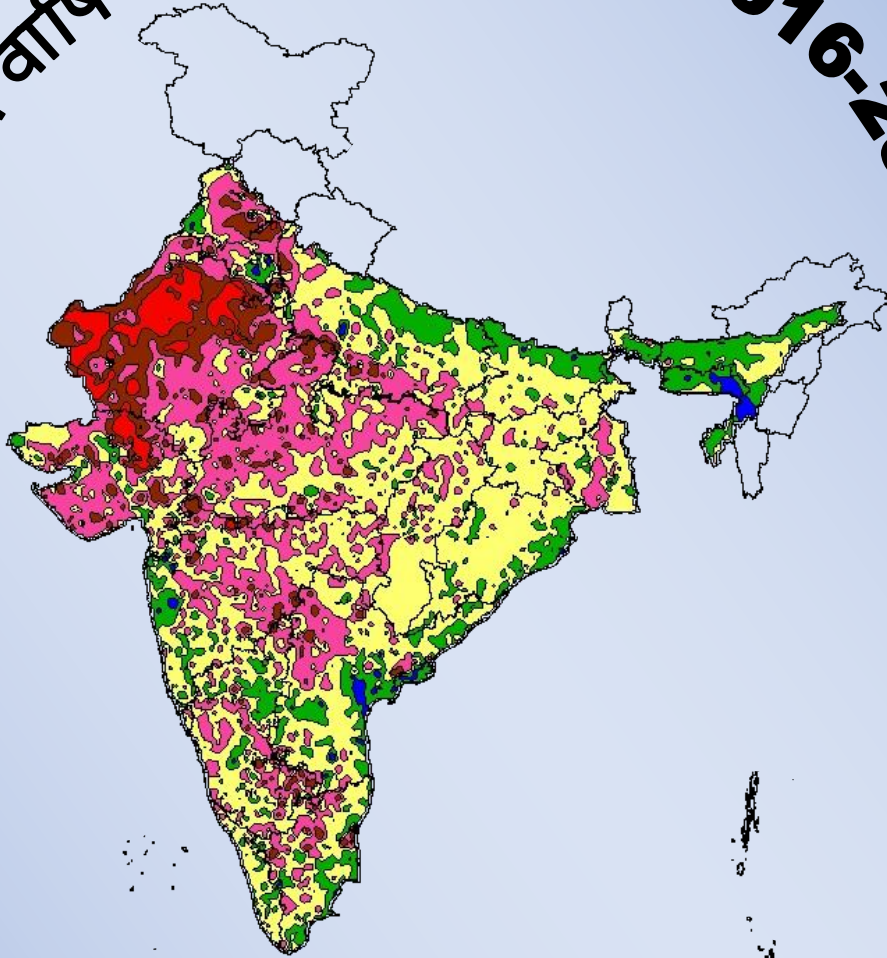




Ground Water Year Book - India 2016-17

भू-जल वार्षिक पत्रिका, भारत वर्ष 2016-2017



Central Ground Water Board

केन्द्रीय भू-जल बोर्ड

**Ministry of Water Resources, River Development and
Ganga Rejuvenation**

जल संसाधन, नदी विकास और गंगा संरक्षण मंत्रालय

Government of India

भारत सरकार

Faridabad

फ़रीदाबाद

वार्षिकी

Year Book

2016-17

Central Ground Water Board

केन्द्रीय भू-जल बोर्ड

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GROUND WATER YEAR BOOK- INDIA 2016-17

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1. HYDROGEOLOGICAL SETUP OF THE COUNTRY

1.1 GROUND WATER OCCURRENCE

The ground water behavior in the Indian sub-continent is highly complicated due to the occurrence of diversified geological formations with considerable lithological and chronological variations, complex tectonic framework, climatological dissimilarities and various hydrochemical conditions. Studies carried out over the years have revealed that aquifer groups in alluvial / soft rocks even transcend the surface basin boundaries. Broadly two groups of rock formations have been identified depending on characteristically different hydraulics of ground water, Viz. Porous Formations and Fissured Formations.

1.1.1 POROUS FORMATION

Porous formations have been further subdivided into Unconsolidated and Semi-consolidated formations.

UNCONSOLIDATED FORMATIONS

The areas covered by alluvial sediments of river basins, coastal and deltaic tracts constitute the unconsolidated formations. These are by far the most significant ground water reservoirs for large scale and extensive development. The hydrogeological environment and ground water regime in the Indo-Ganga-Brahmaputra basin indicate the existence of potential aquifers having enormous fresh ground water reserve. Bestowed with high incidence of rainfall and covered by a thick pile of porous sediments, these ground water reservoirs get replenished every year and are being used heavily. In these areas, in addition to the Annual Replenishable Ground Water Resources available in the zone of water level fluctuation (Dynamic Ground Water Resource), there exists a huge ground water reserve in the deeper passive recharge zone below the zone of fluctuation as well as in the deeper confined aquifers which remains largely unexplored as yet. Although the mode of development of ground water is primarily through dug wells, dug cum bore well and cavity wells, thousands of tube wells have been constructed during last few decades.

SEMI-CONSOLIDATED FORMATIONS

The semi-consolidated formations normally occur in narrow valleys or structurally faulted basins. The Gondwanas, Lathis, Tipams, Cuddalore sandstones and their equivalents are the most extensive productive aquifers in this category. Under favorable situations, these formations give rise to free flowing wells. In selected tracts of northeastern India, these water-bearing formations are quite productive. The Upper Gondwanas, which are generally arenaceous, in general, constitute prolific aquifers.

1.1.2 FISSURED FORMATIONS (CONSOLIDATED FORMATIONS)

The consolidated formations occupy almost two-thirds of the country. These formations, except vesicular volcanic rocks have negligible primary porosity. From the hydrogeological point of view, fissured rocks are broadly classified into four types viz. Igneous and metamorphic rocks (excluding volcanic and carbonate rocks), volcanic rocks, consolidated sedimentary rocks and Carbonate rocks.

IGNEOUS AND METAMORPHIC ROCKS EXCLUDING VOLCANIC AND CARBONATE ROCKS

The most common rock types under this category are granites, gneisses, charnockites, khondalites, quartzites, schists and associated phyllites, slates, etc. These rocks possess negligible primary porosity but attain porosity and permeability due to fracturing and weathering.

Ground water yield also depends on the rock type and grade of metamorphism. Generally, the granites, Khondalites and biotite gneisses have better yield potential as compared to charnockites.

VOLCANIC ROCKS

The predominant types of volcanic rocks are the basaltic lava flows of Deccan Plateau. The highly variable water bearing properties of different flow units control ground water occurrence in Deccan Traps. The Deccan Traps have usually poor to moderate permeability depending on the presence of primary and secondary fractures.

CONSOLIDATED SEDIMENTARY ROCKS EXCLUDING CARBONATE ROCKS

Consolidated sedimentary rocks occur in Cuddapahs, Vindhyan and their equivalents. The formations consist of conglomerates, sandstones, shales. The presence of bedding planes, joints, contact zones and fractures controls the ground water occurrence, movement and yield potential.

CARBONATE ROCKS

Limestones in the Cuddapah, Vindhyan and Bijawar group of rocks dominates the carbonate rocks other than marbles and dolomites. In carbonate rocks, the circulation of water creates solution cavities thereby increasing the permeability of the aquifers. The solution activity leads to widely contrasting permeabilities within short distances.

1.2 HYDROGEOLOGICAL UNITS AND THEIR GROUND WATER POTENTIAL

Hydrogeological map of India is depicted in Plate-I and the geographical distribution of hydrogeological units along with their Ground water potential is given in Table 1.

TABLE 1: AQUIFER SYSTEM IN THE COUNTRY

System	Coverage	Ground water potential
Unconsolidated formations - alluvial	Indo-Gangetic, Brahmaputra plains	Enormous reserves down to 600 m depth. High rain fall and hence recharge is ensured. Can support large-scale development through deep tube wells
	Coastal Areas	Reasonably extensive aquifers but risk of saline water intrusion
	Part of Desert area – Rajasthan and Gujarat	Scanty rainfall. Negligible recharge. Salinity hazards. Ground water Availability at great depths.
Consolidated/semi-consolidated formations - sedimentaries, basalts and crystalline rocks	Peninsular Areas	Availability depends on secondary porosity developed due to weathering, fracturing etc. Scope for GW availability at shallow depths (20-40 m) in some areas and deeper depths (100-200 m) in other areas. Varying yields.
Hilly	Hilly states	Low storage capacity due to quick runoff

Hydrogeological Map of India



Legend

Ground Water Potential (Yield Litres/sec)

>40 25-40 10-25 <10

1-25 1-10 1-5

<1

Unconsolidated Formations

Consolidated /Semi-Consolidated Formations

Hilly Areas

2.0 GROUND WATER LEVEL SCENARIO

2.1 INTRODUCTION

Ground Water Year Book is prepared annually by CGWB depicting changes in ground water regime of the country through different seasons. It is an effort to obtain information on ground water levels through representative monitoring wells. The important attributes of ground water regime monitoring are ground water level.

The natural conditions affecting the regime involve climatic parameters like rainfall, evapotranspiration etc., whereas anthropogenic influences include pumpage from the aquifer, recharge due to irrigation systems and other practices like waste disposal etc.

Ground water levels are being measured by Central Ground Water Board four times a year during January, March/April/ May, August and November. The regime monitoring started in the year 1969 by Central Ground Water Board. A network of 23125 observation wells, as on 31.03.2017, located all over the country is being monitored. Ground water samples are collected from these observation wells once a year during the month of March/April/ May to obtain background information of ground water quality changes on regional scale. The database thus generated forms the basis for planning the ground water development and management programmes. The ground water level and quality monitoring is of particular importance in coastal as well inland saline environment to assess the changes in salt water/fresh water interface as also the gradual quality changes in the fresh ground water regime. This data is used for assessment of ground water resources and changes in the regime consequent to various development and management activities.

The premonsoon water level data is collected from all the monitoring stations during the months of March/ April/ May, depending on the climatological conditions of the region. For North eastern states premonsoon data is collected during March, since the onset of monsoon is normally observed in April. Similarly for Orissa, West Bengal and Kerala where monsoon appears early in May the monitoring is carried out during the month of April. For remaining states premonsoon monitoring month is May. Water levels during August are monitored to access the impact of monsoon on the ground water resources. Post monsoon data collected during November reflects the cumulative effect of ground water recharge and withdrawal of ground water for various purposes. January water level data indicates the effect of withdrawal for rabi crops.

The data is analyzed to know about the frequency distribution of water levels during different periods and seasonal, annual and decadal fluctuations in water levels. The water level and water level fluctuation maps are prepared for each monitoring period to study the spatial and temporal changes in ground water regime.

The State/UT-wise distribution of the ground water observation wells is given in table- 2 and depicted in Plate II.

Location of Ground Water Monitoring Wells

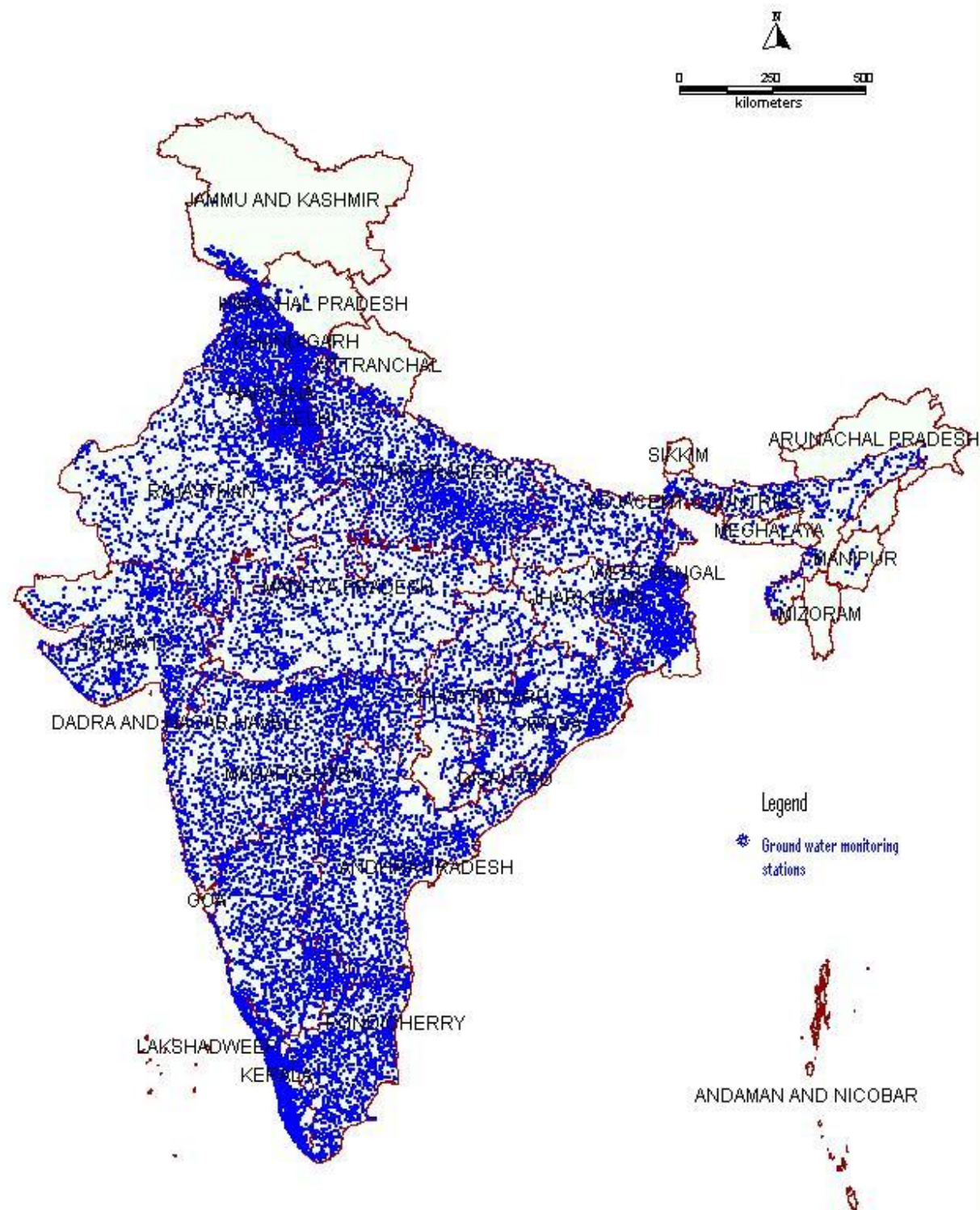


TABLE-2
STATE/UT -WISE STATUS OF GROUND WATER MONITORING WELLS

Status of Ground Water Monitoring Stations (March 2017)				
SI No	Name of the State/UTs	Number of Ground Water Monitoring Stations		
		DW	PZ	Total
1	Andhra Pradesh	742	113	855
2	Arunachal Pradesh	30	0	30
3	Assam	422	39	461
4	Bihar	715	33	748
5	Chhattisgarh	1054	268	1322
6	Delhi	24	103	127
7	Goa	102	49	151
8	Gujarat	844	404	1248
9	Haryana	527	661	1188
10	Himachal Pradesh	128	0	128
11	Jammu & Kashmir	266	11	277
12	Jharkhand	453	22	475
13	Karnataka	1490	383	1873
14	Kerala	1402	266	1668
15	Madhya Pradesh	1204	325	1529
16	Maharashtra	1641	192	1833
17	Manipur	0	0	0
18	Meghalaya	68	12	80

19	Nagaland	22	12	34
20	Odisha	1606	89	1695
21	Punjab	170	794	964
22	Rajasthan	724	446	1170
23	Tamil Nadu	847	531	1378
24	Telangana	344	445	789
25	Tripura	69	8	77
26	Uttar Pradesh	804	247	1051
27	Uttarakhand	41	126	167
28	West Bengal	813	805	1618
1	Andaman & Nicobar	110	2	112
2	Chandigarh	1	24	25
3	Dadra & Nagar Haveli	16	0	16
4	Daman & Diu	14	5	19
5	Pondicherry	10	7	17
TOTAL		16703	6422	23125

2.2 DEPTH TO WATER LEVEL

DEPTH TO WATER LEVEL – PRE MONSOON 2016

The ground water level data for Premonsoon 2016 indicate that out of the total 15856 wells analysed, 680 (4 %) wells are showing water level less than 2 m bgl (metres below ground level), 3634 (23%) wells are showing water level in the depth range of 2-5 m bgl, 6360 (40 %) wells are showing water level in the depth range of 5-10 m bgl, 3821 (24%) wells are showing water level in the depth range of 10-20 m bgl, 1072(7%) wells are showing water level in the depth range of 20-40 m bgl and the remaining 289 (2%) wells are showing water level more than 40 m bgl. The distribution of number of wells under different depth ranges is presented in the histogram and statistical distribution is given in **Annexure-I**. The maximum depth to water level of 153.0 m bgl is observed in Ahmednagar district of Maharashtra whereas the minimum is less than 1 m bgl.

The depth to water level map of Premonsoon 2016 (**Plate IV**) for the country indicates that the general depth to water level of the country ranges from 2 to 20 m bgl. To be more specific, in major parts of the country, water level is observed to be in the range of 5 to 10 m. Very shallow water level of less than 2 m bgl is also observed locally, in isolated pockets, in few states, such as Assam, Andhra Pradesh, Himachal Pradesh and Gujarat. In major parts of north-western and western states, depth to water level is generally deeper and ranges from about 10- 40 m bgl. In parts Delhi and Rajasthan, water level of more than 40 m bgl is also recorded. The peninsular part of country recorded a water level in the range of 10 to 20 m bgl. The maximum depth to water level of 153.00 m bgl is observed in Ahmednagar district, Maharashtra whereas the minimum is less than 1 m bgl, seen in various states.

DEPTH TO WATER LEVEL – AUGUST 2016

The ground water level data for August 2016 indicate that out of the total 14890 wells analysed, 4296 (29 %) wells are showing water level less than 2 m bgl (metres below ground level), 4967(33%) wells are showing water level in the depth range of 2-5 m bgl, 3437 (23 %) wells are showing water level in the depth range of 5-10 m bgl, 1506 (10%) wells are showing water level in the depth range of 10-20 m bgl, 480 (3%) wells are showing water level in the depth range of 20-40 m bgl and the remaining 204 (1 %) wells are showing water level more than 40 m bgl, (**Annexure-II**). The maximum depth to water level of 120.46 m bgl is observed in Rajasthan whereas the minimum is less than 1 m bgl.

The depth to water level map of August 2016 (**Plate V**) for the country indicates that in general depth to water level ranges from 0 to 5 m bgl as observed at about more than 60% of the monitoring stations. Sub-Himalayan area, Uttar Pradesh, Bihar, Odisha, Chhattisgarh and Madhya Pradesh generally the depth to water level varies from 2-5 meter below ground level. Shallow water level of less than 2 m bgl is observed in the states of Assam, Chhattisgarh, Maharashtra,

Orissa, Madhya Pradesh, Rajasthan, West Bengal and Uttar Pradesh, mostly in isolated pockets. In the states of Andhra Pradesh, Maharashtra, Karnataka, Telangana, Tamil Nadu, Kerala, north western part of Uttar Pradesh and West Bengal water level generally varies from 5 to 10 m bgl with small patches showing depth to water level between 2 to 5 m bgl.

In major parts of north-western states depth to water level generally ranges from 10-40 m bgl. In the western parts of the country deeper water level is recorded in the depth range of 20-40 m bgl and more than 40 m bgl. In some parts of Delhi and Rajasthan water level of more than 40 m bgl is recorded. Along the eastern & western coast water level is generally less than 10 m. Central part of West Bengal state recorded water level in the range of 10-20 m bgl. The peninsular part of country generally recorded a water level in the range of 5 to 20 m bgl depth range.

DEPTH TO WATER LEVEL – POST MONSOON 2016

The ground water level data for November 2016 indicates that out of the total 15566 wells analysed, 2622(17 %) wells are showing water level less than 2 m bgl (metres below ground level), 5933(38%) wells are showing water level in the depth range of 2-5 m bgl, 4175 (27 %) wells are showing water level in the depth range of 5-10 m bgl, 1898 (12%) wells are showing water level in the depth range of 10-20 m bgl, 718(5%) wells are showing water level in the depth range of 20-40 m bgl and the remaining 220 (1 %) wells are showing water level more than 40 m bgl. The maximum depth to water level of 122.00 m bgl is observed in Bikaner district of Rajasthan whereas the minimum is less than 1 m bgl.(Annexure III).

Perusal of depth to water level data of November 2016 (Plate VI) indicates that in general depth to water level ranges from 2 to 10 m bgl as observed at about 65% of the monitoring stations. In the states of Uttar Pradesh, Bihar, Odisha, Chhatisgarh, Assam, Jharkhand, West Bengal and Maharashtra, generally the depth to water level varies from 2-5 meter below ground level. Shallow water level of less than 2 m bgl is observed in the states of Assam, Odisha, Andhra Pradesh, Maharashtra, Rajasthan and Uttar Pradesh and isolated pockets in Chhatisgarh, Jharkhand and Madhya Pradesh. In major parts of north-western states depth to water level generally ranges from 10-40 m bgl. In the western parts of the country deeper water level is recorded in the depth range of 20-40 m bgl and more than 40 m bgl. In some parts of Haryana, and Delhi and almost major parts of Rajasthan, water level of more than 40 m bgl is recorded. Along the eastern & western coast water level is generally upto 10 mbgl. Central part of West Bengal recorded water level in the range of 5-20 m bgl. In Central India water level generally varies between 2 m bgl to 10 m bgl, except in isolated pockets where water level more than 10 m bgl has been observed.

DEPTH TO WATER LEVEL – JANUARY 2017

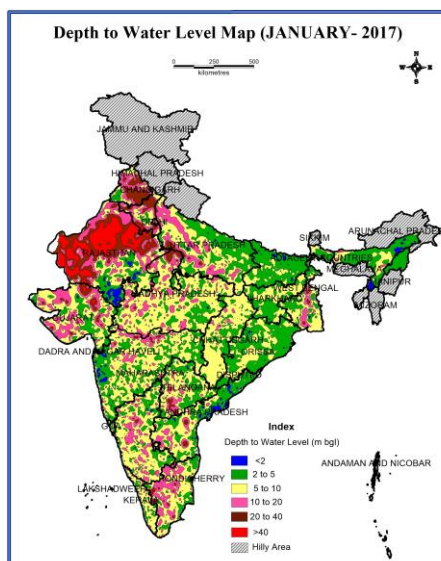
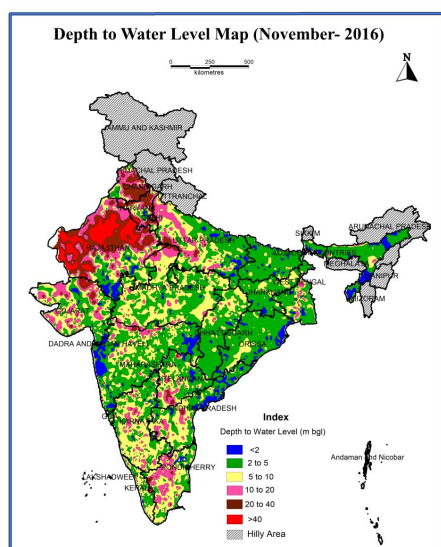
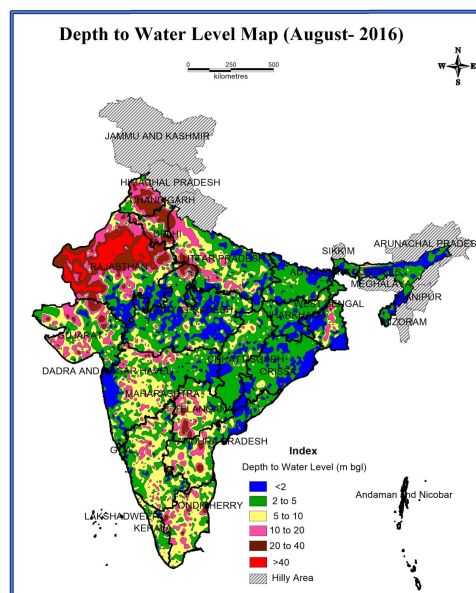
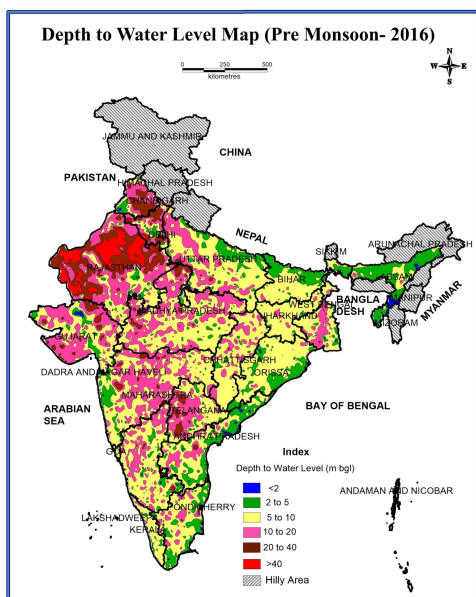
The ground water level data for January 2016 indicate that out of the total 15576 wells analysed, 1267 (8 %) wells are showing water level less than 2 m bgl (metres below ground level), 5411

(35%) wells are showing water level in the depth range of 2-5 m bgl, 5393 (35 %) wells are showing water level in the depth range of 5-10 m bgl, 2407 (15%) wells are showing water level in the depth range of 10-20 m bgl, 813 (5%) wells are showing water level in the depth range of 20-40 m bgl and the remaining 285 (2 %) wells are showing water level more than 40 m bgl. The maximum depth to water level of 122.10 m bgl is observed in Bikaner district of Rajasthan whereas the minimum is less than 1 m bgl. (Annexure IV)

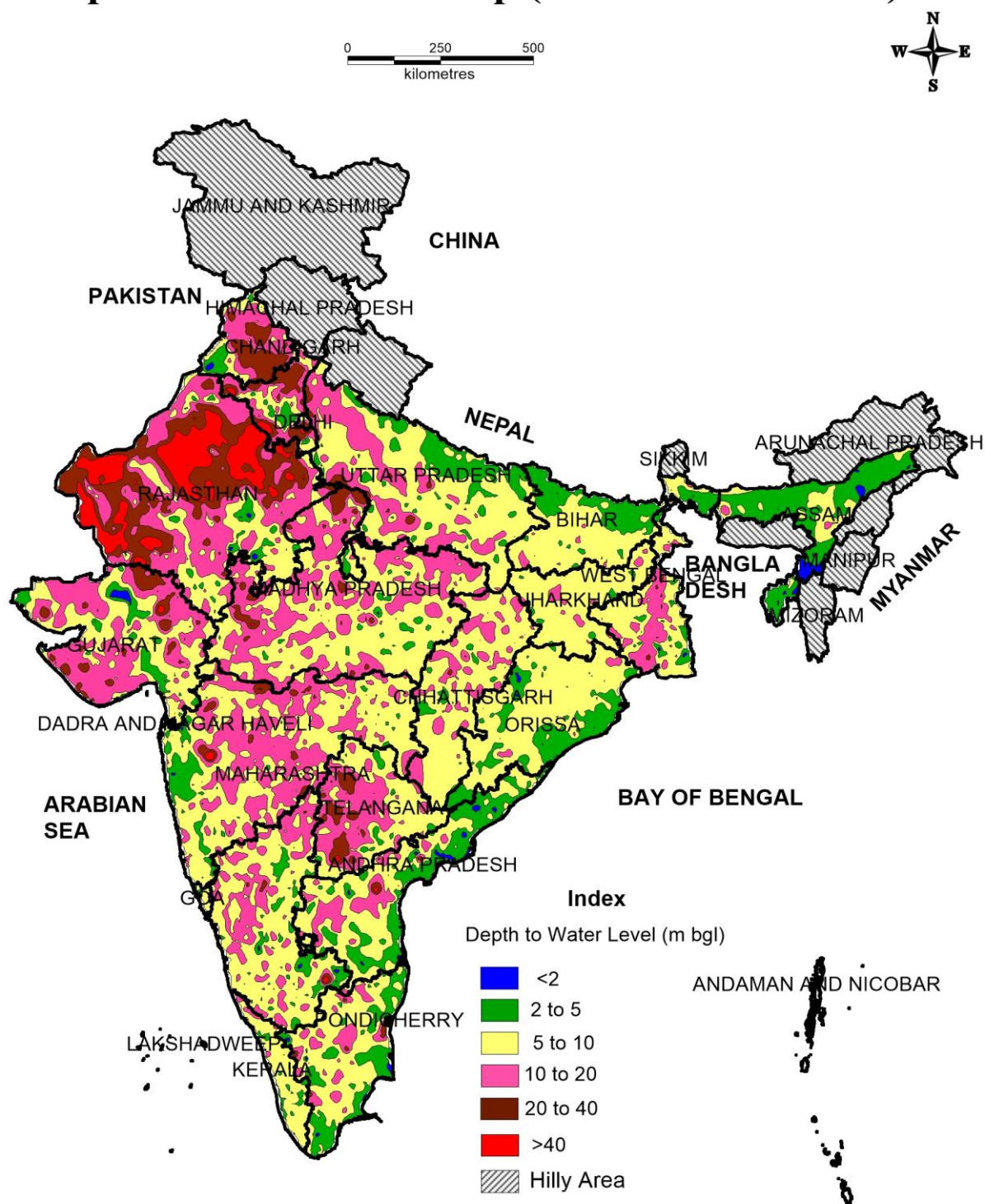
The depth to water level map of January 2017 for the country (Plate VII) indicates that in general depth to water level ranges from 2 to 10 m bgl as observed at about more than 70% of the monitoring stations. Sub-Himalayan area, north of river Ganges, northern and eastern parts of Uttar Pradesh, almost whole of Bihar, Jharkhand, Odisha, Assam, coastal parts of Maharashtra, generally the depth to water level varies from 2-5 meter below ground level. Shallow water level of less than 2 m bgl is observed in the states of Assam, Andhra Pradesh, Maharashtra, Rajasthan and Uttar Pradesh in isolated pockets. In West Bengal water level generally varies from 2 to 10 m bgl and central parts of the state shows water level of 10 m and above.

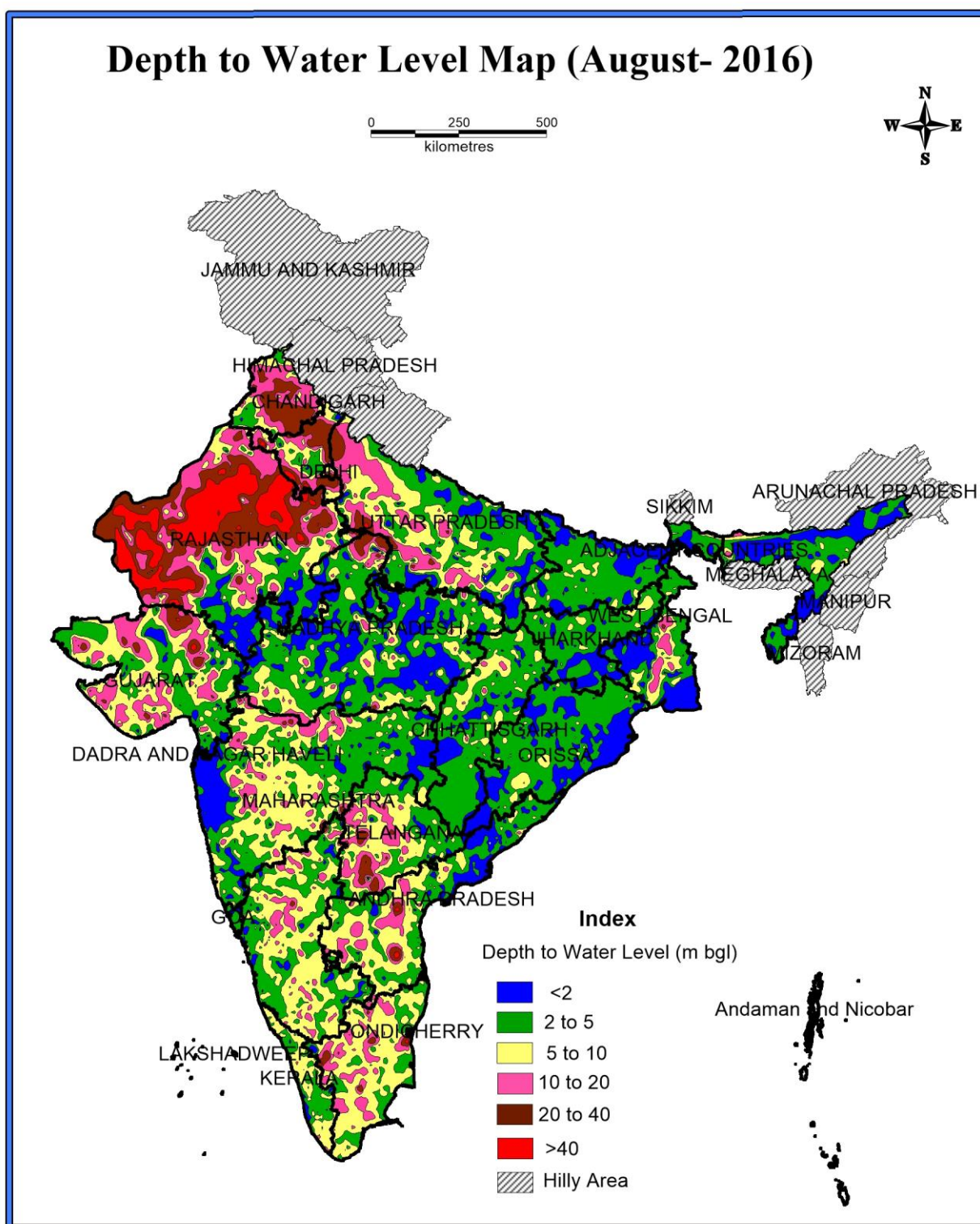
In major parts of north-western states depth to water level generally ranges from 10-40 m bgl. Water level of more than 40 m bgl is also prevalent in the north western part of the country. In the western parts of the country deeper water level is recorded in the depth range of 20-40 m bgl and more than 40 m bgl. In some parts of Haryana, and Delhi and almost major parts of Rajasthan, water level of more than 40 m bgl is recorded. Along the eastern coast water level is generally upto 5 m bgl whereas in the western coast water level of 10 m bgl is prevalent. In Central India water level generally varies between 5 m bgl to 20 m bgl, except in isolated pockets where water level of less than 5 m bgl has been observed. The peninsular part of country generally recorded a water level in the range of 2 to 20 m bgl depth range.

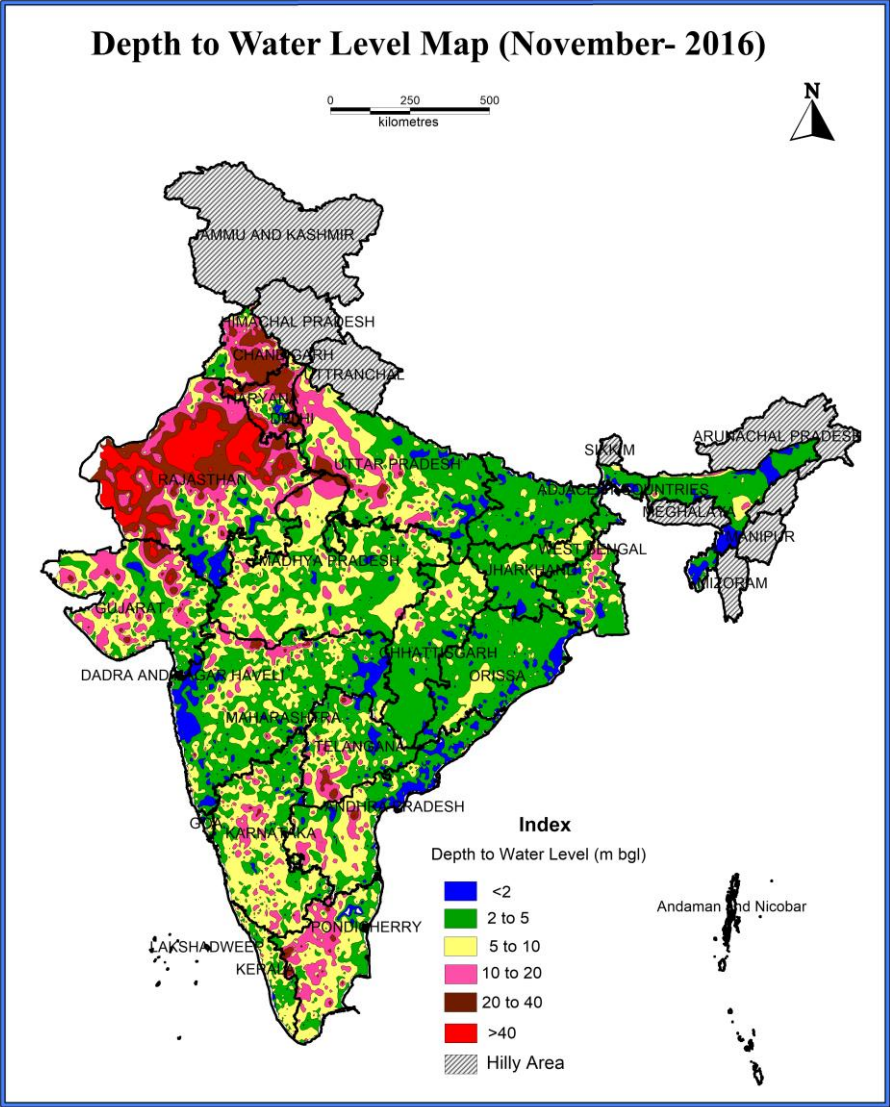
DEPTH TO WATER LEVEL AT A GLANCE

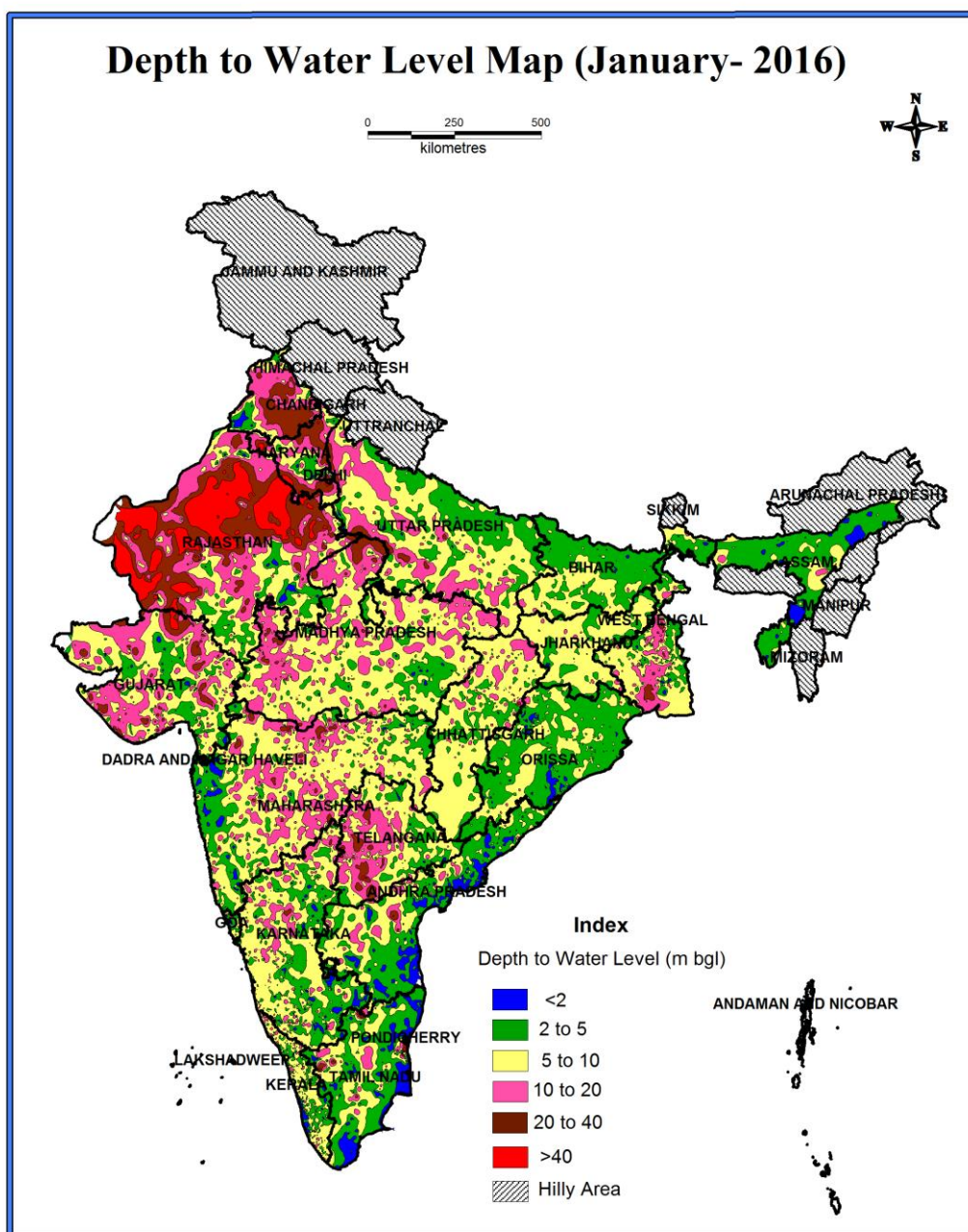


Depth to Water Level Map (Pre Monsoon- 2016)









2.3 ANNUAL WATER LEVEL FLUCTUATION

ANNUAL WATER LEVEL FLUCTUATION (PREMONSOON 2016-PREMONSOON 2015)

The water level fluctuation of **Premonsoon 2016** with **Premonsoon 2015** shows that out of 13580 wells analysed, 3767 (28%) are showing rise and 9417 (69%) are showing fall in water level. Remaining 396 (3%) stations analysed do not show any change in water level. About 22% wells are showing rise in the water level in the range of less than 2 m. About 4% wells are showing rise in water level in 2-4 m range and 2 % wells showing rise in water level more than 4 m range. About 69% wells are showing decline in water level, out of which 51% wells are showing decline in water level in less than 2 m range. About 12% wells are showing decline in water level in 2-4 m range. About 7% wells are showing decline in water level more than 4 m range (**Annexure-V**). Majority of the wells showing rise/decline falls in the range of 0-2 m.

A comparison of depth to water level of Premonsoon 2016 to Premonsoon 2015 is presented in the form of water level fluctuation map (Plate IX) reveals that in general, there is fall in water level in almost the entire country. Rise in water level in isolated pockets is observed in the states of Assam, Andhra Pradesh, Gujarat, Tamil Nadu, Rajasthan and Maharashtra. Fall is mostly in the range of 0-2 m, although fall in the range of more than 2 m is also prevalent in all the states in small patches. Fall of more than 4 m is prominent in the states of Chhatisgarh, Gujarat, Karnataka, Madhya Pradesh, Maharashtra and and Telangana

ANNUAL WATER LEVEL FLUCTUATION (AUGUST 2016-AUGUST 2015)

A comparison of depth to water level of August 2016 with August 2015 (**Plate-X**) reveals that in general, there is both rise and fall in water level in almost the entire country. About 52% of the wells analysed are showing rise and another 46% are showing fall in water level. Remaining 2% wells analysed do not show any change in water level. About 37% wells are showing rise in the water level in the range of less than 2 m. About 9% wells are showing rise in water level in 2-4 m range and 7 % wells showing rise in water level more than 4 m range. About 46% wells are showing decline in water level, out of which 36% wells are showing decline in water level in less than 2 m range. About 6 % wells are showing decline in water level in 2-4 m range. About 3% wells are showing decline in water level more than 4 m range. Majority of the wells showing rise/decline falls in the range of 0-2 m.

Although decline is mostly in the range of 0-2 m, fall in the range of more than 2 m is also prevalent in all the states in patches. Rise in water level of more than 4 m has been observed in small pockets in the states of Maharashtra, Madhya Pradesh, Andhra Pradesh and Rajasthan also.

ANNUAL WATER LEVEL FLUCTUATION (NOVEMBER 2016- NOVEMBER 2015)

The water level fluctuation of **November 2016** compared to **November 2015** shows that out of 14291 wells analysed, 6322(44%) are showing rise and 7807 (55%) are showing fall in water level. Remaining 162 (1%) stations analysed do not show any change in water level. About 31% wells (4491) are showing rise in the water level in the range of less than 2 m. About 8% wells (1065) are showing rise in water level in 2-4 m range and 5 % wells (766) showing rise in water level more than 4 m range. About 55% wells are showing decline in water level, out of which 41% wells (5885) are showing decline in water level in less than 2 m range. About 9 % wells (1263) are showing decline in water level in 2-4 m range. About 5% wells (659) are showing decline in water level more than 4 m range . Majority of the wells showing rise/decline falls in the range of 0-2 m.

A comparison of depth to water level of November 2016 compared to November 2016 is presented in the form of water level fluctuation map reveals that in general, there is both rise and fall in water level in almost the entire country. Fall in water level is dominantly seen in the states of Delhi, Haryana, Himachal Pradesh, Karnataka, Kerala, Punjab, Tamil Nadu etc. Fall is mostly in the range of 0-2 m, although fall in the range of more than 2 m is also prevalent in all the states in small patches.

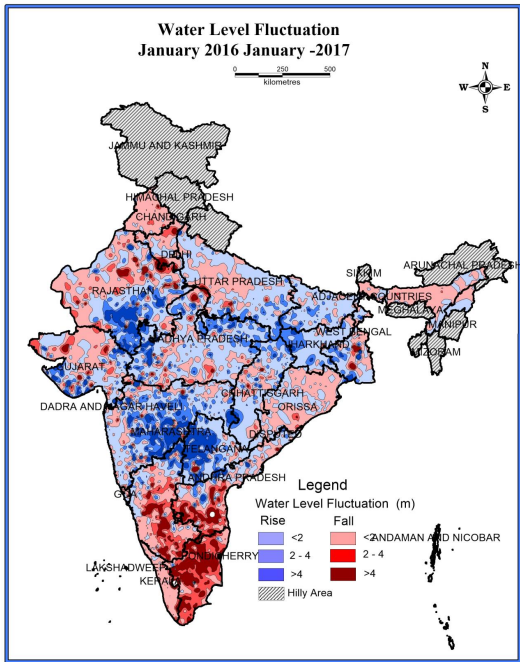
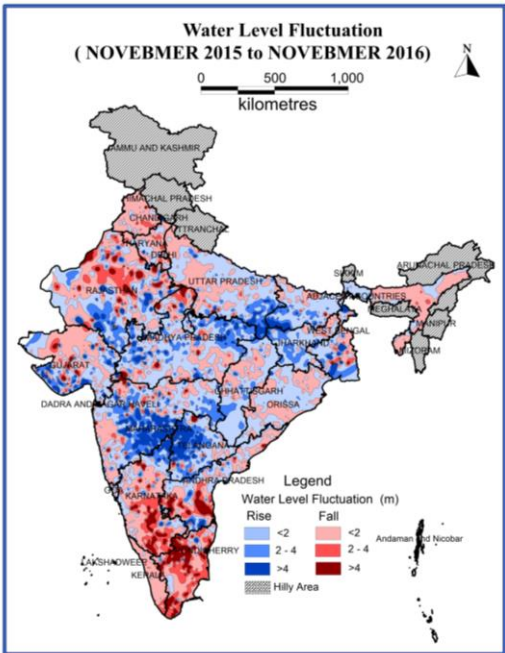
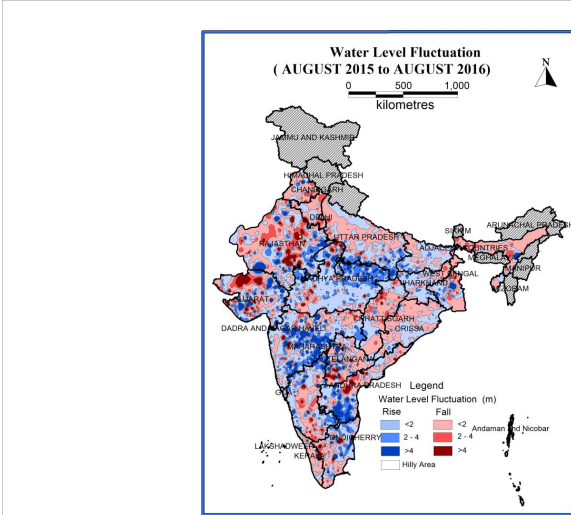
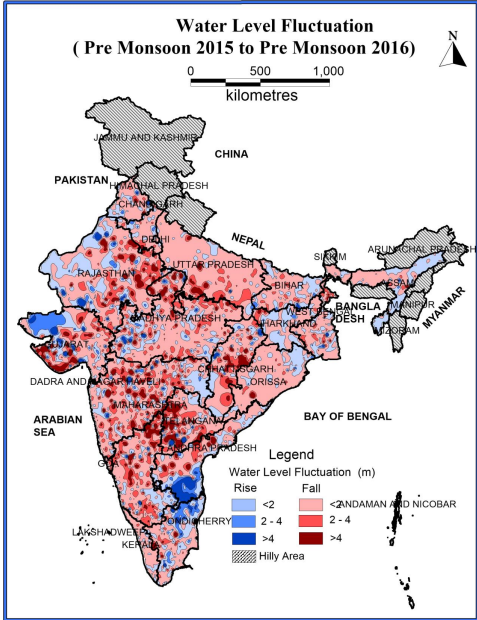
ANNUAL WATER LEVEL FLUCTUATION (JANUARY 2017- JANUARY 2016)

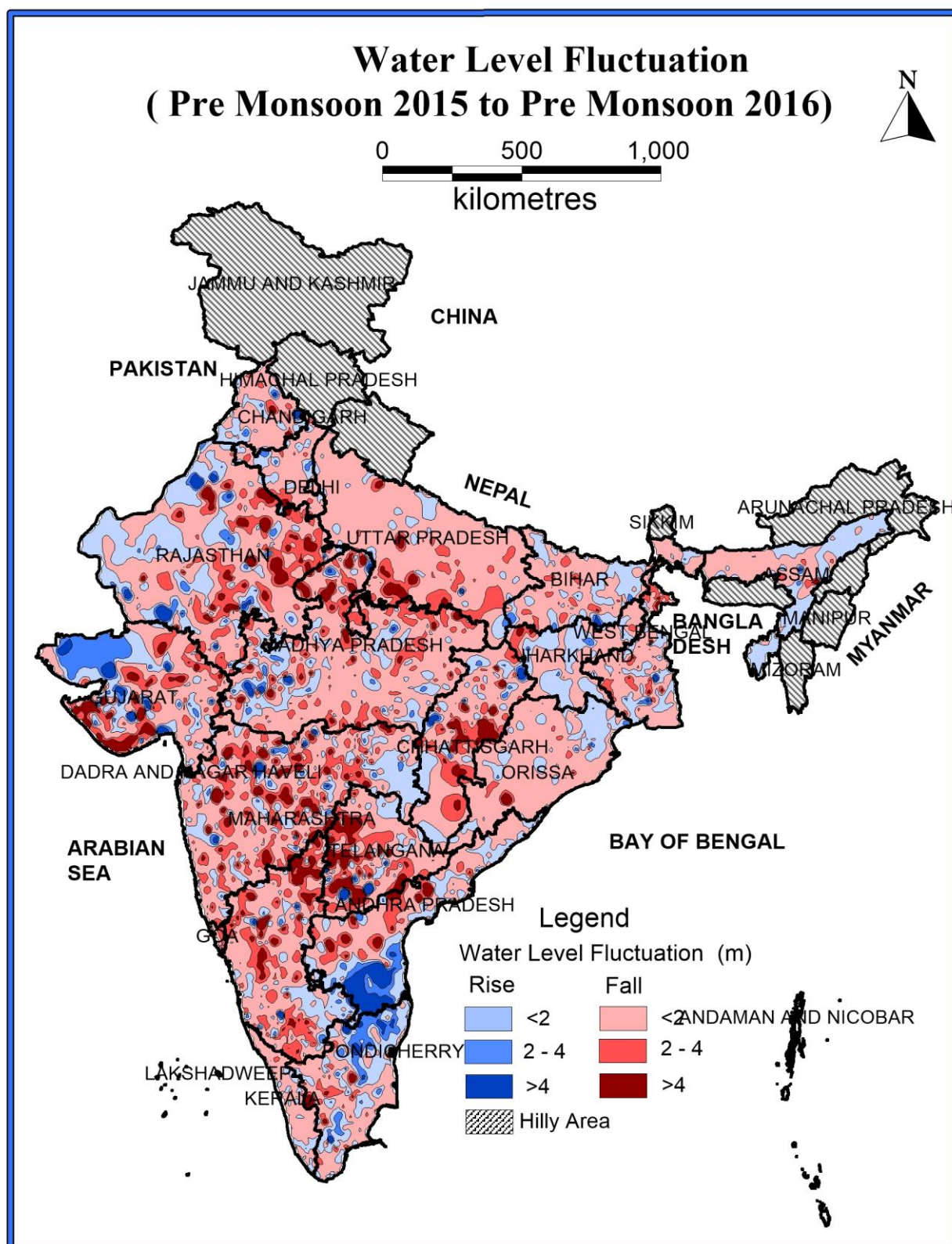
The water level fluctuation of **January 2017 to January 2016** shows that out of 13711 wells analysed, 6695 (49%) are showing rise and 6745 (49%) are showing fall in water level. Remaining 271 (2%) stations analysed do not show any change in water level. About 34% wells are showing rise in the water level in the range of less than 2 m. About 9% wells are showing rise in water level in 2-4 m range and 7 % wells showing rise in water level more than 4 m range. About 49% wells are showing decline in water level, out of which 37% wells are showing decline in water level in less than 2 m range. About 7 % wells are showing decline in water level in 2-4 m range and 5% wells are showing decline in water level more than 4 m range. Majority of the wells showing rise/decline falls in the range of 0-2 m.

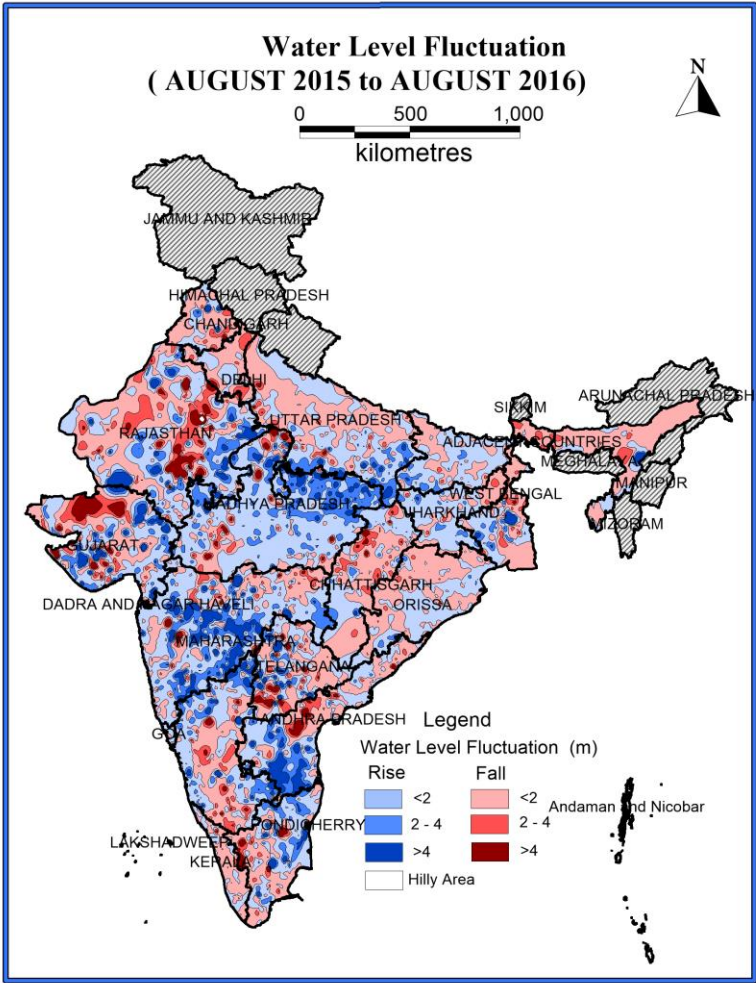
A comparison of depth to water level of January 2017 to January 2015 is presented in the form of water level fluctuation map reveals that in general, there is both rise and fall in water level in almost the entire country, except in few states such as Assam, Andhra Pradesh, Kerala, Karnataka and Tamil Nadu which shows prominent decline in ground water level. Rise in water level is mostly seen in the states of Telangana, Madhya Pradesh, Maharashtra, Jharkhand and Bihar and few areas of Rajasthan. Fall of more than 4 m is prominent in the states of Andhra Pradesh, Tamil Nadu, Karnataka, Delhi and Punjab.

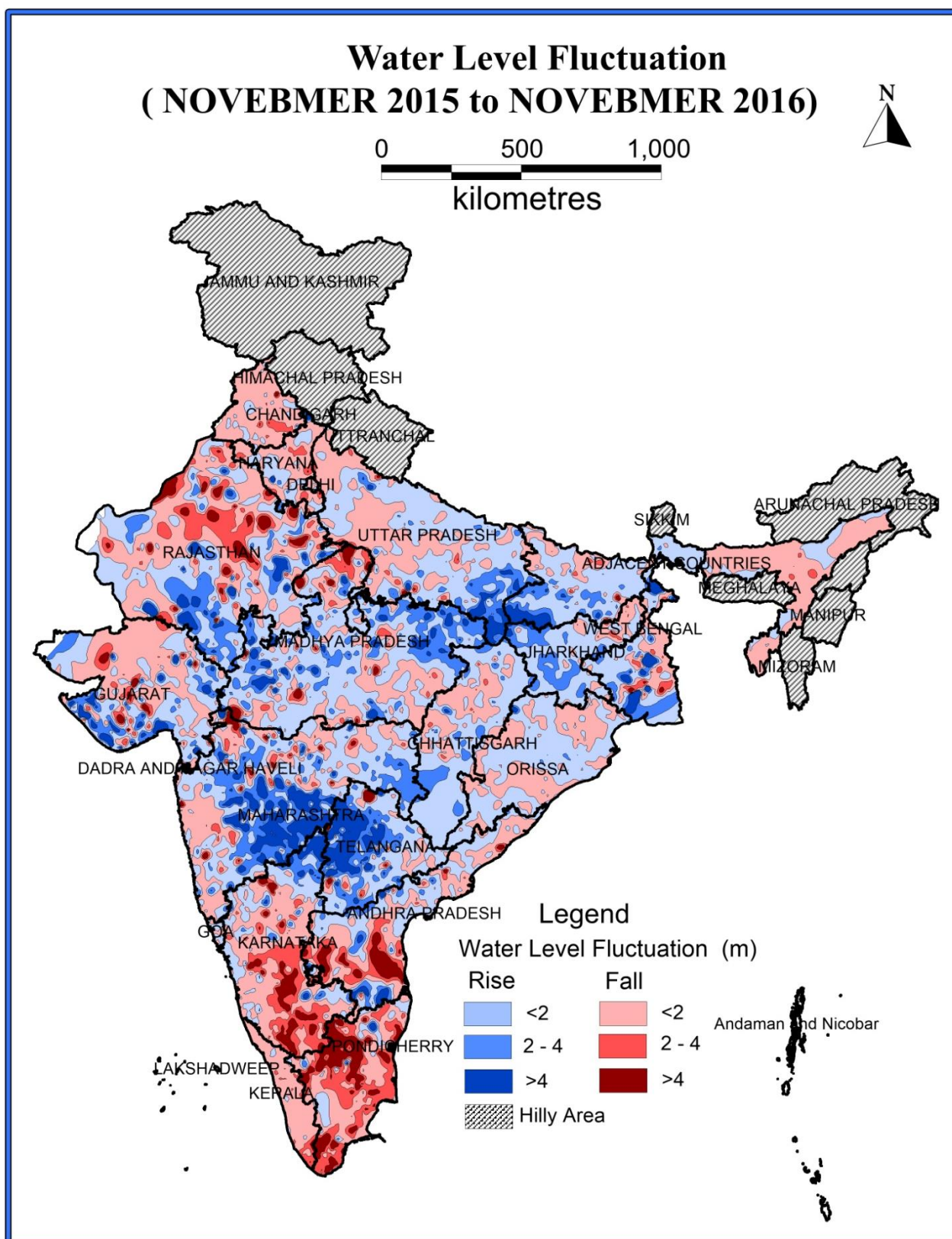
PLATE - VIII

ANNUAL WATER LEVEL FLUCTUATION AT A GLANCE

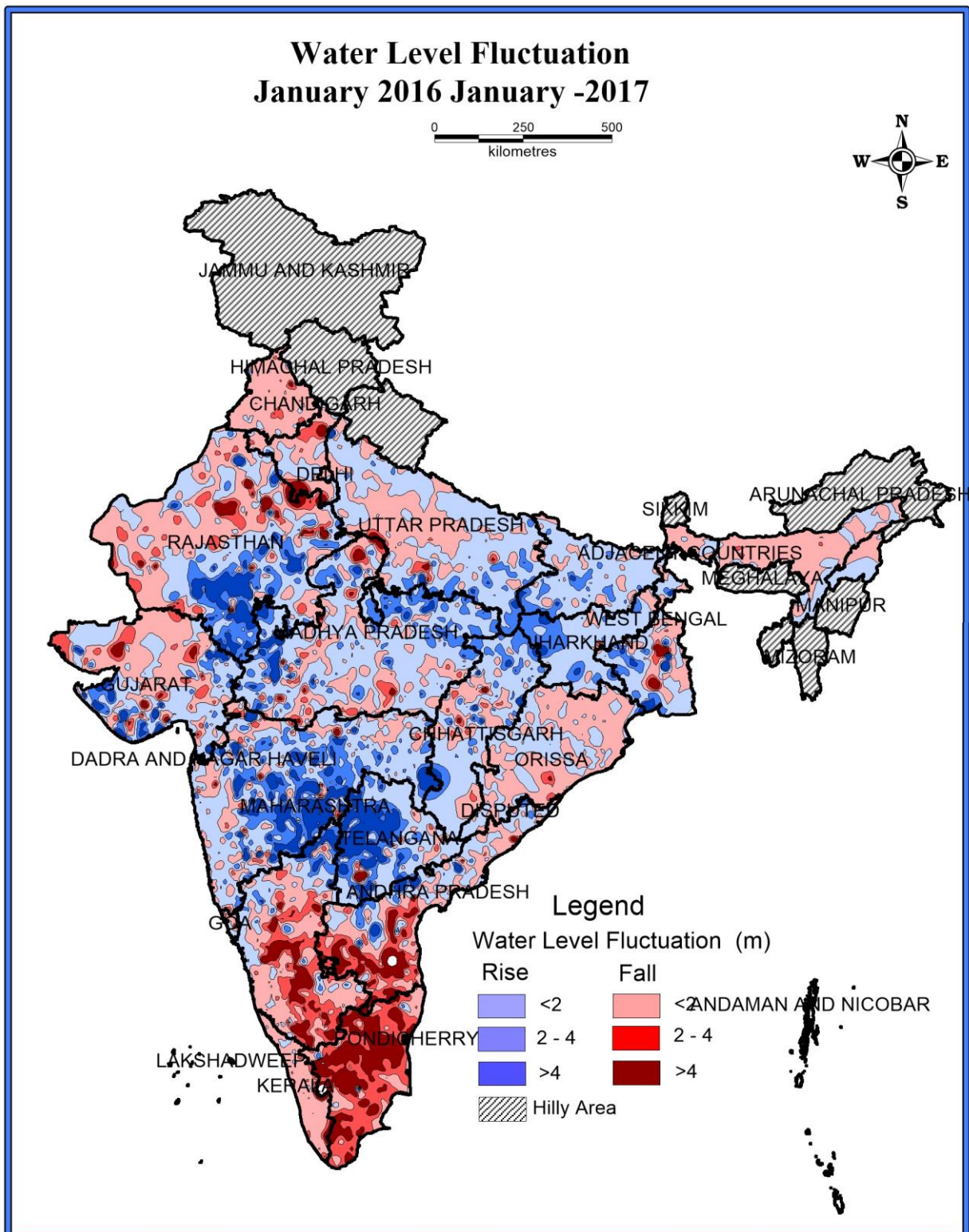








Water Level Fluctuation January 2016 January -2017



PL
ATE XII

2.4 SEASONAL WATER LEVEL FLUCTUATIONS

SEASONAL WATER LEVEL FLUCTUATION (PREMONSOON 2016 - AUGUST 2016)

A comparison of depth to water level of August 2016 with Premonsoon 2016 indicate that about 86% of wells are showing rise in water levels, out of which 30% wells are showing rise of less than 2 m range. About 23% wells are showing rise in water level in the range of 2-4 m and another 34 % wells are showing rise in water in range of more than 4 m. Only 12 % wells are showing decline in water level, out of which 9 % wells are showing decline in water in the range of 0-2 m.

Rise in water level is observed in the whole country, covering all the states, except in Tamil Nadu, Haryana, Punjab and Rajasthan. Rise of more than 4 m is mostly prominent in Central and Eastern India and also in Uttar Pradesh and Karnataka

SEASONAL WATER LEVEL FLUCTUATION (PREMONSOON 2016 - NOVEMBER 2016)

A comparison of depth to water level of November 2016 with Premonsoon 2016 indicates that about 80% of wells analysed are showing rise in water levels, out of which 33% wells are showing rise of less than 2 m range. About 22% wells are showing rise in water level in the range of 2-4 m and another 25 % wells are showing rise in water in range of more than 4 m. Only 18 % wells are showing decline in water level, out of which 14 % wells are showing decline in water in the range of 0-2 m. Rise in water level is prominent in all the states of the country except in few states such as Chandigarh, Punjab and Tamil Nadu. Rise in water level of more than 4 m is prominent in the most of the states such as Andhra Pradesh, Bihar, Chhatisgarh, Gujarat, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan, Telangana, and West Bengal.

A comparison of depth to water level of November 2016 with Premonsoon 2016 is presented in the form of water level fluctuation map (**Plate III**) reveals that in general, there is rise in water level in almost the entire country, except in few states. Decline of water level is prominent in the states of Tamil Nadu, Rajasthan, Punjab, Andhra Pradesh and few parts of Haryana.

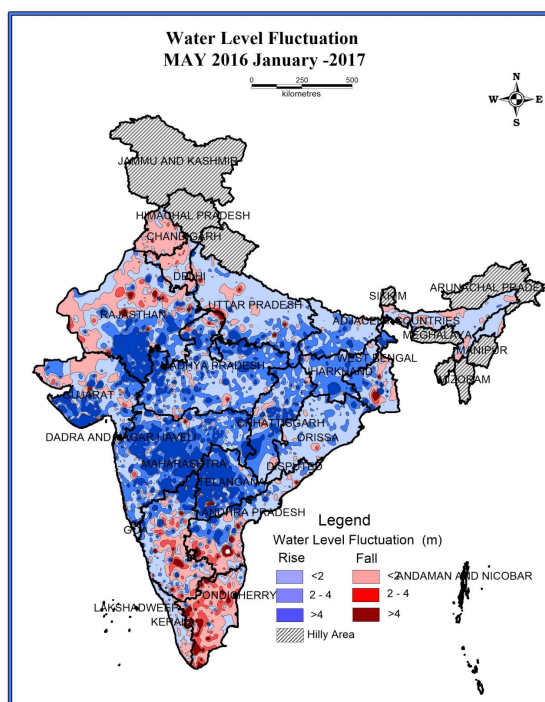
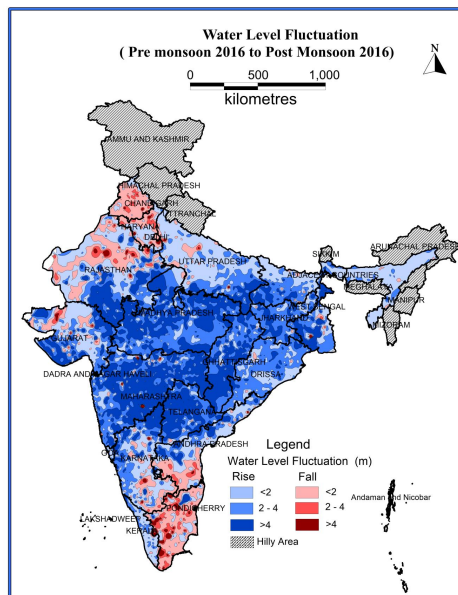
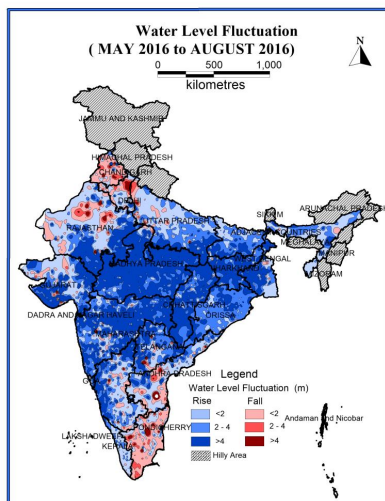
SEASONAL WATER LEVEL FLUCTUATION (JANUARY 2017 TO PREMONSOON 2016)

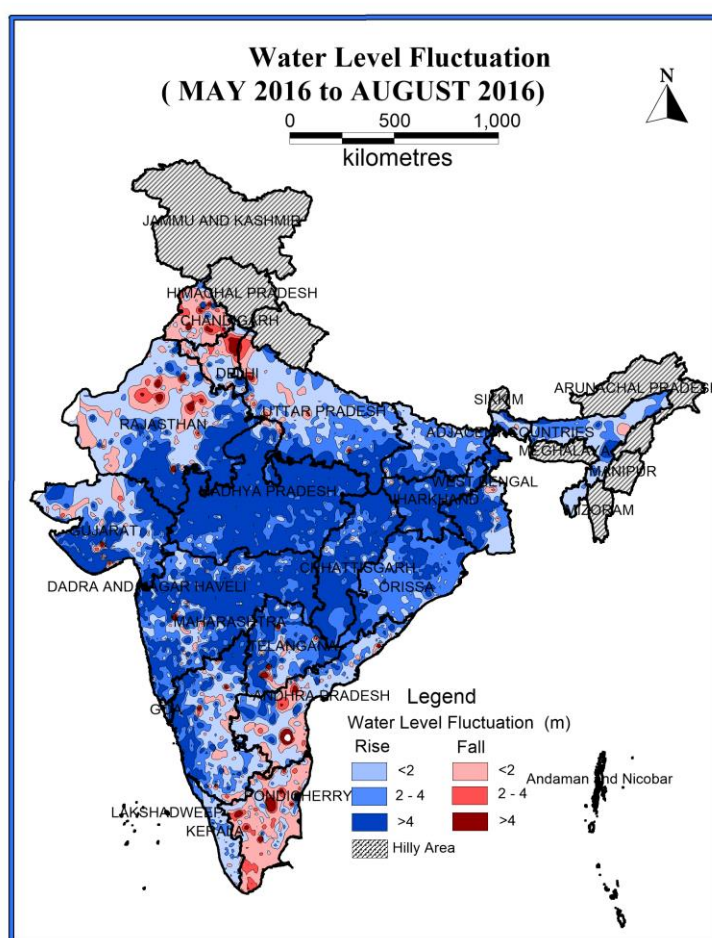
The water level fluctuation of **January 2017 to Premonsoon 2016** indicates that out of 13748 wells analysed, 9812 (72%) are showing rise and 3600 (26%) are showing fall in water level. Remaining 240 (2%) wells analysed do not show any change in water level. About 39% wells are showing rise in the water level in the range of less than 2 m. About 18% wells are showing rise in water level in 2-4 m range and 15 % wells showing rise in water level more than 4 m range. About 26% wells are showing decline in water level, out of which 21% wells are showing decline in water level in less than 2 m range. About 4 % wells are showing decline in water level in 2-4 m range and 2%

wells are showing decline in water level more than 4 m range (**Fig-3** and **Annexure-IV**). Majority of the wells showing rise/decline falls in the range of 0-2 m.

A comparison of depth to water level of January 2017 with Premonsoon 2016 is presented in the form of water level fluctuation map reveals that in general, there is rise in water level in almost the entire country, except in few states, such as Tamil Nadu, Karnataka and Punjab. Rise in water level is prominent in all the states of the country except the above mentioned states where decline is prominent. Rise in water level of more than 4 m is prominent in the most of the states such as Maharashtra, Telangana and Rajasthan.

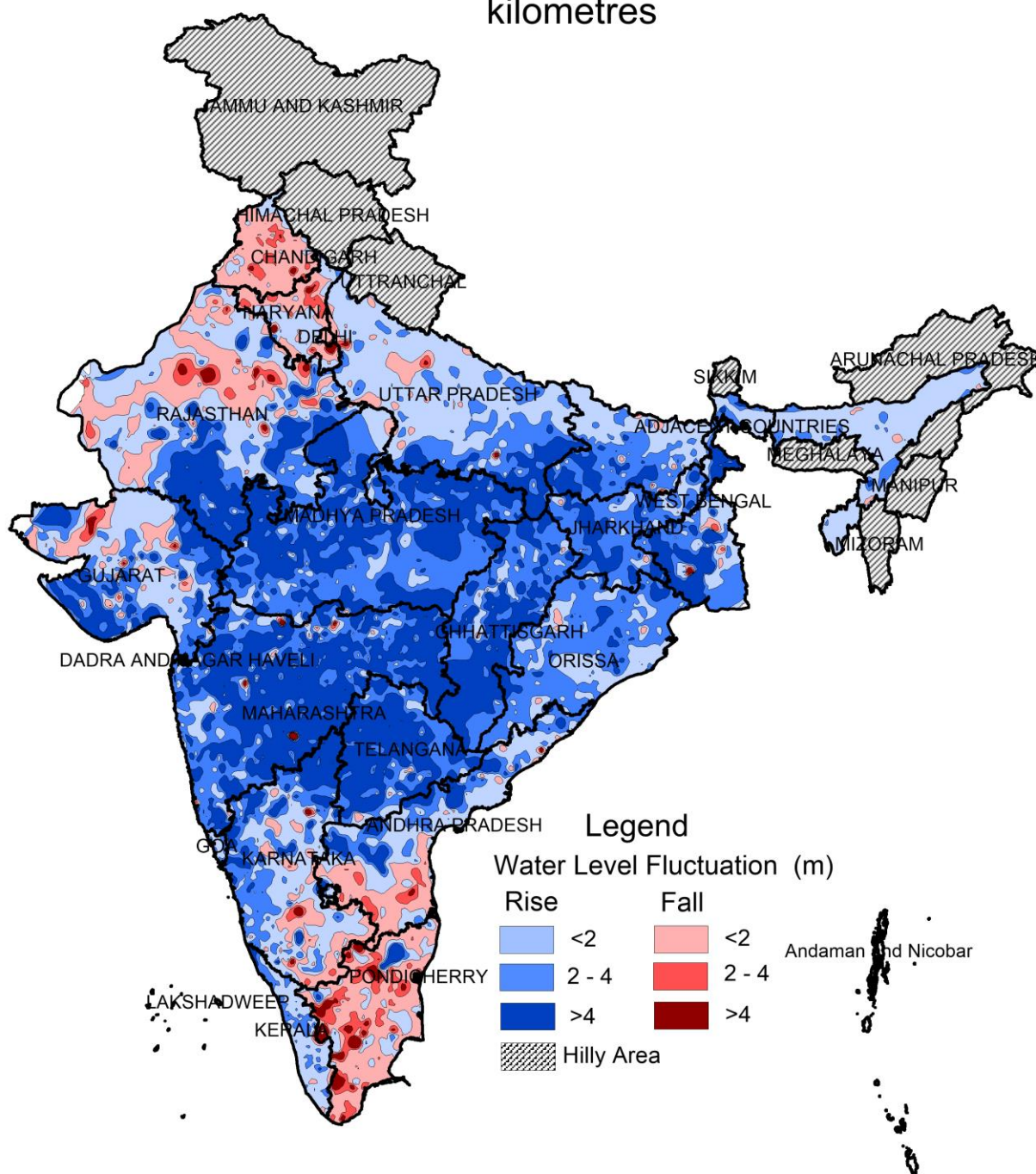
SEASONAL WATER LEVEL FLUCTUATION AT A GLANCE

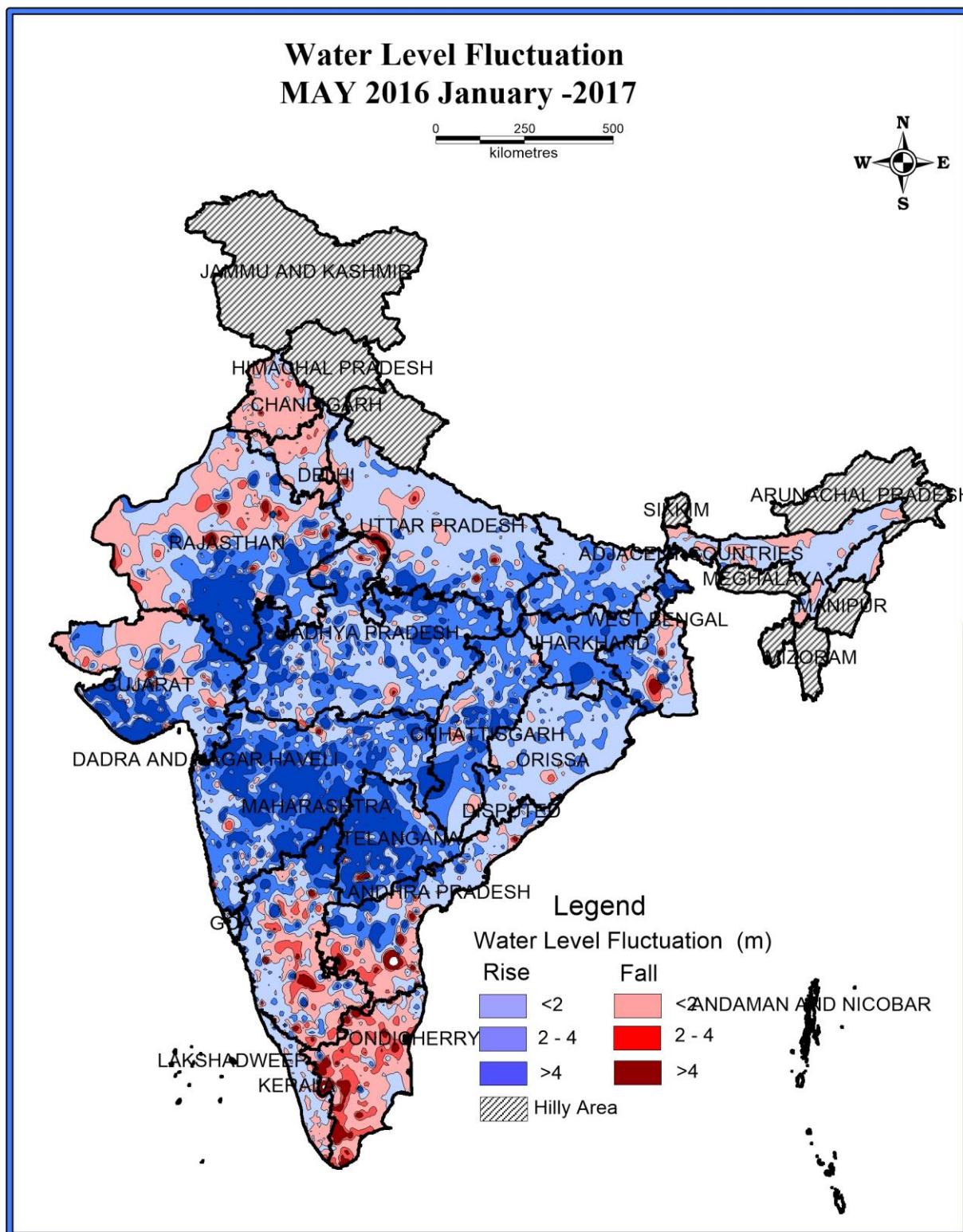




Water Level Fluctuation (Pre monsoon 2016 to Post Monsoon 2016)

0 500 1,000
kilometres





2.5 DECADAL WATER LEVEL FLUCTUATION

WATER LEVEL FLUCTUATION WITH DECADAL MEAN (PREMONSOON-2006 TO PREMONSOON-2015) TO PREMONSOON-2016

A comparison of depth to water level of Premonsoon 2016 with decadal mean of Premonsoon (2006-2015) indicates that 4801 (about 35%) of wells are showing rise in water level, out of which 27% wells are showing rise of less than 2 m . About 5% wells are showing rise in water level in the range of 2-4 m and only 2% wells are showing rise in the range of more than 4 m. 9049 (about 65%) wells are showing decline in water level, out of which 46% wells are showing decline in water in the range of 0-2 m. 12% wells are showing decline in water level in 2-4 m range and remaining 7% are in the range of more than 4 m.

Decline is seen in almost all the states/UTs of the country, except few states namely Arunachal Pradesh, Goa, Pondicherry, Tamil Nadu and Tripura. Decline of more than 4 m has also been observed in pockets in the states/UTs of Andhra Pradesh, Chhattisgarh, Dadra & Nagar Haveli, Delhi, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Telangana and West Bengal. Rise in water level of more than 4 m is also observed in few states in isolated pockets such as Andhra Pradesh, Arunachal Pradesh, Madhya Pradesh, Rajasthan and Tamil Nadu.

Almost the whole country is showing decline in water level, maximum fall is observed in and around parts of Rajasthan, Haryana, Punjab, Gujarat, Telangana, and Maharashtra, A rise in water level is observed in few states but occurs sporadically.

WATER LEVEL FLUCTUATION WITH DECADAL MEAN (AUGUST-2006 TO AUGUST-2015) TO AUGUST- 2016

A comparison of depth to water level of August 2016 with decadal mean of August (2006-2015) indicate that about 6583 (46%) of the analysed wells are showing rise in water level, out of which 35% wells are showing rise of less than 2 m. About 8% wells are showing rise in water in the range of 2-4 m and about 4 % wells are showing rise in water level in the range of more than 4 m. About 7624 (54%) wells are showing decline in water level, out of which 39% wells are showing decline in water in the range of 0-2 m. 9% wells are showing decline in water level in 2-4 m range and remaining 6% are in the range of more than 4 m. Decline in water level of more than 4 m is mostly prominent in the states of Andhra Pradesh, Gujarat, Haryana, Punjab, Rajasthan, Telangana and West Bengal. Rise in water level of more than 4 m is observed mostly in the states of Madhya Pradesh, Maharashtra and Rajasthan.

Maximum fall is observed in and around parts of Haryana, Punjab, Rajasthan Telangana and Andhra Pradesh.

WATER LEVEL FLUCTUATION WITH DECADAL MEAN (NOV-2006 TO NOV-2015) TO NOV-2016

A comparison of depth to water level of November 2016 with decadal mean of November (2015-2016) indicate that, out of 14884 wells analysed, 6043 (about 41%) of wells are showing rise in water level, out of which 31% wells are showing rise of less than 2 m . About 6% wells are showing rise in water level in the range of 2-4 m and about 4% wells are showing rise in water level in the range of more than 4 m. 8818 (about 59%) wells are showing decline in water level, out of which 43% wells are showing decline in water in the range of 0-2 m. 10% wells are showing decline in water level in 2-4 m range and remaining 6% are in the range of more than 4 m.

Decline in water level of more than 4 m is mostly prominent in the states of Andhra Pradesh, Daman & Diu, Delhi, Gujarat, Haryana, Karnataka, Punjab, Rajasthan, Tamil Nadu, Telangana and West Bengal. Rise in water level of more than 4 m is observed in few states such as Madhya Pradesh, Maharashtra, Rajasthan, Telangana, and West Bengal. 23 monitoring wells analysed do not show any change in water level.

As observed maximum fall is observed in and around states of Tamil Nadu, Karnataka, Kerala, Andhra Pradesh, Odisha, Uttar Pradesh, Rajasthan and Punjab. A rise in water level is observed in the country in few states but occurs sporadically.

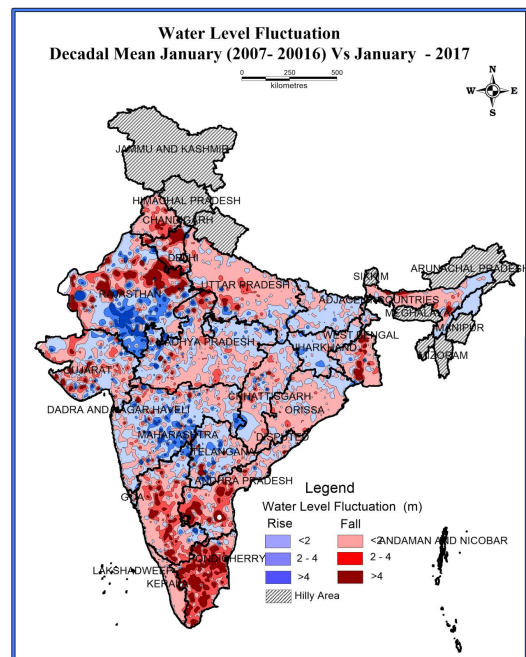
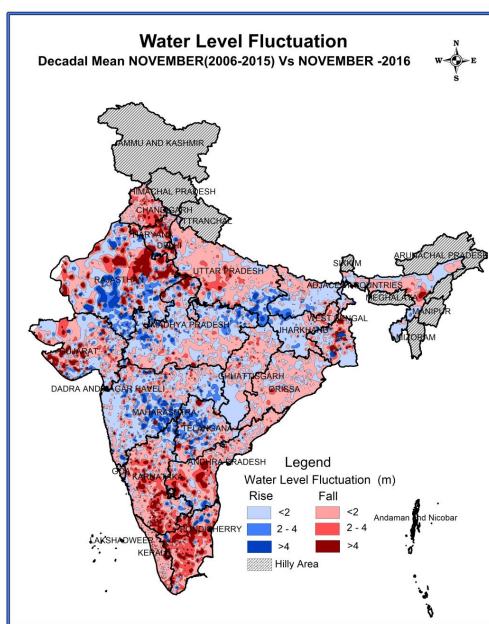
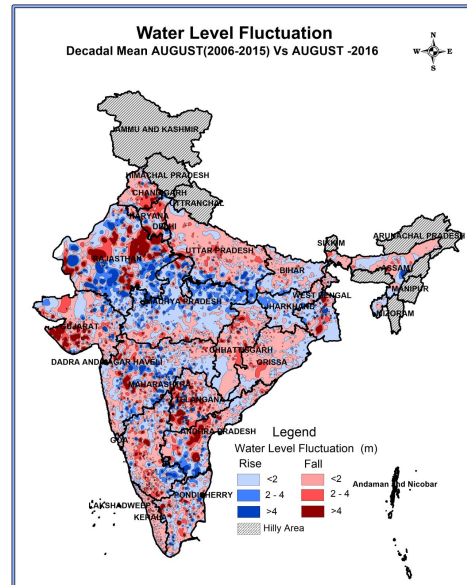
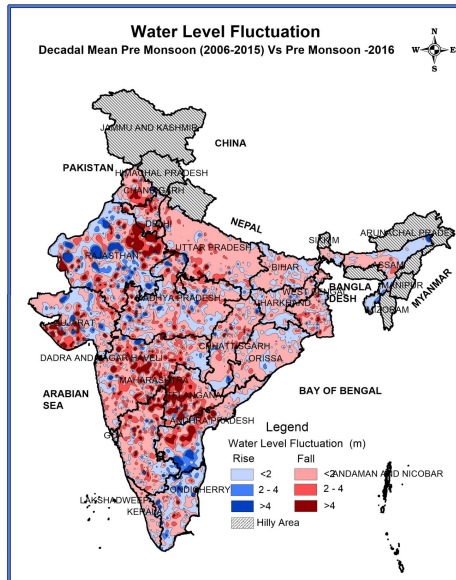
WATER LEVEL FLUCTUATION WITH DECADAL MEAN (JAN 2007 TO JAN 2016) TO JAN 17

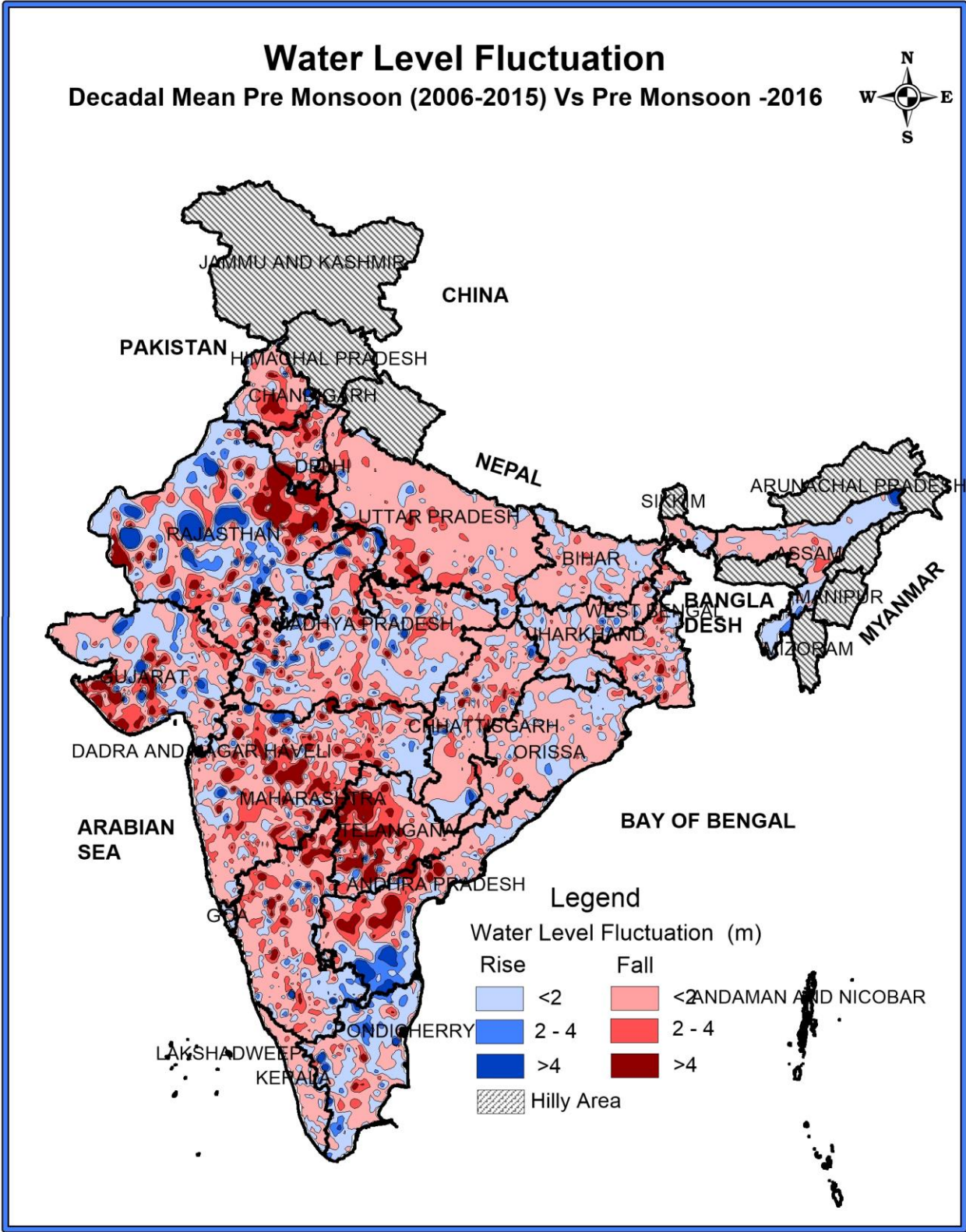
A comparison of depth to water level of January 2017 with decadal mean of January (2007-2016) indicates that out of 14923 wells analysed, 5890 (about 39%) of wells are showing rise in water level, out of which 30% wells are showing rise of less than 2 m (). About 6% wells are showing rise in water level in the range of 2-4 m and only 3% wells are showing rise in the range of more than 4 m. 9000 (about 60%) wells are showing decline in water level, out of which 43% wells are showing decline in water in the range of 0-2 m. 10% wells are showing decline in water level in 2-4 m range and remaining 7% are in the range of more than 4 m. Decline in water level of more than 4 m is mostly prominent in the states of Tamil Nadu, Rajasthan, West Bengal, Punjab, Haryana and Karnataka. Rise in water level of more than 4 m is also observed in few states in isolated pockets such as Rajasthan, Maharashtra, Telangana.

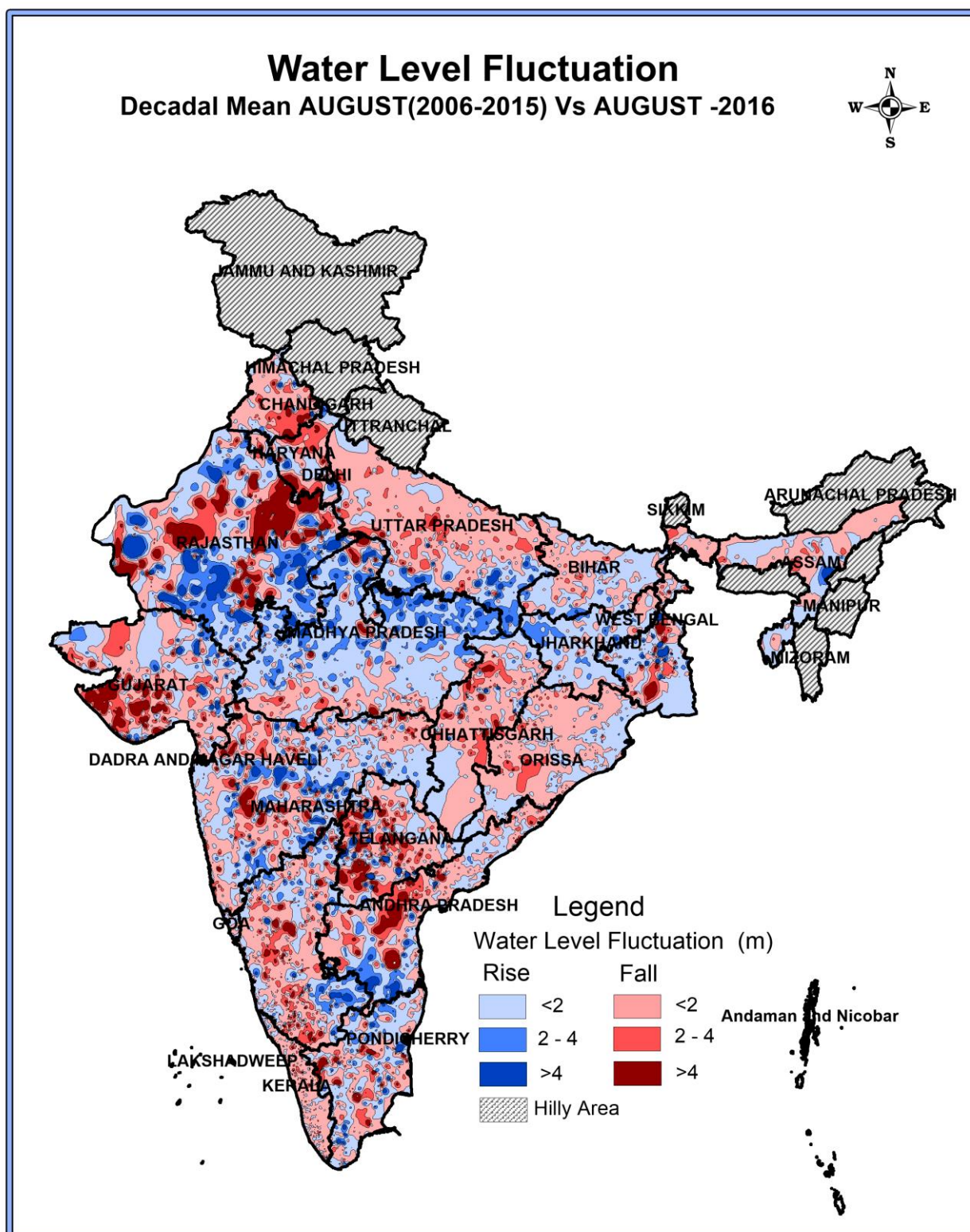
As observed, almost whole country is showing decline in water level, maximum fall is observed in the states of Andhra Pradesh, Assam, Chhatishgarh, Delhi, Rajasthan, Haryana, Punjab, Tamil Nadu, Kerala, Karnataka, , Uttar Pradesh, Odisha West Bengal. A rise in water level is observed in few states but occurs sporadically.

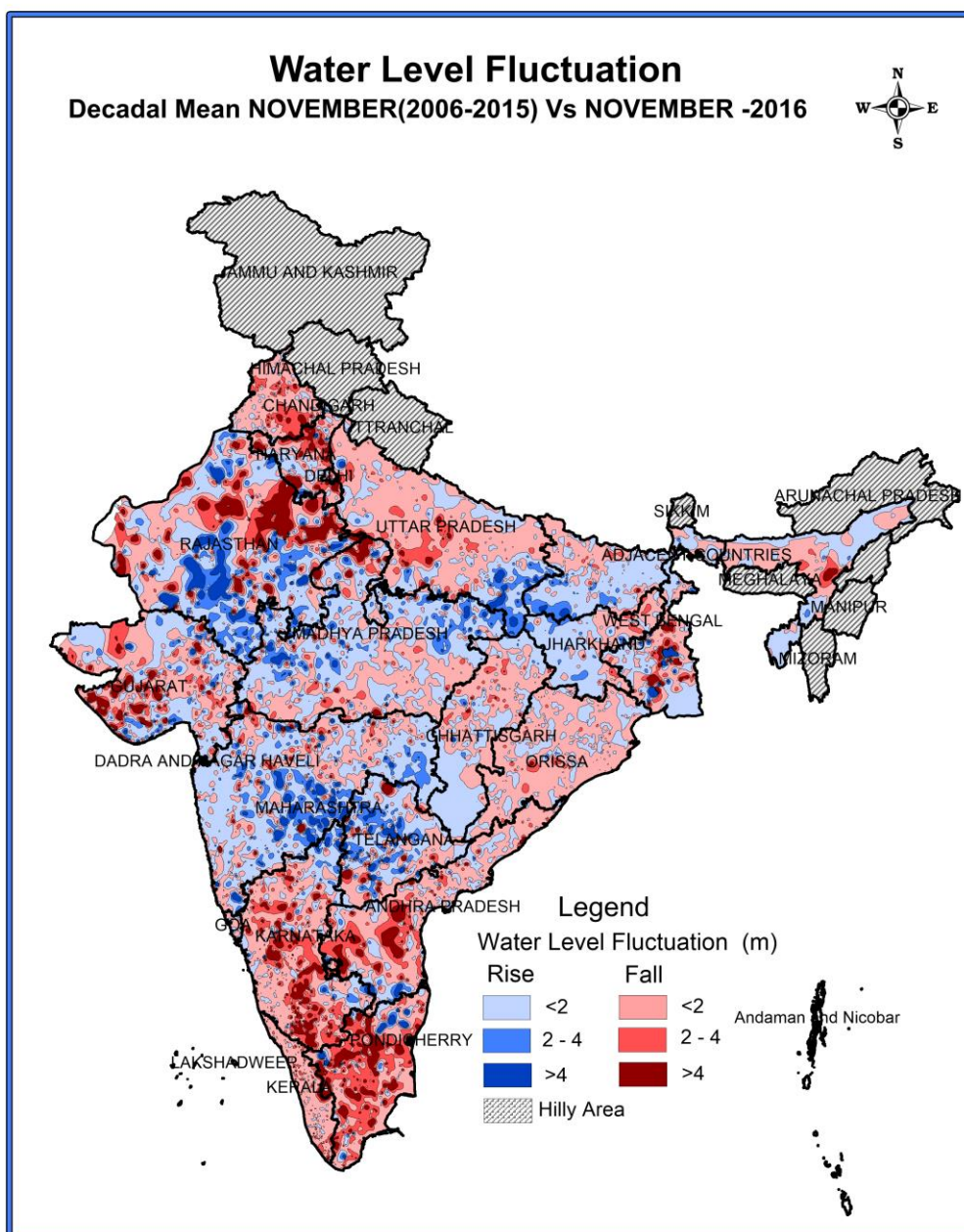
DECADAL WATER LEVEL FLUCTUATIO AT GLANCE

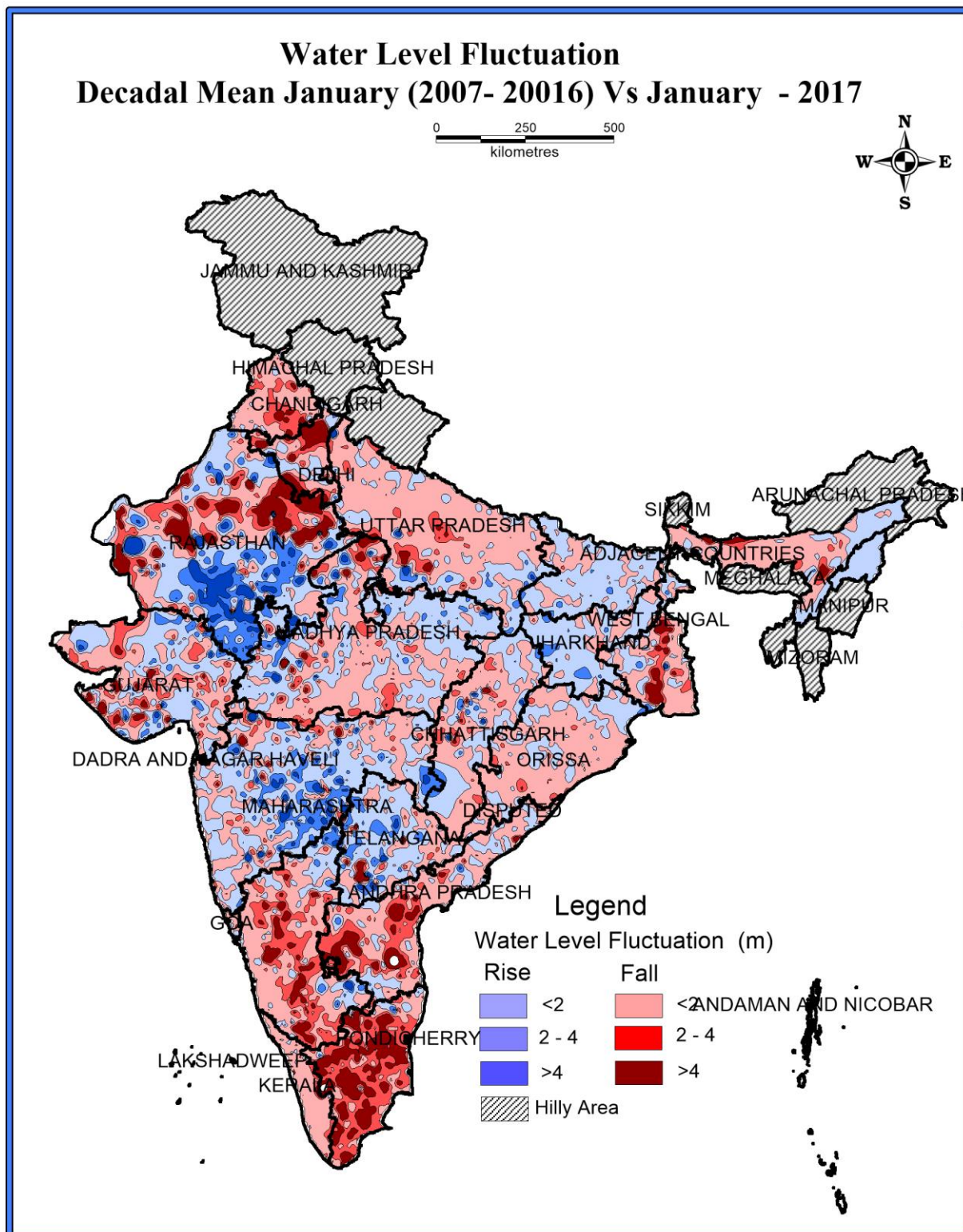
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2.6 Rainfall Variations

Rain gauge stations are established and maintained by different departments and Undertakings of Central and State governments and also by private parties to cater their particular data need. India Meteorological Department (IMD) has 559 observatories (both departmental and part time). Though the period of seasons varies from place to place, for Climatological purposes especially for rainfall, year at all the places is uniformly divided into 4 parts, called seasons. The seasons are: Winter (January and February), Pre monsoon (March to May), South West Monsoon (June to September) and Post Monsoon season (October to December).

For the purpose of compiling the rainfall data and draw the inferences India is divided into 36 meteorological homogeneous regions. During the season, out of the total 36 meteorological subdivisions, 23 subdivisions constituting 67.3% of the total area of the country received normal season rainfall and the remaining 12 subdivisions (30% of the total area of the country) received deficient season rainfall. One subdivision (south Interior Karnataka) constituting 3% of the total area of the country received excess rainfall. The Subdivisions having positive percentage departure values are Jammu and Kashmir, Orissa, south Interior Karnataka, coastal Karnataka and Kerala.

During the monsoon season, all the months, except September, rainfall was below its LPA value. The rainfall deficiency was highest during the month of June with 58% LPA value. The rainfall during July and August was below normal (90% of LPA) respectively. The second half of the season rainfall was 2% below its LPA values (90% of LPA during August and 108% during September). During July, majority of the subdivisions from central India and west peninsula received excess (3 subdivisions) or normal rainfall (17 subdivisions). The excess rainfall subdivisions are Konkan & Goa, south Interior Karnataka and Odisha. The large rainfall deficiency was observed over north and northeast India, region close to Himalayas and interior & southeast Peninsula. During August, majority of the subdivisions from Peninsula, east and northeast India received normal / excess rainfall. On the other hand, majority of the subdivisions from northwest India and neighboring central India received deficient/ scanty rainfall. During September, the rainfall activity over many parts of the country showed significant increase and 23 subdivisions received excess or normal rainfall. However, 13 subdivisions mainly from north India along the plains of Himalayan region and north peninsula received deficient rainfall.

The main observed anomaly features in the monthly and seasonal rainfall patterns can be summarized as; (i) normal seasonal rainfall was received over most parts of the country, however only 5 subdivisions have positive percentage 29 departure, (ii) The country received very large rainfall deficiency during June and above normal rainfall in September, (iii) Only one subdivision (south Interior Karnataka) received excess season rainfall.

3.0 GROUND WATER RESOURCE AVAILABILITY AND DEVELOPMENT STATUS

3.1 DYNAMIC FRESH GROUND WATER RESOURCE

Dynamic ground water resources (as on 31st March 2013) of the entire country have been assessed jointly by CGWB and State Ground Water Departments under the supervision of the State level Committees. The dynamic ground water resources are also known as Annual Replenishable Ground Water Resources, since it gets replenished/recharged every year. Methodology adopted for the assessments has been outlined in Chapter 2 of this report. This section provides a summary of the groundwater resources of the country.

Annual Replenishable Ground Water Resource for the entire country has been assessed as 447 billion cubic meter (bcm). Keeping 36 bcm for natural discharge, the Net Annual Ground Water Availability for the entire country is 411 bcm.

Major source of ground water recharge is the monsoon rainfall. About 58% of the annual replenishable resource i.e. 260 bcm is contributed by recharge from monsoon rainfall (Fig.6.1). The overall contribution of rainfall (both monsoon & non monsoon) to country's Annual Replenishable Ground water Resources is 67% and the share of other sources viz. canal seepage, return flow from irrigation, recharge from tanks, ponds and water conservation structures taken together is 33%.

The contribution in Annual Replenishable Ground Water Resource from rainfall during monsoon season is more than 70% in the states of Arunachal Pradesh, Chhattisgarh, Himachal Pradesh, Jharkhand, Kerala, Madhya Pradesh, Meghalaya, Rajasthan, Andaman & Nicobar, Chandigarh, Dadra & Nagar Haveli and Daman & Diu. In the states of Jammu & Kashmir, Punjab, Tamil Nadu and Puducherry the contribution in annual ground water resources from other sources during monsoon season is more than 30%.

Volumetric estimates are dependent on the areal extent of the assessment units. For comparison of ground water resource of different assessment units the volumetric estimates of annual replenishable ground water resources have been converted to depth units (m) by dividing the annual replenishable resources by the area of the respective assessment units (km²). Replenishable Groundwater resource is significantly high in the Indus-Ganga-Brahmaputra alluvial belt in the North, East and North East India covering the states of Punjab, Haryana, Uttar Pradesh, Bihar, West Bengal and valley areas of North Eastern States, where rainfall is plenty and thick piles of unconsolidated alluvial formations are conducive for recharge. Annual Replenishable Ground Water Resource in these regions varies from 0.25 to more than 0.5 m. The coastal alluvial belt particularly Eastern Coast also has relatively high replenishable ground water resources, in the range 0.25 to more than 0.5 m. In western India, particularly Rajasthan and parts of northern Gujarat which have arid climate, the annual replenishable ground water resources are

scanty, mostly up to 0.025 m. Similarly, in major parts of the southern peninsula covered with hard rock terrains, annual replenishable ground water recharge is mostly limited to 0.10 m. This is primarily because of comparatively low infiltration and storage capacity of the rock formations prevailing in the region. The remaining part of Central India is mostly characterized by moderate recharge in the range of 0.10 to 0.25 m.

The overall estimate of Annual Replenishable Ground Water Resources of the entire country shows an increase of 14 bcm in the present estimate as compared to the previous assessment i.e. 2011. The Annual Ground water draft for irrigation, domestic and Industrial uses has also increased by 8 bcm. The main reasons for these variations can be attributed to changes in rainfall pattern, changing ground water regime and refinement in database.

Ground Water Utilization

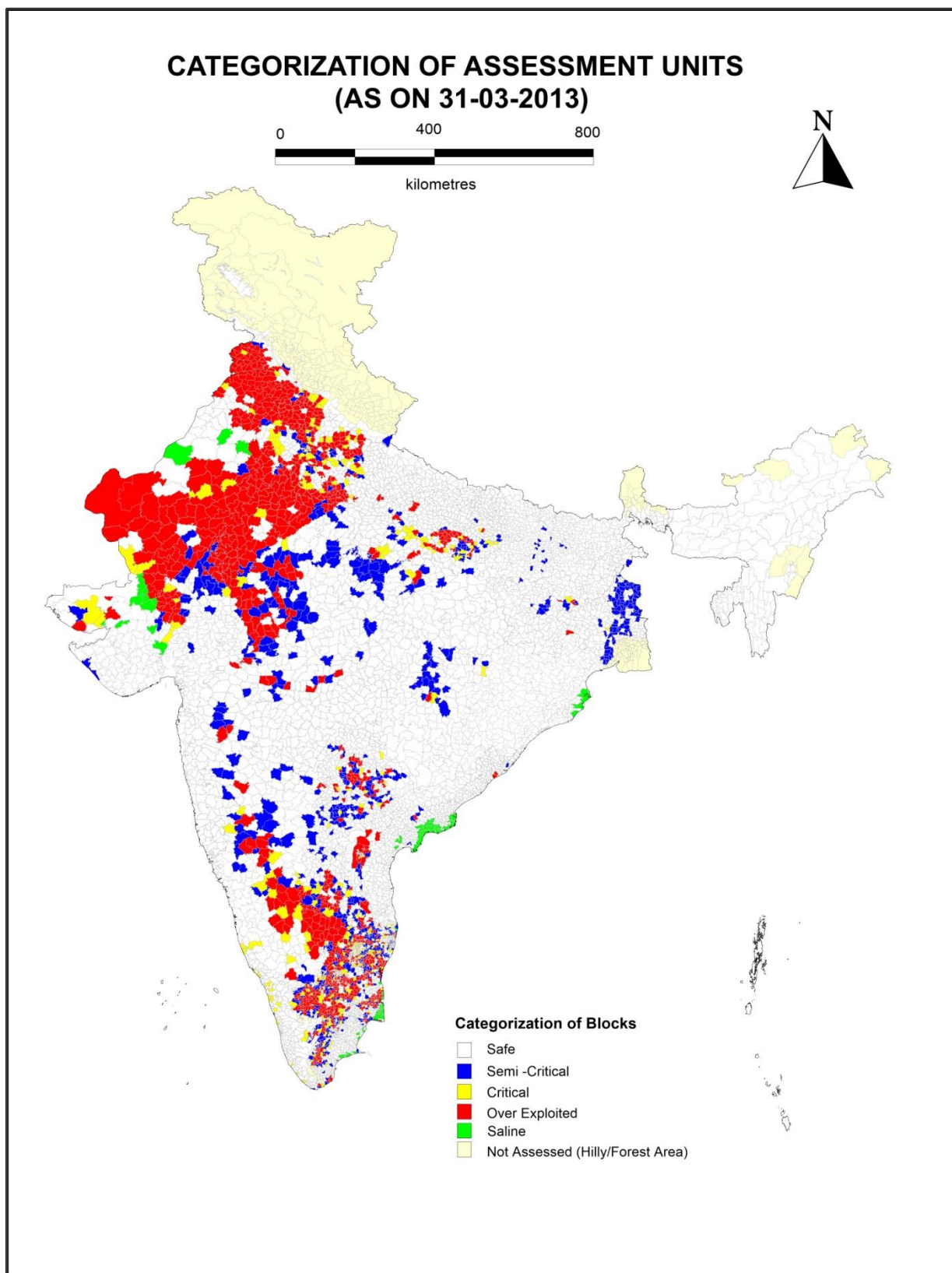
The assessment of ground water draft has been carried out considering the Minor Irrigation Census data and sample surveys carried out by the State Ground Water Departments. The Annual Ground Water Draft of the entire country for the reference year 2013 has been estimated as 253bcm. Agriculture sector remained the predominant consumer of ground water resources. About 90% of total annual ground water draft i.e. 228 bcm is for irrigation use. Only 25bcm is for Domestic & Industrial use which is about 10% of the total draft. In the states of Arunachal Pradesh, Delhi, Goa, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Kerala and, Manipur, Mizoram, Nagaland and Tripura and Union Territories of Andaman & Nicobar Island, Dadra & Nagar Haveli, and Daman & Diu, the ground water draft for domestic & industrial purposes is more than 20%.

Stage of Ground Water Development

The overall stage of ground water development in the country is 62%. The stage of ground water development is very high in the states of Delhi, Haryana, Punjab and Rajasthan, where it is more than 100%, which implies that in these states the annual ground water consumption is more than annual ground water recharge. In the states of Tamil Nadu, Uttar Pradesh and UTs of Daman & Diu and Puducherry, the stage of ground water development is 70% and above. In rest of the states / UTs the stage of ground water development is below 70%.

Categorization of Assessment Units

Out of 6584 numbers of assessment units (Blocks/ Taluks/ Mandals/ Districts/Firkas/Valleys), 1034 has been categorized as Over-exploited, 253 as Critical, 681 as Semi-critical, and 4520 units as Safe. There are 96 assessment units which are completely saline. Number of Over-exploited and Critical administrative units is significantly higher in Delhi, Haryana, Himachal Pradesh, Karnataka, Punjab, Rajasthan and Tamil Nadu, Uttar Pradesh



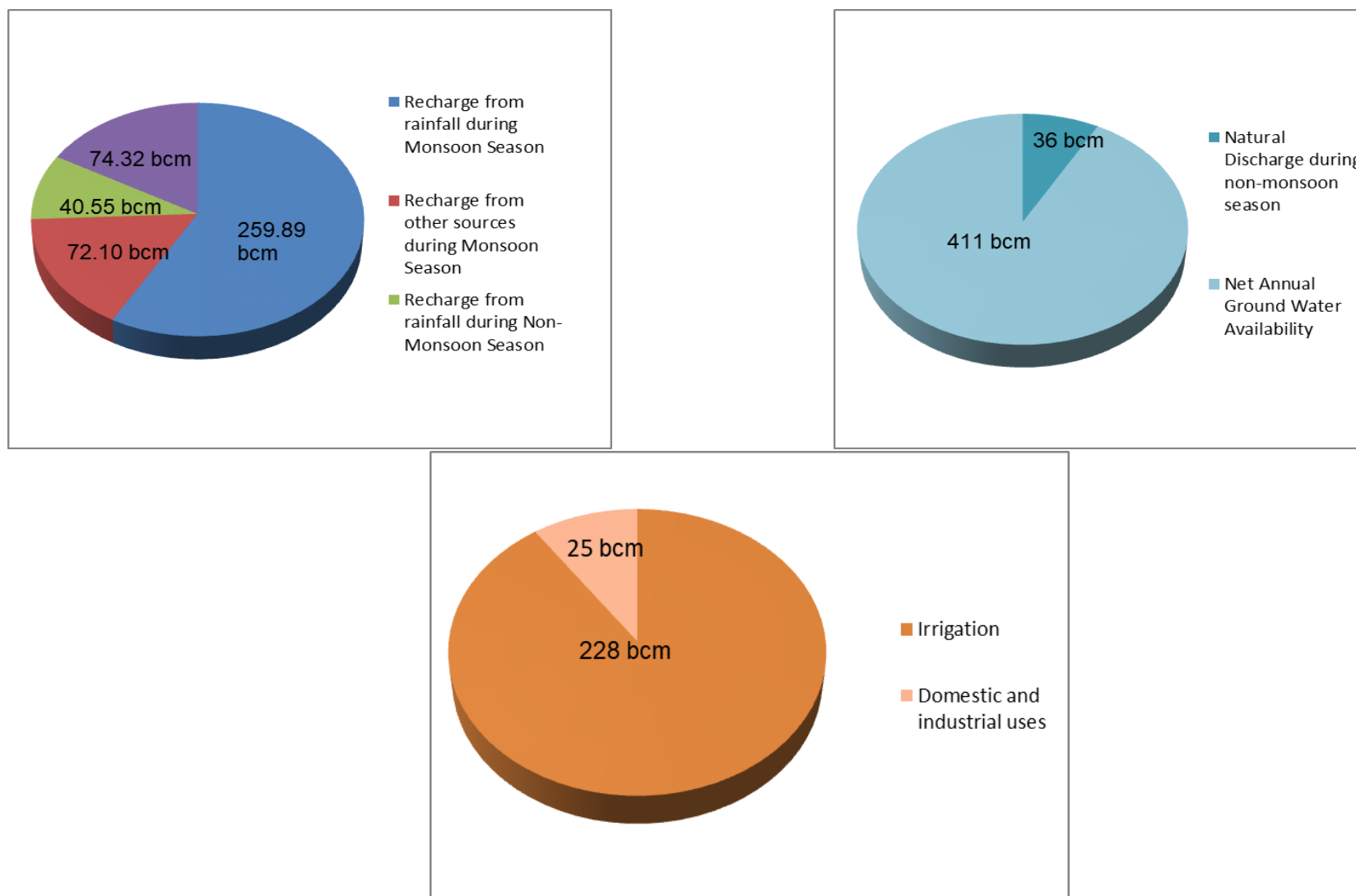
Categorization of Ground Water Assessment Units

STATE-WISE GROUND WATER RESOURCES AVAILABILITY, UTILIZATION AND STAGE OF DEVELOPMENT														
INDIA (As on 31st March 2013)														
(in bcm)														
Sl. No .	States / Union Territories	Annual Replenishable Ground Water Resource					Natural Discharge during non-monsoon season	Net Annual Ground Water Availability	Annual Ground Water Draft			Projected demand for Domestic and Industrial uses upto 2025	Ground Water Availability for future irrigation use	Stage of Ground Water Development (%)
		Monsoon Season		Non-monsoon Season		Total			Irrigation	Domestic and industrial uses	Total			
		Recharge from rainfall	Recharge from other sources	Recharge from rainfall	Recharge from other sources									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	States													
1	Andhra Pradesh	8.97	4.25	3.21	3.97	20.39	1.91	18.48	7.29	0.81	8.10	1.64	10.21	44
2	Arunachal Pradesh	3.340	0.0003	1.092	0.001	4.433	0.443	3.990	0.002	0.007	0.01	0.020	3.967	0.23
3	Assam	20.56	1.82	9.22	0.49	32.11	3.21	28.90	4.06	0.68	4.74	0.84	24.00	16
4	Bihar	20.66	3.48	3.36	3.81	31.31	2.82	28.49	10.36	2.37	12.73	0.60	17.52	45
5	Chhattisgarh	10.11	0.76	0.87	1.06	12.80	0.90	11.90	3.76	0.64	4.40	0.76	7.38	37
6	Delhi	0.09	0.02	0.014	0.22	0.34	0.03	0.31	0.14	0.25	0.39	0.25	0.02	127
7	Goa	0.15	0.011	0.01	0.08	0.24	0.10	0.15	0.02	0.03	0.05	0.04	0.09	37
8	Gujarat	13.93	3.22	0.00	3.71	20.85	1.07	19.79	12.30	1.14	13.44	1.46	6.77	68
9	Haryana	3.62	3.10	1.03	3.60	11.36	1.06	10.30	13.32	0.60	13.92	0.56	-3.58	135
10	Himachal Pradesh	0.40	0.02	0.11	0.03	0.56	0.03	0.53	0.16	0.11	0.27	0.07	0.30	51
11	Jammu & Kashmir	1.22	2.69	0.79	0.55	5.25	0.43	4.82	0.20	0.98	1.18	1.07	3.55	24
12	Jharkhand	5.61	0.06	0.73	0.16	6.56	0.57	5.99	0.63	0.72	1.35	0.17	5.19	23

STATE-WISE GROUND WATER RESOURCES AVAILABILITY, UTILIZATION AND STAGE OF DEVELOPMENT														
INDIA (As on 31st March 2013)														
(in bcm)														
Sl. No	States / Union Territories	Annual Replenishable Ground Water Resource					Natural Discharge during non-monsoon season	Net Annual Ground Water Availability	Annual Ground Water Draft			Projected demand for Domestic and Industrial uses upto 2025	Ground Water Availability for future irrigation use	Stage of Ground Water Development (%)
		Monsoon Season		Non-monsoon Season		Total			Irrigation	Domestic and industrial uses	Total			
		Recharge from rainfall	Recharge from other sources	Recharge from rainfall	Recharge from other sources									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
13	Karnataka	6.74	4.18	2.67	3.40	17.00	2.16	14.83	8.76	0.99	9.76	1.49	5.55	66
14	Kerala	4.51	0.04	0.59	1.13	6.27	0.60	5.66	1.18	1.45	2.63	1.55	2.93	47
15	Madhya Pradesh	28.59	1.27	0.82	5.30	35.98	1.82	34.16	17.95	1.41	19.36	2.35	13.86	57
16	Maharashtra	21.96	1.64	1.83	7.76	33.19	1.71	31.48	15.93	1.14	17.07	2.21	13.72	54
17	Manipur	0.244	0.010	0.201	0.019	0.474	0.047	0.426	0.004	0.001	0.004	0.049	0.374	1.01
18	Meghalaya	3.05	0.00	0.15	0.107	3.31	0.33	2.98	0.0080	0.0040	0.0120	0.207	2.76	0.4
19	Mizoram	0.02899	Negligible	0.01042	Negligible	0.03942	0.00394	0.03548	0	0.00104	0.00104	0.00238	0.0331	2.9
20	Nagaland	1.30	0	0.64	0	1.94	0.194	1.75	0.00	0.03	0.03	0.01	1.74	2.0
21	Odisha	11.29	2.53	1.33	2.63	17.78	1.09	16.69	4.14	0.87	5.02	1.35	11.20	30
22	Punjab	5.75	13.21	1.32	5.64	25.91	2.52	23.39	34.05	0.77	34.81	0.97	-11.63	149
23	Rajasthan	9.06	0.69	0.27	2.49	12.51	1.26	11.26	13.79	1.92	15.71	2.32	0.90	140
24	Sikkim	-	-	-	-	-	-	-	-	-	-	-	-	-
25	Tamil Nadu	7.12	9.87	1.52	2.15	20.65	2.07	18.59	12.98	1.38	14.36	1.53	4.08	77
26	Telangana	8.13	2.12	1.65	2.84	14.74	1.35	13.39	7.00	0.76	7.77	1.55	4.83	58
27	Tripura	1.141	0.000	0.738	0.593	2.471	0.202	2.269	0.093	0.072	0.165	0.200	1.976	7.3

STATE-WISE GROUND WATER RESOURCES AVAILABILITY, UTILIZATION AND STAGE OF DEVELOPMENT														
INDIA (As on 31st March 2013)														
(in bcm)														
Sl. No	States / Union Territories	Annual Replenishable Ground Water Resource				Natural Discharge during non-monsoon season	Net Annual Ground Water Availability	Annual Ground Water Draft			Projected demand for Domestic and Industrial uses upto 2025	Ground Water Availability for future irrigation use	Stage of Ground Water Development (%)	
		Monsoon Season		Non-monsoon Season				Total	Irrigation	Domestic and industrial uses				Total
		Recharge from rainfall	Recharge from other sources	Recharge from rainfall	Recharge from other sources									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
28	Uttar Pradesh	41.97	11.52	4.60	18.25	76.34	4.75	71.58	48.35	4.41	52.76	6.44	19.01	74
29	Uttarakhand	1.10	0.22	0.24	0.43	2.00	0.03	1.97	0.84	0.15	0.99	0.30	0.82	50
30	West Bengal	18.71	5.26	1.51	3.85	29.33	2.77	26.56	10.84	1.00	11.84	1.53	14.19	45
	Total States	259.33	72.00	40.53	74.28	446.14	35.49	410.65	228.16	24.71	252.87	31.54	161.76	62
	Union Territories													
1	Andaman & Nicobar	0.38	0.04	0.0002	0.00005	0.420	0.0420	0.378	0.0001	0.0035	0.0037	0.016	0.361	1
2	Chandigarh	0.015	0.0004	0.005	0.001	0.022	0.0022	0.0194	0	0	0	0	0	0
3	Dadara & Nagar Haveli	0.054	0.002	0.010	0.004	0.070	0.007	0.063	0.008	0.013	0.020	0.014	0.042	32
4	Daman & Diu	0.012	0.001	0.000	0.001	0.015	0.001	0.014	0.008	0.002	0.010	0.003	0.003	70
5	Lakshdweep	0	0	0	0	0.01055	0.00704	0.00350	0.00000	0.00237	0.00237	0	0	68
6	Puducherry	0.095	0.060	0.009	0.028	0.193	0.019	0.174	0.124	0.029	0.153	0.047	0.053	88
	Total UTs	0.56	0.10	0.024	0.035	0.73	0.08	0.65	0.139	0.050	0.189	0.08	0.46	29
	Grand Total	259.89	72.10	40.55	74.32	446.87	35.56	411.30	228.30	24.76	253.06	31.62	162.22	62

Ground Water Resource Availability and Utilization



CATEGORIZATION OF BLOCKS/ MANDALS/ TALUKAS IN INDIA (2013)

Sl.No.	States / Union Territories	Total No. of Assessed Units	Safe		Semi-critical		Critical		Over-exploited		Saline	
			Nos.	%	Nos.	%	Nos.	%	Nos.	%	Nos.	%
	States											
1	Andhra Pradesh	670	497	74	54	8	17	3	61	9	41	6
2	Arunachal Pradesh	11	11	100	0	0	0	0	0	0	0	0
3	Assam	27	27	100	0	0	0	0	0	0	0	0
4	Bihar	534	520	97	14	3	0	0	0	0	0	0
5	Chattisgarh	146	125	86	18	12	2	1	1	1	0	0
6	Delhi	27	5	19	7	26	0	0	15	56	0	0
7	Goa	12	12	100	0	0	0	0	0	0	0	0
8	Gujarat	223	175	78	9	4	6	3	23	10	10	4
9	Haryana	119	30	25	11	9	14	12	64	54	0	0
10	Himachal Pradesh	8	6	75	0	0	1	13	1	13	0	0
11	Jammu & Kashmir	22	22	100	0	0	0	0	0	0	0	0
12	Jharkhand	260	244	94	10	4	2	1	4	2	0	0
13	Karnataka	176	98	56	21	12	14	8	43	24	0	0
14	Kerala	152	131	86	18	12	2	1	1	1	0	0
15	Madhya Pradesh	313	228	73	58	19	2	1	25	8	0	0
16	Maharashtra	353	324	92	19	5	1	0	9	3	0	0
17	Manipur	9	9	100	0	0	0	0	0	0	0	0
18	Meghalaya	11	11	100	0	0	0	0	0	0	0	0
19	Mizoram	22	22	100	0	0	0	0	0	0	0	0
20	Nagaland	11	11	100	0	0	0	0	0	0	0	0

CATEGORIZATION OF BLOCKS/ MANDALS/ TALUKAS IN INDIA (2013)

Sl.No.	States / Union Territories	Total No. of Assessed Units	Safe		Semi-critical		Critical		Over-exploited		Saline	
			Nos.	%	Nos.	%	Nos.	%	Nos.	%	Nos.	%
21	Odisha	314	308	98	0	0	0	0	0	0	6	2
22	Punjab	138	26	19	3	2	4	3	105	76	0	0
23	Rajasthan	248	44	18	28	11	9	4	164	66	3	1
24	Sikkim	-	-	-	-	-	-	-	-	-	-	-
25	Tamil Nadu	1139	429	38	212	19	105	9	358	31	35	3
26	Telangana	443	311	70	74	17	12	3	46	10	0	0
27	Tripura	39	39	100	0	0	0	0	0	0	0	0
28	Uttar Pradesh	820	603	74	45	5	59	7	113	14	0	0
29	Uttarakhand	18	16	89	1	6	1	6	0	0	0	0
30	West Bengal	268	191	71	76	28	1	0	0	0	0	0
	Total States	6533	4475	68	678	10	252	4	1033	16	95	1
	Union Territories											
1	Andaman & Nicobar	34	34	100	0	0	0	0	0	0	0	0
2	Chandigarh	1	1	100	0	0	0	0	0	0	0	0
3	Dadra & Nagar Haveli	1	1	100	0	0	0	0	0	0	0	0
4	Daman & Diu	2	1	50	0	0	1	50	0	0	0	0
5	Lakshdweep	9	6	67	3	33	0	0	0	0	0	0
6	Puducherry	4	2	50	0	0	0	0	1	25	1	25
	Total UTs	51	45	88	3	6	1	2	1	2	1	2
	Grand Total	6584	4520	69	681	10	253	4	1034	16	96	1

Annexure-I

State-wise Depth to water Level and Distribution of Percentage of Wells for the Period of Pre Monsoon-2016

S. No.	Name of State	No. of wells Analysed	Depth to Water Level (m bgl)		Number & Percentage of Wells Showing Depth to Water Level (m bgl) in the Range of											
					0-2		2-5		5-10		10-20		20-40		> 40	
			Min	Max	No	%	No	%	No	%	No	%	No	%	No	%
1	Andaman & Nicobar Island	93	0	11.8	34	37	54	58	4	4.3	1	1.1	0	0	0	0
2	Andhra Pradesh	775	0.00	49.30	82	10.58	333	42.97	263	33.9	91	11.74	5	0.65	1	0.13
3	Arunachal Pradesh	15	1.02	11.22	2	13.33	8	53.33	3	20.00	2	13.33	0	0.00	0	0.00
4	Assam	187	0.22	19.67	26	13.90	110	58.82	45	24.06	6	3.21	0	0.00	0	0.00
5	Bihar	623	1.13	15.80	8	1.28	233	37.40	353	56.66	29	4.65	0	0.00	0	0.00
6	Chandigarh	12	2.72	28.75	0	0.00	2	16.67	4	33.33	3	25.00	3	25.00	0	0.00
7	Chhattisgarh	623	1.51	54.80	8	1.28	95	15.25	338	54.25	161	25.84	19	3.05	2	0.32
8	Dadra & Nagar Haveli	16	3.36	17.00	0	0.00	3	18.75	7	43.75	6	37.50	0	0.00	0	0.00
9	Daman & Diu	12	3.50	10.41	0	0.00	1	8.33	10	83.33	1	8.33	0	0.00	0	0.00
10	Delhi	116	1.84	58.89	2	1.72	24	20.69	30	25.86	31	26.72	19	16.38	10	8.62
11	Goa	71	2.08	18.84	0	0.00	29	40.85	34	47.89	8	11.27	0	0.00	0	0.00

State-wise Depth to water Level and Distribution of Percentage of Wells for the Period of Pre Monsoon-2016

S. No.	Name of State	No. of wells Analysed	Depth to Water Level (m bgl)		Number & Percentage of Wells Showing Depth to Water Level (m bgl) in the Range of											
					0-2		2-5		5-10		10-20		20-40		> 40	
			Min	Max	No	%	No	%	No	%	No	%	No	%	No	%
12	Gujarat	822	0.05	58.24	21	2.55	123	14.96	277	33.70	308	37.47	84	10.22	9	1.09
13	Haryana	939	0.51	99.50	30	3.19	182	19.38	196	20.87	241	25.67	227	24.17	63	6.71
14	Himachal Pradesh	96	0.36	28.23	5	5.21	38	39.58	26	27.08	19	19.79	8	8.33	0	0.00
15	Jammu & Kashmir	225	0.49	35.47	29	12.89	118	52.44	53	23.56	15	6.67	10	4.44	0	0.00
16	Jharkhand	230	2.05	19.25	0	0.00	26	11.30	170	73.91	34	14.78	0	0.00	0	0.00
17	Karnataka	1409	0.01	89.40	72	5.11	293	20.79	627	44.50	387	27.47	27	1.92	3	0.21
18	Kerala	1308	0.45	39.31	93	7.11	365	27.91	605	46.25	228	17.43	17	1.30	0	0.00
19	Madhya Pradesh	1360	1.10	49.57	6	0.44	143	10.51	617	45.37	508	37.35	74	5.44	12	0.88
20	Maharashtra	1581	0.51	153.00	31	1.96	209	13.22	712	45.03	559	35.36	64	4.05	6	0.38
21	Meghalaya	17	0.71	5.50	3	17.65	12	70.59	2	11.76	0	0.00	0	0.00	0	0.00
22	Nagaland	17	2.82	16.17	0	0.00	6	35.29	9	52.94	2	11.76	0	0.00	0	0.00
23	Orissa	1114	0.02	18.80	82	7.36	425	38.15	565	50.72	42	3.77	0	0.00	0	0.00

State-wise Depth to water Level and Distribution of Percentage of Wells for the Period of Pre Monsoon-2016

S. No.	Name of State	No. of wells Analysed	Depth to Water Level (m bgl)		Number & Percentage of Wells Showing Depth to Water Level (m bgl) in the Range of											
					0-2		2-5		5-10		10-20		20-40		> 40	
			Min	Max	No	%	No	%	No	%	No	%	No	%	No	%
24	Pondicherry	6	1.83	3.37	1	16.67	5	83.33	0	0.00	0	0.00	0	0.00	0	0.00
25	Punjab	726	0.58	60.40	19	2.62	81	11.16	156	21.49	237	32.64	225	30.99	8	1.10
26	Rajasthan	859	0.35	106.32	13	1.51	75	8.73	196	22.82	254	29.57	157	18.28	164	19.09
27	Tamil Nadu	591	0.00	75.60	56	9.48	193	32.66	232	39.26	90	15.23	17	2.88	3	0.51
28	Telangana	399	1.09	54.78	5	1.25	42	10.53	144	36.09	152	38.10	48	12.03	8	2.01
29	Tripura	28	1.30	7.18	9	32.14	12	42.86	7	25.00	0	0.00	0	0.00	0	0.00
30	Uttar Pradesh	635	0.00	37.50	8	1.26	160	25.20	301	47.40	146	22.99	20	3.15	0	0.00
31	Uttaranchal	44	1.07	31.75	1	2.27	17	38.64	12	27.27	13	29.55	1	2.27	0	0.00
32	West Bengal	907	0.26	29.17	34	3.75	217	23.93	362	39.91	247	27.23	47	5.18	0	0.00
	Total	15856			680	4.29	3634	22.92	6360	40.11	3821	24.10	1072	6.76	289	1.8

State-wise Depth to water Level and Distribution of Percentage of Wells for the Period of August-2016

S. No.	Name of State	No. of wells Analysed	Depth to Water Level (mbgl)		Number & Percentage of Wells Showing Depth to Water Level (mbgl) in the Range of											
					0-2		2-5		5-10		10-20		20-40		> 40	
			Min	Max	No	%	No	%	No	%	No	%	No	%	No	%
1	Andhra Pradesh	784	0.00	49.30	236	30.10	278	35.46	204	26.0	57	7.27	6	0.77	3	0.38
2	Arunachal Pradesh	10	0.90	5.28	6	60.00	3	30.00	1	10.00	0	0.00	0	0.00	0	0.00
3	Assam	154	0.03	19.15	89	57.79	55	35.71	8	5.19	2	1.30	0	0.00	0	0.00
4	Bihar	578	0.05	11.80	189	32.70	303	52.42	84	14.53	2	0.35	0	0.00	0	0.00
5	Chandigarh	13	2.66	29.01	0	0.00	3	23.08	2	15.38	4	30.77	4	30.77	0	0.00
6	Chhattisgarh	623	0.10	36.30	215	34.51	289	46.39	92	14.77	24	3.85	3	0.48	0	0.00
7	Dadra & Nagar Haveli	16	0.01	6.93	10	62.50	4	25.00	2	12.50	0	0.00	0	0.00	0	0.00
9	Daman & Diu	13	0.79	6.18	7	53.85	5	38.46	1	7.69	0	0.00	0	0.00	0	0.00
10	Delhi	113	0.24	58.33	14	12.39	17	15.04	26	23.01	27	23.89	19	16.81	10	8.85
11	Goa	58	0.11	12.49	24	41.38	22	37.93	11	18.97	1	1.72	0	0.00	0	0.00
12	Gujarat	858	0.02	59.30	153	17.83	272	31.70	229	26.69	152	17.72	47	5.48	5	0.58

State-wise Depth to water Level and Distribution of Percentage of Wells for the Period of August-2016

S. No.	Name of State	No. of wells Analysed	Depth to Water Level (mbgl)		Number & Percentage of Wells Showing Depth to Water Level (mbgl) in the Range of											
					0-2		2-5		5-10		10-20		20-40		> 40	
			Min	Max	No	%	No	%	No	%	No	%	No	%	No	%
13	Haryana	126	0.14	71.30	13	10.32	27	21.43	39	30.95	30	23.81	14	11.11	3	2.38
14	Himachal Pradesh	99	0.18	27.40	30	30.30	39	39.39	13	13.13	11	11.11	6	6.06	0	0.00
15	Jammu & Kashmir	228	0.13	34.80	96	42.11	88	38.60	28	12.28	9	3.95	7	3.07	0	0.00
16	Jharkhand	226	0.10	11.03	75	33.19	108	47.79	40	17.70	3	1.33	0	0.00	0	0.00
17	Karnataka	1409	0.02	28.67	268	19.02	497	35.27	449	31.87	181	12.85	14	0.99	0	0.00
18	Kerala	1454	0.10	31.80	293	20.15	451	31.02	567	39.00	132	9.08	11	0.76	0	0.00
19	Madhya Pradesh	1337	0.00	42.02	561	41.96	477	35.68	201	15.03	76	5.68	21	1.57	1	0.07
20	Maharashtra	1615	0.01	81.00	466	28.85	550	34.06	417	25.82	155	9.60	24	1.49	3	0.19
21	Meghalaya	19	0.06	4.90	8	42.11	11	57.89	0	0.00	0	0.00	0	0.00	0	0.00
22	Nagaland	15	1.22	20.28	4	26.67	9	60.00	0	0.00	1	6.67	1	6.67	0	0.00
23	Odisha	1265	0.05	11.40	667	52.73	499	39.45	96	7.59	3	0.24	0	0.00	0	0.00

State-wise Depth to water Level and Distribution of Percentage of Wells for the Period of August-2016

S. No.	Name of State	No. of wells Analysed	Depth to Water Level (mbgl)		Number & Percentage of Wells Showing Depth to Water Level (mbgl) in the Range of											
					0-2		2-5		5-10		10-20		20-40		> 40	
			Min	Max	No	%	No	%	No	%	No	%	No	%	No	%
24	Pondicherry	6	1.37	5.52	1	16.67	4	66.67	1	16.67	0	0.00	0	0.00	0	0.00
25	Punjab	240	0.33	43.58	16	6.67	48	20.00	51	21.25	64	26.67	60	25.00	1	0.42
26	Rajasthan	926	0.03	120.46	187	20.19	136	14.69	137	14.79	157	16.95	152	16.41	157	16.95
27	Tamil Nadu	614	0.25	61.31	32	5.21	181	29.48	261	42.51	111	18.08	19	3.09	10	1.63
28	Telangana	605	0.00	58.35	81	13.39	160	26.45	187	30.91	122	20.17	47	7.77	8	1.32
29	Tripura	25	0.36	5.88	13	52.00	11	44.00	1	4.00	0	0.00	0	0.00	0	0.00
30	Uttar Pradesh	776	0.00	44.20	201	25.90	224	28.87	201	25.90	130	16.75	18	2.32	2	0.26
31	Uttarakhand	34	0.90	48.68	6	17.65	13	38.24	10	29.41	3	8.82	1	2.94	1	2.94
	Total	14890			4296	28.85	4967	33.36	3437	23.08	1506	10.11	480	3.22	204	1.4

State-wise Depth to water Level and Distribution of Percentage of Wells for the Period of November-2016

S. No.	Name of State	No. of wells Analyzed	Depth to Water Level (m bgl)		Number & Percentage of Wells Showing Depth to Water Level (m bgl) in the Range of											
					0-2		2-5		5-10		10-20		20-40		> 40	
			Min	Max	No	%	No	%	No	%	No	%	No	%	No	%
1	Andaman & Nicobar Islands	107	0.09	7.51	91	85.05	15	14.02	1	0.9	0	0.00	0	0.00	0	0.00
2	Andhra Pradesh	775	0.00	48.50	262	33.81	289	37.29	164	21.2	54	6.97	4	0.52	3	0.39
3	Arunachal Pradesh	10	0.90	5.84	2	20.00	5	50.00	3	30.00	0	0.00	0	0.00	0	0.00
4	Assam	165	0.02	18.10	54	32.73	93	56.36	14	8.48	4	2.42	0	0.00	0	0.00
5	Bihar	588	0.02	14.50	106	18.03	391	66.50	86	14.63	5	0.85	0	0.00	0	0.00
6	Chandigarh	9	2.82	28.85	0	0.00	1	11.11	4	44.44	2	22.22	2	22.22	0	0.00
7	Chhattisgarh	599	0.80	29.40	66	11.02	347	57.93	151	25.21	34	5.68	1	0.17	0	0.00
8	Dadra & Nagar Haveli	16	0.61	7.55	7	43.75	7	43.75	2	12.50	0	0.00	0	0.00	0	0.00
9	Daman & Diu	12	1.40	6.63	3	25.00	6	50.00	3	25.00	0	0.00	0	0.00	0	0.00
10	Delhi	113	1.00	58.63	7	6.19	20	17.70	28	24.78	29	25.66	19	16.81	10	8.85
11	Goa	69	0.61	14.61	19	27.54	26	37.68	19	27.54	5	7.25	0	0.00	0	0.00

State-wise Depth to water Level and Distribution of Percentage of Wells for the Period of November-2016

S. No.	Name of State	No. of wells Analyzed	Depth to Water Level (m bgl)		Number & Percentage of Wells Showing Depth to Water Level (m bgl) in the Range of											
					0-2		2-5		5-10		10-20		20-40		> 40	
			Min	Max	No	%	No	%	No	%	No	%	No	%	No	%
12	Gujarat	852	0.07	57.59	97	11.38	269	31.57	277	32.51	164	19.25	41	4.81	4	0.47
13	Haryana	310	0.18	76.52	34	10.97	56	18.06	73	23.55	78	25.16	58	18.71	11	3.55
14	Himachal Pradesh	99	0.41	26.33	19	19.19	35	35.35	25	25.25	14	14.14	6	6.06	0	0.00
15	Jammu & Kashmir	229	0.05	34.75	58	25.33	108	47.16	46	20.09	9	3.93	8	3.49	0	0.00
16	Jharkhand	218	0.42	13.50	18	8.26	130	59.63	65	29.82	5	2.29	0	0.00	0	0.00
17	Karnataka	1429	0.05	30.30	192	13.44	456	31.91	544	38.07	224	15.68	13	0.91	0	0.00
18	Kerala	1416	0.10	33.30	210	14.83	407	28.74	601	42.44	188	13.28	10	0.71	0	0.00
19	Madhya Pradesh	1344	0.01	39.40	148	11.01	567	42.19	464	34.52	133	9.90	32	2.38	0	0.00
20	Maharashtra	1656	0.01	49.30	345	20.83	733	44.26	431	26.03	124	7.49	21	1.27	2	0.12
21	Meghalaya	18	0.11	4.26	7	38.89	11	61.11	0	0.00	0	0.00	0	0.00	0	0.00
22	Odisha	1219	0.10	15.35	313	25.68	754	61.85	148	12.14	4	0.33	0	0.00	0	0.00
23	Pondicherry	4	1.52	5.45	2	50.00	1	25.00	1	25.00	0	0.00	0	0.00	0	0.00
24	Punjab	784	0.52	60.10	21	2.68	101	12.88	159	20.28	224	28.57	269	34.31	10	1.28

State-wise Depth to water Level and Distribution of Percentage of Wells for the Period of November-2016

S. No.	Name of State	No. of wells Analyzed	Depth to Water Level (m bgl)		Number & Percentage of Wells Showing Depth to Water Level (m bgl) in the Range of											
					0-2		2-5		5-10		10-20		20-40		> 40	
			Min	Max	No	%	No	%	No	%	No	%	No	%	No	%
25	Rajasthan	926	0.12	122.00	128	13.82	149	16.09	152	16.41	178	19.22	149	16.09	170	18.36
26	Tamil Nadu	593	0.00	57.00	48	8.09	150	25.30	219	36.93	146	24.62	24	4.05	6	1.01
27	Telangana	611	0.00	55.00	112	18.33	238	38.95	151	24.71	79	12.93	28	4.58	2	0.33
28	Tripura	25	0.38	5.31	11	44.00	13	52.00	1	4.00	0	0.00	0	0.00	0	0.00
29	Uttar Pradesh	812	0.00	44.37	137	16.87	281	34.61	233	28.69	134	16.50	25	3.08	2	0.25
30	Uttarakhand	47	1.34	27.97	2	4.26	18	38.30	18	38.30	7	14.89	2	4.26	0	0.00
31	West Bengal	511	0.30	26.93	103	20.16	256	50.10	92	18.00	54	10.57	6	1.17	0	0.00
	Total	15566			2622	16.84	5933	38.12	4175	26.82	1898	12.19	718	4.61	220	1.4

State-wise Depth to water Level Distribution and Percentage of Wells for the Period of January-2017

S. No.	Name of State	No. of wells Analysed	Depth to Water Level (m bgl)		Number & Percentage of Wells Showing Depth to Water Level (m bgl) in the Range of											
					0-2		2-5		5-10		10-20		20-40		> 40	
			Min	Max	No	%	No	%	No	%	No	%	No	%	No	%
1	Andhra Pradesh	777	0.00	49.30	163	20.98	337	43.37	207	26.6	61	7.85	6	0.77	3	0.39
2	Arunachal Pradesh	14	0.90	10.12	2	14.29	6	42.86	5	35.71	1	7.14	0	0.00	0	0.00
3	Assam	183	0.02	19.50	27	14.75	119	65.03	32	17.49	5	2.73	0	0.00	0	0.00
4	Bihar	626	0.00	13.25	61	9.74	393	62.78	166	26.52	6	0.96	0	0.00	0	0.00
5	Chandigarh	12	2.72	41.01	0	0.00	3	25.00	2	16.67	3	25.00	3	25.00	1	8.33
6	Chhattisgarh	658	1.00	44.00	17	2.58	239	36.32	331	50.30	59	8.97	11	1.67	1	0.15
7	Dadra & Nagar Haveli	13	0.95	8.88	1	7.69	8	61.54	4	30.77	0	0.00	0	0.00	0	0.00
8	Daman & Diu	11	1.90	6.83	1	9.09	5	45.45	5	45.45	0	0.00	0	0.00	0	0.00
9	Delhi	108	1.20	58.94	8	7.41	18	16.67	26	24.07	29	26.85	17	15.74	10	9.26
10	Goa	60	1.04	14.15	9	15.00	25	41.67	21	35.00	5	8.33	0	0.00	0	0.00
11	Gujarat	833	0.01	59.30	49	5.88	211	25.33	316	37.94	192	23.05	61	7.32	4	0.48

State-wise Depth to water Level Distribution and Percentage of Wells for the Period of January-2017

S. No.	Name of State	No. of wells Analysed	Depth to Water Level (m bgl)		Number & Percentage of Wells Showing Depth to Water Level (m bgl) in the Range of											
					0-2		2-5		5-10		10-20		20-40		> 40	
			Min	Max	No	%	No	%	No	%	No	%	No	%	No	%
12	Haryana	240	0.89	50.86	6	2.50	26	10.83	42	17.50	59	24.58	76	31.67	31	12.92
13	Himachal Pradesh	88	0.51	27.90	16	18.18	36	40.91	19	21.59	11	12.50	6	6.82	0	0.00
14	Jammu & Kashmir	231	0.61	34.25	41	17.75	109	47.19	58	25.11	14	6.06	9	3.90	0	0.00
15	Jharkhand	158	0.56	16.50	6	3.80	69	43.67	74	46.84	9	5.70	0	0.00	0	0.00
16	Karnataka	1426	0.07	30.70	106	7.43	409	28.68	585	41.02	309	21.67	17	1.19	0	0.00
17	Kerala	1465	0.10	40.00	119	8.12	421	28.74	650	44.37	248	16.93	27	1.84	0	0.00
18	Madhya Pradesh	1332	0.52	46.81	47	3.53	367	27.55	598	44.89	279	20.95	37	2.78	4	0.30
19	Maharashtra	1665	0.01	50.20	134	8.05	637	38.26	664	39.88	203	12.19	25	1.50	2	0.12
20	Meghalaya	6	0.54	4.84	2	33.33	4	66.67	0	0.00	0	0.00	0	0.00	0	0.00
21	Nagaland	4	1.04	8.26	1	25.00	2	50.00	1	25.00	0	0.00	0	0.00	0	0.00
22	Odisha	1175	0.30	18.10	132	11.23	729	62.04	299	25.45	15	1.28	0	0.00	0	0.00

State-wise Depth to water Level Distribution and Percentage of Wells for the Period of January-2017

S. No.	Name of State	No. of wells Analysed	Depth to Water Level (m bgl)		Number & Percentage of Wells Showing Depth to Water Level (m bgl) in the Range of											
					0-2		2-5		5-10		10-20		20-40		> 40	
			Min	Max	No	%	No	%	No	%	No	%	No	%	No	%
23	Pondicherry	4	1.63	5.45	1	25.00	2	50.00	1	25.00	0	0.00	0	0.00	0	0.00
24	Punjab	777	0.75	60.50	16	2.06	95	12.23	181	23.29	221	28.44	257	33.08	7	0.90
25	Rajasthan	1002	0.06	122.10	126	12.57	142	14.17	177	17.66	184	18.36	166	16.57	207	20.66
26	Tamil Nadu	619	0.60	67.98	32	5.17	159	25.69	233	37.64	161	26.01	25	4.04	9	1.45
27	Telangana	599	0.00	69.40	46	7.68	208	34.72	213	35.56	103	17.20	24	4.01	5	0.83
28	Tripura	9	1.24	5.67	3	33.33	4	44.44	2	22.22	0	0.00	0	0.00	0	0.00
29	Uttar Pradesh	790	0.00	43.20	50	6.33	304	38.48	270	34.18	138	17.47	27	3.42	1	0.13
30	Uttarakhand	38	1.62	29.25	2	5.26	14	36.84	10	26.32	11	28.95	1	2.63	0	0.00
31	West Bengal	653	0.42	25.87	43	6.58	310	47.47	201	30.78	81	12.40	18	2.76	0	0.00
Total		15576			1267	8.13	5411	34.74	5393	34.62	2407	15.45	813	5.22	285	1.8

State-wise Annual Fluctuation & Frequency Distribution of Different Ranges from Pre Monsoon 2016 to Pre Monsoon 2015

S. No.	Name of State	No. of wells Analy sed	Range in m				Rise						Fall						Rise				Fall			
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		Rise		Fall		Rise		Fall	
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Andaman & Nicobar	74	0.01	2.98	0.01	3.3	26	35.1	3	4.1	0	0.0	38	51.4	7	9.5	0	0.0	29	39	45	61				
2	Andhra Pradesh	538	0.01	13.25	0.03	17.2	175	32.5	30	5.6	35	6.5	197	36.6	44	8.2	25	4.6	240	45	266	49				
3	Arunachal Pradesh	13	0.05	2.67	0.13	0.9	3	23.1	3	23.1	0	0.0	4	30.8	0	0.0	0	0.0	6	46	4	31				
4	Assam	160	0.04	10.28	0.01	17.1	67	41.9	5	3.1	4	2.5	70	43.8	12	7.5	1	0.6	76	48	83	52				
5	Bihar	528	0.01	9.55	0.01	6.4	140	26.5	17	3.2	4	0.8	294	55.7	51	9.7	13	2.5	161	30	358	68				
6	Chandigarh	10	0.22	3.32	0.51	2.3	5	50.0	1	10.0	0	0.0	2	20.0	2	20.0	0	0.0	6	60	4	40				
7	Chhattisgarh	522	0.04	11.65	0.04	14.4	68	13.0	23	4.4	15	2.9	259	49.6	82	15.7	72	13.8	106	20	413	79				
8	Dadra & Nagar Haveli	12	0.60	4.80	0.04	3.3	3	25.0	1	8.3	1	8.3	6	50.0	1	8.3	0	0.0	5	42	7	58				
9	Daman & Diu	9	0.05	0.14	0.04	2.0	2	22.2	0	0.0	0	0.0	6	66.7	0	0.0	0	0.0	2	22	6	67				
10	Delhi	114	0.01	4.90	0.01	10.3	27	23.7	4	3.5	1	0.9	73	64.0	8	7.0	1	0.9	32	28	82	72				
11	Goa	35	0.02	1.18	0.01	4.2	15	42.9	0	0.0	0	0.0	18	51.4	1	2.9	1	2.9	15	43	20	57				

State-wise Annual Fluctuation & Frequency Distribution of Different Ranges from Pre Monsoon 2016 to Pre Monsoon 2015

S. No	Name of State	No. of wells Analy sed	Range in m				Rise						Fall						Rise				Fall			
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m									
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%				
12	Gujarat	701	0.01	13.48	0.01	17.4	171	24.4	44	6.3	29	4.1	232	33.1	77	11.0	78	11.1	244	35	387	55				
13	Haryana	599	0.01	11.64	0.02	14.2	124	20.7	18	3.0	10	1.7	366	61.1	61	10.2	15	2.5	152	25	442	74				
14	Himachal Pradesh	82	0.04	7.69	0.01	6.5	15	18.3	0	0.0	2	2.4	51	62.2	12	14.6	2	2.4	17	21	65	79				
15	Jammu & Kashmir	214	0.04	3.23	0.02	7.2	29	13.6	4	1.9	0	0.0	121	56.5	46	21.5	14	6.5	33	15	181	85				
16	Jharkhand	114	0.02	4.40	0.04	5.5	25	21.9	6	5.3	2	1.8	67	58.8	10	8.8	3	2.6	33	29	80	70				
17	Karnataka	1338	0.01	12.63	0.01	16.2	199	14.9	45	3.4	34	2.5	595	44.5	203	15.2	172	12.9	278	21	970	72				
18	Kerala	1192	0.01	10.25	0.01	16.6	310	26.0	31	2.6	13	1.1	735	61.7	57	4.8	30	2.5	354	30	822	69				
19	Madhya Pradesh	1328	0.01	16.45	0.01	18.7	252	19.0	62	4.7	29	2.2	671	50.5	172	13.0	115	8.7	343	26	958	72				
20	Maharashtra	1427	0.01	16.30	0.01	16.6	279	19.6	68	4.8	29	2.0	596	41.8	235	16.5	167	11.7	376	26	998	70				
21	Meghalaya	13	0.06	1.48	0.73	0.9	6	46.2	0	0.0	0	0.0	7	53.8	0	0.0	0	0.0	6	46	7	54				
22	Odisha	1046	0.01	5.4	0.01	9.6	265	25.3	19	1.8	1	0.1	681	65.1	46	4.4	12	1.1	285	27	739	71				

State-wise Annual Fluctuation & Frequency Distribution of Different Ranges from Pre Monsoon 2016 to Pre Monsoon 2015

S. No	Name of State	No. of wells Analy sed	Range in m				Rise						Fall						Rise				Fall			
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m									
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%				
23	Pondicherry	3	0.11	2.57	0.90	0.9	1	33.3	1	33.3	0	0.0	1	33.3	0	0.0	0	0.0	2	67	1	33				
24	Punjab	569	0.02	15.57	0.01	8.9	123	21.6	15	2.6	4	0.7	360	63.3	45	7.9	11	1.9	142	25	416	73				
25	Rajasthan	744	0.01	16.01	0.01	17.1	141	19.0	36	4.8	26	3.5	337	45.3	115	15.5	81	10.9	203	27	533	72				
26	Tamil Nadu	490	0.01	14.45	0.01	12.8	137	28.0	58	11.8	37	7.6	186	38.0	42	8.6	29	5.9	232	47	257	52				
27	Telangana	366	0.02	16.28	0.01	13.0	56	15.3	7	1.9	8	2.2	133	36.3	68	18.6	55	15.0	71	19	256	70				
28	Tripura	27	0.15	1.68	0.01	1.0	17	63.0	0	0.0	0	0.0	10	37.0	0	0.0	0	0.0	17	63	10	37				
29	Uttar Pradesh	530	0.03	7.28	0.01	8.9	42	7.9	0	0.0	1	0.2	390	73.6	75	14.2	21	4.0	43	8	486	92				
30	Uttaranchal	34	0.06	9.07	0.15	3.2	16	47.1	4	11.8	1	2.9	11	32.4	2	5.9	0	0.0	21	62	13	38				
31	West Bengal	748	0.02	17.07	0.01	12.5	201	26.9	23	3.1	13	1.7	364	48.7	95	12.7	49	6.6	237	32	508	68				
	Total	13580					2940	22	528	3.9	299	2.2	6881	50.7	1569	11.6	967	7.1	3767	28	9417	69				

396 monitoring wells (3%) show no change in Water Level.

State-wise Annual Fluctuation & Frequency Distribution of Different Ranges from Aug 2016 to Aug 2015

S. N O.	Name of State	No. of wells Analy sed	Range in m				Rise						Fall						Total			
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		Rise		Fall	
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Andhra Pradesh	746	0.01	12.85	0.01	17.8	235	31.5	49	6.6	64	8.6	278	37.3	60	8.0	30	4.0	348	47	368	49
2	Arunachal Pradesh	6	0.11	0.13	0.20	1.9	2	33.3	0	0.0	0	0.0	4	66.7	0	0.0	0	0.0	2	33	4	67
3	Assam	129	0.01	1.26	0.02	3.8	28	21.7	0	0.0	1	0.8	86	66.7	12	9.3	0	0.0	29	22	98	76
4	Bihar	494	0.01	4.59	0.01	5.0	243	49.2	36	7.3	10	2.0	166	33.6	34	6.9	4	0.8	289	59	204	41
5	Chandigarh	9	0.04	0.04	0.19	14.0	1	11.1	0	0.0	0	0.0	6	66.7	1	11.1	1	11.1	1	11	8	89
6	Chhattisgarh	510	0.01	12.20	0.03	9.8	122	23.9	27	5.3	24	4.7	249	48.8	60	11.8	24	4.7	173	34	333	65
7	Dadra & Nagar Haveli	16	0.43	2.77			12	75.0	4	25.0	0	0.0	0	0.0	0	0.0	0	0.0	16	100	0	0
8	Daman & Diu	11	0.04	2.28	0.08	1.6	5	45.5	2	18.2	0	0.0	2	18.2	0	0.0	0	0.0	7	64	2	18
9	Delhi	111	0.01	3.67	0.02	8.5	36	32.4	2	1.8	0	0.0	69	62.2	3	2.7	1	0.9	38	34	73	66
10	Goa	55	0.02	4.14	0.01	0.8	34	61.8	3	5.5	1	1.8	16	29.1	0	0.0	0	0.0	38	69	16	29
11	Gujarat	718	0.01	19.04	0.01	18.9	237	33.0	93	13.0	81	11.3	198	27.6	52	7.2	52	7.2	411	57	302	42
12	Haryana	54	0.01	2.98	0.05	3.8	17	31.5	2	3.7	0	0.0	27	50.0	6	11.1	0	0.0	19	35	33	61

State-wise Annual Fluctuation & Frequency Distribution of Different Ranges from Aug 2016 to Aug 2015

S. N o.	Name of State	No. of wells Analy sed	Range in m				Rise						Fall						Total			
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		Rise		Fall	
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
13	Himachal Pradesh	95	0.03	6.06	0.08	9.3	24	25.3	2	2.1	1	1.1	45	47.4	19	20.0	4	4.2	27	28	68	72
14	Jammu & Kashmir	214	0.01	8.46	0.01	3.0	81	37.9	1	0.5	1	0.5	121	56.5	7	3.3	0	0.0	83	39	128	60
15	Jharkhand	214	0.01	6.97	0.03	6.8	100	46.7	21	9.8	4	1.9	73	34.1	14	6.5	2	0.9	125	58	89	42
16	Karnataka	1315	0.01	14.66	0.01	11.5	464	35.3	147	11.2	93	7.1	390	29.7	105	8.0	63	4.8	704	54	558	42
17	Kerala	1335	0.01	7.47	0.01	13.2	477	35.7	22	1.6	15	1.1	722	54.1	60	4.5	19	1.4	514	39	801	60
18	Madhya Pradesh	1297	0.01	17.16	0.01	16.2	645	49.7	259	20.0	149	11.5	166	12.8	38	2.9	33	2.5	1053	81	237	18
19	Maharashtra	1447	0.01	15.30	0.03	18.3	591	40.8	178	12.3	183	12.6	360	24.9	68	4.7	40	2.8	952	66	468	32
20	Meghalaya	14	0.09	4.78	0.01	1.4	4	28.6	0	0.0	1	7.1	9	64.3	0	0.0	0	0.0	5	36	9	64
21	Odisha	1188	0.01	5.97	0.01	5.7	428	36.0	41	3.5	6	0.5	636	53.5	34	2.9	12	1.0	475	40	682	57
22	Pondicherry	4	0.08	0.08	0.30	1.0	1	25.0	0	0.0	0	0.0	3	75.0	0	0.0	0	0.0	1	25	3	75
23	Punjab	178	0.02	16.09	0.20	9.5	54	30.3	5	2.8	6	3.4	86	48.3	21	11.8	6	3.4	65	37	113	63

State-wise Annual Fluctuation & Frequency Distribution of Different Ranges from Aug 2016 to Aug 2015

S. N O.	Name of State	No. of wells Analy sed	Range in m				Rise						Fall						Total			
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		Rise		Fall	
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
24	Rajasthan	780	0.02	17.50	0.01	15.0	257	32.9	83	10.6	79	10.1	223	28.6	68	8.7	64	8.2	419	54	355	46
25	Tamil Nadu	474	0.02	12.88	0.01	13.3	143	30.2	42	8.9	34	7.2	190	40.1	35	7.4	27	5.7	219	46	252	53
26	Telangana	565	0.01	17.00	0.01	18.8	155	27.4	68	12.0	50	8.8	175	31.0	53	9.4	39	6.9	273	48	267	47
27	Tripura	19	0.01	0.81	0.04	1.9	14	73.7	0	0.0	0	0.0	5	26.3	0	0.0	0	0.0	14	74	5	26
28	Uttar Pradesh	671	0.01	10.72	0.01	6.9	269	40.1	67	10.0	36	5.4	256	38.2	26	3.9	13	1.9	372	55	295	44
29	Uttaranchal	29	0.08	4.76	0.08	8.7	9	31.0	2	6.9	5	17.2	12	41.4	0	0.0	1	3.4	16	55	13	45
30	West Bengal	434	0.03	12.60	0.01	11.3	148	34.1	19	4.4	29	6.7	175	40.3	38	8.8	17	3.9	196	45	230	53
	TOTAL	13132					4836	37	117 5	8.9	873	6.6	4748	36.2	814	6.2	452	3.4	6884	52	6014	46

234 monitoring wells (2%) show no change in Water Level.

State-wise Annual Fluctuation & Frequency Distribution of Different Ranges from November 2016 to November 2015

S. N O.	Name of State	No. of wells Analy sed	Range in m				Rise						Fall						Total			
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		Rise		Fall	
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Andaman & Nicobar	107	0	1.02	0.00	2.0	50	46.7	0	0.0	0	0.0	55	51.4	0	0.0	0	0.0	50	47	55	51
2	Andhra Pradesh	746	0.01	12.85	0.01	17.8	235	31.5	49	6.6	64	8.6	278	37.3	60	8.0	30	4.0	348	47	368	49
3	Arunachal Pradesh	6	0.11	0.13	0.20	1.9	2	33.3	0	0.0	0	0.0	4	66.7	0	0.0	0	0.0	2	33	4	67
4	Assam	155	0.01	1.26	0.02	3.8	55	35.5	3	1.9	0	0.0	88	56.8	5	3.2	2	1.3	58	37	95	61
5	Bihar	494	0.01	4.59	0.01	5.0	243	49.2	36	7.3	10	2.0	166	33.6	34	6.9	4	0.8	289	59	204	41
6	Chandigarh	9	0.04	0.04	0.19	14.0	1	11.1	0	0.0	0	0.0	6	66.7	1	11.1	1	11.1	1	11	8	89
7	Chhattisgarh	580	0.01	12.20	0.03	9.8	164	28.3	29	5.0	5	0.9	313	54.0	56	9.7	11	1.9	198	34	380	66
8	Dadra & Nagar Haveli	16	0.43	2.77			12	75.0	4	25.0	0	0.0	0	0.0	0	0.0	0	0.0	16	100	0	0
9	Daman & Diu	11	0.04	2.28	0.08	1.6	5	45.5	2	18.2	0	0.0	2	18.2	0	0.0	0	0.0	7	64	2	18
10	Delhi	111	0.01	3.67	0.02	8.5	36	32.4	2	1.8	0	0.0	69	62.2	3	2.7	1	0.9	38	34	73	66
11	Goa	55	0.02	4.14	0.01	0.8	34	61.8	3	5.5	1	1.8	16	29.1	0	0.0	0	0.0	38	69	16	29

State-wise Annual Fluctuation & Frequency Distribution of Different Ranges from November 2016 to November 2015

S. N. O.	Name of State	No. of wells Analy sed	Range in m				Rise						Fall						Total			
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		Rise		Fall	
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
12	Gujarat	718	0.01	19.04	0.01	18.9	237	33.0	93	13.0	81	11.3	198	27.6	52	7.2	52	7.2	411	57	302	42
13	Haryana	295	0.01	13.00	0.05	10.0	88	29.8	6	2.0	8	2.7	127	43.1	40	13.6	26	8.8	102	35	193	65
14	Himachal Pradesh	95	0.03	6.06	0.08	9.3	24	25.3	2	2.1	1	1.1	45	47.4	19	20.0	4	4.2	27	28	68	72
15	Jammu & Kashmir	220	0.01	8.46	0.01	3.0	41	18.6	6	2.7	1	0.5	152	69.1	20	9.1	0	0.0	48	22	172	78
16	Jharkhand	214	0.01	6.97	0.03	6.8	100	46.7	21	9.8	4	1.9	73	34.1	14	6.5	2	0.9	125	58	89	42
17	Karnataka	1401	0.01	14.66	0.01	11.5	222	15.8	60	4.3	36	2.6	687	49.0	241	17.2	154	11.0	318	23	1082	77
18	Kerala	1370	0.01	7.47	0.01	13.2	229	16.7	8	0.6	4	0.3	937	68.4	154	11.2	38	2.8	241	18	1129	82
19	Madhya Pradesh	1297	0.01	17.16	0.01	16.2	645	49.7	259	20.0	149	11.5	166	12.8	38	2.9	33	2.5	1053	81	237	18
20	Maharashtra	1447	0.01	15.30	0.03	18.3	591	40.8	178	12.3	183	12.6	360	24.9	68	4.7	40	2.8	952	66	468	32
21	Meghalaya	14	0.09	4.78	0.01	1.4	4	28.6	0	0.0	1	7.1	9	64.3	0	0.0	0	0.0	5	36	9	64
22	Odisha	1188	0.01	5.97	0.01	5.7	428	36.0	41	3.5	6	0.5	636	53.5	34	2.9	12	1.0	475	40	682	57
23	Pondicherry	4	0.08	0.08	0.30	1.0	1	25.0	0	0.0	0	0.0	3	75.0	0	0.0	0	0.0	1	25	3	75

State-wise Annual Fluctuation & Frequency Distribution of Different Ranges from November 2016 to November 2015

S. N o.	Name of State	No. of wells Analy sed	Range in m				Rise						Fall						Total			
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		Rise		Fall	
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
24	Punjab	660	0.02	16.09	0.20	9.5	96	14.5	4	0.6	2	0.3	425	64.4	114	17.3	18	2.7	102	15	557	84
25	Rajasthan	780	0.02	17.50	0.01	15.0	257	32.9	83	10.6	79	10.1	223	28.6	68	8.7	64	8.2	419	54	355	46
26	Tamil Nadu	569	0.02	12.88	0.01	13.3	90	15.8	22	3.9	15	2.6	216	38.0	125	22.0	94	16.5	127	22	435	76
27	Telangana	565	0.01	17.00	0.01	18.8	155	27.4	68	12.0	50	8.8	175	31.0	53	9.4	39	6.9	273	48	267	47
28	Tripura	19	0.01	0.81	0.04	1.9	14	73.7	0	0.0	0	0.0	5	26.3	0	0.0	0	0.0	14	74	5	26
29	Uttar Pradesh	671	0.01	10.72	0.01	6.9	269	40.1	67	10.0	36	5.4	256	38.2	26	3.9	13	1.9	372	55	295	44
30	Uttaranchal	40	0.08	4.76	0.08	8.7	15	37.5	0	0.0	1	2.5	20	50.0	0	0.0	4	10.0	16	40	24	60
31	West Bengal	434	0.03	12.60	0.01	11.3	148	34.1	19	4.4	29	6.7	175	40.3	38	8.8	17	3.9	196	45	230	53
	TOTAL	14291					4491	31	1065	7.5	766	5.4	5885	41.2	1263	8.8	659	4.6	6322	44	7807	55

162 monitoring wells (1%) show no change in Water Level.

Annexure – VIII

State-wise Annual Fluctuation & Frequency Distribution of Different Ranges from January 2017to January 2016

S. N O.	Name of State	No. of wells Analy sed	Range in m				Rise						Fall						Total			
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		Rise		Fall	
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Andhra Pradesh	743	0.01	10.17	0.0	13.3	214	28.8	40	5.4	21	2.8	299	40.2	72	9.7	76	10.2	275	37	447	60
2	Arunachal Pradesh	12	0.03	0.06	0.1	0.5	6	50.0	0	0.0	0	0.0	6	50.0	0	0.0	0	0.0	6	50	6	50
3	Assam	156	0.01	2.79	0.0	4.9	47	30.1	2	1.3	0	0.0	97	62.2	6	3.8	2	1.3	49	31	105	67
4	Bihar	534	0.01	6.91	0.0	6.4	342	64.0	69	12.9	17	3.2	93	17.4	6	1.1	2	0.4	428	80	101	19
5	Chandigarh	11	11.4 3	11.43	0.2	12.7	0	0.0	0	0.0	1	9.1	9	81.8	0	0.0	1	9.1	1	9	10	91
6	Chhattisgarh	520	0.01	11.23	0.0	13.9	234	45.0	59	11.3	36	6.9	127	24.4	42	8.1	17	3.3	329	63	186	36
7	Dadra & Nagar Haveli	13	0.05	1.25	0.0	0.2	9	69.2	0	0.0	0	0.0	4	30.8	0	0.0	0	0.0	9	69	4	31
8	Daman & Diu	11	0.29	0.98	0.3	3.6	2	18.2	0	0.0	0	0.0	6	54.5	3	27.3	0	0.0	2	18	9	82
9	Delhi	107	0.03	3.87	0.0	3.9	39	36.4	3	2.8	1	0.9	57	53.3	6	5.6	0	0.0	43	40	63	59
10	Goa	56	0.02	2.70	0.0	7.5	29	51.8	2	3.6	0	0.0	19	33.9	4	7.1	2	3.6	31	55	25	45

State-wise Annual Fluctuation & Frequency Distribution of Different Ranges from January 2017 to January 2016

S. N o.	Name of State	No. of wells Analy sed	Range in m				Rise						Fall						Total			
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		Rise		Fall	
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
11	Gujarat	806	0.01	16.28	0.0	18.4	304	37.7	77	9.6	74	9.2	229	28.4	48	6.0	45	5.6	455	56	322	40
12	Haryana	113	0.01	6.59	0.0	8.9	31	27.4	1	0.9	2	1.8	56	49.6	8	7.1	5	4.4	34	30	69	61
13	Himachal Pradesh	83	0.04	6.99	0.1	6.3	28	33.7	3	3.6	2	2.4	42	50.6	6	7.2	2	2.4	33	40	50	60
14	Jammu & Kashmir	222	0.01	3.55	0.0	5.2	51	23.0	3	1.4	0	0.0	146	65.8	18	8.1	1	0.5	54	24	165	74
15	Jharkhand	124	0.02	5.97	0.05	5.1	69	55.6	31	25.0	6	4.8	15	12.1	1	0.8	1	0.8	106	85	17	14
16	Karnataka	1383	0.01	18.40	0.0	15.4	313	22.6	59	4.3	60	4.3	522	37.7	198	14.3	171	12.4	432	31	891	64
17	Kerala	1384	0.01	4.25	0.0	17.5	208	15.0	13	0.9	2	0.1	993	71.7	114	8.2	42	3.0	223	16	1149	83
18	Madhya Pradesh	1289	0.01	16.04	0.0	9.4	550	42.7	187	14.5	129	10.0	297	23.0	52	4.0	32	2.5	866	67	381	30
19	Maharashtra	1550	0.01	18.10	0.0	16.2	665	42.9	250	16.1	220	14.2	288	18.6	74	4.8	33	2.1	1135	73	395	25
20	Meghalaya	5	0.05	0.36	0.0	0.3	3	60.0	0	0.0	0	0.0	2	40.0	0	0.0	0	0.0	3	60	2	40
21	Orissa	1128	0.01	3.82	0.0	6.2	426	37.8	20	1.8	0	0.0	619	54.9	33	2.9	5	0.4	446	40	657	58
22	Pondicherry	4			0.5	1.4	0	0.0	0	0.0	0	0.0	4	100.0	0	0.0	0	0.0	0	0	4	100

State-wise Annual Fluctuation & Frequency Distribution of Different Ranges from January 2017 to January 2016

S. N o.	Name of State	No. of wells Analy sed	Range in m				Rise						Fall						Total			
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		Rise		Fall	
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
23	Punjab	572	0.01	11.32	0.0	6.0	71	12.4	5	0.9	1	0.2	426	74.5	57	10.0	6	1.0	77	13	489	85
24	Rajasthan	818	0.01	16.80	0.0	18.0	245	30.0	116	14.2	127	15.5	226	27.6	59	7.2	40	4.9	488	60	325	40
25	Tamil Nadu	397	0.01	12.48	0.1	18.6	13	3.3	2	0.5	3	0.8	87	21.9	122	30.7	169	42.6	18	5	378	95
26	Telangana	550	0.01	17.04	0.0	15.5	184	33.5	127	23.1	154	28.0	39	7.1	12	2.2	16	2.9	465	85	67	12
27	Tripura	8	0.08	0.17	1.6	1.6	7	87.5	0	0.0	0	0.0	1	12.5	0	0.0	0	0.0	7	88	1	13
28	Uttar Pradesh	684	0.01	6.93	0.0	6.1	348	50.9	51	7.5	28	4.1	232	33.9	18	2.6	4	0.6	427	62	254	37
29	Uttaranchal	31	0.05	9.99	0.1	8.0	12	38.7	3	9.7	1	3.2	11	35.5	0	0.0	3	9.7	16	52	14	45
30	West Bengal	397	0.01	14.45	0.0	16.1	155	39.0	46	11.6	36	9.1	124	31.2	20	5.0	15	3.8	237	60	159	40
31	Andhra Pradesh	743	0.01	10.17	0.0	13.3	214	28.8	40	5.4	21	2.8	299	40.2	72	9.7	76	10.2	275	37	447	60
TOTAL		13244					3555	27	571	4.3	444	3.4	6157	46.5	1379	10.4	910	6.9	4570	35	8446	64

271 monitoring wells (2%) show no change in Water Level.

State-wise Seasonal Fluctuation & Frequency Distribution of Different Ranges from August 2016 to Premonsoon 2016

S. N O.	Name of State	No. of wells Analysed	Range in m				Rise						Fall						Total			
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		Rise		Fall	
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Andhra Pradesh	541	0.02	11.37	0.02	9.8	258	47.7	88	16.3	47	8.7	96	17.7	17	3.1	9	1.7	393	73	122	23
2	Arunachal Pradesh	10	0.12	6.28			4	40.0	2	20.0	4	40.0	0	0.0	0	0.0	0	0.0	10	100	0	0
3	Assam	134	0.01	16.14	0.17	2.0	74	55.2	41	30.6	14	10.4	4	3.0	0	0.0	0	0.0	129	96	4	3
4	Bihar	516	0.17	10.80	0.01	2.8	180	34.9	191	37.0	117	22.7	21	4.1	1	0.2	0	0.0	488	95	22	4
5	Chandigarh	12	0.06	0.64	0.26	6.5	7	58.3	0	0.0	0	0.0	3	25.0	0	0.0	1	8.3	7	58	4	33
6	Chhattisgarh	563	0.05	17.69	0.05	2.2	83	14.7	141	25.0	316	56.1	17	3.0	4	0.7	0	0.0	540	96	21	4
7	Dadra & Nagar Haveli	16	2.62	15.77			0	0.0	4	25.0	12	75.0	0	0.0	0	0.0	0	0.0	16	100	0	0
8	Daman & Diu	12	0.43	9.36			2	16.7	3	25.0	7	58.3	0	0.0	0	0.0	0	0.0	12	100	0	0
9	Delhi	113	0.06	17.00	0.01	2.9	81	71.7	15	13.3	3	2.7	12	10.6	2	1.8	0	0.0	99	88	14	12
10	Goa	53	0.39	12.45	1.30	1.3	22	41.5	18	34.0	12	22.6	1	1.9	0	0.0	0	0.0	52	98	1	2
11	Gujarat	771	0.03	18.21	0.01	16.5	179	23.2	167	21.7	345	44.7	53	6.9	7	0.9	10	1.3	691	90	70	9

State-wise Seasonal Fluctuation & Frequency Distribution of Different Ranges from August 2016 to Premonsoon 2016

S. N o.	Name of State	No. of wells Analysed	Range in m				Rise						Fall						Total			
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		Rise		Fall	
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
12	Haryana	121	0.01	9.81	0.07	5.6	63	52.1	11	9.1	1	0.8	35	28.9	7	5.8	4	3.3	75	62	46	38
13	Himachal Pradesh	93	0.09	10.76	0.02	4.5	49	52.7	23	24.7	14	15.1	5	5.4	0	0.0	1	1.1	86	92	6	6
14	Jammu & Kashmir	219	0.05	16.48	0.05	2.3	113	51.6	73	33.3	25	11.4	7	3.2	1	0.5	0	0.0	211	96	8	4
15	Jharkhand	180	0.40	11.00	0.09	3.3	14	7.8	44	24.4	117	65.0	2	1.1	2	1.1	0	0.0	175	97	4	2
16	Karnataka	1358	0.01	16.50	0.01	8.9	445	32.8	271	20.0	378	27.8	132	9.7	30	2.2	17	1.3	1094	81	179	13
17	Kerala	1255	0.01	14.26	0.02	8.4	715	57.0	283	22.5	116	9.2	122	9.7	8	0.6	7	0.6	1114	89	137	11
18	Madhya Pradesh	1325	0.01	19.94	0.01	3.5	121	9.1	212	16.0	956	72.2	14	1.1	2	0.2	1	0.1	1289	97	17	1
19	Maharashtra	1496	0.06	19.70	0.03	8.0	242	16.2	362	24.2	801	53.5	62	4.1	13	0.9	5	0.3	1405	94	80	5
20	Meghalaya	16	0.30	2.78			13	81.3	3	18.8	0	0.0	0	0.0	0	0.0	0	0.0	16	100	0	0
21	Odisha	1058	0.08	12.48	0.01	2.6	302	28.5	467	44.1	264	25.0	16	1.5	2	0.2	0	0.0	1033	98	18	2
22	Pondicherry	5	1.01	1.01	0.01	2.3	1	20.0	0	0.0	0	0.0	3	60.0	1	20.0	0	0.0	1	20	4	80

State-wise Seasonal Fluctuation & Frequency Distribution of Different Ranges from August 2016 to Premonsoon 2016

S. N o.	Name of State	No. of wells Analysed	Range in m				Rise						Fall						Total			
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		Rise		Fall	
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
23	Punjab	224	0.01	13.45	0.01	14.3	56	25.0	14	6.3	9	4.0	114	50.9	16	7.1	14	6.3	79	35	144	64
24	Rajasthan	785	0.01	18.40	0.01	17.7	282	35.9	106	13.5	256	32.6	98	12.5	16	2.0	15	1.9	644	82	129	16
25	Tamil Nadu	511	0.03	7.38	0.02	17.4	103	20.2	23	4.5	11	2.2	272	53.2	67	13.1	26	5.1	137	27	365	71
26	Telangana	392	0.02	18.34	0.04	12.5	82	20.9	93	23.7	145	37.0	33	8.4	4	1.0	12	3.1	320	82	49	13
27	Tripura	19	0.06	5.00	0.12	0.1	14	73.7	3	15.8	1	5.3	1	5.3	0	0.0	0	0.0	18	95	1	5
28	Uttar Pradesh	552	0.03	12.84	0.02	6.9	199	36.1	188	34.1	116	21.0	36	6.5	6	1.1	4	0.7	503	91	46	8
	TOTAL	12790					3819	30	2955	23.1	4281	33.5	1176	9.2	210	1.6	127	1.0	11055	86	1513	12

222 monitoring wells (2%) show no change in Water Level.

State-wise Seasonal Fluctuation & Frequency Distribution of Different Ranges from November 2016 to Premonsoon 2016

S. No.	Name of State	No. of wells Analy sed	Range in m				Rise						Fall						Total			
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		Rise		Fall	
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Andaman & Nicobar	91	0.01	4.93	0.02	2.3	49	53.8	21	23.1	7	7.7	13	14.3	1	1.1	0	0.0	77	85	14	15
2	Andhra Pradesh	538	0.03	13.75	0.01	7.2	235	43.7	102	19.0	74	13.8	81	15.1	19	3.5	8	1.5	411	76	108	20
3	Arunachal Pradesh	10	0.12	5.38	0.21	3.3	4	40.0	1	10.0	1	10.0	3	30.0	1	10.0	0	0.0	6	60	4	40
4	Assam	144	0.07	8.64	0.03	2.2	98	68.1	24	16.7	7	4.9	14	9.7	1	0.7	0	0.0	129	90	15	10
5	Bihar	524	0.04	9.06	0.01	4.2	218	41.6	166	31.7	113	21.6	19	3.6	6	1.1	1	0.2	497	95	26	5
6	Chandigarh	9	0.04	2.49	0.04	3.6	1	11.1	2	22.2	0	0.0	5	55.6	1	11.1	0	0.0	3	33	6	67
7	Chhattisgar h	554	0.13	19.65	0.09	11.0	122	22.0	187	33.8	216	39.0	20	3.6	2	0.4	2	0.4	525	95	24	4
8	Dadra & Nagar Haveli	16	0.54	14.95			5	31.3	2	12.5	9	56.3	0	0.0	0	0.0	0	0.0	16	100	0	0
9	Daman & Diu	10	0.33	7.59			2	20.0	3	30.0	5	50.0	0	0.0	0	0.0	0	0.0	10	100	0	0
10	Delhi	113	0.02	15.10	0.09	1.9	81	71.7	12	10.6	3	2.7	17	15.0	0	0.0	0	0.0	96	85	17	15

State-wise Seasonal Fluctuation & Frequency Distribution of Different Ranges from November 2016 to Premonsoon 2016

S. No.	Name of State	No. of wells Analy sed	Range in m				Rise						Fall						Total			
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		Rise		Fall	
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
11	Goa	62	0.09	7.08	0.06	3.1	29	46.8	16	25.8	7	11.3	9	14.5	1	1.6	0	0.0	52	84	10	16
12	Gujarat	760	0.01	18.55	0.05	11.0	193	25.4	155	20.4	290	38.2	66	8.7	20	2.6	9	1.2	638	84	95	13
13	Haryana	286	0.01	7.94	0.01	14.0	132	46.2	10	3.5	5	1.7	101	35.3	28	9.8	10	3.5	147	51	139	49
14	Himachal Pradesh	94	0.01	9.58	0.02	3.0	57	60.6	14	14.9	9	9.6	12	12.8	2	2.1	0	0.0	80	85	14	15
15	Jammu & Kashmir	219	0.05	10.68	0.05	6.8	138	63.0	41	18.7	9	4.1	28	12.8	2	0.9	1	0.5	188	86	31	14
16	Jharkhand	174	0.46	7.97	0.07	2.2	33	19.0	64	36.8	68	39.1	8	4.6	1	0.6	0	0.0	165	95	9	5
17	Karnataka	1371	0.01	19.51	0.01	12.0	445	32.5	290	21.2	256	18.7	216	15.8	48	3.5	20	1.5	991	72	284	21
18	Kerala	1226	0.01	9.84	0.01	9.9	800	65.3	162	13.2	46	3.8	186	15.2	21	1.7	6	0.5	1008	82	213	17
19	Madhya Pradesh	1327	0.01	19.58	0.01	14.4	233	17.6	392	29.5	605	45.6	62	4.7	6	0.5	6	0.5	1230	93	74	6
20	Maharashtra	1494	0.08	19.50	0.02	9.5	238	15.9	382	25.6	800	53.5	47	3.1	7	0.5	9	0.6	1420	95	63	4
21	Meghalaya	13	0.18	2.21			11	84.6	2	15.4	0	0.0	0	0.0	0	0.0	0	0.0	13	100	0	0

State-wise Seasonal Fluctuation & Frequency Distribution of Different Ranges from November 2016 to Premonsoon 2016

S. No.	Name of State	No. of wells Analy sed	Range in m				Rise						Fall						Total			
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		Rise		Fall	
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
22	Odisha	1037	0.05	12.7	0.02	3.4	416	40.1	424	40.9	118	11.4	69	6.7	5	0.5	0	0.0	958	92	74	7
23	Pondicherry	3	0.12	1.37	2.24	2.2	2	66.7	0	0.0	0	0.0	0	0.0	1	33.3	0	0.0	2	67	1	33
24	Punjab	691	0.02	4.37	0.05	13.4	99	14.3	14	2.0	3	0.4	462	66.9	71	10.3	24	3.5	116	17	557	81
25	Rajasthan	762	0.01	15.39	0.01	18.2	244	32.0	125	16.4	195	25.6	153	20.1	27	3.5	10	1.3	564	74	190	25
26	Tamil Nadu	477	0.03	18.30	0.01	14.5	86	18.0	13	2.7	7	1.5	217	45.5	93	19.5	56	11.7	106	22	366	77
27	Telangana	389	0.03	14.90	0.02	5.9	44	11.3	89	22.9	233	59.9	12	3.1	0	0.0	1	0.3	366	94	13	3
28	Tripura	23	0.05	2.68	0.18	0.2	19	82.6	3	13.0	0	0.0	1	4.3	0	0.0	0	0.0	22	96	1	4
29	Uttar Pradesh	591	0.04	12.54	0.01	7.95	287	48.6	169	28.6	71	12.0	55	9.3	5	0.8	4	0.7	527	89	64	11
30	Uttarakhand	39	0.40	7.89	0.16	1.5	19	48.7	9	23.1	5	12.8	6	15.4	0	0.0	0	0.0	33	85	6	15
31	West Bengal	326	0.10	18.47	0.05	10.3	93	28.5	89	27.3	108	33.1	26	8.0	6	1.8	4	1.2	290	89	36	11
	Total	13282					4384	33	2962	22.3	3263	24.6	1895	14.3	374	2.8	171	1.3	10609	80	2440	18

233 monitoring wells (2%) show no change in Water Level.

State-wise Seasonal Fluctuation & Frequency Distribution of Different Ranges from January 2017 to Premonsoon 2016

S. N o.	Name of State	No. of wells Analysed	Range in m				Rise						Fall						Total			
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		Rise		Fall	
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Andhra Pradesh	767	331	43.0	113	15.0	62	8.0	157	20.0	42	5.0	30	4.0	506	66.0	229	30.0	767	331	43.0	113
2	Arunachal Pradesh	14	10	71.0	1	7.0	0	0.0	2	14.0	1	7.0	0	0.0	11	79.0	3	21.0	14	10	71.0	1
3	Assam	154	66	43.0	4	3.0	3	2.0	71	46.0	4	3.0	1	1.0	73	47.0	76	49.0	154	66	43.0	4
4	Bihar	549	275	50.0	167	30.0	57	10.0	46	8.0	2	0.0	0	0.0	499	91.0	48	9.0	549	275	50.0	167
5	Chandigarh	9	4	44.0	0	0.0	0	0.0	1	11.0	2	22.0	0	0.0	4	44.0	3	33.0	9	4	44.0	0
6	Chhattisgarh	556	191	34.0	165	30.0	110	20.0	63	11.0	13	2.0	6	1.0	466	84.0	82	15.0	556	191	34.0	165
7	Dadra & Nagar Haveli	13	6	46.0	0	0.0	0	0.0	7	54.0	0	0.0	0	0.0	6	46.0	7	54.0	13	6	46.0	0
8	Daman & Diu	10	4	40.0	5	50.0	0	0.0	1	10.0	0	0.0	0	0.0	9	90.0	1	10.0	10	4	40.0	5
9	Delhi	108	61	56.0	9	8.0	4	4.0	33	31.0	1	1.0	0	0.0	74	69.0	34	31.0	108	61	56.0	9
10	Goa	54	35	65.0	10	19.0	1	2.0	6	11.0	2	4.0	0	0.0	46	85.0	8	15.0	54	35	65.0	10

S. N o.	Name of State	No. of wells Analysed	Range in m				Rise						Fall						Total			
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		Rise		Fall	
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
11	Gujarat	756	240	32.0	149	20.0	193	26.0	103	14.0	29	4.0	11	1.0	582	77.0	143	19.0	756	240	32.0	149
12	Haryana	219	54	25.0	6	3.0	3	1.0	122	56.0	17	8.0	7	3.0	63	29.0	146	67.0	219	54	25.0	6
13	Himachal Pradesh	83	51	61.0	10	12.0	2	2.0	17	20.0	2	2.0	0	0.0	63	76.0	19	23.0	83	51	61.0	10
14	Jammu & Kashmir	221	135	61.0	22	10.0	4	2.0	52	24.0	6	3.0	2	1.0	161	73.0	60	27.0	221	135	61.0	22
15	Jharkhand	133	43	32.0	54	41.0	27	20.0	8	6.0	1	1.0	0	0.0	124	93.0	9	7.0	133	43	32.0	54
16	Karnataka	1368	441	32.0	194	14.0	156	11.0	317	23.0	92	7.0	52	4.0	791	58.0	461	34.0	1368	441	32.0	194
17	Kerala	1364	755	55.0	75	5.0	17	1.0	426	31.0	41	3.0	13	1.0	847	62.0	480	35.0	1364	755	55.0	75
18	Madhya Pradesh	1305	460	35.0	378	29.0	265	20.0	124	10.0	25	2.0	18	1.0	1103	85.0	167	13.0	1305	460	35.0	378
19	Maharashtra	1504	418	28.0	415	28.0	519	35.0	108	7.0	20	1.0	11	1.0	1352	90.0	139	9.0	1504	418	28.0	415
20	Meghalaya	5	3	60.0	0	0.0	0	0.0	2	40.0	0	0.0	0	0.0	3	60.0	2	40.0	5	3	60.0	0
21	Orissa	997	621	62.0	215	22.0	22	2.0	124	12.0	9	1.0	2	0.0	858	86.0	135	14.0	997	621	62.0	215

S. N o.	Name of State	No. of wells Analysed	Range in m				Rise						Fall						Total			
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		Rise		Fall	
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
22	Pondicherry	3	1	33.0	0	0.0	0	0.0	1	33.0	1	33.0	0	0.0	1	33.0	2	67.0	3	1	33.0	0
23	Punjab	679	175	26.0	8	1.0	7	1.0	428	63.0	37	5.0	10	1.0	190	28.0	475	70.0	679	175	26.0	8
24	Rajasthan	794	221	28.0	131	16.0	202	25.0	177	22.0	34	4.0	23	3.0	554	70.0	234	29.0	794	221	28.0	131
25	Tamil Nadu	503	71	14.0	12	2.0	5	1.0	241	48.0	97	19.0	75	15.0	88	17.0	413	82.0	503	71	14.0	12
26	Telangana	560	101	18.0	147	26.0	263	47.0	20	4.0	2	0.0	14	3.0	511	91.0	36	6.0	560	101	18.0	147
27	Tripura	8	5	63.0	0	0.0	0	0.0	2	25.0	1	13.0	0	0.0	5	63.0	3	38.0	8	5	63.0	0
28	Uttar Pradesh	588	322	55.0	123	21.0	37	6.0	91	15.0	5	1.0	8	1.0	482	82.0	104	18.0	588	322	55.0	123
29	Uttaranchal	32	18	56.0	7	22.0	1	3.0	3	9.0	2	6.0	1	3.0	26	81.0	6	19.0	32	18	56.0	7
30	West Bengal	392	157	40.0	95	24.0	63	16.0	64	16.0	3	1.0	8	2.0	315	80.0	75	19.0	392	157	40.0	95
Total		13748	5275	38.4	2515	18.3	2023	14.7	2817	20.5	491	3.6	292	2.1	9813	71.4	3600	26.2	13748	5275	38.4	2515

335 monitoring wells 32%) show no change in Water Level.

Annexure – XII

State-wise Decadal Water Level Fluctuation With Mean [Pre Monsoon(2006 to 2015)] and Pre Monsoon 2016

S.No.	Name of State	No. of wells analysed	Range in m				Rise						Fall						Rise		Fall	
			Rise		Fall		0-2 m		2-4 m		> 4 m		0-2 m		2-4 m		> 4 m					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Andhra Pradesh	547	0.01	12.45	0.01	13.89	181	33.1	29	5.3	26	4.8	214	39.1	59	10.8	35	6.4	236	43	308	56
2	Arunachal Pradesh	14	0.04	12.9	0.01	1.2	9	64.3	0	0.0	1	7.1	4	28.6	0	0.0	0	0.0	10	71	4	29
3	Assam	182	0.02	5.82	0.01	7.34	72	39.6	10	5.5	2	1.1	85	46.7	9	4.9	4	2.2	84	46	98	54
4	Bihar	551	0.01	5.19	0	5.51	166	30.1	10	1.8	4	0.7	313	56.8	48	8.7	8	1.5	180	33	369	67
5	Chandigarh	11	0.21	3.28	0.07	3.17	3	27.3	1	9.1	0	0.0	6	54.5	1	9.1	0	0.0	4	36	7	64
6	Chhattisgarh	616	0.02	18.09	0.01	14.23	111	18.0	34	5.5	20	3.2	313	50.8	98	15.9	40	6.5	165	27	451	73
7	Dadra & Nagar Haveli	12	0.17	3.92	0.13	5.85	4	33.3	2	16.7	0	0.0	3	25.0	2	16.7	1	8.3	6	50	6	50
8	Daman & Diu	10	0.08	0.76	0.17	3.53	2	20.0	0	0.0	0	0.0	4	40.0	4	40.0	0	0.0	2	20	8	80
9	Delhi	115	0.06	5.56	0.01	8.3	19	16.5	4	3.5	3	2.6	52	45.2	19	16.5	18	15.7	26	23	89	77
10	Goa	70	0.04	2.99	0.01	2.42	36	51.4	5	7.1	0	0.0	28	40.0	1	1.4	0	0.0	41	59	29	41
11	Gujarat	738	0.01	15.32	0.01	17.35	171	23.2	63	8.5	20	2.7	284	38.5	99	13.4	92	12.5	254	34	475	64

State-wise Decadal Water Level Fluctuation With Mean [Pre Monsoon(2006 to 2015)] and Pre Monsoon 2016

S.No.	Name of State	No. of wells analysed	Range in m				Rise						Fall						Rise		Fall	
			Rise		Fall		0-2 m		2-4 m		> 4 m		0-2 m		2-4 m		> 4 m					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
12	Haryana	643	0.01	8.27	0.01	17.45	156	24.3	18	2.8	10	1.6	319	49.6	79	12.3	56	8.7	184	29	454	71
13	Himachal Pradesh	95	0.04	9.97	0.04	9.61	30	31.6	3	3.2	3	3.2	47	49.5	9	9.5	3	3.2	36	38	59	62
14	Jammu & Kashmir	225	0.02	7.02	0.02	6.81	78	34.7	2	0.9	3	1.3	122	54.2	16	7.1	4	1.8	83	37	142	63
15	Jharkhand	212	0.01	10.47	0.02	6.2	69	32.5	12	5.7	5	2.4	109	51.4	14	6.6	3	1.4	86	41	126	59
16	Karnataka	1380	0.01	13.53	0	18.88	319	23.1	56	4.1	40	2.9	596	43.2	221	16.0	132	9.6	415	30	949	69
17	Kerala	1240	0.01	16.28	0	12.93	414	33.4	27	2.2	13	1.0	699	56.4	60	4.8	20	1.6	454	37	779	63
18	Madhya Pradesh	1343	0.03	1281	0.01	15.97	345	25.7	100	7.4	57	4.2	581	43.3	156	11.6	101	7.5	502	37	838	62
19	Maharashtra	1487	0.01	17.28	0	16.59	333	22.4	80	5.4	24	1.6	605	40.7	259	17.4	177	11.9	437	29	1041	70
20	Meghalaya	17	0.18	4.36	0.03	1.5	5	29.4	0	0.0	1	5.9	11	64.7	0	0.0	0	0.0	6	35	11	65
21	Odisha	1103	0.01	5.38	0.01	9.06	345	31.3	45	4.1	5	0.5	636	57.7	61	5.5	8	0.7	395	36	705	64
22	Pondicherry	6	0.14	1.49	0.67	0.67	5	83.3	0	0.0	0	0.0	1	16.7	0	0.0	0	0.0	5	83	1	17

State-wise Decadal Water Level Fluctuation With Mean [Pre Monsoon(2006 to 2015)] and Pre Monsoon 2016

S.No.	Name of State	No. of wells analysed	Range in m				Rise						Fall						Rise		Fall	
			Rise		Fall		0-2 m		2-4 m		> 4 m		0-2 m		2-4 m		> 4 m					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
23	Punjab	613	0.01	13.29	0.01	15.55	115	18.8	12	2.0	2	0.3	345	56.3	105	17.1	32	5.2	129	21	482	79
24	Rajasthan	829	0.02	15.99	0.02	18.33	219	26.4	74	8.9	53	6.4	230	27.7	117	14.1	134	16.2	346	42	481	58
25	Tamil Nadu	587	0.01	9.83	0	11.75	243	41.4	71	12.1	31	5.3	178	30.3	45	7.7	19	3.2	345	59	242	41
26	Telangana	377	0.02	12.27	0.01	18.83	51	13.5	7	1.9	8	2.1	136	36.1	81	21.5	91	24.1	66	18	308	82
27	Tripura	28	0.02	3.25	0.07	1.23	19	67.9	2	7.1	0	0.0	7	25.0	0	0.0	0	0.0	21	75	7	25
28	Uttar Pradesh	629	0.01	8.11	0.01	13.5	84	13.4	7	1.1	4	0.6	432	68.7	83	13.2	19	3.0	95	15	534	85
29	Uttarakhand	44	0.12	7.09	0.12	5.9	18	40.9	2	4.5	1	2.3	19	43.2	2	4.5	2	4.5	21	48	23	52
30	West Bengal	899	0.01	10.21	0.01	15.39	263	29.3	32	3.6	15	1.7	390	43.4	141	15.7	58	6.5	310	34	589	66
	TOTAL	14623					3885	26.6	708	4.8	351	2.4	6769	46.3	1789	12.2	1057	7.2	4944	34	9615	66

64 monitoring wells (0.4%) show no change in Water Level.

State-wise Decadal Water Level Fluctuation With Mean [August (2006 to 2015)] and August 2016

S. No.	Name of State	No. of wells Analysed	Range in m				Rise						Fall						Rise		Fall	
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Andhra Pradesh	762	0.01	9.11	0.02	17.99	255	33.5	50	6.6	29	3.8	284	37.3	93	12.2	40	5.2	334	44	417	55
2	Arunachal Pradesh	8	0.14	2.1	0.01	4.18	3	37.5	1	12.5	0	0.0	3	37.5	0	0.0	1	12.5	4	50	4	50
3	Assam	151	0.02	7.36	0.03	4.47	48	31.8	2	1.3	2	1.3	84	55.6	13	8.6	2	1.3	52	34	99	66
4	Bihar	525	0.01	4.51	0.01	5.51	246	46.9	26	5.0	2	0.4	196	37.3	47	9.0	6	1.1	274	52	249	47
5	Chandigarh	12	0.12	5.83	0.01	3.84	2	16.7	0	0.0	1	8.3	7	58.3	2	16.7	0	0.0	3	25	9	75
6	Chhattisgarh	618	0.04	16.28	0.01	13.42	125	20.2	14	2.3	19	3.1	349	56.5	76	12.3	34	5.5	158	26	459	74
7	Dadra & Nagar Haveli	16	0.28	2.2	0.1	1.63	13	81.3	1	6.3	0	0.0	2	12.5	0	0.0	0	0.0	14	88	2	13
8	Daman & Diu	11	0.01	1.56	0.13	1.54	5	45.5	0	0.0	0	0.0	4	36.4	0	0.0	0	0.0	5	45	4	36
9	Delhi	112	0.03	10.02	0.05	7.01	34	30.4	5	4.5	3	2.7	38	33.9	18	16.1	14	12.5	42	38	70	63
10	Goa	58	0	3.49	0.01	2	30	51.7	2	3.4	0	0.0	26	44.8	0	0.0	0	0.0	32	55	26	45
11	Gujarat	769	0.01	17.9	0.01	19.81	207	26.9	49	6.4	26	3.4	276	35.9	99	12.9	111	14.4	282	37	486	63

State-wise Decadal Water Level Fluctuation With Mean [August (2006 to 2015)] and August 2016

S. No.	Name of State	No. of wells Analysed	Range in m				Rise						Fall						Rise		Fall	
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
12	Haryana	113	0.08	11.16	0	7.63	45	39.8	4	3.5	2	1.8	40	35.4	14	12.4	8	7.1	51	45	62	55
13	Himachal Pradesh	99	0.01	9.46	0.01	7.95	33	33.3	3	3.0	2	2.0	53	53.5	5	5.1	3	3.0	38	38	61	62
14	Jammu & Kashmir	220	0.01	10.48	0.01	6.21	85	38.6	3	1.4	1	0.5	127	57.7	3	1.4	1	0.5	89	40	131	60
15	Jharkhand	225	0.01	5.73	0.00	6.79	121	53.8	35	15.6	3	1.3	54	24.0	7	3.1	4	1.8	159	71	65	29
16	Karnataka	1389	0.01	12.87	0	15.33	469	33.8	112	8.1	48	3.5	498	35.9	165	11.9	92	6.6	629	45	755	54
17	Kerala	1372	0.01	6.97	0.01	13.17	341	24.9	17	1.2	12	0.9	861	62.8	113	8.2	26	1.9	370	27	1000	73
18	Madhya Pradesh	1317	0.01	13.1	0	13.69	632	48.0	269	20.4	106	8.0	226	17.2	50	3.8	34	2.6	1007	76	310	24
19	Maharashtra	1512	0.01	15.67	0.02	16.43	598	39.6	131	8.7	94	6.2	487	32.2	116	7.7	84	5.6	823	54	687	45
20	Meghalaya	19	0.07	5.03	0.03	3.32	5	26.3	0	0.0	1	5.3	12	63.2	1	5.3	0	0.0	6	32	13	68
21	Odisha	1255	0.01	4.48	0.01	6.81	430	34.3	28	2.2	2	0.2	704	56.1	69	5.5	14	1.1	460	37	787	63
22	Pondicherry	6	0.07	0.77	0.1	0.3	3	50.0	0	0.0	0	0.0	3	50.0	0	0.0	0	0.0	3	50	3	50

State-wise Decadal Water Level Fluctuation With Mean [August (2006 to 2015)] and August 2016

S. No.	Name of State	No. of wells Analysed	Range in m				Rise						Fall						Rise		Fall	
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m					
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
23	Punjab	222	0	12.13	0.02	7.48	46	20.7	10	4.5	4	1.8	104	46.8	37	16.7	21	9.5	60	27	162	73
24	Rajasthan	867	0.03	17.79	0.05	19.19	247	28.5	126	14.5	122	14.1	173	20.0	66	7.6	132	15.2	495	57	371	43
25	Tamil Nadu	611	0.01	9.32	0	16.85	224	36.7	62	10.1	27	4.4	202	33.1	62	10.1	34	5.6	313	51	298	49
26	Telangana	575	0.01	19.14	0	19.75	143	24.9	31	5.4	28	4.9	179	31.1	98	17.0	92	16.0	202	35	369	64
27	Tripura	24	0	1.93	0.01	2.37	18	75.0	0	0.0	0	0.0	4	16.7	1	4.2	0	0.0	18	75	5	21
28	Uttar Pradesh	754	0	10.59	0.01	7.66	222	29.4	51	6.8	28	3.7	329	43.6	99	13.1	25	3.3	301	40	453	60
29	Uttarakhand	33	0.08	4.43	0.19	9.26	9	27.3	1	3.0	1	3.0	19	57.6	2	6.1	1	3.0	11	33	22	67
30	West Bengal	595	0	18.28	0.01	19.28	280	47.1	42	7.1	26	4.4	171	28.7	44	7.4	30	5.0	348	58	245	41
31	TOTAL	14250					4919	34.5	1075	7.5	589	4.1	5515	38.7	1300	9.1	809	5.7	6583	46	7624	54

43 monitoring wells (0.2%) show no change in Water Level.

Annexure – XIV

State-wise Decadal Water Level Fluctuation With Mean [Nov (2006 to 2015)] and Nov 2016

S. No.	Name of State	No. of wells Analysed	Range in m				Rise						Fall						Rise		Fall	
			Rise		Fall		0-2 m		2-4 m		>4 m				2-4 m		>4 m					
			Min	Max	Min	Max	No	No	%	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Andhra Pradesh	757	0	11.4	0.01	13.72	205	27.1	22	2.9	8	1.1	388	51.3	82	10.8	51	6.7	235	31	521	69
2	Arunachal Pradesh	9	0.06	1.42	0.4	2.83	5	55.6	0	0.0	0	0.0	3	33.3	1	11.1	0	0.0	5	56	4	44
3	Assam	160	0.02	4.52	0	5.83	59	36.9	5	3.1	2	1.3	84	52.5	8	5.0	2	1.3	66	41	94	59
4	Bihar	540	0.01	8.07	0.01	8.36	279	51.7	39	7.2	19	3.5	178	33.0	20	3.7	5	0.9	337	62	203	38
5	Chandigarh	8	1.14	1.69	0.13	4.6	2	25.0	0	0.0	0	0.0	3	37.5	2	25.0	0	0.0	2	25	5	63
6	Chhattisgarh	595	0	12.82	0.01	14.71	164	27.6	25	4.2	4	0.7	340	57.1	50	8.4	12	2.0	193	32	402	68
7	Dadra & Nagar Haveli	15	0.16	2.45	0.35	2.41	12	80.0	1	6.7	0	0.0	1	6.7	1	6.7	0	0.0	13	87	2	13
8	Daman & Diu	11	0.35	1.07	0.17	4.26	7	63.6	0	0.0	0	0.0	3	27.3	0	0.0	1	9.1	7	64	4	36
9	Delhi	112	0.01	8.59	0.05	6.48	31	27.7	2	1.8	4	3.6	40	35.7	19	17.0	16	14.3	37	33	75	67
10	Goa	69	0.01	6.73	0.01	3.36	21	30.4	2	2.9	3	4.3	40	58.0	2	2.9	0	0.0	26	38	42	61
11	Gujarat	829	0	14.41	0.01	15.42	297	35.8	62	7.5	28	3.4	253	30.5	96	11.6	92	11.1	387	47	441	53

State-wise Decadal Water Level Fluctuation With Mean [Nov (2006 to 2015)] and Nov 2016

S. No.	Name of State	No. of wells Analysed	Range in m				Rise						Fall						Rise		Fall	
			Rise		Fall		0-2 m		2-4 m		>4 m				2-4 m		>4 m					
			Min	Max	Min	Max	No	No	%	%	No	%	No	%	No	%	No	%	No	%	No	%
12	Haryana	296	0.01	9.62	0.01	14.61	89	30.1	11	3.7	5	1.7	99	33.4	52	17.6	40	13.5	105	35	191	65
13	Himachal Pradesh	99	0	9	0.01	9.63	32	32.3	5	5.1	2	2.0	45	45.5	13	13.1	2	2.0	39	39	60	61
14	Jammu & Kashmir	225	0	2.93	0	5.04	58	25.8	3	1.3	0	0.0	153	68.0	9	4.0	2	0.9	61	27	164	73
15	Jharkhand	214	0.03	4.98	0.04	6.46	97	45.3	21	9.8	1	0.5	76	35.5	13	6.1	6	2.8	119	56	95	44
16	Karnataka	1417	0	14.2	0.01	15.63	264	18.6	48	3.4	28	2.0	665	46.9	235	16.6	175	12.4	340	24	1075	76
17	Kerala	1377	0	4.81	0	13.96	205	14.9	5	0.4	2	0.1	969	70.4	153	11.1	42	3.1	212	15	1164	85
18	Madhya Pradesh	1327	0.01	13.83	0.01	13.86	587	44.2	173	13.0	80	6.0	368	27.7	80	6.0	39	2.9	840	63	487	37
19	Maharashtra	1551	0	16.75	0.01	14.32	697	44.9	181	11.7	106	6.8	439	28.3	82	5.3	39	2.5	984	63	560	36
20	Meghalaya	18	0.16	0.73	0.09	1.19	9	50.0	0	0.0	0	0.0	9	50.0	0	0.0	0	0.0	9	50	9	50
21	Odhisha	1214	0	4.78	0.01	5.37	397	32.7	7	0.6	1	0.1	750	61.8	49	4.0	4	0.3	405	33	803	66
22	Pondicherry	4			0.14	2.04	0	0.0	0	0.0	0	0.0	3	75.0	1	25.0	0	0.0	0	0	4	100

State-wise Decadal Water Level Fluctuation With Mean [Nov (2006 to 2015)] and Nov 2016

S. No.	Name of State	No. of wells Analysed	Range in m				Rise						Fall						Rise		Fall	
			Rise		Fall		0-2 m		2-4 m		>4 m				2-4 m		>4 m					
			Min	Max	Min	Max	No	No	%	%	No	%	No	%	No	%	No	%	No	%	No	%
23	Punjab	666	0	10.64	0	14.1	96	14.4	6	0.9	2	0.3	400	60.1	117	17.6	44	6.6	104	16	561	84
24	Rajasthan	870	0	15.56	0.01	17.99	259	29.8	128	14.7	103	11.8	173	19.9	83	9.5	124	14.3	490	56	380	44
25	Tamil Nadu	587	0.03	12	0.05	15.34	52	8.9	12	2.0	18	3.1	227	38.7	147	25.0	130	22.1	82	14	504	86
26	Telangana	584	0.02	16.96	0.01	11.48	220	37.7	86	14.7	74	12.7	141	24.1	31	5.3	31	5.3	380	65	203	35
27	Tripura	25	0.02	1.47	0.17	0.87	20	80.0	0	0.0	0	0.0	5	20.0	0	0.0	0	0.0	20	80	5	20
28	Uttar Pradesh	785	0.02	12.06	0	9.65	236	30.1	49	6.2	28	3.6	365	46.5	84	10.7	23	2.9	313	40	472	60
29	Uttarakhand	46	0.01	8.46	0.1	5.89	11	23.9	1	2.2	2	4.3	25	54.3	5	10.9	2	4.3	14	30	32	70
30	West Bengal	474	0.01	15.87	0	15.7	179	37.8	13	2.7	26	5.5	172	36.3	33	7.0	51	10.8	218	46	256	54
	Total	14884					4590	30.8	907	6.1	546	3.7	6417	43.1	1468	9.9	933	6.3	6043	41	8818	59

23 monitoring wells (less than 1%) show no change in Water Level.

State-wise Decadal Water Level Fluctuation With Mean [Jan (2007 to 2016)] and Jan 2017

S. No.	Name of State	No. of wells Analysed	Range in m				Rise						Fall						Rise		Fall	
			Rise		Fall		0-2 m		2-4 m		>4 m				2-4 m		>4 m					
			Min	Max	Min	Max	No	No	%	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Andhra Pradesh	759	207	27.3	18	2.4	3	0.4	359	47.3	110	14.5	61	8.0	228	30	530	70	759	207	27.3	18
2	Arunachal Pradesh	13	11	84.6	0	0.0	0	0.0	2	15.4	0	0.0	0	0.0	11	85	2	15	13	11	84.6	0
3	Assam	181	60	33.1	5	2.8	1	0.6	103	56.9	9	5.0	3	1.7	66	36	115	64	181	60	33.1	5
4	Bihar	563	328	58.3	36	6.4	8	1.4	177	31.4	11	2.0	2	0.4	372	66	190	34	563	328	58.3	36
5	Chandigarh	12	2	16.7	0	0.0	0	0.0	6	50.0	3	25.0	1	8.3	2	17	10	83	12	2	16.7	0
6	Chhattisgarh	623	186	29.9	26	4.2	16	2.6	302	48.5	64	10.3	27	4.3	228	37	393	63	623	186	29.9	26
7	Dadra & Nagar Haveli	13	8	61.5	0	0.0	0	0.0	5	38.5	0	0.0	0	0.0	8	62	5	38	13	8	61.5	0
8	Daman & Diu	11	7	63.6	0	0.0	0	0.0	3	27.3	0	0.0	1	9.1	7	64	4	36	11	7	63.6	0
9	Delhi	108	27	25.0	4	3.7	3	2.8	38	35.2	21	19.4	15	13.9	34	31	74	69	108	27	25.0	4
10	Goa	57	28	49.1	2	3.5	0	0.0	22	38.6	3	5.3	2	3.5	30	53	27	47	57	28	49.1	2

State-wise Decadal Water Level Fluctuation With Mean [Jan (2007 to 2016)] and Jan 2017

S. No.	Name of State	No. of wells Analysed	Range in m				Rise						Fall						Rise		Fall	
			Rise		Fall		0-2 m		2-4 m		>4 m				2-4 m		>4 m					
			Min	Max	Min	Max	No	No	%	%	No	%	No	%	No	%	No	%	No	%	No	%
11	Gujarat	825	273	33.1	76	9.2	44	5.3	240	29.1	110	13.3	80	9.7	393	48	430	52	825	273	33.1	76
12	Haryana	145	34	23.4	3	2.1	2	1.4	44	30.3	30	2.0	28	19.3	39	27	102	70	145	34	23.4	3
13	Himachal Pradesh	88	29	33.0	3	3.4	5	5.7	38	43.2	10	11.4	3	3.4	37	42	51	58	88	29	33.0	3
14	Jammu & Kashmir	227	58	25.6	4	1.8	0	0.0	153	67.4	9	4.0	2	0.9	62	27	164	72	227	58	25.6	4
15	Jharkhand	160	87	54.4	16	10.0	3	1.9	46	28.8	7	4.4	1	0.6	106	66	54	34	160	87	54.4	16
16	Karnataka	1421	308	21.7	44	3.1	25	1.8	646	45.5	214	15.1	180	12.7	377	27	1040	73	1421	308	21.7	44
17	Kerala	1440	247	17.2	6	0.4	2	0.1	1018	70.7	133	9.2	32	2.2	255	18	1183	82	1440	247	17.2	6
18	Madhya Pradesh	1326	527	39.7	116	8.7	49	3.7	462	34.8	113	8.5	59	4.4	692	52	634	48	1326	527	39.7	116
19	Maharashtra	1595	695	43.6	163	10.2	107	6.7	483	30.3	94	5.9	48	3.0	965	61	625	39	1595	695	43.6	163
20	Meghalaya	6	1	16.7	0	0.0	0	0.0	5	83.3	0	0.0	0	0.0	1	17	5	83	6	1	16.7	0
21	Odisha	1173	392	33.4	24	2.0	1	0.1	700	59.7	46	3.9	8	0.7	417	36	754	64	1173	392	33.4	24

State-wise Decadal Water Level Fluctuation With Mean [Jan (2007 to 2016)] and Jan 2017

S. No.	Name of State	No. of wells Analysed	Range in m				Rise						Fall						Rise		Fall	
			Rise		Fall		0-2 m		2-4 m		>4 m				2-4 m		>4 m					
			Min	Max	Min	Max	No	No	%	%	No	%	No	%	No	%	No	%	No	%	No	%
22	Pondicherry	4	0	0.0	0	0.0	0	0.0	3	75.0	1	25.0	0	0.0	0	0	4	100	4	0	0.0	0
23	Punjab	658	66	10.0	4	0.6	3	0.5	399	60.6	143	21.7	43	6.5	73	11	585	89	658	66	10.0	4
24	Rajasthan	937	239	25.5	161	17.2	138	14.7	186	19.9	75	8.0	131	14.0	538	57	392	42	937	239	25.5	161
25	Tamil Nadu	617	36	5.8	10	1.6	3	0.5	171	27.7	186	30.1	211	34.2	49	8	568	92	617	36	5.8	10
26	Telangana	568	249	43.8	72	12.7	48	8.5	138	24.3	28	4.9	32	5.6	369	65	198	35	568	249	43.8	72
27	Tripura	9	8	88.9	0	0.0	0	0.0	1	11.1	0	0.0	0	0.0	8	89	1	11	9	8	88.9	0
28	Uttar Pradesh	766	211	27.5	39	5.1	12	1.6	390	50.9	83	10.8	30	3.9	262	34	503	66	766	211	27.5	39
28	Uttarakhand	37	12	32.4	3	8.1	2	5.4	14	37.8	3	8.1	3	8.1	17	46	20	54	37	12	32.4	3
30	West Bengal	581	208	35.8	22	3.8	14	2.4	243	41.8	48	8.3	46	7.9	244	42	337	58	581	208	35.8	22
	Total	14923					4544	30.4	857	5.7	489	3.3	6397	42.9	1554	10.4	1049	7.0	5890	40	9000	60

33 monitoring wells (less than 1%) show no change in Water Level