

RAINFALL, AGRICULTURAL SITUATION, SATTELITE BASED CROP ASSESSMENT, MOISTURE INDEX, ARIDITY INDEX ANOMALY, RESERVOIR LEVLES, MINOR IRRIGATION, GROUNDWATER LEVELS, SEISMIC ACTIVITY, ASSESSMENT OF FLOODS & DROUGHT
IN KARNATAKA – 2021

1. ANNUAL RAINFALL

1.1. Introduction :

The State receives an Annual normal rainfall of **1153 mm** out of which the **Pre-Monsoon season** contributes about **10%**, the **South-West Monsoon** season contributes about **74%** and the **North-East Monsoon** season contributes to about **16%**. The spatial and temporal distribution of rainfall varies significantly across the State, i.e., from West to East. **Udupi District** which lies in the extreme western part of the State receives maximum annual rainfall of **4,535 mm** and **Chitradurga District** which lies in the eastern part of the State receives minimum annual rainfall of **540 mm**.

During **2021**, the State as a whole recorded **1301 mm** of rainfall as against the Normal Annual rainfall of **1153 mm** with a departure from Normal being (+) **13%**. Thus the Annual rainfall over the State during 2021 is considered as **Normal**.

During the **Pre-Monsoon season 2021**, the State has recorded **207 mm** of rainfall as against the Normal rainfall of **120 mm** showing **(74)%** departure from Normal. Therefore, the Pre-Monsoon rainfall is considered as **Normal** in the State. Among the **31** Districts, **30** Districts recorded **Normal to Large Excess** rainfall and **1** District recorded **Deficit** rainfall.

During the **South-West Monsoon season 2021**, the State has recorded **787 mm** of rainfall as against the Normal rainfall of **852 mm** showing **(-) 8%** departure from Normal. Thus, the South-West Monsoon rainfall is considered as **Normal** in the State. Among the **31** Districts, **28** Districts recorded **Normal to Excess** rainfall and **3** Districts recorded **Deficit** rainfall.

During the **North-East Monsoon season 2021**, the State has recorded **342 mm** of rainfall as against the Normal rainfall of **182 mm** showing **(+) 88%** departure from Normal. Thus, the North-East Monsoon rainfall is considered as **Normal** in the State. Among the **31** Districts, **28** Districts recorded **Normal to Large Excess** rainfall and **3** Districts recorded **Deficit** rainfall.

The report provides the details on rainfall distribution pattern, agriculture status, Status of Reservoir levels, Groundwater levels & fluctuations, Seismic activity in the State and the response of the Government to the Flood & Drought condition in the State.

1.2 Annual Rainfall in the State during 2021

During 2021, the State received a total rainfall of **1,337 mm** (Avg. Wt %) out of which the **Pre-Monsoon season** contributed **15% (207 mm)**, the **South-West Monsoon** season contributed **59% (787 mm)** and the **North-East Monsoon** season contributed **26% (342 mm)** to the Annual rainfall of the State.

Rainfall distribution during different seasons of 2021 in different met divisions of the State is as below:

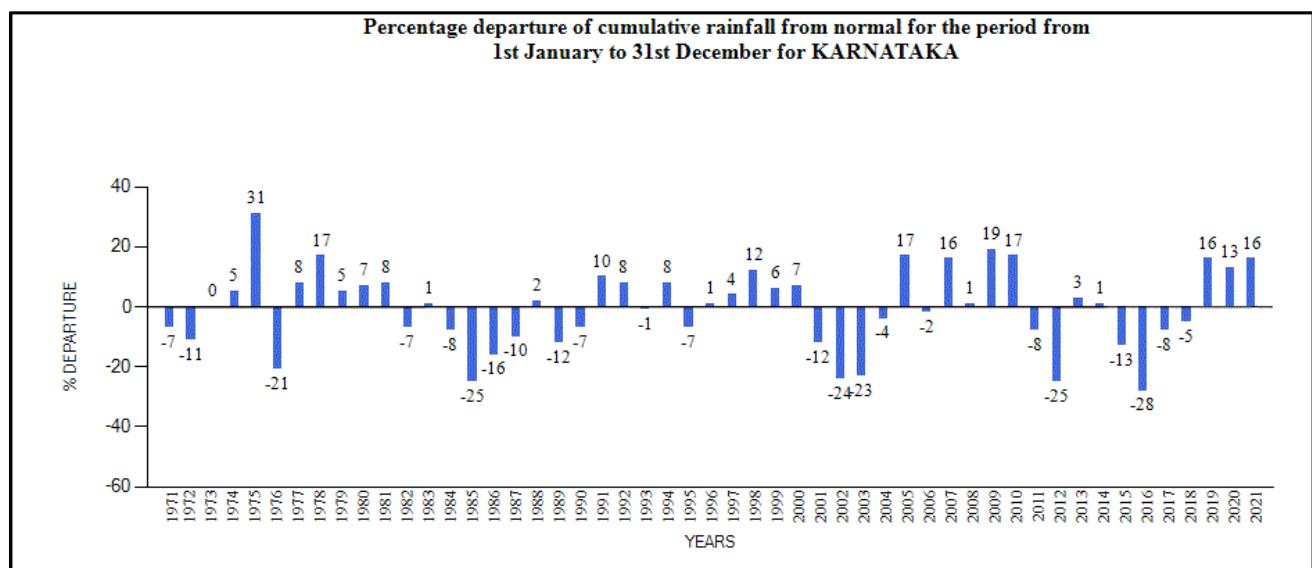
| Region/ State | Pre-Monsoon | | | South-West | | | North -East | | | Annual | | |
|------------------|----------------|----------------|------------|----------------|----------------|------------|----------------|----------------|------------|----------------|----------------|------------|
| | Normal (mm) | Actual (mm) | Dep (%) |
| 1.SIK | 143.3 | 180.7 | 26 | 368.8 | 384.6 | 4 | 202 | 485 | 140 | 714 | 1050 | 47 |
| 2.NIK | 83.2 | 121.5 | 46 | 478.6 | 496.2 | 4 | 140 | 163 | 17 | 702 | 780 | 11 |
| 3.MALNAD | 167.5 | 338.2 | 102 | 1556.3 | 1283.6 | -18 | 226 | 478 | 112 | 1950 | 2100 | 8 |
| 4.COASTAL | 158.2 | 514.7 | 225 | 3100.7 | 2692.0 | -13 | 259 | 577 | 122 | 3518 | 3784 | 8 |
| STATE | 120 | 207 | 74 | 852 | 787 | -8 | 182 | 342 | 88 | 1153 | 1337 | 16 |

The comparision of Zone-wise rainfall pattern during 2021 with the rainfall of the last 4 years is as follows:

| Region/State | Normal (mm) | 2017 | | 2018 | | 2019 | | 2020 | | 2021 | |
|--------------|----------------|----------------|------------|----------------|------------|----------------|------------|----------------|------------|----------------|------------|
| | | Actual (mm) | Dep (%) |
| SIK | 714 | 888 | 24 | 687 | -4 | 828 | 16 | 869 | 22 | 1050 | 47 |
| 2.NIK | 702 | 641 | -9 | 469 | -33 | 746 | 6 | 882 | 26 | 780 | 11 |
| 3.MALNAD | 1950 | 1541 | -21 | 2303 | 18 | 2302 | 18 | 1827 | -6 | 2100 | 8 |
| 4.COASTAL | 3518 | 2924 | -17 | 3603 | 2 | 4359 | 24 | 3936 | 12 | 3784 | 8 |
| State | 1153 | 1063 | -8 | 1094 | -5 | 1337 | 16 | 1307 | 13 | 1337 | 16 |

The percentage departure of rainfall from Normal during 2021 is (+) 16% which is **better** when compared to the rainfall of the last 4 years.

The percentage departure of Annual rainfall from Normal for the State as a whole since 1971 is given in the following Figure 1.1:



The above figure shows that the percentage departure of Annual rainfall for the State since 1971. The Rainfall recorded during 2021 is (+) 16% which is **more** than the corresponding period of the last year.

District wise rainfall pattern during the Year 2021 is given in the following Table.

| Sl. No. | District | Normal (mm) | Actual (mm) | Departure (%) |
|---------|------------------|-------------|-------------|---------------|
| 1 | Kolar | 735 | 1316 | 79 |
| 2 | Chikkaballapura | 736 | 1269 | 73 |
| 3 | Tumakuru | 669 | 1109 | 66 |
| 4 | Chitradurga | 540 | 872 | 61 |
| 5 | Bengaluru Rural | 798 | 1256 | 57 |
| 6 | Davanagere | 659 | 987 | 50 |
| 7 | Mandya | 699 | 1011 | 45 |
| 8 | Bengaluru Urban | 846 | 1128 | 33 |
| 9 | Ramanagara | 840 | 1087 | 29 |
| 10 | Haveri | 800 | 1013 | 27 |
| 11 | Dharwad | 787 | 965 | 23 |
| 12 | Kalaburagi | 770 | 943 | 22 |
| 13 | Vijayanagar | 643 | 772 | 20 |
| 14 | Hassan | 1142 | 1363 | 19 |
| 15 | Belagavi | 826 | 983 | 19 |
| 16 | Chamarajanagara | 787 | 906 | 15 |
| 17 | Ballari | 599 | 684 | 14 |
| 18 | Mysuru | 837 | 955 | 14 |
| 19 | Uttara Kannada | 2936 | 3346 | 14 |
| 20 | Chikkamagaluru | 1833 | 2070 | 13 |
| 21 | Gadag | 624 | 678 | 9 |
| 22 | Bidar | 838 | 907 | 8 |
| 23 | Udupi | 4535 | 4797 | 6 |
| 24 | Shivamogga | 2325 | 2444 | 5 |
| 25 | Koppala | 614 | 640 | 4 |
| 26 | Vijayapura | 591 | 587 | -1 |
| 27 | Dakshina Kannada | 4006 | 3963 | -1 |
| 28 | Kodagu | 2729 | 2656 | -3 |
| 29 | Raichur | 654 | 624 | -5 |
| 30 | Bagalkote | 582 | 550 | -6 |
| 31 | Yadgir | 719 | 669 | -7 |
| | STATE | 1153 | 1337 | 16 |

| | |
|--------------------------------------|--------------|
| Large Excess (>=60%) | 4 Districts |
| Excess (+20 to +59%) | 9 Districts |
| Normal (-19 to +19%) | 18 Districts |
| Deficient (-20 to -59%) | Nil |
| Large Deficient (-60 to -99%) | Nil |
| No rain (<=-100%) | Nil |

During the preceding year (2020) the Annual rainfall was **Excess** in **18** Districts and **Normal** in **12** Districts.

Taluk wise Annual Rainfall pattern of 2021 is given in the following table (**Total 227 Taluks in the State**):

| | |
|--------------------------------------|------------|
| Large Excess (>=60%) | 20 Taluks |
| Excess (+20 to +59%) | 95 Taluks |
| Normal (-19 to +19%) | 110 Taluks |
| Deficient (-20 to -59%) | 2 Taluks |
| Large Deficient (-60 to -99%) | Nil |
| No rain (<=-100%) | Nil |

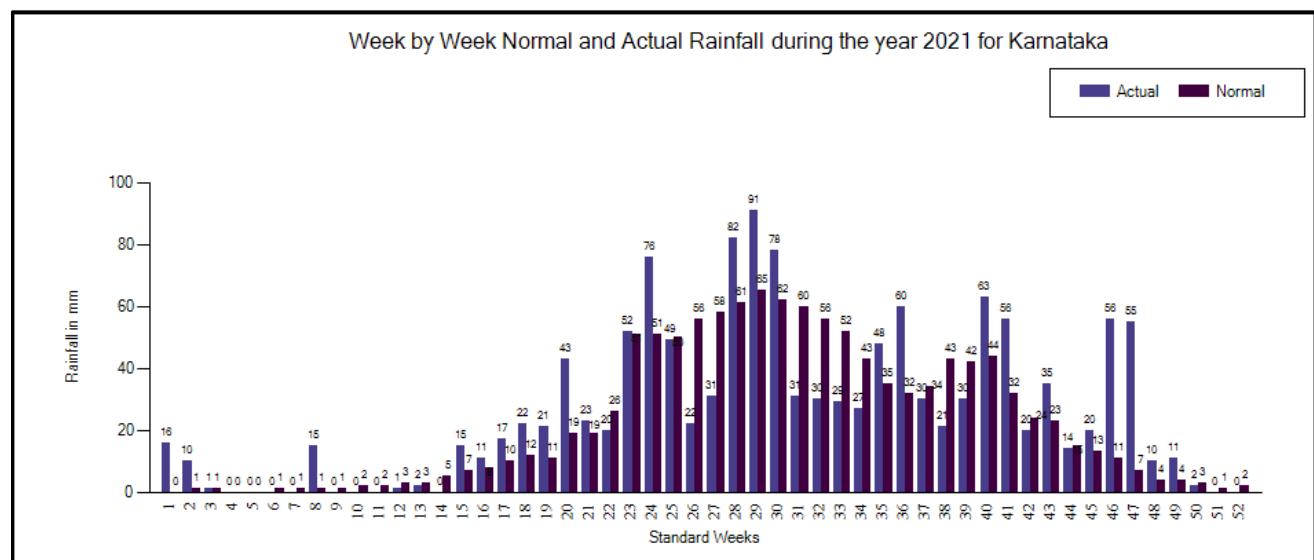
During the preceding year (2020) the Annual rainfall was **Large Excess** in **5** Taluks, **Excess** in **106** Taluks, **Normal** in **115** Taluks and **Deficit** in **1** Taluk.

Hobli wise Rainfall pattern during 2021 is given in the following table (**Total 850 Hoblis in the State**):

| | |
|--------------------------------------|------------|
| Large Excess (>=60%) | 132 Hoblis |
| Excess (+20 to +59%) | 320 Hoblis |
| Normal (-19 to +19%) | 373 Hoblis |
| Deficient (-20 to -59%) | 24 Hoblis |
| Large Deficient (-60 to -99%) | 1 Hobli |
| No rain (<=-100%) | Nil |

During the preceding year (2020) the annual rainfall **Large Excess** in **29** Hoblis, **Excess** in **439** Hoblis, **Normal** in **352** Hoblis and **Deficit** in **30** Hoblis.

Weekly Rainfall pattern for the State during 2021 is given in the following Figure 1.2.



1.3 Rainfall in 4 meteorological sub-Divisions of the State during 2021.

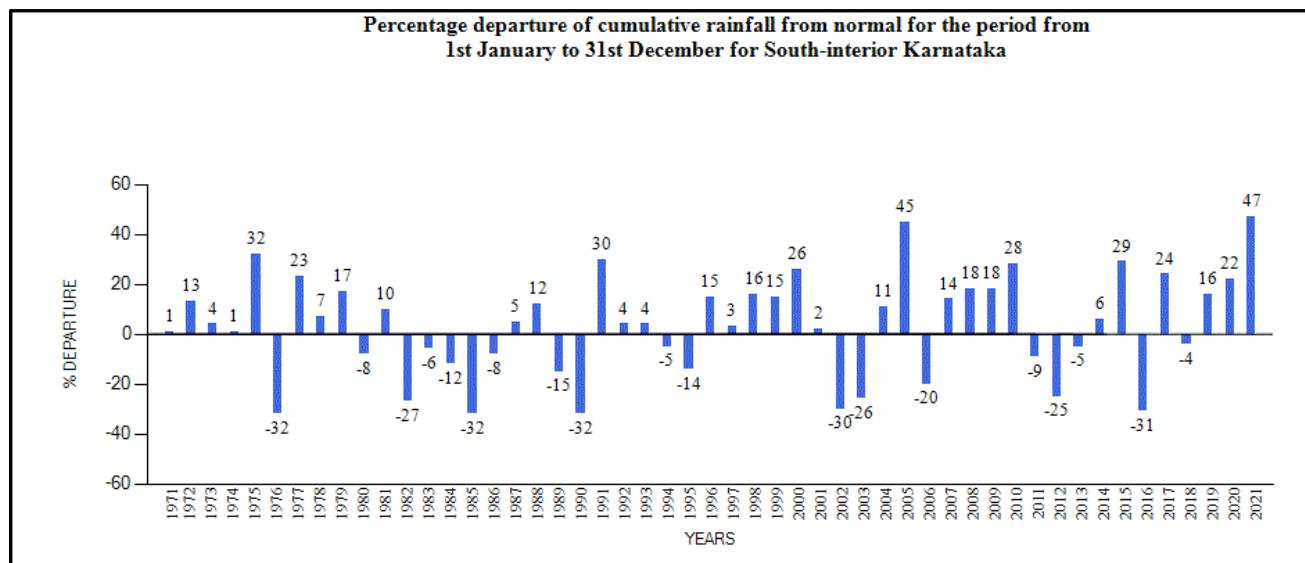
1.3.1 South-Interior Karnataka (SIK):

During 2021, the Annual rainfall was **Large Excess** in **Chitradurga, Chikkaballapura, Kolar, and Tumakuru Districts**, **Excess** in **Bengaluru Rural, Bengaluru Urban, Davanagere, Mandya and Ramanagara Districts** and **Normal** in **Chamarajanagara** and **Mysuru Districts**. During the preceding year (2020), the Annual rainfall was **Excess** in **7 Districts** and **Normal** in **4 Districts**.

Among the **67** Taluks in **SIK**, the Annual rainfall was **Large Excess** in **15** Taluks, **Excess** in **39** Taluks and **Normal** in **13** Taluks. During the preceding year (2020), the Annual rainfall was **Excess** in **26** Taluks, **Normal** in **40** Taluks and **Deficit** in **1** Taluk.

Among the **336** Hoblis in **SIK**, the Annual rainfall was **Large Excess** in **108** Hoblis, **Excess** in **166** Hoblis and **Normal** in **62** Hoblis. During the preceding year (2020), the Annual rainfall was **Large Excess** in **12** Hoblis, **Excess** in **178** Hoblis, **Normal** in **143** Hoblis and **Deficit** in **3** Hoblis.

The departure (%) of the Annual rainfall from Normal in South-Interior Karnataka since 1971 is given in the following Figure 1.3:



The figure shows that, during 2021, the **South-Interior Karnataka** recorded a rainfall **47% more** than the Normal which is **more** than the preceding year.

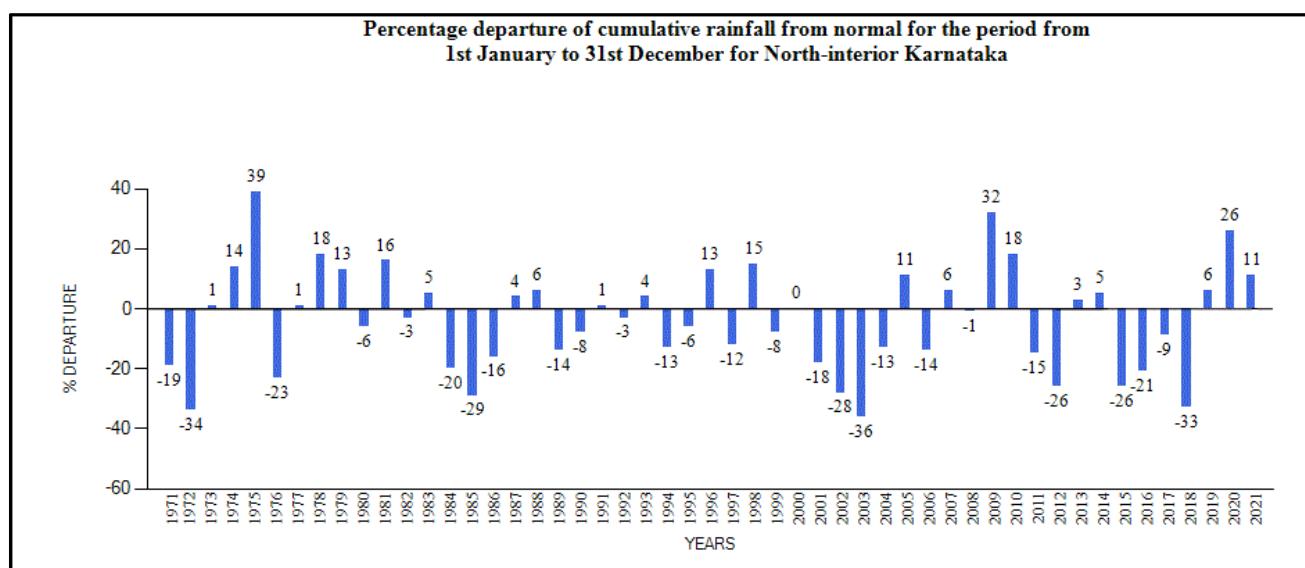
1.3.2 North-Interior Karnataka (NIK):

During 2021, the Annual rainfall was **Excess** in **Dharwad, Kalaburagi, Haveri and Vijayanagara Districts**, **Normal** in **Bagalkote, Ballari, Belagavi, Bidar, Gadag, Koppala, Raichur, Vijayapura and Yadgir Districts** and **Districts**. During the preceding year (2020), the Annual rainfall was **Normal** in **11** Districts and **Normal** in **2** Districts.

Among the **108** Taluks, the Annual rainfall was **Large Excess** in **1** Taluk, **Excess** in **36** Taluks , **Normal** in **69** Taluks and **Deficit** in **2** Taluks. During the preceding year (2020), the Annual rainfall was **Large Excess** in **4** Taluks, **Excess** in **64** Taluks and **Normal** in **40** Taluks.

Among the **316** Hoblis, the Annual rainfall was **Large Excess** in **5** Hoblis, **Excess** in **90** Hoblis, **Normal** in **205** Hoblis and **Deficit** in **16** Hoblis. During the preceding year (2020), the Annual rainfall was **Large Excess** in **14** Hoblis, **Excess** in **205** Hoblis, **Normal** in **93** Hoblis and **Deficit** in **4** Hoblis.

Percentage departure of the Annual rainfall from Normal in North-Interior Karnataka since 1971 is given in the following Figure 1.4:



The figure indicates that, during 2021, the **North-Interior Karnataka** recorded a rainfall **11% more** than the Normal which is **less** than the corresponding period from the last year.

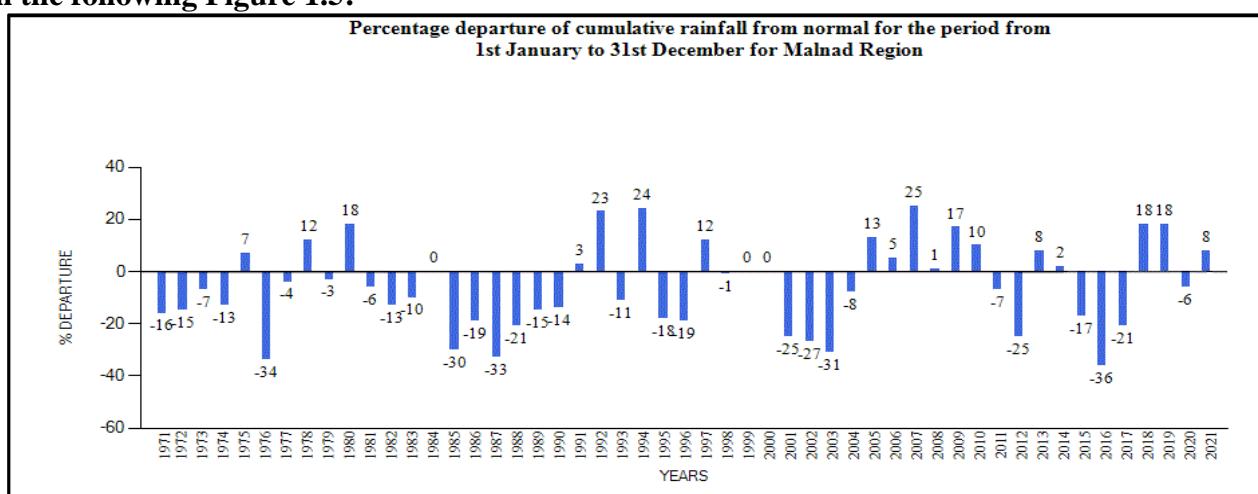
1.3.3 Malnad Region:

During 2021, the Annual rainfall was **Normal** in **Chikkamagaluru, Hassan, Kodagu** and **Shivamogga** Districts. During the preceding year (2020), the Annual rainfall was **Normal** in **4** Districts.

Among the **26** Taluks, the Annual rainfall was **Large Excess** in **4** Taluks, **Excess** in **12** Taluks and **Normal** in **10** Taluks. During the preceding year (2020), the Annual rainfall was **Large Excess** in **1** Taluk, **Excess** in **4** Taluks, **Normal** in **21** Taluks.

Among the **131** Hoblis, the Annual rainfall was **Large Excess** in **18** Hoblis, **Excess** in **52** Hoblis, **Normal** in **54** Hoblis, **Deficit** in **6** Hoblis and **Large Deficit** in **1** Hobli. During the preceding year (2020), the Annual rainfall was **Large Excess** in **1** Hobli, **Excess** in **28** Hoblis, **Normal** in **79** Hoblis and **Deficit** in **23** Hoblis.

Percentage departure of the Annual rainfall from Normal in Malnad Region since 1971 is given in the following Figure 1.5:



The Figure shows that, during 2021, the Malnad Region recorded a rainfall **8% more** than the Normal, which is **more** than the corresponding period from the **last** year.

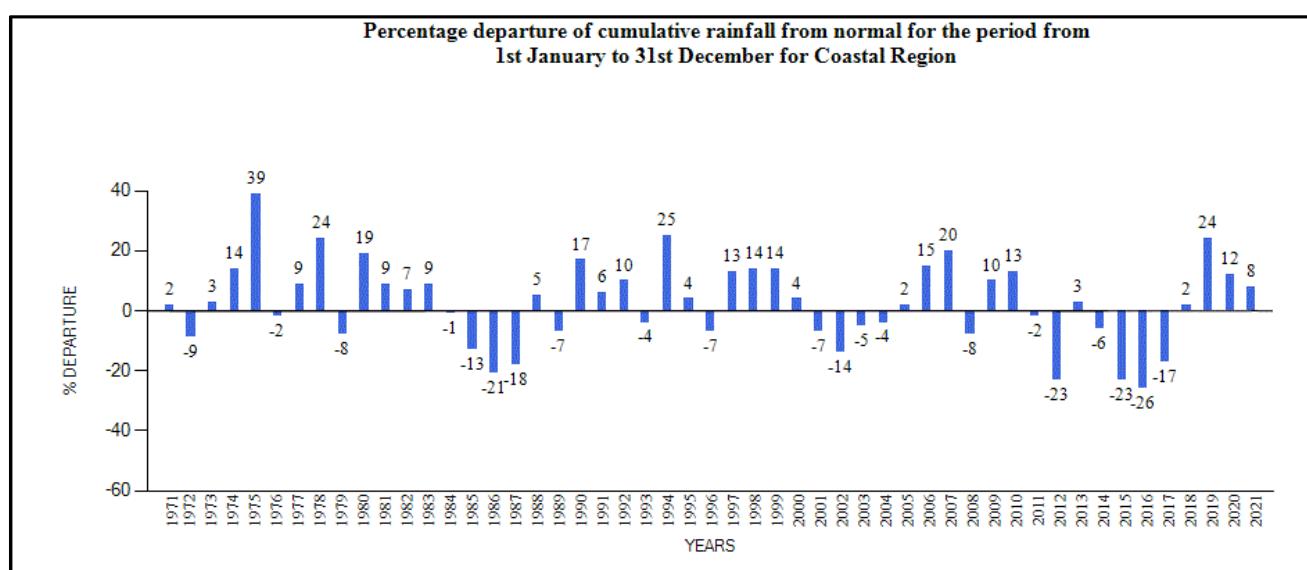
1.3.4 Coastal Region:

During 2021, the Annual rainfall was **Normal** in **Dakshina Kannada Udupi** and **Uttara Kannada** Districts. During the preceding year (2020), the Annual rainfall was **Excess** in **1** District and **Normal** in **2** Districts.

Among the **26** Taluks, the Annual rainfall was **Excess** in **8** Taluks and **Normal** in **18** Taluks. During the preceding year (2020), the Annual rainfall was **Excess** in **12** Taluks, **Normal** in **14** Taluks

Among the **67** Hoblis, the Annual rainfall was **Large Excess** in **1** Hobli, **Excess** in **12** Hoblis, **Normal** in **52** Hoblis and **Deficit** in **2** Hoblis. During the preceding year (2020), the Annual rainfall was **Large Excess** in **2** Hoblis, **Excess** in **28** Hoblis and **Normal** in **37** Hoblis.

Percentage departure of the Annual rainfall from Normal in Coastal Region since 1970 is given in the following Figure 1.6:



The figure shows that, during 2021, the **Coastal Region** recorded a rainfall **8% more** than the Normal and which is **less** than the corresponding period of the last year.

Number of Taluks falling under different Rainfall Categories during 2021 and 2020.

| Division | Total No Taluks | Large Excess | | Excess | | Normal | | Deficit | | Large Deficient | | No Rain | |
|--------------|--------------------|-----------------|----------|-----------|------------|------------|------------|----------|----------|--------------------|----------|----------|----------|
| | | 2021 | 2020 | 2021 | 2020 | 2021 | 2020 | 2021 | 2020 | 2021 | 2020 | 2021 | 2020 |
| 1.SIK | 67 | 15 | 0 | 39 | 26 | 13 | 40 | 0 | 1 | 0 | 0 | 0 | 0 |
| 2.NIK | 108 | 1 | 4 | 36 | 64 | 69 | 40 | 2 | 0 | 0 | 0 | 0 | 0 |
| 3.MALNAD | 26 | 4 | 1 | 12 | 4 | 10 | 21 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4.COASTAL | 26 | 0 | 0 | 8 | 12 | 18 | 14 | 0 | 0 | 0 | 0 | 0 | 0 |
| State | 227 | 20 | 5 | 95 | 106 | 110 | 115 | 2 | 1 | 0 | 0 | 0 | 0 |

Table: 1.1: Hobli/Taluk/District/Region rainfall Pattern in Karnataka State during 2021

Note: Weighted average rainfall is computed using Thiessen Polygon method and Departure calculated from Normal. The long period Normal rainfall data is available for Taluk headquarters stations. The Normal rainfall for other stations is estimated through interpolations.

LE : Large Excess (=>60%) E: Excess (20 to +59%) N: Normal (-19 to +19%) D: Deficient (-20 to -59%) D: Large Deficient (-60 to -99%) NR : No Rainfall (-100 %)).

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|------------------------|--|-------------|-----------|-----------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| BENGALURU URBAN | 846 | 1128 | 33 | E |
| Anekal | 902 | 1036 | 15 | N |
| Anekal_1 | 902 | 848 | -6 | N |
| Attibele_1 | 824 | 892 | 8 | N |
| Jigani_1 | 845 | 1149 | 36 | E |
| Sarjapura_1 | 748 | 1154 | 54 | E |
| Anekal_2 | 881 | 956 | 9 | N |
| Jigani_2 | 865 | 1121 | 30 | E |
| Attibele_2 | 857 | 1131 | 32 | E |
| Sarjapura_1 | 855 | 1088 | 27 | E |
| Sarjapura_3 | 814 | 1053 | 29 | E |
| Bengaluru North | 1004 | 1158 | 15 | N |
| Bengaluru North_1 | 1004 | 1207 | 20 | E |
| Dasanapura_1 | 896 | 1159 | 29 | E |
| Yashavantapura_1 | 819 | 1152 | 41 | E |
| Bengaluru North_2 | 854 | 939 | 10 | N |
| Yashavantapura_2 | 866 | 1286 | 49 | E |
| Dasanapura_2 | 872 | 1023 | 17 | N |
| Dasanapura_3 | 900 | 1031 | 15 | N |
| Bengaluru South | 820 | 1156 | 41 | E |
| Beguru_3 | 820 | 1068 | 30 | E |
| Kengeri_1 | 905 | 1205 | 33 | E |
| Tavarekere_1 | 734 | 1150 | 57 | E |
| Uttarahalli_4 | 905 | 1353 | 50 | E |
| Uttarahalli_1 | 886 | 1018 | 15 | N |
| Uttarahalli_2 | 872 | 1120 | 28 | E |
| Uttarahalli_3 | 863 | 1307 | 51 | E |
| Uttarahalli_5 | 941 | 1120 | 19 | N |
| Beguru_1 | 912 | 1166 | 28 | E |
| Beguru_2 | 875 | 1016 | 16 | N |
| Kengeri_2 | 878 | 1219 | 39 | E |
| Kengeri_3 | 860 | 1192 | 39 | E |
| Kengeri_4 | 852 | 1509 | 77 | LE |
| Tavarekere_2 | 961 | 906 | -6 | N |
| Tavarekere_3 | 871 | 1199 | 38 | E |

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|------------------------|--|-------------|-----------|-----------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| Bengaluru East | 815 | 1101 | 35 | E |
| Mahadevpura_1 | 815 | 1059 | 30 | E |
| Bidarahalli_2 | 828 | 1083 | 31 | E |
| Varturu_1 | 818 | 1108 | 35 | E |
| K R Pura_2 | 855 | 1094 | 28 | E |
| K R Pura_3 | 827 | 1126 | 36 | E |
| Varturu_2 | 881 | 1018 | 16 | N |
| Bidarahalli_1 | 821 | 1036 | 26 | E |
| Mahadevapura_2 | 882 | 1003 | 14 | N |
| Marathahalli | 891 | 1313 | 47 | E |
| Bidharahalli_3 | 799 | 1196 | 50 | E |
| Yelahanka | 752 | 1212 | 61 | LE |
| Yelahanka_1 | 752 | 1277 | 70 | LE |
| Yelahanka_2 | 785 | 1079 | 37 | E |
| Yelahanka_3 | 801 | 1166 | 46 | E |
| Jala_1 | 760 | 1055 | 39 | E |
| Jala_2 | 763 | 1214 | 59 | E |
| Jala_3 | 781 | 1218 | 56 | E |
| Hesarughatta_1 | 746 | 1186 | 59 | E |
| Hesarughatta_2 | 781 | 1286 | 65 | LE |
| BENGALURU RURAL | 798 | 1256 | 57 | E |
| Devanahalli | 808 | 1226 | 52 | E |
| Devanahalli | 808 | 1261 | 56 | E |
| Channarayapatna | 796 | 1191 | 50 | E |
| Kundana | 786 | 1249 | 59 | E |
| Vijaypura | 787 | 1201 | 53 | E |
| DODDABALLAPURA | 799 | 1305 | 63 | LE |
| Dodballapur | 799 | 1272 | 59 | E |
| Dodda Belavangala | 792 | 1277 | 61 | LE |
| Madure | 812 | 1243 | 53 | E |
| Sasalu | 709 | 1326 | 87 | LE |
| Tubagere | 787 | 1392 | 77 | LE |
| HOSAKOTE | 857 | 1240 | 45 | E |
| Hosakote | 857 | 1023 | 19 | N |
| Anugondhalli | 731 | 1188 | 62 | LE |
| Jadigenhalli | 796 | 1368 | 72 | LE |
| Nandagudi | 777 | 1381 | 78 | LE |
| Sulibele | 803 | 1141 | 42 | E |
| Nelamangala | 954 | 1224 | 28 | E |
| Nelamangala | 954 | 1188 | 25 | E |
| Sompura | 794 | 1214 | 53 | E |

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|----------------------|--|-------------|-----------|-----------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| Tyamagondal | 877 | 1236 | 41 | E |
| Nelamangala_2 | 891 | 1204 | 35 | E |
| Sompura_2 | 827 | 1446 | 75 | LE |
| Tyamagondal_2 | 870 | 1275 | 47 | E |
| RAMANAGARA | 840 | 1087 | 29 | E |
| Channapatna | 861 | 1052 | 22 | E |
| Channapatna | 861 | 1078 | 25 | E |
| Maluru | 843 | 1097 | 30 | E |
| Virupakshipura | 843 | 993 | 18 | N |
| Kanakapura | 797 | 1059 | 33 | E |
| Kanakapura | 797 | 1191 | 49 | E |
| Dodda Maralavadi | 828 | 1187 | 43 | E |
| Harohalli | 845 | 1168 | 38 | E |
| Kodihalli | 802 | 938 | 17 | N |
| Satnuru | 798 | 1055 | 32 | E |
| Uyyamballi | 792 | 901 | 14 | N |
| Magadi | 1000 | 1151 | 15 | N |
| Magadi | 1000 | 1185 | 19 | N |
| Kuduru | 841 | 1180 | 40 | E |
| Madabal | 968 | 1121 | 16 | N |
| Solur | 881 | 1207 | 37 | E |
| Tippasanara | 822 | 1017 | 24 | E |
| Ramanagara | 921 | 1106 | 20 | E |
| Ramanagara_1 | 921 | 1072 | 16 | N |
| Bidadi | 865 | 1236 | 43 | E |
| Kailancha | 867 | 1053 | 21 | E |
| Kutgallu | 887 | 1065 | 20 | E |
| Ramanagara_2 | 889 | 973 | 9 | N |
| Kailancha_2 | 872 | 1010 | 16 | N |
| KOLAR | 735 | 1316 | 79 | LE |
| Bangarapet | 764 | 1194 | 56 | E |
| Bangarapet | 764 | 1225 | 60 | LE |
| Budikote | 687 | 1102 | 60 | LE |
| Kamsandra | 778 | 1265 | 63 | LE |
| Robertsonpet | 818 | 1233 | 51 | E |
| Kolar | 784 | 1396 | 78 | LE |
| Kolar | 784 | 1365 | 74 | LE |
| Holuru | 745 | 1312 | 76 | LE |
| Huttur | 768 | 1311 | 71 | LE |
| Narasapura | 753 | 1296 | 72 | LE |
| Sugaturu | 763 | 1462 | 92 | LE |

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|------------------------|--|-------------|-----------|-----------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| Vakkaleri | 738 | 1495 | 103 | LE |
| Rajakallahalli Vemagal | 758 | 1492 | 97 | LE |
| Malur | 798 | 1164 | 46 | E |
| Malur | 798 | 1243 | 56 | E |
| Lakkur | 529 | 1229 | 132 | LE |
| Masathi | 633 | 1095 | 73 | LE |
| Tyakal | 649 | 1057 | 63 | LE |
| MULABAGILU | 804 | 1343 | 67 | LE |
| Mulbagal | 804 | 1234 | 54 | E |
| Avani | 775 | 1455 | 88 | LE |
| Bairakur | 734 | 1322 | 80 | LE |
| Duggasandra | 753 | 1375 | 83 | LE |
| Tayilur | 708 | 1289 | 82 | LE |
| Srinivasapura | 758 | 1458 | 92 | LE |
| Srinivasapura | 758 | 1455 | 92 | LE |
| Nelavanki | 664 | 1966 | 196 | LE |
| Ronuru | 711 | 1257 | 77 | LE |
| Rayalpadu | 639 | 1435 | 124 | LE |
| Yelldur | 710 | 1244 | 75 | LE |
| K.G.F | 890 | 1169 | 31 | E |
| Betamangala | 797 | 1126 | 41 | E |
| Kyasamballi | 785 | 1218 | 55 | E |
| Robertsonpet | 890 | 1146 | 29 | E |
| CHIKKABALLAPURA | 736 | 1269 | 73 | LE |
| Bagepalli | 695 | 1121 | 61 | LE |
| Bagepalli | 695 | 1132 | 63 | LE |
| Chelur | 706 | 1228 | 74 | LE |
| Guluru | 696 | 991 | 42 | E |
| Mittemari | 715 | 1184 | 66 | LE |
| Pathapalya | 701 | 1117 | 59 | E |
| CHIKKABALLAPURA | 828 | 1311 | 58 | E |
| Chikballapura | 828 | 1315 | 59 | E |
| Mandikal | 723 | 1299 | 80 | LE |
| Nandi | 808 | 1335 | 65 | LE |
| Chintamani | 787 | 1311 | 67 | LE |
| Chintamani | 787 | 1408 | 79 | LE |
| Ambajidurga | 768 | 1238 | 61 | LE |
| Chilakalanerpu | 722 | 1181 | 63 | LE |
| Kaiwara | 736 | 1356 | 84 | LE |
| Munganahalli | 730 | 1345 | 84 | LE |
| Murugamale | 749 | 1409 | 88 | LE |

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|----------------------------|--|-------------|-----------|-----------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| Gauribidanur | 704 | 1331 | 89 | LE |
| Gauribidanur | 704 | 1193 | 69 | LE |
| D.Palya | 713 | 1533 | 115 | LE |
| Hosur | 709 | 1175 | 66 | LE |
| Manchenahalli | 786 | 1342 | 71 | LE |
| Nagaragere | 695 | 1374 | 98 | LE |
| Tondebavi | 758 | 1481 | 95 | LE |
| Gudibanda | 694 | 1181 | 70 | LE |
| Gudibanda | 694 | 1244 | 79 | LE |
| Somenahalli | 728 | 1129 | 55 | E |
| Sidlaghatta | 763 | 1313 | 72 | LE |
| Sidlaghatta | 763 | 1404 | 84 | LE |
| Bashattahalli | 765 | 1324 | 73 | LE |
| Jangamakote | 776 | 1290 | 66 | LE |
| Sadali | 735 | 1223 | 66 | LE |
| TUMAKURU | 669 | 1109 | 66 | LE |
| CHIKKANAYAKANAHALLI | 761 | 1112 | 46 | E |
| Chiknayakanahalli | 761 | 1237 | 63 | LE |
| Handanakere | 595 | 1018 | 71 | LE |
| Huliyaru | 504 | 1083 | 115 | LE |
| Kandikere | 610 | 1218 | 100 | LE |
| Shettikeri | 700 | 1091 | 56 | E |
| Gubbi | 809 | 1228 | 52 | E |
| Gubbi | 809 | 1262 | 56 | E |
| Chandrashekerapura | 692 | 1213 | 75 | LE |
| Chelur | 729 | 1161 | 59 | E |
| Hagalavadi | 655 | 1267 | 93 | LE |
| Kadaba | 787 | 1122 | 43 | E |
| Nittur | 789 | 1315 | 67 | LE |
| Koratagere | 777 | 1238 | 59 | E |
| Koratagere | 777 | 1071 | 38 | E |
| Chennarayadurga | 787 | 1440 | 83 | LE |
| Holanahalli | 768 | 1127 | 47 | E |
| Kolala | 720 | 1234 | 71 | LE |
| Kunigal | 825 | 1196 | 45 | E |
| Kunigal | 825 | 1304 | 58 | E |
| Amrutur | 675 | 1261 | 87 | LE |
| Huliyurudurga | 741 | 1164 | 57 | E |
| Huttariduraga | 799 | 1268 | 59 | E |
| Kottagere | 752 | 1073 | 43 | E |
| Yedeyur | 669 | 1143 | 71 | LE |

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|---------------------------|--|-------------|-----------|-----------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| Madhugiri | 730 | 1032 | 41 | E |
| Madhugiri | 730 | 1065 | 46 | E |
| Dodderi | 594 | 1119 | 88 | LE |
| Itakadibbanahalli | 616 | 1077 | 75 | LE |
| Kodigenahalli | 632 | 891 | 41 | E |
| Midigesi | 553 | 1002 | 81 | LE |
| Puravara | 674 | 1011 | 50 | E |
| Pavagada | 611 | 894 | 46 | E |
| Pavagada | 611 | 962 | 57 | E |
| Nagalamadike | 588 | 840 | 43 | E |
| Nidagal | 518 | 955 | 84 | LE |
| Yellappanayakana Hosakote | 532 | 860 | 62 | LE |
| Sira | 638 | 1023 | 60 | LE |
| Sira | 638 | 945 | 48 | E |
| Bukkaptna | 579 | 1088 | 88 | LE |
| Gowdagere | 581 | 938 | 62 | LE |
| Hulikunta | 506 | 1005 | 99 | LE |
| Kallambella | 606 | 1178 | 94 | LE |
| Tiptur | 731 | 1196 | 64 | LE |
| Tiptur | 731 | 1236 | 69 | LE |
| Honnnavalli | 705 | 1170 | 66 | LE |
| Kibbanahalli | 607 | 1241 | 104 | LE |
| Nonavinakere | 720 | 1165 | 62 | LE |
| Tumakuru | 830 | 1228 | 48 | E |
| Tumakuru North | 830 | 1189 | 43 | E |
| Bellavi | 788 | 1249 | 59 | E |
| Guluru | 869 | 1070 | 23 | E |
| Hebbur | 678 | 1198 | 77 | LE |
| Uradigere | 682 | 1169 | 71 | LE |
| Kora | 788 | 1528 | 94 | LE |
| Tumakuru East | 844 | 1129 | 34 | E |
| Tumakuru West | 839 | 1079 | 29 | E |
| Tumakuru South | 846 | 1041 | 23 | E |
| Turuvekere | 772 | 1104 | 43 | E |
| Turuvekere | 772 | 1079 | 40 | E |
| Dabbegatta | 605 | 1058 | 75 | LE |
| Dandinasivara | 707 | 1079 | 53 | E |
| Mayasandra | 657 | 1186 | 81 | LE |
| CHITRADURGA | 540 | 872 | 61 | LE |
| Challakere | 485 | 779 | 61 | LE |
| Challakere | 485 | 813 | 68 | LE |

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|----------------------|--|-------------|-----------|-----------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| Nayakanahatti | 428 | 691 | 62 | LE |
| Parasurampura | 410 | 814 | 98 | LE |
| Thalku | 392 | 782 | 100 | LE |
| Chitradurga | 666 | 896 | 35 | E |
| Chitradurga | 666 | 849 | 28 | E |
| Bharmasagara | 601 | 1007 | 67 | LE |
| Hire Guntanur | 576 | 855 | 48 | E |
| Turuvanur | 581 | 891 | 53 | E |
| Hiriyur | 578 | 884 | 53 | E |
| Hiriyur | 578 | 922 | 59 | E |
| Aymangala | 517 | 787 | 52 | E |
| Dharmapura | 481 | 881 | 83 | LE |
| Javanagondanahalli | 562 | 977 | 74 | LE |
| Holalkere | 722 | 849 | 18 | N |
| Holalkere | 722 | 861 | 19 | N |
| Bharmanaikanadurga | 648 | 668 | 3 | N |
| Ramagiri | 535 | 938 | 75 | LE |
| Talya | 650 | 899 | 38 | E |
| Hosadurga | 648 | 1100 | 70 | LE |
| Hosadurga | 648 | 950 | 47 | E |
| Madadhakeri | 573 | 1003 | 75 | LE |
| Mathodu | 580 | 1291 | 122 | LE |
| Srirampura | 564 | 1269 | 125 | LE |
| Molakalmuru | 545 | 651 | 19 | E |
| Molakalmuru | 545 | 662 | 21 | E |
| Devasamudra | 400 | 634 | 58 | E |
| DAVANAGERE | 659 | 987 | 50 | E |
| Channagiri | 840 | 1057 | 26 | E |
| Channagiri | 840 | 1159 | 38 | E |
| Basavapatna_1 | 703 | 1182 | 68 | LE |
| Basavapatna_2 | 682 | 823 | 21 | E |
| Santebannur_1 | 710 | 993 | 40 | E |
| Santebannur_2 | 741 | 1039 | 40 | E |
| Ubrani | 752 | 988 | 31 | E |
| Davanagere | 641 | 1028 | 60 | LE |
| Davangere | 641 | 965 | 51 | E |
| Anogodu | 599 | 1107 | 85 | LE |
| Mayakonda | 639 | 1004 | 57 | E |
| HARIHARA | 630 | 993 | 58 | E |
| Harihara | 630 | 968 | 54 | E |
| Malebennur | 586 | 1013 | 73 | LE |

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|--------------------------|--|-------------|-----------|-----------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| Honnali | 662 | 1026 | 55 | E |
| Honnali | 662 | 1012 | 53 | E |
| Govinakovi_2 | 667 | 969 | 45 | E |
| Sasavehalli_1 | 719 | 1119 | 56 | E |
| Sasavehalli_2 | 640 | 978 | 53 | E |
| Jagalur | 528 | 742 | 41 | E |
| Jagalur | 528 | 717 | 36 | E |
| Bilichodu | 504 | 808 | 60 | LE |
| Sokke | 574 | 711 | 24 | E |
| Nyamati | 826 | 1239 | 50 | E |
| Belagutti | 826 | 1309 | 59 | E |
| Govinakovi_1 | 710 | 1030 | 45 | E |
| CHAMARAJANAGARA | 787 | 906 | 15 | N |
| CHAMARAJANAGARA | 770 | 915 | 19 | N |
| Chamarajanagara | 770 | 859 | 12 | N |
| Chandakavadi | 793 | 1005 | 27 | E |
| Haradanahalli | 774 | 856 | 11 | N |
| Harve | 752 | 868 | 15 | N |
| Santemarahalli | 838 | 918 | 10 | N |
| Gundlupet | 792 | 828 | 5 | N |
| Gundlupet | 792 | 719 | -9 | N |
| Begur | 648 | 763 | 18 | N |
| Terakanambi | 766 | 817 | 7 | N |
| Hangala | 784 | 889 | 13 | N |
| Kollegal | 843 | 886 | 5 | N |
| Kollegala | 843 | 877 | 4 | N |
| Palya | 802 | 891 | 11 | N |
| Yelandur | 867 | 981 | 13 | N |
| Yelandur | 867 | 971 | 12 | N |
| Agara | 771 | 985 | 28 | E |
| Hanur | 754 | 939 | 25 | E |
| Hanur | 754 | 820 | 9 | N |
| Lokkanahalli | 781 | 903 | 16 | N |
| Ramapura | 811 | 995 | 23 | E |
| MYSURU | 837 | 955 | 14 | N |
| HEGGADADEVANAKOTE | 837 | 983 | 18 | N |
| Heggadadevanakote | 837 | 960 | 15 | N |
| Antarasante | 1031 | 1046 | 1 | N |
| Hampapura | 764 | 877 | 15 | N |
| Hunsur | 799 | 938 | 17 | N |
| Hunsur | 799 | 908 | 14 | N |

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|-------------------------|--|-------------|-----------|----------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| Bilikere | 764 | 951 | 24 | <i>E</i> |
| Gowdargyare | 767 | 941 | 23 | <i>E</i> |
| Hanagoadu | 976 | 944 | -3 | <i>N</i> |
| Krishnarajanagar | 735 | 923 | 26 | <i>E</i> |
| Krishnarajanagar | 735 | 884 | 20 | <i>E</i> |
| Chanachanakatte | 698 | 956 | 37 | <i>E</i> |
| Hebbalu | 721 | 848 | 18 | <i>N</i> |
| Hasa Agrahar | 682 | 842 | 24 | <i>E</i> |
| Mirale | 690 | 978 | 42 | <i>E</i> |
| Saligram | 662 | 1002 | 51 | <i>E</i> |
| Mysuru | 810 | 1070 | 32 | <i>E</i> |
| Mysuru | 810 | 1122 | 38 | <i>E</i> |
| Elivala | 757 | 974 | 29 | <i>E</i> |
| Jayapura | 774 | 1083 | 40 | <i>E</i> |
| Varuna | 738 | 1083 | 47 | <i>E</i> |
| Nanjanagud | 730 | 847 | 16 | <i>N</i> |
| Nanjangud | 730 | 805 | 10 | <i>N</i> |
| Biligere | 726 | 869 | 20 | <i>E</i> |
| Chikkayyana Chattra | 732 | 1058 | 44 | <i>E</i> |
| Hullahalli | 788 | 778 | -1 | <i>N</i> |
| Doddakowlande | 731 | 832 | 14 | <i>N</i> |
| Periyapatna | 852 | 987 | 16 | <i>N</i> |
| Periyapatna | 852 | 970 | 14 | <i>N</i> |
| Bettadpur | 770 | 993 | 29 | <i>E</i> |
| Haranahalli | 957 | 1079 | 13 | <i>N</i> |
| Ravanduru | 810 | 864 | 7 | <i>N</i> |
| T.NARASIPURA | 738 | 1006 | 36 | <i>E</i> |
| T.Narasipur | 738 | 1099 | 49 | <i>E</i> |
| Bannur | 721 | 1000 | 39 | <i>E</i> |
| Muguru | 781 | 894 | 14 | <i>N</i> |
| Sosale | 738 | 1092 | 48 | <i>E</i> |
| Talakad | 777 | 942 | 21 | <i>E</i> |
| Saraguru | 949 | 898 | -5 | <i>N</i> |
| Saraguru | 949 | 860 | -9 | <i>N</i> |
| B.Matakere | 937 | 923 | -2 | <i>N</i> |
| MANDYA | 699 | 1011 | 45 | <i>E</i> |
| Krishnarajapet | 747 | 925 | 24 | <i>E</i> |
| Krishnarajapet | 747 | 945 | 26 | <i>E</i> |
| Akkihebalu | 699 | 784 | 12 | <i>N</i> |
| Bukanakere | 700 | 788 | 13 | <i>N</i> |
| Kikkeri | 719 | 856 | 19 | <i>N</i> |

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|----------------------|--|-------------|-----------|-----------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| Santebachahalli | 652 | 1107 | 70 | LE |
| Silanare | 698 | 1050 | 51 | E |
| Maddur | 767 | 973 | 27 | E |
| Madduru_2 | 767 | 1005 | 31 | E |
| Koppa_2 | 883 | 959 | 9 | N |
| Chikkaarasinakere_1 | 753 | 982 | 30 | E |
| Autaguru | 779 | 1146 | 47 | E |
| Madduru_1 | 758 | 972 | 28 | E |
| Koppa_2 | 739 | 990 | 34 | E |
| Koppa_1 | 832 | 913 | 10 | N |
| Koppa_3 | 769 | 968 | 26 | E |
| Chikaarasinakere_2 | 742 | 797 | 7 | N |
| Chikaarasinakere_3 | 734 | 734 | 0 | N |
| Malavalli | 703 | 973 | 39 | E |
| Malavalli_1 | 703 | 925 | 32 | E |
| Halaguru | 799 | 980 | 23 | E |
| Kirgavalu_1 | 719 | 1128 | 57 | E |
| B G Pura_2 | 778 | 1024 | 32 | E |
| Malavalli_2 | 748 | 864 | 15 | N |
| Malavalli_3 | 772 | 839 | 9 | N |
| Kirgavalu_2 | 721 | 935 | 30 | E |
| Kirgavalu_3 | 719 | 1007 | 40 | E |
| B G Pura_1 | 773 | 989 | 28 | E |
| Mandy | 699 | 1008 | 44 | E |
| Mandy_1 | 699 | 930 | 33 | E |
| Basaralu_1 | 610 | 999 | 64 | LE |
| Dudda_1 | 649 | 1016 | 57 | E |
| Keragodu_1 | 735 | 1263 | 72 | LE |
| Kottatti_1 | 697 | 899 | 29 | E |
| Mandy_2 | 737 | 920 | 25 | E |
| Kottatti_2 | 709 | 941 | 33 | E |
| Keragodu_2 | 747 | 1202 | 61 | LE |
| Dudda_2 | 681 | 961 | 41 | E |
| Basaralu_2 | 796 | 941 | 18 | N |
| Nagamangala | 765 | 1147 | 50 | E |
| Nagamangala | 765 | 1109 | 45 | E |
| Belluru | 520 | 1415 | 172 | LE |
| Bendaganavele | 556 | 1186 | 113 | LE |
| Devalapura | 692 | 1081 | 56 | E |
| Honakere | 465 | 980 | 111 | LE |
| Pandavapura | 679 | 1001 | 47 | E |

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|----------------------|--|-------------|-----------|-----------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| Pandavapura_1 | 679 | 971 | 43 | E |
| Chinkurali | 684 | 1022 | 49 | E |
| Melukote | 702 | 1013 | 44 | E |
| Pandavapura_2 | 660 | 949 | 44 | E |
| Srirangapatna | 638 | 1006 | 58 | E |
| Srirangapatna | 638 | 1031 | 62 | LE |
| Arakere | 701 | 1038 | 48 | E |
| Belagola | 748 | 818 | 9 | N |
| K Shettihalli_2 | 650 | 1070 | 65 | LE |
| K Shettihalli_1 | 643 | 1084 | 69 | LE |
| BALLARI | 599 | 684 | 14 | N |
| Ballari | 516 | 710 | 38 | E |
| Ballari | 516 | 670 | 30 | E |
| Moka | 524 | 711 | 36 | E |
| Rupanagudi | 505 | 824 | 63 | LE |
| Koluru | 525 | 609 | 16 | N |
| KUDLIGI | 590 | 696 | 18 | N |
| Kudligi | 590 | 818 | 39 | E |
| Gudekote | 521 | 602 | 15 | N |
| Hosahalli | 504 | 742 | 47 | E |
| Sandur | 819 | 786 | -4 | N |
| Sandur | 819 | 800 | -2 | N |
| Choranuru | 627 | 824 | 31 | E |
| Toranagallu | 612 | 710 | 16 | N |
| Siruguppa | 675 | 631 | -7 | N |
| Siruguppa | 675 | 633 | -6 | N |
| Hachcholli | 655 | 634 | -3 | N |
| Karuru | 563 | 677 | 20 | E |
| Tekkalakote | 630 | 597 | -5 | N |
| Kurugodu | 499 | 616 | 23 | E |
| Kurugodu | 499 | 582 | 16 | N |
| Koluru | 514 | 667 | 30 | E |
| KOPPALA | 614 | 640 | 4 | N |
| Gangavathi | 583 | 589 | 1 | N |
| Gangavathi | 583 | 674 | 16 | N |
| Marali | 571 | 509 | -11 | N |
| Venkatagiri | 586 | 582 | -1 | N |
| KOPPALA | 635 | 727 | 14 | N |
| Koppal | 635 | 899 | 42 | E |
| Alawandi | 587 | 603 | 3 | N |
| Hitnal | 640 | 667 | 4 | N |

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|----------------------|--|-------------|------------|-------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| Irkalgada | 627 | 706 | 13 | N |
| Kushtagi | 597 | 648 | 9 | N |
| Kushtagi | 597 | 633 | 6 | N |
| Hanumanhal | 658 | 654 | -1 | N |
| Hanamsagar | 627 | 578 | -8 | N |
| Tavaragera | 591 | 744 | 26 | E |
| Yelburga | 597 | 596 | 0 | N |
| Yelburga | 597 | 599 | 0 | N |
| Hire Wankalkunti | 595 | 615 | 3 | N |
| Karatagi | 640 | 551 | -14 | N |
| Karatgi | 640 | 566 | -12 | N |
| Siddapur | 593 | 539 | -9 | N |
| Kukanuru | 693 | 617 | -11 | N |
| Kukanoor | 693 | 600 | -13 | N |
| Manglur | 630 | 658 | 4 | N |
| Kanakagiri | 525 | 590 | 12 | N |
| Kanakagiri | 525 | 580 | 10 | N |
| Hulihaider | 558 | 677 | 21 | E |
| Nauli | 595 | 548 | -8 | N |
| RAICHUR | 654 | 624 | -5 | N |
| Deodurga | 759 | 567 | -25 | D |
| Devadurga | 759 | 643 | -15 | N |
| Arakeri | 658 | 491 | -25 | D |
| Gabbur | 683 | 565 | -17 | N |
| Jalihalli | 690 | 548 | -21 | D |
| Lingsugur | 631 | 643 | 2 | N |
| Lingasuguru | 631 | 670 | 6 | N |
| Gurgunta | 622 | 628 | 1 | N |
| Mudgal | 624 | 642 | 3 | N |
| Manvi | 652 | 656 | 1 | N |
| Manvi | 652 | 614 | -6 | N |
| Hire Katankal | 644 | 780 | 21 | E |
| Kurdi | 663 | 590 | -11 | N |
| Raichur | 736 | 601 | -18 | N |
| Raichur | 736 | 628 | -15 | N |
| Chandrabanda | 733 | 571 | -22 | D |
| Devarsugur | 723 | 586 | -19 | N |
| Gilasuguru | 610 | 563 | -8 | N |
| Kalmali | 678 | 624 | -8 | N |
| Yergara | 763 | 632 | -17 | N |
| Sindhanur | 691 | 620 | -10 | N |

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|----------------------|--|-------------|-----------|----------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| Sindhanur | 691 | 590 | -15 | N |
| Badarli | 663 | 741 | 12 | N |
| Gorebal | 649 | 519 | -20 | D |
| Gunjihalli | 634 | 623 | -2 | N |
| Hadganhal | 655 | 650 | -1 | N |
| Huda | 650 | 650 | 0 | N |
| Jalihal | 638 | 460 | -28 | D |
| Jawalgeri | 656 | 740 | 13 | N |
| Kunatgi | 660 | 624 | -5 | N |
| Salgundi | 660 | 668 | 1 | N |
| Turvihal | 627 | 602 | -4 | N |
| Walkamdinni | 645 | 755 | 17 | N |
| Maski | 558 | 714 | 28 | E |
| Maski | 558 | 649 | 16 | N |
| Halapur | 586 | 778 | 33 | E |
| Pamankallur | 601 | 794 | 32 | E |
| Balganur | 598 | 665 | 11 | N |
| Gunjihalli | 609 | 675 | 11 | N |
| Turvihal | 603 | 987 | 64 | LE |
| Gudadur | 573 | 641 | 12 | N |
| Lingsugur | 592 | 704 | 19 | N |
| Sirivara | 589 | 573 | -3 | N |
| Sirwar | 589 | 528 | -10 | N |
| Kallur | 671 | 530 | -21 | D |
| Mallat | 624 | 621 | -1 | N |
| Kavital | 622 | 611 | -2 | N |
| KALABURAGI | 770 | 943 | 22 | E |
| Afzalpur | 692 | 825 | 19 | N |
| Afzalpur | 692 | 753 | 9 | N |
| Atanur | 707 | 915 | 29 | E |
| Karajgi | 664 | 751 | 13 | N |
| Aland | 763 | 994 | 30 | E |
| Aland | 763 | 1013 | 33 | E |
| Khajuri | 757 | 1087 | 44 | E |
| Madana Hipparga | 735 | 943 | 28 | E |
| Narona | 766 | 901 | 18 | N |
| Nimbarga Tanda | 761 | 959 | 26 | E |
| Chincholi | 913 | 920 | 1 | N |
| Chincholi | 913 | 891 | -2 | N |
| Ainapur | 783 | 970 | 24 | E |
| Sulepet | 874 | 851 | -3 | N |

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|----------------------|--|-------------|-----------|-----------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| Kodli Chincholi | 896 | 1019 | 14 | N |
| CHITTAPUR | 771 | 1066 | 38 | E |
| Chittapur | 771 | 1073 | 39 | E |
| Gundgurti | 777 | 1158 | 49 | E |
| Nalavara | 791 | 1000 | 26 | E |
| Kalaburagi | 794 | 1036 | 31 | E |
| Kalaburagi | 794 | 1047 | 32 | E |
| Aurad | 777 | 1070 | 38 | E |
| Farhatabad | 779 | 939 | 21 | E |
| Pattan | 772 | 1049 | 36 | E |
| Jevargi | 805 | 819 | 2 | N |
| Jewargi | 805 | 823 | 2 | N |
| Andola | 792 | 858 | 8 | N |
| Nelogi | 753 | 747 | -1 | N |
| Sedam | 791 | 913 | 15 | N |
| Sedam | 791 | 910 | 15 | N |
| Adki | 807 | 883 | 9 | N |
| Kodla | 799 | 928 | 16 | N |
| Mudhol | 807 | 866 | 7 | N |
| Kalagi | 766 | 1263 | 65 | LE |
| Kalagi | 766 | 1311 | 71 | LE |
| Kodli | 774 | 1193 | 54 | E |
| Gundgurti | 773 | 1223 | 58 | E |
| Kamalapura | 762 | 959 | 26 | E |
| Kamalapur | 762 | 944 | 24 | E |
| Mahagaon Tanda | 772 | 985 | 28 | E |
| Narona | 770 | 889 | 15 | N |
| Ainapur | 780 | 1049 | 35 | E |
| Yadrami | 687 | 630 | -8 | N |
| Yadrami | 687 | 652 | -5 | N |
| Ijeri | 750 | 592 | -21 | D |
| Shahbadha | 758 | 1036 | 37 | E |
| Shahabad | 758 | 1020 | 34 | E |
| BIDAR | 838 | 907 | 8 | N |
| Aurad | 854 | 984 | 15 | N |
| Aurad | 854 | 875 | 2 | N |
| Chintaki | 872 | 1077 | 23 | E |
| Santpur | 874 | 996 | 14 | N |
| Bidar | 939 | 917 | -2 | N |
| Bidar | 939 | 1017 | 8 | N |
| Bagadhal | 843 | 935 | 11 | N |

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|----------------------|--|-------------|-----------|-------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| Bidar South | 935 | 894 | -4 | N |
| Janwada | 909 | 826 | -9 | N |
| Kamthana | 906 | 941 | 4 | N |
| Manalli | 890 | 849 | -5 | N |
| Bhalki | 874 | 942 | 8 | N |
| Bhalki | 874 | 901 | 3 | N |
| Halburga | 875 | 859 | -2 | N |
| Khatak Chincholi | 833 | 823 | -1 | N |
| Lakangaon | 877 | 995 | 13 | N |
| Nittur Buzurg | 873 | 1151 | 32 | E |
| Saigaon | 769 | 868 | 13 | N |
| Basavakalyan | 790 | 833 | 5 | N |
| Basavakalyan | 790 | 805 | 2 | N |
| Kohinoor | 775 | 829 | 7 | N |
| Matala | 787 | 816 | 4 | N |
| Mudabi | 779 | 816 | 5 | N |
| Rajeshwar | 813 | 882 | 8 | N |
| Humnabad | 834 | 851 | 2 | N |
| Humnabad | 834 | 836 | 0 | N |
| Dubalgundi | 822 | 860 | 5 | N |
| Hallikhed | 827 | 846 | 2 | N |
| Chittaguppa | 759 | 842 | 11 | N |
| Chitguppa | 759 | 853 | 12 | N |
| Bhimalkhed | 838 | 797 | -5 | N |
| Nirna | 794 | 854 | 8 | N |
| Kamalanagara | 902 | 949 | 5 | N |
| Kamalnagar | 902 | 806 | -11 | N |
| Dabaka C. | 877 | 1009 | 15 | N |
| Thanakushanur | 873 | 1097 | 26 | E |
| Hulasuru | 739 | 886 | 20 | E |
| Hulsoor | 739 | 873 | 18 | N |
| BELAGAVI | 826 | 983 | 19 | N |
| Athani | 539 | 515 | -4 | N |
| Athani | 539 | 488 | -9 | N |
| Anantapur | 517 | 569 | 10 | N |
| Telsang | 507 | 487 | -4 | N |
| Bailhongal | 816 | 1008 | 23 | E |
| Bailhongal | 816 | 968 | 19 | N |
| Nesargi | 771 | 1034 | 34 | E |
| Belagavi | 1363 | 1319 | -3 | N |
| Belagavi | 1363 | 1330 | -2 | N |

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|----------------------|--|-------------|-----------|----------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| Hirebagevadi | 1041 | 1180 | 13 | N |
| Kakti | 1131 | 1193 | 6 | N |
| Uchagaon | 1341 | 1553 | 16 | N |
| Chikkodi | 666 | 852 | 28 | E |
| Chikkodi | 666 | 863 | 30 | E |
| Nagaramonnali | 634 | 862 | 36 | E |
| Sadalgi | 663 | 785 | 18 | N |
| Gokak | 524 | 699 | 33 | E |
| Gokak | 524 | 766 | 46 | E |
| Kowjalgi | 537 | 568 | 6 | N |
| Arbhavi | 560 | 665 | 19 | N |
| Hukkeri | 649 | 955 | 47 | E |
| Hukkeri | 649 | 900 | 39 | E |
| Sankeswar | 812 | 1041 | 28 | E |
| Yamkanmardi | 685 | 929 | 36 | E |
| Khanapur | 1950 | 2145 | 10 | N |
| Khanapur | 1950 | 1638 | -16 | N |
| Bidi | 1413 | 1442 | 2 | N |
| Gunji | 2263 | 2394 | 6 | N |
| Jamboti | 1856 | 2456 | 32 | E |
| RAMADURGA | 540 | 682 | 26 | E |
| Ramdurg | 540 | 626 | 16 | N |
| Bidki | 534 | 679 | 27 | E |
| Katkol | 536 | 782 | 46 | E |
| Mudkavi | 543 | 575 | 6 | N |
| Raibagh | 483 | 582 | 21 | E |
| Raibagh | 483 | 596 | 23 | E |
| Kudchi | 529 | 570 | 8 | N |
| Soundatti | 568 | 848 | 49 | E |
| Savadatti | 568 | 837 | 47 | E |
| Manoli | 562 | 649 | 15 | N |
| Muragoda | 607 | 946 | 56 | E |
| Yargatti | 533 | 949 | 78 | LE |
| Kitturu | 1036 | 1200 | 16 | N |
| Kittur | 1036 | 1182 | 14 | N |
| Nippani | 838 | 1025 | 22 | E |
| Nippani | 838 | 1117 | 33 | E |
| Sadalgi | 767 | 877 | 14 | N |
| Kagavada | 541 | 569 | 5 | N |
| Kagwad | 541 | 566 | 5 | N |
| Mudagal | 534 | 570 | 7 | N |

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|---------------------------|--|-------------|------------|----------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| Arbhavi | 534 | 584 | 10 | N |
| Kowjalgi | 529 | 560 | 6 | N |
| BAGALKOTE | 582 | 550 | -6 | N |
| Badami | 600 | 585 | -2 | N |
| Badami | 600 | 570 | -5 | N |
| Kerur | 570 | 556 | -2 | N |
| Kulgeri | 583 | 612 | 5 | N |
| Bagalkote | 613 | 521 | -15 | N |
| Bagalkote | 613 | 597 | -3 | N |
| Kaladgi | 548 | 441 | -19 | N |
| Rampura | 612 | 495 | -19 | N |
| Bilgi | 609 | 501 | -18 | N |
| Bilgi | 609 | 500 | -18 | N |
| Anagvadi | 599 | 498 | -17 | N |
| Hungund | 670 | 687 | 3 | N |
| Hungund | 670 | 700 | 5 | N |
| Amingarh | 633 | 677 | 7 | N |
| Karadi | 652 | 669 | 3 | N |
| Jamkhandi | 548 | 445 | -19 | N |
| Jamakhandi | 548 | 424 | -23 | D |
| Savalagi | 530 | 462 | -13 | N |
| Terdal | 543 | 441 | -19 | N |
| Mudhol | 532 | 512 | -4 | N |
| Mudhol | 532 | 490 | -8 | N |
| Lokapur | 473 | 535 | 13 | N |
| Guledagudda | 607 | 653 | 8 | N |
| Guledagudda | 607 | 647 | 7 | N |
| Ilkal | 651 | 667 | 2 | N |
| Ilkal | 651 | 645 | -1 | N |
| Amingarh | 636 | 640 | 1 | N |
| Karadi | 654 | 756 | 16 | N |
| Rabakavi Banahatti | 496 | 404 | -19 | N |
| Terdal | 496 | 405 | -18 | N |
| Mudhol | 550 | 408 | -26 | D |
| VIJAYAPURA | 591 | 587 | -1 | N |
| BAGEVADI | 669 | 574 | -14 | N |
| Basavana Bagewadi | 669 | 576 | -14 | N |
| Huvin Hippargi | 647 | 603 | -7 | N |
| Managuli | 608 | 544 | -11 | N |
| Vijayapura | 671 | 584 | -13 | N |
| Vijayapura | 671 | 581 | -13 | N |

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|-------------------------|--|-------------|------------|-------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| Nagathan | 392 | 588 | 50 | E |
| Indi | 620 | 579 | -7 | N |
| Indi | 620 | 583 | -6 | N |
| Ballolli | 563 | 564 | 0 | N |
| Muddebihal | 652 | 561 | -14 | N |
| Muddebihal | 652 | 566 | -13 | N |
| Dhavalagi | 638 | 591 | -7 | N |
| Nalatvad | 691 | 528 | -24 | D |
| Sindgi | 658 | 635 | -3 | N |
| Sindhagi | 658 | 618 | -6 | N |
| Almel | 646 | 652 | 1 | N |
| Babaleshwara | 545 | 468 | -14 | N |
| Babaleshwar | 545 | 422 | -23 | D |
| Mamdapur | 569 | 572 | 1 | N |
| Chadachana | 552 | 662 | 20 | E |
| Chadchan | 552 | 660 | 19 | E |
| Nidagundi | 616 | 479 | -22 | D |
| Nidagundi | 616 | 463 | -25 | D |
| Basavana Bagewadi | 631 | 450 | -29 | D |
| Huvin Hipprgi | 629 | 532 | -15 | N |
| Muddebihal | 615 | 508 | -17 | N |
| Dhavalagi | 624 | 432 | -31 | D |
| Talikote | 586 | 637 | 9 | N |
| Talikoti | 586 | 647 | 10 | N |
| Devarhipargi | 597 | 624 | 4 | N |
| Dhavalagi | 612 | 670 | 9 | N |
| Huvinhipprgi | 603 | 536 | -11 | N |
| Tikota | 406 | 593 | 46 | E |
| Tikota | 406 | 593 | 46 | E |
| Kolhara | 606 | 513 | -15 | N |
| Kolhar | 606 | 512 | -16 | N |
| Devara Hipparagi | 630 | 663 | 5 | N |
| Devar Hipparagi | 630 | 652 | 3 | N |
| Huvinhipprgi | 625 | 643 | 3 | N |
| GADAG | 624 | 678 | 9 | N |
| Gadag | 659 | 734 | 11 | N |
| Gadag | 659 | 907 | 38 | E |
| Betageri | 655 | 605 | -8 | N |
| Mundargi | 557 | 583 | 5 | N |
| Mundargi | 557 | 623 | 12 | N |
| Dambal | 462 | 560 | 21 | E |

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|----------------------|--|-------------|------------|-----------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| Naragund | 557 | 693 | 24 | E |
| Naragund | 557 | 727 | 31 | E |
| Konnur | 583 | 642 | 10 | N |
| Ron | 699 | 629 | -10 | N |
| Ron | 699 | 647 | -7 | N |
| Hole Alur | 623 | 629 | 1 | N |
| Nargil | 668 | 658 | -1 | N |
| Shirahatti | 689 | 714 | 4 | N |
| Shirahatti | 689 | 713 | 4 | N |
| Gajendragad | 737 | 660 | -10 | N |
| Rona | 737 | 764 | 4 | N |
| Nargil | 660 | 627 | -5 | N |
| Laxmeshwar | 594 | 823 | 39 | E |
| Laxmeshwar | 594 | 822 | 38 | E |
| HAVERI | 800 | 1013 | 27 | E |
| Byadgi | 679 | 1062 | 57 | E |
| Byadgi | 679 | 960 | 41 | E |
| Kaginelli | 797 | 1195 | 50 | E |
| Hanagal | 1044 | 1160 | 11 | N |
| Hangal | 1044 | 1278 | 22 | E |
| Akki Alur | 1067 | 1151 | 8 | N |
| Bommanhalli | 1024 | 1056 | 3 | N |
| Haveri | 778 | 893 | 15 | N |
| Haveri | 778 | 971 | 25 | E |
| Guttal | 619 | 826 | 34 | E |
| Karajgi | 732 | 925 | 26 | E |
| Hirekerur | 856 | 1074 | 25 | E |
| Hirekerur | 856 | 1168 | 36 | E |
| Haunsbhavi | 918 | 986 | 7 | N |
| RANEBENNUR | 623 | 966 | 55 | E |
| Ranebennur | 623 | 1010 | 62 | LE |
| Kuppelur | 708 | 1047 | 48 | E |
| Medleri | 651 | 864 | 33 | E |
| Savanur | 699 | 952 | 36 | E |
| Savanur | 699 | 876 | 25 | E |
| Hatti Mattur | 717 | 1020 | 42 | E |
| Shiggaon | 814 | 975 | 20 | E |
| Shiggaon | 814 | 839 | 3 | N |
| Bankapur | 808 | 1015 | 26 | E |
| Dhundsi | 955 | 1045 | 9 | N |
| Ratteehalli | 790 | 1085 | 37 | E |

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|-----------------------|--|-------------|-----------|-----------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| Rattihalli | 790 | 1091 | 38 | <i>E</i> |
| Hirekerur | 830 | 1074 | 29 | <i>E</i> |
| DHARWAD | 787 | 965 | 23 | <i>E</i> |
| Dharwad | 777 | 1060 | 36 | <i>E</i> |
| Dharwad | 777 | 1156 | 49 | <i>E</i> |
| Aminbhavi | 792 | 863 | 9 | <i>N</i> |
| Garag | 908 | 1119 | 23 | <i>E</i> |
| Hubballi | 772 | 935 | 21 | <i>E</i> |
| Chabbi | 772 | 1136 | 47 | <i>E</i> |
| Shirguppi | 699 | 809 | 16 | <i>N</i> |
| Kalghatgi | 979 | 1253 | 28 | <i>E</i> |
| Kalghatgi | 979 | 1329 | 36 | <i>E</i> |
| Dummavada | 852 | 1205 | 42 | <i>E</i> |
| Tabkad Honnihalli | 965 | 1209 | 25 | <i>E</i> |
| Kundgol | 661 | 841 | 27 | <i>E</i> |
| Kundgol | 661 | 833 | 26 | <i>E</i> |
| Saunshi | 696 | 842 | 21 | <i>E</i> |
| Navalgund | 631 | 711 | 13 | <i>N</i> |
| Moraba | 631 | 707 | 12 | <i>N</i> |
| Hubballi Nagar | 746 | 1009 | 35 | <i>E</i> |
| Hubballi Urban | 746 | 1007 | 35 | <i>E</i> |
| Alnavara | 1267 | 1416 | 12 | <i>N</i> |
| Alnavar | 1267 | 1411 | 11 | <i>N</i> |
| Annigeri | 651 | 797 | 23 | <i>E</i> |
| Annigeri | 651 | 801 | 23 | <i>E</i> |
| SHIVAMOGGA | 2325 | 2444 | 5 | <i>N</i> |
| Bhadravathi | 866 | 1292 | 49 | <i>E</i> |
| Bhadravathi_1 | 866 | 1420 | 64 | <i>LE</i> |
| Bhadravathi_2 | 936 | 1268 | 35 | <i>E</i> |
| Hole Honnuru_1 | 883 | 1090 | 24 | <i>E</i> |
| Hole Honnuru_3 | 846 | 1194 | 41 | <i>E</i> |
| Hole Honnuru_2 | 800 | 1266 | 58 | <i>E</i> |
| Kudligere | 882 | 1353 | 53 | <i>E</i> |
| HOSANAGARA | 3071 | 3285 | 7 | <i>N</i> |
| Hosanagar | 3071 | 3270 | 6 | <i>N</i> |
| Huncha | 2490 | 2433 | -2 | <i>N</i> |
| Kerehalli | 1764 | 1807 | 2 | <i>N</i> |
| Nagar | 5205 | 4654 | -11 | <i>N</i> |
| SAGARA | 2495 | 3240 | 30 | <i>E</i> |
| Sagar | 2495 | 2139 | -14 | <i>N</i> |
| Anandapuram | 1702 | 2038 | 20 | <i>E</i> |

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|----------------------|--|-------------|-----------|-----------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| Baragadde | 4040 | 3789 | -6 | N |
| Anahalli | 2692 | 2442 | -9 | N |
| Karauru | 4154 | 4836 | 16 | N |
| Talguppa | 2710 | 2768 | 2 | N |
| SHIKARIPURA | 975 | 1399 | 43 | E |
| Shikaripur | 975 | 1472 | 51 | E |
| Anjanapura | 1171 | 1470 | 26 | E |
| Husuru | 861 | 1334 | 55 | E |
| Udagani | 1037 | 1359 | 31 | E |
| Talagunda | 1050 | 1385 | 32 | E |
| Shivamogga | 842 | 1498 | 78 | LE |
| Shivamogga_2 | 842 | 1346 | 60 | E |
| Shivamogga_1 | 1150 | 1409 | 22 | E |
| Haranahalli | 1037 | 1389 | 34 | E |
| Holalur_1 | 843 | 1316 | 56 | E |
| Holalur_2 | 913 | 1160 | 27 | E |
| Kumsi | 984 | 1761 | 79 | LE |
| Nidige_1 | 951 | 1498 | 58 | E |
| Nidige_2 | 1193 | 1478 | 24 | E |
| Ayanuru | 1043 | 1717 | 65 | LE |
| SORABA | 1541 | 1811 | 18 | N |
| Sorab | 1541 | 1815 | 18 | N |
| Anavatti | 1261 | 1419 | 13 | N |
| Chandragutti | 2332 | 1974 | -15 | N |
| Jade | 1478 | 1622 | 10 | N |
| Kuppagadde | 1417 | 1906 | 34 | E |
| Ulvi | 1895 | 1962 | 4 | N |
| Tirthahalli | 2867 | 3083 | 8 | N |
| Thirthahalli | 2867 | 3040 | 6 | N |
| Agrahara | 2713 | 3039 | 12 | N |
| Agumbe | 7565 | 4152 | -45 | D |
| Mandagadde | 1690 | 2435 | 44 | E |
| Malur | 2579 | 2650 | 3 | N |
| HASSAN | 1142 | 1363 | 19 | N |
| Alur | 1149 | 1259 | 10 | N |
| Alur | 1149 | 1191 | 4 | N |
| Kenchamman Hoskota | 1814 | 1528 | -16 | N |
| Kundur | 1136 | 983 | -13 | N |
| Palya | 1581 | 1232 | -22 | D |
| ARKALGUD | 885 | 1100 | 24 | E |
| Arkalgud | 885 | 957 | 8 | N |

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|------------------------|--|-------------|------------|-----------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| Doddamagge | 899 | 1001 | 11 | N |
| Konanuru | 797 | 1140 | 43 | E |
| Mallipatna | 1246 | 1354 | 9 | N |
| Ramanathapura | 830 | 1077 | 30 | E |
| ARASIKERE | 696 | 1036 | 49 | E |
| Arasikere | 696 | 1059 | 52 | E |
| Banavara | 564 | 1078 | 91 | LE |
| Gandasi | 661 | 1151 | 74 | LE |
| Javagal | 934 | 951 | 2 | N |
| Kanakatte | 595 | 980 | 65 | LE |
| Belur | 1021 | 1163 | 14 | N |
| Belur | 1021 | 1170 | 15 | N |
| Arehalli | 1790 | 1512 | -16 | N |
| Bikkodu | 1213 | 1269 | 5 | N |
| Halebeedu | 1305 | 978 | -25 | D |
| Madihalli | 2378 | 917 | -61 | LD |
| Channarayapatna | 690 | 1130 | 64 | LE |
| Channarayapatna | 690 | 965 | 40 | E |
| Baguru | 779 | 1267 | 63 | LE |
| Dandiganahalli | 692 | 1018 | 47 | E |
| Hirisave | 768 | 1205 | 57 | E |
| Nuggehalli | 669 | 1227 | 83 | LE |
| Shravan Belgola | 733 | 1103 | 50 | E |
| Hassan | 846 | 1028 | 22 | E |
| Hassan | 846 | 1045 | 24 | E |
| Dudda | 652 | 999 | 53 | E |
| Katty | 693 | 1002 | 45 | E |
| Salagame | 816 | 1069 | 31 | E |
| Shantigrama | 661 | 1014 | 53 | E |
| HOLENARASIPURA | 768 | 948 | 23 | E |
| Holenarasipur | 768 | 933 | 21 | E |
| Halekote | 778 | 1068 | 37 | E |
| Halli Mysore | 767 | 878 | 15 | N |
| SAKALESHPURA | 2247 | 2947 | 31 | E |
| Sakaleshpur | 2247 | 2331 | 4 | N |
| Balegodu | 1790 | 1600 | -11 | N |
| Hanbalu | 2377 | 3479 | 46 | E |
| Hettur | 2218 | 3316 | 49 | E |
| Yaslur | 1783 | 2908 | 63 | LE |
| CHIKKAMAGALURU | 1833 | 2070 | 13 | N |
| CHIKKAMAGALURU | 836 | 1755 | 110 | LE |

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|--------------------------|--|-------------|-----------|-----------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| Chikkamagaluru | 836 | 1548 | 85 | LE |
| Amble | 938 | 1234 | 32 | E |
| Aldur | 1643 | 2038 | 24 | E |
| Sangmeswrpet | 2339 | 2230 | -5 | N |
| Lakya | 1283 | 1275 | -1 | N |
| Avathi | 1340 | 2017 | 50 | E |
| Jagar | 909 | 2003 | 120 | LE |
| Vasthare | 1048 | 1641 | 57 | E |
| Kadur | 639 | 1075 | 68 | LE |
| Kadur | 639 | 1163 | 82 | LE |
| Birur | 677 | 1232 | 82 | LE |
| Hirenalluru | 643 | 998 | 55 | E |
| Sakkarepatna | 813 | 1050 | 29 | E |
| Shingatagere | 630 | 1001 | 59 | E |
| Yagati | 632 | 968 | 53 | E |
| Panchanahalli | 594 | 1058 | 78 | LE |
| Koppa | 2907 | 3013 | 4 | N |
| Koppa | 2907 | 2782 | -4 | N |
| Hariharpur | 3046 | 3185 | 5 | N |
| Meguda | 3122 | 3058 | -2 | N |
| Mudigere | 2315 | 3386 | 46 | E |
| Mudigere | 2315 | 2308 | 0 | N |
| Bankal | 4139 | 3326 | -20 | D |
| Gonibidu | 2268 | 3492 | 54 | E |
| Kalasa | 3491 | 3691 | 6 | N |
| Baluru | 3866 | 3344 | -13 | N |
| NARASIMHARAJAPURA | 1609 | 2183 | 36 | E |
| Narasimharajapur | 1609 | 1906 | 18 | N |
| Balehonnur | 2590 | 2509 | -3 | N |
| Sringeri | 3887 | 3940 | 1 | N |
| Sringeri | 3887 | 3308 | -15 | N |
| Kigga | 4377 | 4107 | -6 | N |
| Tarikere | 914 | 1280 | 40 | E |
| Tarikere | 914 | 1167 | 28 | E |
| Amrutapur | 881 | 1091 | 24 | E |
| Lakavalli | 1256 | 1461 | 16 | N |
| Lingadahalli | 825 | 1338 | 62 | LE |
| Ajjampura | 669 | 1060 | 59 | E |
| Ajjampura | 669 | 1054 | 58 | E |
| Chowlahiriyyur | 607 | 1020 | 68 | LE |
| Shivani | 575 | 1114 | 94 | LE |

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|-------------------------|--|-------------|------------|----------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| Amruthpura | 698 | 910 | 30 | E |
| Hirenalluru | 645 | 1070 | 66 | LE |
| KODAGU | 2729 | 2656 | -3 | N |
| Madikeri | 3265 | 3522 | 8 | N |
| Madikeri | 3265 | 3206 | -2 | N |
| Bhagamandala | 5784 | 4224 | -27 | D |
| Napoklu | 2833 | 2842 | 0 | N |
| Sampaje | 4418 | 3556 | -19 | N |
| Somwarpet | 2098 | 2150 | 2 | N |
| Somwarpet | 2098 | 1936 | -8 | N |
| Kodlipet | 1613 | 1767 | 10 | N |
| Kushalnagar | 978 | 1492 | 52 | E |
| Sanivarsante | 1863 | 1721 | -8 | N |
| Santhahalli | 2294 | 3357 | 46 | E |
| Suntikoppa | 1589 | 2265 | 43 | E |
| Virajpet | 2468 | 2210 | -10 | N |
| Virajpet | 2468 | 2836 | 15 | N |
| Ammati | 1992 | 1851 | -7 | N |
| Blale | 1798 | 1710 | -5 | N |
| Hudakere | 2403 | 2617 | 9 | N |
| Ponnampet | 2267 | 2019 | -11 | N |
| Srimangala | 2753 | 1925 | -30 | D |
| DAKSHINA KANNADA | 4006 | 3963 | -1 | N |
| Beltangadi | 4426 | 4427 | 0 | N |
| Belthangady | 4426 | 4383 | -1 | N |
| Kokkada | 4261 | 4499 | 6 | N |
| Venur | 4117 | 4262 | 4 | N |
| Bantwal | 3856 | 3369 | -13 | N |
| Bantwal | 3856 | 3559 | -8 | N |
| Pane Mangalore | 3885 | 3361 | -13 | N |
| Vittal | 3984 | 3153 | -21 | D |
| Mangaluru | 3609 | 3486 | -3 | N |
| Mangaluru_A | 3609 | 3382 | -6 | N |
| Mangaluru_B | 3631 | 3366 | -7 | N |
| Gurpur | 3801 | 3458 | -9 | N |
| Mulki | 3788 | 3602 | -5 | N |
| Suratkal | 3834 | 3422 | -11 | N |
| Puttur | 4058 | 3592 | -12 | N |
| Puttur | 4058 | 3609 | -11 | N |
| Uppinangadi | 3939 | 3472 | -12 | N |
| Sulya | 3592 | 3885 | 8 | N |

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|-----------------------|--|-------------|-----------|----------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| Sullia | 3592 | 3741 | 4 | N |
| Panaje | 4015 | 4136 | 3 | N |
| Mudabidri | 4010 | 3873 | -3 | N |
| Mudbidri | 4010 | 3824 | -5 | N |
| Kadaba | 4135 | 4329 | 5 | N |
| Kadaba | 4135 | 4214 | 2 | N |
| Panaje | 4215 | 4027 | -4 | N |
| Uppinangadi | 3495 | 4681 | 34 | E |
| UDUPI | 4535 | 4797 | 6 | N |
| Karkala | 4777 | 4736 | -1 | N |
| Karkala | 4777 | 4474 | -6 | N |
| Ajekar | 4755 | 5051 | 6 | N |
| Kundapur | 3786 | 4784 | 26 | E |
| Kundapur | 3786 | 4469 | 18 | N |
| Vandse | 4260 | 4838 | 14 | N |
| Udupi | 3862 | 4149 | 7 | N |
| Udupi | 3862 | 4031 | 4 | N |
| Brahmavara | 4333 | 4171 | -4 | N |
| Bynduru | 4428 | 4865 | 10 | N |
| Bainduru | 4428 | 4811 | 9 | N |
| Bramhavara | 4043 | 4259 | 5 | N |
| Brahmavara | 4043 | 4237 | 5 | N |
| Kota | 3525 | 4120 | 17 | N |
| Kapu | 3757 | 4145 | 10 | N |
| Kapu | 3757 | 4079 | 9 | N |
| Hebri | 5802 | 6033 | 4 | N |
| Ajekar | 5802 | 6085 | 5 | N |
| Kundapur | 5073 | 5473 | 8 | N |
| UTTARA KANNADA | 2936 | 3346 | 14 | N |
| Ankola | 3532 | 4083 | 16 | N |
| Ankola | 3532 | 4152 | 18 | N |
| Belikere | 3517 | 3904 | 11 | N |
| Basagod | 3438 | 3823 | 11 | N |
| Blale | 3364 | 3994 | 19 | N |
| Bhatkal | 4322 | 4569 | 6 | N |
| Susgadi | 4322 | 4539 | 5 | N |
| Mavalli | 4071 | 4536 | 11 | N |
| Haliyal | 1339 | 1955 | 46 | E |
| Haliyal | 1339 | 1869 | 40 | E |
| Murkvad | 1061 | 1831 | 72 | LE |
| Sambrani | 1260 | 2006 | 59 | E |

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|----------------------|--|-------------|------------|----------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| Dandeli | 1371 | 2174 | 59 | <i>E</i> |
| Honnavar | 3728 | 4613 | 24 | <i>E</i> |
| Honnavar | 3728 | 4238 | 14 | <i>N</i> |
| Manki | 3668 | 4172 | 14 | <i>N</i> |
| Mavinakurvei | 3869 | 4958 | 28 | <i>E</i> |
| Karwar | 3234 | 4293 | 33 | <i>E</i> |
| Baad | 3234 | 3643 | 13 | <i>N</i> |
| Ghadasaya | 3611 | 4611 | 28 | <i>E</i> |
| Kinnar | 3448 | 3723 | 8 | <i>N</i> |
| Savantvada | 3329 | 4381 | 32 | <i>E</i> |
| Kumta | 3523 | 3503 | -1 | <i>N</i> |
| Kumta | 3523 | 3494 | -1 | <i>N</i> |
| Gokarna | 3243 | 3430 | 6 | <i>N</i> |
| Kujahalli | 3978 | 3563 | -10 | <i>N</i> |
| Mirjan | 3526 | 3347 | -5 | <i>N</i> |
| Mundgod | 1438 | 1675 | 17 | <i>N</i> |
| Mundgod | 1438 | 1488 | 3 | <i>N</i> |
| Pala | 1243 | 1904 | 53 | <i>E</i> |
| SIDDAPUR | 3016 | 3682 | 22 | <i>E</i> |
| Umbalamani | 4456 | 3390 | -24 | <i>D</i> |
| Siddapura | 3016 | 3187 | 6 | <i>N</i> |
| Kodkani | 3371 | 4209 | 25 | <i>E</i> |
| SIRSI | 2360 | 3194 | 35 | <i>E</i> |
| Sirsi | 2360 | 2750 | 17 | <i>N</i> |
| Banavasi | 1511 | 2384 | 58 | <i>E</i> |
| Hulekal | 2174 | 3146 | 45 | <i>E</i> |
| Sampakanda | 4141 | 4152 | 0 | <i>N</i> |
| SUPA | 2578 | 3483 | 35 | <i>E</i> |
| Supa | 2578 | 2556 | -1 | <i>N</i> |
| Kasalrock | 4658 | 4899 | 5 | <i>N</i> |
| Kumbarawada | 3073 | 3178 | 3 | <i>N</i> |
| YELLAPUR | 2668 | 2599 | -3 | <i>N</i> |
| Yellapur | 2668 | 3030 | 14 | <i>N</i> |
| Manchikeri | 1989 | 2205 | 11 | <i>N</i> |
| Dandeli | 1540 | 2064 | 34 | <i>E</i> |
| Dhandeli | 1540 | 2053 | 33 | <i>E</i> |
| YADGIR | 719 | 669 | -7 | <i>N</i> |
| Shahapur | 848 | 716 | -16 | <i>N</i> |
| Shahpur | 848 | 701 | -17 | <i>N</i> |
| Doranahalli | 816 | 830 | 2 | <i>N</i> |
| Gogi | 775 | 653 | -16 | <i>N</i> |

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|---------------------------|--|-------------|------------|-------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| Hayyalbuzurg | 735 | 735 | 0 | N |
| Shorapur | 721 | 613 | -15 | N |
| Shorapur | 721 | 674 | -7 | N |
| Kakkeri | 576 | 626 | 9 | N |
| Kembhavi | 584 | 548 | -6 | N |
| Yadgir | 908 | 761 | -16 | N |
| Yadgir | 908 | 778 | -14 | N |
| Balichakra | 773 | 469 | -39 | D |
| Hattikuni | 854 | 821 | -4 | N |
| Saidapur | 754 | 824 | 9 | N |
| Gurumithakala | 773 | 737 | -5 | N |
| Gurmitakal | 773 | 831 | 7 | N |
| Konakal | 776 | 663 | -15 | N |
| Balichakra | 763 | 660 | -14 | N |
| Vadagera | 617 | 728 | 18 | N |
| Wadagera | 617 | 678 | 10 | N |
| Doranahlli | 715 | 809 | 13 | N |
| Hayyala Buzurg | 722 | 740 | 2 | N |
| Hunisigi | 501 | 492 | -2 | N |
| Hunasagi | 501 | 506 | 1 | N |
| Kodekal | 622 | 481 | -23 | D |
| Kakkera | 571 | 511 | -11 | N |
| VIJAYANAGAR | 643 | 772 | 20 | E |
| Hosapete | 704 | 777 | 10 | N |
| Hospet | 704 | 881 | 25 | E |
| Kamalapura | 658 | 681 | 4 | N |
| Mariyammanahalli | 673 | 805 | 20 | E |
| Hadagali | 641 | 783 | 22 | E |
| Hadagali | 641 | 776 | 21 | E |
| Hirehadagalli | 652 | 833 | 28 | E |
| Ittigi | 667 | 741 | 11 | N |
| HAGARIBOMMANAHALLI | 635 | 772 | 22 | E |
| Hagaribommanahalli | 635 | 700 | 10 | N |
| Hampa Sagara | 617 | 653 | 6 | N |
| Tambarahalli | 628 | 856 | 36 | E |
| Kogali | 617 | 774 | 26 | E |
| HARAPPANAHALLI | 755 | 835 | 11 | N |
| Harapanahalli | 755 | 737 | -2 | N |
| Arasikere | 656 | 1002 | 53 | E |
| Chigateri | 761 | 681 | -11 | N |
| Telagi | 665 | 904 | 36 | E |

| District/Taluk/Hobli | Annual Rainfall 2021 (1 st January to 31 st December) | | | |
|----------------------|--|-------------|-----------|----------|
| | Normal (mm) | Actual (mm) | %DEP | Class |
| Kotturu | 533 | 749 | 40 | E |
| Kotturu | 533 | 758 | 42 | E |
| Kogali | 641 | 635 | -1 | N |
| Hoshalli | 560 | 819 | 46 | E |
| Kampli | 531 | 591 | 11 | N |
| Kampli | 531 | 602 | 13 | N |
| Kurugodu | 553 | 524 | -5 | N |
| 1.SIK | 714 | 1050 | 47 | E |
| 2.NIK | 702 | 780 | 11 | N |
| 3.MALNAD | 1950 | 2100 | 8 | N |
| 4.COASTAL | 3518 | 3784 | 8 | N |
| State | 1153 | 1337 | 16 | N |

Figure 1.7: District wise Rainfall (mm) pattern during 2021.

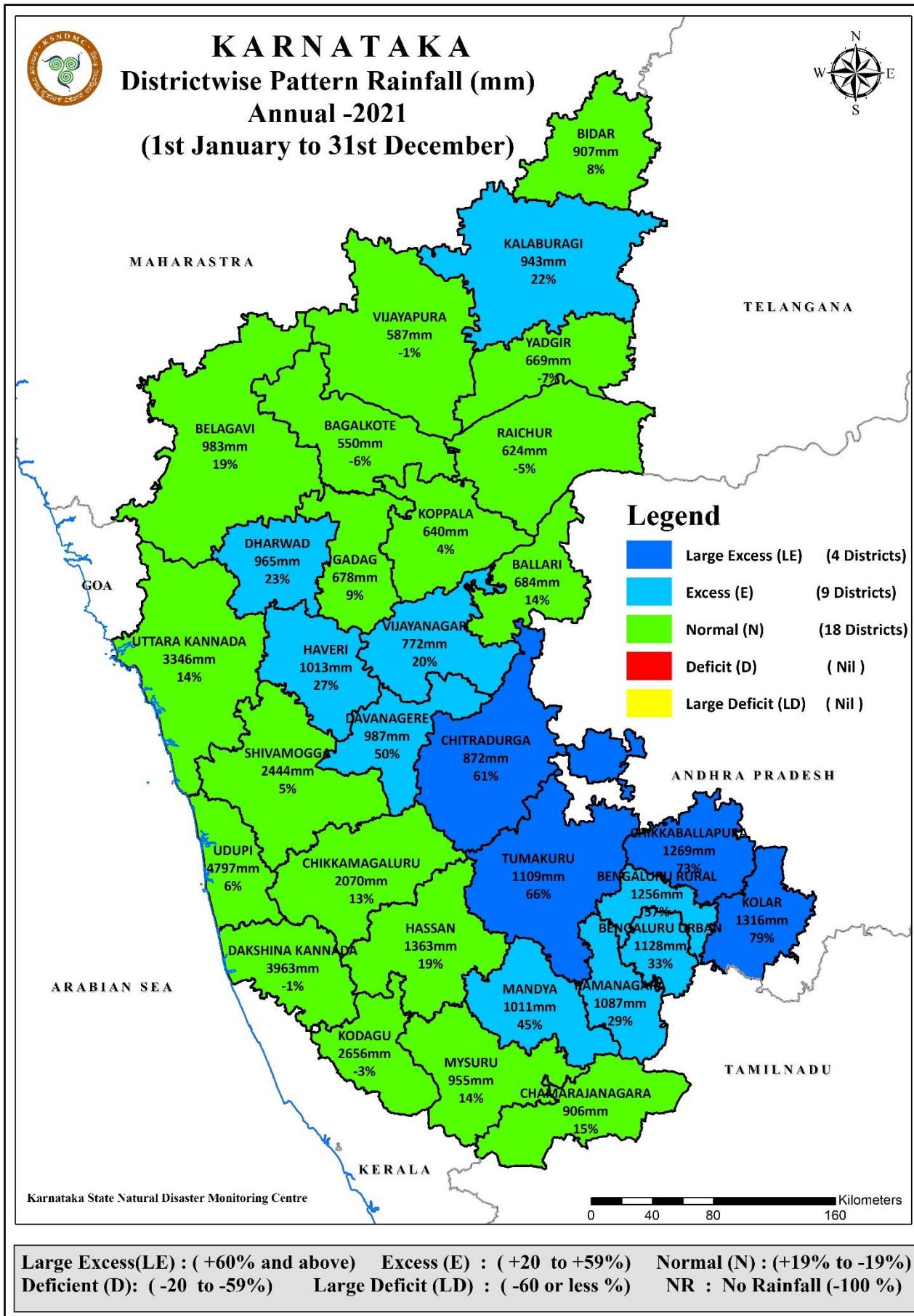


Figure 1.8: Taluk wise Rainfall (mm) pattern during 2021.

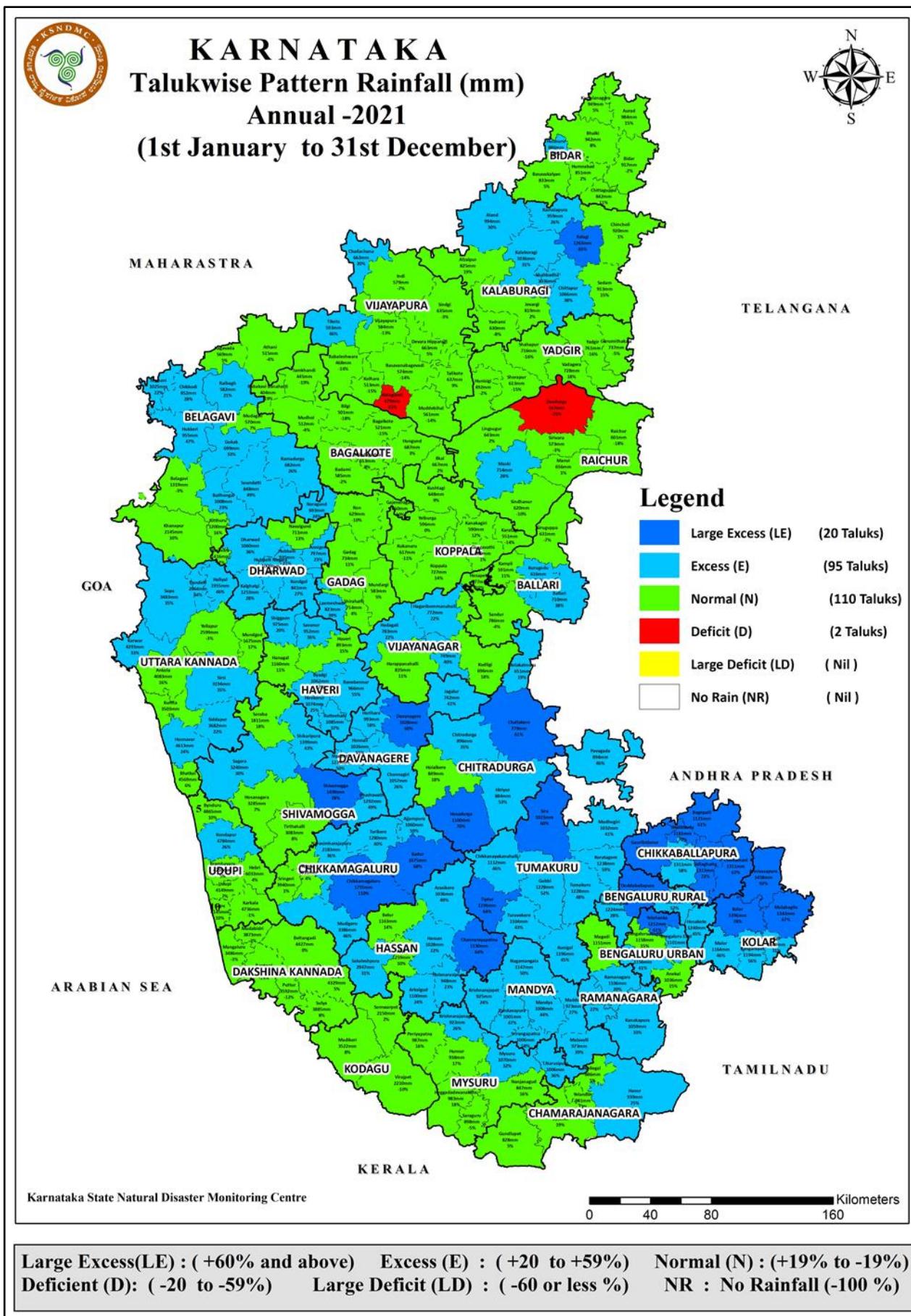


Figure 1.9: Hobli wise Rainfall (mm) pattern during 2021

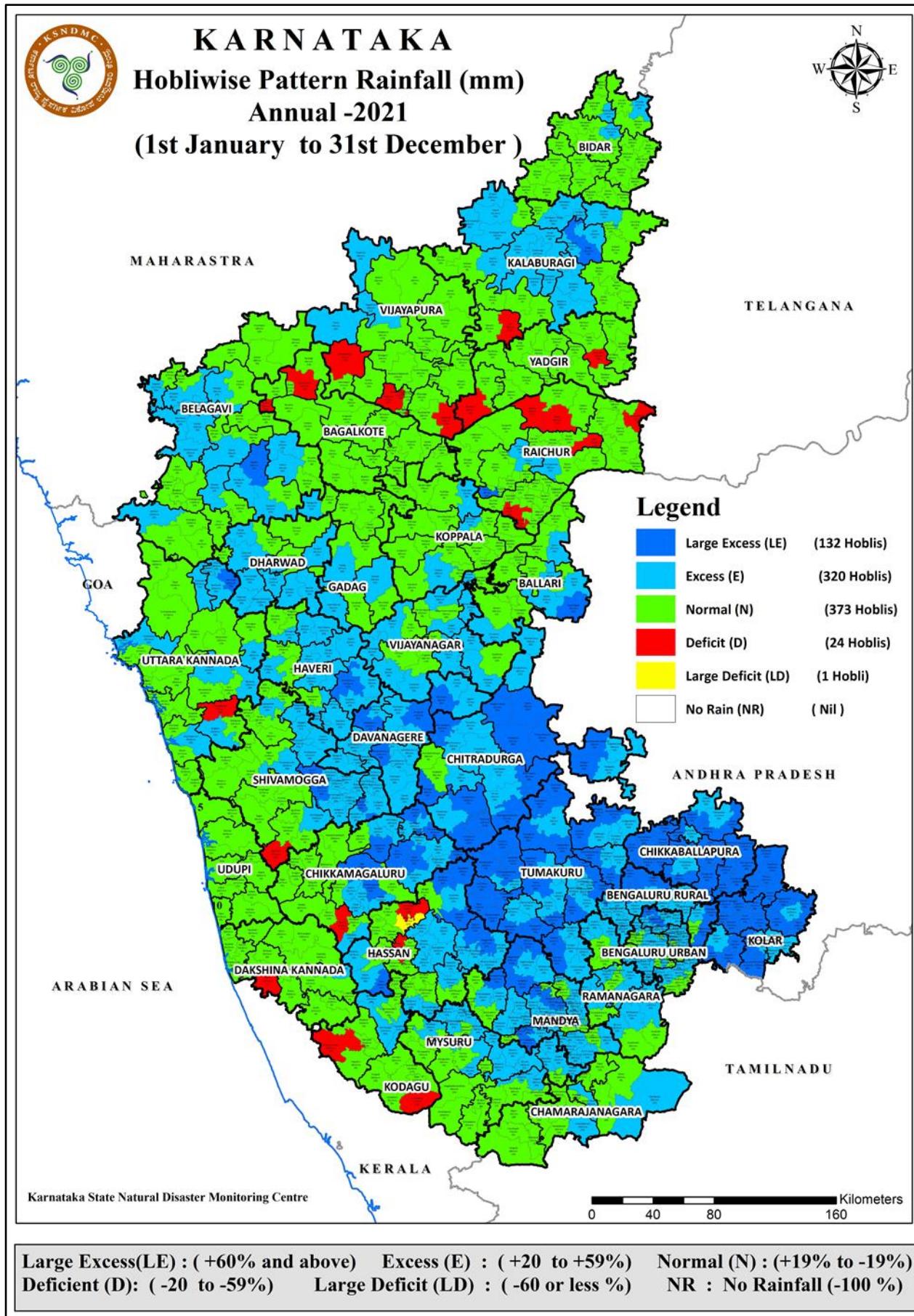


Table: 1.2: Classification of Taluk wise Rainfall pattern (1st January to 31st December)

| Sl.No. | District | Total Taluks Hoblis | Large Excess | | Excess | | Normal | | Total | | Deficit | | Large Deficit | | No Rain | | Total | |
|--------|--------------------------|--------------------------|--------------|--------|--------|--------|--------|--------|--------|--------|---------|--------|---------------|--------|---------|--------|--------|--------|
| | | | Taluks | Hoblis | Taluks | Hoblis | Taluks | Hoblis | Taluks | Hoblis | Taluks | Hoblis | Taluks | Hoblis | Taluks | Hoblis | Taluks | Hoblis |
| 1 | BENGALURU URBAN | 5/49 | 1 | 3 | 2 | 34 | 2 | 12 | 5 | 49 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | BENGALURU RURAL | 4/20 | 1 | 7 | 3 | 12 | 0 | 1 | 4 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 | RAMANAGARA | 4/20 | 0 | 0 | 3 | 12 | 1 | 8 | 4 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | KOLAR | 6/28 | 3 | 22 | 3 | 6 | 0 | 0 | 6 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | CHIKKABALLAPURA | 6/26 | 5 | 22 | 1 | 4 | 0 | 0 | 6 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6 | TUMAKURU | 10/53 | 2 | 29 | 8 | 24 | 0 | 0 | 10 | 53 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 | CHITRADURGA | 6/22 | 2 | 11 | 3 | 9 | 1 | 2 | 6 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 | DAVANAGERE | 6/20 | 1 | 4 | 5 | 16 | 0 | 0 | 6 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | CHAMARAJANAGARA | 5/16 | 0 | 0 | 1 | 3 | 4 | 13 | 5 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 | MYSURU | 8/33 | 0 | 0 | 3 | 18 | 5 | 15 | 8 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11 | MANDYA | 7/49 | 0 | 10 | 7 | 28 | 0 | 11 | 7 | 49 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 67/336 | 15 | 108 | 39 | 166 | 13 | 62 | 67 | 336 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12 | BALLARI | 5/16 | 0 | 1 | 2 | 7 | 3 | 8 | 5 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14 | KOPPALA | 7/20 | 0 | 0 | 0 | 3 | 7 | 17 | 7 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15 | RAICHUR | 7/40 | 0 | 1 | 1 | 3 | 5 | 30 | 6 | 34 | 1 | 6 | 0 | 0 | 0 | 0 | 1 | 6 |
| 16 | KALABURAGI | 11/36 | 1 | 1 | 5 | 19 | 5 | 15 | 11 | 35 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 18 | BIDAR | 8/30 | 0 | 0 | 1 | 3 | 7 | 27 | 8 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19 | BELAGAVI | 14/38 | 0 | 1 | 8 | 14 | 6 | 23 | 14 | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20 | BAGALKOTE | 9/22 | 0 | 0 | 0 | 0 | 9 | 20 | 9 | 20 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| 21 | VIJAYAPURA | 12/28 | 0 | 0 | 2 | 3 | 9 | 20 | 11 | 23 | 1 | 5 | 0 | 0 | 0 | 0 | 1 | 5 |
| 22 | GADAG | 7/13 | 0 | 0 | 2 | 4 | 5 | 9 | 7 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 23 | HAVERI | 8/20 | 0 | 1 | 6 | 14 | 2 | 5 | 8 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24 | DHARWAD | 8/14 | 0 | 0 | 6 | 10 | 2 | 4 | 8 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17 | YADGIR | 6/20 | 0 | 0 | 0 | 0 | 6 | 18 | 6 | 18 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| 13 | VIJAYANAGAR | 6/19 | 0 | 0 | 3 | 10 | 3 | 9 | 6 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | North Interior Karnataka | 108/316 | 1 | 5 | 36 | 90 | 69 | 205 | 106 | 300 | 2 | 16 | 0 | 0 | 0 | 0 | 2 | 16 |
| 25 | SHIVAMOGGA | 7/41 | 1 | 3 | 3 | 20 | 3 | 17 | 7 | 40 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 26 | HASSAN | 8/38 | 1 | 6 | 5 | 16 | 2 | 13 | 8 | 35 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 3 |
| 27 | CHIKKAMAGALURU | 8/36 | 2 | 9 | 4 | 13 | 2 | 13 | 8 | 35 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 28 | KODAGU | 3/16 | 0 | 0 | 0 | 3 | 3 | 11 | 3 | 14 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| | Malnad | 26/131 | 4 | 18 | 12 | 52 | 10 | 54 | 26 | 124 | 0 | 6 | 0 | 1 | 0 | 0 | 0 | 7 |
| 29 | DAKSHINA KANNADA | 7/19 | 0 | 0 | 0 | 1 | 7 | 17 | 7 | 18 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 30 | UDUPI | 7/12 | 0 | 0 | 1 | 0 | 6 | 12 | 7 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 31 | UTTARA KANNADA | 12/36 | 0 | 1 | 7 | 11 | 5 | 23 | 12 | 35 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Coastal | 26/67 | 0 | 1 | 8 | 12 | 18 | 52 | 26 | 65 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| | State | 227/850 | 20 | 132 | 95 | 320 | 110 | 373 | 225 | 825 | 2 | 24 | 0 | 1 | 0 | 0 | 2 | 25 |

1.4 SEASONAL RAINFALL DURING 2021

1.4.1. PRE-MONSOON SEASON RAINFALL:

The Pre-Monsoon season covers Five months, from January to May, of which January and February pertains to winter and the later three months, March to May, is characterized with hot weather condition.

The Pre-Monsoon Normal rainfall for the State is **120 mm** which constitutes only **10%** of the Annual Normal rainfall. The Pre-Monsoon Normal rainfall varies from **67 mm** in Raichur District to **270 mm** in Kodagu District. The Normal rainfall for the State during January to March is only **9 mm**, whereas the Normal rainfall during April and May is **35 mm** and **83 mm** respectively.

Rainfall pattern during Pre-Monsoon-2021.

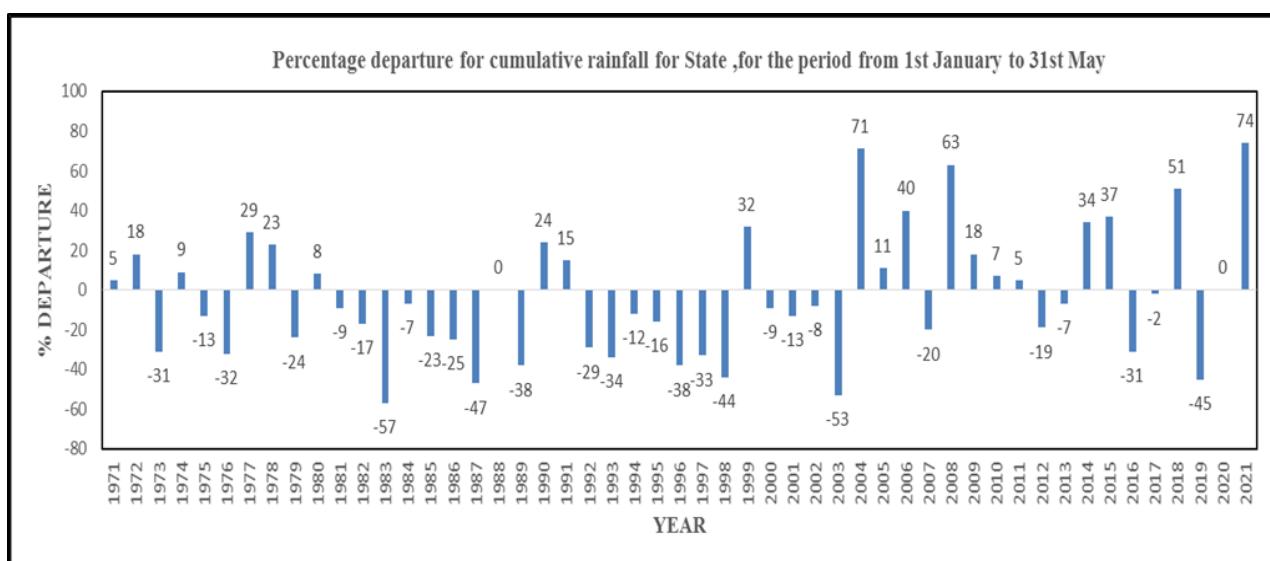
During Pre-Monsoon season 2021 the state as a whole recorded an actual amount of **207 mm** of rainfall as against the Normal rainfall of **120 mm** with percentage departure from Normal being **(74%)**. Thus the State as whole is classified under **Large Excess Category**.

The comparison of Zone wise rainfall pattern during the period from **Pre- Monsoon 2021** with the rainfall of corresponding week in the last **4** years is as follows.

| Region/State | Normal (mm) | 2017 | | 2018 | | 2019 | | 2020 | | 2021 | |
|--------------|----------------|----------------|-----------|----------------|-----------|----------------|------------|----------------|----------|----------------|-----------|
| | | Actual (mm) | Dep % | Actual (mm) | Dep % | Actual (mm) | Dep % | Actual (mm) | Dep % | Actual (mm) | Dep % |
| 1.SIK | 143.3 | 204 | 35 | 235 | 56 | 121 | -20 | 168 | 17 | 180.7 | 26 |
| 2.NIK | 83.2 | 54 | -43 | 109 | 16 | 38 | -60 | 81 | -2 | 121.5 | 46 |
| 3.MALNAD | 167.5 | 178 | -2 | 308 | 69 | 90 | -51 | 183 | 9 | 338.2 | 102 |
| 4.COASTAL | 158.2 | 148 | -13 | 312 | 82 | 44 | -74 | 149 | -6 | 514.7 | 225 |
| State | 120 | 126 | -2 | 194 | 51 | 71 | -45 | 120 | 0 | 207 | 74 |

The percentage departure of rainfall from Normal for the state during Pre-Monsoon which is **good** when compared to the corresponding period of preceding year.

The percentage departure of rainfall from Normal for the state as a whole, during the period **Pre-Monsoon** since 1971, in given figure below:



The figure shows that the percentage departure of rainfall from Normal for the State which is the highest in the corresponding period of **last 50** years.

District wise Rainfall pattern during Pre-Monsoon 2021 is given in the following : (Total 31 Districts in the State):

| SI. No. | District | Normal | Actual | % Dep |
|--------------|------------------|------------|------------|-----------|
| 1 | Uttara Kannada | 103 | 408 | 296 |
| 2 | Udupi | 201 | 616 | 207 |
| 3 | Dakshina Kannada | 243 | 666 | 175 |
| 4 | Shivamogga | 129 | 321 | 149 |
| 5 | Chikkamagaluru | 164 | 386 | 135 |
| 6 | Haveri | 122 | 256 | 111 |
| 7 | Dharwad | 125 | 252 | 101 |
| 8 | Chitradurga | 103 | 200 | 93 |
| 9 | Davanagere | 105 | 180 | 71 |
| 10 | Belagavi | 95 | 158 | 67 |
| 11 | Kodagu | 253 | 418 | 65 |
| 12 | Chikkaballapura | 108 | 171 | 58 |
| 13 | Kalaburagi | 67 | 106 | 58 |
| 14 | Gadag | 106 | 166 | 57 |
| 15 | Tumakuru | 125 | 195 | 56 |
| 16 | Hassan | 168 | 261 | 55 |
| 17 | Vijayanagar | 99 | 137 | 39 |
| 18 | Kolar | 117 | 160 | 36 |
| 19 | Ballari | 74 | 101 | 35 |
| 20 | Bidar | 71 | 90 | 26 |
| 21 | Koppala | 82 | 102 | 25 |
| 22 | Mandyā | 166 | 193 | 16 |
| 23 | Vijayapura | 63 | 71 | 13 |
| 24 | Yadgir | 68 | 75 | 11 |
| 25 | Bengaluru Rural | 141 | 154 | 9 |
| 26 | Ramanagara | 178 | 193 | 9 |
| 27 | Bengaluru Urban | 156 | 169 | 8 |
| 28 | Raichur | 69 | 72 | 5 |
| 29 | Bagalkote | 80 | 78 | -2 |
| 30 | Mysuru | 205 | 171 | -17 |
| 31 | Chamarajanagara | 203 | 158 | -22 |
| STATE | | 120 | 207 | 74 |

The district wise rainfall pattern indicates: (**Total 31 Districts in the State**):

| Rainfall category | No. of Districts |
|--------------------------------------|------------------|
| Large Excess (>=60%) | 11 Districts |
| Excess (+20 to +59%) | 10 Districts |
| Normal (-19 to +19%) | 9 Districts |
| Deficient (-20 to -59%) | 1 District |
| Large Deficient (-60 to -99%) | Nil |
| No rain (<=-100%) | Nil |

During **Pre-Monsoon 2021**, the above data shows that, the rainfall was **Large Excess** in **11** Districts, **Excess** in **10** Districts, **Normal** in **9** Districts and **Deficient** in **1** District. During the corresponding period of the preceding year (2020), the rainfall was **Excess** in **5** Districts, **Normal** in **23** Districts and **Deficient** in **2** Districts.

41.1.2 Taluk wise Rainfall pattern during Pre-Monsoon 2021 is given in the following table. (**Total 227 Taluks in the State**):

| Rainfall category | No. of Taluks |
|--------------------------------------|---------------|
| Large Excess (>=60%) | 84 Taluks |
| Excess (+20 to +59%) | 68 Taluks |
| Normal (-19 to +19%) | 55 Taluks |
| Deficient (-20 to -59%) | 20 Taluks |
| Large Deficient (-60 to -99%) | Nil |
| No rain (<=-100%) | Nil |

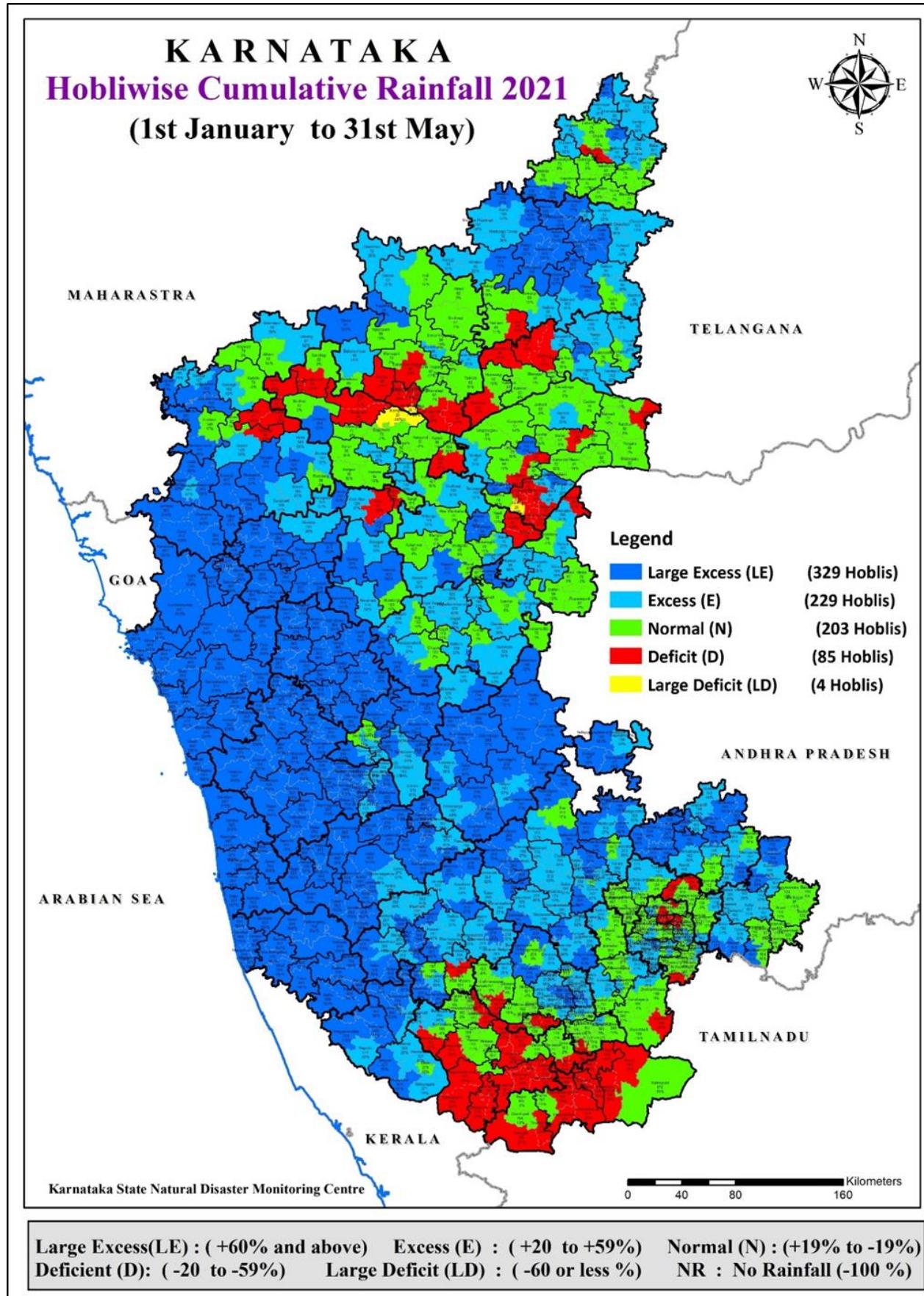
During **Pre-Monsoon 2021**, the above data shows that, the rainfall was **Large Excess** in **84** Taluks, **Excess** in **68** Taluks, **Normal** in **55** Taluks and **Deficient** in **20** Taluks. During the preceding year (2020), the rainfall was **Large Excess** in **8** Taluks, **Excess** in **43** Taluks, **Normal** in **114** Taluks, **Deficient** in **59** Taluks and **Large Deficient** in **3** Taluks.

The Hobli-wise rainfall pattern during **Pre-Monsoon 2021** is given in the following table (**Total 850 Hoblis in the State**):

| Rainfall category | No. of Hoblis |
|--------------------------------------|---------------|
| Large Excess (>=60%) | 329 Hoblis |
| Excess (+20 to +59%) | 229 Hoblis |
| Normal (-19 to +19%) | 203 Hoblis |
| Deficient (-20 to -59%) | 85 Hoblis |
| Large Deficient (-60 to -99%) | 4 Hoblis |
| No rain (<=-100%) | Nil |

During **Pre-Monsoon 2021**, the above data shows that, the rainfall was **Large Excess** in **329** Hoblis, **Excess** in **229** Hoblis, **Normal** in **203** Hoblis, **Deficient** in **85** Hoblis and **Large Deficient** in **4** Hoblis. During the preceding year (2020), the rainfall was **Large Excess** in **65** Hoblis, **Excess** in **231** Hoblis, **Normal** in **363** Hoblis, **Deficient** in **180** Hoblis and **Large Deficient** in **11** Hoblis .

Figure 1.9: Hobli-Wise Rainfall pattern during the Pre-Monsoon Season 2021



1.4.2. SOUTH WEST (SW) MONSOON SEASON 2021 RAINFALL:

The South-West (SW) Monsoon season (June to September) contributes **76%** of the Normal Annual rainfall of the State. The onset of SW-Monsoon over the State normally takes place by the first week of June. The Normal SW-Monsoon season rainfall varies from as low as **276 mm** in **Chitradurga** District to as high as **4,071 mm** in **Udupi** District. The Kharif agricultural production in the State heavily depends on the timeliness, quantum and distribution of the SW-Monsoon season rainfall.

Rainfall Condition during the South West Monsoon season 2021:

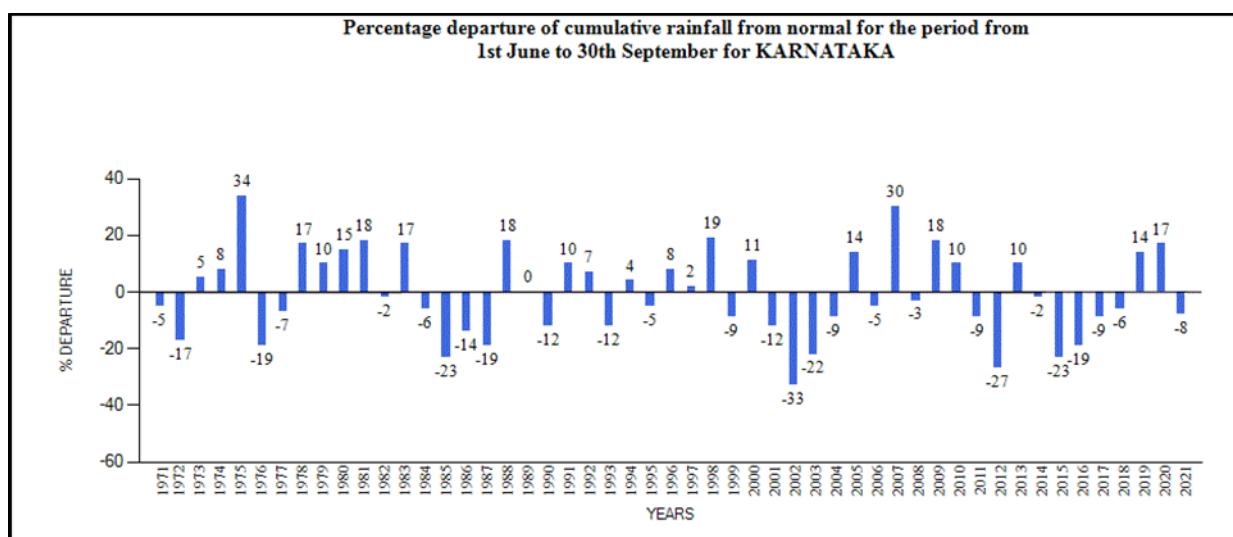
During the **SW-Monsoon season 2021**, the State as a whole recorded **787 mm** of rainfall as against the Normal rainfall of **852 mm** with a (-) **8%** departure from the Normal. Thus, the rainfall over the State during the SW-Monsoon season 2021 is classified as **Normal category**.

The comparision of Zone-wise rainfall pattern during the SW-Monsoon season **2019** with the rainfall of corresponding season in the last 4 years is as follows.

| Region/ State | Normal (mm) | 2017 | | 2018 | | 2019 | | 2020 | | 2021 | |
|------------------|----------------|----------------|-----------|----------------|-----------|----------------|-----------|----------------|-----------|----------------|-----------|
| | | Actual (mm) | % Dep |
| 1.SIK | 369 | 457 | 24 | 333 | -10 | 411 | 11 | 512 | 39 | 384 | 4 |
| 2.NIK | 479 | 462 | -3 | 311 | -35 | 506 | 6 | 650 | 36 | 496 | 4 |
| 3.MALNAD | 1556 | 1236 | -21 | 1858 | 19 | 1834 | 18 | 1448 | -7 | 1283 | -18 |
| 4.COASTAL | 3101 | 2579 | -17 | 3104 | 0 | 3734 | 20 | 3458 | 12 | 2692 | -13 |
| State | 852 | 774 | -9 | 804 | -6 | 975 | 14 | 993 | 17 | 787 | -8 |

The departure (%) of rainfall from the Normal during SW-Monsoon season is **(-) 8%**, which is **bad** when compared to the corresponding periods of the **last** year.

The percentage departure of rainfall from Normal for the State during the SW-Monsoon season, since 1971 is given in the following Figure 1.10:



The figure indicates that the departure (%) of rainfall from the Normal during SW-Monsoon season 2021 is **(-) 8%**, which is **less** than the corresponding period of the **last** year.

District wise Rainfall pattern during South West Monsoon 2021.

| SI. No. | District | Normal | Actual | Percentage Departure |
|---------|------------------|------------|------------|----------------------|
| 1 | KOLAR | 399 | 621 | 56 |
| 2 | KALABURAGI | 576 | 723 | 25 |
| 3 | BENGALURU RURAL | 444 | 542 | 22 |
| 4 | CHIKKABALLAPURA | 416 | 496 | 19 |
| 5 | BIDAR | 650 | 731 | 12 |
| 6 | DAVANAGERE | 393 | 436 | 11 |
| 7 | VIJAYAPURA | 396 | 423 | 7 |
| 8 | CHITRADURGA | 282 | 298 | 6 |
| 9 | BELAGAVI | 599 | 613 | 2 |
| 10 | TUMAKURU | 358 | 361 | 1 |
| 11 | VIJAYANAGARA | 389.1 | 393.9 | 1 |
| 12 | BAGALKOTE | 362 | 360 | -1 |
| 13 | BENGALURU URBAN | 471 | 468 | -1 |
| 14 | KOPPALA | 383 | 378 | -1 |
| 15 | GADAG | 372 | 361 | -3 |
| 16 | MANDYA | 316 | 306 | -3 |
| 17 | CHAMARAJANAGARA | 320 | 306 | -4 |
| 18 | UTTARA KANNADA | 2647 | 2532 | -4 |
| 19 | RAMANAGARA | 436 | 408 | -6 |
| 20 | YADGIR | 517 | 484 | -6 |
| 21 | DHARWAD | 514 | 477 | -7 |
| 22 | RAICHUR | 440 | 409 | -7 |
| 23 | BALLARI | 389 | 394 | -9 |
| 24 | HAVERI | 512 | 448 | -13 |
| 25 | UDUPI | 4022 | 3444 | -14 |
| 26 | SHIVAMOGGA | 1991 | 1694 | -15 |
| 27 | HASSAN | 754 | 634 | -16 |
| 28 | CHIKKAMAGALURU | 1447 | 1183 | -18 |
| 29 | KODAGU | 2188 | 1692 | -23 |
| 30 | MYSURU | 419 | 312 | -26 |
| 31 | DAKSHINA KANNADA | 3388 | 2479 | -27 |
| | State | 852 | 787 | -8 |

The District wise rainfall pattern indicates: Among 31 Districts

| | |
|------------------------------------|--------------|
| Large Excess (>=60%) | Nil |
| Excess (+20 to +59%) | 3 Districts |
| Normal (-19 to +19%) | 25 Districts |
| Deficit (-20 to -59%) | 3 Districts |
| Large Deficit (-60 to -99%) | Nil |
| No rain (<=-100%) | Nil |

During **South West-Monsoon 2021**, the above data shows that, the rainfall was **Excess** in **3** Districts, **Normal** in **25** Districts and **Deficient** in **3** Districts. Last year for the same period rainfall was **Excess** in **21** Districts and **Normal** in **9** Districts.

Taluk wise Rainfall pattern during South-West Monsoon 2021

Among the **227** Taluks of the state the rainfall was:

| | |
|------------------------------------|------------|
| Large Excess (>=60%) | 3 Taluks |
| Excess (+20 to +59%) | 32 Taluks |
| Normal (-19 to +19%) | 167 Taluks |
| Deficit (-20 to -59%) | 25 Taluks |
| Large Deficit (-60 to -99%) | Nil |
| No rain (<=-100%) | Nil |

During **South West-Monsoon 2021**, the above data shows that, the rainfall was **Large Excess** in **3** Taluks, **Excess** in **32** Taluks, **Normal** in **167** Taluks and **Deficient** in **25** Taluks. Last year for the same period rainfall was **Excess** in **160** Taluks, **Normal** in **66** Taluks and **Deficit** in **1** Taluk.

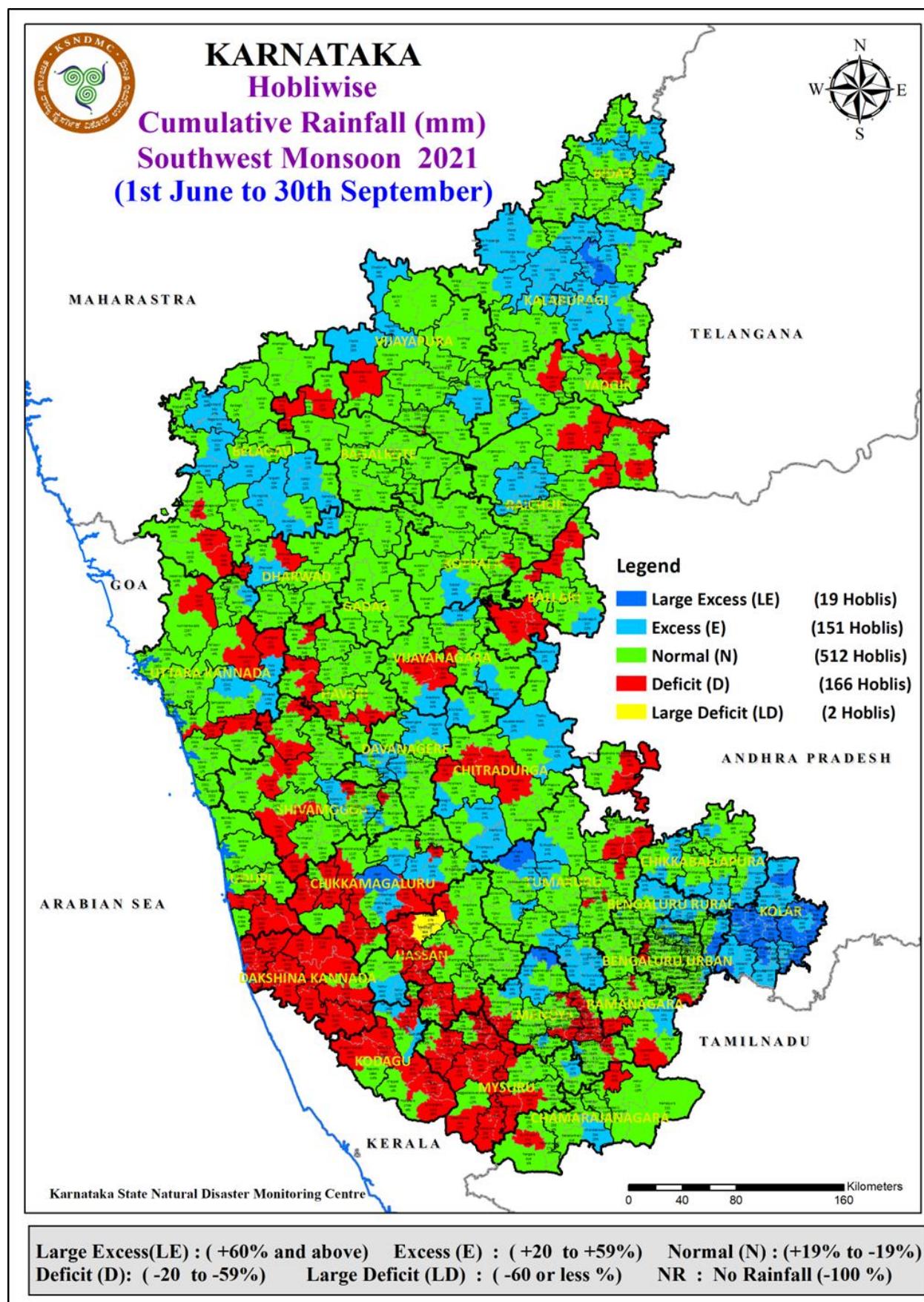
Hobli wise Rainfall pattern during South-West Monsoon 2021

Among the **850** Hoblis of the state the rainfall was:

| | |
|------------------------------------|------------|
| Large Excess (>=60%) | 19 Hoblis |
| Excess (+20 to +59%) | 151 Hoblis |
| Normal (-19 to +19%) | 512 Hoblis |
| Deficit (-20 to -59%) | 166 Hoblis |
| Large Deficit (-60 to -99%) | 2 Hoblis |
| No rain (<=-100%) | Nil |

During **South West-Monsoon 2021**, the above data shows that, the rainfall was **Large Excess** in **19** Hoblis, **Excess** in **151** Hoblis, **Normal** in **512** Hoblis, **Deficit** in **166** Hoblis and **Large Deficit** in **2** Hoblis. Last year for the same period rainfall was **Excess** in **581** Hoblis, **Normal** in **238** Hoblis and **Deficit** in **30** Hoblis and **Large Deficit** in **1** Hobli.

Figure 1.11: Hobli-wise Rainfall pattern during the Southwest Monsoon Season 2021:



1.4.3. NORTH EAST (NE) MONSOON SEASON RAINFALL:

The North-East (NE) Monsoon season (October to December) contributes about **15%** of rainfall to the Annual Normal rainfall for the State. Regionally, the NE-Monsoon season rainfall contributes about **8%** to the Annual Normal rainfall in the Coastal area, **12%** in Malnad region, about **20%** in NIK and **29%** in SIK. The rainfall during the NE-Monsoon season is very important for the later stages of Kharif crops and for the Rabi crops as well in the State.

Rainfall during North-East Monsoon season 2021 in the State.

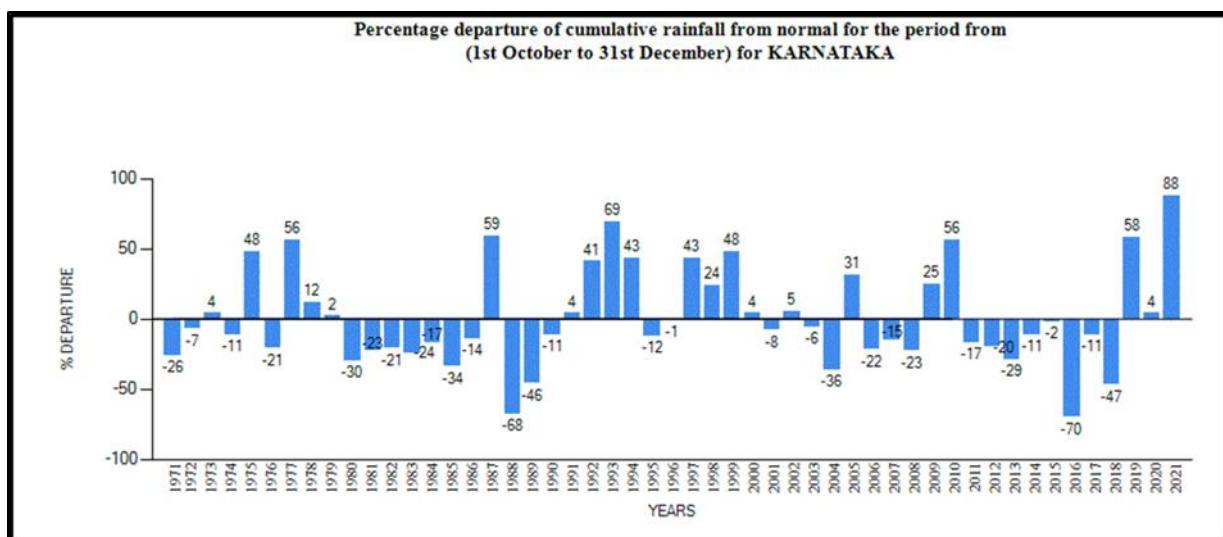
During the **NE-Monsoon season**, the State as a whole recorded **342 mm** of rainfall as against the Normal rainfall of **182 mm** with a (+)**88%** departure from Normal rainfall for the season. Thus, the rainfall for the State during the NE-Monsoon season 2021 is considered as **Large Excess** category.

The comparison of Zone-wise rainfall pattern during the **NE-Monsoon season 2021** with the rainfall of corresponding season in the last 4 years is as follows.

| Region/State | Normal (mm) | 2017 | | 2018 | | 2019 | | 2020 | | 2021 | |
|--------------|----------------|----------------|------------|----------------|------------|----------------|-----------|----------------|----------|----------------|-----------|
| | | Actual (mm) | Dep% | Actual (mm) | Dep% | Actual (mm) | Dep% | Actual (mm) | Dep% | Actual (mm) | Dep% |
| 1.SIK | 201.9 | 227.1 | 12 | 118.7 | -41 | 287.4 | 42 | 196.4 | -3 | 485 | 140 |
| 2.NIK | 139.7 | 124.5 | -11 | 49.2 | -65 | 201.5 | 44 | 150.8 | 8 | 162.9 | 17 |
| 3.MALNAD | 225.7 | 126.1 | -44 | 137 | -39 | 376.2 | 67 | 207.3 | -8 | 477.8 | 112 |
| 4.COASTAL | 259.4 | 196.2 | -24 | 186.7 | -28 | 579.8 | 124 | 330 | 27 | 577.1 | 122 |
| State | 182.2 | 162.7 | -11 | 95.8 | -47 | 287.8 | 58 | 190 | 4 | 342 | 88 |

The data indicates that the departure (%) of rainfall for the State during **NE-Monsoon 2021** was (+) **88%** which is **better** when compared to the corresponding periods of the last **4** years.

The percentage departure of rainfall from Normal for the State during the **NE-Monsoon season**, since 1971 is given in the following Figure:



The figure indicates that the departure (%) of rainfall from the Normal during the NE-Monsoon season 2021 is (+) **88 %** which is **highest in** the corresponding periods of the last 50 years.

District wise Rainfall pattern during North-East Monsoon 2021.

| SL. No. | District | Normal(mm) | Actual(mm) | Percentage Departure |
|--------------------|------------------|-------------------|-------------------|---------------------------------|
| 1 | Tumakuru | 186 | 554 | 197 |
| 2 | Chikkaballapura | 211 | 603 | 186 |
| 3 | Bengaluru Rural | 213 | 559 | 162 |
| 4 | Kolar | 219 | 536 | 144 |
| 5 | Chitradurga | 155 | 374 | 141 |
| 6 | Mandya | 217 | 513 | 136 |
| 7 | Udupi | 312 | 737 | 136 |
| 8 | Davanagere | 161 | 371 | 130 |
| 9 | Chikkamagaluru | 221 | 501 | 126 |
| 10 | Bengaluru Urban | 219 | 491 | 124 |
| 11 | Mysuru | 214 | 473 | 121 |
| 12 | Uttara Kannada | 187 | 407 | 118 |
| 13 | Dakshina Kannada | 376 | 818 | 118 |
| 14 | Ramanagara | 226 | 485 | 114 |
| 15 | Hassan | 220 | 468 | 113 |
| 16 | Shivamogga | 205 | 429 | 109 |
| 17 | Kodagu | 288 | 546 | 89 |
| 18 | Haveri | 166 | 310 | 87 |
| 19 | Chamarajanagara | 263 | 442 | 68 |
| 20 | Dharwad | 148 | 236 | 60 |
| 21 | Belagavi | 133 | 212 | 59 |
| 22 | Ballari | 159 | 249 | 56 |
| 23 | Vijayanagar | 155 | 242 | 56 |
| 24 | Koppala | 149 | 158 | 6 |
| 25 | Gadag | 147 | 151 | 2 |
| 26 | Raichur | 146 | 143 | -2 |
| 27 | Kalaburagi | 127 | 114 | -10 |
| 28 | Yadgir | 134 | 110 | -18 |
| 29 | Bagalkote | 141 | 112 | -20 |
| 30 | Bidar | 117 | 86 | -26 |
| 31 | Vijayapura | 133 | 93 | -30 |
| | State | 186 | 342 | 88 |

The District wise Rainfall pattern indicates:

| Rainfall category | No. of Districts |
|------------------------------------|------------------|
| Large Excess (>=60%) | 19 Districts |
| Excess (+20 to +59%) | 4 Districts |
| Normal (-19 to +19%) | 5 Districts |
| Deficit (-20 to -59%) | 3 Districts |
| Large Deficit (-60 to -99%) | Nil |
| No rain (<=-100%) | Nil |

During **North East-Monsoon 2021**, the above data shows that, the rainfall was **Large Excess** in **19** Districts, **Excess** in **4** Districts, **Normal** in **5** Districts and **Deficit** in **3** Districts. During the corresponding period of the preceding year (2020), the Rainfall was **Excess** in **6** Districts, **Normal** in **20** Districts and **Deficit** in **4** Districts.

1.2.2 Taluk wise Cumulative Rainfall pattern during 1st October to 31st December 2021 is given in the following table. (**Total 227 Taluks in the State**):

| Rainfall category | No. of Taluks |
|------------------------------------|---------------|
| Large Excess (>=60%) | 133 Taluks |
| Excess (+20 to +59%) | 34 Taluks |
| Normal (-19 to +19%) | 28 Taluks |
| Deficit (-20 to -59%) | 31 Taluks |
| Large Deficit (-60 to -99%) | 1 Taluk |
| No rain (<=-100%) | Nil |

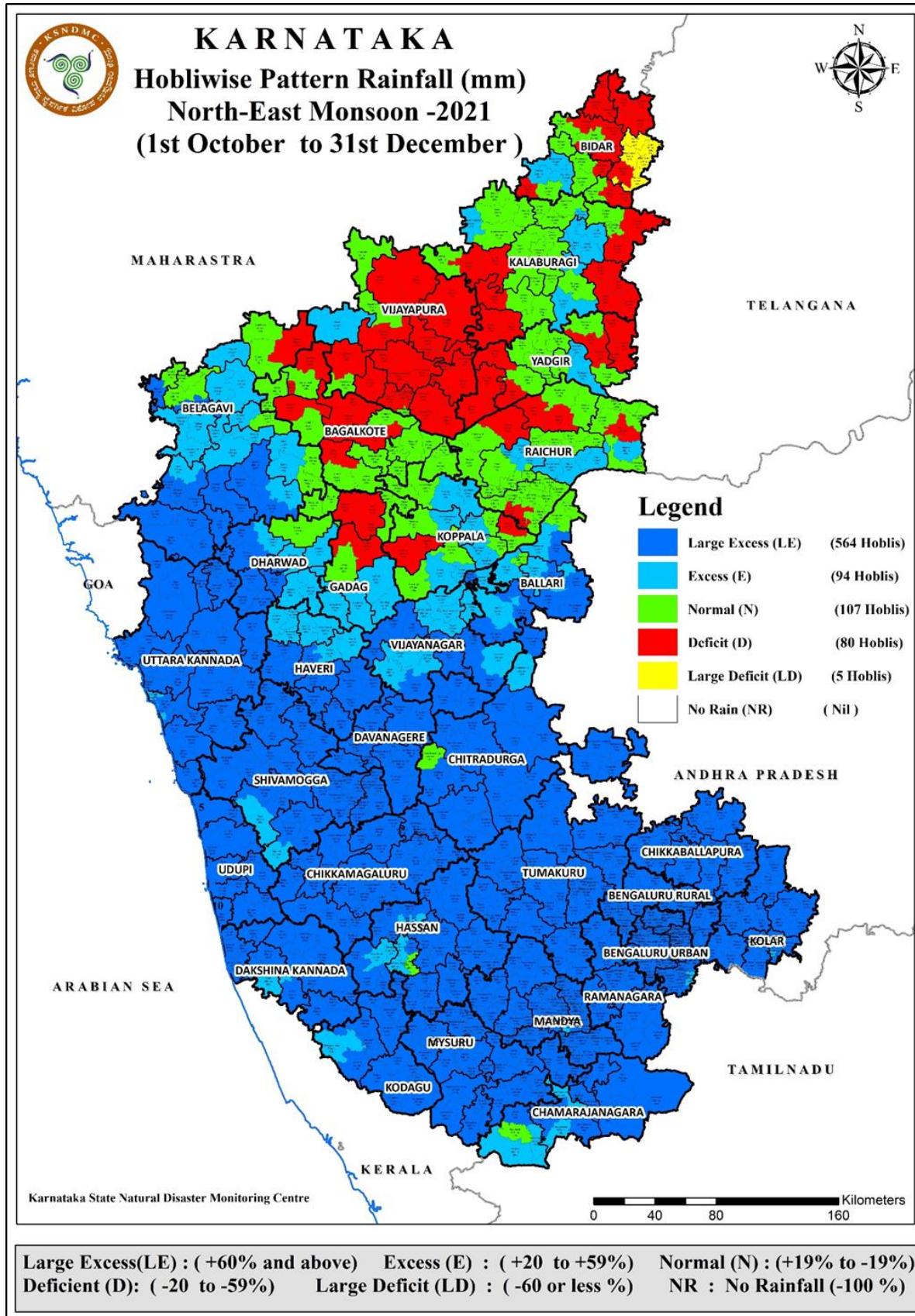
During **North East -Monsoon 2021**, the above data shows that, the rainfall was **Large Excess** in **133** Taluks, **Excess** in **34** Taluks, **Normal** in **28** Taluks, **Deficit** in **31** Taluks and **Large Deficit** in **1** Taluk. During the preceding year (2020), the Rainfall was **Large Excess** in **13** Taluks, **Excess** in **43** Taluks, **Normal** in **126** Taluks, **Deficit** in **44** Taluks and **Large Deficit** in **1** Taluk.

The Hobli-wise Rainfall pattern during **1st October to 31st December 2021** is given in the following Table (**Total 850 Hoblis in the State**):

| Rainfall category | No. of Hoblis |
|------------------------------------|---------------|
| Large Excess (>=60%) | 564 Hoblis |
| Excess (+20 to +59%) | 94 Hoblis |
| Normal (-19 to +19%) | 107 Hoblis |
| Deficit (-20 to -59%) | 80 Hoblis |
| Large Deficit (-60 to -99%) | 5 Hoblis |
| No rain (<=-100%) | Nil |

During **North East-Monsoon 2021**, the above data shows that, the rainfall was **Large Excess** in **564** Hoblis, **Excess** in **94** Hoblis, **Normal** in **107** Hoblis, **Deficit** in **80** Hoblis and **Large Deficit** in **5** Hoblis. During the preceding year (2020), the Rainfall was **Large Excess** in **56** Hoblis, **Excess** in **181** Hoblis, **Normal** in **436** Hoblis, **Deficit** in **173** Hoblis and **Large Deficit** in **4** Hoblis.

Figure 1.12: Hobli-wise Rainfall pattern during the North East Monsoon Season 2021:



2. AGRICULTURE SITUATION IN KARNATAKA 2021-2022

Kharif season (June to September), accounts for about 75% of the total agricultural area sown in the state. **Rabi season (October to December)** and **Summer season (January to May)** constitutes 25% and less than 1% of the total agricultural sown area.

Table no. 2.1 provides the normal area for different crops and the actual area covered during the current a season. During 2021 a total of **104.92 (108.41) lakh hectares** was sown as against the normal of **102.17 lakh hectares**.

The figures in parenthesis in the following analysis indicate last year's coverage for the respective crops unless otherwise indicated.

During 2021, coverage by cereals was **96% (104%)** of the normal. The area covered as percentage of normal under Cereals crops are **Rice- 92%, Jowar- 83%, Ragi- 105%, Maize- 110%, Bajra- 71%, Wheat- 85% and Minor Millets- 72%**.

In case of pulses, the area sown was **106% (104%)** of the normal. The area covered as percentage of normal under Pulses crops are **Tur- 133%, Bengalgram- 87%, Horsegram- 82%, Blackgram- 96%, Greengram- 115%, Cowpea & others- 90%, Avare- 98% and Mothbean- 23%**.

In case of oilseeds, the area sown was **106% (106%)** of the normal. The area covered as percentage of normal under Oilseeds crops are **Groundnut- 102%, Sesamum- 89%, Sunflower- 95%, Castor- 88%, Niger- 61%, Mustard- 19%, Soyabean- 123%, Safflower- 119% and Linseed- 112%**.

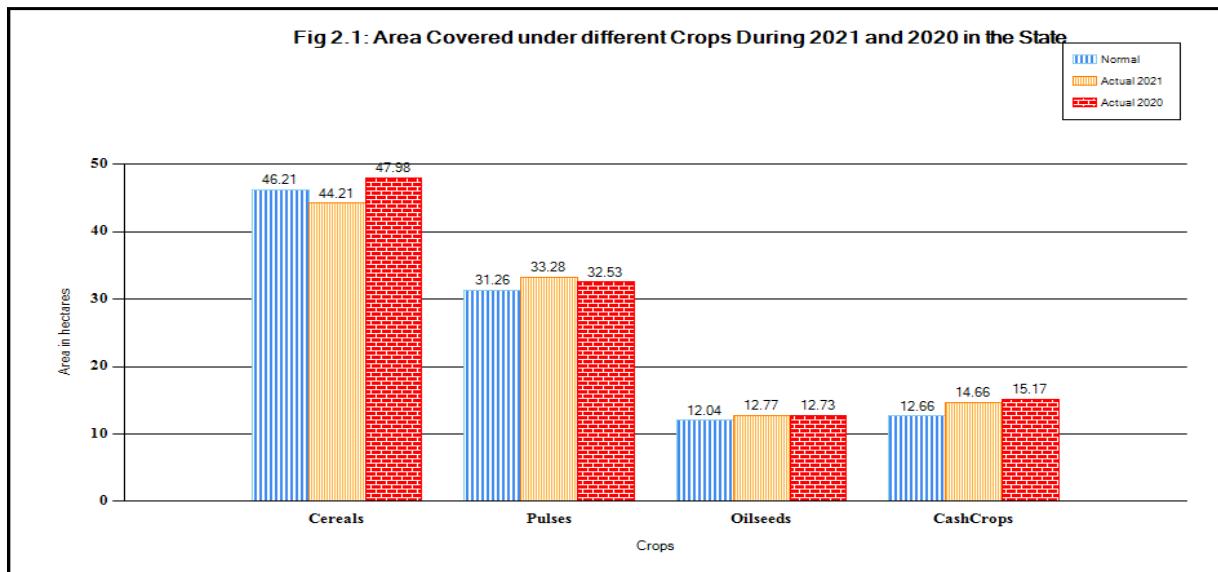
In case of cashcrops, the area sown was **116% (120%)** of the normal. The area covered as percentage of normal under Cashcrops crops are **Cotton- 112%, Sugarcane- 123% and Tobacco- 93%**.

Table: 2.1: Normal area and areas actually sowed under different major crops during 2021 in the state

(Area in lakh ha.)

| SI. no. | Crops | Annual Normal (Kharif + Rabi + Summer) | Kharif 2021 | Rabi 2021 | Summer 2022 | Total Area '21 (Col.4+ 5+6) | Col.7 as% of Col.3 | Total Area- 2020 (K+R+S) | Col.9 as % of Col.3 |
|------------|-------------------------|--|----------------|--------------|----------------|--------------------------------------|-----------------------------|-----------------------------------|------------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1 | Rice | 11.87 | 10.22 | 0.05 | 0.60 | 10.87 | 92 | 13.20 | 111 |
| 2 | Jowar | 9.42 | 0.64 | 7.14 | 0.00 | 7.78 | 83 | 8.38 | 89 |
| 3 | Ragi | 6.86 | 6.88 | 0.31 | 0.02 | 7.21 | 105 | 7.10 | 103 |
| 4 | Maize | 13.67 | 14.16 | 0.75 | 0.07 | 14.97 | 110 | 15.12 | 111 |
| 5 | Bajra | 2.16 | 1.53 | 0.00 | 0.00 | 1.53 | 71 | 1.94 | 90 |
| 6 | Wheat | 1.83 | 0.00 | 1.56 | 0.00 | 1.56 | 85 | 1.90 | 104 |
| 7 | Minor Millets | 0.40 | 0.29 | 0.00 | 0.00 | 0.29 | 72 | 0.35 | 88 |
| | Total Cereals | 46.21 | 33.71 | 9.81 | 0.68 | 44.21 | 96 | 47.98 | 104 |
| 8 | Tur | 10.96 | 14.56 | 0.00 | 0.00 | 14.56 | 133 | 13.03 | 119 |
| 9 | Bengalgram | 12.62 | 0.00 | 10.94 | 0.00 | 10.94 | 87 | 11.75 | 93 |
| 10 | Horsegram | 1.49 | 0.34 | 0.88 | 0.00 | 1.22 | 82 | 1.25 | 84 |
| 11 | Blackgram | 1.03 | 0.97 | 0.01 | 0.00 | 0.98 | 96 | 1.12 | 110 |
| 12 | Greengram | 3.67 | 4.18 | 0.02 | 0.00 | 4.20 | 115 | 3.96 | 108 |
| 13 | Cowpea & others | 0.87 | 0.65 | 0.13 | 0.00 | 0.78 | 90 | 0.77 | 88 |
| 14 | Avare | 0.61 | 0.51 | 0.08 | 0.00 | 0.60 | 98 | 0.63 | 104 |
| 15 | Mothbean | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 23 | 0.02 | 123 |
| | Total Pulses | 31.26 | 21.22 | 12.06 | 0.01 | 33.28 | 106 | 32.53 | 104 |
| | Total Foodgrains | 77.47 | 54.93 | 21.87 | 0.69 | 77.49 | 100 | 80.51 | 104 |
| 16 | Groundnut | 6.27 | 4.90 | 1.32 | 0.16 | 6.38 | 102 | 6.96 | 111 |
| 17 | Sesamum | 0.27 | 0.24 | 0.00 | 0.00 | 0.24 | 89 | 0.27 | 101 |
| 18 | Sunflower | 1.86 | 1.10 | 0.67 | 0.01 | 1.78 | 95 | 1.71 | 92 |
| 19 | Castor | 0.07 | 0.06 | 0.00 | 0.00 | 0.06 | 88 | 0.08 | 110 |
| 20 | Niger | 0.05 | 0.03 | 0.00 | 0.00 | 0.03 | 61 | 0.05 | 101 |
| 21 | Mustard | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 19 | 0.01 | 71 |
| 22 | Soyabean | 3.18 | 3.84 | 0.06 | 0.01 | 3.91 | 123 | 3.30 | 104 |
| 23 | Safflower | 0.29 | 0.00 | 0.34 | 0.00 | 0.34 | 119 | 0.30 | 106 |
| 24 | Linseed | 0.03 | 0.00 | 0.03 | 0.00 | 0.03 | 112 | 0.03 | 121 |
| | Total Oilseeds | 12.04 | 10.17 | 2.43 | 0.18 | 12.77 | 106 | 12.73 | 106 |
| 25 | Cotton | 5.92 | 6.39 | 0.23 | 0.00 | 6.62 | 112 | 7.46 | 126 |
| 26 | Sugarcane | 5.87 | 6.39 | 0.80 | 0.03 | 7.22 | 123 | 6.92 | 118 |
| 27 | Tobacco | 0.87 | 0.81 | 0.00 | 0.00 | 0.81 | 93 | 0.79 | 91 |
| | Total Cashcrops | 12.66 | 13.60 | 1.03 | 0.03 | 14.66 | 116 | 15.17 | 120 |
| | State Total | 102.17 | 78.70 | 25.33 | 0.90 | 104.92 | 103 | 108.41 | 106 |

Fig. 2.1 provides a diagrammatic representation of the coverage by various crop groups during 2021



2.2. Districtwise details of Area sown during Kharif, Rabi & Summer

(Area in lakh ha.)

| SI. no. | Crops | Normal Area (Kharif + Rabi + Summer) | Kharif 2021 | Rabi 2021 | Summer 2022 | Total Area 2021 (Col.4+5 +6) | Col.7 as% of Col.3 | Total Area 2020 (K+R+S) | Col.9 as % of Col.3 |
|---------|--------------------|---|----------------|--------------|----------------|---------------------------------------|--------------------------|-------------------------------|------------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1 | Bengaluru rural | 0.52 | 0.62 | 0.01 | 0.00 | 0.63 | 121 | 0.57 | 110 |
| 2 | Bengaluru urban | 0.17 | 0.21 | 0.00 | 0.00 | 0.21 | 120 | 0.19 | 112 |
| 3 | Chamarajanagara | 1.58 | 1.26 | 0.31 | 0.01 | 1.58 | 100 | 1.50 | 95 |
| 4 | Chikkaballapura | 1.29 | 1.39 | 0.02 | 0.01 | 1.42 | 110 | 1.36 | 106 |
| 5 | Chitradurga | 3.48 | 3.44 | 0.51 | 0.04 | 3.99 | 115 | 4.18 | 120 |
| 6 | Davanagere | 3.26 | 2.35 | 0.12 | 0.00 | 2.48 | 76 | 3.00 | 92 |
| 7 | Kolar | 0.87 | 0.90 | 0.01 | 0.00 | 0.91 | 104 | 0.96 | 110 |
| 8 | Mandya | 2.11 | 1.77 | 0.29 | 0.01 | 2.07 | 98 | 2.35 | 111 |
| 9 | Mysuru | 4.46 | 3.77 | 0.54 | 0.00 | 4.32 | 97 | 4.62 | 104 |
| 10 | Ramanagara | 0.97 | 0.86 | 0.03 | 0.00 | 0.90 | 92 | 0.96 | 99 |
| 11 | Tumakuru | 2.90 | 3.47 | 0.06 | 0.01 | 3.54 | 122 | 3.63 | 125 |
| | SIK | 21.61 | 20.05 | 1.92 | 0.07 | 22.04 | 102 | 23.33 | 108 |
| 12 | Bagalkote | 5.78 | 2.72 | 2.47 | 0.00 | 5.19 | 90 | 5.79 | 100 |
| 13 | Ballari | 5.29 | 4.29 | 0.71 | 0.31 | 5.30 | 100 | 5.83 | 110 |
| 14 | Belagavi | 9.86 | 7.18 | 2.85 | 0.06 | 10.08 | 102 | 10.15 | 103 |
| 15 | Bidar | 4.52 | 3.71 | 1.12 | 0.00 | 4.83 | 107 | 4.79 | 106 |
| 16 | Dharwad | 4.12 | 2.73 | 1.96 | 0.02 | 4.70 | 114 | 4.12 | 100 |
| 17 | Gadag | 4.82 | 3.01 | 2.61 | 0.02 | 5.65 | 117 | 5.71 | 118 |
| 18 | Haveri | 3.81 | 3.31 | 0.66 | 0.02 | 3.99 | 105 | 3.98 | 105 |
| 19 | Kalaburagi | 9.91 | 7.50 | 2.33 | 0.01 | 9.85 | 99 | 10.31 | 104 |
| 20 | Koppala | 4.68 | 3.09 | 1.74 | 0.00 | 4.82 | 103 | 5.19 | 111 |
| 21 | Raichur | 6.80 | 4.72 | 2.27 | 0.33 | 7.32 | 108 | 7.83 | 115 |
| 22 | Vijayapura | 9.27 | 6.43 | 3.45 | 0.00 | 9.88 | 107 | 9.37 | 101 |
| 23 | Yadgir | 4.28 | 3.78 | 0.80 | 0.00 | 4.58 | 107 | 4.95 | 116 |
| | NIK | 73.14 | 52.46 | 22.97 | 0.78 | 76.21 | 104 | 78.02 | 107 |
| 24 | Chikkamagalur | 1.51 | 1.16 | 0.26 | 0.00 | 1.42 | 94 | 1.52 | 101 |
| 25 | Hassan | 2.41 | 2.31 | 0.11 | 0.00 | 2.42 | 100 | 2.41 | 100 |
| 26 | Kodagu | 0.27 | 0.27 | 0.00 | 0.00 | 0.27 | 98 | 0.27 | 99 |
| 27 | Shivamogga | 1.74 | 1.32 | 0.00 | 0.06 | 1.38 | 79 | 1.60 | 92 |
| | MALNAD | 5.93 | 5.06 | 0.38 | 0.06 | 5.49 | 93 | 5.80 | 98 |
| 28 | D.Kannada | 0.24 | 0.10 | 0.01 | 0.00 | 0.12 | 49 | 0.14 | 60 |
| 29 | Udupi | 0.47 | 0.36 | 0.04 | 0.00 | 0.40 | 83 | 0.44 | 92 |
| 30 | U.Kannada | 0.78 | 0.68 | 0.01 | 0.00 | 0.69 | 87 | 0.75 | 95 |
| | COASTAL | 1.49 | 1.14 | 0.06 | 0.00 | 1.20 | 80 | 1.33 | 89 |
| | State Total | 102.17 | 78.71 | 25.33 | 0.91 | 104.94 | 103 | 108.00 | 106 |

1. WATER BALANCE METHODOLOGY FOR MONITORING OF DROUGHT PERIODS AND THEIR SEVERITIES DURING AGRICULTURAL GROWING SEASON

The understanding of agricultural drought pattern requires not only analysis of rainfall records but also adequacy of soil moisture patterns and deficiencies of the same during the crop growing season of a particular year or between different years. It is more realistic to adopt a suitable method of water budgeting and deal with the soil moisture available in a crop growing season. Drought occurs when there is insufficient moisture in the root zone of the crop. Where direct measurement of soil moisture and its determination are not possible, the concept of potential evapo-transpiration and the water budgeting provide an indirect method for determining actual evapo-transpiration (AE) and changes in soil moisture.

Moisture Adequacy Index:

The ratio AE / PE expressed in percentage known as Moisture Adequacy Index (MAI) is a useful index for scientific crop planning and drought monitoring. The systems analysis approach using the distribution of Moisture Adequacy Index within crop growing season would help in determining optimum times for sowing, selection of suitable crop varieties and other cultural operations for specific regions.

Decrease of MAI from 100% would indicate soil moisture stress conditions experienced by the crops. Up to MAI value of 75%, there would be hardly any moisture stress. So period with MAI >75% can be denoted as humid period. Many dry land crops would experience only slight moisture stress even up to MAI of 50%. So period for which MAI is 50% -75% or above is considered as agricultural condition. When MAI is between 25% and 50% crops would experience only moderate drought conditions. So some of the drought resistant crops like Jowar, Ragi, Bajra, Minor millets, Groundnut, Sunflower and Pulses etc., would be able to withstand such droughts for a limited period. But when MAI becomes less than 25% severe drought would set in. The results of moisture adequacy index studies at the end of the South-West Monsoon season are presented in the figures 4.1

The Salient findings are as follows:

At the end of **September 2021**, due to **Normal** rainfall over major parts of the State, **35%** of the geographical area is falling under **Moderate to Severe** condition and remaining **65%** of the geographical area is falling under **Normal agriculturally favorable** condition.

At the end of **December 2021**, due to **Normal** rainfall over major parts of the State **35%** of the area is falling under **moderate to severe** condition and remaining **65%** of the geographical area is falling under **Normal agriculturally favorable** condition.

Figure 3.1: Moisture Adequacy Index (MAI) for SW Monsoon 2021

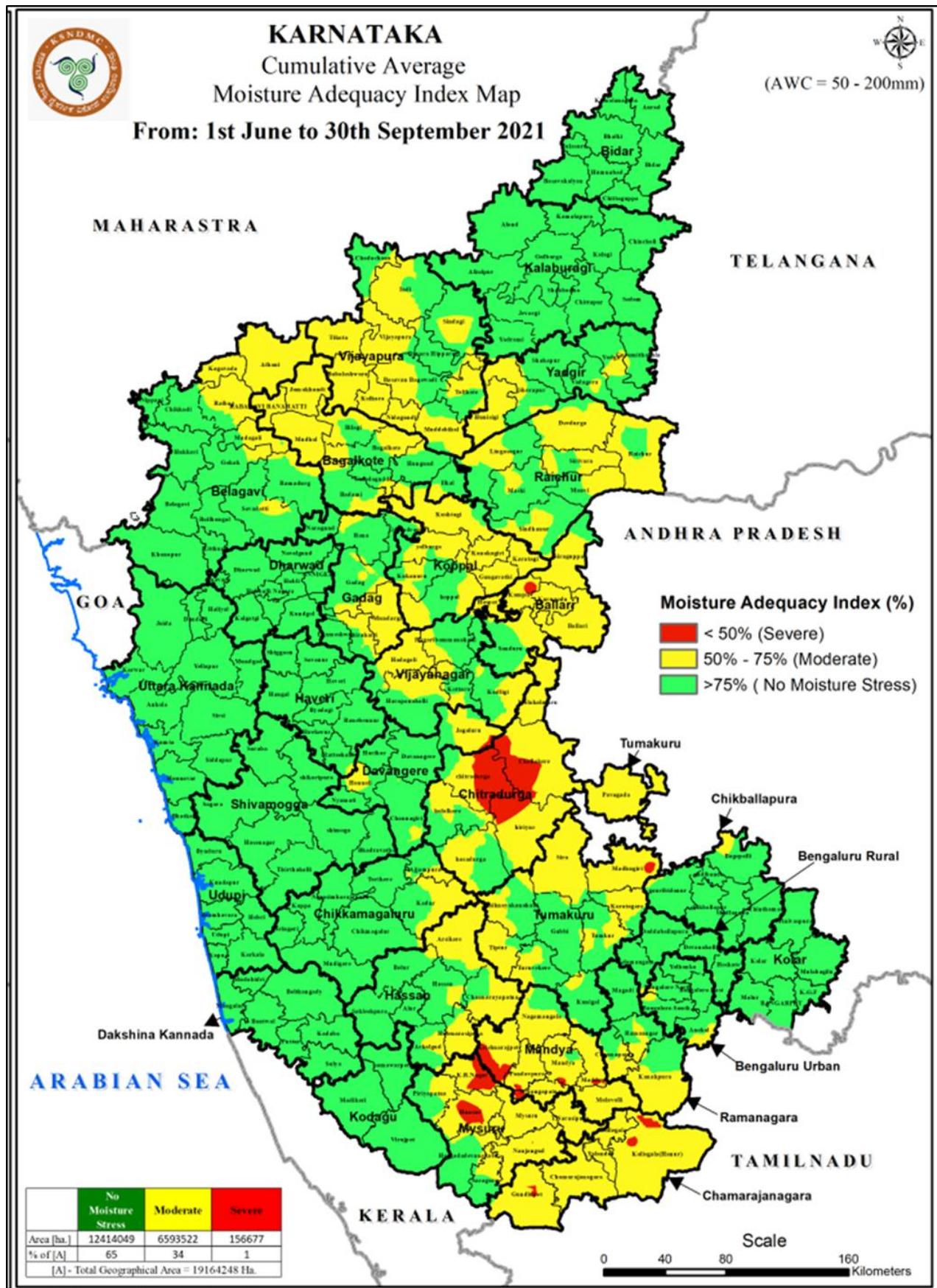
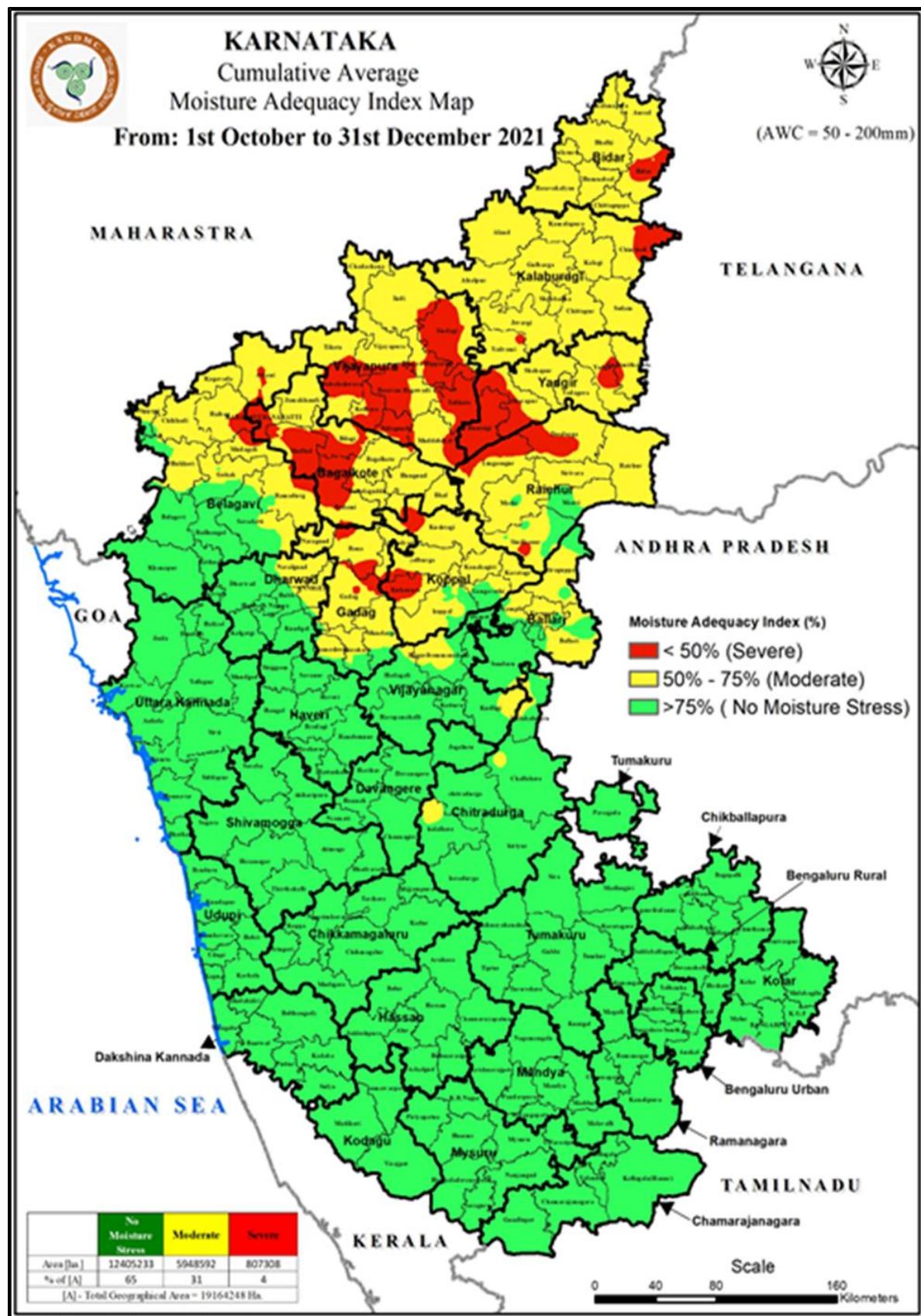


Figure 3.2: Moisture Adequacy Index (MAI) for NE Monsoon 2021



4. MINOR IRRIGATIONS TANKS IN THE STATE

Table 4.1: Zone wise / District-wise Status of Minor Irrigation Tanks (Abstract)

| Sl No. | DISTRICT | No Of Tanks | Full Capacity mcf. | Total catchment area designed | No.of tanks not received water | 30% | 31-50% | 51-99% | 100% |
|---|--------------------------------|-------------|--------------------|-------------------------------|--------------------------------|------------|------------|-------------|------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| (a) Minor Irrigation South Zone as on 31/12/2021 | | | | | | | | | |
| 1 | Bangalore Urban | 46 | 1400 | 4530 | 2 | 17 | 2 | 10 | 15 |
| 2 | Bangalore Rural | 98 | 3107 | 9681 | 0 | 7 | 28 | 22 | 41 |
| 3 | Ramanagara | 102 | 4216 | 15092 | 0 | 10 | 15 | 14 | 63 |
| 4 | Kolar | 138 | 5182 | 12147 | 0 | 1 | 9 | 115 | 13 |
| 5 | Chikkaballapura | 201 | 7954 | 27107 | 1 | 6 | 22 | 28 | 143 |
| 6 | Tumkur | 371 | 17101 | 36956 | 0 | 85 | 76 | 82 | 128 |
| 7 | Chitradurga | 166 | 9131 | 21431 | 8 | 92 | 16 | 22 | 28 |
| 8 | Davanagere | 72 | 5121 | 8815 | 6 | 29 | 8 | 12 | 17 |
| 9 | Shimoga | 306 | 3556 | 22981 | 0 | 0 | 4 | 261 | 41 |
| 10 | Mysore | 50 | 896 | 6989 | 4 | 5 | 9 | 20 | 12 |
| 11 | Chamarajnagar | 64 | 2552 | 13088 | 19 | 8 | 9 | 16 | 12 |
| 12 | Mandy | 48 | 1232 | 4319 | 5 | 2 | 0 | 3 | 38 |
| 13 | Hassan | 170 | 4946 | 12502 | 8 | 37 | 13 | 13 | 99 |
| 14 | Chikkamagulur | 124 | 4267 | 16846 | 0 | 13 | 9 | 14 | 88 |
| 15 | Dakshina Kannada | 2 | 7 | 131 | 1 | 0 | 0 | 1 | 0 |
| 16 | Udupi | 4 | 39 | 283 | 0 | 0 | 0 | 4 | 0 |
| 17 | Kodagu | 29 | 495 | 1953 | 0 | 1 | 1 | 24 | 3 |
| | Total | 1991 | 71202 | 214851 | 54 | 313 | 221 | 661 | 741 |
| (b) Minor Irrigation North Zone as on 31/12/2021 | | | | | | | | | |
| 1 | Belgaum | 280 | 3196 | 30160 | 48 | 50 | 36 | 134 | 12 |
| 2 | Bijapur | 156 | 3649 | 23304 | 18 | 44 | 40 | 53 | 1 |
| 3 | Bagalkote | 65 | 1574 | 12132 | 17 | 14 | 21 | 7 | 6 |
| 4 | Dharwad | 112 | 1741 | 14076 | 1 | 3 | 16 | 92 | 0 |
| 5 | Gadag | 31 | 1363 | 7702 | 13 | 0 | 3 | 10 | 5 |
| 6 | Haveri | 264 | 4009 | 23247 | 0 | 5 | 73 | 146 | 40 |
| 7 | Uttara kannada | 91 | 1773 | 13755 | 1 | 0 | 0 | 83 | 7 |
| 8 | Gulburga | 166 | 3903 | 28441 | 6 | 5 | 20 | 133 | 2 |
| 9 | Yadgiri | 72 | 1510 | 6614 | 4 | 0 | 9 | 22 | 37 |
| 10 | Bidar | 124 | 2863 | 21064 | 4 | 16 | 12 | 46 | 46 |
| 11 | Bellary | 92 | 3629 | 13882 | 22 | 23 | 12 | 19 | 16 |
| 12 | Koppala | 122 | 1937 | 15844 | 22 | 33 | 16 | 41 | 10 |
| 13 | Raichur | 73 | 1793 | 8779 | 19 | 17 | 16 | 16 | 5 |
| 30 | Total | 1648 | 32942 | 219000 | 175 | 210 | 274 | 802 | 187 |
| | State Total (a & b) | 3639 | 104144 | 433851 | 229 | 523 | 495 | 1463 | 928 |

Source: Minor Irrigation Department, Government of Karnataka,

The above table shows the status of the Minor Irrigation (MI) Tanks in the State.

The Southern zone (comprises 17 Districts). There are 1991 MI tanks in the Southern zone Districts. Only 741 Tanks in this zone are filled upto their full capacity as on 31st December 2021. **The Northern zone** (comprises 13 Districts). There are 1648 MI tanks in the Northern zone Districts. Only 187 tanks are filled upto their full capacity as on 31st December 2021.

Out of total 3639 MI tanks in the state, only 66% of the tanks had storages more than 50% of their respective capacity, 28% of the tanks were 30% to 50% storages of their respective capacity and the remaining 6% of the tanks are dry or having insignificant storage.

5. MAJOR RESERVOIR LEVELS IN THE STATE

The position of reservoir levels from 23rd standard week (01.06.2021) to 52nd standard week (31.12.2021), their respective maximum levels, previous year levels reservoir level during recent 10 years depicting maximum, minimum and average levels during particular standard weeks, difference in RL compared to the 10 years average level and difference in RL compared to the previous year level are given in table no. 5.2 to 5.14

Hydel generation reservoirs: **Linganamakki, Supa and Varahi** are the three main Hydel generation reservoirs of the state which come under west coast basin. The state receives maximum rainfall in the catchments of these basins and the annual rainfall is about 3000 to 4000 mm.

During the water year 2021, the levels in **Linganamakki** reservoir levels in most of the standard weeks were **highest** compared to the recent 10 years average levels. Maximum rise in reservoir level of **9.60** feet was during **30th std. week**. The highest level of **1816.30 feet** was reached during **37th std. week** against full reservoir level of **1819** feet. The level during the season was **more** by **13.64** feet compared to the average level and also **more** by **35.20** feet compared to previous year level.

In the **Supa** reservoir, levels in most of the standard weeks were **higher** compared to the recent 10 years average levels. Maximum rise in reservoir level of **25.36** feet was during **30th week**. The highest level of **1827.75** feet was reached during **41st std. week** against full reservoir level of **1849.92** feet. The level during the season was **more** by **37.06** feet compared to the average level and **more** by **57.63** feet compared to previous year level.

In the **Varahi** reservoir, levels in most of the standard weeks were **higher** compared to the recent 10 years average levels. Maximum rise in reservoir level of **11.09** feet was during **25th week**. The highest level of **1928.57** feet was reached during **37th std. week** against full reservoir level of **1949.50** feet. The level during the season was **more** by **0.72** feet compared to the average level and **more** by **17.64** feet compared to previous year level.

Reservoirs Cauvery Basin: The 4 major reservoirs of Cauvery basin viz., **Harangi, Hemavathi, K.R.S and Kabini** are used for irrigation purpose.

In the **Harangi** reservoir, levels in most of the standard weeks were **higher** compared to the recent 10 years average levels. Maximum rise in reservoir level of **10.86** feet was during **28th week**. The highest level of **2858.63** feet was reached during **38th std. week** against full reservoir level of **2859.00** feet. The level during the season was **more** by **48.92** feet compared to the average level and **more** by **35.35** feet compared to previous year level.

In the **Hemavathi** reservoir, levels in all the standard weeks were **higher** compared to the recent 10 years average levels. Maximum rise in reservoir level of **11.08** feet was during **25th week**. The highest level of **2920.41** feet was reached during **32nd std. week** against full reservoir level of **2922.00** feet. The level during the season was **more** by **27.12** feet compared to the average level and also **more** by **22.91** feet compared to previous year level.

In the **K.R.S** reservoir, levels in all the standard weeks were **higher** compared to the recent 10 years average levels. Maximum rise in reservoir level of **12.06** feet was during **29th week**. The full reservoir level of **124.80** feet was reached during **44th std. week**. The level during the season was **more** by **15.40** feet compared to the average level and **more** by **8.5** feet compared to previous year level.

In the **Kabini** reservoir, levels in all the standard weeks were **higher** compared to the recent 10 years average levels. Maximum rise in reservoir level of **6.73 feet** was during **25th std. week**. The full reservoir level of **2284.00 feet** was reached during **44th std. week**. The level during the season was **more** by **13.01 feet** compared to the average level and **more** by **14.13 feet** compared to previous year level.

Krishna Basin reservoirs: Bhadra, Tungabhadra, Ghataprabha, Malaprabha, Alamatti and Narayanapura are the major irrigation reservoirs under **Krishna basin**.

In **Bhadra** reservoir, levels during all the standard weeks were **higher** compared to the recent 10 years average levels. Maximum rise in reservoir level of **13.46** feet was during **30th week**. The full reservoir level of **2158.00** feet was reached during **41st std. week**. The level during the season was **more** by **21.74 feet** compared to the average level and **more** by **27.87 feet** compared to previous year level.

In **Tungabhadra** reservoir, levels in all the standard weeks were **higher** compared to the recent 10 years average levels. Maximum rise in reservoir level of **15.70 feet** was during **25th week**. The full reservoir level of **1633.00 feet** was reached during **40th std. week**. The level during the season was **more** by **20.30 feet** compared to the average level and also **more** by **20.44 feet** compared to previous year level.

In **Ghataprabha** reservoir, levels in all the standard weeks were **higher** compared to the recent 10 years average levels. Maximum rise in reservoir level of **37.88** feet was during **25th std. week**. The full reservoir level of **2175.00 feet** was reached during **33rd std. week**. The level during the season was **more** by **47.78 feet** compared to the average level and **more** by **32.90 feet** compared to previous year level.

In **Malaprabha** reservoir, levels in all the standard weeks were **higher** compared to the recent 10 years average levels. Maximum rise in reservoir level of **12.00 feet** was during **25th week**. The full reservoir level of **2079.50** feet was reached during **37th std. week**. The level during the season was **more** by **23.32 feet** compared to the average level and **more** by **13.80 feet** compared to previous year level.

In the **Alamatti** reservoir, levels in all the standard weeks were **higher** compared to the recent 10 years average levels. Maximum rise in reservoir level of **27.59 feet** was during **25th week**. The full reservoir level of **1704.70 feet** was reached during **34th std. week**. The level during the season was **more** by **28.77 feet** compared to the average level and **more** by **9.09 feet** compared to previous year level.

In the **Narayanapura** reservoir, levels in most of the standard weeks were **higher** compared to the recent 10 years average levels. Maximum rise in reservoir level of **6.37** feet was during **31st week**. The full reservoir level of **1614.88 feet** was reached during **39th std. week**. The level during the season was **more** by **10.45 feet** compared to the average level and **more** by **6.23 feet** compared to previous year level.

The levels at all the major reservoirs were better when compared to average levels and also previous year levels.

Table-5.1**Name of the Reservoir: (1) LINGANAMAKKI****Basin: HYDEL GENERATION RESERVOIR****Full Reservoir Level: 1819****Unit: in feet****Reservoir level (RL): above mean sea level**

| Std. | Reservoir Level information during | | | Levels during 2021 | Difference in RL of 2021 compared to the Average level | Levels during 2020. | Difference in RL of 2021 compared Maximum |
|------|------------------------------------|---------|------------------|--------------------|--|---------------------|---|
| | Maximum | Minimum | Average 10 years | | | | |
| 23 | 1764.70 | 1742.40 | 1752.75 | 1775.80 | 23.05 | 1764.70 | 11.10 |
| 24 | 1764.65 | 1744.65 | 1753.31 | 1779.25 | 25.94 | 1759.65 | 19.60 |
| 25 | 1766.05 | 1744.10 | 1754.96 | 1785.60 | 30.64 | 1758.65 | 26.95 |
| 26 | 1773.45 | 1746.55 | 1759.32 | 1785.05 | 25.73 | 1754.60 | 30.45 |
| 27 | 1784.50 | 1748.55 | 1765.92 | 1783.95 | 18.03 | 1761.25 | 22.70 |
| 28 | 1792.45 | 1753.05 | 1771.19 | 1788.10 | 16.91 | 1766.10 | 22.00 |
| 29 | 1801.35 | 1757.60 | 1779.29 | 1796.60 | 17.31 | 1771.00 | 25.60 |
| 30 | 1811.50 | 1767.90 | 1785.68 | 1806.20 | 20.52 | 1771.00 | 35.20 |
| 31 | 1817.00 | 1776.40 | 1791.74 | 1809.65 | 17.91 | 1777.60 | 32.05 |
| 32 | 1818.00 | 1784.45 | 1800.29 | 1812.00 | 11.71 | 1793.94 | 18.06 |
| 33 | 1819.00 | 1785.45 | 1803.35 | 1812.55 | 9.20 | 1801.75 | 10.80 |
| 34 | 1819.00 | 1787.07 | 1805.02 | 1812.60 | 7.58 | 1805.60 | 7.00 |
| 35 | 1818.90 | 1787.24 | 1807.05 | 1812.80 | 5.75 | 1806.20 | 6.60 |
| 36 | 1818.95 | 1787.20 | 1808.18 | 1813.85 | 5.67 | 1807.75 | 6.10 |
| 37 | 1818.75 | 1787.94 | 1808.69 | 1816.30 | 7.61 | 1809.55 | 6.75 |
| 38 | 1819.00 | 1790.95 | 1809.63 | 1816.10 | 6.47 | 1813.15 | 2.95 |
| 39 | 1818.80 | 1791.79 | 1809.85 | 1815.90 | 6.05 | 1814.35 | 1.55 |
| 40 | 1818.65 | 1792.44 | 1809.88 | 1816.15 | 6.27 | 1814.20 | 1.95 |
| 41 | 1818.80 | 1793.01 | 1809.76 | 1815.80 | 6.04 | 1814.40 | 1.40 |
| 42 | 1818.95 | 1792.98 | 1809.56 | 1815.10 | 5.54 | 1816.00 | -0.90 |
| 43 | 1818.50 | 1793.04 | 1808.89 | 1815.05 | 6.16 | 1813.95 | 1.10 |
| 44 | 1818.40 | 1793.01 | 1808.67 | 1814.30 | 5.63 | 1815.35 | -1.05 |
| 45 | 1817.95 | 1793.24 | 1807.99 | 1813.80 | 5.81 | 1814.50 | -0.70 |
| 46 | 1817.25 | 1793.25 | 1807.21 | 1813.60 | 6.39 | 1813.65 | -0.05 |
| 47 | 1816.30 | 1793.19 | 1806.47 | 1813.05 | 6.58 | 1812.70 | 0.35 |
| 48 | 1815.40 | 1793.00 | 1805.65 | 1812.30 | 6.65 | 1811.95 | 0.35 |
| 49 | 1814.40 | 1792.25 | 1804.60 | 1811.45 | 6.85 | 1811.40 | 0.05 |
| 50 | 1813.25 | 1791.70 | 1803.69 | 1810.35 | 6.66 | 1811.00 | -0.65 |
| 51 | 1812.10 | 1791.10 | 1802.72 | 1809.35 | 6.63 | 1810.05 | -0.70 |
| 52 | 1810.65 | 1790.25 | 1801.42 | 1807.95 | 6.53 | 1808.85 | -0.90 |

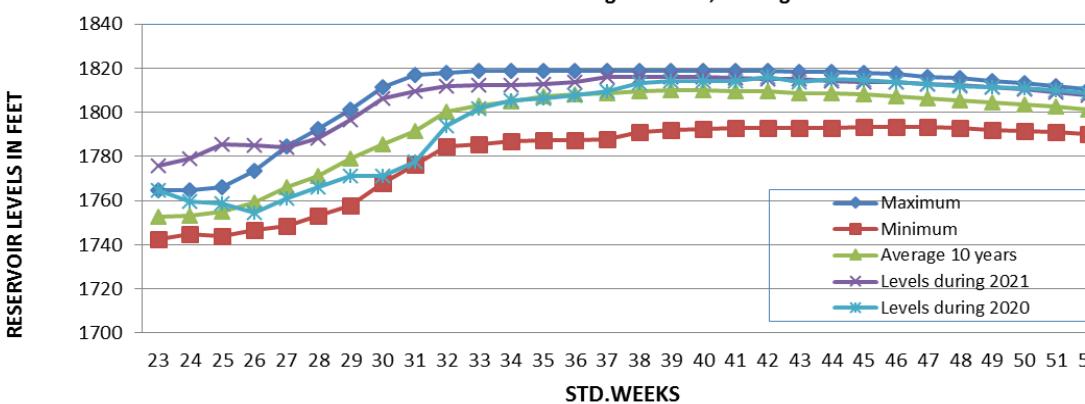
Fig - 5.1: Weekly Reservoir Level : Linganamakki Reservoir (Hydel-West Flowing)**River : Sharavathi****Location: Linganamakki, Shimoga district**

Table-5.2

Name of the Reservoir: (2) SUPA
Basin: HYDEL GENERATION RESERVOIR
Full Reservoir Level: 1849.89 Unit: in feet

Reservoir level (RL): above mean sea level

| Std. Week No. | Reservoir Level information during recent 10 years | | | Levels during 2021 | Difference in RL of 2021 compared to the Average level | Levels during 2020. | Difference in RL of 2021 compared Maximum |
|---------------------|---|---------|---------------------|--------------------------|---|------------------------|---|
| | Maximum | Minimum | Average 10 years | | | | |
| 23 | 1753.21 | 1698.00 | 1733.85 | 1757.21 | 23.36 | 1741.06 | 16.15 |
| 24 | 1755.13 | 1692.00 | 1734.00 | 1759.93 | 25.93 | 1738.76 | 21.17 |
| 25 | 1752.79 | 1692.64 | 1731.93 | 1768.98 | 37.06 | 1735.54 | 33.44 |
| 26 | 1757.32 | 1690.68 | 1734.56 | 1767.87 | 33.31 | 1730.86 | 37.01 |
| 27 | 1763.59 | 1700.35 | 1740.80 | 1764.69 | 23.89 | 1738.73 | 25.96 |
| 28 | 1784.65 | 1703.96 | 1749.24 | 1771.74 | 22.50 | 1747.85 | 23.89 |
| 29 | 1803.18 | 1709.86 | 1761.92 | 1782.90 | 20.97 | 1753.00 | 29.90 |
| 30 | 1811.87 | 1730.99 | 1773.84 | 1808.26 | 34.41 | 1751.03 | 57.23 |
| 31 | 1824.07 | 1748.57 | 1783.89 | 1815.38 | 31.49 | 1757.75 | 57.63 |
| 32 | 1839.82 | 1771.20 | 1797.37 | 1819.31 | 21.94 | 1784.98 | 34.34 |
| 33 | 1845.30 | 1774.69 | 1804.21 | 1819.74 | 15.53 | 1802.20 | 17.55 |
| 34 | 1846.34 | 1772.49 | 1807.22 | 1820.17 | 12.94 | 1812.36 | 7.80 |
| 35 | 1846.97 | 1770.66 | 1811.81 | 1820.20 | 8.40 | 1816.40 | 3.80 |
| 36 | 1848.35 | 1764.88 | 1814.55 | 1822.60 | 8.04 | 1819.32 | 3.28 |
| 37 | 1846.64 | 1769.94 | 1815.93 | 1826.86 | 10.93 | 1821.12 | 5.74 |
| 38 | 1846.64 | 1772.02 | 1817.89 | 1827.65 | 9.76 | 1826.27 | 1.38 |
| 39 | 1846.48 | 1772.09 | 1818.52 | 1826.63 | 8.11 | 1830.31 | -3.67 |
| 40 | 1846.64 | 1772.53 | 1818.49 | 1827.02 | 8.54 | 1831.68 | -4.66 |
| 41 | 1846.77 | 1773.38 | 1818.39 | 1827.75 | 9.36 | 1832.11 | -4.36 |
| 42 | 1846.90 | 1773.06 | 1817.36 | 1826.14 | 8.78 | 1832.86 | -6.73 |
| 43 | 1848.80 | 1773.39 | 1817.16 | 1825.29 | 8.13 | 1831.62 | -6.33 |
| 44 | 1848.58 | 1773.66 | 1816.67 | 1824.14 | 7.47 | 1832.86 | -8.73 |
| 45 | 1848.28 | 1773.96 | 1815.94 | 1823.15 | 7.21 | 1832.37 | -9.22 |
| 46 | 1847.23 | 1773.99 | 1814.78 | 1822.07 | 7.29 | 1831.85 | -9.78 |
| 47 | 1845.92 | 1774.00 | 1813.44 | 1821.22 | 7.77 | 1830.86 | -9.65 |
| 48 | 1844.15 | 1774.00 | 1812.12 | 1820.36 | 8.25 | 1829.49 | -9.12 |
| 49 | 1842.84 | 1774.02 | 1810.46 | 1818.95 | 8.49 | 1827.78 | -8.83 |
| 50 | 1840.80 | 1773.98 | 1809.05 | 1816.82 | 7.77 | 1827.45 | -10.63 |
| 51 | 1838.37 | 1773.43 | 1807.54 | 1814.98 | 7.45 | 1825.68 | -10.70 |
| 52 | 1834.70 | 1772.45 | 1805.49 | 1812.42 | 6.94 | 1823.19 | -10.76 |

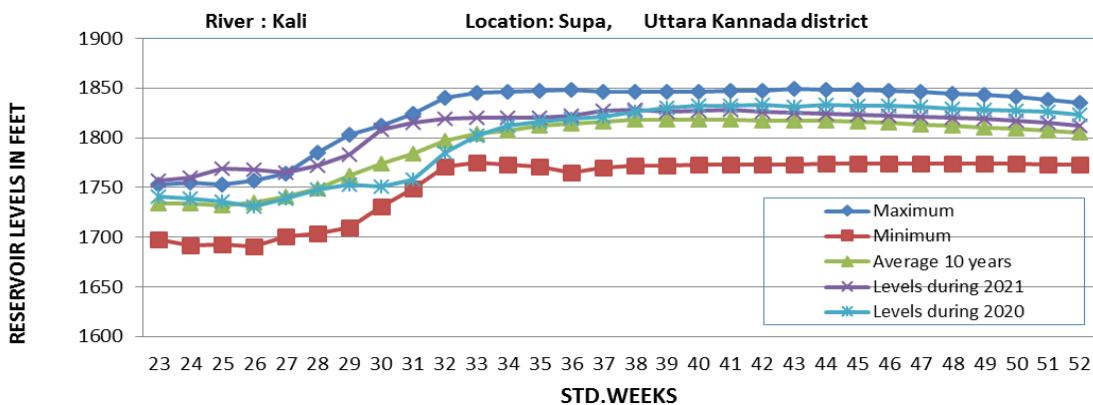
Fig - 5.2: Weekly Reservoir Level: Supa Reservoir (Hydel - West Flowing)

Table-5.3

Name of the Reservoir: (3) VARAHI
Basin: HYDEL GENERATION RESERVOIR
Full Reservoir Level: 1949.44

Unit: in feet

Reservoir level (RL): above mean sea level

| Std. Week No. | Reservoir Level information during recent 10 years | | | Levels during 2021 | Difference in RL of 2021 compared to the Average level | Levels during 2020 | Difference in RL of 2021 compared Maximum |
|---------------|--|---------|------------------|--------------------|--|--------------------|---|
| | Maximum | Minimum | Average 10 years | | | | |
| 23 | 1886.41 | 1872.00 | 1878.98 | 1868.82 | -10.16 | 1875.83 | -7.01 |
| 24 | 1893.74 | 1870.00 | 1880.47 | 1871.88 | -8.59 | 1876.62 | -4.74 |
| 25 | 1893.48 | 1868.35 | 1882.24 | 1882.97 | 0.72 | 1877.44 | 5.53 |
| 26 | 1898.79 | 1873.73 | 1886.50 | 1875.88 | -10.62 | 1875.57 | 0.31 |
| 27 | 1907.39 | 1878.39 | 1891.91 | 1881.85 | -10.06 | 1881.67 | 0.18 |
| 28 | 1914.86 | 1885.44 | 1896.92 | 1888.08 | -8.84 | 1885.93 | 2.15 |
| 29 | 1923.72 | 1889.15 | 1904.77 | 1897.27 | -7.49 | 1891.51 | 5.76 |
| 30 | 1933.72 | 1890.46 | 1911.58 | 1907.51 | -4.07 | 1890.46 | 17.05 |
| 31 | 1939.69 | 1896.43 | 1916.16 | 1914.07 | -2.09 | 1896.43 | 17.64 |
| 32 | 1941.83 | 1909.94 | 1923.80 | 1918.86 | -4.94 | 1909.94 | 8.92 |
| 33 | 1947.66 | 1915.06 | 1928.08 | 1920.83 | -7.25 | 1917.23 | 3.60 |
| 34 | 1948.45 | 1918.67 | 1930.11 | 1922.01 | -8.10 | 1921.23 | 0.78 |
| 35 | 1948.52 | 1919.62 | 1932.08 | 1922.80 | -9.28 | 1921.69 | 1.11 |
| 36 | 1948.42 | 1920.11 | 1934.05 | 1925.42 | -8.63 | 1923.13 | 2.29 |
| 37 | 1947.66 | 1920.11 | 1935.01 | 1928.57 | -6.44 | 1925.03 | 3.54 |
| 38 | 1947.66 | 1921.42 | 1936.21 | 1928.37 | -7.83 | 1930.02 | -1.64 |
| 39 | 1947.70 | 1923.06 | 1936.31 | 1928.37 | -7.93 | 1931.53 | -3.15 |
| 40 | 1947.96 | 1923.12 | 1936.23 | 1927.98 | -8.25 | 1931.62 | -3.64 |
| 41 | 1947.37 | 1922.74 | 1935.77 | 1927.52 | -8.24 | 1931.53 | -4.00 |
| 42 | 1946.61 | 1921.75 | 1935.32 | 1926.34 | -8.98 | 1932.51 | -6.17 |
| 43 | 1946.02 | 1920.70 | 1934.49 | 1926.01 | -8.48 | 1931.33 | -5.32 |
| 44 | 1945.83 | 1920.31 | 1934.05 | 1925.55 | -8.50 | 1931.82 | -6.27 |
| 45 | 1945.04 | 1919.62 | 1933.11 | 1925.23 | -7.89 | 1930.94 | -5.71 |
| 46 | 1943.27 | 1919.03 | 1931.75 | 1925.03 | -6.72 | 1929.92 | -4.89 |
| 47 | 1941.66 | 1918.73 | 1930.77 | 1924.83 | -5.93 | 1928.77 | -3.94 |
| 48 | 1940.38 | 1918.01 | 1929.81 | 1923.98 | -5.83 | 1927.33 | -3.35 |
| 49 | 1938.97 | 1917.00 | 1928.78 | 1926.47 | -2.31 | 1925.88 | 0.59 |
| 50 | 1937.23 | 1916.57 | 1927.54 | 1923.13 | -4.41 | 1925.10 | -1.97 |
| 51 | 1935.20 | 1916.24 | 1926.55 | 1922.21 | -4.34 | 1924.05 | -1.84 |
| 52 | 1933.43 | 1915.39 | 1925.09 | 1920.89 | -4.20 | 1922.67 | -1.78 |

Fig - 5.3: Weekly Reservoir Level: Varahi Reservoir (Hydel-West Flowing)

River : Varahi

Location: Hosanagara, Shimoga district

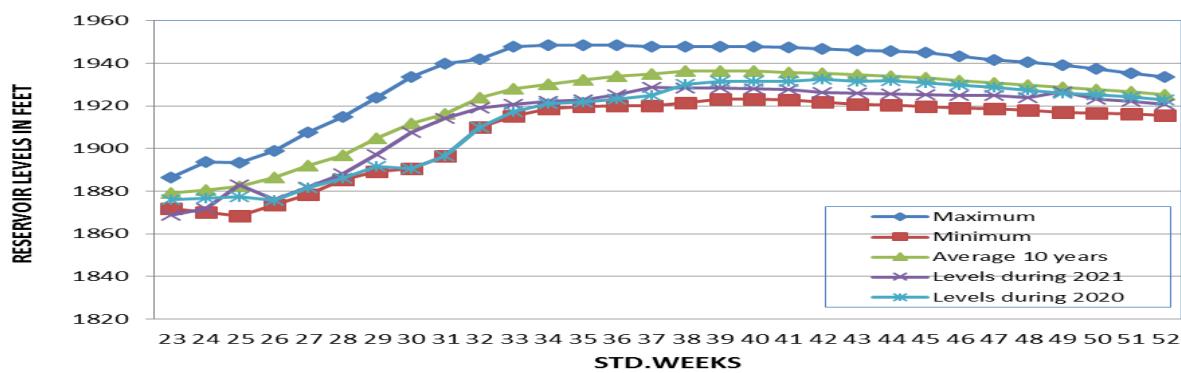


Table-5.4**Name of the Reservoir: (4) HARANGI****Basin: CAUVERY GENERATION RESERVOIR****Full Reservoir Level: 2859****Unit: in feet****Reservoir level (RL): above mean sea level**

| Std. Week No. | Reservoir Level information during recent 10 years | | | Levels during 2021 | Difference in RL of 2021 compared to the Average level | Levels during 2019 | Difference in RL of 2021 compared Maximum |
|---------------|--|---------|------------------|--------------------|--|--------------------|---|
| | Maximum | Minimum | Average 10 years | | | | |
| 23 | 2837.38 | 2797.77 | 2810.21 | 2823.24 | 13.03 | 2831.44 | -8.20 |
| 24 | 2840.61 | 2801.28 | 2816.30 | 2831.57 | 15.27 | 2833.52 | -1.95 |
| 25 | 2844.86 | 2806.81 | 2822.75 | 2838.93 | 16.18 | 2836.88 | 2.05 |
| 26 | 2857.14 | 2808.07 | 2833.78 | 2841.32 | 7.55 | 2839.44 | 1.88 |
| 27 | 2856.73 | 2812.30 | 2839.91 | 2842.83 | 2.92 | 2847.32 | -4.49 |
| 28 | 2857.30 | 2818.81 | 2845.33 | 2853.69 | 8.36 | 2851.52 | 2.17 |
| 29 | 2858.26 | 2827.56 | 2851.00 | 2855.56 | 4.56 | 2855.21 | 0.35 |
| 30 | 2858.53 | 2833.79 | 2854.06 | 2855.56 | 1.50 | 2857.54 | -1.98 |
| 31 | 2858.41 | 2833.29 | 2854.89 | 2855.69 | 0.81 | 2855.94 | -0.25 |
| 32 | 2858.26 | 2854.39 | 2856.87 | 2855.61 | -1.25 | 2856.39 | -0.78 |
| 33 | 2858.06 | 2851.72 | 2856.82 | 2858.21 | 1.39 | 2857.96 | 0.25 |
| 34 | 2858.75 | 2854.88 | 2857.19 | 2857.65 | 0.46 | 2858.00 | -0.35 |
| 35 | 2858.40 | 2853.84 | 2856.92 | 2858.12 | 1.21 | 2856.99 | 1.13 |
| 36 | 2858.75 | 2851.40 | 2856.32 | 2858.06 | 1.74 | 2856.40 | 1.66 |
| 37 | 2858.56 | 2843.79 | 2855.44 | 2858.48 | 3.05 | 2857.67 | 0.81 |
| 38 | 2858.47 | 2842.58 | 2854.75 | 2858.63 | 3.88 | 2858.05 | 0.58 |
| 39 | 2858.88 | 2841.17 | 2854.60 | 2857.57 | 2.97 | 2858.88 | -1.31 |
| 40 | 2857.96 | 2835.59 | 2852.40 | 2858.22 | 5.83 | 2857.96 | 0.26 |
| 41 | 2858.25 | 2833.25 | 2850.97 | 2858.50 | 7.53 | 2858.25 | 0.25 |
| 42 | 2858.39 | 2829.05 | 2849.63 | 2858.33 | 8.70 | 2858.39 | -0.06 |
| 43 | 2857.68 | 2823.31 | 2847.76 | 2858.15 | 10.39 | 2857.68 | 0.47 |
| 44 | 2856.86 | 2816.06 | 2842.93 | 2857.15 | 14.22 | 2855.41 | 1.74 |
| 45 | 2854.98 | 2809.62 | 2839.21 | 2857.67 | 18.46 | 2851.56 | 6.11 |
| 46 | 2851.89 | 2802.06 | 2833.45 | 2858.04 | 24.60 | 2847.19 | 10.85 |
| 47 | 2848.06 | 2792.63 | 2829.20 | 2857.51 | 28.31 | 2843.00 | 14.51 |
| 48 | 2843.87 | 2787.80 | 2824.09 | 2856.87 | 32.78 | 2837.48 | 19.39 |
| 49 | 2839.66 | 2784.78 | 2818.51 | 2855.16 | 36.65 | 2831.03 | 24.13 |
| 50 | 2835.58 | 2783.47 | 2813.25 | 2853.96 | 40.71 | 2824.65 | 29.31 |
| 51 | 2834.00 | 2783.26 | 2808.98 | 2854.09 | 45.11 | 2819.45 | 34.64 |
| 52 | 2831.72 | 2782.28 | 2806.06 | 2854.98 | 48.92 | 2819.63 | 35.35 |

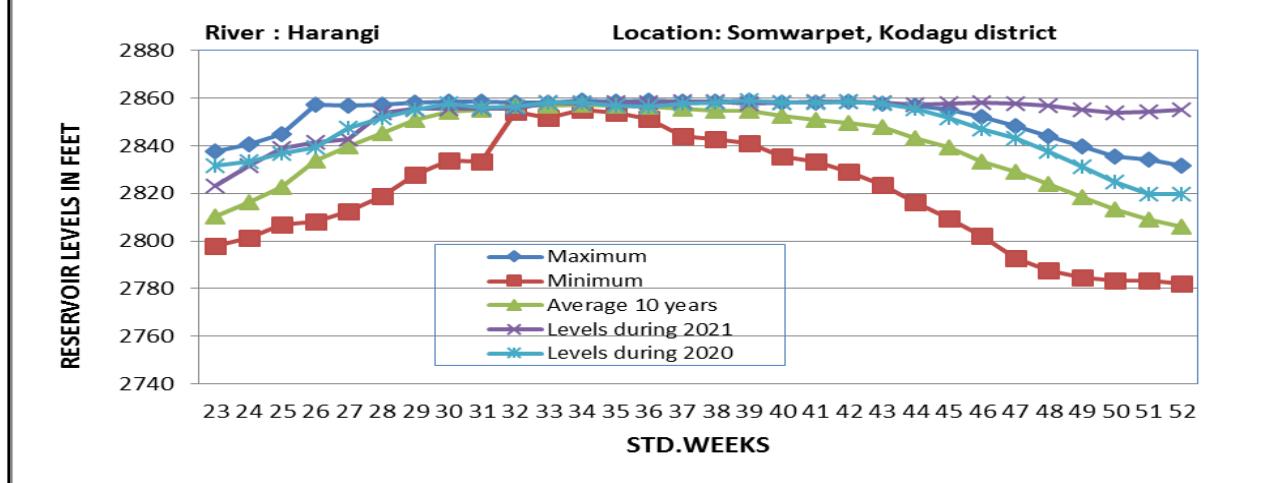
Fig - 5.4: Weekly Reservoir Level: Harangi Reservoir (Cauvery Basin)

Table-5.5

Name of the Reservoir: (5) HEMAVATHI
Basin: CAUVERY GENERATION RESERVOIR
Full Reservoir Level: 2922

Unit: in feet
Reservoir level (RL): above mean sea level

| Std. Week No. | Reservoir Level information during recent 10 years | | | Levels during 2021 | Difference in RL of 2021 compared to the Average level | Levels during 2020 | Difference in RL of 2021 compared Maximum |
|---------------|--|---------|------------------|--------------------|--|--------------------|---|
| | Maximum | Minimum | Average 10 years | | | | |
| 23 | 2879.97 | 2852.70 | 2866.89 | 2879.74 | 12.85 | 2879.97 | -0.23 |
| 24 | 2898.66 | 2855.93 | 2871.93 | 2883.35 | 11.42 | 2880.47 | 2.88 |
| 25 | 2902.20 | 2858.10 | 2875.71 | 2894.43 | 18.72 | 2882.78 | 11.65 |
| 26 | 2906.96 | 2865.29 | 2882.22 | 2895.82 | 13.60 | 2883.85 | 11.97 |
| 27 | 2908.91 | 2870.30 | 2888.73 | 2896.10 | 7.37 | 2889.04 | 7.06 |
| 28 | 2920.15 | 2874.18 | 2893.91 | 2899.19 | 5.28 | 2891.62 | 7.57 |
| 29 | 2919.93 | 2885.72 | 2900.13 | 2908.32 | 8.19 | 2895.01 | 13.31 |
| 30 | 2920.75 | 2892.33 | 2905.19 | 2919.35 | 14.16 | 2896.44 | 22.91 |
| 31 | 2921.08 | 2894.27 | 2908.24 | 2919.75 | 11.51 | 2901.85 | 17.90 |
| 32 | 2921.71 | 2895.83 | 2914.51 | 2920.41 | 5.90 | 2919.92 | 0.49 |
| 33 | 2921.97 | 2893.50 | 2914.45 | 2919.61 | 5.16 | 2921.32 | -1.71 |
| 34 | 2921.81 | 2893.58 | 2913.86 | 2918.22 | 4.37 | 2921.50 | -3.28 |
| 35 | 2921.93 | 2894.20 | 2913.53 | 2916.46 | 2.93 | 2920.15 | -3.69 |
| 36 | 2921.75 | 2890.40 | 2912.64 | 2915.28 | 2.64 | 2920.01 | -4.73 |
| 37 | 2921.95 | 2877.50 | 2910.64 | 2916.98 | 6.34 | 2919.18 | -2.20 |
| 38 | 2921.81 | 2873.41 | 2909.53 | 2915.74 | 6.21 | 2921.22 | -5.48 |
| 39 | 2921.75 | 2876.35 | 2908.94 | 2914.06 | 5.12 | 2921.50 | -7.44 |
| 40 | 2921.41 | 2875.33 | 2907.36 | 2912.92 | 5.56 | 2920.04 | -7.12 |
| 41 | 2921.25 | 2871.70 | 2905.76 | 2911.59 | 5.83 | 2919.42 | -7.83 |
| 42 | 2920.75 | 2872.25 | 2904.74 | 2910.52 | 5.78 | 2920.34 | -9.82 |
| 43 | 2921.71 | 2870.81 | 2903.09 | 2910.45 | 7.36 | 2919.59 | -9.14 |
| 44 | 2921.04 | 2868.02 | 2900.89 | 2909.33 | 8.44 | 2918.00 | -8.67 |
| 45 | 2919.75 | 2868.04 | 2899.38 | 2908.93 | 9.55 | 2915.57 | -6.64 |
| 46 | 2917.75 | 2864.81 | 2897.37 | 2909.85 | 12.48 | 2913.21 | -3.36 |
| 47 | 2915.29 | 2864.93 | 2895.66 | 2913.04 | 17.38 | 2910.25 | 2.79 |
| 48 | 2912.55 | 2864.94 | 2893.72 | 2913.89 | 20.17 | 2906.97 | 6.92 |
| 49 | 2910.25 | 2864.95 | 2890.78 | 2913.58 | 22.80 | 2903.31 | 10.27 |
| 50 | 2907.26 | 2865.06 | 2887.91 | 2912.51 | 24.60 | 2899.66 | 12.85 |
| 51 | 2904.20 | 2865.10 | 2885.19 | 2911.04 | 25.85 | 2896.44 | 14.60 |
| 52 | 2900.98 | 2865.08 | 2882.45 | 2909.57 | 27.12 | 2893.30 | 16.27 |

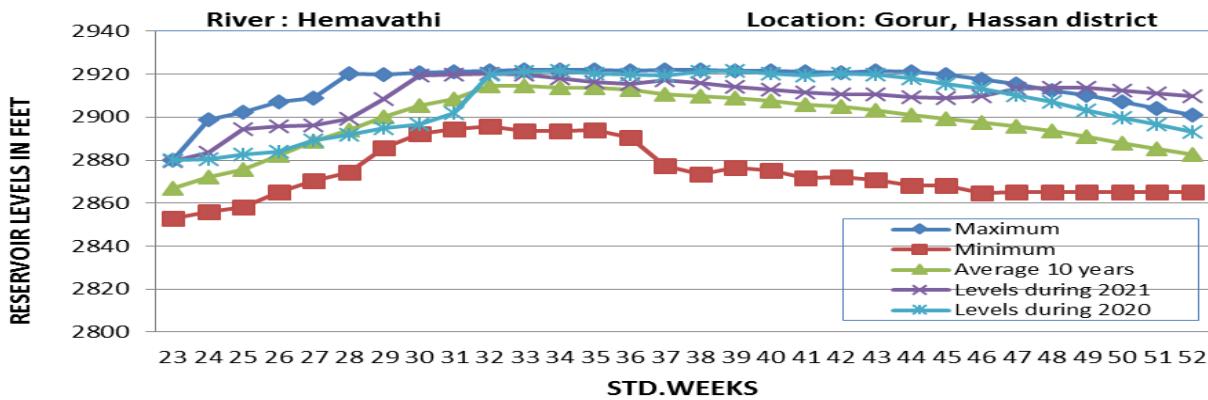
Fig - 5.5: Weekly Reservoir Level: Hemavathi Reservoir (Cauvery Basin)

Table-5.6**Name of the Reservoir: (6) K.R.S****Basin: CAUVERY GENERATION RESERVOIR****Full Reservoir Level: 124.8**

Unit: in feet
Reservoir level (RL): above mean sea level

| Std. Week No. | Reservoir Level information during recent 10 years | | | Levels during 2021 | Difference in RL of 2021 compared to the Average level | Levels during 2020 | Difference in RL of 2021 compared Maximum |
|---------------------|---|---------|---------|--------------------------|---|-----------------------|---|
| | Maximum | Minimum | Average | | | | |
| | 10 years | | | | | | |
| 23 | 93.65 | 63.35 | 77.27 | 83.64 | 6.37 | 92.45 | -8.81 |
| 24 | 100.75 | 67.86 | 80.13 | 84.62 | 4.49 | 92.87 | -8.25 |
| 25 | 105.15 | 68.00 | 83.13 | 95.40 | 12.28 | 95.75 | -0.35 |
| 26 | 108.20 | 72.40 | 88.57 | 92.86 | 4.29 | 97.14 | -4.28 |
| 27 | 108.77 | 77.70 | 93.81 | 89.62 | -4.19 | 100.33 | -10.71 |
| 28 | 123.43 | 76.80 | 97.97 | 89.62 | -8.35 | 104.46 | -14.84 |
| 29 | 123.25 | 75.60 | 102.10 | 101.68 | -0.42 | 107.70 | -6.02 |
| 30 | 123.08 | 75.27 | 104.34 | 113.40 | 9.06 | 106.52 | 6.88 |
| 31 | 123.63 | 79.35 | 105.14 | 115.68 | 10.54 | 107.17 | 8.51 |
| 32 | 124.80 | 92.80 | 113.48 | 120.98 | 7.50 | 122.55 | -1.57 |
| 33 | 124.80 | 90.60 | 114.26 | 120.02 | 5.76 | 124.10 | -4.08 |
| 34 | 124.80 | 92.12 | 114.04 | 119.52 | 5.48 | 124.54 | -5.02 |
| 35 | 124.80 | 93.03 | 114.48 | 116.82 | 2.35 | 123.30 | -6.48 |
| 36 | 124.80 | 91.22 | 115.18 | 116.18 | 1.00 | 124.28 | -8.10 |
| 37 | 124.80 | 86.10 | 114.92 | 116.98 | 2.07 | 124.70 | -7.72 |
| 38 | 124.80 | 87.15 | 115.00 | 114.56 | -0.43 | 123.55 | -8.99 |
| 39 | 124.80 | 89.35 | 115.54 | 112.72 | -2.82 | 124.72 | -12.00 |
| 40 | 124.80 | 86.85 | 115.22 | 115.00 | -0.21 | 124.80 | -9.80 |
| 41 | 124.80 | 81.40 | 115.11 | 117.34 | 2.23 | 124.80 | -7.46 |
| 42 | 124.80 | 81.96 | 115.70 | 120.20 | 4.50 | 124.80 | -4.60 |
| 43 | 124.80 | 78.30 | 115.14 | 124.50 | 9.37 | 124.80 | -0.30 |
| 44 | 124.80 | 81.65 | 114.90 | 124.80 | 9.90 | 124.18 | 0.62 |
| 45 | 124.80 | 81.64 | 114.82 | 124.80 | 9.98 | 123.90 | 0.90 |
| 46 | 124.80 | 77.23 | 113.76 | 124.80 | 11.04 | 123.14 | 1.66 |
| 47 | 124.29 | 78.05 | 113.08 | 124.80 | 11.72 | 121.95 | 2.85 |
| 48 | 123.53 | 78.61 | 111.11 | 124.64 | 13.53 | 120.76 | 3.88 |
| 49 | 123.10 | 78.75 | 110.64 | 124.80 | 14.16 | 120.00 | 4.80 |
| 50 | 122.28 | 78.90 | 109.97 | 124.80 | 14.84 | 119.83 | 4.97 |
| 51 | 121.72 | 79.30 | 109.12 | 124.52 | 15.40 | 119.38 | 5.14 |
| 52 | 121.64 | 79.48 | 108.00 | 123.22 | 15.22 | 118.85 | 4.37 |

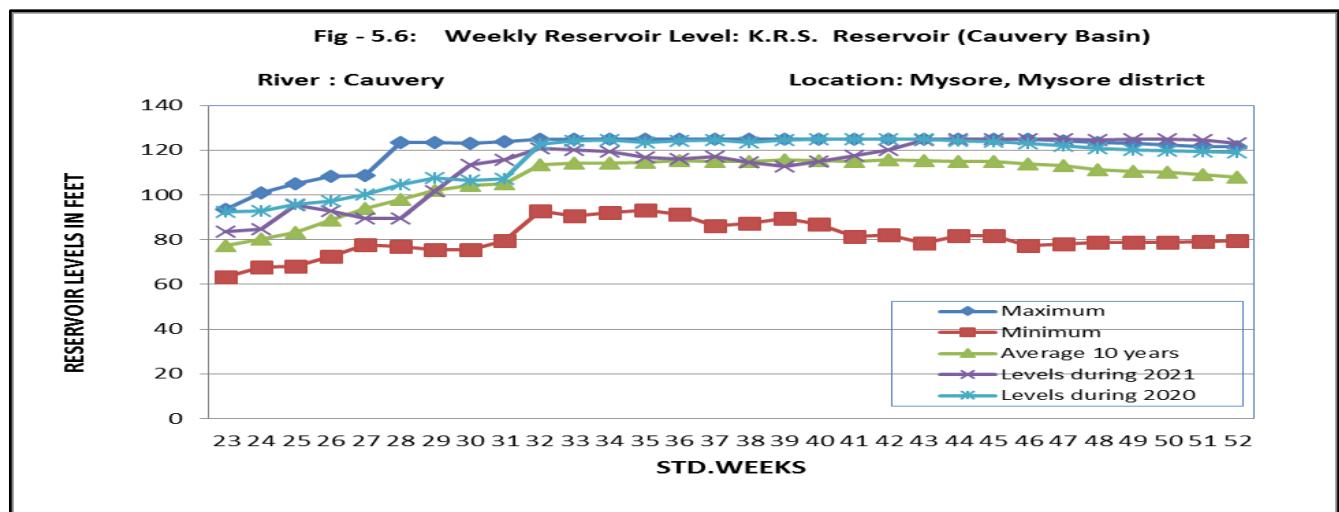


Table-5.7**Name of the Reservoir: (7) KABINI****Basin: CAUVERY GENERATION RESERVOIR****Full Reservoir Level: 2284****Unit: in feet****Reservoir level (RL): above mean sea level**

| Std. Week No. | Reservoir Level information during recent 10 years | | | Levels during 2021 | Difference in RL of 2021 compared to the Average level | Levels during 2020 | Difference in RL of 2021 compared Maximum |
|---------------|--|---------|------------------|--------------------|--|--------------------|---|
| | Maximum | Minimum | Average 10 years | | | | |
| 23 | 2265.52 | 2241.75 | 2256.70 | 2264.26 | 7.56 | 2262.17 | 2.09 |
| 24 | 2279.80 | 2242.18 | 2260.10 | 2269.09 | 8.99 | 2262.24 | 6.85 |
| 25 | 2280.70 | 2244.85 | 2264.64 | 2275.82 | 11.18 | 2262.19 | 13.63 |
| 26 | 2282.35 | 2257.51 | 2269.25 | 2275.79 | 6.54 | 2261.66 | 14.13 |
| 27 | 2282.82 | 2263.30 | 2272.07 | 2275.81 | 3.74 | 2267.88 | 7.93 |
| 28 | 2282.78 | 2264.53 | 2274.29 | 2278.71 | 4.42 | 2270.98 | 7.73 |
| 29 | 2283.33 | 2268.17 | 2277.09 | 2280.76 | 3.67 | 2276.90 | 3.86 |
| 30 | 2283.23 | 2272.75 | 2277.87 | 2279.94 | 2.07 | 2276.97 | 2.97 |
| 31 | 2283.17 | 2269.60 | 2278.47 | 2281.05 | 2.58 | 2279.87 | 1.18 |
| 32 | 2283.14 | 2269.56 | 2279.55 | 2282.25 | 2.70 | 2283.14 | -0.89 |
| 33 | 2283.79 | 2267.01 | 2279.83 | 2283.27 | 3.44 | 2283.73 | -0.46 |
| 34 | 2283.84 | 2270.16 | 2280.11 | 2282.41 | 2.30 | 2283.84 | -1.43 |
| 35 | 2283.87 | 2275.74 | 2280.48 | 2280.18 | -0.30 | 2282.64 | -2.46 |
| 36 | 2284.00 | 2274.55 | 2280.74 | 2281.00 | 0.26 | 2283.02 | -2.02 |
| 37 | 2284.00 | 2270.27 | 2280.31 | 2283.32 | 3.01 | 2284.00 | -0.68 |
| 38 | 2284.00 | 2269.88 | 2280.32 | 2283.22 | 2.90 | 2284.00 | -0.78 |
| 39 | 2284.00 | 2271.26 | 2279.56 | 2280.33 | 0.78 | 2283.87 | -3.54 |
| 40 | 2283.76 | 2268.70 | 2278.41 | 2279.79 | 1.38 | 2283.27 | -3.48 |
| 41 | 2283.73 | 2267.23 | 2277.88 | 2279.60 | 1.72 | 2283.73 | -4.13 |
| 42 | 2284.00 | 2266.71 | 2277.83 | 2282.07 | 4.24 | 2283.17 | -1.10 |
| 43 | 2283.94 | 2265.24 | 2277.32 | 2283.53 | 6.21 | 2283.02 | 0.51 |
| 44 | 2283.94 | 2265.76 | 2276.43 | 2284.00 | 7.58 | 2280.28 | 3.72 |
| 45 | 2283.56 | 2265.26 | 2275.57 | 2283.91 | 8.34 | 2279.05 | 4.86 |
| 46 | 2282.81 | 2263.94 | 2274.23 | 2284.00 | 9.77 | 2277.03 | 6.97 |
| 47 | 2281.04 | 2263.68 | 2273.08 | 2283.89 | 10.81 | 2274.77 | 9.12 |
| 48 | 2279.17 | 2262.50 | 2271.80 | 2283.63 | 11.83 | 2273.01 | 10.62 |
| 49 | 2278.41 | 2259.68 | 2270.97 | 2283.73 | 12.76 | 2271.37 | 12.36 |
| 50 | 2277.35 | 2258.35 | 2270.72 | 2283.55 | 12.83 | 2271.39 | 12.16 |
| 51 | 2276.64 | 2257.15 | 2270.44 | 2283.45 | 13.01 | 2271.02 | 12.43 |
| 52 | 2276.85 | 2256.38 | 2270.33 | 2283.31 | 12.98 | 2271.25 | 12.06 |

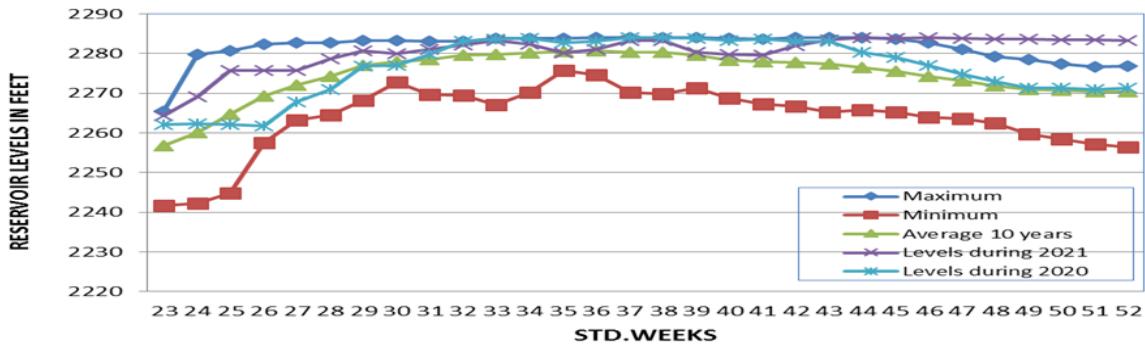
Fig - 5.7: Weekly Reservoir Level: Kabini Reservoir (Cauvery Basin)**River : Kabini****Location: H.D. Kote, Chamara ja nagara district**

Table-5.8**Name of the Reservoir: (8) BHADRA****Basin: KRISHNA GENERATION RESERVOIR****Full Reservoir Level: 2158****Unit: in feet****Reservoir level (RL): above mean sea level**

| Std. Week No. | Reservoir Level information during recent 10 years | | | Levels during 2021 | Difference in RL of 2021 compared to the Average level | Levels during 2020 | Difference in RL of 2021 compared Maximum |
|---------------|--|---------|------------------|--------------------|--|--------------------|---|
| | Maximum | Minimum | Average 10 years | | | | |
| 23 | 2116.41 | 2073.29 | 2096.90 | 2111.33 | 14.43 | 2105.06 | 6.27 |
| 24 | 2121.31 | 2079.25 | 2100.72 | 2116.00 | 15.28 | 2106.58 | 9.42 |
| 25 | 2124.16 | 2084.00 | 2103.59 | 2125.33 | 21.74 | 2110.00 | 15.33 |
| 26 | 2130.50 | 2092.00 | 2109.07 | 2126.75 | 17.68 | 2111.33 | 15.42 |
| 27 | 2131.54 | 2096.70 | 2114.92 | 2127.66 | 12.74 | 2116.41 | 11.25 |
| 28 | 2141.25 | 2098.83 | 2120.30 | 2131.00 | 10.70 | 2120.00 | 11.00 |
| 29 | 2152.83 | 2108.75 | 2127.88 | 2139.91 | 12.03 | 2125.16 | 14.75 |
| 30 | 2156.83 | 2113.50 | 2133.42 | 2153.37 | 19.95 | 2125.95 | 27.42 |
| 31 | 2156.85 | 2116.50 | 2136.18 | 2156.12 | 19.94 | 2128.25 | 27.87 |
| 32 | 2157.06 | 2119.91 | 2144.17 | 2156.54 | 12.37 | 2147.33 | 9.21 |
| 33 | 2157.56 | 2122.50 | 2146.42 | 2156.95 | 10.53 | 2152.33 | 4.62 |
| 34 | 2158.00 | 2127.16 | 2147.77 | 2157.08 | 9.31 | 2154.81 | 2.27 |
| 35 | 2158.00 | 2129.83 | 2148.98 | 2157.41 | 8.43 | 2154.75 | 2.66 |
| 36 | 2158.00 | 2130.41 | 2149.74 | 2157.45 | 7.71 | 2156.08 | 1.37 |
| 37 | 2158.00 | 2129.58 | 2150.04 | 2157.41 | 7.38 | 2157.58 | -0.17 |
| 38 | 2158.00 | 2129.20 | 2149.92 | 2157.22 | 7.30 | 2157.33 | -0.11 |
| 39 | 2158.00 | 2130.25 | 2149.96 | 2156.83 | 6.87 | 2157.54 | -0.71 |
| 40 | 2158.66 | 2129.52 | 2150.10 | 2157.66 | 7.56 | 2157.54 | 0.12 |
| 41 | 2158.00 | 2127.79 | 2149.47 | 2158.00 | 8.53 | 2157.14 | 0.86 |
| 42 | 2158.00 | 2125.91 | 2149.00 | 2158.00 | 9.00 | 2157.25 | 0.75 |
| 43 | 2157.66 | 2124.79 | 2148.28 | 2158.00 | 9.72 | 2157.60 | 0.40 |
| 44 | 2157.75 | 2121.58 | 2147.46 | 2157.66 | 10.20 | 2156.83 | 0.83 |
| 45 | 2157.60 | 2119.25 | 2146.66 | 2157.33 | 10.67 | 2155.57 | 1.76 |
| 46 | 2157.16 | 2116.95 | 2145.53 | 2158.00 | 12.47 | 2153.70 | 4.30 |
| 47 | 2156.39 | 2116.02 | 2145.09 | 2157.91 | 12.82 | 2152.72 | 5.19 |
| 48 | 2156.00 | 2116.02 | 2144.92 | 2157.95 | 13.03 | 2152.35 | 5.60 |
| 49 | 2156.24 | 2116.00 | 2144.86 | 2158.00 | 13.14 | 2151.85 | 6.15 |
| 50 | 2156.54 | 2116.18 | 2144.89 | 2158.00 | 13.11 | 2151.41 | 6.59 |
| 51 | 2154.68 | 2116.22 | 2144.59 | 2158.00 | 13.41 | 2150.97 | 7.03 |
| 52 | 2156.92 | 2116.27 | 2144.18 | 2157.97 | 13.79 | 2150.47 | 7.50 |

Fig - 5.8: Weekly Reservoir Level: Bhadra Reservoir (Krishna Basin)
River : Bhadra
Location: Tarikere, Chikkamagalur district

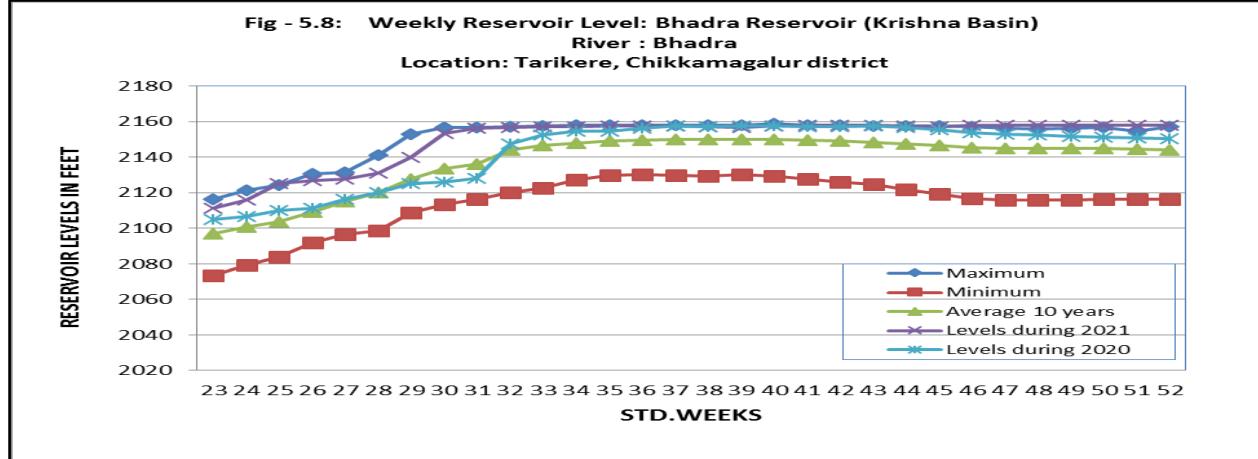


Table-5.9

Name of the Reservoir: (9) TUNGABHADRA
Basin: KRISHNA GENERATION RESERVOIR
Full Reservoir Level: 1633

Unit: in feet
Reservoir level (RL): above mean sea level

| Std. Week No. | Reservoir Level information during recent 10 years | | | Levels during 2021 | Difference in RL of 2021 compared to the Average level | Levels during 2020 | Difference in RL of 2021 compared Maximum |
|---------------|--|---------|------------------|--------------------|--|--------------------|---|
| | Maximum | Minimum | Average 10 years | | | | |
| 23 | 1589.19 | 1568.85 | 1580.42 | 1590.09 | 9.67 | 1584.37 | 5.72 |
| 24 | 1600.36 | 1568.95 | 1583.30 | 1590.29 | 6.99 | 1584.17 | 6.12 |
| 25 | 1605.10 | 1569.15 | 1585.69 | 1605.99 | 20.30 | 1587.24 | 18.75 |
| 26 | 1610.10 | 1573.38 | 1590.67 | 1608.90 | 18.23 | 1590.70 | 18.20 |
| 27 | 1617.65 | 1572.91 | 1598.09 | 1610.01 | 11.92 | 1592.36 | 17.65 |
| 28 | 1625.12 | 1592.94 | 1606.38 | 1610.86 | 4.48 | 1603.22 | 7.64 |
| 29 | 1631.65 | 1595.27 | 1613.05 | 1621.44 | 8.39 | 1609.53 | 11.91 |
| 30 | 1631.52 | 1603.57 | 1618.62 | 1632.75 | 14.13 | 1612.31 | 20.44 |
| 31 | 1632.98 | 1609.78 | 1620.96 | 1632.01 | 11.05 | 1612.09 | 19.92 |
| 32 | 1633.00 | 1616.15 | 1626.98 | 1632.62 | 5.64 | 1628.60 | 4.02 |
| 33 | 1633.00 | 1617.80 | 1628.60 | 1633.00 | 4.40 | 1632.01 | 0.99 |
| 34 | 1633.00 | 1617.89 | 1629.23 | 1632.61 | 3.38 | 1633.00 | -0.39 |
| 35 | 1633.00 | 1616.80 | 1629.66 | 1632.82 | 3.16 | 1632.93 | -0.11 |
| 36 | 1633.00 | 1614.86 | 1629.43 | 1632.88 | 3.45 | 1633.00 | -0.12 |
| 37 | 1633.00 | 1612.77 | 1629.24 | 1632.87 | 3.63 | 1633.00 | -0.13 |
| 38 | 1633.00 | 1612.90 | 1628.96 | 1632.90 | 3.94 | 1632.38 | 0.52 |
| 39 | 1633.00 | 1614.49 | 1628.94 | 1632.60 | 3.66 | 1633.00 | -0.40 |
| 40 | 1633.00 | 1614.69 | 1628.85 | 1633.00 | 4.15 | 1632.90 | 0.10 |
| 41 | 1633.00 | 1611.65 | 1628.38 | 1633.00 | 4.62 | 1633.00 | 0.00 |
| 42 | 1633.00 | 1608.24 | 1627.94 | 1632.81 | 4.87 | 1633.00 | -0.19 |
| 43 | 1632.85 | 1604.71 | 1626.80 | 1633.00 | 6.20 | 1632.85 | 0.15 |
| 44 | 1633.00 | 1599.37 | 1625.54 | 1632.65 | 7.11 | 1632.46 | 0.19 |
| 45 | 1633.00 | 1593.60 | 1623.97 | 1632.45 | 8.48 | 1631.58 | 0.87 |
| 46 | 1632.32 | 1589.31 | 1622.27 | 1633.00 | 10.73 | 1630.47 | 2.53 |
| 47 | 1631.21 | 1589.13 | 1621.01 | 1633.00 | 11.99 | 1628.93 | 4.07 |
| 48 | 1629.98 | 1589.94 | 1619.77 | 1633.00 | 13.23 | 1627.87 | 5.13 |
| 49 | 1629.01 | 1589.64 | 1618.42 | 1633.00 | 14.58 | 1627.57 | 5.43 |
| 50 | 1628.00 | 1588.60 | 1617.08 | 1632.95 | 15.87 | 1626.81 | 6.14 |
| 51 | 1626.96 | 1588.08 | 1615.74 | 1632.34 | 16.60 | 1625.64 | 6.70 |
| 52 | 1625.99 | 1587.94 | 1614.14 | 1631.37 | 17.23 | 1624.00 | 7.37 |

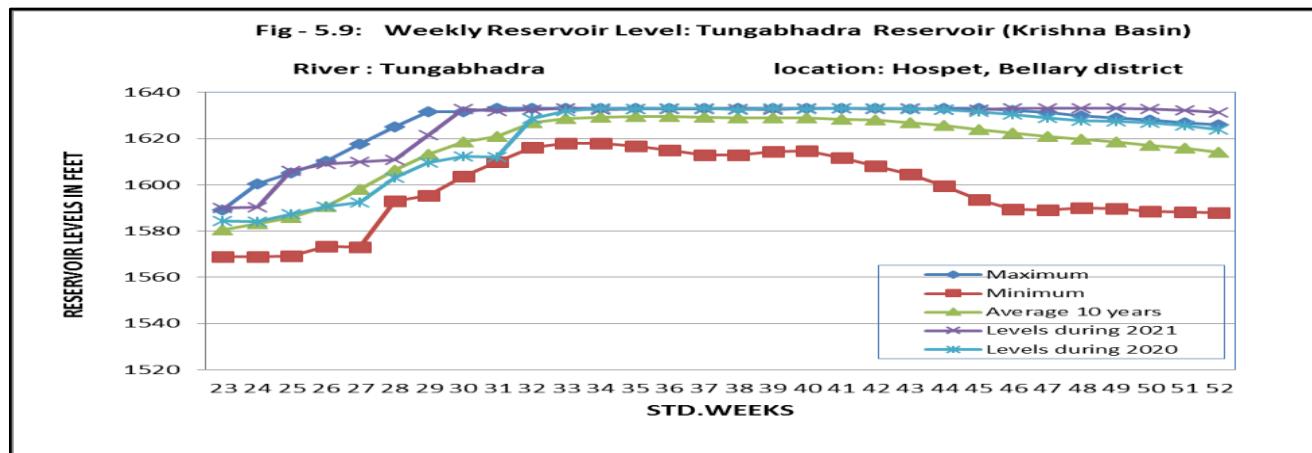


Table-5.10

Name of the Reservoir: (10) GHATAPRABHA
Basin: KRISHNA GENERATION RESERVOIR
Full Reservoir Level: 2175

Unit: in feet

Reservoir level (RL): above mean sea level

| Std. Week No. | Reservoir Level information during recent 10 years | | | Levels during 2021 | Difference in RL of 2021 compared to the Average level | Levels during 2020 | Difference in RL of 2021 compared Maximum |
|---------------|--|---------|------------------|--------------------|--|--------------------|---|
| | Maximum | Minimum | Average 10 years | | | | |
| 23 | 2096.70 | 2066.00 | 2076.69 | 2081.75 | 5.06 | 2096.70 | -14.95 |
| 24 | 2098.96 | 2065.00 | 2078.64 | 2091.58 | 12.94 | 2098.96 | -7.38 |
| 25 | 2108.23 | 2065.13 | 2081.69 | 2129.47 | 47.78 | 2106.05 | 23.42 |
| 26 | 2123.60 | 2066.25 | 2089.37 | 2134.60 | 45.23 | 2103.70 | 30.90 |
| 27 | 2132.63 | 2069.18 | 2102.83 | 2136.33 | 33.51 | 2111.86 | 24.47 |
| 28 | 2138.45 | 2072.71 | 2116.26 | 2139.88 | 23.62 | 2128.43 | 11.45 |
| 29 | 2161.78 | 2100.20 | 2130.35 | 2151.37 | 21.01 | 2136.20 | 15.17 |
| 30 | 2170.66 | 2116.70 | 2142.52 | 2172.86 | 30.34 | 2139.96 | 32.90 |
| 31 | 2173.80 | 2121.05 | 2153.37 | 2173.58 | 20.21 | 2145.25 | 28.33 |
| 32 | 2175.00 | 2125.80 | 2162.51 | 2173.70 | 11.19 | 2171.60 | 2.10 |
| 33 | 2175.00 | 2129.43 | 2163.18 | 2175.00 | 11.82 | 2173.03 | 1.97 |
| 34 | 2175.00 | 2130.60 | 2163.67 | 2175.00 | 11.34 | 2174.40 | 0.60 |
| 35 | 2175.00 | 2130.20 | 2164.91 | 2175.00 | 10.09 | 2175.00 | 0.00 |
| 36 | 2175.00 | 2128.05 | 2166.09 | 2175.00 | 8.91 | 2175.00 | 0.00 |
| 37 | 2175.00 | 2127.71 | 2165.92 | 2175.00 | 9.08 | 2175.00 | 0.00 |
| 38 | 2175.00 | 2127.71 | 2166.04 | 2175.00 | 8.96 | 2175.00 | 0.00 |
| 39 | 2175.00 | 2127.70 | 2165.83 | 2175.00 | 9.17 | 2175.00 | 0.00 |
| 40 | 2175.00 | 2127.73 | 2165.69 | 2175.00 | 9.31 | 2175.00 | 0.00 |
| 41 | 2175.00 | 2128.15 | 2165.21 | 2175.00 | 9.79 | 2175.00 | 0.00 |
| 42 | 2175.00 | 2128.11 | 2165.12 | 2175.00 | 9.88 | 2175.00 | 0.00 |
| 43 | 2175.00 | 2127.93 | 2164.74 | 2174.22 | 9.48 | 2175.00 | -0.78 |
| 44 | 2175.00 | 2127.76 | 2164.33 | 2171.57 | 7.24 | 2175.00 | -3.43 |
| 45 | 2175.00 | 2127.58 | 2162.64 | 2168.87 | 6.23 | 2175.00 | -6.13 |
| 46 | 2175.00 | 2127.41 | 2160.46 | 2166.55 | 6.10 | 2175.00 | -8.45 |
| 47 | 2175.00 | 2123.38 | 2157.15 | 2165.63 | 8.48 | 2173.41 | -7.78 |
| 48 | 2174.61 | 2122.81 | 2154.62 | 2165.00 | 10.38 | 2169.58 | -4.58 |
| 49 | 2172.21 | 2116.35 | 2150.98 | 2166.17 | 15.19 | 2167.68 | -1.51 |
| 50 | 2168.65 | 2114.80 | 2149.14 | 2166.17 | 17.03 | 2167.51 | -1.34 |
| 51 | 2167.33 | 2114.56 | 2147.41 | 2163.67 | 16.26 | 2167.33 | -3.66 |
| 52 | 2164.92 | 2113.61 | 2143.68 | 2158.55 | 14.87 | 2163.16 | -4.61 |

Fig - 5.10: Weekly Reservoir Level: Ghataprabha Reservoir (Krishna Basin)

River : Ghataprabha

Location: Hidkal, Belgaum district

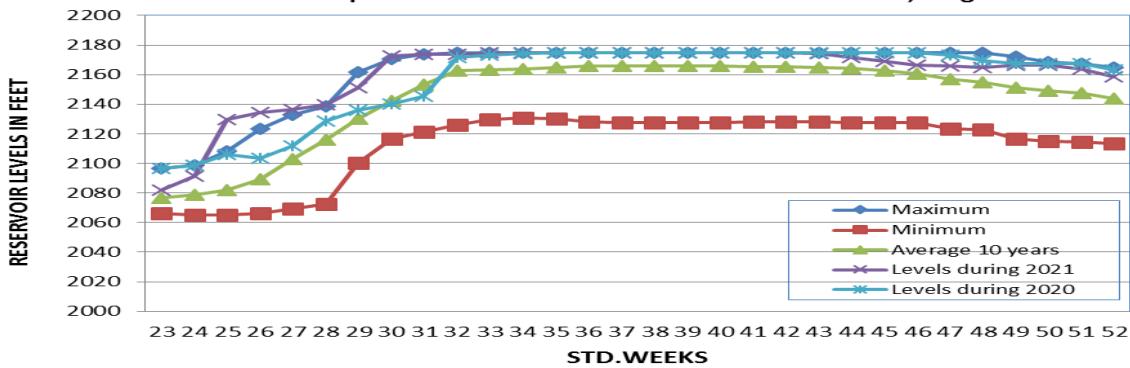


Table-5.11

**Name of the Reservoir: (11) MALAPRABHA
Basin: KRISHNA GENERATION RESERVOIR
Full Reservoir Level: 2079.5**

**Unit: in feet
Reservoir level (RL): above mean sea level**

| Std. Week No. | Reservoir Level information during recent 10 years | | | Levels during 2021 | Difference in RL of 2021 compared to the Average level | Levels during 2020. | Difference in RL of 2021 compared Maximum |
|---------------|--|---------|------------------|--------------------|--|---------------------|---|
| | Maximum | Minimum | Average 10 years | | | | |
| 23 | 2054.26 | 2033.30 | 2038.49 | 2050.08 | 11.59 | 2054.26 | -4.18 |
| 24 | 2053.77 | 2032.88 | 2038.32 | 2050.00 | 11.68 | 2053.77 | -3.77 |
| 25 | 2055.80 | 2031.97 | 2038.68 | 2062.00 | 23.32 | 2055.80 | 6.20 |
| 26 | 2054.15 | 2031.63 | 2040.37 | 2062.75 | 22.38 | 2054.15 | 8.60 |
| 27 | 2055.68 | 2032.00 | 2042.61 | 2063.10 | 20.49 | 2053.30 | 9.80 |
| 28 | 2058.15 | 2033.10 | 2046.70 | 2064.00 | 17.30 | 2058.15 | 5.85 |
| 29 | 2061.49 | 2035.00 | 2051.02 | 2066.10 | 15.08 | 2060.00 | 6.10 |
| 30 | 2065.42 | 2041.40 | 2055.39 | 2074.10 | 18.71 | 2060.95 | 13.15 |
| 31 | 2071.00 | 2047.05 | 2059.90 | 2075.90 | 16.00 | 2062.10 | 13.80 |
| 32 | 2077.00 | 2053.40 | 2063.96 | 2077.00 | 13.04 | 2073.10 | 3.90 |
| 33 | 2079.20 | 2053.80 | 2065.49 | 2077.70 | 12.21 | 2076.90 | 0.80 |
| 34 | 2079.50 | 2052.95 | 2065.96 | 2078.30 | 12.34 | 2077.20 | 1.10 |
| 35 | 2079.50 | 2054.20 | 2066.71 | 2078.70 | 11.99 | 2077.90 | 0.80 |
| 36 | 2079.50 | 2055.05 | 2067.59 | 2078.90 | 11.31 | 2078.45 | 0.45 |
| 37 | 2079.50 | 2055.18 | 2067.83 | 2079.50 | 11.67 | 2078.00 | 1.50 |
| 38 | 2079.50 | 2054.85 | 2067.83 | 2079.30 | 11.47 | 2078.35 | 0.95 |
| 39 | 2079.50 | 2054.70 | 2067.91 | 2078.90 | 10.99 | 2078.65 | 0.25 |
| 40 | 2079.50 | 2054.75 | 2068.31 | 2079.00 | 10.70 | 2079.50 | -0.50 |
| 41 | 2079.50 | 2055.42 | 2068.34 | 2079.50 | 11.16 | 2079.10 | 0.40 |
| 42 | 2079.50 | 2055.41 | 2068.20 | 2079.40 | 11.20 | 2078.70 | 0.70 |
| 43 | 2079.50 | 2055.33 | 2068.05 | 2078.90 | 10.85 | 2079.50 | -0.60 |
| 44 | 2079.50 | 2055.15 | 2067.62 | 2077.95 | 10.33 | 2078.90 | -0.95 |
| 45 | 2079.50 | 2054.92 | 2067.05 | 2076.97 | 9.93 | 2079.00 | -2.03 |
| 46 | 2079.50 | 2053.37 | 2066.17 | 2076.60 | 10.43 | 2078.70 | -2.10 |
| 47 | 2079.50 | 2049.66 | 2064.93 | 2077.00 | 12.07 | 2077.97 | -0.97 |
| 48 | 2079.00 | 2047.66 | 2063.30 | 2077.15 | 13.85 | 2076.93 | 0.22 |
| 49 | 2078.17 | 2047.47 | 2061.79 | 2077.35 | 15.56 | 2075.81 | 1.54 |
| 50 | 2077.17 | 2047.19 | 2060.14 | 2077.00 | 16.86 | 2074.55 | 2.45 |
| 51 | 2076.00 | 2046.87 | 2058.64 | 2076.23 | 17.59 | 2073.21 | 3.02 |
| 52 | 2074.46 | 2046.34 | 2057.02 | 2074.96 | 17.94 | 2071.61 | 3.35 |

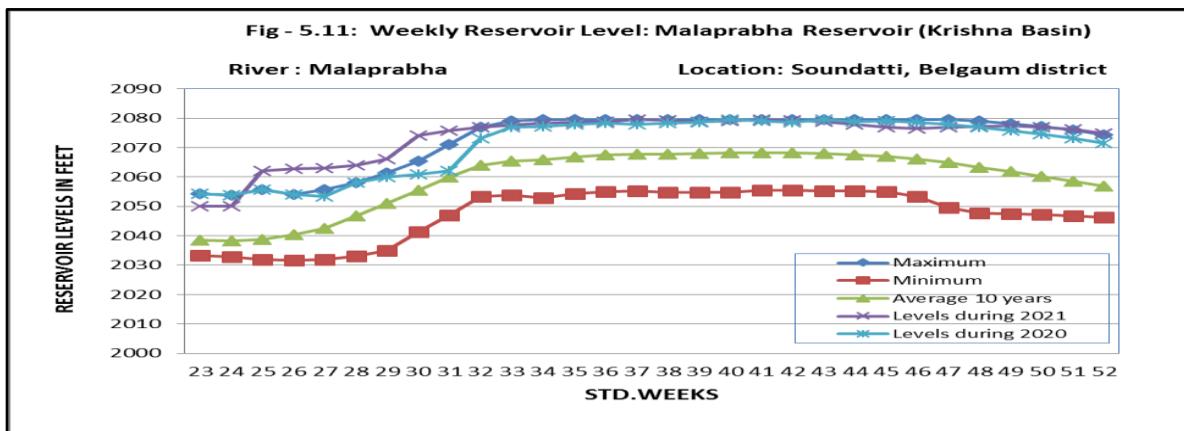


Table-5.12**Name of the Reservoir: (12) ALAMATTI****Basin: KRISHNA GENERATION RESERVOIR****Full Reservoir Level: 1708.17**

Unit: in feet

Reservoir level (RL): above mean sea level

| Std. Week No. | Reservoir Level information during recent 10 years | | | Levels during 2021 | Difference in RL of 2021 compared to the Average level | Levels during No. | Difference in RL of 2021 compared Maximum |
|---------------|--|---------|------------------|--------------------|--|-------------------|---|
| | Maximum | Minimum | Average 10 years | | | | |
| 23 | 1674.20 | 1652.38 | 1664.25 | 1668.71 | 4.47 | 1674.20 | -5.48 |
| 24 | 1676.92 | 1652.18 | 1665.01 | 1669.70 | 4.69 | 1676.59 | -6.89 |
| 25 | 1688.20 | 1654.44 | 1668.51 | 1697.29 | 28.77 | 1688.20 | 9.09 |
| 26 | 1691.45 | 1658.78 | 1673.51 | 1697.72 | 24.20 | 1691.45 | 6.27 |
| 27 | 1693.98 | 1664.39 | 1680.04 | 1697.68 | 17.64 | 1693.98 | 3.70 |
| 28 | 1699.07 | 1664.48 | 1688.84 | 1698.40 | 9.56 | 1697.92 | 0.48 |
| 29 | 1704.48 | 1673.15 | 1694.43 | 1698.83 | 4.40 | 1697.16 | 1.67 |
| 30 | 1704.81 | 1686.29 | 1698.73 | 1696.17 | -2.56 | 1697.16 | -0.99 |
| 31 | 1704.81 | 1689.72 | 1700.06 | 1701.72 | 1.65 | 1697.92 | 3.80 |
| 32 | 1704.81 | 1692.29 | 1701.96 | 1703.82 | 1.86 | 1702.77 | 1.04 |
| 33 | 1704.81 | 1692.76 | 1702.75 | 1704.64 | 1.89 | 1699.72 | 4.92 |
| 34 | 1704.81 | 1692.21 | 1703.30 | 1704.70 | 1.40 | 1704.48 | 0.22 |
| 35 | 1704.81 | 1691.33 | 1703.29 | 1704.70 | 1.42 | 1704.80 | -0.10 |
| 36 | 1704.81 | 1688.94 | 1702.32 | 1704.70 | 2.38 | 1704.81 | -0.11 |
| 37 | 1704.81 | 1688.37 | 1703.08 | 1703.00 | -0.08 | 1704.81 | -1.81 |
| 38 | 1704.81 | 1690.73 | 1703.19 | 1704.70 | 1.52 | 1704.81 | -0.11 |
| 39 | 1704.81 | 1692.38 | 1703.15 | 1704.70 | 1.56 | 1704.81 | -0.11 |
| 40 | 1704.81 | 1691.81 | 1702.95 | 1704.70 | 1.75 | 1704.81 | -0.10 |
| 41 | 1704.81 | 1692.15 | 1702.73 | 1704.70 | 1.97 | 1704.81 | -0.10 |
| 42 | 1704.81 | 1690.80 | 1702.23 | 1704.70 | 2.48 | 1704.81 | -0.11 |
| 43 | 1704.81 | 1688.31 | 1701.15 | 1704.24 | 3.10 | 1704.81 | -0.56 |
| 44 | 1704.81 | 1686.45 | 1700.33 | 1702.37 | 2.05 | 1704.81 | -2.43 |
| 45 | 1704.81 | 1683.86 | 1699.37 | 1701.92 | 2.55 | 1704.81 | -2.89 |
| 46 | 1704.81 | 1681.54 | 1698.25 | 1700.57 | 2.32 | 1704.09 | -3.52 |
| 47 | 1704.81 | 1679.69 | 1697.41 | 1700.90 | 3.49 | 1703.99 | -3.09 |
| 48 | 1704.74 | 1676.69 | 1696.02 | 1701.36 | 5.34 | 1703.63 | -2.27 |
| 49 | 1703.79 | 1675.35 | 1694.85 | 1703.62 | 8.77 | 1702.41 | 1.21 |
| 50 | 1702.58 | 1673.92 | 1693.78 | 1703.79 | 10.00 | 1701.53 | 2.26 |
| 51 | 1702.35 | 1672.00 | 1692.62 | 1703.06 | 10.44 | 1701.30 | 1.76 |
| 52 | 1700.84 | 1671.84 | 1690.38 | 1703.03 | 12.65 | 1699.56 | 3.47 |

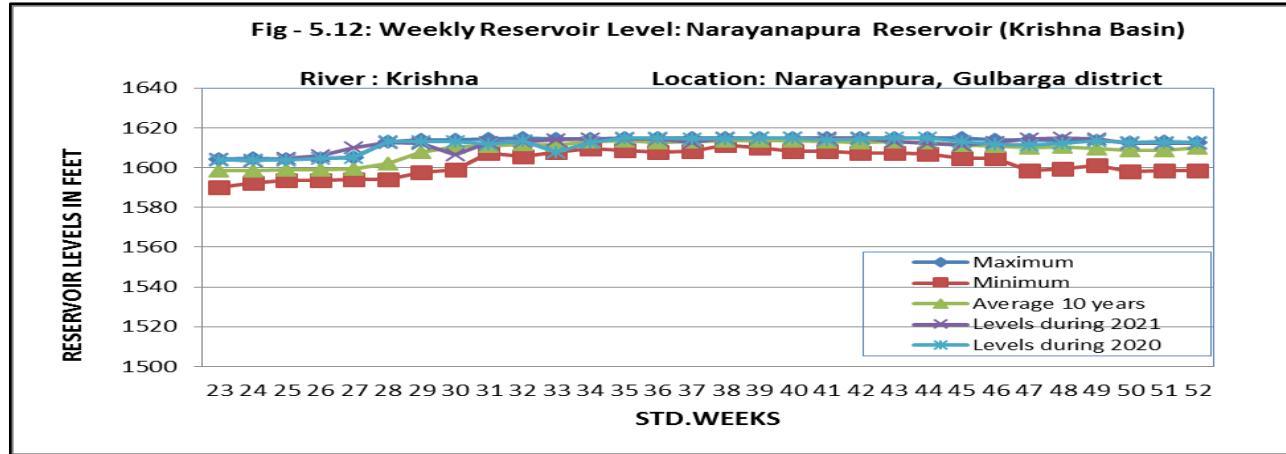
Fig - 5.12: Weekly Reservoir Level: Narayanapura Reservoir (Krishna Basin)

Table-5.13

Name of the Reservoir: (13) NARAYANAPURA
Basin: KRISHNA GENERATION RESERVOIR
Full Reservoir Level: 1615

Unit: in feet
Reservoir level (RL): above mean sea level

| Std. Week No. | Reservoir Level information during recent 10 years | | | Levels during 2021 | Difference in RL of 2021 compared to the Average level | Levels during No. | Difference in RL of 2021 compared Maximum |
|---------------|--|---------|------------------|--------------------|--|-------------------|---|
| | Maximum | Minimum | Average 10 years | | | | |
| 23 | 1604.27 | 1590.16 | 1598.42 | 1604.31 | 5.89 | 1603.88 | 0.43 |
| 24 | 1604.47 | 1592.29 | 1598.66 | 1603.36 | 4.70 | 1603.75 | -0.39 |
| 25 | 1604.31 | 1593.76 | 1598.89 | 1604.64 | 5.75 | 1603.72 | 0.92 |
| 26 | 1604.74 | 1593.43 | 1599.04 | 1606.15 | 7.11 | 1604.74 | 1.41 |
| 27 | 1604.97 | 1593.90 | 1599.40 | 1609.82 | 10.42 | 1604.97 | 4.85 |
| 28 | 1613.17 | 1593.88 | 1602.13 | 1612.58 | 10.45 | 1613.17 | -0.59 |
| 29 | 1613.84 | 1597.73 | 1607.71 | 1612.22 | 4.51 | 1613.30 | -1.08 |
| 30 | 1614.12 | 1598.72 | 1610.59 | 1606.31 | -4.28 | 1612.94 | -6.63 |
| 31 | 1614.42 | 1607.30 | 1610.86 | 1612.68 | 1.81 | 1611.86 | 0.82 |
| 32 | 1615.00 | 1605.72 | 1611.73 | 1612.91 | 1.18 | 1613.56 | -0.66 |
| 33 | 1614.34 | 1607.79 | 1611.47 | 1614.02 | 2.55 | 1607.79 | 6.23 |
| 34 | 1614.63 | 1609.35 | 1612.96 | 1614.35 | 1.39 | 1612.61 | 1.74 |
| 35 | 1615.03 | 1608.53 | 1613.39 | 1614.25 | 0.86 | 1614.84 | -0.59 |
| 36 | 1615.01 | 1607.71 | 1612.57 | 1614.48 | 1.91 | 1614.65 | -0.17 |
| 37 | 1614.91 | 1608.10 | 1613.29 | 1612.61 | -0.68 | 1614.48 | -1.87 |
| 38 | 1614.97 | 1611.46 | 1613.73 | 1614.65 | 0.92 | 1614.25 | 0.39 |
| 39 | 1615.07 | 1610.13 | 1613.39 | 1614.88 | 1.49 | 1614.71 | 0.17 |
| 40 | 1615.07 | 1608.22 | 1613.61 | 1614.78 | 1.17 | 1615.07 | -0.30 |
| 41 | 1614.94 | 1608.25 | 1613.16 | 1614.81 | 1.65 | 1613.76 | 1.05 |
| 42 | 1614.94 | 1607.53 | 1612.76 | 1614.71 | 1.95 | 1614.42 | 0.29 |
| 43 | 1615.07 | 1607.25 | 1613.02 | 1613.14 | 0.12 | 1615.07 | -1.94 |
| 44 | 1615.07 | 1607.06 | 1612.50 | 1612.25 | -0.25 | 1615.07 | -2.82 |
| 45 | 1615.07 | 1604.64 | 1611.27 | 1611.36 | 0.09 | 1613.27 | -1.90 |
| 46 | 1614.09 | 1604.77 | 1610.89 | 1612.81 | 1.92 | 1611.89 | 0.92 |
| 47 | 1613.81 | 1598.50 | 1610.07 | 1614.22 | 4.15 | 1611.43 | 2.79 |
| 48 | 1613.75 | 1599.19 | 1610.55 | 1614.65 | 4.09 | 1612.38 | 2.26 |
| 49 | 1613.37 | 1601.13 | 1609.35 | 1614.38 | 5.03 | 1613.37 | 1.02 |
| 50 | 1612.83 | 1598.20 | 1608.77 | 1612.41 | 3.64 | 1612.68 | -0.26 |
| 51 | 1612.95 | 1598.44 | 1608.57 | 1612.25 | 3.68 | 1612.71 | -0.46 |
| 52 | 1612.86 | 1598.70 | 1609.89 | 1612.28 | 2.39 | 1612.81 | -0.53 |

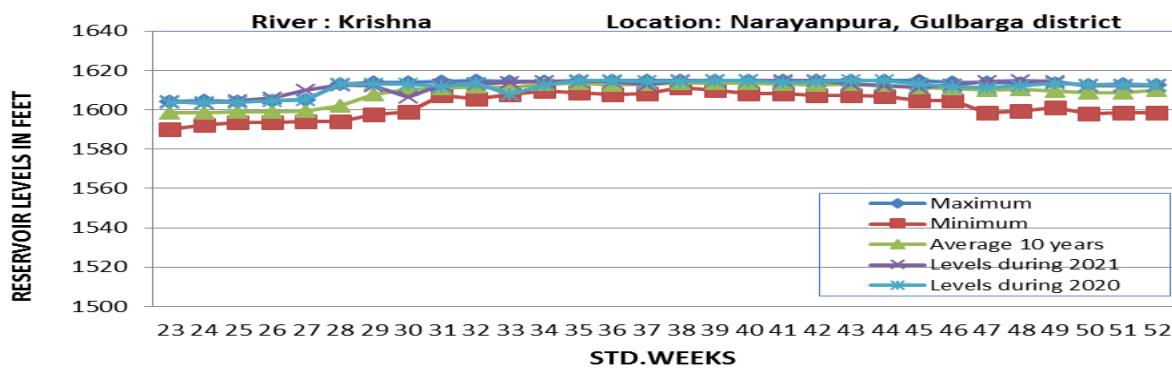
Fig - 5.13: Weekly Reservoir Level: Narayanapura Reservoir (Krishna Basin)

Table 5.14: Major Reservoir Levels in the State:

Units: in feet

Reservoir level (RL) above mean sea level

| Sl. No. | Name of the Reservoir | Full Reservoir Level (FRL) feet above mean see level | Reservoir level Information during recent 10 years (2011 to 2020) for the Annual (Water year) (01.06.2021 to 31.12.2021) | | | R.L. as on 01.06.2021 | R.L. as on 31.12.2021 | Increase/decrease in R.L. from 01.06.2021 to 31.12.2021 | R.L. of 2021 compared to the Average R.L. | R.L. as on 31.12.2020 | R.L. of 2021 compared to the R.L. of 2020. | Balance R.L. as on 31.12.2021 |
|--|--------------------------|---|---|---------|---------|--------------------------|--------------------------|--|--|--------------------------|--|--|
| | | | Maximum | Minimum | Average | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| (a) Hydel generation Reservoirs (Western Coast) | | | | | | | | | | | | |
| 1 | Linganamakki | 1819.00 | 1810.65 | 1790.25 | 1801.42 | 1778.15 | 1807.95 | 29.80 | 6.53 | 1808.85 | -0.90 | -11.05 |
| 2 | Supa | 1850.48 | 1834.70 | 1772.45 | 1805.49 | 1760.91 | 1812.42 | 51.51 | 6.94 | 1823.74 | -11.32 | -38.06 |
| 3 | Varahi | 1950.10 | 1933.43 | 1915.39 | 1925.09 | 1873.39 | 1920.89 | 47.51 | -4.20 | 1922.99 | -2.10 | -29.20 |
| (b) Reservoirs of Cauvery Basin: | | | | | | | | | | | | |
| 4 | Harangi | 2859.00 | 2831.72 | 2782.28 | 2806.06 | 2822.67 | 2854.98 | 32.31 | 48.92 | 2819.63 | 35.35 | -4.02 |
| 5 | Hemavathi | 2922.00 | 2900.98 | 2865.08 | 2882.45 | 2883.30 | 2909.57 | 26.27 | 27.12 | 2893.30 | 16.27 | -12.43 |
| 6 | K.R.S* | 124.80 | 121.64 | 79.48 | 108.00 | 87.60 | 123.22 | 35.62 | 15.22 | 118.85 | 4.37 | -1.58 |
| 7 | Kabini | 2284.00 | 2276.85 | 2256.38 | 2270.33 | 2264.38 | 2283.31 | 18.93 | 12.98 | 2271.25 | 12.06 | -0.69 |
| (c) Reservoirs of Krishna Basin: | | | | | | | | | | | | |
| 8 | Bhadra | 2158.00 | 2156.92 | 2116.27 | 2144.18 | 2110.56 | 2157.97 | 47.41 | 13.79 | 2150.47 | 7.50 | -0.03 |
| 9 | Tungabhadra | 1633.00 | 1625.99 | 1587.94 | 1614.14 | 1588.38 | 1631.37 | 42.99 | 17.23 | 1624.00 | 7.37 | -1.63 |
| 10 | Ghataprabha | 2175.00 | 2164.92 | 2113.61 | 2143.68 | 2090.93 | 2158.55 | 67.62 | 14.87 | 2163.16 | -4.61 | -16.45 |
| 11 | Malaprabha | 2079.50 | 2074.46 | 2046.34 | 2057.02 | 2050.80 | 2074.96 | 24.16 | 17.94 | 2071.61 | 3.35 | -4.54 |
| 12 | Almatti | 1704.81 | 1700.84 | 1671.84 | 1690.38 | 1668.88 | 1703.03 | 34.15 | 12.65 | 1699.56 | 3.47 | -1.78 |
| 13 | Narayanapura | 1615.00 | 1612.86 | 1598.70 | 1609.89 | 1604.28 | 1612.28 | 8.00 | 2.39 | 1612.81 | -0.53 | -2.72 |

6. LANDSLIDE VULNERABILITY OF KARNATAKA

Protection of life and properties from landslide disaster is indispensable in creating a safe environment for the Society. The national imperative towards safety due to landslide initiation is increasing in view of the higher rate of human settlement in the mountain slope across the Country. Landslides are significant amongst those hazards that can be disastrous to human life and property.

The term landslide or less frequently, landslip, refers to several forms of mass wasting that include a wide range of ground movements, such as rockfalls, deep-seated slope failures, mudflows, and debris flows. Landslides occur in a variety of environments, characterized by either steep or gentle slope gradients, from mountain ranges to coastal cliffs. Gravity is the primary driving force for a landslide to occur, but there are other factors affecting slope stability that produce specific conditions that make a slope prone to failure. Landslides can be triggered by many, sometimes associated causes like slope, geological condition & geological structures, soil moisture condition, vegetation cover, precipitation, erosion, blasting of explosions and seismicity. Often, individual phenomenon join together to generate instability over time, which often does not allow a reconstruction of the evolution of a particular landslide.

Older than the great Himalayan mountain chain, the Western Ghats of India are a geomorphic feature of immense global importance. It is sometimes called the Great Escarpment of India. The central part of Western Ghat which is better known as Sahyadri hill range, occur almost fringing the circular chain of hills forming a loop of mountain chain in Karnataka state.

The Western Ghats constitutes a very prominent physiographic feature on the western margin of the peninsular India. This magnificent hill ranges run nearly 1600 km in NNW-SSE direction starting from Cape Comorian in the south to Tapti valley in the north with an average width of 50 km. The average elevations of this mountain belt are about 1200m above MSL and occasionally rise up to 2400m. The distance of the scarp line from the Arabian seashore varies from 32km to 100km, but is seldom more than 64 km.

The State receives an annual normal rainfall of 1,155 mm out of which the Pre-Monsoon season contributes about 11%, the South-West Monsoon season contributes about 73% and the North-East Monsoon season contributes about 16%. The spatial and temporal distribution of rainfall varies significantly across the State, i.e., from West to East. Udupi District which lies in the extreme western part of the State, receives maximum annual rainfall of 4,599 mm and Bagalkote District, which lies in the northeastern part of the State, receives minimum annual rainfall of 558 mm. Most of the rainfall received in the State is during the SW Monsoon season.

The Western Ghat rises precipitously from the narrow Coastal region in the west and gentle slope towards the east - marked by a number of hills of lesser elevation and gradually merges with the

plains. The hill ranges form a great barrier in the western extremity of the Indian Peninsula and are covered by luxuriant forest and inhabited by large variety of wild life. The biodiversity is the most important characteristic feature of the Western Ghat Mountain and has been considered as one of the very few "biodiversity hotspots" of the World.

The Western Ghats, which forms a gorgeous mountain chain separating the Arabian Sea in the west and the eastern plain of the peninsular Indian shield, has been witnessing frequent landslides. The topography of Malnad and Coastal region is sensitive and any changes in the land use causes landslide or slope failure affecting the local population. Slope angle having $>35^\circ$ in Coastal and Malnad regions have experienced more numbers of landslides and is shown as *Figure 1*.

Landslides affect at least 13.05% of the land area of Karnataka, exceeding 25,024.9 km² which falls in the 23 taluks. From the past decade in Karnataka, the maximum numbers of landslides were occurred in Kodagu district followed by Uttara Kannada, Dakshina Kannada, Chikkamagaluru, Udupi, Shimoga, Dakshina Kannada and Hassan as shown in *Figure 2* and has caused widespread damage and many casualties, together with significant economic losses and social disruption.

During August 2018, the State experienced both flood and drought. Parts of Malnad and Coastal Karnataka were affected by floods and landslides/mudflows due to high-intensity rainfall causing damage to agriculture/horticulture/high value plantation crops, damage to public infrastructure and multiple houses and many families were rendered homeless. During August 2019, again large parts of the State were affected by floods and landslides due to high-intensity rainfall coupled with record discharge from Maharashtra State into the Dams in Upper Krishna and Bhima Basins.

During the first fortnight of August, 2021, Coastal, Malnad and parts of North Interior Karnataka experienced very heavy to exceptionally heavy rainfall. Malnad districts like Kodagu, Chikkamagaluru, Shivamogga and Hassan, which are predominantly the high rainfall regions, have recorded more than 500% of the normal rainfall. Heavy rains have also induced landslides in Ghat areas of Kodagu, Chikkamagaluru, Hassan and Dakshina Kannada districts. As many as 23 districts have been affected due to heavy rains, floods and landslides.

Landslides have been recorded for several decades in Karnataka, however the 2009 Kadwad landslide in Uttara Kannada district that has swept away 9 houses in the foothills had raised question on protection of social and economic loss that occurred. Slope modification, road cut failure, seepage along weaker zone and increase in pore pressure due to heavy rains have caused 19 numbers of casualties and huge economic losses. Economic losses due to landslides are great and apparently are growing as development locally expands into unstable hillside areas under the pressures of expanding populations. In addition to killing people and animals (both livestock and wildlife), landslides destroy

or damage residential land industrial developments as well as agricultural and forest lands and negatively affect water quality in rivers and streams.

In Malnad and Coastal districts of Karnataka, 23 taluks have experienced more landslides which is covering an area of 25,024.9 Km² is vulnerable to landslides. Households of 7.7 lakhs and population of 34.14 lakhs falls under moderate to high vulnerable zones for landslides.

In spite of improvements in recognition, prediction, mitigate measures, and warning systems, landslide activity in Karnataka is increasing and this trend is expected to continue in the coming decades. The factors causing this expected augmented activity are:

- Increased urbanization and development activities in the landslide-prone areas
- Continued deforestation of landslide-prone areas and
- Increased regional precipitation caused by changing climate patterns

Landslides can result in direct losses, i.e., loss of life, property, infrastructure and lifeline fatalities, resources, farmland, and places of cultural importance and indirect losses i.e., loss in productivity of agricultural or forest land, reduced property values, loss of revenue, increased cost, adverse effect in water quality and loss of human productivity. These direct and indirect losses due to landslides will take a long duration to attain its regular situation. For example, due to the high intensity rainfall and flood triggered landslides in Kodagu, Hassan, Dakshina Kannada and Chikkamagalur districts during 2018, 2019 and 2021 which had caused widespread damage and many casualties required a long duration to rebuild its infrastructure and roads etc., in the completely damaged regions, furthermore the滑动的 and silt deposited land is no longer suitable for agricultural practices.

7. MONITORING OF SEISMIC ACTIVITY IN THE STATE

Earthquakes are one of the most costliest natural hazards faced by the entire human & living kind, posing a significant risk. The risks that earthquakes pose to the society, including death, injury, and economic loss, can be greatly reduced by better planning, construction, and mitigation practices before earthquakes happen and providing critical and timely information to improve response after they occur.

The disastrous earthquake in Killari in the early hours of September 30, 1993 caused considerable damages especially in the districts of Bidar, Gulbarga and Bijapur. The faults, shear zones and lineaments in Karnataka are considered to be potential risk zones of the Killari type of earthquakes which also caused damages in the adjacent villages of Karnataka.

In Historical years, the earthquakes were detected from the World Wide Seismic Stations Network (WWSSN) & United States Geological Survey (USGS). However, these stations are quite distant from the Peninsular India and hence were difficult to detect earthquakes with magnitudes less than 3.0. The lower magnitude earthquakes (2.0 and below) were reported by the local communities and recorded by the BARC seismic station (specially designed array of seismometers to detect nuclear explosions) at Gauribidanur but the location of these earthquakes are incomplete and highly biased as the tremors do not occur in the vicinity of this station.

The importance of seismological studies lies in the fact that information generated can be used to mitigate the earthquake hazards. Preparation of seismotectonic/seismic zonation maps is the first step in this direction. The basic data required for the preparation of these maps are:

- (i) a carefully compiled earthquake catalogue incorporating details about magnitude, location of epicenter, depth of focus etc., (ii) delineation of seismic source zones from all possible sources like recurrence relation, tectono-geological consideration, palaeoseismicity etc.,
- (iii) Estimation of upper bound magnitude through statistical procedure, cumulative seismic energy release, active fault length etc., and (iv) Attenuation of ground shaking for better results.

Karnataka State Natural Disaster Monitoring Centre (KSNDMC) is the nodal agency in the State for monitoring of seismic activity. Scientific approaches currently adopted worldwide to enhance our resilience to the Earthquake hazard are of two types.

- The first is aimed at providing long term protection to life and property and involves estimation of the earthquake hazard in different areas of a region and its translation into engineering aspects for earthquake resistant structures and land use patterns in the area.
- The second adopted with the first is to keep a constant vigil on the evolving character of ground motion records emitted by small earthquakes from a wide area.

Taking these into considerations, KSNDMC has set up a VSAT Enabled & Solar Powered Permanent Seismic Monitoring Stations (PSMS) Network in Karnataka at 14 locations including 10 Dam sites during the year 2009-2010. The present setup of Stations established are equipped with the state-of-the-art solar powered VSAT technology which includes a Broadband Seismometer, Strong Motion Accelerograph and a Digitizer synchronised with GPS along with associated accessories and VSAT Connectivity for data transmission to the Master Control Centre (MCC) at KSNDMC, Bengaluru on real time basis.

Table 7.1: List of VSAT Enabled PSMS Network of Karnataka

| Sl. No. | District | Location of the Site |
|----------------|-----------------|--|
| 01. | Kalaburgi | Sharana Sirasagi Village-12 km from Gulbarga on Afzalpur Road |
| 02. | Raichuru | In the Permanent Observatory of KSNDMC, premises of Science Education Trust, Mantralaya Road |
| 03. | Bellary | In the Permanent Observatory of KSNDMC, premises of T. B. Dam Site |
| 04. | Vijayapura | In the existing Almatti Dam Site observatory |
| 05. | Belagavi | In the existing Hidkal Dam Site observatory |
| 06. | Uttara Kannada | In the existing Supa Dam Site observatory |
| 07. | Shivamogga | In the existing Linganmakki Dam Site observatory |
| 08. | Hassan | In the existing Hemavathi Dam Site observatory |
| 09. | Chitradurga | In the premises of Jogimatti Forest Guest House, 11 kms from Chitradurga |
| 10. | Mandy | In the Permanent Observatory of KSNDMC, premises of K.R.S. Dam site |
| 11. | Bangalore | In the premises of T.G. Halli Dam site at the existing old I.B |
| 12. | Chamarajnagar | In the premises of Gundal Dam site at the existing I.B, 15 kms from Kollegal |
| 13. | Kodagu | In the premises of Harangi Dam site at the existing Seismological Observatory, 11 kms from Kushalnagar |
| 14. | Udupi | In the Premises of Zonal Agricultural & Horticultural Research Station, Brahmavara |

Table 7.2: Earthquakes recorded & reported by VSAT Enabled PSMS Network of Karnataka during 2021

| Sl. No. | Duration | Local | Regional | Teleseismic | Total |
|--------------------------------------|-----------------|--------------|-----------------|--------------------|--------------|
| 01. | January 2021 | -Nil- | 03 | 04 | 07 |
| 02. | February 2021 | -Nil- | -Nil- | 02 | 02 |
| 03. | March 2021 | -Nil- | 01 | 02 | 03 |
| 04. | April 2021 | 01 | 01 | 02 | 04 |
| 05. | May 2021 | -Nil- | -Nil- | 01 | 01 |
| 06. | June 2021 | -Nil- | -Nil- | 01 | 01 |
| 07. | July 2021 | -Nil- | 02 | 02 | 04 |
| 08. | August 2021 | -Nil- | 01 | -Nil- | 01 |
| 09. | September 2021 | -Nil- | -Nil- | -Nil- | 00 |
| 10. | October 2021 | -Nil- | -Nil- | -Nil- | 00 |
| 11. | November 2021 | -Nil- | -Nil- | -Nil- | 00 |
| 12. | December 2021 | -Nil- | -Nil- | -Nil- | 00 |
| Total Earthquakes during 2021 | | 01 | 08 | 14 | 23 |

Table 7.3: Details of Local Earthquake recorded by the VSAT Enabled PSMS Network of Karnataka during the Year 2021

| Sl. No. | Origin Time (UTC) | Origin Time (IST) | Epicentre Region | Magnitude |
|----------------|--------------------------|--------------------------|--|------------------|
| 1. | 03:04:2021:11:48:10 | 03:04:2021:17:18:10 | Arakalgudu - K R Nagara Border Region | 2.6 |

8. ASSESSMENT OF FLOODS DURING THE YEAR 2021

In the past two decades, the State of Karnataka has been frequently confronted with various disasters such as drought, flood, hailstorm, etc, causing enormous loss and damage to life, property, crops and infrastructure.

In 2021, the State has been persistently experiencing extreme events since May 2021. Cyclone Tauktae during May, had caused damages to critical infrastructure in Coastal and parts of Malnad districts. During the South-West monsoon (June to Sep), a large part of the State experienced heavy rain resulting in floods and landslides, causing huge damages to crops, houses and critical infrastructure.

During the North-East monsoon (1st October to 21st November 2021), simultaneous cyclonic circulation and low pressures over Bay of Bengal and Arabian sea resulted in untimely incessant widespread heavy rainfall over the State, especially in the South Interior Karnataka, Malnad and Coastal region. From 1st October to 21st November 2021, the State received 307 mm as against its normal of 166 mm, recording 85 % more rainfall. 23 out of 31 districts have recorded excess to large excess rainfall.

Due to depression over the Bay of Bengal and a trough over the Arabian sea during October, the State experienced two extreme events i.e. one during 6th to 13th recorded a 110% excess rainfall and the second event during 21st to 25th October recorded 123% more than the normal rainfall.

In November 2021 due to 2 successive depressions over the Bay of Bengal and a trough in the Arabian Sea caused unprecedented and incessant rainfall over the State. The State received widespread heavy rainfall and recorded 592 % more than normal, which is the second-highest in the last 60 years. The region wise rainfall departures from normal shows that, South Interior Karnataka recorded 876 % more rain, which is highest in last 60 years. North interior Karnataka recorded 417 % more, Malnad recorded 502 % more, and the Coastal region recorded 498 % more rain, which is 2nd highest in last 60 years in all these three regions. The synoptic conditions which triggered untimely heavy rainfall leading to a flood-like situation in Karnataka.

Since 1990, there has been an increasing trend of intense cyclonic storms over Arabian Sea. As per IMD, Frequency of intense cyclones in Arabian Sea could be linked to climate change. The cyclone hitting the western shores of India- Cyclone Tauktae is the fourth cyclone in the consecutive years to have developed in the Arabian Sea. Apart from this, the cyclones in the region usually are seen post-monsoon, however, this is also the fourth cyclone to form in the pre-monsoon period and of high intensity.

During the Pre-Monsoon, under the influence of the Severe Cyclonic Strom over the Arabian sea, the parts of Coastal and Malnad districts of the State recorded extremely to very heavy rainfall accompanied with strong tidal waves and gusty winds during 15th to 16th May 2021. Significant wave height of 3.2-5.1 metres along the Karnataka Coast and surface current speeds reaching 40-50 kmph and gusting up to 60-70 kmph were recorded along and off Karnataka Coast. As a result, 125 villages of 8 Coastal, Malnad and North Interior districts have been affected at various degrees causing damage to critical infrastructure. The State has effectively managed the adverse impact of Cyclone Tauktae due to meticulous planning and preparedness and adopting best practices from Cyclone prone states like Odisha and Andhra Pradesh. Karnataka has focused on strengthening preparedness, infrastructure and institutional capability pertaining to Disaster Management.

Preparedness and action taken the State:

Dissemination: Karnataka State Natural Disaster Monitoring Center (KSNDMC) has been closely tracking the cyclogenesis right from the low pressure formation over southeast Arabian Sea. In fact, KSNDMC had alerted the districts on May 12th before the formal communication issued by IMD on the impending formation of cyclonic storm. All alerts/bulletins issued by IMC and INCOIS were disseminated to DEOCs of the Coastal and Malnad districts through phone, email, SMS, Whatsapp, local media and mobile Public Address system.

The fishermen were alerted by Indian Coast Guard in deep sea and port authorities to return to nearest harbor/port immediately and also advised not to venture into southeast Arabian Sea, Lakshadweep – Maldives areas, east central Arabian Sea along & off Karnataka coast till 18th May.

Monitoring and Supervision:

The development of the system was closely monitored by Chief Secretary, Addl. Chief Secretary to Govt, Relief Commissioner and Commissioner, KSDMA on hourly basis.

Hon'ble Revenue Minister Cum Vice Chairman and Hon'ble Home Minister reviewed the preparedness of various State Departments on 15-05-2021 in view of the Cyclonic Storm Tauktae with Officers from Revenue, Home Department, Fire and Emergencies Services and other related to departments.

Ensuring Fail-safe Communication System

- Department of Telecommunication was requested direct all the telecom and internet services providers in the Coastal and Malnad districts to ensure uninterrupted telecom and internet connectivity to enable district administrations to disseminate timely alerts and warning and to swiftly and effectively respond to any contingency arising due to heavy rainfall and squally winds as forecasted by IMD. Accordingly Internet services providers to deploy quick response teams to coastal districts to restore connectivity in case of disruption.
- In communication shadow region, existing VHF and UHF system of various agencies have been utilized to communicate.
- SEOCs and DEOCs of all Coastal and Malnad district activated.
- VSAT Communication developed under NDMS is ensured to be in serviceable conditions (SEOC and DEOC Uttara Kannada and Dakshina Kannada).
- Whatsapp Group created to dissemination of alerts and decision making.

Pre-deployment of rescue teams and other measures

- Two NDRF teams are pre-deployed to Dakshina Kannada (coastal district) and Kodagu (Malnad District) respectively.
- SDRF teams and additional Fire and Emergency teams are also deployed to Coastal and Malnad districts. In total, around 1200 rescue personnel were deployed in Coastal and Malnad region.
- GP level rescue teams have been constituted as per GP Disaster Management Plan.
- COVID 19 home isolation patients along with primary contacts residing in vulnerable areas have been identified, ambulances were arranged to ferry them to nearest COVID Care Center in case of inundation.

- Secondary source of electricity were provided to all COVID hospital to ensure uninterrupted power supply.

Relief Measures:

- No. of Relief camps based on the vulnerable population and COVID 19 social distancing protocol were identified and readied with stockpiling of relief materials. 8 Multipurpose Cyclone Shelters (MPCS) built under National Cyclone Risk Mitigation Project (NCRMP).
- Low lying area vulnerable to storm surge due to significant wave height have been identified. The people living in such areas have identified and shifted to relief camps. In total, 547 people were evacuated and housed in 16 relief camps. Social distancing as per COVID 19 protocol was ensured in relief camps. Adequate masks, sanitizers and other appropriate PPEs were provided.

Loss and damage:

Loss and damages were mainly due to squally winds and significant wave height. Sea erosion protection walls and parallel roads of 140 km including 40 Culverts and bridges have been damaged. 10 human lives have been lost and 2 persons still missing, 496 houses have been damaged; 170 boats and 187 nets have damaged severely impacting the livelihood of the fisherman; 1129 electric poles and 189 transformers have been damaged. Moreover, there were number of tree falls due gusty winds, which has damaged private properties.

The sea erosion protection wall repair is not covered under the prevailing SDRF/NDRF norms, the repair/reconstruction of which require extensive investment, which needs to borne from state fund, which puts enormous burden on already depleted State Finance. Further, there is dire need to have disaster resilient power infrastructure across the coastline given the increased frequency of cyclone originating from Arabian Sea.

District-wise Rainfall Pattern for the period 14th to 17th May 2021 is given below:

| Sl. No. | District | Cumulative Rainfall Pattern (14th to 17th May 2021) | | | |
|------------|------------------|---|----------------|----------------|-------------------|
| | | Normal (mm) | Actual (mm) | % Departure | Rainfall Category |
| 1 | Uttara Kannada | 8 | 145 | 1690 | Large Excess |
| 2 | Udupi | 19 | 178 | 844 | Large Excess |
| 3 | Dakshina Kannada | 20 | 134 | 566 | Large Excess |
| 4 | Kodagu | 19 | 104 | 446 | Large Excess |
| 5 | Shivamogga | 13 | 69 | 423 | Large Excess |
| 6 | Belagavi | 8 | 33 | 337 | Large Excess |
| 7 | Chikkamagaluru | 15 | 57 | 270 | Large Excess |
| 8 | Hassan | 16 | 25 | 54 | Excess |

During the South-West Monsoon a low pressure area has formed in Northwest Bay of Bengal on 22nd July, 2021. The surface level winds and winds at 1.5 Kms above the surface level has been so stronger off coast to Karnataka and Maharashtra as a result of low pressure formation in North Bay. These winds were

laden with high amounts of moisture from an overheated Arabian Sea. As these winds rushed towards the low pressure area with abundant moisture in it, and they encountered the high range of the Western Ghats, resulted in heavy to extreme heavy rains. Also an Off-Shore trough at mean sea level runs from South Gujarat Coast to Kerala Coast was strong.

Due to the above weather conditions associated synoptic features resulted in widespread heavy to very heavy rains with isolated places extremely heavy rains all along the Coastal, Malnad & adjoining interior Karnataka districts during the period from 21st July to 26th July, 2021.

Parts of Coastal, Malnad, and North Interior Karnataka of the State received incessant torrential rainfall during 21st to 26th July triggering landslides and floods in Uttara Kannada, Belagavi, Dharwad, Chikkamagaluru, Kodagu, Shivamogga, Hassan, Haveri, and Davanagere districts. Certain places in Uttara Kannada received 400 mm to 500 mm extremely heavy rainfall in a span of 24 hours, such extreme rainfall events are comparable to the typical rainfall dumped by tropical cyclones during landfall. Subsequently, rainfall fall, though with less intensity compared to the July 22nd rainfall, continued for 23rd and 24th July. Further, the incessant very heavy to extremely heavy rainfall in the upper Krishna catchment area of Maharashtra has generated copious inflows into the reservoirs in Upper Krishna reservoirs, filling the dams in record time. As a result, river Krishna and its tributaries in middle and lower Krishna basin were in spate causing flooding of low lying villages of Belagavi, Bagalkot, Dharwad, Haveri, Raichur, Yadgir, Vijayanagar, Vijayapura and Gadag districts. Subsequently, incessant heavy rains in Coastal and Malnad region caused flash floods in large parts of Uttara Kannada district and in parts of Shivamogga, Hassan, Chikkamagaluru and Kodagu districts. In total, 15 districts were affected.

Cumulative Rainfall (mm) Recorded during the peak rainfall period 21st to 26th July 2021:

On 23rd July 2021 Dongri Gp in Ankola Taluk of Uttara Kannada District received 541 mm highest rainfall in 24 hrs and 175 stations have recorded extreme rainfall events (more than 200 mm rainfall in 24 hrs). During the peak rainfall period 21st to 26th July 2021 Nitiru & Kairakunda stations in Shivamogga district and Itguli, Kasalrock, Manjaguni & Bandal stations in Uttara Kananda district have recorded more than 900 mm rainfall in just 6 days. These large amounts of daily rainfall would have anyway qualified as an extremely heavy rainfall event.

In the Major reservoirs Almatti and Narayanapura dams, anticipating heavy discharge considering incessant widespread heavy rainfall in the upper Krishna catchment region since third week of July 2021. The cumulative inflows form July 22nd to July 28th in 13 major reservoirs of Karnataka was about 339 TMC, which is 39% of the gross capacity of 13 reservoirs.

District wise No. of Stations Recorded >100 mm of Rainfall for the period 21st to 26th June 2021:

| Sl.No. | District | Total Raingauge Stations | No. of Stations Recorded >100 mm | Highest rainfall (mm) | Highest Rainfall (mm) Location, Taluk |
|--------|------------------|--------------------------|----------------------------------|-----------------------|---------------------------------------|
| 1 | Shivamogga | 275 | 246 | 986 | Nitiru, Hosanagara |
| 2 | Uttara Kannada | 243 | 240 | 962 | Itguli, Sirsi |
| 3 | Belagavi | 534 | 326 | 699 | Jamboti, Khanapur |
| 4 | Chikkamagaluru | 242 | 124 | 583 | Kadabinabail , NR Pura |
| 5 | Hassan | 278 | 53 | 578 | Hettur, Sakleshpura |
| 6 | Kodagu | 106 | 95 | 560 | Dundalli , Somwarpet |
| 7 | Dakshina Kannada | 241 | 239 | 459 | Navooru, Beltangadi |
| 8 | Udupi | 166 | 124 | 439 | Hebri, Karkala |
| 9 | Haveri | 215 | 70 | 362 | Sammasagi, Hanagal |
| 10 | Dharwad | 151 | 62 | 347 | Benachi, Dharwad Taluk |
| 11 | Davanagere | 211 | 72 | 287 | Chinnikatte, Honnali |

Preparedness and Response

Adequate cushion was maintained in the Major reservoirs (Almatti and Narayanapura dams), anticipating heavy discharge considering incessant widespread heavy rainfall in the upper Krishna catchment region since third week of July 2021. The cumulative inflows from July 22nd to July 28th in 13 major reservoirs of Karnataka was about 339 TMC, which is 39% of the gross capacity of 13 reservoirs. The effective coordination and planned dam water discharge have mitigated flooding in downstream to a great extent. However, record releases along with prolonged high intensity rain, had caused flooding in Krishna and its tributaries in Belagavi, Bagalkot, Gadag, Dharwad and Haveri districts. Subsequently, as the discharge from reservoirs in upper Krishna basin increased, the discharge from Almatti and Narayanapura dams were increased to 4 lakh cusecs, which lead to flooding of villages adjoining the river course in Vijayapura, Yadgir and Raichur districts.

The response of the State Government was proactive, rescue teams and search and rescue were pre-deployed for swift rescue and relief operations. Joint coordinated rescue operation involving 7 NDRF teams, 15 SDRF teams, Fire and Emergency services, Indian Coast Guard, Indian Navy and local rescue teams have evacuated 2.06 lakh people. As many as 476 relief camps have been opened which were sheltering about 135785 people ensuring strict compliance to COVID appropriate behaviour. The people in shelter were provided with food, clean drinking water, medical care and other necessary relief items. Apart from this 40 cattle camps were opened adjacent to the relief camps to shelter animals and were provided with fodder, water and medical care.

Monitoring and Command

The State Government has been proactive in taking flood preparedness. Despite second resurgence of COVID 19 cases in the State, Flood preparedness was accorded high priority. The preparation for South West monsoon started during April 2020. Series of review meetings were conducted by Hon'ble Chief Minister, Hon'ble Revenue Minister, Chief Secretary, Addl. Chief Secretary and Development Commissioner,

Principal Secretary, Revenue Department (DM) and Commissioner KSDMA with districts on flood preparedness.

Based on the lessons learnt in the past 3 years, Gram Panchayat Level Flood preparedness (micro level flood management plan) plans were formulated for around 1287 vulnerable GPs. The plans set-out Standard Operation Procedures to be followed by the concerned authorities in event of floods and responsibility matrix with accountability. The plans were activated during the flood situation.

Inter-state Coordination mechanism has been evolved with Maharashtra and Kerala Governments regarding exchange of real time inflow and outflows data from reservoirs and also forewarning downstream area prior to release of water from reservoir.

Exclusive WhatsApp groups have been created for Krishna and Cauvery basin to exchange real time information pertaining to reservoirs and decision making.

Loss and Damage Details

Around 18521 houses have been damaged; out of this about 9067 houses have been completely and or severely damaged. As per preliminary survey, agriculture and horticulture crops have been damaged in about 2.04 lakh ha and around 2444 ha fields along the river courses are heavily silted. Around 113 ha of agriculture land has been completely damaged due to landslides and change in river course. With respect to the critical infrastructure, 22725 km of various roads (SH/MDR, village roads, urban roads, etc), 1779 bridges/culverts, 3536 schools, 236 Primary Health Care Centers (PHCs), 99 Panchayat Ghars, 1331 other government buildings such as Anganwadis/community assets, 915 minor irrigation schemes, 554 minor irrigation/ZP tanks, 137 water supply and sanitation schemes, 36945 electrical poles, and 7796 transformers have been damaged. The Sector wise loss and damage report is set out in Chapter 4

The State Government has already released **Rs.100 Crore** from SDRF for immediate flood relief. To ensure the people construct structurally safe house, the State Government is providing financial assistance of Rs.5.00 lakh for reconstruction of completely damaged houses, which Rs.4.04 lakh is borne from State Fund; Rs.3.00 for houses with major damage, Rs.2.04 lakh is borne from the State Fund and Rs.50,000 per house for partially damaged house. The major portion of this is borne from the State Exchequer. **As an immediate relief Rs.10,000 in the form of Gratuitous relief is being paid to 104029 families whose clothing and utensils/household goods have been damaged due to floods/landslides, out of which Rs.6200 is borne from the State fund.** Ex-gratia of Rs.5.00 lakh has paid to the next of the kin of the victims, out of which Rs.1.00 lakh is paid for Chief Minister's Relief Fund.

The State Government vide order No. RD 336 TNR 2021, dated 11-08-2021 and 17-08-2021 has declared 86 taluks belonging to 15 districts as flood affected.

The estimated loss due to floods and landslides are to the tune of Rs.5690.52 Crore. The abstract of losses and assistance sought is as follows:

STATEMENT SHOWING AMOUNT REQUIRED FOR RELIEF, RESCUE AND EMERGENT WORKS DUE TO FLOOD DURING JULY 2021

| | | | | Rs. Crores |
|---------------------------------|--|-----------------|---------------------------|----------------------------------|
| Sl. No | Item | Quantity | Estimated Loss | As per SDRF Norms |
| 1 | Agriculture Crop loss | 1,94,656 ha | 1557.89 | 203.57 |
| 2 | Horticulture crop loss | 10076 ha | 121.24 | 13.01 |
| 3 | Desilting and Agriculture Land loss | 2557 ha | 23.52 | 3.40 |
| 4 | Animal death | 358 | 0.96 | 0.84 |
| 5 | House damage | 18719 | 367.18 | 90.76 |
| 6 | Relief camps | 476 | | 13.49 |
| 7 | Cattle Camps | 40 camps | | 1.91 |
| 7 | Other relief items | | 0.51 | 48.42 |
| Total (A) | | | 2071.30 | 375.40 |
| Damage to Infrastructure | | | | |
| 1 | Damage to Roads (a+b+c) (Kms) | 22725 | 2311.55 | 149.49 |
| | a) State Highways and MDRs (Kms) | 3283 | 1677.10 | 32.83 |
| | b) Rural Roads (Village Roads) (Kms) | 18312 | 431.72 | 109.88 |
| | c) Urban Roads (Kms) | 1130 | 202.85 | 6.78 |
| 2 | Damage to bridges (Nos) | 1779 | 527.32 | 10.67 |
| 3 | Minor Irrigation (Schemes) | 915 | 402.19 | 13.73 |
| 4 | Restoration of Damaged electrical equipments | | 148.24 | 97.41 |
| 5 | Tanks (MI and ZP) (Nos) | 554 | 35.02 | 8.31 |
| 6 | Damage to Govt. Building (Nos) | 5202 | 182.21 | 104.04 |
| 7 | Water supply and Sanitation (Nos) | 137 | 5.98 | 2.06 |
| 8 | Drinking water Supply Schemes (Nos) | 316 | 6.70 | 4.74 |
| Total (B) | | | 3619.21 | 390.44 |
| Grand Total (A+B) | | | 5690.52 | 765.84 |

During the North-East monsoon, (1st October to 21st November 2021), simultaneous cyclonic circulation and low pressures over Bay of Bengal and Arabian sea resulted in untimely incessant widespread heavy rainfall over the State, especially in the South Interior Karnataka, Malnad and Coastal region.

From 1st October to 21st November 2021, the State received 307 mm as against its normal of 166 mm, recording 85 % more rainfall. 23 out of 31 districts have recorded excess to large excess rainfall. Due to depression over the Bay of Bengal and a trough over the Arabian sea during October, the State experienced two extreme events i.e. one during 6th to 13th recorded a 110% excess rainfall and the second event during 21st to 25th October recorded 123% more than the normal rainfall.

Rainfall Pattern during 1st October to 21st November 2021

The State received 307 mm of rainfall as against normal rainfall of 166 mm, with percentage departure from normal being 85% , which is considered under Large Excess Category. The analysis of region-wise rainfall distribution during the period (1st October to 21st November 2021), shows that the distribution of rainfall was about 145 % Excess Rainfall in South Interior Karnataka (SIK), 7 % Excess Rainfall in North Interior Karnataka (NIK), 111 % Excess rainfall in Malnad and 118 % Excess rainfall in Coastal region in the state.

Region-wise Rainfall Pattern for the period 1st October to 21st November 2021 is given below:

| REGION | Normal (mm) | Actual (mm) | % Departure | Category |
|--------------------------|-------------|-------------|-------------|--------------|
| South Interior Karnataka | 181 | 443 | 145 | Large Excess |
| North Interior Karnataka | 130 | 139 | 7 | Normal |
| Malnad | 205 | 432 | 111 | Large excess |
| Coastal | 240 | 524 | 118 | Large Excess |
| State | 166 | 307 | 85 | Large Excess |

During the period 1st October to 21st November 2021, 159 Taluks in 23 Districts received Excess to Large Excess Rainfall. The District-wise Rainfall Pattern is given below:

| Sl.No. | District | Normal (mm) | Actual (mm) | % Departure | Rainfall Category |
|--------|------------------|-------------|-------------|-------------|-------------------|
| 1 | Chikkaballapura | 187 | 562 | 201 | Large Excess |
| 2 | Tumakuru | 170 | 509 | 199 | Large Excess |
| 3 | Bengaluru Rural | 192 | 518 | 170 | Large Excess |
| 4 | Kolar | 187 | 490 | 162 | Large Excess |
| 5 | Chitradurga | 142 | 345 | 143 | Large Excess |
| 6 | Udupi | 284 | 680 | 140 | Large Excess |
| 7 | Davanagere | 145 | 345 | 137 | Large Excess |
| 8 | Bengaluru Urban | 196 | 449 | 129 | Large Excess |
| 9 | Mandya | 197 | 443 | 125 | Large Excess |
| 10 | Mysuru | 193 | 434 | 125 | Large Excess |
| 11 | Chikkamagaluru | 199 | 445 | 123 | Large Excess |
| 12 | Dakshina Kannada | 347 | 765 | 121 | Large Excess |
| 13 | Shivamogga | 188 | 403 | 115 | Large Excess |
| 14 | Ramanagara | 203 | 432 | 112 | Large Excess |
| 15 | Uttara Kannada | 174 | 355 | 103 | Large Excess |
| 16 | Hassan | 202 | 407 | 101 | Large Excess |
| 17 | Kodagu | 256 | 503 | 96 | Large Excess |
| 18 | Haveri | 150 | 291 | 95 | Large Excess |
| 19 | Chamarajanagara | 223 | 402 | 80 | Large Excess |
| 20 | Dharwad | 134 | 209 | 56 | Large Excess |
| 21 | Vijayanagar | 142 | 216 | 51 | Large Excess |

| Sl.No. | District | Normal (mm) | Actual (mm) | % Departure | Rainfall Category |
|--------|----------|-------------|-------------|-------------|-------------------|
| 22 | Ballari | 148 | 219 | 48 | Large Excess |
| 23 | Belagavi | 123 | 163 | 33 | Large Excess |

Impact of heavy rains and floods:

The unprecedented incessant rainfall over the State led to over-saturation of soils and inundation of crop fields for more than a week to a month resulting in significant damages to standing crops nearing harvesting stage. Further, heavy rainfall during November 2021 also destroyed most of the late sown Kharif crops along with Rabi crops, such as Paddy, Ragi, Groundnut, Maize, Bengal gram, Cotton, Jowar, Chilli etc. Long duration cloudy situation led to pest and disease to Fruits, Vegetable and plantation crops like Tomato, Grapes, Coffee, Areca nut, Pepper etc., causing immense misery to farmers.

The record rainfall caused breaching of already full Minor Irrigation and Zilla panchayat tanks, especially in the districts of South Interior Karnataka, which further compounded the flood situation resulting in crop land being submerged for more than a week.

Further, persistent rainfall has also damaged a large number of houses and critical infrastructures such as roads, schools, and other government offices.

Preparedness:

The State Government has been proactive in taking flood preparedness. Despite COVID 19 situation, flood preparedness was also of high priority for the State. Preparation for the Southwest monsoon started during April 2021, Hon'ble Chief Minister has been periodically reviewing the operations and preparations in the State.

The Revenue Minister has regularly had flood preparedness meetings with the ACS and Development Commissioner, Principal Secretary (DM), Commissioner, KSDMA and Districts through Video Conferencing. The ACS & Development Commissioner has been conducting the Weekly Weather Watch Committee meeting, reviewing the flood preparation, and giving necessary guidance to officers concerned since May 2021. The district ministers were deputed to flood-affected districts to take stock of the situation.

The State has adopted an Integrated Dam management approach taking IMD, KSNDMC and CWC inflow forecasts, Coordination among the States in the Krishna Basin, taking carrying capacities of downstream into consideration and inputs from Districts administration, this has mitigated the adverse impact of floods to a larger extent.

For the first time, 2128 Gram Panchayats vulnerable to floods in 29 districts have been identified, and village level flood preparedness through the Grama Panchayat Disaster Management Plan has been developed. The plan comprises Grama Panchayat Profile, Hazard, Risk Vulnerability and Capacity Assessment, Mitigation and Preparedness Plan, Response Plan, Contact Numbers & SOPs, Guidelines etc. This initiative is to engage the community in flood preparedness and response.

Loss and damage details:

A comprehensive sector has been undertaken to assess loss and damages caused due to untimely heavy rains during October and November. During floods, 42 human lives were lost. While the people of the

affected districts have gone through immense hardship, the loss of shelter has a devastating effect on the affected people.

Around 20083 houses have been damaged; out of this, about 7795 houses have been completely and or severely damaged. About 7.9 lakh ha of agriculture crops, 1.25 lakh ha of horticulture crops, 0.75 lakh ha of plantation crops and 243 ha of Sericulture crops have been damaged due to heavy rainfall. In total, crop damage of around 9.9 lakh ha of crops has been reported. Besides, 417 ha of agricultural land are heavily silted, with some areas suffering significant land loss. The crop loss due to flood is estimated at Rs. 8962.02 Crore. The crop loss reported are mutually exclusive from that reported in the Memorandum submitted in August 2021, hence, there is no duplication of crop loss whatsoever. Critical infrastructure, such as roads, bridges/culverts, electrical infrastructure, schools, hospitals and Anganwadis/Government buildings, has been affected. 19366 km of State Highway, Major district, village & urban roads; 1258 bridges/culverts, 7204 poles, 1008 Power supply Transformers upto 11KV, 446 Kms Power supply Lines, 439 Minor Irrigation and Tanks, 977 water Supply Schemes and 7711 Government buildings. The overall estimated damage of Rs. 11916.30 crore and as per SDRF norms stands at Rs. 1281.92 Crore. The quantum of loss and damages in the prescribed formats are set out in Chapter III.

Relief:

The State Government is committed to constructing disaster-resilient houses and reconstructing damaged critical infrastructure under the principle of "build back better". The State Government will take up medium and long term structural measures, using State Disaster Mitigation Fund and National Disaster Mitigation Fund to mitigate the adverse effects of floods. The State Government has immediately started disbursement of input subsidy for the crop loss directly to the farmers' bank account through Aadhar enable payment system. For house damage, the State Government is providing financial assistance of Rs.5.00 lakh for the reconstruction of completely damaged houses, out of which Rs.4.04 lakh is borne from State Fund; Rs. 3 lakh for houses with major damage, Rs. 2.04 lakh is borne from the State Fund and Rs. 50,000 per house for partially damaged house ensuring the construction of disaster-resilient houses. As an immediate relief, Rs. 10,000 in the form of Gratuitous relief is being paid to families whose clothing and utensils/household goods have been damaged due to rains, out of which Rs.6200 is borne from the State fund. To this effect, the State Government has released Rs. 418 Crore from SDRF and State fund vide order No. RD 335 TNR 2021, dated 23-11-2021.

The State has already made significant expenditure towards COVID 19 containment measures and payments of ex-gratia to the kith and kin of Covid-19 victims. The State has released Rs. 200 Crore for payment of ex-gratia for COVID 19 victims.

The abstract of losses and assistance sought from NDRF is as follows:

**STATEMENT SHOWING AMOUNT REQUIRED FOR RELIEF, RESCUE AND
EMERGENT WORKS DUE TO FLOOD DURING OCTOBER & NOVEMBER 2021**

Rs. Crores

| Sl. No. | Item | Quantity | Estimated Loss | As per SDRF Norms |
|---------------------------------|--|-----------------|---------------------------|----------------------------------|
| 1 | Agriculture Crop loss (in Ha) | 789563 | 6207.25 | 619.22 |
| 2 | Horticulture crop loss (in Ha) | 125442 | 1348.01 | 143.69 |
| 3 | Plantation Crop loss (in Ha) | 74530 | 1401.90 | 89.53 |
| 4 | Desilting and Agriculture Land loss (in Ha) | 417 | 3.75 | 0.51 |
| 5 | Sericulture Crops (in Ha) | 243 | 4.86 | 0.12 |
| 6 | Animal death | 376 | 2.63 | 0.51 |
| 7 | House damage | 20083 | 316.71 | 79.36 |
| 8 | Relief camps | 20 | | 0.11 |
| 9 | Other relief items | | 0.19 | 2.80 |
| Total (A) | | | 9285.31 | 935.87 |
| Damage to Infrastructure | | | | |
| 1 | Damage to Roads (a+b+c) (Kms) | 19366 | 1785.54 | 147.23 |
| | a) State Highways and MDRs (Kms) | 7757 | 1450.12 | 77.57 |
| | b) Rural Roads (Village Roads) (Kms) | 9820 | 218.69 | 58.92 |
| | c) Urban Roads (Kms) | 1789 | 116.73 | 10.74 |
| 2 | Damage to bridges (Nos) | 1258 | 282.64 | 7.55 |
| 3 | Minor Irrigation (Schemes) | 685 | 221.13 | 10.28 |
| 4 | Restoration of Damaged electrical equipments | | 17.06 | 15.19 |
| 5 | Tanks (MI and ZP) (Nos) | 439 | 18.81 | 6.59 |
| 6 | Damage to Govt Building (nos) | 7711 | 280.58 | 154.22 |
| 7 | Water supply and Sanitation (nos) | 42 | 3.14 | 0.63 |
| 8 | Drinking water Supply Schemes (nos) | 292 | 22.09 | 4.38 |
| Total (B) | | | 2630.99 | 346.06 |
| Grand Total (A+B) | | | 11916.30 | 1281.92 |

9. ASSESSMENT OF DROUGHT DURING THE YEAR 2021

- Karnataka State has been subjected to drought condition during successive years in the past. During **Kharif** season 2021 rainfall was normal by (-8%) and **Rabi** season was **Large Excess** by 88% subsequently, **70** Taluks were being identified as ≥ 3 consecutive weeks of dry spells in both seasons.
- During 2021, the rainfall was normal in the pre-monsoon season and subsequently the onset of monsoon over Karnataka got delayed by 3 days.
- During **June 2021**, the State as a whole received **198** mm of rainfall against the normal rainfall of **199** mm with (-) **1 %** departure from Normal.
- During **July 2021**, the State received **290** mm of rainfall against the normal rainfall of **271** mm with (+) **7 %** departure from Normal.
- During **August 2021**, the State received **150** mm of rainfall against the normal rainfall of **220** mm with (-) **32 %** departure from Normal.
- During **September 2021**, the State received **149** mm of rainfall against the normal rainfall of **161** mm with (-) **7 %** departure from Normal.
- Overall, from **1st June to 30th September 2020**, the state as a whole received **787** mm of rainfall against the normal rainfall of **852** mm with (-) **7%** departure from Normal.
- Following the Guidelines prescribed in the Drought Management Manual 2016 and amendments thereafter by GoI, the State has been assessed for the drought condition at taluka level.

***Though, None of the taluks are not qualified has drought affected in the year 2021.**

10. GROUND WATER STATUS

Introduction:

Monitoring of ground water levels was carried out at 1479 ground water monitoring wells in the State of Karnataka during the month of November 2021. Among the wells monitored, 1317 are dug wells and 215 are piezometers/tube wells. The district-wise status of number of wells monitored, added/rejuvenated and deleted is presented in **Annexure-I**. The depth to water level data and piezometric surface of ground water monitoring wells for November 2021 is given in **Annexure-II**.

The district-wise frequency of water level in different depth ranges for dug wells are given in **Annexure-III**. The data indicated that the water level in the major part of the State is within 10 m bgl, whereas the deepest levels are around 30 m bgl. The district wise frequency of piezometric surface for different depth range for piezometers is given in **Annexure-IV**. The district-wise rise and fall of water level between November 2020 and November 2021 is analysed and is given in **Annexure-V**. The long-term changes in levels between decadal mean (2011-2020) and November 2021 are given in **Annexure-VI**.

DEPTH TO WATER LEVEL:

The statement showing the distribution of ground water monitoring wells along with depth to water level of phreatic aquifer in different depth ranges is presented in **Annexure-III** and **Plate-I** depict the ground water scenario in November 2021. Salient features of the depth to water level scenario during November 2020 are given below.

1. A perusal of the water level data reveals that the depth to water level ranged from 0.01 m bgl (Belgaum and Davanagere districts) to 26.58 m bgl (Bagalkot district).
2. The salient feature of the analysis is that the depth to water level over major part of the State lies within 10 m bgl in 96% of wells analysed, while 4 % of wells show depth to water level more than 10 m bgl. Depth to water level of less than 2 m bgl has been recorded in 39 % of wells analysed and noted all over the State.
3. Depth to water level in the range of 2 to 5 m bgl has been recorded in 35% of wells analysed and noted in all the districts.
4. Depth to water level in the range of 5 to 10 m bgl has been recorded in 22 % of wells analysed and noted in all the districts.
5. Depth to water level in the range of 10 to 20 mbgl has been recorded in 3.9% of the wells analysed and observed in Bangalore Rural, Bangalore Urban, Belguam, Bellary, Bidar, Chamarajanagar,

Chikmagalur, Chitradurga, Dakshin Kannada, Davanagere, Dharwad, Gadag, Hassan, Kodagu, Koppal, Mysore, Tumkur and Uttara Kannada districts.

6. Depth to water level more than 20 m bgl has been noted in 0.1 % of wells analysed and noted as isolated pockets in Bagalkot district.

DEPTH TO PIEZOMETRIC SURFACE

Depth to piezometric surface has been recorded from piezometers spread all over the State in hard rock areas. The statement showing depth to piezometric surface is given in **Annexure-IV**. Salient features of the depth to piezometric surface during November 2021 are given below;

1. The depth to piezometric surface ranged from 0.2 m bgl (Raichur district) to 79.89 m bgl (Kolar District) in Karnataka.
2. 61 % of wells have recorded depth to piezometric surface within 10 m bgl and 39 % of wells show depth to piezometric surface more than 10 m bgl.
3. Depth to piezometric surface of less than 2 m bgl has been recorded in 13 % of wells analysed and this has been noted in the districts of Bangalore Urban, Bangalore Rural, Belgaum, Bijapur, Chikmagalur, Davanagere, Gulbarga, Mandya, Mysore, Raichur, Shimoga, Tumkur and Uttara Kannada districts.
4. Depth to piezometric surface in the range of 2 to 5 m bgl has been recorded in 24 % of wells analysed and noted in Bangalore Rural, Bangalore Urban, Belgaum, Bellary, Bidar, Bijapur, Chikmagalur, Chitradurga, Dakshin Kannada, Davanagere, Gulbarga, Kodagu, Kolar, Koppal, Mysore, Raichur, Shimoga and Uttara Kannada districts.
5. Depth to piezometric surface in the range of 5 to 10 m bgl has been recorded in 23 % of wells analysed and noted in Bangalore Rural, Bangalore Urban, Belgaum, Bellary, Bijapur, Chikmagalur, Chitradurga, Dakshin Kannada, Davanagere, Gulbarga, Kodagu, Kolar, Koppal, Mysore, Raichur and Uttara Kannada districts.
6. Depth to piezometric surface in the range of 10 to 20 m bgl has been observed in 26 % of wells analysed and noted in Bagalkote, Bangalore Rural, Bangalore Urban, Belgaum, Bidar, Bijapur, Chamarajanagar, Chitradurga, Dakshin Kannada, Davanagere, Dharwad, Gulbarga, Hassan, Kodagu, Kolar, Mandya, Mysore, Udupi and Uttara Kannada districts.
7. Depth to piezometric surface in the range of 20 to 40 m bgl has been noted in 12 % of wells analysed and noticed in the districts viz. Bangalore Rural, Bangalore Urban, Bellary, Chamarajanagar, Kolar, Mandya and Tumkur districts.
8. Depth to piezometric surface in the range of more than 40 m bgl has been noted in 2 % of wells analysed and is observed as isolated patches in Kolar and Tumkur districts.

CHANGE IN WATER LEVEL (NOVEMBER 2020 TO NOVEMBER 2021)

The statement showing the distribution of ground water monitoring wells falling in different ranges of fluctuation is presented in **Annexure-V**. A comparison of water level shows that a rise in the water level is recorded in 67 % of wells analysed, while 33 % recorded fall. The fluctuation in water level has been plotted in **Plate II**. A perusal of the plate shows that a general rise in the range of 0 – 2 m is noticed in major part of the area.

1. Rise in the water level in the range of 0-2 m has been observed in 53 % of wells analysed and observed in all over the State.
2. Rise in the water level in the range of 2-4 m has been observed in 10 % of wells analysed and noted in all districts except in Bagalkote, Belgaum, Bellary and Dharwad districts.
3. Rise in water level more than 4 m has been observed in 5 % of wells analysed and noted in all districts except Bellary, Bidar, Bijapur, Davanagere, Gulbarga, Kolar and Raichur districts.
4. The fall in water level in the range of 0-2 m has been observed in 26 % of wells analysed and noted in all the districts.
5. The fall in water level in the range of 2-4 m has been observed in 4 % of wells analysed and noted as isolated pockets in Bagalkote, Belgaum, Bijapur, Chitradurga, Davanagere, Gadag, Gulbarga, Hassan, Kodagu, Koppal, Mandya, Mysore, Raichur, Shimoga and Udupi.
6. The fall in water level more than 4 m has been observed in 2 % of wells analysed and noted as isolated pockets in Bangalore Rural, Bangalore Urban, Belgaum, Bijapur, Chamrajnagar, Chikmagalur, Dakshin Kannada, Davanagere, Dharwad, Gadag, Gulbarga, Hassan, Koppal, Mysore and Uttara Kannada.

MEAN WATER LEVELS FOR THE PERIOD NOV. 2011 - 2020 & NOV. 2021:

The statement showing the distribution of ground water monitoring wells falling in different ranges of fluctuation is presented in **Annexure-VI**. The fluctuation in water level has been plotted in **Plate III**. A comparison of water level shows that a rise in the water level is recorded in 85 % of wells analysed, while 15 % recorded fall. Salient features of the comparison of water levels are given below.

1. Rise in the water level in the range of 0-2 m has been observed in 56 % of wells analysed, noted all over the State.
2. Rise in the water level more than 2-4 m has been observed in 20 % of wells analysed and noted in all over the State.
3. Rise in the water level more than 4 m has been observed in 9 % of wells analysed and noted in all over the State except Chamrajnagar, Dakshina Kannada and Udupi districts.
4. The fall in water level in the range of 0-2 m has been observed in 12 % of wells analysed and noted in all over the State except Bidar, Gadag and Kolar districts.

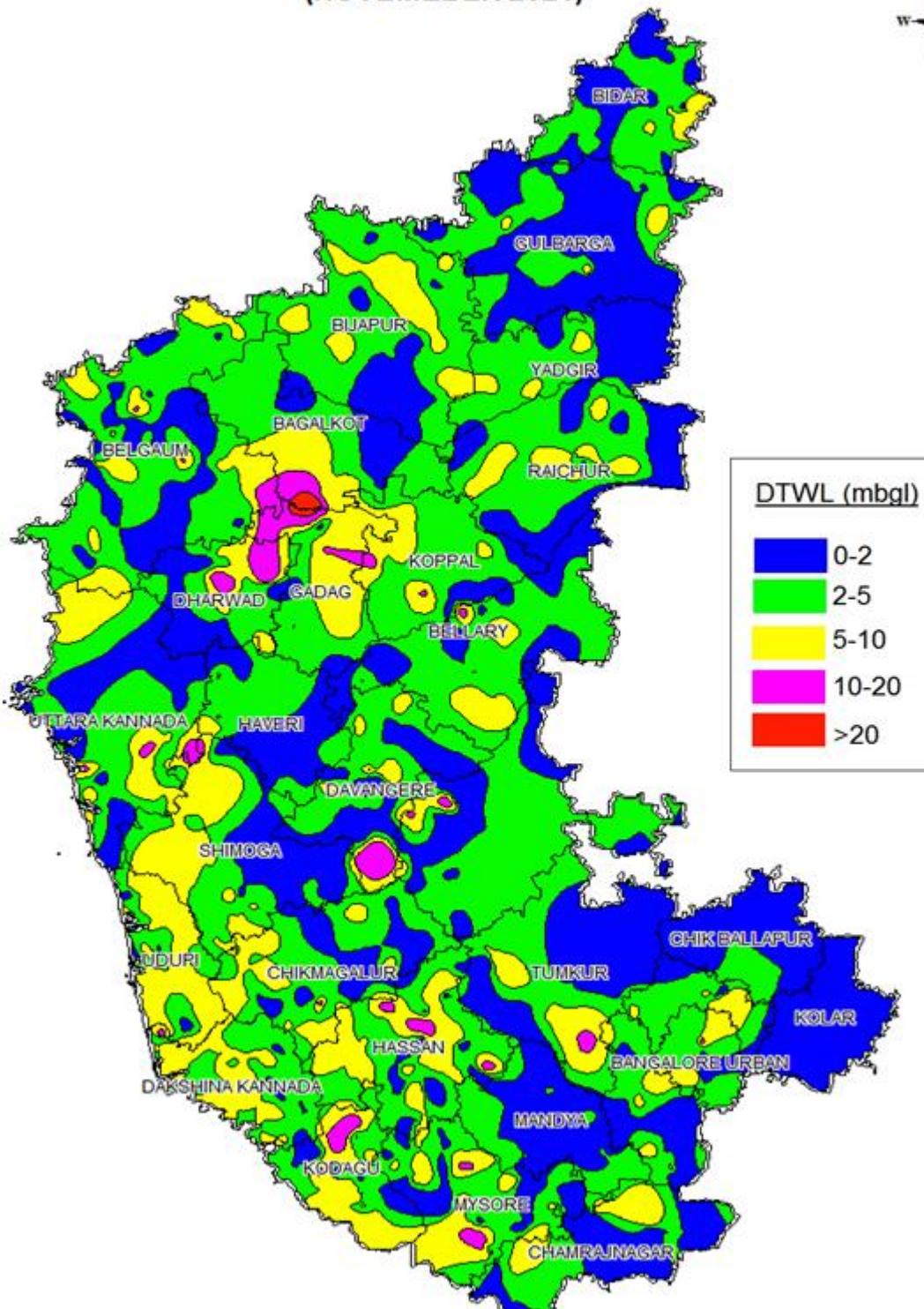
5. The fall in water level in the range of 2-4 m has been observed in 2 % of wells analysed and noted in Bangalore Urban, Belguam, Bidar, Chamrajnagar, Chitradurga, Dharwad, Gadag, Haveri, Kolar, Udupi and Uttara Kannada districts.
6. The fall in water level more than 4 m has been observed in 1 % of wells analysed and noted in Bangalore Rural, Bangalore Urban, Belgaum, Bellary, Chamrajnagar, Chikmagalur, Davanagere, Gadag, Mysore and Raichur districts.

CONCLUSIONS

The behavior of ground water table during November 2021 in Karnataka state has been studied by monitoring the dug wells and bore/tube wells. The data on water levels was analysed in detail and salient features are as under.

1. Depth to water level over major part of the State covering is within 10 m bgl in nearly 96% of wells analysed, while 3.9 % of wells show depth to water level between 10 to 20 m bgl and 0.1% of wells analysed show depth to water level more than 20 m bgl.
2. 61% of wells have recorded depth to piezometric surface within 10 m bgl, while 26 % of wells show depth to piezometric surface between 10 to 20 m bgl, 12 % of wells show depth to piezometric surface between 20 to 40 m bgl and 2 % more than 40 m bgl.
3. 67 % of wells have recorded rise in water levels and 33 % of wells have recorded fall in water levels during November 2021 in comparison to November 2020.
4. 85 % of wells have recorded rise in water levels and 15 % of wells recorded fall in water levels during November 2021 in comparison to decadal mean.

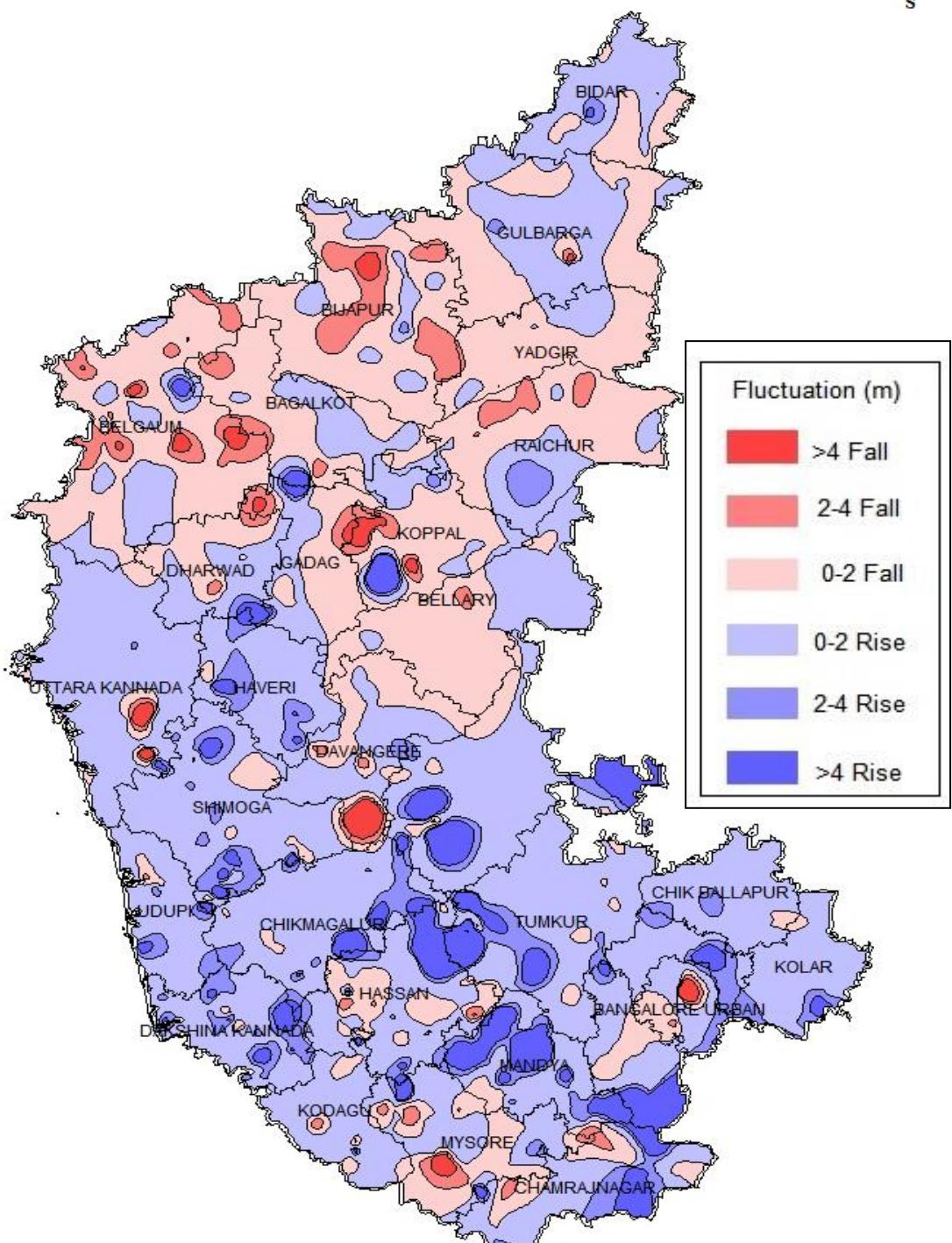
**CENTRAL GROUND WATER BOARD, SWR, BANGALORE
DEPTH TO WATER LEVEL
(NOVEMBER 2021)**



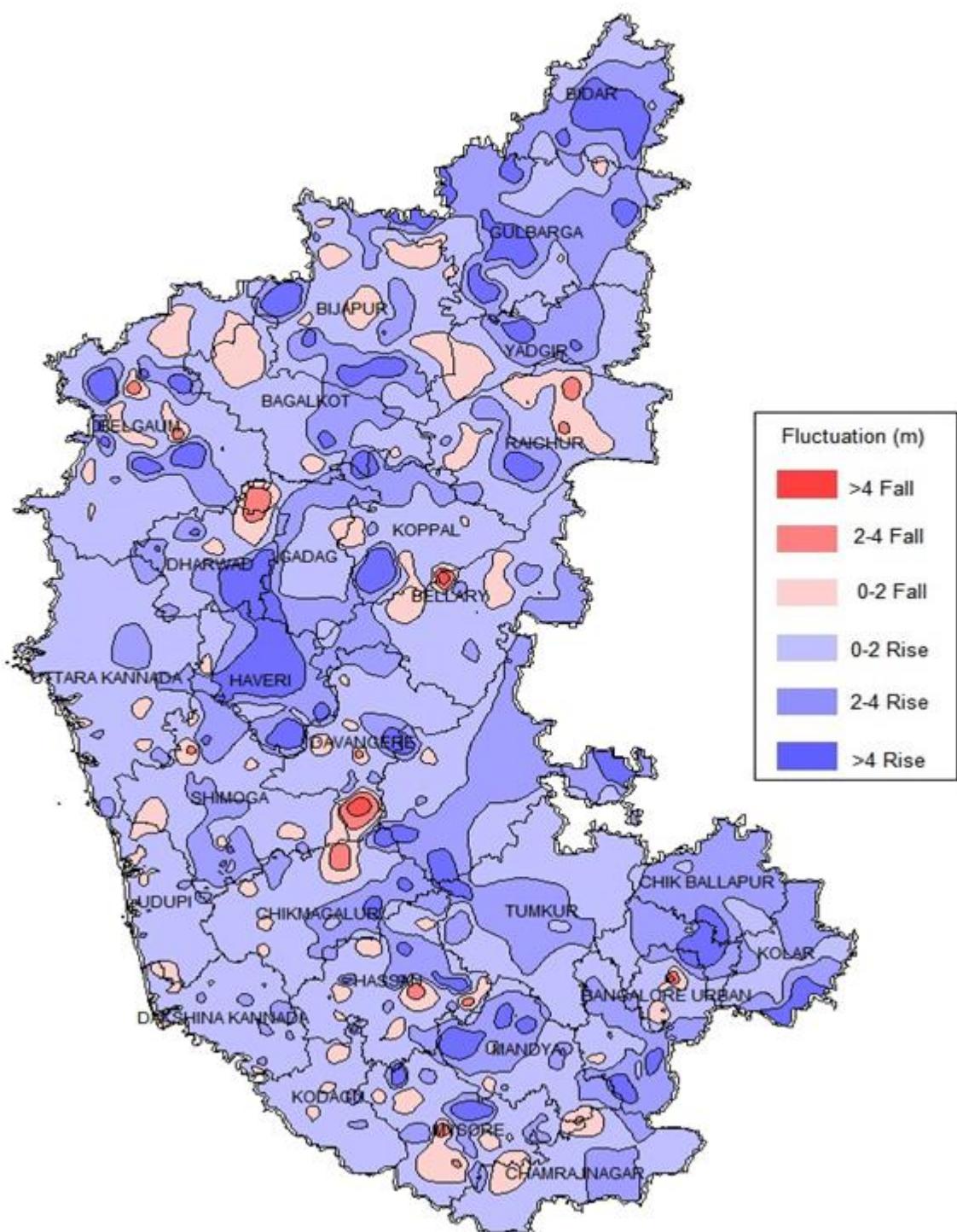
DTWL (mbgl)

- 0-2
- 2-5
- 5-10
- 10-20
- >20

CENTRAL GROUND WATER BOARD, SWR, BANGALORE
WATER LEVEL FLUCTUATION
(November 2020 to November 2021)



CENTRAL GROUND WATER BOARD, SWR, BANGALORE
WATER LEVEL FLUCTUATION
(DECADAL MEAN 2011-2020 to NOVEMBER 2021)



ANNEXURE-III DEPTH TO WATER LEVEL (NOVEMEBER 2021)

2.1

Depth to Water Table
Distribution of Percentage of Observation Wells

2021/Nov

State : Karnataka

| District | No. of Wells Analysed | Depth to Water Table (mbgl) | | No. / Percentage of Wells Showing Depth to Water Table (mbgl) in the Range of | | | | | | |
|-----------------|-----------------------|-----------------------------|-------|---|-----------|------------|-------------|-------------|--------|--|
| | | Min | Max | 0.0 - 2.0 | 2.0 - 5.0 | 5.0 - 10.0 | 10.0 - 20.0 | 20.0 - 40.0 | > 40.0 | |
| Bagalkot | 24 | 0.65 | 26.58 | 3 | 17 | 3 | 0 | 1 | 0 | |
| Bangalore Rural | 36 | 0.31 | 14.44 | 16 | 12 | 7 | 1 | 0 | 0 | |
| Bangalore Urban | 20 | 0.05 | 13.60 | 9 | 9 | 1 | 1 | 0 | 0 | |
| Belgaum | 80 | 0.01 | 10.91 | 26 | 35 | 15 | 4 | 0 | 0 | |
| Bellary | 31 | 0.70 | 11.30 | 12 | 13 | 5 | 1 | 0 | 0 | |
| Bidar | 36 | 0.02 | 10.75 | 19 | 10 | 6 | 1 | 0 | 0 | |
| Bijapur | 59 | 0.75 | 9.05 | 17 | 25 | 17 | 0 | 0 | 0 | |
| Chamarajanagar | 20 | 0.01 | 18.20 | 10 | 5 | 3 | 2 | 0 | 0 | |
| Chikmagalur | 70 | 0.25 | 12.40 | 24 | 25 | 20 | 1 | 0 | 0 | |
| Chitradurga | 32 | 0.02 | 14.65 | 16 | 10 | 3 | 3 | 0 | 0 | |
| Dakshin Kannada | 91 | 0.55 | 12.18 | 12 | 40 | 36 | 3 | 0 | 0 | |

| | | | | | | | | | |
|------------|----|------|-------|----|----|----|---|---|---|
| Davanagere | 52 | 0.01 | 19.93 | 34 | 9 | 6 | 3 | 0 | 0 |
| Dharwad | 24 | 0.45 | 16.15 | 9 | 6 | 7 | 2 | 0 | 0 |
| Gadag | 19 | 1.42 | 15.17 | 3 | 9 | 4 | 3 | 0 | 0 |
| Gulbarga | 82 | 0.03 | 7.10 | 44 | 32 | 6 | 0 | 0 | 0 |
| Hassan | 68 | 0.32 | 12.25 | 24 | 16 | 25 | 3 | 0 | 0 |
| Haveri | 25 | 0.26 | 6.84 | 16 | 6 | 3 | 0 | 0 | 0 |
| Kodagu | 65 | 0.76 | 13.70 | 12 | 19 | 27 | 7 | 0 | 0 |
| Kolar | 32 | 0.03 | 6.67 | 29 | 2 | 1 | 0 | 0 | 0 |
| Koppal | 29 | 1.00 | 10.65 | 6 | 16 | 5 | 2 | 0 | 0 |
| Mandya | 48 | 0.05 | 4.94 | 35 | 13 | 0 | 0 | 0 | 0 |
| Mysore | 57 | 0.05 | 12.95 | 25 | 19 | 10 | 3 | 0 | 0 |
| Raichur | 46 | 0.45 | 7.90 | 16 | 19 | 11 | 0 | 0 | 0 |
| Shimoga | 74 | 0.33 | 9.90 | 27 | 28 | 19 | 0 | 0 | 0 |
| Tumkur | 41 | 0.07 | 10.68 | 27 | 9 | 4 | 1 | 0 | 0 |
| Udupi | 60 | 0.22 | 9.65 | 9 | 24 | 27 | 0 | 0 | 0 |

| | | | | | | | | | |
|----------------|------|------|-------|--------------|--------------|--------------|-------------|---|---|
| Uttara Kannada | 69 | 0.41 | 15.63 | 22 31.88% | 26 37.68% | 16 23.19% | 5 7.25 % | 0 | 0 |
| Total | 1290 | 0.01 | 26.58 | 502 | 454 | 287 | 46 | 1 | 0 |

ANNEXURE-IV DEPTH TO PIEZOMETRIC SURFACE (NOVEMBER 2021)

Depth to Water Table
Distribution of Percentage of Observation Wells
 2021/Nov

State : Karnataka

| District | No. of Wells Analysed | Depth to Water Table (mbgl) | | No. / Percentage of Wells Showing Depth to Water Table (mbgl) in the Range of | | | | | | | |
|-----------------|-----------------------|-----------------------------|-------|---|--------------|-------------|---------------|-------------|--------|---|---|
| | | Min | Max | 0.0 - 2.0 | 2.0 - 5.0 | 5.0 - 10.0 | 10.0 - 20.0 | 20.0 - 40.0 | > 40.0 | | |
| Bagalkot | 1 | 13.40 | 13.40 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Bangalore Rural | 11 | 1.54 | 28.06 | 1 9.09% | 3 27.27% | 2 18.18% | 2 18.18 % | 3 27.27% | 0 | 0 | 0 |
| Bangalore Urban | 17 | 1.10 | 29.50 | 3 17.65% | 1 5.88% | 4 23.53% | 7 41.18 % | 2 11.76% | 0 | 0 | 0 |
| Belgaum | 13 | 0.46 | 7.64 | 1 7.69% | 11 84.62% | 1 7.69% | 0 | 0 | 0 | 0 | 0 |
| Bellary | 9 | 0.30 | 37.54 | 2 22.22% | 1 11.11% | 3 33.33% | 0 | 3 33.33% | 0 | 0 | 0 |
| Bidar | 3 | 12.36 | 14.50 | 0 | 0 | 0 | 3 100.00 % | 0 | 0 | 0 | 0 |
| Bijapur | 10 | 1.65 | 15.22 | 1 10.00% | 6 60.00% | 2 20.00% | 1 10.00 % | 0 | 0 | 0 | 0 |
| Chamarajanagar | 5 | 5.46 | 39.23 | 0 | 0 | 2 40.00% | 2 40.00 % | 1 20.00% | 0 | 0 | 0 |
| Chikmagalur | 5 | 1.45 | 7.33 | 2 40.00% | 1 20.00% | 2 40.00% | 0 | 0 | 0 | 0 | 0 |
| Chitradurga | 9 | 4.30 | 18.90 | 0 | 1 11.11% | 4 44.44% | 4 44.44 % | 0 | 0 | 0 | 0 |
| Dakshin Kannada | 8 | 2.75 | 14.25 | 0 | 3 37.50% | 1 12.50% | 4 50.00 % | 0 | 0 | 0 | 0 |

| | | | | | | | | | |
|----------------|----|-------|-------|-------------|--------------|--------------|---------------|--------------|-------------|
| Davanagere | 7 | 0.79 | 11.27 | 2 28.57% | 4 57.14% | 0 | 1 14.29 % | 0 | 0 |
| Dharwad | 1 | 10.10 | 10.10 | 0 | 0 | 0 | 1 100.00 % | 0 | 0 |
| Gulbarga | 11 | 0.23 | 14.76 | 4 36.36% | 3 27.27% | 3 27.27% | 1 9.09 % | 0 | 0 |
| Hassan | 4 | 9.73 | 15.50 | 0 | 0 | 2 50.00% | 2 50.00 % | 0 | 0 |
| Haveri | 2 | 5.36 | 8.72 | 0 | 0 | 2 100.00% | 0 | 0 | 0 |
| Kodagu | 4 | 4.04 | 19.90 | 0 | 1 25.00% | 0 | 3 75.00 % | 0 | 0 |
| Kolar | 15 | 2.38 | 79.89 | 0 | 4 26.67% | 2 13.33% | 5 33.33 % | 3 20.00% | 1 6.67% |
| Koppal | 3 | 4.07 | 4.37 | 0 | 3 100.00% | 0 | 0 | 0 | 0 |
| Mandya | 5 | 0.85 | 39.41 | 2 40.00% | 0 | 1 20.00% | 1 20.00 % | 1 20.00% | 0 |
| Mysore | 10 | 1.33 | 17.19 | 2 20.00% | 1 10.00% | 4 40.00% | 3 30.00 % | 0 | 0 |
| Raichur | 6 | 0.20 | 5.02 | 2 33.33% | 3 50.00% | 1 16.67% | 0 | 0 | 0 |
| Shimoga | 2 | 1.70 | 8.48 | 1 50.00% | 0 | 1 50.00% | 0 | 0 | 0 |
| Tumkur | 27 | 0.50 | 49.55 | 1 3.70% | 0 | 5 18.52% | 8 29.63 % | 10 37.04% | 3 11.18% |
| Udupi | 2 | 6.44 | 10.30 | 0 | 0 | 1 50.00% | 1 50.00 % | 0 | 0 |
| Uttara Kannada | 5 | 1.73 | 8.15 | 2 40.00% | 2 40.00% | 1 20.00% | 0 | 0 | 0 |

| | | | | | | | | | |
|-------|-----|------|-------|----|----|----|----|----|---|
| Total | 195 | 0.20 | 79.89 | 26 | 48 | 44 | 50 | 23 | 4 |
|-------|-----|------|-------|----|----|----|----|----|---|

ANNEXURE-5 DISTRICT WISE CATEGORISATION OF WATER LEVEL FLUCTUATION (NOV 2020-NOV 2021)

District Wise - Fluctuation and Frequency Distribution From Different Ranges from One Period to Other

From Year: 2020/Nov - To Year: 2021/Nov

State : Karnataka

| District Name | No. of Wells | Range of Fluctuation (m) | | | | No. of Wells/Percentage Showing Fluctuation | | | | | | Total No. of Wells | |
|-----------------|--------------|--------------------------|-------|------|-------|---|--------------|-------------|--------------|--------------|------------|--------------------|------|
| | | Rise | | Fall | | Rise | | | Fall | | | Rise | Fall |
| | | Min | Max | Min | Max | 0 to 2 | 2 to 4 | >4 | 0 to 2 | 2 to 4 | >4 | | |
| Bagalkot | 24 | 0.01 | 5.92 | 0.24 | 3.45 | 9 37.50% | 0 | 1 4.17% | 11 45.83% | 3 12.50% | 0 | 10 | 14 |
| Bangalore Rural | 32 | 0.15 | 15.00 | 0.04 | 6.16 | 18 56.25% | 3 9.38 % | 5 15.63% | 5 15.63% | 0 | 1 3.13% | 26 | 6 |
| Bangalore Urban | 19 | 0.19 | 6.25 | 0.20 | 11.82 | 9 47.37% | 3 15.79 % | 1 5.26% | 5 26.32% | 0 | 1 5.26% | 13 | 6 |
| Belgaum | 74 | 0.02 | 4.09 | 0.02 | 6.65 | 16 21.62% | 0 | 1 1.33% | 43 58.11% | 7 9.46% | 6 8.13% | 17 | 56 |
| Bellary | 27 | 0.10 | 1.20 | 0.05 | 1.58 | 13 48.15% | 0 | 0 | 14 51.85% | 0 | 0 | 13 | 14 |
| Bidar | 30 | 0.06 | 3.23 | 0.05 | 1.90 | 17 56.67% | 2 6.67 % | 0 | 10 33.33% | 0 | 0 | 19 | 10 |
| Bijapur | 56 | 0.15 | 2.67 | 0.05 | 6.33 | 10 17.86% | 1 1.79 % | 0 | 30 53.57% | 13 23.21% | 1 1.73% | 11 | 44 |
| Chamarajanagar | 19 | 0.02 | 4.07 | 0.17 | 9.73 | 7 36.84% | 3 15.79 % | 1 5.26% | 6 31.58% | 0 | 1 5.26% | 11 | 7 |
| Chikmagalur | 69 | 0.02 | 10.10 | 0.10 | 4.40 | 49 71.01% | 9 13.04 % | 5 7.23% | 5 7.23% | 0 | 1 1.45% | 63 | 6 |

| | | | | | | | | | | | | | |
|-----------------|----|------|-------|------|-------|--------------|---------------|-------------|--------------|------------|-------------|----|----|
| Chitradurga | 30 | 0.09 | 9.10 | 0.19 | 2.60 | 18 60.00% | 4 13.33 % | 2 6.67% | 4 13.33% | 1 3.33% | 0 | 24 | 5 |
| Dakshin Kannada | 90 | 0.04 | 5.30 | 0.35 | 7.10 | 64 71.11% | 17 18.89 % | 3 3.33% | 5 5.56% | 0 | 1 1.1% | 84 | 6 |
| Davanagere | 49 | 0.05 | 2.10 | 0.10 | 11.95 | 31 63.27% | 1 2.04 % | 0 | 13 26.53% | 2 4.08% | 2 4.08% | 32 | 17 |
| Dharwad | 21 | 0.31 | 4.93 | 0.02 | 5.95 | 9 42.86% | 0 | 1 4.76% | 10 47.62% | 0 | 1 4.76% | 10 | 11 |
| Gadag | 16 | 0.10 | 8.30 | 0.16 | 4.49 | 7 43.75% | 1 6.25 % | 1 6.25% | 5 31.25% | 1 6.25% | 1 6.25% | 9 | 7 |
| Gulbarga | 65 | 0.02 | 3.59 | 0.01 | 5.95 | 21 32.31% | 2 3.08 % | 0 | 39 60.00% | 1 1.54% | 1 1.54% | 23 | 41 |
| Hassan | 66 | 0.02 | 8.21 | 0.05 | 4.28 | 31 46.97% | 6 9.09 % | 5 7.58% | 19 28.79% | 2 3.03% | 1 1.52% | 42 | 22 |
| Haveri | 20 | 0.84 | 5.55 | 1.60 | 1.60 | 13 65.00% | 5 25.00 % | 1 5.00% | 1 5.00% | 0 | 0 | 19 | 1 |
| Kodagu | 61 | 0.05 | 5.34 | 0.01 | 3.62 | 45 73.77% | 4 6.56 % | 1 1.64% | 9 14.75% | 2 3.28% | 0 | 50 | 11 |
| Kolar | 32 | 0.10 | 3.39 | 0.01 | 0.47 | 21 65.63% | 4 12.50 % | 0 | 7 21.88% | 0 | 0 | 25 | 7 |
| Koppal | 28 | 0.06 | 12.38 | 0.04 | 6.30 | 6 21.43% | 1 3.57 % | 1 3.57% | 12 42.86% | 1 3.57% | 3 10.74% | 8 | 16 |
| Mandya | 45 | 0.08 | 12.40 | 0.02 | 3.12 | 25 55.56% | 7 15.56 % | 9 20.00% | 3 6.67% | 1 2.22% | 0 | 41 | 4 |

| | | | | | | | | | | | | | |
|----------------|------|------|-------|------|-------|--------------|---------------|------------|--------------|-------------|------------|-----|-----|
| Mysore | 56 | 0.03 | 14.77 | 0.11 | 6.68 | 32 57.14% | 9 16.07 % | 3 5.36% | 7 12.50% | 4 7.14% | 1 1.7% | 44 | 12 |
| Raichur | 45 | 0.05 | 3.00 | 0.05 | 3.40 | 15 33.33% | 1 2.22 % | 0 | 20 44.44% | 8 17.78% | 0 | 16 | 28 |
| Shimoga | 67 | 0.09 | 5.20 | 0.02 | 2.15 | 37 55.22% | 17 25.37 % | 5 7.40% | 5 7.46% | 1 1.49% | 0 | 59 | 6 |
| Tumkur | 36 | 0.03 | 23.02 | 0.06 | 0.60 | 19 52.78% | 6 16.67 % | 3 8.33% | 8 22.22% | 0 | 0 | 28 | 8 |
| Udupi | 54 | 0.23 | 4.40 | 0.41 | 2.30 | 41 75.93% | 6 11.11 % | 1 1.83% | 5 9.26% | 1 1.85% | 0 | 48 | 6 |
| Uttara Kannada | 64 | 0.07 | 7.04 | 0.06 | 9.90 | 49 76.56% | 5 7.81 % | 1 1.56% | 5 7.81% | 0 | 2 3.13% | 55 | 7 |
| Total | 1195 | 0.84 | 1.20 | 0.01 | 11.95 | 632 | 117 | 51 | 306 | 48 | 24 | 800 | 378 |

ANNEXURE-6 DISTRICT WISE CATEGORISATION OF WATER LEVEL FLUCTUATION (DECadal MEAN 2011-2020 & NOV 2021)

2.1

District Wise - Fluctuation of Water Level with Mean and Selected Period

10 Years Mean (2011 Nov - 2020 Nov) - 2021/Nov

State : Karnataka

| District Name | No. of Wells | Range of Fluctuation | | | | No. of Wells/Percentage Showing Fluctuation | | | | | | Total No. of Wells | |
|-----------------|--------------|----------------------|-------|----------|-------|---|--------------|--------------|--------------|-------------|------------|--------------------|------|
| | | Rise (m) | | Fall (m) | | Rise (m) | | | Fall (m) | | | Rise | Fall |
| | | Min | Max | Min | Max | 0 to 2 | 2 to 4 | >4 | 0 to 2 | 2 to 4 | >4 | | |
| Bagalkot | 24 | 0.36 | 5.74 | 0.01 | 2.27 | 13 54.17 % | 1 4.17% | 3 12.50% | 6 25.00% | 1 4.17 % | 0 | 17 | 7 |
| Bangalore Rural | 36 | 0.32 | 8.42 | 0.53 | 6.59 | 12 33.33 % | 14 38.89% | 7 19.44% | 1 2.78% | 1 2.78 % | 1 2.78% | 33 | 3 |
| Bangalore Urban | 20 | 0.42 | 4.52 | 0.07 | 11.72 | 13 65.00 % | 2 10.00% | 1 5.00% | 3 15.00% | 0 | 1 5.00% | 16 | 4 |
| Belgaum | 80 | 0.01 | 14.05 | 0.02 | 5.43 | 44 55.00 % | 8 10.00% | 10 12.50% | 16 20.00% | 0 | 2 2.50% | 62 | 18 |
| Bellary | 31 | 0.02 | 5.99 | 0.01 | 9.60 | 16 51.61 % | 6 19.35% | 2 6.45% | 4 12.90% | 1 3.23 % | 2 6.45% | 24 | 7 |
| Bidar | 34 | 0.30 | 6.39 | - | - | 12 35.29 % | 14 41.18% | 8 23.53% | 0 | 0 | 0 | 34 | 0 |
| Bijapur | 59 | 0.03 | 7.52 | 0.06 | 2.29 | 27 45.76 % | 11 18.64% | 7 11.86% | 13 22.03% | 1 1.69 % | 0 | 45 | 14 |
| Chamarajanagar | 20 | 0.02 | 3.37 | 1.42 | 5.40 | 14 70.00 % | 4 20.00% | 0 | 1 5.00% | 0 | 1 5.00% | 18 | 2 |

Central Ground Water Board

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| | | | | | | | | | | | | | |
|-----------------|----|------|-------|------|------|---------------|--------------|--------------|--------------|-------------|------------|----|----|
| Chikmagalur | 70 | 0.04 | 8.18 | 0.01 | 4.51 | 47 67.14 % | 13 18.57% | 5 7.14% | 3 4.29% | 1 1.43 % | 1 1.43% | 65 | 5 |
| Chitradurga | 32 | 0.12 | 7.30 | 1.02 | 1.81 | 14 43.75 % | 8 25.00% | 6 18.75% | 4 12.50% | 0 | 0 | 28 | 4 |
| Dakshin Kannada | 91 | 0.02 | 3.38 | 0.05 | 3.29 | 58 63.74 % | 13 14.29% | 0 | 19 20.88% | 1 1.10 % | 0 | 71 | 20 |
| Davanagere | 52 | 0.07 | 4.51 | 0.00 | 9.12 | 33 63.46 % | 8 15.38% | 1 1.92% | 7 13.46% | 1 1.92 % | 2 3.85% | 42 | 10 |
| Dharwad | 24 | 0.11 | 14.78 | 0.02 | 0.72 | 11 45.83 % | 6 25.00% | 5 20.83% | 2 8.33% | 0 | 0 | 22 | 2 |
| Gadag | 19 | 0.45 | 9.48 | 4.88 | 4.88 | 7 36.84 % | 8 42.11% | 3 15.79% | 0 | 0 | 1 5.26% | 18 | 1 |
| Gulbarga | 79 | 0.03 | 7.96 | 0.19 | 2.18 | 30 37.97 % | 24 30.38% | 17 21.52% | 7 8.86% | 1 1.27 % | 0 | 71 | 8 |
| Hassan | 69 | 0.01 | 11.54 | 0.26 | 3.79 | 39 56.52 % | 9 13.04% | 9 13.04% | 8 11.59% | 4 5.80 % | 0 | 57 | 12 |
| Haveri | 25 | 0.42 | 10.02 | 1.64 | 1.64 | 11 44.00 % | 7 28.00% | 6 24.00% | 1 4.00% | 0 | 0 | 24 | 1 |
| Kodagu | 65 | 0.01 | 7.09 | 0.17 | 2.33 | 47 72.31 % | 5 7.69% | 3 4.62% | 9 13.85% | 1 1.54 % | 0 | 55 | 10 |

| Kolar | 32 | 0.18 | 5.69 | - | - | 17 53.13 % | 12 37.50% | 3 9.38% | 0 | 0 | 0 | 32 | 0 |
|----------------|-------------|-------------|-------------|-------------|--------------|---------------|--------------|-------------|--------------|-------------|------------|-------------|------------|
| Koppal | 29 | .00 | 13.07 | 0.02 | 2.18 | 16 55.17 % | 5 17.24% | 2 6.90% | 5 17.24% | 1 3.45 % | 0 | 23 | 6 |
| Mandya | 49 | 0.19 | 11.41 | 0.46 | 2.65 | 28 57.14 % | 12 24.49% | 7 14.29% | 1 2.04% | 1 2.04 % | 0 | 47 | 2 |
| Mysore | 57 | 0.07 | 14.22 | 0.12 | 4.38 | 29 50.88 % | 10 17.54% | 7 12.28% | 9 15.79% | 1 1.75 % | 1 1.75% | 46 | 11 |
| Raichur | 46 | 0.02 | 5.69 | 0.09 | 4.22 | 26 56.52 % | 7 15.22% | 1 2.17% | 9 19.57% | 2 4.35 % | 1 2.17% | 34 | 12 |
| Shimoga | 74 | 0.01 | 4.94 | 0.09 | 2.83 | 38 51.35 % | 24 32.43% | 5 6.76% | 5 6.76% | 2 2.70 % | 0 | 67 | 7 |
| Tumkur | 41 | 0.07 | 6.36 | 0.11 | 3.40 | 25 60.98 % | 12 29.27% | 2 4.88% | 1 2.44% | 1 2.44 % | 0 | 39 | 2 |
| Udupi | 60 | 0.04 | 3.97 | 0.04 | 0.86 | 44 73.33 % | 4 6.67% | 0 | 12 20.00% | 0 | 0 | 48 | 12 |
| Uttara Kannada | 69 | 0.01 | 7.85 | 0.09 | 1.78 | 47 68.12 % | 10 14.49% | 1 1.45% | 11 15.94% | 0 | 0 | 58 | 11 |
| Total | 1287 | 3.37 | 0.45 | 0.00 | 11.72 | 718 | 257 | 121 | 157 | 21 | 13 | 1096 | 191 |