In 2016-17, the economy of the State of Kerala was adversely affected by a combination of natural and policy created factors. These varied from a medium-term deceleration in growth to a decline in primary commodity prices. Further, the departure from normal rainfall for the period June 1, 2016 to September 30, 2016 (that is, coinciding with the period of the South West monsoon) was -34 per cent, and the departure from normal rainfall for the period October 1, 2016 to December 27, 2016 (that is, coinciding with the period of the North East monsoon) was -61 per cent. It is now clear that this cumulative shortfall in rain has caused drought conditions in Kerala that will continue at least until the next South West monsoon. On top of these came the ill-designed and unwarranted decision to cancel the legal-tender character of bank notes of ₹500 and ₹1000 denominations, which devastated the state’s informal sectors and its cooperative credit infrastructure, with economy-wide consequences.

At the same time, 2016-17 was also a year in which a new Government led by the Left Democratic Front assumed office on the basis of an ambitious programme to revive growth and expand social welfare programmes in the State. The Government of Kerala has taken the bold and independent step of announcing that, although the Government of India has abandoned five-year plans, the State will continue with five year planning and with the formulation and implementation of the Thirteenth Five-Year Plan.

Soon after assuming office, the Government of Kerala announced the inauguration of four Missions to help build a new Kerala. The Missions emphasise sustainable development and peoples’ participation in the following fields: high-quality school education, people-friendly health facilities, a green Kerala (a Mission that includes, in turn, efforts in the spheres of nature-friendly agriculture, waste management, a clean environment, and a litter-free Kerala, and clean water bodies and enhanced water resources), and secure housing and livelihoods. The Government has also inaugurated the second phase of the People’s Plan Campaign in Kerala to consolidate and expand India’s foremost programme of democratic decentralisation.
Every year, the State’s Economic Review has a theme chapter. This year the theme chapter is on tourism in Kerala. Income from tourism constitutes about 10 per cent of the gross State Domestic Product of the State, and is an important engine of growth. Tourism creates employment, brings in incomes, and opens out cultures to the rest of the country and world. A feature of tourism is its interconnection with other spheres of development. Tourism cannot be successful without concurrent development in health, sanitation, urban and rural planning, transport, connectivity, local self-government and other spheres.

After the boom period of the 1990s and early 2000s, the rate of growth in tourism arrivals declined in Kerala. Demonetisation, too, dealt a blow to tourism in the 2016-17 season. The Committee to Study the Impact of Demonetisation on the State Economy of Kerala appointed by the Kerala State Planning Board noted in its Interim Report that as “news of the serpentine queues at money exchange counters in airports and outside and the limits on the amount of Indian currency that can be obtained in exchange for foreign currency spread, cancellations rose and tourist arrivals fell. The cash shortage affected domestic tourist arrivals as well. As per quick estimates from the Department of Tourism, Kerala, relative to the corresponding month of the previous year, domestic tourist arrivals fell by 17.7 per cent in November 2016 and foreign tourist arrivals by 8.7 per cent. The corresponding figures for October 2016 were a positive 5.2 per cent and 6 per cent respectively.”

Nevertheless, tourism in the State has continued and promising potential. There is potential in the traditional locations in Kochi, south of Kochi and in the highlands. There is the steady and unabated growth of pilgrimage arrivals, and there is the vast and relatively unexploited tourist potential of the northern parts of the State.

Tourism development requires technical expertise and all-round planning. It must cater to all sections of tourists. It must be responsible tourism, and sensitive to carrying capacity and the needs of the State’s environment and people. This is a task in which we certainly can succeed.

The Economic Review includes, as it does every year, the most recent data on government policies, Plan priorities, and on-going programmes of Government departments. It provides a snapshot of economy’s performance over the 12th Five-Year Plan period. The Review is in two volumes. Volume I covers the policies, programmes and achievements of Government departments over the preceding year and Volume II provides the corresponding datasets. Economic Review 2016 is published in English and Malayalam. An e-version is uploaded at the State Planning Board website: www.spb.kerala.gov.in.

Thiruvananthapuram
February 19, 2017
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|--------|-------------------------------|-------|---------|---------|---------|---------|---------|---------|---------|
| 1      | Geographical Area            | '000Sq.Km. | 38856.7 | 38864   | 38863   | 38863   | 38863   | 38863   |
| 2      | Revenue Divisions            | No.   | 9       | 10      | 12      | 14      | 14      | 14      |
| 3      | Districts                    | -do   | 56      | 58      | 61      | 63      | 63      | 75      |
| 4      | Taluks                        | -do   | 1326    | 1331    | 1364    | 1452    | 1532    | 1664    |
| 5      | Villages                      | -do   | 92      | 88      | 106     | 197     | 159     | 520     |
| 6      | Towns                         | -do   | 1326    | 1331    | 1364    | 1452    | 1532    | 1664    |
| 8      | Total Population              | (in 000s) | 13549.1 | 16903.72| 21347.38| 25453.68| 29098.51| 31843.8 |
| 9      | Males                         | -do   | 8361.93 | 10587.85| 12608.74| 14288.99| 15468.61| 16027.41|
| 10     | Females                       | -do   | 14351   | 17880   | 20682.4 | 21618   | 23574.45| 17471   |
| 11     | Rural                         | -do   | 17880   | 20682.4 | 21618   | 23574.45| 17471   |
| 12     | Urban                         | -do   | 2552    | 3467    | 4771.3  | 7018    | 8266.93 | 15935   |
| 13     | Scheduled Castes              | -do   | 1422    | 2002    | 2549    | 2886.52 | 3125.94 | 3040    |
| 14     | Density of Population         | PerSq.Km. | 435     | 549     | 655     | 749     | 819     | 860     |
| 15     | Literacy Rate Percentage      | Percentage | 55.08  | 60.42   | 70.42   | 89.81   | 90.9    | 94      |
| 16     | Sex Ratio                     | Females per 1000 males | 1022 | 1016 | 1032 | 1036 | 1058 | 1084 |
| 17     | Urban Population Percentage   | Percentage | 15.1  | 16.24  | 18.74  | 24.11  | 26     | 47.7    |
| 18     | GSDP at constant prices       | Rs.Crore | 462    | 1255   | 3823   | 12195   | 63715   | 180812  | 467243.13 |
| 19     | Primary Sector                | -do   | 241    | 652.6   | 1682.12 | 4756.05 | 14017.3 | 15966   | 49206.31 |
| 20     | Secondary Sector              | -do   | 68     | 163.15  | 841.06  | 3170.7  | 14017.3 | 38249   | 111177.23 |

KERALA – A QUICK LOOK
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<td>Gross Irrigated Area to Gross Cropped Area Percentage</td>
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<td>Sugarcane Harvested Area</td>
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<td>Employees per lakh population</td>
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# allpathi and ayush included
*Base year 2011-12
** excludes LSGD non pucca roads
## DISTRICTS AT A GLANCE

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

Economic Review 2016
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MACRO ECONOMIC PROFILE
The year 2016-17 was a year which witnessed several economic upheavals and changes. Global uncertainties have increased with Brexit and newly formed US regime. Similarly on the national front demonitisation has shaken the economy and slowed down the short term growth trend. The growth prospects of the State have been affected by several forces. The State is moving ahead with the thirteenth plan at a time when five year plans have been done away with and focusing on revamping agriculture and traditional industries. Over the years, the fiscal space of State government has also seen lot of transformations. These transformations and changes will shape the policies in the coming years.

Section 1
POPULATION

As per the final data published by the Directorate of Census, Kerala’s population as on March 2011 was 33,406,061. Out of this 16,027,412 (48 per cent) were men and 17,378,649 (52 per cent) were women.

The decadal growth rate of Kerala’s population is estimated at 4.9 per cent, the lowest among Indian States, whereas the national rate of growth of population during the last ten years is 17.6 per cent (Figure 1.1). The population growth trend shows that Kerala is moving towards zero population growth or even negative population growth. Among all the districts, Malappuram has the highest growth rate of 13.4 per cent, and Pathanamthitta has the lowest growth rate (-3.0 per cent). Idukki also has a negative growth rate (-1.8 per cent). The growth rate of population is lowest in the 6 southern districts (Idukki, Kottayam, Alappuzha, Kollam, Pathanamthitta and Thiruvananthapuram).

Kerala’s total child population (0-6 years) in 2011 was 3,472,955 compared to 3,793,146 in 2001. That is, Census data reveal a negative growth rate of child population in the state (-8.44 per cent). The percentage of child population in total population also shows a declining trend in Kerala. The child population represented 10 per cent of the total population in 2011 while it was 12 per cent as per 2001 census. Figure 1.2 shows district-wise percentage of child population in Kerala in
2001 and 2011. The highest proportion of child population was in Malappuram district and lowest was in Pathanamthitta. The proportion of child population in the State decreased in all the districts between 2001 and 2011. All the southern districts show a 2 per cent decline except Kollam, which had a decline of 1 per cent in the proportion of child population. All the northern districts show a 1 per cent decline in the proportion of child population except Wayanad, which had a decline

**Figure 1.1**
Decadal Growth of Population in India and Kerala 1901-2011, in per cent

![Decadal Growth of Population in India and Kerala 1901-2011, in per cent](source: Census of India 2011)

**Figure 1.2**
Percentage of child population in total population in Kerala, in per cent

![Percentage of child population in total population in Kerala, in per cent](source: Census 2001, 2011)
of 2 per cent. It shows that new addition to population in northern districts is faster than in the southern districts. Details are in Appendix 1.1.

**Literacy**

Kerala has the highest effective literacy rate of 94 per cent among Indian states as per 2011 census. It was 90 per cent during 2001 census. Kottayam tops in the literacy chart with 97.2 per cent and Pathanamthitta is just behind with 96.5 per cent. Wayanad has the lowest literacy rate of 89 per cent and Palakkad is just above with 89.3 per cent. Even the lowest literacy rate of Wayanad (89) is higher than national literacy rate (72 per cent). The difference between the lowest and the highest value is just 8.2. As compared to 2001, literacy rate of all the districts has improved. Details are in Appendix 1.2.

**Sex Ratio**

The sex ratio (number of females per thousand males) of Kerala according to Census 2011 is 1084 and has improved by 26 points from 2001. The sex ratio of India is 943 in 2011. Among the districts, Kannur has the highest sex ratio (1136) followed by Pathanamthitta (1132). While Idukki has the lowest sex ratio (1006), Ernakulam is just above with 1027. All districts have index above 1000. In 2001, only Wayanad had the index score below 1000 (994). The difference between the lowest (Idukki, 1006) and highest (Kannur, 1136) is 130 points. Details are in Appendix 1.1.

**Child Sex Ratio (0-6 Years)**

Child sex ratio in Kerala is 964 as per the 2011 census. It was 960 in 2001. Pathanamthitta has the highest ratio (976) followed by Kollam (973) and Kannur (971). While, Thrissur has the lowest score of 950, and Alappuzha is just above with a ratio of 951. All the districts have the ratio below 1000. When analysing the decadal change, the highest gain is for Kollam (13) followed by Kozhikode with a score of 10. All other districts have the score below 10 points. Thrissur (-8), Idukki (-5) and Alappuzha (-5) have negative decadal change in sex ratio. Details are in Appendix 1.1.

**Density of Population**

As per 2011 census, the density of population in Kerala is 860 persons/sq.km. It is much higher than the all India level of 382. Thiruvananthapuram is the most densely populated district (1508), while Idukki is the least densely populated district (255). Density of population has increased in all districts compared to 2001 census except for Pathanamthitta (-16) and Idukki (-4). Details are in Appendix 1.2.

**District-wise distribution of population**

District wise distribution of population in Kerala during the last four census indicates that Malappuram district has the largest share of population (12.3 per cent) followed by Thiruvananthapuram (9.9 per cent) and Ernakulam (9.8 per cent). Thrissur and Kozhikode follow with 9 per cent. Wayanad continues to be home to the smallest share of population (2.4 per cent) while Idukki, Kasargode and Pathanamthitta have a low share of 3-4 per cent. It is evident that for the last 40 years (from 1981 to 2011), there is no major change in the distribution of population across districts. Details are in Appendix 1.2.

**Age Group Distribution**

The analysis of the age group distribution of population shows that the proportion of population in the age group of (0-14 years) declined from 43 per cent in 1961 to 23 per cent in 2011. In the case of the working age group (15-59 years), the proportion is increasing at a declining rate. Due to increasing life expectancy and availability of health facilities, the proportion of population in the old age group (60 years and above) increased from 6 per cent in 1961 to 13 per cent in 2011 (Figure 1.3).
The increasing trend of population in the working age group (15-59) is favourable for the economy. However, the declining trend in the age group of 0-14 (the feeder category) is a matter of concern. Similarly, increase in the number in the age group of 60 and above puts pressure on the State to provide adequate social security measures.

### Section 2

**URBANISATION IN KERALA**

In India, out of the total population of 1210.2 million, about 377.1 million are in urban areas as on March 1, 2011. Further the number of million plus cities/urban agglomerations (UA) increased from 35 in Census 2001 to 53 in Census 2011. By 2031, it is projected that there will be 6 cities with more than 10 million population. As current rates of growth, urban population in India will reach a staggering total of 575 million by 2030. In recent years, the urban sector in India has undergone a major change following the country’s transition towards a market-based economy.

The urban sector of Kerala consists of 6 municipal corporations and 87 municipalities. The State has a population of 33,387,677 people according to 2011 Census as against the 31,838,619 of 2001. The urban populace of Kerala has registered a huge growth over the last decade as the number of towns in the State increased three times. Urbanisation, as measured by the share of urban population of the State, has shown a sharp increase from 25.96 per cent in 2001 to 47.72 per cent in 2011. Corresponding levels for India were 25.52 per cent in 2001 and 31.16 per cent in 2011. Kerala, positioned 19th in terms of the level of urbanisation among the States of India as per the 2001 Census, was ranked 9th in 2011. Ernakulam (68.1 per cent) is the most urbanised district of Kerala and Wayanad (3.9 per cent) the least urbanised. A shift in the pace of urbanisation is noted between south and north of Kerala. Malappuram district shows the highest increase in urban population within a decade (2001-2011), followed by Kozhikode district. Details of urban and rural population in Kerala are given in Appendix 1.3.
Urbanisation in Kerala shows marked peculiarities. Generally, increase in urban population growth rate is the result of over-concentration in the existing cities, especially in the million-plus urban agglomerations. However, in Kerala, the main reason for urban population growth is the increase in the number of urban areas as well as urbanisation of the peripheral areas of existing major urban centers. Kerala is very unique in settlement pattern also. In most of its parts, it is a continuous spread of habitation without much open lands or fields separating habitations. So the settlement pattern itself gives an image of urbanisation. Moreover, the infrastructural facilities available to the population in general do not vary much between rural and urban, especially in the case of access to educational and health care facilities.

The spatial distribution of urban areas within the State shows that urban areas are concentrated in coastal and midland regions. The midland and high land regions are being subjected to urbanisation at an increased pace. As per present urbanisation pattern of Kerala, fertile agricultural lands in the midland region are being converted for non agricultural purposes.

### Section 3

**NATIONAL INCOME**

The Gross National Income (GNI) of India, at 2011-12 prices, is estimated at ₹11,213,328 crore during 2015-16, as against the previous year's estimate of ₹10,427,701 crore (Table 1.1). The gross national income is estimated to have risen by 7.5 per cent during 2015-16, in comparison to

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Item at factor cost</th>
<th>At 2011-12 Prices</th>
<th>At Current Prices</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gross National Income (GNI)</td>
<td>9717062</td>
<td>10427701 (7.3)</td>
</tr>
<tr>
<td>2</td>
<td>Net National Income (NNI)</td>
<td>8615309</td>
<td>9235026 (7.2)</td>
</tr>
<tr>
<td>3</td>
<td>Gross domestic product (GDP)</td>
<td>9839434</td>
<td>10552151 (7.2)</td>
</tr>
<tr>
<td>4</td>
<td>Net domestic product (NDP)</td>
<td>8737681</td>
<td>9359476 (7.1)</td>
</tr>
<tr>
<td>5</td>
<td>Per capita Gross domes- tic product (₹)</td>
<td>78653</td>
<td>83285 (5.9)</td>
</tr>
<tr>
<td>6</td>
<td>Per capita Net domestic product (₹)</td>
<td>69846</td>
<td>73871 (5.7)</td>
</tr>
</tbody>
</table>

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

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the growth rate of 7.3 per cent in 2014-15. GNI at current prices is estimated at ₹13,418,745 crore during 2015-16, as compared to ₹12,340,772 crore during 2014-15 showing a rise of 8.7 per cent. The Net National Income (NNI) at current prices is estimated at ₹11,969,428 crore during 2015-16, as compared to ₹11,007,592 crore during 2014-15, showing a growth rate of 8.7 per cent. Details are given in Table 1.1.

GDP at constant (2011-12) prices in the year 2015-16 is estimated at ₹11,350,249 crore showing a growth rate of 7.6 per cent over the estimates of GDP for the year 2014-15 (₹10,552,151 crore). GDP at current prices in the year 2015-16 is estimated at ₹13,576,086 crore showing a growth rate of 8.7 per cent over the estimates of GDP for the year 2014-15 (₹12,488,205 crore). The per capita GDP in real terms (at 2011-12 prices) during 2015-16 is estimated at ₹88,466 as against ₹83,285 in 2014-15, registering an increase of over 6.2 per cent. The per capita GDP in real terms at current prices is estimated at ₹105,815 in 2015-16 as against ₹98,565 for the previous year depicting a growth of 7.4 per cent.

The details of GDP, NDP, GNI and NNI at current and constant (2011-12) prices from 2012-13 to 2015-16 with percentage change over previous year are given in Appendices 1.4, 1.5, 1.6 and 1.7. The sectoral distribution of GDP at constant (2011-12) prices and current prices with percentage change over previous year is given in Appendix 1.8 and Appendix 1.9.

STATE INCOME

The Ministry of Statistics and Programme Implementation has released the new series of national accounts. There are some conceptual differences between the key aggregates of national accounts published till 2014-15 at 2004-05 base year prices and 2011-12 base year prices being published now. The new series follows system of National Accounts (2008) Standards to a large extent. GDP at factor cost has been replaced by Gross Value Added (GVA) at basic prices and GDP at market prices is now termed GDP (Box 1.1).

The quick estimate of Gross State Domestic Product (GSDP) at constant (2011-12) prices is ₹46,724,313 lakhs during 2015-16 as against the provisional estimate of ₹43,223,674 lakhs during 2014-15. GSDP registered a growth rate of 8.10 per cent in 2015-16 compared to 7.31 per cent in 2013-14 (Figure 1.4). At current prices, the GSDP is estimated at ₹58,833,659 lakhs (quick estimate) during 2015-16 as against the provisional estimate of ₹52,600,230 lakhs during 2014-15 showing a growth rate of 11.85 per cent.

Figure 1.4
Growth Rate of GSDP at Constant (2011-12) Prices, Kerala, in per cent

Source: Department of Economics and Statistics

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Box 1.1
Base Year Change in the Computation of Gross State Domestic Product

Base year has been revised in the computation of national accounts statistics from 2004-05 to 2011-12. Some concepts have also undergone changes following the adoption of System of National Accounts (2008). Gross Domestic Product (GDP) at constant market prices will henceforth be known as GDP and Gross Value Added at basic prices will replace GDP at factor cost. The relation between the two is: GVA at basic prices = GDP at factor cost + production taxes less production subsidies. GDP and GVA at basic prices bear the following relationship: GDP = GVA at basic prices + product taxes - product subsidies.

Production taxes or production subsidies are paid or received with relation to production and are independent of the volume of actual production. Some examples of production taxes are land revenues, stamps and registration fees and tax on profession. Some production subsidies are subsidies to Railways, input subsidies to farmers, subsidies to village and small industries, and administrative subsidies to corporations or cooperatives. Product taxes or subsidies are paid or received on per unit of product. Some examples of product taxes are excise tax, sales tax, service tax and import and export duties. Product subsidies include food, petroleum and fertilizer subsidies, interest subsidies given to farmers, and households through banks, and subsidies for providing insurance to households at lower rates.

Comprehensive coverage of the corporate sector in manufacturing, services and the financial sector by inclusion of information from the accounts of stock brokers, stock exchanges, asset management companies, mutual funds and pension funds, and the regulatory bodies has led to changes in the estimates of GVA both at aggregate and sectoral levels.

The quick estimate of Net State Domestic Product (NSDP) at factor cost at constant prices (2011-12) is ₹ 42,613,173 lakhs during 2015-16 compared to the provisional estimate of ₹ 39,370,155 lakhs during 2014-15, recording a growth rate of 8.24 per cent in 2015-16. At current prices the NSDP is estimated at ₹ 53,112,606 lakhs (quick estimate) in 2015-16 compared to the provisional estimate of ₹ 47,304,466 lakhs during 2014-15. The growth rate of NSDP at current prices is 12.28 per cent in 2015-16 compared to 13.37 per cent in 2014-15 (Table 1.2).

Per Capita State Income

As per the quick estimates, the per capita GSDP at constant (2011-12) prices in 2015-16 was ₹ 136,811 as against provisional estimate of ₹ 127,187 in 2014-15, recording a growth rate of 7.57 per cent in 2015-16. At current prices, the per capita GSDP in 2015-16 was ₹ 172,268 registering a growth rate of 11.30 per cent over the previous year’s estimate of ₹ 154,778. The best indicator of per capita state income is NSDP divided by the population. At constant (2011-12) prices, the quick estimates of per capita Net State Domestic Product in 2015-16 was ₹ 124,773 as against provisional estimate of ₹ 115,848 in 2014-15, recording a growth rate of 7.70 per cent in 2015-16. Figure 1.5 shows that during the period 2012-13 to 2015-16, the per capita state income at constant prices was higher than the per capita national income.

Sectoral Distribution of Gross State Value Added (GSVA)

During 2015-16, the contribution from primary, secondary and tertiary sectors to the GSVA at constant prices (2011-12) was 11.58 per cent, 26.17 per cent and 62.24 per cent respectively. At current prices, the primary, secondary and tertiary sectors contributed 12.07 per cent, 24.27 per cent and 63.66 per cent respectively to the GSVA during this period (Figure 1.6).
Table 1.2
State Domestic Product and Per Capita Income of Kerala, ₹ in lakh and per cent

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Item</th>
<th>Income (₹ Lakhs)</th>
<th>Growth Rate (Per cent)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2013-14</td>
<td>2014-15 (P)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2014-15</td>
<td>2015-16 (P)</td>
</tr>
<tr>
<td>1</td>
<td>Gross State Domestic Product</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) At Constant (2011-12) prices</td>
<td>40278133</td>
<td>43223674</td>
</tr>
<tr>
<td></td>
<td>b) At Current prices</td>
<td>46504121</td>
<td>52600230</td>
</tr>
<tr>
<td>2</td>
<td>Net State Domestic Product</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) At Constant (2011-12) prices</td>
<td>36470677</td>
<td>39370155</td>
</tr>
<tr>
<td></td>
<td>b) At Current prices</td>
<td>41726497</td>
<td>47304466</td>
</tr>
<tr>
<td>3</td>
<td>Per Capita GSDP (₹)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) At Constant (2011-12) Prices</td>
<td>119105</td>
<td>127187</td>
</tr>
<tr>
<td></td>
<td>b) At Current Prices</td>
<td>137515</td>
<td>154778</td>
</tr>
<tr>
<td>4</td>
<td>Per Capita NSDP (₹)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) At Constant (2011-12) Prices</td>
<td>107846</td>
<td>115848</td>
</tr>
<tr>
<td></td>
<td>b) At Current Prices</td>
<td>123388</td>
<td>139195</td>
</tr>
</tbody>
</table>

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

Figure 1.5
Per Capita State Income at Constant Prices, in ₹

Source: Central Statistics Office and Department of Economics and Statistics
Figure 1.6
Sectoral Distribution of GSVA 2015-16 at Basic Prices, in per cent

In 2015-16, at current prices, the contribution to GSVA of the tertiary sector increased to 63.66 per cent from 61.53 per cent in 2014-15. The contribution from primary and secondary sector declined from 13.45 per cent to 12.07 per cent in the primary sector, and from 25.02 per cent to 24.27 per cent in the secondary sector during the corresponding period. The analysis of annual sectoral growth rate of GSDP shows that the tertiary sector recorded the highest rate of growth 8.78 per cent in 2015-16 at constant (2011-12) prices compared to 8.32 per cent in 2014-15 followed by secondary sector (8.58 per cent). The primary sector recorded a negative growth rate of -2.08 per cent. Negative growth in agriculture was because of the decrease in production of some of the cash crops, and in fishing and aquaculture and forestry and logging.

The details of sectoral distribution of GSDP with percentage share during the last three years is given in Appendices 1.10, 1.11 and 1.12 and the details of GSDP, NSDP at constant and current prices during 2011-12 to 2015-16 are given at Appendices 1.13,1.14,1.15 and 1.16.

At current prices, the tertiary sector recorded a growth rate of 14.94 per cent, secondary sector 7.73 per cent and primary sector 0.37 per cent in 2015-16 compared to the previous year. The driving force of growth in the tertiary sector is growth in the transport, storage, communication and service-related broadcasting, real estate, ownership of dwelling and professional services.

District-wise Gross State Domestic Product

District-wise distribution of GSVA at current prices shows that Ernakulam district continues to have the highest income of ₹6,811,532 lakhs in 2015-16 as against ₹6,042,283 lakhs in 2014-15 registering a growth rate of 12.73 per cent. At constant (2011-12) prices, this amounts to ₹5,489,638 lakhs during 2015-16 compared to ₹5,061,012 lakhs during 2014-15. The district-wise GSVA details are given in Table 1.3.

District-wise Per Capita Income

The analysis of district wise per capita income shows that Ernakulam district continues to stands first with the per capita income of ₹ 146,518 at constant (2011-12) prices in 2015-16 as against ₹ 135,817 in 2014-15. The district wise per capita income with corresponding rank and growth rate is given in Table 1.4.
### Table 1.3
District-wise Distribution of Gross State Value Added, ₹ in lakh

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>District Name</th>
<th>Gross State Value Added at Basic Price</th>
<th>2014-15 (P)</th>
<th>2015-16 (Q)</th>
<th>Growth Rate (per cent)</th>
<th>2014-15 (P)</th>
<th>2015-16 (Q)</th>
<th>Growth Rate (per cent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Thiruvananthapuram</td>
<td>4856255</td>
<td>5527866</td>
<td>13.83</td>
<td>3980052</td>
<td>4379870</td>
<td>10.05</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Kollam</td>
<td>4447889</td>
<td>4833817</td>
<td>8.68</td>
<td>3635333</td>
<td>3816002</td>
<td>4.97</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Pathanamthitta</td>
<td>1388104</td>
<td>1484563</td>
<td>6.95</td>
<td>1151854</td>
<td>1192745</td>
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<td><strong>42479111</strong></td>
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</table>

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

### Table 1.4
District-wise per capita income at basic price- constant (2011-12) prices, in ₹ and per cent

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>District</th>
<th>2014-15 (P) ₹</th>
<th>Rank</th>
<th>2015-16 (Q) ₹</th>
<th>Rank</th>
<th>Growth Rate (per cent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Thiruvananthapuram</td>
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</tr>
<tr>
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<td>2</td>
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<td>2</td>
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</tr>
<tr>
<td>3</td>
<td>Pathanamthitta</td>
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<tr>
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<td>Alappuzha</td>
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<tr>
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<tr>
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<tr>
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<td></td>
<td><strong>112343</strong></td>
<td></td>
<td><strong>6.89</strong></td>
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</tbody>
</table>

Source: Department of Economics and Statistics  P: Provisional Estimate  Q: Quick Estimate
Table 1.4 reveals that Thiruvananthapuram, Kasaragod, Thrissur, Ernakulam, Kannur and Palakkad districts had a higher-than-average growth rate in per capita income in 2015-16. However, Pathanamthitta, Idukki, Kollam, Kottayam and Wayanad districts showed lower-than-average growth in per capita income.

Section 4
POVERTY

Historically, Kerala has followed a developmental path different from that followed by other Indian States. Rate of poverty in Kerala is low compared to other Indian States and the all India figures. According to the official figures, absolute poverty rate in Kerala is lower than 12 per cent in 2011-12 and has shown a sharp reduction over the last forty years. The success of Kerala in poverty reduction is reflected in the sharp reduction in the proportion of poor. The incidence of poverty in Kerala was 59.74 per cent in 1973-74 which reduced to 11.3 per cent in 2011-12. In India, the rate 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 an extensive improvement in reducing the incidence of both rural and urban poverty. In Kerala, from 1973-74 to 2011-12, rural and urban poverty ratio 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. In Kerala, factors such as land reforms, spread of education and health care, decentralisation, pension schemes, public distribution system, Kudumbashree and Plan schemes have all played an effective role in reducing the poverty ratios. The absolute poverty rate (as per the Rangarajan report) in Kerala and India from 1973-74 to 2011-12 are given in Figure 1.7 and Appendix 1.23.1

Yet, there continue to be several pockets of deprivation in the State. Poverty in Kerala is

Figure 1.7
Proportion of Poor in India and in Kerala, 1973-74 to 2011-12, in per cent

Source: Planning Commission, GoI, 2014

mainly concentrated in some social categories and groups, such as scheduled castes, scheduled tribes, fishing communities, potters and artisans. The Scheduled Caste Development Department, Scheduled Tribes Development Department and Fisheries Department are implementing several poverty reduction/livelihood programmes for the upliftment of the people in these communities.

**Socio Economic and Caste Census (SECC), 2011**

India has a long history of studies for the measurement of poverty. The methodology for the estimation of poverty is based on the recommendations made by various expert groups. The previous poverty estimates provide only the details about the per centage of the poor population in each State, Union Territories (UTs) and in all India average. However, these estimates cannot be used for the identification of individual poor.

The Socio-Economic and Caste Census (SECC), 2011 was an exercise conducted by Government of India to identify households living below the poverty line in India. SECC estimates a deprivation index based on the following seven criteria.

1. Only one room with kucha walls and kucha roof
2. No adult member between age 16 to 59
3. Female headed households with no adult male member between age 16 to 59
4. Disabled member and no able bodied adult member
5. SC/ST households
6. No literate adult above 25 years
7. Landless households deriving major part of their income from manual casual labour

According to the SECC (2011) data, out of the 76.99 lakh households in Kerala, 63.19 lakh households (82.08 per cent) live in rural areas. Of these, 10.32 per cent are Scheduled Caste households and 1.63 per cent was Scheduled Tribe households. Out of the total rural households, 19.16 lakh (30.33 per cent) rural households are deprived. The highest deprivation rate was recorded in Palakkad (42.33 per cent) followed by Thrissur (38.36 per cent) and Wayanad (36.33 per cent). The lowest deprivation was recorded in Ernakulam (20.30 per cent), Kottayam (23.02 per cent) and Kannur (24.25 per cent). Out of the total rural SC and ST households, 57.66 per cent of Scheduled Caste households and 61.68 per cent of Scheduled Tribe households are included under deprived categories. District-wise details about the percentage of deprived rural households in Kerala against their total number of rural households across different categories are given in Appendix 1.24.

When different indicator-wise deprivation rates among the rural households are considered, 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 the indicator ‘SC/ST household’ (7.11 per cent) and the indicator ‘female headed households’ (3.65 per cent). The lowest deprivation was recorded in the indicator ‘disabled member and no able bodied adult member’ (0.19 per cent) followed by ‘no literate adult above 25 years’ (1.81 per cent). District-wise details about the percentage of deprived rural households based on different deprivation indices are given in Appendix 1.25 and the percentage of deprived rural households in Kerala and India based on different deprivation indices are given in Figure 1.8.

As per the land ownership indicator, 72.50 per cent of the rural households in Kerala are landless whereas in India it is only 56.41 per cent. In Kerala, the percentage of landless rural households was highest in Thrissur (87.39 per cent) followed by Alappuzha (87.19 per cent) and the lowest percentage is in Kasaragod district (49.13 per cent).

There may be a definitional reason why the SECC data shows high landlessness in Kerala, despite its history of land reforms. The SECC did not consider homestead land owned by households when assessing landownership status of a household. As a result, the SECC data may have failed to capture those landless households.
who received homestead land as part of the land redistribution programmes in Kerala. This would also include beneficiaries who received crop land, including garden land, on which they later built homes, thus converting their plots into homestead land.

According to the SECC, the main breadwinner of the 70.75 per cent of the rural households in Kerala earned less than ₹ 5000 per month, while in India the corresponding share was 74.50 per cent. This ratio was highest in Wayanad (79.67 per cent), followed by Malappuram (75.55 per cent) and Palakkad (74.38 per cent) districts. The ratio was lowest in Ernakulam (64.37 per cent), followed by Kottayam (64.46 per cent) and Pathanamthitta (64.66 per cent) districts.

As the most important source of household income, 50.61 per cent and 10.26 per cent of the rural households in Kerala were, respectively, dependent on manual casual labour and cultivation. In India, the corresponding shares were 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 was in Malappuram (65.05 per cent) and lowest rate was in Pathanamthitta (31.71 per cent). In the case of cultivation, the highest rate was in Idukki (32.49 per cent) and lowest rate was in Alappuzha (4.86 per cent).

Various schemes on poverty reduction have been dealt with in other chapters of this Review. Even though Kerala has made considerable progress in eradicating poverty, there are still several pockets of deprivation in the State, especially among tribal population and fishermen communities. Greater central assistance and appropriate livelihood programmes in these areas are required to ensure that the State can eliminate absolute poverty throughout the State.
Commodity prices are a major determining factor of economic activities in India. Price fluctuation of essential commodities influences pattern of consumption of individuals as well as society. In the global market, commodity prices continued to decline because of weak demand and ample supplies. Energy prices dropped around 45 per cent in 2015-16 due to continuing supply surpluses. The official Wholesale Price Index (WPI) of India for ‘All commodities’ (Base: 2004-05=100) for the month of October, 2016 rose by 0.1 per cent to 182.9 (provisional) from 182.8 (provisional) for the previous month. The annual rate of inflation, based on monthly WPI, stood at 3.39 per cent (provisional) for the month of October 2016 (over October, 2015) as compared to 3.57 per cent (provisional) for the previous month and -3.70 per cent during the corresponding month of the previous year. Inflation rate in the financial year was 4.34 per cent compared to 0.45 per cent in the corresponding period of the previous year. The average headline inflation measured in terms of Wholesale Price Index (WPI) declined from 6.0 per cent in 2013-14 to 2.0 per cent in 2014-15 and further to -3.0 per cent in 2015-16 (Apr-Dec) and reached -0.7 per cent in December 2015. Similarly, inflation measured in terms of Consumer Price Index (New Series) moderated to 4.8 per cent in 2015-16 (Apr-Dec) as compared to 5.9 per cent in 2014-15 and stood at 5.6 per cent in December 2015. WPI Food inflation which remained high at 9.4 per cent in 2013-14 moderated to 4.9 per cent in 2014-15. It stood at 1.9 per cent in 2015-16 (Apr-Dec) and recorded 6.2 per cent in December 2015.

Inflation based on Consumer Price Index, which remained sticky around 9-10 per cent during 2012-14, moderated to 5.9 per cent in 2014-15 and further to 4.6 per cent in 2015-16 (Apr-Oct). The decline in consumer inflation although broad-based was mainly driven by consistent moderation in food and housing. Inflation based on consumer food price index (CFPI) declined to an all time low of 2.7 per cent in second quarter of 2015-16 mainly on account of huge fall in the prices of cereals, which comprise the highest share (24.8 per cent) within the consumer food basket and vegetables. CPI core inflation (non-food non-fuel) continued to move within a narrow range in the last four quarters.

As far as Primary Articles are concerned, the index declined by 0.8 per cent to 261.8 from 263.9 for the September 2016, especially for food articles like urad, fruits and vegetables, arhar, and bajra. The rate for Non-food Articles also declined by 3.1 per cent to 223.2 from 230.3 for September 2016 due to lower price of soybean, groundnut seed and flowers, raw cotton.

**THE KERALA SCENARIO**

Kerala is a consumer state, most of the food and non food articles come from the neighbouring states. Price structure of the essential commodities varied according to their availability and demand. Kerala being highly dependent on external sources, price trends in the State are greatly influenced by patterns emerging in rest of the country. The intervention of the State government is restricted to the market for essential goods and services.

**Price Trends**

In Kerala, prices of food products increased in 2016. In 2011, Wholesale Price Index of rice was 4768.35 and it increased to 6344.85 in August 2016, registering a 33 per cent increase. Wholesale Price Index of fruits and vegetables also increased to 12862.92 in August 2016 from 9831.91 in August 2015. The overall Wholesale Price Index of Food
Crops increased to 8033.23 in August 2016 from 7396.62 in August 2015.

In the case of Non-food Crops, the Wholesale Price Index reduced by 19.2 per cent from 7226.53 in August 2015 to 5841.01 in August 2016. Under this category, prices of oil and oil seeds have fell by 23.8 per cent in August 2016 over the previous year. While analysing the trend in prices of all crops in Kerala, Wholesale Price Index of different crops declined to 7233.07 in August 2016 from 7394.28 in August 2015 (Appendix 1.26). Month-wise Wholesale Price Index reveals that prices of all food crops were rising every month in 2016 at moderate rates. A comprehensive picture of price trends is given in the Appendix 1.27.

Consumer Price Index (CPI) in Kerala increased considerably during 2016 over the previous years. An overview of trends in consumer price indices and the deviations in average annual inflations at different centres in Kerala reveals that price levels have been rising. In 2016, Average Consumer Price Index in Kerala was 291 against the 277 in 2015. A 5.05 per cent hike has been registered during this period. Pathanamthitta district registered a CPI of 309, the highest among the centres in 2016 and the percentage of inflation was about 4.04 compared to the previous year. Mundakayam and Kasaragod have registered second and third position of CPI at 304 and 303 respectively. However, Kannur and Kozhikode witnessed significantly higher rate of inflation in Kerala at 6.43 per cent and 6.20 per cent respectively. On the other hand, magnitude of inflation in Ernakulam district was relatively low in 2016 compared to rest of the centres in Kerala. Rate of inflation indicated in Ernakulam is only 2.9 per cent. The centre-wise details of Consumer Price Index (CPI) and its percentage variation depicted is in Appendix 1.28 and its State average shown in Figure 1.9.

The retail prices of certain commodities under groceries and vegetables have marginally increased while some others have declined in November 2016 over the previous year. The price of rice per kg has marginally increased to ₹ 35.70 in November 2016 from ₹ 33.68 over the same month of previous year. The price of red gram also increased to ₹ 78.71 per kg in November 2016 over the previous year. The inflationary trend for grocery is not much compared to the previous years. The prices of items under groceries like green gram, green gram dhal, black gram, dhal (tur) have come down from November 2015 to November 2016. In the case of fruits and vegetables, price decreased substantially in 2016 over the previous year. Monthly retail price of essential commodities in 2016 is shown in Appendix 1.29.

Figure 1.9
Percentage variation in Average Consumer Price Index of Kerala (1998-99=100), in per cent

Source: Department of Economics and Statistics, Government of Kerala
* Upto August 2016
Price Parity

In the recent years, the cost of cultivation of crops has continuously increased due to exorbitant hike in fertilizer cost and transportation cost. In this situation, farmers are suffering more as their products do not get adequate price. During 2014, the index of farm expenses (index of price paid by farmers) was 11477.67 against the index of income received by farmers at 8272.25 and the parity of index was 72.08. During 2015, income of the farmers from their produces diminished considerably to reach 7706.08. Meanwhile, the expenses of farm cultivation steeply increased in the same year. During this year, price received by farmers was estimated at 7528.17 and expenses towards the cultivation were assessed at 12826.5. It reveals increasing misery of farmers suffering from declining product prices and high cost of farm input and high wages. The Yearly Average Index of Prices received and Prices Paid by Farmers is seen in the Appendix 1.30 and Figure 1.10

Wages

Wage rate of skilled as well as unskilled workers has increased every year in Kerala. Average Daily Wage rates of Skilled Workers in the Agricultural Sector (Appendix 1.31) increased steeply in 2015-16 over the previous year. In 2013-14, the wage of a carpenter was ₹644.92 and it increased to ₹705.08 in 2014-15 and to ₹746.17 in 2015-16. In the case of Masons too, wages increased substantially since 2004-05. During 2015-16, the wage of a mason was ₹753.08 against ₹707.75 in 2014-15. The same phenomenon was seen in the case of wage rates of unskilled workers. Average Daily Wage Rates of Unskilled Workers in the agricultural sector, of both male and female workers, have increased to ₹586.06 and ₹422.19 respectively in 2015-16 as against ₹545.15 and 392.46 in 2014-15. Details of the wage structure of this category are described in Appendix 1.32.

Figure 1.10

Yearly Average Index of Prices Received and Paid by Farmers in Kerala

Source: Department of Economics and Statistics, Government of Kerala
*Upto June, 2016
The condition of State Finances in Kerala during 2011-15 was marked by fiscal mismanagement. The steady gains made in fiscal parameters during 2006-11 lost momentum in the succeeding years due to gross inefficiency in tax administration and indiscipline in expenditure. Fiscal trajectory of 2015-16 showed some improvement but was not encouraging enough for a sustainable upturn. Had the State not received higher devolution of central taxes and the post-devolution revenue deficit grant from the centre during 2015-16, the State’s fiscal consolidation path would have been murkier. Also, a considerable amount of immediate and short term liabilities were passed over to the next fiscal. Otherwise the fiscal situation of 2015-16 would have been abysmal.

Against the backdrop of the general fiscal stress at both state level and national level, the State is obliged to undertake strategic steps to return to the path of fiscal consolidation. However, a recovery from the present state of fiscal stagnation seems quite remote in the near future as State’s economy is faceted with a variety of internal and extraneous vulnerabilities. The unfolding of demonetization crisis has inflicted further stress on the State economy. The ongoing contraction in GDP growth will be worsened by the cash crunch.

This will result in reducing the revenue collection and widen revenue and fiscal deficit gaps. It is in this background that the State government has to shoulder the outlays towards the 10th pay revision commitment and mobilize resources for social and physical development of the State. This is a major concern for the fiscal health of the State government.

The rule-based frameworks imparted by the enactment of Fiscal Responsibility and Budget Management Act (FRBM) by the State intend to achieve long-term macroeconomic stability. This piece of fiscal legislation entrusts greater responsibility to states to adhere to the targets-based framework for the management of Government finances. Achievement of fiscal targets stipulated by the FRBM Act seems unattainable in the present precarious fiscal scenario. Amendment to FRBM Act for the enhancement of borrowing limit becomes unavoidable to tide over the present fiscal crunch. Management of capital and current expenditure will otherwise be a tedious task.

After 2003, Kerala had made significant achievements in the fiscal consolidation. The revenue deficit, which was 4.37 per cent of GSDP in 2002-03, came down to 1.36 per cent in 2010-11. After this period growth in States tax revenue as well as other major revenue components was not buoyant enough to facilitate revenue-led fiscal consolidation. The fiscal deficit, which represents the total resource gap, had witnessed a steady rise in the last five years. In 2015-16, revenue deficit was 1.65 per cent of GSDP against 2.78 per cent of GSDP in 2014-15. Fiscal deficit to GSDP proportion during 2015-16 was 3.04 per cent, which stood at 3.75 per cent during 2014-15.

The implementation of the Goods and Services Tax (GST) from the next fiscal would be an important tax reform. It is widely expected that being a consumer state, Kerala will benefit the most out of the introduction of the GST. The extent of GST compensation from the centre will be a determining factor in the State finances in the immediate fiscal.

The major deficit indicators of the state for the period from 2010-11 to 2016-17 (BE) is shown in Table 1.5
### Table 1.5

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<th>Year</th>
<th>Revenue Deficit</th>
<th>Fiscal Deficit</th>
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<td>Amount</td>
<td>Per cent to GSDP</td>
<td>Amount</td>
<td>Per cent to GSDP</td>
</tr>
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<td>13066.25</td>
<td>1.98</td>
<td>23139.89</td>
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</tr>
</tbody>
</table>

*Source: Finance Department, Government of Kerala*

The committed expenditure on account of salaries, pensions, and debt charges showed a considerable increase in 2015-16 also. From 2016-17 onwards, the State government is committed to bear the liability towards 10th pay revision. Due to the increase in borrowings, the burden of interest payments of the State also increased steadily. To fulfill the State government’s social commitment, it is obliged to spend more on devolution to local bodies, payments of welfare pensions and subsidies. Tax administration has to be strengthened to its optimum to tap resources to comply the State government’s obligations.

The availability of better social and physical infrastructure is the hallmark of quality of expenditure. During 2015-16, the State's share of expenditure on education and health in total expenditure is higher than General Category States. But in respect of development and social sector expenditure and capital expenditure, the State’s performance in 2015-16 was poor compared to that of General Category States.

**RECEIPTS**

State government receipts can broadly be divided into Revenue and Capital receipts. The revenue receipts comprise State’s own tax and non-tax revenues, share of central tax transfers and grants-in-aid from Government of India, whereas capital

### Table 1.6

<table>
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<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance from current Revenue (BCR)</td>
<td>-2155</td>
<td>-910</td>
<td>-4973</td>
<td>-4866</td>
<td>-6694</td>
<td>-9037</td>
<td>-2738</td>
</tr>
<tr>
<td>Interest Ratio</td>
<td>0.20</td>
<td>0.18</td>
<td>0.17</td>
<td>0.16</td>
<td>0.17</td>
<td>0.17</td>
<td>0.16</td>
</tr>
<tr>
<td>Capital Outlay/ Capital receipts</td>
<td>0.26</td>
<td>0.43</td>
<td>0.31</td>
<td>0.29</td>
<td>0.25</td>
<td>0.23</td>
<td>0.46</td>
</tr>
<tr>
<td>Return of Investment ratio</td>
<td>0.008</td>
<td>0.020</td>
<td>0.016</td>
<td>0.016</td>
<td>0.018</td>
<td>0.012</td>
<td>0.013</td>
</tr>
<tr>
<td>Outstanding Guarantees (including interest) / Revenue Receipts</td>
<td>0.29</td>
<td>0.24</td>
<td>0.22</td>
<td>0.22</td>
<td>0.20</td>
<td>0.19</td>
<td>0.18</td>
</tr>
<tr>
<td>Assets/ Liabilities</td>
<td>0.40</td>
<td>0.40</td>
<td>0.40</td>
<td>0.40</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

*Source: Finance Department, Government of Kerala*

NA : Not Available
Receipts mostly consist of disinvestment receipts, recoveries of loans and advances, debt receipts from internal resources and loans and advances from Government of India and net accretions under public account.

Revenue Receipts

The revenue receipts of the State in proportion to GSDP increased marginally to 11.79 per cent in 2015-16 from 11.66 per cent in 2014-15. Growth rate of revenue receipts also showed an upward trend of 19.12 per cent in 2015-16 against 17.84 per cent in 2014-15. The trend in Revenue Receipts from 2010-11 to 2016-17 (BE) is given in Figure 1.11.

State's own taxes are the main source of revenue receipts of the State. In 2015-16, contribution from State’s own taxes was ₹38,995.15 crore, which constitutes 56.49 per cent of the total revenue collection. Contributions from the share of central taxes and grants were ₹21,612.02 crore and State’s own non-tax revenue was ₹8,425.49 crore. The details of Revenue Receipts from 2010-11 to 2016-17 BE is given in Appendix 1.33.

State’s Own Tax Revenue (SOTR)

The main sources of State’s Own Tax Revenue (SOTR) are Sales Tax including Value Added Tax (VAT), Stamps and Registration fees, State Excise Duties, Motor Vehicle Tax and Land Revenue. The State’s Own Tax Revenue showed a declining trend from 2011-12 to 2013-14 and from 2014-15 onwards it showed a slight upward trend. The receipts from State’s Own Tax Revenue showed a marginal increase in 2015-16 (₹38995.15 crore) against 2014-15 (₹35232.50 crore) registering a growth of 10.68 per cent. Of the SOTR, the major share was from Sales Tax including VAT. In 2015-16, receipts from Sales Tax and VAT contributed ₹30736.78 crore which was 78.82 per cent of the total SOTR, followed by 7.38 per cent from Stamp duties and registration fees (₹2877.73 crore), 7.22 per cent from Taxes on Vehicles (₹2814.31 crore), 5.04 per cent from State Excise Duties (₹1964.16 crore) and 0.46 per cent from Land Revenue (₹182.29 crore).

The receipts from Sales tax including VAT showed 10.13 per cent growth in 2015-16 over the previous year. The receipts from Motor vehicle taxes, Stamp

Figure 1.11

Trends in Revenue Receipts, Kerala, ₹ in crore

Source: Finance Department, Government of Kerala
duties and registration fees, State Excise duties and Land revenue recorded a growth of 19, 8.2, 10.51 and 31.12 per cent respectively in 2015-16. The details of State’s Own Tax Revenue from 2010-11 to 2016-17 (BE) is given in Appendix 1.34.

State’s Own Non-Tax Revenue (SONTR)

Receipts under State Lotteries have been the major source of non-tax revenue of the State for last five years. Other main sources of State’s own Non-Tax Revenue (SONTR) are receipts from Interest, Dividend receipts and receipts from various social developmental services and sale proceeds of forest produces.

Receipts from SONTR registered perceptible increase during the last five years. In 2014-15, ₹7283.69 crore was realized as SONTR, recording growth of 30.65 per cent over 2013-14 (₹5575.03). In 2015-16, growth rate showed a downward trend of 15.68 per cent over 2014-15. In 2015-16, receipts from State Lotteries came to ₹. 6271.41 crore recording a growth rate of 15.18 per cent compared to 2014-15 (₹5444.88 crore). This constitutes 74.43 per cent of the total non tax revenue of the State. This was followed by ₹772.33 crore from Social Development Services (9.17 per cent) and ₹283.04 crore from Forest revenue (3.6 per cent). In 2015-16, receipts from debt services was ₹105.03 crore. The details of State's Own Non-Tax Revenue from 2010-11 to 2016-17 (BE) is given in Appendix 1.35.

Central Transfers

Central Transfers comprises of share in central taxes and grants in aid from Centre. State’s share in central taxes and grant in aid is determined on the basis of recommendations of the Finance Commissions. As per the recommendations of 14th Finance Commission, the share of the States in the net proceeds of Union Government during the period from 2015-16 to 2019-20 will be 42 per cent. The share pattern for the last two Finance Commissions viz. Twelfth (period 2005-10) and Thirteenth (period 2010-15) were 30.5 per cent and 32 per cent respectively. The State specific share during the 14th Finance Commission period is 2.5 per cent, as against the 2.34 per cent in the 13th Finance Commission award period.

The 14th Finance Commission has recommended ₹9519 crore to the State for the period from 2015-16 to 2017-18 as Post-Devolution Revenue Deficit Grant. The State had received deficit grant of ₹ 4640 crore in 2015-16, ₹3350 crore in 2016-17 and would receive ₹ 1529 crore in 2017-18.

The annual growth rate of central transfers has increased from 2013-14 onwards. The central transfers by way of share of central taxes and grant-in-aid received during 2015-16 was ₹21612.02 crore against ₹ 15434.28 crore in 2014-15. During this period, share in central taxes was ₹12690.67 crore. Even though 14th Finance Commission has not recommended grants for State Specific needs and other specific programmes, a substantial allocation of ₹. 8921.35 crore was there in overall central grants during 2015-16 compared to ₹7507.99 crore received in 2014-15. The increase is attributed to the receipt of revenue deficit grant of ₹4640 crore received as per the 14th Finance Commission recommendations.

The details of Central Transfers from 2010-11 to 2016-17 (BE) is given in Table 1.7.

EXPENDITURE

Expenditure of the State consists of two components viz., revenue expenditure and capital expenditure and expenditure on loan disbursements. The total expenditure of the State doubled from 2010-11 to 2015-16. The revenue expenditure as well as the capital expenditure also doubled during the same period.

Revenue Expenditure

The revenue expenditure of the State mainly comprises of expenditure on salaries, pension, debt charges, devolutions to the Local Self Governments (LSG) and subsidies. The operational and
### Table 1.7

Central Transfers: 2010-11 to 2016-17 (BE), ₹ in crore

<table>
<thead>
<tr>
<th>Year</th>
<th>Share in Central Taxes &amp; Duties</th>
<th>Grant-in-aid and other receipts from Centre for Plan and Non-plan</th>
<th>Total Transfers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Amount</td>
<td>Annual Growth Rate (Per cent)</td>
<td>Amount</td>
</tr>
<tr>
<td>2010-11</td>
<td>5141.85</td>
<td>16.89</td>
<td>2196.62</td>
</tr>
<tr>
<td>2011-12</td>
<td>5990.36</td>
<td>16.50</td>
<td>3709.22</td>
</tr>
<tr>
<td>2012-13</td>
<td>6840.65</td>
<td>14.19</td>
<td>3021.53</td>
</tr>
<tr>
<td>2013-14</td>
<td>7468.68</td>
<td>9.18</td>
<td>4138.21</td>
</tr>
<tr>
<td>2014-15</td>
<td>7926.29</td>
<td>6.13</td>
<td>7507.99</td>
</tr>
<tr>
<td>2015-16</td>
<td>12690.67</td>
<td>60.11</td>
<td>8921.35</td>
</tr>
<tr>
<td>2016-17 (BE)</td>
<td>14282.00</td>
<td>12.54</td>
<td>11361.72</td>
</tr>
</tbody>
</table>

Source: Finance Department, Govt. of Kerala

The maintenance cost for the upkeep of the completed projects and programmes are classified under the revenue account. Grants provided by the State to meet salaries and pension liabilities of employees in the Universities and State autonomous bodies and also the pension liabilities of employees of Panchayat Raj Institutions are classified under revenue expenditure. At the same time, a major portion of funds devolved to local bodies from the revenue account of the State government is utilized for the creation of capital assets of durable nature. Also, a significant share of grant-in-aid set apart for universities and autonomous institutions are meant for the creation of capital assets.

Expenditure on social and economic services together constitutes developmental expenditure. Funds devolved to Local Self Governments for expansion and development and maintenance of assets is also reckoned as developmental expenditure. The thrust on expenditure in the social and economic sectors has contributed towards maintaining the human development indicators of the State at a higher level, which ultimately has an impact on the long-term prospects of the economy. The State government’s priority for social and economic services in the State is clearly evident from the increased trend of developmental expenditure in recent years. Non-developmental expenditure of the State mainly constitutes the committed expenditure consisting of debt charges, expenditure on pension payments and administrative services.

Revenue expenditure has more than doubled during the period from 2010-11 to 2015-16. Total revenue expenditure in 2015-16 was ₹ 78,689.47 crore, of which plan expenditure was ₹ 12,078.50 crore and non-plan expenditure was ₹ 66,610.97 crore. The ratio of revenue expenditure to GSDP has shown signs of stabilization during the period from 2011-12 to 2014-15, and in 2015-16 it showed a slight declining trend (13.44 per cent). The trend in revenue expenditure of the State from 2010-11 to 2016-17 (BE) is given in Figure 1.12 and component-wise details are given in Appendix 1.36.

The share of committed expenditure on revenue expenditure has slightly decreased during 2015-16, compared to the previous year. Expenditure on committed liabilities on salaries, pension, interest payments, subsidies and devolution to LSGs was 69.74 per cent of revenue expenditure during 2014-15 whereas in 2015-16 it was 68.61 per cent. During 2015-16, 76.58 per cent of the revenue receipts of the State were used for meeting the above committed expenditure. Important factors contributed for higher revenue expenditure are
government’s active intervention to contain rise in prices of essential commodities, inclusive policy initiatives to bring all weaker sections of society under social security net and also due to government’s priority to impart quality services in health and education. Details of developmental and non-developmental expenditure for the period from 2010-11 to 2016-17 (BE) are given in Appendix 1.37.

Figure 1.12
Trends in Revenue Expenditure, Kerala, ₹ in crore

Source: Finance Department, Government of Kerala

In 2015-16, salary expenditure as proportion of total revenue expenditure was 29.80 per cent whereas it was 29.75 per cent in 2014-15. Pension expenditure as percentage of total revenue expenditure was 16.60 per cent in 2015-16 compared to 15.69 per cent in 2014-15. Interest payment as percentage of total revenue expenditure increased to 14.12 per cent in 2015-16 from 13.64 per cent in 2014-15.

Table 1.8
Share of committed expenditure on Revenue Expenditure, ₹ in crore

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Expenditure</td>
<td>As percent of TRE</td>
<td>Expenditure</td>
<td>As percent of TRE</td>
<td>Expenditure</td>
</tr>
<tr>
<td>i. Salaries</td>
<td>16028.89</td>
<td>34.81</td>
<td>17257.53</td>
<td>32.26</td>
<td>19279.71</td>
</tr>
<tr>
<td>ii. Pension</td>
<td>8700.31</td>
<td>18.90</td>
<td>8867.58</td>
<td>16.58</td>
<td>9971.52</td>
</tr>
<tr>
<td>iii. Interest</td>
<td>6295.64</td>
<td>13.67</td>
<td>7212.82</td>
<td>13.48</td>
<td>8293.58</td>
</tr>
<tr>
<td>iv. Devolutions to LSGIs</td>
<td>3896.76</td>
<td>8.46</td>
<td>4739.33</td>
<td>8.86</td>
<td>4971.48</td>
</tr>
<tr>
<td>v. Subsidies</td>
<td>1001.94</td>
<td>2.18</td>
<td>1265.20</td>
<td>2.37</td>
<td>1251.77</td>
</tr>
<tr>
<td>Committed Expenditure total (i to v)</td>
<td>35923.54</td>
<td>78.02</td>
<td>39342.46</td>
<td>73.55</td>
<td>43768.06</td>
</tr>
<tr>
<td>Others</td>
<td>10121.08</td>
<td>21.98</td>
<td>14146.29</td>
<td>26.45</td>
<td>16717.44</td>
</tr>
<tr>
<td>Total</td>
<td>46044.62</td>
<td>100</td>
<td>53488.75</td>
<td>100</td>
<td>60485.50</td>
</tr>
</tbody>
</table>

Source: Finance Department, Government of Kerala
**Capital Expenditure**

The long term development of the economy depends upon investment in infrastructure sector. Investment policy initiatives initiated by the government in recent years have helped the State to gain crucial achievements. The State Government’s initiatives for attracting long term investment in infrastructural projects have started yielding results. Deficit in resources is major impediment in infrastructure financing. Government has therefore adopted the policy of looking at alternative sources for financing major infrastructural projects of the State. The share of government spending on capital projects has increased during recent years. Substantial increase was noticed in capital expenditure of the state during 2015-16; it has increased to ₹ 7500.04 crore from ₹ 4254.59 crore in 2014-15. Capital outlay to GSDP ratio has also increased to 1.28 per cent in 2015-16 from 0.81 per cent in 2014-15. The public works continued to remain the major segment of capital outlay with 35.67 per cent of the total capital outlay in 2015-16 followed by Agriculture and allied activities (7.04 per cent), Irrigation (7.02 per cent) and Industries (4.47 per cent). Details of Capital expenditure from 2010-11 to 2016-17(BE) are given in Appendix 1.38 and Appendix 1.39 and trend in capital outlay and loan disbursement are shown in Figure 1.13

A special strategy is indispensable for the revival of the State’s economy by focusing on infrastructure development and social upliftment of the marginalized classes. Investment in the infrastructure sector is essential for the long term development of the economy. Implementation of major capital projects will be materialized through various financial and infrastructural institutions by creating Special Purpose Vehicles (SPVs). In this scenario, Kerala Infrastructure Investment Fund Board (KIIFB) has been restructured to act as the key SPV for mobilizing and channeling the funds to the various infrastructure SPVs. The details of KIIFB are provided in Chapter 5 of the review.

Government of Kerala has launched Nava Keralam Mission programmes for the multi dimensional development of the State. The mission mode initiatives give thrust to four key areas – Haritha

![Figure 1.13](image)

Trend in Capital outlay and Loan disbursement, ₹ in crore

Source: Finance Department, Government of Kerala

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**Appendix 1.38**

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**Appendix 1.39**

---

**Figure 1.13**

Trend in Capital outlay and Loan disbursement, ₹ in crore
Keralam (agriculture development, sanitation and water resource management), housing, education and health – and aim to turn a new leaf in the development history of the State. The mission projects will be implemented through meaningful participation of social organizations, groups and various other institutions including LSGs for the revival and sustainability of gains that the State has achieved in the past. These initiatives will be the stepping stone for the future economic development of the State.

**DEBT PROFILE**

Debt of the State comprises of internal debt, loans and advances from Central Government and liabilities on account of Small Savings and Provident Fund Deposits. During the last five years, market borrowings and accretions in Small Savings and Provident Fund Deposits are the main sources of the State Government to finance the fiscal deficit. Outstanding debt liabilities of the State at the end of 2015-16 were ₹157,370.33 crore. The annual growth rate of debt has increased to the level of 16.19 per cent in 2015-16 from 13.81 per cent in 2014-15. The Debt-GSDP ratio in 2010-11 was 29.83 per cent. It came down and reached the level of 26.88 per cent in 2015-16. In 2014-15 it stood at the level of 26.05 per cent. The ratio of debt in terms of revenue receipts decreased to 227.97 per cent in 2015-16 from 233.72 per cent in 2014-15.

The share of internal debt in the total debt liabilities of the State comes to 65.13 per cent in 2015-16. Outstanding debt under internal debt increased to ₹102,496.26 crore in 2015-16 from ₹89,067.91 crore in 2014-15. The growth rate of internal debt in 2015-16 was 15.08 per cent. The liabilities under small savings and Provident Fund come to around 29 per cent of the total liabilities. The liabilities under Small savings and Provident Fund at the end of 2015-16 were ₹47,639.36 crore. It showed an increase of ₹8,332.08 crore over 2014-15 (₹39,307.28 crore). The outstanding liabilities under Loans and Advances from the Centre at the end of 2015-16 were ₹7234.71 crore. The gross and net retention of debt in 2015-16 was ₹21930.08 crore and ₹10819.22 crore respectively. Details of debt profile of the State are given in Table 1.9 and details of receipts and disbursements are given in Appendix 1.40.

**Contingent Liabilities**

To overcome the ceiling on fiscal deficit set by the Fiscal Responsibility Act, the State Government is giving guarantees to the borrowings of public

### Table 1.9

**Debt of the State, ₹ in crore**

<table>
<thead>
<tr>
<th>Year</th>
<th>Internal Debt</th>
<th>Growth Rate (per cent)</th>
<th>Small Savings, Provident Fund, Others</th>
<th>Growth Rate (per cent)</th>
<th>Loans and advances from Central Govt.</th>
<th>Growth Rate (per cent)</th>
<th>Total</th>
<th>Growth Rate (per cent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010-11</td>
<td>48528.10</td>
<td>11.90</td>
<td>23786.06</td>
<td>11.69</td>
<td>6359.08</td>
<td>0.86</td>
<td>78673.24</td>
<td>10.86</td>
</tr>
<tr>
<td>2011-12</td>
<td>55397.39</td>
<td>14.16</td>
<td>27625.10</td>
<td>16.14</td>
<td>6395.69</td>
<td>0.58</td>
<td>89418.18</td>
<td>13.66</td>
</tr>
<tr>
<td>2012-13</td>
<td>65628.41</td>
<td>18.47</td>
<td>31310.65</td>
<td>13.34</td>
<td>6621.78</td>
<td>3.54</td>
<td>103560.84</td>
<td>15.82</td>
</tr>
<tr>
<td>2013-14</td>
<td>76804.35</td>
<td>17.03</td>
<td>35542.51</td>
<td>13.52</td>
<td>6662.21</td>
<td>0.61</td>
<td>119009.07</td>
<td>14.92</td>
</tr>
<tr>
<td>2014-15</td>
<td>89067.91</td>
<td>15.97</td>
<td>39307.28</td>
<td>10.59</td>
<td>7065.05</td>
<td>6.05</td>
<td>135440.24</td>
<td>13.81</td>
</tr>
<tr>
<td>2015-16</td>
<td>102496.26</td>
<td>15.08</td>
<td>47639.36</td>
<td>21.20</td>
<td>7234.71</td>
<td>2.40</td>
<td>157370.33</td>
<td>16.19</td>
</tr>
<tr>
<td>2016-17(BE)</td>
<td>120068.13</td>
<td>17.14</td>
<td>47905.05</td>
<td>0.56</td>
<td>8865.46</td>
<td>22.54</td>
<td>176838.64</td>
<td>12.37</td>
</tr>
</tbody>
</table>

Source: Finance Department, Government of Kerala
sector undertakings and other institutions instead of funding them directly through the budget. These contingent liabilities become the debt obligations of the State in the event of default by the borrowing public sector units for which Government is a guarantor. The outstanding guarantees during 2015-16 is ₹13,712.77 crore. The outstanding guarantees of the State Government from 2010-11 to 2015-16 are shown in Table 1.10.

<table>
<thead>
<tr>
<th>Year</th>
<th>Maximum Amount Guaranteed</th>
<th>Amount Outstanding (Principal and Interest)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010-11</td>
<td>12625.07</td>
<td>7425.79</td>
</tr>
<tr>
<td>2011-12</td>
<td>11332.11</td>
<td>8277.44</td>
</tr>
<tr>
<td>2012-13</td>
<td>11482.25</td>
<td>9099.50</td>
</tr>
<tr>
<td>2013-14</td>
<td>12275.21</td>
<td>9763.36</td>
</tr>
<tr>
<td>2014-15</td>
<td>13123.30</td>
<td>11126.67</td>
</tr>
<tr>
<td>2015-16</td>
<td>13712.77</td>
<td>12438.52</td>
</tr>
</tbody>
</table>

*Source: Finance Department, Government of Kerala*

Table 1.10

Outstanding Guarantees, ₹ in crore

**Section 7**

**BANKING**

**Bank Branches**

The role of banks is not merely in aiding economic development, but also to include all segments of the population in the financial activities. The opening of bank branches in remote areas is essential for mobilising savings and channelizing them into efficient investment. In terms of number of branches, Kerala has the largest number of bank branches among the semi-urban areas in the country. Kerala has a total of 6166 bank branches as on March 2016, which accounts for 4.65 per cent of total bank branches in the country as against 5981 as on March 2015. During the period 2015-16, 185 new branches were opened in the State. The total number of bank branches increased to 6208 by the end of June 2016. Unlike the other States in the country, the bank branches are spread across the state indicating the penetration of banking activities in the rural areas (Appendix 1.41). The population group-wise breakup of the branch network in the State shows that 60 per cent of the branches are in semi-urban areas and 32 per cent of the branches are in urban areas. There are only 8 per cent of the total bank branches in the rural areas. There were 8966 ATMs in the State as on March 2016, which increased to 9063 in June 2016. The data of banking group wise branch network is given in Table 1.11.

**Deposits**

The credit and deposit growth of SCBs in the country shows a declining trend. Bank Deposits of SCBs witnessed a 9.30 per cent growth in 2016, lower than the growth rate of previous year (10.74 per cent). The annual deposit growth rate was above 15 per cent during the 1990s and it fell below 15 per cent after 2010-11. The cumulative deposits of all SCBs stood at ₹9,327,290 crore in 2015-16, which was ₹8,533,285 crore during
2014-15. The details of credit and deposit growth are given in Figure 1.14.

The total bank deposits in Kerala increased by 13.59 per cent and touched ₹363,511 crore during 2015-16 from ₹320,010 crore in 2014-15. The per centage increase in bank deposits during 2015 was 15.14 per cent compared to 13.59 per cent in 2016. There is a slight drop in the growth of deposits as compared to the previous year in the State of Kerala. Maharashtra has the highest share of deposit (22.54 per cent) out of the total deposit in the country. The share of Kerala to the total deposits in the country is only 3.76 per cent (Appendix 1.42). The national average growth rate shows a 2 percentage point decrease in 2015-16 as compared to previous growth of 10.75 per cent. District-wise distribution of deposits and credits of Scheduled Commercial Banks as on March 2016 is shown in Figure 1.15. In Kerala, the share of deposit is more in Ernakulam district.

**Agricultural Finance**

Banks in Kerala including the private sector banks disbursed an amount of ₹282,556 crore as advances as compared to ₹252,104 crore in June 2015. In the disbursement of total advance, private banks stood at

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**Table 1.11**

Banking Group wise Branch network in Kerala

<table>
<thead>
<tr>
<th>Banking Group</th>
<th>Number of Branches</th>
<th></th>
<th></th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural</td>
<td>Semi-urban</td>
<td>Urban</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Bank Group</td>
<td>98</td>
<td>919</td>
<td>339</td>
<td>1356</td>
<td>19</td>
</tr>
<tr>
<td>Nationalized Banks</td>
<td>115</td>
<td>1462</td>
<td>629</td>
<td>2206</td>
<td>31</td>
</tr>
<tr>
<td>RRB</td>
<td>48</td>
<td>511</td>
<td>39</td>
<td>598</td>
<td>8</td>
</tr>
<tr>
<td>Private Sector Banks</td>
<td>179</td>
<td>1404</td>
<td>470</td>
<td>2053</td>
<td>29</td>
</tr>
<tr>
<td>Co-Operative Banks</td>
<td>136</td>
<td>43</td>
<td>794</td>
<td>973</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>576</td>
<td>4339</td>
<td>2271</td>
<td>7186</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: State Level Bankers Committee, Kerala 2016.

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**Diagram 1.14**

Credit and Deposit Growth Rate of SCBs in India from 1990-91 to 2015-16

Source: Reserve Bank of India
the first place disbursing ₹81,258 crore (28.76 per cent) in 2016, which was ₹70,542 crore in 2015 as at the month of June. Nationalised banks disbursed an amount of ₹78,815 crore followed by State Bank group and Co-operative Banks with ₹65,342 crore and ₹45,004 crore respectively during 2016. In terms of annual growth Co-operative Banks stood at first (34.88 per cent) followed by private sector banks (15.19) and RRB (14.39). The annual growth rate in advance among State Bank Group and Nationalized Bank is 5.05 per cent and 4.55 per cent respectively.

The Bank Group wise disbursement of agriculture advance shows that the total agricultural advance in the State reached ₹61837 crore, which was ₹60162 crore during June 2015. There is a two point decrease in the percentage of agriculture advance to total advance which fell to 22 per cent from 24 per cent. The bank group wise analyses show that Regional Rural Banks provide more agriculture advance (59 per cent) out of its total advances followed by Nationalized Banks (28 per cent) and private sector banks (13 per cent). But the growth rate in disbursement of Agriculture advance compared to previous year shows a different picture. The disbursement of agriculture advances of Nationalized Banks and State Bank Group shows a negative growth as compared to previous year. The major state wise advance disbursed by Scheduled Commercial Banks is given in the (Appendix 1.43).

Advances to SC/ST

An amount of ₹4312 crore and ₹1128 crore was disbursed to SC and ST persons respectively in June 2016 in the State by various banks including private sector banks, commercial banks and co-operative banks. Compared to previous year, the advance given to the Scheduled Caste persons is less and there is slight increase in the advances given to Scheduled Tribe persons. The bank-wise analysis of advances to SC/ST persons shows that the commercial banks are giving more advances given to these social groups in the State. However, the credit facilities extended to marginalized sections are very less when we compare this with the total advances disbursed in the State through various banking institutions. The private banks should
given more attention for rendering assistance to scheduled caste and scheduled tribes in the State. The bank group wise advances given to Scheduled Caste and Scheduled Tribes are given Table 1.12.

**Micro finance**

Microcredit plays a crucial role in the State in reduction of poverty level through gainful employment provided by microcredit enterprises. The various commercial as well as the co-operative banks are extending loans to SHGs for starting new venture to generate income and employment. Kudumbasree has undertaken various activities for the members of Self Help Groups and work as a nodal agency in the State. The activities of the groups range from catering services, dairy services, dairy units, cafeterias, garment units and also agriculture activities.

As per the SLBC data, there are 2.40 lakh Self Help Groups (SHG) maintaining their savings bank accounts with ₹1,423 crores in various banks as on June 2016. The bank group wise data shows that Nationalized Banks attracts more accounts (50.50 per cent) followed by RRBs (23.32 per cent), private banks (16.07) and the State Bank group (10.11 per cent). In terms of deposits, nationalized banks attract 82.57 per cent of total SHG deposits. The deposit shares of SHG in the State Bank Group were 3.94 per cent, RRBs was 5.34 per cent and private banks was 8.22 per cent for the year 2015-16.

**Housing Loans**

During 2015-16, banks in Kerala, including private sector banks, sanctioned an amount of ₹34,555 crore to 728,393 beneficiaries as housing loans against ₹31,414 crore to 760,968 beneficiaries during 2014-15. State Bank Group disbursed an amount of ₹13,721 crore to 207,919 beneficiaries, while nationalised banks released largest amount of ₹8,946 crore to 164,334 beneficiaries. Among the other bank groups, Regional Rural Banks disbursed ₹1606 crore to 40,122 beneficiaries, Private Sector Banks disbursed ₹3693 crores to 254,508 beneficiaries, and Co operative Banks disbursed ₹6589 crore to 254,508 beneficiaries. The share of beneficiaries to total is more in Co-operative Banks (34.94 per cent) followed by State Bank Group (28.54 per cent) and other Nationalised Banks (22.56 per cent). However, State Bank Group has disbursed the major share of housing loans (39.71 per cent) followed by other Nationalised Banks (25.89 per cent) and Co-operative Banks (19.07 per cent).

**Educational Loans**

There was substantial increase in the disbursement of educational loans in Kerala during 2015-16. At the end of June 2016, ₹9558 crore was sanctioned to 359,164 students. The Nationalised Banks disbursed an amount of ₹4475 crore to 170,062 students, which accounted for 46.82 per cent of the total educational loan disbursed by all banking groups in the State. State Bank Group disbursed

<table>
<thead>
<tr>
<th>Bank</th>
<th>SC Advances</th>
<th>ST Advances</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Amount</td>
</tr>
<tr>
<td>State Bank Group</td>
<td>219375</td>
<td>3468</td>
</tr>
<tr>
<td>Nationalized Bank</td>
<td>67922</td>
<td>644</td>
</tr>
<tr>
<td>RRB</td>
<td>23658</td>
<td>118</td>
</tr>
<tr>
<td>Private Sector Bank</td>
<td>8530</td>
<td>82</td>
</tr>
<tr>
<td>Total Commercial Banks</td>
<td>319485</td>
<td>4312</td>
</tr>
</tbody>
</table>

*Source:* State Level Bankers Committee, Kerala 2016

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**Table 1.12**

Banking Group wise Details under SC/ST Advance, ₹ in crore
Co-operative banking in Kerala is well developed and established and plays a pivotal role in the economy. The setting up of a single bank by merging all the co-operative banks in the State is a progressive proposal by the new government for mobilising financial resources. The Finance Minister, in his budget speech, stated that the government is looking at merging district and state level co-operative banks to form a single bank. The government has also allocated ₹10 lakh to set up the committee to prepare the detailed recommendations regarding the concept of Kerala Bank. As it is spread across the State, with large number of branches, they can play an important role in the development of Kerala economy. As per the available data, Kerala State Co-operative Bank is the apex bank of the short term credit co-operatives in the State with 14 District Co-operatives and about 1500 Primary Agriculture Co-operative Societies (PACS). According to the SLBC data for 2016, there were a total of 973 branches working in the co-operative banking sector in Kerala, of which 136 are in rural, 43 in semi urban area and 794 in urban area. The financial activities of the District Central Co-operative Banks (DCCBs) and affiliated PACSs reveal the significance of co-operative Banks in banking activities at the grass root level.

The deposits of co-operative banks as on June, 2016 were ₹67,534 crores, which is 15.42 per cent of the combined deposits of commercial banks and co-operatives. There are total of 7186 bank branches in the State, including those of the public sector, commercial and co-operative banks. The total deposits in the banking sector, as on June, 2016 was ₹437,946 crore. The total advances from the banks put together in the state was 282,556 crore of which the share of co-operatives is ₹45,004 crore, which account for 15.93 per cent of the total advances in the state. The total banking business in the state, as on June, 2016 was ₹720,502 crores and the share of co-operatives was ₹112,539 crore (15.62 per cent) (Table 1.13).

### Table 1.13
Performance of Co-operative Sector, ₹ in crore

<table>
<thead>
<tr>
<th>Parameter</th>
<th>June 2016</th>
<th>Share of Co-operative to Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Co-operative Sector</td>
<td>Commercial Banks + Cooperatives</td>
</tr>
<tr>
<td>Branches</td>
<td>973</td>
<td>7186</td>
</tr>
<tr>
<td>Total Deposits</td>
<td>67534</td>
<td>437946</td>
</tr>
<tr>
<td>Total Advances</td>
<td>45004</td>
<td>282556</td>
</tr>
<tr>
<td>Total Business</td>
<td>112539</td>
<td>720502</td>
</tr>
<tr>
<td>Priority Sector Advances</td>
<td>23115</td>
<td>159004</td>
</tr>
<tr>
<td>Agriculture Advances</td>
<td>5893</td>
<td>61837</td>
</tr>
<tr>
<td>SME Advances</td>
<td>1000</td>
<td>41603</td>
</tr>
</tbody>
</table>

*Source:* State Level Bankers Committee, Kerala 2016
Box 1.2
Demonetisation

On November 8, 2016, the Government of India cancelled the legal-tender character of bank notes of Rs 500 and Rs 1000 denominations and placed several restrictions on the exchange, withdrawal, and deposit of these notes. These measures, commonly referred to as “demonetisation”, had wide-ranging effects on the economy. The Kerala State Planning Board appointed a Committee to study the impact of demonetisation on the economy of the State of Kerala on November 23, 2016. The Committee was headed by Professor C. P. Chandrasekhar (Centre for Economic Studies and Planning, Jawaharlal Nehru University), Professor D. Narayana (Director, Gulati Institute of Finance and Taxation), Professor Pinaki Chakraborty (National Institute of Public Finance and Policy), Dr. K. M. Abraham (Additional Chief Secretary, Finance), and Shri V. S. Senthil (Member Secretary, Planning Board) were the other members. A summary, with excerpts from the report presented by the committee, is as follows.

Demonetisation had a severe impact on Kerala as cash transactions are predominant in the State’s economy, particularly in the unorganised sectors and in the traditional sectors of fisheries, coir, handlooms, cashew processing, crop and plantation agriculture. Cash-intensive sectors such as retail trade, hotels, and restaurants and transportation account for over 40 per cent of the Kerala economy, and the primary sector accounts for another 16 per cent of the economy. Thus, 56 per cent of the economic activity of Kerala was immediately affected by the withdrawal of the specified bank notes. It also affected earnings from tourism and in the flow of remittances, which are important drivers of growth in Kerala’s economy.

The impact of demonetisation in terms of the cash deficit and its consequences was particularly severe in Kerala also because of the distinct character of its banking sector. Around 60 per cent of all deposits are in the co-operatives in Kerala; the corresponding figure for India is less than 20 per cent. Thus the notifications by the Reserve Bank of India (RBI), which kept the cooperative banks and societies out of the note exchange process, were particularly damaging for Kerala. It resulted in the closure of banking activities at the level of the PACS and targeted the credibility of the PACS, which had served as democratically run, participatory financial institutions.

The ceiling on withdrawals of Rs 24,000 per individual per week after demonetisation was also made applicable to the cooperative societies. The ceiling affected the day-to-day functioning of various sectors. The cooperatives and the employers found it extremely difficult to make payments to the farmers or workers, whose earnings after meeting costs are so low that they could not make ends meet without receiving payments regularly. In fisheries sector, the wholesale buyers were not able to carry out business in high volumes. A large number of the two and a half million migrant workers in the State were reportedly going home as employment declined and as they did not possess bank accounts to deposit demonetised notes.

The news of the serpentine queues at money exchange counters in airports and outside and the limits on the amount of Indian currency that can be obtained in exchange for foreign currency resulted in rise of cancellations and a fall in tourist arrivals. As per quick estimates from the Department of Tourism, Kerala, relative to the corresponding month of the previous year, domestic tourist arrivals fell by 17.7 per cent in November 2016 and foreign tourist arrivals by 8.7
per cent. Similarly, because of the difficulties in withdrawing rupees from banks and the inability of instant transfer agents to provide rupees at local counters, remittances too have reportedly fallen.

In the case of Kerala, its own tax-to-GSDP ratio has declined from 7.06 per cent in 2011-12 to around 6.5 per cent by the end of 2015-16 (Revised Estimates). In its Revised Budget, the present Government, which came to power in May 2016, proposed that the tax-to-GSDP ratio be increased to 6.85 per cent. That is, own tax revenue was expected to grow at the rate of 19.39 per cent in 2016-17. However, there is a post-demonetisation slump in economic activity and the revenue loss is already seen in the real estate sector on account of stamp-duty collection and in vehicle tax collection. A fall in revenue coupled with a decline in central transfers would either mean a bigger deficit or a contraction in expenditure at the state level. This contraction in public expenditure can also further contribute to a process of slowdown that has already begun in the state as a result of demonetisation.

**NRI Deposits**

Remittances from the other countries, especially Gulf countries, are the key growth engine for the State of Kerala. According to Kerala Migration Study (KMS 2014), 2.4 million Keralites are working abroad. The inflow of NRI deposits increased by 24 per cent from ₹109,603 crore in March 2015 to ₹135,609 crore in March 2016 according to SLBC data (Appendix 1.44). Domestic deposits grew by 13.20 per cent to ₹225,984 crore during March 2016, as against ₹210,287 crore in March 2015. Domestic deposits constitute 67.81 per cent of the total deposits of the state. The bank-wise analysis of deposits shows that major share of deposit comes from domestic deposit except for Federal Bank. The Federal Bank attracts more NRI deposits than the other public and private sector banks. During March 2016, the share of NRI deposits to total deposit of the Federal Bank was 55.29 per cent whereas it is less than 50 per cent for all other public and private sector banks (Appendix 1.45). The Bank Group wise analysis shows that the Kerala’s NRIs seem to prefer public sector banks over private banks when depositing their money. The total NRI deposits in public sector banks is ₹77,177 crore, compared to ₹58,431 crore in the private sector banks. The percentage share of the NRI deposit is 56.91 per cent in public sector banks and 43.09 per cent in private sector banks. The State Bank Group attracts 36.16 per cent and Nationalised Banks get 20.39 per cent of the total remittance flowing through the banking sector.

**Credit-Deposit Ratio**

The credit deposit ratio of banking sector in India at the end of March 2016 was 77.86, which was 76.05 in 2015. Tamil Nadu stood at first position in CD ratio among the major States at 112.86; however, the ratio is quite lower than the previous year. Andhra Pradesh (104.52), Telangana (103.61) and Maharashtra (102.65) are the other States with CD ratio higher than 100. The CD ratio in Kerala is only 61.84, which is lower (69.48) than that of previous year (Appendix 1.46). In Kerala, the credit-deposit ratio is high in district of Idukki (134) and Wayanad (133.73). Among the districts, Pathanamthitta stands at the bottom with CD ratio of 27.04 per cent (Appendix 1.47).
Section 8
ANNUAL PLAN 2016-17

Annual Plan 2016-17 was the 5th year of the 12th Five Year Plan (2012-17). Annual Plan for the year is formulated based on specific guidelines. While formulating the plan, critical review of the performance of ongoing schemes were held. Stakeholder consultations were held on different areas of critical importance to the State, with a bottom up approach, to capture information on the ground realities. In order to avoid proliferation of schemes, attempts were made to reduce the number of schemes and wherever possible schemes having similar nomenclature were grouped together under a single head.

In order to facilitate speedy implementation of the schemes, some systemic changes have been introduced in the presentation of Plan Document and plan formulation process in Annual Plan 2016-17. The Budget document (Programme Book) was presented in two separate volumes viz. Green Book and Programme Book. The schemes with high priority and ready for implementation were included in the Green Book. A Summary Document on Sector/Sub-Sector/Scheme wise Officer responsible for the implementation of each of the schemes were furnished in the Annual plan 2016-17 to be tabled in the State Legislature along with the Budget documents for 2016-17.

In the Annual Plan (2016-17), the Aggregate Outlay for 2016-17 was ₹30,534.17 crore, which includes the State Plan of ₹24,000 crore and Central Assistance of ₹6,534.17 crore. The total State Plan outlay for 2016-17 was ₹24,000 crore, reflecting an increase of 20 per cent over the previous financial year’s outlay of ₹20,000 crore. Out of the outlay of ₹24,000 crore, ₹5500 crore was for assistance to LSGIs and the remaining ₹18,500 crore was for State sector schemes. Of the outlay of ₹24,000 crore, ₹23,54,40 crore is for Special Component Plan and ₹682.80 crore is for Tribal Sub Plan. An outlay of ₹2536.07 crore was proposed for the Major Infrastructure Development Projects and amounts under this head is to be released through the Kerala Infrastructure Investment Fund, with effect from 2016-17.

Major sector wise comparative statements of the outlays of Annual Plan (2014-15), (2015-16) and (2016-17) are given in Table 1.14.

Rationalisation of CSS

Based on the recommendations of the Sub-Group of Chief Ministers and after consultation with various Ministries/Departments and other stakeholders, the Centrally Sponsored Scheme (CSS) was rationalized for the following sectors.

1. Poverty Elimination – Livelihoods, Jobs and Skill Development
2. Drinking Water and Swachh Bharat Mission
3. Rural Connectivity: Electricity: Access Roads and communication
4. Agriculture, including Animal husbandry, Fisheries, Integrated Watershed Management and Irrigation
5. Education, including Mid-Day Meal
6. Health, Nutrition, Women and Children
7. Housing for All: Rural and Urban
8. Urban Transformation
9. Law and Order, Justice Delivery Systems
10. Others, including Wildlife Conservation and Greening

The existing 66 Centrally Sponsored schemes (CSSs) have been rationalised into 28 umbrella schemes. Out of this, 6 schemes have been
Table 1.14
Annual Plan 2014-15, 2015-16(RE) and 2016-17 Sector wise Outlay Comparative Statement, ₹ in crore

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Sector</th>
<th>2014-15 Outlay</th>
<th>CSS</th>
<th>Aggregate</th>
<th>2015-16 (BE) Outlay</th>
<th>CSS</th>
<th>Aggregate</th>
<th>2016-17 Outlay</th>
<th>CSS</th>
<th>Aggregate</th>
<th>Per cent of increase over 2015-16</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>Agriculture and Allied activities</td>
<td>1664.02</td>
<td>149.09</td>
<td>1813.11</td>
<td>1241.85</td>
<td>627.58</td>
<td>1869.43</td>
<td>1542.66</td>
<td>418.98</td>
<td>1961.64</td>
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<tr>
<td>II</td>
<td>Rural Development</td>
<td>617.23</td>
<td>833.41</td>
<td>1450.64</td>
<td>653.12</td>
<td>2223.08</td>
<td>2876.20</td>
<td>844.76</td>
<td>2733.66</td>
<td>3578.42</td>
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<td>III</td>
<td>Special Area Programmes</td>
<td>413.76</td>
<td>413.76</td>
<td>467.23</td>
<td>75.20</td>
<td>542.43</td>
<td>478.98</td>
<td>478.98</td>
<td>-12</td>
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<tr>
<td>IV</td>
<td>Irrigation and Flood Control</td>
<td>749.64</td>
<td>160.67</td>
<td>910.31</td>
<td>348.01</td>
<td>223.67</td>
<td>571.68</td>
<td>491.47</td>
<td>86</td>
<td>577.47</td>
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<tr>
<td>V</td>
<td>Energy</td>
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<td>1370.04</td>
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<td>VI</td>
<td>Industry and Minerals</td>
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<td>676.08</td>
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<td>VIII</td>
<td>Science, Technology and Environment</td>
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<td>664.18</td>
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<td>IX</td>
<td>General Economic Services</td>
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<td>10639.62</td>
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<tr>
<td>XI</td>
<td>General Services</td>
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<td>15.00</td>
<td>85.21</td>
<td>97.48</td>
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<tr>
<td>TOTAL</td>
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<td></td>
<td></td>
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<tr>
<td>I to XI</td>
<td></td>
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<td>3731.79</td>
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<td>XII</td>
<td>LGSD</td>
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<td>4800.00</td>
<td>5500.00</td>
<td>5500.00</td>
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<td>GRAND TOTAL</td>
<td></td>
<td>20000.00</td>
<td>3731.79</td>
<td>23731.79</td>
<td>20000.00</td>
<td>7686.32</td>
<td>27686.32</td>
<td>24000.00</td>
<td>6534.17</td>
<td>30534.17</td>
<td>10</td>
</tr>
</tbody>
</table>

Box 1.3
Thrust Areas of Annual Plan 2016-17

Crop Husbandry  Roads and Bridges
Animal Husbandry  IT & E Governance
Fisheries  Forestry & Wildlife
Major and Medium Irrigation  Tourism
Minor Irrigation  Medical & Public Health
Power development  Water supply & Sanitation
Medium and Large Industry  Urban Development
categorised as Core of the Core schemes, 20 schemes as Core schemes, and remaining two as Optional schemes. Core Schemes will have compulsory participation by the States, whereas participation amongst the Optional schemes would be by choice. For Optional Schemes, a lump sum provision for each State may be intimated in advance on the basis of which states will inform the Ministry of Finance of the preferred distribution within the overall ceiling indicated.

The existing funding pattern will continue for Core of the Core schemes. For Core schemes, the funding pattern shall be Centre: 60 per cent and State: 40 per cent and for Optional schemes, the ratio will be Centre: 50 per cent and State: 50 per cent.

**PLANSPACE: District Roll Out**

As part of strengthening the plan monitoring and evaluation mechanism, an online plan monitoring software PLANSPACE was developed by the State Planning Board with the technical support of IIITM-K. Planspace is a web based management information system for monitoring and evaluation of the progress of implementation all plan schemes in the State. The Annual Plan proposals for the year 2016-17 were received online from Heads of department and Implementing agencies through Planspace.

With a view to strengthen the District Level Plan Monitoring System, Planspace has been rolled out to all the Districts in the State. This will enable implementing officers at district and sub district levels to directly input data into the system, thus further enhancing its accuracy and timeliness. As per the information available on Planspace, during the current Financial Year the total plan expenditure is 31.63 per cent percent as on December 31, 2016 which is expected to improve substantially by the end of the Financial Year.

As a further step towards the monitoring mechanism, software for monitoring of MLASDF schemes at District level has been developed. The software developed is capable of capturing information at different levels of implementation of the scheme, beginning from the origin of the proposal to handing over of the asset created to the local bodies. The submission of proposals will also be online and Administrative Sanction order can be generated from the system itself.

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**Economic development in the State has been characterized predominantly by development on social parameters. The demographic indicators, poverty ratio and literacy level are indicative of this. However, the State is constrained in terms of financial resources to sustain the social developments as well as tackle the emerging issues in this sector. Further, resource constraints are affecting the quality of expenditure and funds to meet the capital expenditure. The State has adopted innovative measures in this regard. The formulation of 13th Plan was a decisive step by the State and it seeks to address the imbalances in different sectors and frame appropriate policies and programme for each accordingly.**
Recent years have witnessed stagnation in the growth of the agricultural sector. The price variability has increased with sharp swings in both product and input prices. Markets have been affected by macroeconomic factors and adverse weather conditions. Extreme weather conditions like drought and other climate variabilities have had a major impact on the agricultural sector. The need of the hour is to devise strategies to deal with the adverse conditions affecting the sector and revive the growth momentum. It is a great challenge and formidable task to arrest the decline and reverse the slowing growth of the agricultural sector.

Section 1
AGRICULTURE

PERFORMANCE OF AGRICULTURE

In 2011-12, in India as a whole, the share of agriculture in total employment was 48.9 per cent of the workforce. In 2014-15 (as per first revised estimates), the share of agriculture in the Gross Domestic Product (GDP) of India was 17.4 per cent at constant (2011-12) prices (Table 2.1). The Twelfth Five Year Plan (2012-13 to 2016-17) had envisaged a growth target of 4 per cent for agriculture and allied sectors, which is necessary for the Indian economy to grow at over 8 per cent. During the last three years, the growth rates in agriculture have been fluctuating at 1.5 per cent in 2012-13, 4.2 per cent in 2013-14, and (-) 0.2 per cent in 2014-15. According to the “Provisional Estimates of National Income 2015-16” published by the CSO (Central Statistics Office), the ‘agriculture, forestry and fishing’ sector has shown a growth rate of 1.2 per cent in 2015-16. The “First Advance Estimate of National Income 2016-17” of the CSO estimates the growth in ‘agriculture, forestry and fishing’ sector to be 4.1 per cent.

The agricultural sector in Kerala is facing a serious crisis of growth. According to data from the Directorate of Economics and Statistics (DES), using 2011-12 as base year, agriculture and allied sectors recorded a growth rate of 1.43 per cent in the first year (2012-13) of the Twelfth Plan period. However, the sector witnessed a negative growth rate during the following three years with growth
rate of (-) 6.31 per cent in 2013-14, (-) 1.09 per cent in 2014-15 and (-) 2.9 per cent in 2015-16. The share of Agriculture and Allied Sectors in the total GSDP of Kerala has also declined from 14.38 per cent in 2011-12 to 11.48 per cent in 2014-15 and to 10.38 per cent in 2015-16 (Table 2.1).

**MONSOON, 2016**

India is heavily dependent on the South-West monsoon (June-September) for most of its annual rainfall. However, many parts of southern India, viz, Coastal Andhra Pradesh, Rayalseema, South Interior Karnataka, Tamil Nadu, Pondicherry and Kerala receive considerable rain from the north-east monsoon (October-December) also.

The realized rainfall during the South-West monsoon season (June-September 2016) over the country as a whole was 97 per cent of the Long Period Average (LPA) and it was in the normal category (96-104 per cent of LPA). The seasonal rainfall over three of the four geographical regions of the country, except central India, was less than the respective LPAs. The realized rainfall during South-West monsoon 2016 over the country as a whole and in the four broad geographical regions is given in Table 2.2.

Out of the total of 36 meteorological sub-divisions, 4 sub-divisions (13 per cent of the total area of the country) received excess rainfall, 23 sub-divisions (72 per cent of the total area of the country) received normal rainfall and the remaining 9 sub-divisions (15 per cent of the total area of the country) received deficient rainfall. Out of the 9

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Year</th>
<th>Share of Agriculture and allied sectors in total GVA (India)</th>
<th>Share of Agriculture and allied sectors in GSDP (Kerala) #</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2011-12</td>
<td>18.5</td>
<td>14.38 (9.1)</td>
</tr>
<tr>
<td>2</td>
<td>2012-13</td>
<td>18.2*</td>
<td>13.76 (9.51)</td>
</tr>
<tr>
<td>3</td>
<td>2013-14</td>
<td>18.3*</td>
<td>12.9 (8.83)</td>
</tr>
<tr>
<td>4</td>
<td>2014-15</td>
<td>17.4@</td>
<td>11.6 (P)</td>
</tr>
<tr>
<td>5</td>
<td>2015-16</td>
<td>NA</td>
<td>10.38 (Q)</td>
</tr>
</tbody>
</table>

# fig with 2004-05 base in brackets; (P) Provisional (Q) Quick
* Second RE (new series), @First RE
Source: CSO and Directorate of Economics and Statistics, Kerala

<table>
<thead>
<tr>
<th>Region</th>
<th>Actual Rainfall (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All India</td>
<td>862.0</td>
</tr>
<tr>
<td>North West India</td>
<td>584.2</td>
</tr>
<tr>
<td>Central India</td>
<td>1034.1</td>
</tr>
<tr>
<td>North East India</td>
<td>1281.5</td>
</tr>
<tr>
<td>South Peninsula</td>
<td>661.5</td>
</tr>
</tbody>
</table>

Source: 2016 South West Monsoon End of Season Report, IMD
deficient sub-divisions, 4 sub-divisions were from the South Peninsula (Coastal Karnataka, South Interior Karnataka, Kerala and Lakshadweep).

The monsoon current advanced over the Andaman Sea two days earlier than its normal date of May 20, 2016 and set in over Kerala on June 8, 2016. However, the further progress was very slow. The South-West monsoon covered the entire country by July 13, 2016, which was 2 days earlier than its normal date of July 15, 2016.

The withdrawal of the South-West monsoon from the Indian sub-continent in 2016 was on October 28, 2016, which was 13 days later than the normal date of October 15, 2016 (The all-India area-weighted rainfall from June 1, 2016 to September 30, 2016 shows an actual rainfall of 862.0 mm against the normal rainfall of 887.5 mm with a deficiency of 3 per cent).

The Meteorological Sub-divisions which received deficient rainfall during the South-West monsoon in 2016 is shown in Table 2.3

### Figure 2.1
South West Monsoon Rainfall received from June 1 -Sep 30,2016, in mm

![Rainfall Graph]

*Source: Report of Indian Meteorological Department*

### Table 2.3
Deficiency in rainfall during monsoon season, 2016, in per cent

<table>
<thead>
<tr>
<th>Sub-division</th>
<th>Deficiency (per cent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kerala</td>
<td>-34</td>
</tr>
<tr>
<td>Assam and Meghalaya</td>
<td>-30</td>
</tr>
<tr>
<td>Haryana, Chandigarh and Delhi</td>
<td>-27</td>
</tr>
<tr>
<td>Punjab</td>
<td>-28</td>
</tr>
<tr>
<td>Himachal Pradesh</td>
<td>-24</td>
</tr>
<tr>
<td>Gujarat Region</td>
<td>-24</td>
</tr>
<tr>
<td>Coastal Karnataka</td>
<td>-21</td>
</tr>
<tr>
<td>South Interior Karnataka</td>
<td>-21</td>
</tr>
<tr>
<td>Lakshadweep</td>
<td>-25</td>
</tr>
</tbody>
</table>

*Source: 2016 South West Monsoon End of Season Report, IMD*
The actual rainfall received in Kerala during the South-West monsoon (June 1 to September 30, 2016) was 1352.3 mm as against the normal rainfall of 2039.7 mm in 2016 showing (-)34 percent departure from the normal, which was the highest in the country. All the districts of Kerala received deficient rainfall during the period. The percentage departure from normal rainfall was highest in Wayanad District. The Actual rainfall received in the District was 1073.8 (mm) against normal rainfall of 2632.1 (mm).

The deficiency in rains continued during the North-East monsoon season also as the actual rainfall received in Kerala was 185.0 mm against the normal rainfall of 480.7 mm, which was a (-) 62 per cent departure from normal. Highest percentage of departure from normal was in Kozhikode District (-82 per cent). All the districts except Ernakulam, Kollam, Kottayam and Pathanamthitta received scantly rainfall (-60 per cent to -99 percent) in this period. These four districts received deficient rainfall (-20 per cent to -59 per cent).

Pre-monsoon rainfall in Kerala, 2016

The pre-monsoon rainfall received in the State from March 1, 2016 to May 31, 2016 was normal with a departure of (-)18 percent from the normal. The actual rainfall received during the period was 313 mm. Excess rainfall was received in Thiruvananthapuram district, while 7 districts (Alappuzha, Kannur, Kasaragod, Malappuram, Palakkad, Thrissur and Wayanad) received deficient rainfall and 6 districts (Ernakulam, Idukki, Kollam, Kottayam, Kozhikode and Pathanamthitta) received normal rainfall. The percentage departure from normal was highest in Kannur District (at -53 per cent). Appendix 2.1

LAND USE PATTERN

The total geographical area is classified according to thirteen different uses of land as given in Appendix 2.2, 2.3 and Figure 2.3. The cultivated area of the state comes to around 67.6 per cent.

Figure 2.2

North East Monsoon Rainfall received from October 1 to December 31, 2016*, in mm

*(Excess(+20 per cent and above), normal (-19 per cent to+19 per cent), Deficient -20 per cent to -59 per cent, Scanty -60 per cent to -99 per cent)

Source: Report of Indian Meteorological Department
Droughts are one of the most disastrous natural hazards; their impacts are cumulative and widespread, affecting ecological and economic systems. Areas affected by droughts are typically larger and its effects are magnified when they occur in consecutive years (see the Handbook of Drought Indicators and Indices, WMO, 2016). The Indian Meteorological Department (IMD), the responsible agency in the country for providing drought forecasting and monitoring, uses various indicators for drought monitoring. Standardized Precipitation Index (SPI) is a widely used indicator. The SPI is negative for drought, and positive for wet conditions. As the dry conditions become more severe, the index becomes more negative and as the wet conditions become more severe, the index becomes more positive.

IMD statistics for the South-West Monsoon 2016 reveals that the realized rainfall during the monsoon was deficit in Kerala. The report says that “SPI for the cumulative period June to September 2016 indicates extremely/severely/moderately dry conditions over most districts of Kerala”. The area-weighted SPI of Kerala for the South-West Monsoon (2016) season was -1.61, which indicates that the state was severely dry during the period.

The North-East Monsoon, for the period from October 1 to December 31, 2016, in Kerala also recorded 62 per cent deficiency. The all-India figures also show that the area-weighted rainfall during the period was 45 per cent deficient with 69.6 mm actual rains as against the normal of 125.6 mm rains.

With the failure of two monsoons, drought has been declared in all the fourteen districts of the State. There has been an average reduction of 22 per cent in the water storage in the State’s dams when compared to the water storage in September of 2015. Agricultural production and electricity generation in the State are highly dependent on the two monsoons. The deficient rainfall in both the monsoon seasons will affect agricultural production and electricity generation adversely and lead to shortage in availability of drinking water.

of the total geographical area. Within this, the Net Sown Area accounts for 52 per cent and 16.83 per cent of the cultivated area is sown more than once. More than one-fourth of the area is under forest cover and 11.18 per cent of the area is put to non-agricultural use. On the other hand, there was a 4 per cent increase in the area put to non-agricultural uses and a 7 per cent increase in the land under fallow.

However, if the total area is further regrouped into two major categories: ‘land that is available for cultivation’ (including net sown area, cultivable waste, current fallow, fallow other than current fallow and land under miscellaneous tree crops) and ‘land not available for cultivation’ (which includes land put to non-agricultural use, barren and uncultivable land and permanent pastures and other grazing land besides forest area). In that case it can be seen that land that is available for cultivation comes to 57.9 per cent of the total geographical area. The current Net Sown Area is 52 per cent of the total geographical area. Thus most of the land that is available for cultivation is already under cultivation. Hence the scope of bringing more area under cultivation is marginal and increase in agriculture production can be achieved mainly through increasing the productivity of crops.
CROPPING PATTERN

Cropping pattern in Kerala is dominated by cash crops. Food crops comprising of rice, tapioca and pulses accounted for just 10.21 per cent of the total cultivated area in 2015-16 while cash crops (cashew, rubber, pepper, coconut, cardamom, tea and coffee) constituted 62.8 per cent of the total cultivated area. Plantation crops like rubber, coffee, tea and cardamom accounted for 26.8 per cent of the total cultivated area. Coconut has the largest area under crop cover (30 per cent) followed by rubber (20.9 per cent) and paddy (7.4 per cent). Of the cultivated area, 4.45 per cent is under banana and other plantains. Little more than 2 per cent is under tapioca and just 0.2 per cent is under ginger and turmeric together. In 2015-16, pulses, pepper, ginger, areca nut, cardamom and rubber recorded slight increases in area under cultivation compared to the previous year while all other crops recorded a decline. The area, production and productivity of principal crops is given in Table 2.4.

Irrigated area

The share of net irrigated area to total cropped area was 15.75 per cent in 2015-16. Thus, only 15.75 percent of the total cropped area was under irrigation cover whereas in states like Punjab, Uttar Pradesh and Tamil Nadu it was more than 50 per cent. The share of gross irrigated area to gross cropped area was 18.4 per cent. Coconut occupied the largest share of the irrigated area (34.25 percent) followed by paddy (31.12 per cent). The share of other crops were banana (9 per cent), areca nut (7 per cent) and vegetables (8 per cent).

Crop Wise Analysis

Rice

Rice is the most important food crop grown in Kerala. It occupies 7.46 percent of the total cropped area of the state. However, the area under rice has been falling at an alarming rate ever since the 1980s. From 8.82 lakh hectare in 1974-75, the paddy area has come down to 1.96 lakh hectare in 2015-16. The production has also concomitantly declined from 13.76 lakh MT in 1972-73 (peak of production) to 5.49 lakh MT in 2015-16 (Appendix.2.4). Moreover, the productivity of the crop is very low in the State (2790 kg/ha), though it is higher than the national average (2424 kg/ha). There has only been a marginal increase in the productivity of rice in the past four decades. China, which is the major producer of rice in the world, reports a productivity (6744 kg/ha) more than three times the productivity of rice in Kerala. The productivity of rice in Egypt is the highest in the world (9088 kg/ha), which is nearly fourfold of our productivity. Punjab is the state with the highest yield in the country (3952 kg/ha). In the recent months, the State government has taken a number of steps for the promotion of paddy cultivation (Box 2.2).
Table 2.4
Area, Production and Productivity of Principal Crops

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Crops</th>
<th>Area (Ha.)</th>
<th>Production (T)</th>
<th>Productivity (Kg./Ha.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rice</td>
<td>198159</td>
<td>196870</td>
<td>562092</td>
</tr>
<tr>
<td>2</td>
<td>Pulses, including Tur</td>
<td>3601</td>
<td>3764</td>
<td>3409</td>
</tr>
<tr>
<td>3</td>
<td>Pepper</td>
<td>85431</td>
<td>85948</td>
<td>40690</td>
</tr>
<tr>
<td>4</td>
<td>Ginger</td>
<td>4800</td>
<td>4986</td>
<td>22989</td>
</tr>
<tr>
<td>5</td>
<td>Turmeric</td>
<td>2470</td>
<td>2603</td>
<td>6820</td>
</tr>
<tr>
<td>6</td>
<td>Cardamon*</td>
<td>39730</td>
<td>39730</td>
<td>16000</td>
</tr>
<tr>
<td>7</td>
<td>Areca nut</td>
<td>96686</td>
<td>99126</td>
<td>125926</td>
</tr>
<tr>
<td>8</td>
<td>Banana</td>
<td>61936</td>
<td>59835</td>
<td>545431</td>
</tr>
<tr>
<td>9</td>
<td>Other Plantains</td>
<td>56761</td>
<td>57683</td>
<td>468320</td>
</tr>
<tr>
<td>10</td>
<td>Cashew nut</td>
<td>45436</td>
<td>43090</td>
<td>29715</td>
</tr>
<tr>
<td>11</td>
<td>Tapioca</td>
<td>75493</td>
<td>69405</td>
<td>2943919</td>
</tr>
<tr>
<td>12</td>
<td>Coconut**</td>
<td>793856</td>
<td>790223</td>
<td>5947</td>
</tr>
<tr>
<td>13</td>
<td>Coffee***</td>
<td>85359</td>
<td>84987</td>
<td>67700</td>
</tr>
<tr>
<td>14</td>
<td>Tea$</td>
<td>30205</td>
<td>30205</td>
<td>65174</td>
</tr>
<tr>
<td>15</td>
<td>Rubber#</td>
<td>549555</td>
<td>550840</td>
<td>507700</td>
</tr>
</tbody>
</table>

Note: **Production of Coconut in Million Nuts, Productivity in numbers.
***Coffee Board, $Tea Board

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. In Kerala, winter crop (mundakan) has been greater than the other two crops (summer and autumn) both in terms of area as well as production. However, in 2015-16, all the three seasons showed a declining trend resulting in an overall reduction in production (Appendix 2.5)

Palakkad, Alappuzha, Thrissur and Kottayam account for about 81.2 percent of the total

Box 2.2
Major initiatives for the promotion of rice in 2016-17

- Promotion of upland rice cultivation in 2520 ha
- Amendment in Paddy land/Wetland Conservation Act
- Cultivation in fallow lands
- Special projects in Aranmula Punja
- Declaring Chingam 1st of 2016 to Chingam 1st of 2017 as the rice year in which 100 activities are planned
- Enhancement of procurement price of paddy from ₹21.50/Kg to ₹22.50/Kg

Source: Agriculture Department
production of rice in the state, their individual shares being 41 percent, 16 percent, 14 percent and 9 percent respectively. In 2015-16, Alappuzha and Palakkad recorded a decline in production, while Thrissur and Kottayam recorded a slight increase in production. District-wise area under rice cultivation shows that area under rice fell for all the districts of the State between 1996-97 and 2012-13. However, the decline was sharpest for Ernakulam (93 per cent) followed by Kollam (92 per cent), Thiruvananthapuram (86 per cent) and Malappuram (78 per cent). On the positive side, in Kottayam and Alappuzha, the major rice growing districts, the decline was much less pronounced (13 and 12 per cent respectively). In 2015-16, Palakkad, Alappuzha and Wayanad, showed a decline in area as well as production of rice in the State (Details as given in Appendix 2.6 and 2.7 and Figure 2.4).

Area cultivated with paddy has increasingly been converted into cultivation with other crops as well as for non-agricultural purposes. This is mainly due to the low relative profitability in paddy cultivation, which in turn is a result of increasing costs due to rising wages and relative price changes in favour of competing crops. In spite of focused interventions through the State plan and programmes like Rashtriya Krishi Vikas Yojana (RKVY), enhancement of per hectare assistance from ₹1500 to ₹4500 in the 12th plan period and the introduction of procurement in all districts, rice production has not responded positively. More proactive steps under the leadership of the Department of Agriculture and local bodies are required to revitalise rice production in the State.

Coconut
In terms of area under cultivation, coconut is the most important crop in the state with over 7.9 lakh hectare under cultivation. It accounts for the largest share in the Gross Cropped Area (GCA) followed by rubber and paddy. Kerala has the largest area under the crop in the country, but in terms of production it comes third. This indicates the low productivity of the crop in the state with just 7535 nuts per hectare compared to Tamil Nadu and Andhra Pradesh where the productivity is 14,873 nuts per hectare and 13,808 nuts per hectare respectively in 2014-15. Also, Kerala’s share in area and production of coconut in the country has declined over time. While Kerala

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**Figure 2.4**
Percentage change in area and production of rice in major districts of Kerala during 2015-16 over 2014-15, in per cent

![Diagram showing percentage change in area and production of rice in major districts of Kerala](image)

*Source: Directorate of Economics and Statistics, Govt. of Kerala*
accounted for 69.58 per cent of the area and 69.52 per cent of the production in the country in 1960-61, the corresponding shares declined to 40.2 per cent and 42.12 per cent respectively in 2011-12. However, the area and production of coconut in the state has been increasing. From 29.88 per cent of the Net Sown Area in 1980-81, the share of area cultivated with coconut increased to 41.96 per cent in 2000-01; in 2011-12, the corresponding share stood at 40.24 per cent. The production also increased during this period. From 3220 million nuts in 1960-61, the production increased to 5536 million nuts in 2000-01. After that the production plateaued and was more or less stagnant in the next decade. Thus, the increase in output was more on account of increase in acreage as the productivity of the crop is very low in the state. Between 2014-15 and 2015-16, there was a marginal decline in the production of coconut from 5947 million nuts to 5873 million nuts. Area, production and productivity of coconut in Kerala are given in Appendix 2.8.

The main reason for the falling productivity of coconut is the prevalence of the root wilt disease, poor crop management and the existence of senile and unproductive palms. Hence, massive replanting of palms affected by root wilt with elite palms and elimination of senile palms, setting up of nurseries for production of quality seedlings and their subsequent distribution is essential for increasing productivity. Restructuring of the cluster development programme is also essential for more effectiveness. The attempt made by the Department of Agriculture and Cooperation to restructure two coconut development programmes through convergence approach at the panchayat level, coupled with a price advantage, is expected to revive coconut production in the state. The isolated attempts at the production of dwarf coconut seedlings and hybrids need to be scaled up substantially with the support of research institutions. Entrepreneurial ventures for the production of value-added products like desiccated coconut, beverages, shell-based products, coconut cream, and neera have to be promoted with appropriate tie-ups with credit and marketing agencies. The coconut procurement system through Krishi Bhavans in association with Kerafed was introduced in 2012-13, which needs further streamlining. The initiative taken by the government in promoting neera and value addition are expected to revive coconut economy of the state.

**Pepper**

India comes third in the production of pepper in the world after Vietnam and Indonesia. However, the production of pepper in the country has been stagnant at around 50,000 tonnes in the last few years and hence is fast losing its status as a leading producer and exporter of pepper. Grown mostly in the slopes of Western Ghats in Kerala, Karnataka, and Tamil Nadu, the area under cultivation of pepper has come down drastically in the last decade, which has adversely affected production and export. In 2015-16, pepper production recorded a decline to 55,000 tonnes from 70,000 tonnes in 2014-15. However, Kerala, which accounts for 75 percent of the total production in the country, recorded a slight increase in pepper production from 40.6 thousand tonnes in 2014-15 to 42.1 thousand tonnes in 2015-16.

With regard to prices, there has been a rally in pepper prices since 2010. However, in 2015, the prices registered a decline to ₹630.31 per kg from ₹646.79 per kg in 2014. The price realization during 2016 (January-June) was ₹669.29 per kg compared to ₹619.76 per kg in June 2015, an increase of ₹49.53 per kg.

Pepper production in the State in recent years has been affected mainly by low productivity and various diseases. In order to revive spices development in the state, the Department of Agriculture had initiated comprehensive pepper development programmes in all districts in 2014-15. An integrated action plan was prepared for the revival of the crop, covering reorientation of planting material production, expansion of grafting wherever possible, area-wide disease management, liming and nutrients management and revival
of pepper sskies. The increase in production achieved during 2015-16 could be because of this concerted effort by the State Government.

Cashew

In 2015-16, India continued to be the largest producer of raw cashew nuts in the world. The other main producing countries were Vietnam, Brazil, Tanzania and Ivory Coast. The production of raw cashew nuts in India declined from 725 thousand MT in 2014-15 to 670 thousand MT in 2015-16. The area under cashew cultivation, however, recorded an increase from 1027 thousand hectares to 1034 thousand hectares.

In Kerala, in the last one decade, there has been a continuous and considerable decline in both area under cultivation as well as production of cashew. It is alarming to note that the production, which stood at 60 thousand MT in 2004-05, declined to 33.3 thousand MT in 2013-14 and to 24.73 thousand MT in 2015-16. The area under cultivation dwindled from 81,000 hectares to 49,000 hectares and to 43,000 hectares during the same period. The productivity of cashew, which was around 900 kg per hectare during the late eighties, also fell to 654 kg per hectare in 2014-15. Details are given in Appendix 2.9.

Area under and production of cashew have risen steadily in other producing states of the country. Even though Andhra Pradesh has the highest area under cultivation (18.3 per cent), Maharashtra is the leading producer with 32.9 percent share in production during 2013-14.

Plantation crops

Plantation crops are, in general, either export-oriented or import-substituting and therefore assume special significance from the national point of view. It is estimated that nearly 14 lakh families are dependent on the plantation sector for livelihood. Each of the four plantation crops of South India has its distinct characteristics and economic problems. Consequent to the removal of quantitative restrictions on imports, plantation crops are facing the threat of a surge in low quality imports.

Kerala has a substantial share in the area in India cultivated with the four plantation crops of rubber, tea, coffee and cardamom. These four crops together occupy 7.04 lakh ha, accounting for 26.88 percent of the gross cropped area in the state. During 2013-14, Kerala's share in the national production was 72.02 per cent in rubber, 22 per cent in coffee and 6.3 percent in tea. Details are given in Appendix 2.10.

Rubber

Production of Natural Rubber (NR) in India declined by 12.9 per cent from 6.45 lakh tonnes in 2014-15 to 5.62 lakh tonnes in 2015-16. Even though tappable area under natural rubber was 5.89 lakh ha during 2015-16, only 3.91 lakh ha of area contributed to the NR production during the year. Consequently, the average yield, measured in terms of production per hectare of tapped area, declined to 1437 kg/ha in 2015-16 as compared to 1443 kg/ha the previous year. During 2016-17, the production is estimated to be 6.54 lakh tonnes of NR. Adverse weather, high wages, lack of skilled labourers and the grower's reluctance in harvesting or maintaining trees in response to the low NR prices have affected the production of natural rubber (NR) in India in 2016. The consumption of NR in the country also came down by 2.6 percent to 10.2 lakh tonnes in 2014-15. This was due to a 2.5 percent decline in auto tyre manufacturing and a 2.7 percent fall in the general rubber goods production. The volume of exports came down to 865 tonnes in 2015-16 from 1002 tonnes in 2014-15. The Central Government continued to provide incentives for exporting quality-endorsed branded Indian Natural Rubber under a Market-linked Focus Product Scheme. The production scene was no different in Kerala also, as the total production dwindled from 5.07 lakh MT in 2014-15 to 4.38 lakh MT in 2015-16.
With regard to rubber prices, it has been volatile in both the national and international markets. NR prices after scaling to an all-time high during 2011 had fallen significantly, that too at an accelerating pace threatening the very existence of the rubber producers. Rubber prices, both in the domestic and international markets had been moving in tandem throughout the year. Domestic RSS-4 and international RSS-3 prices increased from April 2015 to June 2015 and then started decreasing from July 2015 to February 2016 and started slow recovery during the end of the year. Main reasons for the fall in rubber prices were moderate economic growth in China, slow recovery in the US and Europe, enhanced stock in Thailand, increase in world stock of NR, relatively low oil prices and consequent low synthetic rubber prices. The domestic RSS-4 price at Kottayam market came down and averaged at ₹113.06 per kg during 2015-16 compared to ₹132.57 per kg during the previous year. Domestic RSS4 price peaked at ₹133 per kg on 17.06.2015 and international price of RSS-3 peaked at ₹122 per kg on 03.06.2015. Domestic RSS-4 prices was ruling above the international RSS-3 price throughout the year during 2015-16. Details are given in Appendix 2.11, 2.12 and 2.13.

The declining rubber production in the year has affected India's ranking internationally as it has been pushed to the fifth position with countries like Vietnam and China occupying the third and fourth position respectively. Thailand continues to be the top producer followed by Indonesia in the second spot in the global rubber scene.

The declining price of rubber is a cause of concern. A revival of rubber prices is expected based on the revision of import duty and other measures taken by Government of India. However, more proactive measures by the central government are essential to support the rubber growers of Kerala. The strengthening and reorientation of Price Stabilisation Fund is essential. The Government of Kerala has introduced a rubber production incentive scheme with a financial support of Rs 300 crores. However, to a large extent the price depends on global supply and demand of natural rubber and the price of synthetic rubber.

Coffee

Domestic coffee production for the year 2015-16 was estimated at 348,000 tonnes, which represents an increase of 21,000 tonnes compared to previous year. Initially, the Coffee Board had projected 2015-16 crop production (Post Blossom estimate) at 355,000 tonnes, which was subsequently revised downwards by 7,000 tonnes. As per the revised figure, the Arabica production was estimated at 103.5 thousand tonnes (29.7 per cent) and Robusta at 244.5 thousand tonnes (70.3 per cent). However, as per FAO estimates, yield in India at 845.6 kg per hectare is much below that of Vietnam (2499.1 kg per hectare) and Brazil (1421.5 kg per hectare). A comparison of the productivity levels in 1971 vis-a-vis 2011 suggests that India (-1.8 per cent) and Indonesia (-0.1 per cent) are the only two countries that reported a decline in yield levels in the last 40 years. Lower productivity in India is due to limited mechanization, pest infestation, existence of old/ senile plants and labour shortage. Thus, on the productivity side, much more is needed to be done and towards this concerted efforts are required both at the policy and farm level. The only way to address this issue is by providing positive research and development which can directly contribute in achieving higher yield.

With regard to Kerala, the production of coffee registered a slight increase from 67,700 MT in 2014-15 to 69,230 MT in 2015-16. The share of Kerala in total coffee production in the country is around 20 per cent during the year. Major variety grown in Kerala is Robusta with a share of 97.1 per cent in planted area. Productivity of the crop in terms of bearing area in Kerala is 808 kg/ha, which is lower than the national level of 852 kg/ha during 2011-12. Among the States, Kerala stands next to Karnataka which produces 70.4 percent of total Indian coffee production.

Tea

As one of the largest tea producing countries, India accounts for 24.8 percent of the total world production. The Tea Board had revised the production figures during 2011 by bringing
within the net all segments of tea producers, both organized and unorganized, especially North India many of whom were not reporting their crop statistics earlier, which helped India in breaching the 1 billion mark. The domestic tea production during 2015 was 1191.1mkg lower by 16.2 mkg from previous year. The decline in production in North India and South India was 1.6 mkg and 14.6 mkg respectively. The steep fall in production in South India after a one year reprise from the low crop trap is a matter of concern.

Kerala accounts for 5.03 per cent of the area and 6.3 per cent of the total domestic production of tea in the country. The production of tea in the State has been consistently falling since 2009-10. There was a slight improvement in 2012-13 as tea production recorded an increase of 5059 MT despite a decline in area of 18 per cent. This increase in production was mainly on account of increase in productivity. Tea production recorded an increase of 3.5 per cent in 2014-15 also but in 2015-16 there was a decline in production by 11.16 percent. Details given in Appendix 2.14

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 small cardamom and plays an important role in the international trade of cardamom. The output of cardamom is dependent on prevailing climatic conditions as the cardamom plant requires intermittent spells of rains and good sunshine during the growth stage. Cardamom production in the country during 2015-16 was estimated at 22 thousand tonnes compared to 18 thousand tonnes in 2014-15, an increase of 4 thousand tonnes. The turnaround in cardamom prices since 2006-07 continued up to 2010-11 reaching the highest level, but thereafter the prices have fluctuated. During 2015-16 (August-June), the prices increased by Rs 107.33 per kg to reach Rs 754.00 per kg.

Meanwhile in Kerala, cardamom production has increased by 21.8 per cent in 2015-16 despite the area under cultivation remaining stagnant.

**Pulses**

The year 2016 was the International Year of Pulses. Pulses are important source of protein, high in fibre content and provide ample quantity of vitamins and minerals. Keeping in view large benefits of pulses for human health, the United Nations proclaimed 2016 as the International Year of Pulses. Thus, due attention is required to enhance the production of pulses not only to meet the dietary requirement of protein but also to raise the awareness about pulses for achieving nutritional, food security and environmental sustainability. Pulses are important component to sustain the agriculture production as the crops posses wide adaptability to fit into various cropping systems and improves the soil fertility.

India’s share is 25 per cent in production, about 33 per cent in acreage and about 27 per cent in consumption of the total pulses in the world. The acreage ranged from 20.35 million ha (2000-01) to 23.99 million ha (2012-13) and production varied from 11.08 million tonnes (2000-01) to 18.45 million tonnes (2012-13). The productivity has increased from 544 kg/ha (2000-01) to 750 kg/ha (2012-13). The major pulses producing states are Madhya Pradesh (25 per cent), Uttar Pradesh (13 per cent), Maharashtra (12 per cent), Rajasthan (11 per cent), Andhra Pradesh (9 per cent) and other states together (30 per cent) during 2012-13.

In Kerala, pulses are cultivated in autumn, winter and summer seasons. The area under the cultivation of pulses shows a declining trend in the state. During 1975-76, the total area under pulses including tur was 37,485 ha but by 2015-16 it has come down to 3764 ha. Apart from tur, the other main pulses grown in Kerala are cow pea, black gram horse gram and green gram. Major cultivation of pulses and tur is in Palakkad district and contributes to 30 per cent of the total production in the State. The production of pulses
in the State was highest during the year 2005-06. More proactive steps are needed to augment pulse production in the State. Details pertaining to the sector is given in Appendix 2.15 and 2.16.

**Collective farming through Kudumbashree**

Collective farming is an important area of Kudumbashree, which aims at food security both at household and community level. The major crops cultivated are paddy, vegetables, banana, pineapple and tubers. In 2013-14, area brought under cultivation of paddy was 15078.60 ha, of vegetables was 12555.60 ha and of other crops (banana, pineapple and tubers) was 22476.20 ha. Details of area covered are given in Appendix 2.17. More hand holding including facilitation with banks and technology support are essential for improving livelihood of the women groups involved in farming.

**Key initiatives of the Department of Agriculture**

The annual plan schemes for 2016-17 were formulated focusing on the thrust areas and strategies for increasing the productivity in agriculture from the current levels. The key initiatives taken by the Department of Agriculture in 2016-17 for the improvement of agricultural sector included integrated food crop production programme focusing on self-sufficiency in vegetable production including comprehensive rice development, modernization of existing farms and labs and establishment of new labs, institutional mechanism for marketing, focusing initially on vegetables development of farmers markets and setting up of agriculture markets, production and distribution of quality planting materials, comprehensive fallow land cultivation with people’s participation, strengthening extension activities, Agricultural Technology Management Agency (ATMA) plus model of extension, rejuvenation of spices economy, crop health management covering pests and disease surveillance, promotion of organic farming and safe food production, crop insurance, establishment of 20 Agro Service Centres (ASCs) and strengthening the existing ASCs for improved service delivery, revival package for pepper in Wayanad. In 2016-17, the Harithakeralam Mission has been launched focusing on food crop production, waste management and water resource conservation and development.

**Performance of Annual Plan, 2015-16 of Department of Agriculture**

During the Annual Plan 2015-16, out of ₹474.93 crore earmarked for the Department of Agriculture under the state plan, the expenditure incurred was ₹449.14 crore (95 per cent) including Wayanad package. The key achievements of the Department of Agriculture in 2015-16 were the following.

- For rice development, assistance was given to padasekharan sanithies for sustaining rice cultivation in 1.79 lakh ha through group farming and for speciality rice cultivation in 890 ha.
- For coconut development, the Department established 10 coconut nurseries and 474 organic manure production units, supported 26 Keragramams covering 12,300ha, distributed 2600 climbing devices and installed irrigation units in 656ha. A total of 4.64 lakh nos. of coconut seedlings and 4.43 lakh coconut plants, covering 2.50 lakh WCT, 1.34 lakh of Dwarf, 34,833 Number of TxD and 23,882 DxT coconut plants were produced.
- For vegetable development, the student community was mobilized and vegetable cultivation was carried out in 5592 educational institutions, project based cultivation in 334 institutions and 62 lakhs seed kits and 31,654 grow bags were distributed. The department supported 800 clusters including 50
new clusters and staggered clusters in 3904 ha and fallow land cultivation was undertaken in 402ha. Around 16 block level nurseries and 3 block level Federated Organisations was established for the marketing and input support of vegetables.

- The department carried out micro nutrient demonstration in 237 plots.
- Assistance provided for micro irrigation with fertigation in 905 units and rain shelter cultivation in 1117 units.
- For pepper development, 38 lakh numbers disease free rooted pepper cuttings were produced for distribution to farmers, new pepper garden was established in 3000ha, good management practices adopted in 2500 ha and support given for the maintenance of 20 ha of mother pepper gardens and for strengthening 200 pepper development samithis. Further, 32 plant clinics and 3396 pest surveillance units were set up and around 1132 campaigns were conducted.
- 25 onfarm production units of trichoderma, 8 Farmer field schools and 8 Field level demonstrations were established and 1014 soil test campaigns and soil testing training to 350 farmer groups were conducted.
- Introduced soil health card monitoring system, and supplied soil ameliorants in 41,345 ha.
- The department during this year for improved service delivery established 15 Agro service centres and provided maintenance support to 49 agro service centres.
- 708 school biogas plants were installed.
- Under state crop insurance scheme, 1.46 lakh farmers were enrolled and an amount of ₹256.88 lakhs disbursed towards claim amount for 4324 farmers.

**State Horticulture Mission (SHM)**

The State Horticulture Mission was formed in 2005 to implement the programme of the National Horticulture Mission, a centrally sponsored scheme, with 85 per cent central share and 15 per cent state share which has been restructured as the Mission for Integrated Development of Horticulture from 2014-15 onwards. During 2015-16, Government of India (GoI) has 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.

During 2012-13 to 2016-17 (as on 30.09.2016), a total amount of ₹169.83 crore was released to SHM including ₹140 crore from GoI and ₹29.83 crore from state share. The total expenditure incurred is ₹176.39 crore including unspent balance of previous year. An amount of ₹30.21 crore was released to SHM during 2015-16 including ₹25.00 crore from GoI. The total expenditure was ₹45.42 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, establishment of integrated pack houses, sorting and grading units, cold storage units, establishment of rural markets, strengthening wholesale markets, market intelligence, extension quality awareness and market led extension activities for fresh and processed foods.

A project monitoring system has to be evolved for realizing the envisaged outputs. A number of NGOs as well as private sector are also part of the project and their activities in achieving the intended objectives of the mission needs to be monitored. More convergence of schemes with state plan and
RKVY with deliverables are required for improved outputs.

Vegetable and Fruit Promotion Council’s Programme (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. 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.

During 2015-16, the council had inducted 6264 farmers and formed 220 new SHG’s for the promotion of fruits and vegetables. Now the council has a total of 1,85,437 registered farmers in 9434 Self Help Groups. The council had initiated 4 new farmer markets and 12 collection centres during 2015-16. Now there are 274 Swasara Karshaka Samithies and 167 collection centres under the purview of the council. During 2015-16, 1,02,467 MT of fruits and vegetables worth ₹230 crore were traded through swasraya karshaka samithies of the council and a trading of 83,473 MT worth ₹180 crore has been traded upto September 2016. Ready to cook vegetables were made available in packets to public through cut vegetable scheme implemented in Thiruvananthapuram, Ernakulam, Calicut and Pathanamthitta districts. Around 65.15 lakh vegetable seedlings, 5.57 lakh tissue culture banana plants and 9 lakhs fruit plant grafts were produced and distributed throughout the state to promote homestead cultivation. An amount of ₹70.06 crore was disbursed as agriculture loan to 9187 farmers. A total of 25.11 lakh banana plants and 800 ha of vegetables were covered under crop insurance and an amount of ₹69.31 lakhs was disbursed to farmers as claim.

During 2015-16, farmers of the council had cultivated vegetables in 18,290 ha, banana in 23,400 ha and tuber crops in 3264 ha during the period. Total production during the period was 1.84 lakh MT vegetables, 2.81 lakh MT banana and 37,339 MT of tubers. It is seen that even though the area of banana increased by 712 ha during 2015-16, compared to previous year, production decreased by 13,000 MT. During 2015-16, the area and production of vegetables decreased by 1923 ha and 38,000 MT. The area as well as production of tubers increased during the period compared to 2014-15.

For popularising vegetable and fruit production and area expansion of vegetables under PGS, 175 groups have been formed with 1200 farmers. Agro meteorological data have been collected from 26 Automatic weather stations installed in different parts of the state with the participation of farmers. As part of vegetable development programme for the promotion of homestead vegetable cultivation, 25 bags each planted with saplings were distributed to 5853 beneficiaries. VFPCk has been appointed as the regional council for Participation Guarantee System (PGS) organic certification for fruits and vegetables in Kerala. Awareness creation of PGS to promote organic farming was undertaken and 200 local groups were formed which include 1500 farmers and 1000 acres of cultivation brought under the same during the period. 20 demonstrations were conducted based on soil test results. Krishi Business Kendra has been initiated in Kasargode and Thiruvananthapuram districts. The construction of soil testing lab at Thiruvvali in Malappuram district has been initiated and the soil testing lab at Thiruvavoor in Alappuzha district is nearing completion.

Rashtriya Krishi Vikas Yojana (RKVY)

In order to incentivize States to draw up comprehensive plans for their agricultural sector, taking into account the agro climatic conditions, natural resource issues and technology and by
integrating livestock, poultry and fisheries, a special additional central assistance scheme was launched during 2007-08. During XI-th plan, GoI had released a total amount of ₹ 22,408.76 crore to states of which ₹21586.6 crore was utilized in implementing 5768 projects under crop development, horticulture, agriculture mechanization, natural resource management, marketing and post-harvest management, animal husbandry, dairy development, fisheries, extension etc. The scheme was implemented as 100 per cent centrally assisted scheme till 2014-15. From 2015-16 onwards the sharing pattern has been changed as 60:40 between GoI and GoK.

During 2007-08 to 2015-16, a total number of 1216 projects with an outlay of ₹1876.94 crore had been approved in the state under the scheme. Out of this 1001 projects were completed. A total amount of ₹1489.68 crore was released by GoI upto 2015-16 and an amount of ₹1424.61 crore (96 per cent) was utilized. During 2015-16 against the budgeted outlay of ₹321.40 crore, ₹150.79 crore was released by GoI of which ₹100 crore (66 per cent) was utilised upto March 2016.

A number of small schemes are included for assistance under RKVY in the state like adoption of naturally ventilated greenhouse technology, adoption of precision farming technology, establishment of mushroom cultivation units, popularization of temperate fruit crops in Idukki district, and development of cool season vegetables in Kanthaloor and Vattavada. More focused areas with larger projects have to be identified for support under RKVY. More integration is required between RKVY and the state plan. Details are given in Appendix 2.18.

**Major programmes during 2015-16**

**Vegetable Development Scheme**

A new approach and strategy for the development of vegetables was introduced in the 12th five year plan. Accordingly, a major project on vegetable development was prepared by the Department of Agriculture during 2012-13 with a mission mode approach and a multi-pronged strategy covering an integrated approach with specified physical targets at Gram Panchayath level. The project aimed at promoting sustainability in vegetable area and production and safe to eat concept by advocating an integrated nutrient management and pest management principles of cultivation. During 2015-16 against the outlay of ₹64 crore, the amount utilized was ₹54.75 crore (86 per cent). In 2016-17 for vegetable development ₹68.30 crore was provided and the expenditure incurred upto October 2016 has been ₹10.28 crore (15 per cent).

**Support to State Extension Programme**

The Lead Farmer Centred Extension and Advisory Delivery Services (LEADS), a new field visit oriented extension system in the State with appropriate linkage with R&D institutions, KAU and KVKs, was introduced in 4 districts of the State - Kollam, Kannur, Palakkad and Wayanad. 798 Lead farmers and Satellite farmers were formed for advisory services under the programme. During 2015-16, extension activities carried out through ATMA which includes 456 farm schools, 1520 demonstrations, 250 farmer field schools, and 25 integrated farming system models.

ATMA plus model of extension system was introduced by integrating ATMA, LEADS and new initiatives identified through Strategic Research and Extension Plan (SREP). Promotion of integrated farming systems, farmer technology development, preparation of success stories, and identification of research issues were introduced. Model Panchayat Extension Plan was prepared for 14 Grama Panchayats and farmer extension organization was established in 14 blocks. Preparation of Monthly Technology Advice was streamlined in 14 districts. District and state level awards in excellence in extension was provided for outstanding technical officers with certificate and cash award at State level and district level. In order to strengthen ATMA model of extension,
new components under ATMA plus were introduced. All extension scheme components under ATMA Plus needs to be implemented with more convergence of schemes under Animal Husbandry, Dairy and Fisheries.

**Crop Insurance Schemes**

During 2015-16, 1.46 lakh farmers were enrolled under the state crop insurance scheme and an amount of ₹256.88 lakhs disbursed towards claim amount for 4324 farmers insured under the scheme. Under Modified National Agricultural Insurance Scheme (MNAIS) covering paddy, banana, plantain and tapioca, around 16650 farmers were insured and a compensation of ₹ 1.19 crore were distributed to 2538 beneficiaries. The Weather Based Crop Insurance Scheme (WBCIS) was notified in 12 districts covering 12 crops (paddy, banana, ginger, turmeric, pineapple, arecanut, cardamom, pepper, nutmeg, sugarcane, mango and cashew). Under WBCIS, around 34,800 farmers were enrolled covering an area of 26799 ha and a total claim of ₹12.82 crore were settled to 33270 beneficiaries during the period.

The Coconut Palm Insurance Scheme (CPIS) is being implemented in all districts and a total claim of ₹75 lakhs was settled among 1453 insured farmers. The farmers pay 25 per cent of the premium and the rest is subsidized by Coconut Development Board (50 per cent) and the state government (25 per cent) under the scheme. The other insurance programmes implemented through Agriculture Insurance Company are Rubber Plantation Insurance (RPI) and Rainfall Insurance Scheme for Coffee (RISC). Under Rubber Plantation Insurance scheme around Rs 40 lakhs paid as compensation for 119 farmers towards insurance cover against the loss of trees due to insured perils. The Rainfall Insurance Scheme for Coffee (RISC) is jointly promoted by Agriculture Insurance Company and Coffee Board and the Coffee Board provides 50 per cent subsidy upto 10 ha. The scheme is being implemented in Idukki, Wayanad and Palakkad districts and provides insurance cover for deficit in blossom and back up showers and excess in monsoon and post monsoon rains.

**Organic Farming**

Organic farming is an emerging area in the country and the export potential of organic products is increasing across the world. According to the latest statistics (FiBL-IFOAM survey) on certified organic agriculture worldwide, in 2014 around 43.7 million hectares of agriculture land, including conversion areas is being certified as organic in 172 countries, constituting 1 per cent of the total agricultural land of the countries, which is 0.6 million ha more than 2013. 11 countries have more than 10 per cent organic agriculture land.

The countries with the most organic agricultural land are Australia (17.2 million ha), Argentina (3.1 million ha) and United States (2.2 million ha). The area under organic certification (including wild harvest) in India increased by 9.9 lakh ha during 2015-16 and reached 5.71 million ha from 4.72 million ha in 2013-14, which includes 26 per cent cultivable area and rest 74 per cent forest and wild area. The States occupying top position with respect to area under organic certification are Madhya Pradesh, Himachal Pradesh and Rajasthan. India produced around 1.35 million MT (2015-16) of certified organic products which includes all varieties of food products namely Sugarcane, Oil Seeds, Cereals and Millets, Cotton, Pulses, Medicinal Plants, Tea, Fruits, Spices, Dry Fruits, Vegetables, and Coffee. The production is not limited to the edible sector but also organic cotton fibre and functional food products.

Organic farming policy, strategy and detailed action plan for Kerala was declared during 2010. The Department of Agriculture has been implementing a comprehensive project on organic farming in Kasargode district and it is envisaged to cover potential areas in other districts. Under this programme, 100 vermi compost units, 625 rural compost units, 30 demonstration plots and 42 ecoshops in 13 districts were established. Also the existing 200 clusters were strengthened and 50 new clusters formed. During 2015-16, 339 vermi
compost units have been established under organic farming by the State Horticulture Mission and an area of 3000 ha has been brought under organic certification.

A comprehensive assessment of the impact of interventions in organic farming on the farmer's well-being, economy and environment in the state as envisaged in the organic farming policy (2010) is required to reorient the strategies and to evolve suitable action plan for promoting organic farming in the state. Strengthening of participatory guarantee system, good agriculture practices, quality control laboratories and other certification and incentive system are also to be worked out to promote organic and nature friendly farming in the state.

The details of consumption of fertilisers and average price of inputs are given in Appendix 2.19 and 2.20. The selected indicators of agricultural development is given in Appendix 2.21.

**Crop Health Management**

A new approach on Crop Health management was initiated during 2013-14 to bring together management of sustainable ecosystems and people’s health through good plant protection practices (GPPP). Development of pests and disease surveillance system, implementation of area wide integrated pests management demonstration, establishment of plant health clinics and bio control labs, and development of parasite breeding stations are the major components of the scheme. Under the scheme during 2015-16, 3396 pest surveillance units were started and reports updated online by IITMK, 32 plant health clinics have been established, 1132 awareness campaigns and workshops including rodent control campaign have been conducted. District Diagnostic team was constituted as part of pest and disease surveillance project. A PG Diploma programme on plant health management has been initiated for the technical officers of the Department of Agriculture in collaboration with the National Institute of Plant Health Management, Hyderabad. During 2013-14 to 2015-16, out of the 93 officers enrolled in the course, 28 officers have completed the course and awarded the degree. District level as well as plant clinic level pest news bulletin were also published on monthly and fortnightly basis.

**Agro Service Centers**

Agro service centres (ASC) are established at block level to facilitate integration of services like mechanisation, ATMA based extension, credit support, weather advisory services, soil testing support and other technology based services. At present there are 64 agro service centres functioning in the state including 15 ASCs established during 2015-16. During 2015-16, ₹27.65 crore was budgeted of which an amount of ₹13.35 crore was utilized upto March 2016. The achievements during 2015-16 include establishment of 15 new ASCs, bio pharmacies in 14 ASCs, nurseries in 16 ASCs, soil testing labs at 4 ASCs and maintenance support to the existing 49 ASCs. It is proposed to strengthen agro service centres by constituting an apex body for co-ordination.

### Section 2

**LIVESTOCK DEVELOPMENT**

Livestock is a major source of livelihood for the World’s poor. It is an integral part of India’s agricultural economy and plays a multifaceted role in providing livelihood support to the rural population. Livestock sector apart from contributing to national economy in general and to agricultural economy in particular, also provides employment opportunities, asset creation, coping mechanism against crop failure and social and financial security. Livestock is the main source
of animal protein for the population. Small and marginal farmers and landless labourers own majority of the livestock resources. Also sustainable development of the livestock sector would lead to more inclusive development and empowerment of women. Livestock sector contributed 3.03 percentage of the Gross State Value Added (GSVA) and 29.18 percentage of the GSVA in Agriculture and Allied activities during 2015-16 (at constant price with base year 2011-12).

**PRODUCTION OF MAJOR LIVESTOCK PRODUCTS**

**Milk**

India ranks first among the world’s milk producing nations. At the national level, milk production has increased from 1026 lakh MT in 2006-07 to 1279 lakh MT in 2011-12. Milk production during 2014-15 and 2015-16 was 1463.10 lakh MT and 1554.90 lakh MT respectively, registering an annual growth rate of 6.27 per cent. Among the major milk producing states in India highest is in Uttar Pradesh (263.87 lakh MT) followed by Rajasthan (185 lakh MT) Gujarat (122.62 lakh MT) and Madhya Pradesh (121.48 lakh MT). Kerala ranks 14th with a production of 26.50 lakh MT in 2015-16.

Milk production in the State increased from the level of 21.19 lakh MT at the end of the tenth plan (2006-07) to 27.16 lakh MT at the end of the eleventh plan (2011-12). Milk production during 2014-15 and 2015-16 was 27.11 lakh MT and 26.50 lakh MT respectively with an annual growth rate of 2.11 per cent and (-)2.25 per cent respectively. Annual Growth rate of milk production during 2015-16 in the State is far below that at the national level. During 2015-16, Kerala contributed only 1.70 per cent of the annual milk production of the country.

The production of major livestock products at the National level and State level are shown in Table 2.5.

The production of milk and annual percentage change from 2008-09 to 2015-16 of the State is shown in Figure 2.5.

**Table 2.5**

<table>
<thead>
<tr>
<th>Year</th>
<th>Milk (lakh MT) (growth per cent)</th>
<th>Egg (crore) (growth per cent)</th>
<th>Meat (lakh MT) (growth per cent)</th>
<th>Milk (lakh MT) (growth per cent)</th>
<th>Egg (crore) (growth per cent)</th>
<th>Meat (lakh MT) (growth per cent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-07</td>
<td>21.19 (2.76)</td>
<td>119.39 (1.97)</td>
<td>1.98 (24.91)</td>
<td>1026 (5.01)</td>
<td>5066 (5.44)</td>
<td>23 (14.58)</td>
</tr>
<tr>
<td>2011-12</td>
<td>27.16 (-4.83)</td>
<td>170.48 (10.72)</td>
<td>4.26 (33.22)</td>
<td>279 (-8.57)</td>
<td>670 (3.52)</td>
<td>59 (7.27)</td>
</tr>
<tr>
<td>2012-13</td>
<td>27.9 (-4.83)</td>
<td>223.7 (1.97)</td>
<td>4.01 (-5.78)</td>
<td>1324 (-8.57)</td>
<td>6973 (3.52)</td>
<td>59 (7.27)</td>
</tr>
<tr>
<td>2013-14</td>
<td>26.55 (-4.83)</td>
<td>247.69 (1.97)</td>
<td>4.16 (33.22)</td>
<td>1376.8 (3.99)</td>
<td>7475.2 (3.99)</td>
<td>62 (5.08)</td>
</tr>
<tr>
<td>2014-15</td>
<td>27.11 (-4.83)</td>
<td>250.36 (1.97)</td>
<td>4.46 (7.16)</td>
<td>1463.1 (6.27)</td>
<td>7848.4 (6.27)</td>
<td>67 (8.01)</td>
</tr>
<tr>
<td>2015-16</td>
<td>26.50 (-2.25)</td>
<td>244.25 (1.97)</td>
<td>4.66 (4.48)</td>
<td>1554.9 (6.27)</td>
<td>8292.94 (5.66)</td>
<td>70.20 (4.78)</td>
</tr>
</tbody>
</table>

*Source: Animal Husbandry Department*
Egg/Meat

At the national level, egg production at the end of the 11th plan (2011-12) was 6645 crore as compared to 5066 crore at the end of the 10th plan (2006-07). Egg production during 2014-15 and 2015-16 was 7848.4 crore and 8292.94 crore respectively with an annual growth rate of 4.99 per cent and 5.66 per cent respectively. Tamil Nadu is the largest egg producing state in India (1612.52 crore) followed by Andhra Pradesh (1417.43 crore), Telangana (1120.58 crore) and West Bengal (601.08 crore). Kerala ranks 9th with egg production of 244.25 crore in 2015-16. At the national level, meat production increased from the level of 23 lakh MT (2006-07) to 55 lakh MT during 2011-12. Meat production during 2014-15 and 2015-16 was 67 lakh MT and 70.2 lakh MT respectively. The annual growth rate during the above period was 8.01 per cent and 4.78 per cent respectively. Among the Indian states Uttar Pradesh is the largest meat producer (14.18 lakh MT) followed by West Bengal (6.86 lakh MT), Maharashtra (6.75 lakh MT), and Andhra Pradesh (5.66 lakh MT). Kerala ranks 7th with production at 4.66 lakh MT in 2015-16.

Egg production in the State increased from 119.39 crores at the end of the Tenth Plan (2006-07) to 170.48 crores during the year 2011-12. The egg production during 2014-15 and 2015-16 was 250.36 crores and 244.25 crores respectively with an annual growth rate of 1.08 per cent and (-)2.44 per cent respectively. Meat production in the State increased from the level of 1.98 lakh MT at the end of the tenth plan (2006-07) to 4.26 lakh MT during the year 2011-12. The meat production during 2014-15 and 2015-16 was 4.46 lakh MT and 4.66 lakh MT respectively with an annual growth rate of 7.16 per cent and 4.48 per cent respectively. Growth of egg production in the state during 2015-16 is far below the national level while for meat the growth percentage during 2015-16 is almost the same as that at the national level. During 2015-16 Kerala contributed 2.95 per cent of the annual egg production and 6.64 per cent of the annual meat production of the country.

The production of Egg/Meat and corresponding growth rates from 2008-09 to 2015-16 of the State is shown in Figure 2.6 and 2.7. During the period 2008-09 to 2015-16, annual growth rate was maximum for egg during 2012-13 and for meat during 2009-10.
Fig 2.6  
Egg production and growth rate

Source: Animal Husbandry Department

Figure 2.7  
Meat production and growth rate

Source: Animal Husbandry Department
Milk Marketing

During 2015-16, a total of 5929 lakh litres of milk was procured by the dairy co-operative societies in the State of which 3795 lakh litres were sent to the dairies and 2134 lakh litres were marketed locally by the societies. The average milk procured per day by Anand Pattern C-operative Societies (APCOS) during the year 2015-16 was 1109 MT against the previous year average of 1026 MT. The procurement/day/society during 2015-16 increased to 380 litres from 348 litres in 2014-15. The procurement of milk by Kerala Co-operative Milk Marketing Federation (KCMMF) increased to 4334.81 lakh litres against the sale of 4624.51 lakh litres during 2015-16. Except in Palakkad, Wayanad and Kattappana Dairy, the sales of milk exceeded the procurement. The shortfall between milk procurement and sales was met by arranging milk mostly from state milk federations of Karnataka, Tamil Nadu, and purchase of skimmed milk powder. Data on procurement and sale of milk by different dairies of KCMMF during 2011 to 2016 is given in Appendix 2.22 and performance of KCMMF during 2011-12 to 2015-16 are shown in Appendix 2.23 and average quantity of milk procured per day by APCOS are shown in Appendix 2.24. The price revision and price spread of milk from 2009 onwards is given in Appendix 2.25 and 2.26 respectively.

Weak 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. During the year 2015-16, the Department could add 2686 ha to the existing cultivated area resulting in 4.62 lakh MT more of green fodder to the existing stock. Assistance was provided to farmers for Azolla cultivation, mechanization of fodder cultivation and harvesting, and irrigation facilities. Fodder exhibitions and workshop were also included in the fodder development activities. Innovative fodder development programs under Integrated Dairy Development Program were implemented in the districts of Kannur, Idukki and Ernakulam. To overcome shortage of raw materials for cattle feed production, maize was cultivated in 100 Ha of land producing 350 tons of maize grain. The total production of cattle feed during 2015-16 was 3.97 lakh metric tonne as against 3.61 lakh MT during 2014-15. Dry fodder marketing activities were taken up by 70 Dairy co-operative societies and Fodder cultivation and fodder marketing activities were taken up by 50 women groups. The production of feed and fodder are shown in Appendix 2.27, 2.28 and 2.29.

Breeding Support

Kerala Livestock Development Board (KLDB) is involved in the production and distribution of frozen semen. Compared to 2014-15, semen production decreased from 34.45 lakh doses to 24.47 lakh doses during 2015-16. The distribution inside the State increased from 17.55 lakh doses to 17.65 lakh doses and outside the state decreased from 11.26 lakh doses to 10.71 lakh doses respectively during this period. Details are shown in Appendix 2.30.

The number of Artificial Insemination (AI) centres in the State during 2015-16 was 2515. The number of inseminations done during 2015-16 was 13.00 lakh and calving recorded was 3.25 lakh. The average number of inseminations needed for producing one calf is 4. The details of AI are shown in Appendix 2.31. The quality of AI has not shown any improvement and so measures to improve the quality of semen supplied needs to be taken up immediately. The activities of the KLD Board are given in Appendix 2.32.

Special Livestock Breeding Programme (SLBP)

Calf rearing in Kerala is an expensive activity. Farmers compromise with the management
practices and nutrition to save expenses. Consequently, the growth and reproductive performance of the animals are affected adversely. Providing assistance for balanced feeding and scientific management can solve the issue to a major extent. The SLBP was initiated in Kerala in 1976 with the above objective. During 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 during the period 2014-15 and 2015-16. During 2015-16, 29164 calves were only enrolled under this programme against 84,712 calves during 2014-15. Year wise details from 2005-06 onwards are shown in **Appendix 2.33**.

**Govardhini**

Govardhini is a new scheme started in the state from 2014-15 onwards with the objectives of providing total health care to the calves like reducing the age at puberty, age at first calving and inter-caling period of the female calves borne in Kerala for increasing milk production in the state. Scientific Management, feeding with adequate quantity of good quality feed and health cover including prevention against common contagious diseases and insurance cover against loss due to unforeseen reasons are the basic requirement in achieving the goal. All these aspects are comprehensively covered in this scheme. Beneficiaries are selected from the calf birth register maintained at Government veterinary dispensaries on first come first serve basis. During 2014-15 and 2015-16, 48000 calves were enrolled under this program.

**Animal Health Care**

Though there is an improvement in the quality of livestock through cross breeding programs, the susceptibility of animals to various diseases including exotic diseases has increased. The animal husbandry department provides veterinary care mainly through 14 district veterinary centres, 50 veterinary polyclinics, 215 veterinary hospitals, 885 veterinary dispensaries, 9 mobile veterinary hospitals, 7 mobile farm aid units and 1 motorboat veterinary hospital.

The Department through the Animal Disease Control Project has successfully taken up massive foot and mouth vaccination campaign in order to prevent foot and mouth disease (FMD) outbreak and also vaccinations for poultry and ducks against avian diseases. During 2014-15, the highly pathogenic Avian Influenza (Bird flu) outbreak occurred in the State, especially in Alappuzha, Kottayam, Pathanamthitta and Kollam districts. The disease was due to highly pathogenic H5N1 strain which is of zoonotic importance. Effective and timely action was taken by the Animal Husbandry Department by coordinating containment operations in liaison with respective district administrations and local self-governments. Compensation was provided to the farmers. During 2016-17 also Avian Influenza outbreak occurred with H5N8 strain in Alappuzha and Kottayam districts. More than 7 lakh ducks were culled as part of containment operation. Data regarding outbreaks, attacks and deaths of major contagious diseases of animals in Kerala for the period from 2009-10 to 2015-16 are given in **Appendix 2.34**. Anthrax, Hemorrhagic Septicemia, FMD and Black Quarter have been reported during 2015-16. Number of attack of Hemorrhagic Septicemia and FMD were very high during 2015-16 compared to 2014-15.

**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 during the 12th plan 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. The veterinarian on contract basis has to submit monthly reports to the veterinary officer of the concerned block in which the unit is attached. Emergency night veterinary service was established in 50 selected blocks of the state up to 2015-16 and during 2016-17 this was extended to 65 blocks.

**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 here are shown in Appendix 2.35. During 2015-16, the production of poultry vaccine was 248.29 lakh doses and livestock vaccine was 4.36 lakh doses. Compared to the previous year, production of poultry vaccine decreased by 9.61 per cent and livestock vaccine increased by 2.14 per cent. Number of vaccinations done during 2015-16 was 24,90 lakh numbers for livestock and 106.36 lakh numbers, for poultry. Compared to the previous year, vaccination to cattle increased by 15.49 per cent and vaccination to poultry decreased by 31.19 per cent. Anti Rabies Vaccinations done in dogs increased from 1.79 lakh nos. to 2.87 lakh nos. during 2015-16. Details are given in Appendix 2.36.

**Prices**

Average price of important inputs and products of livestock sector for the last six years is presented in Appendix 2.37 and almost all the products recorded increase in prices during the period. Compared to 2014-15, there was increase in the price of all categories of meat during 2015-16. The price of chicken broiler increased by 16.06 per cent, chicken (Desi) by 27.37 per cent, mutton by 3.92 per cent, beef by 14.25 per cent and pork by 7.48 per cent. During 2015-16, the highest increase was in the case of chicken (Desi) (27.37 per cent), followed by chicken broiler (16.06 per cent). Compared to 2014-15, the price of fowl-white egg increased by 7.69 per cent, brown egg by 10.91 per cent and duck egg by 7.51 per cent during 2015-16. Compared to 2014-15, the price of cow milk increased by 4.54 per cent and buffalo milk by 0.76 per cent during 2015-16.

On the input side, the price of straw increased by 6.72 per cent and grass by 3.14 per cent during 2015-16. Compared to the previous year, the price of groundnut cake increased by 11.48 percent, coconut cake by 7.79 per cent and gingely oil cake by 7.61 per cent during 2015-16. 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 2010-11 to 2015-16 are shown in Figure 2.8.

**Annual Plan 2014-15**

Annual Plan 2015-16 earmarked an outlay of ₹299.38 crore and ₹79.00 crore for Animal Husbandry and Dairy Development sub sectors and expended ₹187.66 crore (62.68 per cent) and ₹77.76 crore (98.43 per cent) respectively. Special Livestock Breeding Programme (SLBP) and Strengthening of Veterinary Services were two major projects implemented with an outlay of ₹46.39 crores and ₹36.37 crore respectively and ₹46.14 crore (99.46 per cent) and ₹26.80 crore (73.69 per cent) were spent. Under dairy development, milk shed development and assistance to primary dairy co-operatives are the major schemes implemented with an outlay of ₹36.25 crore and 16.50 crore respectively and ₹35.96 crore (99.20 per cent) and ₹16.47 crore (99.82 per cent) were expended.

**Key initiatives in 2015-16**

The key initiatives of the Dairy Development and Animal Husbandry Department are shown below:

- Emergency Veterinary service during odd hours extended to 65 selected blocks of the State.
Figure 2.8
Trends in Average Prices of Livestock Products from 2010-11 to 2015-16

Source: Animal Husbandry Department

- Strengthening of infrastructure facilities of laboratories for improved disease diagnosis and surveillance
- Antirabies vaccination campaign was implemented to control the dog population and eliminate rabies in Kerala by 2020.
- Comprehensive vaccination campaign against Foot and Mouth disease was implemented
- For Govardhini, an amount of ₹36.00 crore earmarked.
- Augmenting poultry production through villages.
- Assistance for the infrastructure development of State Dairy Lab, Thiruvananthapuram
- Integrated Dairy Development programme for Kollam and Ernakulam districts with plan outlay of 15 crore.
- Establishment of permanent Milk checking facility at Walayar and Meenakshipuram.
Section 3
FISHERIES DEVELOPMENT

India is the second largest fish producing nation in the world, with a share of 5.4 per cent of global fish production. India is also a major producer of Fish through aquaculture and ranks second in the world after China. Total fish production in India has increased since 1991. From 3.84 Million Tonnes (MT) in 1991, it increased to 10.06 MT in 2014-15 (provisional figures), of which 6.57 MT was from Inland sector and 3.49 MT was from Marine sector. Inland fish production constitutes about 65 per cent in total fish production of the country. Annual growth rate of production has also been high in the Inland sector. Though marine fish production has increased, the growth rate is very low during recent years.

Fisheries sector contributes significantly to the national economy while providing livelihood to approximately 8.74 lakh fishermen families in the country. Contribution of fisheries sector to the GDP of India is around 1 per cent. Share of fisheries in the GDP from Agriculture, Forestry and Fishing is 5.5 per cent. The sector has been recognized as a powerful income and employment generator as it stimulates growth of a number of subsidiary industries. It is also a source of cheap and nutritious food besides being a source of foreign exchange. During 2015-16, export of marine products from India was 9,45,892 tonnes valued at ₹30,420.82 crore. Compared to the previous fiscal, a decline has been recorded in the quantity and value of exports. Fisheries is recognized as a promising sub-sector of agriculture and allied activities in India.

The fishermen population of the state for 2015-16 is estimated as 10.24 lakh based on the projected population of Kerala as on October 1, 2015. Population of the state as per Census 2011 is 33.4 million. Hence the fishermen population is around 3.1 per cent of the state population. They reside in 222 marine fishing villages and 113 inland fishing villages of the state. Out of this, 7.88 lakh fishermen belong to Marine sector while 2.36 lakh fishermen belong to Inland sector. Alappuzha (1.90 lakh) is the district with largest fishermen population, followed by Thiruvananthapuram (1.70 lakh) and Ernakulam (1.36 lakh). The district wise details of fishermen population are given in Appendix 2.38. The number of Active fishermen in the state during 2015-16 was 2,33,126. Active fishermen are those fishermen who are engaged in fishing for their livelihood and are registered with Kerala Fishermen’s Welfare Fund Board. During 2015-16, the number of allied workers in fisheries was 77,694. Allied workers are those engaged in fishery related activities for livelihood and are registered with Kerala Fishermen’s Welfare Fund Board.

Fisheries and aquaculture contributes around 8.9 percentage of the Gross State Value Added (GSVA) from the primary sector which is of significance to the state economy. The Gross State Value Added of the State has been increasing over years, but the share of primary sector and that of fisheries sector has been declining. The share of fisheries sector in the State Value Added has declined from 1.12 percent in 2011-12 to 1.04 per cent in 2015-16. The share of Primary Sector in GSVA has declined from 15.20 per cent in 2011-12 to 11.58 percent in 2015-16. The contribution of fisheries sector in GSVA is given in Appendix 2.39.

Marine fish production of India during the year 2014-15 has provisionally been estimated as 3.49 million tonnes with an increase of about 0.05 million tonnes compared to the estimate for the
last year. As per estimates of 2013-14, among the states, Gujarat was the highest contributor of Marine fish production followed by Kerala. In total fish production in 2014-15, Andhra Pradesh was the highest contributor and Kerala stands at 5th position. Marine Fish landings in Kerala during 2015-16 were 5.17 lakh tonnes. Marine fish landing in Kerala has been declining continuously since 2011-12, with the exception of a marginal increase in 2014-15. High value species among the 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 ultimately decides the income of the fishermen. The species wise marine fish landings in Kerala from 2012-13 to 2015-16 are shown in Appendix 2.40.

**Trend in Production**

As per estimates of 2013-14, among the maritime states in India, Kerala occupies the second position in marine fish production. The total fish production in Kerala during 2015-16 was 7.27 lakh metric tonnes. The marine fishery resources of the state is said to have almost attained the optimum level of production. At National level about 65 per cent of the total fish production is contributed by the inland sector, however at the state level, the share of inland sector is relatively less than the marine sector. The current level of Inland fish production is 2.1 lakh tones, and it shows an increase of about 4 percent over the previous year. The species-wise inland fish production in Kerala from 2012-13 to 2015-16 are shown in Appendix 2.41.

Indian marine fisheries is also passing through a crisis due to over capacity and open access nature. During 2014-15, India’s total fish production is provisionally estimated to be 10.06 million tonnes of which 3.49 million tonnes was from marine sector and 6.58 million tonnes was from Inland sector (Figure 2.9).

The marine fish production in Kerala has tended to fluctuate while the inland fish production has showed signs of improvement from 1999-2000. Marine fish production has decreased from 5.24 lakh tonnes in 2014-15 to 5.17 lakh tonnes in 2015-16. Inland production has been increasing during the recent years. During 2015-16, the share of inland fish production in the total fish production of the state was 29 percent. Kerala has not utilized its potential in Inland fishing. Kerala has over 7
per cent of the water bodies in the country, but its share in Inland fishing is lower than that of many other states. Details of fish production for the last 5 years are given in Appendix 2.42 and Figure 2.10.

An analysis of the figures of District wise fish production in Kerala shows that the district of Kollam is the leading producer of Marine fish followed by Kozhikode and Ernakulam. These 3 districts together contribute more than 50 per cent of the total marine fish production in the state. Alappuzha, Thrissur and Palakkad are the leading districts in the case of inland fish production occupying the first, second and third positions respectively. If we look at total fish production, the leading producer is the district of Alappuzha followed by Ernakulam and Kozhikode respectively. Details are provided in Appendix 2.43. Kerala has made vital contributions in the export of marine products from the country. During 2015-16, export of marine products from Kerala was 1,49,138 tonnes valued at ₹4644.42 crore. Compared to the previous fiscal, a decline has been recorded in the quantity and value of Exports. Details are provided in Appendix 2.44.

The key elements of the 12th plan in the fisheries sector are launching of a comprehensive coastal area development project covering infrastructure, housing, sanitation, drinking water and livelihood, action plans for augmenting inland fish production to 2 lakh tones by the end of the plan from 1.17 lakh tones, enhancement of seed production, strengthening of post-harvest infrastructure like better fish landing and handling facilities, cold chains, storage facilities as well as marketing facilities for the development of the sector and improvement in the production of value added products, micro enterprises, credit support and coverage under social security. Annual Plans are formulated keeping in mind the priorities set under the Five Year Plans, and accordingly, the fourth year plan programme of the XIIth five year plan was completed in 2015-16.

Performance Review under XIIth Plan and Annual Plan 2015-16

The projected outlay during the 12th plan under the fisheries sector was ₹1471 crore (including Coastal Area Development) which accounts to 1.44 percent of the total state plan outlay and

![Figure 2.10](image-url)

Fish Production in Kerala (2011-12 to 2015-16)

Source: Directorate of Fisheries, Government of Kerala
16.66 percent of the outlay under Agriculture and Allied Sectors. The actual amount budgeted during the five year period of the 12th Plan from 2012-13 to 2016-17 was ₹1 419.9 crore and the expenditure reported up to October 2016 was ₹972 crore (68.4 per cent). Year-wise details are given in the Table 2.6.

The total expenditure under state plan schemes during 2015-16 was ₹345.03 crore, which is 94 per cent of the state plan outlay. The outlay on CSS schemes was ₹59.17 crore and the expenditure during this period was ₹63.01 crore. The outlay on scheme receiving NCDC Assistance was ₹18 crore. The expenditure reported was ₹18 crore (100 per cent). The outlay and expenditure for various types of schemes implemented in the fisheries sub sector during 2014-15 and 2015-16 are given in Appendix 2.45. An external monitoring mechanism may be adopted for evaluating the impact of major schemes implemented by various agencies. Multiplicity of agencies and schemes pose the threat of overlapping of schemes implemented by various agencies which may be avoided.

**Key Initiatives during 2016-17**

Inland fish production is an area which holds promise for future in Kerala. Insufficient availability of good quality fish seeds was identified as a major problem. To increase the production of fish seeds and to ensure quality, it is required to strengthen the existing hatcheries, nurseries, fish farms and construct new units to the existing infrastructure. During 2016-17, an amount of ₹15.99 crore was allocated for the scheme. Additionally, an amount of ₹5.5 crore was also provided for setting up demonstration units for innovative aquaculture practices.

In order to address the relative backwardness of the fisher folk population and the fishing community, the state of Kerala had initiated a new scheme ‘Basic infrastructural facilities and human development of fisher folk’ in 2015-16 with an outlay of ₹181.97 crore. The outlay to the scheme was ₹184.60 in 2016-17 where ₹100 crore was provided exclusively for the Housing requirements of the community.

The following are the new initiatives and priorities envisaged by the State Government

- Prime importance to protecting the traditional rights of the fishermen over fishery resources and coastal areas.
- Fishermen vulnerable to sea erosion will be rehabilitated to safe locations on priority basis
- Thrust will be given for ensuring basic

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<tr>
<th>Table 2.6</th>
<th>Outlay and Expenditure of Fisheries and Coastal Area Development, ₹ in crore</th>
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<tbody>
<tr>
<td><strong>Sector</strong></td>
<td><strong>12th FYP projected outlay</strong></td>
</tr>
<tr>
<td>Fisheries</td>
<td>1014</td>
</tr>
<tr>
<td>Special Area Devt.</td>
<td>457</td>
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<tr>
<td>Total</td>
<td>1471</td>
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*Source: Budget Programme Books, Government of Kerala and Planspace Kerala*
amenities such as pure drinking water, sanitary toilets and waste management systems in all fishing villages. 

- Concerted efforts will be made for empowering traditional fishermen for deep sea fishing.
- The State shall be made self-sufficient in fish seed production by augmenting existing production capacity of fish seed farms and hatcheries and establishing new seed farms.
- Schemes will be introduced to tap the potential in inland fisheries.
- Matsyabhavans will be made more functional by providing basic infrastructure facilities and manpower.
- It is proposed to enact a comprehensive Aquarian Reforms Act to protect the rights of active fishermen in the ownership of the fishing implements, entry to sea and access to marineresources.
- The Kerala Marine Fishing Regulation Act, 1980 (KMFR Act, 1980) will be amended for addressing the present challenges in maritime fisheries resource conservation.
- Fishermen Welfare and Development Societies will be strengthened and re-organised and the activities of the Kerala Fishermen Debt Relief Commission will be revamped.
- A special package will be devised for the integrated development of the coastal area of the State.

**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. Extension, Training & service delivery
4. Modernisation of markets and value addition
5. Social Security to fishermen
6. Development of Fishing Harbours and management
7. Scheme for the Fisheries University
8. Coastal Area Development

Ranching is undertaken for enhancing the stock of important species. 162 lakh numbers of fish/prawn seeds were released into wild environment and 1839 lakh seeds were released under controlled environment during the year 2015-16.

The 2nd phase of Matsyasamrudhi project was started in 2015-16 for the period 2015-2018. During 2015-16, 7626.89 Ha of fresh water, 3438.05 Ha padasekharam and 2561.39 Ha of brickish water area were brought under fish/prawn/shrimp culture under this programme. 54 ha area was brought under karimeen culture. Mussel farming was also carried out by 2327 units.

In 2015-16, as a part of addressing issues prevailing in the housing sector of fishermen, funds were provided to 4990 fishermen for construction of new houses. To address the issue of Sanitation, during 2015-16, assistance at the rate of 17,500/- was sanctioned to 3600 fishermen for constructing toilets. In 2015-16, under the Plan scheme ‘Basic Infrastructure facilities and human development of fisherfolk’, Kerala State Coastal Area Development Corporation is engaged in the implementation of 3 Health infrastructure, 1 library construction, 2 sanitation works, 1 Livelihood support scheme, 5 Educational infrastructure, and 4 Anganwadis.

**Fishing Harbour**

The Government of Kerala has so far completed construction work of 14 fishing harbours and the works of 10 fishing harbours are progressing. The
completed fishing harbours include Thankassery, Neendakara, Kayankulam, Munambam, Beyapore, Puthiyappa, Chombal, Moplabay, Azheekal, Ponnani, and Thottappally. The On-going Fishing Harbour works include Vizhinjam, Chethi, Arthungal, Chettuvai, Thanur, Koyiland, Vellayil, Thalai, and Manjeswaram. During 2015-16, Cheruvathur fishing harbour was commissioned in the month of August. However, some additional works are pending. During 2016-17, Plan support was extended to Fishing Harbours like Arthungal, Vellayil, Thanoor, Manjeswaram, and Koyiland. Funds were also provided to complete and operationalize Chettuvai, Cheruvathur and Thalai Fishing Harbours. Support was also provided to Munakkadaovu Fish Landing Centre. Construction of fishing harbours was previously undertaken with the help of State fund, fund from central government (50 per cent and 75 per cent CSS), fund under central schemes like RKVY, and fund from agencies like NABARD (under RIDF). However, recent changes in the funding pattern of CSS schemes introduced by the central government would have a direct bearing on the completion of fishing harbours in Kerala. The state would find the funding of such large projects a big hurdle.

During 2016-17, ₹26.24 crore was provided for Fishing Harbours under the state Plan. Expenditure reported till October 2016 was Rs 15.28 crore. Time bound completion schedules for all ongoing fishing harbours need to be worked out. It is also reported that many of the Fishing Harbours are not in usable condition, and are not operational. Steps need to be taken to ensure that Fishing Harbours are operational throughout the year. The progress of ongoing fishing harbours is shown in Appendix 2.46.

Total revenue collected from fishing harbours and fish landing centres has shown a sharp fall of 14 per cent from ₹ 490.96 lakh in 2014-15 to ₹ 422.23 lakh in 2015-16. Highest revenue collection has been from Neendakara harbour since 2012-13. Puthiyappa fishing harbour is the second highest revenue earner in 2015-16. Together, Neendakara and Puthiyappa contributed about 65 per cent of the total revenue collection from fishing harbours and fish landing centres in Kerala. Compared to 2014-15, revenue collection has increased in 2015-16 in Fishing Harbours like Neendakara, Puthiyappa, Beyapore, Vizhinjam, Chettuvai, and Cheruvathur. The details are given in Appendix 2.47.

**NABARD assisted schemes**

Apart from the construction of Fishing Harbours, NABARD funds have been used for works like construction of Fish Landing centres, roads, bridges, locker rooms, and walkways, NABARD under RIDF XV had sanctioned 11 works including Fishing Harbour at Chellanam, Perumathura Thazhampally Bridge, Kappad-koyiland Road, and Locker room at Thangasseri fishing harbour. Ten works have been completed. Ten projects including 7 bridges, fish landing centres and walkway amounting to ₹62.91 crore was sanctioned under RIDF XVII. Two bridges and a Fish Landing centre have been completed, and the rest are progressing. Works sanctioned under RIDF XIX include 12 fish landing centres, replenishment of Neendakara fishing harbor, 8 bridge works and 2 road works amounting to ₹76.72 crore. 8 Fish Landing centres, 2 bridges and one road work have been completed and the rest are progressing. Works for 2 roads and a bridge totaling ₹ 7.82 crore have been sanctioned under RIDF XX. An outlay of ₹ 20 crore was provided in 2016-17 for NABARD assisted RIDF projects and an expenditure of ₹11.79 crore has been reported till September 2016.

**Social Security and livelihood support to Fishermen Community**

Government of Kerala has placed emphasis on various schemes implemented to ensure social se-
security and livelihood support to fishermen community. Apart from the Fisheries Department, Matsyafed and Kerala Fisherman’s Welfare Fund Board also implement such schemes. Plan support is also available for many such schemes. Some of these schemes are Centrally Sponsored Schemes. Schemes include those for Housing, Insurance, and Pension besides measures which enable fishermen to earn livelihood on a continuous basis.

In order to save fisherfolk from exploitation of money lenders 21,085 fisher women were given interest free loan. 46,814 fishermen were given old age pension with an amount of ₹3,524.77 lakh. Widow pension was provided to 9,181 women for which an amount of ₹671.03 lakh was provided. ₹394.31 lakh was spent for providing group accident insurance scheme for fishermen and ₹137.801 lakh was spent for providing group accident insurance scheme for allied workers. Educational concessions were given to 63,099 fishermen children. During 2015-16, support was provided for livelihood activities of 257 new fisher-woman groups for social empowerment of fisherwomen. Details of such schemes implemented by the Department and KFWFB are provided in Appendix 2.48 and 2.49 respectively. The state has been able to provide greater assistance to the fishermen community, and expand the social security net over the years.

**Matsyafed**

Matsyafed is an apex federation of 665 primary level Fishermen Development Welfare Cooperative Societies, of which 340 are in marine sector, 193 are in inland sector and 132 women co-operative societies. The total membership in these societies is more than 4.45 lakh. The Authorized share capital of the federation is ₹150 crore. Matsyafed has organized Self Help Groups within the fishing community and has developed among them, the habit of savings. These groups have mobilized money as thrift. By providing micro finance and interest free loans, Matsyafed has made a significant impact in the area of micro credit. Matsyafed has also been successful in enabling the fishermen have access to vital fishing inputs. The achievement of various programmes implemented by Matsyafed is given in Appendix 2.50.

In the 11th five year plan, marine fisheries 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 utilization of infrastructure created in the plan. Special emphasis is being given to conservation and management of inshore fishery resources, enhancement of offshore marine fish production, maximum utilization of harvested fish and value addition.

As the state moves into its 13th Five Year Plan, Fisheries sector is looked upon with interest due to its immense potential to contribute positively towards development. The sector needs to take upon itself objectives like (a) nutritional security through enhancing fish production and (b) poverty reduction among fisherfolk by ensuring distribution of production benefits to the community on a sustainable and equitable basis. These must be achieved keeping in mind the challenges posed by climate change and degradation of environment. The resource base of the state offers ample scope for growth of aquaculture especially in the Inland waters. However, resource conservation and elimination of harmful fishing practices need greater emphasis in the future endeavors. With adequate technological support and extension activities, the sector can be expected to do well in the coming years.
Section 4
WATER RESOURCES

Agriculture is the single largest consumer of water. Agriculture accounts for more than 70 per cent of the total water demand globally and its share is as high as 90 per cent in developing countries like India. In this context, even a marginal saving in irrigation water use can release substantial amounts of water for agricultural expansion as well as for meeting the needs of other sectors like domestic water demand. The irrigation water is one of the most ill-managed resource, which creates a severe scarcity of water, both for drinking and irrigation in some region and environmental problem such as water logging in some region. It is now widely recognised that a paradigm shift from the traditional supply orientated mind set towards the concept of water conservation and demand management is essential for the sustainability of water resources and the environment, as well as economic efficiency and social development.

Due to unique topographic and geomorphic settings, scarcity of water is experienced in many parts of the state during the summer months. For proper planning of the future control and utilization of the available water resources, the quantity, the quality and the temporal reliability of the resource needs to be assessed.

LIVE STORAGE CAPACITIES OF IRRIGATION RESERVOIRS

There are 18 dams in the State intended for irrigation. Out of this, 14 have storages and remaining are barrages. The live storage position of the reservoirs during the beginning and end of the monsoon period during 2014 to 2016 and the average for 10 years are given in Appendix 2.51.

During 2016, at the beginning of monsoon, the

Figure 2.11
Live storage Position in the Reservoirs (2014-16), in million cubic meter

Source: Water Resources Department, Government of Kerala
total storage was 488.35 Mm3 and at the end of the monsoon, the level was raised to 690 Mm3, as against the previous year levels of 527.83 Mm3 and 901.15 Mm3 respectively. On analyzing the increase in storage position of reservoirs after monsoon during the past three years, it is to be noted that there is a decreasing trend, ie from 901.26 Mm3 in 2014 it has declined to 373.32 Mm3 in 2015 and to 201.65 Mm3 in 2016. 10 year average data shows that storage in the beginning of monsoon was 442.05 Mm3 which increased to 1094.95 Mm3 after the monsoon indicating an increase of 652.9 Mm3.

LONG PENDING IRRIGATION PROJECTS

There are 4 long pending irrigation projects which began in 1970s. Status of these irrigation projects are given in Appendix 2.52.

Karapuzha Irrigation Project

Karapuzha Irrigation Project, the first project taken up for execution during Vth Five Year Plan, envisaged construction of an earth dam across Karapuzha stream to create a reservoir of 76.50 Mm3 storage capacity and to irrigate an (net) ayacut of 5221 hectares(net) of land in three taluks of Wayanad district. The project aims to provide irrigation facility during the second crop period of paddy. Karappuzha Irrigation Project was included in the Accelerated Irrigation Benefit Programme under Prime Ministers Relief Package during 2006-07.

The project was approved by Planning Commission in 1978 with an estimated cost of ₹7.60 crore envisaging irrigation to Cultivable Command Area of 5600 ha and an ultimate irrigation potential of 8721 ha. Now, as per 2010 schedule of rates, the revised estimate is ₹441.50 crore. The project has been partially commissioned on 20.6.2010 with an ayacut (CCA) of 390 ha and an irrigation potential of 608 ha was created out of 7355 ha envisaged. As on March 2016, on completion of repairs of canal, additional CCA of 211 ha was created. Thus, as on 31.03.2016, total CCA created is 601 ha.

The cumulative expenditure incurred up to October 2016 is ₹322.87 crore. Head works, works of right bank canal and left bank canal are completed. 47.26 per cent of branch canal works and 5 per cent works of distributaries are also completed.

Muvattupuzha Valley Irrigation Project

The Muvattupuzha Valley Irrigation Project, one of the major projects in Kerala envisages the utilization of the tailrace discharge 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. The estimated cost of the project based on current CPWD rate is ₹ 945.00 crore. Project was partially commissioned in 1994.

The expenditure of the project as on October 2016 is ₹918 Cr. AIBP Central Loan Assistance of ₹154.96 cr was released during 2000-2009. Balance work is to be done for completion of the project.

Idamalayar Irrigation Project

Idamalayar Irrigation Project is a diversion scheme for diverting water of Periyar river for irrigating 14,394 ha. of cultivable lands in Periyar and Chalakudy basins. The project also envisages the improvement and augmentation of Chalakudy river diversion scheme by linking with the canal of Idamalayar irrigation project. The work commenced in 1981 at an estimated cost of ₹17.85 crore and has been revised to ₹750.00 crore as per 2012 SOR.

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), link canal (7.575 km). Main canal for a full length of 32.278 km and low level canal upto 7.3 km are completed and water through. Cumulative expenditure as on October 2016 is ₹426.54 crore. Total ayacut achieved is 2391.66 ha.
Banasurasagar Irrigation Project

The project commenced in 1979 with an estimated cost of ₹8.00 crore to irrigate an area of 2800 ha (net) agriculture land for the second and third crops in two taluks of Wayanad district. The revised estimate of the project as per 2010 SOR is ₹185.5 crores.

86 per cent of the works of 2730 m long main canal have been completed. The work of both branch canals – Padinjarathara branch canal and Venniyode branch canal are in progress. Out of the total length of 5390 m of Venniyode branch canal, works of 770 m completed. Total expenditure incurred for the project is ₹52.78 crore (including 85 lakh paid to KSEB as share cost).

FLOOD MANAGEMENT PROGRAMME

As per the constitutional provision, the subject “Flood Management” falls within the purview of the States. India has made huge investment in flood control sector since 1951 but the fear about severity of floods and the agony brought out by them still persist in many cases.

Kuttanad Package

Schemes related to Flood Control, salinity management and drainage are undertaken by Irrigation Department. An amount of ₹1517.90 cr was earmarked for this purpose. As on March 2016, out of the total cost outlay of ₹1840.40 cr, ₹707.326 crore has been utilised. Of the total expenditure, ₹353.42 cr crore is utilised for irrigation projects. Four schemes are sanctioned under Flood Management Programme(FMP) :- KEL-I – Mitigation of tloods (14 padasekkharams), KEL II - Mitigation of floods (9 padasekkharams), KEL III - Mitigation of floods (231 padasekkharams), KEL IV- Mitigation of floods in 12 watersheds. An amount of ₹200.00 crore was budgeted during the first four years of 12th plan as state share and another ₹600.00 crore was provided as central share. Out of ₹800.00 crore budgeted, ₹206.68 crore was utilized as state share and ₹150.13 crore was utilized as central share (Total ₹356.81 crore). Works of KEL-I and KEL II have been completed.

Box 2.3

Sustainable Low cost Rehabilitation of Ponds – An initiative by Kerala Irrigation Infrastructure Development Corporation Ltd (KIIDC)

Ponds play a crucial role in the development of an area. But, over a period of time, the pond system has failed mainly due to poor maintenance and upkeep as well as due to filling and conversion for commercial purpose. KIIDC has initiated a project on the Restoration of Ponds in Thiruvananthapuram corporation limits. Main highlights of the project are:

- Implementation will be done in a phased manner within the corporation limits
- Renovation cost limited to an average of ₹15.00 lakh per pond.
- Selection of public ponds for conservation and recharge of water
- Use of low cost biological methods.
- Exploring the possibility of recreation and fish cultivation.

Survey and data collection was carried out by KIIDC across the wards of Corporation and based on ownership, ponds were categorized into public and private. A monitoring committee consisting of ward member of the area and representatives of respective residence association and KIIDC were constituted for each of the pond taken up for restoration. Till March 31, 2016, 24 ponds have been completed and works in 18 ponds of the remaining 30 ponds are complete and the works in balance 12 ponds are in different stages of implementation.

Source: KIIDC
IRRIGATION STATUS

The net irrigated area source – wise for the period 2015-16 is shown in Appendices 2.53 and 2.54. As per the Directorate of Economics and Statistics, the net irrigated area in the State during 2014-15 was 4.14 lakh ha and this was reduced to 4.13 lakh ha during 2015-16. Irrigated area through private canals showed a tremendous decrease from 1249 ha (2014-15) to 774 ha (2015-16). Compared to 2014-15, the gross irrigated area has shown an increase from 4.69 lakh ha to 4.83 lakh ha during 2015-16. Coconut, paddy and vegetables were most benefitted during the period. Gross Irrigated area of vegetables showed an increasing trend over the past three years, from 21066 ha in 2013-14 and 24472 ha in 2014-15 to 39306 during 2015-16. Details are given in Appendices 2.55 and 2.56. The percentage of gross irrigated area to gross cropped area also increased from 17.89 in 2014-15 to 18.4 in 2015-16.

Minor Irrigation

Schemes having a cultivable command area up to 2000 ha are treated as Minor Irrigation schemes. Out of these, schemes having an ayacut below 50 ha are classified as Minor Irrigation Class II and those having ayacut area of 50 ha or more are Minor Irrigation Class I schemes. The role of Minor Irrigation is quite significant to our State. Works generally taken up under Minor Irrigation are construction of check dams, construction and renovation of irrigation tanks, regulators and bunds, and lift irrigation works.

Focus on minor irrigation and development of minor irrigation structures in critical agro ecological zones for the development of agriculture was one of the thrust areas during 12th plan period. During the 12th plan period, 19.63 per cent of the total budgeted outlay was earmarked for Minor Irrigation. Physical achievement of Minor Irrigation for 2013-14, 2014-15 and 2015-16 are shown in Appendix 2.57.

NABARD has been providing loan assistance for irrigation works through RIDF Phase 1 to XXI since 1995-96. 1314 projects have been completed under different tranches (RIDF I to XXI). Details are given in Appendix 2.58. RIDF I to XV have been closed and the works under RIDF XVI to XXI are in progress. NABARD has sanctioned 26 proposals worth ₹134.12 crore and 25 proposals for ₹129.89 crore under RIDF XX and XXI respectively.

Haritha Keralam Mission

Conservation and protection of the environment and thereby natural resources such as land and water have been an inseparable part of Indian heritage and culture. Over the years, the water usage scenario has changed drastically impacting the water systems adversely. This necessitates a major campaign focusing on the restoration of all types of water resource system and management of all resources in a sustainable and equitable manner.

Some of the major objectives of Haritha Keralam mission are - restore and improve the existing water resource systems including water resource structures, maximize rain water harvesting and ground water recharge within each micro watershed of the State, conservation of land and water to prevent soil erosion and enhancing the carrying capacity of river systems.

Development and preservation of water resources of the State following a water shed based approach with integration to river basins is the basic strategy for action in the water sector. By using water shed maps as scientific tools, watershed development plans can be prepared. The focus at the watershed level will be on the effective management of run off water and improved soil and moisture conservation activities.

Ground Water Development

Ground Water is a vital resource for meeting the water requirements of irrigation, domestic and in-
dustrial sectors of the country. Ground Water is an annually replenishable resource but its availability is non-uniform in space and time. The annual replenishable ground water resources of the area is the sum of recharge during monsoon and non-monsoon seasons.

Ground Water level is one of the basic elements which reflects the condition of the ground water regime in an area. Ground Water levels are being monitored by Central Ground Water Board and State Ground Water Departments. The assessment of Ground Water draft is carried out based on Minor Irrigation census data and sample surveys carried out by the State Ground Water Departments. The annual Ground Water draft of the entire country for 2010-11 has been estimated as 245 bcm. There has been marginal (2bcm) increase in the overall estimate of Ground Water draft of the country in 2011 compared to 2009. Agricultural sector remained the predominant consumer of ground water resources. About 91 per cent of total annual ground water draft ie 222 bcm is for irrigation use. Only 23 bcm is for domestic and industrial use which is about 9 per cent of the total draft. In several states including Kerala, ground water draft for domestic and industrial purposes are more than 15 per cent.

As on March 2011, total annual ground water recharge of the State is 668601.72 ha.m and the net annual ground water availability is 607407.22 ha.m. The net annual ground water availability for future irrigation development of our State is 306634 ha.m. The stage of ground water development of our State is 47 per cent. Among the districts, Kasargod and Wayanad ranks maximum and minimum with 71 per cent and 18 per cent respectively. Details are given in Appendix 2.59.

During 2015-16, ₹11.65 crore was expended against the outlay of ₹11.71 crore by the Ground Water department. Major schemes implemented by the Department are Investigation and Development of Ground Water Resources and scheme for ground water conservation and artificial recharge. For ground water development and investigation, ₹8.52 crore was expended against the outlay of ₹10.16 crore. Detailed physical achievement during the year under report is given in Appendix 2.60.

**Performance of Irrigation sector during 2015-16**

During 2015-16, the total outlay and expenditure of irrigation sector was ₹348.01 crore and ₹317.45 crore respectively. Details are given in Appendix 2.61. The poor performance of major and medium irrigation projects are the main reason for the low expenditure of the sector. Against the budgeted outlay of ₹190.23 crore for major and medium schemes, the expenditure incurred was only ₹62.94 crore. For Minor Irrigation schemes, ₹81.97 crore was expended against the outlay of ₹99.43 crore.

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**Section 5**

**FORESTRY AND WILD LIFE**

The world’s forest resources are monitored by FAO at an interval of 5 to 10 years since 1946. The Global Forests Resources Assessments (GFRA), by FAO, provide a consistent approach to describe the changes in the world’s forest resources. The assessments are based on country reports and remote sensing studies conducted by FAO. The latest GFRA 2015 has shown India among the few countries of the world indicating increasing trend in Forest and tree cover. Results of India State
of Forest Report (ISFR) 2015 also coincide with Global Forest Resource Assessment 2015 (GFRA 2015).

Forest Cover is classified into very dense forest, moderate dense forest and open forest. The total forest cover of the country as per ISFR 2015 is 701673 sq.km which constitute 21.34 percent of the geographical area of the country. There has been an increase of 3775 sq.km, in the country’s forest cover as compared to 2013 assessment. The total growing stock of India’s forests and trees outside forests is estimated as 5768 million cum which comprises of 4195 million cum inside the forests and 1573 million cum outside the forests. There is an increase of 110.34 m .cum in total growing stock of the country as compared to the assessment reported in ISFR 2013. Out of this, increase inside the forest is 21.69 m. cum and that outside the forest is 88.66 m.cum. Similarly, mangrove cover has increased by 112 sq km as compared to the previous assessment.

As per Forest Survey of India (FSI) report, 2015, total forest cover in the State of Kerala is 19239 sq.km, which is 49.5 percent of the total geographic area. Forest Cover in the State consists of 1523 sq.km of very dense forest, 9301 sq.km of moderate dense forest and 8415 sq.km of open forest. The extent of very dense forests is about 8 percent of the forest cover whereas open forests accounts for 44 percent of the forest cover. A comparison with the previous assessment in 2013 indicates a significant increase in the extent of open forests and a decline in the area under dense and moderately dense forests. Similarly, there is an increase in forest cover to the extent of 1317 sq. km and this is mainly due to commercial plantations. Idukki tops the districts in forest cover (3770 sq km). Alappuzha has the least forest cover (112 sq km). In terms of percentage of forest cover to total geographical area, Wayanad ranks first (79.73 percent), followed by Idukki (75.11 percent) and Pathanamthitta (65.96 percent). District wise details of forest cover in Kerala is given in Appendix 2.62.

**MANAGEMENT OF NATURAL FOREST**

Natural forests in Kerala are being managed mainly for sustaining the life support systems and biodiversity conservation. Forests in Kerala are mainly classified into 5 major categories. The major types of forests in Kerala is given in Appendix 2.63.

**Forest Protection**

Forest protection is the important aspect of managing natural forests. Major activities taken up during 2015-16 were survey of forest boundaries, forest protection and regeneration of denuded forests. Boundary demarcation was carried out by construction of cairns and kayalas along the boundary of the forests. Degraded forest areas were rehabilitated by planting in gaps with the local species. Protection of the forests from fire was carried out mainly by undertaking fire lines and engaging fire protection watchers. About 7983 cairns and 10.72 km of stone wall were constructed in 2015-16. Gap filling was done in an area of 100 ha and fire protection for 99.79 kms in and around degraded forests during the previous year.

**Productivity of Plantations**

About 1549 sq km of forests are under plantations of various types. Around 1,50,000 ha (13 per cent of total forest area) of forest plantations of various species exists, of which teak covers an extent of approximately 76,800 ha (51 per cent of total plantation areas). The annual revenue of the department comes mainly from the thinning and final felling of these plantations. Modern technologies including the use of improved seeds and modern nursery practices were adopted for raising the plantations. Plantations of hardwood species of local origin and pulpwood species for supplying raw materials to industries were also raised. Under Hardwood species, 265.04 ha of new areas were raised and 910.20 ha were maintained during the
year 2015-16. Regarding industrial raw materials, 598.48 ha were newly planted and 1280.78 ha were maintained. Non-Wood Forest species were raised newly in 371.00 ha and it was maintained in 418.61 ha during 2015-16. Species wise area under forest plantation is given in Appendix 2.64.

Forest Development Agency

Forest Development Agencies (FDAs) are registered as Federation of Vana Samrakshan Samithies (VSS)/Eco Development Committees (EDC) under the Societies’ Registration Act. All VSSs/EDCs of forest dependent communities/villages will come under the FDA on the condition that such units shall not exceed 50 under a single FDA. As on March 31, 2016, there are 400 Vana Samrakshan Samithies and 190 Eco development committees in Kerala.

Implementation of Forest Rights Act, 2006

Tribal people are integral part of forest ecosystem. Advent of scientific forest management and administration led to the settling of rights of people on forests under the provisions of Indian Forest Act, the first of which was formulated in 1865. Forests were notified by the British Government as reserved forests and protected forests after settling the rights of people on forest land and on forest resources. After independence also, the same process continued as per various State Forest Acts in the line of Indian Forest Act. It was a long felt need that the rights of tribals on forest land and on forest resources needed recognition. As a consequence, the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, popularly known as Forest Rights Act was legislated. The Forest Rights Rules, 2008 amended in 2012 deals with the detailed procedure for claim, recognition and settling of rights.

The Act defines a forest dwelling scheduled tribe as members or community who primarily reside in forest and depend on forest or forest land for their bona fide livelihood and includes scheduled tribe pastoralist communities. Similarly traditional forest dwellers are members or community who reside in forest for a period of at least three generations prior to 13th day of December 2005 and who depend on forest or forest land for their bona fide livelihood.

The rights are classified into individual right and community right. The most important individual right is the right of individual or community for forest land for habitation and personal cultivation for livelihood. The most important community right is the right of ownership, access to collect, use and dispose of minor forest produce. Right to intellectual property rights is also recognised as a community right.

Grama sabha or Oorukoottan is the primary institution which collects application and take evidence in connection with the rights. Screening of rights is done at the level of Sub Divisional Level Committee and District Level Committee. The title is issued by the District Level Committee. State Level Committee chaired by the Chief Secretary monitors the whole programme.

In the State about 25,000 families have been given title for individual right so far allotting about 35,000 acres of forest land. The process of settling of Community rights on forest resources, which is more vital for livelihood is being settled now. Progress Report as on 30.11.2016 is shown in Appendix 2.65.

Major Forest Produce and Revenue from Forests

The production of major forest produce during the period 2014-15 and 2015-16 is shown in Appendix 2.66. Forests contribute substantially to the non-tax revenue of the State amounting to ₹290.20 crore against a budget estimate of ₹354.73 crore during 2015-16. During 2015-16, revenue ( revenue from forest products plus interest on forest revenue dues) from forests was ₹290.20 crore against the previous year revenue of ₹300.40 crore. Revenue from forest products also
shows a decreasing trend, it was ₹ 257.37 crore during 2015-16 against 289.51 crore during 2014-15. Among the forest products, timber contributes the major source of forest revenue. Though major portion of the forest revenue is from timber, the share has declined during the previous year. Revenue from timber during 2015-16 was ₹240.89 crore against ₹269.43 crore during 2014-15 i.e, the share of timber has declined from 89 percent of the total forest revenue (2014-15) to 83 percent (2015-16) (Figure. 2.12). Details are given in Appendix 2.67. Further, enhanced rates for various services rendered by the Department, and e-Auction of timber has added to the forest revenue.

The share of Forestry and logging in total GSVA at basic prices during the period 2015-16 (Quick Estimates) is 0.83 percent against 0.90 percent during 2014-15. The share of primary sector in GSVP has decreased from 11.62 percent (2014-15) to 10.53 percent during 2015-16. The contribution of Forestry sector in GSVA is given in Appendix 2.68.

Wild Life and Biosphere Reserve

At present, there are 11 wildlife divisions under the wildlife wing. The wing manages 3213.237 sq.km of forests under its protected area network which includes 5 National Parks, 17 Wildlife Sanctuaries (includes 2 Tiger Reserves, 2 bird sanctuaries, 1 Peafowl sanctuary) and one Community Reserve. List of Wildlife Sanctuaries, National Parks, Biosphere Reserves and Community Reserves in Kerala is shown in the Appendix 2.69. During 2015-16, Wildlife wing has undertaken activities such as management of protected areas, preparation and implementation of management plan/Tiger conservation plan, conduct of wild life census, implementation of National Conservation projects, conduct and co-ordination of nature education and awareness programmes, co-ordination of eco-tourism/eco-development activities in protected areas, mitigating man- animal conflict including payment of compensation to the victims of wildlife attack etc.

Man- animal conflict

Man animal conflict is a perpetual problem confronted by the local people who inhabit the fringes of forest. In order to mitigate the problem, the Department has constructed several preventive structures such as solar fencing, elephant proof
trench, elephant proof wall, bio fence, kayala, and rail fence. During the year 2015-16, 6022 incidents of man animal conflicts were reported in Kerala. This includes human death, injury to human beings, cattle death, crop damage and property loss. Among the various circles of the Department, 6022 applications were received and ₹6.81 crore was paid as compensation to the victims of wild life attack during 2015-16.

Trees Outside Forest (TOF)

Compared to majority of the states, Kerala stands fairly good in TOF in the country. The recent FSI reports (2015) suggest 11073 sq. km area under TOF which is about 28.49 per cent of the state’s geographical area. Department has carried out massive afforestation programmes outside forest areas since 2007 with novel ideas. Haritha Keralam is an umbrella programme envisaged to increase greenery and enhance biodiversity in non-forest area of the State. This includes “Ente Maram, Nammude maram” Vazhiyora thanal, and Haritha theeram. The total number of seedlings distributed/planted under the various programmes upto March 31, 2016 is ₹ 576.2 lakh. The details of seedlings distributed under these programmes are given in Appendix 2.70.

Financial Performance of the sector during 2015-16

During 2015-16, against the State Plan outlay of ₹152.00 crore, ₹125.36 crore was spent (82.47 per cent). Expenditure details during 2015-16 is shown in Appendix 2.71.

Section 6
ENVIRONMENT

Environment is an issue of major concern to governance at national, state and local levels. The concerns are now multi-dimensional and no longer confined only to protection or conservation. In particular, the economic significance of environmental resources is being increasingly recognized, related to both the costs incurred in preserving the environment and the role of the environment in sustaining productive activity such as agriculture, including the indirect economic benefits that it generates. Environmental governance, particularly economic policy in relation to the environment is also affected by the policy environment at all levels. For a state rich in natural resources such as Kerala, and whose economy is significantly related to its natural wealth, environmental issues are particularly a source of concern.

The Government of Kerala implements several regulatory and promotional measures for environmental protection and conservation through various departments including the Departments of Environment, Science and Technology, Health and Family Welfare, Forests and Wildlife, Factories and Boilers, Industries Mining and Geology and Groundwater.

As per the latest environment assessment carried out by the Central Pollution Control Board, the Comprehensive Environmental Pollution Index (CEPI) score of Greater Kochi Area, one of the critically polluted areas in the country is 57.94 which was 75.08 in 2011. When compared to most of the other states, Kerala has much safer air quality with better forest cover, according to a recent national ranking. As per the Pollution Control Board’s Water and Air Quality Directory (2015), the Respirable Suspended Particle Matter (RSPM) values exceeded the permissible level of 60 micro gram per cubic meter at Kannur (63) followed by Nagambadam (60) and Vadavathoor (60), while the lowest RSPM was recorded in Makkankunnu.
in Pathanamthitta (24) followed by Irumpanam (25) and Thodupuzha (29).

As per Crime India 2015 Statistics (National Crime Records Bureau India, Ministry of Home Affairs) a total of 5156 cases were registered in the country under environment related offences during 2015. It was 5835 in 2014. The number of environmental related offences reported in Kerala during 2014 was 8 and in 2015 it is only 2 and these two cases are registered under the Forest Act.

However a large number of environmental issues continue to demand attention, ranging from river pollution by sewage and other waste generated by urban and rural settlements to intense noise pollution. Such a wide range of issues demand concerted attention by regulatory authorities especially the Pollution Control Board, whose functioning must be streamlined and strengthened with adequate capacity for implementation, enforcement and the pursuit of punitive legal action where necessary.

The inauguration of the Haritha Keralam mission by the Government of Kerala in 2016 is set to intensify efforts on protecting and conserving Kerala’s environment in all its respects. However, as an integrated mission, its scope will include the efforts of multiple departments and not only specifically the Department of the Environment.

**CLIMATE CHANGE**

The year 2015 witnessed a significant achievement as a new international agreement on climate change was evolved. On December 2015,196 parties to the UN Framework Convention on Climate Change (UNFCCC) endorsed the Paris Agreement, a universal, legal framework for climate change. The Paris Agreement establishes the obligation of all countries to develop plans on how to contribute to climate change mitigation and should communicate their ‘nationally determined contributions’ to the Secretariat of the Convention. Subsequently the Agreement has been ratified by a large number of countries, including all the members of the G-20, including India, China and the United States. The Paris Agreement establishes a challenging collective goal to hold the global warming well below 2 degrees Centigrade above pre-industrial levels with efforts to limit warming to 1.5 degrees Centigrade. It is expected that countries will step forward with ambitious national targets on mitigation and adaptation planning, and based on this planning countries should strengthen their national efforts as well as international cooperation.

India’s contribution to cumulative global CO2 emissions so far is approximately only 3 per cent, The per capita CO2 emission in the country increased steadily during 1900-2014. Its per capita greenhouse gas emissions is also low; amounting to only 1.56 tons of CO2equivalent in 2010. India is one of the countries on course to achieve the voluntary goal of reducing the Green House Gas (GHG) emission intensity of GDP (Emission Gap Report, 2014, UNEP). India's Intended Nationally Determined Contribution (INDC) focuses on reducing the GHG emission intensity of GDP to 35 per cent by 2030, a reduction of 33 per cent from 2005 level.

The country has also initiated efforts in climate change adaptation actions. It is universally acknowledged that India will be one of the nation’s that will bear the brunt of the impacts of climate change across many sectors, particularly those closely connected to the biosphere such as crop production, plantations, fisheries, and forests. Kerala needs to pay particular concern to climate adaptation while the scope for mitigation action is less than many other parts of the country.

**Clean Environment Cess**

A major tool proposed to deal with climate change is the introduction of carbon taxes, though globally concerns have been expressed regarding the negative distributional impact of carbon taxes in developing countries. The relatively high cost of fossil fuels in India has acted as an effective carbon tax. The Government of India in its submission of the Intended Nationally Determined Contribution (INDC) to the Paris talks has noted that oil prices amounted to an effective carbon tax of USD...
Climate Change (NAFCC)

There are various national and international funds available to effectively manage and adapt to the impacts of climate change. Some of the important funds available are 1. Adaptation Fund 2. Green Climate Fund (GCF) 3. International Climate Initiative (IKI) 4. Special Climate Change Fund (SCCF) and National Adaptation Fund on Climate Change (NAFCC).

National Adaptation Fund on Climate Change (NAFCC)

The objective of the NAFCC established by the Government of India under the Ministry of Environment Forest and Climate Change (MoEF and CC) is to assist State and Union Territories that are vulnerable to the adverse effects of climate change in scaling up climate change adaptation interventions, in accordance with the National Action Plan on Climate Change (NAPCC) and State Action Plan on Climate Change (SAPCCs). It has a budget provision of ₹350 crores for the year 2015-16 and 2016-17. The National Bank for Agriculture and Rural Development (NABARD) has been appointed National Implementing Entity and is responsible for implementation of adaptation projects. The State Government Departments are the Executing Entities and can submit proposals for accessing NAFCC funds.

The project from Kerala under the National Adaption Fund for Climate Change (NAFCC) titled “Promotion of Integrated Farming System of Kaipad and Pokkali in Coastal Wetlands of Kerala” with a budget of ₹ 25 crore has been approved by National Steering Committee on Climate Change (NSCCC). The period of the project is four years (2015-19). The Agency for Development of Aquaculture (ADAK), Department of Fisheries, Government of Kerala, is the Executing Entity of the project. The project envisions integrated farming methods as climate smart practices to enhance resilience of aquaculture communities to climate change especially sea-level rise that results in severe intrusion of salinity. The proposed area of the project is 600 hectares (300 hectares in Kannur District and 300 hectares in Ernakulam, Thrissur and Alappuzha districts). The proposals for coastal sea shore protection and KSEB’s renewable energy concepts are under discussion.

Biodiversity Conservation

Kerala is rich in biodiversity but the high density of human population and major transformation of the landscape since the mid-18th century emphasize the urgency for conservation of the floral and faunal diversity and sustainable use of its resources. The State contains more than 4,500 species of flowering plants of which above 1,500 are endemic in nature. Of 1,847 vertebrates of Kerala, 205 (approximately 11 per cent) species are listed as threatened in the IUCN Red List of Threatened Species of which 23 are Critically Endangered, 90 are Endangered and 92 are Vulnerable. 98 per cent of fishes and 87 per cent of amphibians of Kerala have not been included under any Schedule of the Indian Wildlife (Protection) Act (1972) (WPA). Of the 173 reptile species endemic to Western Ghats, 17 per cent are listed in various threat categories of IUCN. Nine hundred and five species of fishes are recorded from inland and marine waters of which 30 per cent of fresh water fishes are
endemic to state. 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 Chaliyar, Bharathapuzha, Chalakkudy, Periyar, and Pamba with point endemics in certain cases.

The fragile nature of ecosystem in Kerala is a concern and many natural and man-made causes pose a great threat to its biodiversity. The following conservation initiatives are being undertaken in the State.

- People’s Bio Diversity Registers (PBR) were prepared in 96 LSGs during 2015-16. Altogether 854 PBRs were prepared. 139 BMCs were reconstituted during 2015-16 consequent to change in elected people’s representatives of LSGs. Preparation of PBR remain to be done in 346 LSGs.
- During 2015-16, 455 biodiversity clubs were newly registered in various educational institutions.
- Shanthithal, a man made woodlot of Rare, Endangered and Threatened (RET) plants was established in 2.45 acres during 2015-16.

Significant efforts though are still required to implement biodiversity related initiatives based on the information and knowledge obtained through the PBRs. There is also considerable scope for enhancing revenue from the access and benefit-sharing provisions of biodiversity legislation and rules.

Section 7
CO-OPERATION AND AGRICULTURAL FINANCE

The co-operative movement in India has made remarkable progress, now numbering more than 600,000 cooperatives and 250 million members, making it one of the largest cooperative movement of the world. Co-operatives have a huge network and unparalleled reach, with 100 per cent coverage in rural areas. They play a pivotal role in the mainstream of Indian economy, particularly in the fields of rural credit, distribution of agricultural inputs, storage, fertilizer, marketing, labour, and housing. At a time when the country calls for inclusive growth as a key factor in removing socio-economic disparities, the cooperatives are the best organization to achieve this objective as they are deeply rooted in the psyche of the people, are participatory by nature, and promote equity.

In Kerala also, the co-operative movement has made deep strides and touched all spheres of life. Though initially started as a credit movement, it has diversified its activities in various socio economic frontiers. At present there are 15285 co-operative societies functioning under the Registrar of Co-operative Societies out of which 11908 are working satisfactorily. Out of these majority are credit co-operatives (3468) and consumer co-operatives (4671) and 1152 are women co-operatives.

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 Appendix 2.72. The physical achievements of the sector during 2016 is given in Appendix 2.73.

CREDIT CO-OPERATIVES

The credit co-operative societies are most vibrant and viable in the State. The Co-operative Credit structure in the state comprises of Short Term Credit and Long Term Credit.
The Short Term Agricultural Credit structures mainly comprises the Kerala State Co-operative Bank (KSCB) at the apex level, 14 District Co-operative Banks (DCB) at the district level 1647 Primary Agricultural Co-operative Societies (PACS) at the bottom level. These co-operatives are basically self-governing institutions with total accountability to the borrower members and in whose management they have a voice. In addition to the three-tire co-operative banking, there are well developed network of Urban Co-operative Banks in the State.

In the long-term credit, Kerala State Co-operative Agriculture and Rural Development Bank (KSCARDB) is at the top and 78 Primary Co-operative Agricultural Rural Development Banks (PCARDB) at the bottom level. KSCARDB is playing 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 to offer a complete range of credit and financial services to them.

The efficiency of the co-operative credit movement is due to the Primary Agriculture Credit Societies functioning at the grass root levels. There are 1647 societies functioning in the state with a membership of 2.29 crores. However, during the period under review, the share capital of the societies has come down from `1833 crores to ₹ 1497.06 crores. The deposits during the year have increased from ₹ 73795 crores to ₹ 80190.41 crores while the loans issued has declined from ₹ 83308.04 crores to ₹ 76007.84 crores. Out of the total loans issued, the share of agriculture loans comes to around 9.70 per cent. Also, one important development is the increase in the medium term and long term loan for agriculture that will help capital formation in a big way. Selected indicators and credit operations of PACS are given in Appendix 2.74 and 2.75. Table 2.7 shows the performance of the co-operative under vital banking statistics

**Consumer Co-operatives**

The overall aim of the consumer co-operative is to supply essential commodities at economic prices. These societies act as principal agents in the public distribution system by providing essential and consumer articles to the general public at a reasonable rate, than the rate prevailing in the open market. The organizational set up under the consumer co-operative segment consists of the Kerala State Cooperative Consumer Federation (apex) at the state level with 14 District Wholesale Stores and 643 Primary consumer stores at lower levels. The Kerala State Cooperative Consumer Federation (apex) 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.

**Table 2.7**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>Number/Amount</th>
<th>Percentage to total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Branches</td>
<td>No.</td>
<td>973</td>
<td>13.5</td>
</tr>
<tr>
<td>Total Deposits</td>
<td>₹ in crore</td>
<td>67534</td>
<td>15.4</td>
</tr>
<tr>
<td>Total advances</td>
<td>₹ in crore</td>
<td>45004</td>
<td>15.9</td>
</tr>
<tr>
<td>Total business</td>
<td>₹ in crore</td>
<td>112539</td>
<td>15.6</td>
</tr>
<tr>
<td>Priority sector advances</td>
<td>₹ in crore</td>
<td>23115</td>
<td>14.5</td>
</tr>
<tr>
<td>Agriculture advances</td>
<td>₹ in crore</td>
<td>5893</td>
<td>9.59</td>
</tr>
</tbody>
</table>

*Source: State Level Bankers’ Committee*
Triveni super markets is one important segment under consumer co-operatives intending to save the public from the exploitation of middlemen by dealing with wholesale of food and grocery, cosmetics, household and electrical, and textiles. There are 268 Triveni Super markets with 134 mobile Triveni units, 7 floating triveni super stores, 8 Triveni Coffee houses and 1 unit of Triveni noon meal scheme. Triveni notebooks-manufacture and sale of notebooks are other schemes under consumer cooperatives.

The Neethi Scheme started as per directions of Government of Kerala in 1997 is being successfully implemented through 1000 odd selected Primary Agricultural credit societies 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 subsidized rates. Consumered procures and distributes medicines at whole sale rates as per the requirement of the Neethi medical stores. At present there are 94 Neethi Medical Stores directly run by Federation in addition to the 600 odd stores run Primary Co-operative Societies.

Nanma stores was started to distribute 10 items of essential commodities at subsidized rates through network of 2180 retail outlets mainly aiming at the extremely poor and downtrodden in the society. Currently there are 751 Nanma stores run by the Consumer fed itself. 1311 of them are run by selected Co-operative Societies and 869 by the Triveni Wing of Federation. Here the items are sold at less than 20 per cent of market rates. Another major project started is to open directly run Nanma Stores in Panchayath and Municipal Wards having no Nanma Stores run by primary societies at present.

### MISCELLANEOUS TYPE OF CO-OPERATIVES

Miscellaneous type co-operative societies have been set up in the State mainly for the purpose of socio, economic development and for generation of employment opportunities to the general public as well as post graduate, engineers and technically qualified persons and skilled and unskilled workers. Hospital Co-operative Societies are formed to provide medical aid in rural and urban areas and extend services of qualified medical and paramedical personal, especially in rural areas. It also provides facilities like health care and allied services to its members and public. Societies are permitted to conduct paramedical course. These societies are co-ordinated by their apex institution Kerala co-operative Hospital Federation. As on March 31, 2016 there are 102 Co-operative Hospitals working under the administrative control of the Registrar of Co-operative Societies. It occupies a prominent place among the medical institutions in the State. Its aim is to provide advanced medical care and treatment to the public at much lesser and affordable costs, compared to other private hospitals. On an average each hospital has 9 departments, 9 Doctors, 31 Paramedical staff and 8 administrative personnel. It also provides facilities of health care and allied services to its members and public. Hospital Societies are permitted to conduct paramedical courses. In this sector NABH Accredited Multi- Disciplinary Super Speciality Co-operative Hospitals like EMS Memorial Co-operative Hospital and Research Centre, Perinthalmanna are functioning with multifarious Departments. Hospital Societies are co-ordinated by their apex institution, ‘Kerala Co-operative Hospital Federation’.

### Issue of Kissan Credit Card loans

During the year, 2014-15 District Co-operative Banks have issued 23412 Kisan Credit Cards through PACS and the total number of cards issued by the Co-operative Societies comes to 767768 with a total loan outstanding amounting to ₹2485.32 crores.

### Deposit Mobilisation Campaign by Co-operative Societies

Deposit Mobilisation campaigns by co-operative credit institutions continued during the year under report also. During the period under review, the co-operatives could mobilize ₹7311 crores as against the target of ₹ 6000 crores, while in the
previous year it was 6232 crores. Year wise target and achievement is given in Appendix 2.76.

**Support by National Cooperative Development Corporation**

National Co-operative Development Corporation or NCDC is a statutory organization established by the Government of India under an Act of Parliament, charged with 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. National Co-operative Development Corporation has emerged as a developmental and promotional financing institution for the Co-operative sector in the country. NCDC (National Cooperative Development Corporation) has disbursed a cumulative financial assistance of ₹ 6273 crore for various cooperative development projects as on March 31, 2016, of which ₹ 1563.42 crores is through state government and ₹ 4709.93 crores is via direct funding. Also, out of the ₹ 1563.42 crores, ₹ 1459.46 crores comes under long term loan and only ₹ 53.96 crores come under subsidy, ₹ 50 crores comes under working capital. Types of NCDC Assistance are shown in Appendix 2.77. During the fiscal 2015-16 Kerala stood 5th in all India standing for disbursement of NCDC’s financial assistance to states. Sanctions and release of NCDC funds to the state of Kerala for 2015-16 was ₹ 386.44 crore and ₹ 280.26 crores respectively which comes to the tune of 4.56 per cent of the total sanctions and 3.94 per cent of the total releases made by the NCDC country wide. Cumulatively 107 cooperatives in Kerala were benefitted by NCDC funding through State Govt/ Direct funding scheme during 2015-16 either through sanctions/disbursement of funds. Almost all sectors of Agriculture and allied activities including short term agriculture credit, marketing of agriculture produce, distribution of fertilisers and inputs, consumer cooperatives, processing activities, storage/godowns, infrastructure creation, service sector, industrial cooperatives, Labour cooperatives and weaker section programme like Fisheries, SC/ST etc. were covered by NCDC finance in the state during 2015-16.

The Year-Wise amount released by NCDC from 2013-14 to 2015-16 is given in Appendices 2.78, 2.79 and 2.80. The interest rate of NCDC loans ranged from 10.40 percent to 12.5 percent in 2014-15. The interest rate of NCDC loan is referred as one of the highest rates reported. Reduction in rate seems to be essential to avail more support from NCDC.

**Performance Review of the 12th Plan**

The actual amount budgeted for the sector in the 12th Plan was ₹ 400.78 crores. The expenditure for the first four years has been ₹ 372.72 crores (121 percent). The year wise outlay and expenditure of the sector during the plan period is given in the Table 2.8. In the first two years of the plan period, the expenditure has been 86 percent. In the third year (2014-15), expenditure has been 205 percent on account of ₹ 106.39 crores received as SDG for share capital distribution to District Co-operative banks. In 2015-16, it is 97 percent. However, for the current year, it is just ₹ 24.67 crores, that is, 25.97 percent (as on January 17, 2017).

Table 2.9 shows the major schemes implemented in the 12th Plan. As can be seen from the table, one-fourth of the outlay in the 12th Plan was allocated for credit co-operatives, the expenditure for which has been 77 percent. Miscellaneous co-operatives consisting of hospital, women, educational and SC/ST co-operatives comes next with the second largest share in outlay, however, the expenditure for it has been just above fifty percent. ₹ 36.1 crores was allocated for establishing and functioning of Farmer Service Centre (novel scheme of the plan period), the expenditure of which has also been good. Around 20 crores was earmarked for model co-operatives and SC/ST Co-operatives each, however the expenditure has been just average. The expenditure for marketing co-operatives has been poor.
Table 2.8
Outlay and Expenditure during the 12th Plan, ₹ in crore

<table>
<thead>
<tr>
<th>Year</th>
<th>Outlay</th>
<th>Expenditure</th>
<th>(per cent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-13</td>
<td>62</td>
<td>53.62</td>
<td>86</td>
</tr>
<tr>
<td>2013-14</td>
<td>75</td>
<td>64.85</td>
<td>86</td>
</tr>
<tr>
<td>2014-15</td>
<td>83.39</td>
<td>171.39</td>
<td>205</td>
</tr>
<tr>
<td>2015-16</td>
<td>85.39</td>
<td>82.86</td>
<td>97</td>
</tr>
<tr>
<td>Sub-total</td>
<td>305.78</td>
<td>372.72</td>
<td>121</td>
</tr>
<tr>
<td>2016-17</td>
<td>95</td>
<td>24.67</td>
<td>25.97*</td>
</tr>
<tr>
<td>Total</td>
<td>400.78</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Planspace and Annual Budget Statement as on January 17, 2017.

Table 2.9
Major schemes implemented during the 12th Plan

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Name of the scheme</th>
<th>Outlay</th>
<th>Expenditure</th>
<th>per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Assistance to credit Co-operatives</td>
<td>100.99</td>
<td>78.24</td>
<td>77.47</td>
</tr>
<tr>
<td>2</td>
<td>Miscellaneous co-operatives</td>
<td>59</td>
<td>32.97</td>
<td>55.88</td>
</tr>
<tr>
<td>3</td>
<td>Assistance to CAPE</td>
<td>38.5</td>
<td>28.43</td>
<td>73.8</td>
</tr>
<tr>
<td>4</td>
<td>Farmer Service Centre</td>
<td>36.1</td>
<td>31.53</td>
<td>87.5</td>
</tr>
<tr>
<td>5</td>
<td>RIDF</td>
<td>31.6</td>
<td>28.88</td>
<td>91.3</td>
</tr>
<tr>
<td>6</td>
<td>Assistance to model co-operatives</td>
<td>20.5</td>
<td>13.6</td>
<td>66.3</td>
</tr>
<tr>
<td>7</td>
<td>Assistance to SC/St co-operatives</td>
<td>27.8</td>
<td>19.37</td>
<td>69.6</td>
</tr>
<tr>
<td>8</td>
<td>Assistance to Marketing Co-operatives</td>
<td>17.5</td>
<td>4.25</td>
<td>24.2</td>
</tr>
</tbody>
</table>

Source: Planspace and Annual Budget Statement

Achievements of the sector during the 12th Plan period

- **Provision of interest free loans to paddy farmers** to encourage paddy cultivation and curtail the falling area under paddy. During the Plan Period 2012-16 an amount of ₹ 550.00 lakh was provided for sanctioning interest free loan to paddy farmers as part of the food security project and this scheme is implemented in association with Department of Agriculture and the amount to be utilized to give interest subsidy for providing interest free loans. In addition to the KSCARDB and PCARDBs, the Primary Agricultural Credit Co-operative Societies (PACS) disburse Agricultural loans to the Farmers who are the members of the society. During the year, 2014-15 District Co-operative Banks have issued 23412 Kisan Credit Cards through PACS and the total number of cards issued by the Co-operative Societies comes to 767768 with a total loan outstanding of ₹2485.32 crore.

- **Farmer Service Centres**: Setting up of Farmer Service Centres to provide needed based information and services to farmers relating to credit, planting material, seedlings and machinery is a novel scheme of the plan period. There are 60 Farmers Service Centres (FSC) functioning under the supervision of Co-operative Societies in different block area. In association with Block Panchayath and the Department of Agriculture, Farmers Service Centre acts as a Nodal Agency for providing all assistance.
to farmers such as supply of seeds, fertilizers, modern agricultural equipments like, tractors, tillers, harvesting machines, Soil Testing and Tissue culture lab facilities. They also provide credit literacy to the farmers. In certain Farmers Service Centre, there are 25 expert persons called ‘Harithasena’ providing agricultural service to the farmers at affordable rate. During this period 60 PACS were selected for starting Farmers Service Centres at block level and an amount of ₹ 36.1 crores was sanctioned to the said centres. Setting up of soil testing centres to diagnose plant culture problems, to improve its nutritional balance and to conserve energy and money by applying only the right amount of fertilizers. During the plan period an amount of ₹ 234.05 lakh provided to 4 societies for starting soil testing centre and tissue culture lab

- **Construction of Palakkad District Co-operative Hospital and Research Centre:** As NCDC scheme an amount of ₹ 46.80 Crores was sanctioned to the said Hospital Society for the establishment of a 500 bedded hospital. The total cost of the project was ₹52 crores. During this plan period an amount of ₹ 40.95 crores was released to the society. A balance amount of ₹ 5.85 crores is pending for release.

- **Kollam District Co-operative Hospital Society:** For the construction of Cancer Centre Geriatric Centre and Ayurvedha Hospital an amount of ₹ 115.8092 Crores was sanctioned to the said Hospital Society by NABARD. The total cost of the project was 136.2461 crores. In 2015, the Government has accorded sanction for ₹ 23.16184 crore as mobilising advance to the said society. During this plan period an amount of ₹ 12.00 crores was released to the society.

- **Computerisation of PACs, SCBs/DCBs and installation of core banking and ATM facilities** as well as upgradation and acquisition of modern technological devices for effective hassle free functioning of the banking system. A new scheme was introduced in 2013 for providing assistance to PACS/Primary Credit Co-operatives/State Co-operative Bank/District co-operative Banks for Computerisation, Core Banking Solution, Installation of ATM facility and Upgradation of Technology and Acquisition of Modern Technological devices for the functioning of the Banks/Co-operatives. During this plan period an amount of ₹ 13.83 crores was sanctioned to 137 Co-operative institutions. During the XIIth Plan period, ₹284.50 Crores was provided to Consumer Federation for conducting festival markets for distributing consumer goods to common public at subsidized rates.

### AGRICULTURE FINANCE

At the national level, the target for agriculture credit flow was set at ₹ 8.5lakh crore in 2015-16 as against ₹ 8 lakh crore in 2014-15. The achievement was ₹ 8.7 lakh crore for 2015-16 vis-a-vis ₹ 7.3 lakh crore in 2013-14. Commercial banks, Regional Rural Banks (RRBs) and cooperative banks disbursed ₹ 6.04 lakh crore (provisional), ₹ 1.19lakhs crore and ₹ 1.53 lakh crore, respectively. Thus commercial banks continue to dominate the agriculture credit delivery followed by Co-operative banks and RRBs.

The ratio of agriculture credit to agriculture GDP has been continuously increasing in the country from 10 per cent in 1999-2000 to 38 per cent in 2012-13. However, a matter of concern is the prominent role played by informal sources/non institutional sources of credit. As per the NSSO 70th round survey, non-institutional sources of credit still account for as much as 40 per cent of the agriculture credit in India and money lenders account for 26 per cent. The access to institutional sources of credit has to be enhanced so as to free the farmers from the clutches of moneylenders. Another problem is the falling investment credit which has declined from 55 per cent in 2006-07 to 39 per cent in 2011-12. To address the falling investment credit in the country the GOI had started
the Long Term Rural Credit Fund and allocated ₹ 15000 crores in 2015-16 compared to ₹ 5000 crores in 2014-15. This can be utilised by Co-operative banks and RRBs by drawing much higher refinance from NABARD so as to support long term and medium term loans in the country.

In addition to this, credit plays a significant role in the context of Kerala agriculture on account of its specific features namely; predominance of cash crops in the cropping pattern which are highly credit intensive requiring regular doses of capital at regular intervals, high labour intensive form of cultivation especially hired labour, highly fragmented size of holdings in the state requiring input intensive form of cultivation warranting sustained infusion of capital, high export intensive crops as well as high rural indebtedness.

In Kerala, the agricultural advances stood at ₹60,921 crore (7.16 per cent of the total agriculture advances in the country) in March 2016 as against ₹63,849 crore in March 2015. Thus there has been a slight decline in the overall agricultural advances in the state. The share of agricultural advances to total advances stood at 23 per cent. A disaggregated analysis show that commercial banks contributed the largest share (80 per cent) followed by Regional Rural Banks (11 per cent) and Co-operatives (9 per cent) (Table 2.10). Within these agencies, except co-operative banks, all banks have disbursed more than the mandatory 18 per cent of their advances towards agriculture. While nationalised banks have disbursed 59 per cent of their advances, and RRB 28 per cent towards agriculture, for co-operatives it is 16 per cent. However, year on year growth shows that barring RRB and private sector banks all other agencies have shown a decline in advances.

With regard to break up of term loan and crop loan it is seen that the share of term loan is 20 per cent of the total agriculture credit. This is a very heartening fact that after continued decline in term credit for the past decade or so the share of term credit advanced in total credit has picked up. The agency wise break up shows that share of co-operative sector is 8 per cent and that of RRB is 1.37 percent and the rest 90 per cent is contributed by commercial banks. In comparison to the target and achievements of banks it can be seen that the Kerala Gramin Bank has achieved 152 per cent of the target for term loan whereas for the co-operative sector the target is just 47.49 per cent and for commercial banks it is 54.7 per cent.

With regard to the agency wise, sector wise ground level credit flow of term credit, it can be seen that out of the total term credit disbursed of ₹7395 crores in 2014-15, around 60 per cent was disbursed by commercial banks and 28 per cent by co-operative banks and the rest by RRB. With respect sector wise disbursal, it can be seen that 26 per cent of the term credit was disbursed for plantation and horticulture and 14 per cent was for dairy development and 13 per cent for land development and poultry each.

| Table 2.10 |
|------------------|------------------|--------|
| **Agency wise break up of agriculture credit disbursed in Kerala during 2015-16, ₹ in crore** |
| **Short Term Loan** | **Term Loan** | **Total** |
| Commercial Banks | 36877 | 11010 | 47886 |
| RRB | 6835 | 167 | 7002 |
| Co-operative banks | 4994 | 1038 | 6032 |
| | 48707 | 12215 | 60920 |

*Source: SLBC*
Table 2.11
Agency wise sector wise flow of Ground level Credit in Kerala, ₹ in lakh

<table>
<thead>
<tr>
<th></th>
<th>Commercial Banks</th>
<th>Cooperatives</th>
<th>RRBs</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term Loan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minor Irrigation</td>
<td>10536</td>
<td>24058</td>
<td>902</td>
<td></td>
<td>35496</td>
</tr>
<tr>
<td>Land development</td>
<td>49990</td>
<td>23266</td>
<td>25128</td>
<td></td>
<td>98383</td>
</tr>
<tr>
<td>Farm mechanisation</td>
<td>38659</td>
<td>21336</td>
<td>436</td>
<td>3</td>
<td>60435</td>
</tr>
<tr>
<td>Plantation and Horticulture</td>
<td>148921</td>
<td>40333</td>
<td>3276</td>
<td></td>
<td>192530</td>
</tr>
<tr>
<td>Dairy development</td>
<td>74317</td>
<td>28627</td>
<td>1576</td>
<td></td>
<td>104520</td>
</tr>
<tr>
<td>Poultry</td>
<td>29543</td>
<td>37768</td>
<td>25494</td>
<td></td>
<td>92806</td>
</tr>
<tr>
<td>Sheep/goat/piggery</td>
<td>3783</td>
<td>11433</td>
<td>2789</td>
<td></td>
<td>18004</td>
</tr>
<tr>
<td>Fisheries</td>
<td>4932</td>
<td>11998</td>
<td>5368</td>
<td></td>
<td>22298</td>
</tr>
<tr>
<td>Forest/wasteland development</td>
<td>20802</td>
<td>4633</td>
<td>1145</td>
<td></td>
<td>26580</td>
</tr>
<tr>
<td>Storage and market yards</td>
<td>2325</td>
<td>2448</td>
<td>858</td>
<td></td>
<td>5632</td>
</tr>
<tr>
<td>Others</td>
<td>37165</td>
<td>12477</td>
<td>3126</td>
<td>60</td>
<td>82829</td>
</tr>
<tr>
<td>Total</td>
<td>450973</td>
<td>206508</td>
<td>70098</td>
<td></td>
<td>739513</td>
</tr>
</tbody>
</table>

Source: State Focus Paper 2016-17, NABARD

**Capital Formation in Agriculture**

The Government expenditure as a share of GDP from agriculture in Kerala has been between 3-5 per cent over the last two decades (3.24 per cent in 1990-91 to 4.39 in 2009-10). The share of Gross Fixed Capital (GFCF) as a percentage of agriculture GDP remained much lower than the corresponding all India figures (Kerala 5.3 per cent as against all India figure of 17 per cent in 2009-10). The prospect of increased level of capital formation in agriculture and allied sector of the State is hampered by limited public investment. Further, private investment supported long term capital assets have not been up to the desired level. This phenomenon of reduced capital formation in agriculture in the State is a matter of concern. Concerted efforts to step up investments in agriculture, both private and public sector, needs to be undertaken to address the issue.

**Kisan Credit Card**

Kisan Credit Card is an effective credit delivery tool for providing hassle-free timely and adequate credit. As per the reports available with the Convenor SLBC, 503163 Kisan Credit Cards with an amount of ₹7564.53 crore have been issued during the year 2014-15 by the banking sector in the State. The revised KCC norms also provides for inclusion of incidental requirements of the farmers and his consumption expenses. Banks are also expected to leverage their core banking scheme (CBS) platforms to provide value added services to farmers like ATMs, anywhere banking, and debit cards.

**Refinance Support by NABARD**

NABARD, Kerala disbursed financial assistance of ₹5820 crore in the State during the year 2015-16. Of the above, ₹5090 crore was disbursed as refinance to banks, ₹ 600 crore to State Govern-
ment 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 the ₹5090 crores disbursed as refinance, ₹2390 crore was for long term investment credit and ₹2700 crore was towards short term assistance to banks. The refinance for long term agriculture investment of cooperative banks was resumed in the current year after a gap of 10 years. Under RIDF new projects worth ₹710 crore was sanctioned to State Government during the year.

Under the grant component, ₹2.20 crore was released out of the Cooperative Development Fund to cooperative banks for helping them set up basic infrastructure and training and ₹1.90 crore was released out of Financial Inclusion Fund (FIF) to cooperative banks, commercial banks and Regional Rural Bank for financial literacy initiatives and technology upgradation. ₹7.85 crore was disbursed under the Tribal Development Fund for the 12 ongoing tribal projects in four districts and ₹4 Crore under UPNRM. Further an amount of ₹1.25 crore was disbursed under the Farm Sector Promotion Fund to Agriculture and Veterinary Universities, KVKs and NGOs for implementing farm projects involving transfer of technology and innovative practices.

In Kerala, the cumulative sanction and disbursement as on March 31, 2016 was ₹8174.29 crores and ₹3795.95 crores respectively. During the XXI tranche an amount of ₹709.76 crores was sanctioned and ₹116.04 crores was disbursed. The tranche wise sanction and disbursement under RIDF are shown in Appendix 2.84.

Under RIDF XXI tranche - 2015-16, a loan of ₹710 crore was sanctioned to Government of Kerala for 252 infrastructure projects related with agriculture and rural development. Of the above, 50 per cent projects were for the agricultural sector, 26 per cent for Social Sector and the balance 24 per cent related to rural connectivity sector. The notable projects sanctioned during the year included Groynes for anti-sea erosion works in Alappuzha district, Info-park (Second phase) infrastructure works in Ernakulam district, Fisheries hatcheries and other infrastructure works for Kerala University for Fisheries and Ocean Studies (KUFOS) in Ernakulam district, Upper Kallar Small Hydro Electric (SHE) Project of 2.0 MW in Idukki district, Salt water Exclusion Regulator cum bridge in Kasargod district, Watershed development projects in 11 districts, road and bridge projects of PWD, HADA, LSGD, in various districts, Solar Power Project(500kWp Grid Tied Floating Solar -Photovoltaic System ) in Waynad district, Projects related with construction of medical college and district hospitals in Waynad district. Hence, a total of 6060 projects with a total RIDF loan of ₹8174 crore have been extended to State Government since inception (since 1995-96). An amount of ₹593.99 crore was disbursed during the year for ongoing projects. The total disbursements to State under RIDF since inception is ₹4299 crore.

In Kerala, the total refinance disbursement from NABARD was ₹78074 crores in 2015-16 as against ₹1731.5 crores during 2014-15. Contrary to previous years, KSCARDB accounted for the highest share of 93.15 per cent in the total refinance disbursed in the state in 2014-15, against commercial banks which accounted for the highest share in 2013-14. This was followed by RRBs (2.89 per cent) and finally by Commercial banks (0.56 per cent) in 2015-16. Agency wise and purpose wise disbursement of refinance assistance by NABARD in Kerala is given in Appendix 2.81, Appendix 2.82 and Appendix 2.83.

The purpose-wise analysis of the refinance by NABARD in 2014-15 reveals that, the major share of assistance was availed by non-farm sector (75.94 per cent) followed by land development (7.12 per cent) and plantation and horticulture sector (5.85).
Other major schemes availed refinace support was minor irrigation, SHGs and land development, and dairy Development. The sectors like fisheries and poultry, which are very important in the rural economy of Kerala, were neglected since 2012-13 from the disbursement of refinace by NABARD. The project from Kerala under the National Adaptation Fund for Climate Change (NAFCC) titled “Promotion of Integrated Farming System of Karpad and Pokkali in Coastal Wetlands of Kerala” with a budget of ₹ 25 crore has been approved by National Steering Committee on Climate Change (NSCCC). The project envisions integrated farming methods as climate smart practices to enhance resilience of aquaculture communities to climate change especially sea-level rise that results in severe intrusion of salinity. The proposed area of the project is 600 hectares (300 hectares in Kannur District and 300 hectares in Ernakulam, Thrissur and Alappuzha districts). The proposals for coastal sea shore protection and KSEB’s renewable energy concepts are under discussion.

Section 8
RURAL DEVELOPMENT PROGRAMMES

In the Indian context, rural development has a lot of significance because majority of the people in our country live in rural areas. At the time of independence, around 83 per cent of the Indian population were living in rural areas. As per the 2011 Census Report, the rural population in India is 68.86% (833.75 million) where as in Kerala it is 52.30% (17.47 million). The unique feature of Kerala is that the features in rural and urban areas in the State are almost alike.

Rural development programmes in Kerala are either Centrally Sponsored Schemes (CSS) or State Sponsored Schemes or Schemes of Local Governments and many of these schemes are implemented through Local Governments. A number of centrally sponsored schemes are being implemented in rural areas through the State Government for poverty reduction, employment generation, rural infrastructure development and provision of basic minimum services. All these programmes are directly or indirectly related to the overall development of the rural areas in the State. A brief review about the major schemes implementing in the Rural Development Sector is given below.

Mahatma Gandhi National Rural Employment Guarantee Programme (MGNREGP)

The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), 2005 seeks to enhance the livelihood security of the households in rural areas of the country by providing at least one hundred days of guaranteed wage employment to every household whose adult members volunteer to do unskilled manual work. MGNREGA has become a powerful instrument for inclusive growth in rural India through its impact on social protection, livelihood security and democratic governance.

In addition to providing employment to the rural poor, the scheme is intended to create productive assets, which contribute towards development. The works related to natural resource management are given prime priority. Water conservation, afforestation, rural connectivity, rural infrastructure and sanitation are the major areas of work undertaken under this programme. During the review period, wage rate under this programme was ₹240/- per day.
The financial achievement under MGNREGP during 2015-16 was ₹1483.50 crore which is 93 per cent of the total release during the year. A total of 7.42 crore person days were generated of which 1.29 crore were for Scheduled castes and 0.29 crore for Scheduled Tribes. The physical and financial progress of the programme during 2015-16 and financial and employment details of MGNREGP during 2016-17 (upto October 2016) are given in Appendix 2.85, 2.86, 2.87 and 2.88.

*Pradhan Mantri Awaas Yojana (PMAY) - Gramin (G) - (erstwhile Housing for all) - Indira Awaaz Yojana - (LAY)*

Safe and secure shelter is one of the basic needs for human being. Therefore, construction of houses was included as one of the major activities under the Rural Development Sector. Indira Awaas Yojna (IAY) is the biggest and most comprehensive rural housing programme ever taken up in the country. This scheme aims to provide dwelling units to the homeless rural poor belonging to the BPL category.

From 2015-16 onwards, the sharing pattern under IAY has been changed to 60:40 instead of 75:25. Government of India has revamped the scheme IAY into Pradhan Mantri Awaas Yojana (Gramin) (PMAY-G) and the financial assistance provided under the scheme for each house has been enhanced from ₹70,000/- to ₹1,20,000/- in plain areas and ₹75,000/- to ₹1,30,000/- in hilly/difficult areas from 2016-17 onwards.

Since the amount fixed by the Government of India is inadequate to construct a pucca house, State Government have enhanced the unit cost to ₹2.00 lakh for general beneficiaries, ₹3.00 lakh for SC beneficiaries and ₹3.50 lakh for ST beneficiaries. The additional amount over and above the unit cost fixed by the Government of India has to be met by Grama-Block-District Panchayats in the ratio of 25:40:35. As the three tier panchayats are not in a position to meet the additional amount, State Government has provided ₹50,000/- to all categories from the year 2013-14 onwards. Three per cent of the funds have been earmarked for the benefit of differently abled persons below poverty line.

During 2015-16, an amount of ₹400.74 crore was expended and construction of 49551 new houses was completed. Financial and physical achievements of the programme during 2015-16 and 2016-17 (upto October 2016) are shown in Appendix 2.89 and 2.90 respectively.

*Rural Infrastructure Development – Pradhan Mantri Gram Sadak Yojana (PMGSY)*

The spirit and the objective of Pradhan Mantri Gram Sadak Yojana (PMGSY) is to provide good all-weather road connectivity to the unconnected habitations. PMGSY-I is 100% Centrally Sponsored Scheme and PMGSY-II is 60% Centrally Sponsored Scheme. In Kerala, PMGSY-II was started during 2016-17.

Since Government of India funds can be utilized only for the actual estimated cost of construction of roads under the scheme, state support to PMGSY for meeting tender excess, shifting of utilities and maintenance provision for assets already created was included in the State Budget from the financial year 2010-11 onwards.

During 2015-16, an amount of ₹193.05 crore and ₹43.54 crore was the expenditure towards PMGSY (100% CSS) and State support to PMGSY respectively. During 2015-16 and 2016-17 (upto October 31, 2016) the total length of roads completed was 541.54 km. and 15 habitations were connected under the scheme PMGSY.
**Pradhan Mantri Krishi Sinchai Yojana (PMKSY) - Watershed Component (erstwhile Integrated Watershed Management Programme -IWMP))**

From July 1, 2015, Integrated Watershed Management Programme (IWMP) has been converted as Pradhan Mantri Krishi Sinchai Yojana (PMKSY) - (Water Shed Component). From 2015-16 onwards the funding pattern of the scheme between the Centre and State Government has been changed to the ratio 60:40 instead of the earlier pattern of 90:10.

Effective management of runoff water and improved soil and moisture conservation activities such as ridge area treatment, drainage line treatment, rain water harvesting, in-situ moisture conservation and other allied activities on watershed basis and converging with MGNREGS for creation of water source to full potential in identified backward rainfed blocks including renovation of traditional water bodies are included under the programme PMKSY (Water Shed Component). During 2015-16 an amount of ₹28.56 crore was expended and construction of 1505 number of rain water harvesting structures were completed under the scheme.

**Swachh Bharat Mission (Gramin)**

With effect from October 2, 2014, Nirmal Bharat Abhiyan, sanitation related scheme of Government of India has been restructured and renamed as Swachh Bharat Mission (Gramin) with the aim to achieve an Open Defecation Free (ODF) India by October 2, 2019, the 150th birth anniversary of Mahatma Gandhi. From 2015-16 onwards, the sharing pattern of the scheme has been changed to 60:40 instead of 75:25.

During 2015-16, construction of 32167 individual household latrines, 58 community sanitary complexes and 95 school/anganwadi toilets was completed under the scheme SBM (G).

District wise details of Open Defecation Free (ODF) declared Grama Panchayats in Kerala are given in **Appendix 2.91**

**Kudumbashree**

Kudumbashree is a holistic, participatory, women oriented innovative overarching poverty reduction approach launched in 1998. Today 44 lakh women participate in the Kudumbashree movement in the State cutting across political ideologies and religious faiths. Kudumbashree is not only envisaged as a Mission, but also as a process, a project and a benefit delivery mechanism for the poor.

Some of the major poverty reduction programmes of Kudumbashree Mission are micro finance activities, social development initiatives, micro enterprises, marketing, agriculture and animal husbandry, livelihood collectives and producer companies, gender education and women empowerment activities, tribal development and activities of balasabha.

**Box 2.4**

**Open Defecation Free (ODF) Kerala**

The State Government declared Rural Kerala as ODF on November 1, 2016. Around 174720 numbers of latrines were constructed by that time. Unit cost of individual household latrine was ₹15400/- of which ₹12000/- was released from SBM (Gramin) in rural areas. Declaration of Urban Kerala as ODF will be done by March 31, 2017 with a target of 32197 latrines. For this, ₹6667/- is released from SBM (Urban) assistance. Balance amount will be met by the concerned local governments.

*Source: Suchitwa Mission*
Micro Finance activities
Matching Grant, Linkage Banking, Thrift and Credit, Interest Subsidy Scheme, Financial Literacy Campaign and Yuvashree are included under Micro Finance activities. Of the total 2,58,035 Neighbourhood Groups (NHGs) over 19,230 Area Development Societies (ADS) and 1,071 Community Development Society (CDS), during 2015-16, 31,087 number of NHGs were graded and 33,261 number of NHGs were linked with various banks and an amount of ₹95,568 lakhs was disbursed to NHGs as loan. 39.87 lakh families were covered under 2.58 lakh of NHGs, an amount of ₹1,896.68 crore was disbursed as loan and an amount of ₹468.42 crore was provided as thrift. District wise details about linkage banking and thrift and credit operation are given in Appendix 2.92 and 2.93 respectively.

Social Development Initiatives
During 2015-16, 6,431 families were benefited through Ashraya programme. So far 62 BUDS schools and 83 BUDS Rehabilitation Centers have come up in the State. During 2015-16, an amount of ₹1.74 lakh is used for providing training to the teachers in the BUDs and an amount of ₹10.45 lakh is used for the activities of BRCs.

Agriculture and Animal Husbandry
More than 60,000 Joint Liability Groups (JLGs) are engaged in cultivating about one lakh acres of land (which includes lease land farming, fallow land farming, terrace farming and cultivation in own land) through agriculture related activities of Kudumbashree. During 2015-16, the Goat Village and Ksheera Sagaram projects benefited 1926 and 814 families respectively.

Tribal Development
The objectives of the mission is planned to be achieved with the active convergence of various government and non-government agencies as well as departments. At present, about 99,478 tribal families are covered under 5,764 NHGs.

Micro finance and micro enterprise activities are given special focus among the tribals as part of the project activities. Measures have also been taken to ensure cent per cent tribal participation in the MGNREGS activities. Formation of Special Ashraya Projects, provision of supplementary food for the malnourished aged, infants and adolescent girls, and formation of ST Balasabhas are some of the highlights of the project.

Balasabha
Activities of Balasabha aim at providing education, exposure and empowerment to children. Small Learning Groups for experimental and systematic learning, opportunities for understanding democratic process, participation in conserving environment, enabling children to unfold the intricacies of collectivisation are the basic focal points of Balasabha. Upto 2015-16, 26,896 Balasabhas were functioning with the involvement of 4.11 lakh children. The district wise details of Balasabha are given in Appendix 2.94.

Livelihood Collectives and Producer Companies
Samagra Projects is an initiative independently developed by Kudumbashree and being implemented in the State in collaboration with the three tier local governments and other agencies. It is an attempt to address the entire production – supply value chain holistically, by scaling up productive activity both qualitatively and quantitatively and seeking viable supply opportunities. The major samagra projects that are implemented in various districts are given in Box 2.4.

In addition to the above mentioned activities, Kudumbashree is the nodal agency for the implementation of Centrally Sponsored Programmes in the State. The programmes like National Rural Livelihood Mission (NRLM), and Deen Dayal Upadhyaya Grameena Kaushalya Yojana (DDU-GKY) were successfully implemented in rural areas through Kudumbashree.
Box 2.5
Major Samagra Projects

1. Kannur Goat Farmers Producer Company
2. Nedumkandam Ksheerasagaram Producer Company
3. Kasaragode Saphalam Cashew Project-Collective
4. Gramashree Ornamental Fish Producers Collective in Vaikom Block of Kottayam
5. Unnathi Society of IT Enterprises
6. Amrutham Society of Nutrimix Entrepreneurs
7. Thennala Agro Producer Company

Source:Kudumbashree

Section 9
FOOD SECURITY

Food security exists 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, utilization and stability. The nutritional dimension is integral to the concept of food security. In order to achieve the concept ‘zero hunger’ the UNO declared to end hunger, achieve food security and improved nutrition and promote sustainable agriculture as a Sustainable Development Goal.

There are nearly 800 million people who suffer from hunger worldwide and out of this 511.7 million are in Asian countries. The incidence of the poverty in India was estimated at 264.9 million in 2011-12. Further, calorie and protein intake of large number of people in India especially in rural areas are lower than normal. As per the State of Food Insecurity in the World 2015 (FAO) India has the second highest number of undernourished people at 194.6 million which is around 15.2 percent of the world's total undernourished population. In order to reduce the incidence of poverty and to attain food security GoI enacted National Food Security Act 2013 to provide subsidized food grains to approximately two thirds of India’s 1.2 billion people.

Kerala has been deficient in the production of food grains. Of the total requirements of food grain only 15 per cent is produced in the state. In the case of vegetables too, the state relies heavily on neighbouring states. There is a strong correlation between stability in agricultural production and food security. Therefore, along with provision of food subsidy, stability in agricultural production and strengthening of supply chain management needs to be addressed to ensure food security.

Although Kerala is a highly progressive state in terms of education, healthcare facilities and awareness among beneficiaries, nutritional security especially of the most vulnerable is extremely critical to fulfill the vision of a Hunger Free Kerala. Various schemes run by the state for poverty alleviation along with the Central Government schemes such as Public Distribution System, Integrated Child Development Services and Mid Day Meal which approach food security through a life cycle approach need more 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. As a pilot project the programme will be implemented in selected areas of the state (Box 2.6).

In pursuance of the Essential Commodities Act 1955 enacted by GoI, the Public Distribution System came into existence on July 1, 1965. Timely lifting of commodities allocated from the Central pool and ensuring timely and effective distribution of the same through 14,335 ration shops in the State is a major responsibility of the PDS. Kerala has made pioneering achievements in the implementation of a Universal Rationing System. The number of ration card holders in the State reached 83.14 lakh in 2015-16 from 83.13 lakh in 2014-15. Similarly, number of APL cardholders also increased slightly to 62.64 lakh in 2015-16, from 62.52 lakh in 2014-15. There are 5.82 lakh Anudayana Anna Yojana (AAY) card holders in 2015-16 which was 5.83 lakh in 2014-15. As on October 31, 2016, there were 83.19 lakh ration card holders in the State. Of the total, 62.54 lakh card holders are under APL, 14.80 lakh are under BPL, and 5.85 lakh card holders are under AAY. Details of Public distribution system in Kerala are shown in Appendix 2.95.

During 2015-16 rice allotment to APL card holders was 4.64 lakh MT and BPL card holders 3.78 lakh MT. At the same period rice allotment to AAY card holders was 2.71 lakh MT. Details of distribution of commodities through PDS are given in Appendix 2.96.

### National Food Security Act 2013

In pursuance of the National Food Security Act 2013, Government of Kerala has decided to implement NFSA in the State with effect from 01.11.2016 and Kerala State Civil Supplies Corporation (Supplyco) is entrusted to implement door step delivery of PDS articles (Box 2.7). To implement the NFSA, government of Kerala published the draft priority list of 1.54 crore members from 33.34 lakh households in the state, who will be covered under NFSA subsidies. The remaining 2.09 crore members from 50.05 lakh households are covered under non priority list which includes 1.21 crore under APL –SS (State Subsidy). The details are given in the Figure 2.13 and Table 2.12.

Kerala has a universal public distribution coverage which has been instrumental in providing food security to most of its population. In addition, state run Supplyco is mandated to control the prices of 13 essential commodities by distributing it at subsidised prices through its 1406 stores spread across the state.

### Anudayana Anna Yojana (AAY) and Annapoorna Scheme (ANP)

The scheme is to provide 35 kg of food grains per month to the poorest of the poor families under BPL and is being implemented in the State since December 25, 2001. There were 5.82 lakhs Anudayana Anna Yojana (AAY) card holders in 2015-16 which was 5.83 lakh in 2014-15. In 2015-

### Box 2.6

**“Hunger Free Kerala”**

The State Government has launched a new project intended to provide one time free meal a day for the needy. The scheme will be implemented with the help of Kudumbasree Units and other Voluntary Organizations/Non-governmental Organizations in two selected districts as a pilot project from 2017-18 onwards. Price support of ₹10 per meal will be given for 1000 people per day in each district. This project will be extended to the whole of Kerala in ensuing years.

*Source: Directorate of Civil Supplies Department*
Box 2.7
National Food Security Act

The National Food Security Act, 2013 is a legislation enacted by the Central Government which aims to provide subsidised food grains to approximately two thirds of India's 1.2 billion people. Government of Kerala decided to implement NFSA in the State with effect from November 1, 2016. Under the NFSA end to end computerization of the entire chain of the Public Distribution System has been planned with the objective of reducing leakages, better targeting and reducing the economic cost of distribution. Many states have already completed the implementation of various computerization components such as online allocation, supply chain management and FPS automation. The Civil Supplies department in collaboration with NIC, Supplyco and other partner's plans to complete the implementation of End to End computerization of PDS components by 2017-2018.

Steps Initiated for the Implementation of NFSA in the State

<table>
<thead>
<tr>
<th>Item</th>
<th>Action Taken</th>
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</thead>
<tbody>
<tr>
<td>Beneficiary identification</td>
<td>Draft List Published</td>
</tr>
<tr>
<td>Door step delivery of food grains</td>
<td>Supplyco was entrusted</td>
</tr>
<tr>
<td>Online allocation details in public</td>
<td>Web portal prepared</td>
</tr>
<tr>
<td>Appointing SFC and DGROs and grievance redressal system</td>
<td>Steps initiated</td>
</tr>
</tbody>
</table>

Source: Civil Supplies Department

Figure 2.13
Category wise Card Holders in Kerala as on October 31, 2016 (Provisional)

Table 2.12
Details of Card Holders and Entitlement of Food grains

<table>
<thead>
<tr>
<th>Category</th>
<th>Ration Cards</th>
<th>Beneficiaries</th>
<th>Entitlement (per month)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NFSA PHH</td>
<td>2837236</td>
<td>12921411</td>
<td>5 Kg per member</td>
</tr>
<tr>
<td>AAY</td>
<td>595800</td>
<td>2558632</td>
<td>35 Kg per households</td>
</tr>
<tr>
<td>Non NFSA</td>
<td>4589324</td>
<td>18744057</td>
<td>2 Kg per member</td>
</tr>
<tr>
<td>Non Priority</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td><strong>8022360</strong></td>
<td><strong>34224100</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: Civil Supplies Department
16, the allotment of rice under AAY continued at the level of 2,50,260 MT. Govt. of India supplies food grains under AAY to the state at the rate of ₹3/kg and the State Govt. in turn provides it to the beneficiaries at the subsidized rate of ₹1/kg.

Annapoorna scheme provides 10 kg of rice free of cost per month to destitute of the age of 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 govt. of India is 44,980. But the number of beneficiaries identified in the state as on March 31, 2016 is 23322. Details of distribution of food grains under AAY and Annapoorna schemes during 2015-16 are given in Appendix 2.97.

**Central Allotment of Sugar and Kerosene**

Allotment of sugar to Kerala in 2015-16 was 53664 MT and that of Kerosene, 1,14,422 KL. Allotment of sugar is restricted to BPL/AAY card holders. Details of Central allotment are given in Appendix 2.98.

**Kerala State Civil Supplies Corporation (Supplyco)**

Kerala has one of the best Public Distribution System networks in India. Kerala State Civil Supplies Corporation being the second line of Public Distribution System is instrumental in stabilising the prices of essential commodities in the State. It was set up in 1974 to provide food security to the state. Kerala, being a consumer oriented state, controlling the undue rise in prices is not possible without a powerful public distribution system that intervenes in the open market effectively throughout the year. The system ensures the distribution of essential items to every person in the state through Fair Price Shops and Supplyco outlets.

Supplyco has its headquarters in Kochi and operates through 5 regional offices, 56 depots and 1100 plus retail outlets. Details of outlets are given in Appendix 2.99. The main functions of Supplyco include retailing of Fast Moving Consumer Goods (FMCG) at lower prices, conducting special fairs for arresting the undue rise in prices during festival seasons, retailing of medicines by opening medical stores, procurement of paddy, processing and distribution of wheat and its products, acting as dealer of petroleum products like kerosene, petrol, diesel and LPG and acting as nodal agency to implement the programmes of Government of India in the state. The sales turnover of the corporation increased from ₹2,223 crore in 2010-11 to ₹3,857 crore in 2015-16.

**Mid-day Meal Programme**

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

Supplyco is entrusted with the responsibility of providing commodities to mid-day meal programme in the state. The required quantity of rice is taken from Food Corporation of India. During 2015-16, the Corporation supplied 9,64,583.05 Qtls of rice and 1,23,725.2 Qtls of special rice benefiting 25.02 lakh children. The cost of the food grains is met through Education Department. Number of children benefitting from the mid-day meal programme is given in Figure 2.14 and details of
supply of food grains from 2010-11 to 2016-17 are shown in Appendix 2.100. One of the main reasons for decline in the number of children benefitting from this programme in the previous years was due to the non-participation of students in certain districts. However, this scenario has changed and the number of children benefitting from the programme has increased in 2016-17.

Agricultural growth in the State has been dampened by the weak monsoons. Realizing the growth potential and the urgent need to revamp the sector, the State has taken measures for rejuvenating agriculture. Increasing public investment in agriculture, promoting self-sufficiency in production of vegetables, protection of paddy fields, improving research and extension services are some of the measures on anvil. The State needs to improve its irrigation network to equip itself for adverse weather conditions. Environmental conservation has been recognized as vital for sustainable development. Providing food security to its citizens also depends on enhancing agricultural productivity. The State aims at achieving a hunger free Kerala for which the development programmes needs to be channelized and targeted appropriately.
CHAPTER 3
INDUSTRY, LABOUR AND EMPLOYMENT
Industrial development is crucial for the economic growth of any nation. It is also linked to the modernization of agriculture, development of science and technology, entrepreneurship, self-reliance in defence production, success in international trade, efficient utilization of natural resources, alleviation of poverty and unemployment and increase in per capita income and standard of living of the people. One of the key findings of UNIDO’s Industrial Development Report 2016 is that developing domestic technological capabilities is one of the most important elements to sustain growth. The report also underlines that the share of manufacturing in value addition and employment tends to increase as developing countries start growing. India has emerged as one of the fastest growing major economies of the world as per the CSO (Central Statistical Office) and the IMF (International Monetary Fund). Government of India has taken policy measures such as ‘Make in India’ for creating conducive environment for industrial growth in the country.

Section 1
MANUFACTURING

According to the Index of Industrial Production (IIP), the mining, manufacturing and electricity sectors in India registered growth of (-) 0.2 per cent, (-)1 per cent and 4.6 per cent respectively during April to October 2016 over the corresponding period of 2015.

As far as the State is concerned, industrial sector consists of medium and large industries, micro, small and medium enterprises (MSME) and traditional industries. The Departments/Agencies engaged with medium and large industries are Kerala State Industrial Development Corporation Ltd (KSIDC), Kerala Industrial Infrastructure Development Corporation (KINFRA), Public Sector Restructuring and Internal Audit Board (RIAB), Bureau of Public Enterprises (BPE) and Centre for Management Development (CMD). The agencies that are concerned with MSME and traditional industries are Department of Industries and Commerce, Directorate of Handloom and Textiles, Directorate of Coir Development, Khadi and Village Industries Board, Cashew Workers Apex Co-operative Society (CAPEX) and Mining and Geology.

The department wise outlay and expenditure during 2014-15, 2015-16 and 2016-17 are given in Table 3.1. An amount of Rs. 658.93 crore has been provided for Industry Sector in 2016-17, which is 11.22 per cent higher than that of the previous year.

As per estimates by the CSO, the share of manufacturing sector in India’s GVA at constant prices
was 17.81 per cent in 2015-16. The trends in growth of manufacturing sector in India over the previous years as per provisional estimate of GVA by economic activity at constant prices for a period from 2012-13 to 2016-17 (H1) is exhibited in Figure 3.1

**STATE SCENARIO**

As per Quick Estimate of Gross State Domestic Product for 2015-16 by Economics & Statistics Department, the manufacturing sector of Kerala grew by 9.28 per cent at current prices compared to 5.02 per cent in the previous year. At constant prices (2011-12), the sector registered a growth of 12.65 per cent in 2015-16 as against 2.46 per cent in 2014-15. The shares of manufacturing sector in GSDP at constant and current prices in 2015-16 were 9.97 per cent and 8.72 per cent respectively.

![Figure 3.1](source_cropped.png)

**Table 3.1**

<table>
<thead>
<tr>
<th>Sl. No</th>
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<th>2015-16</th>
<th>2016-17</th>
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<td>Outlay</td>
<td>Exp.</td>
<td>Outlay</td>
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<td>23405.33</td>
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<td>Department of Mining &amp; Geology</td>
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<td>Village and Small Scale Industries</td>
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<td>26809.06</td>
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</table>

*As on October 2016*

*Source: State Planning Board*
The income from manufacturing sector to GSDP from 2011-12 to 2015-16 is given in Appendix 3.1.

The trend in growth of income from manufacturing sector in Kerala on the basis of GSDP at constant prices for the period from 2012-13 to 2015-16 is shown in Figure 3.2.

The income from manufacturing sector in Kerala which registered 12.47 per cent growth in 2012-13 witnessed a decline during 2013-14 (-4.65 per cent) and recorded a growth of 2.46 per cent during 2014-15 and a moderate growth of 12.65 percent during 2015-16.

MINING

India is rich in minerals especially Iron ore, Barytes, Rare Earth and Mineral Salt. India produced 90 minerals in 2012-13, which included 11 metallic, 52 non metallic and 23 minor minerals. India is ranked 2nd in the world in the production of Barytes, third in Chromite, coal and lignite, 5th in Iron ore and Steel (crude), 6th in Bauxite ore,7th in Manganese Ore and 8th in Aluminium (crude) in 2012. The number of mines in India which reported mineral production (excluding minor minerals, petroleum (crude), natural gas and atomic minerals) was 1,878 in 2015-16 as against 3,524 in 2014-15.

As per Provisional Estimate (PE) of Gross Value Added (GVA) at constant prices (2011-12) for 2015-16, mining and quarrying sector at national level decelerated to 7.4 per cent as against 10.8 percent in 2014-15. During the period April-September (H1) 2016, the mining and quarrying sector contributed ₹1.49 lakh crore to Gross Value Added (GVA) at constant prices. The sector decelerated by (-) 0.9 per cent as compared to 6.9 per cent growth in the first half of 2015-16. At current prices, the sector contributed ₹1.68 lakh crore to GVA during 2016-17 (H1) with a growth rate of 1.3 per cent as compared with the growth of 3.5 per cent of 2015-16(H1). The trend in national growth rate of Mining and Quarrying sector on the basis of GVA at constant prices is shown in Figure3.3.

Figure 3.2
Rate of Growth of Manufacturing Sector in Kerala, in per cent

![Rate of Growth of Manufacturing Sector in Kerala, in per cent](source: Directorate of Economics and Statistics)
**GROWTH OF MINING SECTOR IN THE STATE**

The contribution of Mining and Quarrying sector to Gross State Domestic Product at constant prices is estimated at ₹5,07,958 lakh during 2015-16, thus registering a growth of 6.21 percent compared to previous year. The share of the sector in GSDP at constant prices stood at 1.20 percent during 2015-16.

The growth of income from the sector as per estimate of GSDP at constant prices (2011-12) from 2012-13 to 2015-16 is depicted in **Figure 3.4**.

Mining and quarrying sector in the State registered negative growth during 2012-13 and witnessed

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**Figure 3.3**

National Growth Rate of Mining and Quarrying Sector, in per cent

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**Figure 3.4**

Growth Rate of Income from Mining and Quarrying Sector in Kerala, in per cent

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*Source: Directorate of Economics and Statistics*
a high positive growth of 50.13 per cent during 2013-14 and declined to 39.13 per cent in 2014-15 and 6.21 per cent in 2015-16.

There are 87 major mineral mines that are operational in the State as on March 31, 2016. During 2015-16, 77 mining leases for major minerals, 501 quarrying leases for minor minerals, 2,767 quarry permits in minor minerals and 1,549 dealers’ license were granted. In 2015-16 there were 188 registered metal crusher units in Kerala and two prospecting licenses granted for minor minerals.

The total area covered by mining leases as on October 2016 is 1,139.75 hectares, of which Mineral Sand accounts for 558.37 hectares, Limestone 245.69 hectares, Lime shell/seashell 99.4 hectares, Iron Ore 86.06 hectares and China Clay 72.95 hectares. Area covered by Graphite is 1.25 hectares and of Bauxite is nil. Mineral wise details of area covered by mining lease are given in Appendix 3.2

**PRODUCTION AND ROYALTY OF MINERALS 2015-16**

During 2015-16, 408.01 lakh tonnes of major and minor minerals were produced in Kerala. Among major minerals, Bauxite/laterite tops the list with 16.90 lakh tonnes followed by Limestone (6.26 lakhs ton) and China clay (5.86 lakh ton). Among minor minerals highest production is from Graphite Building Stone (298.75 lakh ton) followed by Ordinary Earth (55.08 lakhs ton) and Ordinary Sand (13.31 lakhs ton).

During 2015-16 an amount of ₹119.51 crore was received as royalty from minerals, of which ₹28.00 crore was from major minerals and ₹91.51 crore was from minor minerals. During 2015-16 highest royalty among major minerals was from bauxite/laterite (₹16.22 crore) followed by lime stone (₹5.01 crore), china clay (₹2.34 crore), silica sand (₹1.59 crore) and ilmenite (₹1.15 crore). Among minor minerals granite building stone stands first by contributing ₹71.70 crore as royalty followed by ordinary earth (₹11.01 crore) and ordinary sand (₹5.32 crore) during 2015-16. The production and royalty of minerals in the State during 2015-16 are given in Appendix 3.3

**REVENUE COLLECTED FROM MAJOR/MINOR MINERALS**

District wise analysis of revenue collection shows that Ernakulam district has the highest collection of ₹22.51 crore (16.11% of total revenue) followed by ₹17.43 crore (12.48%) in Palakkad and ₹13.00 crore (9.31%) in Kannur. The least revenue collection of ₹3.01 crore (2.15%) is from Alappuzha. The district wise collection of revenue from major and minor minerals is furnished in Appendix 3.4

### Section 2

**PUBLIC SECTOR UNDERTAKINGS**

Public sector enterprises have played a significant role in Indian development. They have been set up with the objective of helping the country to achieve self-sufficiency in manufacturing and technology. In 2015, there were 298 central PSUs under the administrative control of various Ministries/Departments in India. Out of these only 235 were in operation. The net profit of profit making (157 CPSUs) stood at ₹ 1,30,363 crore in 2014-15, while net loss of loss making (77 CPSUs) stood at ₹27,360 crore.

**CENTRAL SECTOR INVESTMENT**

The aggregate real investment in Central Pub-
Public Sector Enterprises (CPSEs) in India, measured in terms of ‘gross blocks’, increased from ₹17,56,530.80 crore in 2013-14 to ₹19,06,796.31 crore in 2014-15, registering a growth of 8.55 per cent over the previous year. The investment in CPSUs in Kerala in terms of gross block grew by 11.69 per cent from ₹33,865.88 crore in 2013-14 to ₹37,825.79 crore in 2014-15. The state’s share in total investment by CPSUs increased from 1.93 per cent in 2013-14 to 1.98 per cent in 2014-15 (Public Enterprises Survey 2014-15). Among Indian States, Maharashtra was ranked first with respect to share in investment by CPSUs (with a share of 16.97%) followed by Tamil Nadu (share of 6.51%) and Uttar Pradesh (share of 6.22%). Details of Central Sector Investment in Kerala for 2012-13 to 2014-15 are given in Appendix 3.5 and Central Sector Investment in selected states as on 31st March, 2015 are given in Appendix 3.6.

Kerala’s share in investment by Central PSUs from 2011-12 to 2014-15 is exhibited in Figure 3.5. It may be seen that the share of Kerala has declined after 2011-12.

**STATE PUBLIC SECTOR UNDERTAKINGS**

In Kerala, State Public Sector Undertakings (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 Comptroller and Auditor General of India on Public Sector Undertakings in Kerala, there were 126 PSUs in Kerala as on March 31, 2015. Of these, there were 122 Government companies and 4 statutory corporations. Out of the 122 Government companies, 107 are currently working while 15 are non-working PSUs. Sector-wise distribution of government companies is as follows: 50 companies in the manufacturing sector, 16 in infrastructure, 18 in finance, 3 in power, 16 in agriculture and the allied, and 19 in the service sectors. It is important to note that the 15 non-working PSUs are in the manufacturing sector. As per the latest finalised accounts of working PSUs in the State as on March 2015, 50 PSUs earned profits, 53 PSUs incurred losses and 4 PSUs made

![Figure 3.5](source: Public Enterprises Survey 2014-15)
neither profits nor losses. Under the Industries Department, Government of Kerala, there are 43 State PSUs, of which 37 are in the manufacturing sector and 7 in the non-manufacturing/service sectors. The performance of PSUs under Industries Department during the last 5 years is given in Appendix 3.7.

The total value of production in the 43 State PSUs under the Industries Department has increased from ₹2,405.11 crore in 2014-15 to ₹2,829.72 crore in 2015-16, registering a growth of 17.65 per cent. At the same time, turnover of these state PSUs grew by 0.63 per cent during 2015-16 compared to its previous year. Details of PSU-wise turnover and profit/loss during 2015-16 are shown in Appendix 3.8. The combined value of production and turnover of 43 State PSUs under the Industries Department from 2011-12 to 2015-16 are shown in Figure 3.6.

It may be seen that there has been no significant variation in the combined turnover of these State PSUs for the last three years. But the combined value of production decreased in 2014-15 and subsequently increased.

Ten State PSUs under the Industries Department reported profit in 2015-16 as against 13 in 2014-15. The total profit made by the profit-making PSUs increased from ₹ 61.30 crore in 2014-15 to ₹98.32 crore in 2015-16. Major profit making units in 2015-16 were Malabar Cements Ltd (₹38.75 crore), Kerala State Industrial Development Corporation Ltd (₹34.55 crore), and Kerala Minerals and Metals Ltd (₹21.16 crore).

Even though the number of loss making State PSUs increased from 30 in 2014-15 to 33 in 2015-16, the total losses made by loss making State PSUs decreased from ₹241.23 crore to ₹208.12 crore during this period. Major loss-making State

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**Figure 3.6**

Value of Production and Turnover of State PSUs under Industries Department, Government of Kerala*, ₹ in crore

![Graph showing value of production and turnover of State PSUs over years](image-url)

*Excluding KINFRA

Source: Public Sector Restructuring and Internal Audit Board
PSUs during 2015-16 were Kerala State Textile Corporation Ltd. (₹29.50 crore) and Kerala State Cashew Development Corporation (₹25.15 crore). Performance trend of 43 State PSUs from 2011-12 to 2015-16 is depicted in Figure 3.7.

The combined net profit made by all 43 State PSUs under the Industries Department was ₹212.86 crore in 2011-12, but this fell to ₹75.65 crore only in 2012-13. From 2013-14 onwards, the combined net profits of these state PSUs has been negative. In 2015-16, the combined net loss incurred by the 43 State PSUs amounted to ₹109.80 crore. Erosion of working capital, lack of timely up-gradation of technology, limited product diversification, inability to cope up with the changing market demand, increase in cost of production, tough competition from other firms, competition from cheap imports and mounting financial liabilities (including statutory payouts) have adversely affected the performance of State PSUs. It is high time to initiate focussed and time bound action for bringing out drastic changes in the sector to improve the performance of State PSUs, which in turn will help to stimulate economic growth in the State.

**PUBLIC SECTOR RESTRUCTURING AND INTERNAL AUDIT BOARD (RIAB)**

RIAB, constituted in 1993, undertakes reform initiatives in state owned enterprises in Kerala. Major responsibilities of the agency include performance planning and monitoring of PSUs, enterprise reconstruction, capacity building, recruitments in
Box 3.1
Major Initiatives in PSUs during 2015-16

- Government gave clearance for the implementation of a modernisation project in Travancore Cochin Chemicals Ltd at a cost of ₹65 crore.
- The bulk cement handling project of Malabar Cements was started at Cochin Port Trust at a project cost of ₹160 crores.
- The Cherthala Unit of Malabar Cements Ltd was reopened and started production during 2015.
- Various modernisation / expansion projects were initiated by the Kerala Electrical and Allied Engineering Company Ltd and Steel Complex Ltd.
- As part of their corporate social responsibility programmes, various social and welfare activities were implemented by profit making units.
- Co-operative Spinning Mills implemented modernisation / expansion projects with assistance from National Co-operative Development Corporation (NCDC), and with a total outlay of ₹120 crores.

PSUs and governance advisory support to State PSUs. The Government has been providing funds to PSUs for modernisation and expansion and also as working capital assistance. This benefitted 26 PSUs in 2012-13, 22 PSUs in 2013-14, 30 PSUs in 2014-15 and 36 PSUs in 2015-16. During the first four years of the 12th Five Year Plan, Government has invested an amount of ₹350.20 crores for the revival and rejuvenation of PSUs. Expenditure out of this outlay (during the 12th Five-Year-Plan period) amounted to ₹296.67 crore. During 2016-17, an amount of ₹100 crore was set apart for this purpose.

JOINT STOCK COMPANIES

There were 27,505 Joint Stock Companies in Kerala as on March 2016, of which 25,899 (94.16 %) were private limited companies and 1,606 (5.84 %) were public limited companies. There were 1,396 companies, which were newly registered between April and September 2016. During 2015-16, 1,642 companies were newly registered (1,561 Private Limited and 81 Public Limited). The number of companies wound up/dissolved/stripped off/amalgamated from April to September 2016 were 330. Three public companies were converted to private companies and 2 companies were converted from private to public companies. Total number of government companies as on March 2015 was 140/96 Public Limited and 44 Private Limited companies. There were 712 joint stock companies started by women entrepreneurs in Kerala from April to September 2016. Details of joint stock companies working in Kerala are given in Appendix 3.9.

INDUSTRIAL FINANCING

KERALA FINANCIAL CORPORATION (KFC)

Kerala Financial Corporation has been playing a major role in the industrialisation of Kerala. The main objective of Kerala Financial Corporation (KFC) is to extend financial assistance to micro, small and medium enterprises (MSME) 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. Activities of the Corporation are the following:

- Sanction of term loans to new micro, small and medium enterprises in the manufacturing and service sectors.
- Sanction of term loans to existing industrial concerns and service 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, upgrading and expansion of existing cinema theatres and establishment of new multiplexes.
- Special scheme for purchase of lab equipments/waste management.

The Corporation sanctioned loans amounting to ₹1,025.99 crores in 2015-16 and disbursed an amount of ₹838.36 crore in 2015-16. An amount of ₹415.83 crore was disbursed to various SSI units and ₹422.53 crore to other units during 2015-16. As on March 31, 2015, the Corporation sanctioned loans for an amount of ₹7,263.41 crore and disbursed ₹6,573.68 crore. The corporation reported profit (before taxation) of ₹20.35 crore during 2015-16 as against ₹30.03 crore during 2014-15. Performance of KFC during the last seven years is given in Appendix 3.10. The details of loan operations and industry-wise classification of loans during 2015-16 of KFC are shown in Appendix 3.11 and Appendix 3.12.

**KERALA STATE INDUSTRIAL DEVELOPMENT CORPORATION (KSIDC)**

Kerala State Industrial Development Corporation Ltd. (KSIDC) was established in 1961 as the premier industrial investment agency of the Government of Kerala. KSIDC initiated major industrial and infrastructure projects, which are strategically important to Kerala’s industrial and economic development. KSIDC also plays a vital role in entrepreneurship development in the State. The plan outlay and expenditure by KSIDC during 2014-15, 2015-16 and 2016-17 are given in Table No 3.2.

### Box 3.2

**Major Projects Initiated by KSIDC in the 12th Five Year Plan**

- Mega Food Park, Cherthala in marine sector.
- Life sciences park for setting up state-of-the-art manufacturing and R&D facility for Biotechnology and Nano Technology.
- Electronic Hardware Park at Kochi as a world class manufacturing and R&D facility for Electronic Sector.
- Light Engineering Industrial Park, Palakkad.

### Table 3.2

**Plan Outlay for and Expenditure by KSIDC, ₹ in crore**

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<td>2016-17*</td>
<td>87.52</td>
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*As on October 2016

**Source:** Accounts & Planpace, State Planning Board
During the financial year 2015-16, KSIDC financed various projects involving a capital investment of ₹2,069.62 crores with direct term loan assistance of ₹76.65 crores and Rs.10 crore under share capital assistance, which are expected to generate employment for 10,000 persons directly and indirectly. The Corporation disbursed ₹67.76 crore and a total amount of ₹118.36 crores in recovery by way of principal and interest. The operating profit of the corporation has come to ₹49.98 crores during 2015-16, which is a record in the history of the corporation. Majority of projects financed by the Corporation during 2015-16 are under metals and chemical sectors, hospitality, rubber and infrastructure sectors. The physical and financial performance of KSIDC during 2015-16 is given in Appendix 3.13. Details of allotment of land in KSIDC Industrial Park as on October 2016 is shown in Appendix 3.14.

KSIDC conducted ‘Young Entrepreneurs Summit’ (YES) with the theme of ‘collaborating and networking’ and had tied up with Indian Software Product Industry Round Table(ISPIRT) & India Private Equity& Venture Capital Association (IVCA) for YESCAN 2015. KSIDC had set up first All Women Incubation Centre at Assumption College, Changanacherry.

KSIDC developed the infrastructure facilities in its Industrial Growth Centres (IGC) at Kannur, Kozhikode, Alappuzha and Thiruvananthapuram districts. KSIDC has also initiated a special finance assistance scheme known as “Angel Fund/Seed Fund” to promote entrepreneurship among youth making them job providers rather than job seekers. Cumulative assistance sanctioned under the scheme is ₹366 lakhs for 18 innovative ventures. The total stage wise disbursement of funds during 2015-16 is ₹110.50 lakhs. It had set up a 120 seat incubation space spread over an area of 4500 sq.m at Infopark, Kakkanad Kochi. KSIDC has developed a light Engineering Industrial Park at Palakkad in 34 acres of land. First and second phase of infrastructure work of this park are completed.

**MAJOR INITIATIVES OF KSIDC**

**Ease of Doing Business**

Ease of Doing Business (EoDB) is an initiative by the Department of Industrial Policy and Promotion, Government of India, for simplifying clearance procedures for starting an industrial project. Based on the direction, KSIDC appointed M/s KPMG as the Consultant to undertake a study to reform the existing rules and acts relating to clearance procedures for starting an industrial unit in Kerala. They have submitted the draft report detailing the core areas of focus, steps to improve the EoDB ranking, standard operating procedures of departments/agencies, amendments required for acts/rules, and recommendations to improve the ‘ease of doing business’ environment in the State.

**Single Window Clearance System**

The Government of Kerala 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 has cleared 8 major projects across various sectors during the past financial year.

**Make in India/ Kerala**

KSIDC is the nodal agency representing State of Kerala in the scheme, ‘Make in India’ announced by Government of India

**Entrepreneur support through mentoring**

KSIDC initiated one to one mentoring sessions with young prospective entrepreneurs willing to start enterprises in Kerala. Initiatives were also taken up in association with agencies such as CII and TiE for providing mentoring support in many colleges. Some of the colleges that benefitted include TKM Institute of Management, Kollam, and Mar Beseleous College of Engineering & Technology, Trivandrum, National Institute of Technology,
Calicut and Rajagiri School of Social science, Ernakulam. Incubation centres have also been set up in some of these educational institutions.

**KERALA INDUSTRIAL INFRASTRUCTURE DEVELOPMENT CORPORATION (KINFRA)**

Kerala Industrial Infrastructure Development Corporation (KINFRA) was set up in 1993 with the objective of creating infrastructure facilities in the State and thereby create an environment conducive for industrial development. KINFRA is specifically aimed at setting up industrial parks/townships/zones in industrially backward regions of the State. The outlay and expenditure by KINFRA during 2014-15, 2015-16 and 2016-17 are given in Table 3.3.

The Industrial Parks developed by KINFRA have facilities such as developed land, built up space, dedicated power supply, continuous water supply, communication facilities, facilities for administrative block, bank, post office and security. These parks provide a good environment for starting up industrial units with minimum time and cost.

KINFRA has completed infrastructure development in 12 key industrial sectors with world-class infrastructure in 22 Industrial Parks, of which 8 are catering exclusively to the Small & Medium Enterprises Sector. Some of the notable achievements are the successful completion of International Apparel Park at Thiruvananthapuram, Export Promotion Industrial Park at Ernakulam, Info-

### Table 3.3

<table>
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<td>2016-17*</td>
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</tr>
</tbody>
</table>

*As on October 2016  Source: Accounts & Planspace, State Planning Board

### Box 3.3

**Ongoing Projects of KINFRA**

- Industrial Park, Ottappalam
- Industrial Park, Piravanthoor (nearing completion)
- Industrial Park, Kuttipuram
- Marine Park, Beyapore
- Integrated Industrial and Textile Park, Palakkad
- Knowledge Cities Thrissur and Kozhikodde
- Telecom Incubator at Hi-Tech Park Kalamassery
- Global Ayurveda Village, Thiruvananthapuram
- Trade and Convention Ground, Ernakulam
- Special Economic Zone for Electronics Industries at KINFRA Hi-Tech Industries Park, Kochi
- Special Economic Zone for Food Processing at KINFRA Food Processing Park, Kakkancherry.
tainment Park, the Film & Video Park at Thiruvananthapuram and Food Processing Industrial Park at Malappuram. KINFRA has developed small Industries Park at Thiruvananthapuram, Pathanamthitta, Ernakulam, Thrissur, Kannur, Wayanad and Kasaragod.

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, 634 industrial units have been allotted land in the various Industrial Parks of KINFRA with total investment of ₹1581 crore and providing direct employment to 35,898 persons. KINFRA has also implemented a Single Window Clearance system in all the Parks. The Single Window Clearances system operating in the Parks are helping the investors to establish their units without hassles. The details of allotments in KINFRA Industrial Parks as on October 2016 are given in Appendix 3.15.

**CENTRE FOR MANAGEMENT DEVELOPMENT (CMD)**

The Centre for Management Development (CMD) is a leading, self-supporting autonomous institution which provides research, consultancy and training support to development agencies, corporate and governments at the national, state and local levels. Established in 1979, it is sponsored by the Government of Kerala as an independent, professional, registered society. In 2015-16, the centre completed 43 research projects. In addition, the centre also completed 9 training programmes on Management Development /Entrepreneurship Development /workshops and 7 training programmes on Micro Enterprises Development were conducted.

**Conclusion**

Shortage of land has been a major constraint to the growth of manufacturing in Kerala. High density of population, nature of settlement in the State and relatively high price of land are factors that reduce the availability of land for industrial purposes. Kerala’s labourers are educated and skilled, and at the same time they are also conscious about their rights. Delays in obtaining clearances for manufacturing investment, environmental problems associated with large industrial projects, and a relative paucity of entrepreneurship have adversely affected the growth of manufacturing industries in the State.

Hence, key interventions are needed in the manufacturing sector of Kerala focusing high-end technologies and products, and creating large-scale employment for skilled workers. Government can play the role of facilitator in attracting investments and creating a conducive environment for advanced manufacturing activities.

### Section 3

**MICRO SMALL AND MEDIUM ENTERPRISES**

Micro, small and medium enterprises (MSMEs) can play a crucial role in promoting equitable development and in nurturing innovation on a small scale. The MSME sector in India is diverse in terms of size, levels of technology employed and products. There are 346.12 lakh units spread across the country employing 805.24 lakh workers. Micro, Small and Medium Enterprises (MSME) contribute a share of 37.5 per cent to the country’s GDP. The sector has huge potential in addressing structural problems such as unemployment and regional and intersectoral imbalances. Given their comparatively low capital costs and their forward-backward linkages with other sectors, MSMEs can...
play a crucial role in building a diversified manufacturing sector.

Realizing the importance of the MSME sector, the government has undertaken a number of schemes/programmes such as the Prime Minister's Employment Generation Programme (PMEGP), Credit Guarantee Trust Fund for Micro and Small Enterprises (CGTMSE), Credit Linked Capital Subsidy Scheme (CLCSS) for Technology Upgradation, Scheme of Fund for Regeneration of Traditional Industries (SFURTI), and Micro and Small Enterprises-Cluster Development Programme (MSE-CDP) for the establishment of new enterprises and development of existing ones. Some of the new initiatives undertaken by the government for the promotion and development of MSMEs, are as follows:

**Udyog Aadhar Memorandum (UAM):** The UAM scheme, which was notified in September 2015 under section 8 of the MSME Development Act 2006, is a path-breaking step to promote ease of doing business for MSMEs. Under the scheme, MSME entrepreneurs need to just file an online entrepreneurs' memorandum to instantly get a unique UdyogAadhaar Number (UAN). The information sought is on self-certification basis and no supporting documents are required. This marks a significant improvement over the earlier complex and cumbersome procedures.

**Employment Exchange for Industries:** To facilitate match making between prospective job seekers and employers an employment exchange for industries was launched on June 15, 2015 in line with Digital India. More than 3.42 lakh job seekers have been registered on the portal as on December 30, 2015.

**Framework for Revival and Rehabilitation of MSMEs:** Under this framework, which was notified in May 2015, banks have to constitute a Committee for Distressed MSME enterprises at zonal or district level to prepare a Corrective Action Plan (CAP) for these units.

A scheme for Promoting Innovation and Rural Entrepreneurs (ASPIRE): ASPIRE was launched on March 16, 2015 with the objective of setting up a network of technology centres and incubation centres to accelerate entrepreneurship

**The Micro, Small and Medium Enterprises Development Act, 2006**

India is one amongst very few countries which has a legal framework for the MSME Sector in the form of MSMED Act 2006, as per which investment limit for Micro, Small & Medium enterprises are specified for Manufacturing and Service enterprises.

**Entrepreneurs Memorandum (Part-II)**

As per the provisions of Micro, Small and Medium Enterprises Development Act, 2006, MSMEs file Entrepreneurs Memorandum (Part-I) at District Industries Centres (DICs). After commencement of the project, the entrepreneur concerned files Entrepreneurs Memorandum (Part-II) [EM-II]. Prior to the enactment of the Micro, Small & Medium Enterprises Development Act, 2006(MSMED Act, 2006) small-scale industrial units filed only EM-I with the DICs. Now, filing of EM-II is discretionary for micro, small and medium enterprises engaged in both manufacturing and services.

**Figure No. 3.8.** shows the number of EM-II filed by the MSMEs at DICs under the various State/UT Commissionerates/Directorates of industries during 2007-08 to 2015-16.

Number of MSMEs filing EM-II with the District Industries Centres across the country increased from 1.73 lakh in 2007-08 to 4.25 lakh in 2014-15. Top ten States in terms of number of EM-II filed by the MSMEs during 2014-15 are Tamil Nadu, Gujarat, Uttar Pradesh, Maharashtra, Karnataka, Madhya Pradesh, Rajasthan, West Bengal, Kerala, and Telangana. These States together account for nearly 94 per cent of the total number of EM-II filed.
**Figure 3.8**
Total Number of EM II filed with DICs in India, 2007-08 to 2015-16, ₹ in lakh

*Data up to September 17, 2016*

*Source: MSME Annual Report 2015-16, Ministry of MSME, GOI.*

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**MSME IN KERALA**

Kerala, with its excellent connectivity, communication network, availability of highly 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 help in industrialisation of rural & backward areas, targeting youth and socially disadvantaged groups such as SCs, STs, women, and physically challenged persons. This sector contributes enormously to the socio-economic development of the State.

The potential of IT industry in the MSME sector is big as the State offers best connectivity with broadband reach in almost all parts of the State. Consultancy firm KPMG has suggested that there is strong potential in Kerala for growth based on SMEs and IT.

The industries coming under the MSME sector include handicrafts, handloom, Khadi, food processing industries, garment making and textile industries, industries related to coir, wood, bamboo, plastic, rubber, leather, clay, and electronic/electric components.

The Directorate of Industries and Commerce of Government of Kerala acts as a facilitator for industrial promotion and sustainability of MSME sector and traditional industrial sector in the State with the help of Directorates of Handloom & Textiles, Directorate of Coir and Khadi and Village Industries Board. A total amount of ₹2,373.74 crore has been provided for the development of Industry and Minerals, during the first four years of 12th plan.

**STATE PROFILE OF THE MSME SECTOR**

The number of new enterprises filed Memorandum under MSMED Part II in Kerala during the year 2015-16 up to September 17, 2015 was 7705. Out of these, 301 (3.9%) MSMEs were registered by entrepreneurs belonging to the SC community, 31 (0.4%) by entrepreneurs belonging to ST and 1805 (23.42%) by women. Investment in the sector during the period was ₹1,29,356.95 lakh while employment generated and the value of goods and services produced were 45407 Nos. and ₹3,38,001.36 lakh respectively. The details are given in Appendix 3.16.
As on September 17, 2015, the total number of working SSIs/MSMEs registered in Kerala are 2,57,466. Out of the total SSIs/MSMEs, 3.84 per cent were promoted by SC entrepreneurs, 0.72 per cent by STs and 24.97 per cent by women entrepreneurs. The total investment was ₹1,98,646.38 lakh while the total value of goods and services produced was ₹67,65,143.93 lakh and the total number of employment generated was 13,18,666 Nos. The details are given in Appendix 3.17.

EM Part II had stopped in DIC from September 18, 2015 and online registration in UdyogAadhar has started. From September 18, 2015 till March 31, 2016 the number of UdyogAadhar Memorandum filed were 11317 Nos with investment in plant & machinery of ₹1,90,735 lakh and the employment generation of 75402 nos. (www. udyogaadhar.gov.in). The details are given in Appendix 3.18.

Performance of the Sector in Kerala

Trends in investment & employment in MSME sector over the period from 2011-12 to 2015-16 is shown in Figure 3.9.

The investment in the sector during the period from 2011-12 to 2014-15 has increased on an average by 9.73 per cent. The investment has shown a steady upward trend over the period. The value of production shows an enormous increase of 25 per cent during 2013-14. The employment has remained more or less constant over the period. The value of production and employment generation were at their peak during 2013-14.

The rate of growth of the number of MSME units has been increasing though at a declining rate from 2011-12 to 2014-15. However for the year 2015-16 from April- September 2015 there has been a growth rate of 10.95 % that is from 6944 as on September 2014 to 7705 as on September 2015 and is shown in Figure 3.10.

Figure 3.11 shows the growth rate of employment generated over last 4 years. There has been increase in employment generation for the years 2012-13 and 2013-14. But the employment generated has decreased by 4.88 per cent in 2014-15. However for the year 2015-16 from April- September 2015 there has been a growth rate of 14.51 per cent ,that is, from 39651 as on September 2014 to 45407 as on September 2015.

Figure 3.9
Production, Investment & Employment in MSME sector, 2011-12 to 2015-16
**District wise achievements**

District wise analysis reveals that during the year under review, Thiruvananthapuram occupies highest position with 298 new MSME units and Ernakulam tops in numbers of employment generated with 10105 and Wayanad was at the lowest position with 184 new MSME units and 777 new jobs generated. In case of online registration from September 18, 2015 to March 2016 Ernakulam occupies the top position in all aspects with 2129 new MSME units, ₹48371lakh investment and 18857 employment generated. The details are given in Appendix 3.19.
**Major State Plan Schemes and achievements**

During 2015-16, State Government implemented various schemes successfully for improving the industrial environment of the state through development of industrial infrastructure, promoting entrepreneurship and providing skill development. Following are the major schemes and achievements.

**Industrial Co-operative Societies**

In Kerala, the total number of working industrial co-operative societies as on March 31, 2016 was 408 against 405 in the previous year, an increase of 0.74 per cent over the previous year. Out of 408 cooperative societies, 111 Societies were registered by women. The details are given in **Appendix 3.20**. During 2015-16, 12 societies were registered.

**Industrial Development Plot/Areas**

Directorate of Industries and Commerce (DIC) develops infrastructure facilities for small-scale industries in the State. At present there are 37 Development Area / Development Plots under DIC, having a total acquired area of 2439.44 acres. A total of 2274 units are functioning in these DA/DPs in 2015-16 compared to 1797 in the previous year. The details are given in **Appendix 3.21**.

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Scheme Name</th>
<th>Achievements 2015-16</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Infrastructure Development Schemes</td>
<td>These schemes intend to promote development of infrastructure in the industrial parks, estates, development areas/plots including roads, power, water and facilities for waste management. It is also envisaged to develop new multi-storied industrial estates, industrial parks and common facility centres for clusters. During 2015-16, the functional industrial estates at Changanasseri and Manjeri were upgraded and road construction work for the Anthur Development Plot(DP), Kannur was initiated. An outlay of ₹2430.00 lakh was provided for the year 2015-16 for implementing the scheme.</td>
</tr>
<tr>
<td>2</td>
<td>Entrepreneur Support Scheme (ESS)</td>
<td>The scheme intends to provide extensive support to MSMEs and give one time support to entrepreneurs, especially women and person belonging to SC and ST community. During 2015-16 a total amount of ₹3925 lakh was sanctioned to 1021 enterprises. An outlay of ₹4000 lakh was provided during the year 2015-16 for ESS.</td>
</tr>
</tbody>
</table>
| 3     | Capacity building programme                     | The scheme intends to promote Entrepreneurial/ industrial promotional activities and skill development training in Micro, Small and Medium Enterprises. Under the scheme following events were conducted  

- Entrepreneurial Development Programme: 15 Days each in 14 Districts.
- Technology clinic: two-day programme in 14 districts.
- Investors meet: One-day workshop in 57 taluks.
- Conducted 93 Investment meets, 505 entrepreneurs started new enterprises with investment of ₹67.32 Crores
- An outlay of ₹750 lakh was provided during the year 2015-16. |

*Source: Directorate of Industries and Commerce*
Mini Industrial Estates

As on March 31, 2016 there were 112 mini industrial estates and 857 SSI units in these estates providing total employment of 3590. The details are given in Appendix 3.22.

Industrial Estates under SIDCO

Kerala Small Industries Development Corporation (SIDCO) provides infrastructure facilities such as land, work shed, water, distribution of scarce raw materials to the units in the small scale sector. There are 17 major industrial estates, which include 882 working units, under the administrative control of SIDCO. These working units provided employment to nearly 7394 people as on October 31, 2016. Further, there are 36 mini industrial estates and 7 Industrial Parks under SIDCO in which about 1303 employees are working in 326 working units all over the State. The total turnover during 2015-16 of SIDCO was ₹277.69 crore. It is suffering losses from 2012-13 onwards. Details of industrial estates under SIDCO are given in Appendix 3.23, 3.24 and 3.25.

Promotional Events / Exhibitions – Achievements of the MSME sector during 2015-16

The Directorate of Industries and Commerce conducted/participated in 27 Exhibitions / Fairs /

Expos inside Kerala with 709 stalls in 2015-16 and generated an income of Rs. 1220.89 crore. Nine exhibitions were held in Thiruvananthapuram. While there were only 3 exhibitions in Kannur the maximum number of stalls (218) were put up in the district. The DIC represented Kerala in an international exhibition with 13 stalls. Details are given in Appendix 3.26. Following are the major promotional activities undertaken by the Department of Industries during 2015-16.

- The Kerala Business to Business Meet 2015 organised at Kochi from February 26 to 28, 2015.
- Government of Kerala participated in and won the Horeca Buzz Award for its efforts to create maximum buzz on ground and online at ‘AAHAR 2016’ Exhibition organised at Pragati Maidan, New Delhi from March15 to 19, 2016
- Organised an ‘Awareness programme on Workshop on Food Safety’ on April 29, 2016 at Kochi
- Participated in the Food Hospitality World 2016 Exhibition from June 9 to 11, 2016 at Bangalore.
- 93 Investment meets were conducted, which were attended by 6292 entrepreneurs of which 505 entrepreneurs started new

Box 3.4
MSME Amendment Bill, 2015

The Ministry of Micro, Small and Medium Enterprises Development (Amendment) Bill, 2015 was introduced in the Lok Sabha on April 20, 2015. The objectives of the proposed amendments are to (i) enhance the existing limit for investment in plant and machinery considering changes in price index and cost of inputs consistent with the emerging role of the MSMEs in various Global Value Chains, (ii) include medium enterprises apart from small enterprises in section 7(9) to enable the aforesaid category of enterprises to avail the benefits and become competitive, and (iii) empower the Central Government to revise the existing limit for investment, by notification, considering the inflation and dynamic market situation.
enterprises with a combined investment of ₹67.32Cr.

- The following meetings were conducted; District Level Review Committee(37), District Industrial Development Councils(6), Green Channel Counter(9), District Level Committee on State Investment Subsidy(37), District Level Committee on State Tax Extension(28), Single Window Clearance Board(28), MSME Empowered Committee(16).

- 27 exhibitions were conducted in which 999 units participated and the total sales turnover of the units was ₹15.15 crore.

- 360 Industrial seminars were conducted which were attended by 21642 entrepreneurs out of whom 1416 started an enterprise.

**Bank Credit to SSI / MSME Sector**

As per the State Level Bankers’ Committee (SLBC) report, the outstanding bank credit to various sectors by the commercial banks in Kerala at the end of March 2016 increased by about 13.9 per cent, that is, ₹218706 crore against ₹192010 crore in the previous year. The outstanding flow of credit to MSME sector was ₹39463 crore, an increase of 10.44 per cent, as compared to ₹35730 crore in the previous year. The status of flow of credit to various sectors is given in Appendix 3.27.

**Entrepreneurship Development**

Entrepreneurial activity is a pillar of economic growth, across countries. In both developed and developing countries, fostering entrepreneurship for sustainable development could improve and create more sustainable consumption and production systems overall. 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.

In Kerala, entrepreneurship thrives in a number of sectors including trade, transport, tourism, information technology (IT), IT enabled services and engineering.

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**Table 3.5**

<table>
<thead>
<tr>
<th>Skill Development &amp; Training Institutes in Kerala</th>
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<tbody>
<tr>
<td><strong>MSME Development Institute, (MSME-DI), Thrissur, Government of India</strong></td>
</tr>
<tr>
<td><strong>Kerala Academy of Skill excellence (KASE)</strong></td>
</tr>
<tr>
<td><strong>Kerala Institute of Labour and Employment (KILE)</strong></td>
</tr>
</tbody>
</table>

Source: 1. MSME Development Institute, (MSME-DI), Thrissur, Government of India.
2. Kerala Academy of Skill excellence (KASE)
3. Kerala Institute of Labour and Employment (KILE)
**Promoting Skill Development**

Staff training and the vocational and continuous on-the-job training ensure a constant upgrading of workers’ skills. In India, Ministry of Micro, Small and Medium Enterprises provided entrepreneurship and skill development training to 16,87,324 persons during the 11th Plan and 11,58,562 persons during the first two years of the 12th Plan through various institutions such as MSME-Development Institutes, KVIC, Coir Board, and NSIC.

MSME-Development Institute (MSME-DI), Thrissur, Government of India has conducted 81 tailor made development training programmes in 2015-16 benefitting 2384 potential entrepreneurs. Details are given in Appendix 3.28.

**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. The State supports cluster development through MSME-DI, Thrissur and Kerala Bureau of Industrial Promotion (K-Bip). The Common Facility Centres, which are at 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. The State has identified about 75 SME clusters and they are at different stages of development. Central Government agencies like Coir Board, SISI, and NGOs like Federation of Industrial Clusters are also taking initiatives in Cluster Development. The cluster development initiatives by the State Government with the support of Ministry of MSME has gained adequate momentum and the Ministry has already sanctioned 14 projects to Kerala of which 8 have been commissioned, 5 projects are on-going and in-principle approval has been obtained for the upgrading of the cluster at Poovanthuruthu, Kottayam.

**Financial 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. During the period from 2008-09 to 2014-15, 2.96 lakh units have been assisted with margin money subsidy of ₹5867.68 crore to create employment for an estimated 25.87 lakh persons in the country. During 2015-16, ₹860.51 crore has been released by the Ministry as margin money under PMEGP out of which ₹ 528.32 crore has already been disbursed by the banks, assisting 24126 new projects providing employment to 1.71 lakh persons. Since its inception in 2008-09 until January 31, 2016, PMEGP assisted in the setting up of 84296 projects by women entrepreneurs. (Source: MSME Annual Report 2015-16, Ministry of MSME, GOL)

The Khadi and Village Industries Commission (KVIC) was approved as the nodal agency for implementation of the scheme at national level. In Kerala, State KVIC Directorate, State Khadi and Village Industries Board (KVIB), District Industries Centres (DICs) and bankers are the agencies for implementation of the scheme. The banks sanctioned 758 applications and provided Margin Money of ₹917.092 lakh up to 31st March, 2016. Details are given in Appendix 3.29 & 3.30. During 2016-17 up to September 2016, 1430 applications were received. Applications sanctioned by banks are 26 and margin money sanctioned and released is ₹109.62 lakh.
Section 4

FOOD PROCESSING SECTOR

Food processing sector is an important industry in India in terms of output and employment. India’s food processing sector covers fruit and vegetables, spices, meat and poultry, milk and milk products, alcoholic beverages, fisheries, plantation, grain processing and other products like confectionery, chocolates, cocoa products, soya-based products, mineral water and high protein foods.

India’s export of processed food was valued at ₹26,067.64 crores in 2015-16. The items exported from the country included dried and preserved vegetables (₹914.21 crores), other processed fruits and vegetables (₹2,900.33 crores), Pulses (₹1,603.22 crores), Groundnuts (₹4,046.05 crores), Guar gum (₹3,233.87 crores), Jaggery and confectionary (1,289.26 crores), Cocoa Products (₹1,266.99 crores), Cereal Preparations (₹3,341.31 crores), Alcoholic and Non-Alcoholic Beverages (₹2,005.13 crores) and Miscellaneous Preparations (₹2,593.49 crores) (Source: Agricultural and Processed Food Products Export Development Authority (APEDA), Ministry of Commerce and Industry, Govt. of India).

The Indian food processing industry has great potential for export growth, especially given India’s geographical position with its connectivity to Europe, Middle East, Japan, Singapore, Thailand, Malaysia and Korea. (Source: Agricultural & Processed Food Products Export Development Authority (APEDA), Ministry of Commerce and Industry, Govt. of India). India is ranked 12th in the World in exports of food and food products in 2015. In India, the food sector has emerged as a high-growth and high-profit sector. The share of Food Processing Sector in GVA by India’s manufacturing sector was 8.6 per cent in 2014-15.

The number of registered food processing units in India has increased from 37,175 in 2012-13 to 37,445 in 2013-14. Food processing industry is one of the major employment intensive segments contributing 11.69 per cent of employment generated in all Registered Factory sector in 2013-14 (Source: Make in India).

INITIATIVES OF MINISTRY OF FOOD PROCESSING INDUSTRIES – MOFPI

The Ministry of Food Processing Industries is implementing various schemes for providing impetus to the development of food processing sector, viz. Infrastructure Development for Food Processing with the components of (i) Mega Food Park (ii) Cold Chain (iii) Setting-up/Modernization of Abattoirs, Scheme for Quality Assurance for setting up of Food Testing Laboratories and Technology Up gradation Scheme. Some of the major initiatives taken by the Government of India to improve the food-processing sector in India are as follows:

- The Ministry of Food Processing Industries announced a scheme for Human Resource Development (HRD) in the food processing sector. The HRD scheme is being implemented through State Governments under the National Mission on Food Processing. The scheme has the following four components:
  - Creation of infrastructure facilities for degree/diploma courses in food processing sector
  - Entrepreneurship Development Programme (EDP)
  - Food Processing Training Centres (FPTC)
  - Training at recognised institutions at State/National level

- The Food Safety and Standards Authority
of India (FSSAI) under the Ministry of Health and Family Welfare has issued the Food Safety and Standards (Food Product Standards and Food Additives) Regulations, 2011 and the Food Safety and Standards (Contaminants, Toxins and Residues) Regulations, 2011 which prescribe the quality and safety standards, respectively for food products.

- The Ministry of Food Processing Industries has taken some new initiatives to develop the food-processing sector, which will also help to enhance the income of farmers and export of agro and processed food among others.

- The Government of India has approved the setting up of five Mega Food Parks in the states of Bihar, Maharashtra, Himachal Pradesh and Chattisgarh. The Government plans to set up 42 such mega food parks across the country in the next three to four years (Source: http://ibef.org/industry/indian-food-industry.aspx).

**STATE FOOD PROCESSING MISSION**

National Mission on Food Processing (NMFP) is a centrally sponsored scheme introduced by Ministry of Food Processing Industries (MoPI), Government of India in the 12th Five Year Plan. The funding pattern is 75 per cent contribution from the Centre, and 25 per cent contribution from the State. The implementation of the scheme is entrusted to the States through the State Food Processing Missions. KINFRA is the Nodal Agency for State Food Processing Mission in Kerala. As on March 31, 2015 an amount of ₹ 967.18 lakhs have been received and an amount of ₹ 966.91 lakhs had been utilised for implementation of schemes under NMFP (Source: KINFRA). However, the Government has now de-linked National Mission on Food Processing (NMFP) in the States from Central Government support with effect from April 1, 2015. The scheme is being supported by the Central Government in UTs.

Food processing sector in Kerala has always made significant contribution to food exports. Kerala

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**Figure 3.12**

**Food Processing Units registered in 2015-16**

![Food Processing Units Chart]

*Source: Directorate of Industries and Commerce*
has been a major exporter of spices, marine products, cashew, coffee, tea and pickles. Two thirds of Kerala’s export income comes from processed food. In Kerala, number of food processing units registered during 2015-16 is 879. Thrivunanthapuram district has registered 237 units, which is at the top position. The share of food processing units in the registered sector is only 19 per cent as evident from Figure 3.12.

Kerala Industrial Infrastructure Development Corporation (KINFRA) has completed infrastructure development in 12 key industrial sectors with world-class infrastructure in 22 Industrial Parks, of which 8 are catering exclusively to the Small & Medium Enterprises sector. 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, 634 industrial units have been allotted land in the various Industrial Parks of KINFRA with a total committed investment of ₹1581 crore, providing direct employment to 35898 persons. KINFRA has also successfully implemented a Single Window Clearance system in all the Parks. The Single Window Clearances system operating in the Parks are helping the investors to establish their units without any hassles. However, the scheme has been discontinued from April 1, 2015.

KINFRA has set up exclusive Food Processing Parks to suit the specific needs of the food processing sector and they offer space for food processing units in their 22 Industrial parks, as the demand for space is high. KINFRA has obtained an in-principle approval from the Ministry of Food Processing Industries (MoFPI), Government of India to set up KINFRA Mega Food Park at Palakkad. The proposed project will cover a region of 6 districts viz. Palakkad, Malappuram, Thrissur, Ernakulam, Kozhikode and Wayanad as the raw material cluster for the Mega Food Park. The Ministry has accorded final approval for the project. There are 52 units under KINFRA Food parks at Malappuram, Mazhuvunnur, Adoor, Aroor and Wayand. Out of these Mazhuvunnur (Ernakulam) food processing park has 24 units with 631 workers and Kakkancherry (Malappuram) food processing park has 15 units with 510 workers. Total number of employment provided among these parks was 1525. Details of KINFRA food parks are given in Appendix 3.31.

Under the Mega Food Parks Scheme of Ministry of Food Processing Industries, KSIDC initiated a proposal to establish a Mega Food Park with thrust on the processing and export of seafood items at Pallippuram, Alappuzha district. The main objective is to create an integrated modern infrastructure leading to an ideal ecosystem to facilitate diverse sea food processing operations and encourage entrepreneurship in food processing in the region. When fully functional, it will create employment for about 2000 persons inside the park and benefit about 50,000 fishermen directly and indirectly.

Quality Management in Food Processing Industries

National Centre for HACCP Certification (NCHC) associated with K-BIP has initiated the process of auditing and certification of 45 Food Processing and Allied Units from our State and outside the State. The audits are carried out through the Trained Auditors selected from the various related Departments / Agencies of the Government. To create awareness on Food Safety Standards & HACCP, National Centre for HACCP Certification (NCHC) organised a Seminar on Food Safety & HACCP on May 15, 2015 along with the Hoteltel Tech Kerala 2015 Exhibition for the Hospitality Sector organised at CIAL Exhibition Centre, Kochi. To provide awareness on Food Safety to the MSMEs in the Food Processing & Allied Sectors of the State, the Department of Industries & Commerce, Government of Kerala in association with Kerala Commissionerate of Food Safety organised an ‘Awareness Workshop on Food Safety’ on April 29, 2016.
Section 5
TRADITIONAL INDUSTRIES

HANDICRAFTS

Eighty per cent of the traditional artisans engaged in production of handicrafts belong to socially and economically backward classes. Kerala has the tradition of making beautiful handicrafts with ivory, bamboo, palm leaves, seashells, wood, coconut shells, clay, cloth, coir, metals, stone, and lacquer ware. Many old handicraft classics can be seen in palaces, old heritage homes and museums in the State.

Importance of Handicraft Industry

Kerala State Handicrafts Apex Co-operative Society (SURABHI), Handicrafts Development Corporation and Artisans Development Corporation are the major promotional agencies in the handicraft industry in State. SURABHI is the apex organization of primary handicrafts co-operatives established with a view to uplift the artisans by marketing their products through the primary co-operatives and implementing welfare schemes with the assistance from State and Central Governments. The turnover of the society during the year 2015-16 was ₹280.84 lakh less than the previous year’s turnover of ₹337.33. Apex society received an amount of ₹170.62 lakh during the year under the scheme, “Assistance to apex organisation in handicrafts sector”. This was primarily used for conducting exhibitions and repair works of showrooms. There are 48 societies and SURABHI made a profit of ₹2.36 lakh from 13 exhibitions and fairs in the year 2015-16. The total employment provided during the period was 30000. Details are given in Appendix 3.32. The Society conducted 2 exhibitions during 2016-17 as on October 12, 2016 and arrangements are being made for conducting further exhibitions in 12 places inside and outside Kerala.

Handicrafts Development Corporation of Kerala (HDCK) is engaged in procuring and marketing handicraft products by giving fair returns to artisans through Sree Moolam Shashthabaputhri Memorial Institute (SMSMI) and Kairali emporia spread all over India. At present it has a network of 19 such sales emporia other than SMSMI. Moreover with the support of Government of India, the Corporation has been implementing welfare schemes to artisans such as Health insurance scheme, conducting exhibitions/craft bazaars at important places and tourist centres. HDCK has been running a Common Facility Service Centre (CFSC) at Thiruvananthapuram for artisans who engage in development wood crafts. Assistance to Apex Organisation in the Handicrafts Sector and establishment of Common Facility Service Centre for Handicrafts are the plan schemes implemented through HDCK during 2016-17. HDCK received an amount of ₹29.37 lakh during the year 2015-16 under the Scheme “Assistance to apex organisation in handicraft sector” which was utilised for organising exhibitions cum sales. This benefitted more than 2500 handicrafts artisans (both directly and indirectly). During the period HDCK was running a loss of ₹2.45 lakh(provisional) from 49 exhibitions and fairs conducted in the year 2015-16. Total turnover for the period was ₹1518 lakh. Details are given in Appendix 3.33. The Kerala Artisans Development Corporation (KADCO) is one of the State agencies providing assistance to artisans for establishing production units, promoting marketing of products, and providing employment opportunities through trade fairs and marketing centres.

BAMBOO INDUSTRY

Bamboo is a highly productive renewable and eco-friendly resource, and 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 2.5 billion people use bamboo in one form or the other at the global level. Advanced research activities are conducted to utilize bamboo for efficient fuel generating system.

In Kerala, 28 species of bamboo are found. Bamboos from the Kerala forest are being supplied mainly to 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. It is notable that 67.3 per cent of the extracted bamboo in Kerala comes from home gardens rather than from the forests.

The Kerala State Bamboo Corporation was incorporated in 1971 as a Government of Kerala undertaking to promote the welfare of the traditional Bamboo workers in the state. The main objective of the Corporation is to develop and promote industries based on bamboo, reed, cane and rattan and to undertake manufacturing and trading of the above products, provide financial, technical and other assistance and guidance to the traditional workers. The artisans in the rearing sector around Angamali region is supported by the Kerala State Bamboo Corporation. An Innovation Centre for Bamboo Development and Development of Premium Designs for Mementos are being set up. The major achievements during the year under review are the following: Around 10000 traditional worker families were provided assistance of ₹1030.36 lakh, Common Facility Centre established for reed collection, facilitation/amenities centre in forest including other facilities, and automatic putty applying machine was installed at Bamboo Flooring tile Factory at Nallalam. Two factories are functioning under the Corporation viz (1) Bamboo

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**Box 3.5**

**Kerala Bamboo Missions – Activities undertaken**

**Bamboo Innovation Centre at Angamaly, Ernakulam**

Bamboo Innovation Centre was established at Angamaly, Ernakulam on August 16, 2016. It acts as the Resource Centre for the development of bamboo sector in the State. The main objective of the Centre is to develop a database about propagation, design, process development, and technology.

**Bamboo Supply Chain**

To ensure the availability of raw/treated bamboo to the artisans/ craftsman in various locations of the state.

**Bamboo Information System**

Information dissemination among beneficiaries. The software contains information regarding Bamboo products, Bamboo propagation, Treatment (Post Harvest) and Product catalogue.

**Participation in Trade Fairs**

Exhibition of Furniture cum Home furnishing products, Home Stays & Rural Tourism Travel Meet, UBM Index fair 2015, Mumbai, India International Trade fair 2015, New Delhi, and Swasraya Bharath 2015 exhibitions, Kozhikode.

**Training Programmes**

It aims at quality enhancement and process improvement training to Bamboo groups, Design transfer training workshops to Bamboo artisans of Micro enterprises & SHGs located at Wayanad, Bamboo Skill Upgradation training programmes through NGOs/Societies and Bamboo Skill Upgradation Training Programmes organised by KSBM at Bamboo Innovation Centre, Angamaly.

*Source: Kerala Bureau of Industrial Promotion (K-BIP)*
Board Factory at Angamaly for manufacture of Bamboo ply (2) Hi-Tech Bamboo Flooring Tile Factory at Nallalam Calicut for manufacture of Bamboo Flooring Tiles, Bamboo furniture and other allied products.

**Kerala State Bamboo Mission**

Kerala State Bamboo Mission (KSBM) constituted in the year 2003 is designated as the Bamboo Development Agency (BDA) of the State for implementation of the various schemes of the National Bamboo Mission (NBM), under the Department of Agriculture & Cooperation, Ministry of Agriculture and Farmers’ Welfare, Government of India. KSBM has four Sub-Committees namely Propagation of Bamboo, Technology Intervention and R & D, Marketing &Livelihood and Design & Training. For ensuring effective implementation and monitoring of the Schemes, State Bamboo Steering Committee (SBSC) was constituted with the Additional Chief Secretary (Forest & Wildlife) as its Chairman.

The interventions initiated after the formation of KSBM include promoting cultivation of bamboo, creation of new designs for innovative products in the handicrafts sector along with appropriate skill development, promotion of bamboo based modern industries supported by technology adaptation and development. It is expected that this will bring in greater business opportunities at various levels, especially among women and hence improve the living standards of the rural people, thereby contributing to the overall growth of the sector.

**Problems and Issues in the sector**

- Inadequate collaboration between technology providers and entrepreneurs
- Lack of modernization and new designs/innovations
- Inadequate marketing facilities / handholding support for forward and backward linkages

The government’s role has to change to a facilitator rather than a provider, should intensify its interventions in creating adequate infrastructure, creating appropriate climate to attract private investment, technical up gradation, diversification and modernisation for the revival and strengthening of the MSME sector.

**Conclusion**

Though Kerala has made considerable achievements in the sphere of industry over the last few years, there are also stiff challenges ahead. They include high cost of production, lack of competitiveness in the global market, minimal forward backward linkages, relative shortage of land and capital, and the virtual absence of important industrial raw material. An integrated approach involving entrepreneurs, Government and the society is essential for achieving faster industrial development of Kerala.

**TEXTILE INDUSTRY**

The Indian Textile Industry plays a significant role in the economic growth of the country through its contribution to industrial output, employment generation, and export earnings. The industry with all its ebbs and flows is a prominent economic activity in the state. Kerala’s textile industry comprises traditional handloom sector, Power loom and the spinning sector.

**Handloom Sector**

In India, Handloom weaving is the second largest employer after agriculture, providing direct and indirect employment to more than 43 lakh weavers and allied workers. This sector contributes nearly 15 per cent of the cloth production in the
country and also contributes to the export earning of the country. In fact, 95 per cent of the world’s hand woven fabric is produced in India. The handloom sector has a unique place in our economy and its strength lies in its uniqueness, flexibility of production, openness to innovations, adaptability to the supplier’s requirement and the wealth of its tradition. The share of Kerala in the national handloom industry remains relatively small even as compared with other Southern states, namely Tamil Nadu, Andhra Pradesh and Karnataka.

Among traditional industries of Kerala, the handloom Sector stands second only to the coir sector in terms of providing employment. The Handloom Industry in the State is mainly concentrated in Thrissur and Kollam Districts. The Industry is dominated by the Co-operative sector, covering 96 per cent of total looms. The remaining 4 per cent of Handloom units are owned by Industrial entrepreneurs. 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 as on October, 2016 is 600 as against 575 during March 2015. Of this, 167 are factory type and 433 are Cottage type societies. Of these 600 societies, 402 are in working condition as on October 2016. The number of factory type Co-operative Societies functioning at present is 84 (50%) and cottage type societies is 318 (53%). Details are given in Appendix 3.34.

The major varieties of products produced in the handloom sector of the State are dhothis, furnishing material, bed sheets, shirting, sarees and lungis. 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. Kasaragode Sarees
3. Kuthampully Sarees
4. Chendamangalam Dhothi
5. Cannanore Home Furnishings

**Directorate of Handlooms and Textiles and Agencies in Handloom Sector**

The Directorate of Handlooms and Textiles, Kerala, functioning under the Department of Industries and Commerce, aims at evolving policies for the promotion and development of handloom and textile sector in the state. The Director heads the office and also acts as the functional registrar of Apex Co-operative weavers’ society and Co-operative Spinning Mills in the State.

**Kerala State Handloom Weaver’s Co-operative Society (Hantex)**

Kerala State Handloom Weaver’s Co-operative Society (Hantex) was registered under the Kerala Co-operative Society Act 1961. Hantex is the apex body of handloom co-operatives established for distribution of required inputs to primary co-operative societies viz procurement, processing, marketing of goods, process high quality yarn and raw materials for societies and explore new business opportunities by promoting Handloom products through exports. Currently Hantex comprises 520 primary co-operative societies as members. Out of this 350 are engaged in production and procurement processes with most modern infrastructure to produce hand crafted fabrics, garments, furnishings, made-ups, sarees, and traditional wears strictly in tune and harmony with eco-friendly norms for internal and export market. Currently there are 98 sales outlets in Kerala. Hantex incurred an accumulated loss of ₹1998.48 lakh during 2015-16. Details of Hantex are given in Appendix 3.35.

**Kerala State Handloom Development Corporation (Hanveev)**

Hanveev, which started functioning in 1968, is another agency for the upliftment of traditional handloom weavers in the unorganized sector in handloom industry with its registered office at Kannur and engaged in the manufacturing and marketing of wide range of handloom products depending on the market trends and sold at various outlets
Throughout Kerala. At present, Corporation has 50 own showrooms, 7 exclusive agency showrooms and 32 production centres. Details of Hanveev are given in Appendices 3.36 and 3.37. In 2015-16, Hanveev’s sales turnover was ₹1903.94 lakh, but it incurred an accumulated loss of ₹7808.58 lakh (provisional).

Indian Institute of Handloom Technology (IIHT)

IIHT, which is an autonomous institute under the Ministry of Industries, Government of Kerala, is the nodal agency in the State for providing technological inputs to the handloom sector. The Institute was established and registered under the Societies Registration Act of 1860 in the year 1987 in the name of Institute of Handloom and Textile Technology (IHTT). Now the Institute of Handloom and Textile Technology, is amalgamated to the Indian Institute of Handloom Technology (IIHT), which is working on the guidelines of the Ministry of Textiles, Government of India.

Handloom Industry in Kerala

For the development of handloom industry, Government extended assistance of ₹173.86 lakh by way of loan and ₹955.97 lakh by way of grant in 2015-16. The details are shown in Appendix 3.38. The total value of production in the handloom sector showed an increase of 13.5 per cent from ₹298.89 crores in 2014-15 to ₹339.25 crores in 2015-16. The total number of weavers employed declined by 13 per cent, from 23,071 in 2014-15 to 20,135 in 2015-16. But the number of women employed increased from 13,238 in 2014-15 to 15,093 in 2015-16. Total employment in the sector increased from 66.37 lakh man days in 2014-15 to 67.37 lakh man days in 2015-16. Total turnover for the handloom industry during 2015-16 is ₹203.55 crore, which includes money, man, and material costs. The average wage rate prevailing in the industry ranges between ₹150 to ₹200 per day.

Details regarding production in handloom industry in Kerala are given in Appendix 3.39 and in Figure 3.13. Figure 3.14 shows production and value of production and employment generated (lakh man days) in the handloom sector respectively.

Figure 3.13 exhibits a steady increase in production and value of production. The employment generated, however, exhibits an increasing trend during the initial two years and thereafter shows a decreasing trend (Figure 3.14). Age-wise distribu-

**Figure 3.13**

Production and Value of production in Handloom sector

![Graph showing production and value of production in Handloom sector]

*Source: Directorate of Handloom and Textiles, Govt. of Kerala*
Figure 3.14
Employment generated in the Handloom sector, in lakh mandays-

Source: Directorate of Handloom and Textiles, Govt. of Kerala

Figure 3.15
Age wise distribution of workers in the Handloom sector

Source: Directorate of Handloom and Textiles, Government of Kerala

The expenditure recorded in the handloom sector during the reference period has been more than 100 per cent except in 2014-15 when it was 99 per cent. The trend of allocation and expenditure for the first four years of 12th five year plan period (2012-13, 2013-14, 2014-15 & 2015-16) are shown in the Figure 3.16

The variation in outlay and expenditure was comparatively low between 2012-13 and 2014-15. But in 2015-16, the expenditure was 39 per cent more than outlay, because of the increase in expenditure on the scheme for spinning mills.
Table 3.6
Plan outlay & Expenditure of the handloom sector during the 12th Five Year Plan period, ₹ in lakh

<table>
<thead>
<tr>
<th>Year</th>
<th>Plan outlay</th>
<th>Plan expenditure</th>
<th>Expenditure as Per cent of outlay</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-13</td>
<td>6807.00</td>
<td>7168.13</td>
<td>105.3</td>
</tr>
<tr>
<td>2013-14</td>
<td>7676.00</td>
<td>8687.04</td>
<td>113.2</td>
</tr>
<tr>
<td>2014-15</td>
<td>6714.50</td>
<td>6652.48</td>
<td>99.1</td>
</tr>
<tr>
<td>2015-16</td>
<td>6715.00</td>
<td>9326.06</td>
<td>139.0</td>
</tr>
<tr>
<td>2016-17*</td>
<td>7073.00</td>
<td>1967.14</td>
<td>27.81</td>
</tr>
<tr>
<td>Grand total</td>
<td>34985.5</td>
<td>33800.85</td>
<td>96.6</td>
</tr>
</tbody>
</table>

Source: Budget 2012-13 to 2016-17, State planning Board and Planspace
*Expenditure upto October 30, 2016

Fig 3.16
Plan outlay and expenditure in the Handloom sector, ₹ in lakh

Source: Budget 2012-13 to 2016-17, State planning Board and Planspace
*Expenditure upto October 30, 2016

Major Schemes Implemented by the Directorate of Handloom and Textiles during 2015-16

1. Capital Support schemes

Various programmes for infrastructure development were directed to PHWCS and apex societies under this scheme in 2015-16. The objectives included technology upgradation, revitalisation and development of the favourable working condition in the units. In the same year 14 production units were started under promotion of ‘master weavers’ and 20 new handloom units were started with 100 looms under Self Employment Scheme.

2. Skill & Capacity development Scheme

In 2015-16, 657 weavers were trained under this scheme for developing value added products.
Major Physical Achievements during 2015-16

- Started Handloom Incubation Centre and Powerloom incubation centre in Thiruvananthapuram District.
- Given Skill development training to 657 weavers.
- Given training for 30 weavers in solid borders and in new designs.
- Given training for 49 weavers in Handloom Art works.
- Conducted 69 seminars cum exhibitions for the propagation of handloom products.
- Assistance given to 20 new weavers to start new handloom production units.
- Technological Upgradation work of 14 Handloom Societies completed.
- 10210 Handloom weavers and 423 Powerloom weavers admitted to Group Insurance Scheme.
- Given skill development training to 120 Powerloom weavers.

3. Incentive Schemes
   Large number of weavers benefitted through different incentive schemes such as weavers/allied workers motivation programme, income support scheme, Contributory Thrift Fund Scheme and Group insurance scheme.

4. Marketing & Trade promotion scheme
   As part of marketing and trade promotion, assistance was given for renovation of showrooms and conducting Handloom Expos.

5. Training Schemes
   As per this scheme, training of 3 to 6 months is given to 30 talented weavers from different parts of the state to help them to develop new designs.

The strength of the handloom sector lies in production of intricate woven fabric, its versatility & wide variety, diverse design base, ability to switch over to new designs quickly, availability of high skilled labour, traditional mode of production with low technology, non-requisite of electricity, eco-friendly technology/process, informal school for skill generation and transfer of technology. However, the sector faces many challenges. They include the decline in the number of handloom weavers due to falling wages, low productivity, lack of technological interventions, competition from power looms and competition from textile units outside state. Other issues include the lack of product diversification in accordance with new trends, shortage of working capital, fluctuations in prices of hank yarn and cotton.

Several measures are needed to modernize the handloom sector. Technology needs to be upgraded to ensure improvements in product quality and productivity. The sector should make use of the possibilities of Information technology to improve the production and marketing of value added handloom products in national and international markets. To improve the productivity of weavers, productivity linked incentives may be routed through Direct Benefit Transfer System (DBTS). With modernisation/mechanisation, value addition may improve which may increase the income flow to the sector and prevent the exit of workers from this sector. As part of the Handloom innovation programme, production of organic cloth with ‘Made in Kerala’ branding can be promoted. Showcasing the rich traditions of the handloom sector can aid the development of tourism in Kerala.
Textile Sector – Spinning Mills

The Textile Industry in Kerala is organized into public sector units, co-operatives and units jointly in public/co-operative sectors.

Kerala State Textile Corporation Limited (KSTC)

KSTC, a Government of Kerala 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 & testing centre. Mills under KSTC are Prabhumal mills, Kottayam Textiles, Edarikkode Textiles and Malabar Spinning & Weaving Mills. Two other units, Sitaram Textiles and Trivandrum Spinning Mills Limited are now under the administrative control of KSTC. In addition, Corporation has under its fold a research and testing division (CARDT), located at Balaramapuram (Thiruvananthapuram), which is rendering service for testing of fibers, cotton and yarn for the textile units in Kerala.

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 Power loom 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 demand and supply. Outdated machinery, stiff competition with high cost of raw material, low productivity, decreasing profits, and lack of working capital are also issues of concern for textile mills in Kerala.

The Government has set up a centralized purchase system to procure cotton for the entire textile sector with the help of a professionally constituted committee. The committee comprises members from Public Sector Restructuring and Internal Audit Board (RIAB), Kerala State Co-operative Textile Federation Limited (TEXFED) and Kerala State Textile Corporation Ltd (KSTC) and Managing Directors of the spinning mills. The sale of yarn carried out through depot system is also monitored by the same committee. The intervention by the committee has helped to reduce raw material costs and generate sufficient savings in the textile sector. A majority of textile spinning mills in the State are over 25 years old and they use obsolete technology and equipment. Partial modernization was attempted in certain units, but it was not at par with the industry standards.

Modernisation of Co-operative Spinning Mills

The Government took diligent efforts to revive the co-operative sector by introducing a scheme which provided assistance for the expansion of Co-operative Spinning Mills. Assistance was provided to K. Karunakaran Memorial Spinning at Mala, Priyadarsini Co-operative Spinning Mill (Prico Mills), and Malabar Co-operative Spinning Mills for upgrading existing machinery and technology for producing export quality yarn.

Power loom Industry

The weaving sector is relatively less developed in Kerala. Around 75 per cent of the textile mills in Kerala are spinning mills, which produce cotton yarn. To promote the weaving sector, government provided budgetary support to set up four integrated power loom co-operative societies in the state. Currently there are 52 power loom co-operative societies in the state. The co-operative sector owns 550 looms out of a total of 575 power looms in the State. The year wise details of production and productivity under power loom industry for the period from 2011-12 to 2015-16 is given in Appendix 3.40.
Khadi and Village Industries

Kerala’s share in production, sales and employment provided by Khadi and Village Industries sector in India has been relatively small (see Table 3.7). Compared to 2014-15, there was a decline in production and mandays employed by Khadi and Village Industries sector in Kerala in 2015-16. (Figure 3.17). The value of production has declined from Rs. 136.35 crore in 2014-15 to Rs. 135.66 crore in 2015-16.

Employment in K&VI in Kerala has declined sharply from 1.29 lakh mandays in 2011-12 to 0.99 lakh mandays in 2015-16. Production and sales of the sector within the State is also showing a downward trend. A major reason for the fall in the number of workers engaged in the sector in Kerala is the migration of workers to better paying jobs in other sectors or for higher education. The sector has been plagued by issues like non-availability of sufficient raw-material for large-scale production,

Table 3.7
Production, Sales and Employment generation in Khadi and village industries sector

<table>
<thead>
<tr>
<th>Year</th>
<th>Production (₹ crore)</th>
<th>State’s Share</th>
<th>Sales (₹ crore)</th>
<th>State’s Share</th>
<th>Cumulative Employment (in lakh mandays)</th>
<th>State’s Share</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>State’s Share Per cent</td>
<td>State’s Share Per cent</td>
<td>State’s Share Per cent</td>
<td>State’s Share Per cent</td>
<td>State’s Share Per cent</td>
<td>State’s Share Per cent</td>
</tr>
<tr>
<td>India</td>
<td>Kerala Per cent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011-12</td>
<td>21852.04</td>
<td>144.73</td>
<td>0.66</td>
<td>26797.13</td>
<td>167.47</td>
<td>0.62</td>
</tr>
<tr>
<td>2012-13</td>
<td>24024.24</td>
<td>145.79</td>
<td>0.61</td>
<td>27839.69</td>
<td>170.84</td>
<td>0.61</td>
</tr>
<tr>
<td>2013-14</td>
<td>26109.08</td>
<td>139.79</td>
<td>0.54</td>
<td>31152.4</td>
<td>172.55</td>
<td>0.55</td>
</tr>
<tr>
<td>2014-15</td>
<td>27569.37</td>
<td>136.35</td>
<td>0.49</td>
<td>33135.9</td>
<td>170.03</td>
<td>0.51</td>
</tr>
<tr>
<td>2015-16</td>
<td>27868.05</td>
<td>135.66</td>
<td>0.49</td>
<td>37642.24</td>
<td>161.30</td>
<td>0.43</td>
</tr>
</tbody>
</table>

Source: Annual Report 2015-16, Ministry of Micro, Small and Medium Enterprises, Govt. of India and Village Industries Board, Kerala

Figure 3.17
Production, Sales and Employment in Khadi and Village Industries in Kerala

Source: Annual Report 2015-16, Ministry of Micro, Small & Medium Enterprises, Govt. of India & Village Industries Board, Kerala
Table 3.8
Fund allocated to and Expenditure incurred by K&VI Board in Kerala, ₹ in lakh

<table>
<thead>
<tr>
<th>Particulars</th>
<th>2014-15</th>
<th>2015-16</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Receipt</td>
<td>Expenditure</td>
</tr>
<tr>
<td>State Government Grant - PLAN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Administrative Expenses (Budget provision)</td>
<td>341.6</td>
<td>341.6</td>
</tr>
<tr>
<td>2. Income Support Scheme (Fund through DIC)</td>
<td>2200</td>
<td>2200</td>
</tr>
<tr>
<td>State Government Grant - NON-PLAN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Non-Plan – Administrative Expenses</td>
<td>2812.24</td>
<td>34930.9</td>
</tr>
<tr>
<td>2. Non-Plan - Special Rebate</td>
<td>1160</td>
<td>1160</td>
</tr>
<tr>
<td>KVIC Grant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. PMEGP - Margin Money Grant</td>
<td>813.62</td>
<td>813.62</td>
</tr>
<tr>
<td>2. Grant for District Awareness Camps and District Level Exhibition of PMEGP</td>
<td>5.40</td>
<td>5.40</td>
</tr>
<tr>
<td>3. Grant for stationery, Publicity, TA, Expense for the Scheme PMEGP</td>
<td>2.15</td>
<td>2.15</td>
</tr>
</tbody>
</table>

Source: Khadi and Village Industries Board, Government of Kerala.

Figure 3.18
Financial Performance from 2012-13 to 2015-16

Plan Outlay and Expenditure in The Sector During The First Four Years Of The 12th Five Year Plan

The allocation of funds from various sources to K&VI Board and the expenditure incurred by the Khadi and Village Industries Board during 2014-15 and 2015-16 are shown in Table 3.8. Plan expenditure was higher than plan outlay during 2012-14. However, during 2014-15 the expenditure was only 24 per cent only of the outlay of ₹1397.6 lakh. This was because of the delay in

boom in the growth of the power looms industry in the country, shift in the nature of demand for clothing, and the use of low productivity charkhas, looms and other accessories.
release of funds by the Govt. The expenditure increased to 80 per cent in 2015-16. (Table 3.9)

Moreover, goods worth ₹537.96 crores has been produced through the Aided Units of the K&VI Board, including through the Rural Employment Generation Programme (REGP) and Prime Minister Employment Guarantee Programme (PMEGP), and goods worth ₹601.13 crore has been sold, providing employment to 1,39,569 persons. It is observed that the productivity per person is much higher in K&VI Aided Units than in K&VI Departmental units. The production, sales and wages paid and employment generated during 2014-15 & 2015-16 and District wise details of Departmental sales outlets and sales under K&VI Board for the period referred to are provided in Appendix 3.41 and Appendix 3.42 respectively.

Special Employment Generation Programme (SEGP) has been launched with a aim of giving financial support to the small-scale entrepreneurs and traditional labourers, who did not get benefits of Prime Minister’s Employment Generation Programme (PMEGP). The total Project Cost for the programme during 2015-16 was ₹910.59 lakh. Total employment generated during this period was 1148. Employment generation was the highest in Alappuzha (298) followed by Kottayam (192). The amount disbursed as subsidy through the programme was ₹294.32 lakh and the total number of units started during this period is 351. District level Awareness Camp and Exhibitions were conducted by the Board. The details of district wise achievement under self-employment generation programme for the year 2015-16 is provided in Appendix 3.43

Technology and Value Addition

Khadi industry employs traditional technology. The Board has initiated measures, with the assistance of IIT Madras, for infusion of technological innovation to improve the production capacity of existing implements. There is ample scope for generating more employment in the Khadi sector. The Board proposes to create 10,000 new jobs in Khadi sector during the 13th five year plan period.

Marketing 2015-16

The Board has 208 sales outlets for Khadi and Village Industries goods which include Khadi Grama Soubhagya (39), Khadi Soubhagya (51), Grama Soubhagya (GS Depot115) and mobile sales van (3). The Board has conducted Onam Melas in 2015. The state level Onam Melas have been inaugurated at Kannur on July 23, 2015. Sales through OnamMela 2015 was ₹25.8 crore against the target for ₹25 crore. District-wise sales for the year 2016-17 (Up to September 30, 2016) are given in Table 3.10.

Constraints and Strategies of Khadi and Village Industry

A major reason for the fall in the number of workers engaged in this sector is the migration of workers to more attractive and remunerative opportunities in other sectors. Other causes for the stagnancy prevailing in this sector are surplus stock of unsold Khadi, difficulty in availing credit from banks, lack of adoption of new marketing tech-

<table>
<thead>
<tr>
<th>Year</th>
<th>Outlay</th>
<th>Expenditure</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-13</td>
<td>1210.00</td>
<td>1306.00</td>
<td>108</td>
</tr>
<tr>
<td>2013-14</td>
<td>1331.00</td>
<td>2490.00</td>
<td>187</td>
</tr>
<tr>
<td>2014-15</td>
<td>1397.60</td>
<td>341.60</td>
<td>24</td>
</tr>
<tr>
<td>2015-16</td>
<td>1397.60</td>
<td>1114.60</td>
<td>80</td>
</tr>
<tr>
<td>Grand Total</td>
<td>5336.20</td>
<td>5252.20</td>
<td>98</td>
</tr>
</tbody>
</table>

Source: Budget 2012-13 to 2015-16, Accounts and Planspace
Box 3.7
Major Physical achievements of Khadi and Village Industries Board during 2015-16

- K&VI Board has created 2906 new employment opportunities through Prime Minister’s Employment Generation Programme (PMEGP) scheme during 2015-16.
- An amount of ₹819.46 lakh was given as margin money grant to beneficiaries.
- The Government has exempted building tax for all departmental Khadi production centres working under the Board.
- The Board has increased the Khadi Production by 20 per cent than the previous year through its own production centres.
- The total cost of the cloth produced during 2015-16 is ₹2000.50 lakh.
- 25 new departmental Khadi production centres has been established, 780 new charka and 650 new looms were installed, and 20 new readymade warping units were set up.
- The Board has imparted training to 650 new artisans in khadi weaving and provided employment to them.
- The Festival incentives to Khadi workers has been enhanced to ₹1000 which was disbursed during Onam.
- The production incentives to Khadi weavers have been enhanced to 180 paisa from 90 paisa for the hank consumed for weaving. The production incentives to Khadi spinners have been enhanced to 60 paisa from 30 paisa for the hank produced.
- The Board has disbursed ₹4 crore as production/festival incentives to Khadi spinners and weavers during 2015-16.
- All the Khadi workers in the State will be under the purview of E.S.I Act from April 1, 2016 and all the benefits under the E.S.I Act will be given to Khadi workers also.
- During 2015-16, the Board has disbursed ₹27 crore to khadi workers in the State to ensure minimum wages to them through Income Support Scheme.

Table 3.10
District-wise Annual Sales For The Year from 2016-17 *

<table>
<thead>
<tr>
<th>SL. NO.</th>
<th>Name of District</th>
<th>Target for 2016-17 Amount (₹ lakh)</th>
<th>Number of Sale Outlets</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Thiruvananthapuram</td>
<td>400</td>
<td>18</td>
<td>282.20</td>
</tr>
<tr>
<td>2</td>
<td>Kollam</td>
<td>300</td>
<td>15</td>
<td>291.99</td>
</tr>
<tr>
<td>3</td>
<td>Pathanamthitta</td>
<td>175</td>
<td>7</td>
<td>247.94</td>
</tr>
<tr>
<td>4</td>
<td>Alappuzha</td>
<td>225</td>
<td>8</td>
<td>205.26</td>
</tr>
<tr>
<td>5</td>
<td>Kottayam</td>
<td>270</td>
<td>16</td>
<td>189.22</td>
</tr>
<tr>
<td>6</td>
<td>Idukki</td>
<td>140</td>
<td>3</td>
<td>141.80</td>
</tr>
<tr>
<td>7</td>
<td>Ernakulam</td>
<td>885</td>
<td>12</td>
<td>569.08</td>
</tr>
<tr>
<td>8</td>
<td>Thrissur</td>
<td>300</td>
<td>19</td>
<td>199.07</td>
</tr>
<tr>
<td>9</td>
<td>Palakkad</td>
<td>325</td>
<td>19</td>
<td>245.71</td>
</tr>
<tr>
<td>10</td>
<td>Malappuram</td>
<td>130</td>
<td>14</td>
<td>88.80</td>
</tr>
<tr>
<td>11</td>
<td>Kozhikode</td>
<td>450</td>
<td>29</td>
<td>254.07</td>
</tr>
<tr>
<td>12</td>
<td>Wayanad</td>
<td>60</td>
<td>1</td>
<td>36.87</td>
</tr>
<tr>
<td>13</td>
<td>PKC (Kollam, Kasargod)</td>
<td>1640</td>
<td>47</td>
<td>1393.49</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>5300</td>
<td>208</td>
<td>4145.5</td>
</tr>
</tbody>
</table>

Source: Khadi and Village Industries Board, Government of Kerala
*Upto September 30, 2016
niques, lack of product innovation, low quality of products, and high cost of production. Effective steps should be taken for extension of marketing facilities and development of a marketing strategy. Support institutions should be strengthened and R & D should also be developed. So a very effective, strong and pragmatic approach should be taken up both at the Department and Government level to revamp the industry.

**COIR INDUSTRY**

India is the largest producer of coir in the world, accounting for more than 80 per cent of the production of coir fibre globally. Coir and coir products have been exported to 115 countries including China, USA, Netherlands, South Korea, and Spain. Coir industry first emerged in Kerala in the 19th century. The State’s long coast line, lakes, lagoons and backwaters provided natural condition required for retting, an important part in coir processing. With the expansion of coconut cultivation, coir industry has picked up in Tamil Nadu, Karnataka, Andhra Pradesh, Orissa, West Bengal, Maharashtra, Assam and Tripura.

Kerala accounts for about 85 per cent of the total production of coir in the country. The coir industry comprises four sectors. They are: (i) retting and fibre extraction sector (ii), spinning sector (iii), manufacturing sector and (iv) trading (including exports). This agro-based rural industry provides sustenance to around 2 lakh families in the coastal belt of Kerala. 80 per cent of workers are women. The co-operative sector plays a major role in the coir industry in Kerala. The private sector too has a large presence in the industry as, coir yarn producers, product manufacturers and exporters.

**Directorate of Coir Development and Agencies in Coir Sector**

The activities and programmes of the coir sector in Kerala are co-ordinated by Directorate of Coir Development, Govt. of Kerala. The Directorate also acts as a facilitator for the promotion of the coir industry in the state. Kerala State Co-operative Coir Marketing Federation (COIRFED), Kerala State Coir Corporation Ltd (KSCC), Foam Mattings India Limited (FOMIL), National Coir Research & Management Institute (NCRMI), Central Coir Research Institute and Coir Board are the other important institutions for the promotion of coir industry. Coir Board with its head office at Kochi, Kerala is the arm of the Central Government for development and promotion of Coir Industry.

**The Kerala State Co-operative Coir Marketing Federation (Coirfed)**

COIRFED is the apex federation of primary coir co-operative societies spread all over Kerala. It is entrusted with the task of procuring products from co-operative societies and marketing them. At present COIRFED has two factories engaged in the manufacture of value added products – one producing rubberized coir products and the other rubber backed coir mats. COIRFED has four de-fibering units. The value of exports of COIRFED increased from ₹13.11 lakh in 2014-15 to ₹29.17 lakh in 2015-16.

**Kerala State Coir Corporation (KSCC)**

KSCC was set up in 1969 for the systematic development of coir industry in the State. It caters to the needs of the small-scale coir manufacturers by providing them facilities for manufacturing and marketing. Its diversified operations include curled coir manufacturing and allied products sectors. KSCC has been implementing the Purchase Price Stabilization (PPS) scheme in the coir sector. Under the scheme the KSCC directly procures coir products from small-scale producers and co-operatives, thereby avoiding middle men. The value of export by the corporation has increased from ₹4.16 crore in 2014-15 to ₹8.14 crore in 2015-16.

**Foam Mattings India Ltd. (FOMIL)**

FOMIL was established in 1979 to help the development of value-added coir products. It has emphasised the use of technology and machinery
in coir industry. It has introduced Latex Backing Plant, which produces latex backed matting, Modern Dye House, Semi Automatic and Fully automatic Power loom, Auxiliary facilities and uninterrupted power system. The latex backing facility was introduced in 1980, with the machinery imported from Denmark. Even today, Fomil has the monopoly in latex backed production. The company has started the modern dye house in the year 2000 mainly to support the needs of exporters and powerloom. The value of exports from Fomil was ₹49.99 lakh in 2014-15 and ₹13.05 lakh in 2015-16.

The National Coir Research and Management Institute (NCRMI)

NCRMI is a State Government institution set up to strengthen the R&D activities in coir sector to enable the industry in producing more value – added products and products with new designs at reasonable cost. Also NCRMI have been conducting studies for the development of new coir technologies in collaboration with similar research organizations across the country and even at the International level.

The Central Coir Research Institute

The Central Coir Research Institute at Kalavoor, Alappuzha is one of the prime research centre of Coir Board. This institute is recognised by the Department of Science & Technology, Government of India and was established in 1959. It implements all the S & T programs for the development of Coir Industry.

Kerala State Coir Workers Welfare Fund Board

Kerala Coir Workers Welfare Fund Board is a statutory body for the welfare of poor and down trodden coir workers. There are two lakh eight thousand two hundred and fifty one (208251) coir workers registered with the Board as on July 31, 2016. Among these approximately 80 per cent are women workers. It extends pension and other welfare assistances to members. (Source: Kerala Coir Workers’ Welfare Fund Board, Alappuzha)

Co-operatives in Coir

Coir co-operative societies play substantial role in collecting husk, defibring and producing varieties of coir products in Kerala. There are 1007 co-operatives registered in coir sector as on March 31, 2016. As per the report of the Coir Directorate 16 new societies were registered during 2015-16. There is also increase in the number of working societies from 536 to 544, an increase by 8 units. Details of the societies are shown in Appendix 3.44.

Procurement of Husk and Production of Yarn and Fibre in Co-operative sector

In 2015-16, coir co-operatives in Kerala procured 0.98 crore quantity of husk by spending an amount of ₹1.21 crore and 11847.27 tonnes of fibre at a cost of ₹33.93 crore. Around 10771.11 tonnes of coir yarn worth ₹54.59 crore was produced. There is an increment in the procurement of husk by coir co-operatives during 2015-16 compared to previous year. In 2015-16, there were 455 coir co-operative societies in Kerala in the production of coir yarn and 76 co-operative societies in the coir products sector. Total wages paid in the coir yarn sector and coir products sector, in 2015-16 were ₹3083.58 lakh and ₹657.4 lakh respectively. Details for the last Five Years are shown in Appendix 3.45.

Age wise distribution of workers in coir sector

Age wise distribution of workers in coir sector during the period 2015-16 is shown in Table 3.11 and Figure 3.19. From the Table 3.11 and Figure 3.19, it is observed that 80 per cent of the workers are female and the number of workers in this industry who are aged 25 years or below is very low. Number of male workers engaged in this sector is highest between the age group 56-65 and that of female workers is in the age group 46-55. It can also be observed that workers who are more than 65 years of age are also few in the industry.
### Table 3.11
Age wise distribution of workers in the coir industry in Kerala in 2015-16

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Age group</th>
<th>Number of Workers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Males</td>
</tr>
<tr>
<td>1</td>
<td>25 years or below</td>
<td>22</td>
</tr>
<tr>
<td>2</td>
<td>26-35 years</td>
<td>88</td>
</tr>
<tr>
<td>3</td>
<td>36-45 years</td>
<td>222</td>
</tr>
<tr>
<td>4</td>
<td>46-55 years</td>
<td>485</td>
</tr>
<tr>
<td>5</td>
<td>56-65 years</td>
<td>496</td>
</tr>
<tr>
<td>6</td>
<td>Above 65 years</td>
<td>100</td>
</tr>
<tr>
<td>7</td>
<td>All age groups</td>
<td>1413</td>
</tr>
</tbody>
</table>

Source: Directorate of Coir Development (as per income support scheme)

### Fig 3.19
Age wise distribution of workers in the coir industry in Kerala in 2015-16

Source: Directorate of Coir Development

### Export of Coir and Coir Products

The export of coir and coir products from India in quantity terms during the year 2015-16 was 75,2020 MT, valued at 1901.43 crore against 62,6666 MT valued at 1630.34 crore during the previous year. This recorded an overall increase of 20 per cent in quantity and 17 per cent in value over the export of previous year. Curled coir, coir fibre, coir rugs, coir pith, coir rope, coir yarn, coir geo-textile, handloom matting, power loom Mats, rubberized coir and other sorts constitutes the major export items of the industry during 2015-16. The details of export of Coir and Coir Products during last 5 years by Public sector undertakings / COIRFED in Kerala are given in Appendix 3.46 and Figure 3.20.

The export of coir and coir products of Public Sector Undertaking in Kerala shows a positive trend from 2011-12 to 2015-16. As compared to previous years, during 2015-16 export shows a hike...
of about 80 per cent. This is due to the increase in the export of Kerala State Coir Corporation. At national level, growth in production and export is positive, although it fluctuates over years. Figure 3.21 provides the comparison of the growth rates of export of State PSUs to the coir exports at national level.

The plan outlay and expenditure in coir sector from the financial year 2012-13 to 2016-17 is given in Table 3.12.

Plan expenditure was only 50-60 per cent of plan outlay between 2013-14 and 2015-16. The trend of allocation and expenditure for the first four years of 12th five year plan period are shown in the Figure 3.22.

The reasons for the poor utilisation of plan funds are the inclusion of non-viable and feasible proposals, technical and administrative constraints and, delays in giving sanction to projects after obtaining approvals from the working groups.

**Thrust Areas for Development of Coir Industry**

There have been a number of programmes to modernise the coir sector in the country includ-

### Table 3.12

<table>
<thead>
<tr>
<th>Year</th>
<th>Plan Outlay</th>
<th>Plan Expenditure</th>
<th>Expenditure as per cent of outlay</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-13</td>
<td>10070.00</td>
<td>9838.05</td>
<td>97.69</td>
</tr>
<tr>
<td>2013-14</td>
<td>11137.00</td>
<td>6640.76</td>
<td>59.63</td>
</tr>
<tr>
<td>2014-15</td>
<td>11693.90</td>
<td>5817.66</td>
<td>49.75</td>
</tr>
<tr>
<td>2015-16</td>
<td>11694.00</td>
<td>6828.52</td>
<td>58.39</td>
</tr>
<tr>
<td>2016-17</td>
<td>11700.00</td>
<td>2692.91*</td>
<td>23.02</td>
</tr>
<tr>
<td>Grand Total</td>
<td>56294.9</td>
<td>31817.9</td>
<td>56.52</td>
</tr>
</tbody>
</table>

*Data up to October 30, 2016

Source: Budget 2012-13 to 2016-17, State planning Board and Planspace
Figure 3.21
Rates of growth of exports of Coir Products by State PSUs in Kerala and from India as a whole

Source: Coir Board Statistics and Directorate of Coir Development, Govt. of Kerala

Figure 3.22
Plan outlay and plan expenditure in the coir sector in Kerala, ₹ in crore

Source: Budget 2012-13 to 2016-17, State Planning Board and Planspace

National Coir Policy

Coir Board has evolved a draft National Coir Policy and Vision 2025 with a view to develop the Coir Industry in a holistic manner. The policy broadly defines the vision of Government of India on coir sector development and the targets to be achieved by 2025. The National Coir Policy aims at,

- Enhancing the utilization of coconut husks available in the coconut producing states for coir fibre extraction.
- Improving the quality of coir fibre, yarn and products produced in India.
- Women empowerment through value addition of coir products and coir pith.
- Zero wastage in the extraction of fibre and manufacturing process.
- Inventions in product and process for use in
betterment of society and environment
- Modernising equipment so as to eliminate drudgery in the production processes and enhance productivity and quality.
- Addressing the problem of infrastructure bottlenecks
- Supporting modernization and technology upgradation of industry
- Providing assistance for capacity building in industry
- Providing employment to the existing coir workers and generating additional employment
- Undertaking vigorous research and development activities for finding new products based on coir
- Development of high productivity defibering units and mechanical spinning machines
- Finding new uses for Coir Wood, Coir Pith and exploring more business opportunities within India and abroad.
- Augmenting fibre availability in the country and facilitating high growth and competitiveness of the coir sector
- Developing domestic and export markets for coir products
- Promoting Consortium approach in the production and marketing of coir products
- Implementing schemes for welfare of coir workers.
- Promoting towns of export excellence in coir in areas of coir production.

Central Government Schemes in Coir Sector

Mahila Coir Yojana

The Mahila Coir Yojana is the first women orient-ed self-employment scheme in the Coir Industry, which provides self-employment opportunities to the rural women artisan in regions producing coir fibre. The conversion of Coir fibre into yarn on motorized ratt in rural households provides scope for large-scale employment, improvement in productivity and quality, better working conditions and higher income to the workers.

Coir Udyami Yojana

The Coir Board is implementing a scheme for the Rejuvenation, Modernisation and Technology Up-gradation of Coir Industry (REMO) to facilitate sustainable development of the Coir sector in the country. This will in turn generate more employment opportunities especially for women and the weaker sections of the rural society.

Box 3.8
Achievements of Coir industry in Kerala

- The Coir Development Department has organised ‘Coir Kerala 2016’ at Alappuzha. This was an International fair on natural fibre and allied products, in which buyers from various parts of India and from around 38 countries participated.
- An amount of ₹ 5 crores was disbursed among 269 societies during the year 2015-16.
- An amount of ₹ 8 crores was released to 25 coir mats and mattings Societies, Coir corporation, Foam Mattings India Ltd. and Coirfed during the year 2015-16
- ₹ 25.4 crores has been released as pension and matching grant to coir workers during the year 2015-16.
- Assistance to 196 societies under infrastructure development scheme
- Training to workers of societies on Spinning in Electronic Ratt in Chirayinkeezhu, Kollam, Kayamkulam
- Assistance for 20 societies under Government Share participation scheme
- Inaugurated Coir Machinery Manufacturing Factory at Alappuzha
Major schemes implemented by the Directorate of Coir Development during 2015-16

1. Regulated Mechanization of Coir Industry intended to modernize the industry
   Modernisation of Malabar Coir complex, installation of statutory fire fighting system and fire safety roads at Coir Park division, Kancheepuram, installation of standard defibering machines for distribution in Kerala, distribution and installation of automatic spinning machines, and other infrastructural development activities were undertaken during 2015-16.

2. Marketing, Publicity, Propaganda Trade Exhibitions and Assistance for Setting up of Showrooms
   Conducted Coir Kerala, 2015, online promotion of coir sector through marketing division of National Coir Research and Management Institute. New market oriented strategy was undertaken to increase the sale of coir products during onam season during 2015-16.

3. Price Fluctuation Fund intended to stabilize the price of coir fibre, and yarn.
   Assistance given to Kerala State Coir Corporation, COIRFED, Fomil, to compensate the amount they spent as part of the price fluctuation scheme.

4. Coir Geo Textiles Development Programme
   Intended to implement pilot projects for new coir-based products, including the use of Geo textiles as a standard engineering material.

5. Production and Marketing Incentive scheme
   Production and Marketing Incentive given to 137 coir co-operatives

   Market Development Assistance given to 3 societies and coir project offices through the department.

Coir industry in Kerala faces competition in both the domestic and international markets. One of its major challenges is the relatively high cost of coir products in comparison to its synthetic substitutes. Wage costs account for around 70 per cent of the total product cost in the coir sector. To improve wages of workers in the coir industry, it is important that the industry finds ways to increase value added per worker. For a revival of the industry it is important to leverage coir’s value as a natural fibre. The coir industry in Kerala should try to build itself on a slogan of ‘return to nature’. At the same time, it should find ways to remedy some of the bottlenecks such as weak procurement of coconut husk, increased cost of production, pollution caused during traditional method of ratting and husk beating, and lack of professional management.

CASHEW INDUSTRY

India’s cashew nut is the third widely consumed edible tree nut (source: http://www.cashewinfo.com/cashew_facts.html). India’s production of cashew nut in 2014 was 7, 37,000 metric tons, which accounted for 18 per cent of the total cashew production in the world. In fact, India is the largest producer of raw cashew nut in the world, followed by Ivory Coast, Vietnam and Guinea Bissau. Other major producers include Tanzania, Nigeria, Brazil, Indonesia and Mozambique (see Table 3.13).

In India more than 50 per cent of the cashew processing is carried out in the unorganised sector. There are nearly 1800 medium to large and 2200 on-farm level processing units, engaging mostly women workers. The major distribution of Cashew in India is in the States of Kerala, Karnataka, Goa and Maharashtra along the West Coast and Tamil Nadu, Andhra Pradesh and Orissa along the East Coast and in West Bengal, Chhattisgarh, Gujarat, Jharkhand, and North Eastern States. At present the area under cashew is 10.08 lakh ha with a production of 7.37 lakh MT and productivity 782 kg/ha. India’s requirement of raw cashew nut is about 16.23 lakh tons. Hence, the balance quantity to the tune of 8.98 lakh MT of raw cashew nuts is being met by importing raw nuts from African and South East Asian countries, still leaving a gap of...
Table 3.13
Production of Cashew nut in selected Countries, 2014, in Metric Tons (MT)

<table>
<thead>
<tr>
<th>Countries</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>692000</td>
<td>674000</td>
<td>728000</td>
<td>737000</td>
</tr>
<tr>
<td>Ivory Coast</td>
<td>400000</td>
<td>460000</td>
<td>525000</td>
<td>460000</td>
</tr>
<tr>
<td>Vietnam</td>
<td>300000</td>
<td>264810</td>
<td>252000</td>
<td>425000</td>
</tr>
<tr>
<td>Guinea Bissau</td>
<td>190000</td>
<td>176400</td>
<td>158000</td>
<td>220000</td>
</tr>
<tr>
<td>Tanzania</td>
<td>149999</td>
<td>130000</td>
<td>126000</td>
<td>120000</td>
</tr>
</tbody>
</table>

Source: Cashew Export Promotion Council, Kollam

Figure 3.23
Shares of selected countries in total cashew nut production in the world

Source: Cashew export Promotion council, Kollam

1.15 lakh MT of raw nuts. During 2015-16 India imported 9, 58,339 MT of raw cashew nuts.

According to DGCI&S figures (Source: CEPCI, Kollam), cashew kernels exported from India during 2014-15 and 2015-16 were 118952 MT and 96,346 MT valued at ₹5432.85 and ₹4952.12 crore respectively. The major international markets for cashew kernels processed in India were United States of America, United Arab Emirates (UAE), Japan, Saudi Arabia, Netherlands, France, Korea DP Republic Germany, Belgium, Spain, Kuwait, the United Kingdom (UK), Iran and Singapore. Foreign exchange earnings of India from cashew industry, for the period from 2007-08 to 2016-17 (April-October -Estimate) is given in Appendix 3.47.

India is the third largest consumer of cashew nuts in the world. On an average 150 to 160 thousand MT of cashew kernels produced in India get absorbed in the domestic market. In fact, the domestic demand for cashew nut is steadily increasing in India.
Among the major raw cashew producing states, the production and productivity is the highest in Maharashtra, mainly on account of the use of high yielding varieties of crops, adoption of better management practices and the provision for protective irrigation. According to DCCD figures, as on 2015-16, Kerala ranks 5th in the production of raw cashew nuts. The state-wise estimates on area under cultivation, Production and productivity of cashew in India is given in Appendix 3.48.

**Cashew Industry - Kerala scenario**

The Cashew Industry in Kerala is mainly concentrated in Kollam District. The Central Government recognises Kollam as a “Centre of Cashew Industry”. The industry is highly labour intensive and employs more than 2 lakh workers, a majority of them women (above 90 per cent). Thus the industry provides a source of income for a large number of low-income families. In 2014-15, the export of cashew and cashew Kernels through Cochin port was 68150 MT. Kerala accounts for 11 per cent of cashew production and 35 per cent of all cashew nut processing units in India. The state needs around 6 lakh MT of raw cashew in a year for catering to the needs of its 800 factories.

During the 11th Five year Plan, the state government allotted an amount of ₹186.50 crore for the cashew sector and the expenditure out of this was ₹175.78 crore (94 per cent). The overall allocation and expenditure for the cashew sector as part of the State’s Five year Plan programmes from 2012-13 to 2016-17 (up to December 14, 2016) are provided in Table 3.14.

Table 3.14 shows that the budgeted outlay during 12th plan was ₹236.00 crore, 20.98 per cent increase over 11th plan and the expenditure as on December 14, 2016 was ₹215.00 crore (91.10 per cent).

With respect to the production of raw cashew nuts, Kerala had the top rank among Indian states in the early 1990s, but its position has now dropped to the 4th, behind Maharashtra, Andhra Pradesh, and Orissa. The status of area as well as production of cashew for the period from 2010-11 to 2015-16 is depicted in Figure 3.25.

Area and yield per acre of Cashew Cultivation has decreased in Kerala mainly due to the replacement of cashew with crops such as rubber and rapid urbanisation. Increasing the area under cashew cultivation in Kerala from the current 90,000 ha to around 2 lakh ha can give a boost to cashew industry in the state.

The Kerala State Cashew Development Corporation (KSCDC) and Kerala State Cashew Workers Apex Co-operative Society (CAPEX) are the two agencies of the State engaged in cashew processing sector in Kerala.

<table>
<thead>
<tr>
<th>Year</th>
<th>Outlay</th>
<th>Expenditure</th>
<th>Expenditure as per cent of Outlay</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-13</td>
<td>65.00</td>
<td>65.00</td>
<td>100</td>
</tr>
<tr>
<td>2013-14</td>
<td>71.50</td>
<td>71.50</td>
<td>100</td>
</tr>
<tr>
<td>2014-15</td>
<td>54.50</td>
<td>33.50</td>
<td>61.47</td>
</tr>
<tr>
<td>2015-16</td>
<td>45.00</td>
<td>45.00</td>
<td>100.01</td>
</tr>
<tr>
<td>*2016-17</td>
<td>45.00</td>
<td>42.31</td>
<td>94.03</td>
</tr>
<tr>
<td>Grand Total</td>
<td>236.00</td>
<td>215.00</td>
<td>91.10</td>
</tr>
</tbody>
</table>

* As on December 14, 2016

Source: Accounts and Planspace, State Planning Board
The Kerala State Cashew Development Corporation (KSCDC)

The Kerala State Cashew Development Corporation (KSCDC) has 30 factories with about 11000 workers. The Corporation processes raw cashew nuts and produces value added products. The Corporation provided, on an average, employment for 106 days to its workers in 2015-16. During this period, Corporation has provided employment to 10632 persons and the total turnover achieved was ₹6940 lakh, which is 52.76 per cent less than in
the previous year of ₹14690 lakh. The Corporation incurred a loss of ₹2058 lakh, which is 37.24 per cent less than the loss of Rs. 3279 lakh of the previous year. The highest rate of loss was reported during 2012-13 amounting to ₹88768 lakh. The performance of KSCDC during the last 5 years is given in Appendix 3.49. CAPEX and KSCDC altogether employ about 14600 workers which is less than 10 per cent of the total workers in this sector in the State. The rest of the cashew workers in Kerala are engaged in the private sector. KSCDC is committed to the modernisation of the cashew industry, brand building for the industry, and upgradation of cashew processing facilities in the State.

Lack of working capital, high raw material costs, high proportion of wages to total costs and severe competition both within India and internationally are among the major challenges faced by KSCDC.

**Cashew Workers Apex Co-operative Society (CAPEX)**

CAPEX with headquarters in Kollam is the apex body of cashew workers’ primary societies engaged in the procurement of raw cashew nuts and marketing of the processed Kernels. The main objective of the society is to organize cashew industry in the state on commercial basis, rendering assistance to affiliated societies, in the matter of procurement and distribution of raw-nuts, making available funds for processing and marketing of kernels and other items produced in the factories of the affiliated societies. CAPEX commenced its commercial activities in the middle of 1985. The Society owns 10 factories and one packing centre. Modern Cashew shell cutting machine, electric bormas, steam cookers, peeling machines have been installed for enhancing the efficiency of production. At present there are about 3600 workers working in the society. CAPEX could provide employment for 232 days in 2015-16. CAPEX has appointed 36 active franchisees all over Kerala and 6 franchisees outside Kerala to market CAPEX branded cashews. During 2015-16 CAPEX provided employment to 87,8120 persons and achieved a total turnover of ₹7372 lakh, which is 0.18 per cent less than ₹7385.74 lakh achieved in the previous year. During this period CAPEX was running a loss of ₹1537 lakh, which is 6.3 per cent greater than that of the previous year. The loss of ₹1445.95 lakh in 2014-15 was the highest rate of loss reported since 2008-09.

Modernization and partial mechanization of cashew factories of CAPEX, and Brand building and market awareness in India and International Market are the schemes implemented through CAPEX. A total of ₹1000 lakh has been provided during 2015-16 for implementing the above two schemes. Accordingly, an amount of ₹4 crores each was utilized for raw material purchase and for disbursement of Bonus. Around Rs. 200 lakh was utilised for advertisement and exhibitions for promoting sales. The performance of CAPEX during the last 5 years is given in Appendix 3.50.

### Table 3.15

Achievements of CAPEX during 2012-13 to 2016-17, ₹ in lakh

<table>
<thead>
<tr>
<th>Year</th>
<th>Domestic Sales</th>
<th>Export Sales</th>
<th>Total Turnover</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-13</td>
<td>5309.39</td>
<td>1573.61</td>
<td>6683</td>
</tr>
<tr>
<td>2013-14</td>
<td>4229.58</td>
<td>2117.42</td>
<td>6347</td>
</tr>
<tr>
<td>2014-15</td>
<td>5944.52</td>
<td>1440.48</td>
<td>7385</td>
</tr>
<tr>
<td>2015-16</td>
<td>5906.13</td>
<td>1465.87</td>
<td>7372</td>
</tr>
<tr>
<td>2016-17</td>
<td>1752.20</td>
<td>1481.80</td>
<td>3234</td>
</tr>
<tr>
<td>Total</td>
<td>23141.82</td>
<td>8079.18</td>
<td>31221</td>
</tr>
</tbody>
</table>

*Source: CAPEX, Kollam*
Achievements and Future Strategies

CAPEX is functioning as a model employer in cashew industry by giving all the benefits as per the Government norms to poor cashew workers by providing maximum working days and preventing workers from exploitation by private managements. By giving employment, CAPEX has directly or indirectly contributed to the welfare of the society. CAPEX has upgraded its facilities enabling mechanization of process thereby maintaining a hygienic work environment. 10 factories and packing centres have been upgraded and modernized, and electric bormas and packing machines at packing centres have been installed. For promoting sales, advertisement and exhibitions were conducted. Due to its good performance, CAPEX could achieve “One star export house” status and ISO 22000 certification. For promoting its products in divergent markets, CAPEX has appointed 36 active franchisees all over Kerala and 6 franchisees outside Kerala. During the first four years of the 12th Five Year Plan, CAPEX has created 916 working days and during 2016-17, till date, the Society created 84 working days. The sale, export and turnover of CAPEX are given in Table 3.15.

CAPEX is facing shortage of working Capital and bank finance. It is functioning solely with the plan funds which often is not received in time. This slows down the timely procurement of cashew nuts during the season. Being a seasonal agricultural product, the raw nuts are to be procured during the season itself. It will be beneficial if good quality cashew raw nuts are available from national and international markets.

Kerala State Agency for the Expansion of Cashew Cultivation (KSACC)

Kerala State Agency for the Expansion of Cashew Cultivation (KSACC) was constituted by Government of Kerala in 2007 and is headquartered in Kollam. This agency was established with a view to overcome the crisis of declining domestic production of cashew nuts resulting from the large shortfall of area under cashew cultivation in the State. The vision of the agency is to increase the domestic annual raw nut production from 65000 MT to 1,50,000 MT in a phased manner through promotion of high yielding cashew grafts and a steady supply of raw cashew nuts to the industry in Kerala. Since 2008, KSACC has been organizing promotional activities in cashew cultivation and distributing cashew grafts of high yielding varieties and financial assistance to farmers and institutions in the State. The agency initiated the ‘Cultivation of Organic Cashew and Establishment of Raw Nut Bank’ project from 2007-08 onwards. The main objectives of the project are to enhance production and productivity of cashew by adopting high technology, and high yielding grafts, achieve women empowerment through formation of SHGs for processing and value-addition, reduce the heavy dependence on import of raw cashew nuts, and create additional direct and indirect employment in cashew cultivation and processing. KSACC is the nodal agency for cashew cultivation activities in Kerala, and is approved by the National Horticulture Mission. The agency distributed 3, 02,286 grafts (1511 Ha approx.) to farmers under cultivation programme up to September 30, 2015.

Physical highlights of KSACC during 12th Five Year Plan

The major physical highlights of KSACC during the 12th Five Year Plan are; an area of 16525 ha was brought under cashew cultivation, distributed subsidy to farmers, promoted cashew cultivation in agricultural land of farmers, in land belonging to PSU’s factory and other institutions with the support of Grama Panchayths& Department of Agriculture, conducted research project activities with the help of Kerala Agricultural University (KAU), initiated a Pilot project for the production of Bio-Ethanol from cashew apple under the guidance of Cashew Export Promotion Council of India (CEPCI), and took steps to prevent exploitation of cashew farmers by middle men through “KarshakaKootayma”. Further, steps have been
taken for production of Value Added Products of cashew apple. Regional seminars, trainings for farmers in all the districts, awareness campaigns in panchayaths and publicity through press and audio visual media were conducted.

*Cashew Export Promotion Council of India (CEPCI)*

The Cashew Export Promotion Council of India (CEPCI, Govt. of India), a not-for-profit company, was established at Kollam, with the objective of promoting exports of cashew kernels and cashew nut shell liquid from India. The council operates plan schemes of Government of India, and offers various services to its member exporters. As per the export-import statistics, the share of agricultural products in the total export earnings of the country during 2015-16 is 6.84 per cent and cashew kernels was ranked 6th among them. The total export of Cashew Kernels from India during 2015-16 was 96,346 M.T valued at ₹4952.12 Cr. There has been a decrease of 19 per cent in quantity and 9 per cent in value in Rupee terms compared to 2014-15 when the export was 1,18,952 M.T of Cashew Kernels valued at ₹5432.85 (Source: Annual Report & Accounts, Cashew Export Promotion Council). The Export of Cashew & Foreign exchange earnings are given under External Trade in Chapter 6.

The council has set up a Laboratory and Technical Division of international standards which is recognised as an approved Research Centre for Doctoral research by Kannur University and University of Kerala. The service of CEPC Lab is available to cashew industry as well as entire food processing industry in India and abroad. The CEPC Laboratory & Technical Division, Kollam analysed 8431 samples during 2015-16.

*Constraints of the Cashew Sector*

The state needs around 6 lakhs MT of raw cashew in a year for its 800 factories. To overcome the problem of mismatch between demand and supply, state spends foreign exchange worth `5000 crore every year for importing the raw cashew nuts from foreign countries. If around 2 lakh Ha of land in state is brought under cultivation, foreign exchange can be saved. The sector can even earn foreign exchange worth ₹6000 crore to country’s exchequer by exporting cashew kernels. As rubber plantation is facing a crisis due to declining prices and high labour cost more people are now attracted to cashew cultivation as its cost of cultivation is low and yields high income. This is a great opportunity to promote this cultivation and also encouraging women SHG groups for the production of value added products from cashew apple.

Low productivity is the major constraint in the growth of the cashew sector. Wage rates, welfare, safety and healthy working environment of the workers needs to be addressed. Also problems such as supply-demand imbalance, costs involved in mechanization in the processing sector and environmental issues have to be tackled for the sustainable economic development of Cashew sector in the State.

*Developmental Goals*

In the light of escalating demand for cashew, serious attention is needed to identify the gaps and reorient research and development programmes in the area of Cashew cultivation in the State to meet the challenges of attaining self-sufficiency in raw cashew nut production. Emphasis should be on Employment Generation with reasonable wages, Research and development for the development of cashew production, processing and development of new value added products of cashew including hand crafted cashew, and steps for the utilization of cashew apple.
Section 6
LABOUR AND LABOUR WELFARE

Labour and labour welfare is the cornerstone of human development policies undertaken by the Government to attain greater efficiency and productivity and ensure safety and security of its human resources. Labour market has witnessed significant transformation in the last two decades both in terms of employment conditions and industrial relations. Labour is the subject in the concurrent list where both centre and state government are empowered to enact legislations. Kerala has always recognised the value addition of the working class in the economic transition of the state which is reflected in the welfare measures enacted by the government. It is accepted fact that labour laws and labour welfare schemes implemented by the State have been commendable compared to other parts of the country. Existing unique labour structure in the state have been achieved through the active intervention of the Government on right to work of one’s choice, right against discrimination, prohibition of child labour, social security, protection of wages, redressal of grievances, right to organize and form trade unions, collective bargaining and participation in management. The Government is of the view that every employee/worker should be a member in a Labour Welfare Board and they must be protected by the State throughout their lives. Currently around 29 Labour Welfare Fund Boards exist in the State, of which 16 are under the Labour Commissionerate.

Kerala however, has been facing challenges in terms of high rate of unemployment and under employment, low rate of productive employment, inadequate levels of skill creation and training, low level of labour force participation and low worker population ratio and disparity in wages of male and female. Essentially, the state has to create employment opportunities and employment-intensive growth and for which the labour force has to be allowed 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, reprioritisation 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. Monitoring & Evaluation have also been considered integral to labour reforms against the backdrop of increasing inter-state and international migration.

LABOUR FORCE PARTICIPATION RATE (LFPR)

The situation of labour force in Kerala can be gauged from the indicators such as LFPR, WPR, daily wage rate and trend in industrial relations. Low level of LFPR is the perpetual characteristic of Kerala labour market among Indian states. Apart from slight increase of LFPR in urban region, labour force participation has been constant over the last two years. As per the 5th Annual Employment & Unemployment Survey (2015-16) of Labour Bureau, Ministry of Labour, Government of India, LFPR in Kerala is 50 per cent, a marginal increase by 0.3 per cent over the year 2013-14. Even if we are at par with the national average, LFPR in our neighbouring states is better at 62.5 per cent, 57.2 and 55.5 per cent in Andhra Pradesh, Tamil Nadu and Karnataka respectively. Similarly in rural areas, we are not only distant from national average but also from our neighbouring states of Andhra Pradesh and Tamil Nadu where the rate is 69.2 and 65.8 per cent respectively. Figure 3.26 shows the LFPR of Kerala and other southern states.
Yet another aspect of significant concern is the low female labour force participate rate. North eastern and southern states, in general, have a higher LFPR compared to low levels in northern states. The details regarding female LFPR is covered under Gender section in Chapter 4.

**WORKER POPULATION RATIO (WPR)**

Worker Population Ratio (WPR) is an indicator used for analysing the employment situation and knowing the proportion of population actively contributing to the production of goods and services in the economy. The 5th Annual Employment & Unemployment Survey of Labour Bureau, Ministry of Labour, Government of India 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, performance of Andhra Pradesh is admirable at 60.1 per cent followed by Tamil Nadu and Karnataka at 54.8 and 54.7 per cent 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 3.27** 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 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 low at 4.9 per cent. **Figure 3.28** shows the percentage of self-employed persons in labour force and gender gap in Kerala and other states.

**CASUAL WORKERS IN THE LABOUR FORCE**

Casual workers are employees who do not have regular or systematic hours of work or an expectation of continuing work. A typical casual employee is employed on a daily basis when the need arises. Percentage of casual workers among the labour force in the state is 43.8 percent which is 11 percent higher than the national average of 32.8 per cent.
Box No 3.9
Concepts & Measurement of Labour Force

1. Labour Force Participation Rate: - Labour Force Participation Rate (LFPR) is defined as the number of persons in the labour force per 1000 persons.

\[ LFPR = \frac{\text{no of employed + no of unemployed persons}}{\text{total persons}} \times 1000 \]

2. Worker Population Ratio: - Worker Population Ratio (WPR) is defined as the number of persons employed per 1000 persons.

\[ WPR = \frac{\text{no of employed persons}}{\text{total persons}} \times 1000 \]

Measurement of Labour Force

In a country where majority of the workers are employed in the unorganized 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 labourforce or out of labour force. A person found unemployed under this approach reflects the chronic unemployment. The usual principal status approach estimates are derived for a moving reference period of 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 & subsidiary status approach. This approach is a hybrid one which takes into consideration both the major time criterion and 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 last twelve months is considered as employed under this approach. In this approach, the reference period is 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
Among the southern states, Andhra Pradesh and Tamil Nadu have the highest level of casual workers in labour force at 48.4 and 47.2 percent respectively. (Figure 3.29)

**WORKERS AVAILABLE AND ACTUALLY WORKED**

Out of the total workforce available for 12 months the actual percentage 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 percent of the workers are engaged in work for a period 6 to 11 months and 10.4 percent of workers are engaged in work for 1 to 5 months. Figure 3.30 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 percent and female workers for the same period is 50.6 percent in Kerala. Generally, male workers have more days actually worked than the female workers. Male – Female difference for the workers available for 12 months and actually worked in Kerala is 18.7 per cent which is 8 per cent higher than Karnataka, 4.9 per cent than Tamil Nadu and 4.7 per cent than all India average of 14 per cent. Figure 3.31 shows the male fe-
male workers available for 12 months but actually worked in Kerala and other southern states.

**WORKERS AVAILING SOCIAL SECURITY**

Workman social security plays a vital role in 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 percentage of workers except self-employed who availing social security in Kerala is 23.2 which is 1.6 percent higher than national level and 9.8 higher than Andhra Pradesh and 2.9 percent than Tamil Nadu. Among the southern states, Karnataka provides social security to 27.1 percent of the workers except self-employed which is 3.9 percent higher than Kerala. Figure 3.32 shows the details of workers except self-employed availing social security in Kerala and other parts of southern India.

**WORKERS RECEIVED PAID LEAVE**

Paid leave will enable workers to meet the needs of their families and of the firms they work for in better and more productive ways. The percent-
age of workers except self-employed who received paid leave in Kerala is 23.9 per cent which is 3.3 per cent higher than national average and 14.6 than Andhra Pradesh and 4.9 per cent than Tamil Nadu. Figure 3.33 shows the details of paid leave for workers except self-employed in Kerala and other southern states.

**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 a 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 percent which is 2.9 percent higher than the national average. In case of paid leave, 5.4 percent 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 3.34 shows the
percentage of casual workers received paid leave and social security in Kerala and other parts of the south India.

**DAILY WAGE RATE**

As compared to other parts of the country, reported wage rate of workers in both agricultural and non-agricultural sectors of Kerala is high. Average daily wage rate of agricultural and non-agricultural workers in India published by Labour Bureau, Government of India shows that for male general agricultural workers in rural Kerala it is ₹590 as on June 2015. The national average of the wage rate for this category of workers is only ₹232. The wage rate in Kerala is over 150 percent higher. **Figure 3.35** shows the wage rate of male agricultural workers in rural area in Kerala vis-a-vis the national average and the southern states.

For female agricultural workers in rural Kerala, ₹410 is the average daily wage rate compared to the national average of ₹177. For sowing and
harvesting workers, the wage rate in Kerala are 452 and 403 compared to the national average of ₹196 and ₹206 respectively. A comparison of daily wage rates of female agricultural workers in southern states is given in the Figure 3.36.

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 harvesting/winnowing/threshing is 33 per cent that is female worker wage rate is equal to 67 per cent of male workers’ wage rate. Table 3.16 shows the male-female difference of agricultural workers in Kerala and other southern states of India.

Similar to agricultural workers, the wage rate for non agricultural labourers in rural Kerala is also higher than those in other parts of the country. Figure 3.37 shows the average daily wage rates of the non agricultural workers engaged in different occupations in Kerala. The daily wage rate of a carpenter in Kerala is ₹726, which is 102 per cent higher than the national average of ₹358. Likewise, the average daily wage rate of a mason in Kerala is ₹737 which is 86 per cent higher than the national average of ₹395.

The average daily wage rates are much higher in
Kerala that attracts in-migrants into the state, especially 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 away from reality.

**COMPOSITION OF WORKERS**

The labour community in Kerala mainly consists of those who are engaged in the informal sector (loading & unloading, casual work, construction work, brick making self employment), traditional industries (coir, cashew, handloom, beedi, manufacturing sector (small, medium and large industries), IT industry, units in export promotion zones and those who are seasonally employed.

**INDUSTRIAL RELATIONS**

Healthy relation between employer and employee is 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 conducive atmosphere for achieving the objective of industrial growth and prosperity in the state.

The man-days lost due to strikes in the state for the year 2016 (upto October) is 34 thousand as against 2.68 lakh in the year 2013. Figure 3.38 shows the man days lost due to strikes in Kerala. (Appendix 3.51).

**MAN DAYS LOST DUE TO LOCK OUT**

However, man days lost due to lock out shows an increasing trend over the last two years. During the year 2014, total man days lost due to lock out is 2.91 lakh, which increased to 4.69 lakh in 2016 (upto October 31, 2016). Figure 3.39 shows the trend of man days lost due to lock out in Kerala (Appendix 3.52).

**MAN DAYS LOST DUE TO LAY OFF**

Likewise, mandays lost due to lay off is 68.33 thousand in 2014 which increased to 3.15 lakh in 2016 (October 31, 2016). Figure 3.40 shows the trend of man days lost due to lay off in Kerala. (Appendix 3.53.)

This is despite the fact that for the last ten years, the number of working factories in the state has steadily increased.

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**Figure 3.38**

Mandays lost due to strikes

![Graph showing mandays lost due to strikes](image)

*Source: Ministry of Labour and Employment, Government of India*

*Upto October 31, 2016*

**Figure 3.39**

Mandays lost due to lock out in Kerala

![Graph showing mandays lost due to lock out in Kerala](image)

*Source: Labour Commissionerate*

*Upto October 31, 2016*
Number of factories working in the state during 2005 was 17641, which has increased to 22834 by 2016. Subsequently the average daily employment creation in these factories increased from 4.46 lakh in 2005 to 7.02 lakh in 2016. Figure 3.41 shows number of working factories and employment details in Kerala.

**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. Number of disputes pending at the beginning of the year decreased from 3890 in 2012-13 to 2913 in 2015-16. There is an improvement in settlement rate of disputes as well. The total disputes handled during 2013-14 was 5909 and the disputes settled for the same period was 2384 which is 40.3 percent of the disputes handled. In 2015-16 number of disputes handled is 5642 and settled is 2729 which is 48 percent of the disputes handled. Details of number of disputes in Kerala are given in the Figure3.42. (Appendix 3.54)
Box 3.10
Concepts as defined 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(l) 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 person 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 lay-offs in India during the year 2013, Labour Bureau, Ministry of Labour, GoI

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**SAFETY OF THE FACTORY WORKERS**

The Department of Factories and Boilers is the statutory authority to ensure 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. During 2016-17 (upto October 31, 2016), 84 priority inspections have been done for Major Accident Hazard (MAH) factories, 125 air monitoring studies were completed in hazardous factories, 1232 medical examination of crusher factory workers and 47 inspections of hazardous factories other than MAH factories were conducted. The Department has been conducting training programmes not only for factory workers and employees but also for school children and general public near factory premises. ([Appendix 3.55, 3.56, 3.57].

**RASHTRIYA SWASTHYA BEEMAYOJANA (RSBY)**

Rashtriya Swasthya BeemaYojana (RSBY) is a Health Insurance Scheme for BPL workers and...
their families in the unorganized sector. This was introduced during 2008-2009 in all the 14 districts of Kerala. The annual insurance cover or in-patient treatment benefit is for a maximum amount of Rs. 30,000/- for a family of 5 members including the worker, spouse, children and dependent parents (if included in the BPL family list). The annual insurance premium is fixed through a tender process. The State Government provides 40 per cent of the premium and administrative cost. The Central Government provides 60 per cent of the premium (including cost of smart card) directly to the implementing agency, CHIAK (Comprehensive Health Insurance Agency, Kerala). The beneficiaries need to pay only ₹30/- as registration fee. The scheme has been implemented in the state since October, 2008. (Appendix 3.58)

**COMPREHENSIVE HEALTH INSURANCE SCHEME (CHIS)**

Comprehensive Health Insurance Scheme (CHIS) extends to all families other than the BPL families as per the guidelines of Government of India. 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 Government of India and (b) APL families that belong neither to the State Government list nor to the list prepared as per the guidelines of Government of India. 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 in-patient benefit and for up to ₹50,000/- in the case of RSBY. Government and private hospital wise details of utilisation of the scheme is given under the health section in Chapter 4. Given the 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/- . In addition to RSBY and CHIS, the state government has also introduced another scheme called CHIS Plus. Under this scheme, the RSBY-CHIS BPL families are eligible for an additional ₹70,000/- treatment benefit for patients of cardiology, neurology and oncology.

**AAM ADMI BIMA YOJANA CAMPAIGN**

Government of India has launched a new insurance scheme called Aam Admi Bima Yojana (AABY) 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 subsidy from the fund created for this purpose by Central Government and remaining 50 per cent will be contributed by the State Government.

**EMPLOYEES STATE INSURANCE SCHEME**

The Employees’ State Insurance Scheme (ESI Scheme) of the Indian Government aims at protecting ‘employees’ against the hazards 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 power that employ 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 percentage 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 percentage 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 3.43.

**MIGRANT LABOUR**

The recent trend in the employment sector in the State shows a large inflow of migrant workers from other states such as West Bengal, Bihar, Odisha, Uttar Pradesh, Chhattisgarh and Jharkhand besides the neighbouring states. Working conditions of the inter-state migrant workmen 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.

The distribution of migrant workers from different states is given below. As may be seen, out of the total ISM workers 46 per cent are from West Bengal followed by Orissa (15%) and Assam (11%). The origin-wise inter-state migrant workers are given in the Figure 3.44. The distribution of district wise migrated workers in the state shows that Ernakulam has the highest proportion of 17 per cent followed by Wayanad 13 per cent and Kannur 11 per cent. Figure 3.45 presents district-wise ISM workers in Kerala. These ISM workers are engaged in different areas
Figure 3.44
Origin wise Inter State Migrant Workers in Kerala

Source: Labour Commissionerate, GoK

Figure 3.45
District Wise ISM Workers in Kerala, in per cent

Source: Labour Commissionerate
such as agriculture, construction, hotel and restaurant, manufacturing and trade. It is seen that 60 per cent of the migrant workers are 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 21 per cent engaged under other activities.

Due to high human development, Kerala has potential for productive labour force. Providing opportunity for this productive labour force is the prerequisite of the state. Our social responsibility is to create a model state for labour which can be replicated in other States. Ideally every workman (including migrants) must be ensured with opportunities for work that is to be productive and delivers a fair income, security in the workplace and social protection for families, better prospects for personal development and social integration, freedom to express their concerns, organize and participate in the decisions. These are the integral elements of the ILO’s Decent Work agenda. The functional structure of the Labour Department needs to be restructured to ensure that the Departmental offers effective protection of labour rights for a decent life.

Section 7
EMPLOYMENT

UNEMPLOYED SITUATION IN KERALA

India has witnessed an impressive GDP growth rate of over 7 per cent since 2014. However, incidence of poverty is still persistent. Employment issues have always been among the priorities because it is considered as one of the important tools to alleviate poverty. An important peculiarity of Indian job market is that majority of workers in India are in informal jobs. Recent statistics revealed that there has been a shift from agriculture & allied sectors to construction sector. According to the 5th Annual Employment-Unemployment Survey 2015-16, Labour Force Participation Rate (LFPR) at all India level is estimated at 50.3 per cent under Usual Principal Status (UPS) Approach. Females LFPR is significantly lower as compared to males. It is 23.7 per cent as compared to 75 per cent for male and 48 per cent for transgenders. Similarly, the Worker Population Ratio (WPR) at all India level is estimated at 47.8 per cent comprising of 27.7 per cent females, 72.1 per cent males and 45.9 per cent for transgenders.

Kerala has been registering a high income growth rate for quite some time now but it is not translating into creation of job opportunities. It records the highest unemployment rate as per the 5th Annual Employment-Unemployment Survey 2015-16 conducted by Ministry of Labour and Employment, Government of India. According to the survey report, among major states Kerala has the highest Unemployment Rate (UR) of 12.5 as against the all India level of 5 percent (Appendix 3.59 and Figure 3.46). Only two small States viz; Sikkim and Tripura have a higher unemployment rate than Kerala.

As per UPS approach, the lowest unemployment rate of 0.3 per cent is estimated in Daman & 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), Tamil Nadu (4.2 per cent), Madhya Pradesh (4.3 per cent) and West Bengal (4.9 per cent). Unemployment in Kerala is found to be high due to various reasons.
Different indicators on employment and unemployment pertaining to Kerala and India are shown in Appendix 3.60 and Appendix 3.61.

As per the Survey of Employment and Unemployment Situation in India, (NSS 68th Round), area wise data shows that the unemployment rate is higher in rural areas as compared to urban areas (Figure 3.47).

Productive employment of youth is an essential factor for economic development. In Kerala, the youth accounted for around 23 percent of the state’s population. As per the survey report, the UR among the youth in Kerala is much higher as compared to that in the overall population and it reveals the severity of 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 female are in rural area as against the male of 9.7 per cent. (Figure 3.48). The youth

![Unemployment Rate in Kerala under Different Approaches](image_url)

Source: Employment and Unemployment Situation in India, NSS 68th Round, July 2011- June 2012(Age: 15-59 years)
unemployment is prevalent in Kerala because young people lack adequate skills, and work experience in emerging areas. In order to face the challenges the ongoing programmes for skill development and employment generation may be restructured to equip the youth for finding better employment opportunities.

**EMPLOYMENT IN THE ORGANIZED SECTOR**

In Kerala, employment in the organised sector showed a downward trend. For instance, persons employed in organised sector decreased from 12.26 lakh in 2000 to 11.75 lakh in 2016, a reduction of 4 per cent over a period of 15 years. The reason behind the downfall is due to the surfacing of informal sector.

The organised sector comprises private and public sectors and it is noteworthy that private sector employment is steadily increasing since 2011 onwards. In 2016, out of 11.85 lakh persons employed in the organised sector 5.75 lakh (48 per cent) are in the public sector and 6.10 lakh (52 per cent) are in the private sector. (Appendix 3.62 and Figure 3.49).

Within the public sector employment 47 per cent are employed in State Government and 10 per cent are in Central Government, 22 per cent are in State Quasi Institutions, 5 per cent in LGI and 16 per cent are in Central Quasi Institutions. (Figure 3.50 and Appendix 3.63).

Data on district-wise employment as on March 2016 indicate that Ernakulam and Wayanad are the two districts which respectively accounted for the highest and lowest employment. Total organized sector employment in Ernakulam District is 2.28 lakh persons, which accounted for 19 per cent of the total employment of the State. Whereas in Wayanad the employment under organized sector is 27,000 persons, which accounted for 2.3 per cent of the total employment. Men outnumber women in public sector employment as about 67.5 per cent of persons employed in public sector employment are men (See Appendix 3.64 and Appendix 3.65).

Recent statistics on sectoral distribution of workers in organized sector in Kerala indicates that the dependence on service sector continues to rise whereas the dependence on agriculture continues to decline. The employment in agriculture (relative to other sectors) gradually fell from 7.5 per cent in 2005 to 5.6 per cent in 2016. Whereas, the relative share of employment in Community, Social and Personal Services increased from 44.7 per cent in 2005 to 49.5 per cent in 2016 (See Appendix 3.66). This reveals that nearly half
of the employment is in the community, social and personal services. Manufacturing sector accounted for 20.7 per cent of employment.

**EMPLOYMENT IN UNORGANISED SECTOR**

Unorganised sector plays a crucial role in Indian economy in terms of employment and its contribution to the Gross Domestic Product, savings and capital formation. More than 90 per cent of workforce are in unorganised sector and nearly 50 per cent of the Gross Domestic Product are accounted from the sector. A high proportion of socially and economically weaker sections of society are engaged in the unorganized 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. Comparatively the percentage share of regular wage/salaried employee accounted for 22.5 per cent and that of casual labour accounted for 39.8 per cent.

Employees of enterprises belonging to the unorganised sector have lower job security, poorer chances of growth, absence of leaves and paid holidays, and lower protection against employers as compared to employees in organised sector. The unorganized workers are subject to exploitation, face poor working conditions and especially earn lower wages much below that in the formal sectors. In Kerala, Directorate of Employment and Training is the nodal department to take measures to reduce instances of unfair practices existing in the unorganized sector. In recent years, the 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 live register of employment exchanges in Kerala, the total number of work seekers as on December 31, 2012 was 44.99 lakh. But it has now declined to 36.57 lakh as on December 31, 2015, a reduction of about 8.42 lakh. Details of work seekers for various years are given in Appendix 3.67.

Contrary to the all India scenario women are found to be more in the live registers in Kerala. Of the total job seekers 56 per cent are women. Number of illiterate persons in the Live Register is 950. Distribution of job seekers by educational level indicates that only 10.4 per cent have qualification below SSLC. About 58 per cent of the work seekers are in the category of qualifications having SSLC. (Appendix 3.68).

The number of professional & technical work seekers as on October 31, 2016 is 1.70 lakh. Data reveals that ITI certificate holders and Diploma holders in Engineering together constitute 97 per cent of the total professional & technical work seekers. There are 23,984 registered Engineering Graduates (Appendix 3.69).

A significant and peculiar feature of Kerala is that women outnumber men who seek employment through employment exchanges. The district-wise work seekers in Kerala is shown in the Figure 3.51.

Thiruvananthapuram District ranks first in the number of work seekers in general and professional/technical categories as on September 30, 2016. The total number of work seekers in Thiruvananthapuram district is 5.2 lakh; of which 3.24 lakh are women and 1.96 lakh men. The second largest number of work seekers is in Kollam district with 3.85 lakh persons. The lowest number of work seekers registered is in Wayanad with 0.863 lakh persons, followed by Kasaragod with 0.869 lakh persons. (Appendix 3.70).

Self Employment Schemes implemented through Employment Exchanges

Three self employment schemes are implemented through the Employment Exchanges in Kerala.

1. Kerala Self Employment Scheme for the Registered Unemployed (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 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 lakh with a 20 per cent subsidy is given for self employment ventures. During 2015-16 an amount of ₹ 1.33 crore was allotted to 736 beneficiaries.
Figure 3.51
Work Seekers in Kerala as on 31-12-2015
(Status of Men and Women)

Box 3.11
Niyukthi-2016

Niyukthi-2016 was a Mega Recruitment Drive conducted by the Government of Kerala through the Employment Department. Deviating from the traditional way of conducting job fairs, modern technologies like dedicated software, ‘whatsapp’ technology was used and hitherto-new event-management technology by the government officials, orientation programme for job seekers and pre-employers meet were held at Thiruvananthapuram, Ernakulam and Kozhikode. In this mega event 28,265 jobseekers and 222 employers participated. Out of 17,664 vacancies reported, placement were offered for 14,399 posts.

2. Multi-Purpose Service Centres/Job Clubs (MPSC/JC) is a group oriented self-employment scheme for development of enterprises in the unorganised sector. Bank loan up to ₹ 10 lakh with a maximum of ₹ 2 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 21-40 years. The scheme is incorporated with Credit Guarantee Scheme. During 2015-16 an amount of ₹ 1 crore was allotted to 64 Job Clubs.

3. Saranya is an employment Scheme for the Destitute Women aimed at uplifting the most backward and segregated women in the State, namely widows, divorced, deserted, spinsters above the age of 30 and unwed mothers of Scheduled Tribe. Under this scheme interest free bank loan upto ₹ 50,000 with a 50 per cent subsidy (maximum ₹ 25,000) is given for starting self-employment ventures. During 2015-16 an amount of ₹ 16 crore was allotted to 3200 beneficiaries.
**UNEMPLOYMENT ASSISTANCE**

Government of Kerala has 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 the SC/ST & 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 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 Government. The Welfare Standing Committee at the Local Governments may finalise the list of candidates based on the eligibility criteria. In the current year an amount of ₹15.84 crore was disbursed to 2,03,703 beneficiaries as on November 2016.

**PLACEMENT THROUGH EMPLOYMENT EXCHANGES IN KERALA**

The placement through Employment Exchanges in Kerala has been declining since 2010. Total placement has declined from 12,643 in 2010 to 10,303 in 2015 and further to 7,875 as on September 30, 2016. Reduction in placement may be due to temporary posts either being filled up on daily wage/contract basis or being kept vacant. The placement through employment exchanges in Kerala since 2010 is illustrated in the Figure 3.52.

The mismatch between the State Domestic Product (SDP) and employment elasticity has led to rising unemployment rate in Kerala leading to an unemployment rate which is over two times of the all India average. In Kerala, unemployment rate is much higher among females as compared to males despite remarkable women empowerment and poverty alleviation initiatives. An entrepreneur culture must be evolved to increase the employability of the labour.
Building resilient infrastructure, promoting inclusive and sustainable industrialization and fostering innovation is one of the sustainable development goals. MSMEs in the State have emerged as a crucial sector in providing employment and promoting industrialization. The State needs to create a conducive environment for the industries to thrive and encourage the growth of MSMEs as a driver of industrialization in the State. Traditional industries need to be strengthened and appropriate promotional strategies need to be devised. The potential of the labour force also needs to be adequately tapped so that its productively is enhanced. The improving trends in industrial climate in the state will help to propel industrial growth and productivity. The State needs to frame appropriate policies which take into account the changing labour dynamics in the State and create more job opportunities to reduce the prevailing high unemployment rates.
CHAPTER 4  SOCIAL SERVICE
Kerala has been known for its achievements in the field of health and education. The State has endeavoured to create an educated, literate and healthy society. These achievements have been possible because of the pioneering policies taken in these sectors. Kerala has always taken the lead in coming up with path-breaking moves. The transgender policy announced by the State is another one in this league as Kerala is the first State to unveil such a policy. However, the challenge faced by the State is sustaining the policy initiatives. The advancements in health and education have been marred by issues like poor quality of education, lack of adequate skills and emerging life threatening lifestyle diseases. Further, the advancements in the field of health and education in women have not led to creation of economic opportunities for them. It is recognised that concerted efforts are required to sustain the achievements as well as tackle the issues in this sector.

Section 1
EDUCATION

Kerala’s unique development experience of high human development with low per capita income has received international attention. The State could attain significant achievements in the critical sectors of health and education. Kerala’s unparalleled achievements in human development indicators are mainly attributed to the State’s public interventions in health and education sectors, especially after Independence. Education has always had a central role in determining Kerala’s performance in social development. The network of educational institutions established during the early modern period, the social reform movements and government intervention helped the State to establish a strong foundation in the field of education. In the early 1990s, Kerala became the first ever state in the Indian union to attain universal literacy. The policies for ensuring the universal elementary education have effectively been implemented by the State since Independence.

In spite of its remarkable achievements in the education sector in the State, prominent gaps exist regarding the quality of education being imparted. In order to look into various aspects of quality of education at different levels, the Kerala State Planning Board had constituted two expert committees (the reports may be accessed at www.spb.kerala.gov.in).

Expenditure On Education

During the first year of the 12th Plan an amount of
₹590.24 crore had been earmarked for education sector of which 98.78 per cent was expended. The outlay was increased significantly during the last five years and in 2016-17 the sector was allocated an amount of ₹1330.79 crore. Among the three sub-sectors of school education, higher education and technical education, the percentage share of higher education substantially increased over these five years whereas outlay on technical education increased only marginally. Further, General Education (school education plus higher education) got more than 80 per cent of the total allocation in these five years. Though the total outlay for all the three sub-sectors has been increasing over the five years (Table 4.1 and Figure 4.1), the percentage share of school education decreased from 56 per cent in 2012-13 to 37.8 per cent in 2016-17.

In order to address the relevant issues in the three sub sectors of education and to formulate focussed

### Table 4.1

**Average Plan Outlay and Expenditure during XIIth Plan, ₹ in crore**

<table>
<thead>
<tr>
<th></th>
<th>School Education</th>
<th>Higher Education</th>
<th>General Education</th>
<th>Technical Education</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Plan 2012-13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outlay</td>
<td>287.15</td>
<td>202</td>
<td>489.15</td>
<td>101.09</td>
<td>590.24</td>
</tr>
<tr>
<td>Actual Expenditure</td>
<td>286.54</td>
<td>154.15</td>
<td>440.69</td>
<td>142.33</td>
<td>583.02</td>
</tr>
<tr>
<td>Percentage of outlay spent</td>
<td>99.79</td>
<td>76.31</td>
<td>90.09</td>
<td>140.95</td>
<td>98.78</td>
</tr>
<tr>
<td>Annual Plan 2013-14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outlay</td>
<td>333.15</td>
<td>247.99</td>
<td>581.14</td>
<td>117.86</td>
<td>699</td>
</tr>
<tr>
<td>Actual Expenditure</td>
<td>220.2</td>
<td>154.15</td>
<td>374.35</td>
<td>96.95</td>
<td>471.3</td>
</tr>
<tr>
<td>Percentage of outlay spent</td>
<td>66.1</td>
<td>62.16</td>
<td>64.41</td>
<td>82.33</td>
<td>67.42</td>
</tr>
<tr>
<td>Annual Plan 2014-15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outlay</td>
<td>336.81</td>
<td>367.97</td>
<td>704.78</td>
<td>143.22</td>
<td>848</td>
</tr>
<tr>
<td>Actual Expenditure</td>
<td>226.63</td>
<td>207.29</td>
<td>433.93</td>
<td>106.44</td>
<td>540.37</td>
</tr>
<tr>
<td>Percentage of outlay spent</td>
<td>67.29</td>
<td>56.34</td>
<td>61.57</td>
<td>74.32</td>
<td>63.72</td>
</tr>
<tr>
<td>Annual Plan 2015-16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outlay</td>
<td>349.75</td>
<td>510.42</td>
<td>860.17</td>
<td>184.45</td>
<td>1044.62</td>
</tr>
<tr>
<td>Actual Expenditure</td>
<td>223.11</td>
<td>439.1</td>
<td>662.21</td>
<td>246</td>
<td>908.21</td>
</tr>
<tr>
<td>Percentage of outlay spent</td>
<td>63.79</td>
<td>86.03</td>
<td>76.99</td>
<td>133.37</td>
<td>86.94</td>
</tr>
<tr>
<td>Annual Plan 2016-17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outlay</td>
<td>502.51</td>
<td>592.87</td>
<td>1095.38</td>
<td>235.41</td>
<td>1330.79</td>
</tr>
<tr>
<td>*Actual Expenditure</td>
<td>121.68</td>
<td>81.97</td>
<td>203.65</td>
<td>29.94</td>
<td>233.59</td>
</tr>
<tr>
<td>Percentage of outlay spent</td>
<td>24.21</td>
<td>13.83</td>
<td>18.59</td>
<td>12.72</td>
<td>17.55</td>
</tr>
</tbody>
</table>

*Source: Annual Plan Documents.

*upto October

### Box 4.1

**Working Groups for 13th Five Year Plan on Education**

In order to formulate projects for the 13th Five Year Plan, Kerala State Planning Board constituted three Working Groups on Education for School, Higher and Technical Education. The Working Groups were co-chaired by the secretaries of the departments concerned and sector experts. Consultations with several experts were made in the respective fields and the committees submitted the draft reports, including recommendations, addressing the aspects related to the quality of education, research and development.
policies and programmes for implementation during 13th Five Year Plan, State Planning Board has constituted Working Groups (Box 4.1).

**Literacy**

Kerala ranks first in the country with literacy rate of 93.91 per cent closely followed by Lakshadweep (92.28 per cent) and Mizoram (91.58 per cent), as per data from the Census of India, 2011. Kerala’s literacy rate, which was only 47.18 per cent in 1951, has almost doubled by 2011. The male-female literacy gap which was 22 per cent in 1951 has narrowed down to 4.41 per cent in 2011. Kerala holds the first place in the country in female literacy (92 per cent in 2011). At the other end, Rajasthan records the lowest female literacy rate of 52.66 per cent. Literacy rate of the State from 1951 to 2016 is shown in Appendix 4.1.

Variation in literacy rates among the districts of Kerala is low. While Pathanamthitta district (96.93 per cent) reports the highest literacy rate followed by Kottayam (96.4 per cent) and Alappuzha (96.26 per cent), Palakkad district has the lowest literacy rate (88.49 per cent). The low rate of literacy of the Palakkad district may be due to the higher percentage of Scheduled Caste (SC) and Scheduled Tribe (ST) population in the district. About 11 per cent of the ST population in the State, reporting an average literacy of 74.44 per cent, are residing in Palakkad district. The share of SC population in the district population is also the highest in the State. Literacy rate by sex for districts in 2003 and 2015 are given in Appendix 4.2.

Kerala State Literacy Mission has been implementing literacy and equivalency programmes by appointing ‘Preraks’ (representatives of centre for propagating and continuing literacy programmes). Details of the number of people benefiting from the equivalency programme of Literacy Mission from 2005 to 2015 are given in Appendix 4.3. It is seen that the number of persons who attend the 7th equivalency examination is steadily decreasing from 11,631 in 2005 to 3492 in 2015. The indications are that illiteracy has almost been eradicated.

**School Education**

There were 12,882 schools in Kerala in 2015-16: 4619 (36 per cent) government schools, 7140 (55 per cent) aided schools and 1123 (9 per cent) unaided schools. More government schools are functioning in lower primary section than the upper primary or high school sections. Aided
schools outnumber government schools in all sections. The management wise share of schools in the state is shown in Figure 4.2.

Malappuram District has the largest number of schools (1548) in the State followed by Kannur (1305) and Kozhikode (1269). Malappuram also has the largest number of government (546) and unaided schools (221) in the State. But the largest number of aided schools is functioning in Kannur district (959). Details of district-wise, management-wise and stage-wise number of schools in Kerala during 2015-16 are given in Appendix 4.4.

There are 1408 schools in the State that are offering syllabi other than the one prescribed by the State government. These include 1210 CBSE schools, 148 ICSE schools, 36 Kendriya Vidyalayas and 14 Jawahar Navodayas. One Jawahar Navodaya Vidyalaya school each is functioning in all the districts. District-wise details of schools with syllabi other than state syllabus in the year 2015-16 are given in Appendix 4.5.

Physical Infrastructure and Facilities In Government Schools

All government Schools in Kerala are functioning in pucca buildings. Own buildings have to be constructed for 116 government schools that are now functioning in rented buildings. District-wise details of government schools having building facilities are given in Appendix 4.6.

Local Self Government institutions and programmes like Sarva Shiksha Abhiyan (SSA) have contributed to the overall development and improvement of physical infrastructure and common facilities in government schools in the State. Data shows that 99.1 per cent of government schools have access to drinking water and 98.01 per cent have sanitation facilities. District-wise details of government schools having drinking water and sanitation facilities in Kerala in 2015-16 are given in Appendix 4.7.

Enrolment Of Students

Enrolment of students in the State has been declining in the recent years; the number has declined from 37.63 lakh in 2015-16 to 37.01 lakh in 2016-17 (provisional). However, there is a slight increase in enrolment in the Lower Primary (LP) section with an increase of 4840 students between 2015-16 and 2016-17. The decrease in enrolment in Upper Primary (UP) section and High School (HS) section has been 19,691 and 46,741 students respectively in 2016-17 over the previous year. The stage-wise enrolment of students in schools

Figure 4.2
Management wise share of schools in the State-2014-15, in per cent

Source: Directorate of Public Instruction
in Kerala from 2012-13 to 2016-17 is given in Appendix 4.8. Details of management-wise and standard wise enrolment of students in schools in Kerala during 2016-17 are given in Appendix 4.9. District-wise stage-wise and sex-wise enrolment of students in schools in the State during 2016-17 is given in Appendix 4.10. The section wise decrease in the enrolment of students in schools is shown in Figure 4.3.

**Enrolment of Girl students**

Girl students constitute 49.5 per cent of the total student enrolment in schools. Boys outnumber girls in all the districts, except Thiruvananthapuram. In terms of enrolment, the gender gap in Kerala is very narrow compared to other states.

**Strength of Scheduled Caste and Scheduled Tribe Students**

In 2016-17, Scheduled Caste (SC) students constituted 10.71 per cent of total students in the State. The percentage of SC students in government schools is higher than that of private aided and private unaided schools. The percentage of SC students in government schools, private aided schools and private unaided schools are 13.46 per cent, 10.56 per cent and 4.11 per cent respectively (Table 4.2). But the number of Scheduled Caste students in private aided schools is 33.44 percent higher than those in government schools.

![Stage-wise Enrolment of Students in Schools in Kerala, in number](image)

**Table 4.2**

<table>
<thead>
<tr>
<th>Management</th>
<th>Others</th>
<th>SC</th>
<th>ST</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>82.69</td>
<td>13.46</td>
<td>3.85</td>
<td>100</td>
</tr>
<tr>
<td>Private Aided</td>
<td>87.89</td>
<td>10.56</td>
<td>1.55</td>
<td>100</td>
</tr>
<tr>
<td>Private Unaided</td>
<td>95.43</td>
<td>4.11</td>
<td>0.46</td>
<td>100</td>
</tr>
</tbody>
</table>

*Source: Directorate of Public Instruction*
ST students constituted 2.12 per cent of total enrolment in schools in the year 2016-17. The percentage of ST students in government schools, private aided schools and private unaided schools are 3.85 per cent, 1.55 per cent and 0.46 per cent respectively in 2016-17. The standard-wise strength of SC/ST students in the State in 2015-16 is given in Appendix 4.11. Out of the total number of SC/ST students in the State, only 4.4 per cent of SC and 2.5 per cent of ST students are enrolled in private unaided schools. The rest are enrolled in government and private aided schools.

**Drop-Out Rate**

Kerala has achieved the distinction of having the lowest drop-out rate of school students among the Indian states. In the year 2014-15, drop-out ratio among school students in Kerala was 0.34 per cent. This was, however, 0.7 per cent more than the rate in 2013-14 (0.27 per cent). As per the statistics of Directorate of Public Instruction (DPI), this marginal increase in the drop-out rate was due to the corrections undertaken in the number of students enrolled after eliminating the duplicates. The drop-out rates in Lower Primary stage and High School stage are higher compared to that of the Upper Primary stage. Drop-out rate is highest among high school students.

Among all districts, Idukki has the highest drop-out rate in the lower primary section (1.06 per cent). In upper primary section and high school, Wayanad has the highest rates with 1.05 per cent and 2.88 per cent respectively. The higher drop-out rate may be attributed to the higher population of Scheduled Tribe students in these districts. District-wise/Stage-wise drop-out ratio in schools in 2014-15 is given in Appendix 4.12. Drop-out rate among SC students in Kerala during 2014-15 was 0.38 per cent and that of ST students was 2.79 per cent. District-wise and stage-wise details of drop out among SC and ST students in Kerala for the year 2014-15 are given in Appendices 4.13 and 4.14.

**Number of teachers**

The number of school teachers in Kerala, including Teachers Training Institute (TTI) teachers, during 2014-15 was 164,884. Out of this 97,914 (59.38 per cent) teachers are working in aided schools and 14,982 (9.09 per cent) teachers are working in private unaided schools. The remaining 31.53 per cent of teachers are working in government schools. 51.82 per cent of total teachers in the State are teaching in high schools, 24.56 per cent in upper primary schools, 23.21 per cent in lower primary schools and the remaining (0.41 per cent) in TTIs. 72.34 per cent of total teachers in the State are women. Stage-wise and management-wise number of teachers in Kerala during 2015-16 is given in Appendix 4.15.

**Uneconomic Schools**

Schools with insufficient strength of pupils are termed as “uneconomic” schools. In 2015-

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**Box 4.2**

**Takeover of “Uneconomic” Aided Schools by the Government of Kerala**

In a major relief to students of uneconomic aided-schools that are facing threat of closure, the Kerala government took over four such schools, including a 140-year-old one in Kozhikode district, which had been ordered to be shut down by the High Court. Though the government approached the Supreme Court against the Malaparamba Aided Upper Primary School management’s decision to close it down, the apex court had dismissed its appeal against the High Court order to close down the school by June 8. A Cabinet meeting took the decision of taking over of the 4 uneconomic aided schools considering the future of students and widespread protests against the closure.
16, there were 5715 uneconomic schools in the State, which was an increase of 142 schools over the previous year. Out of these, 2,606 were government schools and 3,109 were in the aided sector. District-wise analysis shows that highest number of uneconomic schools is in Kannur (723) followed by Kozhikode (593), Kottayam (560) and Pathanamthitta (501). The highest number of uneconomic schools in aided sector is in Kannur (583) followed by Kozhikode (426). In the government sector, Ernakulam has the largest (279) number of uneconomic schools followed by Thiruvananthapuram (276). Among the government uneconomic schools, 73.1 per cent are lower primary schools. In the aided sector also, 78.7 per cent of uneconomic schools are from the lower primary section. District wise details of uneconomic schools in the State in 2015-16 are given in Appendix 4.16.

**Sarva Shiksha Abhiyan (SSA)**

Sarva Shiksha Abhiyaan was introduced in 2000-2001 as a flagship programme of Government of India to provide useful and relevant elementary education for all children in the age group of 6 to 14 by 2010. The programme seeks active participation of the community in the management of schools without social, regional, economic and gender barriers. It comprises all activities of school education including providing physical infrastructure, free text book for children, encouraging enrolment of girls and teacher training. The sharing of funds between the central and the state governments was 75:25. The funding pattern has now been modified to 60:40.

**Higher Secondary Education**

Higher Secondary courses were introduced in the State during 1990-91 to reorganize the secondary level of education in accordance with National Education Policy. There were 2073 Higher Secondary Schools in 2016 in the State. Out of these 833 (40.18 per cent) are Government schools, 854 (41.2 per cent) are Aided schools and the remaining 386 (18.62 per cent) are Unaided and technical schools. Among the districts, Malappuram has the largest number of Higher Secondary Schools (248) in the State followed by Ernakulam (209) and Thrissur (204) respectively.

There are 7248 batches of higher secondary classes in 2016. The enrolment in Higher Secondary Schools was 383,582. Kozhikode has the largest number of batches (1051) with an enrolment capacity of 55914 students. District wise/Management-wise number of Higher Secondary Schools and number of batches are given in Appendix 4.17 and district wise enrolment of students in Higher Secondary Schools are given in Appendix 4.18.

The pass percentage of students in higher secondary courses decreased to 73.18 per cent in 2015-16 from 74.19 per cent in 2014-15. During 2016, 10,391 students secured A+ for all subjects and 317,887 students were eligible for higher studies. The details are given in Appendices 4.19 and 4.20. The pass percentage of SC and ST students in Higher Secondary schools also decreased in 2015-16 compared to 2014-15. The pass percentage of SC students decreased from 60.84 per cent to 57.77 per cent and ST students from 61.39 per cent to 58.12 per cent during 2015-16. 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 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 in the State with a total of 1100 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 Vocational Higher Secondary Schools and courses during 2016-17 are given in Appendix 4.23.
The percentage of students eligible for higher education in Vocational Higher Secondary examination in March 2016 is 74.92 per cent registering a fall from 80.54 per cent in March 2015. The number of students who appeared and those who passed Vocational Higher Secondary examination from 2012 to 2016 and the results of school going students are given in Appendices 4.24 and 4.25.

**University and Higher Education**

The significance of higher education in a society has been increasingly recognised and in the absence of a well-educated workforce, an economy cannot harness its optimum capabilities. The significance of higher education is not restricted to the sphere of economy and workforce alone; rather it should be seen as an opportunity for conditioning future citizens who are not only competent as a workforce but are also responsible citizens who can address the social needs in a more matured and responsible manner.

There are 14 universities functioning in the State. Out of these, four universities viz. Kerala, Mahatma Gandhi, Calicut and Kannur are general in nature and are offering 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 and Kerala Technological University offer specialized courses in specified subject areas. Besides these, the National University of Advanced Legal Studies (NUALS) established in 2005 and a Central University started in Kasargod district are also functioning in the State.

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**Box 4.3**  
**Rashtriya Ucchatar Shiksha Abhiyan**

In order to ensure access to and improve the quality of higher education, a new overarching Centrally Sponsored Scheme, Rashtriya Ucchatar Shiksha Abhiyan (RUSA) was commenced during the 12th Five Year Plan period for funding the State level higher education institutions. It is an umbrella scheme to be operated in mission mode, which seeks to improve the overall quality of existing State higher educational institutions. The scheme is implemented through a set of bodies with clearly defined roles and functions at the National, State and Institutional level. The allocation of funds under RUSA is based on well-defined norms and parameters. The Scheme would cover only the Government and Government aided institutions.

As a first installment, an amount of Rs. 2.5 crore each has been released to 4 universities in the State: University of Calicut, University of Kerala, M G University and Sree Sankaracharya Sanskrit University for improving the infrastructural facilities. Out of this amount, apart from the renovation and repair works, innovative projects like installation of Solar Energy system, Biometric punching system and E-campus, purchase of Nuclear Magnetic Resonance Spectrometer and diesel generator set have been set up by the Universities. 15 Government colleges also received Rs 12.5 lakh each as infrastructural grant. From the preparatory grant of RUSA, seminars, workshops and trainings are being conducted. Implementation of Video Conferencing System in Institutions, Laptops and Special Software for differently-abled students, E-journal Portal for RUSA and RUSA State Project Directorate Library are the schemes implemented as best practices under RUSA State Project Directorate.
**Autonomous Colleges in Kerala**

The affiliating system of colleges was originally designed when their number in a university was small. The university could then effectively oversee the working of the colleges, act as a body conducting examination and award degrees on their behalf. The system has now become unwieldy and it is becoming increasingly difficult for a university to attend to the varied needs of individual colleges. The colleges do not have the freedom to modernize their curricula or make them locally relevant. The regulations of the university and its common system, governing all colleges alike, irrespective of their characteristic strengths, weaknesses and locations, have affected the academic development of individual colleges. Colleges that have the potential for offering programmes of a higher standard do not have the freedom to offer them.

Hence, the Committee on autonomy for institutions of higher education in Kerala stated in its report that there are colleges in Kerala in the Government and private sectors which deserve autonomy and which can prove their full academic potential if only greater freedom is given to take risks with responsibility. The University Grants Commission (UGC) has granted autonomous status to nine colleges in the State during 2014-15. The colleges are Maharaja’s College, Ernakulam; Mar Ivanios College, Thiruvananthapuram; Fatima Mata National College, Kollam; SB College, Changanassery; St. Teresa’s College, Ernakulam; Sacred Heart College, Thevara; Rajagiri College of Social Sciences, Kochi; St. Thomas College, Thrissur and St. Thomas College, Devagiri.

**Arts And Science Colleges**

There are 213 Arts and Science Colleges in the State comprising of 153 Private Aided Colleges and 60 Government Colleges. In 2015-16, Ernakulam (25) had the largest number of Arts and Science colleges in the State followed by Thiruvananthapuram, Kottayam and Thrissur (22). 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 2015-16 is given in Appendix 4.26.

**Enrolment of Students**

Total number of students enrolled in various Arts and Science colleges (excluding unaided colleges) under the four general universities in Kerala during 2015-16 is 2.7 lakh. Of this 1.89 lakh (71.21 per cent) are girls.

Out of the total students enrolled for degree courses, 41.7 per cent are enrolled for B.A degree courses, 41.1 per cent enrolled for B.Sc. and 17.2 per cent enrolled for B.Com degree courses. Girls constitute 71.02 per cent of total enrolment for degree courses (Table 4.3).

27 subjects are offered for BA degree courses. Among the subjects, Economics has the largest number of enrolment of students. 31 subjects are offered for B.Sc. course and Mathematics has the largest number of student enrolment. Details of enrolment of students in Arts and Science colleges for BA, B.Sc. and B.Com are given in Appendices 4.27 to 4.29. 33,070 students were admitted to post graduate course in the State in

### Table 4.3
Enrolment of Students in Arts and Science Colleges

<table>
<thead>
<tr>
<th>Course</th>
<th>Total Students</th>
<th>Girls</th>
<th>Boys</th>
<th>Per cent of Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.A</td>
<td>96748</td>
<td>70035</td>
<td>26713</td>
<td>72.39</td>
</tr>
<tr>
<td>B.Sc</td>
<td>95369</td>
<td>69833</td>
<td>25536</td>
<td>73.22</td>
</tr>
<tr>
<td>B.Com</td>
<td>39923</td>
<td>24915</td>
<td>15008</td>
<td>62.41</td>
</tr>
<tr>
<td>Total</td>
<td>232040</td>
<td>164783</td>
<td>67257</td>
<td>71.02</td>
</tr>
</tbody>
</table>

*Source: Directorate of Collegiate Education*
2015-16. 72.6 per cent of those enrolled in PG courses are girls. Details of enrolment of students in Arts and Science colleges for MA, MSc and M.Com courses are given in Appendices 4.30 to 4.32.

**Scheduled Caste / Scheduled Tribe Students**

The enrolment of Scheduled Caste (SC) students in degree and post graduate courses in the State is 32,002 and 4,414 respectively. SC students constitute 13.74 per cent of total students in 2015-16. Girls constitute 71.1 per cent of total SC students in Arts and Science colleges (Table 4.4 and Figure 4.4).

The number of Scheduled Tribe students enrolled for courses in arts and science colleges in 2015-16 is 5321. The enrolment of ST students in degree and post graduate courses are 4,184 and 1,137 respectively. Girls constitute 65.9 per cent of the total ST enrolment in Arts and Science colleges. Enrolment of SC and ST students in Arts and Science Colleges in Kerala during 2015-16 is given in Appendix. 4.33.

**Scholarships**

Central and state sector scholarships of 14 types are

### Table 4.4

#### Percentage of SC/ST students in higher education

<table>
<thead>
<tr>
<th>Course</th>
<th>Total Number of Students</th>
<th>Number of SC Students</th>
<th>Per cent of SC students</th>
<th>Number of ST students</th>
<th>Per cent of ST students</th>
<th>Total number of SC-ST students</th>
<th>Per cent of SC/ST students</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.A</td>
<td>96748</td>
<td>13295</td>
<td>13.74</td>
<td>2584</td>
<td>2.67</td>
<td>15879</td>
<td>16.41</td>
</tr>
<tr>
<td>B.Sc</td>
<td>95369</td>
<td>13103</td>
<td>13.74</td>
<td>890</td>
<td>0.93</td>
<td>13993</td>
<td>14.67</td>
</tr>
<tr>
<td>B.com</td>
<td>39923</td>
<td>5604</td>
<td>14.04</td>
<td>710</td>
<td>1.78</td>
<td>6314</td>
<td>15.82</td>
</tr>
<tr>
<td>Total Degree students</td>
<td>232040</td>
<td>32002</td>
<td>13.79</td>
<td>4184</td>
<td>1.80</td>
<td>36186</td>
<td>15.59</td>
</tr>
<tr>
<td>M.A</td>
<td>12602</td>
<td>1889</td>
<td>14.99</td>
<td>594</td>
<td>4.71</td>
<td>2483</td>
<td>19.70</td>
</tr>
<tr>
<td>M.Sc</td>
<td>15360</td>
<td>1853</td>
<td>12.06</td>
<td>422</td>
<td>2.75</td>
<td>2275</td>
<td>14.81</td>
</tr>
<tr>
<td>M.Com</td>
<td>5108</td>
<td>672</td>
<td>13.16</td>
<td>121</td>
<td>2.37</td>
<td>793</td>
<td>15.52</td>
</tr>
<tr>
<td>Total P G Students</td>
<td>33070</td>
<td>4414</td>
<td>13.35</td>
<td>1137</td>
<td>3.44</td>
<td>5551</td>
<td>16.79</td>
</tr>
<tr>
<td>Total degree &amp; PG</td>
<td>265110</td>
<td>36416</td>
<td>13.74</td>
<td>5321</td>
<td>2.01</td>
<td>41737</td>
<td>15.74</td>
</tr>
</tbody>
</table>

*Source: Directorate of Collegiate Education*

### Figure 4.4

**Percentage of SC/ST students in Degree and PG Courses**

*Source: Directorate of Collegiate Education*
given to students. Various scholarships including Kerala State Suvarna Jubilee Scholarship (4000) and post metric scholarships (47199) were given during 2015-16. The Directorate of Collegiate Education has set up LED display board giving the details of scholarships offered by the Government of Kerala and India. The details of number of scholarships offered from 2013-14 to 2015-16 is given in Appendix 4.34.

**Teachers**

The number of teachers in Arts and Science colleges in the State in 2015-16 was 9727, out of whom 55.2 per cent are women. University-wise number of teachers in Arts and Science colleges in the year 2013-14 to 2015-16 is given in Appendix 4.35. 3312 (34.01 per cent) teachers in Arts and Science colleges in the State have a Ph.D. degree. Details are given in Appendix 4.36. A total of 2072 Guest Lecturers were working in Arts and Science colleges of the State in 2016. Details are given in Appendix 4.37.

**Kerala Council for Historical Research (KCHR)**

Kerala Council for Historical Research is an autonomous academic institution, established in 2001, committed to scientific research in archaeology, history and social sciences. It is a recognized research centre of the University of Kerala and has academic affiliations and bilateral academic and exchange agreements with leading universities and research institutes in India and abroad. KCHR is envisaging publishing 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-conceptualizing the early history of Kerala.

**Technical Education**

The Twelfth Five Year Plan aimed at encouraging the private sector to establish larger and higher quality institutions and Public–Private Partnerships (PPP) in higher education particularly in the establishment of research and innovation institutions. The State of Kerala has entered into MOUs with some of the leading global industrial enterprises and is going to implement some schemes in the technical education realm where skill development is a matter of concern. The State has entered into an MOU with Bosch Group which is a global company with wide network of operations in Automotive, Industrial and Consumer goods and building service sectors. Bosch Rexroth will set up one Centre of Excellence in Automation Technologies at College of Engineering, Trivandrum and one Centre of Competence in Automation Technologies at Government Polytechnic at Kalamassery. These centres will work on dual education system centres that will provide in depth knowledge on automation technologies.

The following courses are implemented under the technical education department in Public–Private Partnerships (PPP) mode.

a. Advanced Diploma in Automotive Mechatronics (ADAM) and Establishment of Centre of Excellence in Mechatronics at Government Engineering College, Barton Hill.

b. Centre of Excellence in Automation Technologies in College of Engineering Trivandrum.

c. Centre of Competence in Automation Technologies in Govt. Polytechnic College,Kalamassery.

d. Two year MS Course in Translational Engineering in Government Engineering College, Barton Hill, Thiruvananthapuram.

Directorate of Technical Education is the nodal department for technical education in the State. The basic objective is to achieve faster, sustainable and more inclusive growth. The details of technical institutions under the administrative and financial
control of Directorate of Technical Education is given in Appendix 4.38.

Various projects are being undertaken through funding from different agencies like Ministry of Human Resource Development, All India Council for Technical Education, Technical Education Quality Improvement Programme (TEQIP) (Box 4.4), Trivandrum Engineering Science and Technology (TREST) Research Park, Technology Business Incubators (TBI), Department of Science and Technology (DST), and University Grants Commission.

**Engineering Colleges**

There are 183 engineering colleges in the State with a sanctioned intake of 60,376 in 2016. Out of these engineering colleges, 171 (93.44 per cent) are self-financing colleges (unaided), 9 (4.92 per cent) are government colleges and 3 (1.64 per cent) are private aided colleges. Largest number of the unaided engineering colleges are functioning in Ernakulam (31) followed by Thrivananthapuram (26). There is no government engineering college in Kollam, Pathanamthitta, Alappuzha, Ernakulam, Malappuram and Kasargode. 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 during 2016 was 3283 (5.44 per cent), in aided colleges was 1850 (3.06 per cent) and in unaided colleges was 55,243 (91.5 per cent).

Of the engineering colleges in Kerala, the largest number of branch wise seats was in Electronics and Communication (12,063) followed by Mechanical Engineering (11,165), Civil Engineering (10,412) and Computer Science and Engineering (10,269). Branch-wise distribution of seats in engineering colleges in 2015-16 is given in Appendix 4.40. The number of students enrolled in government and aided engineering colleges for graduate courses decreased to 5,134 in 2016-17 from 6370 in 2015-16. The proportion of girls' enrolment has also decreased to 36.42 per cent from 36.86 per cent in 2015-16. 1,515 students have been admitted in government and aided engineering colleges for post graduate courses in 2016-17. Girl students constitute 61.19 per cent of total students studying for post graduate courses in government and aided engineering colleges. Details are given in Appendices 4.41 and 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. A large number of students are also qualifying for higher studies through competitive examinations.

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**Box 4.4**

**Technical Education Quality Improvement Programme (TEQUIP)**

In 2002-03, the Government of India with the financial assistance from the World Bank launched Technical Education Quality Improvement Programme (TEQUiP) as a long term Programme for 10-12 years to be implemented in three phases for systematic transformation of the Technical Education System. The first phase of TEQUiP commenced in March 2003 and ended in March 2009, covering 127 institutions in 13 States. Five Engineering Colleges of Kerala were included in Phase I. TEQUiP II, the second phase of the project commenced in 2010-11 and is likely to be over by March 31, 2017 covering 190 institutions in the State. Rs.10 crores for 19 institutions plus Rs.5.7 crore for State Project Facilitation Unit (SPFU) was sanctioned for the State and out of this, Rs.156.16 crore has already been released. Under TEQUiP III, 250 institutions will be competitively selected from the States based on the pre-notified criteria and quality of the proposals submitted by the institutions. The third phase is likely to start in the next academic year.

*Source: Directorate of Technical Education*
like GATE, and CAT. Most of the students get placement in multinational firms like WIPRO, MAHENDRA, TCS, and BOSCH. Placement details of students of various Govt. Engineering colleges during 2015-16 are given in Table 4.5. The number of visiting faculty programmes in various engineering colleges may be seen in Appendix 4.43.

Polytechnics and Technical High Schools

Forty five Government polytechnics and 6 private aided polytechnics are functioning in Kerala. The annual intake of students in government polytechnics and private aided polytechnics during 2016-17 were 9,708 and 1,475 respectively. The total number of students in government polytechnics during the year 2016-17 is 27,861 and that of private aided polytechnics is 4,448. Details of annual intake and student strength in polytechnics for the year 2014-15 to 2016-17 are given in Appendices 4.44 and 4.45. Details of trade-wise annual intake of students in polytechnics of the State in 2016-17 are given in Appendix 4.46. Student intake is highest in the trade of Mechanical Engineering (2620) followed by Computer Engineering (2190), Civil Engineering (2170) and Electronics Engineering (2120).

Total number of teachers working in polytechnics of the State is 1,801. Women teachers constitute 30 per cent of the total number of teachers in polytechnics. Student-teacher ratio is high in Government Polytechnics.

Total number of teachers working in polytechnics of the State is 1756. Women teachers constitute 28.87% of the total number of teachers in polytechnics. Student-Teacher Ratio in polytechnics is given in Table 4.6.

Table 4.5
Placement Details of Students of Various Engineering College during 2015-16

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>Name of College</th>
<th>Number of offers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>College of Engineering, Thiruvananthapuram</td>
<td>870</td>
</tr>
<tr>
<td>2</td>
<td>Govt. Engineering College, Barton Hill</td>
<td>95</td>
</tr>
<tr>
<td>3</td>
<td>RIT, Kottayam</td>
<td>113</td>
</tr>
<tr>
<td>4</td>
<td>Govt. Engineering College, Idukki</td>
<td>67</td>
</tr>
<tr>
<td>5</td>
<td>Govt. Engineering College, Thrissur</td>
<td>553</td>
</tr>
<tr>
<td>6</td>
<td>Govt. Engineering College, Palakkad</td>
<td>97</td>
</tr>
<tr>
<td>7</td>
<td>Govt. Engineering College, Kozhikode</td>
<td>59</td>
</tr>
<tr>
<td>8</td>
<td>Govt. Engineering College, Wayanad</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>Govt. Engineering College, Kannur</td>
<td>146</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>2001</td>
</tr>
</tbody>
</table>

Source: Directorate of Technical Education

Table 4.6
Student-Teacher Ratio in Polytechnics

<table>
<thead>
<tr>
<th>Type of Institutions</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>21</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Private (Aided)</td>
<td>11</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>17</td>
<td>18</td>
</tr>
</tbody>
</table>

Source: Directorate of Technical Education
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 percentage of SC/ST students is low and it is decreasing over the last three years (Table 4.7).

39 Government technical high schools are functioning in the State. Total number of students in technical high schools in the year 2015-16 is 8872, and 794 teachers are working in technical high schools of the State in the corresponding period. Women teachers constitute 23.93 per cent of teachers in technical high schools. Number of students and teachers in technical high schools from 2013-14 to 2015-16 are given in Appendix 4.49. Compared to the previous year, the percentage of SC and ST students in technical high schools has declined from 12.76 per cent to 9.36 per cent and from 0.96 per cent to 0.63 per cent respectively. Details are given in Appendices 4.50 and 4.51.

Some specific measures need to be taken on priority basis, as there is a consistent fall in the quality of higher education being imparted in the State. In this context, it would be useful to revisit some of the measures adopted in the past when concerns on quality of education were voiced. Although courses were started with a focus on skill orientation towards specific occupations with the intention of achieving self/wages/direct employment as well as vertical mobility, it remained unsuccessful for various reasons.

**Table 4.7**

<table>
<thead>
<tr>
<th>Type of Institution</th>
<th>2014-15</th>
<th>2015-16</th>
<th>2016-17</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SC</td>
<td>ST</td>
<td>Others</td>
</tr>
<tr>
<td>1. Government</td>
<td>8.19</td>
<td>1.01</td>
<td>90.80</td>
</tr>
<tr>
<td>2. Private (Aided)</td>
<td>9.84</td>
<td>0.47</td>
<td>89.69</td>
</tr>
<tr>
<td>Total</td>
<td>8.40</td>
<td>0.94</td>
<td>90.66</td>
</tr>
</tbody>
</table>

*Source: Directorate of Technical Education*

**Box 4.5**

**Punarjani**

Punarjani, as the term denotes, is a unique programme designed by National Service Scheme, Technical Cell, Kerala to restore and reinstate the assets of institutions such as government hospitals, educational institutions and other government institutions, as a consolidated effort to achieve greater results. As a pilot programme, the cell has undertaken the rejuvenation works of discarded and unusable instruments, tools and other materials including operation tables and polluted water tanks on the premises of selected government hospitals across the State. The volunteers have repaired, painted and put them back into service. The volunteers have also attended electrical wiring, plumbing works and repaired the dilapidated buildings and toilets, and removed waste and cleaned the premises. The hospitals chosen for the Punarjani operation include medical colleges, general hospitals, district hospitals, taluk hospitals, community health centre, primary health centres, mental hospitals and ayurveda hospitals. The efforts of the volunteers were widely appreciated. This has boosted the morale of team of NSS Technical Cell to undertake more result oriented community development projects. The team conducted 100 programmes with 6460 volunteers and created assets with value of around 10 crores during 2015-16.

*Source: Directorate of Technical Education, Kerala.*
Kerala has a paradoxical situation prevailing where the number of job seekers is rising alongside a scarcity of labour for manual jobs. Another major issue confronting the educational system of Kerala is the mismatch between the courses available and the courses required. This mismatch between demand and supply is more pronounced in the area of higher and technical education. There exists lack of interaction between educational institutions and industry. Collaboration of our leading technical institutions with leading industrial concerns may change the situation. To enable the higher and technical education system in Kerala to utilise the increasing opportunities generated by globalization, the State needs to introduce various industry-based courses, which will increase the quality of education. Expanding higher education to new spheres is also expected to generate more placement opportunities.

Section 2
MEDICAL AND PUBLIC HEALTH

Improvement in the health status of the people is one of the crucial areas in social development of a community. This can be achieved by improving the access to health services, especially for the underprivileged people. The foundation for a medical care system accessible to all citizens was laid in the State much before independence. Some of the hospitals in Kerala are more than 50 years old. Democratic decentralization since 1994 in Kerala improved the infrastructure facilities and equipment in primary and secondary healthcare institutions and widened healthcare delivery. Easy accessibility and coverage of medical care facilities has played a leading role in influencing the health status of Kerala. In Kerala, both Allopathy and AYUSH systems play a crucial role in providing universal accessibility and availability even to the poorer sections of society.

Kerala has made significant gains in health indices like Infant Mortality Rate, Birth Rate, Death Rate, and expectancy of life at birth. The challenges before the State is to sustain the achievements in the health sector and to tackle the problems of lifestyle diseases like diabetes, coronary heart disease, renal disease, cancer and geriatric problems. Communicable diseases like chikungunya, dengue, leptospirosis, and swine flu are also major concerns. Other than these, 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. To tackle these, concerted and committed efforts with proper inter-sectoral co-ordination is essential.

Health Indicators of Kerala

The health indicators of the State are considerably superior to the national figures. The comparative figures of major health and demographic indicators at State and National level are given in Table 4.8.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Indicator</th>
<th>Kerala</th>
<th>India</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Total population (in crore) (Census 2011)</td>
<td>3.34</td>
<td>121.06</td>
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<tr>
<td>2</td>
<td>Decadal Growth (per cent) (Census 2011)</td>
<td>4.90</td>
<td>17.7</td>
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<tr>
<td>3</td>
<td>Sex Ratio (Census 2011)</td>
<td>1084</td>
<td>943</td>
</tr>
<tr>
<td>4</td>
<td>Child Sex Ratio (Census 2011)</td>
<td>964</td>
<td>919</td>
</tr>
<tr>
<td>Sl. No.</td>
<td>Indicator</td>
<td>Kerala</td>
<td>India</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------</td>
<td>--------</td>
<td>-------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Birth Rate #</td>
<td>14.8</td>
<td>21.0</td>
</tr>
<tr>
<td>2</td>
<td>Death Rate #</td>
<td>6.6</td>
<td>6.7</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>7.6</td>
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</tr>
<tr>
<td></td>
<td>Female</td>
<td>5.8</td>
<td>6.2</td>
</tr>
<tr>
<td>3</td>
<td>Natural Growth Rate #</td>
<td>8.2</td>
<td>14.3</td>
</tr>
<tr>
<td>4</td>
<td>Infant Mortality Rate #</td>
<td>12</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>10</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>13</td>
<td>40</td>
</tr>
<tr>
<td>5</td>
<td>Neo Natal Mortality Rate*</td>
<td>7.00</td>
<td>35.00</td>
</tr>
<tr>
<td>6</td>
<td>Perinatal Mortality Rate*</td>
<td>13.00</td>
<td>35.00</td>
</tr>
<tr>
<td>7</td>
<td>Child Mortality Rate*</td>
<td>2.00</td>
<td>15.00</td>
</tr>
<tr>
<td>8</td>
<td>Under 5 mortality Rate*</td>
<td>14.00</td>
<td>69.00</td>
</tr>
<tr>
<td>9</td>
<td>Early Neo-natal Mortality Rate*</td>
<td>5.00</td>
<td>27.00</td>
</tr>
<tr>
<td>10</td>
<td>Late Neo-natal Mortality Rate*</td>
<td>2.00</td>
<td>8.00</td>
</tr>
<tr>
<td>11</td>
<td>Post Neo-natal Mortality Rate*</td>
<td>4.00</td>
<td>18.00</td>
</tr>
<tr>
<td>12</td>
<td>Death Rate*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(a) Children (0-4)</td>
<td>3.10</td>
<td>20.70</td>
</tr>
<tr>
<td></td>
<td>(b) Children (5-14)</td>
<td>0.20</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>(c) Children (15-49)</td>
<td>2.50</td>
<td>3.70</td>
</tr>
<tr>
<td></td>
<td>(d) persons (60 and above)</td>
<td>42.10</td>
<td>46.60</td>
</tr>
<tr>
<td></td>
<td>(e) Percentage of death receiving medical attention*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Government</td>
<td>38.00</td>
<td>17.40</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>33.40</td>
<td>12.10</td>
</tr>
<tr>
<td></td>
<td>Qualified professional</td>
<td>12.20</td>
<td>37.90</td>
</tr>
<tr>
<td></td>
<td>Untrained/others</td>
<td>16.40</td>
<td>32.60</td>
</tr>
<tr>
<td>13</td>
<td>Still Birth Rate*</td>
<td>7.00</td>
<td>8.00</td>
</tr>
<tr>
<td>14</td>
<td>Total Fertility Rate*</td>
<td>1.70</td>
<td>2.60</td>
</tr>
<tr>
<td>15</td>
<td>General Fertility Rate*</td>
<td>52.00</td>
<td>88.00</td>
</tr>
<tr>
<td>16</td>
<td>Total Marital Fertility Rate*</td>
<td>3.50</td>
<td>4.30</td>
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<tr>
<td>17</td>
<td>Gross Reproduction Rate*</td>
<td>0.80</td>
<td>1.20</td>
</tr>
<tr>
<td>18</td>
<td>Female age at effective marriage*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(a) Below 18</td>
<td>16.70</td>
<td>16.30</td>
</tr>
<tr>
<td></td>
<td>(b) 18-20</td>
<td>19.20</td>
<td>19.00</td>
</tr>
<tr>
<td></td>
<td>(c) Above 21</td>
<td>24.40</td>
<td>23.90</td>
</tr>
<tr>
<td></td>
<td>(d) All age</td>
<td>24.40</td>
<td>20.70</td>
</tr>
<tr>
<td>19</td>
<td>Couple Protection Rate</td>
<td>62.30</td>
<td>52.00</td>
</tr>
<tr>
<td>20</td>
<td>Maternal Mortality Ratio**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>66.00</td>
<td>178.00</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>71.40</td>
<td>62.60</td>
</tr>
<tr>
<td>21</td>
<td>Expectancy of Life at Birth*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>76.30</td>
<td>64.20</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Directorate of Health Services # SRS 2016, July *SRS 2009 **Special Bulletin on MMR 2010-12
**Draft National Health Policy 2015**

The National Health Policy (1983 and 2002) has guided the approach towards the health sector in the country. Thirteen years after the health policy in 2002, the draft National Health Policy 2015 was formulated, which addressed the issues of universal health coverage, reduction of maternal mortality and infant mortality, improved access to free drugs and diagnosis. Salient features of the draft National Health Policy 2015 are;

i. Improve the care delivery system  
ii. A National Health Rights Act to make health a Fundamental Right  
iii. Denial of health care will be justiciable  
iv. Raise public health expenditure to 2.5 per cent of GDP (Rs.3800 per capita) from current spending of 1.04 per cent of GDP (Rs.957 per capita)  
v. Creation of health cess on the lines of educational cess  
vi. Ensure universal access to free drugs and diagnosis in government hospitals  
vii. States may voluntarily opt to adopt the Act through a resolution in the Legislative Assembly

**Committee to Draft New State Health Policy**

The Government has constituted a 17-member panel headed by Dr B Ekbal, Member, State Planning Board to draft a health policy for the state. The main thrust of the new Health Policy will be to provide universal comprehensive free health care to all the people of the State. The Policy will be based on primary health care, disease prevention, health education and family doctor approach. The health policy aims to take care of the needs of the marginalized sections like Adivasis and fisher folk. The Committee is formulating the health policy by organizing public hearings and discussions with various organizations.

**Sustainable Development Goals**

The sustainable development goal set by the United Nations for health and well-being aims at ensuring healthy lives and promoting well-being for all at all ages. The Government of Kerala has formulated short and medium term targets (draft) to be achieved by the state in the health sector. This is in keeping with the Sustainable Development Goals (SDG) Framework so that targets finalized by Kerala would be aligned to national and international targets. The relevance of the targets set by the UN to the State was examined by the Working Groups The targets to suit the State’s current epidemiological status and capacity were adopted. In addition to the targets listed by the U.N., Kerala has included targets in Dental, Ophthalmic and Palliative care also as they were considered important for the state. The Working Groups have recommended key strategies to achieve these targets. A survey is proposed to be conducted to assess the baseline values which will be the benchmark to measure progress in achievement of the targets. A repeat survey is intended to be carried out in 2021 to evaluate the performance of the state.

**Health Sector Financing During Twelfth Plan**

Even though State allocates less than five per cent of its total plan outlay, health has been a major area of allocation in the budget in the State in the past years. The healthcare expenditure has been showing a steady increase in recent years. During the first year of Twelfth Plan (2012-13) an amount of ₹47,000 lakh had been allotted for the sector, of which 82 per cent was expended. During the second year of the Twelfth Plan (2013-14) an amount of ₹54100 lakh was allocated for Health Sector, a 15 per cent increase over 2012-13 outlay and the expenditure was 94.72 per cent of the outlay. In the third year (2014-15), an amount of ₹62940 lakhs was allocated and 87.76 per cent
expended. The outlay earmarked for 2015-16 was ₹66537 lakhs and the corresponding expenditure percentage was 79.65. Department wise plan outlay and Expenditure during the Twelfth Plan and total outlay and expenditure up to October 2016 (2016-17) is given in Table 4.9.

Table 4.9
Department wise Outlay and Expenditure for the XIIth Plan (Annual plan 2012-17)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Outlay</td>
<td>Per cent Exp.</td>
<td>Outlay</td>
<td>Per cent Exp.</td>
<td>Outlay</td>
</tr>
<tr>
<td>Directorate of Health Services</td>
<td>20564</td>
<td>90.15</td>
<td>24530</td>
<td>97.67</td>
<td>29693</td>
</tr>
<tr>
<td>Directorate of Medical Education</td>
<td>20220</td>
<td>81.15</td>
<td>22665</td>
<td>93.85</td>
<td>25750</td>
</tr>
<tr>
<td>Indian Systems of Medicine</td>
<td>1665</td>
<td>101.38</td>
<td>2330</td>
<td>95.11</td>
<td>2545</td>
</tr>
<tr>
<td>Directorate of Ayurveda Medical Education</td>
<td>1760</td>
<td>59.16</td>
<td>2300</td>
<td>94.04</td>
<td>2567</td>
</tr>
<tr>
<td>Directorate of Homoeopathy</td>
<td>1721</td>
<td>40.66</td>
<td>1475</td>
<td>61.80</td>
<td>1440</td>
</tr>
<tr>
<td>Homoeo Medical Education</td>
<td>1070</td>
<td>32.01</td>
<td>800</td>
<td>90.50</td>
<td>945</td>
</tr>
<tr>
<td>Total</td>
<td>47000</td>
<td>82.38</td>
<td>54100</td>
<td>94.72</td>
<td>62940</td>
</tr>
</tbody>
</table>

Source: Plan Space
*Exp.upto October 2016

Box 4.6
Working Groups on Health Sector for 13th Five Year Plan

The State Planning Board constituted separate Working Groups for Medical and Public Health and Ayush for 13th Five Year Plan Period. The Working Group on Medical and Public Health was constituted with Sri. Rajeev Sadanandan IAS, Additional Chief Secretary to Government, Health and Family Welfare Department and Dr. K.R. Thankappan, Professor and Head, Achutha Menon Centre for Health Sciences Studies, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram as Co-Chairpersons and 13 Members. The Working Group on Ayush was constituted with Dr. B Ashok IAS, Secretary to Government, Ayush Department and Dr. Ravi M Nair as Co-Chairpersons and 16 Members. The Working groups deliberated on the various challenges faced by the State’s Health System and the strategies to be adopted during the Thirteenth Five Year Plan period. The Working Group identified priority areas in Health Sector for the 13th Five Year Plan and will submit its report shortly. The recommendations of the Committee will be incorporated in the schemes of the health sector.
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, AIDS, Malaria, Leptospirosis, Hepatitis, Chikungunya, and H5N1 in recent years has led to considerable increase in morbidity and mortality.

Bird Flu

The bird flu, highly infectious virus strain, has affected largely the southern districts of Kerala viz., Pathanamthitta, Kottayam and Alappuzha during 2014, and Kottayam and Alappuzha during 2016. There have been no reports of the virus affecting humans. Avian influenza, commonly called bird flu, is an infectious viral disease affecting birds. Influenza virus circulating in animals poses threat to human health. Humans can become ill when infected with viruses from animal sources. Controlling the disease in animals is the first step in decreasing risks to humans. According to the World Health Organisation, while millions of fowls have died due to the Avian Influenza, 452 human deaths (zero in India) have been recorded globally between 2003 and 2016.

Leptospirosis

Leptospirosis has been causing a large number of deaths during the last few years in the State. Out of the 510 Leptospirosis cases reported in 2012, 11 deaths were reported. The number of cases increased to 613 with 15 deaths during 2013. During 2014, a total of 717 cases were confirmed resulting in 19 deaths. During 2015, 666 cases and 15 deaths have been reported. Number of patients treated during 2016 was 13339 and death reported was 21 which are slightly higher compared to previous years. The details of district wise patients treated for leptospirosis and death reported during 2016 is given in Appendix 4.52.

HIV/AIDS

It is estimated that around 2.4 million people in India are currently living with HIV. Kerala State Aids Control Society is the pioneer organization 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. It was formed to implement the National Aids Control Programme in the State.

In Kerala, the prevalence of HIV / AIDS is 4.95 per cent among injecting drug users (IDU), 0.36 per cent among men having sex with men (MSM) and 0.73 per cent among Female Sex Workers (FSW). The HIV prevalence among FSWs and MSM is nearly 1 per cent, but the prevalence among IDUs is 4.95 per cent, though it shows downward trend from 9.57 per cent in 2007, 5.3 per cent in 2008 and 4.95 per cent in 2011. Current data suggest that the HIV epidemic in the State is largely confined to individuals with high risk behaviour and their sexual partners.

Chikungunya

During 2006, Chikungunya emerged as a major epidemic in India affecting 151 districts in 8 States including Kerala. During 2011, while 58 chikungunya cases were reported in Kerala, it increased to 169 cases during 2013. Among the districts, highest number of cases (149) was reported in Thrivikramapuram and 11 cases were reported in Idukki. During 2014, out of the 139 cases of chikungunya reported 106 were from Thrivikramapuram. During 2015, 104 cases were reported and 99 were from Thrivikramapuram district alone, it was 106 and 77 respectively during 2016 (up to September). A total of 2,046,455 viral fever cases were reported in Kerala during 2014 and in 2015 it was 1,925,690 cases. It was 2,040,667 cases during 2016 (up to September). The details of district wise patients treated for Chikungunya and viral fever during 2016 (up to September) is given in Appendix 4.53.
Leprosy

The National Leprosy Eradication Program (NLEP) of the Government of India is implemented throughout the State for the control and eradication of leprosy. It has become a Centrally Sponsored Program with 60 percent funding support from Central Government from 2015-16 onwards.

Kerala is a low endemic state for leprosy. The Annual New Case Detection Rate (ANCDDR) is 1.88 per lakh population and Prevalence rate (PR) is 0.17 per 10,000 (as on October 31, 2016). Kerala contributes 0.45 per cent of the total annual case detection in India. Total number of leprosy cases under treatment in Kerala as on September 30, 2016 is 745. The number of reconstructive surgeries done during the year was 26 in 2015-16 and 6 in 2016-17 (up to September). During 2015-16, MCR chappals distributed was 587 and self-care kits distributed was 230. The same were 102 and 89 respectively during 2016-17 (up to October). The present scenario of leprosy is given in Appendix 4.54. There are three leprosy sanatoriums in Kerala with bed strength of 1692 and the details of leprosy cases during 2016 are given in Table 4.10.

Non Communicable Diseases

Common non-communicable diseases causing serious threat to life are cancer, diabetes, cardiovascular diseases and lung diseases. Unless interventions are made to prevent and control non-communicable 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.

Cancer

Cancer is a major life threatening disease that is affecting many sections of human population. Every year, nearly 35,000 new cases of cancer are getting detected in Kerala. Nearly 1 lakh people are under treatment for this disease annually. Apart from Medical Colleges, Regional Cancer Centre, Malabar Cancer Centre and Cochin Cancer Centre, the hospitals in Government sector offer treatment for cancer patients. Delay in early detection, huge treatment cost, minimal treatment centres and lack of awareness contribute to high mortality rates due to this disease.

Malabar Cancer Centre

Malabar Cancer Centre, Kannur, an autonomous centre under the Government of Kerala, 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. During 2015-16, a total of 60203 patients were treated in Malabar Cancer Centre including 3790 In-Patients and 56413 Out-Patients. The average number of new cases detected every year is 4034.

Table 4.10

District wise distribution of Leprosy unit in Kerala, 2016

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>District</th>
<th>Institutions</th>
<th>Sanctioned Bed Strength</th>
<th>IP as on 31st Oct. -2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Alappuzha</td>
<td>Leprosy Sanatorium, Nooranadu</td>
<td>767</td>
<td>184</td>
</tr>
<tr>
<td>2</td>
<td>Thrissur</td>
<td>Koratty Gandhi Gram Govt. Dermatology Hospital</td>
<td>660</td>
<td>173</td>
</tr>
<tr>
<td>3</td>
<td>Kozhikode</td>
<td>Govt. Leprosy Hospital, Chevayoor</td>
<td>265</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>1692</td>
<td>457</td>
</tr>
</tbody>
</table>

Source: Directorate of Health Services
**Indian Institute of Diabetes**

The Indian Institute of Diabetes (IID), Thiruvananthapuram, is an autonomous institution under the Government of Kerala. It has been functioning for the last two decades and is the only institution under the Government offering services exclusively for Diabetes Mellitus and its complications. IID made operational in the year 2001, functions with main centre at Pulayanarkotta near Akkulam in Thiruvananthapuram city and one sub centre at Public Health Laboratory Campus, in Pattoor, Thiruvananthapuram. The major activities of this institute are to investigate the genetic basis of diabetes, to provide adequate training for physicians and paramedical staff, to provide research support to develop novel methods of treatment, to endow academic chairs in diabetes, and to organize state-of-the-art conferences in India on various aspects of the disease. Total bed strength of the IID is 60. Average number of new cases detected every year is between 300 to 350. Out Patient treated in 2015-16 was 43,650, IP was 102 and new cases were 215.

**Prevalence Of Other Public Health Diseases During 2015 And 2016**

A comparative analysis of the prevalence of public health diseases during 2015 and 2016 is given in Table 4.11.

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Diseases</th>
<th>2015</th>
<th>2016*</th>
</tr>
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<tr>
<td></td>
<td>Attack</td>
<td>Death</td>
<td>Attack</td>
</tr>
<tr>
<td>1</td>
<td>Diarrheal Diseases</td>
<td>448374 2</td>
<td>351427 8</td>
</tr>
<tr>
<td>2</td>
<td>Enteric fever</td>
<td>2862 0</td>
<td>2780 4</td>
</tr>
<tr>
<td>3</td>
<td>Measles</td>
<td>1782 0</td>
<td>1197 0</td>
</tr>
<tr>
<td>4</td>
<td>Chickenpox</td>
<td>17798 0</td>
<td>14711 1</td>
</tr>
</tbody>
</table>

*upto September
Source: Directorate of Health Services

**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 primary health centres 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 if they show their willingness to undergo the training. The new State Mental Health Policy envisages convergence of various departments for the care and rehabilitation of the mentally ill. In Kerala three mental health centres are functioning with bed strength of 1366. District Mental Health Programme is functioning in all the districts with a total of 10,080 OP 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 are the major problems noticed in this area. State Government has started 26 day care homes and 506 cured mentally ill patients are being given day care.

**Delivery, Maternal Death and Maternal Mortality Ratio**

On the basis of the reports of Directorate of Health Services, the number of deliveries during 2013-14 was 4,93,534 and maternal death reported was 182 and MMR 37 which was higher compared to the maternal death 165 and MMR 33 of 4,95,613 deliveries during 2012-13. Total number of deliveries during 2014-15 was 4,94,479 and maternal death was 158 and MMR 32. Maternal death and MMR has reduced during 2014-15 compared to previous years. Total number of deliveries during 2015-16 was 4,81,388 and the maternal death reported was 161 and MMR 33.

**MODERN MEDICINE – ALLOPATHY**

Modern medicine services in the state are offered by the Directorate of Health Services (DHS), Directorate of Medical Education (DME) deals with the education aspects of modern medicine.

**Health Care Institutions under DHS**

At present there are 1281 health institutions with 38,302 beds and 5,335 doctors under Health Services Department consisting of 849 Primary Health Centres, 234 Community Health Centres, 79 Taluk Head Quarters hospitals, 18 District hospitals, 18 General hospitals, 3 mental health hospitals, 8 W and C hospitals, 3 leprosy hospitals, 17 TB clinics, 2 TB hospitals, 5 other specialty hospitals and 45 other hospitals. Primary health centres 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 specialty services and some super specialty services. In the 13th Five Year Plan focus will be on the implementation of the specialty cadre in all health care institutions up to the level of community health centres and modernization of the functioning of the PHCs as Family Health Centres. The bed population ratio in Kerala is 872 and the average Doctor Bed Ratio is 7.18. Category wise major medical institutions and beds in Kerala, details of IP, OP cases, major and minor operations conducted and Medical and Paramedical personnel under DHS during 2016 are given in Appendices 4.55, 4.56 and 4.57.

**Financial Protection Against Catastrophic Health Care Expenditure**

Rashtriya Swasthya Bima Yojana (RSBY) is a Health Insurance Scheme, sponsored by the Government of India, for providing free and quality inpatient care to the families falling below poverty line (BPL) in the society. The scheme promises inpatient treatment facility up to ₹30,000/- on paperless, cashless and floaters 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 1100 surgical procedures with prefixed rates are included in the benefit package.

Government of India pays 75 per cent of the premium and the State pays the rest. 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 over and above the Planning Commission estimate by more than 10 lakhs, the State Government 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.

Government of India extended the scheme to cover families of the participants of Mahatma Gandhi National Rural Employment Guarantee Scheme who have worked for more than 15 days in the previous year, street vendors, and domestic workers. 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. In 2014-15, the Government sought to bring 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 unorganized sectors. The two schemes together cover a sizeable proportion of the population in the State. The progress of the scheme is presented in Table 4.12. The number of families covered has steadily increased to reach 32.54 lakh by 2016-17.

Financial protection in the form of RSBY offered the option of using private sector services by all those enrolled in the scheme. Interestingly, instead of the proportion of users of the private institutions increasing over the years, the share of the government hospitals in the total has steadily increased (Table 4.13).

A new scheme for providing tertiary care treatment with a benefit package of maximum Rs.70,000 for critical illness like cancer, cardiac and renal failure to all the RSBY and CHIS card holder families was designed during 2010-2011. The scheme, named as CHISPLUS, was launched by the middle of February 2011. The Coverage of CHISPLUS has been extended by including diseases relating to Liver, Brain and treatment of Accident Trauma care during 2012. 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 2,91,812 patients upto September 2016 and the claims have totalled ₹312.56 crore.

The RSBY benefit package does not cover tertiary care. The CHIS Plus covers limited tertiary care for the population groups registered under the scheme.

### Table 4.12
**Progress of RSBY/CHIS**

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Families Enrolled (Lakh)</th>
<th>Premium Paid</th>
<th>Number of Claims</th>
<th>Claims Paid (₹Crore)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008-10</td>
<td>11.78</td>
<td>51.27</td>
<td>1.64</td>
<td>56.00</td>
</tr>
<tr>
<td>2010-11</td>
<td>18.75</td>
<td>80.49</td>
<td>3.65</td>
<td>125.00</td>
</tr>
<tr>
<td>2011-12</td>
<td>28.01</td>
<td>205.00</td>
<td>6.99</td>
<td>211.00</td>
</tr>
<tr>
<td>2012-13</td>
<td>28.28</td>
<td>310.00</td>
<td>7.00</td>
<td>198.00</td>
</tr>
<tr>
<td>2013-14</td>
<td>29.73</td>
<td>219.49</td>
<td>5.57</td>
<td>172.15</td>
</tr>
<tr>
<td>2014-15</td>
<td>31.94</td>
<td>235.77</td>
<td>5.87</td>
<td>194.18</td>
</tr>
<tr>
<td>2015-16</td>
<td>31.94</td>
<td>216.48</td>
<td>5.25</td>
<td>159.92</td>
</tr>
<tr>
<td>2016-17*</td>
<td>32.54</td>
<td>167.03</td>
<td>2.94</td>
<td>81.79</td>
</tr>
</tbody>
</table>

*Source: CHIAK

*Upto September 2016*
### Table 4.13
Utilisation of CHIS by Sector

| Year     | Govt. Hospitals | | | Pvt. Hospitals | | | Total | | |
|----------|-----------------|---|---|----------------|---|---|---|---|
|          | Count | Amount | per cent | Count | Amount | per cent | Count | Amount |
| 2008-10  | 0.48  | 18     | 40        | 0.95  | 27     | 60        | 1.43  | 45     |
| 2010-11  | 1.44  | 52     | 40        | 2.16  | 61     | 54        | 3.60  | 113    |
| 2011-12  | 3.78  | 119    | 56        | 3.20  | 93     | 44        | 7.00  | 212    |
| 2012-13  | 4.82  | 125    | 70        | 2.18  | 56     | 30        | 7.00  | 181    |
| 2013-14  | 4.02  | 143.13 | 72        | 1.56  | 55.9   | 28        | 5.58  | 199.03 |
| 2014-15  | 4.16  | 158.7  | 70        | 1.7   | 69.36  | 30        | 5.86  | 228.06 |
| 2015-16  | 3.71  | 145.32 | 71        | 1.53  | 60.27  | 29        | 5.24  | 205.59 |
| 2016-17  | 1.97  | 81     | 64        | 0.98  | 45.02  | 36        | 2.95  | 126.02 |

*Upto September 2016

Source: CHLAK

### Table 4.14
Progress of the CHIS Plus Scheme

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Patients</th>
<th>Amount (Crore)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010-11</td>
<td>158</td>
<td>0.29</td>
</tr>
<tr>
<td>2011-12</td>
<td>14453</td>
<td>26.08</td>
</tr>
<tr>
<td>2012-13</td>
<td>42228</td>
<td>56.94</td>
</tr>
<tr>
<td>2013-14</td>
<td>50945</td>
<td>53.08</td>
</tr>
<tr>
<td>2014-15</td>
<td>66738</td>
<td>68.03</td>
</tr>
<tr>
<td>2015-16</td>
<td>80017</td>
<td>73.42</td>
</tr>
<tr>
<td>2016-17*</td>
<td>37273</td>
<td>34.72</td>
</tr>
</tbody>
</table>

*Upto September 2016

Source: CHLAK

This leaves out the other groups for whom tertiary care treatment becomes unaffordable. Realising the need for intervention in this area, a new scheme was designed 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 authorization. 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 Rs 3,000 per family. Treatment can be availed at all government hospitals and empanelled private hospitals. *(Table 4.14)*

**Arogyakiranam**

Arogyakiranam was one of the flagship Health programs of the Government of Kerala. 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 said expenses were debited. During the period October 2013- April 2016, this scheme benefited 1, 04, 81,613 patients.
**National Health Mission**

National Health Mission (NHM) is the major Centrally Sponsored Schemes on health sector relevant to Kerala. The scheme is categorized as ‘Core Scheme’ with funding pattern 60:40 between Centre and State. This umbrella scheme includes the following schemes:

a. National Rural Health Mission  
b. National Urban Health Mission  
c. Tertiary care Programmes  
d. Human Resources in Health and Medical Education  
e. National Ayush Mission

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 component of infrastructure maintenance, 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 cost has to be borne by the State Government as State share. NHM is supporting 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. Total GoI release to the State during 2014-15 was ₹224.94 crore, in 2015-16 it was ₹219.19 crore and in 2016-17 it was ₹163.51 crore (upto October 2016).

**Pradhan Mantri Swasthya Suraksha Yojana (PMSY)**

Pradhan Mantri Swasthya Suraksha Yojana is a Government of India 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 during 2016-17.

**State Institute Of Medical Education And Technology (Si-Met)**

State Institute of Medical Education and Technology (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 838 students are studying in the Nursing Colleges of SI-MET as on October 2016.

**Child Development Centre (CDC)**

Child Development Centre (CDC), an autonomous centre established by the Government of Kerala, is a 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. It aims to create a generation of prospective and responsive parenthood through healthy children and adolescents. The number of patients treated during 2015-16 was 14,174 and 2016-17 (upto October) was 9087. Only Out-patient services are available and there is no facility for admitting patients.
**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. Drug testing laboratories are functioning at Thiruvananthapuram and Ernakulam. Major achievements of the department during 2015-16 is given in Table 4.15.

**Medical Education**

In Kerala, Medical Education is imparted through 11 Medical Colleges at Thiruvananthapuram (2), Alappuzha, Kozhikode, Kottayam, Manjeri, Idulki, Ernakulam, Konni, Kollam and Thrissur districts and Nursing Education through 6 Nursing Colleges in Thiruvananthapuram, Kozhikode, Kottayam, Alappuzha, Ernakulam 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 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, during 2015-16 are given in Appendix 4.58 and 4.59. A comparative analysis of the status of medical college hospitals and attached institutions during 2015 and 2016 is given in Table 4.16.

An increase of 951 numbers of beds has increased the bed strength to 13025 during 2016 in Medical College institutions compared to previous year figure of 12074. The number of outpatients and major operations conducted has increased during 2016.Major achievements of Medical Education Department during 2016 include;

- Successfully fulfilled Heart Transplantation Surgery in Kottayam Medical College
- Conducted administrative improvement training for 230 faculties
- Initiated steps for implementing e-governance
- Completed construction of Poly Trauma Building in Medical College, Trivandrum.
- Construction of corridor connecting OP Block
- Burns unit put in motion in Medical Colleges, Trivandrum and Thrissur
- Construction of Multi-disciplinary research lab in Trivandrum Medical College
- Started construction of Super Specialty block and administrative block in Medical College, Alappuzha
- Construction of Clinical Skill Laboratory in H1 and H2 block of Alappuzha Medical College hospital.
- Construction of Tertiary Cancer Centre in Kozhikode Medical College having estimate of Rs. 45 Crores is carrying on through financial assistance of central government

<table>
<thead>
<tr>
<th>Table 4.15 Major achievements of the Drugs Control Department during 2015-16</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of Inspections conducted</strong></td>
</tr>
<tr>
<td><strong>Number of Prosecutions Initiated</strong></td>
</tr>
<tr>
<td><strong>Number of sale Licences Suspended as Deterrent Measure</strong></td>
</tr>
<tr>
<td><strong>Number of Samples Tested</strong></td>
</tr>
<tr>
<td><strong>Number of new Manufacturing Licenses Issued (Allopathy and Cosmetics)</strong></td>
</tr>
<tr>
<td><strong>Number of Price Violations detected and reported to NPPA</strong></td>
</tr>
<tr>
<td><strong>Number of New Blood Bank Licenses Issued</strong></td>
</tr>
</tbody>
</table>

*Source: Drugs Control Department*
Table 4.16
Status of Medical College Hospitals and Attached Institutions during 2015 and 16

<table>
<thead>
<tr>
<th>Medical College Hospitals</th>
<th>Beds</th>
<th>Inpatients</th>
<th>Outpatients</th>
<th>Major Operations conducted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical College Thiruvananthapuram</td>
<td>2637</td>
<td>2941</td>
<td>89826</td>
<td>116169</td>
</tr>
<tr>
<td>SAT Hospital Thiruvananthapuram</td>
<td>502</td>
<td>502</td>
<td>18127</td>
<td>13143</td>
</tr>
<tr>
<td>Medical College Alappuzha</td>
<td>1125</td>
<td>1051</td>
<td>62398</td>
<td>57134</td>
</tr>
<tr>
<td>Medical College Kottayam</td>
<td>1463</td>
<td>1722</td>
<td>73126</td>
<td>74863</td>
</tr>
<tr>
<td>ICH Kottayam</td>
<td>203</td>
<td>170</td>
<td>9614</td>
<td>8454</td>
</tr>
<tr>
<td>Medical College Thrissur</td>
<td>800</td>
<td>1436</td>
<td>35427</td>
<td>37954</td>
</tr>
<tr>
<td>ICD Thrissur</td>
<td>475</td>
<td>330</td>
<td>29146</td>
<td>718</td>
</tr>
<tr>
<td>Medical College Kozhikode</td>
<td>2200</td>
<td>2694</td>
<td>81324</td>
<td>73927</td>
</tr>
<tr>
<td>IMCH Kozhikode</td>
<td>1200</td>
<td>740</td>
<td>41290</td>
<td>39065</td>
</tr>
<tr>
<td>ICD Kozhikode</td>
<td>140</td>
<td>110</td>
<td>4218</td>
<td>3887</td>
</tr>
<tr>
<td>Medical College Idukki</td>
<td>192</td>
<td>192</td>
<td>7830</td>
<td>20837</td>
</tr>
<tr>
<td>Medical College Ernakulam</td>
<td>500</td>
<td>500</td>
<td>4057</td>
<td>5537</td>
</tr>
<tr>
<td>Medical College Mannjer</td>
<td>637</td>
<td>637</td>
<td>29146</td>
<td>29146</td>
</tr>
<tr>
<td>Total</td>
<td>12074</td>
<td>13025</td>
<td>485529</td>
<td>480834</td>
</tr>
</tbody>
</table>

Source: Directorate of Medical Education

Kerala University of Health and Allied Sciences

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, Homoeopathy and Indian System of Medicine and allied health sciences in Kerala. Academic activities of the University has commenced in academic year 2010-11. The number of institutions affiliated to University is 282 (upto October 2016) with 32 Government colleges, 5 Government Aided Colleges and 245 Self-financing Colleges. The colleges fall under all systems of medicine such as Allopathy, Ayurveda, Homoeopathy, Sidha, Unani, Yoga, Naturopathy, Nursing, Pharmaceutical Science and Paramedical courses. The annual intake of students is almost 20,000 under various health sciences stream. Details of the Government, Aided, Unaided colleges affiliated under various streams is given in Table 4.17.
**Table 4.17**

Details of the Government, Aided and Unaided colleges affiliated under various streams in number

<table>
<thead>
<tr>
<th>Stream</th>
<th>Government</th>
<th>Aided</th>
<th>Unaided</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicine</td>
<td>9</td>
<td>0</td>
<td>24</td>
<td>33</td>
</tr>
<tr>
<td>Ayurveda Medicine</td>
<td>3</td>
<td>2</td>
<td>11</td>
<td>16</td>
</tr>
<tr>
<td>Homoeo Medicine</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Dental</td>
<td>5</td>
<td>0</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td>Siddha Medicine</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Unani Medicine</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Nursing</td>
<td>5</td>
<td>0</td>
<td>114</td>
<td>119</td>
</tr>
<tr>
<td>Paramedical</td>
<td>4</td>
<td>0</td>
<td>36</td>
<td>40</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>4</td>
<td>0</td>
<td>37</td>
<td>41</td>
</tr>
<tr>
<td>Ayurveda Pharmacy</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>5</td>
<td>245</td>
<td>282</td>
</tr>
</tbody>
</table>

*Source: Kerala University of Health and Allied Sciences*

---

**Indian System Of Medicine**

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 (ISM) renders medical aid to the people through the network of Ayurveda hospitals and dispensaries, grant-in-aid Ayurveda institutions, Siddha, Unani, Visha,Netra and Naturopathy. Specialty hospitals such as Mental Hospital, Panchakarma, Nature cure and Marma are functioning under this Department. At present there are 125 hospitals and 818 dispensaries under the department. The State Medicinal Plants Board co-ordinates matters relating to the 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 2015 and 2016 are given in **Appendix 4.60**.

Special projects were implemented by the ISM Department during 2015-16 in addition to the normal medical treatment. The specialised treatments and number of beneficiaries are as follows; Balamukulam (2968), Ritu (3339), Prasadam (1583), Koumarashtroullyam (209), Drishti (420), Jeevani (500), Punarnava (138), Karalroganukthi (2212), Snehadhara (717), Geriatric Care (3003), Yoga (10507), Sports Medicine (8505), Panchakarma (47322), Ksharasutra (9614), Manasikam (1784), Vayoamritham (651) and Bhamini (100).

**Ayush (Ayurveda, Yoga and Naturopathy, Siddha, Unani and Homoeopathy)**

Government of India 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 Siddha 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 (Ayurveda, Yoga and Naturopathy, Siddha, Unani and Homoeopathy), Ministry of Health and Family Welfare, Government of India 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, Siddha, Unani and Homoeopathy drugs and medicinal plants. The funding pattern will be 60:40 by Centre and State. Government of Kerala started Ayush Department in the State on August 8, 2015.

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 each year to State ISM department at 30 per cent less than 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 492 exclusive agencies spread all over the State. The sales proceeds of the company during 2015-16 was Rs. 92.81 crore and the profit was Rs.20 crores.

Ayurveda Colleges

There are 3 Government Ayurveda Colleges situated at Thiruvananthapuram, Thrippunithura and Kannur having bed strength of 1389. Total numbers of inpatients treated during 2015 were 6648 and outpatients treated were 523915. It was 13099 and 460581 respectively during 2016 (upto November 2016). Panchakarma hospital and Women and Children hospital are also functioning under the Government Ayurveda College Thiruvananthapuram. There are two aided Ayurveda Colleges, 11 self-financing Ayurveda Colleges, one self-financing Siddha College, one self-financing Unani College and 6 Paramedical self-financing colleges are functioning for imparting Medical education. Annual intake of students for UG Degree is 980, PG Degree is 127 and Paramedical Courses is 700.

HOMOEOPATHY

There are 659 homeopathic dispensaries and 34 hospitals with total bed strength of 955 under Homoeopathy 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 Homoeopathic Department during 2015 and 2016 is given in Appendix 4.61.

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 108 and the patient treated during 2015-16 in IP was 1106 and OP was 1,17,433. Total bed strength of the Government Homoeopathic Medical College at Kozhikode is 100 and the patient treated during 2015-16 in IP was 1546 and OP was 121442. Annual intake of students and courses in the six Homoeo Medical Colleges are given in Appendix 4.62.

Immunization Coverage

Immunization 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 and tetanus. The coverage of immunisation programmes in Kerala during six years from 2011-12 is given in Appendix 4.63.
Major Achievements of Homoeopathy Department during 2016

- AYUSH Holistic centres for prevention and management of lifestyle diseases were started in Thiruvananthapuram, Kollam, Ernakulam, Malapuram and Kozhikode integrating the merits of Homoeopathy, Ayurveda, Yoga and Naturopathy systems of medicine.
- Seethalayam is a gender based scheme for the multi-level support, welfare and health care service exclusively for the suffering womenfolk implemented in all District Homoeo Hospitals. De-addiction centres and infertility clinics are also functioning as part of this programme.
- Floating Homoeo Dispensaries were started in the coastal area of Kuttanad in Alappuzha District.
- Endocrine disorder care centre at Idukki, Mother and Child care centre at Kannur, Geriatric care centres at Alappuzha, Kollam, Kozhikode, Kottayam and Wayanad and speciality mobile clinic at Idukki were started under the scheme ‘Homoeopathy Speciality Care Centres’.
- 16 Temporary Homoeo Dispensaries were started at various pilgrim centres during festival season.
- 14 Homoeo Dispensaries (one Dispensary in each district) were upgraded as Model Homoeo Dispensaries and standardised existing 56 Model Homoeo Dispensaries across the State.
- One clinical lab was set up in Government Homoeo Hospital, Pala.
- Regional Medical Stores were started in Kottayam, Malappuram and Kannur
- Adolescent Health Care and Behavioural Management Programme was implemented in all District Homoeo Hospitals
- Second phase expansion of HOMCO was initiated.
- First phase construction of Homoeopathy Directorate Building was completed.

Source: Directorate of Homoeopathy

A healthy society can contribute more significantly and effectively to economic development. Long term illness and expensive treatment costs can even 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. In the present day, with the mushrooming of private hospitals that offer quality services matching international standards and with the tie up of the healthcare industry with the tourism sector, healthcare in Kerala is growing by leaps and bounds. However, the issues to be addressed are nutritional imbalance of tribal population, second generation issues like old age care, lifestyle diseases viz. heart diseases, diabetes, high blood pressure, and obesity, the changing morbidity pattern in the state viz. Cancer and trauma care and re-emergence of communicable diseases which will have to be matter of serious concern in the coming years. There are issues to be addressed in different areas of general health, rural health, tribal health, women health, mother-child health care, traditional health care system, health insurance, and medical tourism, during the 13th Plan period. The health care system has to be strengthened to face these challenges.
Section 3
SOCIAL SECURITY AND WELFARE

Social security provides protection to people living in economic and social distress. It can “protect” people against a fall in living standards and living conditions through ill-health, unemployment, and accidents, and also “promote” enhanced living conditions, helping the poor to overcome persistent deprivations. There has been a growing demand that the approach to social security programmes and schemes should progressively shift to a rights based framework and should not be viewed merely from a welfare prism. Kerala has several achievements in introducing social security measures to the vulnerable groups like persons with disabilities, aged people, women and children in difficult circumstances. In Kerala, the Department of Social Justice and its allied agencies are involved in addressing the problems of social security and welfare. The major activities of the departments and agencies are given in Appendix 4.64.

Importance of Social Security Programmes in Five Year Plans

Social Security programmes have found an important place in the five year plans. The proportion of the outlay of the sector, including nutrition, to State plan outlay during the Eleventh Five Year Plan (2007-12) was nearly 2 percent which increased to 2.37 percent in the Twelfth Five Year Plan(2012-17). Among the entire Social Services sector, the outlay of social security and welfare increased from 6 percent in the Eleventh Five Year Plan to 7.5 percent in the Twelfth Five Year Plan. This reflects the priority given by the State to the social security programmes in its Five Year Plans and Annual Plans.

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 Voluntary Organizations (VOs) provide institutional care to the weaker sections. There are 78 welfare institutions under the aegis of Social Justice Department (SJD) for the care, protection and rehabilitation of children, disabled, women and aged. Out of this, 33 institutions are for children, 20 for women, 12 for aged people and 13 for disabled. About 2,955 persons were benefited in 2015 through the network of these institutions which is an increase of 6 percent compared to the beneficiaries in 2014. Apart from this, 82,070 persons were benefitted through 2,218 different registered welfare institutions run by NGOs and VOs, of whom, 16,876 were old people, 1,221 women, 10,017 disabled, 472 abandoned children, 51,546 orphaned children, 770 beggars and 1,168 others.

During this period, the number of occupants was less compared to the sanctioned strength of inmates for certain categories of institutions run by SJD. It could be that the sanctioned strength no longer exists in practice due to financial difficulties in maintaining large numbers. As against the total sanctioned strength of 3,860 inmates in the 78 welfare institutions, the occupants were 2,955 in 2015. This is about 77 percent of the total
sanctioned strength of inmates. Substantial gap is noted in Old age homes, Mahila Mandirams, Vocational Training Centres, Care homes for disabled children and Rescue homes. However, the number of occupants in the case of Ashabhavans for mentally ill persons, Pratheeksha Bhavans for mentally challenged persons and Children’s homes are almost near the sanctioned strength or much more than it. In the welfare institutions registered under SJD, the number of inmates is higher than sanctioned strength in Nirbhaya shelter homes, but much less in homes for persons with disabilities, Old Age, institution of MR and orphanages.

The number of welfare institutions in Government sector increased from 74 in 2012 to 78 in 2015. However, 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) is a matter of concern. 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 is given in Appendix 4.65 and that of registered welfare institutions in Appendix 4.66.

**B. Social Assistance Programmes**

Social assistance programmes aims to reduce poverty and vulnerability among the people having little or no regular means of subsistence. Various social assistance programmes are listed below.

**Social Security Pension Schemes through LSGIs**

Old age pension, disability pension, widow pension, pension for unmarried women above 50 years and agriculture labour pension are the major pension schemes. Of these, the first three are part of the National Social Assistance Programme (NSAP) for which central assistance is received. 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 March 31, 2016, there were 34 lakh pensioners in the State. The total expenditure on account of the social security pensions was Rs.3434.50 crore. The highest category of pensioners is of old age pensioners (40 per cent) followed by widow pensioners (33 per cent) (Figure 4.5).

Among the districts, Thiruvananthapuram is on top with highest number of beneficiaries and Wayanad
the least. If the entire system of social security pension scheme in the State was operated under one head, a comprehensive list of pensioners will be available which would help us to ascertain the actual beneficiaries and extending its coverage to the needy people who may have been left out. The district wise coverage is given in Appendix 4.67.

Social Security and Welfare of Unorganized Sector Workers

Social security coverage to workers in the unorganized sectors is given through the Welfare Fund Boards. There are 33 Welfare Fund Boards in the State, of which 16 are under the direct control of the Labour Department. These boards provided social security to around 55.41 lakh workers in 2015, of whom, 24.17 lakh were female workers. About 56 percent of the workers were from agriculture and allied sectors. Bringing all these boards under one umbrella would facilitate monitoring and bringing uniformity. Details of workers enrolled in the WFBs are shown in Appendix 4.68.

WELFARE OF SENIOR CITIZENS

Kerala is aging faster than the rest of India; almost 13 percent of the population is already past 60 years. By 2025 the population of senior citizens is expected to reach 20 percent. Currently 42 lakh people of Kerala are 60 and above; 13 percent of them are 80 years of age and over, the fastest growing group among the old. Women outnumber men among the 60 plus and among them, majority are widows. Life expectancy among women is generally higher than men (for all-India also); however, it is much higher in Kerala and men marry women a few years younger which explains the high proportion of widows among the old. NSS Survey 2015 on morbidity indicates that 65 percent old are morbid. The age composition of Kerala’s Senior Citizens is given Table 4.18 and Figure 4.6.

Table 4.18
Age Composition of Senior Citizens in Kerala, in number

<table>
<thead>
<tr>
<th>Age composition</th>
<th>Total</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total population</td>
<td>33406061</td>
<td>16027412</td>
<td>17378649</td>
</tr>
<tr>
<td>Total old age population</td>
<td>4193393</td>
<td>1853595</td>
<td>2309798</td>
</tr>
<tr>
<td>60-69</td>
<td>2416805 (58 per cent)</td>
<td>1114368 (60 per cent)</td>
<td>1272437 (55 per cent)</td>
</tr>
<tr>
<td>70-79</td>
<td>1234739 (29 per cent)</td>
<td>534879 (29 per cent)</td>
<td>699860 (30 per cent)</td>
</tr>
<tr>
<td>80+</td>
<td>541849 (13 per cent)</td>
<td>204348 (11 per cent)</td>
<td>337501 (15 per cent)</td>
</tr>
</tbody>
</table>

Source: Census of India, 2011

Figure 4.6
Age Composition of Senior Citizens in Kerala, in per cent

Source: Census of India, 2011
The marital status at older ages in Kerala shows that for an overwhelming majority of men (89 per cent) their wives are alive at older ages, while for only 38 percent of women their husbands were living at old ages. Also, 8.8 percent of men and 57 percent of women are widowed. 62.2 percent of women are without partner (never married/divorced/separated/widowed) which reflects a real sign of loneliness in later years. The marital status of Kerala’s Senior Citizens is given in Table 4.19.

**Programmes for Senior Citizens**

The programmes and schemes for senior citizens implemented through the Social Justice Department aims at their welfare and care by supporting old age homes, day care centres, and mobile medicare units. Major programmes for older people are listed below.

**Vayomithram Programme**

Kerala Social Security Mission is implementing this programme in 6 Corporations and 38 Municipalities of the State giving welfare services to persons above 65 years. Free medicine, palliative home care, medical camps and help desk facilities are the services provided. During 2015-16, the programme assisted nearly 833754 older persons, of whom, 49190 were women.

**Age Friendly Panchayat**

The age friendly panchayat implemented by SJD is a new initiative associated with 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 elders is the objective of the programme. Accordingly, the Manickal Panchayat in Thiruvananthapuram district has been selected as the first integrated age-friendly panchayat.

**Vayo Amrutham Programme**

The Social Justice Department with the support of Indian System of Medicine department has implemented this new programme in 14 Old age homes for the treatment of inmates who are suffering from health problems like Diabetes mellitus, Asthma, and Arthritis. 674 inmates of the homes got benefited from the Ayurvedic treatment, of whom, 372 were females.

**WELFARE OF PERSONS WITH DISABILITIES (PwDs)**

The UN Convention on the Rights of Persons with Disabilities (UNCPRD) urges the signatory countries (India has ratified it) to promote, protect and ensure the full enjoyment of human rights by persons with disabilities and ensure that they

<table>
<thead>
<tr>
<th>Table 4.19</th>
<th>Marital Status of Kerala’s Senior Citizens, in per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
<td>Total</td>
</tr>
<tr>
<td>Never married</td>
<td>2.6</td>
</tr>
<tr>
<td>Currently married</td>
<td>60.8</td>
</tr>
<tr>
<td>Widowed</td>
<td>35.7</td>
</tr>
<tr>
<td>Others</td>
<td>0.9</td>
</tr>
<tr>
<td>Without partner</td>
<td>39.2</td>
</tr>
</tbody>
</table>

*Source: Census of India, 2011*
enjoy full equality under the law. PwDs often lack access to good quality basic and higher education. In Kerala, a state wide survey 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 percent of the total population of the State are disabled, of whom, females constitute 44.57 percent, SC 10.93 percent and ST 2.15 percent. The highest number of disabled persons is in Malappuram district (12.5 per cent) followed by Thiruvananthapuram (9.72 per cent) and the lowest in Wayanad district (2.91 per cent). Regarding type of disabilities, locomotor disability stands top with 32.89 percent and multiple disabilities stand second 17.31 percent.

**State Policy for Persons with Disabilities**

Government of Kerala 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 partners 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 and declared as a National University for Disability Studies and Rehabilitation Sciences. The institute was set up to provide an excellent environment for pursuit of higher studies for people with disabilities. The facilities of the NISH include audiological evaluation, speech languages rehabilitation, pre-school and parent guidance programme, ENT services, psychological services, speech therapy, degree courses for persons with hearing impairment, graduate and post graduate programmes in human resource development, and research activities.

From April 2015 to March 2016, NISH has attended 214 cases (no. of students) under early intervention programmes, 10787 cases seen under hearing and speech language disorders programme and 990 cases under medical, psychology and allied services. The academic programmes conducted by NISH benefited 218 students. Among them 160 were girls students. The training and industry placement benefited 11 persons and the volunteering and internship opportunity benefitted 14 persons. Of whom, the women beneficiaries were 5 and 13 respectively.

**Kerala State Handicapped Persons Welfare Corporation**

The Corporation provides economic empowerment and rehabilitation to the persons with disabilities. During 2015-16, the Corporation supplied aids and appliances to 1658 differently abled persons under ADIP scheme of Government of India and distributed 500 motorised scooters (General category: 384, SC category: 116) under the plan scheme of Government of Kerala. Equipment like tricycle, wheel chair, and hearing aid, were distributed to 3928 differently abled persons and issued motorized tricycle subsidy at the rate of ₹10000/- to 47 such persons. Also, the Corporation distributed loans to 123 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 310 differently abled persons across the state for self-employment. The Corporation also assisted 196 children through the fixed deposit scheme (₹15,000/- for male and ₹20,000/- for female) for severely disabled children. Among them, 101 were male and 95 were female 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 Government of India in 1995. Co-ordinating the programmes implemented by different departments and monitoring the utilization 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, and inspection of institutions for disabled.

National Institute of Physical Medicine and Rehabilitation (NIPMR)

NIPMR is an institute under Department of Social Justice dedicated to the assessment and therapy of children and adults with multiple disabilities especially Cerebral Palsy 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 and accidents are also to be treated with available facilities in NIPMR. 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 of Medical and Public Health.

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 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 disability certification camps. The impact of such camps is that it reduces the difficulties faced by PwDs to travel to distant places for getting the medical certificates.

Aswasakiranam

Kerala Social Security Mission provides monthly assistance to the caregivers, primarily women of severe mentally challenged persons and bedridden persons with severe physical disability. Such assistance was given to 72,350 caregivers during 2015-16, of whom, 50,640 were women caregivers.

State Initiatives 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 newborns from January 2014 onwards in Govt. Maternity Hospitals and about 3 lakh doses of vaccines were supplied as against the target of 6 lakhs.
- Rubella Vaccination:- Rubella vaccination was administered to 5,44,692 adolescent girls in schools. The MMR and Rubella vaccination programme would reduce the number of children born with various disabilities.
- Universal Hearing Screening:- To conduct hearing screening of new born babies, Oto
Acoustic Emission Screeners were given to 5 Govt. Medical Colleges and 35 Govt. Hospitals. Since its commencement in the year 2014-15, the number of neonates screened was 178,523, of which 20,514 babies were referred to further check-up and correction.

- District Early Intervention Centres:- Land for DEICs has been identified in all the 14 districts. The expected outcome of DEIC is an “Accessible Service Hub” for PwDs and a centre for education and training for their parents and other stakeholders.
- Establishing of Special Anganawadis for Pre-school Children with Disabilities:- The project initiated by Department of Social Justice for the children with disabilities is being piloted in Kozhikode district. This programme has a greater impact on the children in performing their Activities of Daily Living (ADL) by themselves, enabling them to become more accommodative in their further schooling and reducing the constraints in mainstreaming.
- Mobile Intervention Units (MIUs):- Mobile Intervention Units on pilot basis started in Kozhikode and Malappuram districts accessed 1000 children with development delay and disabilities.

**State Initiative on Dementia**

The Department of Social Justice has started a Day Care Centre at Thrissur Municipality and a full time centre at Edavanakkad Old age home for the rehabilitation of dementia patients in the State.

**Insight project**

The project initiated under Kerala State IT Mission and handed over to Social Justice Department in 2013 offers preparation of ICT based lesson plans for visually challenged teachers, technical assistance to visually challenged students for their various academic needs, and consultancy services for visually challenged employees for increasing productivity.

**WELFARE OF WOMEN**

The present status of women in Kerala is given in the section on gender development. However, the activities of the institutions set up for women empowerment and major schemes promoting social and economic rehabilitation of women are as follows.

**Indira Gandhi Matritva Sahyog Yojana**

This centrally sponsored scheme provides financial assistance to pregnant women of 19 years and above for the first two live births in Palakkad district. The scheme assisted 88,527 beneficiaries till March, 2016.

**Snehasparsham**

This scheme implemented by KSSM aims to address the problem of unwed mothers. Monthly assistance of ₹1000/- is given to all unwed mothers and the scheme has benefited 6155 women till March, 2016.

**Women Development Programmes**

This is a major programme of Social Justice Department 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. During 2015-16, educational assistance was given to 13540 women headed families.
Nirbhaya Programme

Nirbhaya programme of Social Justice Department envisages setting up of ‘Nirbhaya Homes’ for sexually abused women. 10 such homes were started in 9 districts sheltering 200 women. Under this programme, One Stop Crisis Cell was established in 14 District Hospitals and 7 Taluk hospitals providing all required services to women victims of sexual violence - emergency health care, psychological counselling, police assistance, legal aid and safe shelter service. 11 Nirbhaya shelter homes were also started for catering to the special needs of the women above 18 years of age and accompanying children. During 2015-16, these shelter homes benefited 275 women.

Gender Park

Gender Park, proposed at Kozhikode, was conceptualised by the Department of Social Justice in 2013 as a platform where State, Non-Government Organizations (NGOs), academia and civil society could come together 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 contributes to the economic, cultural, and social aspects of the state and the country. She Taxi flagship project of Gender Park is India’s first 24x7 women-specific taxi network managed and employed by women to promote entrepreneurship, self-employment and security of women. Currently, there are 32 She Taxis across three cities, of which 16 are in Trivandrum, 12 in Cochin and 4 in Kozhikode. She Taxi project provided entrepreneurial opportunity to 32 women drivers cum entrepreneurs.

Beti Bachao Beti Padhao

This centrally sponsored scheme implemented by the Department of Social Justice was launched in Thrissur district on a pilot basis addressing the issues of women in the longer term and to reverse the trend of declining child sex ratio. As per the scheme, the State received financial assistance from GoI to empower the girl child and enabling her education.

Institutions for Women Empowerment

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, and DNA tests. During 2015-16, the Commission had conducted 154 legal workshops/seminars on various problems faced by women; conducted 49 counselling/skill training programmes to Panchayat Jagrathasamathis on various laws related to women and other legal procedures and disposed of 5085 petitions through 143 Adalaths. Under gender awareness programme, the Commission undertook 27 pre-marital counselling sessions across the state with the participation of women NGOs and conducted gender sensitisation programmes in 433 educational institutions. During 2015 to 2016, the Commission received 6377 complaints. The nature of complaints shows that domestic violence, harassment of women and family problems dominate and are on the increase. The category wise and district wise details of complaints received as on March, 2015 are given in Appendix 4.69.

Kerala State Women’s Development Corporation

Self-employment schemes for women, flagship programme on gender awareness and Finishing Schools are the major programmes of the Corporation. The Corporation distributed over ₹2.50 crore from National Corporations to 2280 women under self-employment loan scheme and ₹0.75 lakh to 293 women in general category through plan fund. The Corporation has so far installed 49 She-toilet units across the state and
8 in major railway stations. As part of ensuring menstrual health and hygiene for adolescent girls and women, the Corporation launched the supply of high quality sanitary pads at affordable cost and installed vending machines and incinerators in 623 schools 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 4157 students. The EDP/Vocational training programme benefited 3200 women in 64 panchayats and the Gender awareness campaign conducted in 40 women colleges benefited 12,000 girls.

**Welfare of Ex-Servicemen and War Widows**

As on March 30, 2016, there were 1,70,200 ex-service men, 57,186 widows and 290 war widows. Rehabilitation training on vocational/professional/technical courses for equipping the ex-service men/war widows and their dependents is a major programme. During 2015-16, the computer training centres at Thiruvananthapuram, Kozhikode and Thrissur provided rehabilitation training to 194 beneficiaries, of whom, 12 were women.

**Welfare of Prisoners**

In Kerala, the jail infrastructure consists of 44 jails and 11 prisons. As on March 2016, there were 7,770 prisoners, of whom 213 are women. The women prisoners in Kerala are marginal (3 per cent) compared to other southern states where this proportion ranged from 4 to 6 per cent (Figure 4.7).

Overcrowding in jails is the major problem as it is very difficult to accommodate further prisoners. The authorised capacity as per living space is only 6217 (Male-5840, Female- 377). Modernization of Prison and Welfare of Prisoners are the two major schemes implemented by the Prison department. Computerization of jails, paperless office programme, and installation of CCTV in 31 jails are the major programmes. Details of prisoners in jails are given in Appendix 4.70.

**Figure 4.7**

Trend of Women Inmates in Jails of Kerala, in number

Source: Economic Review
**Welfare of Children**

The children in the age group 0 to 18 constitute less than 30 percent of the State’s total population and that of girl child 0 to 6 years is 9.36 percent. Kerala has achieved marked improvement in promoting survival, protection, development and participation rights of children in a holistic manner.

**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 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 have increased by 143 percent from 2008 to 2016.

**Girl Child**

The sudden decline in the Child Sex Ratio (0-6 years) at the all India level from 927 females per 1000 males in 2001 to 919 in 2011 is a major indicator of women disempowerment. As per 2011 Census, the child sex ratio for the State is 964 which is only four points higher than in 2001 Census (960). The child sex ratio in all the districts of Kerala is less than 1000. However, the districts of Alappuzha (951), Ernakulam (961), Kasaragod (961) and Thrissur (950) show ratios 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. According to UNICEF, child marriage has been found to be on the rise in Kerala in recent years due to migration from the northern part of the country. There are pockets in the state, including tribal areas, where this practice continues to exist with social sanction.

**Child Abuse**

The child abuse cases especially sexual abuse incidence of girl children are on the increase. As per State Crime Record Bureau, 1718 sexual abuse cases were reported in Kerala under Protection of Children from Sexual Offences (POCSO) Act up to October, 2016. The growing tendency, especially in adolescent years, towards substance abuse, use of alcohol and cyber abuse is another key area of concern.

**Children Infected and Affected by HIV/AIDS**

As per the statistics of Strategic Information Management System of the National AIDS Control Organization, there are 884 children at present in Kerala who are infected with HIV, as against 1.5 lakh children infected across the country.

**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. Even though the State shows a high level of immunization coverage (District Level Health Survey (DLHS)- 4 report- full immunization coverage for 12-23 months is
82.5 per cent), anti-vaccine campaigns are noted in some of the northern districts of Kerala. Exclusive breastfeeding (first six months of infancy) rates in Kerala shows slow progress (prevalence of exclusive breastfeeding among 0-5 months is 69.1 per cent and 69.8 per cent in DLHS-3 and DLHS-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 conducted in Kerala.

Absence of Universal pre-school education in the state is another major issue which requires much attention. As per Rapid Survey of Children (RSOC)-14, 26.2 percent of children in the age group 3-6 years are not attending pre-schools. Also, absence of scientifically prepared uniform curriculum is another area of concern needing redressal.

**Children’s Right to Survival**

Infant mortality and prevalence of low birth weight babies are the two major distress of child survival. The State’s SDG target for IMR is to reduce it from 12 per 1000 live births to 8 per 1000 live births, MMR from 66 to 30 per 1 lakh live births and Under 5 mortality rate from 14 to 9 per 1000 live births by 2020. Although the State has done well in above parameters, the prevalence of malnutrition (DLHS-4, around 21 per cent children below 5 years are underweight and 19.4 per cent are stunted), anaemia (DLHS-4, 34.6 per cent have anaemia and 2.4 per cent have severe anaemia), shortfall in full immunization (around 17 per cent of children in the State do not get all 5 vaccines before their first birthday) are high in certain districts of the state, particularly in the tribal population. All of these present a huge challenge for the Government to achieve the target of SDG.

**Children’s Right to Participation**

Rights to participation provide children with an environment to participate in decision making processes and to give them an opportunity to express their views freely. Kerala’s model of Balasabha and Balapanchayat as neighborhood network of children in LSGs for holistic development of child health has been widely acknowledged. As on March, 2015, the formation of 53792 numbers of Balasabhas across the State has been completed with a membership of 8,21,102 children.

**Major Programmes on Child Protection, Care and Development**

The programmes and schemes related to the protection, care and development of children are being implemented by the Department of Social Justice and KSSM. The major Acts, policies and programmes in addressing the rights of children are detailed below.

**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. Many steps have been taken in the state for the effective implementation of the Act. 11 Special care homes have been set up to provide care and protection to children covered by this Act in 9 districts. 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 State.

**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. During 2015-16, 1582 complaints were received by the commission
and 1042 cases were disposed. Of these, 46 cases were related to POCSO, 197 cases related to RTE and the remaining to child rights violation. The Commission has also conducted annual survey in 140 schools per district to access the level of implementation of the RTE Act, 2009.

**Adoption Services**

There are 20 Specialized Adoption Agencies, 5 recognized adoption placement agencies for inter-country adoption and 20 licensed adoption placement agencies functioning in Kerala. During 2012-13 to 2015-2016, 748 in-country and 67 inter-country adoptions took place. Details of adopted children are given in Appendix 4.71.

**Childline Services**

Childline system is a 24-hour toll free telephone service (1098) for children in distress. The service is now available in 278 cities in India and 15 in Kerala (3 in Rural and 12 in Urban). The Childline service would be strengthened further in consultation with NGOs and other voluntary organizations.

**Juvenile Justice Services**

Juvenile justice endeavours to undertake steps for all round development and rehabilitation of children such as orphans, destitute, neglected, street children, and victims of violence. Now, there are 9 children's homes, 7 special homes, 14 observation homes and 3 Balasadanams (certified as juvenile homes) with a capacity of 1450 which provide care and protection to 1054 children in the age group of 5 to 18. The need for children's homes for girls in all districts and providing Aftercare Homes for children over 18 who are not in a position to be rehabilitated as yet are issues that still need to be tackled.

**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, immunization, health check-up, referral service, health and nutrition development.

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**Box 4.8**

**State’s Child Policy, 2016**

The Government has declared a new child policy to address the continuing and emerging challenges in the situation of children. The vision of the policy to create a State where every child has equal and equitable rights to live and develop her or his potential to the best of their abilities. Providing quality services to ensure a just and secure environment for all its children, opportunities for development, prevention and protection from all forms of violence, and forums for appropriate participation are the specific objectives of the policy. The guiding principles of the State Policy for Children are based on the National Children’s Policy of India (2013). These principles include the following:

- Child friendly approach in all matters.
- Right to survival, protection, development and participation are the inalienable and indivisible right of every child.
- Strengthened inter-departmental convergence.
- All children are to be treated equally.
- Free and compulsory education and protection from all forms of exploitation.
- Promotion of a safe, secure and protective environment for children.
- Strong focus on differently abled children, children of migrant labour and children of vulnerable segments of society.
- Accountability and respect for the voice of the child, especially the girl child.
education and pre-school education to children less than 6 years along with pregnant and lactating mothers. As on March, 2016, 258 ICDS projects and 3,3115 AWCs are operational across the state, covering 10.20 lakh beneficiaries under supplementary nutrition programme and 4.42 lakh children in the age group 3-6 years under pre-school education. Of the beneficiaries of supplementary nutrition programme 1.67 lakh were pregnant and lactating women and that of pre-school education 2.20 lakh were girls in the age group 3 to 6 years. District wise coverage is given in Appendix 4.72.

There is no significant improvement in the coverage of ICDS beneficiaries during the 2015-16. Less than 1 percent increase is noted as compared to 2014-15. Inadequate infrastructure facilities are a major constraint of ICDS in ensuring quality of service delivery through AWCs. Of the 33,115 Anganwadi centers in Kerala, only 12,718 are in A grade and 15,904 in B grade, 3,979 are still in C grade and 512 in D grade. Moreover, as per the annual report on ICDS, 22,536 centres have their own building and 1,803 centres are functioning in public buildings and remaining 8,776 are functioning in rented buildings. 42 percent of centres have no electricity facility, 9 percent are still using fire wood/ kerosene, 87 percent have no baby friendly toilets, and 28 percent does not have drinking water facilities and 47 percent any compound wall.

**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 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, and adoption related laws are also being implemented under the scheme. During 2015-16, the various activities of ICPS benefited 8120 children.

**Rajiv Gandhi Scheme for Empowerment of Adolescent Girls**

As a centrally sponsored scheme, launched in Kollam, Idukki, Malappuram and Palakkad districts, it aims at empowering the nutritional and health status of the adolescent girls in the age group of 11-18 years through 84 ICDS projects of the districts. Extending the scheme to the districts covering

**Box 4.9**

**New Initiatives on ICDS of Social Justice Department**

- Community kitchen programme for Attappady ICDS project area
- Supply of Energy Dense Special Food to Severe Acute Malnutrition children in Attappady
- New pre-school education curriculum in Anganwadi Centres
- Assessment card, pre-school certificate and theme and activity chart introduced in Anganwadi Centres
- Grading of Anganwadis introduced
- Introduced scheme for safe drinking water and baby friendly toilets to all Anganwadis
- Social audit of Anganwadis started
coastal and tribal areas of the State was the most recent development. During the 12th plan up to 2015-16, the scheme assisted 5.13 lakh beneficiaries.

**Kisori Sakthi Yojana**

This is a centrally sponsored scheme with the objective to improve the nutritional status of adolescent girls in the age group of 11 to 18 years by using the platform of ICDS. The activities proposed are vocational training to adolescent girls, health and nutrition day celebration including health clinic activities, monitoring and evaluation at different levels, and orientation. During the 12th plan up to 2015-16, the scheme assisted 10.61 lakh adolescent girls.

**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. During the 12th plan up to 2015-16, the Cancer Suraksha scheme benefited 15273 children and the Thalolam scheme 32934 children.

**Snehaapoorvam**

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 problems. This programme benefited 48,550 children till March, 2016. Among them 26,046 were females.

**Our Responsibility to Children Kerala (ORC)**

This is a project implemented by the Department of Social Justice. It offers psycho-social and emotional support to children to prevent incursion of harmful habits like substance abuse with the support of other stakeholders like Police, Education/Health departments, and LSGD. The project was implemented in 36 selected schools in Trivandrum, Kozhikode, Ernakulam and Thrissur districts.

**Psycho Social Services for Adolescent Girls**

This scheme of Social Justice Department provides counselling and guidance support to adolescent girls. The department has so far developed separate adolescent health clinics in 807 selected schools with the support of concerned PTAs and LSGIs.

**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. The project assisted 167 children during 2015-16. Among them, 77 were female children.

**First 1000 Days Programme for Infants in Attappadi**

This is a special programme by Social Justice Department for infants in Attappadi focusing on early initiation of breastfeeding, timely introduction of complementary foods at six months, hygienic complementary feeding practices and full immunization and vitamin A supplementation with de-worming. So far the programme has benefited 5528 children in Attappadi.

**Gis Based Mother and Child Health Tracking System in Mananthawadi Block**

This is a pilot programme run by Social Justice Department for tracking the health status of pregnant women and children in Mananthawadi block of Wayanad district with the support of
There has been a continuous endeavour on the part of the Government to specially focus on the vulnerable groups. However, a considerable number of them are still not economically empowered and continue to face discrimination and lack access to various services. This is due to social exclusion, disability, malnutrition, destitution, chronic or life threatening diseases. Lack of co-ordination among the departments often results in the duplication of schemes with the exclusion of deserving individuals. Presently the State follows a dole based approach for providing social security coverage to the marginalized communities. Consequently the social security framework misses the mark to provide need based support to the marginalized groups since each group has their own needs and ambitions. There are also emerging groups who are outside the social safety net like children with intellectual disabilities, paraplegic and dementia patients. Based on the premise that social security is a human right and a social and economic necessity the State should aim at achieving universal protection of the population, including all marginalized groups, by ensuring at least minimum levels of social protection, that is building a special protection floor. For this, focused intervention is necessary at the Government level to forge a vibrant partnership with LSGs, citizens groups, community based organizations and NGOs to provide institutional support and protection to those who need it. These interventions should restore them to a life of dignity and self-respect.

### Section 4

## Drinking Water

Water is inextricably linked to the development of all societies and cultures. At the same time, this development also places considerable pressure on water resources. These are critical to the survival of people on the planet. The World Water Development Report 2015 says that around 748 million people today still do not have access to an improved source of drinking water. The complexity of linkage between water and development provide us to rethink the present development challenges through the lens of water scarcity. The availability of fresh water resources on the earth has remained same but the gap between supply and demand of fresh water has increased over the years. The world is going to face the problem of global water deficit in the near future unless we could restore the balance between demand and limited supply of drinking water. The progress in social, economic and environmental dimensions of sustainable development is bound by the limits imposed by and the management of water resources.

Kerala is considered as the land of water resources with high rainfall, rivers, backwaters, lakes and many streams. However, Kerala is frequently facing drought and acute water scarcity in many districts.
Water Resource

Kerala has 41 west-flowing and 3 east-flowing rivers originating in the Western Ghats. When compared to rivers in the other parts of the nation, the significance of rivers in terms of water discharge is very minimal. There are only medium (4) and minor (40) rivers in Kerala. The State doesn’t have a single major river as per the national norms. Kerala is also bestowed with a number of lakes and backwater lagoons.

Kerala receives two monsoons every year. Due to the physiographical pattern of Kerala, the water drains very fast into the sea. The average rainfall of the State is 3055 mm, which is 2 times more than that of national average. In Kerala, 69 per cent of the annual rainfall is received during the Southwest monsoon (June to September), 16 per cent during Northeast monsoon (October to December) and the remaining as summer rains. The rain received during the year 2016 monsoon is far below the normal rainfall. The deficiency of rainfall during monsoon is more in the district of Wayanad (59 per cent), which is higher than the State average deficiency (34 per cent) during 2016. The occurrence of rainfall is termed as normal if its deviation is between plus or minus 19 percentage of the normal rainfall. The district-wise percentage deviation of rainfall in Kerala shows high temporal variations in the distribution, which is shown in Table (4.20). Due to the deficiency in rains, the State has been declared as drought affected. Shortage of drinking water is a serious issue in many parts of the State. Since the prime source of all our water sources is rainfall, the deficit in occurrence of rainfall will affect the drinking water potential of the State. The reduction in number of rainy days and change in untimely rainfall pattern also causes undue strain on an agrarian society, which in turn affects the food security also. Along with surface water, groundwater is also an important source of water supply for various uses in the State. Groundwater is extracted through open

Table 4.20
District wise Pattern and Occurrence of Rainfall (Per cent Departure) from October 2015 to September 2016

<table>
<thead>
<tr>
<th>DISTRICTS</th>
<th>Northeast Monsoon (Oct to Dec 2015)</th>
<th>Winter rainfall (Jan to Feb 2016)</th>
<th>Pre-monsoon rainfall</th>
<th>Basin covered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kerala</td>
<td>27</td>
<td>-21</td>
<td>-18</td>
<td>-34</td>
</tr>
<tr>
<td>Thiruvananthapuram</td>
<td>51</td>
<td>-83</td>
<td>37</td>
<td>-34</td>
</tr>
<tr>
<td>Kollam</td>
<td>19</td>
<td>0</td>
<td>7</td>
<td>-29</td>
</tr>
<tr>
<td>Pathanamthitta</td>
<td>53</td>
<td>-92</td>
<td>11</td>
<td>-36</td>
</tr>
<tr>
<td>Alappuzha</td>
<td>20</td>
<td>28</td>
<td>-23</td>
<td>-35</td>
</tr>
<tr>
<td>Kottayam</td>
<td>35</td>
<td>45</td>
<td>-3</td>
<td>-30</td>
</tr>
<tr>
<td>Idukki</td>
<td>12</td>
<td>-71</td>
<td>-16</td>
<td>-31</td>
</tr>
<tr>
<td>Ernakulam</td>
<td>75</td>
<td>187</td>
<td>-17</td>
<td>-24</td>
</tr>
<tr>
<td>Thrissur</td>
<td>18</td>
<td>37</td>
<td>-22</td>
<td>-45</td>
</tr>
<tr>
<td>Palakkad</td>
<td>-14</td>
<td>-98</td>
<td>-37</td>
<td>-34</td>
</tr>
<tr>
<td>Malappuram</td>
<td>25</td>
<td>-68</td>
<td>-50</td>
<td>-39</td>
</tr>
<tr>
<td>Kozhikode</td>
<td>32</td>
<td>-100</td>
<td>-16</td>
<td>-27</td>
</tr>
<tr>
<td>Wayanad</td>
<td>-9</td>
<td>-75</td>
<td>-47</td>
<td>-59</td>
</tr>
<tr>
<td>Kannur</td>
<td>53</td>
<td>-100</td>
<td>-53</td>
<td>-25</td>
</tr>
<tr>
<td>Kasargod</td>
<td>21</td>
<td>3</td>
<td>-49</td>
<td>-25</td>
</tr>
</tbody>
</table>

Source: Meteorological Centre, Thiruvananthapuram
dug wells, bore wells and tube wells for different needs of the society. Increasing population, rapid urbanization and industrialization has resulted in increasing use of groundwater resources over the last few decades in the State. The occurrence and availability of groundwater vary from place to place within the State depending on the prevailing climate, geomorphologic and hydrogeological conditions. The net groundwater availability of the entire State was calculated as 6.07 billion cubic meters (BCM) by deducting unaccounted losses and natural discharge during the non monsoon season from the Total Annual Recharge available. The annual groundwater draft and net groundwater availability for future irrigation development of the State was calculated as 2.84 BCM and 3.07 BCM respectively. The blocks in the State were considered as assessment units based on the availability of groundwater for future use, stage of development and long term groundwater level trends. As per the Ground water Estimation Committee Report March 2011, out of 152 assessed units in the State, Chittur block in Palakkad District has been categorized as overexploited (stage of groundwater development>100 per cent), Malampuzha block of Palakkad District and Kasaragod block of Kasaragod District have been categorized as critical (stage of groundwater development>90 per cent and <=100 per cent) and 23 block as semi critical(stage of groundwater development>70 per cent and <=90 per cent) and the remaining 126 blocks as safe(stage of groundwater development<=70 per cent).

The issues related to the ground water in the state are source as well as resource related. It is highly considered to be location specific. The steep sloping terrain conducts all rain water swiftly (within 48 hrs) to Arabian Sea giving limited chance for percolation and augmentation of ground water.

**Availability of Drinking Water**

As per NSSO 69th round, 85.8 per cent households in rural India and 89.6 percent households in urban India, have sufficient drinking water. Among the States, Uttar Pradesh (97.1 per cent) has the highest proportion of households and Jharkhand has the lowest (70.3 per cent) proportion with sufficient drinking water. Among the major States of India, Punjab has the highest percentage of improved source of drinking water both in rural (99.5 per cent) and urban (99.7 per cent) areas. Kerala stands at the bottom of the table with lowest percentage in rural (29.5 per cent) and urban (56.8 per cent) areas (**Appendix 4.73**). The district wise analysis of drinking water availability based on location is given in the **Appendix 4.74**. Kerala has a coastal belt of 570 km, which covers 15 per cent of the total area of the State. Majority of drinking water sources in our state are getting polluted due to unscientific sanitation practices and indiscriminate dumping of waste. A large majority of drinking water supply sources are bacteriologically and chemically contaminated. The main bacteriological pathogens are E coli and coliform. The district wise quality profile of drinking water in Kerala during 2015-16 is given in **Appendix 4.75**.

The use of polluted water causes several water borne diseases, which may be fatal. The data on the number of water borne diseases shows an increasing tendency over the years. The reported cases during 2012 were 3,66,463 which increased to 4,61,042 in 2016 (**Figure 4.8**). The population density, indiscriminate use and pollution results in increasing number of waterborne diseases. The detailed data on waterborne diseases is given in **Appendix 4.76**.

**Coverage**

Providing quality drinking water to all segments of the society is a major challenge in water supply sector. There are mainly two agencies viz. KWA and KRWSA (Jalanidhi) involved in the distribution of drinking water in Kerala. KWA is implementing major schemes and mainly focused in Urban Water Supply, while Jalanidhi concentrates on small Rural Water Supply Schemes. The KWA has three regional offices, 15 circles, 51 Divisions, 136 Sub Divisions and 293 Sections spread across Kerala.
There are 1,078 water supply schemes of KWA in operation as on March 31, 2016, with a total installed capacity of 3367.13 mld, which means the average per capita availability of piped water is 100.79 litres per day. The targeted average lpcd (litre per capita per day) in rural area is 100 lpcd and that of urban is 150 lpcd. However the lpcd varies in different habitations in the all districts. As per Integrated Management Information System (IMIS) data, out of 11883 rural habitations, 938 partially covered habitations were converted to fully covered habitations in financial year 2015-16 with piped water supply by commissioning the schemes in the area. Also the total number of quality affected habitations has reduced from 751 to 656 habitations during the same period. The existing average lpcd, computed based on production capacity, in the districts by existing schemes are given in Appendix 4.77. But even after accounting for the high percentage of Non-revenue water, the per capita availability is much less and also the schemes are mostly located in urban areas. The number of beneficiaries from all the drinking water supply schemes implemented so far by KWA is 16627740. The district wise details shows that the percentage share of beneficiaries is highest in Ernakulam (16.64 per cent) district and the lowest in Kasaragod district (1.14 per cent). The district wise detail of beneficiaries as on October 31, 2016 is shown in the Figure 4.9.

Water Supply schemes of Kerala Water Authority covers around 1.75 crore population which accounts for 52.30 per cent of the population. The district wise analysis shows that Ernakulam district has the highest coverage (81.57 per cent) followed by Thiruvananthapuram (71.87 per cent). The district of Kasaragod has the least coverage by water supply schemes of KWA, which is only 19.33 per cent (see Appendix 4.78). The total water supply schemes of KWA in operation as on March 31, 2016 in the State is 1078, of which, 1029 are Rural and 49 are Urban Water supply Schemes. As per the data, the district of Thrissur has 107 water supply schemes followed by Thiruvananthapuram (104). The least covered areas under water supply schemes of KWA is Wayanad (see Appendix 4.79). KWA has a total of 18,12,528 water supply connections in the State,
which constitute 93.61 per cent domestic and 6.31 per cent non-domestic water supply connection. The water connection for industrial use is only 0.08 per cent. The total street taps as per the data is 2,08,034, out of which 1,62,568 are in Panchayats and 18,131 and 27,335 in Corporations and Municipalities respectively (see Appendix 4.80).

A study by Centre for Water Resources Development and Management Kozhikode in 2013 in selected areas of Calicut Corporation reveals that irrespective of the high levels of sanitation coverage the bacterial contamination in drinking water sources is high. The important findings of the study is that majority of water samples collected from open wells of Calicut Corporation area is bacteriological contaminated and the contamination is mainly of fecal origin. E-coli were present in majority of the samples, and high level of fecal streptococcus present in the wells of polluted areas. The study is a pointer for the state to look into the issues prevailing in the sector. The important factors that can be attributed to the situation are wrong positioning of well and toilets without considering the distance and gradient, direct discharge of toilet waste into canals and water bodies in high water table and low lying areas, insanitary toilets due to damage of digester part sewage from flats, hospitals, commercial complexes reaching water sources directly. The coverage of sewerage shows that the Thiruvananthapuram city has only 37 per cent coverage with about 90,000 connections and it is only 1000 connections in Ernakulam district.

**Box 4.10**

**Working Group on Drinking Water and Sewerage**

As part of the 13th five year plan, a working group has been constituted on Drinking Water and Sewerage by Kerala State Planning Board with Sri. VJ Kurian IAS, Addl. Chief Secretary, Department of Water Resources as Co-chairperson. The committee was asked to look specifically into the identification and formulation of set of output and outcome indicators for the sector, location specific needs and remedies, setting up of criteria for rain water harvesting and ground water recharge and the preparation of scientifically verified data base to make it accessible to every person.
Box 4.11
Save water! Save life!

Kerala has been facing severe drought for the last several years primarily due to rainfall deficiency. There are three types of droughts classified by scientific community and they are meteorological, hydrological and agricultural. Kerala is presently in the transition stage of meteorological to hydrological and agricultural drought, where water stress and crop drying is reported from selected highly drought susceptible parts of the State. Drought in Kerala principally relates to drinking water shortage. The State’s economy, which depends on the South West Monsoon rainfall for majority of the electricity production, increases the vulnerability of the State to drought, particularly hydrological drought.

In the year 2016, the annual monsoon rainfall had registered a shortfall of 34 per cent in the State. An alarming 70 per cent deficit is reported in this year’s North East Monsoon as well. Taking into account the seriousness of the situation, Government of Kerala has declared the entire State as drought affected. The expected acute shortage of drinking water, water for irrigation, lowering of water in the dams of power stations resulting in power crisis is threatening the very same existence of life in the State.

It is scientifically ascertained that the frequency of monsoon breaks are increasing, total amount of rainfall is showing a declining trend, and onset of monsoon is getting delayed. This also leads to the unsustainable land use practices. Polluting drinking water sources and dumping solid and liquid waste into perennial water sources have become a common practice. The techniques like mazhapolima, jalavashini, rubber check dams and atmospheric water maker were introduced as drought reduction strategies supported by Kerala State Disaster Management Authority (KSDMA). The newly announced Harithakeralam Mission has also given emphasis to rejuvenate the water resources with the participation of local bodies and the public. The concept of Water Kiosk is a highly effective method in mitigating the problem of drought. Kiosk is a 5,000 to 10,000 litres of PVC water tank located on a pedestal in a public area with a tap attached to it. The water is filled and distributed by the district administration. The scheme has been implemented in Kannur (355), Kasargode(1), Thiruvananthapuram(27), Kozhikode(6), Alappuzha(264), Malappuram(34) and Ernakulam (77). Mazhapolima is another effective method of recharging the ground water, which is used widely in some districts. Rubber check dams are inflatable or hardened rubberised impediments that could be installed in streams to delay water flow. Jalavashini- aims to identify and provide financial support to model water conservation projects. ‘EntaeKulamErnakulam’, 2016- cleaned 51 ponds with the help of ‘Anbodu Kochi’, a social media group of likeminded individuals, ‘Kulam Koru BiriyaniTharam’ scheme of Kozhikode district, 2016- cleaned 26 ponds. Atmospheric water maker is a device to produce potable and purified water from the air.

With a vision towards a ‘Safer State’, the entire state must be ready to face the crisis looming over us. A concentrated effort from the part of all individuals is essential in addressing the issue, Every drop saved may help in saving a life. In the long run, for a water secure future of the State we must join hands in rewriting 3Rs-Reduce, Reuse and Recycle as 4Rs-Respect, Reduce, Recycle and Reuse.

Source: SDMA,Kerala
Jalanidhi

Jalanidhi Phase I was implemented during the period 2000 to 2008. The GramaPanchayaths have a pivotal role in implementing community based water supply projects under Jalanidhi. The schemes are implemented through community participation with the involvement of NGOs. Though, KWRSA is mainly involved in small water supply schemes, it also engages in the distribution of bulk water supply through GramaPanchayaths. There were 3,694 small water supply schemes and 16 large water supply schemes commissioned benefiting 10.56 lakh population during the first phase (2000-2008). The second phase (2012-2018) which is being implemented is based on the need of the people with the participation of beneficiaries in planning and execution of projects. The project aims to cover about 18 lakh rural people for water supply and sanitation services in 200 Gramapanchayaths of Kerala. The funding pattern of scheme implementation is shared by State, Panchayath and beneficiaries with the percentage of 75, 15 and 10 respectively. The total project expenditure of Jalanidhi Phase II up to March 31, 2016 was ₹573.09 crore, and the total fund mobilised from the stakeholders is ₹729.27 crore. The total number of population covered by the Water Supply Schemes of Jalanidhi is13.65 lakhs. The details are given in Appendix 4.81. The Rain Water Harvesting (RWH) Structures under Jalanidhi Project helped 18,239 households to meet their demand of drinking water in acute summer. Data on RWH by the KWRSA is given in Appendix 4.82. Apart from the water supply schemes, KWRSA is also involved in ground water recharge activities. 53 GWR structures have been constructed up to September 30, 2016 during Phase II. The details of Jalanidhi phase II project are given in Appendix 4.83.

Income From Water Charges

The major income for KWA is from the sale of water and KWA is the only state in the country with 100 per cent metered water connections. During 2015-16 an amount of Rs. 460.25 crore has been collected as income from water charges by KWA. The details of income from the water charges from 2007-08 to 2015-16 is given in Appendix 4.84. The government has fixed varying tariff based on the category and consumption level. The water tariff set in 2014 is given in Appendix 4.85. The details of district wise and category wise rural and urban water supply schemes implemented in Kerala and district wise slipped back habitations are given in Appendices 4.86 and 4.87. The receipts of Kerala Water Authority from various sources and plan and non-plan expenditure are given in Appendices 4.88 and 4.89 respectively.

Issues And Concerns

Safe drinking water and proper sanitation is essential for a healthy life. One of the major challenges faced by Kerala Water Authority is interruption in providing water supply to the public due to frequent leakages of pipes. Due to lack of preventive maintenance and replacement of old pipes, a considerable portion of the produced water has been reported as distributional loss. It is estimated that around 40 per cent of the produced water in Kerala is lost in distribution.

Way Forward

To provide quality drinking water, there should be an integrated water resources management system in water supply. The distribution of water should be equitable across users. Waste water collection and disposal are equally important like supply of protected water in maintaining public health. The challenge is to find ways of managing the available water resources and use it in a sustained manner without degrading the environment so as to sustain the resources for the future generations. The conservation of traditional water resources and effective implementation of rain water harvesting is essential for resource sustainability. The role of local bodies in this regard is very important and there is a need for the convergence of State line Departments and Local Bodies to work towards water conservation.
Gender based discrimination that assigns to women lesser status and power, is deeply ingrained in the consciousness of both men and women and has remained remarkably stubborn, being generally viewed as a natural corollary of the biological differences between them. Religious beliefs, cultural practices and the educational system, reinforce this. The existing highly unequal economic and political structures by class and gender and systems of male domination that, on the one hand deny or limit women's access to economic resources and on the other impose sexual divisions of labour that allocate the most onerous, unpaid or poorly paid tasks to women inside and outside the household, adds to their vulnerability. The experiences of women with the development process as revealed by the Report of the Committee on the Status of Women in India (CSWI) in the early 70s were largely inimical to their needs and interests. In fact one of the shocking discoveries of the Committee (1974) was that the dynamics of social change and development in post Independent India, despite almost three decades of planned development, had adversely affected a large section of women and had created new imbalances, manifested specifically in declining work participation rates and a declining sex ratio.

A debate was sparked off on issues surrounding women's rights – to gainful employment when they did not have it; to recognition of their substantial contribution (paid and unpaid) to the national economy and towards their families' survival; to adequate rewards to their labour they do not enjoy; and to a share of resources, benefits and decisions regarding development to which they are entitled as citizens of a country which guarantees to them equality in all spheres of life. Perhaps the most useful debate in terms of visibility of women's contribution to the economy has been around women's work. The inferior position of women in the labour market has been extensively discussed; over 60 percent of women in India still engage in household duties and are out of the labour force; and 30 -40 percent of self employed women are unpaid workers. Agriculture and related activities still continue to absorb almost 75 percent of the rural working women. It is also estimated that 81 percent of the rural women workers belong to socio-economically marginalised communities, with little voice and agency. The persistence of a high proportion of unpaid women workers within the officially enumerated female work force, continues to be an enigma.

To capture this scenario of gender inequality among the member nations, UNDP started to publish Gender Development Index (GDI) and Gender Empowerment Index (GEM) together with the Human Development Index (HDI) from 1995 onwards. These indices capture women's status in terms of their health, education, economic participation, control over economic resources, and political participation.

From 2010 onwards UNDP has started to release another index intended to measure the level of inequality sustained in societies. Gender Inequality Index (GII) is an attempt to have a clearer understanding of gender inequality as it prevails in three important aspects of human development, namely, 1) Reproductive health, 2) Empowerment and 3) Economic status. According to the performance in the GII, India's status has been very dismal. In a list of 155 countries it occupies an abysmal position of 130 with a GII value of 0.563 whereas the top ten countries have values below 0.05. This signifies not just a big gap between our country and the developed societies but also serious flaws in both

*Of these the factor of Reproductive health is calculated by measuring the maternal mortality ratio and the adolescent birth rates, Empowerment is calculated by working out the ratio between the total number of seats and the number of women representatives in parliament and the proportion of adult females and males with secondary education, and the third factor of economic status is calculated by analyzing the labour market participation of women.
the policies and in their implementation by the state to mitigate gender asymmetries. According to the Human Development Report released in 2015 the indicators “highlight areas in need of critical policy intervention and it stimulates proactive thinking and public policy to overcome systematic disadvantages of women”.

Kerala is very well known for its achievements in the area of social development. Its human development indicators have remained much higher compared to other states within India. Several scholars have equated Kerala's achievements in the context of health and education with that of some of the developed countries. In the Gender Inequality Index mentioned above the state's performance in the context of maternal mortality rate, adolescent birth rates and proportion of adult females with secondary education have remained quite impressive. However, gender disparity is quite evident in the realms of two forms of participation: one is labour participation, and two political participation. Women's participation in the labour market and their presence in the state legislatures and parliament have been comparatively very low. This appears to be a paradox when compared to women's achievements in the areas of education and health. The state is yet to improve its performance in order to translate these achievements into better participation of women both in the realms of economy (labour market) and in politics.

With 52 per cent of the population consisting of women, Kerala is a state known for its positive sex ratio. The overall sex ratio of Kerala is 1084 females per 1000 males up from 1058 in 2001. Though child sex ratio has remained more or less constant over the period 1991-2011, yet a fall from 963 in 2001 to 959 in 2011 is a matter of concern. The proportion of child population in the age group 0-6 decreased from 11.9 per cent in 2001 to 10.4 per cent in 2011; the proportion of male child population declined from 12.5 per cent to 10.4 per cent and that of the female from 11.3 per cent to 9.8 per cent.In central Kerala, it is below the state average. However, the child sex ratio of Kerala is much better than the national average of 914. A comparison of Kerala's Sex Ratio to that of all India and other neighbouring States is given in Appendix 4.90.

**Literacy And Education**

At 92 per cent, the female literacy rate in Kerala is the highest among Indian states. However, the male literacy rate in Kerala is still higher at 96 per cent (Figure 4.10). Hence a small gender gap exists.

**Figure 4.10**

**Literacy Rate in Kerala**

![Graph showing literacy rate in Kerala](source: Kerala State Literacy Mission Authority)
But it is seen that the gender gap has narrowed during these 6 decades.

In the case of education, enrolment is universal at the primary level and gender parity has been achieved; girl students constitute 49.4 per cent of total student enrolment in schools. Girls outnumbered boys in terms of enrolment in higher secondary education at 52.34 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 71.54 percent of total enrolment for degree courses in various Arts and Science colleges under the four general universities in Kerala during 2015-16. When post-graduation is considered, the girls’ position is highest with 72.61 per cent. Hence, girls perform well in terms of education in Kerala. 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 39.87 per cent in engineering colleges and 32.76 per cent in polytechnics (Table 4.21). The high levels of education of women do not however, appear to be translated into marketable skills reflected in low levels of work force participation.

### Table 4.21

<table>
<thead>
<tr>
<th></th>
<th>Boys</th>
<th>Girls</th>
<th>Total</th>
<th>Per cent of Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Education</td>
<td>1869255</td>
<td>1832322</td>
<td>3701577</td>
<td>49.50</td>
</tr>
<tr>
<td>Higher Secondary</td>
<td>182826</td>
<td>200756</td>
<td>383582</td>
<td>52.34</td>
</tr>
<tr>
<td>Graduation</td>
<td>65564</td>
<td>164783</td>
<td>230347</td>
<td>71.54</td>
</tr>
<tr>
<td>Post Graduation</td>
<td>9056</td>
<td>24008</td>
<td>33064</td>
<td>72.61</td>
</tr>
<tr>
<td>B Tech</td>
<td>4022</td>
<td>2348</td>
<td>6370</td>
<td>36.86</td>
</tr>
<tr>
<td>M Tech</td>
<td>639</td>
<td>742</td>
<td>1381</td>
<td>53.73</td>
</tr>
<tr>
<td>Total Engineering</td>
<td>4661</td>
<td>3090</td>
<td>7751</td>
<td>39.87</td>
</tr>
<tr>
<td>Polytechnic</td>
<td>21587</td>
<td>10518</td>
<td>32105</td>
<td>32.76</td>
</tr>
</tbody>
</table>

*Source: Source: DPI, DCE and DTE, 2015*

#### Health Status of Women In Kerala

In Kerala, most of the health indicators are highly favourable to women. Health indicators of women in Kerala are much better than their counterparts in the country as well as their male counterparts in the State. Life Expectancy at birth of women in

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**Box 4.12**

**13th Five Year Plan Working Group on Gender**

The State Planning Board constituted a Working Group on Gender as part of the formulation of the Thirteenth Five Year Plan (2017-22) with Co-chairpersons as Sri A. Shajahan IAS, Secretary to Government, Social Justice Department and Ms Meera Velayudhan, Sr. Policy Analyst, Centre for Social and Environment Concerns (CESC), Ahmedabad. The Working Group has discussed the achievements with regard to the plan projects launched in the sector during the last two Plan periods and also outlined special problems of growing violence against women, their economic empowerment, severe problems of marginalised social groups and strengthening gendered governance at the local level. The Working Group has submitted the draft report focusing on the various issues related to Gender including Transgenders and has also put forward the project ideas to be implemented in the coming years.
Kerala at 76.9 years is the highest in India; much higher than for women in India as a whole, which is 67.7 years. As per the figures released by Registrar General of India, all the demographic indicators seem to be favourable in Kerala (Table 4.22).

When we look at the data on the number of patients in various hospitals (data given by Directorate of Health Services, Kerala) in the state during the last year, it is seen that the number of women is lower than that of men except in the cases of diabetics and blood pressure (Table 4.23).

However the State has to do much more in areas like economic participation and political empowerment of women so that they can reap the

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Indicator</th>
<th>Kerala</th>
<th>India</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Death Rate #</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>6.6</td>
<td>6.5</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>5.7</td>
<td>6.1</td>
</tr>
<tr>
<td>2</td>
<td>Infant Mortality Rate #</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>12</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>10</td>
<td>35</td>
</tr>
<tr>
<td>3</td>
<td>Mean age at effective marriage</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>27.3</td>
<td>23.2</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>21.4</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>Knowledge and practice of Contraceptive Use by Currently Married Women</td>
<td>97.3</td>
<td>94.5</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>58.7</td>
<td>50.2</td>
</tr>
<tr>
<td>5</td>
<td>Maternal Mortality Ratio</td>
<td>66</td>
<td>66</td>
</tr>
<tr>
<td>6</td>
<td>Expectancy of Life at Birth</td>
<td>Male</td>
<td>71.4</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>76.9</td>
<td>67.7</td>
</tr>
</tbody>
</table>

Source: SRS Bulletin, Govt of India and Directorate of Health Services, Kerala

<table>
<thead>
<tr>
<th>Name of the disease</th>
<th>Number of Patients 2015 - 2016</th>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Cancer</td>
<td>22911</td>
<td>21368</td>
</tr>
<tr>
<td>Diabetics</td>
<td>917276</td>
<td>1002429</td>
</tr>
<tr>
<td>B.P</td>
<td>1029662</td>
<td>1137907</td>
</tr>
<tr>
<td>Heart diseases</td>
<td>70567</td>
<td>60388</td>
</tr>
<tr>
<td>Stroke</td>
<td>27518</td>
<td>21636</td>
</tr>
<tr>
<td>mental diseases</td>
<td>82082</td>
<td>70412</td>
</tr>
<tr>
<td>Bronchitis</td>
<td>591373</td>
<td>565245</td>
</tr>
<tr>
<td>Lung diseases</td>
<td>37344</td>
<td>32363</td>
</tr>
<tr>
<td>Asthma</td>
<td>474020</td>
<td>443404</td>
</tr>
</tbody>
</table>

Source: Directorate of Health Services, Kerala
benefits of enhanced and equitable development. It is generally agreed that the attainments in health and education can be considered as the preconditions for the take-off and the other two can be considered as the measures of take-off.

**Women’s Participation in Employment**

In countries with high human development, the share of economically active women seems to be high. Labour Participation Rate (LPR) of women in 10 countries having highest Human Development Index is around 60 percent and that of men is around 70 percent (Human Development Report, 2015). It is surprising to note that Female LPR is much higher in some of our neighbouring countries, whose HDI rank is lower than that of India. For example Female LPR in Bhutan is 66.4, in Cambodia is 78.9, in Bangladesh is 57.3, in Nepal is 54.3, and in Myanmar is 85.7 (Source: HDI Report 2014). It cannot be ignored that less women in labour force means under-utilization of human resources that holds back productivity and economic growth.

Women of Kerala outperform their male counterparts in many developmental indicators. But in the case of economically active persons, the outcome is not favourable to women. There are two major sources of data on workers, unemployed, and non-workers- Census and the Quinquennial Rounds on Employment-Unemployment of the NSSO. Given the more inclusive definition of “worker” in the NSSO, the latter is generally used for understanding the employment situation in a country/state and therefore NSSO data has been referred to in this section. The Census has the advantage of readily available data at a disaggregated regional level of the district or even lower.

As per the 68th Round of NSSO (for the year 2011-12), a wide gap between male and female LPRs (principal and subsidiary status) is seen in the State. While the State average is 40.3 per cent, female LPR (per 100 persons) in Kerala is 24.8 percent and that of male is 57.8 percent. Consequently the difference between male and female LPR in Kerala is very high. Himachal Pradesh with a female workforce participation rate of 49.8 percent is the best performer. It is surprising that the North-eastern states like Nagaland, Sikkim, Manipur, Mizoram, Arunachal Pradesh and Meghalaya too have higher FWPRs than Kerala. Hence we have to relook at our strategies in this direction and perhaps learn from experiences elsewhere; the need to empower Kerala women with decent employment is urgent.

Disaggregating by region, we find that the labour force participation rate of women in rural Kerala is lower than that of India. But in urban areas, labour force participation of Kerala women is better than that of their counterparts at the all India level (Table 4.24).

<table>
<thead>
<tr>
<th>Year</th>
<th>Rural</th>
<th>Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>India</td>
<td>Kerala</td>
</tr>
<tr>
<td>1987-88</td>
<td>54.9</td>
<td>33.1</td>
</tr>
<tr>
<td>1993-94</td>
<td>56.1</td>
<td>33</td>
</tr>
<tr>
<td>1999-2000</td>
<td>54</td>
<td>30.2</td>
</tr>
<tr>
<td>2004-05</td>
<td>55.5</td>
<td>33.3</td>
</tr>
<tr>
<td>2009-10</td>
<td>55.6</td>
<td>26.5</td>
</tr>
<tr>
<td>2011-12</td>
<td>55.3</td>
<td>25.3</td>
</tr>
</tbody>
</table>

Table 4.24

Labour Force Participation Rate for Kerala and India (percent) Urban and Rural (PS+SS)*

Source: Various Reports of NSSO

*Refers to principal status plus subsidiary status, the most inclusive definition of worker
A comparison of labour force participation of males and females in Kerala is shown in Figure 4.11. It is seen that the gender gap is widening over the period.

The gender gap in levels of employment is also brought out by the female work participation rates (Table 4.25) and while the male WPRs show a mild upward trend or constancy, there is a declining trend in female WPRs; that Kerala women have a higher participation rate in urban areas vis-a-vis all India is also seen.

As per Census 2011, the FWPR of the state has increased by 2.8 points in the last decade. This may appear to contradict our findings from the NSSO of a declining female workforce participation; but it must be remembered that between 1999-00 and 2004-05 (NSSO) FWPRs had increased in Kerala as also most other states; however, in the next Round for the year 2009-10 there was a decline again. Nonetheless the rates in 2009-10 remained higher than in 1999-00 in rural Kerala but declined marginally in urban areas which is largely in line with the results of the 2001 and 2011 Census. Hence the picture if we take the latest data is one of declining female workforce participation rates in Kerala as for all-India.

Using the Census data, we find that in four

![Figure 4.11](image-url)

**Figure 4.11**

**Labour Force Participation Rates of Males and Females in Kerala, in per cent**

![Graph showing Labour Force Participation Rates](image-url)

**Table 4.25**

<table>
<thead>
<tr>
<th>Year</th>
<th>Rural</th>
<th></th>
<th>Urban</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Kerala</td>
<td></td>
<td>Kerala</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>1987-88</td>
<td>53.9</td>
<td>32.3</td>
<td>56.7</td>
<td>31.6</td>
</tr>
<tr>
<td>1993-94</td>
<td>55.3</td>
<td>32.8</td>
<td>53.7</td>
<td>23.8</td>
</tr>
<tr>
<td>1999-2000</td>
<td>53.1</td>
<td>29.9</td>
<td>55.3</td>
<td>23.8</td>
</tr>
<tr>
<td>2004-05</td>
<td>54.6</td>
<td>32.7</td>
<td>55.9</td>
<td>25.6</td>
</tr>
<tr>
<td>2009-10</td>
<td>54.7</td>
<td>26.1</td>
<td>56.4</td>
<td>21.8</td>
</tr>
<tr>
<td>2011-12</td>
<td>54.3</td>
<td>24.8</td>
<td>56.5</td>
<td>22.1</td>
</tr>
</tbody>
</table>

*Source: Various Reports of NSSO*
Percentage of females (of age 5 years and above) usually engaged in domestic duties in the usual principal status

Table 4.26: estimate of females who were enumerated as household duties and hence, occupying an economic status.

<table>
<thead>
<tr>
<th>Activity</th>
<th>All India</th>
<th>Rural</th>
<th>Urban</th>
<th>All India</th>
<th>Rural</th>
<th>Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Maintenance of kitchen garden</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Free collection of foodstuff</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Preparation of food</td>
<td>23.3</td>
<td>14.6</td>
<td>30.6</td>
<td>21.5</td>
<td>14.2</td>
<td>24</td>
</tr>
<tr>
<td>4. Fetching water from outside</td>
<td>7.8</td>
<td>7.2</td>
<td>8.4</td>
<td>7.8</td>
<td>7.2</td>
<td>8.4</td>
</tr>
<tr>
<td>5. Preparing food (outside home)</td>
<td>14.2</td>
<td>14.2</td>
<td>14.2</td>
<td>14.2</td>
<td>14.2</td>
<td>14.2</td>
</tr>
<tr>
<td>6. Sewing/tailoring, etc</td>
<td>11.7</td>
<td>11.7</td>
<td>11.7</td>
<td>11.7</td>
<td>11.7</td>
<td>11.7</td>
</tr>
<tr>
<td>7. Looking after children</td>
<td>11.7</td>
<td>11.7</td>
<td>11.7</td>
<td>11.7</td>
<td>11.7</td>
<td>11.7</td>
</tr>
<tr>
<td>8. Other tasks</td>
<td>11.7</td>
<td>11.7</td>
<td>11.7</td>
<td>11.7</td>
<td>11.7</td>
<td>11.7</td>
</tr>
</tbody>
</table>

Source: NSSO 61st Round: Micro-Level Household Survey (2011-12)

Note: Figures in parentheses represent the percentage of females engaged in these activities in rural and urban areas of the country.
Gender disaggregated data on employment can capture more clearly a picture of women’s economic involvement. The sectoral distribution of employment of women in Kerala (Table 4.27) shows that relative to men, a larger proportion of women are engaged in the agricultural sector. The percentage share of males engaged in service sector is much higher compared to females; however in industry the relative proportions 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, and cashew.

Membership of females in different Welfare Fund Boards in Kerala shows the participation of women in some specific industries (Appendix 4.92). It is clear that women’s participation in traditional industries is very high in which wage/remuneration is comparatively low. For eg, among cashew workers and beedi workers, women constitute 95 per cent and 99 per cent of the work force respectively.

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, in particular of educated women (Table 4.28). This suggests that there are large numbers of women who are seeking or available for work but unable to find it. The fact that the unemployment rate shows a fall in the recent year, even as work participation rate has also declined suggests that one of the reasons could be a ‘discouraged worker’ effect pushing women out of the workforce due to long waiting periods in the labour market for work. 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. Needless to state this requires further probing.

Table 4.27
Sectoral Distribution of Employment in Kerala, in per cent

<table>
<thead>
<tr>
<th>Persons</th>
<th>Agriculture</th>
<th>Industry</th>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>22.8</td>
<td>32.4</td>
<td>44.8</td>
</tr>
<tr>
<td>Female</td>
<td>31.9</td>
<td>30.4</td>
<td>37.7</td>
</tr>
<tr>
<td>Total</td>
<td>25.5</td>
<td>31.8</td>
<td>42.7</td>
</tr>
</tbody>
</table>

Source: NSSO Report, 68th Round.

Table 4.28
Unemployment Rates (PS+SS) of Males and Females in Kerala and India, in per cent

<table>
<thead>
<tr>
<th>Year</th>
<th>Rural India</th>
<th>Rural Kerala</th>
<th>Urban India</th>
<th>Urban Kerala</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male Female</td>
<td>Male Female</td>
<td>Male Female</td>
<td>Male Female</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1987-88</td>
<td>1.8</td>
<td>2.4</td>
<td>5.2</td>
<td>6.00</td>
</tr>
<tr>
<td>1993-94</td>
<td>1.4</td>
<td>0.8</td>
<td>5.5</td>
<td>6.6</td>
</tr>
<tr>
<td>1999-2000</td>
<td>1.7</td>
<td>1.0</td>
<td>5.7</td>
<td>5.6</td>
</tr>
<tr>
<td>2004-05</td>
<td>1.6</td>
<td>1.8</td>
<td>5.1</td>
<td>6.2</td>
</tr>
<tr>
<td>2009-10</td>
<td>1.6</td>
<td>1.6</td>
<td>3.2</td>
<td>2.9</td>
</tr>
<tr>
<td>2011-12</td>
<td>1.7</td>
<td>1.7</td>
<td>3.1</td>
<td>14.2</td>
</tr>
</tbody>
</table>

Source: Various Reports of NSSO
Inequality in Wage Rates

Women are engaged in agricultural work as well as in traditional industries (which mainly comes under informal and unorganized sector) in India as well as in the State (Census, 2011). But in terms of wages and remuneration, significant gender inequality exists in unorganized sector. The Table 4.29 shows average daily wage rates in agricultural occupations in the state in to all India.

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 are gainfully employed without having to bear the full burden of household and care responsibilities. It is necessary that this is recognised, and efforts are to be taken to reduce and redistribute unpaid household and care work in more just ways promoting shared responsibility within the household, The State also plays a crucial role in designing appropriate policies/schemes that support its reduction and redistribution. Goal 5 of SDGs on Gender Equality recognises the value of unpaid care and domestic work in target 5.4 of SDG (Box 4.13).

Women in Political Leadership

Political representation is taken as an important dimension to measure gender position in many of the indices currently being used. For example, Gender Inequality Index developed by UNDP measures empowerment by the proportion of parliamentary seats occupied by females. The Global Gender Gap Report brought out by World Economic Forum measures political empowerment, economic participation and opportunity, educational attainment and health and survival. Achievements in health and education have empowered the women of Kerala and enabled them to take part in the practices of democracy. Democracy will be complete only when the women get equal participation in direct decision making too. It is in this regard that the representation of women in legislative bodies becomes important. Political participation must not be restricted to casting votes during elections. Rather women must occupy leadership positions in decision making bodies. Women of the state can be empowered through their direct participation in policy making. An appropriate example is the local governments in Kerala, where 50 per cent of the seats are reserved for women including the higher positions in the local bodies.

However, gender empowerment is politically meaningful only if women have decision making powers in higher bodies like State legislatures and Parliaments. The developed nations with high HDI levels have a much higher representation of women in their legislative bodies. The top eight countries where percentage of women in legislative bodies is high are Norway (39.6 per cent), Sweden (44.7 per

Table 4.29
Average Daily Wage Rates in Agricultural Occupations in Rural India during March, 2015, in ₹

<table>
<thead>
<tr>
<th>State</th>
<th>Sowing (including Planting/Transplanting/weeding workers)</th>
<th>Gender Attainment Index</th>
<th>Harvesting/Winnowing/Threshing workers</th>
<th>Gender Attainment Index</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>AP</td>
<td>233.87</td>
<td>163.46</td>
<td>0.70</td>
<td></td>
</tr>
<tr>
<td>Kerala</td>
<td>638.29</td>
<td>446.88</td>
<td>0.70</td>
<td></td>
</tr>
<tr>
<td>Bihar</td>
<td>225.5</td>
<td>185.51</td>
<td>0.82</td>
<td></td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>317.72</td>
<td>233.51</td>
<td>0.73</td>
<td></td>
</tr>
<tr>
<td>All India</td>
<td>238.67</td>
<td>194.32</td>
<td>0.81</td>
<td></td>
</tr>
</tbody>
</table>

Source: Wage Rates in Rural India, Ministry of Labour and Employment, Govt of India

* Gender attainment index of wage rate is calculated by female wage rate / male wage rate.
Box 4.13
Sustainable Development Goal- Gender

Goal 5: Achieve gender equality and empower all women and girls

- End all forms of discrimination against all women and girls everywhere
- Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation
- Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation
- Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate
- Ensure women’s full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life
- Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences
- Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws
- Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women
- Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels

Source: Official website of UNDP

percent), Iceland (39.1 per cent), Denmark (39.1 per cent), Belgium (38.9 per cent), Finland (42.5 per cent), Netherlands (37.8 per cent) and Cuba (48.9 per cent).

However the achievements of the state with respect to women representation in the Central and State Legislative bodies are not noteworthy. The same is the case when we take women in India as a whole. It is quite surprising that the women’s status in the state in this regard is lower than that of many states in India as also the all India average (Table 4.30 and 4.31).

CRIMES AGAINST WOMEN

As per the figures brought out by the State Crime Records Bureau, the total reported cases of crime against women are increasing over the period. The number of ‘Rape cases’ has increased from 500 in 2007 to 1319 in 2016 (up to October) (Appendix 4.93). The ‘cruelty by husband/relatives’ still constitutes a major component in crime against women. As per data from National Crime Records Bureau, Kerala is a state where ‘Rate of total cognizable Crimes’ (incidence of crime per one lakh female population) is much higher than the national level. 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. As shown in Figure 4.12, the number of crime against women in Kerala is steadily increasing from 2007 to 2014.
Transgender Policy in Kerala

The presence of transgender (TG) is now being increasingly accepted in the society. However, the survey conducted by the Social Justice Department on TGs reveals that they are unable to acquire even basic capabilities essential to a life of well-being and dignity. While women’s interests and expressed needs are now accepted, at least partially, widespread and intense conservatism denies the same status to the interests and demands of people of non-normative sexual orientations, and though they have gained legal recognition, they face terrible invisibility and violence. “The condition

Table 4.30
Elected Women in Lok Sabha – India and Kerala

<table>
<thead>
<tr>
<th>Year</th>
<th>All India</th>
<th>Kerala</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total No. of Seats</td>
<td>Women</td>
</tr>
<tr>
<td>2009</td>
<td>543</td>
<td>58</td>
</tr>
<tr>
<td>2014</td>
<td>543</td>
<td>62</td>
</tr>
</tbody>
</table>

Table 4.31
Female Representation in Legislature – Kerala

<table>
<thead>
<tr>
<th>Name of Legislature</th>
<th>Number of Women</th>
<th>Total no of seats</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kerala Legislative Assembly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>7</td>
<td>140</td>
<td>5</td>
</tr>
<tr>
<td>2011</td>
<td>7</td>
<td>140</td>
<td>5</td>
</tr>
</tbody>
</table>

Source: Worked out from data available at the Website of the Lok Sabha, Rajya Sabha & Chief Electoral Officer, Kerala

Figure 4.12
The number of crimes against women in Kerala (2007-2014)

Source: State Crime Records Bureau

3Department of Social Justice, State Policy for TGs in Kerala, 2015, p.8
of non-normative sexualities in Kerala cannot be described as only that of deprivation-then lack of resources that cause ill-being. Rather, it is better described as abjection – which refers to a form of ‘enforced invisibility’ of these people in the eyes of civil society and the state” (Draft Report of Working Group on Gender, State Planning Board, 2016).

Hence, interventions for inclusion of TGs cannot be limited to merely economic measures. The recent Supreme Court judgments, have given some space to remedy certain of the issues of TGs. While the recognition of all non-normative sexual orientations as legal remains a distant dream, the Honourable Supreme Court of India (vide Judgment dated April 15, 2014) firmly established the right to equality and equal protection for transgender persons (TGs) and emphasized their right to live free from discrimination on the ground of gender identity. Following the Supreme Court Judgements, to understand the issues faced by TGs, the Social Justice Department of the Government of Kerala (GoK) conducted a State-wide survey seeking information on all aspects of their social and personal life. The survey, which collected information from over 4000 TG individuals, indicated that their population in Kerala may be over 25,0003.

**Gender Budgeting**

As policies and programmes have a differential impact on women and men, it is necessary to strengthen Gender Responsive Budgeting. Gender Budget is not a separate budget for women but one in which gender has been mainstreamed. It is a methodology to assist governments to integrate a gender perspective into the Budget recognizing the economic significance of women's unpaid work in the household and the need for public investment in these activities. 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 more favourably to women. This serves as an important reporting mechanism and provides an indication of funds flowing to women. It is a major step in strengthening inclusive growth.

To institutionalize the process of Gender Budgeting, the Gender Budget Statement had been introduced in the Union Budget 2005-06. Kerala is perhaps the first State to undertake a ‘gender aware planning’ aimed at bringing transformations in outcome for women even earlier within the context of decentralised planning in the 9th Plan Period. With the inclusion of Women Component Plan (WCP) in local bodies’ annual plan, an attempt at integrating gender into the budgeting process was made and subsequently gender-responsive budgeting was introduced in the state at the time of the 9th Plan itself. With the devolution of 35-40 per cent of funds from the state to the Local Self-Government Institutions (LSGIs), 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, 10 per cent of the plan outlay of the local bodies had to be set apart for needs of women or women specific projects. Percentage of Plan allocation and expenditure on
WCP of local bodies during 11th and 12th (first three years) are given in the following Table 4.32.

It is seen from the table that though 10 per cent is mandatory, in terms of allocation and expenditure, more than 10 per cent of the fund goes to women. Compared to 11th plan, percentage of WCP allocation has fallen from 13.22 per cent to 10.63 per cent and expenditure has fallen from 12.35 per cent to 10.70 per cent during 12th Plan. However, since then, there has been considerable debate on the type of schemes/projects implemented under the WCP, some of which may not be gender sensitive. While the special attention given to gender in decentralised planning has left some positive imprints on outcomes and a number of good practices can be identified across the state, WCP has fallen short of expectations on advancing gender equality and is being reviewed in the context of the renewed emphasis on LSGs and people’s participation in the 13th Five Year Plan.

A conscious attempt was made at Gender Responsive Budgeting in Kerala’s 11th Five Year Plan, integrating gender into the Planning/ Budgeting process with a visible increase in Annual Plan allocations flowing to women over the years addressing women’s felt needs, including women friendly infrastructure. The problem has been that since many projects benefit both women and men it may not be possible to capture a total estimate of the resource outlay for women due to non-availability of gender differentiated data.

In the 12th Plan while there was no conscious attempt at Gender Budgeting, in 2015 a manual was prepared on Gender Planning and Budgeting (Box 4.15) and in 2016-17 some estimates of fund flow to women were given in the Summery Document 2016-17 brought out as part of budget documents. The percentage of allocation to women in the past three years can be seen in Table 4.33. The details of expenditure related to women specific schemes and programmes in Annual Plan 2014-15 and 2015-16 are provided in Appendix 4.94.

The Revised Budget for 2016-17 announced its intention of reviving Gender Budgeting in the 13th plan with at least 10 percent of total Plan outlay flowing to women, addressing their needs and interests. The major schemes benefiting

| Table 4.32 |
|---|---|---|
| Five Year Plan | Per cent of WCP allocation | Per cent of WCP Expenditure |
| 11th Plan | 13.22 | 12.35 |
| 12th Plan- first three years | 10.63 | 10.7 |

Source: IKM

| Table 4.33 |
|---|---|---|
| Annual Plan | Total Allocation* | Allocation to WCP | per cent to total allocation |
| | | | |
| 2014-15 | 15300 | 943.18 | 6.16 |
| 2015-16 | 15200 | 537.00 | 3.53 |
| 2016-17 | 18500 | 747.25 | 4.03 |

Source:Plan Documents *excluding LSGs Outlay
Box 4.15
Gender Planning, Budgeting and Auditing Manual of Social Justice Department

The Manual on Gender Planning, Budgeting and Auditing developed by Social Justice Department gives general guidance, methodology and tools on how to develop, implement, and monitor a gender action plan at the departmental level within the results framework of the GEWE Policy, 2015. As per the Manual, within each Department, the Head of Department (HOD) is responsible for Gender Mainstreaming. To fulfill this responsibility, each department must:

- Designate a gender resource person (GRP) as a focal point in the Department
- Strengthen the Department’s capacity for Gender Mainstreaming
- Prepare a Departmental Gender Action Plan (DGAP); and earmark funds for training and evaluation within the Department
- Set aside sufficient budget for implementing and development purposes
- Ensure that gender-related issues are being systematically monitored and reported by program or project managers

Steps on Gender Planning and design of Programmes, Projects and Schemes (PPSs)

- A thorough gender analysis and identification of barriers and constraints (issues) to gender equality and women's empowerment needs to be done
- Understand the consequences resulting from the identified barrier or constraint.
- Prioritize and determine which of the identified issues should be best addressed through the proposed intervention
- Identify the outputs that need to be delivered to achieve objectives.
- Determine whether the desired outcomes or impacts will occur if the needed outputs are generated.

Monitoring and Evaluation

Monitoring will be done at two levels – Government and Departmental levels. In addition to an annual gender audit, each Department must conduct an evaluation of a sample of its projects which are wholly targeted to women (100 per cent projects) and projects which are benefited to men and women, three years after initiation of policy implementation.

Budgeting for Gender Equality

The information for compilation of gender responsible budget can be furnished in three parts:

- Details of schemes in which 100 per cent provision is for women
- Schemes where the allocation for women-centric activities constitute at least 30 per cent of the total provision
- Schemes which are meant to create public goods but have the potential to affect both women and men.

Gender Audit

Each Department must conduct a gender audit in the first year after policy implementation, and once every two years thereafter.

women under the major departments are given in the following Table 4.34.

The development policy in Kerala has been more sensitive to gender equality in terms of human resource development as reflected in the much lower gender gap in basic capabilities, such as education and health. However, the positive indicators in basic entitlements did not result in improving women's position in society. The high ranks in both literacy and health did not translate into growth of paid employment for women nor into upward occupational mobility. Female work participation rates (WPR) in Kerala remains low, even among the educated women. Also levels of
### Table 4.34
Some Major Schemes Benefiting Women

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the Scheme</th>
<th>Objective of the scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agriculture and Allied Sectors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Theeramythri and micro enterprises scheme</td>
<td>Stabilization package for promoting livelihood diversifications and to improve the income level of fishermen families through women members of the fisher family</td>
</tr>
<tr>
<td><strong>Rural Development Sector</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Indira AwaazYojana (IAY)</td>
<td>Comprehensive rural housing programme of GOI provides dwelling units to the homeless rural poor</td>
</tr>
<tr>
<td>3</td>
<td>Mahatma Gandhi National Rural Employment Guarantee Programme</td>
<td>Flagship programmes of GOI for employment generation. Majority of beneficiaries are women</td>
</tr>
<tr>
<td><strong>Industries</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Mahila Coir Yojana</td>
<td>First women oriented self-employment scheme in the Coir Industry which preside self-employment opportunities to the rural women artisans</td>
</tr>
<tr>
<td><strong>Health Sector</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Women Health Care Centre (Seethalayam)</td>
<td>Seethalayam provides aid to suffering women in the society through Homeopathic treatment.</td>
</tr>
<tr>
<td>6</td>
<td>Bhoomika- Gender Based Violence Management centre (GBVMC)</td>
<td>Provide counseling services and medical and legal assistance to the victims of gender based violence.</td>
</tr>
<tr>
<td><strong>SC and ST Development Sectors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Assistance for Marriage of SC girls</td>
<td>₹50000/- for the marriage of BPL SC girl</td>
</tr>
<tr>
<td>8</td>
<td>Assistance to Marriage of ST girls</td>
<td>₹50000/- for the marriage of ST girl and Rs.1 lakh for the marriage of ST orphan girl</td>
</tr>
<tr>
<td>9</td>
<td>Janani-JanmaRaksha</td>
<td>Timely assistance to maternal care</td>
</tr>
<tr>
<td>10</td>
<td>Housing scheme for the Divorcees/Widows/Abandoned Women</td>
<td>Housing scheme for the women in these categories</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Sarva Siksha Abhiyan</td>
<td>To ensure universal elementary education</td>
</tr>
<tr>
<td></td>
<td>Social Security and Welfare Sector</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>-----------------------------------</td>
<td>------------------------------------------------------------------</td>
</tr>
<tr>
<td>12</td>
<td>Institutional care to women</td>
<td>There are 17 welfare institutions under the aegis of Social Justice Department (SJD) for the care, protection and rehabilitation of women in distress.</td>
</tr>
<tr>
<td>13</td>
<td>Pension schemes for women</td>
<td>Indira Gandhi National Widow Pension (IGNWP) and pension for unmarried women above 50 years are the major pension schemes.</td>
</tr>
<tr>
<td>14</td>
<td>Nirbhaya</td>
<td>Envisages setting up of Nirbhaya Homes for sexually abused women so as to give skill development training for providing employment opportunities. 10 such homes were started in 9 districts which provided shelter to 200 women.</td>
</tr>
<tr>
<td>15</td>
<td>Gender Park</td>
<td>It is a platform where the State, Non-Government organizations (NGO), academia and civil society can come together for learning and research on gender equality as well as to formulate innovative and new interventions to support the empowerment of women and gender equality.</td>
</tr>
<tr>
<td>16</td>
<td>Beti Bachao Beti Padhao</td>
<td>Financial assistance to the state to empower the girl child and enable her education.</td>
</tr>
<tr>
<td>17</td>
<td>Snehasparsham</td>
<td>Aims to address the problems of unwed mothers.</td>
</tr>
<tr>
<td>18</td>
<td>Rajiv Gandhi Scheme for Empowerment of Adolescent Girls</td>
<td>It aims at empowering the nutritional and health status of the adolescent girls in the age group of 11-18 years.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Local Self Government Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
</tr>
</tbody>
</table>

Source: Plan Documents

Gender based violence remain high and insecurity in the public sphere is prevalent.

Over time policy approaches to women have changed, from ‘welfare’ to ‘development’, ‘empowerment’ and now ‘inclusion’, seemingly towards more gender favourable outcomes. There has been a proliferation of policies, programmes and schemes since then, to assist poor women and address gender gaps in social, economic and political spheres. There also exists a visible, strong and vibrant women’s movement and
large numbers of women in grassroots politics. However, the concrete improvements in women’s economic and social position are inadequate and there is a need to focus on the urgent need for a transformative agenda to move towards greater inclusion and gender equality. International development institutions have shifted emphasis from the MDGs to 17 SDGs with 169 targets to be achieved by 2030 in response to varied dialogues involving representatives of nation states, civil society organizations and platforms, other national and international forums. Nations are moving towards SDGs perceived as representing a more sustainable and resilient path of development and more substantial compared to previous MDGs. Goal 5 “Gender equality and empowerment of women” with a comprehensive set of 9 targets has also been mainstreamed into a majority of the SDGs and targets. Target 5.4 is to recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family.

Section 6

WELFARE OF SCHEDULED CASTES, SCHEDULED TRIBES, OTHER BACKWARD CLASSES AND MINORITIES

The Scheduled Caste population of Kerala is 30,39,573 persons as per 2011 Population Census constituting 9.10 per cent of the total population of the State. According to the amendment to the constitution in 2006, there are 53 communities among the Scheduled Caste. The settlement pattern of Scheduled Caste in the state is entirely different from other parts in the country. Major share of the Scheduled Caste in the state live as scattered along with other people. The highest distribution of Scheduled Caste is in the 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). These five districts accommodate 57.17 per cent of the total Scheduled Caste in the state. In Palakkad District 14.37 per cent of the total population is Scheduled Caste. In Pathanamthitta the representation is 13.74 per cent. In the districts like Idukki, Kollam, Thiruvananthapuram and Thrissur, the population of Scheduled Caste is more than 10 per cent of the total population. The Vedar, Vetruvan, Nayadi, Kalladi, Arundhatiayar/Chakkiliyar are the vulnerable communities among Scheduled Caste. They constitute 3.65 per cent of the SC population in the State.

The Scheduled Tribe population of Kerala is 4,84,839 persons constituting 1.45 per cent of the total population of the State (3.338 crore) as per 2011 Census. There has been an increase of 0.63 per cent as compared to 2001 population census. Sex ratio of Scheduled Tribe population in Kerala is 1035. A comparative picture regarding literacy and sex ratio of Scheduled Tribes population in Kerala with national level is furnished in Appendix 4.95.

The Scheduled Tribes in Kerala are not only geographically concentrated, but are overwhelmingly rural. Highest concentration of Scheduled Tribes is seen 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). These four districts together account for 62.93 per cent of Scheduled Tribes in the State. The coastal district of Alappuzha has the lowest percentage (1.36 per cent). District wise Scheduled
Caste/Scheduled Tribe population details are given in Appendix 4.96 and 4.97.

As per Census of India 2011 (Appendix 4.98) Scheduled Caste households in Kerala have much greater access to banking services, landline phones, computers with internet and car than an average Scheduled Caste household in India. Compared to other southern states like Tamil Nadu, Karnataka, and Andhra Pradesh, only SC households in Tamil Nadu have greater access to televisions than those in Kerala. SC households in Kerala do not seem to have as much access to two wheelers as other SC households in India. While more than 22 per cent of SC households in India did not have access to any of these assets, Kerala performed better with only around 11 per cent of SC households being deprived of these assets.

Similarly in the case of Scheduled Tribes, households in Kerala have much greater access to banking services, television, computer with internet, land line and car than an average Scheduled Tribe household in India (Appendix 4.99). Compared to other southern states, only Scheduled Tribe households in Tamil Nadu have greater access to televisions, computer with internet, landline phones and car than Kerala. Scheduled Tribe households in Kerala do not seem to have as much access to two wheelers as other Scheduled Tribe households in India. While more than 37 per cent of Scheduled Tribe households in India did not have access to any of these assets, Kerala performed better with only around 24 per cent of Scheduled Tribe household being deprived of these assets.

Scheduled Caste and Scheduled Tribe households in Kerala have a better standard of living than their counterparts in the rest of the country in general. However Tamil Nadu has shown an even better standard of living for Scheduled Tribe households than Kerala.

**Occupational Pattern**

Decadal growth rate of Kerala's population as per Census 2011 Population Census was all time low of 4.9 per cent. The work participation rate shows an increasing trend during the decade (2001-11). The proportion of main workers is more than that of marginal workers in all cases. Especially the female main workers have considerably increased from 19.90 per cent in 2001 to 22.71 per cent in 2011 in the case of ST population. In respect of SCs same has increased from 18.51 per cent to 19.59 per cent during this period. The percentage of main workers engaged in household industry shows a decreasing trend. The category of main workers shows that 29.90 per cent of SCs and 59.49 per cent of STs are doing agricultural labour where as in the case of general population it is only 14.18 per cent. Details of occupational pattern is shown in Appendix 4.100.

In Kerala, as per Rule 14(a) of the Kerala State and Subordinate Service Rules 1958, 10 per cent representation (8 per cent for SCs and 2 per cent for STs) is reserved to Scheduled Castes/ Scheduled Tribes in Gazetted, Non-Gazetted and Last Grade Categories in Government Departments. The Scheduled Castes have already got a benefit of more than 8 per cent reservation in all the three categories. But in the case of Scheduled Tribe candidates it can be said that they are nearing the required 2 per cent reservation in State service on a faster pace. The total representation of Scheduled Castes and Scheduled Tribes in public service is 13.25 per cent during 2015 (Data is based on the furnished review report from General Administration (employment-cell) Department, review of 51 out of 83 departments were only completed as on January 1, 2016. Details of representation of SC/ST employees in Government service is given in Appendix 4.101.

**Development Programmes for Scheduled Caste and Scheduled Tribes**

Kerala Government earmarks fund for Scheduled Caste Sub Plan (SCSP) from State Plan outlay in proportion to the percentage population of Scheduled Caste and allocates fund for Tribal Sub Plan (TSP) more than that of ST population
percentage. A two pronged strategy is followed for the development of SC/ST in the State. One is the assistance provided through the LSGs and the other through SC/ST Development Department. Out of the total SCSP/TSP Plan outlay, a certain percentage of funds are allocated to Local Governments for implementation of schemes under decentralized planning and the remaining to the SC/ST Development Department. A system of earmarking certain amount of SCSP/TSP as pooled fund under SCSP and TSP for taking up schemes adopting a project approach was introduced. This gives scope to get wide range of schemes with varied objectives and physical targets, which put together, will help the all-round development of the targeted groups. The total plan provision set apart for the development of Scheduled Caste and Scheduled Tribes during 2016-17 is ₹2354.40 crore and ₹682.80 crore respectively. Year-wise details from 2012-13 onwards are given in Appendix 4.102 and in Figure 4.13.

**Programmes of Scheduled Caste Development Department**

Plan fund devolved to Scheduled Caste development has been earmarked as plan allocation to the department and the local governments. Centrally Sponsored Schemes and schemes/projects included in State plan for the development of scheduled caste population are implemented by the Scheduled Caste Development Department. The institutions for the welfare of scheduled castes managed by the department are given in Box 4.16.

The programmes under SCSP cover a wide area comprising education, economic and social welfare activities for the development of Scheduled Caste. Scheme-wise outlay and expenditure of welfare of Scheduled Caste for 2015-16 and 2016-17 (as on October 31, 2016) and the physical targets and achievements are given in Appendix 4.103 and 4.104 respectively. Some of the major programmes of SC development department are given in Box 4.17.

**Figure 4.13**

SCSP/TSP-Yearwise Outlay

![Bar graph showing SCSP and TSP outlay from 2012-13 to 2016-17](image)

*Source: Budget Documents*
Box 4.16
Major Institutions under Scheduled Caste Development Department

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>Name of Institution</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Nursery Schools</td>
<td>88</td>
</tr>
<tr>
<td>2</td>
<td>Model Residential schools (including Ayyankali Memorial Government Model Residential Sports School)</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>Pre-metric hostels for girls and boys (transferred institutions to Local Governments)</td>
<td>87</td>
</tr>
<tr>
<td>4</td>
<td>Post –metric hostels for girls and boys</td>
<td>17</td>
</tr>
<tr>
<td>5</td>
<td>Pre-Examination Training Centres</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>Institute of Civil service Examination Training Society (ICSET)</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Industrial Training Institutes</td>
<td>44</td>
</tr>
<tr>
<td>8</td>
<td>Centre for Research and Education for Social Transformation (CREST) Kozhikode(an autonomous institution)</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>Medical College, Palakkad</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>Para medical institutes</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>Model Residential Polytechnic, Palakkad</td>
<td>1</td>
</tr>
</tbody>
</table>

*Source: SC Development Department*

Box 4.17
Major schemes of Scheduled Caste Development Department

<table>
<thead>
<tr>
<th>Name of Schemes</th>
<th>Objectives</th>
<th>Achievements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educational Schemes</td>
<td>Provide educational assistance to • Pre-matric studies • Post-matric studies • Running of Model Residential Schools • Students studying in self financing colleges. • Aadhar linked bank account system.</td>
<td>During 2015-16 ₹55.70 crore was expended in education schemes. As on October 31, 2016, ₹30.26 crore was expended from budget estimate 2016-17 (<em>Appendix 4.105</em>).</td>
</tr>
<tr>
<td>Housing Scheme</td>
<td>Financial assistance for • Construction of new houses for the houseless SC families • Online system of granting financial aid through e-housing</td>
<td>During 2015-16, altogether 5215 houses were sanctioned and 1183 houses were constructed. 7500 houses were sanctioned during 2016-17 (as on October 31, 2016) where the construction activities are under progress (<em>Appendix 4.106</em>).</td>
</tr>
<tr>
<td>Land to Landless</td>
<td>• Purchase of land to the poor and eligible landless SC families for house construction</td>
<td>During 2015-16 an amount of ₹149.67 crore was provided benefitting 3767 persons. An amount of ₹160.29 crore is provided for the scheme during 2016-17 (as on October 31, 2016) <em>Appendix 4.107</em>.</td>
</tr>
<tr>
<td>Name of Schemes</td>
<td>Objectives</td>
<td>Achievements</td>
</tr>
<tr>
<td>-----------------</td>
<td>------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Health Scheme-Financial assistance to Seriously ill People</td>
<td>Illness assistance to • Serious diseases like Cancer, Heart/kidney/brain ailments to SC families below poverty line as per the recommendation of the doctor</td>
<td>During 2015-16, financial assistance was given to 21673 persons and expenditure incurred was ₹ 45.67 crore. During 2016-17, 18.80 crores expended for the scheme benefiting 8309 persons (as on October 31, 2016).</td>
</tr>
<tr>
<td>Development programmes for the vulnerable communities Among Scheduled Castes</td>
<td>• 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 and road.</td>
<td>An amount of ₹13.10 crore was expended during 2015-16 benefiting 168 persons. During 2016-17, ₹2.91 crore was expended on October 31, 2016 which benefited 16 persons (as on October 31,2016).</td>
</tr>
<tr>
<td>Self employment scheme</td>
<td>Financial assistance for • promoting new ventures among Scheduled Caste in the ratio 1:2 as subsidy and loan</td>
<td>During 2015-16, ₹3.70 crore was expended benefiting 569 persons. During 2016-17 ₹1.33 crore expenditure incurred (as on October 31,2016) benefiting 309 persons. Financial Assistance provided to brilliant SC/ST students those seeking admission to national and international institutions. Students got assistance for courses like M.SC Nursing and MBA during 2015-16. (Appendix 4.108).</td>
</tr>
<tr>
<td>Assistance for marriage of SC girls</td>
<td>Financial assistance to • Daughters of SC parents to reduce the burden of marriage expenses</td>
<td>During 2015-16, expenditure incurred was ₹38.33 crore and benefited 7667 persons. During 2016-17, 7451 families benefited and ₹37.25 crore was expended under this scheme (as on October 31, 2016).</td>
</tr>
</tbody>
</table>

Source: SC Development Department

Self-Sufficient Village Scheme, Primary Education Aid, Homoeo Health Centres, Assistance for seeking employment abroad, Cyber-Sri, and Treatment Grant from the Relief Fund of the Minister for Scheduled Caste Development are other schemes implemented by the Scheduled Caste development department. During 2015-16, 180 persons benefited for seeking employment abroad and ₹1.65 core was expended. During 2016-17, 254 persons are benefited so far and ₹0.98 crore was expended (as on October 31, 2016).

**Protection of Civil Rights And Enforcement of Prevention of Atrocities Act**

The Scheduled Castes and Tribes (Prevention of Atrocities) Act, 1989 is enacted in the Parliament mainly to prevent atrocities against scheduled castes and scheduled tribes. The main objective is to free Indian society from blind and irrational adherence to traditional beliefs and to establish a
bias free society. According to the National Crime Records Bureau, during 2015-16, 245 cases were registered and an amount of ₹54.79 lakh has been disbursed as compensation to the victims. Details are given in Appendix 4.109.

**Critical Gap Filling (Corpus Fund)**

This scheme intends to provide funds for filling critical gap in the SCSP provision made under various schemes on project basis with emphasis on human resource development, basic needs, and economic development. From 2014-15 onwards one third of the outlay has been allocated to districts on population proportion basis. Schemes/projects up to ₹25 lakh are cleared by the District Level Committee for SC/ST. Project above ₹25 lakh are cleared by State Level Working Groups/Special working Groups. Schemes undertaken during 2015-16 are treatment grant, construction of toilets, honorarium to SC promoters, stipend for apprentice clerk cum typist, Vinjavanadi self employment subsidy, vision 2013, renovation of crematorium, trade fair, and paithrukotsavam. Outlay and expenditure under the scheme from 2011-12 to 2015-16 is given in Appendix 4.110 and the details of schemes taken during 2015-16 are given in Appendix 4.111.

**Pooled Fund**

Pooled fund is a system of earmarking certain amount of SCSP/TSP as pooled fund under SCSP and TSP. The development departments and agencies furnish projects to State Planning Board for consideration. After vetting by State Planning Board, the proposals are forwarded to Scheduled Caste Development Department for placing before State Level/ Special Working Group for approval. Outlay and expenditure under the scheme from 2011-12 to 2015-16 are given in Appendix 4.112 and in Figure 4.14.

**Special Central Assistance to Scheduled Caste Sub Plan (SCA to SCSP)**

The Special Central Assistance to Scheduled Caste Sub Plan is provided by Government of India to States for undertaking mainly economic development programmes for Scheduled Castes. It is not on a schematic pattern. It helps to fill the gaps which are not met from the Central, State and Local body plans. Out of the total funds received under SCA to SCSP, 75 per cent of the funds are distributed to the District Collectors on the basis of Scheduled Caste population in the districts. The balance 25 per cent is kept with the Director, Scheduled Caste Development. Activities that can be taken up under SCA are to assist Scheduled Caste families for taking up viable income generating activities, through a mix of institutional finance and subsidy. The families may be provided assistance under SCA in a manner similar to those admissible under NRLM (National Rural Livelihood Mission). The Outlay and Expenditure details of SCA to SCSP from 2011-12 to 2015-16 are given in Appendix 4.113.
Programmes of Scheduled Tribes Development Department

Tribal Sub Plan was a concept introduced for the development of Scheduled Tribe population during the Fifth Five Year Plan (1974-75). The objective of the Tribal Sub Plan was to give a special care to Scheduled Tribes through a Sub Plan approach. Since 1983-84, the strategy has undergone changes and it has been decentralised at the district level. The 73rd and 74th Constitutional amendments were coincided in the Ninth Five Year Plan and the local governments have been entrusted with specified responsibilities relating to development and welfare of Scheduled Tribes.

The Tribal Development Block of Attapady became 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 Scheduled Tribes outside the ITDPs is now covered by ten Tribal Development Offices (TDOs).

Due to the typical settlement pattern, cultural practices and traditional identities the Scheduled Tribe population are consolidated in clusters and are concentrated in interior forest and adjoining areas. By considering this the strategy of TSP was to protect tribal people and there by attain their development. As per the TSP strategy, the State allocates an amount which is more than proportional to the tribal population (1.45 per cent) in the State. The TSP provision in the budget is for the exclusive development of Scheduled Tribes in the State. During 2015-16, about 3.02 per cent of the state plan outlay was provided under TSP. For the year 2016-17 the percentage allocation to TSP has declined to 2.84 per cent.

The major sources of funds for tribal developments are (i) State Plan allocation, (ii) Funds under TSP components of Centrally Sponsored Schemes (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 Scheduled Tribes Development Department during 2015-16 was ₹391.27 crore (84.10 per cent) as against the allocation of ₹465.28 crore. The total State plan provision set apart for the development of

**Figure 4.14**
Outlay and Expenditure under Pooled fund from 2011-12 to 2015-16

*Source: SC Development Department*
Scheduled Tribes during 2016-17 was ₹682.80 crore. Out of this, an amount of ₹526.80 crore (77.15 per cent) was earmarked to the ST Development Department and an amount of ₹156.00 crore (22.85 per cent) was provided as grant-in-aid to local governments. For the schemes and programmes with 50 per cent and 100 per cent CSS, the Central share was ₹20.62 crore and ₹95.04 crore respectively. In addition to this, ₹ 12.00 crore was included as Special Central Assistance to TSP. Details of financial achievements are given in Appendix 4.114 and physical achievements of schemes implemented by the department during 2015-16 and 2016-17 (as on October 31, 2016) are given in Appendix 4.115.

The major schemes implemented by Scheduled Tribes 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 2015-16 and 2016-17 (up to October 31, 2016) are given in Box 4.19.

<table>
<thead>
<tr>
<th>Name of Schemes</th>
<th>Objectives</th>
<th>Achievements</th>
</tr>
</thead>
</table>
| Educational Programmes| Provide educational assistance to  
• Pre-matric studies  
• Post-matric studies  
• Running of Model Residential Schools  
• Students studying in self financing colleges | During 2015-16, an amount of ₹3.83 crore has been expended benefiting 14980 students under pre-matric assistance and an amount of ₹24.99 crore has been expended benefiting 13597 students under post-matric assistance. During 2016-17 (up to October 31, 2016) an amount of ₹2.87 crore has been disbursed as educational assistance benefiting 15210 students under pre-matric assistance and an amount of ₹8.42 crore has been expended benefiting 12612 students under post-matric assistance.  
During 2015-16, for implementing various educational programmes Scheduled Tribes Development Department provided an amount of ₹ 134.80 crores and expended ₹ 89.20 crores. For the year 2016-17 (up to October 31, 2016) an amount of ₹ 47.07 crore has been expended out of the total provision of ₹155.30 crore.  
(Appendices 4.116 to 4.119) |
| Housing Scheme        | Financial assistance for  
• Construction of new houses for houseless ST families                  | During 2015-16, an amount of ₹48.73 crore was provided for spill over houses under the general housing scheme and an amount of ₹88.99 crore was provided under ATSP housing by the Scheduled Tribes Development Department for sanctioning 9448 houses.  
During 2016-17, under general housing an amount of ₹50.47 crore was provided and expended ₹35.16 crore (as on October 31, 2016) and an amount of ₹150.00 crore was provided under ATSP for spill over works and expended ₹119.35 crore (as on October 31, 2016)  
(Figure 4.15, Appendix 4.120 and 4.121). |
<table>
<thead>
<tr>
<th>Health Scheme</th>
<th>Illness assistance to • Serious diseases such as TB, Leprosy, Scabies, Sickle Cell Anaemia, Waterborne diseases.</th>
<th>During 2015-16, an amount of ₹20.85 crore was provided for health care activities under the plan and the expenditure incurred was ₹20.62 crore. During 2016-17 an amount of ₹15.00 crore was provided to health schemes and ₹15.39 crore has been expended as on October 31, 2016 (Appendix 4.122).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assistance for the Welfare of Scheduled Tribes</td>
<td>Financial assistance to • Daughters of ST parents to reduce the burden of marriage expenses • Sickle Cell Anaemia Patients • Mother and Child • Traditional Tribal Healers</td>
<td>During 2015-16 (up to October 31, 2016) the department had given marriage assistance to 30 ST parents. The rate of assistance was ₹50,000 per beneficiary. During 2015-16 the department provided to give financial assistance to 593 Sickle Cell Anaemia patients. The rate of assistance was ₹2,000 per month per beneficiary. Janani Janma Raksha scheme addresses the nutritional issues of mother and child. It provides timely financial assistance of ₹1000 per month for 18 months beginning from third month of the pregnancy to the month when child attains one year. The scheme also provided financial assistance as annual grant of ₹10,000 to selected traditional tribal healers.</td>
</tr>
<tr>
<td>Resettlement of Landless Tribes</td>
<td>• To provide at least one acre of land per family to landless ST people subject to ceiling of 5 acres based on a master plan. • Resettlement will be done on project basis with emphasis on planning and implementation through Oorukkotsoms.</td>
<td>As on October 31, 2016, 7051 families have been distributed 9179.49 acres of land. Total extent of 280.313 acres of land for 469 landless families has been purchased. District-wise details of land distribution are shown in Appendix 4.123.</td>
</tr>
</tbody>
</table>

Source: ST Development Department

**Corpus Fund**

An amount of ₹4924.99 lakh was provided during 2015-16 for undertaking various development activities under the scheme and the amount expended during the period was ₹941.10 lakh (19.11 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 and health. Statement showing the outlay and expenditure under corpus fund from 2009-10 to 2016-17 (up to October 31, 2016) is given in Appendix 4.124 and Figure 4.16. District wise details during 2016-17 are given in Appendix 4.125.
**Figure 4.15**
Housing Programmes undertaken by ST Development Department, ₹ in lakh

![Graph showing housing programmes](image)

* Upto October 31, 2016  
Source: ST Development Department

**Figure 4.16**
Allocation and Expenditure under Corpus Fund, in ₹ in lakh

![Graph showing allocation and expenditure](image)

* Upto October 31, 2016  
Source: ST Development Department

**Pooled Fund for Special Projects Proposed by Other Departments under Tsp**

During 2015-16, an amount of ₹1000 lakh was provided under the scheme Pooled Fund for special projects proposed by other departments. Out of this an amount of ₹839.00 lakh was allocated for various projects and expended the whole amount. An amount of ₹1000 lakh is earmarked during 2016-17 and the expenditure incurred (as on October 31, 2016) is ₹128.58 lakh. The details of schemes under pooled fund taken during 2015-16 and 2016-17 as on October 31, 2016 are given in Appendix 4.126.

**Atsp Fund/Special Package**

ATSP Fund is a special package in addition to the normal share of TSP to be utilised for the socio-economic betterment of tribal population living in
the tribal settlements in the State. During 2014-15 an amount of ₹150 crore was set apart as ATSP Fund/Special Package as a new initiative for the Integrated Sustainable Development of Scheduled Tribes in the Identified Settlements. Based on the approved DPR of 14 identified settlements an amount of ₹135.75 crore was allotted. Activities proposed during 2014-15 are continuing and the expenditure as on October 31, 2016 is ₹37.26 crore. This scheme was continued during 2015-16 also and an amount of ₹150 crore was earmarked as ATSP Fund by giving more emphasis on infrastructure facilities, economic activities, employment generation, health, education and housing. During 2016-17 also an amount of ₹150 crore was provided to ATSP Fund. Main focus was given to housing and an amount of ₹147.13 crore was earmarked. The expenditure incurred is ₹120.05 crore as on October 31, 2016. The details are given in Appendix 4.127.

**Special Central Assistance to Tribal Sub Plan (SCA to TSP)**

The Special Central Assistance to Tribal Sub Plan released by Government of India as an addition to State Plan Funds is meant for undertaking employment cum income generation activities and the infrastructure incidental to activities based on family and Self Help Groups. 70 per cent of the fund has been utilized for implementing primary schemes supporting family/SHG/community based income generation activities and 30 per cent used for critical infrastructure in the sectors of drinking water, and watershed management. Under the scheme 30 per cent beneficiaries are women. The outlay and expenditure under SCA to TSP during 2009-10 to 2016-17 (up to October 31, 2016) is shown in Appendix 4.128.

**Kerala Institute for Research Training and Development Studies for SC/ST**

The institute was established in 1970 as Tribal Research and Training Centre (TR and TC) in national pattern, which subsequently got recognized as the Kerala Institute for Research Training and Development Studies of Scheduled Castes and Scheduled Tribes (KIRTADS). The Institute conducts research and intensive study on Scheduled Caste and Scheduled Tribe population of the State.
Anthropological investigation on doubtful community cases as requested by Scheduled Tribes Development Department, Scheduled Caste Development Department, Revenue Divisional Officers, Tahsildars and District Collectors has also been undertaken by the wing. Details are given in Appendix 4.129.

The training wing of KIRTADS co-ordinates and conducts a large number of programmes to promote Tribal Development. This wing also conducted many orientation programmes, capacity building programmes, empowerment programmes and educational programmes. The institute also undertakes Adikalagramam programme which includes 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 4.130.

Kerala State Development Corporation For Scheduled Caste and Scheduled Tribes

The major schemes implemented by the Corporation include agricultural land purchase, micro-credit finance, mini-venture loans, small enterprise loans, housing, educational loan, and marriage assistance. The sources of finance for implementing various schemes are Corporation's own share capital and assistance from other national refinancing agencies like NSTFDC, NSKFDC and HUDCO.

The scheme-wise details of physical and financial achievements of the Corporation are given in Appendix 4.131.

Welfare of Other Backward Classes

The Backward Communities Development Department started functioning as a separate department in November 2011 to look after the developments of socially and economically backward communities of the society. Though the directorate of this department was created at the end of the financial year 2011-12, it implemented two major educational schemes, Pre-Matric and Post-Matric Scholarships with the help of Scheduled Caste Development Department.

The department has implemented various educational schemes such as Pre-Matric and Post-Matric Scholarship for OBC and OEC students. During the period, the department started a number of schemes such as employability enhancement programme, overseas scholarship scheme, career in automobile industry, construction of hostels and assistance to traditional occupations. During 2015-16, an amount of ₹64.85 crore (72 per cent) was expended out of the budget provision of ₹90 crore. A total amount of ₹94 crores was earmarked by the State government for the sector during 2016-17, of this ₹36 crores is State share for CSS. An amounts of ₹50 crore is anticipated as 100 per cent CSS during 2016-17. The expenditure incurred as on October 31, 2016 is ₹26.18 crore. The Scheme wise outlay and expenditure and the physical achievements of the department during 2015-16 and 2016-17 (up to October 31, 2016) are given in Appendix 4.132 and 4.133.

Kerala State Backward Classes Development Corporation

Kerala State Backward Classes Development Corporation is acting as a major State level Channelising Agency (SCA) of National Financing agencies, viz., National Backward Classes Finance and Development Corporation (NBCFDC) and National Minorities Development and Finance Corporation (NMDFC). KSBCDC implements their schemes by providing financing assistance at lower rate of interest to the members of backward and minority communities living below the poverty line for their overall development. KSBCDC also implements various welfare schemes by utilizing State government assistance and its own fund
reserves. The corporation has disbursed loans worth ₹27,602.86 lakh during 2015-16 benefiting 29,200 individuals. As on October 31, 2016 an amount of ₹14,917.93 lakh was distributed among 10,524 individuals during the year 2016-17.

The source-wise expenditure and the physical achievements of the Corporation during 2015-16 and 2016-17 (up to October 31, 2016) are given in the Appendix 4.134.

**Kerala State Development Corporation for Christian Converts from Scheduled Caste and the Recommended Communities**

The main objective of this corporation is to promote social, educational, cultural and economic upliftment and other living conditions of the converted Christians from Scheduled Castes and other recommended communities. The main 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. The source of finance of the corporation is the financial assistance received from state government and the loan assistance from NBCFDC. Details of year wise disbursement of state government assisted loan schemes from 2011-12 to 2016-17 (as on October 31, 2016) are given in Appendix 4.135. The scheme-wise details of physical and financial achievements of the corporation are given in Appendix 4.136.

**Welfare of Minorities**

The Minority Welfare Department was constituted for addressing the socio-economic and educational backwardness of Minority Communities in the State. An amount of ₹8829.13 lakh was expended from the budget provision of ₹8700 lakh during 2015-16. An amount of ₹8300 lakh was earmarked to the Department during the year 2016-17 for various programmes. The major schemes are Multi Sectoral Development Programme (MSDP) (with 25 per cent state share), housing scheme for divorcees/widows/abandoned women from the minority communities, and drinking water supply scheme in minority concentrated areas. The scheme-wise outlay and expenditure and the physical achievements of the department during 2015-16 and 2016-17 (up to October 31, 2016) are given in Appendix 4.137 and 4.138.

The State Government constituted the State Minority Development Finance Corporation to provide financial assistance to income generating projects, housing finance, educational loans, and vocational training to minority communities. An amount of ₹1500 lakh has been provided as share capital contribution to the Corporation during 2016-17. The financial and physical achievement of the corporation is given in Appendix 4.139.

**Welfare of forward Communities (Sammunathi)**

The State Government constituted the State Welfare Corporation for Forward Communities for the comprehensive development of economically backward sections among the forward communities. During 2015-16 an amount of ₹2057.44 lakh was expended out of the budget provision of ₹2140 lakh. An amount of ₹2440 lakh was earmarked to Welfare Corporation for Forward Communities during the year 2016-17 for various programmes. The major schemes are scholarship, coaching assistance, term loan assistance, skills and entrepreneurship development and renovation of agraharas. The scheme-wise outlay and expenditure and the physical achievements of the Corporation during 2015-16 and 2016-17 (up to October 31, 2016) are given in Appendix 4.140.
Section 7

Art And Culture

The culture of Kerala is a synthesis of Aryan and Dravidian cultures, developed and mixed for centuries, under influences from other parts of India and abroad. Kerala is endowed with a rich heritage of culture. There are many institutions set up for the promotion and encouragement of various art forms of Kerala. Academies, publishing houses, cultural centres, institutions of fine arts and folk arts, research centres, Culture Directorate and Directorates of Museums, Archives and Archaeology are some of such institutions that function under the administrative control of Cultural Affairs Department.

During the 12th plan period, an amount of Rs. 38,822 lakh was earmarked for Art and Culture. An amount of ₹29,700 lakh was earmarked during the first four years of the 12th plan period and the expenditure incurred during the four years was ₹25,067.46 lakh, which constitutes 84.40 percent of the outlay earmarked. Major initiatives of the sector during the twelfth plan period included the following: Setting up of Archaeology/Heritage Museums at District Level, Drama and Theatre workshop for school going students, preservation of old Malayalam film negatives and its digitalization, revival of dying art forms of Kerala, Medical cum accident insurance scheme for artists and diffusion of Kerala Culture.

A brief description of major achievements of some of the departments coming under the sector Art and culture during the reported period is given below.

Archaeology Department: One of the major achievements of the department is setting up of District Heritage Museum. The work of District Heritage Museum is progressing in the districts of Thiruvananthapuram, Ernakulam, Thrissur, Palakkad, and Wayanad. Initial steps are being taken to set up District Heritage Museums in the districts of Idukki, Malappuram and Kannur. Renovation works of Koyikkal Palace, Hill palace Museum Thrippunithura and Pazhassi Raja Museum Kozhikode are progressing. The department conducted scientific excavations at Kakkodi at Kozhikode, Patyam at Kannur and Marakkara at Malappuram. Chemical conservation work was done on archaeological objects excavated from Chandragiri Fort, Kozhikode, Wayanad and Thalassery. Department organised cultural festival named “Suvarnam 2015” from December 18 to 22, 2015 at Kottayam and also organised “Kerala Heritage Fest 2015-16” for creating Cultural awareness among the Non Resident Keralites at Mumbai on March 4 to 6, 2016.

Archives Department: Archives Department, through the nodal agency Keralam Museum, has set up a Freedom Struggle Memorial Museum at Vattiyoorkavu for highlighting the contributions of Kerala’s Freedom struggle to the public and installed Mahatma Gandhi statue at Vaikkom. The department has started the digitalisation of some important selected papers and palm leaf records such as Neetu volumes and Mathilakom records and work is on progress. For the conservation of paper records, department had implemented a conservation project through National Research Laboratory for conservation of Cultural Property. Department holds a huge collection of different categories of records but a large number of them is difficult to be located because of absence of subjects list index and descriptive list. The department therefore has started the preparation of reference media of records through Kerala Museum. It also has a huge collection of palm leaf records, which is the largest collection in the world. These records deal with political, social and cultural history of Kerala. Most of these records are written in
old scripts of Kerala such as Vattezhuthu and Kolezhuthu. In connection with the computerisation of Archives, Department has purchased 10 computers and related gadgets. For the security of archival records, the Department had installed 19 surveillance cameras at the Directorate. The International Archives Week celebration was conducted from January 23 to 30, 2016 at Kannur and Kasaragod districts and two books have been published on selected speeches of Freedom fighters (Volume I and II). Formation of community archives is a new initiative of the department and hopes to reach out to the society, create awareness about records, locate records through surveys, preserve or conserve them at their site and acquire records from those who are willing to transfer their custody. As the first phase, department has conducted two community archives camp at Pandikkadu and Chembrassery in Malappuram district. Both the events turned out to be a huge success in terms of participation of public as well as identification of records.

**Directorate of Museums and Zoos:** During the reported period, Directorate renovated the Natural History Museum by redesigning the ticket counter, information counter and cloak room. Department has decided to renovate Natural History Museum with eye catching visual and three dimensional figures to give the visitors a new experience.

### Box 4.21

**Working Group on Art and Culture during Thirteenth Five Year Plan**

A Working Group on Art and Culture was constituted for the Thirteenth Plan. Prof. K. Satchidanandan and Smt. Rani George IAS, Secretary Cultural Affairs Department were the co-chairpersons of the working Group with other 22 members. The Group held three sittings and has submitted its report. Major recommendations of the report are:

- Creation of a network of public/common space with modern amenities for cultural activities in urban and rural areas.
- A complete restructuring of the existing museum with the help of comprehensive plan prepared by experts. Setting up of new museums by synchronising lifestyle and tradition.
- Setting up of multi facility art galleries in all district headquarters
- Protection of sites of archaeological importance from encroachment and ensuring protection by entrusting it to appropriate agencies. Linking tourism plans with sites of archaeological importance and the network of museums
- Digitalising historical records with the support of research students. Collection of available records from outside State.
- Promotion and training of folk arts and artisans.
- Formation of a Cultural Council to ensure coordination of activities of cultural institutions and evaluation of schemes
- Promotion of Research on Malayalam Language, formation of new Malayalam words and translation
- Organising International Film Festival, drama festival, music festival and literature festival ensuring participation of women and children.
- Co-ordination of the activities of different institutions related to language development
- Organising cultural awareness programmes among youths and students
- Pension scheme for indigent artists.
State Institute of Encyclopaedia Publications: The State Institute of Encyclopaedia Publication is an institution established for publishing encyclopaedia and other similar reference books in Malayalam Language. The Institute has so far published 16 volumes of the General Encyclopaedia and full volumes (10 volumes) of the encyclopaedia on World literature. Digitalisation of Volume 1 to 15 of SarvaVijnana Kosam is completed. During the reported period, Institute published Sarva Vijnan Kosam Volume 16 and ViswaS ahitya Vijnan Kosam Volume 9 and 10.


Margi: Margi, a felicitous institution for teaching ‘Kathakali’, started in the year 1970 is a cultural centre for promoting ‘Kathakali, ‘Koodiyattam’ and ‘Nangiarkoothu’. Three performances in Nangiarkooth, five performances in Koodiyattom, nine in Kathakali were staged inside Margi during the reported period. Another important activity of Margi was free training to youngsters with the object of promoting Kathakali and Koodiyattom. Irregular Kathakali classes, more than 36 students were studying Chenda, 2 Maddalam, 4 Music and 6 students Kathakaliveshnam in the traditional format.

Vasthu Vidya Gurukulam: Vasthu Vidya Gurukulam has been approved by Ministry of Human Resource Development as national nodal agency for Vasthu and other related subjects. It has a very efficient consultancy wing which prepares sketches, plans and designs for those who are interested in building their houses and other structures in the traditional architectural pattern. Around 351 registrations have been done in the consultancy wing during the reported period. 5 academic courses are being conducted in Vasthuvidya and mural painting. Gurukulam is documenting important traditional architectural structures in Kerala, listing out and documenting all heritage buildings in Kerala for State tourism department. Renovation of mural painting works at Thali temple is completed. Vasthu Vidya Gurukulam designed and prepared the sketch and plan for South Indian Performing Arts museum for Kerala Kalamandalam.

Kerala Sahitya Academy: Kerala Sahitya Academy conducted a seminar on “Cinema and Literature” at Mascot Hotel on December 9, 2015 and organised three days workshop on literature at Kollam from December 11 to 13. During 2016-17, Academy distributed Ezhuthachan Award on January 6, 2016, inaugurated Kamala Surayya Smarakam on January 26, 2016, organised national book festival and “Aksharapperuma” cultural festival on February 2-11, conducted seminar on Malayalam Language and Literature from February 18-20, 2016 and organised N.V. Krishna Varrier birth centenary seminar at Govt. Arts and Science College, Kozhikode on March 22, 2016.

Major Cultural Events during 2016-17

International Film Festival: The 21st International Film Festival of Kerala organised by Kerala State Chalachitra Academy was held from December 9 to 16, 2016 at Thiruvananthapuram. A competition section for the films from Asian, African and Latin American countries was the highlight of the festival.

Kochi Muziris Biennale: The Third Kochi Muziris Biennale was inaugurated by the Hon’ble Chief Minister on December 12, 2016 at Kochi. Dance, Music, Drama and traditional art forms were included in this biennale named “Ulkaazhchakal Urvukunnidam” which was curated by the famous artist Sudharshanan Shetti, in which 100 artists from 31 countries participated. The biennale has 12 stages and will be conducted for 108 days before concluding on March 29, 2017.
The State has been a model of social development for other states to emulate. Innovative, committed and focused policy initiatives and programmes have led to notable achievements in the social sector and the benefits have percolated to the majority of the citizens of the State. However, now the focus needs to be on quality than on quantity and consolidation of its achievements. The quality of education needs to be given serious attention if the State has to leverage on its human resources. The proposed health policy is expected to address the issues in this sector. Revival of gender budgeting would renew focus on women centric policies and programmes. The State needs to take measures to harness its achievements into meaningful outcomes.
Chapter 5  Infrastructure
Infrastructure development in the State, of late, has been receiving the much needed thrust. Several major projects will become operational in the coming years. Through Kerala Infrastructure Investment Fund Board, the State is aiming to address the constraints of resource availability in financing infrastructure projects. This has been one of innovative and decisive steps taken by the State. Similarly, the State is creating a niche in the field of startups and has taken several encouraging measures in this regard. Much, however, still needs to be done in the field of energy as the State relies heavily on hydro sources of power for generation of electricity. The deficient rainfall this season has worsened the situation on this front. Availability of a sound infrastructure, including power supply is required to support the other sectors of the economy. The renewed thrust and focus on infrastructure needs to be continued with vigour for propelling the State’s economic growth as well as social prosperity.

Section 1
TRANSPORT

Transport plays a significant role in the economic development of any region. As road transport provides door-to-door connection and flexible movement of goods and passengers, its patronage by people is on the rise day by day. The quality of life now greatly depends on the quality of roads. India has an extensive road network, which provides mobility to millions of people every day. Thus road transport is one of the important growth engines for social and economic development of the country.

India has the third largest road network in the world stretching 4.48 million km in length. According to World Bank, National Highways in India account for 76,818 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 from single-lane to two-lane standards. Indian Railway is the second largest in the world (63,500 km of route length) under single management. Freight accounts for 67 per cent of total revenue of Railway. Civil Aviation is gradually gaining importance in passenger movement with increase in private participation in operation of 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 7,517 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.

Presence of quality infrastructure is vital for social, economic and industrial development of the country. The transport infrastructure in Kerala largely consists of roads, railways, airports and inland water transport system. Roads play a prominent role in Public Transportation over other modes of transportation owing to the geographic peculiarities of Kerala, widely scattered habitation with lesser rural urban divide and limited geographical area of 38,863 Sq.Km.

The category of roads includes National Highways (NH), State Highways (SH) & Major District Roads (MDR) and PWD & local body roads. The motor vehicle population in Kerala, which was around two lakh in 1980, increased to more than one crore vehicles in 2016. Nearly 65 per cent of registered vehicles in the state are two wheelers. Nearly 25000 buses are on roads in the state and major chunk of this is operated in urban areas causing traffic chaos and congestion. Although road transport dominates the transportation scenario in Kerala, people depend on railways for long distance transport needs.

The transport system in Kerala needs much improvement. Since the road infrastructure plays the pivotal role in the overall development of the State, there should be suitable policy, strategy and planning for repairs or maintenance of roads. Certain criteria should be developed for prioritizing road works in the State. Major emphasis should be in widening the State Highways and Major District Roads along with proper design and adequate drainage facilities.

Road improvements, repair and maintenance of existing roads, development and upgradation are the major activities taken up in the sector during the 11th Five Year Plan. Budgetary support, private finance and institutional supports were used for the purpose. A Road Development Policy has been approved by the Government and PWD Manual & Data Books have been revised. Quality Control Sub Divisions were set up in all districts. Rolling Heavy Maintenance Programmes for the State Highways were introduced to ensure upgradation of the SH and MDRs to cope with the heavy traffic flow on the roads. Web based online services were introduced to provide data base and all the services rendered by the Department. A Road Safety Authority has been set up for implementing various road safety initiatives and to create awareness among the drivers and to public regarding safe driving. Quality infrastructure creation in road construction was the focus area during the 12th Plan.

There is a need to undertake planned development of State Highways, important Major District Roads and City roads in the State which addresses geometrical improvement, junction improvements, re-laying the roads incorporating technical corrections and entering into maintenance contracts.

Transport Infrastructure

Transport infrastructure of the State consists of 2.05 lakh Km of road, 1588 Km of Railways, 1687 Km of Inland Waterways and 18 Ports. Kerala has a total fleet of 25,449 buses, of which 19145 are private buses (75 per cent) and 6304 are KSRTC buses (25 per cent). Private buses dominate the Bus Transport in all districts of Kerala except Thiruvananthapuram. Co-ordination between the physical infrastructure providers – Public Works Department (PWD), Railways, Inland Transport Authority, Airports and Coastal Shipping Agencies to build transport infrastructure and for the operation and the maintenance of the existing ones is required. Physical infrastructure has to
be designed to support an intermodal transport network. Road design should be done based on 15 year traffic forecasts even with an intermodal transport network.

Most of the roads in the State do not have adequate width so as to cater to the existing level of traffic and 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 lane or intermediate lane capacity. Bulk of the inter city and interstate traffic are carried out by the National Highways and State Highways which are only eight per cent of the total network. Considering the demand supply gap, there is a huge need for up gradation of existing road network. Table 5.1 shows the outlay and expenditure of Transport Sector under different Five Year Plans.

A comparative analysis of the sector wise outlay and expenditure during the Tenth and Eleventh Five Year Plans reveals that the Transport Sector has utilized 12 per cent of the share of total expenditure of the State against 10 per cent of the share of outlay during the Tenth Plan. This trend continued during the Eleventh Five Year Plan also where the share of total expenditure was 15 per cent against the share of outlay of 10 per cent.

Roads are being maintained by various agencies in Kerala, like Local Self Governments, Public Works Department (Roads & Bridges) and National Highways, Municipalities, Corporations, Irrigation, Forests, and Railways. Other agencies dealing with transport sector are National Transportation Planning and Research Centre (NATPAC), Motor Vehicles Department, Kerala State Road Transport Corporation (KSRTC), Roads & 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 during 2014-15 to 2016-17 is given in the Table 5.2.

**State Road Network**

Infrastructure

An efficient road infrastructure is an essential requirement for sustained growth of the economy and to ensure cost effective movement of people and goods. 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 most important challenge in the road sector involves building all weather roads connecting each and every village. Even though Kerala is comparatively better placed than most other States as regards road length, the condition of many of these roads is very poor. Therefore, the main

<table>
<thead>
<tr>
<th>Five Year Plan</th>
<th>Budgeted Outlay</th>
<th>Expenditure</th>
<th>Per centage of Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenth Plan (2002-07)</td>
<td>247771.00</td>
<td>237819.00</td>
<td>96</td>
</tr>
<tr>
<td>Eleventh Plan (2007-12)</td>
<td>445881.00</td>
<td>658046.00</td>
<td>148</td>
</tr>
<tr>
<td>Twelfth Plan (2012-17)</td>
<td>638585.00</td>
<td>960728.89*</td>
<td>209.9</td>
</tr>
</tbody>
</table>

*Expenditure of the first four years of plan

Source: Budget, State Planning Board
Outlay and expenditure in the Transport sector during 2014-15 to 2016-17, ₹ in lakh

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Port Department</td>
<td>9869.00</td>
<td>5277.50 (53.48 per cent)</td>
<td>26928.00</td>
</tr>
<tr>
<td>2</td>
<td>Roads and Bridges</td>
<td>83641.00</td>
<td>14942.40 (178.64 per cent)</td>
<td>95107.00</td>
</tr>
<tr>
<td>3</td>
<td>Road Transport</td>
<td>10226.00</td>
<td>7578.57 (74.11 per cent)</td>
<td>7425.00</td>
</tr>
<tr>
<td>4</td>
<td>Inland Waterways</td>
<td>14342.00</td>
<td>3930.93 (27.41 per cent)</td>
<td>15542.00</td>
</tr>
</tbody>
</table>

*Upto October 2016

Source: Accounts and Planspace, State Planning Board

emphasis under road development in Kerala has been on improvement and up gradation of existing roads rather than construction of new roads. This requires institutional strengthening, adoption of standards applicable to the Indian Road Congress (IRC)/Ministry of Road Transport and Highways (MORTH) specifications, strict quality control and adoption of self-financing revenue models suited to the State. The investment need in the road sector is of high magnitudes that are beyond the resources available with the Government. Therefore, there is an imperative need to motivate private and other non-governmental agencies/corporate sectors to participate in road construction and up gradation of selected highways.

The major development indicators of transport and communication sector in the State since 2010 are given in Appendix 5.1. On the road front, traffic has been growing at a rate of 10 to 11 per cent every year, resulting in excessive pressure on the roads of the State. Total road length in Kerala during 2015-16 is 205545.616 km. This includes classified and non-classified roads as stipulated by Indian Road Congress. Road density in the State is 528.8 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 615.5 km. Almost 90 per cent of the road network is single lane and below standard. The National Highways, considered to be the primary network, carries 40 per cent of the total traffic, and the State Highways and 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 5.3.

The roads maintained by different Local Self Government Departments during 2015-16 is 139380.410 km (67.81 per cent), of which 63348.52 Km (45.45 per cent) are black topped and 16716.24 km (8.13 per cent) are cement concrete and of varying standards.

**Public Works Department**

(Roads and Bridges)

Roads and Bridges wing of PWD is mandated to look after State Highways, and Major District Roads in the State. PWD roads constitute 15 per cent of the total road network in the State and
Table 5.3  
Agency-wise distribution of State roads in Kerala during 2015-16

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Name of Department</th>
<th>Length (Km)</th>
<th>Per centage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Panchayats (LSGDs)</td>
<td>139380.410</td>
<td>67.81</td>
</tr>
<tr>
<td>2</td>
<td>PWD (R&amp;B)</td>
<td>31812.096</td>
<td>15.48</td>
</tr>
<tr>
<td>3</td>
<td>Municipalities</td>
<td>18411.870</td>
<td>8.96</td>
</tr>
<tr>
<td>4</td>
<td>Corporations</td>
<td>6644.000</td>
<td>3.23</td>
</tr>
<tr>
<td>5</td>
<td>Forests</td>
<td>4575.770</td>
<td>2.23</td>
</tr>
<tr>
<td>6</td>
<td>Irrigation</td>
<td>2611.900</td>
<td>1.27</td>
</tr>
<tr>
<td>7</td>
<td>PWD (NH)</td>
<td>1781.570</td>
<td>0.87</td>
</tr>
<tr>
<td>8</td>
<td>Others (Railways, KSEB)</td>
<td>328.000</td>
<td>0.16</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>205545.616</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Various Departments

carries nearly 80 per cent of the road traffic within the State. With road traffic growing at an average rate of 12-14 per cent every year, the pressure on PWD road network is on an increasing trend.

The total length of roads maintained by PWD (R&B) increased to 31812.096 km during 2015-16, of which 4342 km is State Highways and 27470 km is Major District roads. Out of the State highways of 4342 km, only 1640 km of roads is Standard Double Lane and 2,404 km of roads is Single Lane and the rest is Below Standard Single Lane. Out of the 27470 km of Major District Roads, only 1310 km are Standard Double Lane and 26160 km are Standard Single Lane. The total length of Double Lane PWD roads is only 2950 km which is only 9.27 per cent of the roads owned by PWD.

Out of the total roads of 31812.096 km maintained by PWD, Kottayam District has the major share with a length of 3456.214 km (10.86 per cent). Wayanad District has the lowest share with 1029.314 km (3.24 per cent). Details of district wise and category wise length of roads maintained by PWD (R&B) as on March 31, 2016 is given in Appendix 5.2.

As on March 31, 2016 there were 1806 bridges and 51400 culverts on the PWD roads. Of them, 61 bridges need reconstruction/renovation and 1557 culverts are not in good condition. More details are given in Appendices 5.3, 5.4, 5.5 and 5.6. Major

Box 5.1  
Major Activities of PWD R&B during 2015-16

- Steps have been taken to strengthen Road Safety Cell, Environment Cell, Geographical Information System and Road Maintenance Management System unit
- PWD Manual has been revised and updated
- Project Preparation Unit formed to take up major project preparation works
- Integrated Financial Management System (IFMS) is being implemented in a phased manner
- Quality control Units set up in all Districts with Laboratories
- Proposals formulated for Infrastructure Development works through Kerala Infrastructure Investment Fund Board (KIIFB)
- Human Resources Development Wing instituted to provide good quality training to Engineers, Technical and Administrative Staff
- An Environment Cell established to ensure environment impact assessment guidelines in high value project
Initiatives of PWD (R&B) during 2015-16 is given in the Box 5.1.

The State PWD is responsible for policy, planning, design, construction and maintenance of the State Highways, Major District Roads and the National Highways on behalf of the NHAI. State PWD is performing extremely vital role in provision of road infrastructure on the ground. However, they need to be reoriented to the current needs with emphasis on private sector participation and implementation of large scale projects under the assistance of multilateral funding agencies like JBIC, World Bank, and ADB.

During 2015-16, development and improvement of 1731 Km of State Highways and MDRs has been completed by PWD (R&B). It includes a total length of 695 Km of bitumen macadam & bitumen concrete (BM&BC) surfacing and 1036 Km of normal surfacing. Roads and Bridges wing has completed the works of 77 bridges out of the 100 bridges included in the 400 days programme of Government of Kerala. ‘PRICE’ software implemented for preparing estimates and speedy submission to other offices online for according Administrative Sanction and Technical Sanction. Various road works under Panchayats/ Municipalities/Corporations, for an amount of ₹557.12 crore, has been taken up and completed under the one time renovation scheme. Three major projects under the District Flagship Infrastructure Projects viz, Valiazieekkal Bridge (₹ 146.5 crore), Nadukani Vazhikkadavu Parappanangadi Road (₹415.00 crore) and Cherupuzha Payyavoor Road (₹ 205 crore) has been started.

Government of Kerala has made it mandatory to follow Indian Road Congress (IRC) standards and Ministry of Road Transport & Highways (MoRTH) specification for road works in Kerala. Kerala Public Works Department Manual has also been revised and the revised Edition (2012) has been made effective from April 1, 2012 onwards. The impact of the change in specifications and revisions in Manuals is to be evaluated in the coming years.

### National Highways

The National Highway Wing of State PWD is responsible for the upkeep and development of National Highways in the State mainly with the funds allocated by the GoI. There are Nine National Highways together constituting 1781.57 km length in the State, of which 1,339 km (76.6 per cent) are under various development stages by the National Highways Authority of India (NHAI). Development of the remaining 408 km, which is under the control of the State PWD, is the responsibility of the State Government. The details are presented in Table 5.4.

Among the 11 National Highways, the Vallarpadam – Kalamassery NH C (New NH 966 A) is being developed by the National Highway Authority of India (NHAI). Upkeep of the highways, except 176 km is being done by State PWD with fund allocated by Ministry of Road Transport and Highway (MoRTH). Central Road Fund allocation is used for the development of State Roads, that is, State Highways and Major District Roads. 45 works are on-going and 26 new works have been arranged during the period.

### Kollam and Alappuzha

#### By passes

Kollam and Alappuzha Bye passes in NH 47 is being implemented on cost sharing basis between Central and State Government. 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 State Government.

The total length of Alappuzha Bye pass (₹ 348.43 crore) is 6.8 KM, of which 3.2 KM is elevated highway, starting from Kommady Junction to Kalarkode. The work commenced on March 16, 2015 under EPC mode and is progressing. M/s RDS CVOC (JV) is the contractor of this time bound EPC with a contract sum of ₹ 274.34 crore and is targeted to be completed by August 2017. An amount of ₹ 164.64 crore is sanctioned
as mobilization advance by the Central and State Governments and 32 per cent of the work completed.

The Kollam Bypass which starts from Kavanad and ends at Mevaram is 13 km long with aggregate cost of ₹352.05 crore and it includes 3 major bridges and 7 km new road and widening of 4 km existing road. The work commenced on May 27, 2015 under EPC mode and has made considerable progress and is scheduled to be completed by November 2017. An amount of ₹103.00 crore is sanctioned as mobilization advance by the Central and State Governments and 32 per cent of the work is completed.

**Kerala State Transport Project (KSTP)**

Kerala State Transport Project (KSTP) is a World Bank assisted project and Bank has approved a cost of ₹ 2,403 crore (US$445 ml). The loan agreement with Bank was signed on June 19, 2013 and the effective date is 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 had accorded sanction for the project for an amount of ₹ 2,500 crore.

The KSTP is implementing the Kerala State Transport Project –Phase II. The objective of the project is to improve the riding quality in 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 following works are progressing under the Project. The details are presented in Table No.5.5.

Out of the nine road packages (including one bypass) works on seven packages has been arranged and the works are under different stages of execution. The progress of works had been slow due to adverse climate condition, and local problems. The works in Package III (Thalassery – Valavupura – 54 km) has been terminated due to the poor performance of the contractor. One road in Package – 8 for upgradation could not be taken

### Table 5.4
National Highways in Kerala

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>New No.</th>
<th>Existing No.</th>
<th>From</th>
<th>To</th>
<th>Length of New NH No. in Kerala Kms</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>66</td>
<td>NH 17</td>
<td>Thalappadi</td>
<td>Edappally</td>
<td>420.777</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NH 47</td>
<td>Edappally</td>
<td>Kaliyikkavila</td>
<td>248.660</td>
</tr>
<tr>
<td>2</td>
<td>544</td>
<td>NH 47</td>
<td>Walayar</td>
<td>Edappally</td>
<td>168.14</td>
</tr>
<tr>
<td>3</td>
<td>85</td>
<td>NH 49</td>
<td>Bodimettu</td>
<td>Kundanoor</td>
<td>167.593</td>
</tr>
<tr>
<td>4</td>
<td>744</td>
<td>NH 208</td>
<td>Kollam</td>
<td>Kazhuthuruthy</td>
<td>81.280</td>
</tr>
<tr>
<td>5</td>
<td>766</td>
<td>NH 212</td>
<td>Kozhikode</td>
<td>Muthanga Kerala–Karnataka Border</td>
<td>117.600</td>
</tr>
<tr>
<td>6</td>
<td>966</td>
<td>NH 213</td>
<td>Kozhikode</td>
<td>Palakkad</td>
<td>125.304</td>
</tr>
<tr>
<td>7</td>
<td>183</td>
<td>NH 220</td>
<td>Kollam</td>
<td>Theni in Tamil Nadu Border</td>
<td>190.300</td>
</tr>
<tr>
<td>8</td>
<td>966 B</td>
<td>NH 47 A</td>
<td>Wellington Island</td>
<td>Kundanoor</td>
<td>5.920</td>
</tr>
<tr>
<td>9</td>
<td>966 A</td>
<td>NH 47 C</td>
<td>Vallarpadam</td>
<td>Kalamassery</td>
<td>17.200</td>
</tr>
<tr>
<td>10</td>
<td>183 A</td>
<td>-</td>
<td>-</td>
<td>Bharanikkavu</td>
<td>116.800</td>
</tr>
<tr>
<td>11</td>
<td>185</td>
<td>-</td>
<td>-</td>
<td>Adimaly</td>
<td>96.000</td>
</tr>
</tbody>
</table>

**Total** | **1781.57**

*Source: PWD (NH)*
Table 5.5
Works under Kerala State Transport Project, ₹ in crore

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Name</th>
<th>Cost</th>
<th>Date of completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kasaragod – Kanhangad Road</td>
<td>133.05</td>
<td>March 2017</td>
</tr>
<tr>
<td>2</td>
<td>Pilathara – Pappinisserry Road</td>
<td>118.29</td>
<td>March 2017</td>
</tr>
<tr>
<td>3</td>
<td>Thalassery – Kalarode Road</td>
<td>156.59</td>
<td>June 2018</td>
</tr>
<tr>
<td>4</td>
<td>Kalarode – Valavapara Road</td>
<td>209.58</td>
<td>August 2018</td>
</tr>
<tr>
<td>5</td>
<td>ChengannurEttumanoor Road</td>
<td>293.58</td>
<td>November 2017</td>
</tr>
<tr>
<td>6</td>
<td>Thiruvalla Bye pass</td>
<td>31.80</td>
<td>Work progressing</td>
</tr>
<tr>
<td>7</td>
<td>Ettumanoor – Muvattupuzha Road</td>
<td>171.49</td>
<td>September 2017</td>
</tr>
<tr>
<td>8</td>
<td>Punalur – Ponkunnam Road (under PPP modified annuity)</td>
<td>Bid process has been initiated to pre quality the investors</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Perumbilavu – Perintalmanna road</td>
<td>227.13</td>
<td>December 2016</td>
</tr>
</tbody>
</table>

Source: KSTP

up as the land acquisition is not yet completed. The works on this road will be limited to strengthening of existing road crust. All the arranged works are expected to be completed by the end of 2018.

Kerala Road Fund Board

Kerala Road Fund Board is a statutory body under the State government established by the KRF Act 2001. The main source of revenue of the Board is the 10 per cent share of motor vehicle tax released by the state government as budget allocation under non-plan head. The Board is implementing mainly City Road Improvement Projects on PPP mode. The Thiruvananthapuram City Road Improvement Project has been implemented by Kerala Road Fund Board on PPP (Annuity) mode involving 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 has been completed and is being maintained on Annuity Payment mode.

Kerala Road Fund Board has initiated the Kozhikode City Road Improvement Project, which involves development of 22.251 km of road on DBFOT – annuity mode and the work is progressing. Detailed Project Report for implementing the City Road Improvement Project in Alappuzha which is being finalised involves 18 roads for a total length of 48 Km, proposed to be developed under Phase I and four roads for a length of 35.5 km proposed to be developed under Phase II. Proposal for implementing a City Road Improvement Project in Kannur involves development of 47.7 km of road under 12 corridors and the estimated cost of the project is ₹ 350.00 crore.

Road Infrastructure Company Kerala Limited (RICK)

Road Infrastructure Company Kerala Limited is a special purpose vehicle incorporated under Indian Companies Act, 1956 by Kerala Road Fund Board. Government of Kerala had taken initiative for implementing State Road Improvement Project (SRIP) aimed at the development of selected State Highways and Major District Roads. There are
two packages under the State Road Improvement Project (SRIP) - Rehabilitation Package under PPP Annuity mode and the Upgradation Package with funding from multilateral funding agencies. The Rehabilitation package is intended to improve 106.2 km of roads in two Packages A&B in Thiruvananthapuram, Kottayam and Kasaragod Districts at a total cost of ₹209.91 Crore. Upgradation Package is designed to improve 600 km of road by including land acquisition wherever needed for geometrical corrections and junction improvements. Administrative Sanction has been accorded for acquiring land for Karmana – Vellarada road in Thiruvananthapuram at an estimated cost of ₹21.00 Crore under the Upgradation Package.

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 incorporation of road safety features. The major National Highways and State Highways passing through the State are to be widened to four lane divided carriage way, other NHs and SHs are to be widened to two lane roads with adequate shoulders/footpath and other major roads are to be widened to intermediate lane with shoulder. Priority needs to be accorded to non-motorized modes of transport like pedestrians, cyclists and public transport and 10 per cent of the roads in urban areas should be designed to have cycle track and 75 per cent of the urban roads should have footpath of reasonable width on both sides.

**Research and Development in Road Sector**

Research and Development activities play an anchor role in developing innovative models and techniques to address the challenges in modernizing the road system in general and technology upgradation 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 organizations engaged in Research and Development of the road sector at present.

**a) DRIQ Board**

In 2015-16, the design wing of DRIQ Board developed 16 building designs, structural designs of nine bridges, 13 general design and 31 detailed designs. Moreover, the research and project preparation unit of DRIQ Board has prepared 11 projects.

**b) Kerala Highway Research Institute (KHRI)**

Kerala Highway Research Institute, the South Zone 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 during 2015-16 is given in Box 5.2.

As part of Quality Control of Works and Test, 2100 tests were conducted and the results were forwarded to the respective Chief Engineers for further action. The investigation works on Detailed Project Report (DPR) for KSTP Phase II covering the maintenance component of 14 roads have also been completed by KHRI during 2015-16.

**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) of Science and Technology department. The broad areas of
Box 5.2
Major Activities of KHRI during 2015-16

- DPR preparation for the development of Muvattupuzha town portion - KSTP II
- DPR preparation for the development of Chamaravatum junction in Malappuram district
- Preparation of alignment from Vazhimukku to Kaliyikkavila and modifications based on feasibility report from site are under progress
- Improvements of Junctions for Road Safety Cell (PWD) – Modifications of Kottappuram Junction and Chanthapura Junction in NH 17 at Kodungallur
- Design of traffic junction at Koyilandi town on NH 66 between km 221/500 to 222/000 in Kozhikode district
- Improvements to Kolappuram junction in between km 278/900 and 280/200 of NH 17 in Malappuram District
- Junction designs for Kozhikode City Road Improvement Project Phase I (a) Kovoor Junction (b) Vellimadukunnelu Junction and Bypass Junction

Source: Kerala Highway Research Institute

activities of 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.

During the year 2015-16, NATPAC has carried out 22 research projects, 19 externally funded projects, 11 road safety programmes sponsored by Kerala Road Safety Authority (KRSA) and several road safety training materials have also been developed. The plan programmes are mostly R&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 (NHA), 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 has undertaken studies on the use of industrial waste like jarofix, cement slag and glass fibre in road construction. Studies on the use of Stone Matrix Asphalt (SMA) and Reclaimed Asphalt for Pavements (RAP) with the aim of providing guidelines for its suitability to Kerala conditions are also being done. NATPAC carried out an appraisal of the highways developed under Kerala State Transport Project (KSTP) by conducting the structural and functional evaluation and the study will help in the accurate prediction of pavement performance which is important for efficient management of the transportation infrastructure. The Centre is also developing a perspective plan for development of National Highways sections in Kozhikode division on demonstration mode and a traffic growth rate model for National Highways in Kerala is being developed.

Road Transport

Road Transport is the dominant mode of transport for moving goods and passenger traffic and acts as the feeder service to the rail traffic, air traffic and ports and inland waterways. Transport activities are carried out by Kerala State Road Transport Corporation and Motor Vehicles Department in the State. In Kerala, 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**

Motor transport sector is an important and integral part of the state economy. Kerala has 101.71 lakh registered motor vehicles as on March 2016. For the last 2 decades it has experienced annual growth rate of above 10 per cent. The number of vehicles per 1000 population for Kerala in March 2016 is 305. According to World Development Indicators, number of vehicles per 1000 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 nine years is shown in Figure 5.1.

The number of motor vehicles having valid registrations as on March 31, 2016 is 10,171,813 as against 94, 21,245 in the previous year. The details are in Appendix 5.7. The number of newly registered vehicles is 861,323 during 2015-16 and the details are given in Appendix 5.8. In the case of personal vehicles, a faster growth rate has been recorded over the previous year. District wise growth of vehicle numbers in Kerala is given in Appendix 5.9. Data on number of vehicles on road needs to be developed by linking Insurance Companies and a concerted effort by Motor Vehicles Department in this regard needs to be developed. The per centage of category wise motor vehicles registered during 2015-16 is shown in Figure 5.2.

About 2360 vehicles are added to vehicle population every day. Of this 1657 are two wheelers. The details of category wise growth of motor vehicles in Kerala since 2009 are given in Appendix 5.9. The highest vehicle population was recorded in Ernakulam district with 15, 59,270 vehicles (15.37 per cent) followed by Thiruvananthapuram with 12, 90,592 (12.69 per cent). Wayanad district has the lowest number of 1, 39,151 (1.37 per cent) vehicles. Category wise growth of Motor Vehicles in Kerala since 2010 to 2016 is in Appendix 5.10. The mismatch between growth in motor vehicles

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**Figure 5.1**

Growth of Motor Vehicles since last Nine years

![Graph](source: Motor Vehicles Department)
and the capacity augmentation of road has resulted in increasing traffic congestion and road accidents in Kerala.

**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 7064 in 1980-81 to 20,900 in 1990-91 and 34,387 in 2000-01 and 35282 in 2010-11 to 39,137 in 2015-16. Even 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 accident are given in **Appendices 5.11 and 5.12** respectively.

During 2015-16, Kerala registered 39137 accidents (107 per day). Accidents due to KSRTC buses were 1330 (4 per day) against 5686 buses and private buses were 3303 as against 25449 (9 per day). The number of two wheelers has increased from 58.29 lakh in 2015 to 64.72 lakh in 2016, recording average annual growth rate of 11 per cent. Similarly the number of traffic crashes involving two wheelers has grown from 29,963 (82 per day) in 2015 to 31595 (87 per day) in 2016. Bike accidents account for nearly 52 per cent of the total accidents reported in the State. Trend of Motor Vehicle Accidents in Kerala is presented in **Figure 5.3**.

Kerala recorded a total of 39137 accidents in the year 2016 which is 385 accidents per lakh vehicles registered in the State. Growth of accidents in the State during the last seven years is given in **Table 5.6**. It can be seen that the accident occurrences have exhibited fluctuation during various time periods without showing any definite growth or decline pattern.

Most of the accidents are attributed to fault of drivers as per records available with Traffic Police. However, deficiencies in road design as well as motor vehicles apart from bad road conditions also contribute to the road accidents which are generally overlooked. Road safety training for various categories of road users, rectification of road design, deficiencies and inclusion of road safety aspects in the planning and operation stages
of road construction are the primary needs to be taken up in reducing accident occurrences.

The percentage of vehicle category wise accidents in Kerala during 2015-16 is shown in Figure 5.4.

**Kerala State Road Transport Corporation (KSRTC)**

Kerala State Road Transport Corporation (KSRTC) is the single largest public sector undertaking, which carries out passenger transport operations in the State. The gross revenue earning of KSRTC during 2015-16 is ₹2,165.16 Crore. The gross revenue expenditure is ₹2,778.30 Crore and operating loss during this period is ₹613.14 Crore.

Out of 5686 buses of KSRTC, 1095 (19 per cent) buses are ten or more years old. The worn out status of KSRTC buses are given in Appendix 5.13. The average earning per vehicle on road per day of the Corporation has increased from ₹10,928 in 2014-15 to ₹11,191 during 2015-16. During the period, 609 new buses were put on road and 579 buses were scrapped. The Corporation operated its bus service to a distance of 5870.11 lakh km and about 10137.76 lakh passengers travelled in KSRTC.
Figure 5.4
Distribution of road accident by vehicle type in Kerala during 2015-16

Source: State Crime Records Bureau

buses during this period. The major indicators showing operational efficiency and district wise operational statistics of KSRTC/KURTC are given in Appendices 5.14 and 5.15 respectively.

The fare structure of KSRTC remained unchanged during 2015-16. The fares of ordinary and city buses are 64 paise per Km, 72 paise per Km for super fast, 90 paise to super deluxe service, 110 paise for A/C Air Bus and 130 paise for High Tech Volvo Buses. The fare structure of KSRTC is given in Appendix 5.16.

Inter Unit analysis of KSRTC reveals that about 30 per cent of the units of the State exhibit poor performance. The unit wise details of operational statistics are given in Appendix 5.17. Financial performance of KSRTC is not in tune with its physical achievements due to increase in operating expenditure, hike in pension commitments, increase in interest payments, operation in uneconomic routes and granting concessional travels leading to increasing losses to the Corporation.

Though the occupancy ratio in KSRTC has increased from 67.14 per cent in 2009-10 to 75.09 per cent in 2014-15, it is not appreciable considering the higher occupancy in private carriages and the poor road infrastructure in Kerala which results in lesser use of private modes of transport. Private operators are dominant in passenger transport operation in the State. Fleet utilization of KSRTC

Box 5.3
Major internal Indicators of KSRTC

- Average Fleet held 5686
- Average Fleet operated 4522
- Average age of Fleet (Years) 7
- Over aged vehicles 25.9 per cent
- Staff strength 40988
- Staff per bus ratio (fleet held) 7.2
- Staff per bus ratio (fleet operated) 9.1
- Staff productivity (Km/staff/day) 37.01
- Fuel efficiency (Km/litre of HSD) 4.22
- Occupancy Ratio 75.09 per cent

Source: 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 7.2. The number of breakdowns per lakh kilometers in KSRTC is around 6 while that of neighboring Karnataka RTC (KnRTC) and Bangalore Metropolitan Transport Corporation (BMTC) are less than one. The number of buses owned by KSRTC is given in Appendix 5.18. The major internal Indicators of KSRTC is given in the Box 5.3 and the major physical achievements of KSRTC during 2015-16 are provided in Box 5.4.

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.

**Goods Transportation**

Inter-state goods movements are handled predominantly by road based good carriers, followed by rail and waterways. As per a recent study by NATPAC, the share of road is 78 per cent, water transport 14 per cent and movement by rail is 8 per cent. A study by erstwhile Planning Commission (2008) reveals that the Road transport carry almost 88 per cent of total traffic, while Railways handled about 10 per cent of total traffic and Water transport carried less than 2 per cent of cargo movement. Once the National Waterway No.3 (Kottappuram – Kollam) becomes operational, 20 per cent of the road based cargo traffic is expected to shift to water transport.

**Way forward**

Road crashes can be prevented by better planning and more safety-conscious design of the road network. Road infrastructure including road surface, road signs and roadway design is a significant safety factor. Unsafe road infrastructure is a critical root cause of road crashes in some occasions. Even some low-cost infrastructure improvements can substantially reduce the occurrence of road crashes and their severity.

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**Box 5.4**

**Major achievements of KSRTC**

- KSRTC has started two new operating centers at Anayara and Nedumangad
- Agreements were executed among the Chief Executives of the STUs of Andhra Pradesh, Thelungana, Goa and浦UCHerry for Interstate service operation
- Rolled out 615 nos of new buses for replacing old buses
- KSRTC has purchased 18 nos of new Scania A/c Multi Axle buses for interstate service operation
- Started new Silver Line Jet buses for long distance services with push back seat and WiFi facility
- Taken over 204 Super class services from private operators
- Installed GPS system in 474 Super class buses attached to Thiruvananthapuram Central, Thiruvananthropuram City and Kottayam Depots
- KURTC, a subsidiary corporation of KSRTC has rolled out 65 nos of A/c Low floor buses and 173 non A/c Semi Low floor buses
- Constructed Bus Terminal Cum Shopping Complexes at different bus stations
- Training was given to 12113 employees at Staff Training Centre, KSRTC, which includes newly recruited drivers, conductors and other staff.

*Source: KSRTC*
Proper surface water drainage, road signage, road markings, street lighting, and road side appurtenances have vital role in enhancing road safety. The design of each of these elements of road infrastructure has to be based on IRC guidelines and other code of practices available. Usually the road maintenance is limited to fixing potholes and cleaning drainage facilities, without replacing missing traffic signs, guard-rails, road markings and other safety features essential to create a safe road network.

Government is taking several initiatives to reduce the annual frequency of accidents by 50 per cent by 2025. For this purpose, the following key areas are identified to be resolved in a mission mode basis:

- Inter-departmental Coordination and Management
- Crash Data Collection and Management System
- Safer Road Infrastructure
- Legislations and Enforcement of Rules and Regulations
- Emergency Medical Response to Crash Victims
- Ensuring Safer Drivers through continued education including Bus drivers
- Ensuring Safety of Vulnerable Road Users
- Parking Policy

Road safety cannot be the responsibility of government alone. The insurance sector, service organizations and NGOs play an important role in promoting road safety awareness. NGOs have an important role at grass roots level. There are no segregated bus bays in most of the transport corridors, and buses stop in the carriageway itself resulting in traffic hold ups. Concerted efforts are needed to provide sheltered bus stops and passenger amenities to the commuters in all bus transport corridors.

**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 Railway network comprises of 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 Railway map with 1050 route Km and 1588 km of total track that is spread on the 13 railways routes and includes 933 km of broad gauge and 117 km of meter gauge lines. Thiruvananthapuram and Palakkad divisions of the Southern Railway zone are the administrative divisions. Palakkad division operates 76 express and 49 passenger trains and carries 2.16 lakh passengers and Thiruvananthapuram division operates 80 express trains and 60 passenger trains and carries 2.6 lakh passengers daily.

Government of Kerala and Ministry of Railways, Government of India have signed an Agreement for the formation of a Joint Venture Company with an Equity Participation of 51:49 on September 1, 2016. A Joint Venture Company “Kerala Rail Development Corporation (KRDCO)” has been established for the implementation of the upcoming Railway Projects in Kerala. The following projects will be taken during 2017-18 including equity contribution of the Company.

- Rapid Rail Transit System (Suburban Rail Project) between Thiruvananthapuram – Chengannur - 125.56 km
- Angamaly – Erumely – Sabari Rail - 120 km
- Ettumanoor – Sabari Link line – 15 km
- Erumeli – Pathanamthitta – Punalur - 65 km
- Guruvayoor – Thirunavaya Rail – 51 km
- Thalassery – Mysore Rail Project -298 km
- Thiruvananthapuram – Nagarcoil – Kanyakumari Line – Doubling - 35 km
- Rail Over Bridge (ROB) / Rail Under Bridge (RUB)
- Container Rail line to Cochin International Airport

**Suburban Rail Project**

Government of Kerala has decided to operate Suburban train services in Thiruvananthapuram –
Chengannur/Haripad sector in Phase – I with air conditioned MEMU/EMU rakes. M/s Mumbai Rail Vikas Corporation (MVRC) has finalized the Detailed Project Report. The total cost of the project is ₹3,300.00 Crore. A Special Purpose Vehicle is formed between Government of Kerala and Indian Railways with 50:50 equity participation for taking up the implementation of the project.

**Kochi Metro**

Kochi Metro Rail Project (KMRP) is the flagship project of the Government of Kerala designed to address the transportation woes of Kochi City. The project is implemented through the Kochi Metro Rail Ltd (KMRL) which is a Special Purpose Vehicle jointly owned by the Government of Kerala and Government of India with equity participation. The Union Government gave sanction for the project in July 2012 at a total cost of ₹5,181.79 Crore. KMRL has signed an agreement with Govt and Delhi Metro Rail Corporation Ltd (DMRC) for executing the project and as per the tripartite agreement signed between Govt. of India, Govt. of Kerala and KMRL, the project is expected to be completed by June 2017. The details of the project are in Table 5.7.

As part of preparatory works for the project, KMRL reconstructed North Railway Over Bridge (ROB) and constructed a new ROB known as A.L. Jacob ROB. KMRL has resurfaced more than 40 roads during the last five years for reducing the traffic congestion and for easy traffic diversion. The consortium of Alstom Transport India and Alstom Transport S.A won the contract for manufacture of rolling stock at ₹630 crore (approx) and the first train arrived in the Muttom yard on January 11, 2016.

On January 23, 2016, the Chief Minister of Kerala flagged off the test run of Kochi Metro in the Muttom Yard. On February 27, 2016, the first trial run on viaduct was started for a stretch of 5 Km. KMRL has installed world class signage confirming to Indian Road Congress (IRC) standards as an initial step towards proper and effective signage within Kochi City. As part of greening the city has planted more than 5000 plants in and around Kochi. 100 per cent of the land required for the project was taken possession by mid 2016. Civil construction of viaduct has been completed for 13 km from Aluva to Palarivattom. Track works has been competed for 6 km from Muttom to Edappally. All system tenders have also has been awarded and work has commenced.

**Light Metro 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 by a special purpose vehicle, Kerala Rapid Transit Corporation Limited (KRTL) and the DPR has been prepared by Delhi Metro Rail Corporation (DMRC). A route length of 13.33 Km with 14 stations in Kozhikode is being taken up as the first phase of the project. The estimated completion cost of the project is ₹4,219.00 crore for Thiruvananthapuram and ₹2,509 crore for Kozhikode totalling to ₹6,728.00 crore (including Central taxes & land cost). The estimated completion period of the project is five years for Thiruvananthapuram and four years for Kozhikode.

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Connected places</th>
<th>Length (Km)</th>
<th>Project Cost (₹ Crore)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase I</td>
<td>Aluva to Pett (22 stations)</td>
<td>25.6</td>
<td>5181.79</td>
</tr>
<tr>
<td>Phase I (a)</td>
<td>Pettah to S.N. Junction (Extension)</td>
<td>2.00</td>
<td>359.00</td>
</tr>
<tr>
<td>Phase II</td>
<td>JLN Stadium to the IT city Kakkanad</td>
<td>11.00</td>
<td>1682.00</td>
</tr>
</tbody>
</table>

Source : KMRL.
The approved Detailed Project Reports (DPR) has been forwarded to the Ministry of Urban Development (MoUD), Government of India for “in principle” approval and for confirmation of Government of India’s participation and equity. The Comprehensive Mobility Plans for the cities of Thiruvananthapuram and Kozhikode has already been submitted to GoI. Government has accorded Administrative Sanction for the construction of flyovers at Pattom, Ulloor and Sreekariyam, the major traffic junctions in the proposed alignment of Thiruvananthapuram Light Metro Project, for an amount of ₹272.84 Crore, which includes the cost of acquiring approximately 2.77 Ha of private land.

**Water Metro Project**

Kochi Metro Rail Corporation (KMRL) proposes to implement the Kochi Water Metro Project at a cost of ₹741.28 Crore with financial assistance from German Financial Institution (KfW), and state funding of ₹103 Crore. This is being implemented as part of Unified Metropolitan Transport Authority (UMTA) project in Kochi. The project envisages the development of 76 km of inland canals in Kochi city.

**Air Transport**

Air Transport plays a major role in the development of tourism, both domestic and international. Kerala has three airports at Thiruvananthapuram, Kozhikode and Kochi. During 2015-16, 94,344 flights (37459 domestic and 57485 international) were operated from the three airports together. A total number of 14,128,802 passengers (5,009,456 domestic and 9,119,346 international) were carried during 2015-16. Details of flights operated during 2015-16 by three Airports are shown in Appendix 5.19 (A), (B) and (C).

Kannur International Airport Limited (KIAL) has been set up by Government of Kerala to build and operate Kannur International airport. The airport project is being developed in two phases by KIAL. The first phase is envisaged to span from FY 2016 to FY 2025-26 and second phase would be from FY 2026-27 to FY 2045-46. In Phase I, the airport runway is proposed to be 3050 m in length, which would be sufficient to allow all major aircrafts to operate on key routes viz, Hong Kong, Singapore, and Middle Eastern countries. The second phase is proposed to have increased capacities of passenger terminal, aprons and other facilities including a longer runway of 3400 m to accommodate bigger aircrafts like A380. The Greenfield airport is being set up in 2000 acres, of which 1265 acres have been acquired. Of the required land, land to the extent of 1215 acres (equivalent to ₹315.94 crore) has been brought in by GoK as equity in the project.

The Ministry of Environment & Forest has granted necessary environmental clearance for Kannur International Airport. Agreement for the provision of CNS/ATM facilities has been executed with Airports Authority of India. Construction work on Terminal Buildings and City side facilities are being carried out by Larsen & Toubro Ltd and 80 per cent of city side works has been completed. The Project Management Consultancy work for the Integrated Terminal Building, ATC Tower, Technical Building and associated works has been awarded to M/s KITCO Ltd.

The total debt component required for the project amounting to ₹892.00 crore has been tied up with a Consortium of three Banks namely Canara Bank (₹692.00 crore), South Indian Bank (₹110.00 crore) and Federal Bank (₹90.00 crore). The joint term loan agreement has been signed with the consortium banks on May 20, 2015. As per the DGCA clearance received a trial landing of a Code 2B type aircraft was planned on February 29, 2016 and accordingly the flight was cleared to land from the makeshift ATC established at VOKN (Kannur Airport) by AAI for trial operation and the operation was smooth and incident free.

Bharath Petroleum Corporation Ltd (BPCL) will run the fuel farm business at Kannur airport in joint venture with KIAL. The company has already allotted equity shares worth ₹170 crore to BPCL. Further BPCL has agreed to make an additional investment of ₹46.80 crore in the equity capital.
of KIAL. A separate joint venture company is formed with equity participation of both KIAL & BPCL to run the fuel farm business. The works for fuel farm is progressing at site.

**Water Transport Sector**

**Ports**

Ports play a pivotal role in stimulating economic activity in their surroundings and hinterland through the promotion of seaborne trade. The efficiency of a port is important in international trade since a seaport is the nerve of foreign trade of a country. The globalization of world economy has brought about tremendous increase in exchange of goods across the world. To cope with the ever growing world trade, ports of every country will no doubt continue to play a critical and important role in providing the cheapest mode of transportation.

The world's busiest port tag is contested by several ports around the world, as there is as yet no standardised means of evaluating port performance and traffic. For the past decade the distinction has been claimed by both the Port of Rotterdam and the Port of Singapore. The former based on cargo tonnage handled (total weight of goods loaded and discharged), while the latter ranks in terms of shipping tonnage handled (total volume of ships handled). Since 2005, the Port of Shanghai has exceeded both ports to take the title in terms of total cargo tonnage. The following ports have variously made claims to be being world's largest port: Port of Shanghai, Port of Singapore, Port of Rotterdam, Port of Hong Kong, and Port of New York/New Jersey.

**Ports in India**

India's long coastline of over 7500 km is home to the country's 12 major ports and around 200 minor and medium ports located along the western and eastern corridors of which only 139 are operable that is 69.50 per cent. Indian ports are the gateway to India's international trade by sea and are handling over 90 per cent of foreign trade. The 12 major ports managed by the Port Trust of India are under Central Government jurisdiction and the 139 minor ports are under the jurisdiction of the respective State Governments. While the minor and medium ports are larger in number only about one-third of them undertake regular commercial operations. These are located mainly in Gujarat, Andhra Pradesh, Goa and Maharashtra.

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), Vishakapatnam (in Andhra Pradesh).

**Cargo traffic in Major Ports of India**

The volume of seaborne cargo traffic handled by ports is mainly shaped by the levels and changes in both the global and domestic activity. Cargo traffic at India’s 12 major ports during 2015-16 is higher by 4.3 per cent at 6063.7 lakh tonnes compared with 5813.44 lakh tonnes handled during 2014-15. During 2015-16 Mormugao port recorded highest growth of traffic of 41.2 per cent followed by Chidambaranar (13.7 per cent) Kolkata dock system (9.2 per cent), Kandla (8.2 per cent), Haldia dock system (8.1 per cent), Paradip (7.6 per cent), Kamarajar (6.5 per cent), Cochin (2.3 per cent) and JNPT (0.4 per cent). Major ports which recorded negative growth in traffic during 2015-16 are Chennai (4.7 per cent), New Mangalore (2.7 per cent), Vishakapatnam (1.7 per cent) and Mumbai (0.9 per cent). (Source: Port Statistics 2015-16, Ministry of Shipping, GOI)

Among the major ports, Kandla port handled the maximum cargo of 1000.1 lakh tonnes with a share of 16.5 per cent followed by Paradip (12.6 per cent) Jawaharlal Nehru Port Trust (10.6 per cent) Mumbai (10.1 per cent) Vishakapatnam (9.4 per
cent) Chennai (8.3 per cent) Chidambaranar (6.1 per cent) New Mangalore (5.9 per cent) Haldia Dock Complex (5.5 per cent) Kamarajar (5.3 per cent) Cochin (3.6 per cent) Marmugoa (3.4 per cent) Kolkata dock system (2.8 per cent) during 2015-16. Overall cargo volumes at Indian ports subdued in 2015-16 largely on account of slowdown in coal imports. Figure 5.5 shows the commodity wise break up of cargo handled at major ports in India.

The commodity group with highest per centage share in total cargo handled was POL (Petroleum Oil and lubricants) at 1387.71 lakh tonnes (32.33 per cent) followed by coal (21.45 per cent), other cargo (21.15 per cent), container traffic (20.30 per cent) which includes tea, cashew kernal, rubber and rubber products, spices, coffee, fertilizer (2.64 per cent) and iron ore (2.12 per cent). There has been a decline in iron ore traffic mainly due to restrictions in mining of iron ore. Figure 5.6 shows the pattern of cargo traffic at major ports in South India for the last 6 years.

Vishakhapatnam, Chennai and New Managalore hold the first, second and third position in terms of the quantity of cargo handled over the period 2010-16. However, these ports have shown a decline in the growth rates of cargo movement by 1.67 per cent, 4.73 per cent and 2.69 per cent respectively during 2015-16. But the other 3 ports namely Chidambarnar, Cochin and Ennore have exhibited upward trends in 2015-16 with growth rates of 13.68 per cent, 2.33 per cent and 6.46 per cent respectively (Appendix 5.20).

In case of Cochin Port, the quantity of cargo handled has shown marginal increase over the years with a decline during 2012-13. The quantity of cargo handled, in lakh tonnes, at Cochin port for the period from 2011-12 to 2015-16 were 200.91 (12.40 per cent), 198.45 (-1.22 per cent), 208.87 (5.09 per cent), 215.95 (3.39 per cent), and 220.99 (2.33 per cent) respectively. The growth rates during the respective periods are shown in brackets.

Cargo traffic in minor and medium ports of India

During 2015-16, up to September 2016, among the minor and medium ports, ports of Gujarat handled the maximum cargo of 1664.08 lakh tonnes (73.66 per cent), followed by Andhra Pradesh (15.87 per cent), Maharashtra (5.38 per cent) Tamil Nadu (0.18 per cent), Karnataka (0.15 per cent) and non-major ports of the remaining states handling a total of 1075.51 lakh tonnes (4.76 per cent) (Source: Port Statistics 2015-16, Ministry of Shipping, GOI)

Figure 5.5

Commodity wise distribution in major ports of India during 2015-16

![Commodity wise distribution in major ports of India during 2015-16](Source: Ministry of Shipping / Indian Ports Association)
In terms of composition of cargo traffic handled at non-major ports POL holds the highest share of (39.14 per cent) followed by coal (31.66 per cent), container (10.75 per cent), other cargo (7.98 per cent), fertilizer and fertilizer raw materials (3.55 per cent), iron ore (3.53 per cent) and building materials (3.38 per cent).

**Ports in Kerala**

The Ports in Kerala lie in the south west corner of the Indian peninsula. Kerala has a coastal length of 585 km and the State has an average width of about 60 km with 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, Bepore, Azheekal and Kollam ports. The remaining 13 minor ports in the state are Neendakara, Alappuzha, Valiyathura, Kayamkulam, Manakkodam, Munambam, Ponnani, Vadakara, Thalasserry, Manjeswaram, Neeleswaram, Kannur and Kasaragod.

Most of the minor and intermediate ports in the State are seasonal in nature with insufficient infrastructure to handle even medium and small sized vessels throughout the year. Presently cargo operations take place only in four ports, viz., Vizhinjam, Bepore, Kollam and Azheekal. At Beyapore, passenger traffic to Lakshadweep islands is also handled. At Thangassery (Kollam) new cargo port facilities have been created utilizing the calm fishery harbour basin.

The Government of Kerala has already decided to develop five non major ports through PPP mode. These Ports are Azheekal, Beyapore, Ponnani, Alappuzha and Kollam. Apart from this, Vizhinjam Deepwater International Container Transhipment Terminal is under construction.

**Cargo traffic in Cochin Port**

In case of Cochin Port, the total cargo traffic handled by the port during the year 2015-16 recorded an increase of 2.33 per cent to 220.98 lakh tonnes as against 215.95 lakh tonnes handled in the preceding year.

Total import traffic handled during 2015-16 recorded an increase of 3.69 per cent to 181.84 lakh tonnes from 175.36 lakh tonnes in the preceding year. The major component of import include POL (65.61 per cent) followed by container (21.54 per cent) comprising machinery, cashew, and chemicals, other cargo (10.98 per cent), fertilizers and raw materials (1.27 per cent) coal (0.49 per cent) and fertilizer (0.12 per cent).

Total export traffic handled during the year showed a decrease of 3.57 per cent to 39.14 lakh
tonnes from 40.59 lakh tonnes in the preceding year. The major components include POL (47.13 per cent), others (33.92 per cent), other bulk (5.15 per cent), sea foods (3.58 per cent) coir products (3.18 per cent), tea (1.71 per cent), coffee (1.40 per cent), rubber and rubber products (1.39 per cent) cashew kernels (1.28 per cent), spices (1.27 per cent). (Source: Administration Report and Annual Accounts 2015-16, Cochin Port Trust).

Commodity wise break up of cargo handled in Cochin port during the year 2015-16 is shown in Figure 5.7.

Among the cargo handled at Cochin Port, POL has the highest share of 62.33 per cent followed by container (26.17 per cent), other cargo (9.95 per cent) fertilizer and raw materials (1.15 per cent) and coal (0.40 per cent).

**Cargo traffic in minor and medium ports of Kerala**

The non-major ports of Kerala, showed a decline of 9.9 per cent at 143,458.58 tonnes in 2015-16 against 159,226 tonnes in 2014-15. Cargo handling during 2015-16 was confined mainly to Kozhikode, Kollam, Vizhinjam and Azhikkal ports. The commodity handled in all ports except Vizhinjam has declined. The per centage growth of commodity handled in Vizhinjam is only 6.25 per cent. Azheekal, Kollam and Kozhikode ports witnessed negative growth rates of 88.04 per cent, 53.87 per cent and 0.94 per cent respectively. The commodity wise details of cargo handled in minor and intermediate ports of Kerala (both coastal and foreign) are detailed in Appendix 5.21. During 2015-16, 356 steamers and sailing vessels with registered tonnage of 237,417.98 called at non-major ports against 558 steamers and sailing vessels with 158,711.51 tonnages in the previous year. This shows decrease in number of vessels and increase in tonnages. The details are shown in Appendix 5.22(A). Statement showing the revenue collection at the non-major ports during 2015-16 is shown in Appendix 5.22(B). The trend of cargo handled at non major ports of Kerala is given in Figure 5.8.

**Imports** have shown a fluctuating trend with a negative growth in 2011-12 and a positive growth of 2.63 per cent in 2012-13. It again declined by 18.14 per cent in 2013-14. The years 2014-15 and 2015-16 witnessed an increasing trend, with the increase in 2015-16 being 92 per cent over the previous year. The exports showed a decline in 2012-13 by 1.50 per cent then it improved by 5.05 per cent in 2013-14. In 2014-15, it had shown

**Figure 5.7**

Commodity wise break up of cargo handled in Cochin Port during 2015-16, in per cent

![Pie chart showing commodity wise break up of cargo handled in Cochin Port during 2015-16](Source: Cochin Port Trust)
a substantial improvement by 13.18 per cent. However in 2015-16, there was a steep decline by 64.51 per cent. Such decline in the coastal export was due to the scarcity of cargo. Necessary steps needs to be taken to export the cargo of Public Sector Undertakings like Kerala Minerals and Metals Ltd (KMML), Indian Rare Earth Ltd (IRE) and Food Corporation of India (FCI) through Kollam port to tackle this issue. Non-occurrence of shipping operations at Azheekal port due to siltation has also resulted in the decrease of cargo. Necessary steps for dredging operations have been initiated in Azheekal port.

The Government agencies involved in the development of ports in the State are Port Department, Harbour Engineering Department, and Hydrographic Survey Wing. An amount of ₹27,759 lakh, ₹7,869 lakh, ₹9,869 lakh, ₹11,929 lakh and ₹12,601 lakh were earmarked for this sector during 2012-13, 2013-14, 2014-15, 2015-16 and 2016-17 respectively.

**Port Department**

Port department is headed by the Director of Ports. The port directorate is situated at Thiruvananthapuram. There are three regional port offices at Neendakara, Alappuzha and Kozhikode respectively. The Director of Port and port offices administer the port operations at all non-major ports with the powers vested on them by Indian Port Act, 1950. The capital and maintenance dredging needed to maintain the required depth at the non-major ports is another responsibility of the Port department. It is also responsible for search and rescue operation along Kerala Coast at times of distress.

**Vizhinjam International Deep Water Multipurpose Seaport**

The flagship project of the State, Vizhinjam International Deep-water Multipurpose Seaport is one of the landmark and dream project which took off in 2015. The project initially proposed in 1990s has finally translated into reality. The groundbreaking ceremony of the project was held on December 5, 2015.

This port is being developed as the transhipment hub to cater to large mother vessels. Vizhinjam is an all-weather port that will come up 10 – 12
Box 5.5
Major Achievements of the Port sector during 2015-16

- Development of five minor and medium ports through PPP mode viz, Azheekal, Beypore, Ponnani, Alappuzha and Kollam has been initiated.
- The ports viz, Vizhinjam, Kollam, Azheekal, Beypore and Kodungalloor were made operational for cargo movement.
- For the promotion of coastal shipping an incentive of ₹1 per ton per Km has been sanctioned.
- Government has accorded Administrative Sanction for the creation of Coastal Shipping promotion fund at a total cost of ₹3 crores.
- Procured container handling crane for ₹15 cr, 600 HP tug for 3.5 crore, and Container fork lift for ₹2.70 Crore and Container handling reach stacker for Rs 2.6 crore in Kollam Port.
- The permanent customs facility and Electronic Data Interchange terminal has been established at Kollam port.
- Procured 200m³ Cutter Section Dredger for ₹19.85 crore, 750 HP tug for Rs 6 crore, and Container handling reach stacker for ₹2.6 crore for Azheekal port.
- Container handling reach stacker procured for ₹2.6 crore at Vizhinjam port.
- Procured and commissioned 40 feet container Handling crane at Beypore Port.
- Construction of Dry Dock at Alappuzha under PPP model at a cost of ₹9.42 crores in progress.
- Establishment of the Kerala Maritime Board as the implementation agency for coastal shipping is in the process.
- Construction of Kerala Maritime Institute, Kodungalloor completed at a cost of 9.94 crores and inaugurated on July 11, 2015.
- Development of Kerala Maritime Institute at Neendakara at a total cost of ₹36 cr is under progress.
- Installation and commissioning of channel marking buoys at Vakom- Thavanakkadavu channel completed.

nautical miles away from the Persian Gulf – Malacca lines. The proposed site has minimal maintenance dredging. The port with a draught of 18.20m can handle new generation mother vessels of size range 18000 to 22000 TEU.

The Port is being developed on DBFOT Model and has been awarded to M/s AdaniVizhinjam Port Pvt Ltd. The Concession Agreement (CA) was signed between the Government of Kerala and the private partner on 17th August, 2015. The concession period of the project is 40 years.

The total cost of the project is ₹6,770 crore. Out of this the PPP component is ₹4,089 crore, ₹1,463 crore is the ‘funded works’ of the project and ₹1,218 crore is for land, R&R, external infrastructure. The Central Government will provide ₹818 crore as Viability Gap Funding support and balance ₹817 crore will be provided by the State Government out of the total Viability Gap Fund (VGF) of ₹1,635 crore sought for the project. The state would be providing land and developing external infrastructure such as water, power and rail connectivity. It’s the first project in the State and first port in the country to receive VGF assistance from Ministry of Finance. The state government would get its portion of
Box 5.6  
Latest Status of Vizhinjam International Deep Water Multipurpose Seaport

- Construction activity of the project commenced on December 5, 2015. Since the signing of CA, the Concessionaire has completed the following pre-construction works:
  - Offshore Subsoil investigation
  - Land based survey
- A temporary road connecting breakwater site and existing project road at Vizhinjam has been completed.
- Work on construction of 565 m north rock bund which forms part of the breakwater commenced on April 2016. Till end Nov 2016, the Concessionaire has achieved a progress of 486m core formation for the main breakwater.
- The dredging and reclamation work is on full swing.
- Water supply Scheme for the project is completed and also water is supplied to the locality as part of CSR initiative
- The Construction Power required for the project is ensured by commissioning two 11 kV dedicated feeders starting from Poovar 33 kV Sub Station to the project site (Near MulloorMahanadeva Temple).
- For providing uninterrupted power for the operational phase, construction of a 220 kV power line (initially charging to 110 kV) starting from Kattakada and passing through Balaramapuram and reaching the project site is progressing, which is expected to complete within 18 months.
- Rail Vikas Nigam Limited (RVNL) after detailed study and iteration has submitted a Detailed Project Report of the Connectivity for approval. The DPR and route alignment once finalised will be submitted with Ministry of Railway for their approval.
- Road Connectivity to the port site from the NH is the responsibility of AVPPL and its land acquisition is with GoK. Land required for the connectivity has already been acquired and handed over to AVPPL.

revenue, from non-port operations after 7 years of operation and from port operations after 15 years of operations.

Another novel feature of this project is the Funded Works component. Funded works are those components of the project where the development will be undertaken by the private partner and the State Government will reimburse the cost of the same. The construction of breakwater (3.1 km), fish landing berth and buildings in fishing harbor and side development are the constituents of funded works of this project. The construction of breakwaters for the project would be an engineering feat in the maritime history of the country.

The project will have a capacity of 10 lakhs TEU in the first phase which will be scaled up to 30 lakhs TEU. The construction period as per the Concession Agreement is 4 years. But it is expected that the project may be operational in a record time of less than 1,000 days. This Port will not only meet the transshipment needs of the country but also boost coastal shipping in the State. As per the EIRR study (2012) conducted by Deloitte, the project would generate an Economic IRR of 12.93 per cent.
Harbour Engineering Department

Harbour Engineering Department was formed in 1982 as a separate specialized service department for Fisheries and Ports, Government of India has empanelled Harbour Engineering Department of Kerala as a consultant in the coastal engineering field for the nation as a whole. It is unique to the State as no other State has a similar Department in India. The major functions of the Department are investigation, planning, design, evaluation, execution, operation, maintenance, management and related maritime engineering and technical works for the development schemes of the Fisheries and Port Department. During 2013-14 an amount of ₹850 lakhs, ₹930 lakhs in 2014-15, ₹1,370 lakh in 2015-16 and ₹1,370 lakh in 2016-17 were allotted to this Department.

Major Achievements for the Harbour Engineering department during 2015-16

- Construction of Eravipuram-Paravoor Coastal road is nearing completion
- Construction of office complex for the Superintending Engineer, Harbour Engineering North Circle and the Executive Engineer Kozhikode at Puthiyappa is completed
- Mobile lab and modern survey equipment for quality control in investigation sub division, Kozhikode has been completed
- Purchase of computers, printers, laptop, and LCD projectors are completed
- Rectification of seaward breakwater at Vizhinjam is completed
- Mathematical model study for tidal hydrodynamics and siltation aspects for existing Fishing Harbours at Neendakara & Thottapally were arranged and progressing.

Hydrographic Survey Wing

The Hydrographic Survey Wing was constituted in 1968 as a component of the Kerala State Port Department, with a view to meet the requirements of hydrographic investigation required for the development of Minor and Intermediate Ports in the State. The Wing conducts Pre & Post dredging Surveys and Pre & Post Monsoon surveys in order to give technical inputs for the Pre and Post dredging works and other port development works. It also undertakes Hydrographic Survey requirement of Harbour Engineering Department, Fisheries Department and other Government Organizations. The wing also furnishes Hydrographic data as required by the National Hydrographic office, Dehradun (Indian Navy) for updating their navigational chart.

The Chief Hydrographer is the head of the wing and is headquartered in Thiruvananthapuram. There are three regional offices; one each at Kollam, (Southern Range) and Beypore (Northern Range) and North Paravoor (Central Range). Kollam and Beypore offices are headed by Marine Surveyors and North Paravoor office is headed by the Assistant Marine Surveyor. There is an Assistant Marine Surveyor’s office at Neendakara which assists the Marine Surveyor, Kollam.

Major Achievements of Hydrographic Survey Wing for 2015-16

The main surveys conducted during the year are Post dredging Hydrographic Survey for Thangassery basin, Munambam and Akkulam Veli Kayal, Ashtamudi Sea Plane survey, Tidal Observation at Neendakara, 20 km digitization Bathimetry survey at Kannur, Coastal area digitization survey at Kannur and Kasaragode, Hydrographic Survey related to the feasibility study of water transport in Pamba River, Survey for fixing coast line in Neendakara, Survey for Bouy marking at Vaikkam Thavanakkadavu, and Boat route survey Alappuzha Nedumudi, Alappuzha-Kavalam-Kidangara, Erapuzha-South Paravoor. The Hydrographic Survey Wing has purchased
a Modern Twin Screw Survey Launch, a heave compensator, 4 FRP dinghies, constructed a small mechanised boat, purchased a side scan sonar, a projector, and 5 desk top computers. Construction of office building at Munambam/Paravoor is almost completed, Construction of office building of Marine Surveyor at Kollam is completed, and Construction of Head quarters for Hydrographic Survey wing is in progress(first floor completed). Newly purchased Survey Launch (ML Jalagaveshini) was inaugurated on May 14, 2015. The 3rd batch of Basic Hydrographic Survey Course conducted in Kerala Institute of Hydrography and Advanced Studies was completed.

The Government of India has announced major policy initiatives and programmes for the overall development of ports in the country.

The Twelfth five year plan had focused on the development of port infrastructure facilities so as to handle all type of cargo and passenger transport. The amount earmarked during the 12th plan was higher by 36.07 per cent over the outlay in the 11th plan. Numerous schemes were delayed and many were dropped due to local protest. Delay in procedural formalities like issuance of AS and letter of credit has hindered the timely completion of the projects. In spite of the constraints, there was a substantial development in the port sector during the 12th plan period.

Lack of appropriate/geared vessels and skilled labour, Immigration Plant Quarantine Facilities, Cost Recovery Charges of Customs, high Import duty on equipment, high competition from road transportation, lack of end to end transportation services/ last mile connectivity and scarcity of return cargo are plaguing the sector. Appropriate

| Box 5.7 |
| Policy Initiatives- Government of India in 2015-16 |

- Green Port Initiatives including mitigation of environmental issues like
  - a) Waste/water/sewage/dust suppression plants
  - b) Energy generation, oil spills response facilities, prohibition of garbage disposal at sea
- New model concession agreement drafted for port sector in PPP projects
- The Shipbuilding Financial Assistance policy has been approved which aims to provide assistance to Indian shipyards for shipbuilding contracts signed between April 1, 2016 and March 31, 2026. The financial assistance will be 20 per cent of the contract price or the fair price, whichever is lower, as determined by international valuers, for any vessel built in India subsequent to its delivery. This policy is for a duration of ten years from the date stipulated in the guidelines.
- Policy for award of water front and associated land for port dependent industries in selected ports
- Sagarmala assistance for infrastructure, mechanisation, capital dredging, and breakwaters
- Sagaramala Development Company formed
- To promote Ro-Ro Services. Discount of 80 per cent on vessel related charges & coastal related charges on coastal transportation of vehicles.
government interventions and policy initiatives for the resolution of these issues in the upcoming 13th Five year plan remains critical for the full realisation of the potential of the sector.

**Inland Water Transport**

Inland Water Transport (IWT) is a fuel efficient and environment friendly mode of transportation. IWT for passenger and freight movement involves lower operating costs and environmental pollution than road, rail or air options. It could relieve pressure on the other modes of transport. The global experience offers interesting comparisons. In several countries, IWT accounts for a substantial share of inland transportation as a per centage of the total: 32 per cent in Bangladesh, 20 per cent in Germany, 14 per cent in the U.S. and 9 per cent in China. In China, much of the increase has occurred in recent decades in tandem with its phenomenal industrial-agricultural growth. By contrast, in India only 0.4 per cent of domestic surface transport is accounted for by IWT compared with 68 per cent by road and 30 per cent by rail even though India is richly endowed with navigable waterways.

The Inland water transport in Kerala includes rivers and backwaters. This has played a major role in the transportation, right from the olden days. Inland waterways has got its own natural advantages compared to the railways and roadways. There are 41 rivers in Kerala that flows towards west clubbed with numerous backwaters. All these are part of the inland water transport system having a length of approx. 1895 km. It is the inland canals that connect the rivers from one to another. Important places which are commercially important are situated on the banks of these rivers. The West Coast Canal (WCC) system which has a length of about 560 kms starts from Kovalam in the south and extends up to Hosdurg in the north. Of this, the Kollam- Kottapuram stretch (168 km) is already declared as National Waterway-3 with effect from 1993. (NW-3) along with Champakkara (14 km) and Udyogamandal canals (23 km) is almost made fully functional. Recently Central Government has declared the extension of NW-3 between Kottapuram and Kozhikode (160 km) as national waterway. Besides, four canals viz. Alappuzha-Changanassery (28 km), Alappuzha- Kottayam-Athirampuzha (38 km) and Kottayam- Vakom (42 km) have also been declared as national waterway by Central Government in April, 2016.

Government agencies engaged in the development of Inland Water Transport in the State are Coastal Shipping and Inland Navigation Department (CSIND), State Water Transport Department (SWTD) and Kerala Shipping and Inland Navigation Corporation Ltd. (K SINC). An amount of ₹13,339 lakh, ₹10,925 lakh, ₹14,342 lakh , ₹15,542 lakh and ₹15,734 lakh are earmarked as plan oulay for this sector during 2012-13, 2013-14, 2014-15, 2015-16 and 2016-17 respectively.

**State Water Transport Department**

The State Water Transport Department caters to the traffic needs of the inhabitants of the waterlogged areas of the Districts of Alappuzha, Kottayam, Kollam, Ernakulam, Kannur and Kasargod. Even through the Department is a commercial Department, the functioning of this Department is like a service Department. Ever since “Transportation” came under “Essential Service”, this Department has taken shape of an Essential Service Department. The Department transports about 150 lakhs of passengers per annum using wooden/steel and fibre Glass Passenger Boats.

The State Water Transport Department was formed in the year 1968, with its Head Quarters (Directorate) in the District of Alappuzha. The Director is the Head of the Department. Initially, the service operation was only in the Districts of Alappuzha, Kottayam & Kollam. Later the functions and activities were extended to the Districts of Ernakulam, Kottayam (Changanacherry) and Kasargod by establishing an office for the Mechanical Engineer and three Regional Offices headed by Senior Superintendents. Now the Department has fourteen Stations Offices. Presently the department operates 51 schedules per day including tourism services. Approximately
40,000 people use their service every day. It operates vehicle carrier (two-wheeler) boats in ferry services. The operating distance per day is 700 km approximately.

**Major Achievements of State Water Transport Department for 2015-16**

- Constructed a dry dock with modern equipment for speedy repair and maintenance of all kind of boats.
- Solar powered passenger boat, which is first in India, Catamaran Double hull and single hull vessels are the on-going projects.
- Started Parassini-Mattool, Ernakulam-Varappuzha and Vyttila –Kakkanad services.
- Alappuzha-Kumarakam-Kottayam and Vaikom-Ernakulam A/C tourist services are the new services which are to commence in the nearest future.

The details of operational statistics of State Water Transport Department are shown in **Appendix 5.23**.

**Kerala Shipping and Inland Navigation Corporation Ltd.**

The Corporation was formed in 1989 by the statutory amalgamation of Kerala Inland Navigation Corporation Ltd. (KINCO) and Kerala Shipping Corporation Limited (KSC), both Government of Kerala Companies. KSINC is the pioneer in inland navigation, coastal shipping and water based tourism and leisure activities in Kerala. It started mechanized cargo transport in the inland waterways back in 1980's and started oil bunkering in the 1990s. It also operated coastal shipping activities in 1999. Presently KSINC is engaged in cargo transportation, bunker supplies, tourism construction and repair of vessels.

KSINC is also operating a Slipway at Thoppumpady, Cochin, leased from the Cochin Port Trust since 1991. Apart from construction and repair of own vessels, the company is also executing construction and repair of vessels for various government agencies like State Water Transport Department, Port Department, Cochin Port Trust, Central Institute of Fisheries Department, Poopathara Shipping corporation Ltd and other private agencies.

The Corporation at present has fleet strength of seven barges carrying various cargo, two tourist boats and two Jhankars. KSINC was the pioneer in transporting imported industrial fertilizer, raw materials such as Rock Phosphate, Sulphur and phosphoric acid to FACT, Cochin Division and Udyogmandal Division through waterways.

As the boat services became unviable the company has stopped passenger boats operation. However, as opportunities began to emerge with new developments, they are planning to enter the sector again. For this purpose 4 high speed boats for operation in Cochin is under construction. A 200 passenger capacity mini cruise ship is under construction for tourist operation. A 500MT cargo barge is under construction for bulk raw materials. The operational statistics of KSINC are shown in **Appendix 5.23**.

**Coastal Shipping and Inland Navigation Department**

The main State Inland Canal schemes in the State are implemented through this department. During 2015-16, under Inland Canal Schemes, deepening and side protection to the Tanoor-Kootayi Canal for ₹ 5.45 crore was completed. Development of TS canal from Eravipuram Kayal to Ashtamudi Kayal (Kollamthodu) is progressing. Development of feeder canal connecting Kannetti Kayal at Karunagappally to National Waterway was completed from the grants received from the 13th Finance Commission. Mechanical works including purchase of water hyacinth harvester, replacement
of locks, rejuvenation of dredgers for ₹ 2.88 crore are completed, formation of Vatakara Mahe canal in reach 2, 3 and 4 are progressing, renovation work of three reaches of PC canal in Malapuram district are completed. Improvements to feeder canals to NW3 and waterways are nearing completion in Kottayam and Kannur Districts and these projects have been undertaken using assistance from NABARD.

Inland Water Transport is one of the most environmental friendly modes of transport because of low fuel usage and ability to carry in bulk thereby reducing pollution and congestion. The main constraint in the development of water transport is the conflict of interest between traditional fisher folks and navigation operation, friction between Road-IWT operators, insufficient navigation lock/bridge clearances, lack of maintenance of navigation system and bank protection, lack of modern inland craft terminals and cargo handling system, lack of end user incentivisation, delay in project execution and poor fund utilization. Keeping in mind the constraints facing IWT, and recognizing its potential for growth, there is a need for reduction in cost and time of transportation and enhancement of the safety and reliability of cargo. To achieve this, the thrust should be on the creation of infrastructure in the form of fairways, with adequate depth and width, besides the setting up of terminals. There is also a need to augment the IWT fleet, with suitable vessels. Private investment should be attracted for the development of this mode through suitable incentives. In short in order to make the sector more effective, there is a need to create adequate infrastructure facilities, simplify customs procedures and provide necessary fiscal incentives for the development of the sector.

Section 2
ENERGY

Energy plays a vital role in the socio-economic development and human welfare of a State. Efficient, reliable and competitively priced energy supply is a prerequisite for accelerating economic growth and human development. Apart from its contribution to economic development, it contributes significantly to revenue generation, employment, enhancing the quality of life and reducing poverty. Making available the required quantity of power of acceptable quality at affordable price is one among the prime responsibilities of Government. For any developing country, therefore the strategy for energy development is an integral part of the overall economic strategy.

More recently, the need to reduce greenhouse gas emissions, especially carbon dioxide has emerged as one of the significant challenges in the power sector. The imperative need for climate change mitigation measures is only set to grow in the years to come. To meet this challenge, the emphasis on non-fossil fuel sources of energy, especially the renewables, wind and solar, has increased dramatically in the last few years.

Power Sector in India

In India, thermal energy is the predominant source of energy. It constitutes nearly 70 per cent of the total installed capacity of the country. Contribution of energy generation from different sources to the national grid, in per centage as on September 30, 2016 and the changes compared to the previous year is given in Table 5.8. The total installed capacity of power in India is 3, 06,358 MW. One major development during this period has been that renewable sources have emerged as the second largest energy source of the country leaving hydro to the third position. In the sector wise breakup of total energy generation, the contribution of State sector is 1,02,089.9 MW (33 per cent), Central sector is 76,312 MW (25 per
cent) and Private sector is 1,27,956 MW (42 per cent).

It can be seen from the table that among the energy sources, renewable sources recorded the highest percentage growth (21.29 per cent) compared to its previous year. It may be noted however that in terms of actual energy supply, the increased contribution of renewables will be less since the plant load factors of various renewable sources are much lower than thermal or hydel.

**Power Sector in Kerala**

Kerala generates power from four sources - hydro power, thermal power, wind power and solar power. Of these, hydel and thermal power generations account for the considerable majority whereas wind and solar power generations make only marginal additions. Monsoon is essential to sustain the hydropower base in the State and the shortage in rainfall usually creates a power crisis. Yet hydel energy is the most reliable and dependable source of energy in Kerala. In addition to these considerations, hydel is also not a source of greenhouse gas emissions and is effectively a renewable energy source, even if this is not fully reflected in the official classification of what renewables sources are.

The main challenges faced by the energy sector in the State are i) Inadequate capacity addition over the years leading to massive in house demand supply gap ii) Hydel power dominated supply scenario

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**Table 5.8**

All India Installed Capacity as on September 30, 2016

<table>
<thead>
<tr>
<th>Fuel</th>
<th>Installed Capacity (MW) (as on 30/9/15)</th>
<th>Per centage of installed capacity</th>
<th>Installed Capacity (MW) (as on 30/9/16)</th>
<th>Per centage of installed capacity</th>
<th>Per cent change compared to previous year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal</td>
<td>194200</td>
<td>69.68</td>
<td>213228.90</td>
<td>69.60</td>
<td>9.79</td>
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<tr>
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<td>5780</td>
<td>2.07</td>
<td>5780</td>
<td>1.89</td>
<td>-</td>
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<td>13.08</td>
<td>44236.92</td>
<td>14.44</td>
<td>21.29</td>
</tr>
<tr>
<td>Total</td>
<td>278734</td>
<td>100.00</td>
<td>306358.25</td>
<td>100.00</td>
<td>9.91</td>
</tr>
</tbody>
</table>

*Source: Figures in Column 2 and 4 are from Ministry of Power, Govt. of India and figures in Column 3, 5, 6 have been calculated.*

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**Box 5.8**

Constitution of 19th Electric Power Survey Committee

Government of India vide order CEA/PLG/DMLF/PS/2/19EPS/2014 dated June 11, 2015 has constituted the 19th Electric Power Survey Committee to forecast State/Union Territory wise, Region wise & All India Electricity demand on short, Medium and long term as a foremost planning exercise to base subsequent planning activities in the country. Terms of reference of the Committee include (1) To forecast the year wise electricity demand projection for each State, Union Territory, Region and All India in detail up to the end of 13th plan and (2) To project the perspective year wise electricity demand for 14th plan i.e. from 2021-22 to 2026-27 and the terminal years of 15th &16th Five Year Plans i.e., year 2031-32 & 2036-37. The committee will submit its report in a period of 15 months.

*Source: Central Electricity Authority, Ministry of Power, Govt. of India.*
iii) Negligible share of renewable energy in the energy mix iv) Gap between energy conservation potential and its realization v) Limited presence of Independent Power Producers (IPP) and Co-Generating Stations (CGS) and vi) Limited penetration of star labeled products.

However on the positive side, the development of the power grid at the regional and national level has allowed States like Kerala to purchase a large proportion of its power from sources and producers outside the State. Thus in house capacity addition does not carry the same significance as before. The new challenge is to be able to find an adequate basket of sources, suitably distributed over time and hours of the day, with advance purchase agreements so that the net cost of purchased power is suitably optimised.

Despite public enthusiasm for renewable energy and the keen interest of government in the matter, renewable energy capacity installation and generation has fallen below the anticipated levels. This points to the need to overcome various constraints in the growth of renewable capacity as well as the need for a shift in emphasis in the development of renewable energy.

**Capacity Addition during 2015-16**

Total installed capacity of power in the State as on March 2016 is 2880.20 MW. Of which, hydel contributed the major share of 2104.3 MW (73.06 per cent); while 718.46 MW was contributed by thermal projects, 43.27 MW from wind and 14.15 MW from Solar. Figure 5.9 highlights the total installed capacity of Kerala from hydel, thermal and renewable sources.

The total additional capacity added from all sources during 2015-16 was 44.5 MW and scheme wise addition details are presented in Table 5.9.

In the reference year 2015-16, 22 MW from Hydel source, 14.16 MW from Solar and 8.4 MW from wind was added to the installed capacity of the State although it is produced by different agencies.

**Appendix 5.24** shows the details of energy source and its installed capacity during the last five years while sector wise details are shown in **Appendix 5.25**. Of the total installed capacity of 2880.20 MW during 2015-16, the contribution of State sector is 2209.2 MW (76.7 per cent), Central sector 359.6 MW (12.4 per cent) and Private sector 311.31 MW (10.8 per cent). The details of power availability during the last five years are shown in **Appendix 5.26**.

**Kerala’s Power Sector Projections**

For power sector projections, the energy demand was presumed to be the basis with load factor being...
Table 5.10
Capacity Addition, 2015-16

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Name of Power stations</th>
<th>Installed Capacity (MW)</th>
<th>Date of commissioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chimmony HEP</td>
<td>2.5</td>
<td>22.05.2015</td>
</tr>
<tr>
<td>2</td>
<td>Adyanpara HEP</td>
<td>3.5</td>
<td>03.09.2015</td>
</tr>
<tr>
<td>3</td>
<td>Barapole HEP</td>
<td>15</td>
<td>29.02.2016</td>
</tr>
<tr>
<td>4</td>
<td>Peringalkuthu HEP (capacity enhancement)</td>
<td>1</td>
<td>29.05.2015</td>
</tr>
<tr>
<td>5</td>
<td>Solar Kanjikkode</td>
<td>1</td>
<td>20.08.2015</td>
</tr>
<tr>
<td>6</td>
<td>Solar Power Project at Chalayoor Colony, Agali</td>
<td>0.096</td>
<td>31.08.2015</td>
</tr>
<tr>
<td>7</td>
<td>Solar Power Project at Peringalkuthu Power House</td>
<td>0.05</td>
<td>10.09.2015</td>
</tr>
<tr>
<td>8</td>
<td>Solar Power Project at Banasurasagar,Wayanad</td>
<td>0.01</td>
<td>21.01.2016</td>
</tr>
<tr>
<td>10</td>
<td>Solar Power Project by M/s. CIAL (IPP)</td>
<td>13</td>
<td>18.08.2015</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>22</td>
<td>14.156</td>
</tr>
</tbody>
</table>

Source: KSEBL

used to convert the projected energy demand to peak MW demand. The projected energy demand was worked out by a combination of end use and time series analysis. This was the methodology used in the Electric Power Surveys (EPS) conducted by Central Electricity Authority (CEA) in conjunction with the State Electricity Boards. Table 5.10 shows the Peak load and Energy Requirement projected in the 18th EPS and its variations with actuals.

From the Table 5.10 it can be seen that Maximum Demand and Energy Requirement of the State has not reached to the figures projected in the 18th EPS and there is considerable variations when compared to the realized actual figures.

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 for the last two years of the 12th Plan are shown in Table 5.11.

Kerala State Electricity Board Limited (KSEBL)

KSEBL is one of the driving forces behind the economic development of the State of Kerala. It has been responsible for the generation, transmission and supply of electricity in the State, with particular mandate to provide electricity at affordable cost to the domestic as well as for agricultural purposes.
Table 5.10
Electric Power Survey (EPS) Projections and realizations

<table>
<thead>
<tr>
<th>Year</th>
<th>Peak Load (MW) projected as per 18th EPS</th>
<th>Maximum Demand realized (Per cent Variance)</th>
<th>Energy Requirement(MU) projected as per 18th EPS</th>
<th>Energy requirement realized (Per cent Variance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
<tr>
<td>2014-15</td>
<td>4157</td>
<td>3602 (-13.3 per cent)</td>
<td>23554</td>
<td>21914 (-6.9 per cent)</td>
</tr>
<tr>
<td>2015-16</td>
<td>4386</td>
<td>3860 (-11.9 per cent)</td>
<td>24975</td>
<td>22583 (-9.5 per cent)</td>
</tr>
<tr>
<td>2016-17</td>
<td>4669</td>
<td></td>
<td>26584</td>
<td></td>
</tr>
</tbody>
</table>

Source: Figures in Col.2&4 are from Economic Review 2014 and Figures in Col. 3 and 5 are from KSEBL.

Table 5.11
Outlay and Expenditure, ₹ in lakh

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Department</th>
<th>Annual Plan 2015-16</th>
<th>Annual Plan 2016-17</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Outlay</td>
<td>Expenditure</td>
<td>Per cent of Exp</td>
</tr>
<tr>
<td>1</td>
<td>KSEBL</td>
<td>140942</td>
<td>105005.35</td>
</tr>
<tr>
<td>2</td>
<td>ANERT</td>
<td>4280</td>
<td>2107.71</td>
</tr>
<tr>
<td>3</td>
<td>MTSIL</td>
<td>560</td>
<td>354.82</td>
</tr>
<tr>
<td>4</td>
<td>EMC</td>
<td>938</td>
<td>751.21</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>146720</td>
<td>108219.09</td>
</tr>
</tbody>
</table>

Source: Plan space* Expenditure as on December 5, 2016

India directives, the Kerala Government notified a transfer scheme vide GO (M.S.) No.37/2008/ PD dated, 25.9.2008 through which all assets and liabilities of KSEB were vested with the State Government. The assets and liabilities were revested with fully owned government company, KSEB Limited under the Indian Companies Act, 1956 on 14th January 2011.

**Generation**

The electricity demand of the State is met through generation from KSEBL, Central Generating Stations (CGS), Independent Power Producers (IPPs) and Traders. Generation from KSEBL's own plants provide 30 per cent (6791.8 MU) of the total energy requirement. Import from CGS, IPPs, UI and Traders provides the rest of the (15791.6 MU) total requirement 19378.55 MU of energy was sold (including sales outside the State) during the year 2015-16. The total additional capacity added from all sources during the year 2015-16 was 44.5 MW.

**On-going Hydro Electric Projects in the State**

The details of the important on-going Hydro Electric projects in the State with expected date of commissioning are given in Table 5.12.

Only one hydro electric project is expected to be
completed in the year 2016-17. Apart from this, the following SPV projects (Table 5.13) of KSEBL were tendered and the works are in progress. The details of other hydroelectric schemes are given in Appendix 5.27.

**Pattern of Power Consumption**

Kerala’s consumption is predominantly domestic, which account for 51 per cent of the total consumption. Revenue from Domestic consumers is only 36 per cent of the total revenue. The domestic category consumers showed a growth rate of 1.52 per cent from 89,87,947 in 2014-15 to 91,24,747 in 2015-16. Per capita consumption has increased by 3.86 per cent, that is, to 565 KWh in 2015-16 against 544kWh in 2014-15. During 2015-16, 19,325 MU of energy valued at ₹10,44,601 lakh was sold (internally) showing an increase of 899 MU as compared to the previous year’s 18,426 MU. Total consumption and per capita consumption of electricity in Kerala show a fluctuating pattern of growth. The details of consumption of electricity in Kerala for the years 2011-12 to 2015-16 is given in Table 5.14 and the details of the pattern of power consumption and revenue collected during 2015-16 is furnished in Appendix 5.28.

**Electrical Energy Consumption**

In Kerala, electrical energy consumption has increased to 19,325.07 MU in 2015-16 from 18,426.27 MU during 2014-15 with a per cent increase of 4.87 per cent. Electrical Energy consumption in Kerala during 2011-12 to 2015-16 is depicted in Figure 5.10.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of Scheme</th>
<th>Installed Capacity (MW)</th>
<th>Expected month of commissioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Thottiar HEP</td>
<td>40</td>
<td>December 2018</td>
</tr>
<tr>
<td>2</td>
<td>Sengulam Augmentation Scheme</td>
<td>85 MU</td>
<td>June 2018</td>
</tr>
<tr>
<td>3</td>
<td>Chathankottunada II HEP</td>
<td>6</td>
<td>June 2018</td>
</tr>
<tr>
<td>4</td>
<td>Kakkayam SHEP</td>
<td>3</td>
<td>December 2017</td>
</tr>
<tr>
<td>5</td>
<td>Perumthenaruvi SHEP</td>
<td>6</td>
<td>November 2016</td>
</tr>
<tr>
<td>6</td>
<td>Peringalkuthu SHEP</td>
<td>24</td>
<td>March 2018</td>
</tr>
<tr>
<td>7</td>
<td>Bhoothathankettu SHEP</td>
<td>24</td>
<td>January 2018</td>
</tr>
<tr>
<td>8</td>
<td>Upper Kallar</td>
<td>2</td>
<td>August 2018</td>
</tr>
</tbody>
</table>

*Source: KSEBL*

---

**Box 5.9**

**13th Five Year Plan - Constitution of Working Group on Energy**

In connection with the preparation of 13 th Five year plan for the State, Working Group on Energy was reconstituted with Sri. Paul Antony IAS, Additional Chief Secretary to Government, Department of Power and Sri Prabir Purkayastha, President Centre for Technology and Development, New Delhi/Chairperson Knowledge commons as Co-Chair persons. The committee comprises eminent experts from various areas related to Energy...
Power Purchase Agreement (PPA)

As noted earlier, purchase of power is an important means by which Kerala’s energy requirements are met. To this end, KSEB has entered into Power Purchase Agreements with various Central Generating Stations like NTPC and Neyveli Lignite Corporation (NLC) envisaged for Southern Region. This includes purchase of 229 MW of power from nuclear power stations and 1244.6 MW of power from various thermal stations for the year 2015-16. 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 from small Hydro
Projects Meenvallam (3MW), Iruttukkanam (3 MW), Karikkayam (10.5 MW), Ullunkal (7 MW) and Iruttukanam (4.5 MW). Power is also being purchased from co-generation plant of MPS steel (10MW) and RGCCPP, Kayamkulam (359MW). The capacity allocated from various stations for which the PPAs have been executed is given in Appendix 5.29.

Transmission

Transmission of electricity refers to the bulk transfer of power over a long distance at high voltage, generally of 110 kV and above. A good transmission system is necessary for effective distribution and to procure power from outside the State. In the Transmission sector, many planned works could not be taken up due to land acquisition and right of way related issues. In the year 2015-16 out of the target of 12 numbers of 110 kV substations, 8 substations was completed and in the case of 66 kV substations, 3 substation was completed against the target of 4. In the case of 33kV substation, 3 substation was completed while there is no progress in the case of 220kV sub stations. Kerala’s transmission system consisting of substations and its connected lines are given in Appendix 5.30 and 5.31.

Strengthening of Interstate Transmission Network

The major achievement in the grid during 2015-16 was the commissioning of 400kV Mysore-Arecode line on October 14, 2015. With the addition of interstate feeder, the import capability has been enhanced from 1800MW to 2400MW. Medium Term Open Access for 297MW from CSPDCL (NVVN) has been scheduled from October 22, 2015 onwards. Long Term Open Access power from Maithon & DVC was operationalized in 2015-16 from December 17, 2015 and March 4, 2016 respectively.

Aggregate Technical and Commercial (AT & C) losses

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. During 2015-16, AT&C loss has come down to 16.04 per cent while T&D loss has touched 14.37 per cent. The corresponding data of AT&C loss for the country is 23.04 per cent (2013-14). It means that KSEB
has made significant achievement in the field of reducing AT&C loss. From 2003-04 onwards, AT&C loss was considerably reduced by way of replacement of faulty meters, intensification of theft detection, installation of new substations and lines, upgradation and modernization of sub transmission and distribution network through Accelerated Power Development Reforms Programme (APDRP). The impact of AT & C loss reduction during the last five years is shown in Appendix 5.32. The decreasing trend of T & D loss during the last 5 years is depicted in Figure 5.11. Transmission and Distribution loss has come down marginally by 1.25 per cent from 2011-12 to 2015-16.

Distribution

In the distribution segment, there are 57650 Kms of 11 kV lines, 285970 Kms of LT lines, 73460 nos. of distribution transformers. During the financial year 2015-16, 3, 81,247 service connections were given (against the target of 4,59,020), 2,022 kms of 11 kV lines (against the target of 2377kms) and 3312 kms of LT line (against the target of 4826 kms) were commissioned. The target and achievement of the distribution infrastructure during 2015-16 is given in Appendix 5.33.

Restructured Accelerated Power Development and Reform Programme (R-APDRP)

The R-APDRP programme is sponsored by Government of India and funded through Power Finance Corporation (PFC). Part-A of the programme is for building up a solid IT infrastructure like Data centre, and Wide Area Network for power utilities. The progress achieved in the implementation of the above project in KSEB is summarized as follows:

1. **Data Centre**: A full-fledged Data Centre has been setup in Vydyuthi Bhavanam, Thiruvananthapuram for hosting the software application of KSEB.

2. **Wide Area Network**: As part of establishment of Wide Area Network, about 680 Electrical Sections were connected to the Data centre through MPLS VPN network. Steps are being taken to connect the remaining Electrical Sections along with Electrical Circles and Divisions to the Data Centre.

3. **Centralised Customer Care Services (CCC):**

![Figure 5.11](source: KSEBL)

**Figure 5.11**

T & D Losses (per cent)
Call Centre cum customer care centre has been set up in Vydyuthi Bhavanam, Thiruvananthapuram and is functioning since 2014. Around 28 call centre executives work in the above facility to attend complaints/queries from the consumers under various Electrical Sections all over Kerala. During 2015-16, the incoming calls were 2,95,023 and 2,48,069 complaints were registered and attended through CCC.

4. Web Self Services: This online portal provides facilities like e-payment, bill view, consumption pattern and meter reading history. 680 Electrical Sections are attached to the above website for providing consumer services.

Under R-APDRP Part-B, 43 schemes were sanctioned with an outlay of ₹1,078.3 cr. Works in 40 towns with a total outlay of ₹550.7 cr are being done departmentally. As on March 31, 2016, works amounting to ₹307.45 cr were completed. For the balance three schemes namely Thiruvananthapuram, Kozhikode & Kochi with a total outlay of ₹547.5 cr, work is being done on turnkey basis. As on March 31, 2016 works amounting to ₹258.793 Cr were completed.

Major Projects in the Pipeline

Solar Park

As per the renewable purchase obligation notified by Regulatory Commission, the solar power purchase obligation for distribution licensees is 0.25 per cent of the total energy consumption for the year 2010-11 which will increase every year to reach 3 per cent by 2022. KSEBL proposes to implement solar power plants at vacant lands available at the sites of existing substations, powerhouses and rooftops of Vydyuthi Bhavanams and also in various government buildings.

The KSEBL has executed Memorandum of Understanding with Solar Energy Corporation of India (SECI) to develop different types of Solar Power Projects within / outside the State of Kerala. The proposal for setting up of 200 MW Solar Park at Kasargode District had been approved in-principle by Ministry of New & Renewable Energy (MNRE) on March 19, 2015. Government of Kerala has accorded sanction for the incorporation of the Joint Venture Company namely Solar Power Park Developer (SPPD) between Solar Energy Corporation of India and KSEBL for the implementation of the project in Kerala. Out of the 200MW, implementation of 50MW had been awarded on October 29, 2015. The work has commenced.

Integrated Power Development Scheme (IPDS)

Integrated Power Development Scheme (IPDS) was launched by Ministry of Power, Government of India for improving the distribution infrastructure of urban areas. The scheme include construction of 33kV substations, construction of 11kV overhead lines and underground cables, construction of LT lines, installation of transformers, and replacement of electro mechanical meters with electronic meters. An amount of ₹592.07 crore has been sanctioned for the scheme. Out of this ₹32.82 crore has been received by KSEBL as central share.

Deen Dayal Upadhyay Gram Jyoti Yojana (DDUGJY)

This is another program launched by Ministry of Power for reducing AT&C loss, providing electricity to all households and for ensuring 24x7 power supply. Government of India has sanctioned an amount of ₹485.37 Crore on January 5, 2016 for implementing DDUGJY in the 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 include construction of 33kV Substations & 33kV lines, 11kV lines & LT lines, installation of distribution transformers, replacement of energy meters and effecting BPL service connections.

The erstwhile Rajiv Gandhi Gramin Vidyutikaran
Yojana (RGGVY) scheme for village electrification and providing electricity distribution infrastructure in the rural areas has been subsumed in the DDUGVY scheme. The details of the financial and physical progress of implementation of RGGVY are shown in the Appendix 5.34.

**Demand Side Management activities**

As part of Demand Side Management (DSM) activities, an Energy Audit Cell has been formed during the year 2007 with an objective of conducting Energy Audit and for taking steps as per provisions of the Energy Conservation Act, 2001. As part of this, workshops have been conducted in thermal and hydro stations for formulating action plan for energy audits and for promoting energy conservation activities. Anti-Power Theft Squad (APTS) was active during the last 5 years. The details of amount realized by means of APTS inspections are detailed in Table 5.15.

During the year 2015-16, APTS wing conducted 34313 numbers of inspections across the State. 449 cases of power theft were detected from these inspections.

**Achievements of KSEBL during 2015-16**

- Commissioned three Hydro Electric projects during this period: a) Chimmony HEP (2.5MW) b) Barapole HEP(15MW) and c) Adyanpara HEP(3.5 MW)
- 8 No's of 110kV, 3 No's of 66kV and 3 No's of 33 kV substations were commissioned
- 381247 no. of new service connections was given & 2389 No's of new distribution transformers were installed
- 2022 km of new 11 kv lines were installed & 3312 km of new LT lines were commissioned
- 2294 km single phase lines converted to three phase lines
- 660735 No’s of faulty meters were replaced
- Another important programme implemented by KSEBL during this period was Labha Prabha (3rd Season). The programme aims to implement Domestic Efficient Lighting Program (DELP) to promote energy conservation by replacing filament lamps and often used CFLs in households with energy efficient LED bulbs. It was targeted to provide two numbers of 9W LED bulb to 75 lakh domestic consumers during the year 2016-17. About 350MW reduction in the peak demand and 400 MU savings in energy consumption is anticipated in the State with the implementation of the scheme. Almost 25 lakhs LED lamps have been distributed among the domestic consumers.
- Under ESCOT (Energy Saving and Co-ordination Team), the project of improving energy efficiency in Drinking Water Scheme (Jaladhara/Jalanidhi) has been started. Energy Conservation activities in Ice plants are progressing.

**Table 5.15**

<table>
<thead>
<tr>
<th>Particulars</th>
<th>2011-12</th>
<th>2015-16</th>
<th>Per cent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of inspections</td>
<td>24090</td>
<td>34313</td>
<td>42.43</td>
</tr>
<tr>
<td>No. of cases Registered</td>
<td>336</td>
<td>449</td>
<td>33.63</td>
</tr>
<tr>
<td>Amount Assessed in (Rs.Crore)</td>
<td>17.39</td>
<td>31.33</td>
<td>80.16</td>
</tr>
<tr>
<td>Amount realized in (Rs.Crore)</td>
<td>11.35</td>
<td>18.69</td>
<td>64.66</td>
</tr>
</tbody>
</table>

Source: Figures in Column 2&3 are from KSEBL.
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, Government of Kerala. ANERT is the nodal agency for the implementation and propagation of non-conventional sources of energy in the State. The programmes taken up by ANERT includes Solar photovoltaic programmes, Solar thermal programmes, Wind energy programmes, Biogas programmes, Improved Chulha programmes, Publicity and awareness programmes. The assistance from Ministry of New and Renewable Energy (MNRE), Government of India is also available for these schemes based on MNRE guidelines.

Achievements of ANERT during 2015-16

- ANERT has installed 4492 family type bio gas plants under state scheme 2015-16. Further 9 biogas plants above 6m³ were also installed. 4561 improved chulhas have been installed under 2015-16 programme (3676 nos. of improved chulha to SC/ST & Total Housing Scheme beneficiaries and 885 nos. under community models).
- During 2015-16, 5720 evacuated tube collector type solar water heating systems of collector area 8580 m² and 354 flat plate collector based solar water heating systems of solar collector area 708 m² have been installed and subsidy given to 7335 m² ETC (Evacuated Tube Collector) based systems and 490m² FPC (Flat Plate Collector) based systems.
- 4 major deposit works were executed by ANERT during this period. They are 1) 15 m³ bio gas plant at Mental Health Centre, Thiruvananthapuram 2) 10 m³ Bio gas plant at SAP camp, Thiruvananthapuram 3) 15 m³ Bio gas plant at Govt. Engineering College, Kannur and 4) 6 m³ bio gas plant at Police Training College, Thiruvananthapuram.
- ANERT has conducted 9 training programmes on renewable energy sectors at different levels and 2 training and capacity building programmes for their own staff. 36 exhibitions were also sponsored by ANERT.

Energy Management Centre (EMC)

Energy Management Centre (EMC), Kerala is an autonomous body under the Department of Power, Government of Kerala, devoted to the improvement of energy efficiency in the State, promotion of energy conservation and encouraging development of technologies related to energy through research, training, demonstration programmes and awareness creation.

Achievements of Energy Management Centre during 2015-16

- Energy conservation efforts in the State saved 225.29 MU of electricity, 9610 MT of oil, and 209 MT of LPG. This includes 77 MU total electricity saving by industrial and commercial sector, savings in domestic sector was 147 MU, savings in demonstration projects was 0.124 MU and implementation of energy audit recommendation was 1.17 MU. Similarly, the savings in Oil and LPG by Industrial and commercial consumers were 9610 MT and 209 MT.
- EMC has won three prestigious awards i) Second Best State Designated Agency, by Ministry of Power, Govt. of India ii) For implementation of PICO hydel projects, from MNRE, Govt.of India iii) Certificate of Appreciation from UNDP/GEF/ BEE for creating awareness on Energy Conservation Building Code (ECBC).
• As Part of Energy clinic programme, 372 women across 9 districts were given training. 680 Energy Clinics were conducted which covered about 10,200 consumers across the state. Energy Clinic (EC) is a novel programme of EMC for energy conservation activities in the domestic sector through women as agents of change for creating energy conservation awareness among women. Energy Clinic is the first of its kind at state level, promoting the value of contributions that women can make through energy conservation.

• 70 Schools selected in the State for making them energy efficient by providing energy efficient appliances like star rated ceiling fan, LED and T5 Tube.

• 300 awareness classes were taken by trained resource persons (RPs); 124 RPs trained and deputed by Energy Management Centre across the State.

• 31 Pico hydro installations have been completed at various hilly districts of Kerala.

• Inaugurated EMCs green building (~4000 Sq. M) for Office and Institute. 60 kW solar PV for powering the office. Used most modern energy efficient equipment for attaining carbon neutrality.

Department of Electrical 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 of all electrical accidents occurring in the State and forwarding the enquiry report to the Government and taking actions against responsible person/authority are also done by this department.

Achievements of Electrical Inspectorate during 2015-16

The following are the major achievements of the Department for the year 2015-16.

• Up gradation of existing 10 Regional Labs as per NABL Standards: Process was initiated to upgrade the existing 10 Regional labs as per NABL (National Accreditation Board for testing and Calibration Laboratories) Standards.

• Procurement of Solar PV array Tester and Electronic Load Simulator: For the effective implementation of the Kerala Solar Energy Policy 2013, testing facilities are to be set up. As an initial step, Solar PV array Tester has been procured in all districts.

• Effective Implementation of Quality Control Order: For implementation of Quality Control Order, portable appliance testers are procured for all Districts. Inspection and awareness among trader were started. Through these initiatives, manufacture/storage/sale/distribution of the non-standard electrical gadgets is being controlled in the market.

• Strengthening of Electrical Consultancy wing of the Department of Electrical Inspectorate and Electrical Accident Prevention and Monitoring Cell: As part of it, the construction of additional floor in the existing building of MTSL, Thiruvananthapuram is under progress.

Kerala State Electricity Regulatory Commission (KSERC)

The Kerala State Electricity Regulatory Commission (KSERC), a statutory organization of quasi-judicial nature, was established in the year 2002. The Commission has been taking all efforts
to bring in an effective and efficient regulatory process in the Power Sector in the State. The Commission held 31 hearings for the disposal of the petitions filed before it in 2016-17 (till September 30, 2016). In addition, the Commission held a number of routine internal meetings to transact business relating to administrative matters, framing and finalization of regulations, admission of petitions, Aggregate Revenue Requirement and Expected Revenue from Charges (ARR & ERC) of the licensees and other matter related to the day to day functioning of the Commission.

During the period (up to September 30, 2016), Commission has received 25 petitions including 6 petitions related to the ARR & ERC and triuing up of the licensees. The Commission has issued orders on 24 petitions, including pending petitions. The following regulations were published during 2016-17.

1) KSERC (Terms and Conditions of Service of Officers and other Employees) amendment regulations 2016(Gazette No.1437 dated 12-08-2016)
2) KSERC (Grid Interactive Distributed Solar Energy System) Amendment Regulation 2016(Gazette No.836 dated 21-04-2016).

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**Box 5.10**

**Energy for cooking-Results of NFHS-3 and NSSO 68th Round**

As nationwide discussion is going on regarding the coverage of Green Energy for house hold use, it is relevant from the Energy sector planning perspective to look at the results of two important nationwide surveys conducted in the country related to the household use of fuel for cooking. The results of survey conducted by National Family Health Survey (NFHS-3) in 2005-06 and the 68th round of National Sample Survey Office (NSSO) in 2011-12 are worth mentioning in this context. Table 5.16 shows the result of NFHS-3 with respect to the use of cooking fuel for household uses in Rural and Urban areas of Kerala.

**Table 5.16**

**Results of NFHS-3 2005-06 Cooking Fuel use**

<table>
<thead>
<tr>
<th>Cooking Fuel</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
<th>De jure Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>0.2</td>
<td>0.1</td>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>LPG/Natural gas</td>
<td>38.9</td>
<td>20.2</td>
<td>26.4</td>
<td>24.3</td>
</tr>
<tr>
<td>Biogas</td>
<td>2.3</td>
<td>0.7</td>
<td>1.3</td>
<td>1.2</td>
</tr>
<tr>
<td>Kerosene</td>
<td>0.7</td>
<td>0.3</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Charcoal</td>
<td>0.2</td>
<td>0.0</td>
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</tr>
<tr>
<td>Wood</td>
<td>40.5</td>
<td>50.3</td>
<td>47.0</td>
<td>49.2</td>
</tr>
<tr>
<td>Straw/Shrubs/Grass</td>
<td>0.3</td>
<td>0.7</td>
<td>0.6</td>
<td>0.5</td>
</tr>
<tr>
<td>Agricultural crop waste</td>
<td>16.7</td>
<td>27.3</td>
<td>23.8</td>
<td>24.0</td>
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<td>Other</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.1</td>
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<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
</tbody>
</table>

*Source: NFHS-3, Kerala 2005-06*

Table 5.16 shows that majority of the households (72 per cent) use Solid fuels for cooking, mainly wood and agriculture Crop waste. Only 28 per cent of households use clean fuels (LPG, Natural Gas, Bio gas etc.) for cooking (42 per cent in urban areas and 21 per cent in rural areas).
Results of the NSSO 68th round – Energy for cooking.

Table 5.17 shows the results of NSSO 68th round (2011-12) in respect of Kerala regarding the primary source of Energy used for cooking in Rural and Urban areas.

Table 5.17
Rural and Urban Comparison Per 1000 distribution of households by primary source of Energy used for cooking- Kerala State

<table>
<thead>
<tr>
<th>Region</th>
<th>Coke, Coal</th>
<th>Firewood &amp; Chips</th>
<th>LPG</th>
<th>Dung cake</th>
<th>Kerosene</th>
<th>Other sources</th>
<th>No Cooking Arrangement</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural</td>
<td>1</td>
<td>663</td>
<td>308</td>
<td>0</td>
<td>1</td>
<td>7</td>
<td>20</td>
<td>1000</td>
</tr>
<tr>
<td>Urban</td>
<td>0</td>
<td>363</td>
<td>554</td>
<td>0</td>
<td>6</td>
<td>5</td>
<td>72</td>
<td>1000</td>
</tr>
</tbody>
</table>


Table 5.17 indicates that firewood and chips still continues to be the primary source of energy in rural areas in the State and LPG is found to be the primary source in urban areas. But it also important to note that nearly one third of the population in the urban area still uses Firewood and Chips as primary source of energy. It is also worth noting that among the major States, use of LPG for cooking in Rural Households was higher in Tamil Nadu (37.2 per cent) followed by Kerala (30.8 per cent) while in Urban areas dependence on Firewood & chips for cooking was highest in Odisha (36.5 per cent) followed by Kerala (36.3 per cent). The results of the Survey clearly indicate that most of the households in the State rely on Firewood and Chips for their Primary Source of Energy. Penetration of Green energy for household use is therefore relevant and the need of the day.

Notes on NFHS-3: In Kerala, the survey is based on a sample of 3,023 households that is representative at the State level and for Urban and Rural areas in the State. The results were published in December 2008.

Notes on NSSO 68th Round: Number of households surveyed for Type 1 & Type 2 schedule in Kerala under Central Sample for Rural and Urban areas constitutes 8921. The result related to Energy for cooking and Lighting was published in July 2015. Primary Source of Energy for cooking in NSSO data refers to the major source of energy used by the Household for cooking during the 30 days preceding the date of enquiry.

The challenge of meeting Kerala’s energy requirements in the future is significant. Overcoming them however requires careful consideration of the shifts that have taken place over the last several years in this sector. The emergence of power trading through exchanges and the strengthening of the grid at national and regional levels has opened up possibilities that allow to overcome Kerala’s capacity addition constraints in new and innovative ways. This applies to both fossil-fuel based as well as non-fossil fuel and renewable energy sources. This new scenario also requires that urgent attention needs to be paid to the transmission and distribution network in terms of ensuring both adequate capacity and efficiency.
Section 3
URBAN INFRASTRUCTURE

Infrastructure development is recognized as an essential factor to sustain economic growth of the country. The quality, efficiency and productivity of the infrastructure affect the quality of life, health and general living conditions in the society. Considering the special features of urbanization and the geographical peculiarities of Kerala, the process of urbanisation in the State requires special attention while moulding various urban infrastructure development programmes. The scattered pattern of urbanisation and high density of population of the State are huge challenges for the creation of urban infrastructure. In the sphere of urban infrastructure there are schemes like 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 motorized urban conveyance run departmentally through local bodies. Rapid urbanisation and intense commercial development in cities has necessitated the need for improved facilities of transport and housing. As far as transportation system in the State is considered, the daily transport demand is expected to grow from present 135 lakh trips to over 180 lakh passenger trips by 2025. Vizhinjam International Deepwater Multipurpose Seaport, Kochi Metro Rail Project and Monorail Project in Thiruvananthapuram are the ambitious projects of Government of Kerala, being developed in Kerala. Jawaharlal Nehru National Urban Renewal Mission has initiated effecting steps towards improving bus transportation. Housing is one of the fundamental necessities of society along with the provision of basic facilities like water supply, sanitation, transportation and power. Integrated Housing and Slum Development Programme (IHSDP), Basic Services to the Urban Poor (BSUP), Rajeev Awas Yojana (RAY) and Pradhan Mantri Awas Yojana (PMAY) are the major Centrally Sponsored schemes in this regard. The major urban development programmes being implemented in the State are discussed below.

KERALA SUSTAINABLE URBAN DEVELOPMENT PROJECT (KSUDP)

The externally aided project funded by the Asian Development Bank (ADB) dealt with the improvement, upgradation and expansion of existing urban infrastructure facilities and basic urban environmental services in five Municipal Corporations of the State viz; Thiruvananthapuram, Kollam, Kochi, Thrissur and Kozhikode. The loan period of ADB has ended on June 30, 2016. Altogether 11 sewerage packages and septage treatment plant in Kollam have to be completed. During 2015-16 an amount of ₹140 crore was budgeted and the expenditure incurred was ₹22.94 crore. Status of major projects included under KSUDP are given in Appendix 5.35. In addition to the above the other projects being undertaken through KSUDP are establishment of package septage treatment plants, nagarajothi project and Urban 2020 scheme.

CAPITAL REGION DEVELOPMENT PROJECT

The Capital Region Development Project (CRDP) was introduced in 2002 to improve the quality of life of people in the capital city by strengthening and improving the critical infrastructures like roads, water supply, solid waste management, surface water drainage, city beautification and bus terminals. The activities pertaining to CRDP Phase
I have been implemented by Kerala Sustainable Urban Development Project (KSUDP) through various agencies like Kerala Water Authority, TRIDA, Kerala Road Fund Board and KSRTC.

In 2012, second phase of the planning process under CRDP-II was conceived to kick start the integrated development process for entire capital region including the suburbs. The identified projects are classified into two groups viz. improvement of public mobility & road safety and economic development. This includes improvement of city roads, pedestrian safety infrastructure, junction improvement schemes, parking facilities and parking policy. During 2015-16 an amount of ₹7.79 crore was utilised for different activities under CRDP. Details of projects undertaken by Capital Region Development Programme are given in Appendix 5.36.

JAWAHARLAL NEHRU NATIONAL URBAN RENEWAL MISSION (JnNURM)

Government of India adopted a mission mode approach for implementation of urban infrastructure improvement programme in a time bound manner in selected cities through the Jawaharlal Nehru National Urban Renewal Mission launched in 2005. The two cities selected as Mission Cities from the State under the 1st phase of JnNURM were Thiruvananthapuram and Kochi. However, only the bus projects of Thiruvananthapuram and Kochi were completed before the end of the mission period on March 31, 2014. Three projects were dropped and one was foreclosed due to public protest. The remaining projects are included in the spillover work.

On expiry of the mission period of the 1st phase of JnNURM on March 31, 2014, the Ministry of Urban Development, Government of India announced sanction of new projects under the Transition Phase for a period of 3 years from April 1, 2014 onwards. Under the transition phase, sanction was accorded for the procurement of 400 buses for improving urban transportation in the various cities of the State excluding Thruvananthapuram and Kochi. Under the transition phase, 110 AC Low Floor Buses and 100 Non-AC Low Floor Buses were procured in Kozhikode, Kalpetta, Malappuram, Kottayam, Thodupuzha, Pathanamthitta, Kannur, Kasaragod, Thrissur, Palakkad, Kollam and Alappuzha and the supply of remaining buses is under process. The expenditure incurred for the year 2015-16 was ₹73.02 crore. Details of projects approved for implementation under JnNURM are given in Appendix 5.37.

The Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT) is a sub-scheme of JnNURM launched by Government of India during the year 2005-06 to improve the infrastructure in small and medium towns in the country in a planned manner. At present 5 water supply schemes and 2 solid waste management schemes are progressing as spillover projects. The cumulative expenditure reported as on October 31, 2016 is ₹442.26 crore. In the transition phase of UIDSSMT for a period of 3 years with effect from April 1, 2014, six projects worth ₹184.47 crore were sanctioned and one project for solid waste management scheme having an approved project cost of ₹14.66 crore was released by Government of India. Details of projects approved under UIDSSMT are given in Appendix 5.38.

ATAL MISSION FOR REJUVENATION AND URBAN TRANSFORMATION (AMRUT)

Atal Mission for Rejuvenation and Urban Transformation (AMRUT) is one of the new initiatives of Ministry of Urban Development launched in June 2015. Project period of AMRUT is five years from the financial year 2015-16 to 2019-20. Nine towns have been identified from the State for funding under AMRUT. The list includes 6 municipal Corporations and Alappuzha,
Palakkad & Guruvayoor Municipalities. The scheme aims at providing basic services to households and build amenities in cities which will improve the quality of life for all, especially the poor and the disadvantaged. The total number of projects approved is 221.

**SMART CITIES MISSION (SCM)**

The Smart Cities Mission is a flagship programme of Government of India covering 100 cities for a duration of five years (2015-16 to 2019-20). In the State, Kochi city has been selected and Government of India has released ₹2 crore as additional office expenses for the preparation of smart city plan prepared for Kochi during 2015-16. The Kochi smart city has prioritised projects under urban mobility, tourism, urban transport and smart solutions as priority sectors. Total project cost of ₹ 2076 crore was submitted and has received approval from Government of India. Thiruvananthapuram city has initiated the process to prepare Smart City Proposal (SCP) to participate in the 2nd phase of Smart Cities Challenge.

**BASIC SERVICES TO THE URBAN POOR (BSUP)**

Basic Services to the Urban Poor (BSUP) is a sub-component of Jawaharlal Nehru National Urban Renewal Mission which is implemented through Kudumbashree. The duration of the mission is seven years beginning from 2005-06. Only two corporations in the state, Thiruvananthapuram and Kochi come under the scheme. Under this scheme, out of 22257 houses sanctioned, construction of 18347 has commenced and 16227 houses have been completed till October 31, 2016. The total expenditure incurred for the project so far is ₹226.13 crore. Details of projects sanctioned under BSUP for the two Corporations are given in Appendix 5.39. The physical achievements of the scheme are summarized in Appendix 5.40.

**RAJIV AHWAS YOJANA**

Rajiv Awas Yojana (RAY), a flagship project of Ministry of Housing and Urban Poverty Alleviation, launched by Hon’ble President of India on June, 2010 envisages a “Slum Free India” with inclusive and equitable cities in which every citizen has access to basic civic infrastructure, social amenities and decent shelter. All the 6 corporations in the State were selected under RAY. 811 slums in 6 corporations were covered under the scheme. The project aims at tackling the issues of slums in a definitive manner. Total project cost approved in 5 ULBs is ₹160.75 crore. An amount of ₹3626 lakh has been released (₹2892 lakh as Central Share and ₹ 734 lakh as State Share) to SLNA, out of which ₹3508 lakh has been transferred to the concerned urban local bodies which are the implementing agencies. During 2015-16 out of 2159 dwelling units sanctioned, construction of 143 units was started and 18 completed. Expenditure incurred till date is ₹2223.58 lakh and the expenditure during 2015-16 is ₹ 124 lakh.

As of now, out of total sanctioned 2159 houses, construction of 94 new houses has been completed and 438 are in progress. In June 2015 Government of India has subsumed Rajiv Awas Yojana project with “Housing for All” by 2022 scheme. Projects sanctioned under RAY are given in Appendix 5.41.

**PRADHAN MANTRI AWAS YOJANA (PMAY)**

The scheme was officially launched in the State by Hon’ble Chief Minister on December 8, 2015 and is being implemented in all 93 Urban Local Government institutions. The mission seeks to address the housing requirement of urban poor including slum dwellers with the mandate of providing housing for all by 2022. The mission will support construction of houses up to 30 square meter carpet area. Detailed project reports for beneficiary led construction (New house-14350 and enhancement-917) of 11 Urban Local Bodies, viz. Pattananthitta, Thrissur, Palakkad, Malappuram, Kannur, Kasaragod, Alappuzha, Thodupuzha, Kozhikode, Kollam and Kalpetta have been approved by the Central Sanctioning and Monitoring Committee Meeting. DPR preparation activities are ongoing in the other ULBs.
INTEGRATED HOUSING AND SLUM DEVELOPMENT PROGRAMME (IHSDP)

Integrated Housing and Slums Development Programme (IHSDP), launched during 2006-07, aims at the holistic development of slums in urban areas. The basic objective of the scheme is to strive for holistic slum development with a healthy environment by providing adequate shelter and basic infrastructure facilities to the slum dwellers of the identified urban areas. IHSDP is to be implemented in all towns and cities identified as per 2001 Census cities, except cities/towns covered under Jawaharlal Nehru National Urban Renewal Mission (Thiruvananthapuram and Kochi Corporations). Under this scheme, out of 14211 houses sanctioned, construction of 9184 have been started and 7427 completed till October 31, 2016. The total expenditure incurred for the project so far is ₹164.56 crore. During 2015-16, Government of India informed that the project will be discontinued from March 31, 2015 onwards. However, later the project completion period was extended up to March 31, 2017. The achievements of the scheme are summarized in Appendix 5.42. Details of projects approved by Government of India and fund released to 53 urban local bodies are given in Appendix 5.43.

 NATIONAL URBAN LIVELIHOOD MISSION

The Government of India has launched the National Urban Livelihood Mission (NULM) by replacing the previous scheme SJSRY for reducing poverty and vulnerability of the urban poor. The mission aims to reduce poverty and vulnerability of the urban poor households by enabling them to access gainful self employment and skilled wage employment opportunities. So far 2960 SHGs have been funded under this programme. During 2015-16 an amount of ₹459.11 lakh has been expended for the scheme. The physical and financial achievement and the district wise thrift and credit operation under NULM as on October 31, 2016 are shown in Appendix 5.44, 5.45 and 5.46 respectively.

AYYANKALI URBAN EMPLOYMENT GUARANTEE SCHEME

Ayyankali Urban Employment Guarantee Scheme was started during 2009-10. It is intended to address the unemployment and under employment problems in the urban society. The objective of the scheme is to enhance livelihood security in urban areas by providing at least 100 days of guaranteed wage employment to every household whose adult members are willing to do unskilled manual labour. The scheme is structured in the pattern of Mahatma Gandhi National Rural Employment Guarantee Scheme. The present wage rate is ₹240. During the year 2015-16, an amount of ₹1500 lakh was provided in the budget and ₹1012.17 lakh has been expended for the scheme and it has created 5.06 lakh work days.

PREPARING MASTER PLANS AND DETAILED TOWN PLANS

The Scheme “Preparing Master Plans and Detailed Town plans” was introduced in the year 2009-10 which aims at preparing development plans and detailed town planning schemes for the planned development of the urban areas in the State. Development Plans for 32 towns were started in the first phase, 31 towns in the second phase and 26 towns in the third phase. In addition, technical works of Master Plan for Kovalam Vizhinjam area and Medical College area have been completed under Phase II programme. Technical works of all master plans included in the first phase and 13 master plans of the second phase have been completed and the remaining is under various stages of preparation. Master plans prepared under three phases is given in Appendix 5.47.
DEVELOPMENT AUTHORITIES AND URBAN INFRASTRUCTURE

The objective of the Development Authorities is to achieve sustainable and comprehensive development in the area which comes under these authorities. Major activities undertaken by the Development Authorities are construction of shopping complexes, bus stand and terminals, parking plazas, development of plots for construction of buildings and widening of important roads in the cities. There are five Development Authorities viz. Thiruvananthapuram Development Authority (TRIDA), Greater Cochin Development Authority (GCDA), Thrissur Development Authority, Calicut Development Authority and Kollam Development Authority. During 2015-16 an amount of ₹45 crore was allocated to these authorities and the expenditure incurred was ₹ 15.94 crore. During 2016-17 an amount of ₹55 crore was earmarked to these authorities. Major projects undertaken by TRIDA are given in Appendix 5.48.

Section 4

COMMUNICATION INFRASTRUCTURE

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 (10.22 per cent) 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 on September 30, 2016, there are 5,066 post offices in the circle, of which 1,457 are Departmental post offices and 3,558 Extra Departmental post offices. On an average each post office in the State serves an area of 7.69 Sq.km and a population of 6,609 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 5.11.

As a result of these initiatives from the part of Indian post, Post Offices in Kerala has improved its functioning as the hub for every citizen. Every citizen now has access to this hub which is close to his/her doorstep. Details are shown in Appendices 5.49, 5.50, 5.51 and 5.52.

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 5.12. Districtwise details of telephone network during 2015-16 are given in Appendix 5.53.
Box 5.11
Major Activities of Kerala Postal Circle during 2016-17 (up to September 30, 2016)

- All the 1508 departmental post offices in the Circle are computerised and provided e-MO services
- Introduction of the facility to register the complaints on the web and track the progress till it is finally settled
- New e-based and value added services introduced
- The track and trace facility available for registered, insured, speed post, e-MO and foreign accountable articles continued and is availed through the www.indiapost.gov.in and enables the customers to track their articles right from the time of booking to the time of delivery
- Introduction of International Speed Post or EMS - a facility available from India to 99 countries
- World Net Express Service (WNX) is introduced to connect 220 countries
- Two new parcel products of India “Express Parcel” and “Business Parcel” introduced
- Introduction of Logistics Post Air to the customers for getting end to end services on the logistics value for faster transmission / delivery of their consignments
- 1498 Post Offices (51 HO’s and 1447 SO’s) in the State have been shifted to the Core Banking System
- Introduction of ‘My Stamp’ – any individual can get their personalized stamps with their photograph on it.
- Implementation of Public Fund Monitoring System (PFMS) or NeFMS platform for effective wage disbursal under MGNREGS
- Tie up with Kerala State Government for Corporate e-post
  
i. Tie up with Commissioner for Entrance Exam for selling Application forms under Retail post
ii. Tie up with Director, LBS Centre for Science & Technology
iii. Kerala Water Authority under e-payment
iv. BSNL under e-payment
v. Tie up with Local Self Government for tax collection
vi. Tie up with Kerala Books and Publication Society (KBPS), for distribution of text books to schools throughout the State for the academic year 2015-16
vii. Sale of Penta Mobile through Post Offices (e-payment)

Box 5.12
Status of Telecom Sector in Kerala as on March 31, 2016

- No. of Telephone Exchanges : 1321
- Equipped Capacity : 3585324
- Working Connections : 2165925
- Average No. of Telephone per Sq.Km : 66.77
- Telephone Density : 70.235 per ‘000 population
Section 5  
INFORMATION TECHNOLOGY

Information and Communication Technology sector has been playing an important role in the development of the State, since the 9th Five Year Plan. Realising its potential and critical importance, the State Government has made earnest efforts to create a sound and world class infrastructure for the sector and to transform the State into a digital one. This has enabled the State to be at the forefront in implementing Information and Communication Technology projects, e-governance initiatives, e-literacy programmes and in the creation of basic IT infrastructure facilities. Currently the State has nationally the highest mobile penetration of about 32 million connections, the highest internet penetration covering about 20 per cent of households through broad band and another 15 per cent through mobile, and is making significant strides in transforming the State into a knowledge powered economy. Kerala is one of the significant IT destinations in India and ranks 8th in the export by STPI registered IT and ITeS units. Moreover, Kerala is fast emerging as a digital State in India.

Government of Kerala acknowledges the critical importance of ICT in creating and maintaining economic progress and revised the Information Technology Policy for the State in 2012. The vision of the State's policy is to “plan, develop, and market the State as the most preferred IT/ITeS investment/business destination in India”. The State Government supports the sector by way of single window clearance, developing Kerala “IT Brand”, incentivising investment and making direct investment.

The Indian IT Industry has had an impressive track record in terms of revenue growth and export contribution over the past few decades. It has also contributed in generating employment. While India continues to be a global leader in IT services, it has not had much success in the IT products segment and with traditional export markets stagnating, the Indian IT Industry is in the look out for new markets. New markets are expected to emerge in lower and lower-middle countries such as India, other countries in South Asia and Asia-Pacific and Africa, which have previously been on the periphery of ICT consumption.

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. (KSIITIL),International Centre for Free and Open Source Software (ICFOSS) and Kerala Start-up Mission are the major agencies involved in the implementation of Information Technology programmes in the State under the Information Technology Department.

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 (Techno Park), Kochi (Info Park) and Kozhikode (Cyber Park) will act as hubs and the remaining districts will be the spokes.

Govt of Kerala provided an amount of ₹482.87 crore during 2016-17 for the development of core IT infrastructure, ITeS, e-governance activities and incentivising investment in the sector, which is 28.91 per cent higher than the previous year. The details of Plan Outlay and Expenditure are given in Table 5.18.
### Table 5.18
Plan Outlay and Expenditure, ₹ in lakh

<table>
<thead>
<tr>
<th></th>
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</thead>
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<td>IITM-K &amp; ICFOSS</td>
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<td>2050</td>
</tr>
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<td>37457</td>
</tr>
</tbody>
</table>

*Source: State Planning Board*

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**Kerala State Information Technology Mission (KSITM)**

Kerala State IT Mission is a society registered under the Travancore Cochin Literary Scientific & Charitable Societies Registration Act. It is an autonomous nodal IT implementation agency of the Department of Information Technology, Government of Kerala which provides managerial and technical support to various initiatives of the Department.

The major objectives of KSITM are interfacing between the Government and the industry, interacting with potential investors, strengthening the IT/ITeS industry base, holding promotional campaigns in the State, ICT dissemination to bridge the digital divide, e-governance, developing human resources for IT and ITeS and advising the Government on policy matters. 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 emerged as the first digital State in the country, announced by the Hon’ble President of India in February 2016.
- Govt. of India commissioned India’s first Hi-speed rural Broadband Network in Idukki.
• First State in the country to issue over 2.4 crore e-certificates.
• 100 per cent of the Grama Panchayats are connected through optical fibre network
• Over 2600 Akshaya Centres (CSCs) functioning in the State.
• Over 3.44 crore Aadhaar enrolments.
• Adoption of Aadhaar based identification and Direct Benefit Transfer services
• Established CERT-K in 2010 to improve State’s cyber security posture
• 100 per cent compliance to civil registrations on time
• Over 9000 ATMs across the State enabling ease of access to Banking
• High tele-density of 99 per cent, with a rapid increase in the usage of smart phones.
• High internet penetration of 40.18 per cent.
• Over 30,000 km OFC laid across the State.

**E-governance Programmes of KSITM**

In the present world, e-governance is an important tool for good governance by achieving transparency, reliability, and accountability in rendering services. Kerala has been a forerunner in e-governance and mobile governance by promoting and developing core infrastructure and e-literacy programmes.

**Box 5.13**

**Major Programmes of KSITM**

- Construction of Centre for e-Governance
- Computer Emergency Response Team-Kerala (CERT Kerala)
- Citizens Call Centre
- Department WAN
- E-district
- e-Government Procurement (e-GP)
- Establishment of Virtual IT cadre
- E-Office
- Friends
- Information and Data Exchange Advanced System (IDEAS)
- Investment Promotion Management Cell (IPMC)
- IPV4 to IPV6 Migration
- Kerala e-Governance Awards
- Kerala State Spatial Data Infrastructure (KSDI)
- Kerala State Wide Area Network (KSWAN)
- Mobile Governance
- PG Diploma in e-governance projects
- Secretariat Record Digitization
- Secretariat Wide Area Network (SECWAN)
- Service Plus
- SPARK
- State Data Centre- Co Bank Tower
- Video Conferencing
- Digital Literacy Programme
- Public Wi-Fi project
- NeGAP

*Source: KSITM*
E-governance initiatives under KSITM include e-office, Service plus, FRIENDS, Akshaya, SEMT, Citizen Call Centre, SPARK and e-procurement. 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. So far it has been implemented in 39 out of 42 departments in Secretariat and outside Secretariat 21 departments either fully or partially. The Government has decided to roll out e-Office to Districts and Directorates.

Service Plus is a software designed and developed by NIC, under Ministry of IT, to configure and launch e-services quickly using its flexible workflow and provision for dynamic design of application forms.

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. KSWAN is the backbone of the State Information Infrastructure (SII), connecting 14 districts and 152 Block Panchayats of the State. The network will also connect 3500 offices of Government Departments through Wireless and a larger number through leased lines and LAN.

Akshaya is an innovative project launched on November 18, 2002 to bridge the digital divide and it works on public private participation mode. In the initial stage 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. At present, 2628 Akshaya Centres are functioning across the State giving employment to 7476 persons. The total turnover of Akshaya Centres in the State was ₹ 41.74 crore in 2014-15 which increased to ₹ 53.08 crore in 2015-16. Total turnover of Akshaya Centres as on October 31, 2016 was ₹ 39.73 crore. The details of Akshaya Centres in Kerala are furnished in Appendix 5.54.

### Awards and Accolades

- SKOCH Award 2016: KSITM won the prestigious SKOCH 2016 National Award
- Platinum Award: KSITM won Platinum Award for Digital Empowerment Campaign Project
- Order of Merit Award: KSITM won Order of Merit Award for e-Voter Mobile Application, Akshaya Citizen Services and Kiosk Banking of Akshaya
- IT Innovation Award 2016: The e-voter mobile application by KSITM has bagged the NASSCOM-Kerala Management Association's best IT Innovation Award 2016
- E-India Award 2016: For digital literacy through Student Police Cadets

### Indian Institute of Information Technology and Management – Kerala (IIITM-K)

The Indian Institute of Information Technology and Management – Kerala was set up in the year 2000 as a premier institution of excellence in Science, Technology and Management. It emphasises quality education to students and develops professionals and leaders of high calibre of entrepreneurship and social responsibility. The institute focuses on education, research, development and training in applied information technology and management. The academic programmes of IIITM-K are shown in **Box 5.14**.

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. The major projects completed are biometric embedded system security and internet of embedded things, software engineering and software project management unit and library and information
service. Construction of a full-fledged residential academic campus for IIITM-K as per UGC/AICTE norms is in progress.

**Technopark**

Electronics Technology Parks – Kerala, popularly known as Techno Park was setup under 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 Parks in India with 330 acres of land, 9.3 million sq.ft built up area and 52,000 IT/ITeS professionals. Technopark through its companies, currently provide direct employment to 52,000 IT employees and offers an indirect employment for another 1,50,000 numbers. Technopark has charted out an ambitious target of creating 56,000 new jobs by 2020. Details of physical achievements and growth of Technopark are given in Appendix 5.55 and 5.56.

**Growth of Built up Space in Technopark**

The built up space in the Technopark has increased from 46.5 lakh sq.ft in 2010-11 to 72 lakh sq feet in 2015-16. The growth of built up space in the Technopark is shown in Figure 5.12.

**Companies in Technopark**

There has been an increase in the number of the companies working in Technopark for the last five years. In 2010-11 there were 200 companies in Technopark. It increased to 390 in 2015-16. Gradual growth of number of companies in Technopark from 2010-11 to 2015-16 is exhibited in Figure 5.13.

**Box 5.15**

**Technopark's Contribution to the State Economy**

- Annual production from the Campus – ₹ 12000 Cr.
- Annual export from the Campus – ₹ 6250 Cr.
- 20 per cent growth expected every year
- The largest employment base campus in Kerala.
- Stimulates growth of secondary services like retail, hospitality, transportation and financial services in the city and suburbs.
- With the launch of Technocity projects in 424 acres of land, Kazhakootam – Kovalam (NH 66) will become the first IT corridor in Kerala.
- Will become one of the largest IT Parks in India.

*Source: Technopark*
Figure 5.12
Growth of Built-up Space in Technopark

Source: Technopark

Figure 5.13
Number of Companies in Technopark

Source: Technopark
Growth of Export from Technopark

The exports from Technopark increased from ₹2,171 crore in 2011-12 to ₹6,250 crore in 2015-16. It grew by 22.55 per cent in 2015-16 as compared to 2014-15. The trend in export from Technopark during the last six years is depicted in Figure 5.14.

Growth of Employment in Technopark

The growth of Technopark can also be analysed in terms of employment generated during the last six years. The employment generated increased from 30,000 in 2010-11 to 38,000 in 2011-12, 40,521 in 2012-13, 45,395 in 2013-14, 47,100 in 2014-15 and to 51,865 in 2015-16 (upto October 31, 2016). The growth of employment generation for the last six years is shown in Figure 5.15.

Infopark

Infopark, Kochi is the second largest IT hub in Kerala with spokes at Cherthala and Thrissur and spread over 321.86 acres of land and 6.96 million sq.ft built up area. At present 282 companies are working in Infopark. It provides direct employment to 32,800 professionals. Export turnover of Infopark for the financial year 2015-16 was ₹3,328.80 crore. At present Infopark has the following IT Parks:

- **Infopark Kochi** – Phase I- Phase I is completed in all respects and around 25,000 employees are working in this campus.
- **Infopark Kochi** – Phase II – An extent of 125 acres has been acquired and is in the possession of Infopark. 102.7 acres of land are in SEZ area.
- **Infopark, Thrissur** - It is located at Koratty in an extent of 30 acres of land. 18 acres are in SEZ area. The first phase of development consisting of renovation of 8 buildings having a built up area of 45,000 sq.ft and modifying them as IT buildings has been completed. Currently, around 700 IT employees are working in this spoke.
- **Infopark, Cherthala** – It is spread over 66 acres of land with 60 acres in SEZ area. Construction of 2.4 lakh sq.ft IT building...
at Infopark, Cherthala SEZ has been fully completed along with basic infrastructure such as 110 kV substation, internal roads, sewage treatment plant, water storage tanks, and boundary walls. There are 31 IT companies functioning in the park and thereby generating 600 direct employment.

- **Infopark TBC** – A built up partly fitted space of 25,800 sqft was taken over from KSITM by Infopark in the year 2013, at Kalam international Stadium. Infopark undertook necessary balance fit outs, modifications/rectifications in the fitted out space and now the facility is mainly used for providing office space for startup companies. Around 400 IT employees are working in Infopark TBC.

The physical achievements of Infopark are furnished in **Appendix 5.57**

**Cyberpark**

Cyberpark was established on a hub and spoke model to bridge the IT infrastructure gap starting from Kochi to Kasargod along the west coast in the lines of Technopark in Trivandrum and Infopark in Kochi. The Cyber Park, Kozhikode acts as the hub and the parks in Kannur and Kasaragod are the spokes for the IT and infrastructure development of the northern region in the State of Kerala. The objective of Cyberpark is to provide a friendly, 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 create employment opportunities in Malabar region.

Cyberpark is the largest IT park in the northern region of Kerala with 41.88 acres of land in Kozhikode, 25 acres in Kannur and 100 acres in Kasaragod. Out of this 115 acres of land is in SEZ area and 14.38 acres is in non SEZ area. Now 4 companies are working in the SEZ area which provides direct employment to 55 IT professionals. The physical achievements of Cyberpark are given in **Appendix 5.58**.
Kerala State Information Technology Infrastructure Ltd (KSIITL)

Kerala State Information Technology Infrastructure Limited (KSIITL) 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 enough funds and utilizes the same for building up of IT Infrastructure in the State in a Private Public Participation model. The business model for the company is to acquire land, create value addition to it, providing basic infrastructure like electricity, water, road and compound wall, obtain SEZ status and such other Government approvals that may be required and then allot land to private developers for development of either IT SEZ or IT parks.

Major ongoing projects of KSIITL are Kozhikode IT Park, Kannur IT Park, Kasaragod IT Park, Kollam IT Park, Koratty IT Park, Cherthala IT Park, Ambalapuzha IT Park, Infocity Pala, IIIT-Kerala, Malappuram IT Park, Technologdes and Ritel Park. There are 77 companies working in these IT parks and gives direct employment to 1588 professionals.

International Centre for Free and Open Source Software (ICFOSS)

Government of Kerala established International Centre for Free and Open Source Software (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.

Kerala Startup Mission (KSUM)

Kerala Start up Mission (KSUM) is the nodal agency of Government of Kerala for implementing the entrepreneurship development and incubation activities in the State. Kerala Start up Mission, formerly known as ‘Technopark Technology Business Incubator’ is India’s first successful Non Academic Business Incubator. It started operations in 2007.

Box 5.16
Major Programmes of ICFOSS

- Start-up acceleration for FOSS enterprises.
- E-Governance and other FOSS studies.
- Localisation of accounting and other utility software.
- ICT support to Micro, Small and Medium Enterprises
- Technical workshops and training programmes
- FOSS certification
- Capacity building and skill up gradation for engineering / technology students.
- Malayalam computing.
- Research programme

Source: ICFOSS
The objective of the Mission is to identify and develop entrepreneurial talents among youth and students in Kerala, address the 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 commercialization of the technologies developed in the institutes to reach the end-users.

Government of Kerala has introduced Youth Entrepreneurship Development Programme targeted to foster entrepreneurship skills among the youth in Kerala which includes key initiatives like Raspberry Pi Programme, Startup Box Campaign, Startup Boot camp, Start up Leadership Academy and Training programme, International Entrepreneurial Exchange Programme, FABLAB Programme, Entrepreneurship Driving Programme, Performance Linked Scheme and Patent Support Scheme. In addition to the above Government is creating a Technology Innovation Zone at KINFRA Hi Tech Park, Kalamassery with multiple sectors of incubators under a single umbrella.

**Concerns for IT Sector**

Post 2009-10 recession, the industry is yet to pick up momentum and IT majors are reluctant in making capital investments. The global IT growth is facing a slowdown in turn affecting the Indian IT industry. Export revenue figures from SEZ shows a decline from last fiscal and the growth projection of 15 per cent in the sector as per NASSCOM were also not achieved. The profit declared by IT majors declined. In addition to this, the following uncertainties can considerably impact the IT sector.

- US election: Though India is still the world’s favorite IT outsourcing destination, enjoying over 65 per cent of market share, US is still the single major client (56 per cent). With the elections and subsequent policy change, it can affect India’s software exports to the country to a big extend.
- Brexit: After USA, India does maximum business with UK. With the decision of Britain to exit European Union, the impact can be substantial, which is yet to be fathomed.

The 2030 Agenda for Sustainable Development which was adopted by the United Nations in September 2015 acknowledges individual nations and local communities as critical in implementation and design of their respective development policies and programmes. With a relative advantage and rich experience of decentralization leading to positive development outcomes, Kerala can look towards leadership position in ICT and Development (ICTD), products and emerging ICT markets.

**Section 6**

**SPORTS INFRASTRUCTURE**

Sports plays a great role in our life as it keeps us healthy, strong, energetic and active. We can have a healthy mind only when we have a healthy body. It helps everyone to improve and maintain physical ability and skills. The role of Government is to create infrastructure and promote capacity building for broad-basing sports as well as for achieving excellence in various competitive events at the national and international levels. The schemes of the Department are geared towards achieving these objectives. Major institutions coming under the sector are Kerala State Sports Council, Kerala State Youth Welfare Board, Kerala State Bharat Scouts & Guides, Directorate of Sports and Youth Affairs, Directorate of Public Instruction and Directorate of Collegiate Education.
Box 5.17  
Altitude Simulation Training For Athletes

The scheme aims to establish a modern low oxygen training system for enhancing the endurance and performance of Kerala athletes to lift them to international level. One ‘modern low oxygen altitude simulation training centre’ has been established in Jimmy George Indoor Stadium, Thiruvananthapuram at a total cost of ₹2 crore. It is the first in the history and the best investment for future of Kerala Sports. It facilitates to increase aerobic power and endurance of athletes, faster recovery from high intensity training, faster healing and recovery from injuries, better stress tolerance and concentration, improve athletic performance of Kerala athletes.

Kerala State Sports Council is currently running 24 Centralized Sports Hostels, 51 College Hostels and 24 School hostels. Centralized Sports Hostels are directly maintained by Kerala State Sports Council where college and school sports hostels are maintained by respective managements. There is approximately 2610 number of students in the hostels at present. Sports hostel students are given Boarding/ Lodging charges at the rate of ₹200 per day and washing allowance at the rate of ₹100 per month.

The track suits and playing kit, for the inmates of the hostels are supplied by the Kerala State Sports Council. Apart from these sports equipment, playing kits are also given to the athletes of 108 Day boarding Centres and Training Centres. There are 41 recognized Sports Associations under Kerala State Sports Council. As per grant in aid regulations, Kerala State Sports Council issues grant to State Associations for conducting State Championship, Coaching Camp, Participation in National South Zone competitions, conduct of national/ south zone competitions in the state.

Rajiv Gandhi Sports Medicine Centre was established in 1992 as a pioneering venture of Government of Kerala and is the only one of its kind in the State to promote excellence in sports by lending scientific and prompt medical assistance and rehabilitation therapy to sports persons. In the financial year 2016-17, All Kerala Cycle Rally was conducted in association with IMA and NISS.

“Health, Exercise and Active living through Sports (HEALS)” programme has been conducted in 26 locations of the State. Administrative Sanction was accorded for establishing “Health and Physical activity centres for women” in four locations.

Multi-sport play spaces aims to develop available grounds as play spaces ideally for multi-sport usage including Volleyball, Basket-ball, Tennis and other minor games using modern synthetic surfaces. Ten institutions were selected for the implementation of the scheme during 2015-16.

The Kerala State Youth Welfare Board provides assistance to youth clubs/organizations for organizing training programmes and self-employment initiatives to the jobless youths.

Awareness Programmes

Awareness is an important area where the Youth can contribute. There are several on-going programmes initiated by the UN Agencies, International Organizations and Government Departments. The Youth Clubs will have to play a vital role in organizing and implementing various
awareness programmes, environmental awareness, social forestry programmes and formation of Nature Clubs at local levels.

Substance Abuse Prevention is a new area, which needs greater focus and attention. The board has decided to further launch a state-wide intensive “Campaign against Substance Abuse” with the co-operation of UN Agencies, Government departments and other voluntary organizations.

As Youth Welfare Board envisages a network of action through the State/District Youth Centres, besides Youth Clubs at grass root levels, it can function effectively in combating HIV/AIDS Prevention Programme. The Activities will be done in collaboration with National AIDS Control Organization (NACO), UNAIDS, State AIDS Cell and other Voluntary Organizations.

**Keralotsavam, 2015**

Keralotsavam, a rare and unique youth festival, is 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 in block, district and State level.

Keralotsavam is now a widely accepted festival for the youth of Kerala. As a result every youth in this State is getting a chance to project him/her to the forefront in every sphere of life. Kerala has created a model for the nation by initiating a colorful youth festival “Keralotsavam”, which is conducted with gaiety and fanfare every year.

Keralotsavam 2015 was conducted from

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**Box 5.18**

**Youth Empowerment Programmes**

- **Yuvasakhti**, a project initiated by the Kerala Youth Welfare Board aims to tap the potential of the youth. The project, being implemented in association with local self-governments will institute coordination committees at the panchayat and municipality level. 100 village panchayats and five municipalities of the district would benefit from the scheme. This project would help strengthen government aided youth activities under various local self- government bodies. The State Youth Welfare Board has drawn up an action plan for all districts.

- The main objective of **Yuva Karma Sena** scheme is to channelize ‘Youth resources for Rural Development’. There are thousands of Rural Youth who are willing to do any service on a voluntary basis. The 152 blocks in the State can be chosen for mobilizing these invaluable youth resources and the Block Youth Co-coordinator will be entrusted with the responsibility of each block Youth Community. 50 dedicated Youth Volunteers will be selected at each block and they will be provided with a two-day intensive training on disaster management, first aid, and community work. These volunteers will be provided with a resource kit and an identity Card. Thus the service of 7,600 trained youth volunteers can be ensured throughout the State. The service of these rural social volunteers will be a great blessing in time of natural calamities, unexpected accidents, and riots. In Kerala the ratio of unemployed youth is going up. The Kerala State Youth Welfare Board’s youth employment training scheme aims at providing training to un-employed youths of the State. It is for promoting self-employment. A large number of youth have been given training in the fields like Carpentry, Masonry, Bee-keeping, Electrical and Electronics equipment maintenance which will help them to find jobs in their villages itself.
Grama Panchayat level to State level. Keralotsavamis organized by Kerala State Youth Welfare Board in association with Local Self Government. The art competition was held at six venues during December 26th to 28th, 2015 in Payyoli at Kozhikode and sports competitions was held during December 28 to 30, 2015 at Kozhikode city.

In Keralalotsavam 2015, Kannur district secured the first place with 112 points, Kozhikode district secured the second place with 102 points and Malappuram district secured the third with 71 points.

The winners of State Keralotsavam in 18 National Youth Festival items participated in the National Youth festival conducted at Raipur in Chattisgarh during January 12th to 16th, 2016. The participants from Kerala won first place in Mridhangam and Bharatanatyam, second place in flute and third place in folk dance.

## Section 7

### PROJECT STRUCTURING AND FINANCING

Project Structuring is very essential to plan a successful and viable project. Often projects fail to take off due to faulty structuring and lack of adequate financial planning regarding the modes of financing for the project. Project financing implies the financing of long-term infrastructure, industrial projects and public services based on either a non-recourse or limited recourse financial structure. The debt and equity used to finance the project are paid back from the cash flow generated by the project. Traditionally, most of the projects have been financed through budgetary provisions and generating revenue from projects has not been a focus area. But over the years, the State has been severely constrained in terms of finding adequate resources for financing infrastructure projects from budgetary sources.

Capital expenditure in the State has been very low which is reflected in the poor quality of infrastructure in the State. Compared to other States where the capital expenditure is around 5 to 7 per cent, in Kerala it hovers around less than 2 per cent. (Table 5.19)

Capital expenditure in the State as a per centage of GSDP has been less than two per cent. Capital expenditure as a per cent of GSDP from 2007-08 is shown in Table 5.20.

Capital spending by the State as a proportion of State income is one of the lowest among the states. For many other States the proportion is over five times of Kerala. Further, there is a widening gap between the trends in the State vis-à-vis all states capital outlay affecting adversely the GSDP growth of the State and in turn affecting infrastructure development.

Table 5.21 points out to the huge deficit in capital expenditure that the State has had year after year.

It is to be noted that around 40-50 per cent of the grants to local self-governments is spent on capital works, even though it is booked under revenue expenditure in State accounts. Even if this is accounted for, the infrastructure deficit in the state is very high. Even if the state tries to target a rate at the average of the CAPEX/GSDP ratios of the neighbouring states, Kerala would have to invest about 4 per cent of its GSDP in capital works which amounts to a CAPEX outlay of ₹24,000 crore in 2016 itself. As there are budgetary constraints, there will be a limit to the quantum of capital expenditure that can be made from the budget. Mobilizing off budgetary resources through the various financial and infrastructure institutions in the State is required for taking up and completing the major infrastructure projects.
Table 5.19
CAPEX/GSDP ratios for 2013-14

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>State</th>
<th>CAPEX/GSDP (in per cent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Uttar Pradesh</td>
<td>7.05</td>
</tr>
<tr>
<td>2.</td>
<td>Andhra Pradesh</td>
<td>5.74</td>
</tr>
<tr>
<td>3.</td>
<td>Rajasthan</td>
<td>5.58</td>
</tr>
<tr>
<td>4.</td>
<td>Karnataka</td>
<td>5.39</td>
</tr>
<tr>
<td>5.</td>
<td>Odisha</td>
<td>5.23</td>
</tr>
<tr>
<td>6.</td>
<td>Gujarat</td>
<td>4.91</td>
</tr>
<tr>
<td>7.</td>
<td>Madhya Pradesh</td>
<td>4.53</td>
</tr>
<tr>
<td>8.</td>
<td>Tamil Nadu</td>
<td>3.57</td>
</tr>
<tr>
<td>9.</td>
<td>Maharashtra</td>
<td>2.23</td>
</tr>
<tr>
<td>10.</td>
<td>Haryana</td>
<td>1.98</td>
</tr>
<tr>
<td>11.</td>
<td>West Bengal</td>
<td>1.85</td>
</tr>
<tr>
<td>12.</td>
<td>Kerala</td>
<td>1.79</td>
</tr>
<tr>
<td>13.</td>
<td>Punjab</td>
<td>1.27</td>
</tr>
</tbody>
</table>


Table 5.20
Capital expenditure as a percentage of GSDP from 2007-08 to 2016-17

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual</td>
<td>0.89</td>
<td>0.89</td>
<td>1.26</td>
<td>1.49</td>
<td>1.58</td>
<td>1.64</td>
<td>1.24</td>
<td>0.96</td>
<td>1.22</td>
<td>1.56</td>
</tr>
</tbody>
</table>

Source: Budget Documents, Finance Department, Government of Kerala

Bridging the infrastructure deficit and finding innovative means of financing is one of the foremost critical priorities of the Government.

Kerala Infrastructure Investment Fund Board

Revamping of Kerala Infrastructure Investment Fund board (KIIFB) is a major step taken by the Government in facilitating investment for infrastructure projects. KIIFB was constituted under Finance Department of Kerala for raising funds both in the medium and long term to finance critical and large infrastructure projects in the state. It came into existence on 11.11.1999 under the Kerala Infrastructure Investment Fund Act 1999 (Act 4 of 2000) to manage the Kerala Infrastructure Investment Fund. The main intention of the Fund was to provide investment for critical and large infrastructure projects in the State of Kerala. The Board had mobilized funds to the tune of ₹1023.71 crore through issue of three series of Redeemable and Non-convertible Non statutory Lending Rate (Non SLR) bonds by private placement fully backed by State Government Guarantee.
Table 5.21
Capital expenditure in the State from 2001 to 2016

<table>
<thead>
<tr>
<th>Period</th>
<th>Year</th>
<th>CAPEX (Rs.cr)</th>
<th>Growth Rate (in per cent)</th>
<th>Average GR (per cent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001-06</td>
<td>2001-02</td>
<td>558.36</td>
<td>-3.26</td>
<td>7.97</td>
</tr>
<tr>
<td></td>
<td>2002-03</td>
<td>698.66</td>
<td>25.13</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2003-04</td>
<td>639.71</td>
<td>-8.44</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2004-05</td>
<td>681.75</td>
<td>6.57</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2005-06</td>
<td>816.95</td>
<td>19.83</td>
<td></td>
</tr>
<tr>
<td>2006-11</td>
<td>2006-07</td>
<td>902.58</td>
<td>10.48</td>
<td>34.73</td>
</tr>
<tr>
<td></td>
<td>2007-08</td>
<td>1474.58</td>
<td>63.37</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2008-09</td>
<td>1695.60</td>
<td>14.99</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2009-10</td>
<td>2059.39</td>
<td>21.45</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2010-11</td>
<td>3363.69</td>
<td>63.33</td>
<td></td>
</tr>
<tr>
<td>2011-16</td>
<td>2011-12</td>
<td>3852.92</td>
<td>14.54</td>
<td>18.31</td>
</tr>
<tr>
<td></td>
<td>2012-13</td>
<td>4603.29</td>
<td>19.48</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2013-14</td>
<td>4294.33</td>
<td>-6.71</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2014-15</td>
<td>4254.59</td>
<td>-0.93</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2015-16</td>
<td>7027.34</td>
<td>65.17</td>
<td></td>
</tr>
</tbody>
</table>


KIIFB has been reconstituted by Government, through an amendment Ordinance in August 2016, as a Body Corporate having perpetual succession consisting of the Chief Minister as Chairman and Minister for Finance as Vice-Chairman. The Members of the Board include Chief Secretary to Government, Vice-Chairman State Planning Board, Secretary (Law), Secretary (Finance), Secretary (Finance Resources) and 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. Additional Chief Secretary (Finance) is the CEO and Member Secretary of the Board.

It is envisaged to execute the major infrastructure projects planned under the anti-recession package announced in the budget and to raise funds to the tune of ₹50,000 crore outside the budget for taking up infrastructure projects. KIIFB is expected to leverage the financial resources for infrastructure development. 10 per cent of the motor vehicle tax and 1 per cent of the petrol cess will go to KIIFB. Also the Fund Trustee and Advisory Commission will ensure that all investment of the fund serves the purpose and intent of the legislation and that there is no diversion of funds of the Board.

KIIFB will assist the Government and its agencies in the various aspects pertaining to infrastructure development and will act as the nodal agency for scrutinizing, approving and funding major infrastructure projects including PPP projects, with the main objective of providing investment for projects in the State of Kerala in sectors like Transport, Water Sanitation, Energy, Social and Commercial Infrastructure, and IT and Telecommunication. Detailed guidelines for availing financial resources from KIIFB have been issued by the Government.

KIIFB has approved a plan to issue General Obligation Bonds against unconditional Government guarantee and Revenue Bonds with
structured payment mechanism for medium term requirement and has initiated steps to raise funds to meet long term requirements through Alternative Investment Funds (AIF), Infrastructure Investment Trust (InVIT), Infrastructure Debt Fund (IDF) and build the institutional framework needed for this. It also decided to set up an Infrastructure Fund Management Corporation (IFMC) to mobilize resources through advanced financial instruments approved by the Securities and Exchange Board of India (SEBI) and the Reserve Bank of India (RBI). In the first board meeting held on November 7, 2016, 48 projects costing ₹4,004.86 crore have been approved.

**Project Financing Cell, Kerala State Planning Board**

In order to address the resource constraint in the infrastructure sector, the Project Financing Cell (PFC) was constituted in the State Planning Board in 2012 to help in structuring the projects for attracting financial resources from private sector. The objective of PFC includes examining the possibility of extra budgetary resources, including Public Private Partnership for all projects of the State. PFC is also mandated to examine the technical as well as financial feasibility of all projects above an outlay of ₹5 crore. Since its inception, PFC has been appraising project proposals and providing the structuring framework for investment mobilization from extra budgetary resources. PFC also provides information to Government regarding the new policy announcements and schemes to enable the departments to avail the assistance offered under various Central Government programmes and policies.

**Development of Model Projects**

Project Financing Cell has been undertaking development of model projects which can be taken up on PPP mode and replicated in various parts of the State. PFC has undertaken two feasibility studies through M/s INKEL Ltd during 2016 -17- Development of Model Ladies Short Stay Hostel through PPP mode and Development of Multilevel Car Parking Facility in PPP mode in Thiruvananthapuram Medical College.

Development of Model Ladies Short Stay Hostel envisages creation of safe and secure stay facility for ladies for short period with all modern facilities such as pick and drop, gym and Wi-Fi. The feasibility report explores the possibility of setting up Ladies Short Stay Hostel in the six municipal corporations of the State focusing on Thrissur Municipal Corporation. It suggests two modes of the implementation (i) Land plus Annuity or (ii) Land plus Viability Gap Funding (VGF) model. Development of Multilevel Car Parking Facility in PPP mode in Thiruvananthapuram Medical College examines the possibility of setting up parking facility in the premises of Medical College. The feasibility report suggests two locations in the campus for setting up parking facilities on BOT (Build, Operate and Transfer) Model.

**Public Private Partnership Projects**

Development of roads, ports and urban infrastructure projects are now increasingly being taken up on Public Private Partnership (PPP) mode. Some of the important PPP projects in the State include the Thiruvananthapuram City Road Improvement project on PPP (Annuity) mode, Vizhinjam project on DBFOT mode and Karivattom Green Field Stadium on DBOT mode. However, the number of PPP projects in the State compared to other States is very less and concerted efforts are required to attract private investment to the State.
Section 8

HOUSING

Housing is one of the basic necessities of life and the right to housing and adequate shelter is guaranteed in the Directive Principles of the Constitution of India. Kerala has historically been a front runner in social innovations including housing. As early as by 1970's, Kerala had launched a massive housing scheme for 100,000 houseless families and it was hailed as a pioneering effort in the housing sector. Since then governments in Kerala have been following housing policies to ensure that every family has a shelter. While the housing situation in Kerala is far better than the rest of the country, a significant proportion of the population continues to face the problem of lack of adequate housing. At present the homelessness, in particular of those without land, and poor quality, dilapidated houses of the vulnerable sections of society are the problems confronting the housing sector in Kerala.

According to 2011 housing census, there were 336 houses for every 1000 persons in Kerala (all-India 273 houses per 1000 persons). The average size and quality of housing units are far better than in the rest of the country. More than two-third households reside in good quality houses where 53.1 per cent is the all-India average. However, average cost per unit of a house in Kerala is more than four times the costs at the all-India level. The latest housing Census also shows that 10.6 per cent of the total census houses in Kerala remain vacant. But at the same time a large number of households among underprivileged and poor sections of society still did not have a reasonable shelter and the State stood top in terms of housing inequality among the disadvantaged social groups.

During 12th Plan period, Kerala had formulated a policy of ‘Adequate and Affordable Housing for All’ by providing standardized housing services to Economically Weaker Sections (EWS), Low Income Group (LIG) and Middle Income Group (MIG) categories by coordinating various activities to ensure high living standard, healthy environment and basic infrastructure development. One of the strategies of 12th Plan was the improvement of effectiveness and reach of Kerala State Housing Board and Nirmithi Kendra. The key initiatives of the KSHB in the housing sector were Grihasree and Working Women's hostel.

The Government of Kerala in 2016 has announced an ambitious housing cum livelihood project ‘LIFE’ (Livelihood Inclusion and Financial Empowerment) which will be the major focus during the 13th Plan. A complete rehabilitation package for the houseless and landless in the next 5 years is envisaged through a comprehensive housing scheme providing all basic facilities. This together with training and employment creation activities is expected to directly benefit about 4.32 lakh families. As per the draft 13th Plan Working Group Report on Housing, out of the total, 1.58 lakh are landless and houseless, 2.3 lakh have land but are houseless and 44,000 houses are incomplete. With the help of LSGs, and Kudumbasree a comprehensive list of houseless, landless people and incomplete houses will be prepared to resolve the housing problems in the State. Existing housing schemes of other Departments will be brought under this umbrella scheme. LIFE is one of the four Missions announced by the Government of Kerala for the state's comprehensive development in the next five years.

Agencies in Housing Sector

Several agencies which are implementing housing schemes in the State which include Local self-Government Department including...
flats on rental basis to the poor urban workers who are increasingly displaced from the city limits or from their work places. 24 flats have been constructed during 2015-16 and a total of 160 flats were constructed under the scheme in various urban centres like Thriruvananthapuram, Thrissur, Ernakulam, and Kozhikode.

Grihasree Housing Scheme. In this scheme financial assistance is given as Government subsidy at the rate of ₹2 lakh/house for the construction of houses in EWS/LIG category in their own land with the support of Voluntary Organizations. 709 houses have been assisted during 2015-16 and total 1081 houses were constructed under the scheme.

Saphalyam Housing Scheme (flats for BPL category). The scheme envisages setting up of support services and infrastructure facilities for the construction of flats for BPL category. Unit cost of 280 sq.ft will be ₹3.50 lakh ₹2 lakh Government subsidy, ₹1 lakh loan from HUDCO, ₹0.25 lakh voluntary contribution from NGO and ₹0.25 lakh beneficiary contribution. About 48 flats during 2015-16 and 24 flats during 2016-17 (up to September 30) have been completed under the scheme.

Kerala State Nirmithi Kendra

A margin free market, ‘Kalavara’ for the building materials at reasonable rate has been started at Ernakulam, Kozhikode, Thriruvananthapuram and Thrissur and steps have been taken to extend it to all districts. The International School of Habitat Studies (LaBISHaS) was established in memory of late Padmasree Dr. Laurie Baker. It has completed 50 artisan training courses across the state to provide self-employment opportunities to 750 persons and completed a Pre Fab structure of about 400 sq.ft to popularize Pre Fab construction that is a new technology of constructing houses which ensures less damage to environment as well as cost effective, safe, eco-friendly, disaster proof, time saving with minimum skilled labour and building materials.

Kudumbasree, Kerala State Housing Board, Kerala State Nirmithi Kendra, Kerala State Development Corporation for SC/ST, SC/ST Development Departments. Non–governmental agencies such as COSTFORD and Habitat Technology group, Co-operative societies and Corporations such as Kerala State Co-operative Housing Federation, and Kerala Police Housing & Construction Corporation, have helped in constructing houses. Several NGOs too, have contributed significantly. Other Departments like Labour, Fisheries, Sainik Welfare, Urban Affairs, and Minority Welfare are also implementing various affordable housing schemes for the poor labourers and economically weaker sections. These agencies/departments have provided assistance to construct around 476,490 houses during the period from 2011-12 to 2016-17. Data upto 2015-16 show that 90 per cent of these houses were for people with land. It is in this context that LIFE attempts to focus on landless people first in the years to come. Achievements under major housing schemes by different housing agencies in Kerala are given in Appendix 5.59

Housing Finance

Finance for house construction comes as loans from banks and other financial institutions, grants from government and own sources. People from Economically Weaker Sections (EWS) cannot get loan facilities easily because loan is available only to those who have assets and income to repay it on time. The public sector banks and other financial institutions in Kerala have sanctioned 1655 housing loans and disbursed an amount of ₹21,644.58 lakh during 2015-16 and to the period upto September 2016. Details of housing loans from 2010-11 to 2016-17 is given in Appendix 5.60 and interest rates of housing loans of major financial institutions is given in Appendix 5.61

Housing schemes and implementing agencies

Kerala State Housing Board

Innovative Housing Scheme aims to provide
Kerala State Co-operative Housing Federation

This agency provides financing facilities to the affiliated primary co-operative housing societies (PCHS) for the construction of houses, repair/extension. During 2015-16 an amount of ₹8,149.4 lakh and during 2016-17 (up to September 30, 2016) an amount of ₹2,314.11 lakh have been disbursed among EWS, LIG, MIG and others for constructing 2344 and 665 housing units respectively. Houses assisted and amount disbursed by Kerala State Co-Operative Housing Federation is also given in Appendix 5.61

Other agencies involved in construction of houses

a. Fisheries Department

During 2015-16, 1612 houses were constructed in Marine and Inland Fishing sector of Kerala at the cost ₹2 lakh per house under the scheme Integrated Development of Fishing Villages (IDFV). During 2015-16, 3660 houses were constructed to provide safe homes for fishing families in the Fishing Housing Scheme and House Repair Scheme 2015-16 under Basic Infrastructure Facilities (BIF)and Human Development of Fisher Folk (HDF).

b. Scheduled Tribes Development Department

General Housing Scheme- This scheme aims to provide financial support to houseless Scheduled Tribes for construction/repair of houses. The amount provided in this scheme is ₹3.50 lakh / house for new houses. Total Number of houses assisted so far under the scheme was 2498.(See chapter 4 Section 6 for details)

c. Scheduled Caste Development Department

Houses to Houseless Scheme- The Scheme aims to provide an amount of ₹ 3 lakh to houseless families for constructing houses. During 2015-16 the number of houses constructed for Scheduled Caste families was 5197. Another programme called the Development programme for Vulnerable Communities aims at providing financial assistance for purchase of land, construction / repair of houses and allied amenities for vulnerable communities whose annual income does not exceed ₹0.5 lakh. During 2015-16 102 houses were assisted under the scheme. (See chapter 4 Section 7 for details).

Box 5.19
Working Group on Housing for 13th Five Year plan

Working Group on Housing has been constituted by the State Planning Board as part of the formulation of the Thirteenth Five Year Plan (2017-22) with Co-chairpersons as Sri PH Kurian, IAS, Principal Secretary to Government, Housing Department and Padmashree G. Shankar, Chief Architect, Habitat Technology Group. The Working Group was asked, inter alia, to evaluate the achievements with regard to the plan projects launched in housing sector, both by the State and the Central Governments in the State during 11th and 12th plan periods; to outline special problems of achieving the new housing cum livelihood strategy announced by the Government of Kerala (LIFE); to provide rental housing to the migrant population in Kerala; to suggest projects which can be undertaken during the 13th Plan period in housing sector and to explore the possibilities of a cost effective environment friendly housing/flat design which is need based and liveable.
**d. Sainik Welfare Housing Department**

The Department provides house building grant to disabled servicemen before completion of terms of engagement, recruits, war widows and widows of Jawans who died in harness. The beneficiaries’ annual income limit is ₹ 1.5 lakh and the present rate of grant is ₹ 1 lakh. The income limit is not applicable to the war widows and war disabled Ex-servicemen. 4 households in 2015-16 and one household in 2016-17 up to September 30, 2016 were assisted under the scheme.

**e. Directorate of Minority Welfare**

Housing Schemes for divorced women and widows-The scheme aims to construct houses for divorced /abandoned women and widows who belong to minority communities. The beneficiaries should have at least 2 cents of land in her name for construction of houses. The departmental assistance is ₹ 2.5 lakh. During 2015-16 798 houses have been constructed under the scheme.

**National Housing Policy**

Central Government formulated a Policy on Housing in 2015 for addressing the shortage of adequate and affordable housing with special emphasis on EWS and LIG and other vulnerable sections of society such as Scheduled Castes/ Scheduled Tribes, Backward Classes, Minorities, Senior Citizens, and Physically Challenged Persons. In the same year the Ministry of Housing and Urban Poverty Alleviation came up with the National Urban Rental Housing Policy (NURHP) ‘to create a vibrant, sustainable and inclusive rental housing market in India’. 2 million non-slab urban poor households are proposed to be covered under the Mission. Hence, total housing shortage envisaged to be addressed through the new mission is 20 million. The Mission is being implemented during 2015-2022 and provides central assistance to Urban Local Bodies (ULBs) and other implementing agencies.

The Scheme Pradhan Mantri Awas Yojana (PMAY) (Housing for all (Urban) by 2022) is the mega housing scheme of the Government under which the government aims to create about 2 crore affordable homes for the urban poor, especially for Economically Weaker Sections (EWS) and Lower Income Group (LIG) of the society by the year 2022. The scheme has been launched by the Government and will provide a credit linked subsidy of ₹ 1.00 lakh to ₹ 2.30 lakh to the beneficiaries.

The national Government has created an enabling framework for participatory action from public, private, community and individual sectors and encouraging rental housing for the poorest of the poor. In the Union Budget 2016, a significant announcement was that the exemption from service tax on construction of affordable houses up to 60 square metres (almost double what was prescribed in earlier public housing policies) under any scheme of the Central or State Government including PPP Schemes would be given.
Section 9

INFORMATION AND PUBLICITY

In Kerala, 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 its public.

Two autonomous institutions namely, Kerala Media Academy and Centre for Development of Imaging Technology (C-DIT), working under this department undertake the administrative, technical and promotional affairs of the public and private sector with the help of advanced technologies in the field of visual communication, and journalism.

The department desires to initiate new strategies for popularizing government policies and activities with the support of latest media and public relation 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 during 2015-16 are summarized below.

**Sutharyakeralam**

This flagship programme is a live weekly complaint redressal forum where the Chief Minister addresses the grievances of common people especially the poor. During 2015-16 and up to September 2016, 11 episodes were telecasted. Around 45 petitions/complaints had been taken for Sutharyakeralam video programme of Chief Minister. The programme is remodeled to address the issues of common people more easily with help of technology as well as the intervention of the Chief Minister.

**Modernization of Tagore Theatre**

The modernization of Tagore Theatre in Thiruvananthapuram has been completed and opened to the public in September, 2015. It has become the most sought after theatre with its state of the art technology serene surroundings and parking space. Over fifty programmes were conducted and had generated over ₹ 40 lakhs as income till September, 2016.

**Photo Publicity and Video Publicity**

The department releases video news clippings to various television and web channels from different offices. During 2015-16 and upto September 2016, 879 news video clippings were uploaded in the clip mail website. The photography division of the department covers almost all government functions in the state capital and the districts. During the period, more than 5000 photographs were released to the media from headquarters and around 4000 from district offices.

**Production of Video Documentaries**

This involves production and broadcasting of various video magazine programmes through electronic media. “Janapatham” the weekly radio documentary on development initiatives of the government has been on the air in All India Radio since September 10, 2011. All stations of All India Radio in Kerala carry the programme on Saturdays. Till October, 2015 and upto September, 2016 a total number of 11 episodes have been broadcasted. “Priyakeralam” a weekly developmental programme in Doordarshan is being broadcasting on Saturday 7 PM and Sunday 9 AM. During the period, 27 episodes were produced and transmitted. “Nottam” video competition
programme for popularizing government schemes was a major initiative during this period.

**Government Web Portal**

The Web and New Media Division of Information and Publicity department maintains the web portal of Government of Kerala (www.kerala.gov.in) and web sites of other departments. The portal provides general information about the State including the structure of the Government, functions of various Government departments and agencies, details of Ministers, Members of the Legislative Assembly and other elected representatives and provides entry to other departmental websites. Currently, the division manages the content of 18 websites of Ministers. More than 30,000 GOs/Circulars/Notifications were added in the sites during this period. All publications of the department are made available online. The division has completed the Malayalam translation of the department website and the translation work of government portal has commenced. The division also undertakes periodic content updates of the following websites- Personnel Assets (pa.kerala.gov.in), GAD Special A&C (gadsplais.kerala.gov.in), RTI (rti.kerala.gov.in), First Ministry (firstministry.kerala.gov.in), Achievements of Government (achievements.kerala.gov.in) and Sabarimala (sabarimala.kerala.gov.in). Annually, the results of SSLC, higher secondary and entrance examination results are being published through the web portal and had registered visits from 20 lakh people a year.

**Interstate Public Relations**

Conducting special press conferences of Chief Ministers and other media related public relations activities in metro cities to highlight the developmental activities of states comes under interstate public relations activities of the department. The Kerala pavilion set by the department won gold medal in the India International Trade Fair in New Delhi in 2015 and 2016.

**Video Wall Network**

LED display boards (video walls) have already been erected in Thiruvananthapuram, Kottayam, Thrissur, Malappuram, Kozhikode, Kannur, Idukki and Ernakulam for streaming information on various development and welfare schemes of the government.

**Kerala Art and Cultural Centre at New Delhi**

Kerala Art and Cultural Centre at New Delhi was set up to propagate the rich tradition of the art, culture and literature of the State. As part of this, Delhi Keralotsavam, a fiesta of different arts from Kerala was conducted at Kerala House premises in New Delhi in March 2016.

**Integrated Development News Grid**

For the timely dissemination of local level development news, a separate news portal was set up under the News Grid project. This portal has been redesigned by adding new tools of communication. The project helped timely reporting of development news from government institutions at grass root level.

**Press Information Services**

Convening press meets, and providing better facilities to reporters for easy reporting are the major activities of press information services. Around thousand press releases were made every month. Every District Information offices are also giving press releases regularly. These releases are e-mailed to the media and the same is published in the department website also. The scrutiny wing of the department is now scrutinizing the print and visual media on various government policies, programmes and other important issues related to government. Automation of Journalist and non-Journalist pension, accreditation and release of advertisement are progressing.
persons including dependents are availing working journalist pension. Eminent journalist pension (42 Nos.), distress journalist pension (183 Nos.) and non-journalist pension (749 Nos.) are also being given.

Publication and Advertisement

Publications of reference books, magazines, newsletters, pamphlets, and display advertisement are the major activities. “Janapadham” and “Kerala Calling” are the two important newsletters. During 2015-16, the department gave 185 total display advertisements, 4 electronic media advertisement and 5 advertisements in publication. During 2015-16, ₹17 crores had been released from tenders, ₹3.44 crores from electronic media and ₹10.08 crores from display advertisement.

Media Academy

Kerala Media Academy is an institution under Government of Kerala to conduct media related courses. Documentary shooting of Victers channel of the Department of Education started in Kozhikkode, Malappuram and Kannur districts was the major achievement.

Centre for Development of Imaging Technology (C-DIT)

C-DIT established in 1988 is an autonomous research and training institute in the area of imaging technology. Following are the achievements of C-DIT in 2015-16.

- Digitalized around 64 lakhs property documents in 9 Sub Registrar Offices in Thiruvananthapuram district and made it available online for public access and digitalized 60 lakhs pages of old documents in palm leaves and paper medium for State Archives Department.
- Conducted State wide roll out of spot issuance of Identity Cards to the differently abled persons.
- Designed and implemented solar power plants to 15 LSGD institutions.
- Developed and facilitated ‘Nottam’, the online reality show and documentary competition for Information and Public Relations Department.
- Technical Support and facilitation was given for ‘Karuthal 2015’ and Jana Samparkka Paripadi (JSP) of Chief Minister.
- Developed software for the Grand Kerala Shopping Festival and designed high security hologram tax labels for Excise department.

The importance of a focussed infrastructure development has been well recognised in the State. Recent policy measures have been aimed at establishing a sound infrastructure in the State in terms of roads, ports, IT infrastructure and communication networks. The State needs to now address the infrastructural gaps and outline a vision for comprehensive development in this sector. Measures need to be taken to promote inland water transportation where the State has immense potential but is not being used to its capacity. Energy security is another area which needs vital attention, especially generation of electricity through non-renewable sources and improvement of the transmission networks. The IT sector, in general, is braving major challenges due to changes on the global front. Enough opportunities have to be created within the State so that this potential is tapped fully.
Chapter 6  External Sector  Economic Review 2016
India’s exports have started showing signs of slow revival after prolonged duration of a downward spiral. One of the reasons for the subdued export performance has been the global recession and absence of a diversified export basket. The national and international trend had its impact on the State’s export scenario as well and the export performance of Kerala has also not been that promising during 2015-16. The State gets affected considerably by the international developments as it has a significant number of expatriate population. Non-Resident Keralites have been a strong pillar of growth for the State. The political and economic developments in the world, the indigenization drive in the Gulf countries, oil crisis and changing labour market trends have affected the non-resident keralites. From the policy perspective, the State has clear limitations in dealing with the national and international developments affecting the external sector.

Section 1
EXTERNAL TRADE

EXTERNAL TRADE IN INDIA

India’s share in global exports and imports increased between 2004 and 2015. During this period, India’s share in global exports increased from 0.8 per cent to 1.6 per cent and India’s share in global imports increased from 1 per cent to 2.3 per cent. India’s ranking among countries, in terms of value of exports and imports, improved from 30 and 23 respectively in 2004 to 19 and 13 respectively in 2015. However, the growth of India’s exports is on a decline after 2013-14.

Petroleum products, pearl and precious stones, cotton goods, gold and precious metal jewellery, drug formulations and biologicals, marine products and spices are the principal commodities exported from India. India’s total exports of Goods and Services, as a proportion of Gross Domestic Product (GDP), decreased from 23.8 per cent in 2014-15 to 20.7 per cent in 2015-16. In nominal terms, the value of India’s exports declined from ₹1,905,011 crore in 2013-14 to ₹1,896,348 crore in 2014-15 and further to ₹1,602,414 crore in 2015-16. In other words, the value of India’s exports recorded a negative growth of 15.5 per cent.
between 2014-15 and 2015-16. The major reasons were subdued global and domestic economic conditions as well as a downward trend in crude oil prices.

Petroleum, oil and lubricants, gold, silver and machinery are the major items of imports in India. India’s imports decreased from ₹2,737,087 crore in 2014-15 to ₹2,323,786 crore in 2015-16, recording a negative growth of 15.1 per cent. India’s total imports of Goods and Services, as a proportion of Gross Domestic Product (GDP), also decreased from 25.2 per cent in 2014-15 to 22 per cent in 2015-16.

In order to address the declining trend in exports, the Government of India launched a new Foreign Trade Policy (FTP) for the period 2015-20 with a focus on supporting both manufacturing and services exports and improving the ‘Ease of Doing Business’. The FTP also provides a road map to align itself with the ‘Make in India’ and ‘Digital India’ programmes of the Central Government.

EXTERNAL TRADE IN KERALA

The external trade in Kerala is mainly operational through the Cochin Port. Kerala plays an important role in the export prospects of the nation by contributing to the export of spices and marine products. Major items of trade are cashew, coir and coir products, tea, coffee, pepper, cardamom, ginger, other spices and spices oil, marine products, machinery, chemicals, coal, fertilizers and raw materials. The total traffic handled by the Cochin Port increased from 215.95 lakh MT in 2014-15 to 220.98 lakh MT in 2015-16, or an increase by 2.33 per cent. Within this traffic, exports accounted for 39.14 lakh MT and imports accounted for 181.84 lakh MT (Table 6.1).

Tea, cashew, coir and coir products, coffee, pepper, cardamom, ginger, other spices and spices oil and marine products are the major items exported through the Cochin Port. Considered together, coastal and foreign exports through the Cochin Port decreased by 3.55 per cent – from 40.58 lakh MT to 39.14 lakh MT – between 2014-15 and 2015-16. However, in value terms, coastal and foreign exports grew by 14.5 per cent between 2014-15 and 2015-16 (Appendix 6.1). Coastal exports decreased from 16.48 lakh MT in 2014-15 to 12.86 lakh MT in 2015-16. Foreign exports, on the other hand, increased from 24.10 lakh MT in 2014-15 to 26.28 lakh MT in 2015-16.

For specific commodities, there were sharp falls in the exports through the Cochin Port. Between 2014-15 and 2015-16, the export of spices declined by 41 per cent, of tea declined by 25.73 per cent, of cashew kernels declined by 25.60 per cent, of sea foods declined by 24.71 per cent, and of coffee declined by 16.09 per cent. In the export of coir products and miscellaneous products including POL, the decline was marginal to the extent of 0.97 per cent and 0.34 per cent respectively.

Fertilizers and raw materials, iron and steel and machinery, newsprint, raw cashew nut, food grains and POL are the main items of import through the Cochin Port. Imports through the Cochin Port increased from 441.14 lakh MT in 2014-15 to 448.01 lakh MT in 2015-16, or an increase by 1.54 per cent. Within this traffic, imports accounted for 184.67 lakh MT and exports accounted for 263.33 lakh MT (Table 6.1).

Table 6.1
Cargo Handled at Cochin Port during 2011-12 to 2015-16, in lakh MT

<table>
<thead>
<tr>
<th>Traffic</th>
<th>Export</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Import</th>
<th></th>
<th></th>
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<tbody>
<tr>
<td>Coastal</td>
<td>14.86</td>
<td>14.05</td>
<td>17.18</td>
<td>16.48</td>
<td>12.86</td>
<td>51.74</td>
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<td>52.15</td>
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<tr>
<td>Foreign</td>
<td>28.25</td>
<td>24.29</td>
<td>25.32</td>
<td>24.10</td>
<td>26.28</td>
<td>106.06</td>
<td>107.99</td>
<td>105.73</td>
<td>123.22</td>
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<td>Total</td>
<td>43.11</td>
<td>38.34</td>
<td>42.50</td>
<td>40.58</td>
<td>39.14</td>
<td>157.80</td>
<td>160.11</td>
<td>166.36</td>
<td>175.37</td>
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</table>

Source: Annual Report 2015, Cochin Port Trust.
Port increased from 175.37 lakh MT in 2014-15 to 181.84 lakh MT in 2015-16, which amounted to a growth by 3.6 per cent. Between 2014-15 and 2015-16, coastal imports grew by 15.82 per cent, while foreign imports shrunk by 1.44 per cent.

Between 2014-15 and 2015-16, the import of fertilizers and raw materials decreased by 43 per cent and the import of raw cashew nuts decreased by 22.48 per cent. In the case of iron, steel and machinery, imports grew by 44.47 per cent between 2014-15 and 2015-16, which was higher than the preceding years. In 2015-16, about 95,475 MT of food grains were also imported through the Cochin Port. There was no import of newsprint reported in 2015-16. The import of all items, except fertilizers and raw materials, miscellaneous items and raw cashewnut, marked an increasing trend between 2014-15 and 2015-16 (Appendix 6.2).

Exports of Marine Products

The major items of export within marine products are frozen shrimp, frozen fish, frozen cuttle fish, frozen squid, dried items, live items and chilled items. Item-wise details of marine products export from India and Kerala in 2015-16 are given in Appendix 6.3.

In 2015-16, India exported 945,892 MT of marine products, which was valued at ₹30,420.83 crore. This was lower in quantity and in value compared to 2014-15, when 1,051,243 MT were exported valued at ₹33,441.61 crore. Marine products exports from Kerala, both in quantity and value, declined between 2014-15 and 2015-16; the quantity decreased from 166,754 MT in 2014-15 to 149,138 MT in 2015-16 and the value decreased from ₹5,166.08 crore in 2014-15 to ₹4,644.42 crore in 2015-16. The share of Kerala in Indian exports declined from 15.86 per cent to 15.77 per cent (in quantity) and from 15.45 per cent to 15.27 per cent (in value) during the period under review (Table 6.2).

The USA is the largest market for Indian marine products with a share of 28 per cent followed by South East Asia (24 per cent), European Union (21 per cent), Japan (9 per cent), Middle-East (6 per cent) and China (5 per cent). Major importers of marine products from India and their share in 2015-16 are shown in Figure 6.1.

Exports of Cashew

In 2015-16, the share of agricultural products in the total export earnings of India was 6.84 per cent; cashew kernels ranked 6th among agricultural products, contributing 4.28 per cent of the total agricultural product exports. The total export of cashew kernels from India in 2015-16 was 96,346 MT valued at ₹4,952.12 crore as against 118,952 MT valued at ₹5,432.85 crore in 2014-15. This

<table>
<thead>
<tr>
<th>Year</th>
<th>Quantity (Tonnes)</th>
<th>Value (₹ Lakh)</th>
<th>Quantity (Tonnes)</th>
<th>Value (₹ Lakh)</th>
<th>Quantity</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010-11</td>
<td>813091</td>
<td>1290147</td>
<td>124615</td>
<td>200210</td>
<td>15.33</td>
<td>15.52</td>
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<td>2011-12</td>
<td>862021</td>
<td>1659723</td>
<td>155714</td>
<td>298833</td>
<td>18.06</td>
<td>18.00</td>
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<td>2012-13</td>
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<td>1885626</td>
<td>166399</td>
<td>343585</td>
<td>17.93</td>
<td>18.22</td>
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<tr>
<td>2013-14</td>
<td>983756</td>
<td>3021326</td>
<td>165698</td>
<td>470636</td>
<td>16.84</td>
<td>15.58</td>
</tr>
<tr>
<td>2014-15</td>
<td>1051243</td>
<td>3344161</td>
<td>166754</td>
<td>516608</td>
<td>15.86</td>
<td>15.45</td>
</tr>
<tr>
<td>2015-16</td>
<td>945892</td>
<td>3042083</td>
<td>149138</td>
<td>464442</td>
<td>15.77</td>
<td>15.27</td>
</tr>
</tbody>
</table>

represented a decline between 2014-15 and 2015-16 of 19 per cent in quantity and 9 per cent in value. The major markets for Indian cashew kernels are USA, UAE, Japan, Saudi Arabia, Netherlands, UK, France, Spain, Germany, Korea, Iran, and Malaysia. Exports of cashew kernels from Kerala showed a sharp decline in quantity by 25.68 per cent and in value by 16.76 per cent between 2014-15 and 2015-16. The exports of cashew kernels stood at 50,652 MT valued at ₹2579.49 crore in 2015-16, while the corresponding figures were 68150 MT and ₹3098.75 crore respectively in 2014-15. Kerala's share in the total export of cashew kernels from India, in quantity terms, was 57.29 per cent in 2014-15, which declined to 52.57 per cent in 2015-16. In value terms, the share was 57.04 per cent in 2014-15, which fell to 52.09 per cent in 2015-16 (Table 6.3).

The export of cashew nut shell liquid/cardanol from India in 2014-15 was 10,938 MT valued at ₹ 55.81 crore, which increased to 11,677 MT valued at ₹57.59 crore in 2015-16. The quantity of exports increased by 6.76 per cent and the value of exports increased by 3.19 per cent. But the export of cardanol through the Cochin Port, which was 818 MT with a value of ₹2.7 crore in 2014-15, declined to 111 MT valued at ₹0.27 crore in 2015-16 (Appendix 6.4).

India continued to be the largest producer of raw cashewnuts in the world. Production of raw nuts in India in 2015-16 was 670,300 MT as against the estimated production of 725,420 MT in 2014-15. Vietnam, Brazil, Tanzania, Ivory Coast, Guinea, Mozambique and Indonesia are the other main raw nut producing countries in the world. The

**Figure 6.1**

Market-wise Exports of Marine Products, 2015-16, in per cent

Source: Cochin Port Trust

<table>
<thead>
<tr>
<th>Year</th>
<th>Kerala Quantity</th>
<th>Kerala Value</th>
<th>India Quantity</th>
<th>India Value</th>
<th>Share of Kerala Quantity (Per cent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010-11</td>
<td>56578</td>
<td>1478.67</td>
<td>105755</td>
<td>2819.39</td>
<td>53.50</td>
</tr>
<tr>
<td>2011-12</td>
<td>68655</td>
<td>2295.84</td>
<td>130869</td>
<td>4383.82</td>
<td>52.46</td>
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<td>2012-13</td>
<td>53624</td>
<td>2138.47</td>
<td>100105</td>
<td>4046.23</td>
<td>53.57</td>
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<td>2013-14</td>
<td>65679</td>
<td>2861.75</td>
<td>114791</td>
<td>5058.73</td>
<td>57.22</td>
</tr>
<tr>
<td>2014-15</td>
<td>68150</td>
<td>3098.75</td>
<td>118952</td>
<td>5432.85</td>
<td>57.29</td>
</tr>
<tr>
<td>2015-16</td>
<td>50652</td>
<td>2579.49</td>
<td>96346</td>
<td>4952.12</td>
<td>52.57</td>
</tr>
</tbody>
</table>

*Export through Cochin Port.
Source: The Cashew Export Promotion Council of India
total raw cashew nuts imported into India in 2015-16 was 958,339 MT valued at ₹8561.01 crore; the corresponding figures were 939912 MT and ₹6570.93 crore in 2014-15. The substantial increase in the value of imported raw cashew nuts was due to the rise in the unit price of raw cashew nuts from ₹69.91 per kg to ₹89.33 per kg. Import of raw cashew nuts through the Cochin Port, which was 213,106 MT in 2014-15, declined by 25.9 per cent to reach 157,905 MT in 2015-16.

**Exports of Coffee**

Export of coffee from India in 2015-16 was reported as 318,100 MT (provisional) valued at ₹5175.56 crore. This represented an increase of 16.89 per cent in quantity and 7.72 per cent in value over 2014-15, when the quantity exported was 272,139 MT and value of exports was ₹4804.48 crore.

Export of coffee from Kerala through the Cochin Port in 2015-16 was 62,883 MT valued at ₹986.18 crore, as against 58,601 MT valued at ₹1007.33 crore in 2014-15. The decrease in the value was due to the fall in unit price of coffee.

**Exports of Tea**

Export of tea from India in 2015-16 was reported as 232,920 MT valued at ₹4493.10 crore; this represented an increase over 2014-15 when exports were 199,077 MT in quantity and ₹3823.64 crore in value.

Export of tea from Kerala ports stood at 69706 MT valued at ₹1025.34 crore in 2015-16 as against 69343 MT valued at ₹948.78 crore in 2014-15. The exports slightly increased by 0.52 per cent in volume and 8.07 per cent in terms of value (Table 6.4).

**Exports of Coir and Coir Products**

Main coir products exported from India are coir mat, coir yarn and other coir products. The exports of coir and coir products through the Cochin Port recorded a marginal decline by 0.97 per cent between 2014-15 and 2015-16. The quantity of exports, which stood at 125,523 MT with a value of Rs. 389.12 crore in 2014-15, slightly fell to 124,305 MT with a value of Rs. 374.03 crore in 2015-16. The export trend of coir and coir products through the Cochin Port for the period between 2010-11 and 2015-16 is shown in Figure 6.2.

**Exports of Spices**

In 2015-16, Indian spices exports showed an increasing trend in value. A total of 843,255 MT of spices and spice products valued at ₹16,238.23 crore was exported from India in 2015-16, as against 893,920 MT with a value of ₹14,899.68

### Table 6.4

**Exports of Tea from Kerala Ports and India, 2010-11 to 2016-17, Quantity in MT and Value ₹ in crore**

<table>
<thead>
<tr>
<th>Year</th>
<th>Kerala</th>
<th>India</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quantity</td>
<td>Value</td>
</tr>
<tr>
<td>2010-11</td>
<td>48104</td>
<td>552.12</td>
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<tr>
<td>2011-12</td>
<td>71784</td>
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<td>75036</td>
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<td>2014-15</td>
<td>69343</td>
<td>948.79</td>
</tr>
<tr>
<td>2015-16</td>
<td>69706</td>
<td>1025.34</td>
</tr>
<tr>
<td>2016-17*</td>
<td>32248</td>
<td>545.97</td>
</tr>
</tbody>
</table>

*April-September.
Source: Tea Board, India.
crore in 2014-15. This represented an increase of 9 per cent in value and decline of 5.67 per cent in volume, which was mainly due to a decline in the export of cumin.

Pepper, cardamom, chilli, ginger, turmeric, coriander, cumin, celery, fennel, fenugreek, other seed spices, garlic, tamarind, nutmeg & maize, other miscellaneous spices, curry powder/paste, spice oils and mint products are the main spices exports through Kerala ports. Export of spices from Kerala (through Cochin and Thiruvananthapuram Ports) increased from 81555.27 MT with a value of ₹3285.34 crore in 2014-15 to 100,076 MT valued at ₹3905.18 crore in 2015-16. This represented an increase of 18.87 per cent in value and 22.71 per cent in volume.

**Figure 6.2**

Export Trends of Coir and Coir Products from Cochin Port, Quantity in Lakh MT

*Source: Cochin Port Trust.*

Section 2

**NON RESIDENT KERALITES**

Non-Resident Keralites play a significant role in the progress of the state. Their contribution to the development can be seen at the household-level, community-level and state/country-level. There have been improvements in household earnings, food consumption, health care, housing and educational attainments. For over three decades, remittances have also been meeting the current account deficit of the Indian economy.

The destinations of emigrants from Kerala are spread across the world. The Kerala Migration Survey 2014 (draft), conducted by the Centre for Development Studies, estimated that there were more than 24 lakh Keralites living in various countries and their remittances to the state net domestic product was nearly 36.5 per cent. The average age of emigrants was 24.74 years. Educational profiles of the emigrants were better than of the general population; 75.1 per cent had passed Class 10, and 35.4 per cent had received diploma or a degree or higher levels of education. **Figure 6.3** shows the district wise proportion of emigrants from Kerala.

Between 2008 and 2014, the number of emigrants declined drastically in some districts, while in others, including hilly regions, the number of emigrants significantly increased. In the Southern districts, such as Thiruvananthapuram, Kollam and Alappuzha, the rate of growth of emigrants declined by 21.6 per cent, 3.7 per cent and 29.3
per cent respectively between 2008 and 2014. In absolute terms, the number of emigrants declined by 66,754 in Thiruvananthapuram, 7,583 in Kollam and 38,623 in Alappuzha. Districts registering significant increase were Pathanamthitta, Ernakulam, Idukki and Kannur. Details are in Appendix 6.5.

If we consider the number of migrants per 100 households, the figure was highest for Malappuram district. In 2014, per 100 households, there were 54 emigrants in Malappuram and 50 emigrants in Kannur. The lowest number of emigrants per 100 households was reported in Idukki, Wayanad and Palakkad (Figure 6.4).

Return Emigrants

Due to the nationalisation policy in the Middle East countries and economic destabilisation all
over the world, the number of return emigrants is increasing in Kerala. The total number of return emigrants increased from 7.3 lakh in 1998 to 12.5 lakh in 2014. Figure 6.5 shows the increasing trend of return migrants in Kerala.

A district-wise analysis shows that Malappuram accounted for 24 per cent of the total return emigrants in Kerala followed by Thiruvananthapuram and Kollam with 17 per cent and 10 per cent shares respectively. Figure 6.6 shows the district-wise proportion of return emigrants in Kerala for 2008 and 2014. Detailed data on district-wise number of return emigrants is given in the Appendix 6.6.

**Figure 6.5**
Number of Return Emigrants in Kerala

![Graph showing the number of return emigrants in Kerala from 1998 to 2014.](source: Kerala Migration Survey, 2014 (Draft), State Planning Board, GoK.)

**Figure 6.6**
District wise proportion of Return Migrants to Kerala, in per cent

![Graph showing the district-wise proportion of return migrants in Kerala for 2008 and 2014.](source: Kerala Migration Survey, 2014 (Draft), State Planning Board, GoK.)
**Number Of Working NRKs**

Out of the total Non-Resident Keralites, 87.77 per cent are engaged in economic activities. Among those employed, 93.04 per cent are men and 6.96 per cent are women. Among all districts, Malappuram has the highest proportion of NRKs employed at 19.51 per cent, followed by Thrissur and Kozhikode at 10.50 per cent and 10.37 per cent respectively. The district- and sex-wise ratio of working NRKs are given in Appendix 6.7.

**Destination Of Emigrants from Kerala**

A country-wise destination analysis of emigrants from Kerala shows that 37.5 per cent of the emigrants are in the UAE and 21.8 per cent are in Saudi Arabia. Out of the total emigrants, 86.3 per cent reside in West Asia. Emigrants residing in the U.K, Canada and South-East Asian countries are increasing over the years. Figure 6.8 shows the country-wise destination of total emigrants from Kerala for the period 2008 and 2014.

**Profession-Wise NRKs**

In recent years, the pattern of emigration has changed in respect of job seeking. In the 1970s, the proportion of skilled workforce in the total emigrants was very small. Over the years, the share of skilled workforce within total emigrants, such as from professions like doctors, nurses, engineers, IT professionals, and teachers has increased. Distribution of NRK’s by profession showed that 11.85 per cent worked as drivers, 10.99 per cent worked as salesmen, 6.37 per cent worked as nurses, 3.78 per cent worked as engineers, 2.23 per cent worked as IT professionals and 0.53 per cent worked as doctors. The remaining 64.25 per cent worked as businessman, teachers, bank professional and other workers.

Among the doctors, the highest share is reported from Thiruvananthapuram at 14.39 per cent followed by Kottayam and Ernakulam at 14.38 per cent and 14.34 per cent respectively. The lowest share is from Wayanad. In the case of nurses, the highest proportion is from Kottayam at 23.73...
per cent followed by Pathanamthitta at 20.75 per cent and Ernakulam at 18.16 per cent. Among engineers, Ernakulam has the highest proportion of 13.47 per cent, followed by Thrissur at 13.23 per cent and Kottayam at 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 6.9 shows the district wise number of NRKs working in different jobs abroad.

Figure 6.8
Country wise destination of Emigrants from Kerala

Source: Kerala Migration Survey, 2014 (Draft), State Planning Board, GoK
Figure 6.9
District-wise NRKs working in different jobs

Source: Economic and Statistics Department, GoK.

Box 6.1
Working Group on NORKA

As part of the formulation of the 13th Five Year Plan, a Working Group on NORKA was constituted under the Co-Chairpersonship of Dr. Usha Titus IAS, former Secretary to NORKA Department, Government of Kerala and Prof. S. Irudaya Rajan, Professor, Centre for Development Studies, Thiruvananthapuram. Terms of reference of the Working Group was to i) critically assess the existing data base on migration and review the available estimates on the number and composition of Non-Resident Keralites (NRKs) and to propose a comprehensive methodology for collection and constant renewal of the information base on NRKs; ii) to analyse the impact of out migration on various dimensions of life in Kerala with special focus on economic and social implications; iii) to assess the implications of de-territorialisation of the Kerala economy and to suggest ways of promoting integrated development of Keralites within and outside the borders of the state; iv) to examine the evolution of emigration policy of India in a comparative perspective and propose changes that are required; v) to critically review all government programmes/schemes, especially those initiated by the state government during 11th and 12th plan periods and suggest a comprehensive approach towards migration and migrants that would maximize the welfare of the migrants as well as the home state; vi) to identify leading issues, such as rehabilitation and NRK investment in Kerala, that call for immediate government intervention and help formulate innovative programmes to be taken up during the 13th plan; and vii) to identify and formulate a set of output and outcome indicators (preferably measurable) for the sector and base the analysis of the previous plans on these indicators. Members of the Working Group comprised of administrators, academics, experts and representatives of Non-Resident Keralites from abroad. The report will be published shortly.
Box 6.2

A glimpse of Plan Schemes, Services and Projects offered by Norka Roots

**Rehabilitation of Return Migrants:** The aim of the scheme is to reintegrate returned emigrants by helping them find suitable employment/self-employment as a step towards the rehabilitation of return migrants. The government has established NORKA Department Project for Return Emigrants (NDPREM) to develop a sustainable business model. The project envisages providing a capital subsidy of 10 per cent of the total project cost as a backend subsidy 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 provides financial assistance to NRKs (returnees) whose minimum period of service abroad is two years. The period after return should not exceed 10 years. For medical assistance Rs. 50,000 is provided. The ceiling for death assistance is Rs. 100,000, for marriage assistance is Rs. 15,000 and for wheel chair crèches and artificial limbs is Rs. 10,000.

**SwapnaSaphalyam:** 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 1400 Indians are jailed in Saudi Arabia alone, of which 80 per cent are NRKs. The scheme proposes to address NRKs jailed abroad for no wilful default on their part and aims to provide free air tickets when they are released from jails, in case they 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 Middle East is the court cases and other legal problems they get embroiled in. In the absence of any legal help, the poor workers end up in jail. This happens even in cases of minor offence or sometimes without any offence. The government proposes 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 the 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 and 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:** The general public lacks awareness in matters connected with emigration in general and overseas jobs in particular. The scheme intends to impart orientation and training to these prospective emigrants before departing to their destination countries so as to ensure legal migration. The widespread rural penetration of this scheme will limit prevailing illegal migration and exploitation by unscrupulous recruiting agents.

The green shoots of revival in exports have provided an optimism for boosting up trade in the economy. The country needs to formulate policies and strategies to boost exports which are the only sustainable way in India’s international trade environment. The State also needs to take proactive steps and address the impediments and gaps affecting the sector. Diversification of markets, certification, packing and labeling needs to be focused. An export strategy needs to be formulated. The State’s development frontiers extend much beyond its geographical boundaries as a major share of its population resides outside the state. The State needs to come up with innovative solutions to improve the efficacy of existing programs, devise appropriate and clear recruitment strategy and involve the NRKs in spearheading states’ economic development through harnessing their capabilities.
7
CHAPTER
CAPACITY BUILDING
Capacity building is core to achieving developmental objectives of the economy. The State through its myriad institutions in the field of science and research is spearheading innovations, new techniques, and capabilities. It is one of the few states in India which has given emphasis on promoting science and research. With its robust labour force, the state also has the potential to enhance its capabilities by focusing on skill development. Skill development has been recognized as vital to provide the relevant skills required for the industry and enhancing the productivity of the labour force.

Section 1

SCIENTIFIC SERVICES AND RESEARCH

Science and technology are key drivers to development, because technological and scientific revolutions underpin economic advances, improvements in health systems, education and infrastructure. The Department of Science and Technology plays a pivotal role in promotion of science and technology in the country. The Government of India, through the Science, Technology and Innovation (STI) Policy 2013, aspires to position India among the world’s top five scientific powers.

Kerala is one among the few States in India that has been giving top priority for the development of science and technology sector. The State has been providing 0.7% of its budgetary allocation to the sector. Concerted efforts have been taken by the State to benefit the society through science and technology interventions with the involvement of user agencies and beneficiaries for the improvement of infrastructure, livelihood, amenities and environment, thereby realizing sustainable development and better quality of life.

Kerala State Council For Science, Technology And Environment (KSCSTE)

Kerala State Council for Science, Technology and Environment (KSCSTE) is an autonomous body under the Department of Science & Technology, Government of Kerala, constituted in November 2002 to act as an agency for change and development through science and technology. Established in 1972 as Science, Technology and Environment Committee (STEC), in accordance with the Science Policy of Government of Kerala,
the STEC was reconstituted as KSCSTE in 2002 and 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 (EVP) of KSCSTE. Presently, there are seven full-fledged R&D centres, two emerging research centres and two Grant-in-aid institutions under the umbrella of KSCSTE.

**Major objectives of KSCSTE**

The objectives behind the setting up of the council include the following:

- to identify thrust areas in science and technology for speeding up the socio-economic development and enhancing the quality of life and environment in Kerala
- to advise the Government on the formulation of policies and strategies and suggest measures for implementation, which will promote the application of science and technology to meet the perceived needs of the society, and manage natural resources
- to assist in the preparation of the Science and Technology Development Plan of the State and its implementation
- to promote effective coordination between Centres of Scientific and Technological research, Government agencies, farms and industries including the private sector so that know-how generated by scientific research is fruitfully deployed by transfer of technology
- to support and coordinate research programmes in the universities and institutes of the Government, research and development laboratories of the private sector with a view to optimizing the scientific output
- to consider and advise the Government on all such matters as are relevant to the application of science and technology to the economic, industrial, educational and social development of Kerala
- to advise local self-governments on the use of Science & Technology for local application and local development
- to network the Science and Technology agencies within and outside the country
- to make the Science, Technology and Environment plans responsive to the development needs of Kerala and to detail them with the programmes of the economic, scientific and service departments of the Government such as agriculture, industries, power, water, energy, education and IT

The main objective of KSCSTE, therefore, 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 also aimed at development of high quality science education system in the State through infrastructure strengthening for basic research and promotion of science pedagogy.

Kerala State Council for Science Technology and Environment drives Research and Development efforts of the R&D Centres through offering assistance for creation of physical infrastructure and procurement of scientific infrastructure under Development and Selective Augmentation of R&D activities. The other initiatives include the following:

- Science Popularisation Programmes
- Research Development Programmes
- Ecology and Environment Programmes
- Awards and Recognition for science promotion
- Technology development and transfer
- School level promotions

The KSCSTE takes deliberate efforts to popularize science including basic science, applied science, technology, environmental science, medical science and related areas among people with the assistance of Governmental and Non Governmental organizations, colleges and approved institutions. National Science Day and National Technology Day are observed to spread the message of importance of science and its application among the people. Seminar-Symposia-Workshops, Technology Festival, Rural Innovators Meet and Kerala Science Congress were conducted to facilitate interaction among academics, researchers, professionals, industry and decision makers.
Technology development and transfer is promoted through Patent Information Centre, Engineering and Technology Programmes, Technology Development and Adaptation Programme, and Rural Technology Programmes.

The Council extends awards and recognition to promote science and technology and promote scientific attitude among youngsters. Kerala Sasthra Puraskaram is for life-time contribution of a Scientist of Kerala, working anywhere in the world. In addition to this, the Council extends Young Scientist Award, Science Literature Awards, Environment Early Career Research Award and Outstanding Environment Award to promote science and technology.

**Major Arms of KSCSTE for Scientific Research**

There are seven R&D centres under the umbrella of the Council which conducts Research and Development activities in specific mandated domains.

**Kerala Forest Research Institute (KFRI)**

Founded in 1975, the institute has contributed significantly to the research in tropical forestry and biodiversity conservation over the past four decades of its existence. KFRI started functioning under STEC and became a part of KSCSTE in 2002. The institute 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 utilization and scientific management of natural resources.

Sustainable management of forests requires a strong science and technology base. It requires a shift in thrust for forest management assigning greater importance to the environmental functions of forests. Working in collaboration with the Forest department and other stakeholders, the Kerala Forest Research Institute continues to play a key role in improving the science foundation of forest management.

**Major achievements**

- The Institute is considered as an International Centre of Excellence in Tropical Forestry.
- Two major international research initiatives are based in the Institute. One is ‘Teaknet’ (International network of institutions and individuals interested in teak), and the secretariat of the network is located in KFRI and second is ‘APFISN’ (Asia – Pacific Forest Invasive Species Network). The office of the APFISN’ functions at KFRI. The Network is a cooperative alliance of the 33 member countries in the Asia-Pacific Forestry Commission (APFC) - a statutory body of the Food and Agriculture Organization of the United Nations (FAO). The network focuses on inter-country cooperation that helps to detect, prevent, monitor, eradicate and/or control forest invasive species in the Asia-Pacific region.
- Government of India had identified KFRI as one of the organization for imparting training to the officers of the Indian Forest Service (IFS) from the various States.
- Developed HpNPV Technology; Hybalaec Puera (National Patent) for Bio control & Teak Defoliator; Developed a technology for converting weeds to good quality organic manure using ‘Jeevamrutham’ and another to convert urban organic waste to good organic manure using ‘Jeevamrutham’.

**National Transportation Planning and Research Centre (NATPAC)**

National Transportation Planning and Research Centre (NATPAC) was established in 1976 as a Division of Kerala State Electronics Development Corporation (KELTRON), a Public Sector Enterprise under the Government of Kerala. In 1982, NATPAC was reconstituted as an R&D
institutions under the Department of Science, Technology and Environment, Government of Kerala. NATPAC became a part of KSCSTE in 2002. The Centre 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 technoeconomic studies, feasibility analysis, detailed project reports for infrastructure development projects involving multi-modal system of transportation covering road, rail, water, ports/harbours and airports. Currently, NATPAC has 7 scientific divisions.

**Major Achievements**

- Developed a scientific formula for fixation of fare for bus operations
- Developed a trip generation model for identified towns in Kerala using “quick response” concept
- The influence of platoon movement of buses from Signalized Junctions to down-stream bus bays
- Studied the impact of proposed Vizhinjam seaport on the Traffic and Transportation systems of hinterland areas
- Identified possible road map for initial implementation of greener transport in Technopark campus at Thiruvananthapuram leading to large scale use of greener transport modes in the State
- Studied the existing pedestrian facilities and infrastructure in selected road corridors of Thiruvananthapuram and Kochi cities in Kerala and formulated strategies to enhance better accessibility, convenient and safe walking environment
- Carried out an appraisal of the highways developed under Kerala State Transport Project (KSTP) by conducting the structural and functional evaluation
- Developed a traffic growth rate model for the National Highways in Kerala
- Assessed the feasibility of connecting NW-3 with Thrissur town through waterways
- Formulated accident prediction models
- Prepared Road Safety Training Materials which includes Books, Booklets, Calendars, Leaflets, Stickers and display boards
- Developed 18 films related to different aspects on road safety targeting different road users and also developed a mobile application on android platform on road safety named “Safesavari”

**Centre for Water Resources Development and Management (CWRDM)**

CWRDM is a premier R & D institution in the water sector under KSCSTE. Recognising the need for catering to the R & D needs in the field of water management, the Centre for Water Resources Development and Management (CWRDM) was established as an autonomous research organisation by the Government of Kerala, under its Science and Technology Policy in February 1978. The Centre was amalgamated with the Kerala State Council for Science, Technology and Environment (KSCSTE) in its Silver Jubilee Year (2003). CWRDM has substantially contributed to the scientific hydrologic studies and water management in the region. The Centre provides research inputs for water resources development and management, especially in the humid tropics 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. The Centre is proud to have many ongoing and completed programmes funded by national and international agencies including Government of India, United Nations Development Programme, United Nations Environment Programme, UNICEF, World Bank and National Academy of Sciences (USA). Presently, CWRDM has 10 scientific divisions and 3 extension centres.
Jawaharlal Nehru Tropical Botanic Garden and Research Institute (JNTBGRI)

Jawaharlal Nehru Tropical Botanic Garden and Research Institute (JNTBGRI) formerly known as Tropical Botanic Garden and Research Institute (TBGRI) was founded as an autonomous institution in 1979 with the objective of establishing a Conservatory Botanic Garden of tropical plant resources in general and of the country and the Kerala State in particular. It also undertakes research programmes for the sustainable utilization of these resources. The institute is located in 300 acres of natural forestland, right in the lap of the Western Ghats of Palode, 40 km northeast to Thiruvananthapuram city.

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 Puthen hopeful, Thiruvananthapuram where the Bioinformatics Centre is established. The Government of India has recognized the JNTBGRI as a National Centre of Excellence.

Presently, the institute has 9 scientific divisions involved in research activities including ex-situ conservation and management of plant wealth of the country, biodiversity documentation, systematic studies, conservation and management, bio prospecting (biotechnological, phytochemical and pharmacological) of plants for sustainable utilisation, documentation of indigenous knowledge, education, extension and training on conservation and sustainable utilization of plants with financial assistance from different State and national funding agencies.

Kerala School of Mathematics (KSOM)

Kerala School of Mathematics (KSOM) was established in 2009 as a joint venture between KSCSTE, Government of Kerala and Department of Atomic Energy (DAE), Government of India for carrying out advanced learning and research in Mathematics. It is situated at Kunnamangalam near Kozhikode. KSOM aims to play a catalytic role in reviving the great mathematical tradition of Kerala in the modern paradigm. The school which aims to run as a national facility, envisages promotion of mathematical research in the country and Kerala in particular through activities such as research at doctoral and post-doctoral level, workshops in frontier areas of mathematical science, national and international conferences, instructional conferences, structured courses and lectures for young mathematicians, training for post-graduate students, research scholars and teachers.

Srinivasa Ramanujan Institute for Basic Sciences (SRIBS)

Srinivasa Ramanujan Institute for Basic Sciences (SRIBS) is a capacity building Institute envisaged for Research, Teaching and Learning in Basic Sciences. SRIBS was established by the Government of Kerala in 2013 at Kottayam. The main objective of the institute is to formulate and implement programmes for capacity building for young faculty members, researchers and post graduate students in contemporary areas of sciences.

The institute has organized several colloquia, seminars, workshops and symposia with the support of over 200 internationally acclaimed scientists from about 100 premier institutions around the world, benefiting over 1500 students, teachers and researchers in various areas of science.

Malabar Botanical Garden and Institute for Plant Sciences (MBGIPS)

The Malabar Botanical Garden & Institute for Plant Sciences (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. MBGIPS is situated adjacent to Pokkunnun at Olavanna village in Kozhikode District. The Garden is spread over an area of about 40 acres of which about 15 acres is marshy land and the remaining part is a hilly terrain providing diverse habitats for varieties of plants. The Malabar Botanical Garden and Institute for Plant Sciences is unique for ex situ conservation of aquatic/wetland plants and for undertaking research on them. A Systematics Garden, Aquatic-conservatory, Hortus Malabaricus Garden, Rare, Endangered and Threatened (RET) species conservation, lower group conservatory are the highlights of the Garden. The Garden is open to students for eco-education and to general public as part of promoting scientific tourism in the region. The educational value of the Garden lies with the descriptive labels displayed for the different sections and plants. This institute is also a Research Centre in Plant Sciences (Botany) recognized by the University of Calicut.

**Major Achievements**

- Fellowship Titles of
  a. National Academy of Biological Sciences (FNABS)
  b. Gregor Mendel Foundation 2016 (FGMF)
  c. National Academy of Sciences, India 2016 (FNASc)
- Leadership Award of National Academy of Biological Sciences 2015
- Eminent Scientist of the Year Award of the International Foundation for Ecology & Environment in 2016
- Certificate of Appreciation 2015 for service (GMF)
- Best Microbiologist Award 2015 (SESR)
- Best Informative Pavillion Award, Global Ayurveda Festival 2016
- Best Science Expo Award in the 26th Kerala Science Congress

**Academic Achievements of R and 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. The number of research papers produced by R&D Institutions from 2012 onwards is given in the Figure 7.1.

**Figure 7.1**

Research Papers Produced by R&D Institutions from 2012 -2016, in number

![Research Papers Produced by R&D Institutions from 2012 -2016, in number](Source: KSCSTE, Sasthrabhavan, Thiruvananthapuram.)
The number of research papers produced in 2016 is a quick estimate as on November 2016. Among the seven R&D institutions under the Council, JNTBGRI, CWRDM and KFRI rank at the top with respect to the publication of papers.

With respect to the publication of books during 2016-17, JNTBGRI has published 3 books and 1 chapter in an edited work. CWRDM has also published 1 book and 11 technical reports during the same period. KFRI has also published 2 books in the year 2016.

**Other Schemes and programmes of KSCSTE**

7.25 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. The projects sanctioned under the scheme from 2012-13 to 2015-16 is given in Figure 7.2.

Figure 7.3 portrays the publications by the University Departments, Colleges and R&D Institutions under SRS during the 12th plan period.

**Achievements of KSCSTE Research Fellows**

As per the data from KSCSTE, about 343 students have been facilitated to carry out Ph.D in Science since 2002. Several research fellows are placed in academic/ R&D institutions in India and abroad. Many of them bagged State level young scientist awards and best paper awards. Figure 7.4 shows the achievements of KSCSTE research fellows from 2013-15.

**Programmes For Infrastructure Development in S and 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 over there. 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

![Figure 7.2](image)

**Source:** KSCSTE, Sasthrabhavan, Thiruvananthapuram.
Figure 7.3
Publications during 12th five year plan period under Science Research Scheme, in number

Source: KSCSTE, Sasthrabhavan, Thiruvananthapuram.

Figure 7.4
Achievements of KSCSTE research fellows during 2013-15, in number

Source: KSCSTE, Sasthrabhavan, Thiruvananthapuram.
the laboratory infrastructure by procuring equipment and also for its maintenance. So far, 57 science Post Graduate laboratories and research institutions in Kerala have been augmented.

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 179 schools in Government and aided sector in the State have been supported to establish good science laboratories.

**Engineering and Technology Programmes (ETP)**

The Engineering and Technology Programme (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. **Figure 7.5** represents the number of proposals received and approved under ETP from 2010-11 to 2015-16.

**Technology Development and Adaptation Programme (TDAP)**

The very objective of the programme is to provide catalytic support for the development and demonstration of innovative and need-based technologies and to raise such technologies to the level of commercialisation. Individual innovators who possess a professional degree (Diploma or Degree in Engineering or equivalent), students of professional technical courses, Scientists/Researchers from Research Organizations/Academic Institutions/Non-Governmental Organizations can apply under this scheme. During the year 2015-16, 14 proposals were received of which 5 were sanctioned.

**Figure 7.5**

Proposals received and approved under ETP from 2010-11 to 2015-16, in number

![Bar chart showing proposals received and approved under ETP from 2010-11 to 2015-16](source: KSCSTE, Sasthrabhavan, Thiruvananthapuram.)
Rural Technology Programme (RTP)

Rural Technology Programme (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 generation and to reduce the drudgery of the rural households. The main objectives of this scheme are to encourage and promote grassroots 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. Figure 7.6 portrays the type of institutions involved under the Rural Technology Programme.

Patent Information Centre – Kerala (PIC-Kerala)

KSCSTE, with the support of Dept. of Science & Technology, Government of India established Patent Information Centre – Kerala (PIC-Kerala) in the year 2003 to provide Intellectual Property Rights (IPR) related services to the people in the State of Kerala. PIC-Kerala has been implementing many programmes to promote and propagate IPR in the State through awareness campaigns and publications. The Centre has been guiding the inventors in protecting their intellectual properties and facilitates access to patent-related documents. The ultimate objective of PIC-Kerala is to increase the IP output of the State. Table 7.1 gives the number of filed patent applications.

Programmes for Women in Science

Though the State has the highest share of 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 take up science as a career, the Women Scientists Division at KSCSTE initiated several schemes and programmes to increase their participation in Science, Technology, Engineering, Agriculture, and Medicine (STEAM). The important programmes carried out by the Council in this area are

- Women in Science
  I. Back to Lab Research Fellowship Programme
  II. Awareness Programme on “Technological advances in transforming women’s lives”

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Figure 7.6
Types of tie-up institutions involved, in per cent

Source: KSCSTE, Sasthrabhavan, Thiruvananthapuram.
Table 7.1
Number of Patent Applications Processed

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Patent Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>56</td>
</tr>
<tr>
<td>2011</td>
<td>74</td>
</tr>
<tr>
<td>2012</td>
<td>87</td>
</tr>
<tr>
<td>2013</td>
<td>89</td>
</tr>
<tr>
<td>2014</td>
<td>59</td>
</tr>
<tr>
<td>2015</td>
<td>60</td>
</tr>
<tr>
<td>2016</td>
<td>45</td>
</tr>
</tbody>
</table>

Source: KSCSTE, Sasthrabhaban, Thiruvananthapuram

III. Project on Preparation of database of ‘Women in Science in Kerala’.
IV. VSORT – Vocational Skill Oriented Reinstatement Training
   • STARS (Students with Talent and Aptitude for Research in Science)
   I. Pratibha Scholarship Scheme
   II. SPEED (Student Programme for Excellence in Experimental Design)

Government Spending on Scientific Services and Research

Recognising the growing need of investments and related expenditure for expansion of the scientific services and research in the State, the government have been allocating certain portion of its budgetary allocation from the fifth plan period onwards. During the fifth plan period (1974-78) the allocation was Rs. 7.98 crore and the figure rose to 436.44 crore by the 12th plan period (2012-17). Table 7.2 details the plan outlay and expenditure during the period 2012-13 to 2016-17.

Manpower Training

Ensuring sustainable pipeline of talented youth for science is a challenge. The role of R & D institutions in rearing 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 7 PhDs in 2016(as on October 2016 estimates). The institutes have trained 1174 manpower in Research capacities and 170 in technical capacities. Table 7.3 provides the performance of the R & D institutions collectively in providing quality manpower, and producing output in terms of patents and technology transferred.

Table 7.2
Plan outlay and Expenditure from 2012 to 2017, ₹ in lakh

<table>
<thead>
<tr>
<th>Year</th>
<th>Outlay</th>
<th>Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-13</td>
<td>6620</td>
<td>6396.15</td>
</tr>
<tr>
<td>2013-14</td>
<td>7895</td>
<td>5136.93</td>
</tr>
<tr>
<td>2014-15</td>
<td>9171</td>
<td>5464.65</td>
</tr>
<tr>
<td>2015-16</td>
<td>9979</td>
<td>6362.20</td>
</tr>
<tr>
<td>2016-17</td>
<td>9979</td>
<td>2323.24*</td>
</tr>
</tbody>
</table>

Source: Annual Plan Documents, State Planning Board, Thiruvananthapuram.* Expenditure up to November 30, 2016
Table 7.3
Performance of R & D Institutions, in number

<table>
<thead>
<tr>
<th>R &amp; D Centre</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ph D Produced</td>
<td>12</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>7</td>
</tr>
<tr>
<td>Research Manpower Trained</td>
<td>171</td>
<td>1017</td>
<td>703</td>
<td>534</td>
<td>1174</td>
</tr>
<tr>
<td>(other than Ph D)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical Manpower Trained</td>
<td>146</td>
<td>283</td>
<td>473</td>
<td>243</td>
<td>170</td>
</tr>
<tr>
<td>Patent Filed</td>
<td>1</td>
<td>1</td>
<td>Nil</td>
<td>1</td>
<td>Nil</td>
</tr>
<tr>
<td>Technology Transferred</td>
<td>Use of waste plastic for road construction by NATPAC</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: KSCSTE, Sasthrabhavan, Thiruvananthapuram.

The Council has been taking serious efforts to promote excellence in science and technology through learning, research and development with the participation of academia, industry and research organizations. It is also receiving a substantial allocation from the government to boost up these activities. The advancements in the S&T sector will bring forth modernised development to all other sectors of the economy. This can be realised only by ensuring quality research, manpower, provision of equipment and necessary infrastructure and also through the involvement of practicing scientists and the university faculty in the R&D activities relevant to the State.

Regional Cancer Centre, Thiruvananthapuram

Regional Cancer Centre (RCC), Thiruvananthapuram was sponsored and established jointly by Government of India and Government of Kerala in 1981 as a grant-in-aid research institution for promoting cancer research and generating manpower in oncology as well as providing comprehensive cancer care. Its main objective is to undertake basic, applied and statistical research in various specialities of oncology.

Today, RCC is the premier, comprehensive, dedicated centre for diagnosis, treatment and control of cancer in Kerala. It is rated amongst the top three of the 28 Regional Cancer Centres 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 respected organizations.

Over the past thirty five 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 various specialities of oncology as well as cancer research expected to result in new treatments for cancer. Box 7.1 provides the profile of the RCC in 2015-16 at a glance.

Enhancement of Patient Care Facilities

Early detection is the key to cancer cure. Modern diagnostics facilities are needed to detect cancers in very early stages. During the past six years, RCC could make phenomenal strides in procurement of advanced equipment for prompt diagnosis and timely treatments thus helping patient’s survival.
and quality of life. RCC has all the departments and treatment facilities required for comprehensive cancer care.

Figure 7.7 gives the incidence of cancer to human body parts detailed as percentage of new patients registered in speciality clinics in 2015-16.

The highest percentage of new cancer cases registered were related to Chest & Gastrointestinal cancers during the mean period and followed by Gynaec, Genitourinary and Breast & Central Nervous System cancers.

The data on the speciality clinic wise number of patients (new & review) who had undergone treatment during the year shows an increase in the number of new cases registered with respect to Chest & Gastrointestinal and Breast & Central Nervous System. Table 7.4 provides number of new and review Patients undergone treatment in speciality clinics in the year 2015-16.
The details of the age and sex wise number of new cases registered reveals that people in the middle-ages are more prone to cancer diseases. About 29.19 per cent of male in the age group 55-64 are affected by cancer whereas the age group in the case of women is slightly lower than this, that is, 25.4 per cent female are affected by cancer during the years 45-54. Figure 7.8 illustrates age and sex wise new cancer patients registered for treatment in RCC in 2015-16.

Table 7.4
Speciality clinic wise number of patients (new & review) undergone treatment 2015-16

<table>
<thead>
<tr>
<th>Clinic</th>
<th>New</th>
<th>Review</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chest &amp; Gastrointestinal</td>
<td>3702</td>
<td>33002</td>
<td>36704</td>
</tr>
<tr>
<td>Gynaec, Genitourinary</td>
<td>2708</td>
<td>31262</td>
<td>33970</td>
</tr>
<tr>
<td>Breast &amp; Central Nervous System</td>
<td>2628</td>
<td>44502</td>
<td>47130</td>
</tr>
<tr>
<td>Head &amp; Neck</td>
<td>2575</td>
<td>32147</td>
<td>34722</td>
</tr>
<tr>
<td>Haematolymphoreticular, bone and soft tissue sarcoma</td>
<td>2375</td>
<td>40666</td>
<td>43041</td>
</tr>
<tr>
<td>Paediatric</td>
<td>645</td>
<td>14728</td>
<td>15373</td>
</tr>
<tr>
<td>Thyroid</td>
<td>1409</td>
<td>19849</td>
<td>21258</td>
</tr>
<tr>
<td>Total</td>
<td>16042</td>
<td>216156</td>
<td>232198</td>
</tr>
</tbody>
</table>

Source: Regional Cancer Centre, Thiruvananthapuram

System-wise (per cent) distribution of cancer patients by Gender

Table 7.5 depicts the system wise percentage distribution of cancer patients by gender. It is seen that incidence of oral cavity & pharynx cancer and cancers to respiratory system are mostly prevalent in men rather their female counterparts.

Referral System

RCC is a tertiary level referral hospital and patients

Figure 7.8
Age and Sex wise new cases registered in 2015-16, in number

Source: Regional Cancer Centre, Thiruvananthapuram
Table 7.5
System-wise percentage distribution of cancer patients by gender: HBCR, Regional Cancer Centre, Thiruvananthapuram, 2015-2016

<table>
<thead>
<tr>
<th>Style</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male Brain &amp; Nervous System</td>
<td>185 (2.6)</td>
<td>116 (1.6)</td>
</tr>
<tr>
<td>Oral Cavity &amp; Pharynx</td>
<td>1315 (18.9)</td>
<td>537 (7.4)</td>
</tr>
<tr>
<td>Thyroid</td>
<td>315 (4.5)</td>
<td>1059 (14.8)</td>
</tr>
<tr>
<td>Respiratory System</td>
<td>1305 (18.5)</td>
<td>228 (3.2)</td>
</tr>
<tr>
<td>Breast</td>
<td>25 (0.4)</td>
<td>2054 (28.7)</td>
</tr>
<tr>
<td>Oesophagus &amp; Stomach</td>
<td>602 (8.6)</td>
<td>217 (3.0)</td>
</tr>
<tr>
<td>Other Digestive Organs</td>
<td>848 (12.0)</td>
<td>510 (7.1)</td>
</tr>
<tr>
<td>Urinary Tract</td>
<td>290 (4.2)</td>
<td>63 (0.9)</td>
</tr>
<tr>
<td>Reproductive System</td>
<td>390 (5.6)</td>
<td>1214 (16.9)</td>
</tr>
<tr>
<td>Bone, Conn. tissue &amp; Skin</td>
<td>300 (4.4)</td>
<td>243 (3.4)</td>
</tr>
<tr>
<td>Leukaemia &amp; Myeloma</td>
<td>711 (10.1)</td>
<td>520 (7.2)</td>
</tr>
<tr>
<td>Lymphoma</td>
<td>481 (6.9)</td>
<td>274 (3.8)</td>
</tr>
<tr>
<td>All Others</td>
<td>258 (3.7)</td>
<td>128 (1.9)</td>
</tr>
</tbody>
</table>

Source: Regional Cancer Centre, Thiruvananthapuram
Note: Figures in paranthesis denotes percentage

were referred from other government and private hospitals. Most of the cases were referred from Thiruvananthapuram district, followed by Kollam, Malappuram, Palakkad, and Alappuzha. In addition to this, 1740 cases were referred from Tamil Nadu, 12 from Karnataka, 13 from Lakshadweep and 193 from other Indian States. 225 persons from Maldives were also referred during the year 2015-16.

Patient Welfare Schemes

The RCC charges only minimum or subsidised rate from low income patients. Patients are grouped into categories according to their socio-economic status and payment capacities. Table 7.6 gives category wise number of New Patients registered in RCC in 2015-16.

The RCC has implemented several schemes for providing economic assistance, free food, free drugs and various rehabilitation facilities for patients and their families through governmental and non-governmental support programmes.

State Government Supported Schemes: Cancer Suraksha Scheme, Chis Plus, Karunya Benevolent Fund, Sukrutham, Thalolam, Scheduled Tribe Patient Fund, and Snehasanthanam for Endosulfan Victims are some of the State Government supported schemes.

Central Government Supported Schemes: Prime Minister's Relief Fund, Health Minister's Rashtriya Arogya Nidhi (RAN), and Health Minister's Discretionary Fund are some of the Central Government supported schemes.

Major initiatives of RCC

In addition to the Government supported schemes, RCC provides support to patients and families through various other schemes as detailed below:

1. Cancer Care for Life (CCL) Scheme – This is a health insurance scheme for cancer treatment. Considering the large response from the public, the RCC has been modifying the scheme. During the year 2015-16, 163 patients reported for treatment under the scheme.

2. Free Drug Bank - The Free Drug Bank functions according to specific guidelines and is monitored by a committee con-
Table 7.6
Categories of new patients registered based on socio-economic status in 2015-16, in number
and per cent

<table>
<thead>
<tr>
<th>Category</th>
<th>No. of Patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum payment</td>
<td>8513</td>
<td>53</td>
</tr>
<tr>
<td>Subsidised payment</td>
<td>4284</td>
<td>27</td>
</tr>
<tr>
<td>Normal rate</td>
<td>3246</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>15,939</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Regional Cancer Centre, Thiruvananthapuram

constituted by the Director, RCC. The drug bank provided full or partial help to 4,630 patients during the reporting period.

3. Free Food (‘Akshayapathram’) - Free food was provided to 8,400 patients belonging to low socio-economic status during the report period with the support of many philanthropic organizations.

4. Support for Paediatric patients – ‘Prathyasa’, a voluntary group working in collaboration with Paediatric Oncology division gave financial and psychosocial support to children and their families.

5. 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. During the report period, 175 patients including 12 new patients received support worth ₹196.66 lakhs.

Research and Development Activities

The RCC as a pioneer research institution in cancer research has produced several PhDs in Cancer Research. During the year 2015-16, around 25 scholars were pursuing PhD, 33 residents undertook specialisation in Medical, Paediatric and Surgical Oncology super speciality courses and 46 residents undertook postgraduate courses in Anaesthesia, Pathology, Radio diagnosis and Radiotherapy in the centre. The centre is also undertaking 155 research projects.

Cancer Control Activities

- Cancer awareness programmes: As part of cancer awareness programmes in the community, 58 cancer awareness programmes were conducted, which was attended by 6,000 people. These programmes were arranged mainly for high school/higher secondary school students and teachers, office staffs, lay public and vulnerable groups like the tribal population, fishermen community, and rural population.
- International School of Colposcopy: 16 doctors were given one-week hands on training and 30 BSc (MLT) students were given one day orientation programme on VIA, VILI and Colposcopy.
- Trainer-Trainee Programmes: 21 trainer-trainee programmes were conducted for health care providers which included doctors, post graduate medical students and paramedical staff from governmental and non-governmental institutions. 22 programmes were conducted for community volunteers from organisations/schemes such as the Kudumbashree and ICDS, public health training students, teachers and school students from various districts of the State.

Early cancer detection, 2015

During the period under report, 5,940 persons attended the Early Cancer Detection Clinic of the Division. Oral biopsy was done for 61 patients (53 punch and 8 excision biopsies).
Cancer Outreach Programmes, 2015

102 cancer detection camps were conducted in various parts of the State in which 9478 people underwent screening. This included 24 cancer detection camps conducted among women residing in the Mangalaparam Breast Cancer Screening project area and seven camps in Idukki district.

The Swasthyam project

The RCC took the leadership role to train women volunteers of the Kudumbashree Mission in cancer prevention project initiated in Pathanamthitta district with the objective to sensitize households of Pathanamthitta district through the ‘Swasthyam project’. As part of this, two general sensitization cum motivation programmes and five trainer-trainee programmes were conducted by RCC to train 164 resource persons in cancer prevention activities. One of the main objectives was to motivate eligible subjects to undergo screening for common cancers or advise them to undergo diagnostic evaluation at hospitals if any warning signals of cancer were present.

Other Initiatives

Realising the increasing prevalence of tobacco and related substance abuse among adolescent school students in Kerala, the Centre has initiated several antitobacco education programmes at the high school and higher secondary school levels. World No Tobacco Day was observed on May 31st in collaboration with Sree Chitra Tirunal Institute for Medical Sciences and Technology, Directorate of Health Services, Tobacco Free Kerala, Kerala Voluntary Health Services, ADIC-India and the Regional Cancer Association. The Centre has also initiated school based intervention programme against tobacco and alcohol consumption in high school/higher secondary schools of rural Kerala. The objective of this programme was to understand the patterns of tobacco and alcohol use among students in the rural areas of Thiruvananthapuram district. It would provide an estimate on the prevalence and patterns of tobacco and alcohol use among adolescent school students.

Section 2
SKILL DEVELOPMENT

Skill development is crucial for the State to take advantage of the demographic dividend of our population in the coming years. Technological advancement in the existing areas and emergence of new areas in various sectors necessitates the imparting of more skills. Currently, there is a severe mismatch between the talents and skills, required by the industry and skill-sets possessed by workforce. This results in majority of the people remaining unemployed. The aim of the government is to create a skilled and technically qualified workforce which would contribute to the growth and development of the nation and to provide quality training to its people so as to achieve the national goal of 500 million skilled persons by 2022. Based on the population of the State and the number of matriculates passing out in Kerala, around 1.5 lakh to 2 lakh skilled manpower has to be trained annually to reach the national target.

The State has taken several measures to encourage skill development. But much needs to be done to equip its workforce to international standards. In order to address this, the Additional Skill Acquisition Programme (ASAP) was introduced in the State. ASAP is meant for those studying in various colleges in the State. The physical details of ASAP is given in the Education section in Chapter 4. ASAP strives to transform the State of Kerala to
a human resource hub of the region, which is well positioned to capture growth opportunities. ASAP aims to impart industry-specific skills to the needy students in the selected schools and colleges along with their regular studies through modular courses with the active participation of industry partners. Students enrolled with ASAP will get opportunity to learn sector specific skills of their choice. Communicative English and Basic IT modules are integral component of ASAP Programmes. The Additional Skill Enhancement Programme (ASEP) has been developed for the students of ITIs and Registrants of Employment Exchanges. Along with this, a Modular Employable Skill Programme is also being run with the support of vocational training providers in the State.

Craftsman Training

Industrial Training Department implements Craftsman Training Scheme to ensure a steady flow of skilled workers in different trades for the domestic industry. There are 82 Government ITIs, one Basic Training Centre, one Staff Training

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**Box 7.2**

**Innovative Steps**

**Virtual Class System**

The Industrial Training Department is one of the pioneers in the state in implementing e-learning programmes in training methodology by implementing virtual class system. This was recognized by the state government and the department was awarded third prize for the e-governance programme. Virtual class system has been provided in 34 ITIs all over the state with three systems in each ITI: Two in theory class and one in practical hall.

**3Dimension (3D) Interactive Teaching Aid**

- 3D Interactive Teaching Aid has been developed in “Automobile Mechanic”, “Engineering Drawing”, “Draughtsman Civil” and “Electrician” trades.
- 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 facilitate in depth understanding of theory and practical

**ISO Certification**

Quality has been the hallmark of our Industrial Training Institutes. Various innovative techniques are introduced in trainings. The target is to ensure result oriented performance by our institutes. These initiatives of the department have been recognized by awarding ISO certification to 24 “ITI’s.

The ISO Certified ITIs are listed below:

ITI(w) Kozhikode, ITI Ettumanoor, ITI Mala, ITI(w) Kalamassery, ITI Kozhikode, ITI Kalpetta, ITI Kannur, ITI(w) Kazhakuttom, ITI Attingal, ITI Chenneerkara, ITI Kalamassery, ITI(w) Chalakudy, ITI Areacode, ITI Chengannur, Dhanuvachapuram, Chackai, Kollam, Kollam (w), Pallickathode, Kattappana, Chalakudy, Malampuzha, Kannur (w), Kasaragode

**Development of Websites for “ITI”s**

Industrial Training Department has developed separate websites for all the Government ITIs in the state according to the Guide lines of DGE&T. It provides information about the institutes, courses, admission details, faculty, services, Specialities, consultancy and future plans.
Box 7.3
Milestones During 2015-16

- The initiatives of the department were recognized with the award of ISO certification to 10 ITIs: Dhanuvachapuram, Chackal, Kollam, Kollam (W), Pallickathode, Kattappana, Chalakudy, Malampuzha, Kannur (W), Kasaragode.
- Department has implemented digital file management system for creating a paperless office with timely action and better service.
- Nutrition Programme by supplying egg & milk to the trainees of all Government ITIs for all training days was started.
- Noon meal programme was started in the ITI Attappady and Aryanadu.
- Nypunnyam international skill summit and skill fiesta 2016 was conducted.
- An amount of ₹ 80.83 crore has been expended for the implementation of various plan schemes.

Institute, Two AVTS, 486 private ITIs and 44 ITIs under Scheduled Caste Development Department (SCDD) exclusively for SC and 2 ITIs under Scheduled Tribe Development Department (STDD) exclusively for ST students functioning in the state. There are about 85 trades in which seats are allocated for Craftsman Training with a total seating capacity of 96,702. The details of ITIs and its trade and enrolment are given in the Appendix. The strength and enrolment of Government ITIs are given in Appendix 7.1. The trade/duration wise intake and out turn of Government ITIs are given in Appendix 7.2 to 7.6. Details of new trade introduced during 2014-16 is given in Appendix 7.7.

Apprenticeship Training

The Apprenticeship Training scheme is being conducted as per Apprentices Act, 1961, which was enacted with the objective to regulate the programme of training of apprentices in the industry so as to conform to a standard syllabi, period of training, and skill sets and to utilize the facilities available in industries for imparting practical training with a view to meeting the requirements of skilled manpower for the industry. Apprenticeship is a contract between an apprentice and an employer to provide training in a particular skill in the establishment for a particular period and provide a stipend fixed as per the Apprentices Act. The Central/State government acts as the third party in contract regulating and monitoring the process. It was enacted with the purpose of utilizing the facilities available in industries for skill training and certification by the National Council for Vocational Training (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 84 trades in which 10404 seats have been allocated for Apprenticeship Training, of which around 5000 seats are utilized. Around 2000 trainees are certified every year under this scheme. Government sector accounts for more than 50 per cent of apprenticeship placements in the State. Institution wise details of apprentices is given in Appendix 7.8.

Skill Development Initiative Scheme

Skill Development Initiative Scheme aims to give free training in Modular Employable Skill courses (MES) to early school leavers and existing
workers especially in unorganized sectors for employable skills. Existing skills of person can also be tested and certified under this scheme. The successful trainees will be issued certificates by the National Council for Vocational Training. The Department of Industrial Training is the authority for implementing & monitoring training in the Skill Development Initiative Scheme in the state of Kerala.

**Skill Updating Institute For Staff Training (SUIT)**

Skill Upd ating Institute for Staff Training, Kerala was started in 1999 at Kazhakkuttom, Thiruvananthapuram to update the technical knowledge of Instructional Staff and others in pace with technical developments. The activities of this institute are preparation of course design, research in new methods of teaching, Skill updating programs of technical staff, soft skill training, training programmes under State training policy at IMG, off campus training programmes, monitoring of virtual class training, and coordinating DLP training of DGE&T.

**Kerala Academy For Skills Excellence (KASE)**

KASE is a Section 25 company fully owned by Government of Kerala. The objective of this company is to facilitate mass human resource development through specialized skill development courses across the state. The participation of leading public and private industries is envisaged in the domains of construction, retail, finance, IT & ITES, tourism, and hospitality. The main purpose of the academy is to spearhead the creation of highly skilled and safe professional workers, for all the levels of work in the industry, through scientifically designed specialized courses for various categories of workers. Training will be imparted to sharpen the technical skills as well as soft skills. To be at par with international standards, the workers need to be trained in soft skills like communication skills, language skills, safety and environment awareness, which is currently lacking in our workforce as well as professional course students, who graduate from various colleges. It aims at imparting theoretical as well practical training of skill sets needed for each category -from supervisory level to working class.

*Capacity building is required to improve efficiency, enhance productivity and promote innovation. The State needs to focus on this vital aspect to improve the outcomes of its policies and programmes. The labour force, though educated and literate, lacks in skill quotient. Steps taken to promote skill development needs to be revamped and be more focused. Sector wise gaps needs to be identified and courses suited to meet the skill requirements of the emerging needs of the industry have to be undertaken. The State is well placed to convert its labour force into its greatest asset through multilevel skill development efforts.*
LOCAL GOVERNMENTS AND DECENTRALISED PLANNING
Local Governments and Decentralised Planning

In response to the 73rd and 74th Constitutional Amendments, the state had undertaken several pioneering initiatives to establish institutions of local self-governance with the task to promote economic development and social justice. The democratic decentralization in Kerala ushered a new development culture of genuine grass root level democracy and people’s participation in economic development. Despite certain weakness such as dual control over the functionaries and lack of role clarity for the different tiers, the local governments in the state have succeeded in creating a new model of equitable economic growth. The two decades of decentralized planning and the implementation of local governance in Kerala shows a ‘learning by doing’ exercise. The Thirteenth Five Year plan will be making an effort to improve the methodology of participatory planning by incorporating the lessons learnt from the last twenty years.

Major Thrust in Different Plan Periods

The process of decentralization in Kerala was launched during IX plan period as ‘People’s Plan Campaign’ with a view to emphasize the concept of participatory planning that was new to the people, people’s representatives and officials in local governments. Under the X Plan, decentralization programme in Kerala was restructured and named as ‘Kerala Development Plan’ (KDP). During the XI Plan, the entire process was revamped by giving stress to the concept people’s Planning’, focusing on the completion of the process of institutionalization of decentralization. The XII plan approach envisaged some concrete steps to strengthen the planning process with the use of information technology. The XIII Five Year Plan emphasizes de-bureaucratization of the planning process so that there is enough room for greater and more meaningful participation of the people at grass root level. During the XIII plan there will be efforts to improve the quality of local government projects by ensuring participation of experts, research institutions, educational institutions etc. in the planning process.

Plan Allocation to Local Governments

A considerable extent of fiscal decentralisation is the most important element of Kerala’s decentralization process, which has enabled the Local Governments to receive resources from the State’s Plan allocation for implementing own schemes as well as transferred schemes. From 1996 through 2016, roughly 25 per cent of the state’s investible resources have been devolved to local governments. The fund provided from the State plan to Local Governments is in the form of untied
plan grant for planning and implementing projects for local development. Local Governments have the freedom in formulating and implementing projects after deciding their priority subject to detailed plan guidelines.

At present, there are 1200 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 LGs is being done under three categories - General Sector, Scheduled Caste Sub Plan (SCSP) and Tribal Sub Plan (TSP). The outlay for each category during 2015-16 plan period was fixed on the basis of the recommendations of the IV State Finance Commission (SFC). The Commission recommended that at least 25 per cent of the likely plan size of the state should be devolved to LGs for development purpose. The fund would be inclusive of the devolution from the XIIth Central Finance Commission and the amount flowing to LGs from the proposed World Bank supported project namely, ‘Kerala Local Government Service Delivery Project’. The plan outlay for local self governments during 2016-17 is based on incremental criteria of IV SFC as the approval of V SFC is under consideration of government. The allocation to Local Governments during the last five years is given in Table 8.1

### Table 8.1

**Award of Development Fund for LGs (2012-17), ₹ in crore**

<table>
<thead>
<tr>
<th>Year</th>
<th>Budget allocation</th>
<th>Percentage to Total Plan Outlay*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-13</td>
<td>3228.00</td>
<td>23</td>
</tr>
<tr>
<td>2013-14</td>
<td>4000.00</td>
<td>24</td>
</tr>
<tr>
<td>2014-15</td>
<td>4700.00</td>
<td>24</td>
</tr>
<tr>
<td>2015-16</td>
<td>4800.00</td>
<td>24</td>
</tr>
<tr>
<td>2016-17</td>
<td>5500.00</td>
<td>23</td>
</tr>
</tbody>
</table>

*Inclusive of KSEB’s contribution

Source: Appendix IV 2015-16 & 2016-17

**Unique features of LSGI plan during the XII Five Year Plan**

During the beginning of twelfth five year plan period some conscious efforts have been made to give more flexibility and freedom to the local governments in plan formulation. Accordingly, some changes have been made in the plan guidelines, mainly in sectoral ceilings and project appraisal. Up to 2015-16 there was no mandatory minimum or maximum ceiling in productive or service sector. However, in infrastructure sector the mandatory ceiling fixed is not more than 45 per cent to Grama Panchayats and Block Panchayats, 55 per cent to Municipalities and Corporations and 50 per cent to District Panchayats in general sector plan outlay. In addition to this, 10 per cent of the development fund must be earmarked for Women Component Plan and 5 per cent to children, old age, differently abled, palliative care and other vulnerable groups. From 2016-17 onwards 20 per cent allocation for productive sector and 10 per cent allocation for solid waste management is made mandatory.

Technical Advisory Groups (TAG) for clearances of projects were dispensed with. Instead of vetting the projects by the TAG concerned, it is verified and certified by the implementing...
officer and then furnished to the officer of the same department at the higher level for getting it appraised and approved. A Project Formulation Committee (PFC) can be constituted, if required, for providing technical expertise to prepare and approve the projects.

It is also important to note that now under SCSP/TSP the construction of roads is allowed only within SC/ST habitats and width of the road in tribal colonies has been enhanced to a maximum of 3 meters. Introduction of financial support for SCs/STs in getting employment abroad, assistance to meritorious students seeking admission in national and international institutions are some of the landmarks in the utilization of SCSP/TSP funds. Introduction of online approval of projects through Sulekha software by IKM is considered as a major shift from the traditional approach adopted by the earlier system. The application of Sulekha software includes plan formulation, appraisal, approval, monitoring, revision processes and expenditure tracking of the plan projects of local governments.

Special grama sabhas, Ayal sabhas and Seva grama-kendra are another important change occurred during the review period. In order to strengthen grama/ward sabha, ayl sabhas are constituted in each ward with 50-100 families. Special grama sabha are convened for the families of differently abled and mentally challenged persons. Ayal Sabhas and Seva Gram-Gramakendram thus aim at getting improved people's participation in planning and implementation.

**Financing of Local Government plans**

The plan allocation to LGs during 2015-16 was ₹4800 crore and total source wise outlay was ₹12523.37 crore. The total grants in aid including opening balance constitutes ₹6069.18 crore that is 48.46 per cent. The own contribution of LGs constitutes 8.52 per cent of the total plan size and the balance fund from other sources. The expenditure recorded in 2015-16 was 54.88 per cent, which showed a marginal increase by 3.4 per cent compared to last year's expenditure of 51.49 per cent. Out of the total expenditure, the plan grant share is 65.01 per cent, own fund share 6.29 per cent, sponsored schemes together with externally aided source constitutes 3.29 per cent and the balance is from other sources. It may be noted that during 2015-16 considerable improvement was seen in plan grant utilization, that is 10.75 per cent over the previous year.

Source wise funding details and the respective percentage to total fund for 2014-15 and 2015-16 are given in Figure 8.1. Source/Sub-sector wise details of 2014-15 and 2015-16 are given in Appendix 8.1 (a & b).

**Figure 8.1**

Sources of Financing LGs Plan 2015-16, in per cent

![Bar chart showing sources of financing LGs Plan 2015-16](source: Information Kerala Mission, 2015)
**Performance of Local Governments**

The local governments allocate their plan funds mainly to productive, service and infrastructure sectors. The productive sector includes agriculture and allied sectors, soil and water conservation, irrigation and industries. The service sector consists of education and allied sectors, health and allied services, development of women and children, labour and labour welfare etc. The infrastructure sector includes energy, transportation and buildings. The total plan grants in aid available including opening balance with LGs for allocating funds to various development sectors during 2015-16 was ₹6069.18 crore, an increase of ₹154.38 crores (that is 2.61 per cent) from the previous year.

Out of the total fund available, only ₹4467.76 crore was utilized for different sectors. Thus, the plan fund utilization percentage in 2015-16 was 73.61 per cent which was marginally higher compared to the previous year. The expenditure pattern shows wide variations among local bodies. Among the three tiers, the performance of Block Panchayat was better with 85.28 per cent expenditure followed by Grama Panchayats with 79.53 per cent and District Panchayat with 65.47 per cent during 2015-16. The per cent of expenditure among urban local governments was the lowest, in the Corporations (51.14 per cent) and Municipalities (68.64 per cent) during 2015-16. The tier wise details of outlay, fund available and expenditure of grant-in-aid during 2014-15 and 2015-16 are given in Figure 8.3 and Appendix 8.2 a & Appendix 8.2 b.

**Category-wise performance**

As mentioned earlier, the allocation of grant-in-aid to Local Governments falls in three categories—General Sector, Special Component Plan and Tribal Sub Plan. The outlay for each category is fixed on the basis of recommendations of the State Finance Commission. During 2015-16, an amount of ₹6069.18 crore was allocated to different categories of which general category, SCSP & TSP constituted 74 per cent, 23 per cent, and 3 per cent respectively. There is a marginal increase in general sector but allocation in SCSP & TSP fund increased by 9.3 percentage and 21 percentage respectively compared to 2014-15. An analysis of category wise utilization during 2015-16 reveals that the percentage of expenditure under General Sector was 77 per cent of the plan outlay and in the case of SCSP and TSP, it was 63 per cent and 67 per cent respectively. Shortfall in expenditure of SCSP/TSP is a common phenomenon for
all tiers of Local Governments except for Block Panchayats, but the least utilization of SCSP and TSP funds is in urban local bodies. The category wise and local body wise allocation during 2015-16 is given in appendix 8.2(a) and 8.2(b). The category wise expenditure is given in Figure 8.4.

The annual budget allocation of plan grants in aid to local self governments during Annual plan 2015-16 & 2016-17 is given in Table 8.2.

The LGs allocate their funds mainly in three sectors viz. productive, service and infrastructure. The total fund including opening balance for these sectors for the year 2015-16 was ₹6069.18 crore. Out of this, the allocation to productive, service and infrastructure sectors was 8 per cent, 54 per cent and 38 per cent respectively. It may be noted that the total expenditure under productive sector is less than 10 percentage during the last two annual plans. The expenditure by urban local bodies poor in productive and service sector compared to their rural counterparts. The sector wise allocation and expenditure details of 2015-16 are given in

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**Figure 8.3**
Tier Wise fund available to LGs

**Figure 8.4**
Category wise expenditure of Grant-in-aid to LGs during 2015-16, in per cent

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Source: Information Kerala Mission 2016
Table 8.2
Category wise Budget allocation of Grant-in-aid to LGs during 2015-16 & 2016-17 (₹ in Crore)

<table>
<thead>
<tr>
<th>Type of LGs</th>
<th>2015-16</th>
<th></th>
<th></th>
<th></th>
<th>2016-17</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GeneralSCP</td>
<td>TSP</td>
<td>Total</td>
<td>GeneralSCP</td>
<td>TSP</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>Grama Panchayats</td>
<td>2124.59</td>
<td>478.63</td>
<td>82.37</td>
<td>2685.59</td>
<td>1968.25</td>
<td>516.46</td>
<td>88.62</td>
</tr>
<tr>
<td>Block Panchayats</td>
<td>435.98</td>
<td>159.54</td>
<td>27.46</td>
<td>622.98</td>
<td>361.66</td>
<td>178.69</td>
<td>30.76</td>
</tr>
<tr>
<td>District Panchayats</td>
<td>435.98</td>
<td>159.54</td>
<td>27.46</td>
<td>622.98</td>
<td>361.66</td>
<td>178.69</td>
<td>30.76</td>
</tr>
<tr>
<td>Municipalities</td>
<td>418.02</td>
<td>71.42</td>
<td>1.93</td>
<td>491.38</td>
<td>642.33</td>
<td>95.82</td>
<td>5.82</td>
</tr>
<tr>
<td>Corporations</td>
<td>318.61</td>
<td>58.44</td>
<td>0.00</td>
<td>377.05</td>
<td>471.19</td>
<td>69.22</td>
<td>0.01</td>
</tr>
<tr>
<td>Total</td>
<td>3733.29</td>
<td>927.58</td>
<td>139.21</td>
<td>4800.00</td>
<td>3805.10</td>
<td>1038.90</td>
<td>156.00</td>
</tr>
</tbody>
</table>

# excluding ₹500 Crore which is earmarked as additional plan assistance to local bodies
Source: Appendix IV‘ 2015-16 & 2016-17

Figure 8.5 and the sector wise and local government wise percentage of expenditure to total expenditure is given in Table 8.3. The sector wise allocation and expenditure details in 2014-15 & 2015-16 are given in Appendix 8.3 a & Appendix 8.3 b.

Productive Sector

Out of the total plan funds earmarked to productive sector by Local Governments, 83 per cent of fund was allocated for the implementation of various schemes under agriculture and allied sectors in 2015-16 while it was 79 per cent in the previous year. The LGs have given more weightage to agriculture and allied sectors compared to industries and other productive sectors. The rural local bodies, especially Grama Panchayats have given major attention to the implementation of agriculture and allied programmes in productive sectors by allocating 84 per cent of the total to this sector. The productive sector includes sub sectors such as agriculture, irrigation, industry, energy conservation, fisheries etc. The details of allocation and expenditure during 2015-16 are given in Table 8.4 and the percentage of allocation to different tiers is shown in Figure 8.6. The details of productive sector achievements during 2014-15 and 2015-16 are given in Appendix 8.4 a & Appendix 8.4b.
Table 8.3
Local Government wise and sector wise percentage of expenditure to total expenditure during 2014-15 and 2015-16, in per cent

<table>
<thead>
<tr>
<th>Type of LGs</th>
<th>2014-15</th>
<th></th>
<th></th>
<th>2015-16</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Productive</td>
<td>Service</td>
<td>Infrastructure</td>
<td>Productive</td>
<td>Service</td>
<td>Infrastructure</td>
</tr>
<tr>
<td>Grama Panchayat</td>
<td>10.07</td>
<td>59.05</td>
<td>30.88</td>
<td>8.80</td>
<td>53.20</td>
<td>38.00</td>
</tr>
<tr>
<td>Block Panchayat</td>
<td>7.91</td>
<td>60.07</td>
<td>32.02</td>
<td>7.90</td>
<td>59.5</td>
<td>32.60</td>
</tr>
<tr>
<td>District Panchayat</td>
<td>9.55</td>
<td>57.78</td>
<td>32.67</td>
<td>7.00</td>
<td>60.5</td>
<td>32.50</td>
</tr>
<tr>
<td>Municipalities</td>
<td>5.13</td>
<td>53.84</td>
<td>41.03</td>
<td>5.20</td>
<td>51.40</td>
<td>43.4</td>
</tr>
<tr>
<td>Corporation</td>
<td>4.03</td>
<td>48.21</td>
<td>47.76</td>
<td>4.30</td>
<td>48.70</td>
<td>47.0</td>
</tr>
<tr>
<td>Total</td>
<td>8.7</td>
<td>57.7</td>
<td>33.6</td>
<td>7.7</td>
<td>54.4</td>
<td>37.9</td>
</tr>
</tbody>
</table>

Source: Information Kerala Mission 2016

Table 8.4
Productive Sector - Allocation & Expenditure during 2015-16, in Crore

<table>
<thead>
<tr>
<th>Type of LGs</th>
<th>2015-16</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Allocation</td>
</tr>
<tr>
<td>Grama Panchayat</td>
<td>270.2</td>
</tr>
<tr>
<td>Block Panchayat</td>
<td>65.6</td>
</tr>
<tr>
<td>District Panchayat</td>
<td>79.3</td>
</tr>
<tr>
<td>Municipality</td>
<td>42.9</td>
</tr>
<tr>
<td>Corporation</td>
<td>33.3</td>
</tr>
<tr>
<td>Total</td>
<td>491.3</td>
</tr>
</tbody>
</table>

Source: Information Kerala Mission 2016

Figure 8.6
Productive Sector - allocation and expenditure of different Tiers of LGs during 2015-16, in crore

Source: Information Kerala Mission 2016
**Service Sector**

Local governance makes service delivery decisions more responsive to local needs and to involve local populace in public governance. The service sector priorities of local governments enhance the quality of basic services provided to the public through welfare oriented programmes with special emphasis on education, housing, health, drinking water, nutrition and social welfare, etc. Service sector fund utilization during 2015-16 is comparatively better than the productive and infrastructure sectors. Block Panchayats performed well in the service sector activities by achieving about 89 per cent of expenditure during 2014-15 and 2015-16. The allocation and expenditure under service sector is shown in Table 8.5 and Figure 8.7. The sub sector wise details for 2014-15 & 2015-16 are shown in Appendix 8.5 a & Appendix 8.5 b.

**Infrastructure Sector**

During 2015-16, the Local Governments set apart 38 per cent of the total allocation to infrastructure sector activities such as street lighting, transportation, construction activities etc. Among the three tiers of local governments, the Grama Panchayats effectively utilized the allocation for infrastructure development, ie 82 per cent utilization. The expenditure during 2015-16 shows a considerable improvement, the overall infrastructure expenditure is 74 per cent. In the utilization of plan fund in this sector, Block Panchayats and Municipalities achieved 81 per cent and 70 per cent of expenditure respectively during 2015-16 which is better off compared to 2014-15. Against the total allotment made in the infrastructure sector, 78 per cent of fund was earmarked for transportation facilities and the corresponding expenditure was 77 per cent. Tier

<table>
<thead>
<tr>
<th>Type of LGs</th>
<th>2015-16</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Allocation</td>
<td>Expenditure</td>
</tr>
<tr>
<td>Grama Panchayat</td>
<td>1622.27</td>
<td>1269.77</td>
</tr>
<tr>
<td>Block Panchayat</td>
<td>415.15</td>
<td>371.24</td>
</tr>
<tr>
<td>District Panchayat</td>
<td>497.41</td>
<td>358.68</td>
</tr>
<tr>
<td>Municipality</td>
<td>390.35</td>
<td>266.23</td>
</tr>
<tr>
<td>Corporation</td>
<td>353.07</td>
<td>167.70</td>
</tr>
<tr>
<td>Total</td>
<td>3278.25</td>
<td>2433.63</td>
</tr>
</tbody>
</table>

Source: Information Kerala Mission 2016

**Figure 8.7**

Service Sector - allocation and expenditure of different Tiers of LGs during 2015-16, ₹ in crore

Source: Information Kerala Mission 2016
wise, sub sector wise allocation and expenditure details in 2015-16 are given in Table 8.6 and percentage share of allocation to different tiers is shown in Figure 8.8 and sub-sector wise details of 2014-15 & 2015-16 in Appendix 8.6 a & Appendix 8.6 b.

Scheduled Caste Sub Plan and Tribal Sub Plan under Decentralization

The Scheduled Caste Sub Plan and Tribal Sub Plan are based on Article 46 of Constitution of India for providing special protective measures to safeguard the interest of Scheduled Caste(SCs) and Scheduled Tribe(STs). This constitutional mandate on the State requires it ‘to create a regime of equality including social equality through comprehensive measures of social justice.’ Social equality means ensuring equity between marginalized sections on the one hand, and socially advanced castes on the other, in all parameters of life- economic, occupational, educational, residential facilities, health, nutrition etc.’ As one of the major objectives of decentralized planning is to empower social equity and to improve the socio-economic status of Scheduled Castes and Scheduled Tribes and enhancing their quality of life, the devolution under Special Component plans has prime importance.

The allocation of Plan funds to SCSP and TSP from State Plan outlay is done according to the ratio of population of SCs and STs to total population of the State. Out of the total SCSP/ TSP Plan outlay, a certain percentage of funds are earmarked to LGs for implementation of schemes

<table>
<thead>
<tr>
<th>Type of LGs</th>
<th>2015-16</th>
<th></th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Allocation</td>
<td>Expenditure</td>
<td></td>
</tr>
<tr>
<td>Grama Panchayt</td>
<td>1107.89</td>
<td>906.30</td>
<td>82</td>
</tr>
<tr>
<td>Block Panchayat</td>
<td>251.80</td>
<td>203.98</td>
<td>81</td>
</tr>
<tr>
<td>District Panchayat</td>
<td>329.74</td>
<td>193.70</td>
<td>59</td>
</tr>
<tr>
<td>Municipality</td>
<td>321.70</td>
<td>224.67</td>
<td>70</td>
</tr>
<tr>
<td>Corporation</td>
<td>288.47</td>
<td>162.56</td>
<td>56</td>
</tr>
<tr>
<td>Total</td>
<td>2299.61</td>
<td>1691.22</td>
<td>74</td>
</tr>
</tbody>
</table>

Source: Information Kerala Mission 2016

Table 8.6

Infrastructure Sector - Allocation & Expenditure during 2015-16, ₹ in crore

Figure 8.8

Infrastructure Sector - allocation & expenditure to different Tiers of LGs during 2015-16, ₹ in crore

Source: Information Kerala Mission 2016
under decentralized planning. The projects under the SCSP/TSP can be categorized into two viz, the beneficiary oriented schemes and infrastructural development schemes. The outlay and expenditure for each category is shown in Table 8.7.

**Performance under Special Sector Plans**

Women Component Plan and plan for disadvantaged groups (aged, children, differently abled, palliative and other vulnerability) in the plan of local governments is one of the salient features in Kerala’s decentralisation. The expenditure on WCP is slightly lower than the overall LSGI plan expenditure and the urban local bodies lagging behind their rural counterparts. Out of the total plan size, local governments have to set apart the mandatory provision of 10 per cent for women development and 5 per cent for disadvantaged groups. In the case of special programme for Women Component Plan and children the expenditure was 72 per cent and 86 per cent respectively. During 2015-16 review period an amount of ₹42.79 crore and ₹168.13 crore were set apart for palliative care and other vulnerability groups. The percentage of expenditure in palliative care is 91 per cent during 2015-16, which is slightly higher than that of 2014-15. Details of allocation and expenditure during 2015-16 are given in Table 8.8 and the figures in 2014-15 & 2015-16 are given in Appendix 8.7 a & Appendix 8.7 b.

**Strengthening of District Planning Machinery**

The 74th Constitutional Amendment Act mandated the establishment of the District Planning Committee (DPC) for consolidating plans prepared by panchayats and municipalities in the district into the form of a Draft District

### Table 8.7

<table>
<thead>
<tr>
<th>Year</th>
<th>SCSP</th>
<th>TSP</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Budget Allocation</td>
<td>Expenditure*</td>
<td>Budget Allocation</td>
</tr>
<tr>
<td>2012-13</td>
<td>739.46</td>
<td>661.58</td>
<td>110.98</td>
</tr>
<tr>
<td>2013-14</td>
<td>828.2</td>
<td>882.49</td>
<td>124.3</td>
</tr>
<tr>
<td>2014-15</td>
<td>927.58</td>
<td>811.56</td>
<td>139.21</td>
</tr>
<tr>
<td>2015-16</td>
<td>927.58</td>
<td>857.03</td>
<td>139.21</td>
</tr>
</tbody>
</table>

*Includes opening balance

Source: Appendix IV of the Budget & Information Kerala Mission, 2016

### Table 8.8

<table>
<thead>
<tr>
<th>Special sectors</th>
<th>2015-16</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Allocation</td>
<td>Expenditure</td>
<td>Percentage</td>
</tr>
<tr>
<td>Women Component Plan</td>
<td>604.57</td>
<td>433.43</td>
<td>72</td>
</tr>
<tr>
<td>Special Programme for children</td>
<td>177.64</td>
<td>150.04</td>
<td>85</td>
</tr>
<tr>
<td>Special Programme for elderly</td>
<td>28.39</td>
<td>19.29</td>
<td>68</td>
</tr>
<tr>
<td>Differently abled</td>
<td>111.96</td>
<td>90.20</td>
<td>81</td>
</tr>
<tr>
<td>Other Vulnerability</td>
<td>168.14</td>
<td>102.10</td>
<td>61</td>
</tr>
<tr>
<td>Palliative Care</td>
<td>42.79</td>
<td>39.23</td>
<td>91</td>
</tr>
<tr>
<td>Youth Welfare Programmes</td>
<td>164.29</td>
<td>84.15</td>
<td>51</td>
</tr>
</tbody>
</table>

Source: Information Kerala Mission, 2016
Plan. District Planning Committee, 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 in the practice of decentralised planning for a balanced, integrated and meaningful development of district has been an accepted concept since the beginning of the planning era. Accordingly, District Planning Committees were constituted in all the fourteen districts in accordance with the spirit of the 74th amendment of the constitution so that they can play the nodal role in plan preparation by LGs, approval of local plans, providing suggestions to LGs, monitoring of plan implementation etc. and their integration at district level as also their linkages with the state plan. The DPC consists of 15 members headed by the District Panchayat President and District Collector is the Member Secretary. All MPs and MLAs are permanent invitees of DPC and all the district level officers are ex-officio Joint Secretaries. The DPCs are fully functional in the State. The District Planning Officer, Joint Secretary (Co-ordination) assist the Member Secretary in convening meetings, preparation of agenda, minutes and all other secretarial duties. The constitution of DPC has been done every five years without fail in the State along with the election to the Local Governments.

The construction of DPC buildings have been completed at Ernakulam, Thrissur, Kasaragod, Wayanad, Kannur and Alappuzha . In the other districts the work is at various stages of completion. The construction of the DPC secretariat building will be a landmark in the history of decentralized planning in Kerala, as it will help to formulate a comprehensive and holistic district development plan for each district.

Decentralized planning process has been the core strength of the state. The two decades of Kerala’s decentralization experience is unique and recognized world over. It may be observed that decentralization has made its impact on local level planning, economic development and social justice. Transparency, accountability and participation are the most important guiding and defining principles of democratic governance. Of the three, ‘participation’ is central to real democracy and the innovative initiatives to organize people’s participation in the state through different organizational set ups have been appreciated widely. During the 13th FYP State Government envisages revitalisation of the system of democratic planning from below. The 13th FYP aims at reorganisation of local self government institutions by giving more emphasis on de-bureaucratization of planning process, local economic development, improved institutional service delivery, preparation of District Plan by integrating local plans and ensuring the involvement of people, professionals and research educational institutions.
Tourism and Economic Development

Tourism is a potent engine for economic growth due to its forward and backward linkages in the economy. A study in India, Brazil and Indonesia found that tourism-related linkages (both forward and backward) were particularly strong compared to linkages from other sectors. Such strong linkages create a multiplier effect that generates broad-based economic benefits including generation of employment and poverty reduction. The International Labour Organisation (ILO) estimates that one job in the core tourism industry creates about 1.5 additional or indirect jobs in tourism-related economic activities.

Tourism has also been recognised for its contribution to sustainable development. Among the 17 SDGs and 169 associated targets, tourism is explicitly featured in Goals 8, 12 and 14 for its capacity to foster economic growth and decent work for all, promote sustainable consumption and production, and advance conservation and sustainable development of aquatic resources. The “Report on Comparative Economic Impact of Travel and Tourism” by the World Travel and Tourism Council in 2012 lists the impact of travel and tourism on the following sectors of the economy:

- Travel and Tourism ranks high among sectors in terms of its contribution to GDP, employment, and exports;
- Travel and Tourism growth trends and prospects exceed that of other key sectors;
- Travel and Tourism generates substantial indirect benefits through its linkages to other sectors;
- Travel and Tourism is highly dispersed within national economies and its benefits are widely distributed;
- Travel and Tourism drives infrastructure investment that benefits other industries;
- Investments in well-designed destination and marketing consistently produce strong economic returns.

The economic development potential of the tourism sector is also associated with international
tourism because of its capacity to generate foreign exchange and provide opportunities for the transfer of capital and knowledge. International tourism is a key contributor to the balance of payments and to macroeconomic stability in developing countries.

Tourism and State Economy

Tourism is the hallmark of Kerala’s economic development and a principal contributor to the State’s economy. The sector has been pivotal in spearheading economic growth in the State and contributed to generation of large scale employment. The sector earns foreign exchange to the State and promotes traditional industries. Famously called the “God’s Own Country”, Kerala has been successful in creating a place of its own in this sector. This is evident from the achievements made by the industry both at the national and international levels. A blend of experiences of various tourism products in the State has made the State one of the most acclaimed destinations in the world. Recently, a tiny island namely “Kakkathuruthu” has been listed in the National Geographic’s ‘Around the World in 24 Hours,’ a photographic tour of travel-worthy spots in the world. Kerala has also achieved a series of achievements from much reputed national and international organizations associated with the tourism industry.

THE GROWTH OF TOURISM

The growth of tourism is generally assessed using trends in tourist arrivals and foreign exchange earnings.

Concepts

The World Tourism Organisations (WTO) defines visitors as “any person travelling to a place other than that of his/her usual environment for less than 12 months and whose main purpose of the trip is other than the exercise of an activity remunerated from within the place visited”. Visitors are further sub-divided into two categories: tourists, who must stay one or more night in the place visited, and same-day visitors, comprising visitors who visit a place for less than one night. The WTO recommends following categories as characterising the main purpose of visit for tourists:

a. leisure, recreation and holidays
b. visiting friends and relatives
c. business and professional (including for study)
d. health treatment
e. religion, pilgrimage, and,
f. other (e.g., airline or ship crews, transit travellers, etc).

The definitions followed by the Government of India conform to these global definitions. The major exception is the treatment of those visiting friends and relatives whose trips and activities are not considered as part of tourism.

Definitions followed in India

International Visitor

An international visitor is any person visiting the country on a foreign passport with main purpose of visit other than the exercise of an activity remunerated from within the country or for establishment of residence in the country. International visitors may be tourists or excursionist.

Foreign Tourist

A foreign tourist is a person visiting India on a foreign passport, staying at least 24 hours in the country, and the purpose of whose visit can be classified as one of the following:

(i) Leisure (recreation, holiday, health, study, religion and sport);
(ii) Business, family, mission, meeting.

The following persons are not regarded as foreign tourists.

(i) Persons arriving with or without a contract to take up an occupation or to engage in activities remunerated within the country;
(ii) Persons coming to establish residence in the country;
(iii) “Same-day visitors” (including travellers on cruise ships).

**Excursionist**

An excursionist is a foreign visitor who stays less than 24 hours.

**Cruise Passenger**

Cruise passengers are persons arriving on cruise ships who do stay a night in an accommodation establishment in the country.

**Domestic Tourist**

A domestic tourist is a person who travels within the country to a place other than his usual place of residence and stays at hotels or other accommodation establishments run on commercial basis or in dharamshalas/sarais/musafirkhanas/agra-shalas/choultries etc for a duration of not less than 24 hours or one night and for not more than 12 months at a time for any of the following purposes:

(i) Business and Trading
(ii) Leisure and Holiday
(iii) Religious and Pilgrimage
(iv) Social purposes

The following are not treated as domestic tourists:

(i) Persons travelling with or without a contract to take up an occupation or engage in activities remunerated from within the State/Centre
(ii) Foreigners residing in India

**World Scenario**

International tourist arrivals across the globe grew by 4.4 per cent in 2015 to reach a total of 1,184 million in 2015; this was the sixth consecutive year of above-average growth with international arrivals increasing by 4 per cent or more every year since the post-crisis year of 2010. Some 50 million more tourists (overnight visitors) travelled to international destinations around the world in 2015 than in 2014. Demand remained strong overall, though with mixed results across individual destinations due to strong exchange rate fluctuations, increased safety and security concerns, and the drop in oil prices and other commodities, which increased disposable income in importing countries. Growth in advanced economy destinations (+5 per cent) exceeded that of emerging economies (+4 per cent), boosted by the solid results of Europe (+5 per cent).

**RECENT TRENDS IN FOREIGN TOURIST ARRIVALS**

The inflow of tourists to a country is affected by many factors. Political stability, economic crises and climatic conditions have a major influence on the travel plans of the people across countries. The policy shifts of governments also affect the arrivals of both foreign and domestic tourists to a region. Cost effective tour packages, branding, modernised marketing techniques and so on will also provide more impetus to the growth of the industry. The growth of Sri Lanka, Thailand, Singapore, and other East Asian and Pacific countries with increasing market share reveals this fact. Figure 9.1 portrays the trends in the arrival of foreign tourists in India and Kerala.

In 2015, the number of foreign tourist arrivals in India was 8.03 million as compared to 7.68 million in 2014, thus registering a growth of 4.5 per cent over 2014. India's share in international tourist arrivals is about 0.68 per cent and the country ranked 40th with respect to the same in 2015. The corresponding share and rank of India in the Asia and the Pacific region is 2.88 per cent and 11th.

The growth trends in foreign tourist arrivals into India have had a chequered history. The September 2001 terrorist attacks in the United
States had affected the tourism industry across the world. This had repercussions in India too, with the sector witnessing negative growth rate in 2001 and 2002. But the industry gradually gathered momentum, and in 2003 the growth rate increased to 16 per cent, which further increased to 25 per cent by 2004 (one of the largest hikes during the last two decades). The trend continued up to 2007. During 2008-09, the growth rate began to decelerate again and dropped to a negative figure of -4.8 per cent by 2009. This recession in tourism was due to global slowdown, terrorist activities and the H1N1 influenza pandemic (Annual Report, 2010, Ministry of Tourism). The industry slowly recovered from the crisis by 2010 and since then the number of foreign tourist arrivals has shown a consistent growth.

In the case of foreign tourist traffic, the State has recorded a consistent growth in the number of tourist arrivals during the past two decades except during the crisis periods i.e., 2001 and 2009. The policies and marketing strategies adopted by the State government have succeeded to a great extent in attracting foreign tourists. The growth rate in Kerala with respect to foreign tourist arrivals is higher than that of India. But the national average surpassed the State annual growth rate of foreign tourist arrivals in 2014 for the first time in a decade. Further, the state has been witnessing a declining growth rate especially after 2010, which is matter of concern. In 2010, the growth rate was 18.31 per cent, which dropped to 8.12 per cent by 2013 and further to 5.86 per cent in 2015. Appendix 9.1 shows the national and State foreign tourist arrivals and annual growth rates from 2005 onwards.

Compared to the previous year, Kerala has maintained 7th position in the share with respect to foreign tourist arrivals among top ten states in the country in 2015. The share of the State in the national pie of foreign tourist arrivals accounts for 12.2 per cent in 2015; for the past four years, the share has remained more or less the same. Tamil Nadu, the neighbouring state ranks first in foreign tourist arrivals and accounts for 21.9 per cent of the national pie.
Seasonality in Foreign Tourist Arrivals

The month-wise analysis of foreign tourist arrivals in Kerala indicates that the tourist season starts from November and lasts up to March. The season is at its peak during the months December, January and February. A similar trend is visible in the national case also. During 2015, the maximum number of foreign tourists arrived in the month of February followed by January. Around 13.6 per cent of the total tourists visited the State during February. The lowest foreign traffic was registered for the month of June. Figure 9.2 depicts the month-wise comparison of foreign tourists from 2010 to 2015.

The seasonality in foreign tourist arrivals in Kerala has remained almost the same over these years. The period from April to September is considered off-season. The number of tourist arrivals during the off-season has shown a marginal increase for the last five years. In between the off-seasons, a hike in the flow of tourists is noticed during August for the past two decades.

Even though Kerala’s tourism sector is aiming to change the State into a 365 days destination, the month-wise figures of foreign tourist arrivals shows the need to identify, diversify and develop new destinations and products, where the state has a comparative advantage, to overcome the aspect of seasonality. The Department of Tourism has taken many measures to make Kerala an all-time destination and promoted products like monsoon tourism, Meetings, Incentives, Conferences and Exhibition (MICE) tourism and customised packages for off-season months. The marginal increase in the number of foreign tourist arrivals during the off-season for the past five years is a clear indicator of the efforts taken by the tourism industry of the State. These initiatives need to be continued and products that fit all seasons should be introduced to convert tourism to a regular activity generating sustainable income and full-time employment. Besides, market-specific, multi-pronged marketing strategies based on market analysis should be put in place to attract quality foreign tourists throughout the year.

Source Market of Tourist Arrivals

The country-wise details of foreign tourist arrivals (FTA) into India in 2015 reveals that about 15.1 per cent of the FTAs were coming from United

Figure 9.2
Month-wise comparison of foreign tourists in Kerala from 2010 to 2015, in number

Source: Department of Tourism, Government of Kerala
States followed by Bangladesh (14.13 per cent), United Kingdom (10.81 per cent) and Sri Lanka (3.73 per cent). The trend was same for the years 2012, 2013 and 2014.

In Kerala, United Kingdom, with an arrival percentage share of 17.1 per cent, remains on the top of the countries that generate foreign tourists. France occupied the second position with a 9.4 per cent share. Germany (7.9 per cent) and USA (7.8 per cent) contribute the next major shares of foreign tourist arrivals. Appendix 9.2 gives the share of major international source markets of Kerala Tourism in the year 2015.

Even though UK occupied the top share in the source market of foreign tourist arrivals in the State, its share had declined from 23.36 per cent in 2007 to 17.1 per cent by 2015. The share of France and USA remained stable while that of Germany showed a marginal decline from 7.9 per cent in 2007 to 6.9 per cent by 2015. But the share of Saudi Arabia substantially increased from 1.66 per cent to 5.2 per cent between 2007 and 2015. The shares of Russia and Malaysia have also increased over these years. During 2007, Maldives contributed a share of 4.9 per cent in the total foreign tourist arrivals in the State but the percentage share came down to 1.29 per cent by 2015. Figure 9.3 portrays the trend in the share of foreign tourist arrival from top ten countries of the world during 2007 and 2015.

**District-wise data on Foreign Tourist Arrivals**

While analysing the data on the district-wise foreign tourist arrivals, it is noticed that the preference of various districts for the foreign tourists were almost same during the last two years. Foreign travellers are highly concentrated on the central and southern districts of the State. Ernakulam ranks at the top in attracting foreign tourists, accounting for a share of 39.2 per cent during 2015. Thiruvananthapuram (31.7 per cent), Idukki (8.6 per cent), Alappuzha (6.5 per cent) and Kottayam (5.1 per cent) were the

**Figure 9.3**

Trend in the share of foreign tourist arrival from top ten countries of the world to Kerala between 2007 and 2015, in per cent

![Figure 9.3](image-url)
other districts in the ranking of top five districts in the State. The northern part of the State is still lagging in attracting foreign tourists. The share of all the districts in the northern region of the State with respect to foreign tourist arrivals is negligible and less than 3 per cent. Appendix 9.3 gives the details of district-wise foreign tourist arrivals and Figure 9.4 depicts the region-wise share of foreign tourist arrivals in Kerala.

The northern region of Kerala has the advantages of long coast line, backwaters, high range tourism and vast scope for the development of cultural and heritage tourism. The government should find measures to develop tourism in this region to avoid regional disparities existing in the industry.

**RECENT TRENDS IN DOMESTIC TOURIST ARRIVALS**

The analysis of the domestic tourist arrivals data is also important as foreign tourist arrivals. Unlike international tourism, the domestic tourism in a country is characterised by three factors. They include knowledge, proximity of destinations and lower cost of transport. Certain categories like families, children, teenagers, senior citizens, disabled persons and households with modest incomes are much more represented in domestic tourism than in international tourism. This social diversity gives rise to a large diversity in the demand, in terms of accommodation and tourism products as well as activities and destinations.

In 2015, the number of domestic tourist visits (DTV) to the States/UTs was 1432 million as compared to 1282.8 million in 2014 registering a growth of 11.63 per cent over 2014. The top ten States in terms of number of domestic tourist visits, during 2015, were Tamil Nadu (333.5 million), Uttar Pradesh (204.9 million), Andhra Pradesh (121.6 million), Karnataka (119.9 million), Maharashtra (103.4 million), Telangana (94.5 million), Madhya Pradesh (78 million), West Bengal (70.2 million), Gujarat (36.3 million) and Rajasthan (35.2 million). The contribution of the top 10 States was about 83.62 per cent to the total number of domestic tourist visits during 2015.

**Figure 9.4**

Region-wise shares of Foreign Tourist Arrivals in Kerala, in per cent

Source: Department of Tourism, Government of Kerala
Tamil Nadu and Uttar Pradesh have maintained the first and second ranks respectively in terms of DTVs in 2015. Andhra Pradesh has gained the third position leaving Karnataka and Maharashtra at the succeeding fourth and fifth positions respectively. Appendix 9.4 gives the details of Domestic Tourist Arrivals during 2015.

The domestic tourist visits in the state marked an annual growth rate of 6.59 per cent with 11.69 million tourists in 2014 to 12.46 million during the year 2015. A marginal decline in the growth rate is noticed when compared with the previous year of 2014. The past ten years data of the growth rate on the domestic tourist arrivals for the state shows that the state has achieved a double digit growth during the year 2008. By 2009, it dropped to 4.25 per cent and then gathered momentum in the succeeding two years. During the years 2012, 2013 and 2014 the rate was stable with an annual rate of 7.41 per cent, 7.75 per cent and 7.71 per cent respectively. Figure 9.5 portrays the growth rate of Domestic Tourists Visits in India and Kerala.

A comparison with the national data shows that the growth in Kerala’s domestic tourist flow was consistently lower than the national average growth during the last ten years. As per the national tourism statistics of 2014, Kerala occupied 19th rank with respect to Domestic Tourist Visits among the Indian States. On the other hand, the position of the state with respect to Foreign Tourist Arrivals is much better at 7th position among the top ten states in the country.

**Month-wise arrival of Domestic Tourists in Kerala**

The month-wise data on the arrival of domestic tourists in Kerala shows that the highest inflow of tourists was for the month of December and the lowest was for the month of June. A similar trend is visible for the past five years in the domestic tourist arrival statistics of the State. Here, destinations like Sabarimala and other temple/pilgrimage tourism points (Guruvayoor, Thiruvananthapuram, etc.) are not included. The common practice is to combine pilgrimage with pleasure. Figure 9.6 exhibits the month-wise arrival of domestic tourist traffic from 2010 to 2015.

**Source of Domestic Tourists**

The statistics on the distribution of domestic tourist visits in Kerala by state of origin during 2015 reveals that about 75.7 per cent originates

**Figure 9.5**

Growth rate of Domestic Tourists Visits in India and Kerala, in per cent

![Growth rate of Domestic Tourists Visits in India and Kerala, in per cent](source: Department of Tourism, Government of Kerala)
within the state. With respect to the distribution of other states, Tamil Nadu ranks 1st with a share of 8.02 per cent of domestic tourist visits. Karnataka (4.61 per cent), Maharashtra (2.8 per cent) and Andhra Pradesh (1.83 per cent) were the other important States. The share of northern States was negligible. Appendix 9.5 gives the details of top fifteen state-wise share of Domestic Tourist Arrival in Kerala.

**District-wise arrival of domestic tourists in Kerala**

The status of the domestic tourist visits in various districts in the State is slightly different from that of the foreign tourist arrivals. Ernakulam records the top share (23.2 per cent) in receiving domestic tourists followed by Thrissur (21.3 per cent). Thiruvananthapuram occupied the third position (14.9 per cent) and Kozhikode (6.5 per cent) was positioned in the fifth place. Pathanamthitta and Kasaragod were the least-preferred districts among domestic travellers. Since most of the domestic visitors originate from within the State, regional disparity as in the case of foreign tourist arrivals is not visible. The region-wise data during 2015 reveals that domestic tourist visits were high in central Kerala with a share of about 54 per cent followed by northern Kerala (26 per cent) and southern Kerala (20 per cent). Appendix 9.6 shows the district-wise share of domestic tourist arrivals and Figure 9.7 depicts the region-wise share of domestic tourists in the State.

**Status of Accommodation Facilities in Kerala**

The data on the availability of accommodation facilities in classified hotels in Kerala during the year 2015 showed a decline in the number of hotels and rooms. The number of hotels declined from 409 in 2014 to 334 by 2015. Consequently, the number of rooms available also declined from 11,387 in 2014 to 9,224 by 2015. The details on
the availability of accommodation in classified hotels in Kerala are provided in Appendix 9.7. Considering the increasing tourists traffic, both in foreign and domestic arrivals over the years, the declining accommodation availability is a major concern.

**THE ECONOMIC IMPACT OF TOURISM**

According to the 2016 “Report on the Economic Impact of Travel and Tourism Industry” at the global level by the World Travel and Tourism Council, the total contribution of the sector to the global economy in 2015 was US$7.2 trillion (at 2015 prices) and 9.8 per cent of the world GDP. In GDP growth terms, the Travel and Tourism sector outperformed several other major economic sectors, including manufacturing and retail with annual growth rate of 3.1 per cent in 2015. In terms of employment, in 2015, the Travel and Tourism sector supported 284 million jobs, or 1 in 11 of all jobs in the world. In employment growth terms, the Travel and Tourism sector surpassed various other select industries in 2015, including the financial services, education and health care sectors. The total contribution of Travel and Tourism to employment grew by 2.6 per cent in 2015 registering the creation of 7.2 million new jobs through direct, indirect and induced activities.

All global sub-regions experienced growth in total Travel and Tourism GDP in 2015, with Southeast Asia experiencing the strongest growth at 7.9 per cent, ahead of South Asia (7.4 per cent). They were followed by the Middle East (5.9 per cent), Caribbean (5.1 per cent), Sub-Saharan Africa (3.3 per cent), North America (3.1 per cent), Europe (2.5 per cent), Northeast Asia (2.1 per cent), Latin America (1.5 per cent) and North Africa (1.4 per cent).

According to the World Travel and Tourism Council (WTTC) report, the contribution of travel and tourism sector to the GDP of India was Rs. 8309.4 billion in 2015 (6.3 per cent of GDP). The total contribution of Travel and Tourism to
employment was 37,315,000 jobs in 2015 (8.7 per cent of total employment). About 83.2 per cent of the direct contribution to the GDP in the sector was generated by leisure travel spending whereas business spending constituted the balance share of 16.8 per cent. The share of domestic travel spending to the GDP was about 82.5 per cent and the corresponding figure for foreign visitor spending was 17.5 per cent. India occupied the 12th position in the world ranking of travel and tourism’s total contribution to GDP and with respect to employment contribution to the sector, the country was positioned next to China holding 2nd rank at the global level. The report envisages that India’s strong forecast growth will propel it into the top ten Travel and Tourism economies by 2026, moving from 12th in 2015 up to 7th by 2026 in terms of total Travel and Tourism GDP.

Kerala Economy and Tourism

Tourism is an important contributor to the growth of service sector in Kerala. The total revenue (including direct and indirect means) generated from tourism during the year 2015 comes to ₹26,689.63 crores showing an increase of 7.25 per cent over the last year. During the last decade, the total revenue from tourism registered a compound annual growth rate (CAGR) of 11.33 per cent. It grew from ₹7,738 crores in 2005 to ₹26,689.63 crores by 2015. The annual growth rate of income from tourism reveals a fluctuating trend between 2005 and 2015. Between 2013 and 2015, a declining tendency of the growth rate was noticed: from 12.22 per cent in 2013 to 7.25 per cent by 2015.

Foreign Exchange Earnings

The foreign exchange earnings from tourism increased from ₹1552.31 crores in 2005 to 6949.88 crores by 2015 registering a CAGR of 14.6 per cent. The earnings from foreign tourism showed a steady increase over the years, except for the year 2009 when the global financial crisis affected the flow of foreign tourist Arrivals and led to a decline in foreign exchange earnings. Figure 9.8 captures the data on foreign exchange earnings of Kerala over the last ten years.

**Figure 9.8**

Trends in foreign exchange earnings of Kerala from 2005 to 2015, ₹ in crore

Source: Department of Tourism, Government of Kerala
While analyzing the data on the annual growth of foreign exchange earnings, a declining trend in the growth rate has been noticed over the last three years. Figure 9.9 shows the annual growth rate of foreign tourist earnings from 2005 to 2015.

**Domestic Tourism Earnings**

The domestic tourist earnings increased from ₹ 12981.91 crore in 2014 to ₹13836.78 crore by 2015. The CAGR of domestic tourist earnings over the last ten years was 11.25 per cent. The domestic earnings from tourism during the year 2005 was ₹4281.42 crores which rose to ₹13836.78 crores by 2015. Appendix 9.8 shows the foreign exchange earnings and domestic tourist earnings including revenues from indirect sources from 2005 to 2015.

**Tourism and Employment**

The contribution of tourism to total employment has direct, indirect and induced impacts. Jobs generated by tourism are spread across the economy directly in tourism sectors like travel agencies, accommodation sector, and airlines and indirectly to retail, construction, manufacturing and telecommunications.

According to a study “Regional Tourism Satellite Account for Kerala and Madhya Pradesh 2009-10”, commissioned by the Ministry of Tourism, Government of India, the tourism sector has generated over 14 lakh jobs in Kerala. The total number of jobs created directly and indirectly by the sector between 2009 and 2012 turned out to be 23.52 per cent of the total employment in Kerala. (Table 9.1)

**Figure 9.9**

Trends in foreign exchange earnings of Kerala from 2005 to 2015, in per cent

---

**Table 9.1**

Contribution of Tourism Sector to Total Employment between 2009 and 2012, in per cent

<table>
<thead>
<tr>
<th>Country/ State</th>
<th>Direct Impact</th>
<th>Indirect + Induced Impact</th>
<th>Total Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>4.4</td>
<td>5.8</td>
<td>10.2</td>
</tr>
<tr>
<td>Kerala</td>
<td>9.9</td>
<td>13.6</td>
<td>23.5</td>
</tr>
</tbody>
</table>

*Source: Ministry of Tourism, Government of India*
STATE GOVERNMENT SPENDING ON TOURISM SECTOR

Tourism Under Five Year Plans

Tourism sector was brought under the purview of Five Year Plans since the second Five Year Plan onwards. Till the end of the Fifth Plan, the sector had not received much attention. The Sixth Five Year Plan (1980-85) gave due emphasis for increasing the State’s share of international tourist traffic to India while at the same time providing convenient packages of facilities for domestic tourists visiting Kerala from all over the country. The Plan envisaged the pooling of resources not only of the central and state governments, but also from the private sector in achieving the plan objectives. The Government of Kerala declared tourism as an industry in July 1986.

The overall plan outlay to the sector has been increasing over the years but the share of tourism sector in the total state plan outlay is negligible. The allocation to the tourism sector has not been above one per cent except during the ninth plan period. Table 9.2 illustrates the outlay to tourism sector and the share of tourism in total outlay over various plan periods.

A significant increase in allocation is noticed during the Ninth Plan as the outlay was raised to ₹192.66 crores from ₹53.01 crores during the 8th plan period. However, during the 10th plan period, the outlay to the sector fell to ₹27.7 crore, which was subsequently increased during 11th and 12th Plan periods.

Table 9.2
Allocation and Expenditure on Tourism in the State Plan over Various Plan Periods, ₹ in lakh

<table>
<thead>
<tr>
<th>Period</th>
<th>Total Plan Outlay</th>
<th>Outlay for Tourism</th>
<th>Percentage share of Tourism</th>
<th>Actual Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Plan</td>
<td>3003</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>II Plan</td>
<td>8701</td>
<td>13.00</td>
<td>0.15</td>
<td>8.00</td>
</tr>
<tr>
<td>III Plan</td>
<td>17000</td>
<td>50.00</td>
<td>0.29</td>
<td>22.00</td>
</tr>
<tr>
<td>Annual Plan</td>
<td>14254</td>
<td>31.00</td>
<td>0.22</td>
<td>19.00</td>
</tr>
<tr>
<td>IV Plan</td>
<td>25840</td>
<td>50.00</td>
<td>0.19</td>
<td>55.00</td>
</tr>
<tr>
<td>V Plan</td>
<td>56896</td>
<td>71.00</td>
<td>0.12</td>
<td>79.00</td>
</tr>
<tr>
<td>Annual Plan</td>
<td>39296</td>
<td>130.00</td>
<td>0.33</td>
<td>132.27</td>
</tr>
<tr>
<td>VI Plan</td>
<td>148755</td>
<td>672.00</td>
<td>0.45</td>
<td>556.80</td>
</tr>
<tr>
<td>VII Plan</td>
<td>221100</td>
<td>850.00</td>
<td>0.38</td>
<td>833.69</td>
</tr>
<tr>
<td>Annual Plan</td>
<td>144200</td>
<td>650.00</td>
<td>0.45</td>
<td>816.95</td>
</tr>
<tr>
<td>VIII Plan</td>
<td>687648</td>
<td>5301.00</td>
<td>0.77</td>
<td>5707.85</td>
</tr>
<tr>
<td>IX Plan</td>
<td>1575500</td>
<td>19266.00</td>
<td>1.22</td>
<td>17397.81</td>
</tr>
<tr>
<td>X Plan</td>
<td>2522643</td>
<td>2777.00</td>
<td>0.11</td>
<td>2487.68</td>
</tr>
<tr>
<td>XI Plan</td>
<td>4560547</td>
<td>48873.00</td>
<td>0.15</td>
<td>61774</td>
</tr>
<tr>
<td>XII Plan</td>
<td>10200000</td>
<td>110140.00</td>
<td>0.29</td>
<td>67506.24*</td>
</tr>
</tbody>
</table>

*Expenditure status upto October 31, 2016

Source: Plan Outlay and Expenditure, Kerala Vol 1 and 2, Kerala State Planning Board.
Box 9.1
Swadesh Darshan Scheme

This Scheme is proposed to be implemented in a Mission Mode. The main Mission objectives and strategy are as under:-

**Mission Objectives**

- Develop circuits having tourist potential in a planned and prioritized manner
- Integrated development of infrastructure in theme based circuits;
- Promote cultural and heritage value of the country;
- Provide complete tourism experience with varied thematic circuits;
- Enhancing the tourist attractiveness in a sustainable manner by developing world class infrastructure in the circuit destination
- Follow community based development and pro-poor tourism approach
- Creating awareness among the local communities about the importance of tourism for them in terms of increase in source of income, improved living standards and overall development of the area;
- Promote local arts, cultural, handicrafts, cuisine etc to generate livelihoods in the identified regions
- Harness tourism potential for its direct and multiplier effects in employment generation and economic development;
- Leverage public capital and expertise;

**Mission Strategy**

- To identify themes based circuits that have potential to be showcased as world class tourism products in consultation with the stakeholders;
- To ensure that the development of theme based circuits adhere to the sustainability and carrying capacities of the destinations;
- To create a framework for classifying infrastructural gaps in the identified circuits that have been major roadblocks in unlocking the potential of these circuits;
- To plan in an integrated manner the development of these circuits in a specific time-frame ensuring full convergence of state and central government schemes as w ell as private sector investments
- To follow a comprehensive area development approach for ensuring all the facilities required by the tourists in the identified circuits.

In terms of the percentage share of allocation of tourism sector in the total plan outlay, the share of the sector increased from 0.77 per cent in 8th plan to 1.22 per cent by the 9th plan period. But the momentum gathered by the sector during the 9th plan period did not last for long and the share of the tourism sector in the total plan outlay declined to 0.11 per cent in 10th Plan. It increased marginally to 0.15 per cent by 11th plan and to 0.29 per cent by the 12th Five Year Plan.

**State and Central Government Plan Allocation**

In addition to the State Plan Allocation, the Ministry of Tourism, Government of India has
also been earmarking funds for tourism projects in the State. Table 9.3 shows the funding of State and Union Governments to Kerala Tourism since 2011-12. State funds include supplementary allocation over and above the budgetary allocation. During 2015-16, the State has received an amount of ₹99.34 crores from the Central Government under the scheme Swadesh Darshan for integrated infrastructure development of theme based tourist circuits. Under the 13 identified tourism circuits all over India, the state has received the above grant for the development of Pathanamthitta- Gavi-Vagamon-Thekkady as Eco-Tourism Circuit in Idukki and Papanamthitta Districts.

Out of the allotted amount (including SDG) of ₹230.45 crores, the State has sanctioned programmes and projects for an amount of ₹158.68 crores during 2015-16. The important programmes/projects sanctioned by the state include:

- Science Park at Wandoor – ₹5.00 crores
- Hop on-Hop off bus services – ₹1.35 crores
- Take a break way side amenities (18 nos)- ₹8.68 crores
- Setting up of light and sound show and dynamic illumination at Bakel – ₹4.00 crores.
- Farm tourism development- Priyadarshini Tea Environ, Priyadhrshini Estates, Pancharakolli, Wayanad- ₹1.00 crore.
- Development of Neyyar dam as a tourist destination – ₹4.65 crores.
- Development of Perumathura Beach in Trivandrum- ₹3.00 crores
- Master plan for Modernisation and Tourism Development of Vilagankunnu – ₹2.00 crores.
- Construction of Yathri Nivas at Athirappalli- ₹5.00 crores
- Development of break water tourism at Thangasserry, Kollam- ₹2.5 crores
- Nilambur Tourist Hub- ₹2.00 crores
- Punyadarshana Complex at Sannidhanam- ₹7.5 crores
- Development of Tourism infrastructure at Kumarakom- ₹9.77 crores
- Folklore park at Thiruvveppuram, Palakkad district- ₹1.00 crores
- Clean Destination campaign- ₹3.69 crores

The major chunk of government spending has been on infrastructural projects like development of basic amenities in tourism destinations, beautifications, quality wayside and waterside amenities, state of the art information centres, visitor lounges, infrastructure for land and water based adventure tourism, erecting international quality tourism signage at destinations and enroute, tourism transportations and safety and security aspects of tourists.

The second focus area in government spending has been marketing. The government has succeeded in branding Kerala Tourism in international market with the title “God’s Own Country”. Quality human capital with labour standards is fundamental to tourism development in any region. Shortage of

### Table 9.3
Allocation and Expenditure on Tourism in the State Plan over Various Plan Periods, ₹ in lakhs

<table>
<thead>
<tr>
<th>Year</th>
<th>State Funding*</th>
<th>Union Funding</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-12</td>
<td>182.49</td>
<td>23.75</td>
<td>206.24</td>
</tr>
<tr>
<td>2012-13</td>
<td>180.53</td>
<td>78.26</td>
<td>258.79</td>
</tr>
<tr>
<td>2013-14</td>
<td>214.89</td>
<td>34.67</td>
<td>249.56</td>
</tr>
<tr>
<td>2014-15</td>
<td>245.36</td>
<td>0.00</td>
<td>245.36</td>
</tr>
<tr>
<td>2015-16</td>
<td>230.45</td>
<td>99.34</td>
<td>329.79</td>
</tr>
</tbody>
</table>

*Source: Department of Tourism, Government of Kerala
* Plan outlay including SDG
skilled manpower is a challenge to Indian Tourism. The State Government institutions like Kerala Institute of Tourism and Travel Studies (KITTS), State Institute of Hospitality Management (SIHM) and Food Craft Institutes (FCIs) have been creating quality manpower in travel, tourism and hospitality sectors. Figure 9.10 shows the pattern of government spending in 2016-17.

**ACCLAIMS AND AWARDS RECEIVED DURING 2015**

In 2015, Kerala’s tourism sector has received several awards and citations for tourism related activities. These awards are a direct result of the concerted efforts of both the public and private sector working together to take Kerala’s tourism industry to a world class level.

1. **PATA Award**
   - PATA CEO Challenge Top Destination Award for Thekkady, 2015

2. **Conde Naste Traveller Award**
   - Favourite Indian leisure Destination Kerala (Runner-up)

3. **NATIONAL TOURISM AWARDS**
   - Most Innovative use of Technology/Best Website
   - Best Tourism Film
   - Best Responsible Tourism Project
   - Best Tourism Brochure

4. **Golden City Gate Award – ITB Berlin**
   - Gold – Film – Responsible Tourism Film

5. **FITUR**
   - Best Stand Award for Kerala Tourism Pavilion

The important cultural initiatives undertaken by the Department of Tourism during 2015-16 are as follows:

**Box 9.2**

*Kerala Island finds mention in Nat Geo’s best destinations list*

Beginning with hunting the aurora borealis in the northern lights zone in Norway at 12 am, the list includes photos of Hawaii at 5 am, Paris at 6 am, San Francisco at 7 am, Abu Dhabi at 8 am, Melbourne at 9 am, New York at 8 pm, Budapest (Hungary) at 10 pm and Kerala at 6 pm, among others, offering a peek into how different places in the world look like.

• ‘Onam’: Onam Celebration 2015 was celebrated from August 25 to August 31
• Joint Initiative with Cultural Department to promote traditional arts and festivals
• Nishagandhi festival: The only event of its kind that captures the spirit of the season. It is held at the sprawling Kanakakkunnu palace grounds during January every year. In last year the festival include a food festival, National level seminar on music, dance festival and Kathakali fest for 7 days.
• UTSAVAM- the Kerala Arts festival for the promotion of local cultural programmes conducted in December for a period of 14 days in selected major four tourist destinations

**SOCIAL AND ENVIRONMENTAL IMPACTS OF TOURISM**

Tourism is a double-edged sword. It is true that tourism provides considerable economic benefits to a country. The multiplier effects of tourism both with respect to income and employment has always enriched the economic development of a region. But its rapid expansion can also be responsible for adverse environmental, as well as socio-cultural, impacts. The two main areas of environmental impact of tourism are pressure on natural resources and damage to ecosystems. Likewise, traditional cultural and art forms – dance, music, festival celebrations, and handicrafts – that are promoted for tourism development would necessarily have to undergo some changes so as to be interpretable and presentable to a different audience. Only a very niche and discerning target group could accept traditional art and culture in their pure and esoteric forms. Hence, the initiatives to transform these kinds of cultural and traditional forms to equip them to meet the present requirements of the industry will sometimes influence the originality of these performances. The development activities and investment patterns associated with the tourism industry will also have both positive and negative social impacts on the society. Tourism is both a contributor to climate change and victim
Box 9.3
Tourism as a Driver of Peace

Travel and Tourism is now being increasingly recognised for its ability to drive peace, security, and understanding. Though it is widely argued that travel promotes cultural interchange and understanding, which brings people together and in turn creates more peaceful societies, there is little empirical evidence to support these views. The World Travel and Tourism Council (WTTC), for the first time, has partnered with the Institute of Economics and Peace (IEP) to explore the links between tourism and peace. The research shows that countries with a stronger tourism sector tend to be more peaceful.

- An open and sustainable tourism sector means a higher level of positive peace: namely the attitudes, institutions, and structures that create and sustain peaceful societies.
- Countries with an open and sustainable tourism sector are more likely to enjoy higher levels of positive peace in the future.
- The more sustainable a country’s tourism sector the lower the country’s level of violence and conflict is likely to be.
- In non-conflict-affected countries, tourism is resilient to increases in violence and conflict.
- Tourism is resilient to increases in terrorism, even when terrorism is targeted at tourists.

The Institute for Economics and Peace considers three measures of peacefulness: Global Peace Index which measures the negative peace in a country (the absence of violence); Positive Peace Index denotes the positive peace, or the levels of institutions and attitudes in place to foster and promote peace; and Global Terrorism Index measures the negative impact of terrorism on lives lost, injuries and property damage.

Increases in tourism sustainability can lead to improvements of the functioning of governments as they respond to demand and aim to create a welcoming environment for further tourism expansion. In Nepal, the government response to increased influxes of tourists to Pokhara led to the implementation of Codes of Conduct for Peace Responsive Tourism to guide the behaviours of all stakeholders. The Election Period Tourism Operating procedures in Kenya, set up in response to tourist fluctuations around election time, provides a platform for stakeholders to work together to promote and maintain peace during periods of heightened political tensions.

It is seen that as tourism grows and the tourist sector develops, a whole host of skills become necessary for local populations including languages and business skills, driving human capital development. In Namibia, the development of the tourism sector has led to local communities developing skills such as languages and trades such as cooking, leading to increased human capital development. ‘Township tourism’ in South Africa has led to both informal and formal skills acquisition by community members in Alexandra township, Johannesburg. Increased tourism may lead to increases in the flow of information, both within a country and across borders, as people share experiences and ideas. In Northern Ireland, political tourism has seen an increase in people travelling to the region to learn more about the conflict and history, which has in turn enabled understanding and information sharing.

Changes in relations with neighbours may also be affected by tourism. At an individual level, travelling to neighbouring countries may promote understanding and tolerance of the other. At the state level, travelling to neighbouring countries may promote mutually beneficial economic gain. For example, Israeli eco-tourists visiting Jordan had positively altered their perceptions of Jordanian institutions and culture, when compared to a control group that did not travel. Similarly, visits to Mt. Gumgang by South Koreans positively influence their views of North Korea, both at the individual level, and at the national level.

*Source: Tourism as a Driver of Peace, Research by World Tourism and Travel Council (WTTC), May 2016.*
of it. Warmer temperature, rising sea levels, coastal erosion and biodiversity loss threaten tourism very future in many locations.

Since most of our tourism oriented activities in the State are centred around natural products like beaches, backwaters and hill stations, the scope for increasing pressure on these resources is high. Tourism affects environment in following ways:

- Tourism is a land-intensive activity. Rapid growth of tourism activities ultimately increase pressure on the land which further leads to speculation of land prices, reclamation of wetland on a vast scale, and pressure to flout building rules.
- Increasing demand for infrastructural facilities like roads, electricity, and water disturbs the natural eco system.
- Generation and accumulation of wastes in tourist destinations leads to unhygienic environment.
- Deforestation and increased carrying capacity on the most fragile eco-tourism destinations in the State harms the environment.
- Ecological damage, including land and water areas, wetlands, and plant and animal habitats in general, is caused due to over exploitation of natural resources.

Provision of a clean, safe and secure environment is a prerequisite to attract tourist inflow into the State. The state has to maintain a balance between development of tourism and environmental protection to minimise the adverse impact of tourism related activities on environment.

**Sustainable Tourism**

Sustainable tourism is the key to future development in this sector. 2017 has been declared by the United Nations as the International Year of Sustainable Tourism for Development. The important initiatives undertaken by the State Government towards sustainable tourism development are as follows:

- Responsible Tourism. Responsible Tourism (RT) is a pro-poor tourism approach initiated by the Tourism Department. In RT, tourism is planned and implemented with the involvement of all stakeholders including the local people and takes care of economic, social and environmental aspects of tourism. The government has earmarked an amount of ₹ 1.00 crore for this programme in the Financial Year 2015-16.
- Kerala Waste Free Destination Scheme. The campaign “Kerala Waste Free Destination (KWFD)” is an initiative of the Department of Tourism involving the participation of local bodies, NGOs, Self Help Groups, educational institutions and tourism industry to provide a clean environment. The total plan outlay for the scheme during the 12th plan period was ₹18.00 crores.
- Conservation, preservation and promotion of Heritage, Environment and Culture. This scheme is envisaged for promoting traditional fairs, festivals and local cultural programmes. The government had allotted ₹6.5 crores for this scheme during the financial year 2015-16 which increased to ₹14.65 crores by 2016-17.

**FOCUS AREAS FOR SUSTAINING TOURISM AS A GROWTH DRIVER**

Tourism has been one of the successful pillars of economic development in the State. To sustain the growth in the sector as well as to address the challenges confronting the sector, the State needs to focus on certain thrust areas and formulate plan and policies accordingly. The strategies need to be oriented to widen the market of the State and spread the popularity to cover a wider spectrum of people and regions.

**Marketing/Publicity**

In order to retain the market supremacy, Kerala Tourism launched number of new and innovative
Box 9.4
Travel and Tourism Competitiveness Index

The Travel and Tourism Competitiveness Report 2015 gives a comprehensive view of the travel and tourism sector. It features the Travel and Tourism Competitiveness Index (TTCI) measures “the set of factors and policies that enable the sustainable development of the Travel and Tourism (T&T) sector, which in turn, contributes to the development and competitiveness of a country.” Published biennially, the TTCI benchmarks the T&T competitiveness of 141 economies. It comprises four sub indexes, 14 pillars, and 90 individual indicators, distributed among the different pillars.

Spain leads the 2015 TTCI ranking and Europe—with a total of six countries in the top 10—is confirmed as the region with the most T&T-competitive economies. India rank 52nd among the 141 economies. The country’s natural resources (17th) are vast and diverse and its cultural resources (10th) include a unique intangible heritage (8th), sports events and a large entertainment offer. India’s relevance as business travel destination is increasing along with its economic growth, and it remains a price-competitive destination (8th) and recent changes in its visa regime (not yet reflected in the data rankings) have the potential to boost international arrivals. However, longstanding infrastructure gaps remain, especially in tourism-specific infrastructure (109th) and the quality of roads. Despite some uneven progress, India also lags on health and hygiene (106th) and ICT readiness (114th). The safety and security situation is unsettling, with a perceived increase in the impact of crime and violence (97th), and India ranks only 139th for environmental sustainability.
marketing campaigns in both international and domestic markets. The Great Backwater of Kerala, Kerala – Home of Ayurveda, Your Moment is Waiting and Dream Season are the major multimedia campaigns carried out by Kerala Tourism in the major markets. Market-specific campaigns were also carried out to attract tourists from strategic markets including Middle East, Australia and Japan. Innovative campaigns like train branding, airport displays and social media campaigns were taken up to attract more number of tourists.

The analysis of source markets shows that there has been not much significant change in the source market over the years. It is highly concentrated in regions such as Europe and U.S. Hence, it is important to market the tourism potential of the State in newer and unexplored regions of the world so as to increase tourist inflow. Innovations in marketing techniques need to be explored and new strategies must be evolved. The brand image of Kerala tourism needs to be marketed in a more professional and organized manner. The share of marketing in government spending towards this sector needs to be enhanced.

Box 9.5
Details of Participation of the Department of Tourism, Kerala in International and National festivals Road shows and fairs during 2015

International Festivals
- ATM Dubai (4-7 May 2015) in U.A.E
- BITF China (26-28 June 2015) in China
- OTDYKH Leisure (15-18 September 2015) in Russia
- ITB Asia (21-23 October 2015) in Singapore
- WTM London 2015 (2-5 November 2015) in England
- Travel Fair in New York
- FITUR 2016 Madrid in Spain
- ITB, Berlin 2016 in Germany

International Road shows
- Colombo, Sri Lanka (24th April 2015)
- Shanghai, China (30th June 2015)
- St. Petersburg, Russia (21st September 2015)
- Warsaw, Poland (6th October 2015)
- Tokyo, Japan (19th October 2015)
- Brussels, Norway (10th November 2015)
- Frankfurt, Germany (12th 2015)
- Mascot, Oman (23rd November 2015)
- Manama, Bahrain (25th November 2015)

National Festivals and Road shows
- Mysore (23rd July 2015)
- Gurgaon (4th August 2015)
- Chandigarh (6th August 2015)
- Jalandhar (7th August 2015)
- Udaipur (11th August 2015)
- Varanasi (13th August 2015)
- Goa (3rd September 2015)
- Surat (8th September 2015)
- Ahmadabad (10th September 2015)

Source: Department of Tourism, Government of Kerala
Development of Infrastructure

A major portion of the government spending in the State is set apart for the creation and upgradation of infrastructure facilities at the destinations. However, given the constraints on budgetary resources, it is essential that private sector investment is encouraged towards the development of infrastructure with respect to accommodation and supporting facilities. Development of small and medium enterprises in tourism will enhance the situation in this regard. As per the recent statistics, there is considerable demand for heritage resorts, home stays and house boats by the foreign tourists visiting Kerala. The government can offer certain subsidies to encourage private investments in this area. Therefore, support of the Central and State government should be in the form of a facilitator by providing investor-friendly atmosphere.

Niche Tourism Products

Kerala tourism sector is heavily dependent on nature-based tourism. Over the years, thrust has been given to nature-based tourism with emphasis on beaches, back waters and hill stations. However, it is felt that the State cannot survive with nature-based tourism activities alone in the long run. This is also attributed to be one of the reasons for the declining growth rate of the sector in recent years. The situation demands for identification of new and diverse tourism products. This will also help to reduce the pressure on nature especially on the most fragile eco spots.

Kerala has enough scope for the development of new products in tourism. The rich cultural and heritage potentials, medical tourism, MICE, eco-tourism, film tourism, and cruise tourism are some of the important areas that can be given greater thrust.

Identification of thrust areas and pillars of development

For the comprehensive and sustainable development of tourism sector, the State needs to identify a set of activities and prioritize them in a more efficient manner. The identified thrust areas in the sector include:

- Economic Dimension: It includes product differentiation, market diversification, innovations, extension of market and infrastructure development.
- Environment: Enhance the role of District Tourism Promotion Councils and District Management Councils for the better management of destinations. These councils with statutory authority undertake and maintain tourism projects completed in the destinations and evaluate the basic infrastructure, security, protection and encroachment at the destinations concerned.
- Social Issues: Intensive efforts are required from the state government to increase the participation of local communities in the tourism activities by creating environmental awareness and educational opportunities. Programs like Responsible Tourism must be encouraged. It generates greater economic benefits to local people and enhances the benefits to local communities.
- Skill Development: The hospitality sector is the most important area that requires quality manpower on a large scale. In Kerala, institutions like Kerala Institute for Travel and Tourism Studies (KITTS), State Institute of Hospitality and Management (SIHM) and Institute of Hotel Management and Catering Technology (IHMCT) are the important institutions functioning in this front. Improvement of skills among the service providers associated with the industry and the life guards working at the water based destinations is also important.
- Local Government Ownership: Efforts by the local self governments to preserve and manage the tourism potentials is negligible. Most of the tourist destinations are concentrated in the rural areas. But the concerned grama panchayats are not directly participating in tourism development activities. In this context, the government
should elaborate the guidelines of decentralized planning including provisions for the preservation and management of destinations coming under their purview. Thus, better co-ordination between different departments and more effective management of tourism projects can be ensured.

- Regional Priorities in Tourism Planning: The northern part of Kerala is yet to be tapped in terms of tourism potential. More thrust needs to be given for the development of northern region by providing attractive tour packages, diversified products and special offers at the initial stages. Kozhikode and Kannur can be promoted as important tourism nodes to divert part of the growth away from Kochi and Thiruvananthapuram. The economically disadvantaged districts like Malappuram, Palakkad, Kannur and Pathanamthitta also deserve a better share of tourism activities.

Responsible Tourism

Community Participation in Tourism development is successfully implemented in Kerala through Kerala Responsible Tourism (RT) initiative launched in 2008. The initiative, implemented on a pilot basis, has succeeded in mobilizing local community and channelizing the resources for strengthening the tourism activity in various destinations. The Tourism Policy 2012 of the State is based on the RT principles. The State now requires to mainstream the RT activities by taking the principles of RT to the whole spectrum of tourism activities and encouraging the tourism service providers to adopt the RT principles in their business. The learning from the pilot phases since 2008 has to be now applied to the whole state. RT activities in the state will now have 2 distinct streams of activities;

i) The field level activities to work with the community, LSGs, Government agencies, NGOs, tourism trade etc.

ii) The supporting academic and research activities to be taken up continuously to support the field level activities and give proper guidance based on the studies.

The field level activities will be undertaken by the proposed RT Mission with the State and field level staff. The academic and research activities related to RT will be taken up by KITTS under RT School. Both RT Mission and RT School will work together complementing each other to ultimately bring the benefits of tourism to the local community. This plan envisages to undertake RT classification of tourism units like hotels/ Homestays/ Houseboat/ Ayurveda centres/ Tour operators/ Tourist Transport operators etc; encourage and facilitate community level tourism activities; facilitate establishing tourism linkages to community level activities; encourage and facilitate tourism units and tourists taking up socially relevant activities; encourage and facilitate tourism units and tourists on environmental friendly practices; documentation of the field level activities, studies, researches etc and build capacity of community at various level to get benefited from tourism.

Kerala needs to frame the right strategies to address its challenges in tourism. To frame and formulate appropriate strategies, the State needs accurate and updated data on tourism related activities. The focus should be on addressing the infrastructure gaps; promoting new products and destinations; harnessing the potential of eco-tourism, cultural tourism, heritage tourism; and providing clear and secure environment to attract more tourists. It needs to build on its strength, identify the challenges and prepare a strategy to propel tourism as a promising sector of future.
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 separately 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 the 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 15-39 years.

**Parity Index**

Parity Index is a relative measure 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 Swasthya 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 at 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

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>AABY</td>
<td>Aam Admi Bima Yojana</td>
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<td>AAY</td>
<td>Antyodaya Anna Yojana</td>
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<td>AHT</td>
<td>Anti Human Trafficking</td>
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<td>AIBP</td>
<td>Accelerated Irrigation Benefit Programme</td>
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<td>ALP</td>
<td>Agriculture Labour Pension</td>
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<td>AMRUT</td>
<td>Atal Mission for Rejuvenation and Urban Transformation</td>
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<td>ANBC</td>
<td>Adjusted Net Bank credit</td>
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<td>ANP</td>
<td>Annapoorna Scheme</td>
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<td>AOD</td>
<td>Amount of Debt</td>
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<tr>
<td>APL</td>
<td>Above Poverty Line</td>
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<td>APMCMRL</td>
<td>Agricultural Produce Marketing Committee Maximum Residue Level</td>
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<td>ASAP</td>
<td>Additional Skill Acquisition Programme</td>
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<tr>
<td>ASE</td>
<td>Additional Skill Enhancement Programme</td>
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<tr>
<td>ATMA</td>
<td>Agriculture Technology Management Agency</td>
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<td>AVTS</td>
<td>Advanced Vocational Training System</td>
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<td>AWC</td>
<td>Anganwadi Centre</td>
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<tr>
<td>BCRLIP</td>
<td>Biodiversity Conservation and Rural Livelihood Improvement Project</td>
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<td>BE</td>
<td>Budget Estimate</td>
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<td>BPC</td>
<td>Bharat Petroleum Corporation</td>
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<td>BPL</td>
<td>Below Poverty Line</td>
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<td>BRDC</td>
<td>Bekal Resorts Development Corporation</td>
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<td>BSNL</td>
<td>Bharat Sanchar Nigam Limited</td>
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<td>BSUP</td>
<td>Basic Services to the Urban Poor</td>
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<td>CBSE</td>
<td>Central Board of Secondary Education</td>
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<td>C-DIT</td>
<td>Centre for Development of Imaging Technology</td>
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<td>CDS</td>
<td>Centre for Development Studies</td>
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<td>CDSS</td>
<td>Community Development Societies</td>
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<tr>
<td>CEOBE</td>
<td>Credit Equivalent of Off-Balance Sheet Exposure</td>
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<td>CEPCI</td>
<td>Cashew Export Promotion Council of India</td>
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<td>CFPI</td>
<td>Consumer Food Price Index</td>
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<td>CHIAK</td>
<td>Comprehensive Health Insurance Agency</td>
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<td>CHIS</td>
<td>Comprehensive Health Insurance Scheme</td>
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<tr>
<td>CM</td>
<td>Chief Minister</td>
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<td>CMRI</td>
<td>Critical Mineral Research Institute</td>
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<td>Coirfed</td>
<td>The Kerala State Co-operative Coir Marketing Federation Ltd.</td>
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<td>CPI</td>
<td>Consumer Price Index</td>
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<td>CPIS</td>
<td>Coconut Palm Insurance Scheme</td>
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<td>CPSEs</td>
<td>Central Public Sector Enterprises</td>
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<td>CRDP</td>
<td>Capital Regional Development Project</td>
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<td>CSIND</td>
<td>Coastal Shipping and Inland Navigation Department</td>
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<td>CSS</td>
<td>Centrally Sponsored Scheme</td>
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<td>CWRDM</td>
<td>Centre for Water Resources Development and Management</td>
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<tr>
<td>CWS</td>
<td>Current Weekly Status</td>
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<tr>
<td>DAR</td>
<td>Debt Asset Ratio</td>
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<tr>
<td>DCCBS</td>
<td>District Central Co-operative Banks</td>
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<td>DCRCs</td>
<td>District Disability Rehabilitation Centres</td>
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<td>DDRS</td>
<td>Deen Dayal Disabled Rehabilitation Scheme</td>
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<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<tr>
<td>DDU GKY</td>
<td>Deen Dayal Upadhyaya Gramin Kaushalya Yojana</td>
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<tr>
<td>DES</td>
<td>Directorate of Economics and Statistics</td>
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<td>DGE&amp;T</td>
<td>Director General of Employment and Training</td>
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<td>DIC</td>
<td>Directorate of Industries and Commerce</td>
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<td>DMRC</td>
<td>Delhi Metro Rail Corporation</td>
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<td>DRDO</td>
<td>Defence Research and Development Organisation</td>
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<td>DRIG Board</td>
<td>Design Research, Investigation and Quality Control Board</td>
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<td>ECD</td>
<td>Early Childhood Development</td>
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<td>ED</td>
<td>Entrepreneurship Development</td>
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<td>EDCs</td>
<td>Eco Development Committees</td>
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<td>ENVIS</td>
<td>Environmental Information System</td>
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<td>EPC</td>
<td>Engineering Procurement and Construction</td>
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<td>ESI</td>
<td>Employees’ State Insurance</td>
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<td>FCIs</td>
<td>Food Craft Institutes</td>
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<td>FDAs</td>
<td>Forest Development Agencies</td>
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<td>FMCG</td>
<td>Fast Moving Consumer Goods</td>
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<td>FMD</td>
<td>Foot and Mouth Disease</td>
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<td>FOMIL</td>
<td>Foam Matting’s India Ltd</td>
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<td>FSI</td>
<td>Forest Survey of India</td>
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<td>FSSAI</td>
<td>Food Safety and Standards Authority of India</td>
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<td>GAP</td>
<td>Good Agriculture Practices</td>
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<td>GATE</td>
<td>Graduate Aptitude Test in Engineering</td>
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<td>GB</td>
<td>Gender Budgeting</td>
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<td>GCDA</td>
<td>Greater Cochin Development Authority</td>
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<td>GDI</td>
<td>Gender Equality Index</td>
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<tr>
<td>GEC</td>
<td>Government Engineering College</td>
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<td>GEM</td>
<td>Gender Empowerment Measurement Generation Programme</td>
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<td>GHG</td>
<td>Green House Gas</td>
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<tr>
<td>GOI</td>
<td>Government of India</td>
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<td>GPPP</td>
<td>Good Plant Protection Practices</td>
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<td>GRB</td>
<td>Gender Responsive Budgeting</td>
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<tr>
<td>GST</td>
<td>Goods And Service Tax</td>
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<td>GSVA</td>
<td>Gross State Value Added</td>
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<tr>
<td>GVA</td>
<td>Gross Value Added</td>
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<td>HDCK</td>
<td>Handicraft Development Corporation of Kerala</td>
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<td>HDFC</td>
<td>Housing Development Finance Corporation</td>
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<td>HDI</td>
<td>Human Development Index</td>
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<td>HPC</td>
<td>Hindustan Petroleum Corporation</td>
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<td>HS</td>
<td>High School</td>
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<td>HSC</td>
<td>Higher Secondary Course</td>
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<td>HUDCO</td>
<td>Housing and Urban Development Corporation</td>
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<td>IAY</td>
<td>Indira Awas Yojana</td>
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<tr>
<td>ICDP</td>
<td>Integrated Co-operative Development Project</td>
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<td>ICDS</td>
<td>Integrated Child Development Services</td>
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<td>ICPS</td>
<td>Integrated Child Protection Scheme</td>
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<tr>
<td>ICT</td>
<td>Information and Communications Technology</td>
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<td>ICTP</td>
<td>Information and Communication Technology Persons</td>
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<td>IGMSY</td>
<td>Indira Gandhi Matritva Sahyog Yojana</td>
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<td>IGNOAPS</td>
<td>Indira Gandhi National Rural Employment Guarantee Scheme</td>
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<tr>
<td>IHSDP</td>
<td>Integrated Housing and Slum Development Programme</td>
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<tr>
<td>IIITM-K</td>
<td>Indian Institute of Information Technology and Management Kerala</td>
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<tr>
<td>IISc</td>
<td>Indian Institute of Science</td>
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<tr>
<td>IIT</td>
<td>Indian Institute of Technology</td>
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<td>ILC</td>
<td>Indian Labour Conference</td>
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<td>ILCS</td>
<td>Integrated Low cost Sanitation Scheme</td>
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<td>ILO</td>
<td>International Labour Organisation</td>
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<td>INDC</td>
<td>India’s intended Nationally Determined Contribution</td>
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<td>IOC</td>
<td>Indian Oil Corporation</td>
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<td>IOI</td>
<td>Incidence of Indebtedness</td>
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<td>IPC</td>
<td>Indian Penal Code</td>
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<td>IPOP</td>
<td>Integrated Programme for Older</td>
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<td>ISFR</td>
<td>India State of Forest Report</td>
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<td>ISM</td>
<td>Interstate Migrant</td>
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<td>ISRO</td>
<td>Indian Space Research Organisation</td>
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<td>IT</td>
<td>Information Technology</td>
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<tr>
<td>ITI</td>
<td>Industrial Training Institutes</td>
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<td>IWG</td>
<td>Internal Working Group</td>
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<td>IWMP</td>
<td>Integrated Watershed Management Programme</td>
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</table>
JJ: Juvenile Justice
JBY: Janasree Bima Yojana
JFMC: Joint Forest Management Committee
JNNURM: Jawaharlal Nehru National Urban Renewal Mission
JNTBGRI: Jawaharlal Nehru Tropical Botanic Garden and Research Institute
KASE: Kerala Academy for Skills Excellence
KAU: Kerala Agricultural University
KCC: Kisan Credit Card
KCHR: Kerala Council for Historical Research
KCMMF: Kerala Co-operative Milk Marketing Federation
Kerafed: Kerala State Kera Karshaka Sabakarana Federation
KFC: Kerala Financial Corporation
KFRI: Kerala Forest Research Institute
KFWFB: Kerala Fisherman’s Welfare Fund Board
KHRI: Kerala Highway Research Institute
KIED: Kerala Institute of Entrepreneurship Development
KILE: Kerala Institute of Labour and Employment
KINFRA: Kerala Industrial Infrastructure Development Corporation
KITTSS: Kerala Institute of Tourism and Travel Studies
KLDB: Kerala Livestock Development Board
KSACC: Kerala State Agency for the Expansion of Cashew Cultivation
KSBM: Kerala State Baboo Mission
KSCARDB: Kerala State Cooperative Agricultural and Rural Development Bank Ltd
KSCC: Kerala State Coir Corporation
KSCSTE: Kerala State Council for Science, Technology and Environment
KSCWWFB: Kerala State Coir Workers Welfare Fund Board
KSERC: Kerala State Electricity Regulatory Commission
KSIDC: Kerala State Industrial Development Corporation
KSINC: Kerala Shipping and Inland Navigation Corporation Ltd
KSOM: Kerala School of Mathematics
KSRRDA: Kerala State Rural Roads Development Agency
KSRTC: Kerala State Road Transport Corporation
KSSED: Kerala State Entrepreneur Self Development Mission
KSSM: Kerala Social Security Mission
KSUDP: Kerala Sustainable Urban Development Project
KSUM: Kerala Startup Mission
KTDC: Kerala Tourism Development Corporation
KTIIL: Kerala Tourism Infrastructure Limited
LBI: Livelihood Business Incubators
LEADS: Lead Farmer Centered Extension and Advisory Delivery Services
LED: Light Emission Diode
LFPR: Labour Force Participation Rate
LPG: Liquefied Petroleum Gas
LSG: Local Self Governments
MAH: Major Accident Hazard
Marketfed: Kerala State Co-operative Marketing Federation Ltd.
MBGIPS: Malabar Botanical Garden and Institute of Plant Studies
MCC: Malabar Cancer Centre
MD: Moderate Dense Forest
MDG: Millennium Development Goal
MEP: Minimum Export Price
MES: Modular Employable Skill
MFI: Micro Finance Institutions
MGNREGS: Mahatma Gandhi National Rural Employment Guarantee Scheme
MICE: Meeting Incentive Conference and Events
MLA: Member of Legislative Assembly
MNAIS: Modified National Agricultural Insurance Scheme
MoFPI: Ministry of Food Processing Industries
MSME: Micro, Small and Medium Enterprises
MT: Metric Tonne
MUDRA: Micro Units Development and Refinance Agency Ltd.
M VIP: Muvattupuzha Valley Irrigation Project
MVRC: Mumbai Rail Vikas Corporation
NABARD: National Bank for Agriculture and Rural Development
NAC: National Accreditation Council
NATPAC: National Transportation Planning and Research Centre
NBSS & LUP: National Bureau of Soil Survey and Land Use Planning
NCEUS: National Commission for Enterprises in the Unorganized Sector
NCIP: National Crop Insurance Scheme
NCMB: National Crime Records Bureau
NATPAC: National Transportation Planning and Research Centre
NBSS & LUP: National Bureau of Soil Survey and Land Use Planning
NCVT: National Council for Vocational Training
NFHS: National Family Health Survey
NFSA: National Food Security Act
NGOs: Non-government Organizations
NMFP: National Mission on Food Processing
NORKA: Non Resident Keralite Affairs
NPRPD: National Programme for Persons with Disabilities
NRDP: National Rural Drinking Water Programme
NRLM: National Rural Livelihood Mission
NSSO: National Sample Survey Office
NTFP: Non-Timber Forest Product
NUALS: National University of Advanced Legal Studies
NUEPA: National University of Educational Planning and Administration
OF: Open Forest
OSCC: One Stop Crisis Cell
PACS: Primary Agricultural Credit Societies
PAIS: Personal Accident Insurance Scheme Partnership in Technologies
PBD: Pravasi Bharatika Divas
PF: Protected Forests
PIS: Passenger Information System
PMAY: Pradhan Mantri Awaas Yojana
PMEGP: Prime Minister’s Employment Generation Programme
PMGSY: Pradhan Mantri Gram Sadak Yojana
PMJDY: Pradhan Mantri Jan Dhan Yojana
PMKVY: Pradhan Mantri Kisan Vikas Yojana
PMKSY: Pradhan Mantri Krishi Sinchai Yojana
POCSO Act: Protection of Children from Sexual Offences Act
POL: Petroleum, Oil and Lubricants
PPP: Public Private Partnership
PRD: Public Relations Department
PS: Primary Schools
PTA: Parent Teachers Association
PWD: Public Works Department
PwDs: Persons with Disabilities
RAY: Rajiv Awaas Yojana
RCC: Regional Cancer Centre
REACH: Resource Enhancement Academy
ENDOM: Endangered and Threatened plants
RF: Reserved Forests
RFA: Recorded Forest Area
RIAB: Restructuring and Internal Audit Board
RIDF: Rural Infrastructure Development Fund
RISC: Rainfall Insurance Scheme for Coffee
RIT: Rajiv Gandhi Institute of Technology
RKVY: Rashtriya Krishi Vikas Yojana
RPI: Rubber Plantation Insurance
RRB: Regional Rural Bank
RSBY: Rashtriya Swasthya Bima Yojana
RSETI: Rural Self Employment Training Institutes
RTE: Right to Education
Rubbermark: Kerala State Co-operative Rubber Marketing Federation Ltd.
SASH: Single family Affordable Solar Housing
SBM: Swachh Bharat Mission
SCBs: Scheduled Commercial Banks
SC/ST: Scheduled Caste/Scheduled Tribes
SCM: Smart City Mission
SCDD: Scheduled Caste Development Department
SCRIPT: State Centre Resources Institute
SCTIMST: Sree Chithira Thirunal Institute of Medical Sciences and Technology
Abbreviations

SCVT: State Council for Vocational Training
SDI: Skill Development Initiative
SECC: Socio Economic and Caste Census
SEGP: Special Employment Generation Programme
SFDA: State Forest Development Agency
SHGs: Self Help Groups
SIHM: State Institute of Hospitality Management
SJD: Social Justice Department
SLBC: State Level Bankers Committee
SLBP: Special Livestock Breeding Programme
SLL: Special and Local Laws
SLPEs: State Level Public Enterprises
SMG: School Management System
SONTR: State's Own Non Tax Revenue
SOTR: State's Own Tax Revenue
SREP: Strategic Research and Extension Plan
SRIBS: Srinivasa Ramanujan Institute for Basic Sciences
SSLC: Secondary School Leaving Certificate
STD: Subscriber Trunk Dialling
STDD: Scheduled Tribe Development Department
STEC: Science Technology and Environment Committee
Supplyco: Kerala State Civil Supplies Corporation
TBI: Technology Business Incubators
TCPC: Training, Counselling and Placement Cells
TISS: Tata Institute of Social Sciences
TRIDA: Thiruvananthapuram Development Authority
TTI: Teacher Training Institute
UA: Urban Agglomeration
UDISSMT: Urban Infrastructure Development Scheme for Small and Medium Towns
UNCTAD: United Nations Conference on Trade and Development
UNESCO: United Nations Educational, Scientific and Cultural Organization
UNWTO: United Nations World Tourism Organisation
UPS: Upper Primary School
UPSS: Usual Principal Subsidiary Status
UR: Unemployment Rate: The percentage of the total labour force that is unemployed but actively seeking employment and willing to work.
UT: Union Territory
VAMBAY: Valmiki Ambedkar Awas Yojana
VAT: Value Added Tax
VDF: Very Dense Forest
VDPIPM: Vegetable Development Project Integrated Pest Management
VFPC: Vegetable and Fruit Promotion Council
VGF: Viability Gap Fund
VHSE: Vocational Higher Secondary Education
VoA: Visa on Arrival
VoTV: Voice of Tobacco Victims
VSSS: Vana Samrakshan Samithis
VTP: Vocational Training Providers
WFB: Welfare Fund Board
WPR: Worker Population Ratio
WPI: Wholesale Price Index