

# Memorandum (Revised)

## Monsoon Calamity Losses 29<sup>th</sup> May to 31<sup>st</sup> July 2018



Submitted by  
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(State Relief Commissioner)  
Government of Kerala

7-8-2018

## Contents

1. Introduction .....	3
1.1. Forecast and preparations .....	3
2. Monsoon rainfall assessment - 29 <sup>th</sup> May to 31 <sup>st</sup> July 2018.....	4
3. Monsoon related disasters - 29 <sup>th</sup> May to 31 <sup>st</sup> July 2018 .....	6
2. Agriculture.....	11
4.1. Agricultural scenario in the State .....	11
4.2. Important crops of Kerala.....	11
4.3. Crop wise cumulative area under cultivation .....	13
3. Losses .....	14
5.1. Human Fatalities.....	14
5.2. Houses damages .....	14
5.3. Damages to fisheries.....	15
5.4. Relief Camps including food camps.....	16
5.5. Drinking water supply .....	16
5.6. Search and Rescue .....	16
5.7. Relief for loss of cloths & utensils .....	17
5.8. Agriculture damage .....	17
5.9. Debris clearance .....	18
5.10. Damages to animal husbandry and dairy sector .....	19
2.6 Repair/restoration of damaged infrastructure .....	19
4. Abstract of Claims .....	45

## **1. Introduction**

### **1.1. Forecast and preparations**

The monsoon season started-off with immense calamities. The Indian Meteorological Department declared the onset of monsoon over Kerala on 29<sup>th</sup> May 2018. Quantitatively, the monsoon seasonal rainfall is likely to be 97% of the Long Period Average (LPA) with a model error of  $\pm 5\%$ . Forecast also suggests maximum probability for normal monsoon rainfall (96-104% of LPA) and low probability for deficient rainfall during the season.

Based on this forecast, the State Emergency Operations Centre of Kerala put forward a disaster outlook valid for the state during the monsoon season (June to December) of 2018.

Considering the predictions of IMD and the Disaster Outlook, 2018, the State Relief Commissioner convened a meeting of the heads-of-the-departments of all nodal departments on 16<sup>th</sup> May 2018 (Minutes issued vide Govt. Ltr. DM1/217/2018/DMD dated 28-05-2018) in which individual departments were assigned specific tasks for implementation. Preparedness at the district level was reviewed by Chief Minister and Revenue Minister via video conference and specific instructions were issued regarding the implementation of the decisions of the monsoon preparedness meeting.

## 2. Monsoon rainfall assessment - 29<sup>th</sup> May to 31<sup>st</sup> July 2018

The state received an excess of about 8%. However, the intra-state variability of rainfall in Kerala is very high; instantaneous rainfall at 1000 m above mean sea level can be 150% higher than at 40 m above MSL. The table below shows the rainfall excess that the state has received during the period.

District	Actual Rainfall (mm)	Normal Rainfall (mm)	Departure (%)	
Kannur	1979.32	1934.2	2.33	Normal
Kasargod	1832.1	2139.1	-14.35	Normal
Kozhikode	2084.6	1878.8	10.95	Normal
Wayanad	1788.6	1836	-2.58	Normal
Malappuram	1684.27	1472.8	14.36	Normal
Palakkad	1453.8	1072.9	35.50	Excess
Thrissur	1293.01	1498.5	-13.71	Normal
Ernakulam	1646.58	1384	18.97	Normal
Alappuzha	1203.03	1141.5	5.39	Normal
Kottayam	1472.85	1260.7	16.83	Normal
Idukki	2152.92	1463.7	47.09	Excess
Pathanamthitta	1122.7	1111.4	1.02	Normal
Kollam	812.83	867.4	-6.29	Normal
Trivandrum	595.08	575.8	3.35	Normal

This intense rainfall spells have caused significant damage to life and property, the details of which is given in the subsequent chapters. Table 1 compiles the actual and expected (normal) rainfall received during the south-west monsoon in the rainfall stations monitored by IMD.

**Table 1: Station Wise Rainfall Departure**

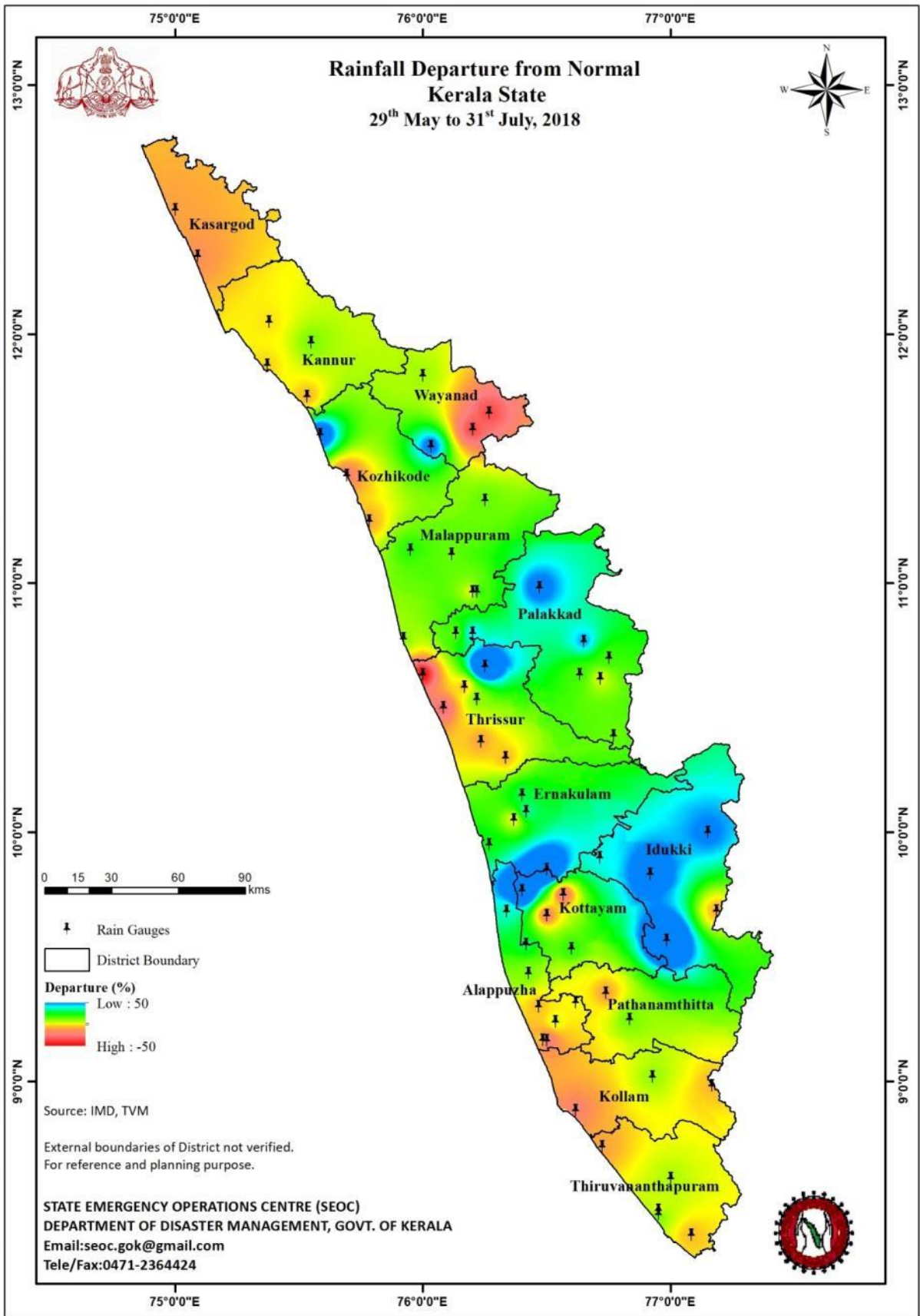
District	Station Name	Actual Rainfall (mm)	Normal Rainfall (mm)	Departure (%)
Kannur	Kannur	1852.71	1934.2	-4.21
	Taliparamba	1881.1	1934.2	-2.75
	Thalasserry	1771.5	1934.2	-8.41
	Irikkur	2412	1934.2	12.76
Kasargod	Hosdurg	1790.3	2139.1	-16.31
	Kudulu	1873.9	2139.1	-12.40
Kozhikode	Kozhikode	1688.4	1878.8	-10.13
	Vadakara	3081.4	1878.8	64.01
	Quilandy	1484	1878.8	-21.01
Wayanad	Mananthavady	2004.4	1836	9.17
	Vythiri	2823.1	1836	53.76
	Ambalavayal	1159.9	1836	-36.82

	Kuppady	1167	1836	-36.44
Malapuram	Nilambur	1695.4	1472.8	15.11
	Manjeri	1700.1	1472.8	15.43
	Perinthalmanna	1857.7	1472.8	26.13
	Ponnani	1646.1	1472.8	11.77
	Angadippuram	1414.3	1472.8	-3.97
	Karipur AP	1792.02	1472.8	21.67
Palakkad	Palakkad	1579.7	1072.9	47.24
	Mannarkad	1663.8	1072.9	55.08
	Ottappalam	2152.2	1072.9	100.60
	Alathur	1269.4	1072.9	18.31
	Chittur	1282.1	1072.9	19.50
	Kollengode	1109.4	1072.9	3.40
	Pattambi	1545.5	1072.9	44.05
	Thrithala	1245.8	1072.9	16.12
	Parambikulam	1237	1072.9	15.29
Thrissur	Kodungallur	1502.3	1498.5	0.25
	Irinjalakuda	1323.3	1498.5	-11.69
	Vadakkancherry	1400.2	1498.5	-6.56
	Kunnamkulam	759.8	1498.5	-49.30
	Chalakydy	1366.2	1498.5	-8.83
	Enamackel	1014	1498.5	-32.33
	Vellanikkara	1685.31	1498.5	12.47
Ernakulam	Kochi AP	1741.71	1384	25.85
	Aluva	1521.3	1384	9.92
	Piravom	2882	1384	108.24
	Perumbavur	1892.9	1384	36.77
	CIAL Kochi	1797.6	1384	29.88
	Ernakulam South	-4	1384	-96.82
Alappuzha	Alappuzha	1491.9	1141.5	30.70
	Kayamkulam	1156.6	1141.5	1.32
	Mavelikkara	1184.9	1141.5	3.80
	Cherthala	1571.8	1141.5	37.70
	Mancompu	1289.9	1141.5	13.00
	Haripad	1054	1141.5	-7.67
	Chengannur	1138.8	1141.5	-0.24
	CPCRI Kayamkulam	736.4	1141.5	-35.49
Kottayam	Kottayam	1523.3	1260.7	20.83
	Vaikom	2461.9	1260.7	95.28
	Kumarakom	983.5	1260.7	-21.99
	Kozha	922.7	1260.7	-26.81
Idukki	Peermade	2783	1463.7	90.13
	Thodupuzha	2061	1463.7	40.81
	Munnar	2216.7	1463.7	51.44

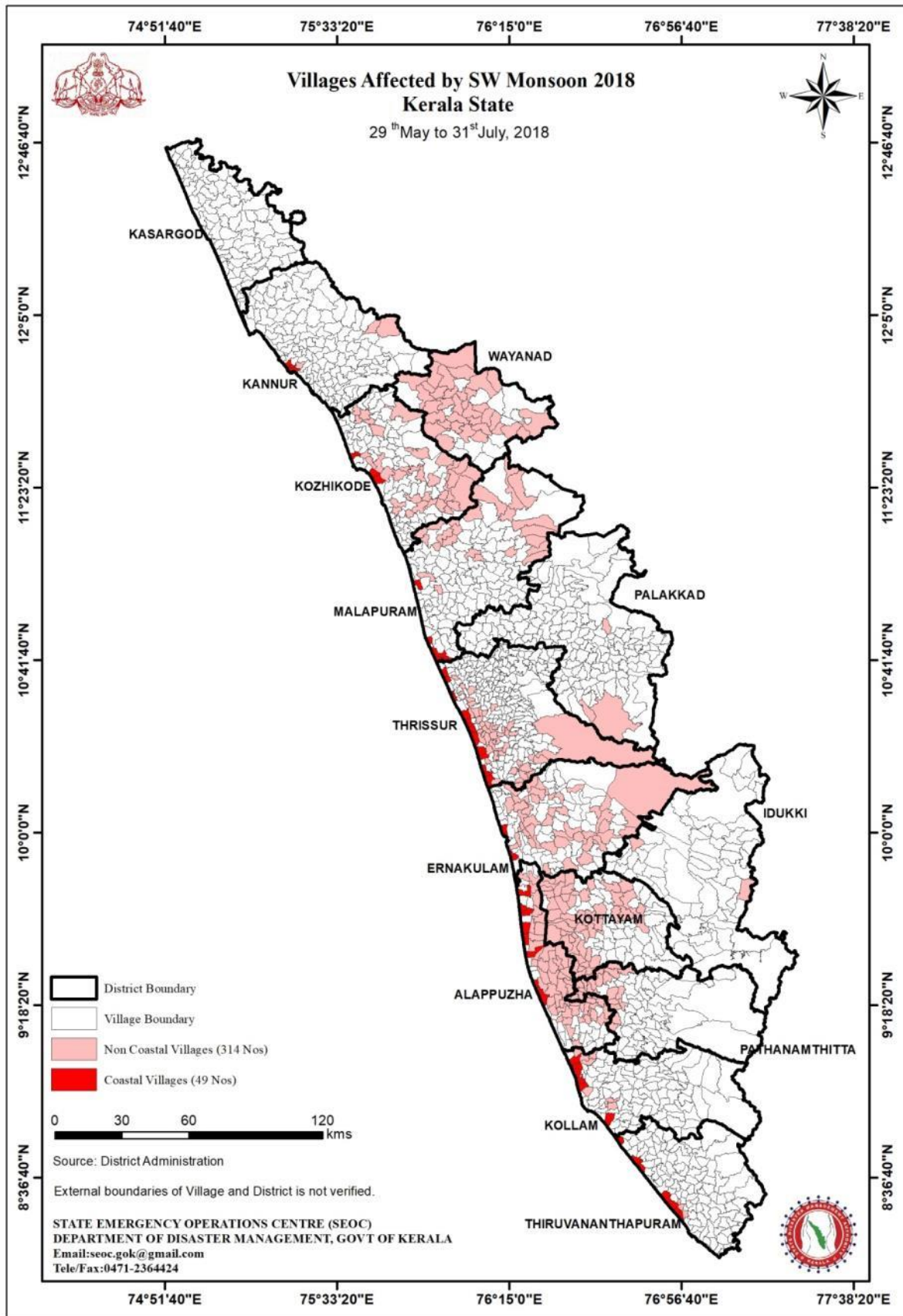
	Idukki	2385.1	1463.7	62.95
	Myladumpara	1318.8	1463.7	-9.90
Pathanamthitta	Konni	1276.9	1111.4	14.89
	Kurudamannil	968.5	1111.4	-12.86
Kollam	Kollam	680.4	867.4	-21.56
	Aryankavu	796.2	867.4	-8.21
	Punalur	961.9	867.4	10.89
Trivandrum	Trv City	630.9	575.8	9.57
	Trv AP	677.71	575.8	17.70
	Nedumangad	624	575.8	8.37
	Neyyattinkara	533.8	575.8	-7.29
	Varkala	509	575.8	-11.60

### 3. Monsoon related disasters - 29<sup>th</sup> May to 31<sup>st</sup> July 2018

In total 363 villages have been affected due to monsoon related disasters. Forty seven (47) landslides occurred in the State. According to National Remote Sensing Agency of ISRO, 55,007 ha of land in Kerala was inundated on 16-7-2018. Such catastrophe due to monsoon rainfall is for the first time since 1924, in the state.

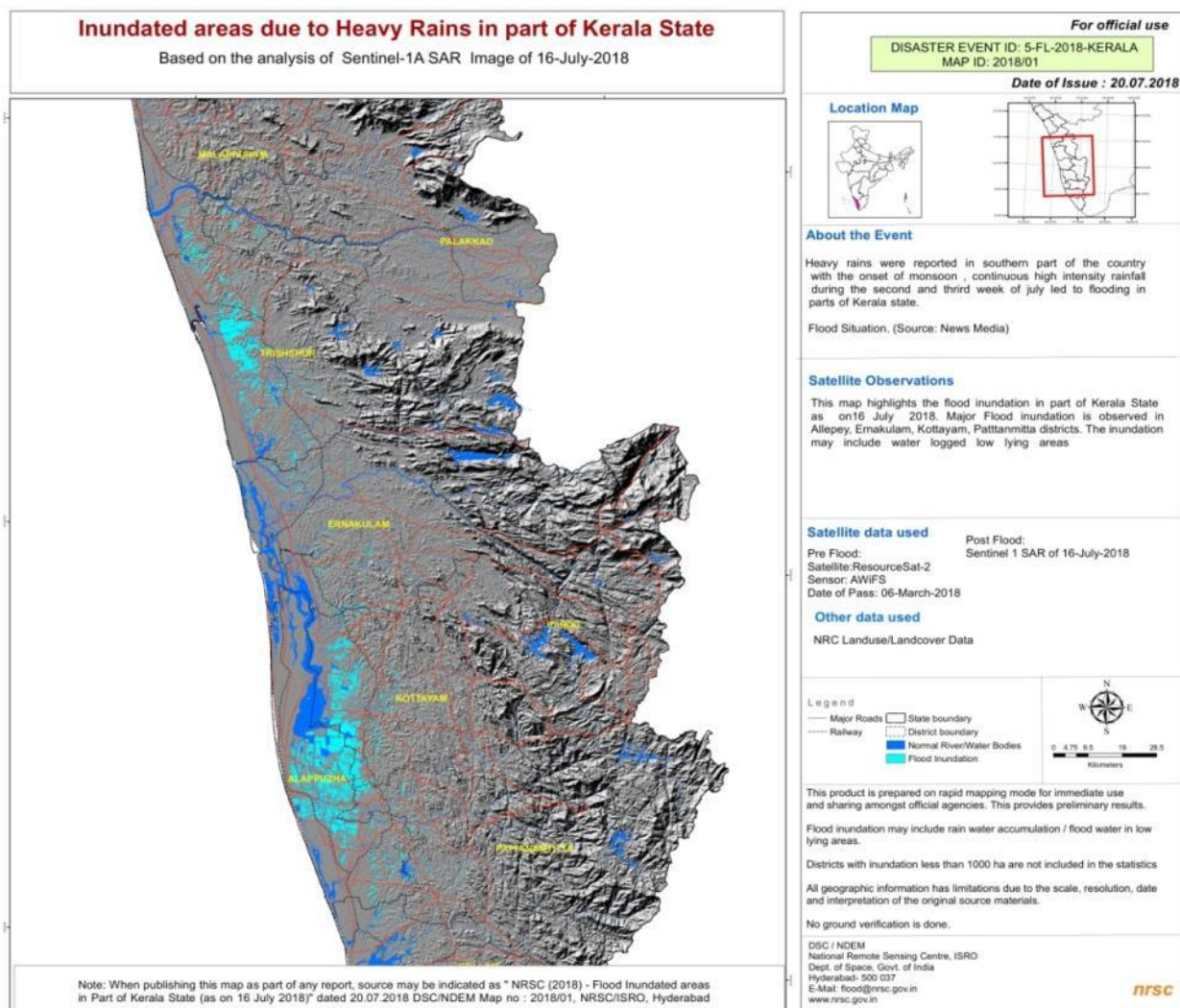


*Figure 1: Rainfall departure 2018 (29<sup>th</sup> May to 31<sup>st</sup> July) (Data source: IMD)*



*Figure 2: Villages affected by SW Monsoon 2018 (29<sup>th</sup> May to 31<sup>st</sup> July) (Data source: District Administration)*





District	Flooded Area (ha)
Alleppey	21799
Ernakulam	2056
Kottayam	12301
Pathanamthitta	2322
Malappuram	1338
Kollam	1503
Thrissur	13688
<b>Total</b>	<b>55007</b>

**Figure 3: Flood affected parts of Kerala as on 16-7-2018 (Data source: NRSC)**

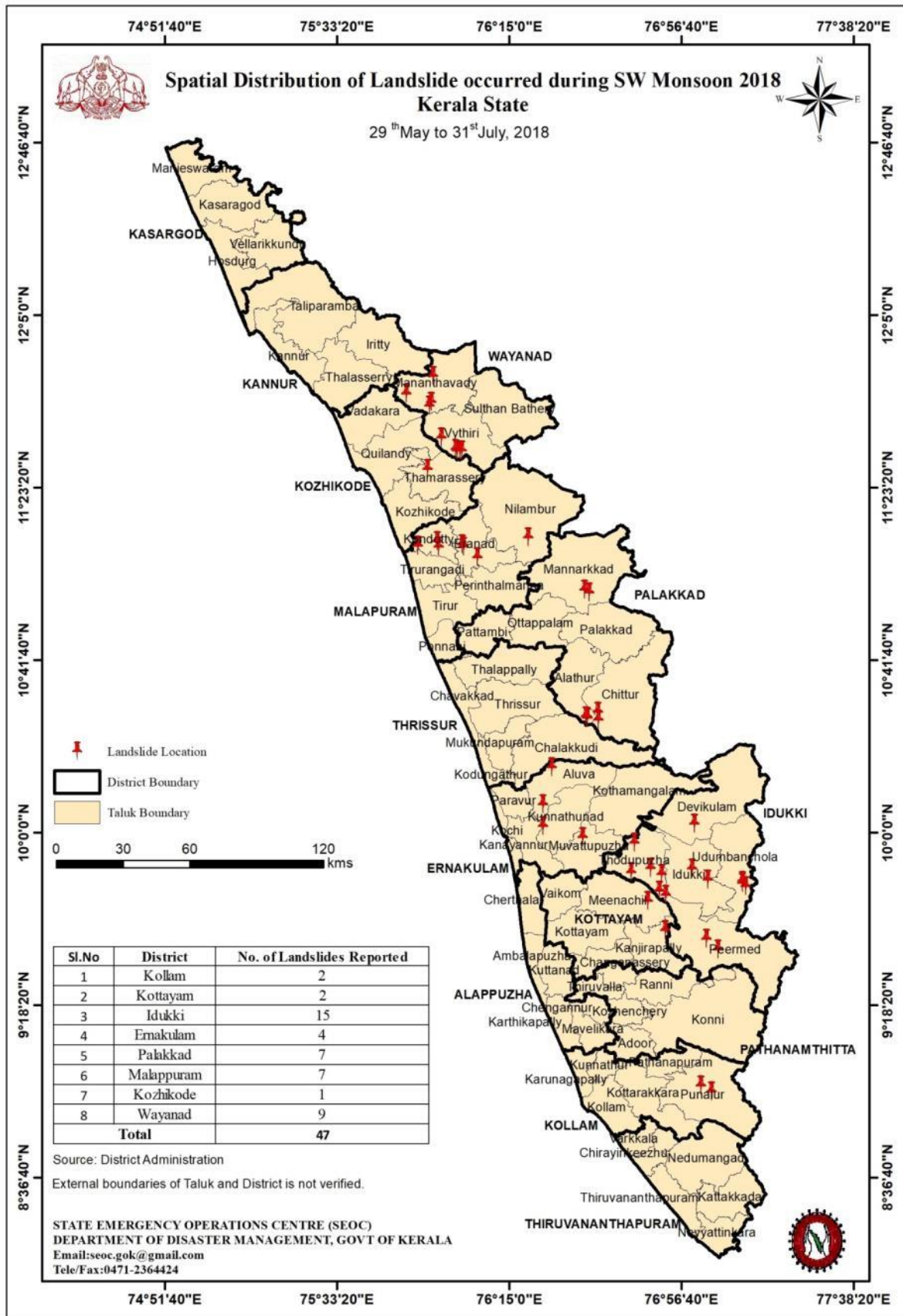


Figure 4: Landslide reported during SW Monsoon 2018 (29<sup>th</sup> May to 31<sup>st</sup> July) (Data source: District Administration)

## 2. Agriculture

The total geographic area of the State is 3,88,6287 Ha. Geographical area in Kerala has been classified according to thirteen different uses of land such as forest, land put to non-agricultural use, net area sown, barren and uncultivable land, and pastures and grazing land. The net area under cultivation during the year 2017-18 was 20,48,109 Ha, which occupies 52.70% of the total area in the State.

Agricultural crops in the state are broadly classified as food crops and non-food crops. Food crops are cereals, millets, sugar crops, spices, & condiments, fresh fruits, vegetables, etc. The major non-food crops are rubber, betel leaves, lemon grass, etc. Another classification of crop is seasonal crops, annual crops and perennial crops which are based on their life time.

- a) Seasonal crops: Paddy, pulses, tapioca, vegetables, sweet potato, tubers, groundnut, ginger, turmeric, cotton, tobacco, onion, tur etc.
- b) Annual crops: Sugarcane, banana, plantain, pineapple, betel leaves, etc.
- c) Perennial crops: Coconut, arecanut, cashew, mango, jack, tamarind, pepper, rubber, tea, coffee, cardamom, cloves, nutmeg, cinnamon, cocoa, papaya, etc.

### 4.1. Agricultural scenario in the State

- Total cropped area - 25,84,007.198 Ha
- Net area sown - 20,15,482 Ha
- Area sown more than once. - 5,68,525.198 Ha
- Net area irrigated (source wise) - 377761 Ha
- Net area irrigated (source wise) to net area sown - 18.74%
- Irrigated paddy area to total area - 76.47%
- Cropping intensity - 128.21%

### 4.2. Important crops of Kerala

Figure 5 shows the important crops of the State and the respective principle growing areas.

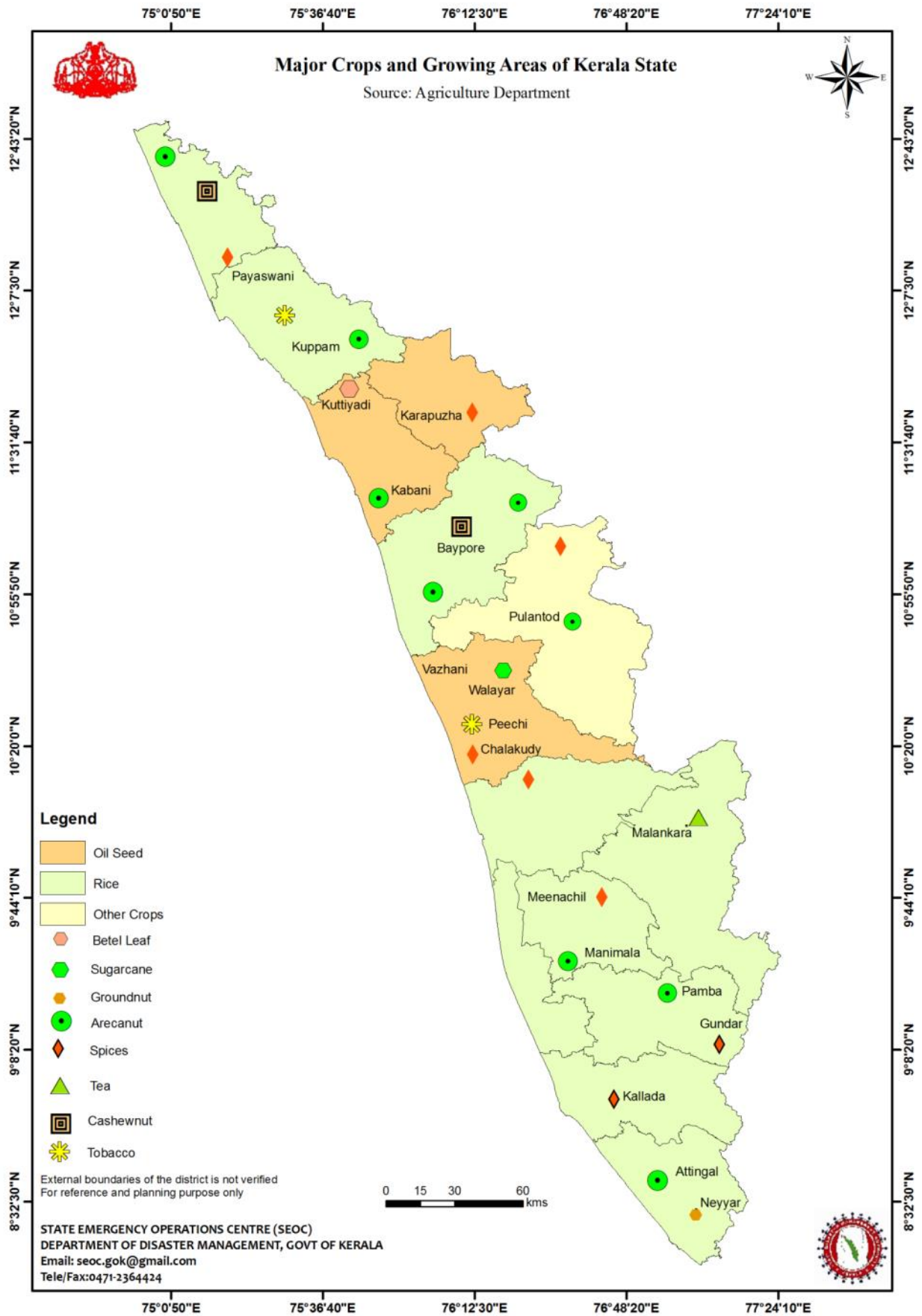


Figure 5: Major Crops of Kerala

### 4.3. Crop wise cumulative area under cultivation

- Paddy - 5214.3 ha
- Pulses - 1,738 ha
- Sugar crops - 3,362.5 ha
- Pepper - 85,207 ha
- Oil Seeds - 7,84,326.6 ha
- Arecanut - 97,696 ha
- Ginger - 5,151 ha
- Cashew - 41,661 ha
- Turmeric - 2,632 ha
- Cardamom - 39,080 ha
- Tamarind - 11,549 ha
- Nutmeg - 22,065 ha
- Rubber - 5,51,050 ha
- Fresh Fruits - 3,27,210 ha
- Vegetables - 46,732 ha

### 3. Losses

#### 5.1. Human Fatalities

One hundred and twenty three (138) lives were lost during the monsoon till 31<sup>st</sup> July 2018. Table 2 shows the district wise human fatalities reported.

District	Fatalities	Total @ ₹4 lakhs
Thiruvananthapuram	7	28
Kollam	3	12
Pathanamthitta	8	32
Alappuzha	12	48
Kottayam	9	36
Idukki	5	20
Ernakulam	6	24
Thrissur	11	44
Palakkad	4	16
Malappuram	13	52
Kozhikode	21	84
Wayanad	5	20
Kannur	22	88
Kasargode	12	48
<b>Total</b>	<b>138</b>	<b>552</b>

#### 5.2. Houses damages

A large number of houses were completely or severely damaged. The actual loss to housing sector due to this is inestimable. Figure 3 shows some photographs of the calamity damages incurred in the state. District wise details of number of houses damaged (fully, severely and partially) with estimated loss is given in Table 3:

*Table 3: District wise house damage estimates – Pucca*

District	Pucca houses				Total in lakhs
	FD		PD		
	No	Amount	No	Amount	
Thiruvananthapuram	50	50.95	1269	646.5555	697.5055
Kollam	22	22.418	766	390.277	412.695
Pathanamthitta	24	24.456	1520	774.44	798.896
Alappuzha	25	25.475	594	302.643	328.118
Kottayam	7	7.133	774	394.353	401.486
Idukki	34	34.646	821	418.2995	452.9455
Ernakulam	25	25.475	506	257.807	283.282
Thrissur	28	28.532	310	157.945	186.477
Palakkad	23	23.437	504	256.788	280.225
Malappuram	32	32.608	570	290.415	323.023
Kozhikode	76	77.444	2442	1244.199	1321.643

Wayanad	17	17.323	413	210.4235	227.7465
Kannur	31	31.589	934	475.873	507.462
Kasargode	45	45.855	240	122.28	168.135
<b>Total</b>	<b>439</b>	<b>447.341</b>	<b>11663</b>	<b>5942.2985</b>	<b>6389.64</b>

### 5.3. Damages to fisheries

The cyclonic storms, wind and rainfall have caused severe damages to the fisheries sector of the state. The details of district wise damages are given in Table 4 & Table 5:

*Table 4: District wise damages to boats and nets (Losses in lakhs)*

<i>District</i>	<i>Fully Damaged Boat</i>	<i>Partially Damage Boat</i>	<i>Fully Damaged Net</i>	<i>Partially damaged Net</i>	<i>Total</i>
Thiruvananthapuram	3	5	3	2	0.613
Kollam	5	7	6	1	0.944
Alappuzha	4	6	4	6	0.86
Kottayam	5	270	229	252	22.796
Pathanamthitta	2	0	41	0	1.258
Idukki	0	0	0	0	0
Ernakulam	2	2	0	2	0.316
Thrissur	0	0	0	0	0
Palakkad	0	0	0	0	0
Wayanad	0	0	0	0	0
Malappuram	22	3	11	0	2.521
Kozhikode	3	4	4	0	0.556
Kannur	2	1	2	0	0.285
Kasargod	2	0	1	0	0.218
<b>Total</b>	<b>50</b>	<b>298</b>	<b>301</b>	<b>263</b>	<b>30.367</b>

*Table 5: De-silting/repair/restoration of fish farms*

<b>District</b>	<b>Area (ha)</b>	<b>Cost (in lakhs)</b>
Thiruvananthapuram	20	1.64
Kollam	15	1.23
Alappuzha	222	18.204
Kottayam	220	18.04
Pathanamthitta	40	3.28
Idukki	15	1.23
Ernakulam	200	16.4
Thrissur	2100	172.2
Palakkad	20	1.64
Wayanad	20	1.64
Malappuram	101	8.282
Kozhikode	20	1.64
Kannur	15	1.23
Kasargod	15	1.23
<b>Total</b>	<b>3023 ha</b>	<b>247.886</b>

#### 5.4. Relief Camps including food camps

District	Total Number of Camps	Total Number of Inmates	Total Cost Incurred in Lakhs
Thiruvananthapuram	11	626	1.8225
Kollam	14	606	2.679
Alappuzha	1835	498518	288.9
Kottayam	423	61155	111.27
Pathanamthitta	173	14607	54.5525
Idukki	14	278	0.73189
Ernakulam	78	7557	34.7454
Thrissur	165	10935	66.8299
Palakkad	4	250	0.77045
Wayanad	88	5780	38.3317
Malappuram	6	286	1.025
Kozhikode	69	6083	9.42652
Kannur	2	106	1.22407
Kasargod	1	80	0.1859
<b>Total</b>	<b>2883</b>	<b>606867</b>	<b>612.4948</b>

#### 5.5. Drinking water supply

District	Total Number Tankers/Boats	Total Number of Trips	Total Cost Incurred in Lakhs
Thiruvananthapuram	0	0	0
Kollam	0	0	0
Alappuzha	15	78	1.20129
Kottayam	3	7	0.15
Pathanamthitta	0	0	0
Idukki	0	0	0
Ernakulam	0	0	0
Thrissur	0	0	0
Palakkad	0	0	0
Wayanad	0	0	0
Malappuram	2	10	0.25
Kozhikode	7	45	0.985
Kannur	0	0	0
Kasargod	0	0	0
<b>Total</b>	<b>27</b>	<b>140</b>	<b>2.58629</b>

#### 5.6. Search and Rescue

District	Total Cost in lakhs
Thiruvananthapuram	0
Kollam	0
Alappuzha	200
Kottayam	2.66
Pathanamthitta	0
Idukki	0
Ernakulam	0.133



Thrissur	0
Palakkad	2.19449
Wayanad	0.99845
Malappuram	7.61388
Kozhikode	17.9447
Kannur	0.42
Kasargod	0
<b>Total</b>	<b>231.9645</b>

### 5.7. Relief for loss of cloths & utensils

District	Total Number families	Total Cost Incurred (@ ₹3800/family) in Lakhs
Thiruvananthapuram	156	5.9
Kollam	151	5.7
Alappuzha	124629	4735.902
Kottayam	15288	580.944
Pathanamthitta	3651	138.73
Idukki	69	2.622
Ernakulam	1889	71.782
Thrissur	2733	103.854
Palakkad	62	2.356
Wayanad	1445	54.91
Malappuram	71	2.698
Kozhikode	1520	57.76
Kannur	26	0.988
Kasargod	20	0.76
<b>Total</b>	<b>151710</b>	<b>5764.98</b>

### 5.8. Agriculture damage

The floods, windfall, heavy rainfall and cyclonic thunder storms have caused severe damages to crops in the affected areas. The details of district wise crop losses are given in Table 6. *It may be noted that in Kerala, majority of the farmers are SMALL AND MARGINAL FARMERS. It is only the SMF who claim for damages via NDRF/SDRF. Hence, loss estimation and claim is made only for the SMF sector. Details of losses incurred by 'other than small and marginal farmers' are not routinely collected.*

**Table 6: District wise agricultural damages – Small and Marginal Farmers only**

District	>33% crop loss extent (ha)	Loss (in lakhs) as per norms
Thiruvananthapuram	325.59	41.778
Kollam	354.87	46.138
Pathanamthitta	91.53	10.355
Alappuzha	13087.75	1752.677
Kottayam	5103.46	665.259
Idukki	2608.17	444.186

Ernakulam	589.72	81.776
Thrissur	812.82	109.506
Palakkad	2140.57	289.540
Malappuram	1020.50	118.774
Kozhikode	278.17	39.073
Wayanad	541.04	68.199
Kannur	294.87	41.043
Kasargode	110.08	17.814
<b>Total</b>	<b>27359.135</b>	<b>3726.118</b>

Table 7 shows the cost incurred for temporary repair of bunds and draining of flood waters. Many polder walls (bunds) that protect below mean sea level farm lands of Alappuzha breached. Permanent repair of polder walls can only be undertaken after the monsoon season. Until then, as a temporary measure, the breached bunds have been repaired using sand bags. Sand bags were also required to protect houses from intense onshore wash of sea due to cyclonic storm like situation. One sand bag in Alappuzha costs about Rs. 200, depending on the location of requirement and the transportation cost. Labour cost is Rs. 750/day for lying the sand bags given the fact that in general labour cost is high in Kerala and because this work involves drowning risk.

**Table 7: District wise cost of bund repair & draining of flood waters from agricultural lands**

District	No of breches	Area affected (ha)	Total (in lakhs)
Alappuzha	61	13087.75	1000
<b>Total</b>	61	13087.75	1000

## 5.9. Debris clearance

Table 8 shows the cost incurred for debris clearance of public land and agricultural land, in various districts.

**Table 8: District wise cost of debris clearance from public land**

District	Agricultural land (ha)	Cost (in lakhs)	Public land (ha)	Cost (in lakhs)
Alappuzha	13087.75	1596.706	1070.28	535.14
Kottayam	5103.46	622.6221	510.25	255.12
Idukki	2608.17	381.1967	139.085	69.54
Thrissur	812.82	99.164	270.52	135.26
Kozhikode	278.17	33.936	147.435	72.72
<b>Total</b>	<b>21890.37</b>	<b>2670.625</b>	<b>2137.6</b>	<b>1068.79</b>

## 5.10. Damages to animal husbandry and dairy sector

The intense rainfall and wind have caused severe damages to animal husbandry and dairy development sector of the state. The details of item wise damages are given in Table 9.

**Table 9: District wise damages to animal husbandry and dairy development sector**

Item	Loss in lakhs
Animal & poultry fatality	249.712
Totally damaged cattle sheds	32.375
Provision for feed and concentrate	81.70
Transportation of fodder	0.44
Additional Coast of Medicines and Vaccines	5.84
<b>Total</b>	<b>370.067</b>

## 2.6 Repair/restoration of damaged infrastructure

Losses were incurred to roads, irrigation canals, water supply schemes and community owned open wells. Many roads had to be restored to motor-able condition. The breach of canals resulted in flooding of several localities and hence the bunds had to be restored and reinforced. Open wells are the only source of drinking water in many of the rural hilly regions of the state and hence, those wells of which the walls collapsed and got silted had to be restored with immediate effect. Table 10 shows the district wise irrigation sector damages and water supply scheme damages. Table 11 shows the district wise details of power sector losses. Table 12 shows the length of PWD roads that were damaged and the cost that had to be incurred for repairing them. Table 13 shows the number of bridges that got damaged and the cost of replacing them. Table 14, 15, 16 and 17 shows the community owned assets such as length of village roads, anganawadis, CHCs, PHCs, schools etc.

**Table 10: Cost (in lakhs) incurred/committed for repair of irrigation and water supply schemes**

District	Irrigation sector - Cost (in lakhs)		Water Supply sector – Cost (in lakhs)	Total
	Major	Minor		
Thiruvananthapuram	1.5	0.00	62.40	107.40
Kollam	0.00	1.50	57.57	60.57
Pathanamthitta	0.00	30.00	97.60	128.20
Alappuzha	1.50	3.00	30.50	832.50
Kottayam	18.00	25.50	208.30	572.80
Idukki	22.50	4.50	63.25	247.45
Ernakulam	0.00	7.50	72.49	327.49

Thrissur	0.00	4.50	47.76	117.76
Palakkad	0.00	3.00	2.50	32.50
Malappuram	3.00	9.00	0.00	760.00
Kozhikode	45.00	37.50	29.30	1904.30
Wayanad	0.00	1.50	16.70	18.20
Kannur	0.00	0.00	10.20	10.20
Kasargode	0.00	9.00	3.45	69.95
<b>Total</b>	<b>91.5</b>	<b>136.5</b>	<b>702.02</b>	<b>5189.32</b>

**Table 11: Cost (in lakhs) incurred/committed for repair of power sector**

District	Cost (in lakhs)
Thiruvananthapuram	100.71
Kollam	90.76
Pathanamthitta	272.59
Alappuzha	116.91
Kottayam	127.92
Idukki	228.98
Ernakulam	250.99
Thrissur	144.70
Palakkad	302.12
Malappuram	283.30
Kozhikode	337.76
Wayanad	42.30
Kannur	262.72
Kasargode	271.88
<b>Total</b>	<b>2833.64</b>

**Table 12: Loss to PWD roads in Lakhs**

District	Length (Km)	Cost (in lakhs)
Thiruvananthapuram	202	202
Kollam	354.57	354.57
Pathanamthitta	844.65	844.65
Alappuzha	380.63	380.63
Idukki	933.57	933.57
Ernakulam	527.56	527.56
Idukki	933.57	933.57
Thrissur	557.87	557.87
Palakkad	1163.42	1163.42
Malappuram	760	760
Kozhikode	666.3	666.3
Wayanad	436.44	436.44
Kannur	581.95	581.95
Kasargode	46.7	46.7
<b>Total</b>	<b>8389.23</b>	<b>8389.23</b>

**Table 13: No. of PWD Bridges affected**

<b>District</b>	<b>No. of Bridges affected</b>	<b>Cost (in lakhs)</b>
Trivandrum	0	0
Kollam	0	0
Pathanamthitta	23	34.5
Idukki	0	0
Kottayam	12	18
Alappuzha	27	40.5
Ernakulam	0	0
Thirssur	2	3
Palakkad	1	1.5
Malapuram	3	4.5
Kozhikode	0	0
Wayanad	0	0
Kannur	0	0
Kasargod	0	0
<b>Total</b>	<b>68</b>	<b>102</b>

**Table 14: Cost incurred for immediate restoration of community owned infrastructure-Block Panchayth**

<i>Damaged Community Assets - Block Panchayath (BP)</i>										
<i>District</i>	<i>No. of Schools</i>	<i>Amount Claimed @ 2 lakh /school*</i>	<i>No. of Anganawadis</i>	<i>Amount claimed @ 2 lakh/anganwadi*</i>	<i>No. of Community Health Centres</i>	<i>Amount Claimed @ 2 lakh/PHC*</i>	<i>No. of Panchayat owned buildings</i>	<i>Amount claimed @2 lakh/building *</i>	<i>GP Roads (Km)</i>	<i>Amount Claimed @0.6 lakh/km*</i>
Thiruvananthapuram	32	64	134	268	8	16	24	48	356.9	214.14
Kollam	3	6	20	40	2	4	4	8	101	60.6
Pathanamthitta	NIL									
Alappuzha	70	140	88	176	19	38	20	40	492.836	295.7016
Kottayam	27	54	49	98	12	24	28	56	1066.09	639.654
Idukki	8	16	18	36	6	12	2	4	464.7	278.82
Ernakulam	NIL									
Thrissur	0	0	2	4	2	4	2	5.5	25.8	15.48
Malappuram	NIL									
Palakkad	140	280	526	1052	37	74	74	148	1968	1180.8
Kozhikode	NIL									
Wayanad	0	0	0	0	6	12	5	10	0	0
Kannur	NIL									
Kasargod	NIL									
<b>TOTAL</b>	<b>280</b>	<b>560</b>	<b>837</b>	<b>1674</b>	<b>92</b>	<b>184</b>	<b>159</b>	<b>319.5</b>	<b>4017.426</b>	<b>2895.196</b>

**Table 15: Cost incurred for immediate restoration of community owned infrastructure-Grama panchayth**

<i>Damaged Community Assests - Grama Panchayath (GP)</i>										
<i>Name of District</i>	<i>No. of Schools</i>	<i>Amount claimed @2 lakh/school</i>	<i>No. of Anganwadis</i>	<i>Amount claimed @2 lakh/anganwadi</i>	<i>No. of Primary Health Centres</i>	<i>Amount claimed @2 lakh/PHC</i>	<i>No. of Panchayath owned buildings</i>	<i>Amount claimed @2 lakh/building</i>	<i>LSG Roads (km)</i>	<i>Amount claimed @0.6 lakh/km</i>
Trivandrum	8	16	23	46	6	12	4	8	1227.59	736.55
Kollam	-	-	-	-	-	-	-	-	758.33	455.00
Pathanamthitta	14	28	20	40	6	12	3	6	3733.68	2240.21
Alappuzha	75	150	140	280	37	74	51	102	7386.33	4431.80
Kottayam	55	110	112	224	16	32	25	50	6688.87	4013.32
Idukki	8	16	4	8	2	4	7	14	925.00	555.00
Ernakulam	26	52	110	220	9	18	12	24	4150.53	2490.32
Thrissur	5	10	17	34	6	12	6	12	3166.67	1900.00
Palakkad	54	108	157	314	26	52	11	22	640.18	384.11
Malappuram	-	-	-	-	-	-	-	-	-	-
Kozhikode	-	-	-	-	-	-	-	-	708.33	425.00
Wayanad	-	-	-	-	-	-	-	-	-	-
Kannur	-	-	1	2	-	-	-	-	5167.00	3100.20
Kasargode	-	-	-	-	-	-	-	-	1595.10	957.06
<b>Total</b>	<b>245</b>	<b>490</b>	<b>584</b>	<b>1168</b>	<b>108</b>	<b>216</b>	<b>119</b>	<b>238</b>	<b>36147.61</b>	<b>21688.56</b>

**Table 16: Cost incurred for immediate restoration of community owned infrastructure-Municipality**

<i>Damaged Community Assets - Municipality</i>										
<i>District</i>	<i>No. of Schools</i>	<i>Amount claimed @2 lakh/school</i>	<i>No. of Anganawadis</i>	<i>Amount claimed @2 lakh/anganwadi</i>	<i>No. of Primary Health Centres</i>	<i>Amount claimed @2 lakh/PHC</i>	<i>No. of Panchayath owned buildings</i>	<i>Amount claimed @2 lakh/building</i>	<i>LSG Roads (km)</i>	<i>Amount claimed @0.6 lakh/km</i>
Trivandrum	4	8	9	18	-	-	-	-	3109.82	1865.89
Kollam	-	-	-	-	-	-	-	-	2500.00	1500.00
Pathanamthitta	5	10	3	6	1	2	19	38	84.92	50.95
Alappuzha	3	6	4	8	1	2			568.33	341.00
Kottayam	3	6	13	26	1	2	6	12	1117.58	670.55
Idukki	-	-	-	-	-	-	-	-	83.33	50.00
Ernakulam	-	-	-	-	-	-	-	-	837.28	502.37
Thrissur	9	18	48	96	2	4	14	28	379.17	227.50
Palakkad	-	-	-	-	-	-	-	-	925.00	555.00
Malappuram	-	-	-	-	-	-	-	-	291.67	
Kozhikode	-	-	1	2	-	-	-	-	416.67	250.00
Wayanad	-	-	-	-	-	-	-	-	575.00	
Kannur	-	-	-	-	1	2	-	-	942.80	565.68
Kasargode	1	2	-	-	-	-	-	-	250.00	150.00
<b>Total</b>	<b>25</b>	<b>50</b>	<b>78</b>	<b>156</b>	<b>6</b>	<b>12</b>	<b>39</b>	<b>78</b>	<b>12081.56</b>	<b>7248.94</b>



**Table 17: Cost incurred for immediate restoration of community owned infrastructure-Corporation**

<i>Damaged Community Assets - Corporation</i>										
<i>District</i>	<i>No. of Schools</i>	<i>Amount claimed @2 lakh/school</i>	<i>No. of Anganawadis</i>	<i>Amount claimed @2 lakh/anganwadi</i>	<i>No. of Primary Health Centres</i>	<i>Amount claimed @2 lakh/PHC</i>	<i>No. of Panchayath owned buildings</i>	<i>Amount claimed @2 lakh/building</i>	<i>LSG Roads (km)</i>	<i>Amount claimed @0.6 lakh/km</i>
Trivandrum	-	-	-	-	-	-	-	-	250.00	150.00
Kollam	-	-	-	-	-	-	-	-	952.08	571.25
Kochi	-	-	-	-	-	-	-	-	4792.45	2875.47
Thrissur	2	4	1	2	-	-	-	-	1301.86	781.12
Kozhikode	4	8	8	16	3	6	14	28	2110.16	1266.09
Kannur	-	-	-	-	-	-	-	-	291.67	175.00
<b>Total</b>	<b>6</b>	<b>12</b>	<b>9</b>	<b>18</b>	<b>3</b>	<b>6</b>	<b>14</b>	<b>28</b>	<b>9698.21</b>	<b>5818.93</b>



Crop loss due to high rain fall in Piravaom



Tree fall over the Home in Piravaom



Tree fall over the Home in Piravaom



Tree fall over the Home in Piravaom



Tree fall over the Home in Nagaroor near Attingal



Home collapsed due to heavy rain and wind, Anchuthengu.



Collapse of Cliff due to heavy rain near Papanasam Varkala



Tree fall due to heavy rain St Sebastain school near Mudiykkode, Varkala.



Mud slide due to heavy rain in Konakkad



Mud slide due to heavy rain in Govt. College , Munnar



Mud slide due to heavy rain in Govt. College , Munnar



ST.Antony's Church building collapsed due to land slide Munnar



Low lying area flooded with heavy rain in Kottayam



5 storey Building collapsed due to mud flow and Rain, Idukki



Road got washed away due heavy Rain, wayanad



Hilly areas near Munnar got washed away due to heavy



Soil washed out into house at Peruvanthanam village



House collapse due to heavy Rain, wayanad



Kadaturutti Water Resource Dept, Kottayam flooded due to rain



Vaikkam school's lab collapsed due to heavy



Crusher Unit collapsed due to land slide, wayanad





House collapsed due to mud slide, wayanad



Sunk down to the well in Udambannur village, Olikkamattam



Elephant drowned to death in Kanjikuzhi Panchayat, Kaithapara



NDRF Rescue operation at Champakkulam



Damage in Kollam District due to heavy Rain



Damage in Kollam coastal areas due to rough sea



Damages and flooded areas in Kollam due to heavy rain



NDRF Rescue operation at champakkulam



Low lying area flooded due to heavy rain, Allepy



House is collapsed due to the falling of tree, Mavelikkara Allepy



House is collapsed due to the falling of tree, Alleppy



Flooded due heavy rain , Allepy



House is damaged due to the falling of tree, Alleppy



low lying area flooded ,Alleppy





low lying area flooded Kaipamangalam, Thirissur



tree fell over the house due to heavy wind, Alleppy



low lying area flooded Kaipamangalam, Thirissur



low lying area flooded Parapookara, Thrissur



low lying area flooded Kambuzha Colony, Thrissur



low lying area flooded Karalam Village Thrissur



low lying area flooded Chentrapinny Village Thrissur



low lying area flooded Valappad village Thrissur



Rehabilitation camp at Pathnamthitta



Flooded area in Pathnamthitta



Flooded area in Pathnamthitta



Flooded road in Pathnamthitta

#### 4. Abstract of Claims

Code No.	Item	Loss as per SDRF norms (lakhs)
1	2	3
1	<b>Gratuitous Relief</b>	
a	Ex-gratia payment to families of deceased persons (138 individuals)	552
d	Clothing and Utensils	5764.98
2	<b>Search and Rescue</b>	231.96
3	<b>Relief Measures</b>	
a	Provision for temporary accommodation, food, clothing, medical care etc. for people affected/evacuated and sheltered in relief camps	612.49
c	Provision of emergency supply of drinking water in rural areas and urban areas	2.58
4	<b>Clearance of affected areas</b>	
a	Clearance of debris in public area	1068.79
b	Draining of flood waters in affected areas	1000
5	<b>Agriculture</b>	
i	<b>Assistance to small and marginal farmers</b>	
A	<b>Assistance for land and other loss</b>	
a	Removal of debris on agricultural land	2670.625
b	De-silting/restoration/repair of fish farms	247.886
B	<b>Input subsidy (where crop loss is &gt;50%)</b>	
a	For agricultural crops – rain-fed, irrigated and perennial (only small and marginal farmers; no claims for other than SMF received and hence not included herein)	3726.118
6	<b>Animal husbandry &amp; dairy</b>	
i	Replacement of milch animals & poultry	249.712
ii	Provision of fodder/feed concentrate in cattle camps including transportation	82.14
iii	Additional cost of medicines and vaccines	5.84
7	<b>Fishery</b>	
i	Assistance to Fishermen for repair/replacement of boats, net – damaged or lost	30.367
9	<b>Housing</b>	
a	<b>Fully damaged/Destroyed houses</b>	
I	Pucca Houses	447.341
b	<b>Severely Damaged Houses</b>	
i	Pucca Houses	5942.2985

e	Cattle shed adjoining house	32.375
10	<b>Infrastructure - Repair/restoration (of immediate nature) of damaged infrastructure</b>	
I)	PWD - Roads	8389.23
II)	PWD – Bridges	102
III)	Water Resources (Irrigation & Water Authority)	5189.32
IV)	Power	2833.64
<b>V)</b>	<b>Block Panchayaths</b>	
i)	Schools	560
ii)	Anganawadis	1674
iii)	Community Health Centres	184
iv)	Own buildings	319.5
v)	Roads	2895.196
<b>VI)</b>	<b>Grama Panchayaths</b>	
i)	Schools	490
ii)	Anganawadis	1168
iii)	Public Health Centres	216
iv)	Own buildings	238
v)	Roads	21688.56
<b>VI)</b>	<b>Municipality</b>	
i)	Schools	50
ii)	Anganawadis	156
iii)	Public Health Centres	12
iv)	Own buildings	78
v)	Roads	7248.94
<b>VII)</b>	<b>Corporation</b>	
i)	Schools	12
ii)	Anganawadis	18
iii)	Public Health Centres	6
iv)	Own buildings	28
v)	Roads	5818.93
<b>Grand Total</b>		<b>82042.82</b>
<b>Estimated loss as per norms: Eight hundred and twenty crore forty two lakh eighty two thousand only</b>		

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