16.25

Source: PlanSpace

including tourism services. The department handled 135.43 lakh passengers in 2017-18 and the total revenue receipt on inland transport (collection from tourist boats + barge + jhankars) was ₹65.85 lakh.

The department aims to introduce barge services between Cochin to Kollam to transport petroleum products. Amphibious type water bus in Muhamma, Vaikom and Perumbalam and another solar vessel for the Vaikom – Thavanakkadavu water way and new passenger –cum-tourist services "See Ashtamudi" are on the anvil. One cruise vessel and two water taxis on an experiment basis are nearing completion. Also construction of 5 passenger vessels and catamaran vessels are progressing.

2. Coastal Shipping and Inland Navigation Department (CSIND)

CSIND and KWIL are involved in the development of water ways in Kerala under water transport. This mode involves passenger and freight movement with lower operating costs and environmental pollution than road, rail or air options. It could relieve pressure on the other modes of transport. Basic infrastructure requirement for Inland water transport comprises efficient navigation routs with navigation aids, terminals and jetties with adequate facilities to handle cargo and passengers and vessels suitable for various needs. Outlay and Expenditure of agencies involved in Inland Navigation for the years 2017-2018 and 2018-19 (upto August) is given in Table 9.17.

Achievements of Coastal Shipping and Inland Navigation Department (CSIND)

2017-18

1. 14 km of WCC has been made navigable (6 km in between Akkulam-Varkala stretch; 5 km in between Varkala and Kollam stretch; 3 km in Vadakara-Mahe (1st reach))
2. Construction of 15 boat jetties are completed
3. Construction of 3 bridges are completed.
4. Land acquisition-77 acres of land in Vadakara-Mahe canal is progressing
5. Land acquisition – 1st and 2nd uncut portions of Mahe-Valapattanam reach also started and alignment for 3rd uncut portion finalised.

2018-19

1. Development of 4 km portion of WCC completed (1.7 km in Varkala-Kollam stretch; 2.3 km in Vadakara-Mahe 2nd reach).
2. Construction of 3 boat jetties completed.
3. Initiated land acquisition for 3 boat terminals in Parvathy Puthanar.

Table 9.17 Outlay and expenditure of inland water transport, in ₹ lakh

Implementing Agency	2017-18			2018-19 (as on August 31, 2018)		
	Outlay	Expenditure	Expenditure (%)	Outlay	Expenditure	Expenditure (%)
State Water Transport Department	2,200	1,539.96	70	2,420	393.27	16.25
Kerala Shipping Inland Navigation Corporation	1,322	315.97	23.9	1,600	504.55	31.53
Coastal Shipping and Inland Navigation Department	12,785	1,323.52	10.35	9,359	201.21	2.15
Total	16,307	3,179.45	19.5	13,379.00	1,099.03	8.21

Source: Planspace

4. IWAI Survey for land acquisition for widening Parvathy Puthanar to 25 meters width is in progress.

The expenditure of the shipping promotion fund for cargo movements in water ways is ₹36.91 lakh (1,84,555.7 tonnes *20kms * ₹1) in 2017-18 and ₹4.31 lakh (21,597 tonnes*20kms* ₹1) in 2018-19 (upto September 2018).

Inland Water Authority of India (IWAI)

IWAI is a GoI agency for development of inland water ways. Its objective is the development of inland waterways which are declared as National Waterways in the State (Table 9.18). Thus development activities in the National water ways are done by IWAI using central fund.

Progress of Capital Work Executed by Inland Water Authority of India (IWAI) in National Waterway no. III

1. Dredging performed in Edappallikkotta-Kollam stretch of National Water way III – 150 metre, 810 metre and 450 metre in 2016-17, 2017-18 and 2018-19 (up to August 2018) respectively.
2. Length of bank protection work executed-556.20 meter, 1012.05 meter and 429.15 meters in 2016-17, 2017-18 and 2018-19 (up to August 2018) respectively.

Kerala Shipping and Inland Navigation Corporation Ltd (KSINCL)

KSINCL is a State Government undertaking

Table 9.18 List of canals declared as national waterways

Sl.No	Route	Length in km	NW No.	Physical Status/Remark
	National waterways			
1	Kollam –Kottapuram portion of WCC	168	NW-3	Navigable
2	Udyogamandal Canal	23	NW-3	Navigable
3	Chambakara Canal	14	NW-3	Navigable
	New routes declared as National water way in 2016			
4	Kottappuram-Kozhikode portion of WCC	160	NW-3	Partially Navigable
5	Alappuzha -Changanassery	28	NW-8	Partially Navigable
6	Alappuzha-Kottayam-Athirampuzha	38	NW-9	Partially Navigable
7	Kottayam-Vaikkam	28	NW-59	Partially Navigable
8	Poovar-Erayumanthurai -AVM canal (Major portion in TN)		NW-13	Partially Navigable-in Tamil Nadu
	Total Length (excluding AVM canal)	459		

Source: CSIND

engaged in passenger and cargo transport, tourism, construction and maintenance of vessels, crafts and other developmental activities in the water ways. KSINCL started tourism operation in 2005, taking the tourists to the sea on 'Sagararani', that offer trips to the sea on regular basis to the general public and currently two vessels are in operation. It is also the pioneer in mechanised cargo movement in Kerala and still the largest player. KSINCL now operates two cargo barges, four petroleum barges, one acid barge and two jhankars. The business details of KSINCL in 2016-17 and 2017-18 is given in Table 9.19.

Physical Achievements of KSINCL

1. Construction of one P.O.L barge and one acid tanker barge is in progress.
2. An average of 1.50 lakh metric tonnes cargo is moved every year.
3. A solar/electric powered vessel is planned to be introduced at Calicut on similar lines (Sagararani 3)

Nefertiti – New Cruise Vessel

KSINCL is ready to launch, a 200 pax sea going day cruise ship named "Nefrititi" registered under Merchant Shipping Act. This will be a luxury vessel suitable for multi purpose activities like meetings, parties etc. besides regular excursions. Amenities on Board includes Restaurant (60 pax), Auditorium (200 pax) TV Room (20 pax), Mini Conference Room (10 pax), Games Room (TV with Play station gaming console), souvenir shop, bar counter, play area for children, fishing rods and deck for sea viewing.

Kerala Waterways and Infrastructure Ltd (KWIL) With a view to give an impetus for the development of waterways in the State in general and to develop the Kovalam-Kasaragod waterway in a phased manner in particular, the State Government has decided to set up a Special Purpose Vehicle with 49 per cent stake each by the State Government and Cochin International Airport Ltd (CIAL) and the remaining 2 per cent by other agencies. Accordingly, a public limited company named KWIL was incorporated under the Companies Act, 2013 on October 3, 2017. The KWIL has initiated various works so as to commission the 1st phase of Kovalam-Kasaragod waterway project by May, 2020.

Physical Achievements of KWIL

1. Rejuvenation of Parvathy Puthenar

1. Preparation of DPR for Kovalam-Kollam stretch was entrusted with NATPAC and submitted draft DPR for Kovalam-Akkulam stretch (Ph-I) in July, 2018, Inventory survey has been completed and data analysis is in progress.
2. The cleaning work of Kovalam-Akkulam stretch of Parvathy Puthanar (16.5 km) completed cleaning work of 14 km stretch between Akkulam and Panathura on October 6, 2018 using Amphibious cleaning machine, Aquatic Weed Shredder and Hitachi mounted on Pontoon using amphibious dredging.
3. Documentation-for documentation - purpose a helicam (drone) videography was taken for the entire stretch before and after the cleaning work.
4. Silt pusher from the Netherlands - CIAL has procured a Silt pusher from the Netherlands

Table 9.19 Business details of KSINCL in 2016-17 and 2017-18, in ₹ lakh

Particulars	2016-17	2017-18
Turn over	1,232.44	1,202.04
Net loss	38.33	105.79
Depreciation	142.68	154.99
Cash/operating profit	104.35	49.2

Source: KSINC

Box 9.7 Modern hydraulic silt pusher

KWIL has procured a modern, efficient silt pusher machine from Netherland and put it into operation in deepening Parvathy Puthanar stretch of Inland Waterways. The Machine with a hydraulic blade can go 0.5-0.8 metre below canal bed to collect silt and remove it to the bank either using land based/pontoon mounted JCB or via suction cum jetting arrangement. The Silt Pusher can maneuver underneath the bridges with low vertical clearances, avoiding damages to banks or nearby buildings.

Source: KWIL

at a cost of ₹2 crore (including import and transportation charges) and deployed for the renovation of Parvathy Puthanar.

5. Hydrographic survey -A detailed hydrographic survey for the entire stretch of Parvathy Puthanar is being taken up shortly to assess the hydro-morphological condition of the canal.

2) Akkulam-Kollam Stretch

Bathymetric survey for the kayal portion through the State Hydrographic Survey Department Inventory and household surveys were completed. Data analysis and report preparation is in progress. Helicam videography for the entire stretch except for the 2 km stretch falling within the VSSC limit completed.

3) Mahe-Valapattanam Stretch

1. Topographic survey for the 3 uncut portions completed through M/s Meridian, through helicam (drone) technology. Kochi at a cost of ₹35.50 lakh. Based on these surveys LA maps were prepared.
2. DPR is under preparation through NATPAC
3. Alignment for all the 3 uncut portions finalised.

Administration sanction (AS) for LA for 1st and 2nd cut already issued and that of 3rd cut is expected shortly.

Details of project work of KWIL in progress are given in Table 9.20

KWIL expended ₹156.27 lakh for the development of Inland waterways as on October 25, 2018.

Table 9.20 Details of project works in progress 2018-19, as on October 25, 2018, in ₹ lakh

Sl.No.	Item	Expenditure Amount
1	DPR for Kovalam-Kollam stretch (NATPAC)	47.5
2	DPR for Mahe-Valapatnam stretch (NATPAC)	17.84
3	EIA/SIA study through (KITCO)	10.5
4	Water balancing and Model study (KITCO)	Nil
5	Vessel design through CUSAT	
6	Cleaning and allied works of Parvathy Puthenar (Matprop)	41.48
7	Topographic survey (Mahe-Val)	35.45
8	PMC charges-NATPAC	3.5
	Total	156.27

Source: KWIL

Conclusion

There is an emergent need for turning our attention towards the development of infrastructure of non-major ports and develop business through them as well. Land acquisition has to be speeded up by tackling procedural hurdles. Incentives and other promotional strategies need to be adopted for encouraging cargo shipping. Transparency in the process of registration of vessels and their regular monitoring are to be ensured to avoid accidents and malpractices. Development of other connecting transportation infrastructure also deserves priority. Timely and adequate training is to be given on international standards to the employees/stakeholders engaged in port development.

Time bound development of west coast canals, feeder canals, cross structures, approach to cross structure enough length and height are essential for the promotion of transport and cargo movements through inland waterways. Proper dredging (capital and maintenance dredging) is to be done to attain required depth of canals for vessel movement. Inland water transport system is an economy friendly mode of transport and in Kerala context, supplements road transport system effectively, given the proper policy frame work and implementation. The up keep and maintenance of inland waterways system is an essential requirement for making the State a tourism destination.

Energy

Energy has universally been recognised as one of the most important engines of economic growth and human development. It provides light and fuel to lakhs of households, power to industry, agriculture, commerce and all service sectors. Electricity demand in our country has increased rapidly and is expected to rise further in the future. In order to meet the increasing demand for power in the country, massive addition to the installed generating capacity is required. Making available the required quantity of quality power at affordable price is among the prime responsibilities of government. The energy sector must also meet the challenges of sustainability.

Power Sector in India

India's power sector is one of the most diversified in the world with respect to source of energy. Sources of power generation range from conventional sources such as coal, lignite, natural gas, oil, hydro and nuclear power to viable non-conventional sources such as wind, solar, agricultural and domestic waste. In India, electricity from thermal energy is the dominant source of power. It constitutes nearly 64.1 per cent of the total installed capacity in the country as on October 31, 2018. Contribution of electricity generation from different sources to the national grid, and the comparison to the previous years is given in Table 9.21. As per this, the total installed capacity for power generation in India is 3,46,048 MW. Of late, renewable sources have emerged as the second largest electricity source in the country leaving hydro to the third position.

In the sector-wise breakup of total energy generation as given in Table 9.22, the contribution of State sector is 83,922 MW

Table 9.21 All India installed capacity as on October 31, 2018

Fuel	Installed Capacity (MW) as on 30.9.16	%	Installed Capacity (MW) as on 31.8.17	%	Installed Capacity (MW) as on 31.10.18	%
1	2	3	4	5	6	7
Thermal	213,228.90	69.6	219,490.00	66.67	221,768.00	64.1
Hydro	43,112.43	14.07	44,653.00	13.56	45,487.00	13.1
Nuclear	5,780.00	1.89	6,780.00	2.06	6,780.00	2
Renewable Sources	44,236.92	14.44	58,303.00	17.71	72,013.00	20.8
Total	306,358.25	100	329,226.00	100	346,048.00	100

*Source:*Central Electricity Authority (CEA)

Table 9.22 All India installed capacity as on October 31, 2018

Sector	Installed Capacity (MW)	%
State Sector	83,922	24.2
Central Sector	103,030	29.8
Private Sector	159,096	46
Total	346,048	100

Source: Central Electricity Authority (CEA)

(24.2 per cent), central sector is 1,03,030 MW (29.8 per cent) and private sector is 1,59,096 MW (46 per cent).

Power Sector in Kerala

Kerala generates power from four sources – hydel, thermal, wind and solar. Of these, hydel power generation is dominant whereas wind and solar power generations make only marginal additions.

Capacity Addition in 2017-18

Total installed capacity of power in the State as on March 2018 is 2,956.47 MW. Of which, hydel power contributed the major share of 2,121.92 MW (71.77 per cent); while 676.56 MW was contributed by thermal projects (22.88 per cent), 60.28 MW from wind (2.04 per cent) and 97.71 MW (3.30 per cent) from solar. Figure 9.10 highlights the total installed capacity of Kerala from hydel, thermal and renewable sources.

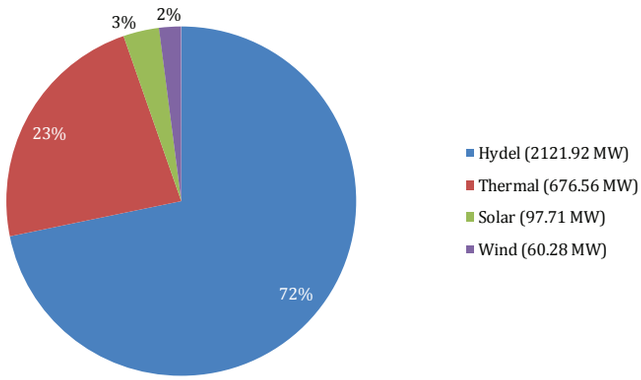
Appendix 9.27 gives the details of energy source and its installed capacity during the last five years while sector-wise details are presented in Appendix 9.28. Of the total installed capacity of 2,956.47 MW in 2017-18, the contribution of State sector is 2,232.46 MW (75.51 per cent), central sector 359.60 MW (12.06 per cent) and private sector 364.41 MW (12.33 per cent). The details of power availability during the last five years are illustrated in Appendix 9.29.

Performance of Power Sector Agencies

Power development activities in the State are carried out mainly through four agencies viz., Kerala State Electricity Board Limited (KSEBL), Agency for Non-conventional Energy and Rural Technology (ANERT), Electrical Inspectorate, and Energy Management Centre (EMC). The outlay and expenditure of these departments in Annual Plan 2017-18 and Annual Plan 2018-19 are shown in Table 9.23.

In the Annual Plan 2018-19, an amount of ₹1,78,411.00 lakh is provided for Energy sector. Out of this, ₹1,71,380.00 lakh is for Kerala State Electricity Board Ltd. (KSEBL), ₹5,300.00 lakh for Agency for Non-conventional Energy and Rural Technology (ANERT), ₹836.00 lakh for Meter Testing and Standards Laboratory (MTSL) and ₹895.00 lakh for Energy Management Centre (EMC). As per expenditure reported in the Planspace, ₹60,102.03 lakh i.e., only 33.69 per cent of the total outlay is expended till October 2018. The expenditure reported by KSEBL is ₹59,078.83 lakh (34.47 per cent), ANERT is ₹629.58 lakh (11.88 per cent), EMC is ₹354.95 lakh (39.66 per cent) and Electrical Inspectorate is ₹38.67 lakh (4.63 per cent).

Figure 9.10 Installed capacity, mega watt



Source: KSEBL

Table 9.23 Outlay and expenditure in the Annual Plan 2017-18 and Annual Plan 2018-19, in ₹ lakh

Sl No	Name of the Department/Agency	Annual Plan 2017-18			Annual Plan 2018-19		
		Outlay	Expenditure	%	Outlay	Expenditure up to October 2018	%
1	KSEBL	156,525.00	155,749.30	99.5	171,380.00	59,078.83	34.47
2	ANERT	4,830.00	3,570.03	73.91	5,300.00	629.58	11.88
3	EMC	814	776.75	95.42	895	354.95	39.66
4	Electrical Inspectorate	760	437.9	57.62	836	38.67	4.63
	Total	162,929.00	160,534.00	98.53	178,411.00	60,102.03	33.69

Source: Planspace

Kerala State Electricity Board Limited (KSEBL)

KSEBL has been responsible for the generation, transmission and distribution of electricity in the State, with particular mandate to provide electricity at affordable cost for domestic as well as agricultural purposes.

Kerala State Electricity Board was constituted by the GoK, as per order no. EL1-6475/56/PW dated 7-3-1957, under the Electricity (Supply) Act, 1948. Later, Kerala State Electricity Board Limited was incorporated under the Companies Act, 1956 on January 14, 2011 and started operations as independent company with effect from November 1, 2013. It has separate profit centres for generation, transmission and distribution, but they are units of KSEBL.

Generation

The electricity demand of the State is met through generation from KSEBL, Central Generating Stations (CGS), Independent Power Producers (IPPs) Traders and purchase through power exchanges. The internal generation of KSEBL is given in Table 9.24.

KSEBL as on March 31, 2018 owns 37 hydroelectric generating stations, 2 thermal power plants, 1 wind farm at Kanjikode, and 14.71 MW of solar plants at various locations with a total installed capacity of 2,232.46 MW. Perunthenaruvi small hydroelectric project of 6 MW was added to system on October 24, 2017. The internal generation of KSEBL increased from Net Value of 4,339.92 MU in 2016-17 to 5,474.47 MU in 2017-18.

Ongoing Hydro Electric Projects in the State

The details of the ongoing hydroelectric projects in the State with expected date of commissioning are given in Table 9.25.

Table 9.25 indicates that two projects

Table 9.24 KSEBL internal generation

Sl. No.	Particulars	Capacity as on 31.3.2017 (MW)	Capacity added in 2017-18 (MW)	Capacity as on 31.3.2018 (MW) (2)+(3)	Net Generation in 2017-18 (MU)
0	1	2	3	4	5
1	Hydel	2,049.76	6	2,055.76	5,488.94
2	Thermal	159.96		159.96	0.55
3	Wind	2.025		2.025	1.48
4	Solar	8.829	5.9	14.71	13.45
	Total	2,220.56	11.9	2,232.46	5,474.47

Source: KSEBL

Table 9.25 Ongoing hydro electric projects in the State

Sl. No.	Name of Scheme	Installed Capacity (MW)	Date of commencement of work	Expected date of commissioning
1	Thottiar HEP	40	16.01.2009	1.06.2020
2	Sengulam Augmentation Scheme	85 MU	06.07.2009	1.12.2020
3	Chathankottunada II SHEP	6	09.11.2017	1.04.2019
4	Kakkayam SHEP	3	20.10.2014	Commissioned on 16.07.2018
5	Perumthenaruvi SHEP	6	02.03.2012	Commissioned on 23.10.17
6	Poringalkuthu SHEP	24	01.04.2014	1.05.2019
7	Bhoothathankettu SHEP	24	15.02.2014	1.06.2019
8	Upper Kallar	2	12.08.2016	1.10.2019
9	Pallivasal Extension	60	02.03.2007	1.12.2020
10	Pazhassi Sagar	7.5	27.10.2017	1.04.2020
11	Chinnar	24	27.04.2018	1.04.2022
12	Peruvannamoozhy	6	25.05.2018	1.05.2021

Source: KSEBL

(Perumthenaruvi SHEP and Kakkayam SHEP) has been commissioned in 2017-18 and 2018-19. Four projects are expected to be completed in the year 2019-20. Details of other hydroelectric projects, which are in the pipeline, are listed in Appendix 9.30.

Solar Projects

KSEBL is executing 20 solar projects in the State with installed capacity of 10.73 MW, to be completed in 2018-19.

Solar Park

50 MW Solar Project at Ambalathara by IREDA was commissioned on September 14, 2017. Later, GoK issued amended order dated October 24, 2017 limiting the Kasaragod Solar Park area from 1,086 acres to 250 acres The withdrawal of land has stalled the progress of tendered projects of 50 MW and another 100 MW sanctioned in VGF scheme. In this regard, GoK was requested to reallocate 250 acres land in Paivalike (for 50 MW Solar Plant) in order to complete the Kasaragod Solar Park with a revised capacity of 100 MW. The proposal is now under consideration of the GoK and a decision in this regard is awaited.

Pattern of Power Consumption

Domestic consumers form 77.89 per cent of total consumers, consumes 50.36 per cent of the total energy and provide 35.80 per cent revenue to KSEBL. The number of domestic category consumers has increased to 95,62,253 in 2017-18 from 93,84,957 in 2016-17. In 2017-18, 20,998 MU of energy valued at ₹12,05,725 lakh was sold (internally) showing an increase of 960 MU as compared to previous year's 20,038 MU. The details of consumption of electricity in Kerala in 2012-13 to 2017-18 is given in Table 9.26 and the details of the pattern of power consumption and revenue collected in 2017-18 is furnished in Appendix 9.31.

As seen in the table the pattern of total consumption of electricity in Kerala has been fluctuating over the years.

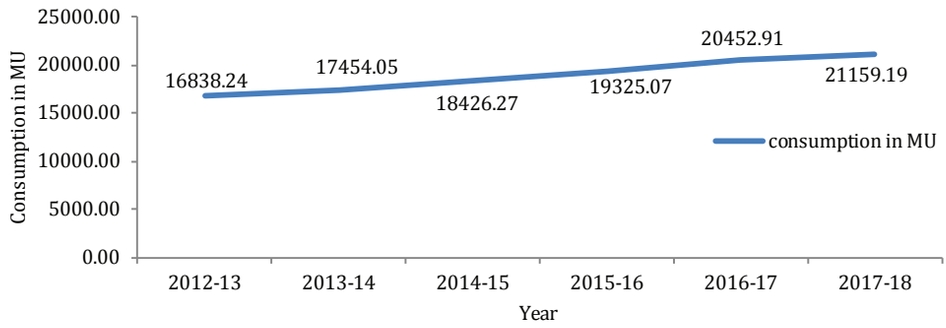
In Kerala, electrical energy consumption has increased to 21,159 MU (include open access consumption) in 2017-18 from 20,453 MU in 2016-17, an increase of 3.45 per cent. Electrical Energy consumption in Kerala in 2013-14 to 2017-18 is depicted in Figure 9.11.

Table 9.26 Consumption of electricity in Kerala

Year	Total Consumption of Electricity (MU)	Growth Rate (%)
2012-13	16,838	5.37
2013-14	17,454	3.66
2014-15	18,426	5.57
2015-16	19,325	4.88
2016-17	20,453	5.84
2017-18	21,159	3.45

Source: KSEBL

Figure 9.11 Electrical energy consumption in Kerala



Source: KSEBL

Power Purchase Agreement (PPA)

KSEB has allocation of power from 15 central generating stations. As a measure to encourage non-conventional sources of energy, KSEBL has executed PPAs for purchase of power from wind energy projects, Agali (18.60 MW), Ramakkalmedu (14.25MW) and Ahaliya (8.4MW) and from Small Hydro Projects Meenvallam (3MW), Iruttukkanam (3 MW), Karikkayam (10.5 MW), Ullunkal (7 MW), Iruttukanam (4.5 MW) and Mankulam Mini Hydro (0.11 MW). The capacity allocated from various stations for which the PPAs have been executed is given in Appendix 9.32.

Transmission

In Kerala, power generated or procured is transmitted to Load centres through a well-established transmission network consisting of 5 numbers (including PGCIL owned 4) of 400 KV, 22 numbers of 220 KV, 154 numbers of 110 KV, 74 numbers of 66 KV and 149 numbers of 33KV substations and 12,329 Circuit km (Ckt. Km) of lines of various voltages across the State. Construction of two 220 KV (target was 3), six 110 KV (target was 17), three 66 KV (target was 4), five 33 KV (target was 15) substations (Total 16 substations) and 167.83 km of Transmission lines ranging from 220 KV to 33 KV and capacity addition of 809.9 MVA are the achievements in the transmission sector in 2017-18.

Kerala's transmission system consisting of substations and its connected lines are given in Appendix 9.33 and Appendix 9.34.

Transgrid 2.0

Transgrid 2.0 aims at the long term stability of Kerala grid so as to ensure quality and reliable power transmission in the State. Building of 400 KV backbone network and 220 KV downstream

Table 9.27 Transgrid 2.0 project

Particulars	Phase I	Phase II
400 kV Line	180 Circuit km	248 Circuit km
400 kV Substation	1 Nos	2 Nos
220kV Line	918.2 Circuit km	850 Circuit km
220kV Substation	12 Nos	10 Nos
Total Outlay including 110kVdownstream	4,028 crore	5,972 crore

Source: KSEBL

interconnected network is envisaged in this project. GoK has accorded administrative sanction for the Transgrid 2.0 project at an estimated cost of ₹6,375 crore over a period of five years. Transgrid 2.0 is planned to be executed mainly in two phases (Table 9.27).

Distribution

In the distribution segment, there are 60,892 km of 11 kV lines, 2,86,784 km of LT lines and 77,724 numbers of distribution transformers as on March 31, 2018. In 2017-18, 3,53,642 service connections were given (against the target of 3,25,429), 1,744 km of 11 KV lines (against the target of 2,674 km), 3,130 km of LT line (against the target of 3,533 km) and 2,353 Distribution Transformers (against the target of 2,353) were commissioned. The target and achievement of the distribution infrastructure in 2017-18 is given in Appendix 9.35.

The projects/schemes implemented in distribution sector in 2017-18 are shown below:

- **100 Per Cent Electrification**

  Kerala achieved the historic milestone of becoming the first State in the country to achieve total household electrification, In order to achieve the goal, KSEBL has constructed 65 km 11 KV Overhead line, 40 km 11 KV Underground cable, 3,040 km LT line, 39 km LT Underground cable and installed 21 transformers. The efforts include the electrification of remote colonies also. Around 1,600 households were electrified through Decentralised Distributed Generation (DDG) projects jointly by KSEB Ltd, ANERT and EMC; as extending distribution mains was not feasible in those areas. A total of 1,50,384 connections have been effected as part of the Total Electrification Project.

- **Restructured-Accelerated Power Development and Reform Programme (R-APDRP)**

  The R-APDRP programme is sponsored by GoI and funded through Power Finance Corporation (PFC). As part of implementation of Part-A of R-APDRP, Supervisory Control and Data Acquisition (SCADA)/Distribution Management System (DMS) project for automation of distribution systems is being implemented in Thiruvananthapuram, Ernakulum and Kozhikode cities. GIS integration with SCADA Application is in progress. The project commissioning is expected by March 2019.

- **Integrated Power Development Scheme (IPDS) for Urban and Semi Urban Areas**

  This is launched in September 2015 by Ministry of Power (MoP), GoI. The scheme includes construction of 33 KV and 66 KV substations, Power Transformers enhancement, R&M Substations, New 66, 33, and 11 KV feeders, 11 KV line re-conductoring, ABC Cables (HT&LT), New 11 KV UG Cables, installation of distribution transformers, capacity enhancement of distribution transformers, High Voltage Distribution System (HVDS), metering and solar power plants. An amount of ₹592.07 crore has been sanctioned by the MoP for IPDS Kerala on June 15, 2016, for 63 towns

under 25 Circles. DPR for the works have been sanctioned and solar turnkey projects and other works are in progress. Date of completion is extended up to March 2019.

- **Deen Dayal Upadhyaya Gram Jyothi Yojana (DDUGJY)**

  This is another programme launched by MoP for reducing Aggregate Technical and Commercial (AT and C) loss, providing electricity to all households and for ensuring 24x7 power supply. GoI has sanctioned an amount of ₹485.37 crore on 5.1.2016 for implementing DDUGJY in 14 districts of Kerala. As per the scheme, 1,61,199 rural households are proposed to be electrified. Among these, 41,884 numbers belong to BPL category. Work includes construction of 33 KV Substations and 33 KV lines, 11 KV lines and LT lines, installation of distribution transformers, replacement of energy meters, effecting BPL service connections etc. The project period is 30 months. KSEBL has requested for extension up to December 31, 2018 as the replacement of faulty meters is pending. The details of financial and physical progress of implementation of DDUGJY is shown in Appendix 9.36.

- **Dam Rehabilitation and Improvement Project (DRIP)**

  DRIP aims to improve the safety and sustainable performance of existing dams and associated structures with the assistance of World Bank through GoI. 12 projects consisting of 28 dams have been selected under DRIP for KSEB. Bid for works/goods/ consultancy amounting to ₹153.67 crore under all the twelve hydro-electric projects, have been invited. Out of the 97 packages, 79 packages amounting to ₹86.55 crore have been awarded and the remaining 9 packages worth ₹36.68 crore are under various stages of bid processing. Bids for the remaining 9 packages, amounting to ₹20.44 crore is scheduled to be invited. Expenditure in 2017-18 is ₹25.74 crore and cumulative as on August 30, 2018 is ₹73.85 crore. Amount reimbursed through GoI/GoK and received by KSEBL is ₹49.20 crore. (upto March 7, 2018) and to be received by KSEBL is ₹19.05 crore (upto March 31, 2018).

- **Ujwal DISCOM Assurance Yojana (UDAY)**

  UDAY is the financial turnaround and revival package for electricity distribution companies of India (DISCOMs) initiated by the GoI with the stated intent to find a solution to the financial stress. GoK and KSEBL signed MoU with GoI on March 2, 2017. The objective of signing MoU is improvement in internal efficiency of KSEBL. No financial assistance is included in MoU.

- **24x7 Power**

  GoK is a participant in 24x7 power, initiated by MoP, GoI. GoK has signed the joint document for this programme on February 13, 2016. Objective of the programme is to make 24x7 power available to all households, industries, commercial businesses, public needs, any other electricity consuming entity and adequate power to agriculture consumers by 2018-19. Kerala has attained 24x7 Power for All (PFA) through the State run programme namely 'Total Electrification', about 22 months ahead of the target date set in 24x7 PFA.

- **'Saubhagya'**

  This new GoI scheme launched on September 25, 2017, provides last mile connectivity and electricity connections to all un-electrified households. Based on the letter of intent from KSEBL, an amount of ₹15.2 crore was released to KSEBL in the scheme. The targeted time limit for completion is December 2018.

- **Perform Achieve and Trade (PAT)**

  This is a flagship program of Bureau of Energy Efficiency under the National Mission for Enhanced Energy Efficiency (NMEEE). The "second cycle" of PAT, notified in March, 2016, covers DISCOMs also. BEE

has exempted the KSEB Ltd from a target to achieve, being a generator, transmitter and distributor and is required only to maintain the losses at the 2014-2015 level.

Aggregate Technical and Commercial (AT&C) losses

In 2017-18, AT&C loss has decreased to 15.38 per cent from 16.30 per cent and T&D loss came down to 13.07 per cent from 13.93 per cent. KSEB has made significant achievement in the field of reducing AT&C loss. The impact of AT&C loss reduction during the last five years is shown in Appendix 9.37. (As the T&D losses was not able to capture all the losses in the network, concept of Aggregate Technical and Commercial losses (AT&C) was introduced. AT&C loss captures Technical as well as commercial losses in the network and is a true indicator of total losses in the system). The trend of AT&C loss, and T&D loss during the last 5 years is depicted in Figure 9.12.

IT based Initiatives of KSEBL

KSEB Limited has envisaged many IT based initiatives towards the objective of enhancing the quality of power distribution system and to address the concerns of the customers State wide. Various IT based projects implemented by KSEBL are:

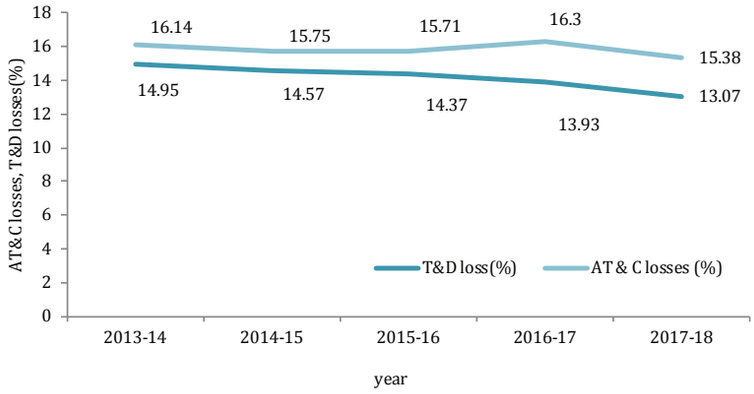
- **Incremental IT Implementation under IPDS**

  DPR for ₹22 crore for implementing Phase-II Incremental IT in 21 towns as a continuation of implementation of R-APDRP IT projects has been approved by PFC under IPDS on February 20, 2017. Time line for completion is 30 months from the date of sanction (i.e. March 19, 2019). The financial bid for the software implementation part of the project was opened on September 1, 2018 and further tender processing is in progress.

- **Enterprise Resource Planning (ERP)**

  ERP system is considered as a vital organisational tool as it integrates varied organisational systems and facilitates for error-free transactions across multiple organisational business functions. Project Management Agency (PMA) has been appointed to conduct gap analysis of business processes and work flow applications and to find which activities are yet to be re-engineered and automated from the perspective of an integrated ERP solution. An amount ₹42.64 crore (60 per cent is grant)

Figure 9.12 Aggregate Technical and Commercial (AT&C) losses, and transmission and distribution losses, in per cent



Source: KSEBL

has been sanctioned by PFC on February 7, 2018 based on the DPR prepared by the PMA. The project implementation period is 30 months.

- **Big Data Analytics**

  MoP, GoI is encouraging Big Data Analytics initiatives in various sectors including electric power utilities. It is envisaged to develop a system for Big Data Analytics with an objective to transform data to knowledge base.

- **Cyber Security Projects**

  Implementation of advanced cyber security measures like distributed denial of Service System, web application firewall and availing ISO Certification for the Data Centre/DR Centre.

- **KSEB WAN/KFON**

  The project is envisaged to build a Wide Area Network across the State in order to provide high speed network connectivity for more than 30000 government institutions all over Kerala and Internet facility for 20 lakh households through Optical Fibre Cable (OFC) at last mile.

- **IPDS-Real Time Data Acquisition System (RT-DAS) for Non-SCADA Towns**

  The objective is to implement Feeder Remote Terminal Units (FRTUs) in the substations within the Non-SCADA towns for the automated measurement of System Average Interruption Duration Index (SAIDI)/System Average Interruption Frequency Index (SAIFI) (Reliability Indices) to assess the reliability of power.

Vigilance and Security Wing and Anti Power Theft Squad (APTS)

Vigilance Wing is constituted to effectively combat corruption and misconduct on the part of officers/employees of KSEBL. Anti-Power Theft Squad (APTS) is constituted under an officer of the rank of Inspector General of Police to detect pilferage and misuse of electricity all over the State of Kerala.

Details of Theft of Energy in 2017-18

In 2017-18, 30,00,031 numbers of inspections were conducted all over the State. Out of this, 195 cases of Power Theft or misuse were detected and no of cases where penalties were imposed are 192. The estimated quantity of energy considered as theft is 14,33,659 KWH and estimated cost of energy including penalty is ₹1.676 crore.

Innovation Projects

With a view to promote conservation of energy and to reduce losses in the system many activities are being carried out by KSEBL. Some important achievements in 2017-18 are.

1. E-mobility project - six e20plus electric cars purchased.
2. Tendered four 30 KVp solar PV powered fast charging infrastructure for e-vehicle.

Innovative and ESCOT projects funded by State Government for ₹23.79 crore include West Kallada floating solar project, installation of fault pass indicators, bulk charging stations, twin micro turbine at Poringalkuthu Left Bank Extension (PLBE), drone based corridor mapping, infrastructure for pre assessment of solar potential, standardisation of distribution transformer stations and High Voltage Distribution System (HVDS) are progressing.

Urja Kerala Mission

GoK launched 'Urja Kerala Mission' on June 14, 2018 aimed at the integrated development of electricity sector in the State. It aims at implementing five important projects in the next 3 years:

1. **Saura**

   Encourages the generation of electricity from renewable sources. KSEBL is planning to facilitate installation of 1000 MW solar

photovoltaic plants in the State in the next 3 years. This includes 500 MW from rooftop solar power projects, which is expected by the year 2021. Balance 500 MW will be implemented with private participation through transparent bidding for ground mounted solar PV projects, floating solar power projects, solar parks, canal top and high way solar PV projects.

2. **Filament Free Kerala**

This project is introduced to replace existing CFL and filament bulbs on mission mode in domestic and street lighting sector with energy efficient and long lasting LED lamps mooted by EMC. The anticipated benefit from this scheme is the reduction in peak load growth and capturing of 600 kg of mercury from going into the water bodies. The collected CFLs and Fluorescent Lamps will be recycled as per standard norms. Through this project, 2.5 million tonnes of carbon di-oxide emission will be reduced per year.

3. **Dyuthi 2021**

This is a ₹4000 crore project to modernise the distribution grid and to reduce power interruptions. The objectives of this project are to provide uninterrupted, quality power to all, bring down the technical and commercial losses, have the best safety standards, capability to integrate renewable energy sources and capability to provide power to all on demand.

4. **Transgrid 2.0**

It is a ₹10,000 crore project to reduce the transmission losses and to remove the current limitations and constraints in the transmission network.

5. e-Safe

It is a massive publicity campaign to sensitise the users of electricity on its safety aspects. The project aims at step-wise modernisation of transmission and distribution sector. Electric safety training will be given to people supervising and engaged in electrical works. In Jagratha scheme, ELCB will be installed in all household belonging to BPL, SC and ST consumers.

The above projects are being implemented by KSEBL, ANERT, EMC and Electrical Inspectorate.

Main Achievements of KSEBL in 2017-18

- Total electrification of the State has been accomplished.
- Perumthenaruvi Small Hydro Electric Project (6 MW) commissioned.
- KSEBL Solar projects of total capacity 5.90 MWp commissioned.
- The revenue theft of ₹1,494.63 crore in 2016-17 was reduced to ₹784.09 crore in 2017-18.
- Construction of two 220 KV, six 110 KV, three 66 KV, five 33 KV substations (16 substations) and 167.83 km of Transmission lines ranging from 220 KV to 33 KV and capacity addition of 809.9 MVA are the achievements in the transmission sector.
- Provide 3,53,642 new service connections, installed 2,353 distribution transformer, replaced 12,37,110 faulty meters, constructed 1,744 km 11 KV lines, constructed 3,130 km LT lines, 1,478 phase conversions, re-conductoring of 950 ckt. km of HT lines and 9,880 ckt. km of LT lines were accomplished in 2017-18.

Agency for Non-Conventional Energy and Rural Technology (ANERT)

Agency for Non-conventional Energy and Rural Technology (ANERT) is an autonomous body under the Power Department, GoK. ANERT is the nodal agency for the implementation and propagation of non-conventional sources of energy in the State. It is also the nodal agency for the Ministry of New and Renewable Energy Sources (MNRE), GoI, to carry out the Central Government programmes in Kerala.

The scheme-wise outlay and expenditure of ANERT in 2017-18 and 2018-19 (expenditure upto October 2018) is given in Table 9.28.

Table 9.28 Outlay and expenditure of ANERT in 2017-18 and 2018-19, in ₹ lakh

Sl No	Schemes	Annual Plan 2017-18			Annual Plan 2018-19		
		Outlay	Expenditure	%	Outlay	Expenditure upto October 2018	%
1	Programmes on Renewable Energy	3,065.00	1,064.56	34.73	3,830.00	143.22	3.74
2	Renewable Energy Public Engagement, Outreach, Studies and Development	1,765.00	1,000.10	56.66	1,470.00	230.6	15.69
3	Renewable Energy Programmes of ANERT	-	373.32		-		
4	Electrification Programme using Renewable Energy Sources	-	1,132.05		-	255.75	
	Total -ANERT	4,830.00	1,691.31	73.91	5,300.00	629.58	11.88

Source: Planspace

Achievements of ANERT in 2017-18

- Solar wind storage hybrid power plant project is being implemented in the land available with ANERT at Ramakkalmedu, Idukki District.
- ANERT has initiated e-governance activities like e –tender, e-SMS, State Data Centre and KSWAN facilities for last few years.
- An online market place was created with the help of Keltron and was launched on June 5, 2018.
- Mobile apps were developed for the use of public and various field activities of ANERT and empanelled vendors. The features of the apps include interaction with individuals and institutions to express their interest to partner with ANERT, checking feasibility on installing renewable energy systems, online installation reports by vendors for renewable energy systems, online verification of installation by ANERT officials etc.
- 140 Akshaya Urja Service centres across the State are being rolled out.
- The Urja Kerala Mission was launched on June 14, 2018, targeting 1000 MW of solar power plant installation in the State by 2021. 500 MW is planned from Solar Rooftop Power plants. KSEBL is planning to concentrate on RESCO model implementation on Government buildings.
- Accreditation of Installers (Technicians) –accreditation of technicians for the installation of solar roof top power plants.
- To promote excellence in various areas of new and renewable energy technologies in the State, GoK has announced the "Kerala State Renewable Energy Awards" from 2017.
- ANERT conducted Akhaya Urja Festival to popularise information on various aspects of renewable energy, promote and introduce new technologies and innovations in this area.
- Grid connected 2 MW solar power plant at Kuzhalmannam, Palakkad fed 49 lakh units of electricity to KSEBL grid after commissioning. This is the first grid connected solar PV plant in the State under IPP mode.
- Off-grid solar roof top power plant of cumulative capacity 1,941 KW installed; and grid connected solar power plant of cumulative capacity 5,641 KW had been registered and installation work is nearing completion.
- Solar energisation work of two 50HP agriculture pump set in the Kolpadam of Thrissur and Ponnani entrusted with RAIDCO, Kannur, progressing.
- Rooftop Solar potential assessment in the public building of selected 265 Local Governments done through C-DIT.
- Empanelment of agencies for the installation

of solar water heating systems, solar lanterns, solar home lighting systems and solar LED street lighting completed.

- Technical sanction cleared for establishing wind generators of capacity 12 MW in Palakkad and Idukki District.
- Three grid connected solar power plants of aggregative capacity of 470 kW and five off grid solar power plants of aggregative capacity of 35 kW installed.
- 1000 numbers of solar lanterns distributed to various relief camp set up by the District administration in the flood affected area for community purpose.
- Suryamithra Training programme – ANERT is conducting 3 months residential training course for diploma/ITI holders with the financial assistance from MNRE.

Energy Management Centre (EMC)

Energy Management Centre (EMC) is the State designated agency of Bureau of Energy Efficiency, MoP, GoI for promoting energy conservation, energy efficiency and enforcing Energy Conservation Act, 2001 in the State. EMC also promotes small/mini/micro hydel schemes. SHP Cell constituted by GoK under Power Department is also attached in EMC to give impetus for development of SHPs through private participation. The agency suffered a huge loss as many of its commissioned small hydro projects were devastated in the recent flood.

The scheme-wise outlay and expenditure of EMC in 2017-18 and 2018-19 (expenditure upto October 2018) is given in Table 9.29.

Achievements of Energy Management Centre

- Through energy conservation activities saved 464 MU of electricity and 5347 MT of oil in 2017-18.
- National Energy Conservation Award from Hon'ble President of India in the category

Box 9.8 Filament free Kerala

This project is introduced to replace the existing inefficient incandescent lamps and fluorescent lamps in the domestic and street lighting sector with energy efficient and long lasting LED lamps mooted by EMC, and implemented with the support of KSEB, on a Mission mode. The projected benefit of the project is a reduction of around 500 MW during the peak hours along with a reduction of 2.5 Million Tonnes of carbon-di-oxide emission per year. The collected CFLs and Fluorescent Lamps will be disposed safely as per standard norms. The cost of LED bulb will be repaid through energy savings and will be collected through KSEB bills in equal instalments.

Source: EMC

Table 9.29 Outlay and expenditure of EMC in 2017-18 and 2018-19, in ₹ lakh

Sl No	Schemes	Annual Plan 2017-18			Annual Plan 2018-19		
		Outlay	Expenditure	%	Outlay	Expenditure upto Oct 2018	%
1	State Energy Conservation Awards	25	25	100	25	3.47	13.88
2	Energy Conservation Activities	345	345	100	310	116.59	37.61
3	Infrastructure Development and Institutional Strengthening	72	72	100	190	51.66	27.19
4	Kerala State Energy Conservation Fund	372	334.75	89.99	370	183.23	49.52
	Total-EMC	814	776.75	95.42	895	354.95	39.66

Source: PlanSpace

State Designated Agency instituted by Ministry of Power, GoI.

- EMCs new Green Building received IGBC-Lead, Gold Rating.
- EMC's Green Building recognised by UNEP in its Global Status report-2017 on Zero emission, efficient, resilient building.
- 20 kW Kaduvetti Vortex based Micro hydroelectric Project, the first of its kind in India, is nearing completion in Thiruvananthapuram Corporation.
- Inaugurated Pathamkayam SHP (8 MW)-IPP -(completed in 18 months).
- Made Pelicode Panchayat in Kasaragod, the first incandescent lamp free Panchayat in India.
- Commisssioned 20 Pico Hydel projects upto a capacity of 5 KW in various locations of Kerala with central financial assistance.
- Initiated the implementation of Kakkad tailrace Micro Hydroelectric project at tailrace of 50 MW Kakkad HEP of KSEBL, using Hydrokinetic technology.
- Allotment of 20SHP projects, totalling to an installed capacity of 43.8 MW to private parties on BOOT basis as per SHP policy 2012 of GoK.
- Completed electrification of Echampetty tribal colony, in Chinnar wildlife sanctuary near Marayaoor, Idukki District, by implementing 4 kW Pico Hydel project, thereby energising 46 tribal households and public buildings,
- As part of Smart Energy Programme, 4,800 schools from 41 Educational Districts are enrolled with 62,400 students. 41 camps, 45 Oorjolsavams and 14 District level programs were conducted.
- As part of URJA KIRAN 2017-18, 420 awareness programmes and 140 rallies were conducted by covering all the 140 constituencies in Kerala with association of 148 NGOs.
- As a part of Energy Clinic Programme, 372 women across 9 Districts were given training. 2,500 Energy Clinics were conducted which covered about 40,000 consumers across the State.
- As a part of National Energy Conservation Day celebrations, 20 energy conservation

Box 9.9 Jagratha programme

Electrical accidents in the domestic section are on the rise. In 2016-17 and 2017-18, the total number of accidents at the domestic section were 125 and 131 respectively. The remedial activity is to impart awareness among the general public and provide effective protection at the domestic consumers premises.

Earth-Leakage Circuit Breakers (ELCBs) are very effective in preventing such accidents. Unfortunately there are a large number of domestic installations belonging to the lower strata of the society, which does not have ELCB protection. There should be intensive effort for bringing all such installations under ELCB protection. Already such a project was implemented in Agali, Puthur and Sholayur Pkmanchayats of Palakkad District covering the BPL and SC/ST consumers.

The proposed Jagratha programme is laid down for covering the entire State for providing ELCB protection to the socially and economically backward consumers in the society.

There are 6,00,000 houses under below poverty line. Under the Jagratha programme, it is planned to rewire these houses with metallic meter box, DB box 4 module -1 No., ELCB-1 no., MCB-6A (1 No.), 10 A (1 No.), Earthing Rod-2.5m, and Earthing Wire 10SWG (3m).

Source: Electrical Inspectorate

dramas, 13 energy conservation rallies, 75 Chakyar yathra and 9 exhibitions were conducted all over in Kerala.

Department of Electrical Inspectorate

The Electrical Inspectorate is functioning under the Department of Power, GoK. Safety inspections are carried out and sanction for energisation for all HT/EHT and other medium voltage installation in the State are issued by this inspectorate. The motto of Meter Testing and Standards Laboratory (MTSL) is to provide testing and calibration of various types of electrical equipment. At present, calibration facilities is available for voltage, current, resistance, frequency, power, power factor and energy. The testing facilities include pre-commissioning tests for protection relays and instrument transformers. Also, pre-commissioning tests are conducted for power transformers, cables and circuit breakers. All calibrations and tests are conducted as per national and international standards. Enquiry into all electrical accidents occurring in the State, forwarding the reports to the State Government and taking actions against responsible person/ authority are also done by Electrical Inspectorate.

The Electrical Inspectorate is implements three schemes namely; Meter Testing and Standards Laboratory, Effective Implementation of Quality Control Order and E-Safe Kerala. During the last six years, the Electrical Inspectorate has received an amount of ₹7.581crore from Meter Testing and Standards Laboratory (MTSL) which is functioning under Department of Electrical Inspectorate, as testing fee. In 2017-18, an amount of ₹2.53 crore was received from these Meter testing and Standards Laboratory and from other Regional Testing laboratories as testing fee.

Through quality control inspection, the sale of non-standard electrical equipment can be controlled to some extent. In 2017-18, the Electrical Inspectorate banned ELCBs which are non-standard i.e., without IS marking. Under e-Safe Kerala, there is considerable reduction in electrical accidents as a result of awareness created by training and by installing ELCB in house premises. The total number of electrical accidents in which human/animal affected in 2017-18 is 450; whereas in 2016-17, the number is 463. The scheme-wise outlay and expenditure of Electrical Inspectorate in 2017-18 and 2018-19 (expenditure upto October 2018) is given in Table 9.30.

Achievements of Electrical Inspectorate in 2017-18

- Procured three fully automatic transformer test set for conducting pre-commissioning test.
- Procured two fully automatic Energy meter Test bench at regional testing lab in Kozhikode and Ernakulam.
- Procured Power System Analysis Software ETAP.
- Online unified Software “Suraksha” is ready for launching.

Table 9.30 Outlay and expenditure of electrical inspectorate in 2017-18 and 2018-19, in ₹ lakh

Sl No	Schemes	Annual Plan 2017-18			Annual Plan 2018-19		
		Outlay	Expenditure	%	Outlay	Expenditure upto October 2018	%
1	Meter Testing and Standards Laboratory (MTSL)	380	258.6	68.05	418	8.71	2.08
2	Effective Implementation of QCO	200	147.45	73.73	220	1.37	0.62
3	E-safe Kerala	180	31.85	17.69	198	28.6	14.44
	Total	760	437.9	57.62	836	38.67	4.63

Source: PlanSpace

- Conducted Electrical Safety awareness classes throughout the State.
- Retained NABL Accreditation in Meter Testing and Standards Laboratory, Thiruvananthapuram.
- Procured Compact LED testing equipment in MTSL.
- Made short film for spreading the message of Electrical Safety awareness.

Kerala State Electricity Regulatory Commission (KSERC)

KSERC, a statutory organisation of quasi-judicial nature, was established in 2002. The Commission has been taking all efforts to maintain a fair, transparent and objective regulatory system in the power sector of the State.

Important Activities of the KSERC

The Commission held a number of routine internal meetings to transact business relating to administrative matters, framing and finalisation of regulations, admission of petitions, Annual Revenue Requirement and Expected Revenue Charges (ARR and ERC) of the licensees and other matter related to the day to day functioning of the Commission.

Consumer Grievance Redressal Forum (CGRF) has been established under the Electricity Act 2003, for the redressal of the grievances of the consumers. Electricity Ombudsman is a statutory authority appointed by the KSERC to settle the grievances of consumers aggrieved by non-redressal of his grievances by the Consumer Grievance Redressal Forum.

The following regulations/amendments were published in 2017-18.

1) Kerala State Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff) Regulations 2018 dated October 5, 2018.
2) Kerala State Electricity Regulatory Commission (Conduct of Business) Amendment Regulation 2017, dated July 26, 2017
3) KSERC (Renewable Energy) Amendment Regulations, 2017 dated November 02, 2017
4) KSERC (Conduct of Business) Regulations 2017 dated October 19, 2017

Southern Electricity Regulatory Forum (SERF) is a forum constituted for interaction among the Regulatory Commissions of the Southern States of Andhra Pradesh, Karnataka, Tamil Nadu, Telangana and Kerala. The objective of the forum is to discuss the common issues, problems and proposals of the five States.

Kerala Post Disaster Needs Assessment Report

KSEB Ltd is one of the worst flood hit utilities in the State. It sustained losses in all fronts viz., Generation, Transmission, Distribution and by way of loss of revenue due to loss of load. Five Major hydro generation stations and fourteen small hydel stations owned by KSEB Ltd were affected due to flood and subsequent landslides. 22 substations were flooded, damaging the control system. 10 power transformers were submerged. 10 major transmission corridors became dysfunctional due to the flooding.

Massive flood has hit the distribution infrastructure badly. Power distribution in around 300 electrical sections in seven Districts was shattered. 16,158 distribution transformers were out of service. Service to 25.60 lakh consumers was disrupted in the calamity. To restore normalcy in power distribution, 1,735 distribution transformer stations and 5,275.80 km distribution lines have to be reconstructed. Around one lakh poles were damaged. Three lakh singe phase energy meters and fifty thousand three phase energy meters are damaged due to submergence. A total damage of ₹352 crore is assessed in the Post Disaster Needs Assessment report.

A program on mission mode, Mission Reconnect was launched by KSEBL to restore normalcy in minimum time period. KSEBL had internally set a goal to restore all disrupted distribution networks and affected service connections by August 31, 2018. 99.99 per cent of this target was achieved. Around 720 single point connections were given to premises, where installations became faulty due to flood water. These single point connections were given free of cost. KSEBL has also extended payment period for consumers affected by flood. All transmission corridors and sub stations were also restored in time. Restoration work is still under way in some hydel stations. Among major hydel stations; Edamalayar, Lower Periyar, Poringalkuttu and PLBE started generation. Among SHEPs, Barapole, Perunthenaruvi, Peechi, Chimmony, Vilangad, Malampuzha, Madupetty, Chempukadavu II, Poozhithode, Lower Meenmutty, Urumi II stations started generation. SHEPs: Vellathooval, Adyanpara and Ranni-Perinad are under maintenance.

The following SHPs also faced severe damages; Iruttukanam SHP-4.5 MW, Anakkampoyil-8 MW, Ullunkal SHP-7 MW, Arippara SHP 4.5 MW, 50 kW Deviyar MHP, 50 kW Kallar Micro Hydel project (MHP) implemented by Idukki District Panchayat, Maniyar Tail race-12 MW, Ullunkkal 7 MW, Karikkayam-15 MW, Kuthunkal-21 MW. Due to recent floods, about 200 MU of power that can be generated for a year from these SHPs having installed capacity of approximately 67.5 MW was affected.

It is recommended that technology solutions like use of distribution poles higher than maximum flood limits firmly grouted on a solid foundation, application of SCADA based flood prediction system, climate proofing of distribution transformers, use of multi circuit towers and dam improvement technologies be implemented at the earliest to prevent such losses if such a calamity occurs in future.

Challenges and Issues

The power sector as a whole faces significant challenges and issues such as the increasing number of Open Access consumers, AT and C Losses, containing the transmission losses, inadequate capacity addition, significant delays in upgrading the transmission and distribution network as planned, limited penetration of star labelled products, insufficient interventions/ incentives to promote energy conservation and thereby manage demand etc. All these issues would have to be addressed on priority basis at the earliest.

Way Forward

As part of transforming Kerala into a power self-sufficient State, there is need to improve the performance of power sector agencies by formulating and implementing innovative schemes which will attract more capital inflows and more useful projects to develop in the sector. Renovation and modernisation of old hydel stations should be carried out to extend their life and to augment generation capacity. There is also a need to speed up the commissioning of new hydel projects. The non-conventional sources of energy should be utilised to the maximum extent possible in meeting our energy requirements. Electricity generation from wind, solar photovoltaics, small and medium hydro projects should be tapped to its full potential.

The Government's top most priority is to increase power generation to ensure availability of power to match the increasing demand. At the same time, quality of power is also of equal importance. An integrated approach involving institutional changes, increased generation capacity, increased production of renewable energy, demand side management and energy conservation activities are essential to acquire self sufficiency in power generation and efficiency in energy utilisation.

COMMUNICATION

Postal Network of Kerala

Indian postal system is the largest in the world with a network of about 1.55 lakh Post Offices, of which 1.39 lakh (89.78 per cent) are in rural areas and 15,826 (10.22per cent) are in urban areas of the country. The postal network consists of four categories of Post Offices namely, Head Post Offices, Sub Post Offices, Extra departmental Sub Post Offices and Extra departmental Branch Post Offices.

Kerala Postal circle includes the entire State of Kerala, the Union Territory of Lakshadweep and Mahe under the Union Territory of Puducherry. Kerala is the only postal circle where every village has at least one post office. As of August 31, 2017, there are 5,064 Post Offices in the circle, of which 1,509 are Departmental Post Offices and 3,555 Extra Departmental Post Offices. On average each post office in the State serves an area of7.70 sq.km and a population of 6,611 as against the national average of 21.21 sq.km and a population of 7,175 people. In total, 83 per cent of the Post Offices are located in rural areas. Major Activities of Kerala Postal Circle is given in Box 9.10.

All Post Offices in Kerala have improved their functioning as a citizen hub. Every citizen now has access to this hub close to his/her doorstep. Details are shown in Appendices 9.38, 9.39, 9.40 and 9.41.

Box 9.10 Major activities of Kerala postal circle

1. All the 1,509 departmental Post Offices in the circle are computerised with (e Money Order) eMO services
2. India Post Payment bank (IPPB)— This facility offers a wide range of products such as savings account, current account, remittances, money transfer, direct benefit transfers, bills and utility payments and enterprise and merchant payments. It is proposed to extend the service to all Post Offices in Kerala Circle by December 31, 2018.
3. Introduction of International Speed Post or EMS, a facility available from India to 99 countries.
4. iMO, variant of eMO, allowing remittance upto ₹50,000 within India.
5. Pack Post Service, an effective way to send items up to 30 kg anywhere in the world
6. Logistic Post provides transhipment of parcels of any capacity within the State and to select locations in other States.
7. Two new parcel products of India “Express Parcel” and “Business Parcel” introduced
8. Introduction of Air Logistics Post provides customers for getting end to end services on the logistics value for faster transmission /delivery of their consignments
9. Corporate My Stamp, a personalised service wherein corporate firms and institutions can get completely customised sheets of stamps.
10. New stamps and special covers were released.
11. Introduction of “My Stamp”. Any individual can get their personalised stamps on it.

12. Implementation of Public Fund Monitoring System (PFMS) or NeFMS platform for effective wage disbursal under MGNREGS. Under PFMS, from January 1, 2017 to August 31, 2018, ₹26 crore has been disbursed.
13. Undertake the following initiatives:-
    i. Tie up with GoK for Corporate e-post
    ii. Commissioner for Entrance Examinations, Kerala
    iii. Director, LBS Centre for Science and Technology– e-services
    iv. Kerala Water Authority for the collection of water bills under e-payment
    v. Adharva Associates for recharging of prepaid mobile connections
    vi. Regional Transport Office for booking and delivery of driving license and registration Certificates
    vii. Kerala State Council for Open and Lifelong Education
    viii. Controller of Technical Examinations, Kerala
    ix. Asianet Satellite Communications Ltd
    x. Booking of railway reservation ticket under Passenger Reservation System (PRS facility)

Source: Chief Post Master General, Kerala Circle, Thiruvananthapuram

Telecommunications

Telecommunication is one of the prime support services needed for rapid growth and modernisation of the economy. The telecommunication service in India has improved significantly since independence. Kerala Telecom circles serve the whole of Kerala State, the Union Territory of Lakshadweep and part of Union Territory of Puducherry (Mahe). The circle has 11 major Secondary Switching Areas (SSAs) and one minor SSA of Lakshadweep. The status of telecom sector in Kerala is given in Box 9.11. More details are given in Appendix 9.42

Communication Infrastructure

Core infrastructure for e-governance in the State consists of Kerala State Wide Area Network (KSWAN), Secretariat Wide Area Network, State Data Centre, State Service Delivery Gateway and public WiFi project. KSWAN is the backbone of the State Information Infrastructure (SII), connecting Thiruvananthapuram, Kochi and Kozhikode and extending to 14 districts and 152 block Panchayats of the State. The network will also connect 3,500 offices of government departments through wireless and a large number through leased lines and Local Area Network. KSWAN is seamlessly integrated with two State Data Centres which enable the network to provide large number of government to government, government to citizens' services hosted in State Data Centres to the government institutions through a secure intranet.

Box 9.11 Status of telecom sector in Kerala as on March 31, 2017

- No. of Telephone Exchanges : 1,290
- Equipped Capacity : 33,11,661
- Working Connections : 18,67,057
- Average No. of Telephone per sq. km : 47
- Telephone Density : 56 per 1000 population

Source: Office of the Chief General Manager, BSNL, Kerala Circle

New Initiative in 2017

GoK has announced setting up of State's own communication infrastructure, namely K-FON, Kerala Fibre Optic Network in the State, to enhance communication in rural areas, provide high speed connectivity to all government and educational institutions and offer internet to the economically backward community of the State. The universal basic internet facility will be made available to all citizens and government machinery through a new optic fibre pathway created in parallel to KSEB electric power network. Administrative Sanction was accorded for an amount of ₹1,028.20 crore and Detailed Project Report has been approved by KIIFB for an amount of ₹823.00 crore.

Drinking Water

Access to safe drinking water is a fundamental need as well as a human right. Inadequate drinking water, lack of sanitation and unhygienic conditions remain leading causes for a major share of childhood diseases and malnutrition across the world. Access to water and sanitation and hygiene are thus basic determinants for a healthy life. According to UNICEF, since 2000, 140 crore people have gained access to basic drinking water services such as piped water in homes or protected wells. In 2015, 84.4 crore people lacked basic water services and, among them, almost 15.9 crore people collected drinking water directly from rivers, lakes, and other surface water sources. The data reveal pronounced disparities, with the poorest and those living in rural areas getting the least access to safe water.

NITI (National Institution for Transforming India) Aayog has developed the Composite Water Management Index (CWMI) to enable effective water management in Indian States in the face of this growing crisis. The index and the associated report are expected to: (1) establish a clear baseline and benchmark for State level performance on key water indicators; (2) uncover and explain how States have progressed on water issues over time, including identifying high-performers and under-performers, thereby inculcating a culture of constructive competition among States; and, (3) identify areas for deeper engagement and investment on the part of the States. Eventually, NITI Aayog plans to develop the index into a composite, national level data management platform for all water resources in India.

As per Water Management Index Report of NITI Aayog, currently, 60 crore Indians face high to extreme water stress and about two lakh people die every year due to inadequate access to safe water. The crisis is likely to get worse. By 2030, the country's water demand is projected to be twice the available supply, implying severe water scarcity for hundreds of millions of people and an eventual 6 percentage loss in the country's GDP. As per the report of National Commission for Integrated Water Resource Development of Ministry of Water Resources (MoWR), the water requirement by 2050 in high use scenario is likely to be 1,180 BCM, whereas the present-day availability is 695 BCM. The total availability of water in the country is still lower than this projected demand, at 1,137 BCM. Thus, there is an imminent need to deepen our understanding of our water resources and usage and put in place interventions that make our water use efficient and sustainable.

The indicators in the Water Index have been grouped into nine broad themes, which are: i. Source augmentation and restoration of water bodies. ii. Source augmentation (groundwater). iii. Major and medium irrigation-Supply side management. iv. Watershed development-Supply side management. v. Participatory irrigation practices-Demand side management vi. Sustainable on-farm water use practices-Demand side management. vii. Rural drinking water. viii. Urban water supply and sanitation, and ix. Policy and governance.

According to the Water Management Index Report, Gujarat is in the top position in the index among non-Himalayan States followed by Madhya Pradesh, Andhra Pradesh, Karnataka, and Maharashtra. Kerala is in the twelfth position. Among the North east and Himalayan States, Tripura is in the top position in the management index followed by Himachal Pradesh, Sikkim

and Assam respectively. Among the North east and Himalayan States, Meghalaya has been ranked lowest in the index. The Composite Water Management Index is an important tool to assess and improve the performance of States/ Union Territories in efficient management of water resources. This has been done through a first of its kind water data collection exercise in partnership with MoWR, Ministry of Drinking Water and Sanitation and all the States/Union Territories.

Kerala is perceived to have higher water demand than the national average due to established social norms and demand for better hygiene and sanitation. According to the Census 2011, the majority of people (62 per cent) use wells as their main drinking water source, while 29 per cent of the population has access to piped water-supply. In terms of accessibility, 78 per cent households have a water source within the premises and 14 per cent households use water sources near the premises. State sanitation coverage, based on the Census 2011, showed that 67 per cent households had water sealed toilets, and 95 per cent had a toilet facility within the premises. Though Kerala has 41 west-flowing and 3 east-flowing rivers and a number of lakes, backwaters and streams, the State faces scarcity of water. Kerala Water Authority (KWA) and KRWSA (Kerala Rural Water and Sanitation Agency) are the major implementing agencies in drinking water sector. Local governments also play an important role in this.

Kerala Water Authority (KWA)

The KWA has three regional offices, 15 circles, 51 divisions, 136 subdivisions and 293 sections across Kerala. Operation and maintenance, Projects, Project planning and development, Quality control and Consultancy are the major functional units of KWA. The KWA has elaborate water quality control set up with a State Referral Institute at Kochi and has 14 District labs and 33 sub divisional labs.

Water Supply Coverage

There are 1,044 water supply schemes in operation as on March 31, 2018, with a total installed capacity of 2,744.234 MLD (Million Litres per Day), which means the average per capita availability of piped water is 81.61 litres per day. However the LPCD (Litres Per Capita per Day) varies in different habitations in all districts. But after accounting for the high percentage of non-revenue water (leakage), industrial and non-domestic demand, the per capita availability is much less. The schemes are also mostly located in urban areas.

In 2017-18, about 16 schemes were commissioned thereby increasing coverage and benefiting about 14 lakh more people with safe drinking water. KWA distributes water through House Service Connections (HSC) and street taps. The total number of domestic non-domestic, industrial and street tap connections are 21,31,539, 1,46,477, 1689, and 2,04,551 respectively. Out of street tap connections, 1,54,762 are in Panchayats, 18,926 in corporations, and 30,863 in Municipalities (Appendix 9.45) as on March 31, 2018. In 2017-18, KWA has given 1,68,526 new house service connections and 9,546 street taps were disconnected. The data shows that there is an increasing trend in the water supply house connections and diminishing trend in street taps when compared with the previous year. As per data available, 55.82 per cent population of Kerala (51.12 per cent of rural population and 61.76 per cent of urban population) is covered by piped water supply.

District-wise population covered by water supply schemes as on March 31, 2018 shows that Ernakulam District with coverage of 83.60 per cent population shows highest coverage among 14 districts of Kerala, followed by Thiruvananthapuram District (73 per cent). In Kasaragod District (16.52 per cent), the coverage is the least. Total coverage of population is 56.29 per cent. Details are given in Appendix 9.43. District-wise analysis shows that

Thrissur has highest number of water supply schemes (122). District-wise and category-wise details of water supply schemes in operation shows that Wayanad (26) is the least covered District as in the previous year (Appendix 9.44). Number of water supply schemes of KWA transferred to Local Governments as on March 31, 2018 is 493. District-wise details of water supply schemes transferred to Local Governments are given in Appendix 9.48. As per District-wise water availability data, Pathanamthitta District has the highest availability (150 lpcd) and Idukki has the lowest availability (35 lpcd rural) (Appendix 9.49).

Habitation Coverage

As per IMIS data as on April1, 2016, out of 11,883 rural habitations, 8,088 habitations were partially covered habitations and 439 were quality affected habitations. In 2017-18, 192 habitations were covered with piped water supply by commissioning the schemes. The total number of quality affected habitations has also reduced significantly during the period. There are no arsenic affected habitations in Kerala presently.

Revenue

The major income for KWA is from the sale of water and Kerala is the only State in the country with 100 per cent metered water connections. Details of existing water rates as on October 1, 2016, are given in Appendix 9.46. The total revenue collected in 2017-18 was ₹591.43 crore, which is 15 per cent more than that in 2016-17. Details of revenue collection during last 5 years are given in Appendix 9.47.

National Rural Drinking Water Programme (NRDWP)

In 2017-18, 53 schemes were completed (fully/partially) in various districts benefiting a population of about 13 lakh. There are 133 ongoing schemes as on September 30, 2018 under Accelerated Rural Water Supply (ARWS) Schemes. Varsha scheme is to collect rainwater from the rooftop and store it in a tank from where water will be drawn by the beneficiaries. KWA had completed 5,748 units of the Varsha scheme in the districts of Thiruvananthapuram, Alappuzha, Kottayam and Ernakulam from 2002 onwards. KWA has provided water supply to 1944 schools under the scheme Water Supply Schemes (WSS) to rural schools.

Under the centrally sponsored schemes ₹19.73 crore has been allotted to Kerala for providing interim water supply to 95 fluoride affected habitations in the State as One Time Additional (OTA) central assistance. It is envisaged to ensure 8 to 10 lpcd safe drinking water by installing Community Water Purification Plants (CWPP) in the fluoride/arsenic affected habitations as an interim measure. KWA has provided safe water on a permanent basis in 63 fluoride affected habitations by providing pipeline extension from treated sources. As per the current status as on September 30, 2018, 32 fluoride affected habitations are remaining to be covered.

NABARD Assisted Rural Infrastructure Development Fund (RIDF) Schemes

All the schemes under RIDF IX have been completed. Under Tranche XIV, 31 schemes out of 36 have been completed and 4 schemes namely Pallichal, Balaramapuram and Vilavoorkkal Pt. and RWSS to Kunnathukal in Thiruvananthapuram, RDWSS to Cheruthuruthy and Nedumpura in Trichur District and RWSS to Karukutty and Mookkannoor in Ernakulam District have been partially commissioned. The other schemes RDWSS to Nadapuram village in Kozhikode District are in final stages of completion.

WSS to Mattini in Kannur District sanctioned under Tranche XVI could not be started as land required was not handed over by the Local Governments Tranche XVII closed by June 30, 2018, and Tranche XVIII is closing by December 2018. Under Tranche XVII, 2 schemes, WSS to

Table 9.31 Rural water supply schemes under various tranches sanctioned so far

Year of Sanction	Name of Tranche	No. of Schemes	No of completed schemes/dropped	Total Project Cost (in ₹crore)
2003	IX	8	8	48.68
2008	XIV	36	31	670.16
2010	XVI	1	1	0.89
2011	XVII	2	0	51.57
2013	XVIII	9	0	206.39
2014	XIX	8	0	128.54
2015	XX	9	0	93.39
2016	XXII	6	0	57.26
2017	XXIII	3	0	85.55
*2018	XXIV	3	0	45.52
	Total	85	40	1,387.66

*sanctioned by NABARD: A S to be issued by Government
Source: KWA.

Kattur, Padiyurand Poomangalam villages in Thrissur District and WSS to Mananthavadi, Edavakaraand Nalloornadu villages in Wayanad District were sanctioned and the work is in the final stages of commissioning. In addition, 52 water supply schemes mostly mini schemes were sanctioned under integrated package for Endosulphan affected Panchayats. Ten schemes sanctioned under Tranche – XVIII and 8 schemes sanctioned under RIDF – XIX are progressing and are in different stages of implementation. Nine schemes were sanctioned under RIDF – XX in 2015 and are in various stages of implementation. Six schemes sanctioned in 2016-17 under Tranche- XXII and 3 schemes sanctioned under XXIII 3 are in the initial stages (Table 9.31).

Japan International Cooperation Agency (JICA) Assisted Kerala Water Supply Project

JICA Assisted Kerala Water Supply Project envisages the implementation of five water supply schemes in Thiruvananthapuram, Meenad, Cherthala, Kozhikode and Pattuvam for a total estimated cost of ₹1,787.45 crore. All the projects except part of the distribution System in Meenad and Kozhikode and Rehabilitation of Water Treatment Plant at

Table 9.32 Japan International Cooperation Agency assisted water supply projects

Scheme	Water Treatment Plant capacity	Envisaged total population benefited on completion (in ₹ lakh)	Benefited area
Thiruvananthapuram	74	10.7	Thiruvananthapuram Corporation and adjoining villages 3 Panchayat
Meenad	71	5.26	Paravoor Municipality and 13 Panchayat
Cherthala	107	6.53	Cherthala Municipality and 18 Panchayat
Kozhikode	174	13.03	Kozhikode city and 16 Panchayats
Pattuvam	90	5.3	Thaliparamba Municipality and 11 Panchayats
TOTAL	516	40.8	

Source: KWA.

Box 9.12 Impact of 2018 floods in drinking water and sanitation

In Kerala, during the months of June-August 2018, substantial damage was caused in the water, sanitation and hygiene (WASH) sector due to floods and landslides. The damage and loss occurred across three sub-sectors – water supply, sanitation and solid waste management. The immediate needs are the repair and restoration of damaged infrastructure, clearing of debris, improving shallow wells, raising awareness on the need to upgrade wells, and strengthening the water quality, surveillance systems. The estimated damage in the water, sanitation and hygiene (WASH) sector stands at ₹890 crore (water sub-sector: ₹492 crore; sanitation: ₹147 crore; and, solid waste damage: ₹251 crore). Losses in the WASH sector are estimated at ₹471 crore (water-supply loss at ₹349 crore, sanitation loss at ₹48 crore, and solid waste management loss at ₹74 crore). The total cost for immediate and short-term recovery and reconstruction in the WASH sector is ₹1,331 crore (₹766 crore for water supply, ₹289 crore for sanitation and ₹276 crore for solid waste management).

Damage has been reported in 108 urban and 372 rural schemes under KWA, and 583 rural schemes under the Jalanidhi project. The KWA estimates 58 per cent reduction in daily production, indicating that approximately 50 per cent to 60 per cent of piped water users (20 per cent of the State's population or 0.67 crore people), have been affected. It is estimated that a total of 317,003 shallow wells have been damaged in the six worst affected districts, which directly affects 0.14 crore persons. An estimate total of 95,146 household latrines have been substantially damaged. 83,506 units in rural areas and 11,640 in urban areas are damaged. This deprived 400,000 people of sanitation services. The recovery and reconstruction needs were assessed in consultation with mandated WASH stakeholders and experts. Attention was given to assess their Build Back Better and/or Disaster Risk Management compliance. The major focus in the water supply sub-sector is on the recovery of piped water supply systems with a resilience component, at an estimated cost of ₹96.98 crore out of the sub-sector total of ₹765.65 crore. Similarly, recovery of damaged Jalanidhi schemes will account for ₹34.77 crore.

Source: Post Disaster Needs Assessment (PDNA) Report by United Nations

Thiruvananthapuram have been completed and commissioned. For Kozhikode scheme and Meenad Schemes, all components except part of distribution system have been completed and partially commissioned. By commissioning the above 5 schemes under JICA, the production has enhanced by 516 MLD and it benefits a population of about 41 lakh in 5 districts viz., Thiruvananthapuram, Kollam, Alappuzha, Kozhikode and Kannur. The details are given in Table 9.32.

Kerala Infrastructure Investment Board (KIIFB)

Under KIIFB funding, administrative sanction amounting to ₹1,257.1 crore was sanctioned for implementing 23 water supply projects in 2016-17. The water supply schemes can be implemented in 13 municipalities and 68 Panchayats. Out of this, ₹163.10 crore is set apart for completing 8 water supply schemes. The remaining ₹1,094 crore is used for the implementation of new projects (15 schemes). Four lakh habitations from 14 panchayats will get immediate benefit on completion of the 8 water supply schemes. These projects are implemented in 56 packages. Out of this 38 packages have been tendered for ₹747.18 crore and agreement has been executed for 33 packages for ₹592.83 crore. Tenders for 5 packages are under process, 11 packages kept pending due to land issues and 7 packages will be tendered on progress of other works. KIIFB has also accorded approval

for proposals submitted for replacement of old transmission mains in 5 circles. Proposals of 6 circles are under process in KIIFB.

Sewerage

The sewerage in Thiruvananthapuram city has 37 per cent coverage with about 90,000 connections. Ernakulam has a small system with 1,000 connections. Two projects for Kollam and Kozhikode under KSUDP are in progress. The need for more focused attention in sewerage sector is essential. The lack of funds, public protest against sewage plants/pump houses, delay in getting sanctions are some of the issues affecting sewerage projects. New projects are being sanctioned under Atal Mission for Rejuvenation and Urban Transformation (AMRUTH) for executing the sewerage project in the cities. Wastewater collection and disposal are of equal importance to that of protected water supply in maintaining public health and much attention is needed in this sector.

Guruvayur sewerage scheme

The project is to provide an effective drainage system for the full coverage of the densely inhabited areas under Guruvayur Municipality. The main objective of the project is to improve the environmental conditions now prevailing in the area. The work is in the final stages and about 90 per cent of the work has been completed.

Thiruvananthapuram sewerage scheme

The Thiruvananthapuram Sewerage Scheme was formulated in 1931 based on the principle of separate system, dividing the area in to different blocks topographically for effective drainage of waste water. In 2013, a sewage treatment plant was commissioned with a total capacity of 107 MLD. Presently works are taken up under AMRUT and State Plan for extending the sewerage facility to the non - covered areas and also for rehabilitation of existing schemes. Works amounting to ₹60 crore are in progress.

World Bank Aided Kerala Rural Water Supply and Sanitation Agency (KRWSA)

Jalanidhi - phase-1

World Bank aided (₹381.5 crore) rural water supply and sanitation project, Jalanidhi, was implemented by KRWSA. The Gram Panchayats have a major role in implementing community based water supply projects under Jalanidhi. KRWSA has also established a wide network of NGOs in mobilising communities towards implementing the participatory, community driven water supply and sanitation facilities owned and managed by them. This model of scheme implementation under Jalanidhi has demonstrated successfully an equitable, inclusive and decentralised delivery system mainly benefiting the SC,ST (16 per cent) and BPL category (52 per cent) of rural households in Kerala. KRWSA is the nodal Agency of the State Government for the implementation of rain water harvesting programme in the State. Jalanidhi phase-1 was implemented during the period 2000-2008. 3,694 small water supply schemes and 16 large water supply schemes were commissioned benefiting 10.56 lakh population.

Jalanidhi- phase-II

Jalanidhi-II is a sequel to the Jalanidhi-I and the period of implementation is 2012-18. It is targeted to be completed by December 31, 2018. The project aims to cover about 17.5 lakh rural people for water supply and sanitation services and to cover 200 Grama Panchayats of Kerala. Total project expenditure as on March 31, 2018, was ₹1,105.06 crore. Under this project 1,796 water supply schemes have been commissioned so far and works in all respects have been completed in another 15 schemes. 1,70,153 households (7,46,097 beneficiaries) are now getting water from the commissioned schemes.

Details of District-wise sanitation activities of KRWSA as on March 31, 2018 is shown in Appendix 9.50. Total number of Ground Water

Recharge (GWR) structures as on September 15, 2018 is 2,552 (achievements of Jalanidhi Phase I and II and Rain Water Harvesting (RWH)/GWR activities). Most numbers of GWR structures are in Kottayam (972). Similarly, total number of rain water harvesting in homesteads installed by KRWSA in the State are 28406 as on September15, 2018. There are 9,041, 5,844, 3,042 and 2,418 number of such RWH are installed in Idukki, Kottayam, Kasaragod and Palakkad respectively (Appendix 9.51). As per KRWSA data, as on March 31, 2018, out of 5,506 schemes, 4,184 small water supply schemes and 27 large/bulk water supply schemes are functional(Appendix 9.52). It is observed that nearly 35 per cent of the scheme has become partially or fully defunct since 2008. The Plan provides for 'sustainability support to community managed water supply schemes' for post implementation support.

Housing

Housing is a basic need and is recognised as a human right. Providing adequate shelter to all of its citizens is the duty of a welfare State and also a big fiscal challenge to every government. The ultimate objective of housing policy bust be that all citizens live in houses that are comfortable, safe and dignified.

The average size, quality, and investment per house in Kerala were better than in other parts of the country. More than two-thirds of all households (66.67 per cent) in Kerala live in good quality (pucca houses with roof, wall etc.) houses; corresponding figure at the national level was 53.1 per cent. 95 per cent of houses in Kerala were electrified while the national average is only 67 per cent. The Housing Census 2011 also reveals that 10.6 per cent of the total houses in Kerala remain vacant. Despite the positive features mentioned above, poor and vulnerable people in various locations of the State remain homeless which is 0.67 per cent of total homeless in India. Kerala has implemented several innovative housing schemes for the poor (MN Laksham Veedu, EMS Housing) in which several departments have played a role, including the Housing Department of the Government of Kerala which implements social housing schemes for the Economically Weaker Sectors (EWS), and those who are in the Low Income Group (LIG) and the Local Self Government Department (LSGD) which is primary responsible for housing under LIFE. The present government started the Livelihood Inclusion and Financial Empowerment (LIFE) programme to provide safe housing to nearly 4.30 lakh homeless and other people Below the Poverty Line (BPL) within a period of five years. Among other programmes, Pradhan Mantri Awas Yojana (PMAY) of the Central government and the EMS Housing Scheme are operating under LIFE.

Table 9.33 gives a comparative data between all-India and Kerala on homelessness and housing from the Census 2011. The figures for Kerala as estimated by LSGD in the context of LIFE may be different.

A recent survey to identify street dwellers in all 93 Urban Local Bodies (ULBs) of 14 districts of Kerala, by Kudumbashree Community Development Societies (CDS) has found that there were 3,195 homeless people in the State, out of which 1,397 are migrants. Of all the homeless people, 2,625 are men, 564 are women and 6 are transgender persons. The highest number of street dwellers in the State were reported in Ernakulam District (510) and second highest

Table 9.33 Data on homeless population in Kerala and India

	Total*	Homeless Population	
		Male	Female
India	1773040	1,046,871	726,169
Urban (India)	256896	602,421	335,927
Rural (India)	192891	444,450	390,242
Kerala	11853	7,751	4,102

*This includes children aged between 0-6 also
Source: Census of India 2011

in Kozhikode (419). The lowest number was from Idukki (39) and the second lowest from Pathanamthitta (59).

Agencies in the Housing Sector

In addition to the central government schemes, the State government has implemented many housing schemes through different departments. Pradhan Mantri Awaas Yojana (PMAY) is a Centrally Sponsored Scheme (CSS), with Centre and States sharing costs in the ratio 60:40, launched with the objective of achieving the goal of 'Housing for All by 2022'. Kudumbasree is the State level nodal agency for the implementation of major centrally sponsored schemes for urban poverty reduction that includes housing for the economically poor sections of society.

More than 20 agencies are implementing housing schemes in the State as per the data received from the Housing Commissioner. The important agencies include Local Self Government Department (LSGD), Kudumbasree, Kerala State Housing Board (KSHB), Kerala State Nirmithi Kendra (KESNIK), Kerala State Development Corporation for SC/ST, SC/ST Development. Non-Governmental agencies such as COSTFORD and Habitat Technology group, Co-operative societies and Corporations like Kerala State Co-operative Housing Federation Ltd are also involved in the activity of constructing houses. Several NGOs are also contributing significantly. Other departments like Labour, Fisheries, Sainik Welfare, Urban Affairs and Minority Welfare are also implementing various affordable housing schemes for the poor labourers (including migrants) and economically weaker sections.

Table 9.34 Percentage distribution of houses received assistance from housing scheme by present status of house for each household social group

Sl No.	Natural Region	Social Group	% with in Social Group					Sample No. of families received assistance from housing scheme
			Construction completed	Incomplete	Not started	Construction/ project abandoned	All	
1	Highland	ST	60.5	37.4	0.1	1.9	100	1,439
2		SC	42.4	55.6	1.4	0.7	100	144
3		OBC	54.3	45.1	0.4	0.2	100	856
4		Others	54.8	44.7	0.2	0.2	100	447
5		All	56.9	41.7	0.3	1.1	100	2,886
6	Midland	ST	33.3	66.7	-	-	100	18
7		SC	32.9	66.3	0.8	0.1	100	1,298
8		OBC	36.4	62.7	0.4	0.4	100	961
9		Others	51.3	48.5	-	-	100	452
10		All	37.2	62.1	0.2	0.2	100	2,729
11	Lowland	SC	57	42.6	0.3	0.3	100	1,074
12		OBC	68.9	31	0.1	0.1	100	1,509
13		Others	75.1	24.4	-	-	100	377
14		All	65.4	34.4	0.1	0.1	100	2,960
15	Coastal	SC	25.8	74.2	-	-	100	155
16		OBC	77.4	22.6	-	-	100	835
17		Others	79	21	-	-	100	100
18		All	70.2	29.8	-	-	100	1,090

Source: Report on 'Qualitative and quantitative condition in housing in rural Kerala 2016-17,' DES, Kerala

These agencies/departments have provided assistance to construct around 2,89,826 houses during the period 2012-13 to 2017-18 (up to July 2018). Achievements under major housing schemes by different housing agencies in Kerala are given in Appendix 9.53.

The data regarding status of construction of houses under various government housing schemes reveal that in highland 41.7 per cent, in midland 62.1 per cent, in lowland 34.4 per cent and in coastal areas 29.8 per cent are incomplete due to various reasons. It is also seen that among the homeless families, 71.8 per cent are STs, 81.3 per cent are SCs, 7.7 per cent are OBCs. Among others, 68.5 per cent are not having own land. The proportion of landless among families of fisherfolks is even higher at 86.3 per cent. The landlessness is higher among fisherfolks and SCs with respect to housing as can be seen from above (Table 9.34).

Kerala State Housing Board (KSHB)

Kerala State Housing Board (KSHB), the implementing agency in the housing sector under government has been providing residential facilities to prospective beneficiaries through its public housing schemes apart from cash loan assistance for house construction.

Grihasree Housing Scheme

In this scheme, financial assistance is given as government subsidy at the rate of ₹2 lakh per house for the construction of houses in EWS/ LIG category in their own land with the support of voluntary organisations. Assistance for 430 houses was distributed in 2017-18 and for 120 houses up to July 31, 2018. A total of 2730 houses have been constructed under the scheme.

Saphalyam Housing Scheme

The scheme is being implemented by KSHB in various Panchayats of the State. The scheme envisages to support services and infrastructure facilities for the construction of flats for BPL category in tie up with Local Governments. 66 flats were constructed in 2017-18 and a total of 138 flats have been constructed so far under this scheme.

Kerala State Nirmithi Kendra (KESNIK)

Kerala State Nirmithi Kendra (KESNIK) is an organisation engaged in housing and habitat development through the practice and propagation of cost effective, energy efficient and environment friendly construction techniques.

In 2017-18, Nirmithi Kendra organised 27 Artisan training programs. 389 beneficiaries were trained in Masonry, Home Art, Carpentry, Gardening etc., out of which, 332 were women. Training was provided to 43 beneficiaries in survey techniques using total station machines (Training on Digital Survey). 4 training programmers were organised at various Engineering colleges to create awareness in sustainable construction practices benefiting several students. A hand book on sustainable habitat technology and climate change was published.

Kerala State Co-operative Housing Federation (HOUSEFED)

This agency provides financing facilities to the affiliated primary co-operative housing societies (PCHS) for the construction of houses and repair/ extension. In 2017-18, an amount of ₹8,331.02 lakh and in 2018-19 (up to July 31, 2018) an amount of ₹2,588.13 lakh have been disbursed among EWS, LIG, MIG and others for constructing houses. HOUSEFED sanctioned 2,171 home loans in 2017-18 and 580 home loans in 2018- 19 upto July, 2018. The details of home loans sanctioned and the amount disbursed by Kerala State Co-Operative Housing Federation and Kerala State Co-operative Agricultural and Rural Development Bank Ltd (KSCARDB) are given in Appendix 9.54. The interest rates on housing loans of various financial institutions as on July 31, 2018 are given in Appendix 9.55.

Other Agencies Involved in Construction of Houses

Local Self Government Department (LSGD)

Kudumbasree is the State level nodal agency for the implementation of major centrally sponsored urban poverty reduction programmes like Swarna Jayanthi Shahari Rozgar Yojana (SJSRY), Integrated Housing and Slum Development Programme (IHSDP), Basic Services for Urban Poor (BSUP), Rajiv AwasYojana (RAY) and Pradhan Mantri Awas Yojana (PMAY). The monitoring and formulation of projects under these programmes are taken up by Kudumbasree under the administrative control of LSGD. Details are given in Chapter 10 of this Review.

Commissionerate of Rural Development

Pradhanmantri Awas Yojana-Gramin (PMAY-G)

This scheme aims to provide a pucca house with basic amenities to all homeless households living in kutcha and dilapidated houses in rural areas by 2022. The immediate objective is to cover 1 crore households living in kutcha house/dilapidated houses in three years from 2016-17 to 2018-19 and enable construction of quality houses by the beneficiaries using locally available materials, designs and masons specially trained to do quality workmanship. The unit (house) assistance is enhanced from ₹70,000 to ₹1,20,000 in plain areas and the cost of unit assistance is to be shared between central and State governments in the ratio 60:40. In the period 2016-17, 13,004 houses were constructed and assistance of ₹4,947.12 lakh was disbursed. Details are discussed elaborately in Chapter 10 of this Review.

Directorate of Panchayats

In 2016-17 and 2017-18 (upto December 2017) 5,900 houses have been sanctioned under various schemes by Directorate of Panchayats to be implemented by various Panchayats throughout the State.

Scheduled Tribes Development Department- General Housing Scheme

This scheme aims to provide financial assistance to houseless Scheduled Tribes for construction/ repair of houses. The amount provided in this scheme is ₹3.50 lakh for a house and it is disbursed in instalments. The beneficiaries are selected from the approved Oorukootam list.

Houses numbering 2,980 were sanctioned under HUDCO housing scheme and 1,854 houses are sanctioned under Vanabandhu Kalyan Yojana, a scheme implemented by Ministry of Tribal Affairs, GoI) for in 2016-17.

Department of Fisheries

1. NFWF Housing Scheme

Department of Fisheries is implementing the housing scheme under the central sector scheme 'National Scheme of Welfare of Fisherman'. The scheme is implemented in both marine and inland fishing villages of Kerala. The central government has increased the unit cost to ₹1,20,000 and provides ₹60,000 as central share. Over and above the central share, the State Government incurs additional expenditure. In 2016-17, a total of 299 units were sanctioned, out of which 138 houses completed.

2. Housing scheme (2016-17) under Basic Infrastructure Facilities and Human Development of Fisherfolk (BIF and HDF)

Since 2016-17, State government has been implementing a project to provide safe home to 2,600 families engaged in fishing activity at ₹2 lakh per unit and financial assistance to procure 2-3 cents of land for 800 landless fisherfolks at ₹6 lakh per unit, in fishing villages of 9 marine districts. Under BIF and HDF (2016-17) Fishermen Colony Revamping

scheme, financial assistance for new houses to 250 fisherfolks families at ₹2 lakh per unit has been given. Assistance is given only to active registered fishworker/pensioners or their widows who are inhabitants of the colony. Out of 250 units, 118 numbers are completed.

In BIF and HDF (2017-18), housing scheme, financial assistance is given to 1,200 fishworker to construct houses at ₹4 lakh per unit. This project is being implemented in 9 marine Districts. Out of 1200 units, 243 beneficiaries have executed agreement with the department. Out of this, 27 units have been completed.

Under the scheme of providing safe dwelling to landless fishworker, 192 houses were constructed in 2017-18.

Scheduled Caste Development Department

Under this scheme,₹4 lakh is given to SC families who have their own land and annual income is below ₹50,000 for constructing houses with minimum 323 sq. ft and maximum 750 sq. ft.

Kerala Labour Department

Bhavanam Foundation Kerala (BFK)

BFK is implementing various housing schemes for low wage earning labourers and workers in Kerala. In Janani- Adimali scheme, apartments measuring 645 sq.ft. have been constructed which would be sold to the beneficiaries with 20 per cent beneficiary contribution and 80 per cent housing loan to the beneficiary. In 2017-18, 217 apartments were completed. In Janani-Ponjassery scheme plinth area of each unit is higher at 715 sq.ft. Construction of 296 apartments is under progress in this scheme.

Directorate of Minority Welfare

ImbichiBava Housing Scheme for divorced/ abandoned women and widows from minority communities is a scheme intended to construct houses for the divorced\abandoned women and widows from minority communities belonging to BPL families. The beneficiary should have at least 2 cents of land in her name for construction of houses. The amount of departmental assistance is ₹2.5 lakh. In 2016-17, 226 houses were constructed and construction of 1,059 houses is in progress.

Kerala State Development Corporation for Christian Converts from Scheduled Castes and the Recommended Communities Ltd., Kottayam

Under this scheme, ₹3,00,000 is sanctioned as loan to construct a new house. The fund is disbursed in three instalments. The beneficiaries should be within the age limit of 18-55 and have income below ₹81,000 and ₹1,03,000 in rural and urban areas respectively. In 2016-17 and 2017-18, 217 and 189 houses respectively have been constructed. Under the house revamping scheme an amount of ₹1,00,000 is given for revamping the existing house. In 2016-17 and 2017-18, 21 and 62 houses respectively were revamped utilising the assistance provided under this scheme.

(*Source*: Housing Commissionerate, Thiruvananthapuram.)

Box 9.13 Adverse impact of floods, 2018 in the housing sector

In Kerala, during the months of June–August 2018, substantial damage was caused to the housing sector due to floods and landslides. Houses in low-lying areas with low plinth heights were worst affected by water damage, while in the same areas, houses with high plinths and with disaster-resistant features such as plinth and lintel bands were not affected to that extent. All the houses which were damaged in landslides were located on mountain slopes that were unstable and would have suffered similar fate regardless of building typology or technology used for construction.

The damage assessment of housing has been captured by the Local Self Government Department (LSGD) using the 'Rebuild Kerala' mobile application (app). Data compiled as on October 4, 2018, shows that a total of 17,316 houses would have to be rebuilt. These include completely destroyed buildings and those that have suffered damages beyond repair. Another 2,16,917 flood-affected houses need repair and retrofitting. It also shows that land has also been completely lost at 947 locations. Many houses were completely destroyed in landslides, mostly in Idukki, Wayanad and some other districts. Ernakulam District has the highest number of affected buildings. The number of buildings to be rebuilt is the highest in Thrissur followed by Ernakulam and Alappuzha. However, most of the damaged buildings in Ernakulam have up to 15 per cent damage. The same District has a considerable number of buildings that have incurred 16–29 per cent damage. The repair need in Alappuzha District is also quite high.

The damage caused has been categorised as (i) land and the building destroyed; (ii) only the building is destroyed; and, (iii) buildings are partially damaged. The partially damaged buildings were subdivided into buildings with a concrete roof and those with a non-concrete roof. Temporary shelters are being constructed in various districts to cater to the immediate needs of the affected house-owners. All these house-owners should have registered in a District database and been allocated the houses.

Reconstruction in the housing sector will in itself create numerous livelihood opportunities. Approximately 35 lakh days of work for skilled masons, and about 171 lakh days of work for unskilled workers, would be created. This would also provide an opportunity for them to upgrade their skills in building back better with training programmes.

Source: Post Disaster Needs Assessment; UNDP, 2018

Kerala Infrastructure Investment Fund Board

Historically, the State has lagged behind in infrastructural investment. The share of capital expenditure has been around 9 per cent of the total expenditure in the recent years. The preponderance of revenue expenditure in the State's Budget has been a major constraint on earmarking budgetary sources for capital expenditure. Kerala Infrastructure Investment Fund Board (KIIFB) is a Special Purpose Vehicle (SPV) intended to overcome this backwardness in investment. A part of revenue receipts, such as motor vehicles tax and the cess on petroleum products are committed to Spending by transferring to KIIFB.

KIIFB came into existence on November 11, 1999 under the Kerala Infrastructure Investment Fund Act, 1999 to manage the Kerala Infrastructure Investment Fund. The original Board was chaired by the Chief Secretary, GoK with Secretaries of key Government Departments and two financial experts as Members. Secretary to Government (Finance -Resources) was the Fund Manager.

The KIIF Act, 1999, has been comprehensively revised through the Kerala Infrastructure Investment Fund (Amendment) Act 2016. The Act has modified the structure of KIIFB to enable it to finance large scale infrastructure investment in the State. Besides enabling various modes of financial support to projects, the amendment also provides for utilising the new infrastructure fund mobilisation structures approved by Securities Exchange Board of India (SEBI) and Reserve Bank of India (RBI).

There is a Fund Trustee and Advisory Commission to ensure that all investment of the Fund serve the purpose and intent of the Act and there is no diversion of funds. Shri Vinod Rai, former Comptroller and Auditor General of India is the Chairman of this Commission. Ms Usha Thorat, former Deputy Governor, Reserve Bank of India and Shri G Padmanabhan, Former Executive Director, Reserve Bank of India are its Members.

A separate wing in the State Finance Department, namely Finance (Infrastructure) Department

As per the amendments to the KIIFB Act in 2016, the structure of the Board now is as follows

a)	Chief Minister	Chairperson
b)	Minister for Finance	Vice- Chairperson
c)	Chief Secretary	Member
d)	Vice-Chairperson, State Planning Board	Member
e)	Secretary (Law)	Member
f)	Secretary (Finance)	Member
g)	Secretary (Finance Resources)	Member
h)	Seven independent members who are experts, who have worked in an institution of national repute in one or more of the areas of Finance, Banking, Economics	Members
i)	Chief Executive Officer	Member Secretary

The Board also has an Executive Committee consisting of

a)	Minister for Finance	Chairperson
b)	Chief Secretary	Member
c)	Secretary (Law)	Member
d)	Secretary (Finance)	Member
e)	Secretary (Finance - Resources)	Member
f)	Three independent members of the Board, nominated by the Government.	Members
g)	Chief Executive Officer	Member and Fund Manager

The present independent Members in the Board are

1.	Dr. D. Babu Paul, Former Finance Secretary, GoI.
2.	Prof. C.P. Chandrasekhar, Professor, Centre for Economic Studies and Planning.
3.	Prof. Sushil Khanna, Professor (Economics and Finance), Indian Institute of Management, Calcutta.
4.	Sri. Salim Gangadharan, Former Regional Director, Reserve Bank of India, Thiruvananthapuram.
5.	Sri. J.N. Gupta, Former Executive Director, SEBI and Managing Director at Stakeholders Empowerment Services.
6.	Sri. Radhakrishnan Nair, Former Executive Director Securities and Exchange Board of India (SEBI).
7.	Dr. Sudipto Mundle, Member 14th Finance Commission, Former Director Strategy and Policy Department, Asian Development Bank (ADB), Emeritus Professor and Member of Board of Governors, National Institute of Public Finance and Policy (NIPFP).

functions as the administrative department of KIIFB and the wing functions along with KIIFB.

KIIFB functions as the key SPV for mobilising and channelling the funds to the various infrastructure SPVs. The minimum total project size is required to be above ₹100 crore. Both social and physical infrastructure projects are considered for investment. KIIFB harnesses resources through multiple investment avenues which include Infrastructure Investment Trust (InVIT), Infrastructure Debt Fund (IDF), Alternative Investment Fund (AIF); financial instruments such as General Obligation Bonds, Land Bonds, Infra Bonds, tailor-made investment packages through existing government financial agencies like Kerala State Financial Enterprises Ltd. (KSFE); grants, annuities and other guaranteed payments from Government; returns from investments, loans from domestic/bilateral/ multilateral financial institutions, etc.

Table 9.35 Amount approved by KIIFB, in ₹ crore

Sl.No	Name of Department/Agency	DPR cost	Approved amount
1	Agriculture	25.12	14.28
2	Fisheries	51.72	46.94
3	Forest	261.8	212.18
4	General Education	2,178.18	1,745.91
5	Higher Education	446.5	390.41
6	Family and Health Welfare	1,657.51	1,550.83

Sl.No	Name of Department/Agency	DPR cost	Approved amount
7	Housing	45	45
8	Industries	1,565.17	1,565.17
9	Information Technology	1,378.83	1,174.13
10	LSGD	34.37	31.68
11	Power	5,200	5,200
12	PWD	11,533.52	10,136.77
13	Registration	100.33	92.18
14	SCSTDD	193.17	167.76
15	Sports and Youth Affairs	616.38	528.91
16	Tourism	62.06	54.5
17	Transport	441	412.93
18	Water Resources	4,410.57	3581.31
19	Devaswom	150	141.75
	Grand Total	30,351.23	27,092.64

Source: KIIFB data as on November, 2018

KIIFB has approved 468 projects till now. The approved amounts in different sectors are given in Table 9.35. The sectors where major investment proposals have been approved are substantial are Public Works, Water Resources, General Education, Industries, and Family and Health Welfare.

CHAPTER

10

LOCAL GOVERNMENTS AND DECENTRALISED PLANNING

CHAPTER 10

Local Governments And Decentralised Planning

Over the last two decades, decentralised Governments in Kerala have been widely accepted as one of the most significant institutional reforms in public governance in India for effecting democratic decentralisation.

In the 9th Five-Year Plan period decentralisation was implemented through the People's Plan Campaign in the State. In the subsequent 10th Five-Year Plan period it was restructured and named as "Kerala Development Plan" (KDP). The entire process was revamped in the 11th Five-Year Plan period, by giving stress to the concept of "People's Planning", focusing on the completion of the institutionalisation of decentralised Government. The 12th Five-Year Plan approach envisaged some concrete steps to strengthen the planning process with the use of information technology.

The second phase of the "People's Plan," campaign was introduced in the 13th Five- Year Plan. The thrust in the 13th Five-Year Plan period is on second-generation social and economic issues confronting the State. The second phase of decentralised planning aims at addressing these issues with genuine people's participation backed by strong administrative and political measures.

The People's Plan Campaign launched in the 9th Five-Year Plan succeeded in developing a methodology for participatory planning, which has been continuously refined over the years. Presently the Union Ministry of Panchayati Raj has suggested all States to adopt this methodology for the preparation of Grama Panchayat Development Plan with the slogan Sabki Yojana Sabka Vikas.

The hallmark of Kerala's decentralisation is the devolution of Plan resources on formula based, non-discretionary and equitable manner. This has enabled the Local Governments to get Development Funds from the State's budgetary allocation for implementing projects formulated at local level. Since the launch of decentralised planning in 1997-98, a portion of State's investible resources have been devolved to Local Governments as Development Fund. Now, it comes to about 25 per cent of the State's Plan outlay. In addition, the State transfers 3.5 per cent of its State Own Tax Revenue (SOTR) as General Purpose Fund and about 5.75 per cent of SOTR as Maintenance Fund every year. Local Governments have absolute freedom in formulating and implementing projects based on their priorities subject to Plan guidelines issued by the State Government.

At present, there are 1,200 Local Governments in Kerala, which includes 941 Grama Panchayats, 152 Block Panchayats, 14 District Panchayats, 87 Municipalities and 6 Municipal Corporations. The allocation of Development Fund to Local Governments is being done under three categories – General Sector, Scheduled Caste Sub Plan (SCSP) and Tribal Sub Plan (TSP). The Plan allocation for Development Fund for Local Governments is fixed in accordance with the Action Taken Report (ATR) on the recommendations of State Finance Commission (SFC). As per the ATR on the 5th SFC report, Plan allocation for Local Governments is to be fixed as a per cent of State Plan outlay. Thus, 24 per cent (₹7,000 crore) of the State Plan outlay has been earmarked as Development Fund for the year 2018-19. This includes devolution from the Union Finance Commission Award.

Review of 12th Five-Year Plan

In the beginning of 12th Five-Year Plan some changes were made in the Plan guidelines, mainly in sectoral ceilings and project appraisal. There was no mandatory minimum ceiling in productive sector during the first four years. In the case of infrastructure sector, the mandatory ceiling fixed was 45 per cent in Grama Panchayats and Block Panchayats, 55 per cent in Municipalities and Corporations and 50 per cent in District Panchayats under general sector outlay. In addition to this, 10 per cent of the Development Fund was to be mandatory earmarked for Women Component Plan (WCP) and 5 per cent for children, old age, differently abled, palliative care and other vulnerable groups. The experience in the first four years was reviewed by the Government of Kerala and a decision was taken to restore the mandatory minimum allocation with 20 per cent under productive sector and minimum allocation of 10 per cent for sanitation, for the Annual Plan 2016-17.

The Budget allocation (Development Fund) to Local Governments during the 12th Five-Year Plan is outlined in Table 10.1.

Major Policy Changes Initiated in the First Year of 13th Five-Year Plan

During the 13th Five-Year Plan period, the State envisages revitalisation of the system of decentralised democratic governance by learning from the experiences of the past. The first year of the 13th Plan witnessed some major changes in the methodology of local level participatory planning in Kerala. The changes were introduced in accordance with the approach of the 13th Five-Year Plan of the State. The second phase of the democratic decentralisation in Kerala has been initiated with the introduction of a new set of guidelines for formulation and implementation of the Local Government Plans. An important objective of the new guidelines was to simplify the procedures so that delays can be avoided. On account of the cumbersome procedures that existed until then, the Plan formulation and its approval took more time than the time left for implementation forcing the Local Governments to rush through the process of implementation during the terminal months of the financial year. It was also responsible for the bunching of payments during the month of March. As a result of the introduction of the new methodology all the Local Governments in the State could complete the process of formulation of their Annual Plans for 2017-18 before June15, 2017. This is an unprecedented achievement in the history of local level planning in the State. Accordingly the year also witnessed early beginning of the implementation process, which resulted in higher utilisation of allotted expenditure.

The 13th Five-Year Plan of the State places special emphasis on the issues arising due to fast moving urbanisation in Kerala. It recognises the importance of developing appropriate strategies and programmes for coping up with challenges and opportunities thrown up by the process of urban growth. Keeping this in view,

Table 10.1 Award of development fund for Local Governments, 2012-17, in ₹ crore

Year	State Plan Outlay	Development Fund to Local Governments	Per cent to State Plan Outlay
2012-13	14,010	3,228	23.04
2013-14	17,000	4,000	23.52
2014-15	20,000	4,700	23.5
2015-16	20,000	4,800	24
2016-17	24,000	5,000	20.83
Total	95,010	21,728	22.9

Source: Appendix IV of the State Budget

the Government has issued for the first time a separate set of guidelines for Plan formulation in urban Local Governments.

An equally important initiative introduced in 2017-18 is the effort to make the District Plans. It is a constitutional mandate (Article 243 ZD) that the District Planning Committees (DPCs) make District Plans aimed at designing an integrated approach for the development of the District. All the DPCs in Kerala could complete the task of making the District Plans well in advance, following the detailed guidelines issued by the State Government and thereby to ensure that the suggestions in the District Plans are incorporated in the Local Government Plans for the year 2018-19. This is a major achievement in the decentralised planning in Kerala. The DPCs in the State are now engaged in the task of converting some of the big project ideas emerged in the District Plans into implementable projects so that it can be jointly implemented by Local Governments and other agencies. Government had announced a scheme in the State Budget 2018-19 for promoting such integrated projects in the District Plans, with a corpus of ₹40 crore.

In the 13th Five-Year Plan, new guidelines have been formulated. The new guidelines, proposes to promote e-tendering to introduce transparency in the process. The new guidelines also envisage broadening the scope of subsidies that can be disbursed through Local Government Plans. Besides the Local Governments are also allowed a window of 'Innovative Programmes' for designing schemes. Policy changes were introduced in the sectoral ceiling also with a view to enhance production. Mandatory minimum allocation of 30 per cent for productive sector under normal share of general sector fund was ensured in the case of three-tier Panchayats and 10 per cent in the case of urban Local Governments. Also 5 per cent of total allocation comprising normal share under general sector, SCSP and TSP funds for disabled and children, 5 per cent for old age and palliative population, 10 per cent for WCP and 10 per cent for sanitation were ensured.

Another notable feature introduced in the first year of 13th Five-Year Plan was formation of planning committees in all Local Governments to help them in Plan formulation, implementation and monitoring. This ensured the active involvement of all stakeholders in the Plan formulation of 2017-18.

Annual Plan 2018-19

Based on the experience of the first year of the 13th Five-Year Plan, the Plan guidelines as well as the subsidy guidelines have been modified for the remaining four years. Modification of the guidelines became necessary to incorporate the experience gathered from the first year and to address issues raised by Local Governments. The special objective was ensuring that the deficiencies and gaps noticed are filled up. Modified guidelines were issued sufficiently early so as to enable the Local Governments to get the Annual Plan 2018-19 approved well before the beginning of the financial year. Accordingly, 1,147 Local Governments in the State could complete the process of formulation of their Annual Plan 2018-19 before April 1, 2018 leaving a full year for Plan implementation. As a consequence, these Local Governments could integrate their Annual Plans with the budgets, for the first time since the implementation of decentralisation in its present form.

As a result of the devastating floods that ravaged the State in August 2018, the Local Governments were permitted to reorient and rearrange their current year's Plan so as to address the critical problems that require immediate attention. Relaxation in sectoral norms was allowed. The provision given for liberal rearrangement of the local Plan helped the Local Governments to mobilise enough money for repairing and renovating public assets such as roads, bridges, drinking water schemes, public buildings etc. However, rearrangement of projects will not be enough for the very badly affected Local Governments in the State. Such Local Governments require additional funds.

Box 10.1 State of democratic decentralisation in India, experts' view

Differing Views expressed by members of the Asoka Mehta Committee (1978). These reflect the then prevailing state of decentralisation in the country. When read with the excerpts from Mani Shankar Aiyar Committee report (2013), it is clear that the scenario leaves much to be desired.

From the Dissent Note to the Asoka Mehta Committee Report (1978) by E.M.S. Namboodiripad, first Chief Minister of Kerala and veteran Marxist leader

"The Constitution itself according to me, failed to envisage an integrated administration in which, apart from the Centre and the States, there will be elected bodies which will control the permanent services at the District and lower levels. Democracy at the Central and States levels, but bureaucracy at all lower levels—this is the essence of Indian polity as spelt out in the Constitution. Added to this is the fact, in the actual work of the Constitution, the Centre made increasing encroachments into the rights and powers of the States. This trend reached its high watermark in the 42nd Amendment of the Constitution.

It was with such a centralised administration as its core that Panchayats were envisaged in the Constitution and the Balvantray Mehta Report. It is, therefore, not surprising that neither the bureaucrat nor the politician at the States level is prepared to decentralise whatever power has been conferred on the State under the Constitution. The point is to make a radical change in the very concept of democracy and adopt what is called four-pillar democracy. It is regrettable, that, while acknowledging the force of this reality, the report in the Chapter on "Review and Evaluation" does not nail down the chief hindrance to decentralisation at the District and Panchayat levels."

The observations of the "Twentieth Anniversary Report of the Expert Committee on Leveraging Panchayats for Efficient Delivery of Public Goods and Services"(2013) chaired by Mani Shankar Aiyar, former Union Minister for Panchayati Raj, are pertinent in this regard as it has come three and a half decades after the Asoka Mehta committee report and two decades after the 73rd and 74th constitutional amendments.

"This is an achievement in political empowerment that, in scale and numbers, is without precedent in history or parallel in the world. Yet, this historic achievement has made little impression on political circles, media perceptions, society as a whole, or even on the rural economy'" (GoI 2013a, p. 35).

The report further observed that 'the implementation of the operative core of Part IX relating to devolution of the 3 Fs – functions, finances and functionaries – has been far from in accord with the letter and spirit of the Constitution Amendments". According to the report, the Local Governments in India are still a shadow of 'Institutions of self-government' envisaged in the Constitution.

Formulation of Annual Plan 2019-20

The process of formulation of the local Plans for 2019-20 began on October 2, 2018. Early beginning was suggested with a view to finalise the Annual Plan proposals well before the beginning of the next financial year. The focus of the next Annual Plan should be 'Rebuilding Kerala' and restoration of livelihoods in the aftermath of the floods.

In the backdrop of the natural disasters, especially the devastating floods, Local Governments were instructed to form a new working group for 'Biodiversity Management, Climate Change, Environmental Protection and Disaster Management'. The Working Group, to be chaired by respective Local Government heads, should have experts in the aforementioned fields as members. The group that should include members from the Biodiversity Management Committee and Disaster Management Committee, should also draw members from the public, including volunteers who were part of rescue and relief operations in floods. The respective Local Government secretary will be convenor of the Group.

Local Governments have been directed to draw lessons from the flood and lay thrust on spatial planning at the micro-level to mitigate the impact of such disasters in future. The local spatial Plan will be on the basis of the District Plan already drawn. The idea is to come up with comprehensive Plans for spatial rearrangement or development which is essential for sustainable development in general and rehabilitation of people who live in ecologically highly sensitive areas prone to flooding and landslides. Such rethinking in the spatiality of development at the local level will have to be in agreement with larger master plans which the State Government would be formulating for different macro-regions of the State such as Western Ghats, Kuttanad, Periyar river system etc.

One of the thrusts in the first two years of 13th Five-Year Plan was to ensure timely preparation of local Plans so as to get the Local Governments a full year for Plan implementation. Local Governments have succeeded in achieving this objective and the system has been streamlined accordingly. Now, the efforts in the remaining years will be to improve the quality of Local Government Plan and projects by ensuring participation of experts, research institutions, educational institutions etc. in the planning process.

Box 10.2 Silver jubilee declaration on Panchayati Raj, Thiruvananthapuram, April 25, 2018

We, the community on Local Governance, on the event on Silver Jubilee of Panchayat Raj met at the 'National Conference on 25 Years of Panchayati Raj' organised by Kerala Institute of Local Administration (KILA) on 24-25 April, 2018 at Thiruvananthapuram hereby committed to stand for:

i. Protecting and promoting grassroots democracy and development in the true spirit of Panchayat Raj, resisting all actions that weaken Panchayati Raj at all levels.
ii. Strengthening Gram Sabha/Ward Sabha, the platform of direct democracy, by holding Elected Representatives and officials responsible and accountable to Gram Sabha/Ward Sabha.
iii. Making Gram Panchayats the first tier of participatory governance.

The seminar resolved to ensure that the Terms of Reference (ToR) of the State and Union Finance Commissions should be the joint product of the major stakeholders, including elected representatives of Local Governments, design of CSS and State sponsored schemes to be integral part of the Panchayati Raj system, active functioning of DPCs and preparation of District Plan under their auspices, fifty per cent reservation for women in all States, effective attainment of social justice, with special reference to SCs, STs, fisherfolk, differently abled, women, children, and youth, convening of special Sabhas like BalSabha, Mahila Sabha etc. with the aim of strengthening Gram Sabha and effective use of e-governance, as part of the 24-point agenda.

Financing of Local Government Plans – Annual Plan 2017-18

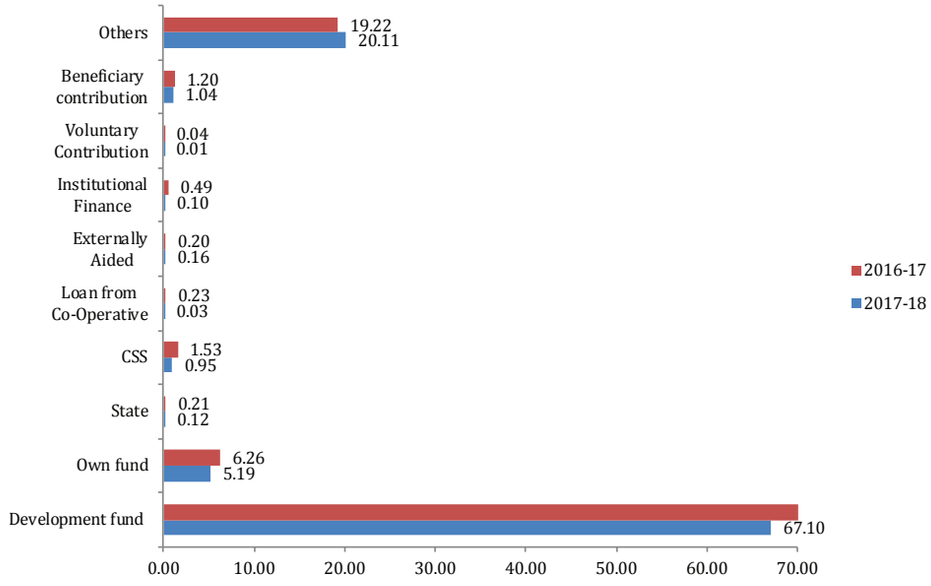
As already mentioned, the various sources of funds available to Local Governments include Plan allocation (Development Fund), Own Fund, Maintenance Fund, State sponsored schemes, CSS, beneficiary contribution etc. The total Plan outlay of all the 1,200 Local Governments for the year 2017-18 from all sources was ₹14,946.87 crore. Development Fund is the largest contributor (54.64 per cent) followed by Maintenance Fund (22.55 per cent) and Own Fund (7.72 per cent). Other sources of fund like CSS, loan from co-operatives, beneficiary contribution etc. contribute 15.09 per cent of the total funds of the Local Governments.

This underlines the importance of Development Fund in the total investible resources of the Local Governments. It also implies that the Local Governments are heavily dependent on devolution from State and the Centre with Own Funds comprising only 7.72 per cent of the total resources. (Source-wise details of 2016-17 and 2017-18 are given in Figure 10.1 and Appendices 10.1 and 10.2.

Performance of Local Governments – Development Fund

The allocation to Local Governments is in accordance with the recommendations of the SFC. The Appendix IV which is published along with annual State Budget clearly lists out the share of Development Fund to each Local Government. In 2017-18, the total budgeted outlay under Development Fund was ₹6,227.50 crore out of which ₹5,293.89 crore was utilised for different sectors. Thus, the Plan fund utilisation in 2017-18 was 85 per cent of budgeted outlay. The year 2017-18 witnessed higher release of money than the budgeted outlay. Against the budgeted outlay of ₹6,227.50 crore, the State Government released ₹6,640.52 crore as Development Fund. Thus the expenditure against release is 79.72 per cent. Among the various tiers of Local Governments the performance of Block Panchayat was better with 87.72 per cent utilisation of expenditure against release followed by Grama Panchayats with 82.15 per cent in 2017-18. Municipalities and Corporations have recorded 76.42 per cent and 74.93 per cent respectively. District Panchayats recorded

Figure 10.1 Local Government Plans: share of various sources in the total expenditure, 2016-17 and 2017-18, in per cent



Source: Information Kerala Mission 2018

the least expenditure with 69.73 per cent. The performance of various Local Governments with regard to utilization of Development Fund during 2016-17 and 2017-18 are given in Figure 10.2. As is evident from Figure 10.2, in general, Local Governments across the tiers have shown better performance in the utilisation of Development Fund in 2017-18 as compared to the previous year.

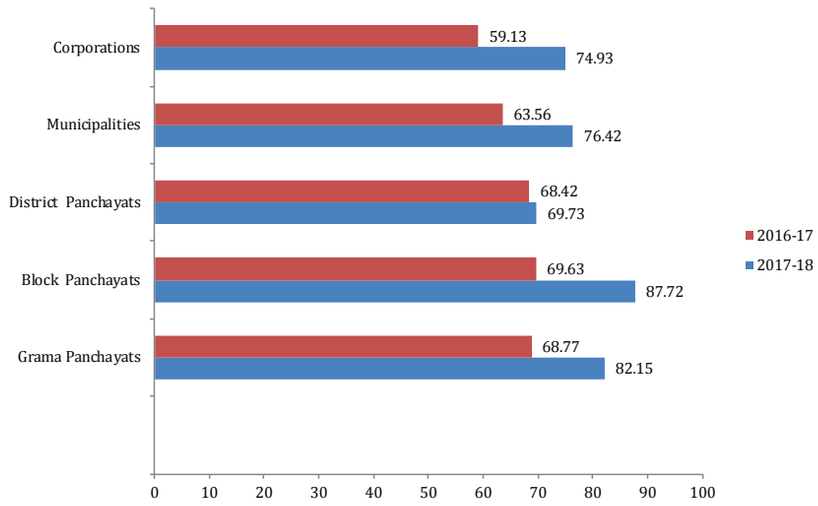
Category-Wise Performance

The allocation of Development Fund to Local Governments falls in three categories-General Sector, Special Component Plan (SCP) and Tribal Sub Plan (TSP). In 2017-18, an amount of ₹6,640.52 crore was released to different categories, of which ₹5,265.41 crore (79.29 per cent) was released in general category, ₹1,196.38 crore under SCSP (18.02 per cent) and ₹178.74 crore under TSP (2.69 per cent).

An analysis of category-wise utilisation with respect to the fund released in 2017-18 reveals that the expenditure under General Sector was 79.7 per cent of the total fund released and in the case of SCSP and TSP, it was 78.5 per cent and 87.9 per cent respectively. Shortfall in expenditure under SCSP/TSP was a common phenomenon for all tiers of Local Governments in the past. But in 2017-18 the expenditure under SCSP was at par with the general category (except for corporations) and under TSP it was higher than general category. Considering that the upliftment or improvement of the socio-economic status as well as enhancing the quality of life of the SC/ST population is one of the major objectives of decentralised planning, this is a remarkable achievement. The category-wise and Local Government-wise allocation and expenditure in 2017-18 is given in Appendix 10.3, 10.4 and in Figure 10.3.

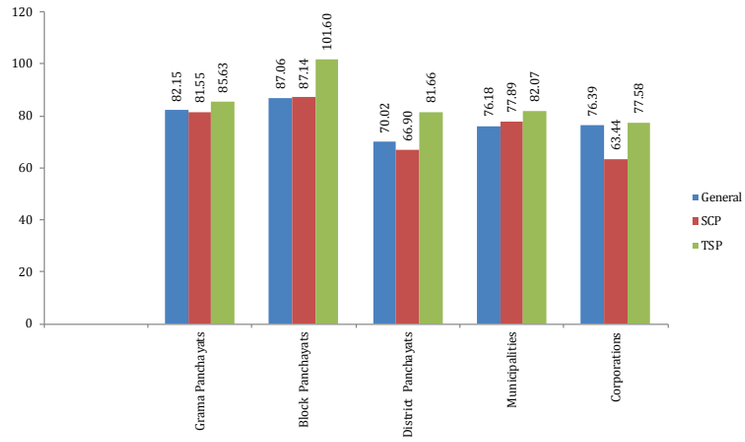
From the Figure 10.3, it can be seen that for Grama Panchayats, the ration of expenditure is incurred to fund released is greater than 80 per cent for all categories. For Block Panchayats, TSP expenditure is 100 per cent while General and SCP expenditure is close to 90 per cent. For District Panchayats, TSP expenditure is 81 per cent but General and SCP are 70 per cent and 66 per cent respectively. For Corporations, SCP expenditure is just above 60 per cent while General and TSP expenditure is more than 75 per cent.

Figure 10.2 Performance of various Local Governments with regard to utilisation of the Development Fund, 2016-17 and 2017-18, in per cent



Source: Information Kerala Mission 2018

Figure 10.3 Category-wise expenditure of Local Governments in 2017-18, in per cent to released amounts



Source: Information Kerala Mission 2018

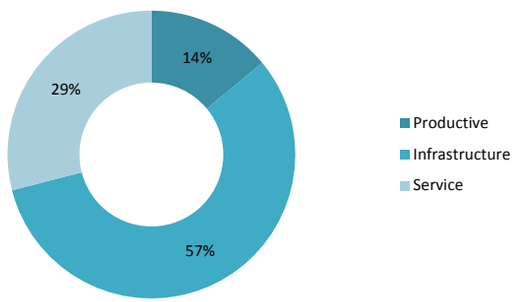
Sectoral Analysis

The Local Governments allocate their funds mainly in three sectors viz., productive, service and infrastructure. Out of the total expenditure incurred under the Development Fund Category in 2017-18, the share of expenditure by productive, service and infrastructure sectors was 14 per cent, 57 per cent and 29 per cent respectively (Figure 10.4). When compared to the previous year the per cent of expenditure in productive sector has shown slight increase across all tiers of the rural Local Governments but urban Local Governments have maintained their levels as compared to previous year. With regards to the service sector, the per cent of investment is seen decreased as compared to previous year across all tiers of Local Governments, whereas, the investment in infrastructure sector has shown marginal increase across all tiers barring District Panchayats. The sector-wise expenditure details in 2016-17 and 2017-18 are given in Table 10.2 and Figure 10.5. The sector-wise expenditure details in 2016-17 and 2017-18 are given in Appendix 10.5 and 10.6.

Productive Sector

The productive sector includes sub- sectors such as agriculture, animal husbandry, dairy development, irrigation, industry, energy conservation, fisheries etc. The total utilisation of Plan resources in the Annual Plan 2017-18

Figure 10.4 Sector-wise share of total expenditure incurred by Local Governments under Development Fund, in per cent



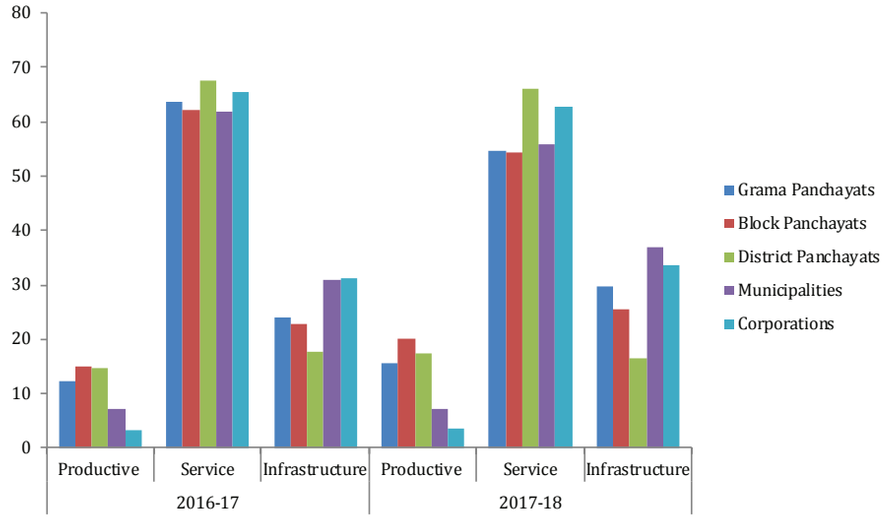
Source: Information Kerala Mission 2018

Table 10.2 Sector-wise share of expenditure to total expenditure in 2016-17 and 2017-18, in per cent

Type of Local Governments	2016-17				2017-18			
	Productive	Service	Infrastructure	Total	Productive	Service	Infrastructure	Total
Grama Panchayats	12.22	63.73	24.05	100	15.64	54.78	29.63	100
Block Panchayats	14.84	62.27	22.89	100	20.21	54.22	25.57	100
District Panchayats	14.73	67.71	17.55	100	17.32	66.11	16.57	100
Municipalities	7.25	61.94	30.81	100	7.29	55.94	36.78	100
Corporations	3.14	65.55	31.31	100	3.62	62.83	33.55	100
Total	11.31	63.94	24.75	100	14.08	56.84	29.08	100

Source: Information Kerala Mission 2018

Figure 10.5 Sector-wise share of expenditure to total expenditure during 2016-17 and 2017-18, in per cent



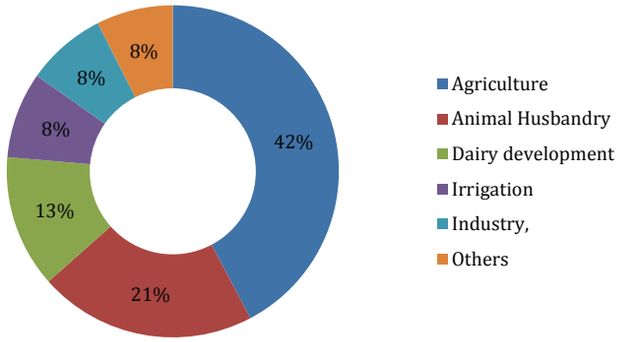
Source: Information Kerala Mission 2018

under productive sector was ₹745.29 crore. Out of the total productive sector expenditure by various tiers of Local Governments 42 per cent of fund was utilised for the implementation of schemes under agriculture in 2017-18. This shows that Local Governments have given more emphasis to agriculture and allied sectors compared to industries and other sub-sectors of the productive sector. The share of the industries sector is 8 per cent. The details of productive sector expenditure in 2017-18 is given in Appendix 10.7 and Figures 10.6.

Service Sector

Service sector is the major sector under which the Local Governments set apart a major source of Plan allocation. The major service sector expenditure incurred by Local Governments include housing, education, sanitation and waste management etc. and these investments play a crucial role in local public governance. The service sector priorities of Local Governments enhance the quality of basic services provided to the public through welfare oriented programmes.

Figure 10.6 Sub sector-wise expenditure share of productive sector in 2017-18, in per cent



Source: Information Kerala Mission 2018

The total expenditure for service sector activities by all the Local Governments comes to ₹3,009.20 crore in 2017-18. Out of this, an amount of ₹713.72 crore (23.7 per cent) was expended on housing, house maintenance and related activities, followed by education (12.75 per cent), drinking water (11.23 per cent) and social welfare and social security (10.93 per cent). The details of expenditure under service sector in 2017-18 are given in Appendix 10.8 and Figure 10.7.

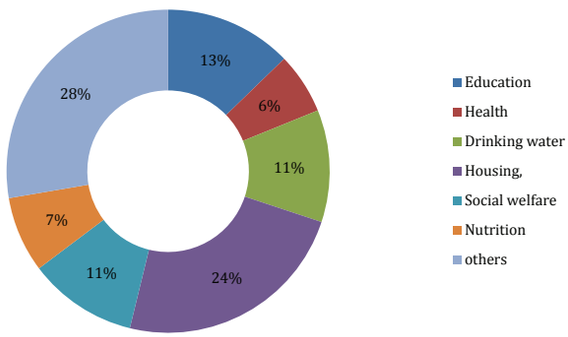
Infrastructure Sector

In 2017-18, the Local Governments spent 29 per cent of their expenditure on infrastructure sector activities like street lighting, transportation, construction activities etc. The expenditure on infrastructure has increased compared to 25 per cent in 2016-17. Out of the total expenditure, a major portion (71.36 per cent) has been utilised for transport sub-sector comprising roads, bridges etc. Out of the total infrastructure expenditure of ₹1,539.40 crore, Grama Panchayats utilised ₹817.86 crore followed by municipalities (₹270.68 crore). Sub sector-wise expenditure details under infrastructure sector in 2017-18 are given in Appendix 10.9 and Figure 10.8.

Scheduled Caste Sub-Plan (SCSP) and Tribal Sub-Plan (TSP) under Decentralisation

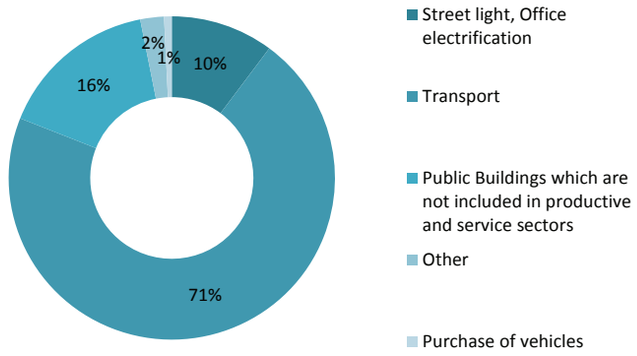
The SCSP and TSP are prepared based on Article 46 of Constitution of India for providing special protective measures to safeguard the interest of SCs and STs. This constitutional mandate requires

Figure 10.7 Sub-sector expenditure share of service sector in 2017-18, in per cent



Source: Information Kerala Mission 2018

Figure 10.8 Sub-sector expenditure share of infrastructure sector in 2017-18, in per cent



Source: Information Kerala Mission 2018

the State 'to create a regime of equality including social equality through comprehensive measures of social justice.' One of the major objectives of decentralised planning is to empower and improve the socio-economic status of SCs and STs resulting in betterment of their quality of life. In this context, the devolution under sub-Plans assume prime importance.

The allocation of Plan funds to SCSP and TSP from State Plan outlay is done in accordance with the ratio of population of SCs and STs to total population of the State as per the latest Census figures. Out of the total SCSP/TSP outlay, a portion of funds are earmarked to Local Governments for implementation of schemes under decentralised planning. The release and expenditure for each category during last two year period is shown in Table 10.3.

The expenditure of SCSP and TSP funds of Local Governments has increased over the previous year. The total expenditure incurred by Local Governments on SCSP compared to total fund released was 78.45 per cent, which shows a considerable improvement over that in the previous year at 69.85 per cent. The TSP Funds utilisation at 87.89 per cent of the outlay, is also markedly above 79.92 per cent in the previous year.

Performance under Special Sector Plans

The WCP and Plans for disadvantaged groups (aged, children, differently abled, palliative and other vulnerability) by the Local Governments are the noteworthy features of Kerala's decentralised planning. The expenditure on WCP in 2017-18 as per cent to total expenditure is 6.3 per cent, which is lower than the overall WCP sectoral allocation of 10 per cent. In the case of special programme for children and differently abled it comes to 3 per cent and 2.4 per cent respectively. The details of expenditure for special sector Plans in 2017-18 are given in Table 10.4 and the tier-wise details during 2016-17 and 2017-18 are given in Appendices 10.10 and 10.11.

Table 10.3 SCSP and TSP release and expenditure, 2016-17 and 2017-18, in ₹ crore

Year	SCSP			TSP		
	Release	Expenditure	per cent	Release	Expenditure	per cent
2016-17	1,039.29	726.02	69.85	156	124.69	79.92
2017-18	1,196.37	938.6	78.45	178.73	157.09	87.89

Source: Information Kerala Mission, 2018

Strengthening of District Planning Committees (DPCs)

DPC has been created as per article 243ZD of the Constitution of India at the District level for planning at District and below. The District planning as a strategy for a balanced, integrated and meaningful development of District has been an accepted concept since the beginning of the planning era. In Kerala, DPCs have been constituted in all the fourteen Districts in accordance with the spirit of the constitutional provisions and section 53 of Kerala Municipality Act (1994). Every five years their reconstitution has been done consequent to the general elections to Local Governments. Kerala is the only State in India which has functional DPCs.

DPCs in Kerala have been strengthened by providing technical secretariat comprising District Planning Office, Office of the Deputy Director (Economics and Statistics) and District Town and Country Planning Office, as per GO (MS)No.212/2006/LSGDdt.13-09-2006. As envisaged in the above government order, steps for the construction of building for DPC secretariat were initiated in 2008-09, by pooling resources from Central and State Budgets and contribution from all the Local Governments in the Districts. The construction of building for DPC has been completed in Ernakulam, Thrissur, Kasaragod, Wayanad, Kannur, Alappuzha and Kozhikode. The works in Idukki and Malappuram are expected to be completed by this year end.

In 2017-18 all DPCs in Kerala had fulfilled the constitutional mandate of preparing District Plans. This effort succeeded in fostering the DPCs at the pivots of the planning process and DPCs more functional. The process of formulation of integrated programmes under the auspices of DPCs needs to be promoted so that large and result oriented programmes are jointly taken up by various developmental agencies including Local Governments.

Review of Central and State Programmes Implemented by Local Governments

In the Census 1901, Kerala had a population of 64 lakh of which 59 lakh (92.2 per cent) were living in rural areas. Over a period of hundred years, the share of rural population has undergone a steady decline and was 74 per cent of total population in 2001. Significantly, according to Census 2011, the population of the State was almost equally divided between rural and urban areas. The State has now an urban population of 1.59 crore which accounts for 47.6 per cent of total population against a rural population of 1.75 crore which is 52.4 per cent. The decadal growth rate of the urban population is 92.72 per cent in 2011. The growth in urban population is largely due to the increase in Census towns that indicate the urban sprawl in the State (Table 10.5).

Unlike the other parts of India, the habitation of the State is spread continuously without much open lands or fields separating habitations. A rural area is clearly visible elsewhere in India which mainly consists of vast areas of agricultural land with hamlets distributed sporadically. However, in Kerala, a number of small and medium towns are distributed in the village background. It may also be noted that the features in rural and urban areas in Kerala are almost alike.

Table 10.4 Expenditure for Special Sector Plan in 2017-18, in ₹ crore and per cent

Special sectors	Expenditure	% to total Expenditure
Women Component Plan	335.35	6.3
Special Programme for Children	156.1	3
Special Programme for Elderly	118.83	2.2
Differently Abled	129	2.4
Palliative Care	70.39	1.3

Source: Information Kerala Mission, 2018

Table 10.5 Total number of households and population as per Census 2011, in lakh

Category	Total number of households		Total number of population	
	India	Kerala	India	Kerala
Rural	1,686.13	41.50	8,337.49	174.71
Urban	808.89	37.04	3,771.06	159.35
Total	2,495.02	78.54	12,108.55	334.06

Source: Census 2011, GoI

Since urban centres are evenly spread across the State and they are not far from rural areas, the State always had a different strategy for development of rural and urban areas. The infrastructural initiatives of the State including setting up urban amenities and creating rural connectivity, sanitation and waste management infrastructure, housing in rural and urban areas along with employment and livelihood generation is discussed below.

I. Infrastructure Development

Creating social infrastructure plays a critical role in economic growth and improves the standard of living of people. The State implements the Centrally Sponsored Schemes (CSS) Funds and also supplements them with funds from own programmes for critical infrastructural development.

i. Housing

Safe and secure shelter is one of the basic needs of human being with direct impact on quality of life and productivity of people. In a wider sense it is more than a structure, it includes facilities of potable water, sanitation and other basic amenities of life.

The Pradhan Manthri Awaas Yojana (PMAY) is the housing scheme of the GoI with the participation of the State Government. The present sharing pattern for the scheme is 60:40 by the Centre and the States respectively. There are separate schemes for rural and urban areas, namely PMAY – Gramin and PMAY – Urban. PMAY aims at providing a pucca house with basic amenities to all rural houseless households and those households living in kutcha and dilapidated house and urban poor including slum dwellers with the mandate of providing housing by 2022. PMAY make use of the convergence of Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) scheme and Swachh Bharat Mission (Gramin) in rural areas. PMAY – Gramin beneficiary is entitled with wages for 90 days unskilled work performed for house construction from MGNREGA scheme. For the construction of toilets, an amount of ₹12,000 has been provided from Swachh Bharat Mission (Gramin).

PMAY, being a CSS, the unit assistance for house construction from GoI is ₹72,000 and ₹1.5 lakh for rural and urban areas respectively. In rural area, the PMAY–Gramin targeted to construct 32,559 new houses in 2016-17 and 9,872 new houses in 2017-18. In 2016-17, the target was exceeded and 46,166 new houses were constructed. In 2017-18, the target could not be achieved due to the norms of beneficiary selection. GoK raised this concern with the GoI. GoI relied on Socio Economic and Caste Census 2011 data for beneficiary selection, and GoK represented this with the GoI. Later, the GoI permitted the State to include all the eligible beneficiaries excluded from the Socio Economic and Caste Census (SECC) data, who satisfied the same selection criteria of SECC.

Approved total project cost for PMAY - Urban is ₹2,525.34 crore where the Central and State shares released in 2017-18 and 2018-19 are ₹272.30 crore and ₹83.67 crore respectively. There are four alternative components under PMAY- Urban scheme for housing solution. Under the major component, beneficiary led construction of new houses, 330 Detailed Project Reports (DPRs) of 93 urban Local Governments and under beneficiary led enhancement of houses six DPRs of urban Local Governments

were approved by the Ministry of Housing and Urban Affairs (MoHUA), GoI. Based on the DPRs, construction of 82,487 dwelling units was approved and construction of 40,143 houses has been started and 6,127 houses were completed in 2017-18.

Besides the above mentioned components, (beneficiary led individual house construction and enhancement of quality of houses), the PMAY- Urban has other components viz., (a) *in-situ* slum rehabilitation, (b) affordable housing through Credit Linked Subsidy (CLS) and (c) affordable housing in partnership with public and private sectors. In-situ slum rehabilitation using land as a resource with private participation, aims to provide houses to the eligible slum dwellers for bringing them into the formal urban settlement. This approach aims to leverage the locked potential of land under slums to provide houses. Another component of the mission is 'Affordable Housing' in Partnership. The scheme will provide financial assistance to Economically Weaker section (EWS) houses being built with different partnerships by States/UTs/Cities. To increase availability of houses for EWS category at an affordable rate, States/UTs, either through its agencies or in partnership with private sector including industries, can plan affordable housing projects. For various reasons these PMAY components could not get a momentum in the State. But the fourth component Credit Linked Subsidy (CLS) component aims to expand the institutional credit flow to the housing needs of urban poor. CLS will be provided on home loans taken by eligible urban poor for acquisition, construction of house. Under CLS, 59,360 number of beneficiaries were identified, of which only 463 beneficiaries availed home loan. The number of beneficiaries who avail of home loan are low due to the strict norms followed by the banks regarding documentation.

The financial and physical progress of rural and urban housing schemes during 2017-18 and 2018-19 (upto August 31, 2018) are given in Appendices 10.12, 10.13 and 10.14 respectively.

The assistance under these housing schemes is inadequate to meet the housing requirements of the State. The State Government has, therefore, started a scheme called LIFE (Livelihood, Inclusion and Financial Empowerment) which is one of the four components of the Nava Keralam Karma Padhathi. The details are discussed in Chapter 11 of this Review.

ii. Sanitation and Waste Management

Lack of access to sanitation facilities is one of the basic indicators of poverty. Proper sanitation and waste management facilities leads to positive impact on the living standard of the people. In Kerala, waste management is a serious issue and the Government gave more emphasis on this area. Suchitwa Mission is the nodal agency for evolving implementation strategy and providing technical support to the State Government and Local Governments in developing solid and liquid waste management projects and policies.

The State is Open Defecation Free (ODF) from November 1, 2016 onwards in rural areas and it has maintained the standards to sustain the ODF status. Through the programme 1,74,720 toilets have been constructed in rural Kerala including critical areas like remote tribal hamlets and water-logged areas. It has become the third State overall and the largest State so far to be declared ODF under the Swachh Bharat Mission (SBM) (Gramin). Out of the total 93 urban Local Governments of the State, 92 urban Local Governments have declared ODF and of this 71 urban Local Governments have got certification from MoHUA, GoI. A total number of 29,578 Individual Household Latrines (IHHL) are constructed against a target of 29,597. But the floods have damaged 10,532 toilets. These damaged toilets are being reconstructed on a priority basis in the current financial year itself. Only the Municipal Corporation of Kochi is not ODF. The ODF criteria have been fulfilled for the entire area except Post and Telegram (P&T) colony in Gandhi Nagar ward. The 87 families in the colony have toilets but there is no plant for treating toilet waste scientifically, and is

discharged to the canal nearby. Hence the State Government has decided to rehabilitate the families in the colony under the LIFE Mission.

As per the estimates of Suchitwa Mission, more than 8,000 tonnes of solid waste is generated in the State every day. The Government has taken a three pronged approach for waste management in the State. (i) Source level waste reduction and treatment of biodegradable waste (ii) Upgradation of existing common waste management facilities of Local Government using trustworthy and familiar technology such as composting and bio-methanation; and (iii) Establishment of community level waste management systems for handling non-biodegradable waste. The most efficient method of managing waste in terms of resource recovery and environment friendliness is segregation of waste and composting of wet waste at source.

In order to expedite the process of source level treatment of waste, indigenous technologies suitable for the State have been identified and approved, which include pipe composting, pot composting, bucket composting, kitchen bin composting, bio-bin composting, etc, in addition to vermi composting, ring composting and biogas plants. Source level treatment of waste helps to minimise the volume of resources and energy required for the management of waste. For promoting source level composting of bio-degradable waste, Suchitwa Mission has empanelled more than 100 service providers for ensuring supply of composting devices. The devices promoting for the source level composting of waste are kitchen bin, bio-digester pots, bio-bins small and large, mud pots, tri-pots etc.

In order to encourage and motivate bio-waste management at source, the subsidy for source level treatment of solid waste has been raised to 90 per cent (Suchitwa Mission 75 per cent, Local Governments 15 per cent, and beneficiary 10 per cent) in the case of composting and 75 per cent (Suchitwa Mission 50 per cent, subsidy to maximum ₹5,000, Local Governments 25 per cent and beneficiary 25 per cent) in the case of biogas systems. With the launch of Haritha Keralam Mission, the subsidy has been revised and restricted to BPL for composting and bio-methanation at household levels. Subsidy for establishing 43,954 of compost devices, and 3,956 of biogas systems was issued to Local Governments in the State in 2015-16 and 8,794 biogas plants and 38,011 composting devices in the year 2016-17. Action has been taken to encourage source level treatment of solid waste in rural and urban areas in a big way by own. Around 644 technical sanctions has been given from Suchitwa Mission in 2017-18 covering 28,951 biogas plants and 1,52,450 composting devices. The following amount has been expended from Plan fund under solid waste management (Table 10.6).

Waste segregation is important for maintaining the value of the material. Segregation of waste at source helps for maximum recovery of resource, reduces the volume of waste generation and resource requirement for waste management. It promotes optimum recycling of non-bio-degradable discards and natural decomposition of biodegradable waste.

Green Protocol was successfully introduced in National Games 2015 and is now being followed in different events and functions, both government and private. Suchitwa Mission received the "Innovation award" for best innovation in public sector 2015 for implementing green protocol activities. The Local Governments in the State are supposed to form a workforce, namely, Haritha Karma Sena for providing assistance to the households for the composting wet-waste at source and the collection of all dry discards for recycling. Haritha Karma Sena has been formed in 1,028 Local Governments of which 450 are now functional. Suchitwa Mission extends financial and technical support to Local Governments for establishing Resource Recovery Centres (RRCs) and Material Collection Facilities (MCFs). The RRCs facilitates sorting and managing different types of non-biodegradable waste for reuse

Table 10.6 Solid waste management, details of fund utilisation, in ₹ lakh

Year	Rural	Urban
2012-13	1,831.34	1,617.41
2013-14	426.61	182.45
2014-15	259.75	88.93
2015-16	502.49	141.44
2016-17	384.09	240.62
2017-18	177.57	26.31

Source: Suchitwa Mission, GoK

or recycling. MCFs is the temporary storage of non-biodegradables obtained from door-to-door collection for forwarding to RRCs. 381 MCF are being established of which 279 are now functional, 88 RRC are now functional and 104 plastic shredding units have been established across 14 Districts as on November 30, 2018. Local government-wise details of Haritha Karma Sena is given in Appendix 10.15 and RRF and MCF are given in Appendix 10.16.

Suchitwa Mission has been associating with National Service Scheme (NSS) units in colleges and higher secondary schools in the State to make their campus and the adopted villages of NSS to follow scientific waste management practices and make these places waste free. This will be a year long intervention and the volunteers ensure that all the households and institutions in the selected area follow source level segregation, composting and handover the non-biodegradable to scrap dealers systems.

With the support of Suchitwa Mission, 15 permanent and 40 temporary swap shops – a public system for exchanging reusable goods that could be useful to others, have been established in the State. Suchitwa Mission has created a pool of 115 service providers with technical expertise and 35 Haritha Sahaya Sthapanam and 1,800 resource persons for extending assistance to the Local Governments. About 2,300 scrap merchants are now registered with Suchitwa Mission. Preparation of City Sanitation Plan has been initiated in all the 93 Urban Local Governments and completed in 35 Urban Local Governments. The Mission has given technical sanction to 20 modern crematoriums, 4 modern abattoirs, 9 liquid waste management plants and 1,109 waste management projects during the period. As part of capacity development of stakeholders 27 training programmes were held and 3,070 people participated at State level and 330 trainings were held and 49,240 people participated at the district level in 2017-18. Details of the district level training programmes conducted by Suchitwa Mission for capacity development of stakeholders in 2017-18 are given in Appendix 10.17.

A house to house survey was organised as part of 'Freedom from Waste'. The survey reveals that 30.19 lakh houses, 29,420 institutions and 2,003 community spots have composting plants from where about 3,537 tonnes of biodegradable waste is converted to compost. 84,531 houses, 1,320 institutions and 98 community spots have biogas plants. About 45 per cent households treat their biodegradable waste at source.

The Local Governments in the State collected 1,010 tonnes of e-waste from various sources and handed over to Clean Kerala Company for scientific management and disposal. Rather than just throwing trash into landfills, proper segregation makes it useful and saves precious natural resources. The State has recovered more than 10,000 tonnes of dry discards for recycling which would have otherwise ended-up in landfills. Thereby raw material of equal amount is saved in the production of new products by the recycling industry.

iii. Urban Infrastructure

Increasing urbanisation demands more investment in urban infrastructure development. Considering the special features of urbanisation and the geographical peculiarities of Kerala, the process of urbanisation in the State requires special attention while moulding various urban infrastructure development programmes.

Urban infrastructure covers schemes such as water supply, waste management system, city sanitation plans, establishment and enhancement of public comfort facilities, implementation and improvement of sewerage schemes, storm water drainage schemes, effective parking policy and modern mechanised parking system, beautification of cities and creation of green cities and non- motorised urban conveyance. The major infrastructure development programmes being implemented in the State are discussed below.

Atal Mission for Rejuvenation and Urban Transformation (AMRUT) aims to address the basic challenges of urban physical and institutional infrastructure development covering the components of water supply and sewage, septage, storm water drainage, urban transport, green spaces and parks and capacity building. Project period of AMRUT is five years from financial year 2015-16. Six Municipal Corporations and three Municipalities viz., Alappuzha, Palakkad and Guruvayoor in the State have been selected under AMRUT.

The GoI has approved 389 projects of nine cities in five sectors viz., water supply, sewerage/ septage management, storm water drainage, urban transport, open spaces and parks worth ₹2,357.69 crore. The DPR preparation and administrative sanction process of all projects are almost completed. Technical sanction, tendering and awarding of works are in progress. The financial achievement of the AMRUT Project from 2015-16 to 2018-19 (upto August 31, 2018) is given in Appendix 10.18. The urban Local Government wise progress of AMRUT project during 2017-19 (upto August 31, 2018) is shown in Appendix 10.19 and sector-wise progress is shown in Appendix 10.20.

Smart City Mission is a major infrastructure development programme launched by the MoHUA in 2015 to promote cities that provide core infrastructure and give a decent quality of life to its citizens, a clean and sustainable environment and application of smart solutions. The Kochi city was selected under the Mission in the first phase and subsequently Thiruvananthapuram in the third phase. The total estimated project cost of the smart city Kochi is ₹2,076 crore and that of Thiruvanathapuram is ₹1,538.20 crore.

Every Smart City project area is divided in two zones, namely, Area Based Development (ABD) and Pan City Initiative (PCI). The ABD area of Kochi Smart City includes five wards of west Kochi and parts of three wards of mainland of Kochi municipal corporation have been selected. Rest of the corporation area have been included in PCI. The Smart city proposal of Kochi aims at a planned and integrated development of Fort Kochi-Mattancherry area by improving the civic infrastructure. Major projects envisaged are under four themes viz., (i) seamless mobility, (ii) world class urban services and inclusive development, (iii) reconstitution of urban reform and (iv) revival of identity and culture. A total of 82 projects are envisaged and the total project cost is ₹2,076 crore. In 2016-17, administrative sanction was accorded for six projects and work contract awarded for a walkway project. In 2017-18, as part of the Kochi Metro, Smart Card was launched and administrative sanction accorded to seven projects and in 2018-19 administrative sanction was accorded to two projects viz., integrated command control and communication centre and development of Smart roads.

ABD under Thiruvanathapuram Smart City project covers an area of 1,403 acres and includes 9 city wards viz., Palayam, Thycaud, Vazhuthacaud, Vanchiyoor, Chalai, Fort, Sreekandeshwaram, Thambanoor, and Valiyasala. Rest of the corporation area is included in PCI.

Thiruvananthapuram Smart City envisages 43 projects and they are expected to start soon.

iv. Rural Connectivity

The Local Governments have been utilising Pradhan Mantri Gram Sadak Yojana (PMGSY) as an important instrument to establish rural connectivity by connecting unconnected habitations with all-weather resistant roads of high quality. This is a centrally sponsored scheme in place with sharing pattern of 60:40 between the Centre and State. At the State level, Kerala State Rural Roads Development Agency (KSRRDA) is the State nodal agency for implementation of the scheme. The funds provided by GoI under PMGSY have to be used only for meeting the actual estimate cost of the works. There is no provision for utilising the fund for tender excess, shifting of utilities and also for maintenance of completed roads. The State Government, therefore, sets aside funds over and above the stipulated share of 40 per cent through the State support scheme for PMGSY. This scheme is intended for taking up the said activities of PMGSY works that otherwise do not fall under the conditionalities of PMGSY.

There is a steady increase in total length of roads constructed under PMGSY over years. The year 2015-16 especially stands out in terms of total length of roads constructed. There is a substantial increase in the length of completed roads under the scheme PMGSY from 188.25 km in 2013-14 to 373.64 km in 2017-18 (Figure 10.9). In 2015-16, the length of roads completed was 393.9 km, significantly higher than preceding years.

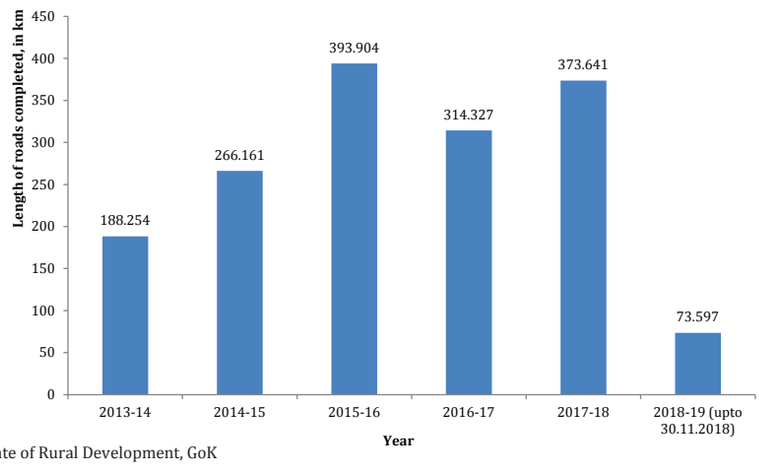
The District-wise details of the total length of roads completed (in kilometre) from 2013-14 to 2018-19 (upto November 30, 2018) under PMGSY scheme is given in Appendix 10.21.

An amount of ₹19,761 lakh and ₹ 7,309 lakh were utilised in 2017-18 and 2018-19 (upto August 31, 2018) under PMGSY and an amount of ₹2,300 lakh and ₹3,000 lakh were utilised during 2017-18 and 2018-19 (upto November 30, 2018) under the scheme 'State Support for PMGSY'. Roads constructed under PMGSY are long lasting roads with high quality and durability as there exists a three-tier Quality Management System at the District Level, State Level and National Level. In Kerala, rural connectivity through PMGSY has been very useful to the people in rural areas.

II. Employment Generation and Livelihood Support

Employment generation is an important indicator of poverty alleviation through increasing the level of income. MGNREGA scheme, one of the core of the core schemes in CSS, plays a significant role in providing rural employment. It proposes to enhances the livelihood security

Figure 10.9 Details of roads completed under PMGSY scheme, length in km



Source: Commissionerate of Rural Development, GoK

of the households in rural areas of the country by providing at least 100 days of guaranteed wage employment in every financial year to every household whose adult members volunteer to do unskilled manual work. In Kerala, notified unskilled wage rate for this programme in 2017-18 was ₹258 per day and was enhanced to ₹271 from April 1, 2018 onwards. In 2013-14, 8.66 crore person days were generated in Kerala under MGNREGA scheme. This was reduced to 5.89 crore in 2014-15 and increased to 6.19 crore in 2017-18, which is a decline from 2015-16 and 2016-17. Details are given in Figure 10.10.

As per the MGNREGA scheme guidelines, hundred per cent of the unskilled labour cost and administrative costs and 75 per cent of material cost are borne by GoI. In 2014-15, ₹48.6 crore was used for material and skilled wages under MGNREGA scheme. This increased to ₹186.31 crore in 2017-18. Details regarding material cost and skilled wages under MGNREGA scheme of Kerala, from 2014-15 to 2017-18 are given in Figure 10.11.

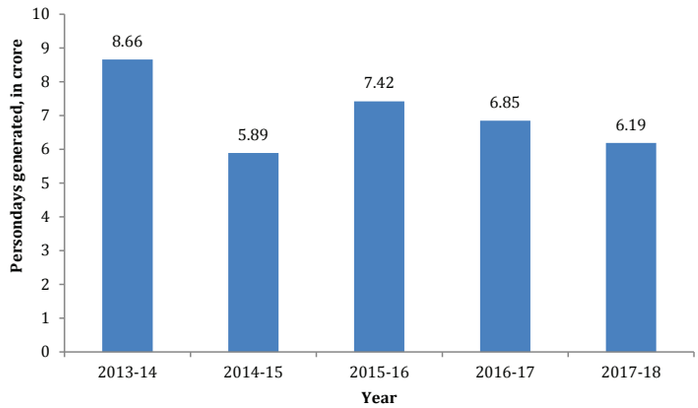
From 2017-18 onwards, 'Haritha Keralam Mission' converges MGNREGA scheme activities in the State. In 2008, the State government issued detailed guidelines for taking up works in forest areas and in 2017-18, the guidelines were revised and incorporated permissible works. The Government also issued detailed guidelines for the procurement, storage and utilisation of materials used in the MGNREGA scheme works, and developed an estimate preparing and sanctioning software, 'SECURE' in association with National Informatics Centre (NIC) Kerala. This has been adopted by the Ministry of Rural Development, GoI for country wide roll out. In 2018-19, the State is rolling out its 'DASHAKARMA', 10 points activities under MGNREGA scheme mainly focusing on convergence with other schemes/departments.

The financial and physical progress of MGNREGA scheme during 2017-18 and 2018-19 (upto August 31, 2018) are given in Appendix 10.22, 10.23, 10.24 and 10.25 respectively.

MGNREGA scheme is applicable only in rural areas. Based on its impact on rural poverty alleviation, GoK started Ayyankali Urban Employment Creation Scheme (AUECS) in urban areas in 2009-10. This is a State funded programme intended to enhance livelihood security in urban areas by providing at least 100 days of wage employment to every household whose adult members are willing to do unskilled manual labour. The fund has to be utilised for creating durable assets in Local Governments.

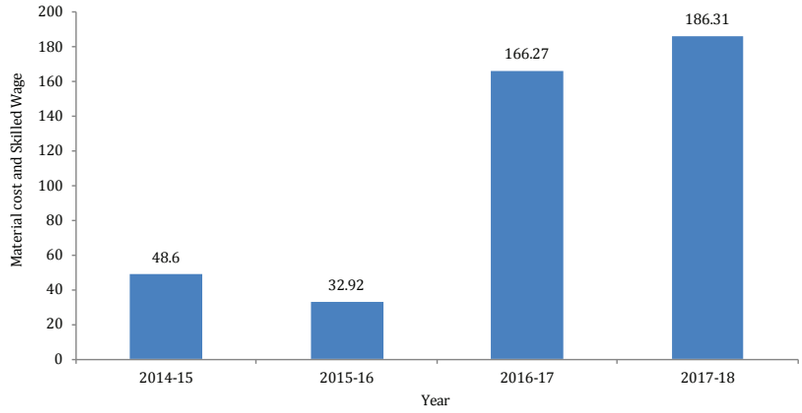
In the financial year 2017-18, an amount of ₹25.10 crore has been earmarked for this scheme. The full amount has been expended

Figure 10.10 Person days generated in Kerala under MGNREGA scheme from 2013-14 to 2017-18, in crore



Source: MIS Reports, available at *www.nrega.nic.in*

Figure 10.11 Details about material cost and skilled wages under MGNREGA scheme of Kerala from 2014-15 to 2017-18, in ₹ crore



Source: MIS Reports, available at *www.nrega.nic.in*

Box 10.3 Flood related activities of MGNREGA scheme

In the current flood affected situation (August 2018), MGNREGA scheme works are focused upon re-completion of the public assets and also the livelihood assets of vulnerable sections of the society. Provisions are made for the preparation to additional action plans to restore and reconstitute public assets like rural roads, buildings of anganwadis and schools, check dams etc. Emphasis will also be given to the restoration of individual livelihood assets like cattle shed, work shed etc.

and created 8,46,432 person days. During this period, 28,797 of households and 36,288 women were provided employment and 251 families completed 100 days employment. In 2018-19, an amount of ₹50.00 crore was provided and as on 31.10.2018, ₹25.00 crore has been expended and 6,41,840 person days were created. Up to October 31, 2018, 34,413 households and 34,481 numbers of women were provided employment and 166 number of families completed 100 days employment. Details on the Local Government-wise distribution of funds under AUECS during 2017-18 and 2018-19 up to October 31, 2018 are given in Appendix 10.26 and district wise physical achievements of the scheme are given in Appendix 10.27.

While MGNREGA scheme guarantee wage employment, the due emphasis has been given on livelihood development. Livelihood activities have direct impact on poverty eradication and employment generation thereby increasing the standard of living of the people. The major initiative of GoI in livelihood is the National Livelihood Mission–National Rural Livelihood Mission (NRLM) for rural areas and National Urban Livelihood Mission (NULM) for urban areas with a funding pattern of 60:40 ratio.

GoI launched Deendayal Antyodaya Yojana–National Rural Livelihood Mission (DAY-NRLM), a demand driven programme for encouraging self-employment organisation of rural poor. In Kerala, Kudumbashree Mission is the State Level Nodal Agency (SLNA) for implementing this programme.

Deen Dayal Upadhyaya Gramin Kaushalya Yojana (DDU GKY), Start-up Village Entrepreneurship Programme (SVEP) and Mahila Kisan Sashaktikaran Pariyojana (MKSP) are the sub components of DAY-NRLM. DDU GKY is the skill

and placement initiative under DAY-NRLM. SVEP helps to start and support rural enterprises in order to stimulate economic growth and reduce poverty and unemployment in the villages. The SVEP provided the supported enterprises with business skills, exposure, loans for starting and business support during the first critical six months of the enterprises by using the CBO network. MKSP focuses on reducing the gender gap in agriculture, by promoting drudgery reduction systems and sustainable agricultural practices to be followed by women farmers. In Kerala, MKSP project is implemented through the network of Kudumbashree Joint Liability Groups (JLGs). In 2017-18, 6,641 NHGs were formed under DAY-NRLM and 2,85,871 farmers engaged in agricultural activities in 59,547 JLGs under MKSP. Out of the 10,663 persons trained under DDU GKY, 9,196 persons got placement. Details about the physical achievements of DAY-NRLM are given in Table 10.7.

NULM aims to reduce the poverty and vulnerability of the urban poor. The scheme is being implemented in all the urban Local Governments in the State. NULM project has identified 3,195 homeless persons in the shelter to the urban homeless component of the scheme. 11,871 street vendors have been identified in the component support to urban street vendors during 2017-18 and 2018-19 up to August 31, 2018. Identity cards were issued to 9,397 street vendors during the period. Under the component, employment through skill training and placement, 11,264 numbers of candidates are enrolled and out of this 7,209 candidates were certified and 4,405 candidates got placement. Skill training has been imparted to the unemployed urban poor youth in 73 trades across the sectors like cyber security, accounting, health care, automation, plastic technology, electronics, electrical, Ayurveda Nursing, hospitality, telecom, food processing etc. Under the self-employment programme of NULM 1,682 micro- enterprises were established, 8,982 of Neighbourhood Groups (NHGs) availed of NHG linkage loan and 12,714 numbers of NHGs were supported with interest subsidy on linkage loans. Under the social mobilisation and institution development component of NULM project, opportunities are given to set up micro enterprises. Through this 5,285 number of new NHGs are formed, 6,817 numbers of NHGs and 504 Area Development Societies (ADSs) are supported with revolving fund and three city livelihood centres sanctioned. Entrepreneurship development course and skill training was given and handholding was given to avail bank loan. As a result, in addition to the 2,135 existing urban enterprises, 715 new enterprises were started in urban areas in 2017-18.

The State unit of NULM bagged the National Award from GoI for its best performance in implementation in 2017-18. NULM the State unit launched a campaign titled 'Sparsham' in all municipalities to ensure 100 per cent inclusion of urban poor into the Kudumbashree network, to identify weak NHGs and make them active, identification of interested persons or groups

Table 10.7 Physical achievements of DAY-NRLM

Name of the scheme	Components	Physical achievements (in number)	
		2017-18	Total (so far)
DAY-NRLM	NHGs	6,641	2,28,256
DDU GKY	Persons Trained	10,663	32,413
	Persons Appointed	9,196	24,609
MKSP	JLGs	59,547	63,101
	Farmers	2,85,871	3,08,799
SVEP	NHGs (Mobilised)	-	1,446
	Enterprises	-	1,199

Source: Kudumbashree, GoK

to take up livelihood activities and skill training etc. The data obtained from the campaign will be the basis for further planning of NULM implementation in the State. Based on the campaign, Kudumbashree envisaged 100 per cent inclusion of all the needy, and revival of/ improvement of the Kudumbashree network and livelihood in urban areas. Financial and physical achievement of DAY-NULM scheme is given in Appendix 10.28 and 10.29 respectively.

Kudumbashree

Kudumbashree, the State Poverty Eradication Mission, was formulated with the objective of poverty eradication through the empowerment of women. It is an innovative, women based, participatory poverty alleviation programme launched by GoK in 1998 and it has a participation of 43.07 lakh women. Kudumbashree is also the nodal agency for implementing various Centrally sponsored programmes viz., National Rural Livelihood Mission (NRLM), Deen Dayal Upadhyaya Gramin Kaushalya Yojana (DDU GKY), Start-up Village Entrepreneurship Programme (SVEP), Mahila Kissan Sashakthikaran Pariyojana (MKSP), National Urban Livelihood Mission (NULM) and Pradhan Mantri Awas Yojana (Urban). Besides, it engages in several other activities, some of which are illustrated in the following paragraphs.

Kudumbashree developed a Joint Liability Group Evaluation Agent (JEVA) for providing training and support to farmers and collecting vegetables from JLGs for sales in weekly markets. In the Onam Fair 2017-18, a total of 3,269 tonnes of vegetables were sold with a total receipt of ₹12 crore, and the total volume of sales and revenue was 11,634 tonnes and ₹34 crore respectively. 'Bhakshya Suraksha Bhavanam' programme of Kudumbashree aims at promoting homestead cultivation and promotion of organic/safe to eat vegetable production.

As part of Animal Birth Control (ABC) programme, more than 13,500 street dogs were sterilised and earned ₹1.35 crore. In convergence with Animal Husbandry Department and KEPCO, Kudumbashre started 'Kerala Chicken' project with the aim of providing broiler chicken through women farmers. As a part of this, a hatchery unit was started in Kollam as Kudumbashree Micro Enterprise.

Kudumbashree started a working women's hostel in Kozhikode Corporation. Considering its wide acceptance and public demand, Kudumbashree started five more hostels, four in Kozhikode city and one in Thiruvananthapuram. Kudumbashree also provided employment to 720 women in ticketing, customer care, call centre, housekeeping and gardening and made Kochi Metro, the first women run metro in the world. In addition to activities of Balasabha, Bala Parliament, Maths Olympiad, training of peer group leaders through Young Mentors, personality development/leadership training etc. were conducted.

State Government nominated Kudumbashree as an operating agency to start Jan Oushadi stores (medical store which will ensure the supply of quality medicines at affordable prices for all) in Kerala.

In 2016-17, Railways entrusted Kudumbashree for the upkeep and maintenance of AC waiting hall and parking management in few stations on a pilot basis. By assessing the quality of service provided by Kudumbashree, Railways extended the term of service to 3 years from 2017-18. Presently, 240 women are employed in the facility management project.

In order to provide livelihood support to women enterprise groups by tapping the opportunities in LIFE Mission, Kudumbashree started 64 women construction units. Kudumbashree runs more than 1,000 catering units. In 2017-18, 70 food festivals were conducted to support the catering units and registered total sales of ₹5 crore. In 2017-18, Kudumbashree provided ₹5 lakh each to 400 CDSs as Community Enterprise Fund (CEF) for supporting entrepreneurs. 235 CDSs have supported 1,407 Micro Entrepreneurs and loan amounting to ₹9 crore was given from CEF.

State Gender Resource Centre (SGRC) started functioning from October 2017 in the Kudumbashree headquarters. In convergence with Local Governments, 126 Gender Resource Centre (GRCs) were established at the Panchayat level and block level. Counselling centres were started at the block level aiming at providing counselling services especially to women and adolescents who are in distress through community counsellors, providing legal assistance, prevention of atrocities etc. by Kudumbasree, which has been made the nodal agency by the Social Justice Department. A gender help desk–Snehitha has been started in all the districts.

'Agathirahitha Keralam' (Destitute Free Kerala) is the newer version of 'Asraya' aimed at rehabilitating the poorest of the poor. In 2017-18, a survey was conducted for identifying the destitute families through geo-tagging. BUDS institutions for mentally and differently abled children functioning under Local Governments are monitored through Kudumbashree machinery. Special NHGs are formed for addressing the specific needs of vulnerable communities/groups. Through this programme 1,793 NHGs, 19 NHGs and 572 NHGs for elderly, transgender and persons with disability respectively were formed. An amount of ₹1.50 crore was given as corpus fund to Special NHGs in 2017-18. In order to strengthen the coastal NHGs and to motivate them to take up livelihood, 81 coastal volunteers were selected and ₹3 crore was sanctioned to 2,000 coastal NHGs as revolving fund. In addition to this, 327 new NHGs were formed and 12,893 NHGs were strengthened by the coastal volunteers. With an objective to establish Haritha Karma Sena in all Local Governments for waste management, micro-enterprises units formed in most of the Local Governments.

With the intention of giving immediate support to the women/child who are in a difficult situations and to prevent the atrocities against women and children, vigilant groups were started in 16,922 wards. In 2017-18, training was given to vigilant group members with the support of community police system of Police department.

Kudumbashree was entrusted to conduct survey to find out beneficiaries for LIFE Mission and thereby conducted a survey of 15 lakh applicants, and shortlisted 5 lakh eligible beneficiaries. All the CDSs actively conducted campaign to enrol beneficiaries in RSBY program, and a total of 33,78,782 families were enrolled in the programme through Kudumabashree network.

Livelihood promotions in tribal areas are mainly focused on traditional livelihoods (like tribal medicine, ethnic cultural group formation, traditional food production groups etc.). Tribal department entrusted Kudumbashree for running Community Kitchen in Thirunelli, Kaniyampatta and Noolppuzha Panchayats of Wayanad District and Attappady in Palakkad District. Pregnant and lactating mothers, mentally challenged persons, elderly persons and children were identified as the beneficiaries. Attappady Special Project which aims at creation of exclusive community structures for tribal families was started in other three districts (Thirunelli Panchayat of Wayanad, Selected Panchayats in Nilambur block of Malappuram District and in Aralam farm in Kannur District). As a part of DDU GKY programme, special mobilisation was done from tribal areas and thereby 981 students were mobilised and motivated to join skill training course of their choice. Out of them, 800 completed training and of which 523 were given placement letters/job offers. Bala Vinjana library is a special initiative in Attappady established in 120 hamlets with the intention to create reading habit among the children. Under DDU GKY, 96 students were selected from Asraya families and 68 are placed as of now. A special training in electrician and plumbing course was conducted in Attappady, 282 tribal students were trained, and 140 among them are placed.

Bridge school is a residential school established in Agali, managed by the community for mainstreaming of drop out children in Attappady block of Palakkad District. In 2017-18, 93 Tribal

students were trained and motivated to take up equivalency exam through this initiative. 'Bridge courses' are envisaged with an aim of improving quality of education for the school going children in Attappady. Educated youngsters from the tribal community are trained for running the course and they conduct classes every day in morning and evening in the hamlet itself. The focus of Bridge course is to provide knowledge on healthy practices and personal hygiene, give remedial classes and assist in studies, and provide knowledge on nutrition and healthy food habits. Bridge courses are conducted in 136 tribal colonies in Attappady, benefiting 2,762 tribal children. Nyayasamithy is an official body to hear and solve the issues of tribal hamlets in a ward in convergence with other Departments. It consists of five members selected from the Ward Level Social Development Committee of Kudumbashree. There are 44 wards in all the three Panchayats put together in Attappady, and 31 Nyayasamithi's were established in 2017-18.

The process of democratic decentralisation in Kerala has early beginnings from grass root level Library movements and the commitment shown by the first elected GoK. A very radical District Council bill was proposed as early as in the late 1950s, but it became a reality, albeit a short lived one only in 1990-91. But Kerala seized the opportunity given by the 73rd and 74th constitutional amendments and made Local Governments, a major participant in development Plans by providing them with funds, functions and functionaries. This includes implementation of CSS and State level development schemes. The process has now entered the second phase now, with emphasis on efficiency, transparency and accountability. The State is a pioneer and leader in the experiment of democratic decentralisation for other Indian States as evidenced by the top most rank attained by it as per the Devolution Report (2015-16).

References

Devolution Report (2015-16), "Where Local Democracy and Devolution in India is heading towards?", available at *www.panchayat.gov.in*

Government of India (1978), "Report of the Committee on Panchayati Raj Institutions", Chairman Asoka Mehta, available at *www.panchayatgyan.gov.in*

CHAPTER

11

KERALA'S FOUR MISSIONS FOR DEVELOPMENT

CHAPTER 11

Kerala's Four Missions for Development

Nava Keralam Karma Padhathi (NKKP) is being implemented through four innovative missions which are intended to touch the lives and livelihoods of the common citizen. It aims to bring basic socio-economic services to those who have been excluded from the various development initiatives of the past. There will be a clear targeting of the poorest of the poor, the most vulnerable sections of the society. The core of the implementation strategy is that the departments of Government will bring together their development efforts meaningfully at the level of Local Governments to provide services and support ordinary households in the State.

The Four Missions are Haritha Keralam, Livelihood Inclusion and Financial Empowerment (LIFE) Mission, Aardram Mission and Pothu Vidhyabhasa Samrakshana Yajnam.

The Missions emphasise sustainable development and people's participation in the following fields:

i. high-quality school education;
ii. people-friendly health facilities;
iii. nature-friendly agriculture;
iv. waste management, a clean environment, and a litter-free Kerala;
v. clean water bodies and enhanced water resources; and
vi. secure housing and livelihoods.

Following the landmark implementation of land reforms, educational reforms, literacy campaign and people's campaign for decentralisation, the State is now taking up the NKKP to build on and consolidate the historical gains of the Kerala's people. People's participation and leadership by the Local Governments are crucial to the implementation of these programmes.

Haritha Keralam

The Haritha Keralam Mission has three sub-missions viz., (i) sanitation and waste processing, (ii) water conservation and, (iii) agricultural development. Within the two years of its initiation, Haritha Keralam Mission has undertaken innovative and diversified projects and campaigns. Main focus areas of the Haritha Keralam Mission are:

- To formulate methods for various levels of coordination of Plans of Local Governments and other departments to address the major issues in each District.
- To ensure scientific, efficient and technical advice to Local Governments in order to attain practical and effective technical facilities.
- Provide leadership, and to conduct activities that ensure peoples participation and social inclusion for creating 'Haritha Keralam'.

Sanitation and Waste Disposal

- To implement the green protocol in all public functions and institutions in Panchayats/ Municipalities.
- To strengthen the Haritha Karma Sena.
- To install sufficient Resource Recovery Facilities (RRF) in all blocks and Municipalities.
- To start mini Material Collection Facilities (MCF) on cluster/ward level.
- To install community composting for bio-degradable waste from public places and markets.

- To take legal actions to those who pollute water bodies, public places by putting the waste.
- To formulate green armies and conduct awareness campaigns in all wards.

The year 2017-18 witnessed major interventions in the area of sanitation and waste processing under the sub-mission, some of which are given below.

The 'freedom from waste campaign' started on August 15, 2017, has created a strong foundation for sanitation and waste processing by the LGs. By providing basic requirements for source level treatment of waste such as MCF, RRF, Haritha Karma Sena, household source level treatment plants, community composting units etc, waste processing has got the importance it deserves so that sustainable and clean environment is created and maintained (Table 11.1). The Green Protocol has become a part of social life. Special efforts have been taken to implement Green Protocol in public places including Government departments, quasi-Government institutions and in major religious and other functions.

Another major component of Haritha Kerala Mission is water conservation, which is implemented by the Irrigation department. The main objective of this is Jala Samrudhi. This is proposed to be achieved through renovation and cleaning of existing water sources for ensuring clean and safe water for drinking and irrigation purposes. The mission intends to integrate all the stakeholders in the water sector and to implement various schemes/ projects in an integrated watershed approach for natural resource management. The project is being implemented in two phases. The first phase includes the renovation of ponds and in the second phase, it is aimed to rejuvenate and renovate various water resources such as rivers, backwaters, lagoons, linking of large ponds to irrigation canals and prevention of seepage loss in irrigation canals.

Table 11.1 Freedom from the waste campaign, progress, as on November 30, 2018

Sl No.	Activity	Units	Progress
1	Houses in which baseline study conducted	Lakh	69
2	Solid waste disposal projects taken up by Local Governments in 2017-18	Nos	8,444
3	Houses in which source level treatment of waste system installed	Lakh	30.19
4	Community-level compost units	Nos	2,510
5	Community level Biogas plants	Nos	98
6	Institution level Biogas plants	Nos	1,320
7	Local governments which have formed Haritha Karma Sena	Nos	1,005
8	Members in Haritha Karma Sena	Nos	26,314
9	Local governments which have started MCF	Nos	261
10	Resource Recovery Facility Centres	Nos	88
11	Plastic made available for road tarring	MT	265.22
12	Registered scrap dealers	Nos	2,350
13	Plastic collected	MT	9,708
14	E-waste collected	MT	1,739.70
15	Wards in which Jagratholsavam held	Nos	15,600
16	Students who have participated in Jagratholsavam	Nos	490,830
17	Training is given on green protocol	Nos	1,486
18	Approved Haritha Sahaya centres.	Nos	36

Source: Haritha Keralam Mission, GoK.

The watershed Plans are being prepared for the Local Governments. Watershed Plans of 596 Grama Panchayats, 18 block Panchayats, 49 Municipalities and 2 Corporations have been completed. 475 works have been sanctioned for renovating tanks and ponds in 2017-18. Out of this, 228 works are completed.

Livelihood, Inclusion and Financial Empowerment (LIFE) Mission

The Kerala Government has initiated the LIFE Mission as a flagship programme for addressing the issues of homelessness in the State. It is envisioned as a time-bound programme (2016-2021) through a multi-pronged approach of addressing the ground level real issues and aims at improving the quality of life in the State by not only providing homes with allied facilities like anganawadis, palliative care, old age care, health care etc. but also raising the standard of living through skill building, job-based training, employment opportunities and livelihood interventions.

LIFE Mission has conducted a survey and computed the numbers of two categories of houseless households. The total homeless households in the State is 5.12 lakh which includes 1.84 lakh having own land and 3.28 lakh having no land. Government devised a two-pronged strategy for tackling these issues; one, to provide financial assistance of ₹6 lakh for ST beneficiaries in remote ST hamlets and ₹4 lakh for all other beneficiaries including PMAY assistance each to the homeless households with land for construction of 400 sq. ft house. This part of the LIFE Mission programme is scheduled as the major activity of the financial year 2018-19. The second one is for the rehabilitation of landless homeless and envisaged to provide Government-owned housing complexes/housing clusters. The approximate cost for each dwelling unit is around ₹11 lakh.

Apart from the homeless families identified through the field survey, LIFE Mission has also addressed the issue of incomplete houses, the construction of which was started under various housing schemes of the past but could not be completed due to various reasons.

In the first phase (2017-18 and 2018-19), the Mission was entrusted to complete the houses currently under construction at LGs level under various departmental schemes since 2000. Out of total 54,850 incomplete houses, 46,225 houses (84 per cent) have been successfully completed as on August 18, 2018. An amount of ₹105.54 crore has already been disbursed to various LGs as additional assistance for the completion of these houses in 2017-18. However, major share of the funds was mobilised by respective departments and Local Governments themselves.

The second phase of the programme is for providing financial assistance for homeless with land to be implemented in 2018-19 and the total beneficiaries identified are around 1.84 lakh. The unit cost of ₹4 lakh is to be given for the beneficiaries as assistance from the share of LGs, funds earmarked for house construction purpose under various Government departments in 2018-19 and loan assistance from HUDCO. The total requirement is ₹7,370 crore funds for the entire project. Constructions have already been started across the State for the beneficiaries utilising the LGs initial share of 20 per cent earmarked for the project. The HUDCO has already sanctioned loan for the project to the extent of ₹4,000 crore through Kerala Urban and Rural Development Finance Corporation (KURDFC) Ltd.

Even though several housing schemes have been implemented in the past, they have not comprehensively addressed the needs of the landless and houseless. The LIFE Mission envisions to provide Government-owned housing complexes/housing clusters for rehabilitation of landless and houseless in the State. As a first step, an initiative has been taken to construct cluster houses/flats for houseless without land and one pilot housing complex in each District. The approximate cost for each dwelling unit is around ₹11 lakh. As stated earlier, the aim is to provide housing facilities to all the landless and

homeless beneficiaries by 2020-21 and the total requirement of fund for this project is estimated as ₹33,000 crore.

Pothu Vidyabhyasa Samrakshana Yajnam (Public Education Rejuvenation Campaign)

Organisational Structure

A State level mission with Chief Minister as the chairperson and Education Minister as vice-chairperson and General Education Secretary as the Mission Secretary has been formed for coordinating various activities in connection with Public Education Rejuvenation campaign.

A mission office under Chief Operating Officer is functioning as secretarial/co-ordinating works of the mission at the State level. District level mission has also been constituted with Chairperson, District Planning Committee as the Chairperson and District Collector as Mission Secretary. State and District Level Task Forces are also functioning for implementing various activities related to the campaign. Local government level mission viz., Municipality/ Corporation/Block/Grama Panchayat level missions have also been envisaged.

The major objectives of the mission are:

1. Upgrade Government and Government aided Schools as centres of excellence which includes infrastructural as well as academic enhancement
2. Convert all classrooms from Standard 9 to 12 as hi-tech classrooms.
3. Provide learning experiences that generate secular, democratic and logical thinking among students
4. Develop language, communication and life skills of students into higher levels
5. Ensure creative people's participation in the activities for the excellence of schools

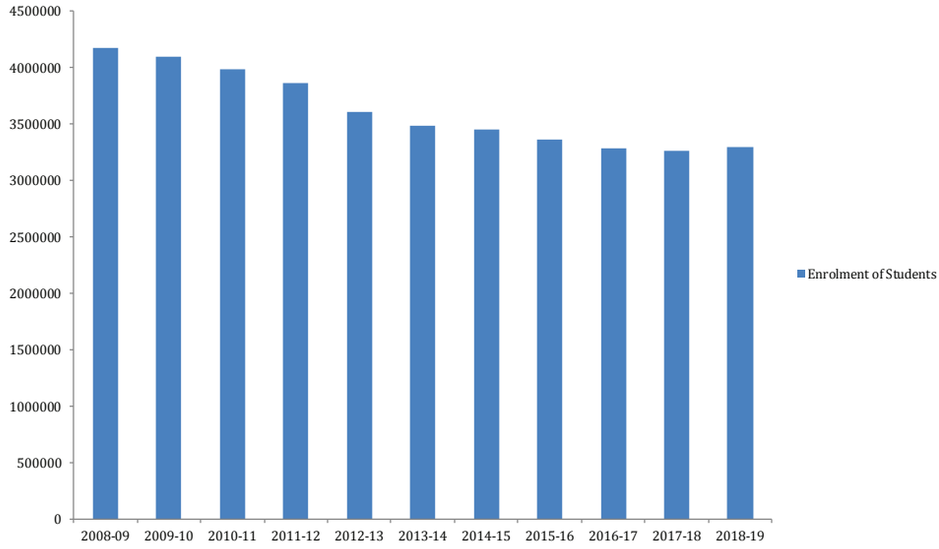
Based on the targets and objectives, the activities of the Mission can broadly be classified into four categories:

I. Academic Excellence
II. Infrastructural Development
III. High-tech classrooms
IV People's participation

Achievements

1. Total enrolment of students to Government and aided schools has increased in 2018-19 from last year and this has happened for the first time over the last 27 years (figure 11.1).
2. Various programmes have been initiated for the academic excellence of the students and this has reflected in the latest National Achievement Survey report. The achievement score of students from Kerala has improved and is now above the national average in all classes.
3. Ensured public participation in the activities of Government and aided schools
4. An Academic Master Plan has been prepared in all schools
5. Action has been started for the integration of schemes and programmes of all agencies under school education
6. Sradha, a programme to support the students in Class 3, 5 and 8 who require additional academic support, has been initiated. 2,60,877 students benefited out of this scheme last year.
7. The academic quality of the students has improved via various focused programmes like Malayala Thilakkam, Hello English, Ganitha Vijayam, Little Galileo, Sureeli Hindi and Science Park. Malayala Thilakkam (a programme to improve mother tongue of the students) benefited 2.5 students from class 2 to 7. Ganitha Vijayam (programme for improving mathematics skill) benefited more than 5,000 students. Hello English programme was implemented in 3,714 schools.
8. Class libraries have been set up in the 1st standard of 5,258 schools
9. High school and higher secondary classes have been made high tech.
10. KITE has developed Samagra resource portal and this unique resource repository

Figure 11.1 Enrolment of students



Source: Directorate of Public Instruction, Government of Kerala

benefits over 50 lakh students and 2 lakh teachers covering 15,000 schools in Kerala.

11. The activities of Bio-Diversity Parks in schools have given the opportunity to students to learn from nature
12. The initial activities of Autism Parks and Cultural Parks have been started
13. Construction works of selected schools are progressing with KIIFB funding in accordance with the master Plan.
14. 1,082 Pradeshika Prathibha Kendrangal (local centres for improvement of academic as well as extracurricular activities of the students in backward areas) have been started.
15. Paddana Veedu (learning shelter) have been started in tribal areas for the remedial teaching and to ensure the continuing education of tribal students.
16. Pustaka Vandi (mobile bookshop) reached in each and every school to make the students and parents aware about the importance of reading and make available to them books for purchase.
17. Activities have been initiated to convert primary classes into once with high tech features.

Kerala is becoming a fully digitalised State in the education sector and the Government is facilitating necessary physical, academic and digital contents through various sources.

AARDRAM Mission

The AARDRAM Mission has been launched in the health sector to make Government hospitals people-friendly by improving their basic infrastructure and capacity to provide services. Many of the Government hospitals are overcrowded with patients. But they can be made people-friendly to a large extent by ensuring quality health care with minimal waiting time for an outpatient medical checkup and other investigation facilities. This would also enable to provide adequate attention to inpatient services. The Mission will be implemented in three stages in Government medical college hospitals, District hospitals, Taluk hospitals and Primary Health Centres (PHCs). The conversion of PHCs as Family Health Centres (FHCs) with an adequate supply of drugs and assured treatment protocols would ensure better health among people and enhance their trust in the public health system. The mission aims to improve the efficiency of service

and facilities in the Government hospitals with a view to extending treatment at a reasonable cost, time and satisfaction. Following are the major objectives of the mission.

1. Patient-friendly transformation of the outpatient (OP) wings of medical college hospitals and other Government hospitals.
2. Standardisation of the District and Taluk level hospitals.
3. Developing the PHCs into FHCs in a phased manner.
4. Ensuring protocol-based treatment guidelines in the management of patients in hospitals.

The Government identified 170 PHCs covering all 14 Districts to develop into FHCs in 2017-18. Additional posts of one medical officer, two staff nurses and one lab technician each were created and postings were done to ensure that there will be a minimum of 3 doctors and 4 nurses in the PHCs. 155 FHCs are already made functional. Transformation of the PHCs into FHCs has evoked encouraging community response.

Service delivery of these institutions in terms of clinical care and public health activities have been augmented and outpatient care is provided from afternoon to 6.00 PM. Through the implementation of e-Health project, it is expected to further develop an individual patient care Plan and family health Plan based on family health register data. Registration procedure for e-Health services has already been initiated. Ward and Panchayat level health Plan focusing on preventive, promotive and rehabilitative health care services would be developed in association with Panchayats and with public participation. A new health volunteer system called Arogyasena is being launched as part of AARDRAM mission. Public health interventions focusing on the reorganisation of the primary health care system based on the epidemiological needs of the Kerala society especially combating the challenge of non-communicable diseases is a focus area of the programme. Treatment guidelines for 53 common medical conditions to be managed at the PHC level have been prepared and made available for Medical Officers. Revised job responsibilities and FHC transformation guidelines have already been prepared and module based training has been initiated for major categories of staff.

Considering the fact that medical college hospitals and District level hospitals are larger institutions providing outpatient care for a large number of patients every day, patient-friendly transformation of the outpatient wings of these hospitals were taken as a priority item under AARDRAM Mission. Outpatient transformation with adequate OP registration counter, patient waiting area, adequate seating facility, a token system with other amenities like drinking water, toilet facilities, public address system, information education and communication arrangements and signage systems are being incorporated. Support of patient care coordinators for larger institutions on a temporary basis would also be provided. For ensuring quality medical care, OP computerisation, providing adequate facilities in the consultation rooms and a guideline based case management are planned. These are being implemented in Government medical college hospitals and at District level hospitals.

Aswasam

Depression management in Primary Care was started in 170 FHCs across the State. Health workers and staff nurses were trained in screening using Patient Health Questionnaire (PHQ9) and psychological first aid, while doctors were trained in the diagnosis and management of depression at Primary Care. Referral Protocol for cases to be seen by National Mental Health Programme (DMHP) psychiatrist is included in the programme.

Kerala COPD Prevention and Control Program – SWAAS

Chronic Obstructive Pulmonary Disease (COPD) is one of the leading causes of mortality and morbidity worldwide. Kerala has taken the bold step of formulating COPD prevention and control program in the country for the first time and the official declaration of the program was done by the Minister for Health and Family Welfare on February 7, 2017. SWAAS programme is implemented from FHC level onwards in Kerala as part of AARDRAM Mission. Proper training has been given to the medical and paramedical staff of all the FHCs. This will be a path-setter which would lead to a National program being developed. The objectives of the Kerala COPD prevention and control program would be the identification of COPD in the early stages of the disease, develop a structured program for COPD diagnosis and treatment and develop a system for generating information on disease burden of COPD which will aid in further planning and strategising for COPD.

CHAPTER

12

BUILDING A NEW KERALA

CHAPTER 12

Building a New Kerala

Kerala has been affected by one of the worst natural calamities of the century. Global warming and climate change have led to an increase in the frequency and intensity of extreme events all over the world. The heavy downpour in Kerala in August 2018 that caused massive floods and destruction is an illustration of such an event.

The floods that ravaged Kerala in August 2018 have been categorised as the heaviest in the last nine decades. A natural calamity of comparable magnitude occurred in 1924 (in Malayalam era 1099, earning it the name 'The Flood of 99''). The Flood of 99 was a part of folklore for the present generation until it witnessed the Flood of 2018. Kerala also experienced heavy floods in 1961, when the monsoon was unusually heavy not only in duration but also in the intensity of precipitation, (CWC 2018).

Flood waters have receded, but the damage has imposed a heavy burden on the State's economy and its already fragile public finances. But the determination and unity that were seen at the time of the extraordinary climatic event can be the foundation for a new Kerala (Nava Kerala), beyond simple restoration. This new Kerala needs to be resilient to calamities. Ideas for building a new Kerala have been coming from various quarters.

The province of this chapter is to provide a brief overview of the background to the floods, the exemplary manner in which crisis management was undertaken, a brief review of the damage assessment, and, most important, the manner in which the way forward to a new Kerala is being visualised.

The Floods of 2018

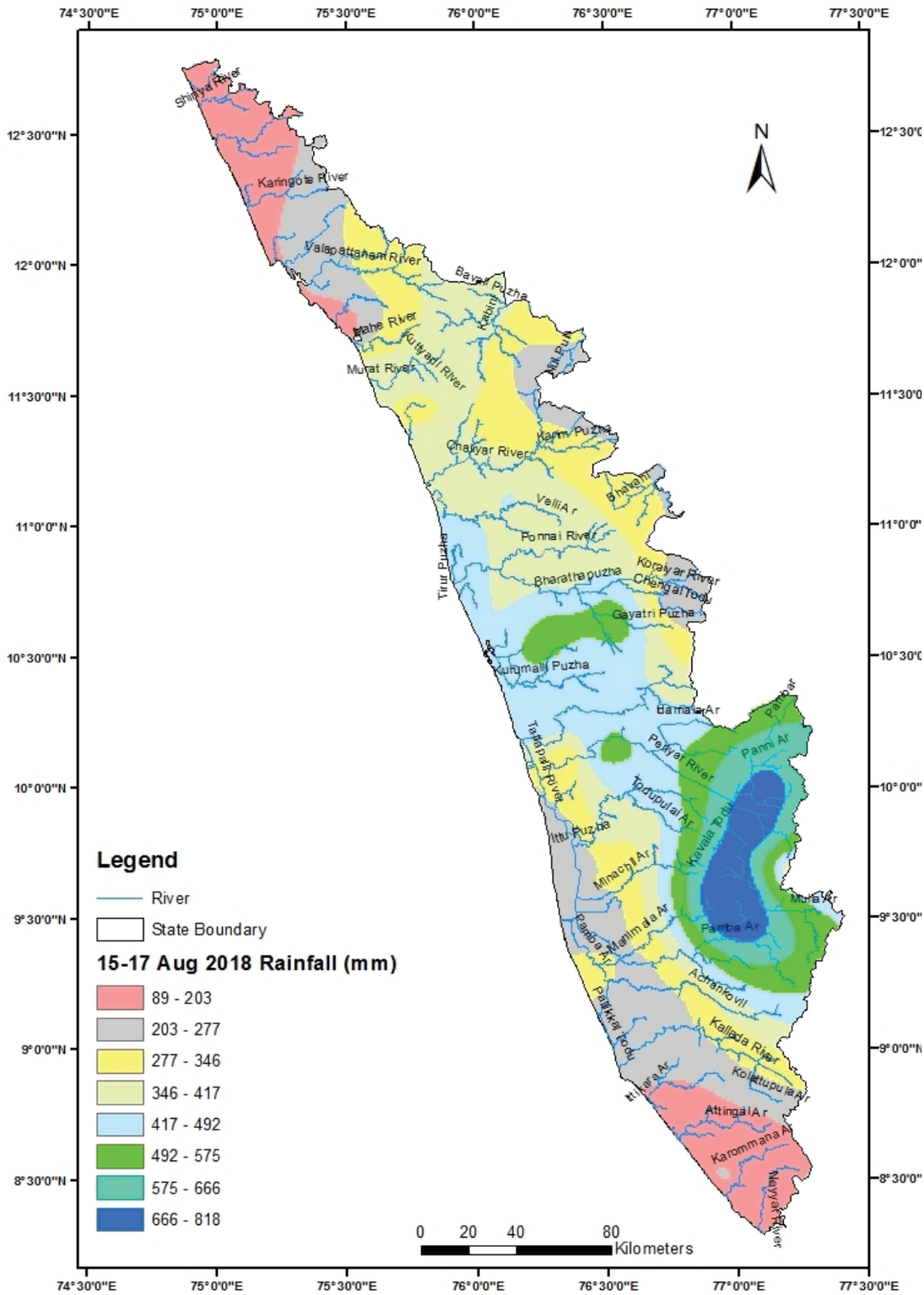
The State has 1,564 villages, out of which 80 per cent (1,259) were affected by the floods of 2018. Out of the State's total population of 3.48 crore, more than 54 lakh people, about a sixth of its population, were directly affected by this deluge. Approximately 14 lakh people were displaced. The floods damaged 1,74,500 buildings.[1]

Seven districts, Alappuzha, Ernakulam, Idukki, Kottayam, Pathanamthitta, Thrissur, and Wayanad, were the worst affected. Because of floods and landslides, 433 lives were lost. Of these 268 (62 per cent) were men, 98 (23 per cent) women and 67 (15 per cent) children (PDNA 2018 p. 13).

According to the Indian Meteorological Department (IMD), Kerala received 2,515.7 mm of rain in the southwest monsoon (June-September, 2018), which was 23.34 per cent higher than the normal rainfall of 2,039.6 mm. But the critical aspect was the heavy rainfall starting from August 8, which became a 3 day long extremely heavy rainfall from August 15 to 17, 2018. In 1924, the highest rainfall was recorded at Munnar, where there was 897mm rainfall in 3 days (16-18 July 1924). In 2018 Peermade had the highest rainfall, with 818 mm rainfall in 3 days (August 15 to 17, 2018.). This type of rainfall events are in the one in 500-year class, according to the Probable Maximum Precipitation (PMP) Atlas of Central Water Commission (CWC). This 3-day rainstorm value is 40 per cent of the long-term average rainfall for entire southwest monsoon. Such extreme rainfall events naturally lead to extreme floods (Figure

[1] Inputs received from Shri James Wilson, Special Officer, Inter State Waters, GoK are acknowledged

Figure 12.1 Three day cumulative rainfall of August 15-17, 2018



Source: Study Report Kerala Floods of August 2018, p43, Central Water Commission 2018

12.1)

The CWC (2018) has observed: *"Kerala experienced an abnormally high rainfall from 1 June 2018 to 19 August 2018. This resulted in severe flooding in 13 out of 14 Districts in the State. As per IMD data, Kerala received 2,346.6 mm of rainfall from June 1, 2018 to August 19, 2018 compared to an expected 1,649.5 mm of rainfall. This rainfall was about 42 per cent above the normal. Further, the rainfall over Kerala during June, July and 1st to 19th of August was 15 per cent, 18 per cent and 164 per cent respectively, above normal."*

A careful examination of the available data shows that in fact the Flood of 2018 was less intense than the Flood of 1924 in terms of the rainfall leading to the floods.

Spells of Monsoon Rainfall – Evolving Trends

Scientific studies (Box 12.1) have shown an increase in extreme and very heavy rainfall spells during the southwest monsoon in the last 50 years. Wagholikar, *et al* (2015), analysing pre-monsoon, monsoon and post-monsoon rainfall trends in various parts of India has found that during the period 1951-2011, there is a decreasing trend in pre-southwest monsoon rainfall and an increasing trend in post-southwest monsoon rainfall in Kerala. The trend, however, is different across various regions in the country.

Study by Kothawale and Rajeevan (2017) finds that out of eighteen subdivisions in India, the mean seasonal rainfall based on the period 1981-2016 is significantly reduced from mean seasonal rainfall for the period 1871-1980 over seven subdivisions. The reduction for Kerala is statistically significant at 10 per cent level. For, India as whole, mean monsoon season rainfall for the period 1871-1980 and 1981-2016 are 854.1 mm and 830.1 mm respectively. Though the recent period mean seasonal rainfall has decreased by 24 mm from the mean rainfall based on the period 1871-1980, the change in mean rainfall is not statistically significant.

The causes of the extremely heavy rainfall of 2018 in Kerala clearly need deeper scientific analysis. It is noteworthy that the Inter-Governmental Panel on Climatic Change (IPCC 2018) has stated that rise in global temperatures by 1.5 degree celsius would increase the frequency of heavy precipitation due to rise in intensity of tropical cyclones. This underscores the importance of learning to cope with rainfall extremes and their consequences.

It is clear therefore that the proximate cause of the floods of 2018 in Kerala was the extremely heavy rainfall in August 2018, especially between August 15 and 17, 2018. The CWC (2018), has affirmed this and emphasised that the opening of dams had minimal or no impact on the runoff of water. Kerala has 57 large dams with a total storage capacity of 5.806 Billion Cubic Meter (BCM), which is equal to 7.4 per cent of the annual average runoff of all 44 rivers in Kerala. Only seven reservoirs have a live storage capacity of more than 0.20 BCM (*ibid.*).

"It may be noted that a flood peak of about 8,800 cumec was observed at Neeleswaram Gauging & Discharge site. That means apart from a release of about 1,500 cumec from Idukki reservoir, the flood peak generated in the downstream free catchment was of the order of about 7,300 cumec. Even if there was no or very little release from Idukki reservoir (a hypothetical situation in the wake of floods of such magnitude), the downstream areas would still have received a peak of about 7,500-8,000 cumec. Therefore, it can be concluded that Idukki reservoir's contribution to the overall flooding situation downstream was miniscule. It had, in fact, provided an attenuation of flood peak by about 1,030 cumec[2] *when peak inflow impinged the reservoir"* (*ibid*. p.12).

[2] The peak inflow into the Idukki dam was 2,532 cumec at 22:00 hours on August 15, 2018. The corresponding release from the dam was 1,614 cumec (1,500 cumec spill + 114 cumec power house release). According to the CWC report, the peak was attenuated from 2,532 cumec to 1,500 cumec, an attenuation of 1,030 cumec. (CWC 2018, p.11).

Box 12.1 Trends in southwest monsoon, extreme events

The seasonal mean rainfall, examined over central India and the Western Ghats regions, shows a decreasing trend from 1951 to 2004. Seasonal rainfall decreased by about 1–1.2 mm per day in this period. However, there is an increasing trend in the variance of daily rainfall during the monsoon season. The light to moderate rainfall events (5 ≤ rainfall < 100 mm per day) have decreased while heavy and very heavy rainfall events (rainfall ≥ 100 mm per day) have increased in both the regions during this period. The decline in light to moderate rainfall events has more than offset the rise in heavy and extreme events, leading to an overall decreasing trend in seasonal mean rainfall between 1951 and 2004.

Source: Extreme Events and Trends in the Indian Summer Monsoon, V Krishnamoorthy, Centre for Ocean-Land-Atmosphere (COLA) Studies, Technical Report, available on ftp://cola.gmu.edu/pub/ctr/CTR314_ms.pdf

The statement of Dr K J Ramesh, Director General of Indian Meteorological Department (IMD) is noteworthy in this context. "The frequency of daily rainfall up to 10-15 cm has significantly increased since 1947, while the intensity of low rainfall of up to 5 cm has decreased in India. This has happened because of global warming. Significant changes have also been observed in the frequency of cyclones and hurricanes across the world. At the global level, 10 cyclones used to be recorded on an average. Now their average number has increased to 18 in a year. Though the frequency of cyclones in India has not increased in the Bay of Bengal or the Arabian Sea, their intensity has definitely increased…"

Source: www.ndtv.com. This is an excerpt from the exclusive interview given to NDTV on November 24, 2018 by the Director General, IMD

Disaster Response – Collective, Swift and Effective

There was swift response from the Government, which mobilised a) 4,100 personnel and entire equipment from Kerala Fire and Rescue Services b) 58 teams and 207 boats from National Disaster Response Force (NDRF), c) 23 columns and 104 boats from Army, d)94 rescue teams, one medical team, 9 helicopters, two fixed-wing aircraft's and 94 boats, e) 36 teams, 49 boats, 2 helicopters, two fixed-wing and 27 hired boats, f) 22 helicopters and 23 fixed-wing aircraft from the Air Force, g) 2 companies and 1 water vehicle team of Border Security Force and h) 10 teams of Central Reserve Police Force.

The State of Kerala – its Government and people – demonstrated exceptional capability in undertaking immediate rescue and relief work during the crisis. Kerala, once again, led by example, that is, of widespread and selfless public action by the Government and citizens. The speedy, meticulous, and people-oriented handling of the crisis by the State has won admiration from all over the State – and from other parts of India and the world.

Special mention must be made to the role of the fish workers, who went into action even at considerable personal risk. 669 boats with 4,537 fishermen rescued about 65,000 people. Special efforts were taken by the Government for addressing the needs of those who lost certificates and documents in the floods.

There was a display of unity and courage in society, and young people and students took lead in relief and rescue operations. Financial and physical contributions (for cleaning flood-affected houses and buildings) were made by all sections of society. The determination and the willpower of our society have received international commendation.

The Chief Minister's Disaster Relief Fund CMDRF) has received contributions amounting to

Box 12.2 Dams and floods, findings by researchers

The devastation wrought by the Kerala floods of August cannot be attributed to the release of water from dams, says a computer simulation of flood storage and flow patterns by a team of researchers. Scientists from the Indian Institute of Technology-Madras and the Purdue University, United States, say that the odds of such floods were "0.06 per cent" and no reservoir management could have considered such scenarios. Previous analyses of the Kerala floods had not incorporated a simulation of water flows and had relied solely on measurements of water levels at dam sites, according to the authors of the study. Kerala has 39 major dams and they are maintained by the Kerala State Electricity Board and the Water Resources Department.

All 39 dams in the State reached full reservoir level by the end of July, and were incapable of absorbing the torrential volumes of rain in August, leaving dam-managers with no choice but to release water. The scientists analysed different scenarios with combinations of reservoir storages (85 per cent, 75 per cent, etc.) at different time periods (end of June and end of July), along with different soil moisture conditions, which have a bearing on river flows.

What they found was that in the hypothetical scenario that there were no dams in the Pamba River Basin (PRB), the "peak discharge" at locations downstream of the Idukki reservoir would have been "reduced by 31 per cent." This, however, wasn't a reduction enough to have prevented the inundation, according to the researchers.

"The major share of the total flood flow was by Perinjankutty (3,500 m3/s), which is a near uncontrolled tributary, while the 14 controlled releases from Idukki had contributed only 1,860 m3/s… the results indicated that the role of releases from the major reservoirs in the PRB to cause the flood havoc was less," the authors say in the study, which is to be published in a forthcoming issue of the peer-reviewed Current Science.

Source: From The Hindu, 22 November, 2018

₹2,987.48 crore by the end of November 2018.
The total amount collected through the "salary challenge" was ₹488 crore. The number of Government employees in Kerala who participated in the challenge was 2,27,338, a 57 per cent of all employees. (*Source*: Proceedings of the Legislative Assembly).

The Government established 12,253 relief camps, which provided shelter to 34,15,937 affected people. Over 10 lakh people were evacuated and over 33,000 were rescued. The Government provided immediate relief of ₹10,000 each to 6.87 lakh families and made psychological counselling services available to 40,000 flood victims by December 2018. Monetary assistance for those who are affected by crop losses has also been announced.
Out of the 2,43,690 partially damaged houses, owners of 48,381 houses which had sustained at least 15 per cent damage were paid ₹10,000. In addition to this 8,469 house owners whose houses had suffered 16-29 per cent damage were given ₹60,000. Owners of 155 houses which had been damaged in the range of 30-59 per cent have received the first instalment of ₹1,25,000. Households which were substantially damaged, that is, in the range of 60-74 per cent have been paid ₹2,50,000 as the first instalment. The Government is working towards completing the payment to all house owners whose dwellings suffered damage in the floods in the shortest possible time.

Box 12.3 Role of Kudumbashree during floods, 2018

During the floods of July-August, 2018, Kudumbashree helped to give leadership to women in organising relief and rehabilitation operations. Kudumbasree undertook a range of activities, including providing temporary shelter for affected people, gathering food and other materials for relief camps, counselling to ameliorate mental stress, especially of women and children, and packing 'take home kits' in affected districts. Kudumbashree members also participated in cleaning of houses and public places. More than 4 lakh volunteers participated in the cleaning campaign. Community kitchens were started in flood-affected areas for those who returned from relief camps. Kudumbashree State Mission teams consisting of State programme managers and assistant programme managers visited the most flood and landslide affected districts in the State. A sum of ₹7 crore was handed over to CMDRF on August 29, 2018. Most of these amount was mobilised from weekly thrift collections by Neighbourhood Group members. Kudumbashree is the nodal agency for implementation of the Resurgent Kerala loan scheme introduced by the State Government. Under this scheme, flood victims can take loans of ₹1 lakh to repair house, purchase household appliances, and for livelihood activities. Kudumbashree has reoriented its annual action plan of 2018-19 to enhance livelihood programmes related to animal husbandry and agriculture.

Source: Flood Relief Activities, Kudumbashree, 2018

Damage Due to Floods - An Overview

The damage to various sectors of Kerala's economy has been heavy and has been estimated at ₹31,000 crore by the Post Disaster Needs Assessment (PDNA) of the UNDP. The damage caused to infrastructural sectors such as power and transport, other economic sectors, and social sectors have been separately assessed in the PDNA. (Table 12.1).

Low-lying areas of Kuttanad, and the uplands of Idukki and Wayanad were severely affected by floods and landslides. Low-income groups who reside in these areas will have a special place in post-flood rehabilitation.

Flood and landslide-related losses put an additional strain on State finances, already facing stress because of the burden of committed expenditure and lower-than-expected growth rate of revenues. To overcome the additional fiscal responsibility, the State has requested the Centre for a temporary relaxation of the borrowing limit to 4.5 per cent from the present 3 per cent of GSDP. The State has suggested imposing a cess on GST for a specific period (which is permissible under Article 279A(4)(f) of the Constitution) for additional resource mobilisation. This proposal has been accepted by the GST Council in January 2017. The State has submitted a memorandum to the Centre requesting for a grant of ₹4,796.35 crore as per SDRF norms. As already stated the PDNA conducted by the UNDP estimates the loss suffered by the State as ₹31,000 crore. This works out to approximately 5.02 per cent of 2016-17

Table 12.1 Estimation of damage consequent to floods, 2018, in ₹ crore

Sector	Damage	Losses	Damage + Losses	Total Recovery Needs
Social	5,743	1,448	7,191	6,337
Productive	2,975	4,180	7,154	4,498
Cross cutting	10,561	16,159	26,718	30,715

Source: Post Disaster Needs Assessment Report, 2018

Box 12.4 Post-flood scenario: initiatives by university students and teachers

Students and teachers of educational institutions played a commendable role in relief and rehabilitation work. The study conducted by the students and faculty of John Mathai Centre (Department of Economics, University of Calicut) in Kadavarampuramboke settlement near Arnattukara church in Thrissur District highlighted the special problems faced by the local population who had no land of their own. Teachers and students of Sanskrit General Department of Sree Sankaracharya University of Sanskrit, Kalady, conducted a medical camp for persons affected by floods with the support of Kottakkal Arya Vaidya Sala's Swanthwanasparsam programme. Besides, schools, higher education institutions including government, aided and autonomous colleges (like St. Teresa's College, Ernakulam) conducted long duration camps for the flood affected. There are many more such initiatives undertaken by civil society groups.

Source: District Livelihood Rehabilitation Credit Plan, Thrissur, 2018; Deccan Chronicle, September 15, 2018.

GSDP at current prices (₹6,17,035 crore). These losses to the State economy would adversely affect the revenues when the State is faced with substantial additional expenditure burden of post-flood reconstruction. This situation demands urgent and liberal help from the Centre and all sections of society.

Realising a Resilient Kerala

Building a Resilient Kerala needs to be based on science and on people's participation. Modern science and technology must inform all stages of the process of dealing with natural disasters, that is, from early warning systems, relief operations, design and construction of buildings and community infrastructure, individual care and livelihood enhancement measures. The needs of the elderly, people with disabilities in rescue operations and that of women (who play a cardinal role in pre and post-disaster stages) in livelihood opportunities are to be addressed. The conditions of migrant workers also need special attention.

The steps towards realising a new and resilient Kerala include efforts to strengthen and advance planned economic development as envisaged in the 13th Five-Year Plan, to implement a new livelihood package and to "build back better". Ongoing schemes under the Annual Plan 2018-19 were reoriented to deal with the exigencies of the flood. It was also envisaged that the Annual Plan 2019-20 would support rehabilitation, and the restoration and creation of livelihood opportunities for the people of the State.

A two-day Conference was held in Thriuvananthapuram on November 1-2, 2018 by the Kerala State Planning Board to discuss post-disaster livelihood revival options. This included exploring options with regard to wage employment, self-employment and skill development. The livelihood development package includes livelihood schemes in the Annual Plan, a livelihood credit rehabilitation package, projects under MGNREGA, Kudumbashree and Local Governments, and options under other Centrally Sponsored Schemes.

The next task of building back better is sought to be realised through the The Rebuild Kerala Initiative (RKI). This is to be a multi-sector programme involving several Government departments and agencies over a period that may vary from 2 to 3 years. The outline of the institutional framework proposed for RKI comprises the Council of Ministers, an Advisory Council, High Level Empowered Committee, RKI Implementation Committee (RKI-IC), RKI Secretariat, and institutional support.

Box 12.5 Co-operative alliance to rebuild Kerala, CARe Kerala

The project is being implemented by the Department of Co-operation. It envisages building 1,500 houses for families whose houses have been completely destroyed by the 2018 floods. The project cost is ₹75 crore, with financial assistance of ₹5 lakh per house. The primary co-operative societies or other co-operative societies with a strong presence in a locality will take up the responsibility of constructing the houses. The local situation, land terrain and availability, and the needs of the beneficiaries and their financial capacity are to be factored in while making the plan and estimate for the houses. The services of engineering experts and engineering students would be utilised for this purpose. The construction of the houses is to be completed within 3 months of commencement of the work. The minimum area of a house is to be 600 sq. feet. For the houses being constructed, stability, resilience to environmental challenges, basic facilities such as drinking water, electricity and waste disposal mechanisms, clean surroundings, and a small garden will be ensured. The beneficiaries will be from the list provided by the District administration. The project envisages not only house construction but also the social rehabilitation of the families affected by the natural calamity. In order to achieve these, the services of social workers, teachers, and doctors will be made available through co-operative institutions.

Financing the Rebuild

Kerala has been facing fiscal stress since 2013-14 when the own tax revenue growth rate came down to around 10 per cent and the growth rate of revenue expenditure was 15-18 per cent. The State embarked upon a renewed fiscal consolidation path (from which there were substantial deviations in the earlier period from 2011-12) since 2016-17 by aiming at a higher growth rate of own tax revenue at 20 per cent and through measures to rationalise expenditure. But in all financial years after 2016-17, it was set back by policies beyond its control, such as demonetisation in 2016-17, implementation issues of GST in 2017-18, and unprecedented floods in 2018-19. Special efforts are needed to be initiated by the Centre to enable the State to finance the task of rebuilding Kerala.

The GoK has requested the Centre to a) enhance the borrowing limit in 2018-19 to 4.5 per cent instead of the present 3 per cent of the GSDP, b) levy a cess on GST for a specific period, which is permissible under Article 279A (f)(4) of the Constitution and c) provide additional assistance amounting to ₹ 820 crore and ₹ 4,794 crore for flood damage in July and August 2018. Besides, the State has implemented measures like Nava Kerala Lottery, strengthening the enforcement mechanism of tax collection and mobilising more non-tax revenue. Unless there is a positive response from the Centre, which is necessary in a system of cooperative federalism, the State will experience severe fiscal stress in the medium term.

The Path Ahead

Inclusive and people-centric approach needs to be in place from early warning systems, relief operations, design and construction of residential buildings, community infrastructure, psycho social interventions and livelihood enhancement measures. The concerns of the elderly, people with disabilities in rescue operations and that of women in livelihood opportunities are to be specifically addressed. Needs of migrant workers and others generally excluded should be specially taken care of.

Kerala which has effective decentralised governance can utilise the capabilities built so far through Peoples Plan campaign for taking

up the challenge of building a new Kerala (Nava Keralam) leaving no one behind. The State has exhibited exemplary leadership and management skills, just as the people have come together for a historic effort of civic cooperation in the aftermath of the floods. This reminds of the lines of the poem by Clare Shaw on UK Floods of 2015, "The shifting of boulder, the bringing together of neighbour and stranger."

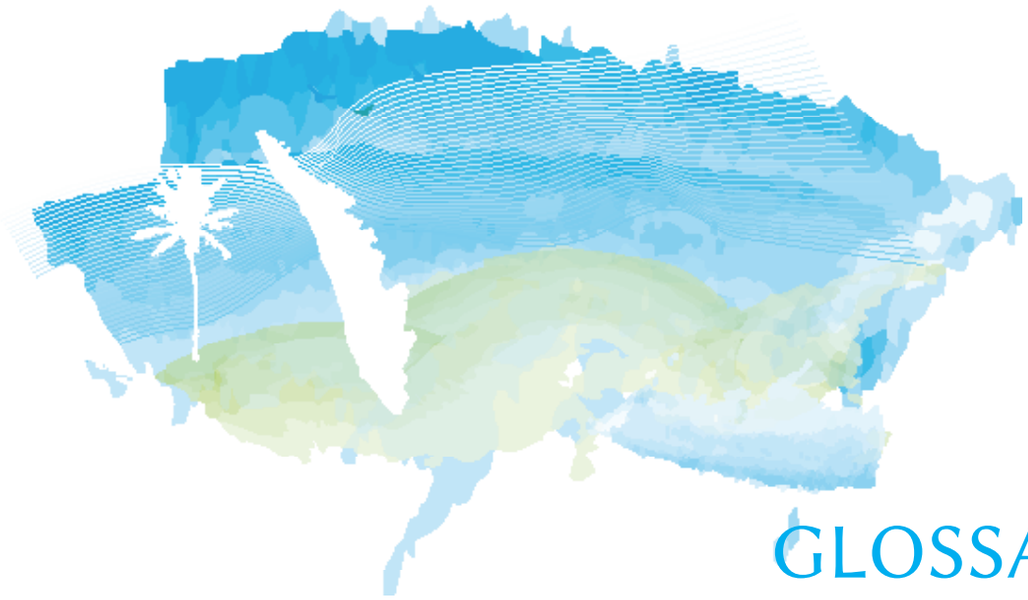
References

Central Water Commission (2018), "Study Report Kerala Floods of August 2018", available on *www.cwc.gov.in*

Government of Kerala (2018), "Kerala: Post Disaster Need Assessment, Floods and Landslides- August 2018", October.

Kothawale, D.R., and Rajeevan, M (2017), "Monthly, Seasonal and Annual Rainfall Time Series for All-India, Homogeneous Regions and Meteorological Subdivisions: 1871-2016," available at *www.tropmet.res.in*

Wagholikar, K. Nilesh, Sinha, Ray K.C., Sen, P.N., and Kumar, Pradeep P. "Trends in Seasonal Rainfall and Heavy Rainfall Events during southwest monsoon season over Indian Region," available at *www.tropmet.res.in*



GLOSSARY

Basic Price

Basic price, the amount receivable by the producer from the purchaser for a unit of a good or service produced as output minus any tax payable, and plus any subsidy receivable, by the producer as a consequence of its production or sale. It excludes any transport charges invoiced seperately by the producer.

Comprehensive Health Insurance Scheme (CHIS)

It extends to all families other than the BPL families (absolute poor) as per the Guidelines of Planning Commission who come under the RSBY.

Consumer Price Index (CPI)

Consumer Price Index (CPI) is designed to measure the changes overtime in the level of retail prices of a fixed set of goods and services (consumption basket) consumed by an average family of a defined population group at a particular place. The index number of industrial and agricultural workers is referred.

CDS

Current Daily Status. In the employment and unemployment survey, there are four concepts - CDS, CWS, UPS and UPSS - used to measure the activity status like employed or unemployed or outside labour force of those covered by the survey. In the CDS approach the activity status is determined for each day of the reference week (i.e 7 days preceding the date of survey). A person who worked at least for one hour but less than four hours was considered having worked for half a day. If worked for four hours or more during a day, he was considered as employed for the whole day.

CWS

Current Weekly Status: Here the activity status is determined with reference to a period of seven days preceding the date of survey. A person who reports having worked at least for one hour on any day during the reference period of one week while pursuing a gainful occupation was deemed to be employed. A person who did not work even for one hour during the reference period of one week but was seeking or available for work was deemed to be unemployed.

Deen Dayal Upadhyay Gram Jyoti Yojana (DDUGJY)

This is a new program launched by Ministry of Power for improving the distribution infrastructure of rural areas and for ensuring 24x7 power supply to all rural households.

Density of Population

Density of population is one of the important indices of population concentrations. It is defined as the number of persons per sq. kilometer. The geographical unit is ward, town, district and state.

E- procurement
It is the business to business purchasing of goods and services through the internet.

Gross National Income (GNI)
It is GDP less net taxes on production and imports, less compensation of employees less property income payable to the rest of the world plus the corresponding items receivable from the rest of the world (in other words, GDP less primary incomes payable to non-resident units plus primary incomes receivable from non-resident units); an alternative approach to measuring GNI at market prices is as the aggregate value of the balances of gross primary incomes for all sectors; (note that gross national income is identical to gross national product (GNP) as previously used in national accounts generally).

Gross National Product (GNP)
Gross National Product is the total market value of all final goods and services produced in a year. GNP includes net factor income from abroad whereas GDP does not.

Gross Value Added (GVA)
GVA is the measure of the value of goods and services produced in an area, industry or sector of an economy, in economics. In national accounts GVA is output minus intermediate consumption; it is a balancing item of the national accounts' production account.

GVA at Basic prices
Gross value added at basic prices is defined as output valued at basic prices less intermediate consumption valued at purchasers' prices. Here the GVA is known by the price with which the output is valued. From the point of view of the producer, purchasers' prices for inputs and basic prices for outputs represent the prices actually paid and received. Their use leads to a measure of gross value added that is particularly relevant for the producer.

Infant Mortality
Death of a baby before his or her first birthday is called infant mortality. The infant mortality rate is an estimate of the number of infant deaths for every 1,000 live births.

Janasree Bima Yojana (JBY)
Exclusively for the Spouses of SHG members who are not covered under AABY and who are under the age group 18 to 58 years.

JJ Act 2000
The Juvenile Justice (Care and Protection of Children) Act, 2000 is the primary legal framework for juvenile justice in India. The Act provides for a special approach towards the prevention and treatment of juvenile delinquency and provides a framework for the protection, treatment and rehabilitation of children in the purview of the juvenile justice system.

Labour Force Participation Rate (LFPR)
Labour force participation rate is the ratio between the labour force and he overall size of their cohort (national population of the same age range).

Literacy Rate
Literacy rate is defined as the percentage of population aged 6 years and over who can both read and write with understanding a short simple statement on his/her everyday life.

National Family Health Survey
The National Family Health Survey (NFHS) is a large-scale, multi-round survey conducted in a representative sample of households throughout India.

Net National Product (NNP)
Net National Product at factor cost or National Income is the sum of wages, rent, interest and profits paid to factors for their contribution to the production of goods and services in a year.

Old age dependency ratio
The no. of persons in age group 60 years and more ÷ No. of persons in age group 15-59 years.

Parity Index
Parity Index is a relative measure as to the gains or loss to farmers as a consequence of the price fluctuations in the economy. The index is a function of cost of farm cultivation, domestic expenditure and market rate of farm products.

Persons with Disability Act 1995
The Act has been enacted under Article 253 of the Constitution read with item No. 13 of the Union List (WORD - -1) It effect to the proclamation on the full participation and equality of the persons with disabilities in the Asian & Pacific Region and provides for their education, employment, creation of barrier free environment, social security, etc.

Preraks
Preraks are the authoritative of the continuing education centres for giving leadership to the informal education and local development activities.

Proxy Indicator
Indirect measure or sign that approximates or represents a phenomenon in the absence of a direct measure or sign.

Number of female members of a chamber of commerce, for example, is a proxy indicator of the percentage of female business owners or executives.

Protection of Children from Sexual Offences Act, 2012

An Act to protect children from offences of sexual assault, sexual harassment and pornography and provide for establishment of Special Courts for trial of such offences and for matters connected therewith or incidental thereto.

Rashtriya Swastya Bima Yojana (RSBY)

It is a Health Insurance Scheme launched by Union Government for BPL workers as defined by the Planning Commission and their families in the unorganized sector.

Retail Price

Retail Price of a commodity is defined as the price which the ultimate consumer pays for relatively small transactions of the commodity.

School Management Committees (SMC)

It comprises of local officials, parents, guardians and teachers. The SMCs will monitor utilization of govt grants and the school environment.

Sex Ratio

The Sex ratio is one of the basic demographic characteristics of the population. It is defined as the number of females per 1000 males. The sex ratio of the population is affected by the differentials in the mortality conditions of males and females, sex selective migration and the sex ratio at birth.

UDAY (Ujwal DISCOM Assurance Yojana)

UDAY aims at the financial turnaround and operational revival of debt ridden Power Distribution Companies (DISCOMs) and ensures a sustainable permanent solution to the problem

UPS

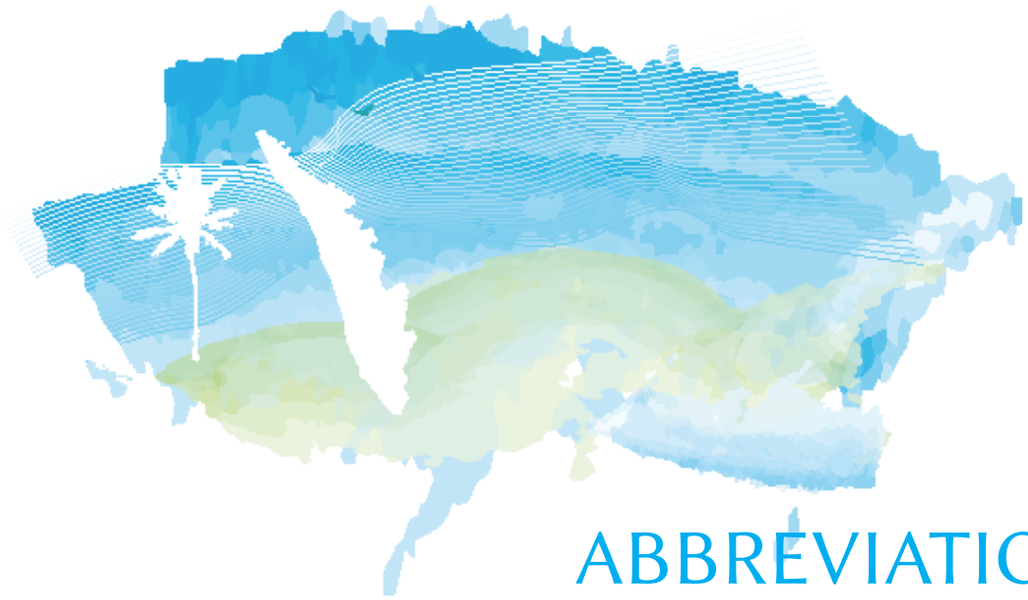
Usual Principal Status: Here the activity status is determined with reference to a relatively longer period during a reference period of 365 days. Unemployment Rate as per this method indicates the numerical magnitude of the persons unemployed for a relatively longer period. Thus it is an indicator of chronically unemployed.

UPSS

Usual Principal and Subsidiary Status: Unemployment Rate as per this method also indicates the numerical magnitude of the persons unemployed for a relatively longer period during a reference period of 365 days. However, here the number of unemployed is arrived at excluding those employed in a subsidiary capacity during the reference period. The number arrived as per this method will be lower than the UPS approach as some persons categorized as unemployed according to the UPS approach might be working in a subsidiary capacity and this persons are excluded in the UPSS method.

Wholesale Price Index (WPI)

Wholesale Price Index measures the average change overtime in the wholesale prices of 17 important agricultural commodities produced and transacted in the state (Kerala) with the agricultural year 1952-53 as the base. These indices are computed every month. Weights are assigned to the commodities in proportion to the value of production to make the index fully representative.



ABBREVIATIONS

AABY: Aam Admi Bima Yojana

AAY: Anthyodaya Anna Yojana

AEU: Agro Ecology Unit

AIBP: Accelerated Irrigation Benefit Programme

AMRUT: Atal Mission for Rejuvenation and Urban Trans formation

ANERT: Agency for Non-conventional Energy and Rural Technology

ANP: Annapoorna Scheme

APL: Above Poverty Line

APTS: Anti Power Theft Squad

ASAP: Additional Skill Acquisition Programme

ASCs: Agro Service Centres

ASEP: Additional Skill Enhancement Programme

ATMA: Agriculture Technology Management Agency

AVTS: Advanced Vocational Training System

AYUSH: Ayurveda, Yoga and Naturopathy, Siddha, Unani and Homoeopathy

BDA: Bamboo Development Agency

BE: Budget Estimate

BMC: Biodiversity Management Committees

BPL: Below Poverty Line

BRDC: Bekal Resorts Development Corporation

BSNL: Bharat Sanchar Nigam Limited

BSUP: Basic Services to the Urban Poor

CAPEX: Kerala State Cashew Workers Apex Co-Operative Society

CBSE: Central Board of Secondary Education

CCDU: Communication and Capacity Development Unit

CDC: Child Development Centre

C-DIT: Centre for Development of Imaging Technology

CDS: Centre for Development Studies

CEPCI: Cashew Export Promotion Council of India

CERT: Computer Emergency Response Team

CFPI: Consumer Food Price Index

CFPI: Consumer Food Price Index

CFSC: Common Facility Service Centre

CHIAK: Comprehensive Health Insurance Agency

CHIS: Comprehensive Health Insurance Scheme

CHIS: Comprehensive Health Insurance Scheme

CIAL: Cochin International Airport Limited

CMDRF: Chief Minister's Distress Relief Fund

CMRI: Critical Mineral Research Institute

Coirfed: The Kerala State Co-operative Coir Marketing Federation Ltd.

CPC: Centralized Processing Center

CPI: Consumer Price Index

CPIS: Coconut Palm Insurance Scheme

CPSEs: Central Public Sector Enterprises

CRDP: Capital Regional Development Project

CSIND: Coastal Shipping and Inland Navigation Department

CSO: Central Statistical Organisation

CSS: Centrally Sponsored Scheme

CTCRI: Tuber Crops Research Institute

CUSAT: Cochin University of Science and Technology

CWC: Central Water Commission

CWRDM: Centre for Water Resources Development and Manangement

DAME: Directorate of Ayurveda Medical Education

DBFOT: Design, Built, Finance, Operate and Transfer

DCB: District Co-operative Bank

DDU GKY: Deen Dayal Upadhyaya Grameen Kaushalya Yojana

DES: Directorate of Economics and Statistics

DGE&T: Director General of Employment and Training

DIC: Directrorate of Industries and Commerce

DMRC: Delhi Metro Rail Corporation

DRDO: Defence Research and Development Organisation

DRIQ Board: Design Research, Investigation and Quality Control Board

EDCs: Eco Development Committees

EMC: Energy Management Centre

ENVIS: Environmental Information System:

EPC: Engineering Procurement and Construction

ESI: Employees' State Insurance

ESS: Entrepreneur Support Scheme

FAO: Food and Agriculture Organization

FC: Finance Commission

FCI: Food Corporation of India

FMCG : Fast Moving Consumer Goods

FMD : Foot and Mouth Disease

FOMIL: Foam Mattings India Limited

FSI : Forest Survey of India

GATE: Graduate Aptitude Test in Engineering

GCDA: Greater Cochin Development Authority

GCF: Green Climate Fund

GEC: Government Engineering College

GHG : Green House Gas

GOI: Government of India

GST: Goods And Service Tax

GSVA: Gross State Value Added

GVA : Gross Value Added

HDCK: Handicrafts Development Corporation of Kerala

HDI : Human Development Index

HS: High School

HSC: House Service Connection

HUDCO: Housing and Urban Development Corporation

HVDC: High Voltage Direct Current

IAY : Indira Awas Yojana

ICDS: Integrated Child Development Services

ICFOSS: International Centre for Free And Open Source Software

ICPS: Integrated Child Protection Scheme

ICSE: Indian Certificate of Secondary Education

ICT: Information and Communications Technology

IGC: Industrial Growth Centers

IGNOAPS: Indira Gandhi National Rural Employment Guarantee Scheme

IHSDP: Integrated Housing and Slum Development Programme

IIHT: Indian Institute of Handloom Technology

IIITM-K : Indian Institute of Information Technology and Management Kerala

IIT: Indian Institute of Technology

IKI: International Climate Initiative

ILO: International Labour Organisation

IMD: Indian Meteorological Department

INDC : India's intended Nationally Determined Contribution

IPC: Irrigation Potential Created

IPDS: Integrated Power Development Scheme

ISM: Interstate Migrant, Indian System of Medicine

ISRO: Indian Space Research Organisation

IT: Information Technology

ITI: *Industrial Training Institutes*

IUCN: International Union for Conservation of Nature

IWMP : Integrated Watershed Management Programme

JJ: Juvenile Justice

JLGs: Joint Liability Groups

JNNURM: Jawaharlal Nehru National Urban Renewal Mission

JNPT: Jawaharlal Nehru Port Trust

JNTBGRI: Jawaharlal Nehru Tropical Botanic Garden and Research Institute

KADCO: Kerala Artisans Development Corporation

KASE: Kerala Academy for Skills Excellence

KAU: Kerala Agricultural University

KCC : Kissan Credit Card

KCHR: Kerala Council for Historical Research

KCMMF: Kerala Co-operative Milk Marketing Federation

Kerafed: Kerala State Kera Karshaka Sahakarana Federation

KESRU: Kerala Self Employment Scheme for the Registered Unemployed

KFC: Kerala Financial Corporation

KFRI: Kerala Forest Research Institute

KFWFB : Kerala Fisherman's Welfare Fund Board

KHRI: Kerela Highway Research Institute

KIIFB: Kerala Infrastructure Investment Fund Board

KILA: Kerala Institute of Local Administration

KILE: Kerala Institute of Labour and Employment

KINFRA: Kerala Industrial Infrastructure Development Corporation

KITTS: Kerala Institute of Tourism and Travel Studies

KLDB : Kerala Livestock Development Board

KRDCL: Kerala Rail Development Corporation
KRFB: Kerala Road Fund Board

KSACC: Kerala State Agency for the Expansion of Cashew Cultivation

KSBB: Kerala State Biodiversity Board

KSBCDC: Kerala State Backward Classes Development Corporation

KSBM: Kerala State Bamboo Mission

KSCADC: Kerala state coastal Area Development Corporation

KSCARDB: Kerala State Co-operative Agriculture and Rural Development Bank

KSCC: Kerala State Coir Corporation

KSCDC: Kerala State Cashew Development Corporation

KSCMMC: Kerala State Coir Machinery Manufacturing Company Ltd

KSCSTE: Kerala State Council for Science, Technology and Environment

KSDI: Kerala State Spatial Data Infrastructure

KSEBL: Kerala State Electricity Board Limited

KSERC: Kerala State Electricity RegulatoryCommission

KSIDC: Kerala State Industrial Development Corporation

KSINC: Kerala Shipping and Inland Navigation Corporation Limited

KSITIl: Kerala State Information Technology Infrastructure ltd

KSITM: Kerala State Information Technology Mission

KSoM: Kerala School of Mathematics

KSPCB: Kerala State Pollution Control Board

KSRRDA : Keralan State Rural Roads Development Agency

KSRTC: Kerala State Road Transport Corporation

KSSM: Kerala Social Security Mission

KSUDP: Kerala Sustainable Urban Development Project

KSUM: Kerala Startup Mission

KSWAN: Kerala State Wide Area Network

KTDC: Kerala Tourism Development Corporation

KTIL: Kerala Tourism Infrastructure Limited

LED: Light Emission Diode

LFPR: Labour Force Participation Rate

LIFE: Livelihood, Inclusion and Financial Empowerment

LPG: Liquefied Petroleum Gas

LSGs: Local Self Governments

LTRCF: Long Term Rural Credit Fund

MAH: Major Accident Hazard

MBGIPS: Malabar Botanical Garden and Institute of Plant Sciences

ME: Micro Enterprise

MEP: Minimum Export Price

MES: Modular Employable Skill Courses

MGNREGS: Mahatma Gandhi National Rural Employment Guarantee Scheme

MIDH: Mission for Integrated Development of Horticulture

MoFPI: Minsitry of Food Processing Industries

MSME: Micro, Small and Medium Enterprises

MT: Metric Tonne

MVIP: Muvattupuzha Valley Irrigation Project

NABARD : National Bank for Agriculture and Rural Development

NAFCC: National Adaptation Fund on Climate Change

NATPAC: National Transportation Planning And Research Centre

NCRMI: *T*he National Coir Research and Management

Institute

NCVT: National Council for Vocational Training

NFHS: National Family Health Survey

NFSA: National Food Security Act

NGOs: Non-government Organizations

NHAI: National Highways Authority of India

NIC: National Informatics Centre

NKKP: Nava Keralam Karma Padhathi

NNI: Net National Income

NORKA: Non Resident Keralite Affairs

NRDWP: National Rural Drinking Water Programme

NRIs: Non Resident Indians

NRKs: Non Resident Keralites

NRLM : National Rural Livelihood Mission

NSSO: National Sample Survey Office

NTFP : Non-Timber Forest Product

NUALS: National University of Advanced Legal Studies

NULM: National Urban Livelihood Mission

ORC: Our Responsibility to Children Kerala

OTR: On Tax Revenue

PACS: Primary Agricultural Co-operative Societies

PDNA: Post Disaster Needs Assessment

PDS: Public Distribution System

PF : Protected Forests

PGS: Participatory Guarantee System

PMAY : Pradhan Mantri Awaas Yojana

PMAYG: Pradhan Mantri Awaas Yojana Gramin

PMAY-U: Pradhan Mantri Awas Yojana – Urban

PMEGP: Prime Ministers Employment Generation Programme

PMEGP: The Prime Minister's Employment Generation Programme

PMGSY : Pradhan Mantri Gram Sadak Yojana

PMKSY: Pradhan Manthri Krishi Sinchai Yojana

PMSSY: Pradhan Manthri Swasthya Suraksha Yojana

POCSO Act: Protection of Children from Sexual Offences Act

POL: Petroleum, Oil and Lubricants

PPA: Power Purchase Agreement

PPP: Public Private Partnership

PSU: Public Sector Undertakings

PTA: Parent Teachers Association

PWD: Public Works Department

PwDs: Persons with Disabilities

RAY: Rajiv Awaas Yojna

RBDCK: Roads and Bridges Development Corporation of Kerala

RCC: Regional Cancer Centre

REACH: Resource Enhancement Academy for Career Heights

RET: Rare, Endangered and Threatened plants

RGSA: Rastriya Gram Swaraj Abhiyan

RIAB: Restructuring and Internal Audit Board

RICK: Road Infrastructure Company Kerala

RIDF: Rural Infrastructure Development Fund

RIT: Rajiv Gandhi Institute of Technology

RKVY : Rashtriya Krishi Vikas Yojana

RRB : Regional Rural Bank

RSBY: Rashtriya Swasthya Beema Yojana

RSPM: Respirable Suspended Particulate Matter

RTE: Right to Education

RWBCIS: Restructured Weather Based Crop Insurance Scheme

SAF: Society for Assistance to Fisherwomen

SAPCC: State Action Plan on Climate Change

SAZ: Special Agricultural Zones

SBM: Swachh Bharat Mission

SC/ST: Scheduled Caste/Scheduled Tribes

SCCF: Special Climate Change Fund

SCM: Smart Cities Mission

SDG: Sustainable Development Goals

SECC: Socio Economic and Caste Census

SECWAN: Secretariat Wide Area Network

SFC: State Finance Commission

SHGs: Self Help Groups

SHM: State Horticulture Mission

SID: State Initiatives on Disabilities

SIHM: State Institute of Hiospitality Management

SI-MET: State Institute of Medical Education and Technology

SJD: Social Justice Department

SLBC : State Level Bankers Committee

SLBP : Special Livestock Breeding Programme

SONTR: State's Own Non Tax Revenue

SOTR: State's Own Tax Revenue

SPB: State Planning Board

SRIBS: Srinivasa Ramanujan Institute for Basic Sciences

SSLC: Secondary School Leaving Certificate

SUIIT: Skill Updating Institute for Staff Training

Supplyco: Kerala State Civil Supplies Corporation

SWTD: State Water Transport Department

TBI: Technology Business Incubators

TDAP: Technology Development and Adaptation Programme

TEQIP: Technical Education Quality Improvement Programme

TISS: Tata Institute of Social Sciences

TREST: Trivandrum Engineering Science and Technology

TRIDA: Thiruvananthapuram Development Authority

TTI: Teacher Training Institute

UAM: Udyog Aadhar Memorandum

UNDP: United Nations Development Programme

UNESCO: United Nations Educational, Scientific and Cultural Organization

UNICEF: United Nations International Children's Emergency Fund

UNWTO: United Nations World Tourism Organisation

UPS: Upper Primary School

UPSS: Usual Principal Subsidiary Status

UR: Unemployment Rate

UT: Union Territory

VAMBAY: Valmiki Ambedkar Awas Yojana

VAT: Value Added Tax

VFPCK: Vegetable and Fruit Promotion Council Kerala

VGF: Viability Gap Fund

VHSE: Vocational Higher Secondary Education

WPI: Wholesale Price Index

WPR: Worker Population Ratio

WWDR: World Water Development Report

Economic Review 2018

Kerala State Planning Board

Government Press, Mannanthala, Thiruvananthapuram
Design and Layout : C-DIT