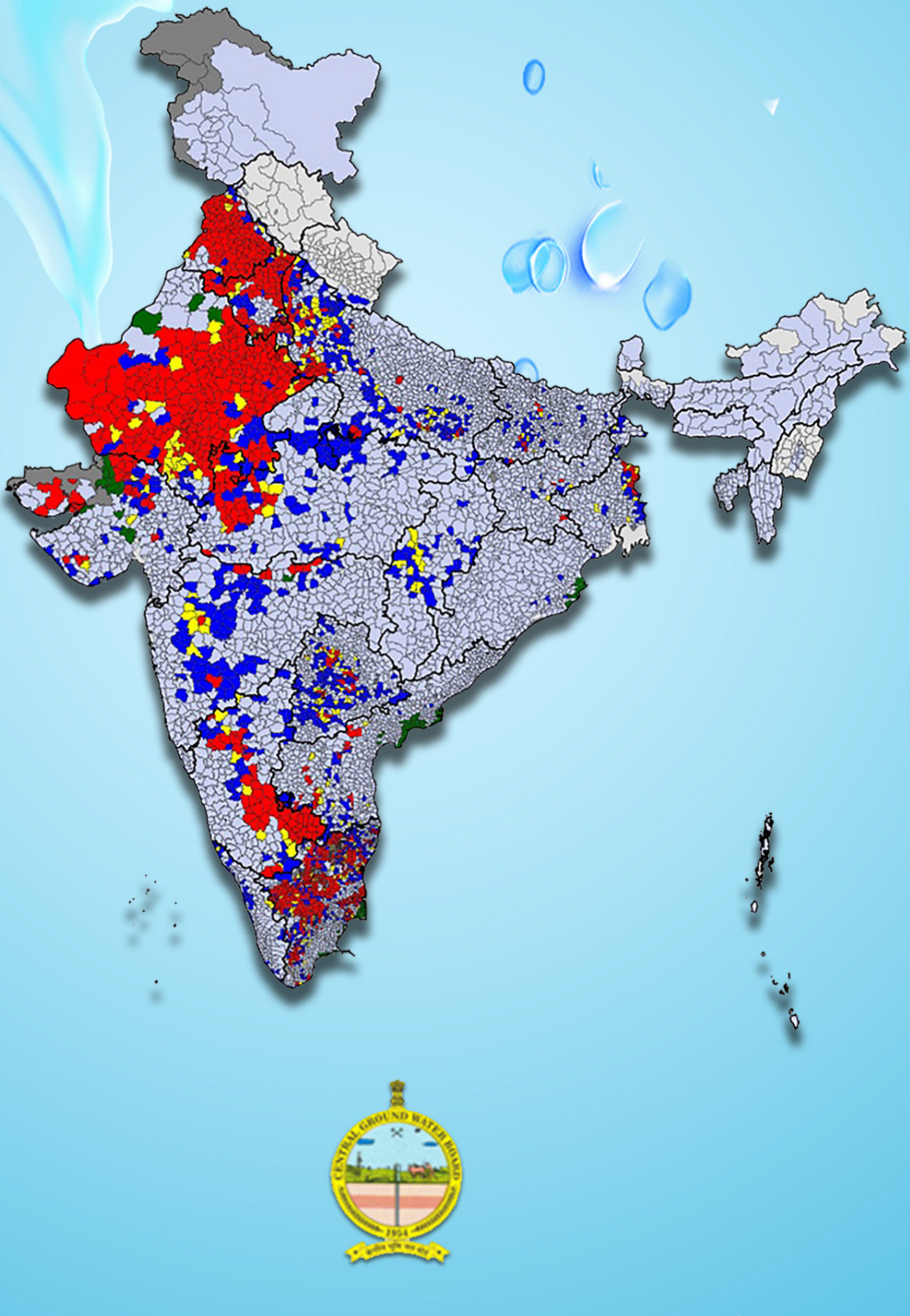
National Compilation on

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020



Central Ground Water Board
Department of Water Resources,
River Development & Ganga Rejuvenation
Ministry of Jal Shakti
Government of India

National Compilation on

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

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Faridabad
June, 2021

गजेन्द्र सिंह शेखावत
Gajendra Singh Shekhawat

जल शक्ति मंत्री
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Minister for Jal Shakti
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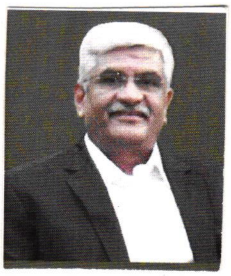
सत्यमेव जयते

स्वच्छ भारत
एक कदम स्वच्छता की ओर



MESSAGE

A scarce natural resource, water is fundamental to life, livelihood, food security and sustainable development. Ground water has emerged as the backbone of India's agriculture and drinking water security. Decline in water levels in response to ground water withdrawal exceeding its annual replenishment has emerged as a concern in parts of the country in the last few decades. This situation calls for effective management of the limited ground water resources of the country to ensure its long-term sustainability. It is crucial that pragmatic decisions for sustainable ground water management are based on realistic assessment of the resource availability. Periodic assessments of dynamic ground water resources ensure availability of information related to annual replenishment, utilization and availability of ground water for various stake-holders for all the assessment units in the country.

Dynamic ground water resources of India are being assessed once every three years, jointly by State Governments and the Central Ground Water Board. The assessment of ground water resources forms the basis for categorization of assessment units in the country as Safe, Semi-Critical, Critical or Over Exploited depending upon the extraction levels. The category of an assessment unit may be considered as an important parameter for developing policies for ground water sustainable management in the country.

I am hopeful that the 'National Compilation on Dynamic Ground Water Resources of India, 2020' by providing authentic information on ground water resources availability in the country, will guide policy makers and other stakeholders to arrive at decisions and strategies for sustainable management of this vital natural resource. I also believe that this will help enlighten the stakeholders about the present status of ground water availability and guide them to adopt measures for its optimal use to ensure a water secure future for the country.

(GAJENDRA SINGH SHEKHAWAT)

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MESSAGE

India, with a geographical area of nearly 33 Lakh Sq KM is home to nearly 16 % of the world population but is endowed with only 4 % of its freshwater resources. Further, there is huge inequality in the distribution of water resources within the country. Ground water, which is one of the primary source of drinking water in the country is also an important source of water for irrigation and industrial uses. Nearly 70 % of the ground water resources available in the country are confined to the Indo-Ganga-Brahmaputra plains covering only 30 % of the geographical area. In this scenario, proper management and development of the limited ground water resources available in an area assumes utmost importance.

Management of ground water requires a structured approach, commencing with assessment of its availability and utilization, followed by periodic monitoring of water levels and its quality, analysis of hazards impacting the ground water regime and finally, developing management strategies for ensuring its long-term sustainability. Realistic assessment of dynamic ground water resources is a significant step in this direction. Central Ground Water Board (CGWB), jointly with State Ground water Departments, carry out periodic assessments of ground water resources of the entire country. These assessments form the basis for planning ground various ground water management interventions including managed aquifer recharge, regulation of ground water use etc. The 'National Compilation on Dynamic Ground Water Resources of India, 2020' is the compilation of the results of the latest such assessment.

I would like to congratulate Central Ground Water Board and the State/ UT Ground Water Departments for their efforts for bringing out the comprehensive report on such an important matter. I firmly believe that the report would serve as an excellent source material for all stakeholders involved in ground water management in the country.

(Rattan Lal Kataria)

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॥ नमामि गंगे ॥

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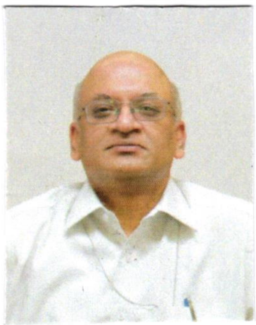

MESSAGE

Groundwater is an integral part of the hydrological cycle and a valuable natural resource. It is the primary source of water for drinking and domestic use in the country. It is also an important source of fresh water for agriculture and industrial use. Withdrawal of groundwater in excess of its natural replenishment for meeting the increased demands of various sectors has resulted in its depletion in certain parts of the country. The result is declining groundwater levels, de-saturation of aquifers, deterioration of water quality etc. On the other hand, available dynamic groundwater resources are under-utilized in certain other parts of the country such as parts of eastern and north-eastern States.

Groundwater needs to be used and managed in a sustainable way to ensure its long-term sustainability. Availability of information on status of groundwater resources in the country is required to facilitate effective management decisions by the policy planners.

Assessment of dynamic groundwater resources of India, following the methodology recommended by the Groundwater Estimation Committee - 2015 is being undertaken currently once every three years. These assessments are being undertaken jointly by Central Ground Water Board and State/UT Ground Water Departments under the overall guidance of an Expert Group constituted by the Ministry. The report titled 'National Compilation on Dynamic Ground Water Resources of India, 2020' summarizes the results of the assessment, primarily in terms of resource availability, utilization, present status of utilization as a percent of available resources and categorization of the assessment unit, compiled from the State/UT wise assessments.

I appreciate the efforts of the Central Ground Water Board led by its Chairman, Shri G.C. Pati, and the guidance provided by the team led by Shri Subodh Yadav, Joint Secretary (A, GW & IC), DoWR, RD & GR in bringing out this publication. I have no doubt that this compilation will be of significant use to all administrators, planners and other stakeholders involved in formulation of strategies and interventions towards long term sustainability of groundwater.

Pankaj Kumar

(Pankaj Kumar)

जल संरक्षण - जीवन संरक्षण
Conserve Water - Save Life

G C Pati
Chairman

भारत सरकार
जल शक्ति मंत्रालय
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केंद्रीय भूमि जल बोर्ड

Government of India
Ministry of Jal Shakti
Department of Water Resources,
River Development & Ganga
Rejuvenation
Central Ground Water Board

FOREWORD

Water is crucial to life on Earth. It is vital for the growth of economy and a critical component of ecology. Owing to its universal availability, easy access and low capital cost for extraction, ground water has become the most preferred source of fresh water for various uses in India. The ever-increasing water demands have led to extraction of ground water in excess of its annual replenishment in several parts of the country. This has, consequently, resulted in adverse environmental impacts including declining ground water levels and deterioration of its quality. Ground water acts as a buffer in times of drought and is a resilient resource for mitigating the effects of climate change. It needs to be managed judiciously to ensure its long term sustainability. A proper understanding of the status of availability and utilization of ground water resources is essential for its management. It is in this context that periodic assessment of ground water resources assumes significance.

The report titled 'National Compilation on Dynamic Groundwater Resources of India, 2020' is a compilation of State/UT – wise assessments, carried out jointly by CGWB and State/UT Ground water Departments under the supervision of respective State/UT level Committees; under overall guidance of Central Level Expert Group. The dynamic groundwater resources of India are assessed following the Groundwater Estimation Methodology, 2015 (GEC–2015), which takes into account all the relevant parameters contributing to ground water recharge and extraction. For the first time, all computations for the assessment of ground water resources have been automated and done in a GIS environment through a web based application namely “INDIA-GROUNDWATER RESOURCE ESTIMATION SYSTEM (IN-GRES)” developed in collaboration with IIT-Hyderabad. This application provides a common and standardized platform for the assessment of dynamic Ground Water Resource for the entire country. This application will also help the States/ UTs to visualize the results of assessment and take proper management decisions. The database thus generated will have a significant role in planning and scientific management of ground water.

I genuinely appreciate the work done by the officers of Central Ground Water Board and State Ground Water Departments for their efforts in completing the assessment by providing various input parameters required by the system. I am hopeful that this report will be very useful for the administrators, planners and ground water professionals and will be helpful in ensuring optimal utilization and sustainability of ground water resource.

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Government of India
Ministry of Jal Shakti
Department of Water Resources,
River Development & Ganga Rejuvenation
Central Ground Water Board

PREFACE

Realistic assessment of the availability and utilization of a natural resource is vital for planning its sustainable development and judicious management. This is extremely important in the case of ground water in the country, which is under increasing stress owing to its extraction for various uses.

Assessment of Ground Water Resources of all the States and UTs in the country is being done jointly by State/UT Ground Water Department and Central Ground Water Board once every three years as per the methodology recommended by the Ground Water Resource Estimation Committee constituted by the Govt. of India. This is a very important exercise as it helps stakeholders take effective measures for optimal utilization and management of ground water resources based on its criticality. Selection of areas for implementation of various schemes of State/Central Governments is also broadly based on the outcome of such assessments. Atal Bhujal Yojana, PMKSY-HHKP-GW Irrigation and Mission Water Conservation etc. are examples of such schemes.

The report titled 'National Compilation on Dynamic Ground Water Resources of India, 2020' summarizes the results of the assessment, primarily in terms of resource availability, utilization and categorization of assessment units, compiled from the State/UT wise assessments, duly approved by the State level Committees (SLCs) constituted for the purpose. The report briefly describes salient features of previous assessments, ground water estimation methodology, rainfall distribution, hydrogeology, aquifer systems of India and ground water level scenario of the country in the first five chapters before describing various components of the ground water resource assessment, 2020 in some detail. This is followed by details of State/UT wise assessment of resources and conclusions drawn from the assessment. The report also has 12 Annexures having state-wise information related to various components of the assessment and comparisons with the previous assessment.

I wish to place on record my appreciation of the untiring efforts of Dr. Ratikanta Nayak, Scientist-D and the team of officers of Central Ground Water Board for completing the challenging task of compiling this informative report. The team led by Dr.K.B.V.N. Phanindra, Asst. Professor, IIT Hyderabad and the software professionals of M/s Vassar Labs IT Solutions, Hyderabad, deserve praise for developing & customising the IN-GRES web portal for the assessment as per requirements of Central Ground Water Board. We are thankful for the support extended by the State/U.T ground water organizations by providing necessary inputs and approvals in time. The guidance of Shri Subodh Yadav, Joint Secretary (A, GW & IC), DoWR, RD & GR has helped improve the quality of the report as well as fast-track the assessment and is gratefully acknowledged. I truly believe that stakeholders at various levels will find this report informative and helpful for managing our precious ground water resources judiciously and for ensuring their sustainability for years to come.

(Nandakumaran P)

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DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

AT A GLANCE

1.	Total Annual Ground Water Recharge	: 436.15 bcm
2.	Annual Extractable Ground Water Resources	: 397.62 bcm
3.	Annual Ground Water Extraction	: 244.92 bcm
4.	Stage of Ground Water Extraction	: 61.6 %

CATEGORIZATION OF ASSESSMENT UNITS

(Blocks/ Mandals/ Firkas/ Taluks etc.)

S. No.	Category	Assessment Units		Recharge worthy Area		Annual Extractable Ground Water Resource	
		Number	%	in lakh sq. km.	%	(in bcm)	%
1	Safe	4427	64 %	15.67	64 %	280.26	70 %
2	Semi-Critical	1057	15 %	3.40	14 %	54.11	14 %
3	Critical	270	04 %	0.86	04 %	12.71	03 %
4	Over-Exploited	1114	16 %	4.09	17 %	50.54	13 %
5	Saline	97	01 %	0.3	01 %	NA	NA
Total		6965		24.33		397.62	

Dynamic Ground Water Resources Estimation of India-2020

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APPENDICES
(Separate Volume)

EXECUTIVE SUMMARY

Ground Water Resources Assessment is carried out at periodical intervals jointly by State Ground Water Departments and Central Ground Water Board under the guidance of the respective State Level Committee on Ground Water Assessment at State Levels and under the overall supervision of the Central Level Expert Group. Such joint exercises have been taken up earlier in 1980, 1995, 2004, 2009, 2011, 2013 and 2017.

The assessment involves computation of dynamic ground water resources or Annual Extractable Ground Water Resource, Total Current Annual Ground Water Extraction (utilization) and the percentage of utilization with respect to annual extractable resources (stage of Ground Water Extraction). The assessment units (Talukas/blocks/mandals/firkas) are categorized based on Stage of Ground Water Extraction, which are then validated with long-term water level trends. The assessment prior to that of year 2017 were carried out following Ground Water Estimation Committee (GEC) 97 Methodology, whereas 2017 as well as the present assessment are based on norms and guidelines of the GEC 2015 Methodology.

The main source of replenishable ground water resources is recharge from rainfall, which contributes to nearly 64 % of the total annual ground water recharge. India receives about 119 cm. of rain annually on average, with high spatial variation. A major part of the country receives rainfall mainly during SW Monsoon season spread over the months of June to September, except in Tamil Nadu, where the major contribution is from NE monsoon during the period October– December. There are also States such as Jammu and Kashmir, Himachal Pradesh and Uttarakhand which receive significant rainfall in all seasons.

Over 75 % of the annual rainfall is received in the four rainy months for June to September only thereby leading to large variations on temporal scale. The average annual rainfall is 119 cm, but it has great spatial variations. The areas on Western Ghats, Sub-Himalyan areas in North East and Meghalaya Hills receive heavy rainfall over 250 cm annually, whereas the areas of Northern parts of Kashmir and Western Rajasthan receive rainfall less than 40 cm. A major part of the country including Northern, Central and Eastern parts receives annual normal rainfall between 75 and 150 cm. In general, rainfall decreases westwards in the northern part of the country, whereas it decreases eastwards and then increases toward the coast in Peninsular India.

Type of rock formations and their storage and transmission characteristics have a significant influence on ground water recharge. Porous formations such as the alluvial formations in the Indo-Ganga-Brahmaputra basin generally have high specific yields and are good repositories of ground water. Ground water occurrence in the fissured formations occupying nearly two-thirds of the geographical area of the country, on the other hand, is mostly limited to the weathered, jointed and fractured portions of the rocks.

In the present assessment, the total annual ground water recharge has been assessed as 436 bcm. Keeping an allocation for natural discharge, the annual extractable ground water resource works out as 398 bcm. The total annual ground water extraction (as in 2020) has been assessed as 245 bcm. The average stage of ground water extraction for the country as a whole works out to be about 62 %. The extraction of ground water for various uses in different parts of the country is not uniform. Out of the total 6965 assessment units (Blocks/ Districts/ Mandals/ Talukas/Firkas) in the country, 1114 units in various States (16 %) have been categorized as 'Over-Exploited' indicating ground water extraction exceeding the annually replenishable ground water recharge. A total of 270 (4 %)

assessment units have been categorized as ‘Critical’, where the stage of ground water extraction is between 90-100 % of annual extractable resources available. There are 1057 ’Semi-Critical’ units (15 %), where the stage of ground water extraction is between 70 % and 90 % and 4427 (64 %) assessment units have been categorized as ‘Safe‘ where the stage of Ground water extraction is less than 70 %. Apart from this, there are 97 assessment units (1 %), which have been categorized as ‘Saline’ as major part of the ground water in phreatic aquifers is brackish or saline. Similarly out of 24.33 lakh sq km recharge worthy area of the country, 4.09 lakh sq km (17 %) are under ‘Over-Exploited’, 0.86 lakh sq km (4 %) are under ‘Critical’, 3.4 lakh sq km (14 %) are under ’Semi-Critical’, 15.67 lakh sq km (64 %) are under ‘Safe’ and 0.3 lakh sq km (1 %) are under ‘Saline’ category assessment units. Out of 397.62 bcm of Total Annual Extractable Resources of the country, 50.54 bcm (13 %) are under ‘Over-Exploited’, 12.71 bcm (3 %) are under ‘Critical’, 54.11 bcm (14 %) are under ’Semi-Critical’, 280.26 bcm (70 %) are under ‘Safe’ category assessment units.

In comparison to 2017 assessment, the total numbers of assessment units in the country have increased from 6881 to 6965 with major contribution (in increase) from the State of Karnataka, Haryana and Punjab. The total annual ground water recharge has increased from 432 to 436 bcm, where major increase is noticed in the States of Uttar Pradesh, Andhra Pradesh, Karnataka, Telangana, Gujarat & Chhattisgarh. The changes are attributed mainly to changes in recharge from ‘Other Sources’. Accordingly, the annual extractable resource of GW Resource Assessment, 2020 on comparison GW Resource Assessment, 2017 also shows a increase from 393 to 398 bcm. The ground water extraction has marginally decreased from 249 to 245 bcm. The overall stage of groundwater extraction has marginally decreased from 63 % to 62 %.

The over-exploited assessment units are mostly concentrated in :(i) the north western part of the country including parts of Punjab, Haryana, Delhi and Western Uttar Pradesh where even though the replenishable resources are abundant, there have been indiscriminate withdrawals of ground water leading to over-exploitation; (ii) the western part of the country, particularly in parts of Rajasthan and Gujarat, where due to arid climate, groundwater recharge itself is limited, leading to stress on the resource and (iii) the southern part of peninsular India including parts of Karnataka, Andhra Pradesh, Telangana and Tamil Nadu where due to inherent characteristics of crystalline aquifers, the ground water availability is low. In some areas of the country, good continuous rainfall and management practices like ground water augmentation and conservation measures through government and private initiatives have resulted in improvement in ground water situation. Ground water resources assessment, like other fields of science, requires continuous refinements.

CHAPTER 1

1.0 INTRODUCTION

Water is a fundamental resource for life. Sustainable development and efficient management of this scarce resource has become a challenge in India. Increasing population, growing urbanization and rapid industrialization combined with the need for raising agricultural production generates competing demands for water. Ground water has steadily emerged as the backbone of India's agriculture and drinking water security. Contribution of ground water is nearly 62% in irrigation, 85% in rural water supply and 50% in urban water supply .Ground water is an annually replenishable resource but its availability is non- uniform in space and time. Ground water available in the zone of water level fluctuation is replenished annually with rainfall being the dominant contributor. Hence, the sustainable utilization of ground water resources demands a realistic quantitative assessment of ground water availability in this zone based on reasonably valid scientific principles. National Water Policy, 2012 has laid emphasis on periodic assessment of ground water resources on scientific basis. The trends in water availability due to various factors including climate change must also be assessed and accounted for during water resources planning. To meet the increasing demands of water, it advocates direct use of rainfall, desalination and avoidance of inadvertent evapotranspiration for augmenting utilizable water resources. The National Water Policy 2012 also states that safe water for drinking and sanitation should be considered as pre-emptive needs followed by high priority allocation for other domestic needs (including needs of animals), achieving food security, supporting sustenance agriculture and minimum eco- system needs. Available water, after meeting the above needs should be allocated in a manner to promote its conservation and efficient use.

1.1 PREVIOUS ASSESSMENTS

Assessment of water resources of the country dates back to 1901 when the First Irrigation Commission assessed the Surface Water Resources as 144 million hectare meters (M.ham) (NABARD, 2006). In 1949, Dr. A. N. Khosla, based on empirical formulae, estimated the total average annual runoff of all the river systems of India including both surface and ground water resources as 167 M.ham (CGWB, 1995). Since then attempts have been made from time to time by various Working Groups/ Committees/Task Forces constituted by Govt. of India to estimate the ground water resources of the country based on available data and in response to developmental needs. In 1976, National Commission of Agriculture assessed the total ground water resources of the country as 67 M.ham and the utilizable ground water as 35 M.ham, out of which 26 M.ham was considered available for irrigation (CGWB, 1995).

The first systematic methodology to assess the ground water resources of the country was evolved by Ground Water Over-Exploitation Committee in 1979. The committee was constituted by Agriculture Refinance and Development Corporation (ARDC) and was headed by Chairman, CGWB with Members from State Ground Water Organizations and Financial Institutions. Based on the norms suggested by the committee, the country's Gross Ground Water Recharge was assessed as 47 M.ham and the Net Recharge as 32 M.ham (CGWB, 1995).

In 1982, Government of India constituted ‘Ground Water Estimation Committee’ (GEC) drawing Members from various States / Central organizations engaged in hydrogeological studies and groundwater development.The Committee submitted its recommendations in the year 1984 and suggested a methodology for assessment of dynamic groundwater resources, which is commonly referred to as GEC 1984. As per the recommendations of the GEC 1984, State Governments constituted Working Groups for assessment of ground water potential. The Working Groups were headed by Secretaries in-charge of Ground Water Developments and included Heads of Ground Water Departments, State Agriculture Departments, representatives from Agriculture Universities and NABARD as members. Director, CGWB was the convener of the group. The base year for the computation of the resource varied between 1991 and 1993 and a National report on Ground Water Resources of India was brought out in 1995 by compiling the data of all the States and UnionTerritories. As per the report, the Total Replenishable Ground Water in India was assessed as 432 billion cubic meter (bcm). The ground water resource available for irrigation purpose was about 361 bcm.The Net Ground Water Draft for Irrigation uses was about 115 bcm, thereby arriving at the level of ground water developmentas 32 %. Utilizable Irrigation Potential from ground water of the country was worked out to be 64 million hectare (CGWB, 1995).

Increasing thrust on ground water and improved techniques for data acquisition led the Government of India to form another Committee in 1995 to review the existing methodology for ground water resource assessment and to suggest revisions, if necessary. The Committee submitted its report in 1997 wherein a revised and elaborate methodology for resource assessment was suggested, which was referred as GEC 1997. In view of the limitations of ground water assessment in hard rock terrain, another Committee on Ground Water Estimation Methodology in Hard Rock Terrain was formed in 2001 to review the existing methodology for resource estimation in such formations. The Committee made certain suggestions on the criteria for categorization of blocks to be adopted for the entire country irrespective of the terrain conditions. Based on GEC 1997, the dynamic ground water resources of India have been estimated for the entire country considering 2004, 2009, 2011 and 2013 as base years. The methodology underwent comprehensive revisions again in 2015 and a revised methodology, namely GEC 2015 methodology has been prescribed for ground water assessment. This methodology is being followed for assessment carried out from 2017 onwards.

In the present assessment, the total annual groundwater recharge in the country has been assessed as 436.15 bcm. Keeping an allocation for natural discharge, the annual extractable ground water resource has been assessed as 397.62 bcm. The annual groundwater extraction (as in 2020) is 244.92 bcm. The average stage of groundwater extraction for the country as a whole works out to be about 61.6 %. Out of the total 6965 assessment units (Blocks/ Mandals/ Talukas/Firkas) in the country, 1114 units in various States (16 %) have been categorized as ‘Over-exploited’ indicating ground water extraction exceeding the annually replenishable ground water recharge. In, 270 (4 %) assessment units the stage of groundwater extraction is between 90-100% and have been categorized as ‘Çritical’. There are 1057 (15 %) “Semi-critical’’ units, where the stage of ground water extraction is between 70 % and 90 % and 4427 (64 %) ‘Safe‘ units where the stage of Ground water extraction is less than 70 %. Apart from these, there are 97 (1%) assessment units, which have been categorised as ‘Saline’ as major part of the ground water in phreatic aquifers in these units is brackish or saline. Salient details of status of ground water resources and categorization of assessment units in 2004, 2009, 2011, 2013, 2017 and 2020 are shown in Table 1.1 and Table1.2 respectively.

Table 1.1: Ground water Resources assessment 2004 to 2020

S. No.	Ground Water Resources Assessment	2004	2009	2011	2013	2017	2020
1	Annual Ground Water Recharge	433 bcm	431 bcm	433 bcm	447 bcm	432 bcm	436 bcm
2	Annual Extractable Ground Water Resource	399 bcm	396 bcm	398 bcm	411 bcm	393 bcm	398 bcm
3	Annual Ground Water Extraction for Irrigation, Domestic & Industrial uses	231 bcm	243 bcm	245 bcm	253 bcm	249 bcm	245 bcm
4	Stage of Ground Water Extraction	58 %	61 %	62 %	62 %	63 %	62 %

Table 1.2: Categorization of assessment units from 2004 to 2020

S. No.	Categorization of Blocks/ Mandals/ Talukas	2004	2009	2011	2013	2017	2020
1	Total Assessed units	5723	5842	6607	6584	6881	6965
2	Safe	4078	4277	4503	4519	4310	4427
3	Semi-critical	550	523	697	681	972	1057
4	Critical	226	169	217	253	313	270
5	Over-Exploited	839	802	1071	1034	1186	1114
6	Saline	30	71	92	96	100	97

1.2 GROUND WATER ASSESSMENT AND MANAGEMENT INITIATIVES

The inferences drawn from the ground water resources assessment is utilized as an input to the planners and stakeholders for taking appropriate management measures for optimal utilization and sustainable development of the ground water resources. Several measures, primarily based on the findings of the resource assessment, have been taken up by the Government of India to replenish/augment ground water resources.

Initiatives by the Government of India in this regard includes constitution of Central Ground Water Authority for regulation of ground water development in the country and compilation of a conceptual document titled "Master Plan for Artificial Recharge to Ground water in India" by CGWB, which envisages implementation of nearly 11 million Rain Water Harvesting and Artificial Recharge structures to augment the ground water resources of the country. Ministry of Jal Shakti has also circulated a Model Bill to all States/UTs to enable them to enact suitable legislation for regulation of ground water development, which includes provision of rainwater harvesting. CGWB has taken up National Aquifer Mapping & Management Programme (NAQUIM), for mapping of major aquifers, their characterization and formulation of Aquifer Management Plans to ensure sustainability of the resources, prioritising Over-exploited, Critical and Semi-critical assessment units. Several State Governments are implementing watershed development programmes, in which, ground water conservation forms an integral part.Water conservation measures are also taken up as a part of the MGNREGA. Ministry of Jal Shakti has launched 'Jal Kranti Abhiyan', aimed at consolidating water conservation and management initiatives in the country through a holistic and integrated approach involving all stakeholders. Atal Bhujal Yojana, being implemented from April 2020, envisages improving ground water management in identified water-stressed areas in parts of seven States in the country with emphasis on demand management and community participation. In addition, schemes of the Government of India such as Pradhan Mantri Krishi Sinchai Yojana (PMKSY)- Har Khet Ko Pani (HKKP)-Ground Water Irrigation (GWI) envisages creation of irrigation potential from groundwater in assessment units where there is sufficient scope for further future ground water development.

1.3 RE-ASSESSMENT OF GROUND WATER RESOURCES, 2020

The assessment of Ground water resources is carried out to determine the prevailing status of ground water resources in the country. It also helps assess the impact of the on-going ground water management practices on the groundwater resources. In 2020, Department of Water Resources, River Developmwnt & Ganga Rejuvenation, Ministry of Jal Shakti constituted a Central Level Expert Group (CLEG) for over-all supervision of the re-assessment of ground water resources in the entire country as in 2020. The terms of reference of the committee include supervision of assessment of annual replenishable ground water resources and the status of utilization for reference year 2020. A copy of the Government Resolution is in **Appendix A**.

Ground water resources assessment for reference year 2020 at the State/U.T Levels have been carried out jointly by State Ground Water Departments and Central Ground Water Board under the supervision of State Level Committees (**Appendix B**), with technical guidance from Central Level Expert Group. The assessment carried out was approved by the respective State Level Committee (**Appendix D**). For few States (Chhattisgarh, Jharkhand and Kerala) the assessments are yet to be approved in State Level Committee. Based on the assessments provided by the respective State Level Committees and joint assessment made in the aforesaid States, the National Level Report titled "Dynamic Ground Water Resources of India-2020" has been compiled. In respect of West Bengal, assessment for 2020 could not been completed and CLEG recommended that the results of previous assessment (2013) may be considered for 2020. The national compilation report provides summary and analysis of ground water resources in different States. The report was reviewed and deliberated upon during the meeting of CLEG held on 31.03.2021, and was approved as mentioned in **Appendix E.**

CHAPTER 2

2.0 GROUND WATER RESOURCES ESTIMATION METHODOLOGY

Ground water resource as in 2020 have been estimated following the guidelines mentioned in the GEC 2015 methodology using appropriate assumptions depending on data availability. The principal attributes of GEC 2015 methodology is given below:

The methodology recommends aquifer wise ground water resource assessment of both the Groundwater resources components, i.e., Replenishable ground water resources or Dynamic Ground Water Resources and In-storage Resources or Static Resources. Wherever the aquifer geometry has not been firmly established for the unconfined aquifer, the in-storage ground water resources have to be assessed in the alluvial areas down to the depth of bed rock or 300 m, whichever is less. In case of hard rock aquifers, the depth of assessment would be limited to 100 m. In case of confined aquifers, if it is known that groundwater extraction is being done from this aquifer, the dynamic as well as in-storage resources are to be estimated. If it is firmly established that there is no ground water extraction from this confined aquifer, then only in-storage resources of that aquifer has to be estimated. Until aquifer geometry is established on appropriate scale, the existing practice of using watershed in hard rock areas and blocks/mandals/ firkas in soft rock areas may be continued.

It is also pertinent to add that as it is advisable to restrict the groundwater development as far as possible to annual replenishable resources, the categorization also takes into account the relation between the annual replenishment and groundwater development. An area devoid of ground water potential may not be considered for development and may remain safe whereas an area with good groundwater potential may be developed and may become over exploited over a period of time. Thus, water augmentation efforts can be successful in such areas, where the groundwater potential is high and there is scope for augmentation.

2.1. GROUND WATER ASSESSMENT OF UNCONFINED AQUIFER

Though the assessment of ground water resources includes assessment of dynamic and in-storage resources, the development planning should mainly focus on dynamic resource as it gets replenished on an annual basis. Changes in static or in-storage resources normally reflect long-term impacts of ground water mining. Such resources may not be replenishable annually and may be allowed to be extracted only during exigencies with proper planning for augmentationin the succeeding excess rainfall years.

2.1.1. Assessment of Annually Replenishable or Dynamic Ground Water Resources

The methodology for ground water resources estimation is based on the principle of water balance as given below –

$$\boldsymbol{Inflow - Outflow = Change\ in\ Storage\ (of\ an\ aquifer)} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots..(\mathbf{1})$$

Equation (1) can be further elaborated as –

$$\boldsymbol{\Delta S = R_{RF} + R_{STR} + R_C + R_{SWI} + R_{GWI} + R_{TP} + R_{WCS} \pm VF \pm LF - GE - T - E - B} \ldots\ldots..(\mathbf{2})$$

Where,

ΔS - Change is storage
R_{RF} - Rainfall recharge
R_{STR} - Recharge from stream channels
R_C - Recharge from canals
R_{SWI} - Recharge from surface water irrigation
R_{GWI} - Recharge from ground water irrigation
R_{TP} - Recharge from Tanks & Ponds
R_{WCS} - Recharge from water conservation structures
VF - Vertical flow across the aquifer system
LF - Lateral flow along the aquifer system (through flow)
GE - Ground Water Extraction
T - Transpiration
E - Evaporation
B - Base flow

It is preferred that all the components of water balance equation should be estimated in an assessment unit. Due to lack of data for all the components in most of the assessment units, it is proposed that at present the water budget may be restricted to the major components only, taking into consideration certain reasonable assumptions. The estimation is to be carried out using lumped parameter estimation approach keeping in mind that data from many more sources if available may be used for refining the assessment.

2.1.1.1. Rainfall Recharge

It is recommended that ground water recharge should be estimated on ground water level fluctuation and specific yield approach since this method takes into account the response of ground water levels to ground water input and output components. This, however, requires adequately spaced representative water level measurement for a sufficiently long period. It is proposed that there should be at least three spatially well distributed observation wells in the assessment unit, or one observation well per 100 sq. Km. Water level data should also be available for a minimum period of 5 years (preferably 10years), along with corresponding rainfall data. Regarding frequency of water level data, two water level readings, during pre and post monsoon seasons, are the minimum requirement. It would be ideal to have monthly water level measurements to record the peak rise and maximum fall in the ground water levels. In units or subareas where adequate data on ground water level fluctuations are not available as specified above, ground water recharge may be estimated using rainfall infiltration factor method only. The rainfall recharge during non-monsoon season may be estimated using rainfall infiltration factor method only.

2.1.1.1.1. Ground Water Level Fluctuation Method

The ground water level fluctuation method is to be used for assessment of rainfall recharge in the monsoon season. The ground water balance equation in non-command areas is given by

$$\Delta \boldsymbol{S} = \boldsymbol{R_{RF}} + \boldsymbol{R_{STR}} + \boldsymbol{R_{SWI}} + \boldsymbol{R_{GWI}} + \boldsymbol{R_{TP}} + \boldsymbol{R_{WCS}} \pm \boldsymbol{VF} \pm \boldsymbol{LF} - \boldsymbol{GE} - \boldsymbol{T} - \boldsymbol{E} - \boldsymbol{B} \ldots\ldots\ldots\ldots\ldots\ldots\ldots.. (\boldsymbol{3})$$

Where,

ΔS - Change is storage
R_{RF} - Rainfall recharge
R_{STR} - Recharge from stream channels
R_{SWI} - Recharge from surface water irrigation
R_{GWI} - Recharge from ground water irrigation
R_{TP} - Recharge from Tanks& Ponds
R_{WCS} - Recharge from water conservation structures
VF - Vertical flow across the aquifer system
LF - Lateral flow along the aquifer system (through flow)
GE - Ground water extraction
T - Transpiration
E - Evaporation
B - Base flow

Whereas the water balance equation in command area will have another term i.e., Recharge due to canals (R_C) and the equation will be as follows:

$$\boldsymbol{\Delta S = R_{RF} + R_{STR} + R_C + R_{SWI} + R_{GWI} + R_{TP} + R_{WCS} \pm VF \pm LF - GE - T - E - B} \ldots\ldots\ldots\ldots\ldots (\mathbf{4})$$

A couple of important observations in the context of water level measurement must be followed. It is important to bear in mind that while estimating the quantum of ground water extraction, the depth from which ground water is being extracted should be considered. One should consider only the draft from the same aquifer for which the resource is being estimated.

The change in storage can be estimated using the following equation:

$$\boldsymbol{\Delta S = \Delta h \times A \times S_Y} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (\mathbf{5})$$

Where,

ΔS - Change is storage
Δh - rise in water level in the monsoon season
A - Area for computation of recharge
S_Y - Specific Yield

Substituting the expression in equation (5) for storage increase ΔS in terms of water level fluctuation and specific yield, the equations (3) & (4) becomes (6) & (7) for non-command and command sub-units,

$$\boldsymbol{R_{RF} = \Delta h \times A \times S_Y - R_{STR} - R_{SWI} - R_{GWI} - R_{TP} - R_{WCS} \pm VF \pm LF + GE + T + E + B} \ldots\ldots\ldots\ldots\ldots (\mathbf{6})$$

$$\boldsymbol{R_{RF} = \Delta h \times A \times S_Y - R_{STR} - R_C - R_{SWI} - R_{GWI} - R_{TP} - R_{WCS} \pm VF \pm LF + GE + T + E + B} \ldots\ldots\ldots (\mathbf{7})$$

Where base flow/ recharge to/from streams have not been estimated, the same is assumed to be zero. The rainfall recharge obtained by using equation (6) and (7) provides the recharge in any particular monsoon season for the associated monsoon season rainfall. This estimate is to be normalized for the normal monsoon season rainfall as per the procedure indicated below.

Normalization of Rainfall Recharge

Let R_i be the rainfall recharge and r_i be the associated rainfall. The subscript "i" takes values 1 to N where N is the number of years for which data is available. This should be at least 5. The rainfall recharge, R_i is obtained as per equation (6) & equation (7) depending on the sub-unit for which the normalization is being done.

After the pairs of data on R_i and r_i have been obtained as described above, a normalisation procedure is to be carried out for obtaining the rainfall recharge corresponding to the normal monsoon season rainfall. Let r(normal) be the normal monsoon season rainfall obtained as the average of recent 30 to 50 years of monsoon season rainfall. Two methods are possible for the normalisation procedure. The first method is based on a linear relationship between recharge and rainfall of the form

$$\boldsymbol{R = ar} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \mathbf{(8)}$$

Where,

R = Rainfall recharge during monsoon season
r = Monsoon season rainfall
a = a constant

The computational procedure to be followed in the first method is as given below:

$$\boldsymbol{R_{RF}(normal) = \frac{\sum_{i=1}^{N}\left[R_i \frac{r(normal)}{r_i}\right]}{N}} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \mathbf{(9)}$$

Where,

R_{RF}(normal) - Normalized Rainfall Recharge in the monsoon season
R_i - Rainfall Recharge in the monsoon season for the i^{th} year
r(normal) - Normal monsoon season rainfall
r_i - Rainfall in the monsoon season for the i^{th} year
N - No. of years for which data is available

The second method is also based on a linear relation between recharge and rainfall. However, this linear relationship is of the form,

$$\boldsymbol{R_{RF}(normal) = a \times r(normal) + b} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \mathbf{(10)}$$

Where,

R_{RF}(normal) - Normalized Rainfall Recharge in the monsoon season
r(normal) - Normal monsoon season rainfall
a and b - constants.

The two constants 'a' and 'b' in the above equation are obtained through a linear regression analysis. The computational procedure to be followed in the second method is as given below:

$$\boldsymbol{a = \frac{NS_4 - S_1S_2}{NS_3 - S_1^2}} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \mathbf{(11)}$$

$$\boldsymbol{b} = \frac{\boldsymbol{S_2} - \boldsymbol{aS_1}}{\boldsymbol{N}} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots . (\mathbf{12})$$

Where,

$$\boldsymbol{S_1} = \sum_{i=1}^{N} \boldsymbol{r_i} \;\; , \;\; \boldsymbol{S_2} = \sum_{i=1}^{N} \boldsymbol{R_i} \;\; , \;\; \boldsymbol{S_3} = \sum_{i=1}^{N} \boldsymbol{r_i^2} \;\; , \;\; \boldsymbol{S_4} = \sum_{i=1}^{N} \boldsymbol{R_i r_i}$$

2.1.1.1.2. Rainfall Infiltration Factor Method

The rainfall recharge estimation based on Water level fluctuation method reflects actual field conditions since it takes into account the response of ground water level. However the ground water extraction estimation included in the computation of rainfall recharge using water level fluctuation approach is often subject to uncertainties. Therefore, it is recommended to compare the rainfall recharge obtained from water level fluctuation approach with that estimated using rainfall infiltration factor method. Recharge from rainfall is estimated by using the following relationship –

$$\boldsymbol{R_{RF}} = \boldsymbol{RFIF} \times \boldsymbol{A} \times \frac{(\boldsymbol{R} - \boldsymbol{a})}{\mathbf{1000}} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots .. (\mathbf{13})$$

Where,

R_{RF} - Rainfall recharge in ham

A - Area in hectares

RFIF - Rainfall Infiltration Factor

R - Rainfall in mm

a - Minimum threshold value above which rainfall induces ground water recharge in mm

The threshold limit of minimum and maximum rainfall event which can induce recharge to the aquifer is to be considered while estimating ground water recharge using rainfall infiltration factor method. The minimum threshold limit is in accordance with the relation shown in equation (13) and the maximum threshold limit is based on the premise that after a certain limit, the rate of storm rain is too high to contribute to infiltration and they will only contribute to surface runoff. It is suggested that 10% of Normal annual rainfall may be taken as minimum rainfall threshold and 3000 mm as maximum rainfall limit. While computing the rainfall recharge, 10% of the normal annual rainfall is to be deducted from the monsoon rainfall and balance rainfall would be considered for computation of rainfall recharge. The same recharge factor may be used for both monsoon and non-monsoon rainfall, with the condition that the recharge due to non-monsoon rainfall may be taken as zero, if the normal rainfall during the non-monsoon season is less than 10% of normal annual rainfall. In using the method based on the specified norms, recharge due to both monsoon and non-monsoon rainfall may be estimated for normal rainfall, based on recent 30 to 50 years of data.

2.1.1.1.3. Percent Deviation

After computing the rainfall recharge for normal monsoon season rainfall using the ground water level fluctuation method and rainfall infiltration factor method these two estimates have to be compared with each other. A term, Percent Deviation (PD) which is the difference between the two expressed as a percentage of the later is computed as

$$PD = \frac{R_{RF}(normal, wtfm) - R_{RF}(normal, rifm)}{R_{RF}(normal, rifm)} \times 100 \ldots\ldots\ldots\ldots\ldots\ldots\ldots.\ldots\ldots\ldots.(14)$$

Where,

R_{RF} (normal, wlfm) = Rainfall recharge for normal monsoon season rainfall estimated by the ground water level fluctuation method

R_{RF} (normal, rifm) = Rainfall recharge for normal monsoon season rainfall estimated by the rainfall infiltration factor method

The rainfall recharge for normal monsoon season rainfall is finally adopted as per the criteria given below:

- If PD is greater than or equal to -20%, and less than or equal to +20%, R_{RF} (normal) is taken as the value estimated by the ground water level fluctuation method.
- If PD is less than -20%, R_{RF} (normal) is taken as equal to 0.8 times the value estimated by the rainfall infiltration factor method.
- If PD is greater than +20%, R_{RF} (normal) is taken as equal to 1.2 times the value estimated by the rainfall infiltration factor method.

2.1.1.2. Recharge from Other Sources

Recharge from other sources constitutes recharges from canals, surface water irrigation, ground water irrigation, tanks & ponds and water conservation structures in command areas where as in non-command areas it constitutes the recharge due to surface water irrigation, ground water irrigation, tanks & ponds and water conservation structures. The methods of estimation of recharge from different sources are as follows.

Sl. No.	Source	Estimation Formula	Parameters
1	Recharge from Canals	$R_C = WA \times SF \times Days$	R_C = Recharge from Canals WA = Wetted Area SF = Seepage Factor Days = Number of Canal Running Days
2	Recharge from Surface Water Irrigation	$R_{SWI} = AD \times Days \times RFF$	R_{SWI} = Recharge due to applied surface water irrigation AD = Average Discharge Days = Number of days water is discharged to the Fields RFF = Return Flow Factor
3	Recharge from Ground Water Irrigation	$R_{GWI} = GE_{IRR} \times RFF$	R_{GWI} = Recharge due to applied ground water irrigation GE_{IRR} = Ground Water Extraction for Irrigation RFF = Return Flow Factor

Sl. No.	Source	Estimation Formula	Parameters
4	Recharge due to Tanks & Ponds	$R_{TP} = AWSA \times N \times RF$	R_{TP} = Recharge due to Tanks & Ponds AWSA = Average Water Spread Area N = Number of days Water is available in the Tank/Pond RF = Recharge Factor
5	Recharge due to Water Conservation Structures	$R_{WCS} = GS \times RF$	RWCS = Recharge due to Water Conservation Structures GS = Gross Storage = Storage Capacity multiplied by number of fillings. RF = Recharge Factor

2.1.1.3. Lateral Flow Along the Aquifer System (Through Flow)

In equations 6 & 7, if the area under consideration is a watershed, the lateral flow across boundaries can be considered as zero in case such estimates are not available. If there is inflow and outflow across the boundary, theoretically, the net inflow may be calculated using Darcy law, by delineating the inflow and outflow sections of the boundary. Besides such delineation, the calculation also requires estimate of transmissivity and hydraulic gradient across the inflow and outflow sections. These calculations are most conveniently done in a computer model. It is recommended to initiate regional scale modelling with well-defined flow boundaries. Once the modelling is complete, the lateral throughflows (LF) across boundaries for any assessment unit can be obtained from the model. In case Lateral Flow is calculated using computer model, the same should be included in the water balance equation.

2.1.1.4. Base Flow and Stream Recharge

If stream gauge stations are located in the assessment unit, the base flow and recharge from streams can be computed using Stream Hydrograph Separation method, Numerical Modelling and Analytical solutions. If the assessment unit is a watershed, a single stream monitoring station at the mouth of the watershed can provide the required data for the calculation of base flow. Any other information on local-level base flows such as those collected by research centres, educational institutes or NGOs may also be used to improve the estimates on base flows.

Base flow separation methods can be divided into two main types: non-tracer-based and tracer-based separation methods. Non-tracer methods include Stream hydrograph analysis, water balance method and numerical ground water modelling techniques. Digital filters are available for separating base flow component of the stream hydrograph.

Hydro-chemical tracers and environmental isotope methods also use hydrograph separation techniques based on mass balance approach. Stream recharge can be computed either using modelling techniques or simply by applying the Darcy Law.

Base flow assessment and Stream recharge should be carried out in consultation with Central Water Commission in order to avoid any duplicity in the estimation of total water availability in a river basin.

2.1.1.5. Vertical Inter Aquifer Flow

This can be estimated provided aquifer geometry and aquifer parameters are known. This can be calculated using the Darcy's law if the hydraulic heads in both aquifers and the hydraulic conductivity and thickness of the aquitard separating both the aquifers are known. Ground water flow modelling is an important tool to estimate such flows. As envisaged in this report regional scale modelling studies will help in refining vertical inter aquifer flow estimates.

2.1.1.6. Evaporation and Transpiration

Evaporation can be estimated for the aquifer in the assessment unit if water levels in the aquifer are within the capillary zone. It is recommended to compute the evaporation through field studies. If field studies are not possible, for areas with water levels within 1.0mbgl, evaporation can be estimated using the evaporation rates available for other adjoining areas. If depth to water level is more than 1.0mbgl, the evaporation losses from the aquifer should be taken as zero.

Transpiration through vegetation can be estimated if water levels in the aquifer are within the maximum root zone of the local vegetation. It is recommended to compute the transpiration through field studies. Even though it varies from place to place depending on type of soil &vegetation, in the absence of field studies the following estimation can be followed. If water levels are within 3.5m bgl, transpiration can be estimated using the transpiration rates available for other areas. If it is greater than3.5m bgl, the transpiration should be taken as zero.

For estimating evapotranspiration, field tools like Lysimeters can be used to estimate actual evapotranspiration. Usually agricultural universities and IMD carry out lysimeter experiments and archive the evapotranspiration data. Remote sensing based techniques like SEBAL (Surface Energy Balance Algorithm for Land) can be used for estimation of actual evapotranspiration. Assessing offices may apply available lysimeter data or other techniques for estimation of evapotranspiration. In case where such data is not available, evapotranspiration losses can be empirically estimated from PET data provided by IMD.

2.1.1.7. Recharge During Monsoon Season

The sum of normalized monsoon rainfall recharge and the recharge from other sources and lateral and vertical flows into & out of the sub unit and stream inflows & outflows during monsoon season is the total recharge/ accumulation during monsoon season for the sub unit. Similarly, this is to be computed for all the sub units available in the assessment unit.

2.1.1.8. Recharge During Non-Monsoon Season

The rainfall recharge during non-monsoon season is estimated using rainfall infiltration factor Method only when the non-monsoon season rainfall is more than 10% of normal annual rainfall. The sum of non-monsoon rainfall recharge and the recharge from other sources and lateral and vertical flows into & out of the sub unit and stream inflows & outflows during non-monsoon season is the total recharge/ accumulation during non-monsoon season for the sub unit. Similarly, this is to be computed for all the sub units available in the assessment unit.

2.1.1.9. Total Annual Ground Water Recharge

The sum of the recharge/ accumulations during monsoon and non-monsoon seasons is the total annual ground water recharge/ accumulations for the sub unit. Similarly, this is to be computed for all the sub units available in the assessment unit.

2.1.1.10. Annual Extractable Ground Water Resource (EGR)

The Annual Extractable Ground Water Resource (EGR) is computed by deducting the Total Annual Natural Discharge from Total Annual Ground Water Recharge.

The ground water base flow contribution limited to the ecological flow of the river should be determined which will be deducted from Annual Ground Water Recharge to determine Annual Extractable Ground Water Resources (EGR). The ecological flows of the rivers are to be determined in consultation with Central Water Commission and other concerned river basin agencies. In case base flow contribution to the ecological flow of rivers is not determined then following assumption is to be followed.

In the water level fluctuation method, a significant portion of base flow is already accounted for by taking the post monsoon water level one month after the end of rainfall. The base flow in the remaining non-monsoon period is likely to be small, especially in hard rock areas. In the assessment units, where river stage data are not available and neither the detailed data for quantitative assessment of the natural discharge are available, present practice (GEC 1997) of allocation of unaccountable natural discharges to 5% or 10% of annual recharge may be retained. If the rainfall recharge is assessed using water level fluctuation method this will be 5% of the annual recharge and if it is assessed using rainfall infiltration factor method, it will be 10% of the annual recharge. The balance will account for Annual Extractable Ground Water Resources (EGR).

2.1.1.11. Estimation of Ground Water Extraction

Ground water draft or extraction is to be assessed as follows.

$$\boldsymbol{GE_{ALL} = GE_{IRR} + GE_{DOM} + GE_{IND}} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \ (\mathbf{15})$$

Where,

GE_{ALL} = Ground water extraction for all uses
GE_{IRR} = Ground water extraction for irrigation
GE_{DOM} = Ground water extraction for domestic uses
GE_{IND} = Ground water extraction for industrial uses

2.1.1.11.1. Ground Water Extraction for Irrigation (GE_{IRR})

The methods for estimation of ground water extraction are as follows.

Unit Draft Method: – In this method, season-wise unit draft of each type of well in an assessment unit is estimated. The unit draft of different types (eg. Dug well, Dug cum bore well, shallow tube well, deep tube well, bore well etc.) is multiplied with the number of wells of that particular type to obtain season-wise ground water extraction by that particular structure.

Crop Water Requirement Method: – For each crop, the season-wise net irrigation water requirement is determined. This is then multiplied with the area irrigated by ground water abstraction structures. The database on crop area is obtained from Revenue records in Tehsil office, Agriculture Census and also by using Remote Sensing techniques.

Power Consumption Method: –Ground water extraction for unit power consumption (electric) is determined. Extraction per unit power consumption is then multiplied with number of units of power consumed for agricultural pump sets to obtain total ground water extraction for irrigation.

2.1.1.11.2. Ground Water Extraction for Domestic Use (GE_{DOM})

There are several methods for estimation of extraction for domestic use(GEDOM). Some of the commonly adopted methods are described here.

Unit Draft Method: – In this method, unit draft of each type of well is multiplied by the number of wells used for domestic purpose to obtain the domestic ground water extraction.

Consumptive Use Method: – In this method, population is multiplied with per capita consumption usually expressed in litre per capita per day (lpcd). It can be expressed using following equation.

$$GE_{DOM} = Population \times Consumptive\ Requirement \times L_g \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (16)$$

Where,

L_g = Fractional Load on Ground Water for Domestic Water Supply.

The Load on Ground water can be obtained from the Information based on Civic water supply agencies in urban areas.

2.1.1.11.3. Ground Water Extraction for Industrial Use (GE_{IND})

The commonly adopted methods for estimating the extraction for industrial use are as below:

Unit Draft Method: - In this method, unit draft of each type of well is multiplied by the number of wells used for industrial purpose to obtain the industrial ground water extraction.

Consumptive Use Pattern Method: – In this method, water consumption of different industrial units is determined. Numbers of Industrial units which are dependent on ground water are multiplied with unit water consumption to obtain ground water extraction for industrial use.

$$GE_{IND} = Number\ of\ Industrial\ Units \times Unit\ Water\ Consumption \times L_g \ldots\ldots\ldots\ldots\ldots\ldots\ldots (17)$$

Where,

L_g = Fractional load on ground water for industrial water supply.

The load on ground water for industrial water supply can be obtained from water supply agencies in the Industrial belt.

Ground water extraction obtained from different methods need to be compared and based on field checks, the seemingly best value may be adopted. At times, ground water extraction obtained by different methods may vary widely. In such cases, the value matching the field situation should be considered. The storage depletion during a season, where other recharges are negligible can be taken as ground water extraction during that particular period.

2.1.1.12. Stage of Ground Water Extraction

The stage of ground water extraction is defined by,

$$\boldsymbol{Stage\ of\ GW\ Extraction} = \frac{\boldsymbol{Existing\ Gross\ GW\ Extraction\ for\ all\ Uses}}{\boldsymbol{Annual\ Extractable\ GW\ Resources}} \times \mathbf{100} \ldots\ldots\ldots..\ldots \mathbf{(18)}$$

The existing gross ground water extraction for all uses refers to the total of existing gross ground water extraction for irrigation and all other purposes. The stage of ground water extraction should be obtained separately for command areas, non-command areas and poor ground water quality areas.

2.1.1.13. Validation of Stage of Ground Water Extraction

The assessment based on the stage of ground water extraction has inherent uncertainties. In view of this, it is desirable to validate the 'Stage of Ground Water Extraction' with long term trend of ground water levels.

Long term Water Level trends are prepared for a minimum period of 10 years for both pre-monsoon and post-monsoon period. If the ground water resource assessment and the trend of long term water levels contradict each other, this anomalous situation requires a review of the ground water resource computation, as well as the reliability of water level data. The mismatch conditions are enumerated below.

SOGWE	Ground Water Level Trend	Remarks
≤ 70%	Significant decline in trend in both pre-monsoon and post-monsoon	Not acceptable and needs reassessment
> 100%	No significant decline in both pre-monsoon and post-monsoon long term trend	Not acceptable and needs reassessment

2.1.1.14. Categorisation of Assessment Unit

As emphasised in the National Water Policy, 2012, a convergence of Quantity and Quality of ground water resources is required while assessing the ground water status in an assessment unit. Therefore, it is recommended to separate estimation of resources where water quality is beyond permissible limits for the parameter salinity.

2.1.1.14.1. Categorisation of Assessment Unit Based on Quantity

The categorisation based on status of ground water quantity is defined by Stage of Ground Water Extraction as given below:

Stage of Ground Water Extraction	Category
≤ 70%	Safe
> 70% and ≤90%	Semi-critical
> 90% and ≤100%	Critical
> 100%	Over Exploited

2.1.1.14.2. Categorisation of Assessment Unit Based on Quality

As it is not possible to categorize the assessment units in terms of the extent of quality hazard, based on the available water quality monitoring mechanism and database on ground water quality, the Committee recommends that each assessment unit, in addition to the Quantity based categorization (safe, semi-critical, critical and over-exploited) should bear a quality hazard identifier. If any of the three quality hazards in terms of Arsenic, Fluoride and Salinity are encountered in the assessment sub unit in mappable units, the assessment sub unit may be tagged with the particular Quality hazard.

2.1.1.15. Allocation of Ground Water Resource for Utilisation

The Annual Extractable Ground Water Resources are to be apportioned between domestic, industrial and irrigation uses. Among these, as per the National Water Policy, requirement for domestic water supply is to be accorded priority. This requirement has to be based on population as projected to the year 2025, per capita requirement of water for domestic use, and relative load on ground water for urban and rural water supply. In situations where adequate data is not available to make this estimate, the following empirical relation is recommended.

$$\boldsymbol{Alloc = 22 \times N \times L_g\ mm\ per\ year} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.\ldots\ldots\ldots\ldots\ldots\ldots\ldots. \mathbf{(19)}$$

Where,

Alloc = Allocation for domestic water requirement

N = population density in the unit in thousands per sq. km.

L_g = fractional load on ground water for domestic water supply (≤ 1.0)

In deriving equation (19), it is assumed that the requirement of water for domestic use is 60 lpd per head. The equation can be suitably modified in case per capita requirement is different. If by chance, the estimation of projected allocation for future domestic needs is less than the current domestic extraction due to any reason, the allocation must be equal to the present day extraction. It can never be less than the present day extraction as it is unrealistic.

2.1.1.16. Net Annual Ground Water Availability for Future Use

The water available for future use is obtained by deducting the allocation for domestic use and current extraction for Irrigation and Industrial uses from the Annual Extractable Ground Water Recharge. The resulting ground water potential is termed as the net annual ground water availability for future use. The Net annual ground water availability for future use should be calculated separately for non-command areas and command areas. As per the recommendations of the R&D Advisory committee, the ground water available for future use can never be negative. If it becomes negative, the future allocation of Domestic needs can be reduced to current extraction for domestic use. Even then if it is still negative, then the ground water available for future uses will be zero.

2.1.1.17. Additional Potential Resources under Specific Conditions

2.1.1.17.1. Potential Resource Due to Spring Discharge

Spring discharge occurs at the places where ground water level cuts the surface topography. The spring discharge is equal to the ground water recharge minus the outflow through evaporation and evapotranspiration and vertical and lateral sub-surface flow. Thus, Spring Discharge is a form of ‘Annual Extractable Ground Water Recharge’. It is a renewable resource, though not to be used for Categorisation. Spring discharge measurement is to be carried out by volumetric measurement of discharge of the springs. Spring discharges multiplied with time in days of each season will give the quantum of spring resources available during that season. The committee recommends that in hilly areas with substantial potential of spring discharges, the discharge measurement should be made at least 4 times a year in parity with the existing water level monitoring schedule.

$$\boldsymbol{Potential\ ground\ water\ resource\ due\ to\ springs} = \boldsymbol{Q} \times \boldsymbol{No.\,of\ days} \ldots\ldots\ldots\ldots\ldots\ldots\ldots (\mathbf{20})$$

Where,

Q = Spring Discharge

No of days = No of days spring yields.

2.1.1.17.2. Potential Resource in Waterlogged and Shallow Water Table Areas

In the area where the ground water level is less than 5m below ground level or in waterlogged areas, the resources up to 5m below ground level are potential and would be available for development in addition to the annual recharge in the area. The computation of potential resource to ground water reservoir in shallow water table areas can be done by adopting the following equation:

$$\boldsymbol{Potential\ ground\ water\ resource\ in\ shallow\ water\ table\ areas} = (\mathbf{5} - \boldsymbol{D}) \times \boldsymbol{A} \times \boldsymbol{S_Y} \ldots\ldots\ldots (\mathbf{21})$$

Where,

D = Depth to water table below ground surface in pre-monsoon period in shallow aquifers.

A = Area of shallow water table zone.

S_Y = Specific Yield

2.1.1.17.3. Potential Resource in Flood Prone Areas

Ground water recharge from a flood plain is mainly the function of the following parameters-

- Areal extent of flood plain
- Retention period of flood
- Type of sub-soil strata and silt charge in the river water which gets deposited and controls seepage

Since collection of data on all these factors is time taking and difficult, in the meantime, the potential resource from flood plain may be estimated on the same norms as for ponds, tanks and lakes. This has to be calculated over the water spread area and only for the retention period using the following formula.

$$\boldsymbol{Potential\ ground\ water\ resource\ in\ Flood\ Prone\ Areas} = \mathbf{1.4} \times \boldsymbol{N} \times \frac{\boldsymbol{A}}{\mathbf{1000}} \ldots\ldots\ldots\ldots\ldots\ldots\ldots (\mathbf{22})$$

Where,

N = No. of Days Water is Retained in the Area

A = Flood Prone Area

2.1.1.18. Apportioning of Ground Water Assessment from Watershed to Development Unit

Where the assessment unit is a watershed, there is a need to convert the ground water assessment in terms of an administrative unit such as block/ taluka/ mandal/ firka. This may be done as follows.

A block may comprise of one or more watersheds, in part or full. First, the ground water assessment in the subareas, command, non-command and poor ground water quality areas of the watershed may be converted into depth unit (mm), by dividing the annual recharge by the respective area. The contribution of this subarea of the watershed to the block, is now calculated by multiplying this depth with the area in the block occupied by this sub-area. This procedure must be followed to calculate the contribution from the sub-areas of all watersheds occurring in the block, to work out the total ground water resource of the block.

The total ground water resource of the block should be presented separately for each type of sub-area, namely for command areas, non-command areas and poor ground water quality areas, as in the case of the individual watersheds.

2.1.2. Assessment of In-Storage Ground Water Resources or Static Ground Water Resources

The computation of the static or in-storage ground water resources may be done after delineating the aquifer thickness and specific yield of the aquifer material. The computations can be done as follows: -

$$\boldsymbol{SGWR} = \boldsymbol{A} \times (\boldsymbol{Z_2} - \boldsymbol{Z_1}) \times \boldsymbol{S_Y} \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots (\mathbf{23})$$

Where,

SGWR = Static or in-storage ground water resources

A = Area of the assessment unit

Z_2= Bottom of unconfined aquifer

Z_1 = Pre-monsoon water level

S_Y = Specific yield in the in-storage zone

2.1.3. Assessment of Total Ground Water Availability in Unconfined Aquifer

The sum of Annual Exploitable Ground Water Resource and the In-storage Ground Water Resources of an unconfined aquifer is the Total Ground Water Availability of that aquifer.

2.2. GROUND WATER ASSESSMENT OF CONFINED AQUIFER SYSTEM

The assessment of the ground water resources of the confined aquifers is done by following ground water storage approach. If the areal extent of the confined aquifer is "A" then the total quantity of water added to or released from the entire aquifer is

$$\boldsymbol{Q} = \boldsymbol{S} \times \boldsymbol{A} \times \Delta\boldsymbol{h} \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots (\mathbf{24})$$

Where,

Q = Quantity of water confined aquifer can release (m^3)

S = Storativity

A = Areal extent of the confined aquifer (m^2)

Δh = Change in Piezometric head (m)

Once the piezometric head reaches below the top confining bed, it behaves like an unconfined aquifer and directly dewaters the aquifer and there is a possibility of damage to the aquifer as well as topography. The quantity of water released in confined aquifer due to change in pressure can be computed between piezometric head (ht) at any given time 't' and the bottom of the top confining layer (ho) by using the following equation.

$$\boldsymbol{Q_P = S \times A \times \Delta h = S \times A \times (h_t - h_0)} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \boldsymbol{(25)}$$

Where,

Q_P = Ground Water Potential of Confined Aquifer
S = Storativity
A = Areal extent of the confined aquifer
Δh = Change in Piezometric head
h_t = Piezometric head at any particular time
h_0 = Bottom of the top Confining Layer

If any development activity is started in the confined aquifer, the assessment is done for both the dynamic as well as in-storage resources of the confined aquifer.

2.2.1. Dynamic Ground Water Resources of Confined Aquifer

To assess the dynamic ground water resources of the confined aquifer the following equation can be used with the pre and post monsoon piezometric heads of the particular aquifer.

$$\boldsymbol{Q_D = S \times A \times \Delta h = S \times A \times (h_{POST} - h_{PRE})} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \boldsymbol{(26)}$$

Where,

Q_D = Dynamic Ground Water Resource of Confined Aquifer (m^3)
S = Storativity
A = Areal extent of the confined aquifer (m^2)
Δh = Change in piezometric head (m)
h_{POST} = Piezometric head during post-monsoon period (m amsl)
h_{PRE} = Piezometric head during pre-monsoon period (m amsl)

2.2.2. In-storage Ground Water Resources of Confined Aquifer

For assessing the in- storage ground water potential of a confined aquifer, one has to compute the resources between the pre-monsoon piezometric head and bottom of the top confining layer. That can be assessed using the following formula:

$$\boldsymbol{Q_I = S \times A \times \Delta h = S \times A \times (h_{PRE} - h_0)} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \boldsymbol{(27)}$$

Where,

Q_I =In-storage Ground Water Resource of Confined Aquifer (m^3)
S = Storativity
A = Areal extent of the confined aquifer (m^2)
Δh = Change in piezometric head (m)

h_0 = Bottom level of the top confining layer (m amsl)
h_{PRE}= Piezometric head during pre-monsoon period (m amsl)

If the confined aquifer is not being exploited for any purpose, the dynamic and static resources of the confined aquifer need not be estimated separately. Instead the in-storage ground water resource of the aquifer can be computed using the following formula.

$$\boldsymbol{Q_P = S \times A \times \Delta h = S \times A \times (h_{POST} - h_0)} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.. \boldsymbol{(28)}$$

Where,

Q_P = In-storage Ground Water Resource of Confined Aquifer or the quantity of water under pressure (m^3)
S = Storativity
A = Areal extent of the confined aquifer (m^2)
Δh = Change in piezometric head (m)
h_0 = Bottom level of the top confining layer (m amsl)
h_{POST} = Piezometric head during post-monsoon period (m amsl)

The calculated resource includes small amount of dynamic resource of the confined aquifer also, which replenishes every year. But to make it simpler this was also computed as part of the static or in-storage resource of the confined aquifer.

2.2.3. Assessment of Total Ground Water Availability of Confined Aquifer

If the confined aquifer is being exploited, the Total Ground Water Availability of the confined aquifer is the sum of Dynamic Ground Water Resources and the In-storage Ground Water Resources of that confined aquifer whereas if it is not being exploited, the Total Ground Water Availability of the confined aquifer comprises of only one component i.e. the In-storage Ground Water Resources of that confined aquifer.

2.3. GROUND WATER ASSESSMENT OF SEMI-CONFINED AQUIFER SYSTEM

The Assessment of Ground Water Resources of a semi-confined aquifer has some more complications. Unless and until, it is well studied that the recharge to this is not computed either in the over lying unconfined aquifer or underlying/overlying semi confined aquifers, it should not be assessed separately. If it is assessed separately, there is a possibility of duplication of estimating the same resource by direct computation in one aquifer and as leakage in the other aquifer. As it is advisable to under estimate rather than to overestimate the resources, it is recommended not to assess these resources separately as long as there is no study indicating its non-estimation. If it is found through field studies that the resources are not assessed in any of the aquifers in the area, these resources are to be assessed following the methodology similar to that used in assessing the resources of Confined aquifers.

2.4. TOTAL GROUND WATER AVAILABILITY OF AN AREA

The Total Ground Water Availability in any area is the sum of dynamic and static/in-storage ground water resources in the unconfined aquifer and the dynamic and In-storage ground water resources of the Confined aquifers and semi confined aquifers in the area.

2.5. GROUND WATER ASSESSMENT IN URBAN AREAS

The Assessment of Ground Water Resources in urban areas is similar to that of rural areas. Because of the availability of draft data and slightly different infiltration process and recharge due to other sources, the following few points are to be considered.

- Even though the data on existing ground water abstraction structures are available, accuracy is somewhat doubtful and individuals cannot even enumerate the well census in urban areas. Hence it is recommended to use the difference of the actual demand and the supply by surface water sources as the withdrawal from the ground water resources.
- The urban areas are sometimes concrete jungles and rainfall infiltration is not equal to that of rural areas unless and until special measures are taken in the construction of roads and pavements. Hence, it is proposed to use 30% of the rainfall infiltration factor proposed for urban areas as an adhoc arrangement till field studies in these areas are done and documented field studies are available.
- Because of the water supply schemes, there are many pipelines available in the urban areas and the seepages from these channels or pipes are huge in some areas. Hence this component is also to be included in the other resources and the recharge may be estimated. The percent losses may be collected from the individual water supply agencies, 50% of which can be taken as recharge to the ground water system.
- In the urban areas in India, normally, there is no separate channels either open or sub surface for the drainage and flash floods. These channels also recharge to some extent the ground water reservoir. As on today, there is no documented field study to assess the recharge. The seepages from the sewerages, which normally contaminate the ground water resources with nitrate also contribute to the quantity of resources and hence same percent as in the case of water supply pipes may be taken as norm for the recharge on the quantity of sewerage when there is sub surface drainage system. If estimated flash flood data is available the same percent can be used on the quantum of flash floods to estimate the recharge from the flash floods. Even when the drainage system is open channels, till further documented field studies are done same procedure may be followed.
- It is proposed to have a separate ground water assessment for urban areas with population more than 10 lakhs.

2.6. GROUND WATER ASSESSMENT IN COASTAL AREAS

The assessment of ground water resources in coastal areas is similar to that of other areas. Because of the nature of hydraulic equilibrium of ground water with sea water, care should be taken in assessing the ground water resources of this area. While assessing the resources in these areas, following few points are to be considered.

- The ground water resources assessment in coastal areas includes the areas where the influence of sea water has an effect on the existence of fresh water in the area. It can be demarcated from the Coastal Regulatory zone or the Geomorphological maps or from the maps where sea water influences are demarcated.

- Wherever, the pre monsoon and post monsoon water levels are above mean sea level the dynamic component of the estimation will be same as other areas.
- If both these water levels are below sea level, the dynamic component should be taken as zero.
- Wherever, the post monsoon water table is above sea level and pre monsoon water table is below sea level the pre monsoon water table should be taken as at sea level and fluctuation is to be computed.
- The static or in storage resources are to be restricted to the minimum of 40 times the pre monsoon water table or the bottom of the aquifer.

2.7. GROUND WATER ASSESSMENT IN WATER LEVEL DEPLETION ZONES

There may be areas where ground water level shows a decline even in the monsoon season. The reasons for this may be any one of the following : (a) There is a genuine depletion in the ground water regime, with ground water extraction and natural ground water discharge in the monsoon season(outflow from the region and base flow) exceeding the recharge. (b) There may be an error in water level data due to inadequacy of observation wells.

If it is concluded that the water level data is erroneous, recharge assessment may be made based on rainfall infiltration factor method. If, on the other hand, water level data is assessed as reliable, the ground water level fluctuation method may be applied for recharge estimation. As ΔS in equation 3& 4 is negative, the estimated recharge will be less than the gross ground water extraction in the monsoon season. It must be noted that this recharge is the gross recharge minus the natural discharges in the monsoon season. The immediate conclusion from such an assessment in water depletion zones will be that the area falls under the over-exploited category which requires micro level study.

2.8. MICRO LEVEL STUDY FOR NOTIFIED AREAS

In all areas which are 'Notified' for ground water regulation by the Central and/ or State Ground Water Authorities, it is necessary to increase the density of observation wells for carrying out micro-level studies to reassess the ground water recharge and draft. Following approach may be adopted:

1. The area may be sub-divided into different hydrogeological sub-areas and into recharge area, discharge area and transition zone and also on quality terms.
2. The number of observation wells should be increased to represent each such sub-areas with at least one observation well with continuous monitoring of water levels.
3. Hydrological and hydrogeological parameters particularly the specific yield should be collected for different formations in each sub-area.
4. Details regarding other parameters like seepage factor from canals and other surface water projects should be collected after field studies, instead of adopting recommended norms. Base flow should be estimated based on stream gauge measurement.

5. The data of number of existing structures and unit draft should be reassessed after fresh surveys and should match with the actual irrigation pattern in the sub-area.

6. All data available with Central Ground Water Board, State Ground Water Departments and other agencies including research institutions and universities etc. should be collected for the watershed/sub-areas and utilised for reassessment.

7. Ground water assessment for each sub-area may be computed adopting the recommended methodology and freshly collected values of different parameters. The assessment may be made separately for monsoon and non-monsoon period as well as for command, non-command and poor ground water quality areas.

8. The ground water potential so worked out may be cross-checked with behaviour of ground water levels in the observation wells and both should match. If it does not, the factor that causes such an anomaly should be identified and the revised assessment should be re-examined.

9. Based on the micro-level studies, the sub-areas within the unit and the unit as a whole may be classified adopting norms for categorisation as recommended elsewhere in the methodology.

2.9. NORMS TO BE USED IN THE ASSESSMENT

The committee recommends that the state agencies should be encouraged to conduct field studies and use these computed norms in the assessment. For conducting field studies, it is recommended to follow the field-tested procedures for computing the norms. There is the possibility of error creeping in at various levels in the field study and hence the committee is of the opinion to give a maximum and minimum values for all the norms used in the estimation. The committee can foresee the handicap of the state agencies which are not able to compute the norms by their own field study. In such cases, it suggests an average of the range of norms to be used as the recommended value for the norm.

2.9.1. Specific Yield

Recently under Aquifer Mapping Project, Central Ground Water Board has classified all the aquifers into 16 Principal Aquifers which in turn were divided into 42 Major Aquifers. Hence, it is required to assign Specific Yield values to all these aquifer units. The values recommended in the **Table 2.1** may be followed in the future assessments. The Major aquifer map can be obtained from Regional offices of Central Ground Water Board.

The recommended Specific Yield values are to be used for assessment, unless sufficient data based on field studies are available to justify the minimum, maximum or other intermediate values. The Norms suggested below are nothing but the redistribution of norms suggested by GEC-1997 methodology and hence people are encouraged to conduct field studies and strengthen the Norms database.

Table 2.1: Norms Recommended for Specific Yield

Sl. No.	Principal Aquifer	Major Aquifers		Age	Recommended (%)	Minimum (%)	Maximum (%)
		Code	Name				
1	Alluvium	AL01	Younger Alluvium (Clay/Silt/Sand/ Calcareous concretions)	Quaternary	10	8	12
2	Alluvium	AL02	Pebble / Gravel/ Bazada/ Kandi	Quaternary	16	12	20
3	Alluvium	AL03	Older Alluvium (Silt/Sand/Gravel/Lithomargic clay)	Quaternary	6	4	8
4	Alluvium	AL04	Aeolian Alluvium (Silt/ Sand)	Quaternary	16	12	20
5	Alluvium	AL05	Coastal Alluvium (Sand/Silt/Clay)	Quaternary	10	8	12
6	Alluvium	AL06	Valley Fills	Quaternary	16	12	20
7	Alluvium	AL07	Glacial Deposits	Quaternary	16	12	20
8	Laterite	LT01	Laterite / Ferruginous concretions	Quaternary	2.5	2	3
9	Basalt	BS01	Basic Rocks (Basalt) - Weathered, Vesicular or Jointed	Mesozoic to Cenozoic	2	1	3
10	Basalt	BS01	Basic Rocks (Basalt) - Massive Poorly Jointed	Mesozoic to Cenozoic	0.35	0.2	0.5
11	Basalt	BS02	Ultra Basic - Weathered, Vesicular or Jointed	Mesozoic to Cenozoic	2	1	3
12	Basalt	BS02	Ultra Basic - Massive Poorly Jointed	Mesozoic to Cenozoic	0.35	0.2	0.5
13	Sandstone	ST01	Sandstone/Conglomerate	Upper Palaeozoic to Cenozoic	3	1	5
14	Sandstone	ST02	Sandstone with Shale	Upper Palaeozoic to Cenozoic	3	1	5
15	Sandstone	ST03	Sandstone with shale/ coal beds	Upper Palaeozoic to Cenozoic	3	1	5
16	Sandstone	ST04	Sandstone with Clay	Upper Palaeozoic to Cenozoic	3	1	5
17	Sandstone	ST05	Sandstone/Conglomerate	Proterozoic to Cenozoic	3	1	5
18	Sandstone	ST06	Sandstone with Shale	Proterozoic to Cenozoic	3	1	5
19	Shale	SH01	Shale with limestone	Upper Palaeozoic to Cenozoic	1.5	1	2
20	Shale	SH02	Shale with Sandstone	Upper Palaeozoic to Cenozoic	1.5	1	2
21	Shale	SH03	Shale, limestone and sandstone	Upper Palaeozoic to Cenozoic	1.5	1	2
22	Shale	SH04	Shale	Upper Palaeozoic to Cenozoic	1.5	1	2
23	Shale	SH05	Shale/Shale with Sandstone	Proterozoic to	1.5	1	2

Sl. No.	Principal Aquifer	Major Aquifers Code	Major Aquifers Name	Age	Recommended (%)	Minimum (%)	Maximum (%)
				Cenozoic			
24	Shale	SH06	Shale with Limestone	Proterozoic to Cenozoic	1.5	1	2
25	Limestone	LS01	Miliolitic Limestone	Quarternary	2	1	3
26	Limestone	LS01	Karstified Miliolitic Limestone	Quarternary	10	5	15
27	Limestone	LS02	Limestone / Dolomite	Upper Palaeozoic to Cenozoic	2	1	3
28	Limestone	LS02	Karstified Limestone / Dolomite	Upper Palaeozoic to Cenozoic	10	5	15
29	Limestone	LS03	Limestone/Dolomite	Proterozoic	2	1	3
30	Limestone	LS03	Karstified Limestone/Dolomite	Proterozoic	10	5	15
31	Limestone	LS04	Limestone with Shale	Proterozoic	2	1	3
32	Limestone	LS04	Karstified Limestone with Shale	Proterozoic	10	5	15
33	Limestone	LS05	Marble	Azoic to Proterozoic	2	1	3
34	Limestone	LS05	Karstified Marble	Azoic to Proterozoic	10	5	15
35	Granite	GR01	Acidic Rocks (Granite,Syenite, Rhyolite etc.) - Weathered , Jointed	Mesozoic to Cenozoic	1.5	1	2
36	Granite	GR01	Acidic Rocks (Granite,Syenite, Rhyolite etc.)-Massive or Poorly Fractured	Mesozoic to Cenozoic	0.35	0.2	0.5
37	Granite	GR02	Acidic Rocks (Pegmatite, Granite, Syenite, Rhyolite etc.) - Weathered, Jointed	Proterozoic to Cenozoic	3	2	4
38	Granite	GR02	Acidic Rocks (Pegmatite, Granite, Syenite, Rhyolite etc.) - Massive, Poorly Fractured	Proterozoic to Cenozoic	0.35	0.2	0.5
39	Schist	SC01	Schist - Weathered, Jointed	Azoic to Proterozoic	1.5	1	2
40	Schist	SC01	Schist - Massive, Poorly Fractured	Azoic to Proterozoic	0.35	0.2	0.5
41	Schist	SC02	Phyllite	Azoic to Proterozoic	1.5	1	2
42	Schist	SC03	Slate	Azoic to Proterozoic	1.5	1	2
43	Quartzite	QZ01	Quartzite - Weathered, Jointed	Proterozoic to Cenozoic	1.5	1	2
44	Quartzite	QZ01	Quartzite - Massive, Poorly Fractured	Proterozoic to Cenozoic	0.3	0.2	0.4
45	Quartzite	QZ02	Quartzite - Weathered, Jointed	Azoic to Proterozoic	1.5	1	2
46	Quartzite	QZ02	Quartzite- Massive, Poorly Fractured	Azoic to Proterozoic	0.3	0.2	0.4
47	Charnockite	CK01	Charnockite - Weathered, Jointed	Azoic	3	2	4
48	Charnockite	CK01	Charnockite - Massive, Poorly Fractured	Azoic	0.3	0.2	0.4
49	Khondalite	KH01	Khondalites, Granulites -	Azoic	1.5	1	2

Sl. No.	Principal Aquifer	Major Aquifers		Age	Recommended (%)	Minimum (%)	Maximum (%)
		Code	Name				
			Weathered, Jointed				
50	Khondalite	KH01	Khondalites, Granulites - Mssive, Poorly Fractured	Azoic	0.3	0.2	0.4
51	Banded Gneissic Complex	BG01	Banded Gneissic Complex - Weathered, Jointed	Azoic	1.5	1	2
52	Banded Gneissic Complex	BG01	Banded Gneissic Complex - Massive, Poorly Fractured	Azoic	0.3	0.2	0.4
53	Gneiss	GN01	Undifferentiated metasedimentaries/ Undifferentiated metamorphic - Weathered, Jointed	Azoic to Proterozoic	1.5	1	2
54	Gneiss	GN01	Undifferentiated metasedimentaries/ Undifferentiated metamorphic - Massive, Poorly Fractured	Azoic to Proterozoic	0.3	0.2	0.4
55	Gneiss	GN02	Gneiss -Weathered, Jointed	Azoic to Proterozoic	3	2	4
56	Gneiss	GN02	Gneiss-Massive, Poorly Fractured	Azoic to Proterozoic	0.3	0.2	0.4
57	Gneiss	GN03	Migmatitic Gneiss - Weathered, Jointed	Azoic	1.5	1	2
58	Gneiss	GN03	Migmatitic Gneiss - Massive, Poorly Fractured	Azoic	0.3	0.2	0.4
59	Intrusive	IN01	Basic Rocks (Dolerite, Anorthosite etc.) - Weathered, Jointed	Proterozoic to Cenozoic	2	1	3
60	Intrusive	IN01	Basic Rocks (Dolerite, Anorthosite etc.) - Massive, Poorly Fractured	Proterozoic to Cenozoic	0.35	0.2	0.5
61	Intrusive	IN02	Ultrabasics (Epidiorite, Granophyre etc.) - Weathered, Jointed	Proterozoic to Cenozoic	2	1	3
62	Intrusive	IN02	Ultrabasics (Epidiorite, Granophyre etc.) - Massive, Poorly Fractured	Proterozoic to Cenozoic	0.35	0.2	0.5

2.9.2. Rainfall Infiltration Factor

It is recommended that to assign Rainfall Infiltration Factor values to all the aquifer units recently classified by the Central Ground Water Board. The values recommended in **Table 2.2** may be followed in the future assessments. The recommended Rainfall Infiltration Factor values are to be used for assessment, unless sufficient data based on field studies are available to justify the minimum, maximum or other intermediate values.

An additional 2% of rainfall recharge factor may be used in such areas or parts of the areas where watershed development with associated soil conservation measures are implemented. This additional factor is subjective and is separate from the contribution due to the water conservation structures such as check dams, nalla bunds, percolation tanks etc. The norms for the estimation of recharge due to these structures are provided separately. This additional factor of 2% is at this stage, only provisional, and will need revision based on pilot studies.

The Norms suggested below are nothing but the redistribution of norms suggested by GEC-1997 methodology and hence people are encouraged to conduct field studies and strengthen the Norms database.

Table 2.2: Norms Recommended for Rainfall Infiltration Factor

Sl. No.	Principal Aquifer	Major Aquifers		Age	Recommended (%)	Minimum (%)	Maximum (%)
		Code	Name				
1	Alluvium	AL01	Younger Alluvium (Clay/Silt/Sand/ Calcareous concretions)	Quaternary	22	20	24
2	Alluvium	AL02	Pebble / Gravel/ Bazada/ Kandi	Quaternary	22	20	24
3	Alluvium	AL03	Older Alluvium (Silt/Sand/Gravel/Lithomargic clay)	Quaternary	22	20	24
4	Alluvium	AL04	Aeolian Alluvium (Silt/ Sand)	Quaternary	22	20	24
5	Alluvium	AL05	Coastal Alluvium (Sand/Silt/Clay) -East Coast	Quaternary	16	14	18
5	Alluvium	AL05	Coastal Alluvium (Sand/Silt/Clay) - West Coast	Quaternary	10	8	12
6	Alluvium	AL06	Valley Fills	Quaternary	22	20	24
7	Alluvium	AL07	Glacial Deposits	Quaternary	22	20	24
8	Laterite	LT01	Laterite / Ferruginous concretions	Quaternary	7	6	8
9	Basalt	BS01	Basic Rocks (Basalt) - Vesicular or Jointed	Mesozoic to Cenozoic	13	12	14
9	Basalt	BS01	Basic Rocks (Basalt) - Weathered	Mesozoic to Cenozoic	7	6	8
10	Basalt	BS01	Basic Rocks (Basalt) - Massive Poorly Jointed	Mesozoic to Cenozoic	2	1	3
11	Basalt	BS02	Ultra Basic - Vesicular or Jointed	Mesozoic to Cenozoic	13	12	14
11	Basalt	BS02	Ultra Basic - Weathered	Mesozoic to Cenozoic	7	6	8
12	Basalt	BS02	Ultra Basic - Massive Poorly Jointed	Mesozoic to Cenozoic	2	1	3
13	Sandstone	ST01	Sandstone/Conglomerate	Upper Palaeozoic to Cenozoic	12	10	14
14	Sandstone	ST02	Sandstone with Shale	Upper Palaeozoic to Cenozoic	12	10	14
15	Sandstone	ST03	Sandstone with shale/ coal beds	Upper Palaeozoic to Cenozoic	12	10	14
16	Sandstone	ST04	Sandstone with Clay	Upper Palaeozoic to Cenozoic	12	10	14
17	Sandstone	ST05	Sandstone/Conglomerate	Proterozoic to Cenozoic	6	5	7
18	Sandstone	ST06	Sandstone with Shale	Proterozoic to Cenozoic	6	5	7
19	Shale	SH01	Shale with limestone	Upper Palaeozoic to Cenozoic	4	3	5
20	Shale	SH02	Shale with Sandstone	Upper Palaeozoic to Cenozoic	4	3	5

Sl. No.	Principal Aquifer	Major Aquifers		Age	Recommended (%)	Minimum (%)	Maximum (%)
		Code	Name				
21	Shale	SH03	Shale, limestone and sandstone	Upper Palaeozoic to Cenozoic	4	3	5
22	Shale	SH04	Shale	Upper Palaeozoic to Cenozoic	4	3	5
23	Shale	SH05	Shale/Shale with Sandstone	Proterozoic to Cenozoic	4	3	5
24	Shale	SH06	Shale with Limestone	Proterozoic to Cenozoic	4	3	5
25	Limestone	LS01	Miliolitic Limestone	Quarternary	6	5	7
27	Limestone	LS02	Limestone / Dolomite	Upper Palaeozoic to Cenozoic	6	5	7
29	Limestone	LS03	Limestone/Dolomite	Proterozoic	6	5	7
31	Limestone	LS04	Limestone with Shale	Proterozoic	6	5	7
33	Limestone	LS05	Marble	Azoic to Proterozoic	6	5	7
35	Granite	GR01	Acidic Rocks (Granite,Syenite, Rhyolite etc.) - Weathered , Jointed	Mesozoic to Cenozoic	7	5	9
36	Granite	GR01	Acidic Rocks (Granite,Syenite, Rhyolite etc.)-Massive or Poorly Fractured	Mesozoic to Cenozoic	2	1	3
37	Granite	GR02	Acidic Rocks (Pegmatite, Granite, Syenite, Rhyolite etc.) - Weathered, Jointed	Proterozoic to Cenozoic	11	10	12
38	Granite	GR02	Acidic Rocks (Pegmatite, Granite, Syenite, Rhyolite etc.) - Massive, Poorly Fractured	Proterozoic to Cenozoic	2	1	3
39	Schist	SC01	Schist - Weathered, Jointed	Azoic to Proterozoic	7	5	9
40	Schist	SC01	Schist - Massive, Poorly Fractured	Azoic to Proterozoic	2	1	3
41	Schist	SC02	Phyllite	Azoic to Proterozoic	4	3	5
42	Schist	SC03	Slate	Azoic to Proterozoic	4	3	5
43	Quartzite	QZ01	Quartzite - Weathered, Jointed	Proterozoic to Cenozoic	6	5	7
44	Quartzite	QZ01	Quartzite - Massive, Poorly Fractured	Proterozoic to Cenozoic	2	1	3
45	Quartzite	QZ02	Quartzite - Weathered, Jointed	Azoic to Proterozoic	6	5	7
46	Quartzite	QZ02	Quartzite- Massive, Poorly Fractured	Azoic to Proterozoic	2	1	3
47	Charnockite	CK01	Charnockite - Weathered, Jointed	Azoic	5	4	6
48	Charnockite	CK01	Charnockite - Massive, Poorly Fractured	Azoic	2	1	3
49	Khondalite	KH01	Khondalites, Granulites - Weathered, Jointed	Azoic	7	5	9
50	Khondalite	KH01	Khondalites, Granulites - Mssive, Poorly Fractured	Azoic	2	1	3
51	Banded Gneissic Complex	BG01	Banded Gneissic Complex - Weathered, Jointed	Azoic	7	5	9

Sl. No.	Principal Aquifer	Major Aquifers		Age	Recommended (%)	Minimum (%)	Maximum (%)
		Code	Name				
52	Banded Gneissic Complex	BG01	Banded Gneissic Complex - Massive, Poorly Fractured	Azoic	2	1	3
53	Gneiss	GN01	Undifferentiated metasedimentaries/ Undifferentiated metamorphic - Weathered, Jointed	Azoic to Proterozoic	7	5	9
54	Gneiss	GN01	Undifferentiated metasedimentaries/ Undifferentiated metamorphic - Massive, Poorly Fractured	Azoic to Proterozoic	2	1	3
55	Gneiss	GN02	Gneiss -Weathered, Jointed	Azoic to Proterozoic	11	10	12
56	Gneiss	GN02	Gneiss-Massive, Poorly Fractured	Azoic to Proterozoic	2	1	3
57	Gneiss	GN03	Migmatitic Gneiss - Weathered, Jointed	Azoic	7	5	9
58	Gneiss	GN03	Migmatitic Gneiss - Massive, Poorly Fractured	Azoic	2	1	3
59	Intrusive	IN01	Basic Rocks (Dolerite, Anorthosite etc.) - Weathered, Jointed	Proterozoic to Cenozoic	7	6	8
60	Intrusive	IN01	Basic Rocks (Dolerite, Anorthosite etc.) - Massive, Poorly Fractured	Proterozoic to Cenozoic	2	1	3
61	Intrusive	IN02	Ulrta Basics (Epidiorite, Granophyre etc.) - Weathered, Jointed	Proterozoic to Cenozoic	7	6	8
62	Intrusive	IN02	Ulrta Basics (Epidiorite, Granophyre etc.) - Massive, Poorly Fractured	Proterozoic to Cenozoic	2	1	3

2.9.3. Norms for Canal Recharge

Unlike other norms, the Recharge factor for calculating recharge due to canals is given in two units viz. ham/million m^2 of wetted area/day and cumecs per million m^2 of wetted area. As all other norms are in ham, the committee recommends the norm in ham/million m^2 of wetted area for computing the recharge due to canals.

There is a wide variation in the values of the recharge norms proposed by GEC 1997.The Canal seepage norm is approximately 150 times the other recharge norms. In the absence of any field studies to refine the norms it is decided by the committee to continue with the same norms. The committee strongly recommends that each state agency must conduct one filed study at least one in each district before completing the first assessment using this methodology. The committee also suggests a recommended value and minimum and maximum values as in the case of other norms. Where specific results are available from case studies in some states, the adhoc norms are to be replaced by norms evolved from these results.

The Norms suggested in **Table 2.3** below are nothing but the rationalization and redistribution of norms suggested by GEC-1997 methodology and hence people are encouraged to conduct field studies and strengthen the Norms database.

Table 2.3: Norms Recommended for Recharge due to Canals

Formation	Canal Seepage factor ham/day/million square meters of wetted area		
	Recommended	**Minimum**	**Maximum**
Unlined canals in normal soils with some clay content along with sand	17.5	15	20
Unlined canals in sandy soil with some silt content	27.5	25	30
Lined canals in normal soils with some clay content along with sand	3.5	3	4
Lined canals in sandy soil with some silt content	5.5	5	6
All canals in hard rock area	3.5	3	4

2.9.4. Norms for Recharge Due to Irrigation

The Norms Suggested by GEC-1997 gives for only three ranges of water levels and it creates a problem in the boundary conditions. For instance, as a result of the variation in water level from 24.9 to 25.1m bgl in the adjoining blocks, change occurs in the return flow from irrigation in the range of 10% to 15%. Hence to reduce the discrepancy it is recommended to have linear relationship of the norms in between 10m bgl water level and 25m bgl water level. It is proposed to have the same norm of 10m bgl zone for all the water levels less than 10m. Similarly, the norm recommended for 25m may be used for the water levels more than 25m as well. The Recommended Norms are presented in **Table 2.4**.

For surface water, the recharge is to be estimated based on water released at the outlet. For ground water, the recharge is to be estimated based on gross draft. Where continuous supply is used instead of rotational supply, an additional recharge of 5% of application may be used. Where specific results are available from case studies in some states, the adhoc norms are to be replaced by norms evolved from these results.

Table 2.4: Norms Recommended for Recharge from Irrigation

DTW m bgl	Ground Water		Surface Water	
	Paddy	**Non-paddy**	**Paddy**	**Non-paddy**
≤ 10	45.0	25.0	50.0	30.0
11	43.3	23.7	48.3	28.7
12	40.4	22.1	45.1	26.8
13	37.7	20.6	42.1	25.0
14	35.2	19.2	39.3	23.3

DTW m bgl	Ground Water		Surface Water	
	Paddy	Non-paddy	Paddy	Non-paddy
15	32.9	17.9	36.7	21.7
16	30.7	16.7	34.3	20.3
17	28.7	15.6	32.0	18.9
18	26.8	14.6	29.9	17.6
19	25.0	13.6	27.9	16.4
20	23.3	12.7	26.0	15.3
21	21.7	11.9	24.3	14.3
22	20.3	11.1	22.7	13.3
23	18.9	10.4	21.2	12.4
24	17.6	9.7	19.8	11.6
≥ 25	20.0	5.0	25.0	10.0

2.9.5. Norms for Recharge due to Tanks & Ponds

As the data on the field studies for computing recharge from Tanks & Ponds are very limited, it is recommended to follow the same norm as followed in GEC 1997 in future assessments also. Hence the norm recommended by GEC-2015 for Seepage from Tanks & Ponds is 1.4 mm / day.

2.9.6. Norms for Recharge due to Water Conservation Structures

Even though the data on the field studies for computing recharge from Water Conservation Structures are very limited, it is recommended that the Recharge from the water conservation structures is 40% of the Gross Storage based on the field studies by Non-Government Organizations. Hence, the norm recommended by GEC-2015 for the seepage from Water Conservation Structures is 40% of gross storage during a year which means 20% during monsoon season and 20% during non-monsoon Season.

2.9.7. Norm for Per Capita Requirement

As the option is given to use the actual requirement for domestic needs, the Requirement Norm recommended by the committee is 60 lpcd for domestic needs. This can be modified if the actual requirement is known.

2.9.8. Norm for Natural Discharges

The Discharge Norm used in computing Unaccounted Natural Discharge is 5% if water table fluctuation method is used or 10% if rainfall infiltration factor method is used for assessing the Rainfall recharge. This committee recommends to compute the base flow for each assessment unit. Wherever, there is no assessment of base flow, earlier norms recommended by GEC 1997 i.e. 5% or 10% of the Total Annual Ground Water Recharge as the Natural Discharges may be continued.

2.9.9. Unit Draft

GEC-1997 methodology recommends to use well census method for computing the ground water draft. The norm used for computing ground water draft is the unit draft. The unit draft can be computed by field studies. This method involves selecting representative abstraction structure and calculating the discharge from that particular type of structure and collecting the information on how many hours of pumping is being done in various seasons and number of such days during each season. The Unit Draft during a particular season can be computed using the following equation:

$$\boldsymbol{Unit\ Draft = Discharge\ in\ m^3/hr \times No.of\ pumping\ hours\ in\ a\ day \times No.of\ days} \ldots\ldots\ldots \mathbf{(29)}$$

One basic drawback in the methodology of computing unit draft is that there is no normalization procedure for the same. As per GEC-1997 guidelines, the recharge from rainfall is normalized for a normal rainfall. It means that even though the resources are estimated in a surplus rainfall year or in a deficit rainfall year, the assessment is normalised for a normal rainfall which is required for planning. For recharge from other sources, average figures/ values are taken. If the average figures are not available for any reason, 60% of the design figures are taken. This procedure is very much essential as the planning should be for average resources rather than for the recharge due to excess rainfall or deficit rainfall. But the procedure that is being followed for computing unit draft does not have any normalization procedure. Normally, if the year in which one collects the draft data in the field is an excess rainfall year, the abstraction from ground water will be less. Similarly, if the year of the computation of unit draft is a drought year the unit draft will be high. Hence, there is a requirement to devise a methodology that can be used for the normalization of unit draft figures. The following are the two simple techniques, which can be followed. If the unit draft values for one rainfall cycle are available for at least 10 years second method shown in equation 31 is to be followed or else the first method shown in equation 30 may be used.

$$\boldsymbol{Normalised\ Unit\ Draft = \frac{Unit\ Draft \times Rainfall\ for\ the\ year}{Normal\ Rainfall}} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \mathbf{(30)}$$

$$\boldsymbol{Normalised\ Unit\ Draft = \frac{\sum_{i=1}^{n} Unit\ Draft_i}{Number\ of\ Years}} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \mathbf{(31)}$$

Although GEC-1997 methodology recommends a default value for the unit drafts, each State is using its own values, generally after conducting field studies, even though without a documentation. Hence, it is felt that this norm may be computed by the state agency, which is going to assess the norms before commencement of the assessment. But it is strongly recommended that the field studies should be documented and submitted along with the results of the assessment.

2.10. INDIA -GROUNDWATER RESOURCE ESTIMATION SYSTEM (IN-GRES)

"INDIA-GROUNDWATER RESOURCE ESTIMATION SYSTEM (IN-GRES) is a Software/Web-based Application developed by CGWB in collaboration with IIT-Hyderabad. It will provide common and standardized platform for Ground Water Resource Estimation for the entire country and its pan-India operationalization (Central and State Governments). The system will take 'Data Input' through Excel as well as Forms, compute various ground water components (recharge, extraction etc.) and classify assessment units into appropriate categories (safe, semi-critical, critical and over-exploited). The Software uses GEC 2015 Methodology for estimation and calculation of Groundwater resources. It allows for unique and homogeneous representation of groundwater fluxes as well as categories for all the assessment units (AU) of the country.

URL of IN-GRES →http://ingres.iith.ac.in

The detailed description about IN-GRES Software is given in **Appendix-C**.

CHAPTER 3

3.0 RAINFALL OF INDIA

Rainfall is the main source of ground water recharge in the country. However, distribution of rainfall has a wide variation both in space and time. Rain gauge stations are established and maintained by different departments and Undertakings of Central and State governments and also by private parties as per their specific data requirements. Though the period of seasons varies from place to place, for climatological purposes especially for rainfall, a year is divided into 4 seasons: Winter (January and February), Pre monsoon (March to May), South West Monsoon (June to September) and Post Monsoon (October to December). Most part of India receives rainfall mainly during SW Monsoon season. However, main Rainfall season in Tamil Nadu is October–December. Jammu and Kashmir, Himachal Pradesh and Uttarakhand receive significant rainfall in all four seasons.

Over 75% of the annual rainfall is received in the four rainy months for June to September only there by leading to large variations on temporal scale. The average annual rainfall is 119 cm, but it has great spatial variations. The areas on the Western Ghats and the Sub-Himalayan areas in North East and Meghalaya Hills receive heavy rainfall of over 250 cm annually, whereas the Areas of Northern parts of Kashmir and Western Rajasthan receive rainfall less than 40 cm. Rainfall Normals have been computed using rainfall records of 50 years (1961-2010) of a network of 3800 Stations all over the India. The two significant features of India's rainfall are that, in the north India, rainfall decreases westwards and in the Peninsular India, it decreases eastwards and then increases in the coastal region.

In 2019, the country received actual annual rainfall of 1288.8 mm which was 110% of its long period average (LPA). The country received actual SW Monsoon season (June to September) rainfall of 971.8 mm which was 110% of its long period average (LPA). The rainfall for the country as whole during Pre-monsoon, Postmonsoon and Winter season was **102.1**mm, **161.1** mm & **51.5** mm which was **-22%, 30%** & **26%** of LPA respectively. The seasonal rainfall for the country as a whole was more than the normal value for the all the seasons except Premonsoon. The rainfall deficiency for the country as a whole was maximum (22%) during pre-Monsoon season.Annually, Met sub-division-wise ,Konkan & Goa received highest rainfall of 4830.8 mm and Haryana; Chadigarh & Delhi received lowest annual rainfall 0f 356.8 mm. [Source: Rainfall Statistics of India 2019 of India Meteorological Department(Ministry of Earth Sciences), Report No.-MoES/IMD/HS/ Rainfall Report/01(2021)/57]

State wise seasonal and annual observed rainfall, and its percentage departure from normal rainfall for the states have been given in Table 1. It may be observed that during 2019, annual highest area weighted rainfall of 4489.5 mm was received at Goa and the lowest rainfall of 351.8 mm was received at Haryana. However, on comparing with Normal rainfall, it may be seen that, Dadra & Nagar Haveli (UT) was with the highest positive departure of 70% from its normal where as Manipur remained with highest negative departure (-54%) from normal.

Statewise monthly observed rainfall (mm) for the states have been given in Table 2. During SW Monsoon season, monthly highest rainfall occurred 1513.2 mm over the state of Dadra & Nagar Haveli (UT) in the month of July and minimum rainfall occurred 58.7 mm over the state Tamilnadu in the month of July.

Table 1 : State Wise Seasonal and Annual Rainfall (mm)-Year 2019					
STATES	**Winter**	**Pre-Monsoon**	**SW-Monsoon**	**Post-Monsoon**	**Annual**
EAST & NORTH EAST INDIA					
ARUNACHAL PRADESH	95.7	573.4	1541.4	151.3	2433.3
ASSAM	28.7	604.9	1333.8	161.2	2084.7
MEGHALAYA	29.8	919.9	2432.8	365.6	3844.4
NAGALAND	27.0	314.2	1003.4	241.5	1593.0
MANIPUR	14.3	159.3	642.1	151.2	928.6
MIZORAM	28.8	224.7	1526.9	166.6	2178.5
TRIPURA	48.1	572.9	1389.0	242.8	2252.8
SIKKIM	90.3	714.6	1825.1	110.0	2740.0
WEST BENGAL	73.8	250.4	1186.1	223.2	1733.4
JHARKHAND	25.6	110.3	858.9	143.0	1137.8
BIHAR	30.8	69.3	1049.4	42.2	1194.7
NORTH WEST INDIA					
UTTAR PRADESH	37.5	13.1	719.9	49.5	814.5
UTTARAKHAND	201.8	101.1	961.8	114.2	1378.9
HARYANA	31.8	36.9	255.2	27.9	351.8
CHANDIGARH (UT)	76.8	80.0	716.4	65.5	938.7
DELHI	58.0	26.5	380.1	41.6	546.9
PUNJAB	101.2	54.2	434.5	63.3	653.2
HIMACHAL PRADESH	279.3	134.5	683.0	120.9	1217.7
JAMMU & KASHMIR	356.9	219.3	486.5	254.6	1324.1
RAJASTHAN	7.6	29.9	583.7	43.9	665.1
CENTRAL INDIA					
ODISHA	24.2	148.6	1232.5	188.6	1593.9
MADHYA PRADESH	12.6	18.2	1351.1	64.8	1446.7
GUJARAT	0.8	0.7	993.3	72.9	1067.8
DADRA & NAGAR HAVELI (UT)	0.0	0.0	3622.8	150.9	3773.7
DAMAN & DIU (UT)	0.0	0.0	2161.6	108.6	2270.3
GOA	0.0	3.4	3917.6	568.5	4489.5
MAHARASHTRA	4.3	6.9	1329.8	186.1	1555.8
CHHATISGARH	25.8	32.6	1255.7	106.2	1420.3
SOUTH PENINSULA					
A & N ISLAND (UT)	179.6	282.0	2331.3	293.0	3086.0
ANDHRA PRADESH	12.8	52.2	565.2	269.0	899.2
TELANGANA	24.6	27.6	806.9	172.6	1031.7
TAMILNADU	4.8	51.6	401.6	452.1	910.1
PUDUCHERRY (UT)	5.0	15.0	553.2	775.1	1317.0
KARNATAKA	4.5	77.9	1032.1	307.9	1422.3
KERALA	13.1	169.6	2309.8	626.8	3119.2
LAKSHADWEEP (UT)	28.1	37.9	1227.0	850.0	2143.0

Table 2 : State-wise Monthly Rainfall (mm) - Year 2019

STATES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
EAST & NORTH EAST INDIA												
ARUNACHAL PRADESH	10.8	87.2	127.6	116.8	325.5	323.1	719.9	150.9	347.5	116.7	13.9	17.0
ASSAM	2.6	26.0	50.7	179.3	374.1	313.9	550.6	188.7	280.5	147.7	10.8	2.8
MEGHALAYA	1.2	28.6	18.6	344.1	489.6	632.5	1033.4	271.7	495.3	339.6	24.6	1.5
NAGALAND	9.6	17.5	55.5	130.2	128.5	214.6	265.7	243.5	285.8	199.3	38.7	3.4
MANIPUR	1.6	12.8	35.8	61.4	62.7	168.8	179.3	109.6	184.5	108.4	33.2	9.6
MIZORAM	0.5	28.4	18.5	53.0	181.3	296.1	722.0	263.2	245.6	121.9	41.6	3.1
TRIPURA	0.0	48.1	34.3	209.9	328.7	329.1	639.6	196.2	224.1	193.0	46.1	3.7
SIKKIM	16.8	73.5	168.7	170.2	375.8	415.8	597.1	327.4	484.8	81.9	6.5	21.7
WEST BENGAL	0.1	73.7	38.7	75.8	135.9	167.1	363.3	313.7	341.9	167.0	48.2	8.0
JHARKHAND	0.9	24.6	19.0	43.9	47.4	89.3	243.1	260.5	265.9	129.8	0.0	13.2
BIHAR	5.1	25.7	3.1	32.4	33.4	97.8	418.5	140.4	392.7	25.5	0.0	16.6
NORTH WEST INDIA												
UTTAR PRADESH	13.5	23.9	5.1	4.8	3.2	40.2	296.9	169.1	213.8	18.7	4.7	25.7
UTTARAKHAND	76.3	125.4	33.8	39.5	27.8	84.3	288.8	360.1	228.6	32.0	24.0	58.2
HARYANA	14.6	17.1	7.8	11.4	17.7	18.9	131.0	83.6	21.7	5.0	13.1	9.7
CHANDIGARH (UT)	20.0	56.8	24.4	35.2	20.4	24.8	321.4	230.2	140.1	0.3	35.8	29.4
DELHI	34.8	23.1	5.1	7.9	13.5	6.6	167.4	149.2	57.4	13.5	4.5	22.6
PUNJAB	28.1	73.1	9.4	23.9	20.9	24.9	183.6	156.4	69.6	9.1	25.8	28.3
HIMACHAL PRADESH	84.7	194.7	60.7	32.5	41.3	55.5	213.9	320.6	93.1	21.8	49.0	50.2
JAMMU & KASHMIR	140.0	216.9	84.6	57.4	76.4	84.3	194.1	163.7	43.1	30.7	158.9	65.0
RAJASTHAN	5.4	2.2	1.3	11.6	17.0	46.3	173.4	248.2	115.8	22.3	17.7	3.8
CENTRAL INDIA												
ODISHA	1.3	22.9	24.9	38.9	84.9	146.6	300.7	445.2	339.9	176.1	10.7	1.8
MADHYA PRADESH	5.8	6.9	6.8	9.5	1.9	70.4	360.5	482.6	437.6	47.9	5.0	11.9
GUJARAT	0.5	0.3	0.0	0.6	0.1	84.8	188.1	401.8	318.7	52.4	19.1	1.5
DADRA & NAGAR HAVELI (UT)	0.0	0.0	0.0	0.0	0.0	364.7	1513.2	941.3	803.7	106.1	44.8	0.0

STATES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
DAMAN & DIU (UT)	0.0	0.0	0.0	0.0	0.0	236.8	701.7	600.8	622.3	43.4	64.9	0.3
GOA	0.0	0.0	0.0	1.7	1.7	781.7	1302.7	1143.4	689.8	547.7	20.7	0.1
MAHARASHTRA	3.7	0.5	2.0	3.8	0.8	155.6	448.1	381.2	345.1	162.8	21.5	1.8
CHHATISGARH	14.9	10.9	12.2	8.2	12.3	129.4	369.1	409.1	348.1	100.3	0.7	5.2
SOUTH PENINSULA												
A & N ISLAND (UT)	173.8	5.8	15.8	35.3	230.9	662.2	212.0	860.4	596.8	136.6	131.9	24.5
ANDHRA PRADESH	11.5	1.2	4.1	17.7	30.3	61.4	125.4	149.4	229.1	217.4	20.4	31.2
TELANGANA	23.2	1.5	2.1	13.9	11.6	85.8	219.9	260.0	241.2	160.3	9.4	3.0
TAMILNADU	2.1	2.7	3.1	18.6	29.9	33.6	58.7	133.3	176.0	224.5	124.5	103.1
PUDUCHERRY (UT)	0.0	5.0	0.0	3.1	13.7	30.5	125.7	176.0	221.0	295.3	218.4	261.4
KARNATAKA	0.8	3.7	3.3	26.4	48.2	151.2	252.3	395.8	232.8	268.7	28.8	10.3
KERALA	0.7	12.4	13.9	93.5	62.1	359.0	574.3	950.5	426.0	471.4	119.2	36.2
LAKSHADWEEP (UT)	0.0	28.1	4.1	22.4	11.4	242.5	489.4	338.4	156.7	503.4	40.0	306.7
Country as a whole	18.5	33.1	18.7	31.5	51.3	113.5	298.8	299.9	259.5	110.1	31.6	19.2

3.1 METEROLOGICAL SUBDIVISION-WISE ANNUAL & SEASONAL RAINFALL MAPS

The rainfall statistics is computed based on the receipt of rainfall data from about 3500 stations spread over the entire country. Based on daily rainfall data of these stations, the rainfall of all the districts is computed and using the rainfall of the districts, rainfall statistics for the Meteorological (Met.) Subdivisions, states, the four broad regions and for the whole country have been computed. The present publication includes the updated rainfall statistics for the country as a whole, for all the four broad regions of India, 36 Met.Subdivisions, all States and UTs and 681 Districts of India. The statistics is provided on monthly, 4 seasons i.e. Winter (Jan-Feb), Pre-Monsoon (Mar-May), Southwest (SW) Monsoon (Jun-Sep) and Post-Monsoon (Oct-Dec), and on annual basis. The Rainfall Normals used in this report are based on the rainfall records for the period from 1961-2010. Percentage departure of rainfall from Rainfall Normals, besides these statistics, have been color coded as per their categories. The list of categories, their corresponding ranges and color codes is given in Table 3.

Met.Subdivision-wise rainfall maps for the year 2019 and for the four seasons depicting the observed and normal rainfall values along with their percentage departure from normals with defined colors for different categories are given below at Figure 3.1 to Figure 3.5. The normal rainfall values are shown in Bold figures on the map where as the actual rainfall are shown in small figures. Percentage departures of rainfall are shown within the brackets.

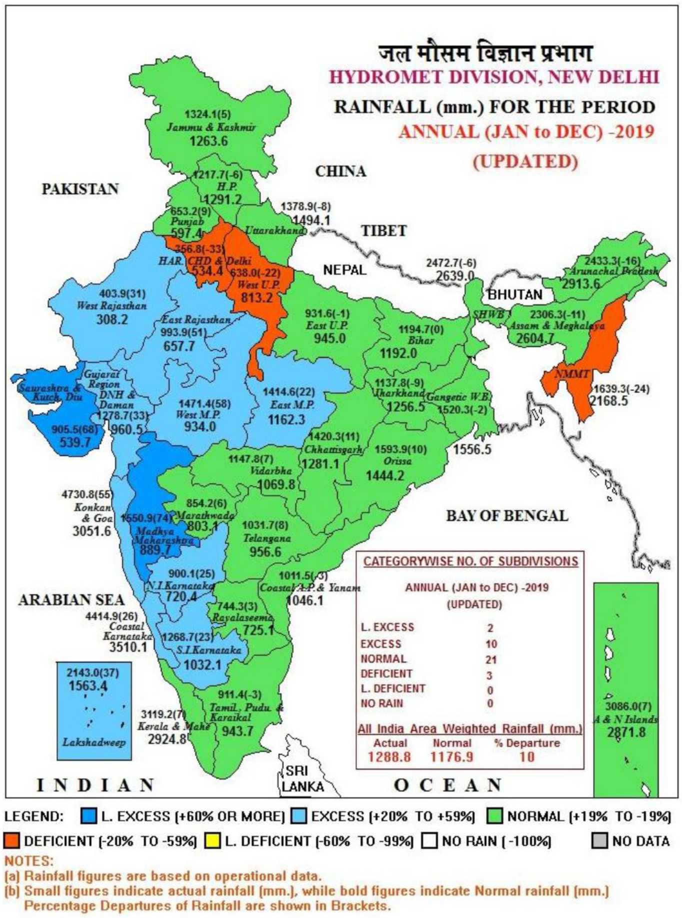
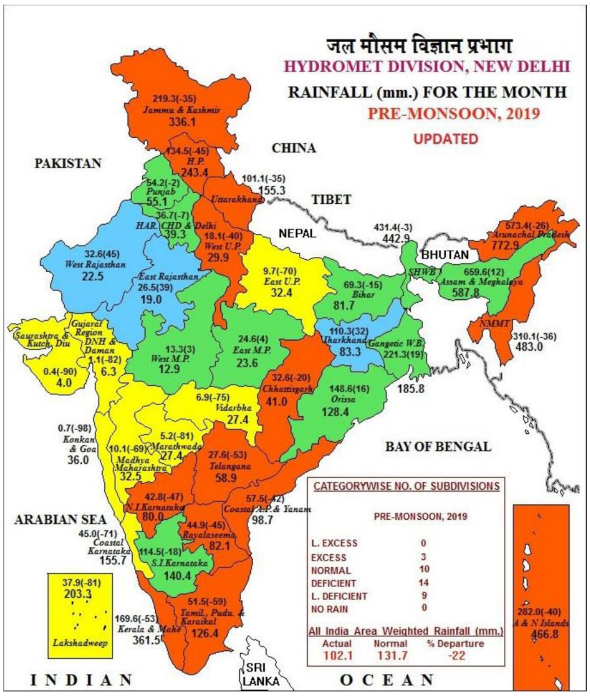


Fig. 3.1: Annual Rainfall Map-2019



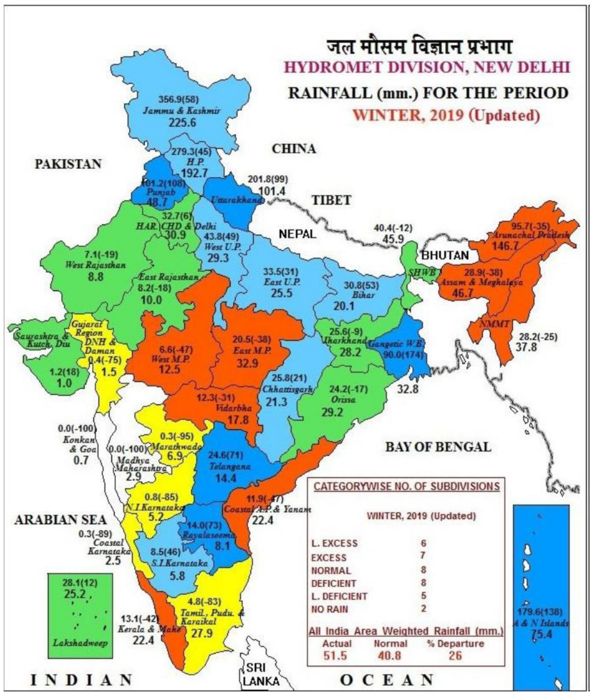


Fig. 3.2: Pre-Monsoon Rainfall Map-2019

Fig. 3.3: Winter Rainfall Map-2019

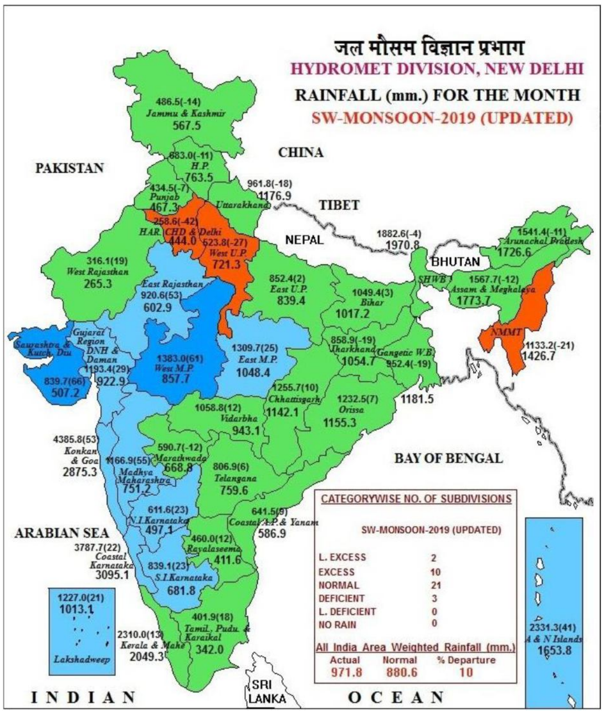


Fig. 3.4: SW Monsoon Rainfall Map-2019

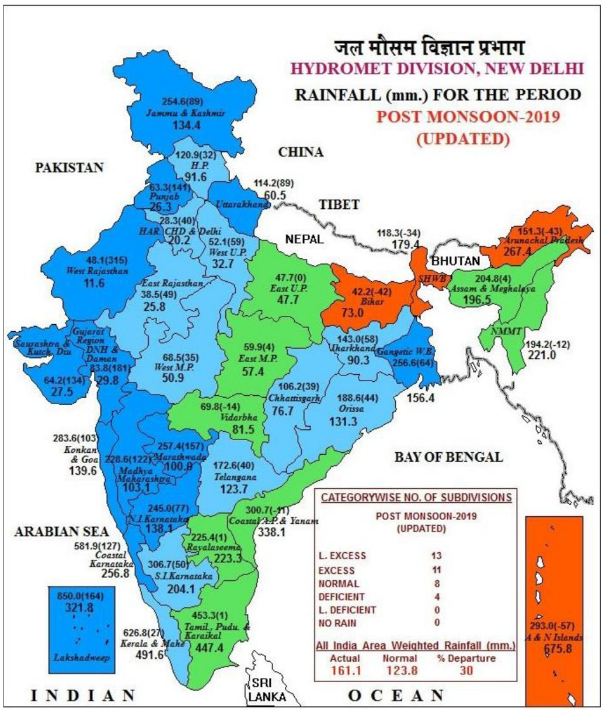


Fig. 3.5: Post-Monsoon Rainfall Map-2019

Table 3: The list of categories, their corresponding ranges and color codes

Category	Departure from Normals	Colour Code
Large Excess (LE)	60% or more	
Excess (E)	20% to 59%	
Normal (N)	-19% to +19%	
Deficient (D)	-20% to -59%	
Large Deficient (LD)	-60% to -99%	
No Rain	-100%	
No Data	Data Not Available	

CHAPTER 4

4.0 HYDROGEOLOGICAL SETUP OF INDIA

India is occupied by a variety of hard and fissured formations, including crystalline, trappean basalt and consolidated sedimentaries (including carbonate rocks), with patches of semi- consolidated sediments in narrow intra-cratonic basins. Apart from this, the northern part of the country and south of Himalayan terrain is occupied by alluvial formation stretching from Rajasthan in the west to Brahmaputra valley in the east. Rugged topography, compact and fissured nature of the rock formations combine to give rise to discontinuous aquifers, with moderate to poor yield potentials. The near surface weathered mantle coupled with deeper fractures form an important aquifer in case of hard rocks. In hard rock terrains, deep weathered pediments, lowlands, valley fills and abandoned river channels, generally have adequate thickness of porous material, to act as repositories of groundwater.

4.1 AQUIFER SYSTEMS OF INDIA

Various rock formations with different hydrogeological characteristics act as distinct aquifer systems of varying dimensions. The aquifer systems of India can be broadly categorized in to 14 Principal Groups. A brief description of the Principal Aquifer Systems (Fig. 4.1), as identified by CGWB (CGWB 2012) is given below.

4.1.1 Alluvial Aquifers

The Quaternary sediments comprising Recent Alluvium, Older Alluvium, Aeolian Alluvium (Silt/ Sand) and Coastal Alluvium of Bay of Bengal are by and large important unconsolidated formations constituting major alluvial aquifers. These sediments are essentially composed of clays, silts, sands, pebbles, Kankar etc. 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 reserves. 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 part below the zone of fluctuation as well as in the deeper confined aquifers.The coastal aquifers show wide variation in water quality, both laterally and vertically, thus imposing quality constraints for groundwater development.

4.1.2 Laterite

Laterites are formed from the leaching (chemical weathering) of parent sedimentary rocks (sandstones, clays, limestones); metamorphic rocks (schists, gneisses, migmatites) and igneous rocks (granites, basalts, gabbros, peridotites). It is rich in iron and aluminium, formed in hot and wet tropical areas. Laterites are the most wide spread and extensively developed aquifer especially in the peninsular states of India. Laterite forms potential aquifers along valleys and topographic lows where the thickness of the saturated zone is more and can sustain large diameter open wells for domestic and irrigation use.

4.1.3 Sandstone, Shale Aquifers

The sandstone and shale aquifers generally belong to the group of rocks ranging in age from Carboniferous to Mio-Pliocene. The terrestrial freshwater deposits belonging to Gondwana System and the Tertiary deposits along the west and east coast of the peninsular region are included under this category. The Gondwana sandstones form highly potential aquifers, locally. Elsewhere, they have moderate potential and in places they yield meagre supplies. The Gondwanas, Lathis, Tipams, Cuddalore sandstones and their equivalents are the most extensive productive aquifers in this category.

4.1.4 Limestone Aquifers

The consolidated sedimentary rocks include carbonate rocks such as limestones, dolomite and marble. Among the carbonate rocks, limestones occupy the largest area. In the carbonate rocks, the principal water bearing zones are the fractures and solution cavities. Consolidated sedimentary rocks of Cuddapah and Vindhyan subgroups and their equivalents consist of limestones/dolomites apart from other major litho-units such as conglomerates, sandstones, shales, slates and quartzites.

4.1.5 Basalt Aquifers

Basalt is a basic volcanic rock which forms alternate layers of compact and vesicular beds of lava flows as seen in the Deccan trap area. The ground water occurrence in basalts are controlled by nature and extent of weathering, presence of vesicles and lava tubes, thickness of flows, number of flows and the nature of inter-trappean layers. Basaltic aquifers have usually medium to low permeability.Ground water occurrence in the Deccan Traps is controlled by the contrasting water bearing properties of different flow units, thus, resulting in multiple aquifer system, at places. The water bearing zones are the weathered and fractured zones.

4.1.6 Crystalline Aquifers

The crystalline hard rock aquifers such as granite, gneisses and high grade metamorphic rocks such as charnockites and khondalites constitute good repository of ground water. Most of the results of groundwater exploration projects have proven that hard rocks neither receive nor transmit water, unless they are weathered and/or fractured.The aquifers are the weathered zone or the fracture system.The fracture system includes fractures, joints, bedding planes, and solution holes. These openings do not have an even distribution and are rather localized. The weathered zone is underlain by semi-weathered rock, fractured rock followed by bedrock. The depth of the bed rock varies from 30-100 m.

In hard rock terrains, ground water occurs under phreatic condition in the mantle of weathered rock, overlying the hard rock, while within the fissures, fractures, cracks, joints within the hard rock, ground water is mostly under semi-confined or in the confined state. Compared to the volume of water stored under semi-confined condition within the body of the hardrock, the storage in the overlying phreatic aquifer is often much greater. In such cases, the network of fissures and fractures serves as a permeable conduit feeding this water to the well. Ground water flow rarely occurs across the topographical water divides and each basin or sub-basin can be treated as a separate hydrogeological unit for planning the development of ground water resources.

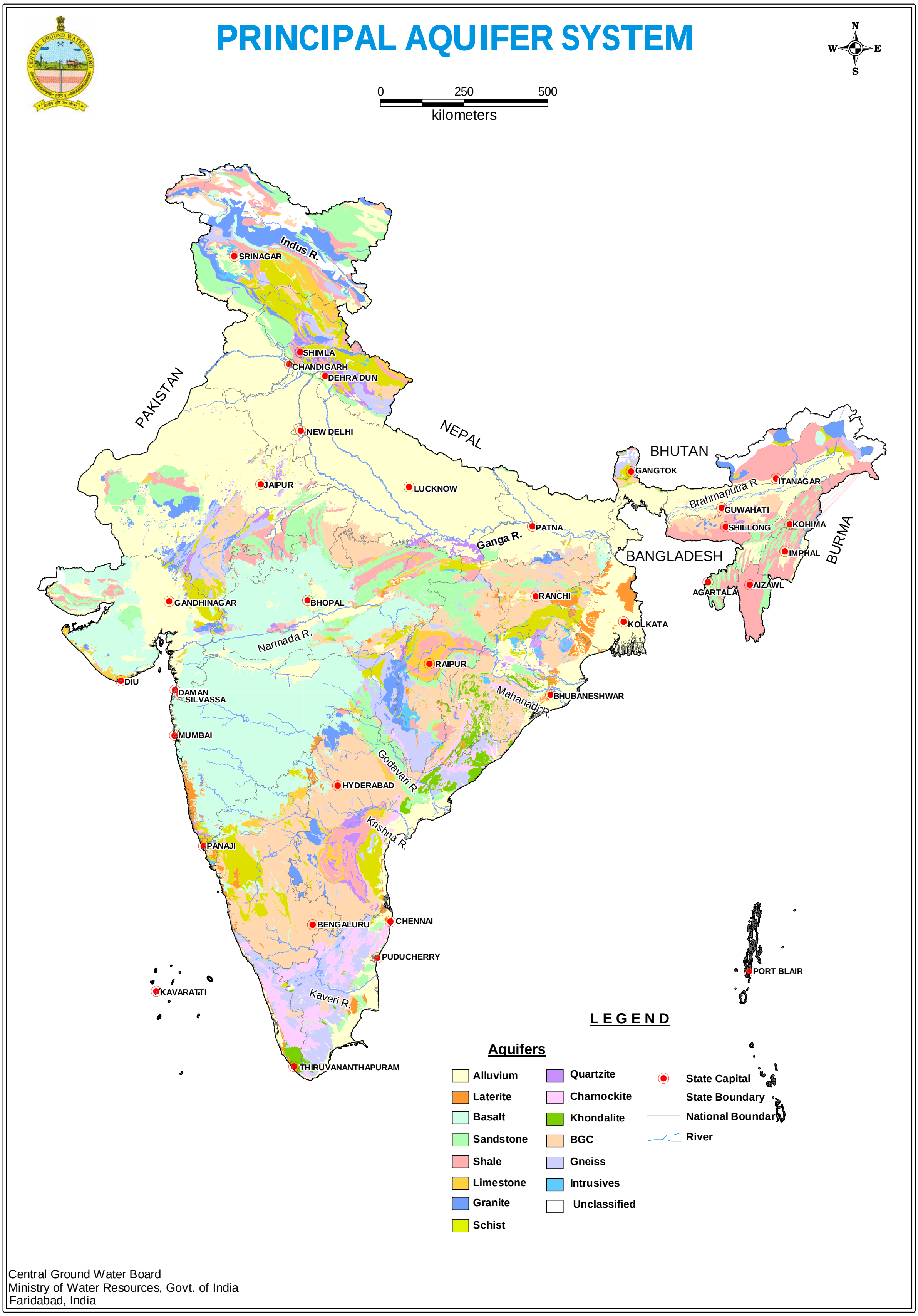


Fig. 4.1: Principal Aquifer Systems of India

CHAPTER-5

5.0 GROUND WATER LEVEL SCENARIO IN THE COUNTRY

Ground water level is one of the basic data elements, which reflects the ground water regime in an area. Central Ground Water Board (CGWB) monitors ground water levels four times a year during January, April/ May, August and November through a network of 22730 observation wells spreading throughout the country. The periodicity of ground water level monitoring by the State Governments varies from State to State. The primary objective of monitoring the ground water level is to record the response of ground water regime to the natural and anthropogenic stresses on recharge and discharge components which are governed by geology, climate, physiography, land use pattern and hydrologic characteristics. Natural conditions affecting the regime include climatic parameters like rainfall, evapotranspiration etc. Anthropogenic influences include pumpage from the aquifer, recharge due to irrigation systems and other practices like waste disposal etc. Water level data generated and archived by CGWB along with data from State Government departments have been used for assessment of ground water resources. An outline of groundwater scenario during the period of assessment is given below.

5.1 GROUND WATER LEVEL SCENARIO (2019)

Ground water level data of **Pre-monsoon 2019** for the country (Fig. 5.1) reveals that the general depth to water level of the country ranges from 5 to 10 m bgl. Very shallow water level of less than 2 m bgl is observed in few states, such as Assam, Jharkhand, Odisha and Tripura in small patches. Ground Water level in the range of 2-5 m bgl is seen in Assam, northern parts of Uttar Pradesh and Bihar, Coastal parts of Odisha, few pockets in Andhra Pradesh, Gujarat and Maharashtra. Major part of the country shows water level in the range 5-10 m bgl, especially in the states of Madhya Pradesh, Uttar Pradesh, Bihar, Jharkhand, West Bengal, Odisha, Chhattisgarh, Maharashtra, Gujarat, Tamil Nadu, Telangana and Karnataka. In major parts of north-western and western states, especially in the states of Delhi, Haryana, Punjab and Rajasthan, depth to water level is generally deeper and ranges from about 20 to more than 40 m bgl. The peninsular part of country recorded a water level in the range of 5 to 20 m bgl. The maximum depth to water level of 128.15 m bgl is observed in Bikaner district of Rajasthan whereas the minimum is less than 1 m bgl.

The ground water level data for **November (Post-monsoon) 2019** (Fig. 5.2) for the country reveals that the general depth to water level of the country ranges from 0 to 10 m bgl. Very shallow water level of less than 2 m bgl is observed in the states of Assam, Odisha, Andhra Pradesh, Maharashtra, Madhya Pradesh, Gujarat,Uttar Pradesh, West Bengal, Telangana, Tamil Nadu in small patches. Majority of the wells monitored (approx. 39 %) shows water level in the range of 2- 5 m bgl, covering almost the whole country, except the north western, western and parts of northern India. 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, Haryana and Rajasthan, water level of more than 40 m bgl is also recorded. The southern states, namely Kerala, Tamil Nadu, Karnataka and Telangana recorded a water level in the range of 5 to 20 m bgl, in patches. The maximum depth to water level of 121.28 m bgl is observed in Bikaner district of Rajasthan whereas the minimum is less than 1 m bgl.

5.1.1 Fluctuation of Ground Water level: Pre-monsoon 2019 compared to Pre-monsoon 2016

A comparison of depth to water level of Premonsoon 2019 with Premonsoon 2016 (Fig. 5.3) indicates that 51% of the analysed wells show decline in water level whereas almost 47% wells show rise in water level. 2.5% wells show no change. Rise and decline in water level is primarily in the 0-2 m range. Decline of water level is quite prominent in the states/ UTs of Andhra Pradesh, Bihar, Chandigarh, Dadra Nagar Haveli, Goa, Gujarat, Haryana, Jammu & Kashmir, Jharkhand, Karnataka, Maharashtra, Meghalaya, Pondicherry, Punjab, Rajasthan, Tamil Nadu and Uttarakhand. Decline of more than 4 m water level is observed in small pockets in the states of Andhra Pradesh, Chandigarh, Dadra Nagar Haveli, Gujarat, Haryana, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Tamil Nadu, Telangana and Uttarakhand.

5.1.2 Fluctuation of Ground Water level: November 2019 compared to November 2016

A comparison of depth to water level of November 2019 with November2016 (Fig. 5.4) indicates that 69% of the analysed wells show rise in water level whereas 30% wells show decline in water level. 1% wells show no change. Rise and decline in water level is primarily in the 0-2 m range. Rise in water level is prominently seen in the states/ UTs of Andhra Pradesh, Assam, Bihar, Chhattisgarh, Dadra Nagar Haveli, Daman & Diu, Goa, Gujarat, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Pondicherry, Tamil Nadu, Telangana, Uttar Pradesh, Uttarakhand and West Bengal.

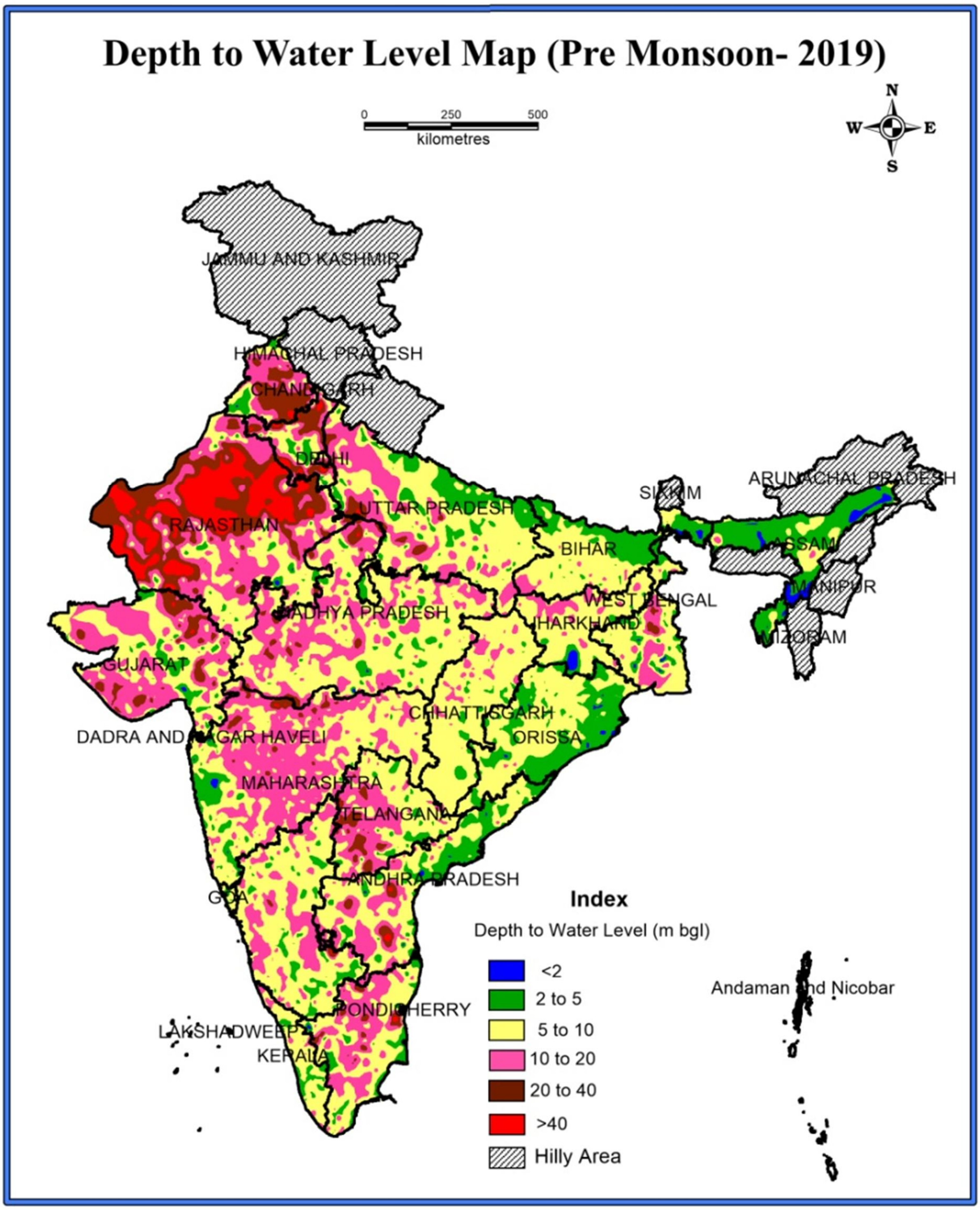


Fig. 5.1: Pre-monsoon Depth to Water Level Map (2019)

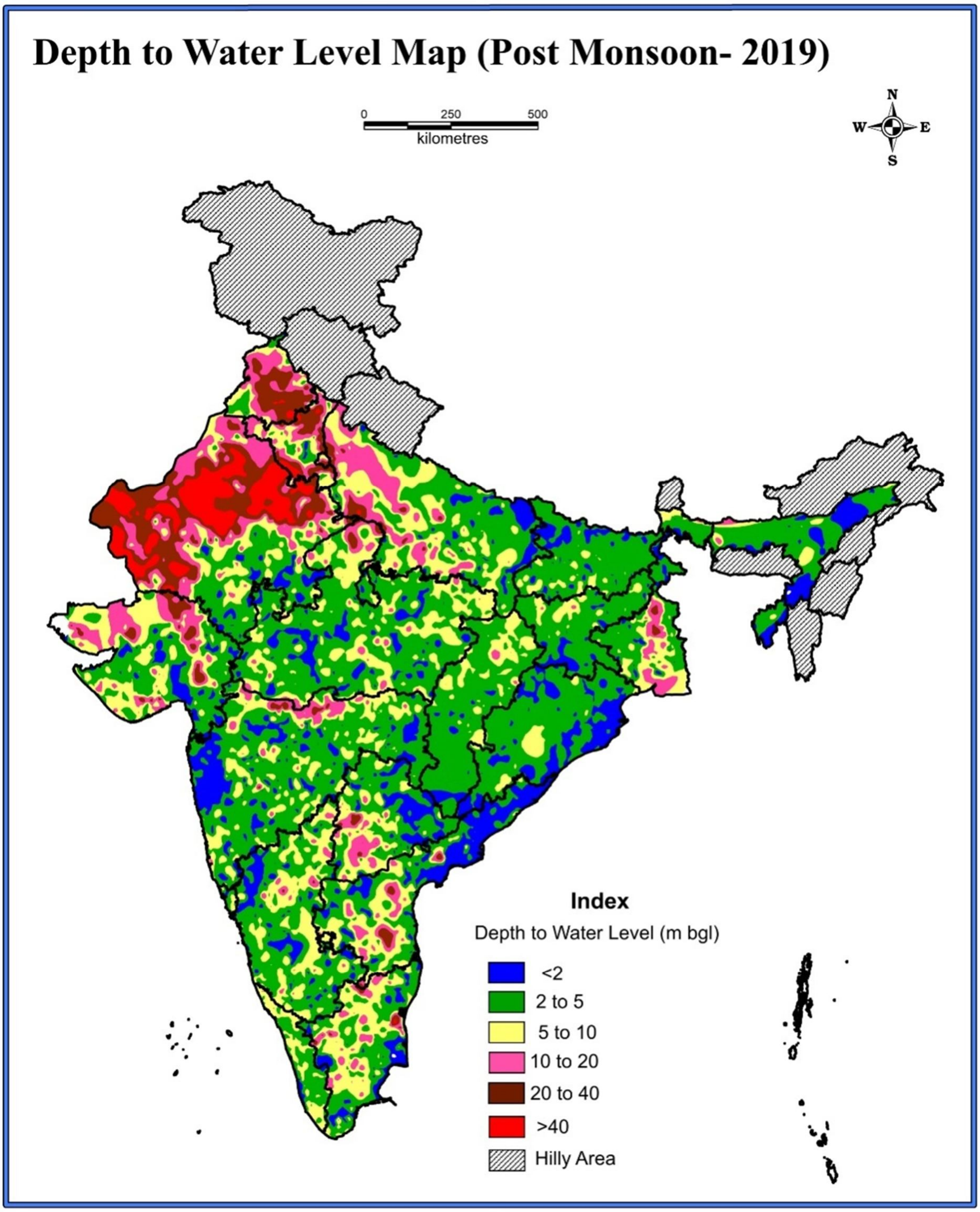


Fig. 5.2: Post-monsoon Depth to Water Level Map (2019)

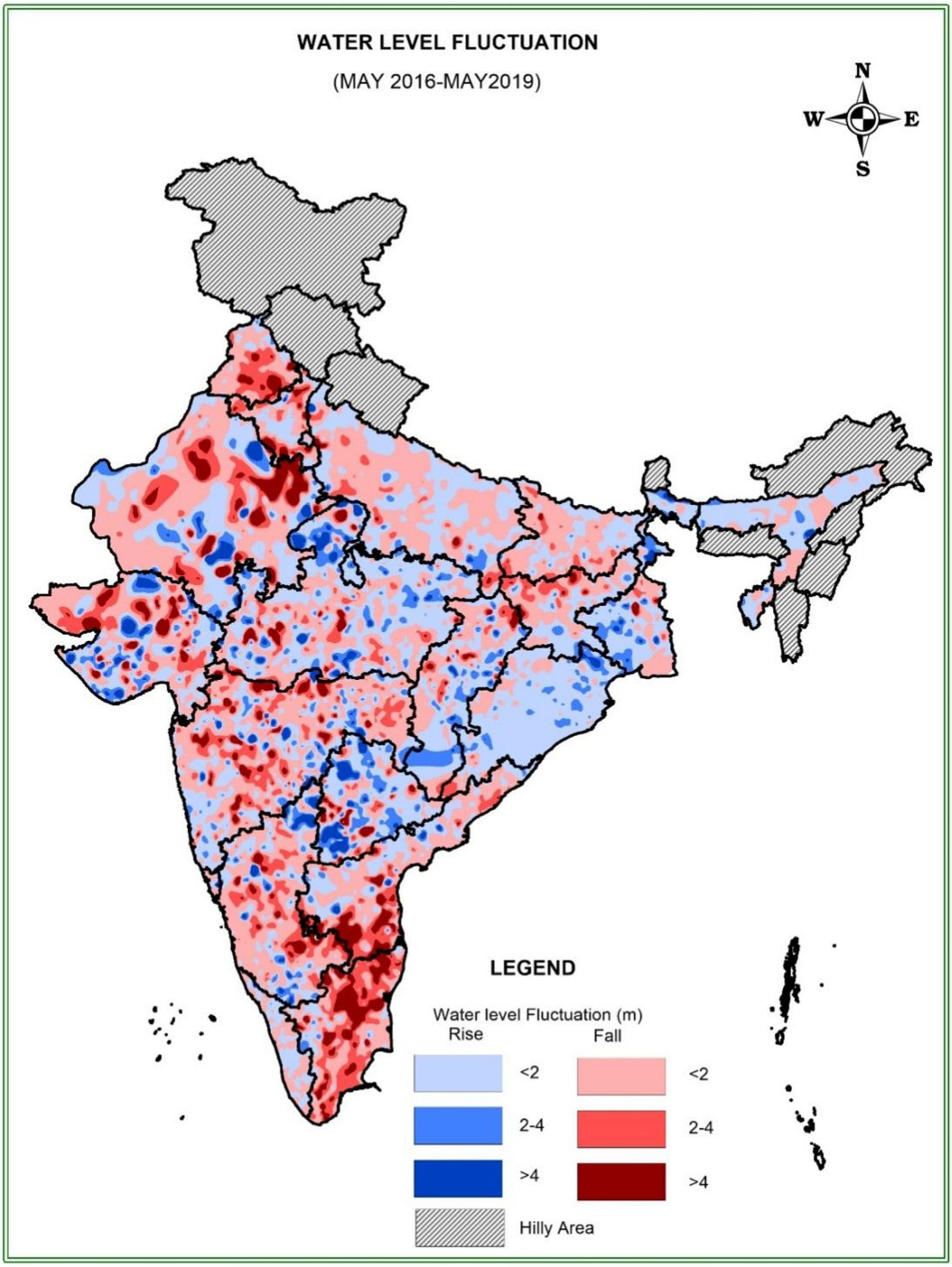


Fig. 5.3: Ground Water Level Fluctuation: Pre-monsoon 2019 compared to Pre-monsoon 2016

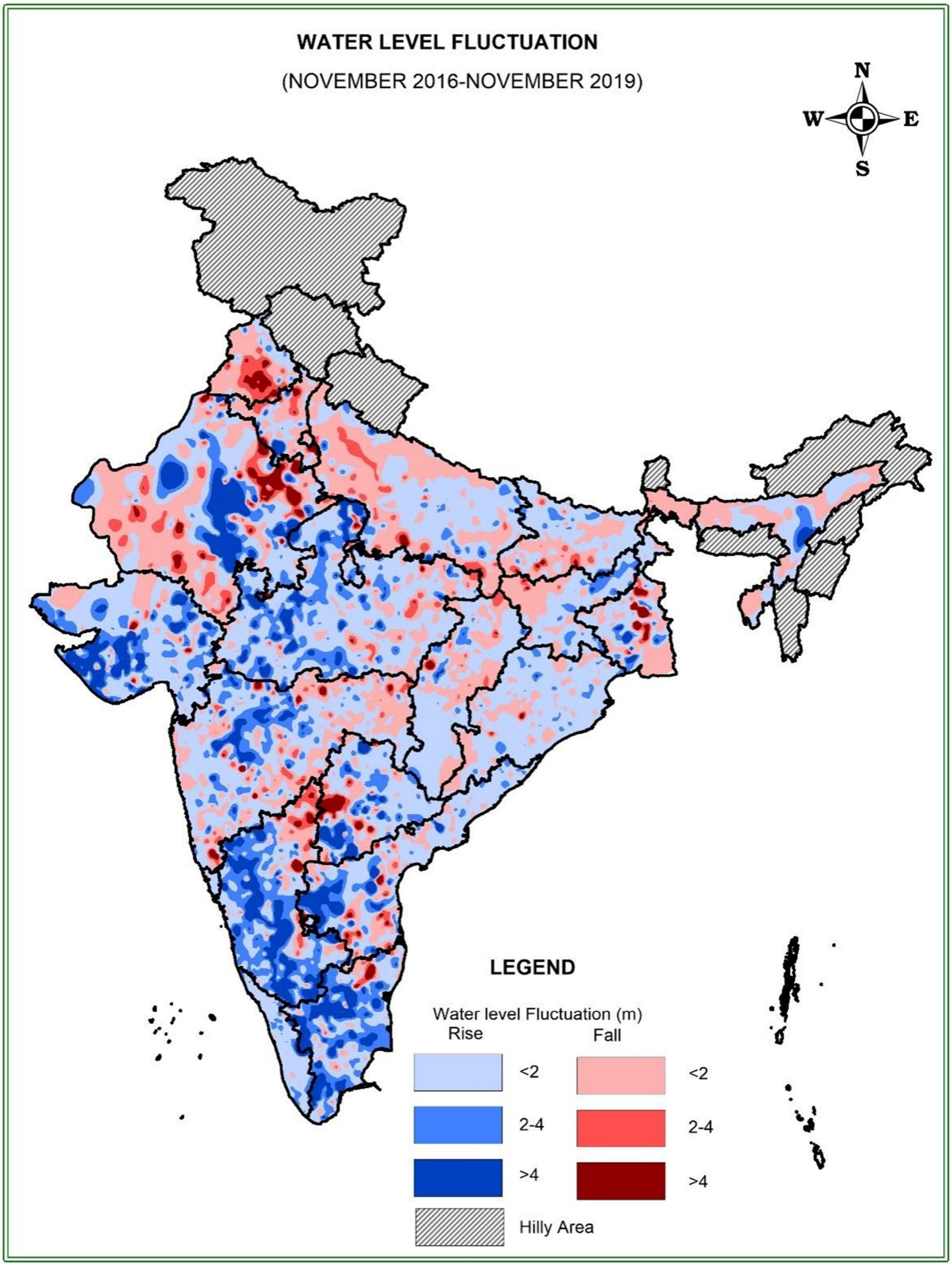


Fig. 5.4: Ground Water Level Fluctuation: November 2019 compared to November 2016

CHAPTER 6

6.0 GROUND WATER RESOURCES OF INDIA

The Dynamic ground water resources (as in 2020) 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 Ground Water Recharge, since it gets recharged every year from rainfall and other sources (secondary sources) such as applied irrigation water, surface water bodies, water conservation structures, etc. Methodology adopted for the assessment has been outlined in Chapter 2 of this report.This section provides a summary of the Ground water Resources Assessment 2020 (GWRA-2020) made for the country.

6.1 DYNAMIC FRESH GROUND WATER RESOURCES

As per the 2020 assessment of Dynamic Ground Water Resources, the Total Annual Ground Water Recharge for the entire country has been assessed as 436.15 billion cubic meter (bcm) and Total natural discharges works out to be 38.51 bcm. Hence, Annual Extractable Ground Water Resources for the entire country is 397.62 bcm.

Major source of ground water recharge is the monsoon rainfall, which is 249.65 bcm and about 57 % of the total annual ground water recharge (Fig.6.1). The contribution in Annual Ground Water Recharge from rainfall during monsoon season is more than 70% in the states/UT of Bihar, Goa, Gujarat, Jharkhand, Kerala, Madhya Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Andaman & Nicobar, Dadra & Nagar Haveli Daman & Diu and Lakshadweep. (Fig 6.2). The overall contribution of rainfall (both monsoon & non-monsoon) recharge to country's total annual ground water recharge is 64 % and the share of recharge from 'Other sources' viz. canal seepage, return flow from irrigation, recharge from tanks, ponds and water conservation structures taken together is 36 %.

State-wise Ground Water Resources of India (as in 2020) are given in **Annexure-I** and the district-wise figures for each State are given in **Annexure-II**. The over-all scenario of ground water resource and extraction in the country is given in **Fig. 6.1, 6.2, 6.3, 6.4 & 6.5.**

Volumetric estimates are dependent on the areal extent of the assessment units. In order to compare the ground water resource of different assessment units, the volumetric estimates of annual ground water recharge have been converted to depth units (m) by dividing the annual ground water recharge by the area of the respective assessment units (km^2). Spatial variation in annual ground water recharge (m) is shown in **Fig 6.3.** Annual Ground Water Recharge 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 Ground Water Recharge in these regions varies from 0.25 to more than 0.5 m. The coastal alluvial belt particularly Eastern Coast also has relatively high annual ground water recharge, in the range 0.25 to more than 0.5 m. In western India, particularly Rajasthan and parts of northern Gujarat that have arid climate, the annual ground water recharge is scanty, mostly up to 0.025 m. Similarly, in major parts of the southern peninsula covered with hardrock terrains, annual ground water recharge mostly ranges from 0.10 to 0.15 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 Ground Water Recharge for the entire country shows a increase of 4 bcm in the present assessment as compared to the last assessment i.e. 2017. The Annual Extractable Ground Water Resources shows a increase of 5 bcm. The Annual Ground Water Extraction for irrigation, domestic and Industrial uses has also decreased by 4 bcm. The main reasons for these variations is attributed to refinement of parameters, refinement in well census data and changing ground water regime.

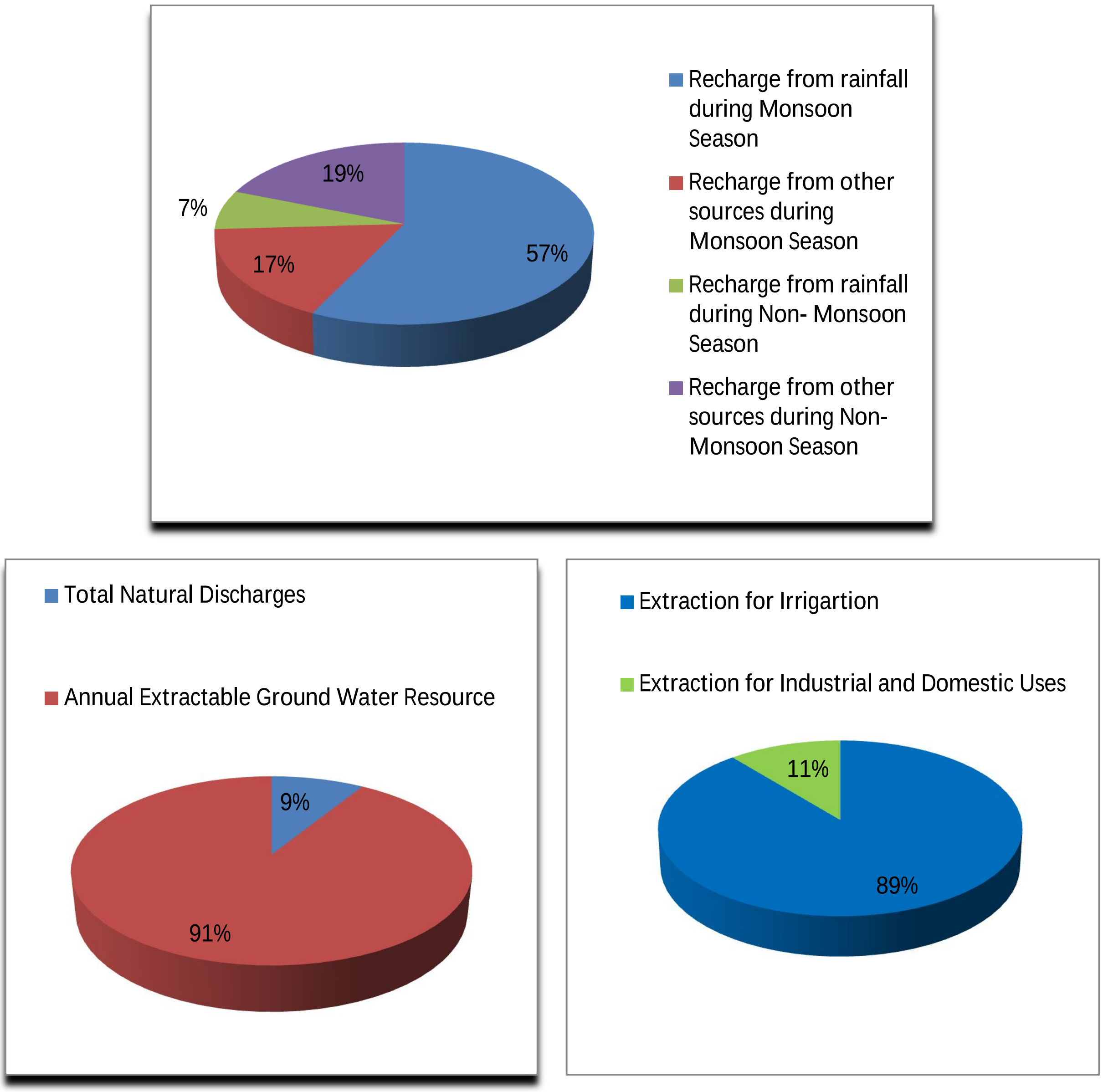


Fig. 6.1: Ground Water Resources and Extraction Scenario in India, 2020

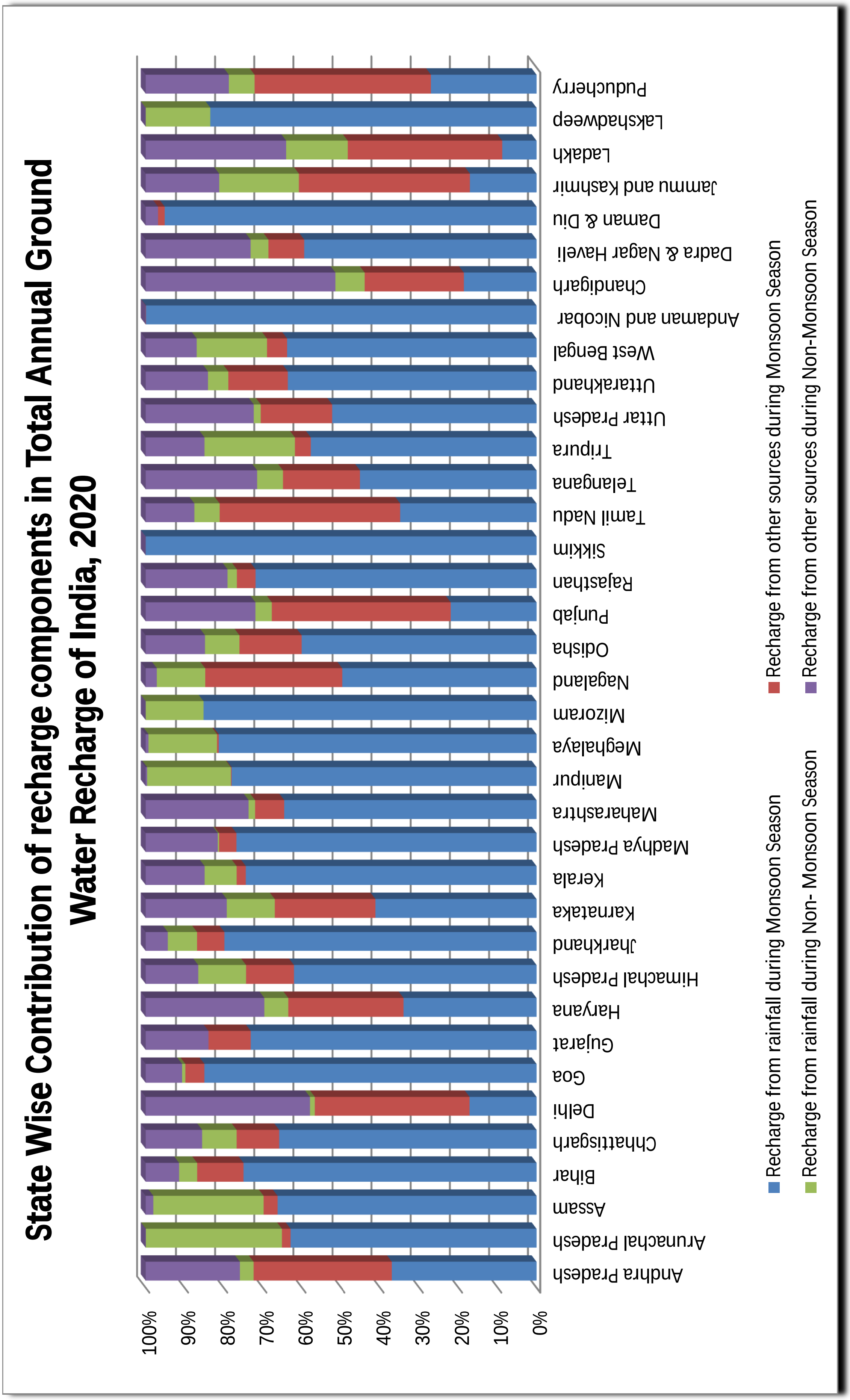


Fig.6.2: State wise contribution of recharge components in Total Annual Ground Water Recharge of India, 2020

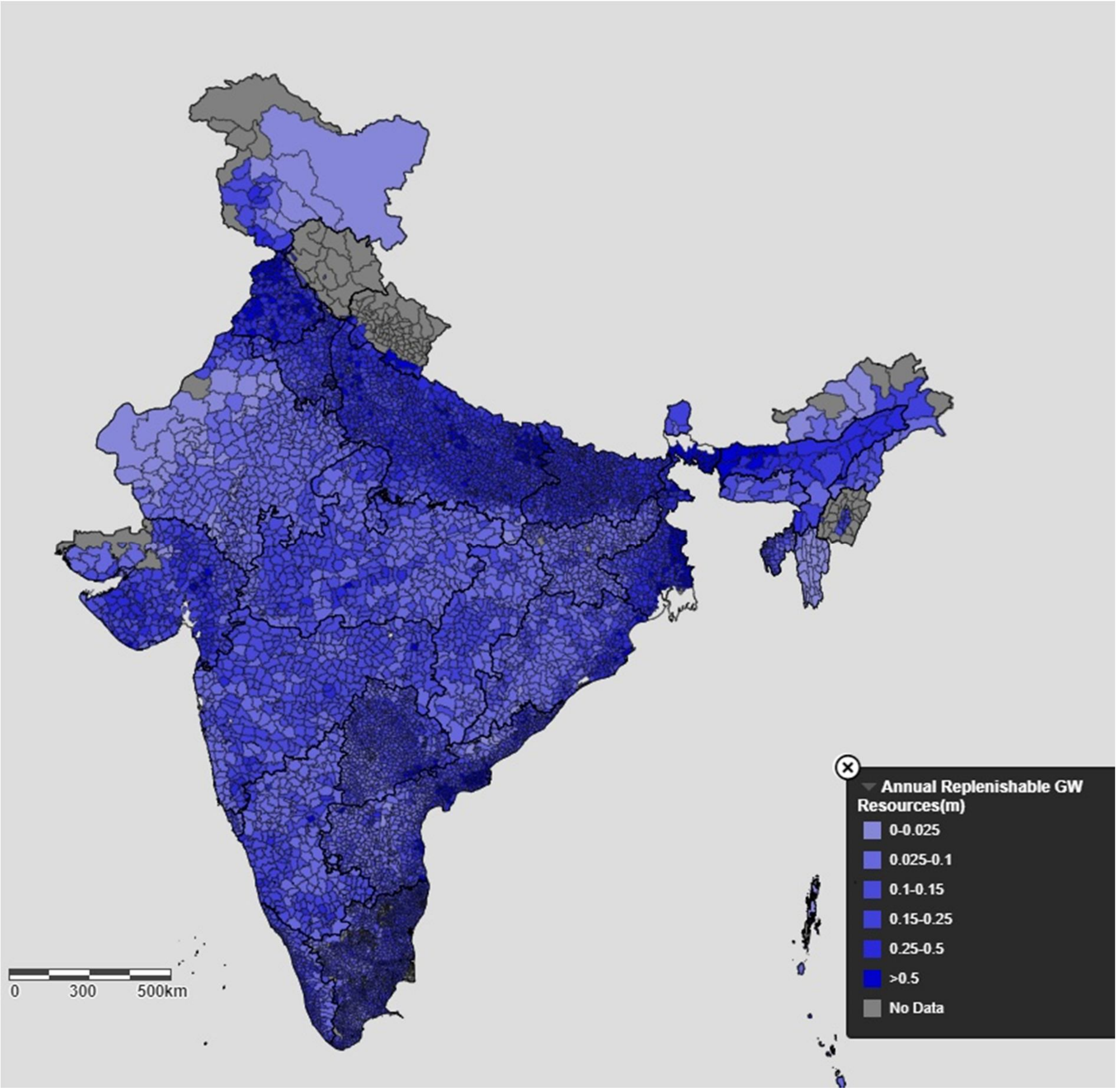


Fig. 6.3: Spatial variation in annual ground water recharge, 2020

6.2 GROUND WATER EXTRACTION

The assessment of ground water extraction is carried out considering the Minor Irrigation Census data and sample surveys carried out by the State Ground Water Departments. The Total Annual Ground Water Extraction of the entire country for the year 2020 has been estimated as 244.92bcm. Agriculture sector is the predominant consumer of ground water resources. About 89 % of total annual ground water extraction i.e. 217.61 bcm is for irrigation use. Only 27.3 bcm is for Domestic & Industrial use, which is about 11 % of the total extraction. In the states of Arunachal Pradesh, Delhi, Goa, Kerala, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, Andaman & Nicobar Island, Chandigarh, Dadra & Nagar Haveli, Jammu & Kashmir, Ladakh and Lakshadweep the ground water extraction for domestic uses is more than 40 % **(Fig 6.4).**

6.3 STAGE OF GROUND WATER EXTRACTION

The overall stage of groundwater development in the country is 61.6 %.The stage of ground water Extraction 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 extractable ground water resources. In the states of Tamil Nadu, Uttar Pradesh, Karnataka and UTs of Chandigarh and Puducherry, the stage of ground water Extraction is between 60-100%. In rest of the states, the stage of ground water extraction is below 60 %.

6.4 CATEGORIZATION OF ASSESSMENT UNITS

Out of the total 6965 assessment units (Blocks/ Taluks/ Mandals/ Districts/Firkas/Valleys), 1114 has been categorized as ‘Over-exploited’, 270 as ‘Critical’, 1057 as ‘Semi-critical’, and 4427 units as ‘Safe’. There are 97 assessment units, which are completely saline. The State-wise and District-wise numbers of assessment units under different categories are given in **Annexure III (A) and Annexure III (B)** respectively.The percentage of Over-exploited and Critical administrative units more than 25% of the total units are in Delhi, Haryana, Karnataka, Punjab, Rajasthan, Tamil Nadu (**Fig. 6.5**). The State-wise name of the assessment units under Over-exploited, Critical and Semi-critical categories and Quality problems in assessment units are given in **Annexure IV (A) and Annexure IV (B)** respectively. Similarly out of 24.33 lakh sq km recharge worthy area of the country, 4.09 lakh sq km (17 %) are under ‘Over-Exploited’, 0.86 lakh sq km (4 %) are under ‘Critical’, 3.4 lakh sq km (14 %) are under ’Semi-Critical’, 15.67 lakh sq km (64 %) are under ‘Safe’ and 0.3 lakh sq km (1 %) are under ‘Saline’ category assessment units. State-wise and District-wise details are given in **Annexure III (E) and Annexure III (F)** respectively. Out of 397.62 bcm of Total Annual Extractable Resources of the country, 50.54 bcm (13 %) are under ‘Over-Exploited’, 12.71 bcm (3 %) are under ‘Critical’, 54.11 bcm (14 %) are under ’Semi-Critical’, 280.26 bcm (70 %) are under ‘Safe’ category assessment units. State-wise and District-wise details are given in **Annexure III (C) and Annexure III (D)** respectively.

The state wise summary of assessment units improved or deteriorated from 2017 to 2020 assessment and detailed comparison of categorization of assessment units from 2017 and 2020 are given in **Annexure V (A) and Annexure V(B)** respectively**.**

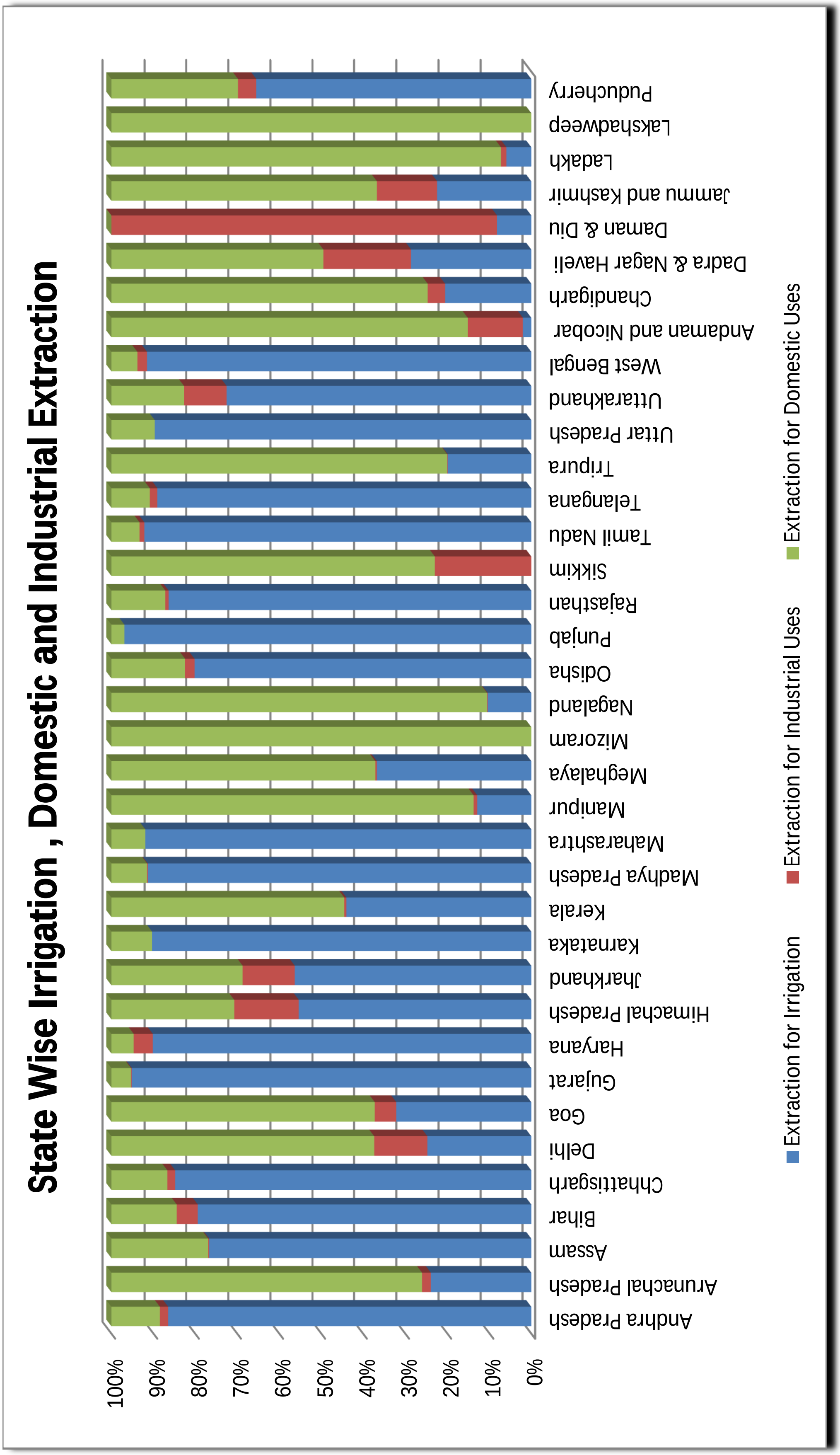


Fig. 6.4: State wise Irrigation Draft *Vs*Domestic & Industrial

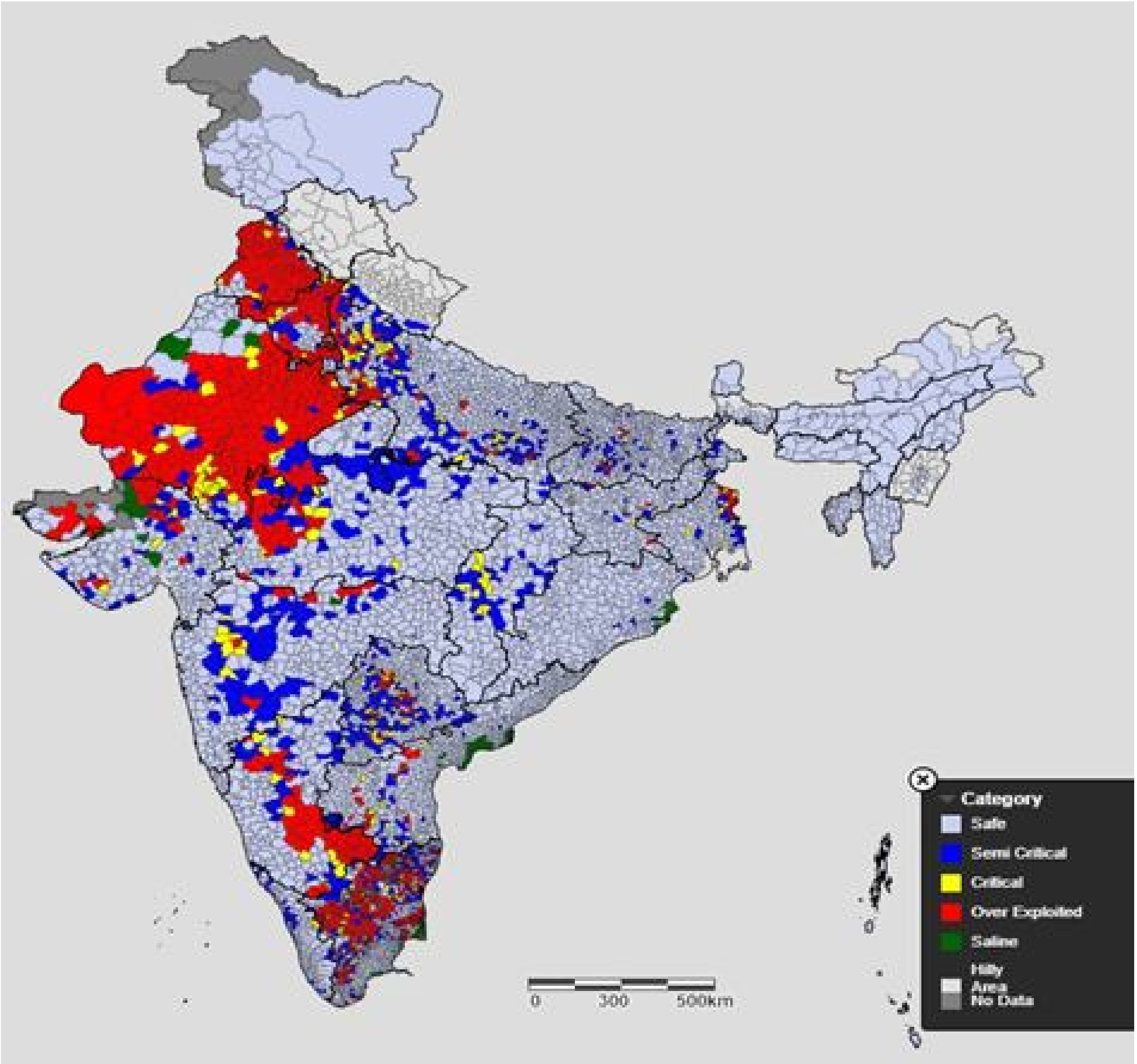


Fig. 6.5: Categorization of Assessment Units

6.5 INTEGRATION OF GROUND WATER AND SURFACE WATER DATA WITH A VIEW TO FACILITATE PLANNING FOR CONJUNCTIVE USE OF WATER RESOURCES

Assessment of ground water resources is based on the principle of water balance using the equation 'Inflow – Outflow = Change in Storage (of an aquifer)'. Major inflow components includerecharge due to rainfall and recharge from other sources. Major outflow component is ground water extraction for domestic, irrigation and industrial uses. Vertical flow across the aquifer system, lateral flow along the aquifer system (throughflow), transpiration, evaporation and base flow are other important components.

The area of each assessment unit (block/taluk/mandal/tehsil/firka etc.) is divided into command area and non-command area for the purpose of assessment. If an assessment unit is having more than 100 ha area under major and medium irrigation projects then that much area will be considered as command area. For the command area,along with other data/information pertaining to ground water resource assessment, data/information related to canal flowsis collected from the relevant agencies for assessing the recharge from canal seepage. Similarly, data related to irrigation water applied in the assessment area from surface and ground water sources in different seasons are estimated for assessing the return flow from irrigation (return flow factor depends upon depth to water level, paddy/non-paddy crops etc.). Recharge from water bodies/tanks/lakes are assessed in the area based on average water spread area and recharge factor. Recharge from water conservation structures in the area are assessed based on the storage capacity, number fillings and recharge factor.All these data/information area are collected/compiled for assessment of ground water resource of the assessment units. Based the ground water resources and surface water sources availability assessed, integrated water resource management plan and planning for conjunctive management of surface and ground water can be devised at block/assessment level by the planners. This data/information collected/compiled for assessment will be very useful for local administrators for managing water resources in a holistic and sustainable manner.

CHAPTER 7

7.0 STATE WISE GROUND WATER RESOURCE SCENARIO

The ground water conditions, its availability and utilization scenario and categorization of assessment units in different states are given in Annexure I, II, III & IV. State wise summaries are given below.

7.1 ANDHRA PRADESH

The State is divided into 667 assessment units (Mandals) as the State is predominantly covered by hardrocks. The Ground water resources of these watersheds were estimated separately for Command, Non Command and Poor ground Water Quality areas for the reference year 2020. The state is underlain by diverse rock types of different geological ages from Pre-Cambrian to Recent. As much as 80% of the State is underlain by hard rock formations like Archaeans, Pre- Cambrians, Cuddapahs, Kurnools and Deccan traps. The remaining 20% is underlain by soft rocks including Gondwanas, Rajahmundry sandstone and Recent Alluvium.

The Ground water resources have been assessed watershed wise and are apportioned to mandals. The Total Annual Ground Water Recharge of the State has been estimated as 24.15 bcm and Annual Extractable Resource is 22.94 bcm. The current Annual Ground Water Extraction for all uses is 7.63 bcm and Stage of Ground Water Extraction is 33.26 %.

Out of 667 assessment units (mandals), 23 (3.45 %) units have been categorized, as ‘Over-exploited’, 15 units (2.25 %) as ‘Critical’, 40 units (6 %) as ‘Semi-Critical’, 551 units (82.61 %) as ‘Safe’ and 38 units (5.7 %) have been categorized as ‘Saline’. Similarly out of 137393.11 sq km recharge worthy area of the State, 5560.45 sq km (4.05 %) area are under ‘Over-Exploited’, 2625.82 sq km (1.91 %) under ‘Critical’, 7179.98 sq km (5.23 %) under ‘Semi-critical’, 116145.2 sq km (84.53 %) under ‘Safe’ and 5881.65 sq km (4.28 %) area under ‘Saline’ categories of assessment units. Out of total 22943.54mcm annual extractable ground water resources of the State, 438.21 mcm (1.91 %) are under ‘Over-exploited’, 279.23 mcm (1.22 %) under ‘Critical’, 733.38 mcm (3.2 %) under ‘Semi-critical’ and 21492.71 mcm (93.68 %) are under ‘Safe’ categories of assessment units.

As compared to 2017 assessment, the Total Annual Ground Water Recharge for the State has increased from 21.22 bcm to 24.15 bcm, which is attributed to government interventions, e.g. water conservation activities like Neeru-Chettu and emphasis on Micro Irrigation. The number of over-exploited mandals has also decreased from 45 to 23 due to the above reasons.

7.2 ARUNACHAL PRADESH

The state of Arunachal Pradesh is underlain by diverse rock types of different geological ages from Pre-Cambrian to Recent. Major part of the state is covered with consolidated crystalline rocks and meta-sediments of Precambrian and Palaeozoic age, while Tertiary sediments consisting of semi-consolidated argillaceous assemblage, represented by the Disang, Barail, Tipam, Siwalik and Dihing groups of rock, occupy periphery areas bordering Assam and behave as run-off and in select patches functions as infiltration zone. In consolidated formations, ground water potential appears to be limited. Semi-consolidated Tertiary formations are likely to give moderate or poor yield and expected to be controlled by aquifer geometry and structural features. Ground water in both consolidated and semi-consolidated formations also manifests as springs and in all geological formations springs occur as both seasonal and perennial in nature.

Unconsolidated Quaternary sediments comprising the terrace deposits of Pleistocene (Bhabar zone) and also the terrace and alluvial fan deposits of Holocene age prevail in the fringe valley areas and as thin carpet in isolated structural valley sand with considerable thickness in open and wide valleys joining Brahmaputra Alluvial plains.The unconsolidated alluvial sediments in the valley areas act as good repositories for ground water development. Valleys adjoining Assam are most promising where good thickness of granular zones is distributed. Discharge of the deep tube wells, tapping mostly unconsolidated Quaternary sediments & at places Upper Tertiary formations, varies from $1.4 m^3/hr$ to $54 m^3/hr$, while transmissivity ranges from 1 to $661 m^2/day$.Storativity ranges from $0.35x10^{-3}$ to $6.65x10^{-3}$.

The ground water resource estimation of the state has been done district-wise. Ground water resources of five districts namely Upper Siang, Anjaw, Dibang Valley, Kurung Kumey and Tawang could not be estimated as they are hilly areas. The Annual Ground Water Recharge of the State has been estimated as 3.19 bcm and Annual Extractable Annual Ground Water Resources is 2.92 bcm. The Current Annual Ground Water Extraction is 0.011 bcm and Stage of Ground Water Extraction is 0.36 %. All the districts have been categorized as 'Safe' and there is no saline area in the State. As compared to 2017 assessment, the Total Annual Ground Water Recharge has marginally increased from 3.025 bcm to 3.19 bcm. There is no significant change in the current annual ground water extraction.

7.3 ASSAM

The State is underlain mainly by unconsolidated Quaternary formation in Brahmaputra valley and potential aquifers lie at shallow as well as deeper zone. The semi-consolidated Tertiary formations are found to occur in the southern part of Karbi Anglong, Cachar, Karimganj and Hailakandi districts and in Upper Assam covering southern fringe of Dibrugarh, Tinsukia, Sibsagar, Jorhat, Golaghat districts.The consolidated Precambrian rocks occur mainly in N.C. Hills, Karbi-Anglong, Kamrup, Goalpara, Dhubri, and Nagaon.

Ground water resources have been assessed district-wise due to paucity of block wise data. The Total Annual Groundwater Recharge of the State has been estimated as 27.05 bcm and Annual Extractable Groundwater Resources is 21.97 bcm. The Current Annual Ground Water Extraction for all uses is 2.58 bcm and Stage of Ground Water Extraction is 11.73 %. All the 28 assessment units have been categorized as 'Safe' and there is no saline area in the state.

As compared to 2017 assessment, the Total Annual Ground Water Recharge for the State has decreased from 28.67 bcm in 2017 to 27.05 bcm in 2020, Annual Extractable Ground Water Resources decreased from 24.26 bcm in 2017 to 21.97 bcm in 2020 and Total Ground Water Extraction decreased from 2.73 bcm in 2017 to 2.58 bcm in 2020. These changes can be attributed due to refinement of data. Stage of Ground Water Extraction increases from 11.25 % to 11.73 % due to decrease in annual extractable resource.

7.4 BIHAR

The State is covered with Gangetic alluvium in more than 89 % of its geographical area. The consolidated formations occupy fringes in the southern parts of the state. Dug wells and shallow tube wells tapping the phreatic zone are the common ground water abstraction structures. The assessment of dynamic ground water resources has been carried out in 534 blocks of the State. The Total Annual Ground Water Recharge has been worked out as 28.05 bcm with the Annual Extractable Ground Water Resources as 25.46 bcm. The Current Annual Ground Water Extraction for all uses has been estimated as 13.02 bcm and the Stage of Ground Water Extraction of the State is 51.14 %.

Out of the total 534 assessment units (blocks), 7 units (1.31 %) are 'Over-exploited', 5 units (0.94 %) are 'Critical', 51 units (9.55 %) are 'Semi-Critical', 471 units (88.2 %) units are 'Safe' category. There is no 'Saline' block in the State. Similarly out of 90348.70 sq km recharge worthy area of the State, 1086.47 sq km (1.2 %) area are under 'Over-Exploited', 613.97 sq km (0.68 %) under 'Critical', 7108.13 sq km (7.87 %) under 'Semi-critical', 81540.12 sq km (90.25 %) under 'Safe' categories of assessment units. Out of total 25455.91 mcm annual extractable ground water resources of the State, 306.51 mcm (1.2 %) are under 'Over-exploited', 171.72 mcm (0.67 %) under 'Critical', 2206.13 mcm (8.67 %) under 'Semi-critical' and 22771.55 mcm (89.45 %) are under 'Safe' categories of assessment units.

As compared to 2017 assessment, the Total Annual Ground Water Recharge and Annual Extractable Ground Water Resources for the State have decreased from 31.41 to 28.05 bcm and 28.99 to 25.46 bcm respectively. The Annual Ground Water Extraction has decreased from 13.26 to 13.02 bcm. The changes in the parameters are due to reduction in rainfall recharge. Recharge from surface water bodies and applied surface water irrigation increased due to Jal Jeevan Hariyali Mission (By Govt. of Bihar) in which tanks & water bodies have been revived and renovated.

7.5 CHHATTISGARH

The State is underlain by diverse rock types of different geological ages from Pre-Cambrian to Recent. 87% area of the State is underlain by hard rock and the ground water in these areas is being tapped mostly by dug wells constructed in the weathered zone and bore wells tapping the deeper aquifers. The yield of open (dug) wells varies from 1 to 2 lps and the yield of the bore wells ranges from < 1 to 5 lps. About 13 % area of the State is occupied by Semi-consolidated sedimentary rocks where Dug wells & tube wells have yield range of 1 to 10 lps.

The assessment of ground water resources has been carried out block-wise. The Total Annual Ground Water Recharge of the State has been assessed as 12.65 bcm and Annual Extractable Ground Water Resource is 11.55 bcm. The Total Current Annual Ground Water Extraction is 5.35 bcm and Stage of Ground Water Extraction is 46.34 %.

Out of 146 assessment units (blocks), 9 units (6.16 %) as 'Critical', 27 units (18.49 %) have been categorized as 'Semi-critical' and 110 units (75.34 %) as 'Safe' categories of assessment units. There are no 'Over-exploited' and 'Saline' categories of assessment units. Out of 106078.71 sq km recharge worthy area of the State, 6297.20 sq km (5.94 %) area are under 'Critical', 16034.59 sq km (15.12 %) under 'Semi-critical', 83746.92 sq km (78.95 %) under 'Safe' categories of assessment units. Out of total 11547.65 mcm annual extractable ground water resources of the State, 947.66 mcm (8.21 %)

under 'Critical', 2232.5 mcm (19.33 %) under 'Semi-critical' and 8367.5 mcm (72.46 %) are under 'Safe' categories of assessment units.

In Chhattisgarh, the ground water development concentrates in the central part of the state (Chhattisgarh basin) more as compared to the other parts of the State. Therefore, most of the 'Semi-critical' and 'Critical' blocks are falling in the central part of the State. As compared to 2017 assessment, there is increase in the Total Annual Ground Water Recharge from 11.57 to 12.65 bcm, while there is an increase in ground water extraction from 4.70 to 5.35 bcm. Stage of ground water extraction has changed from 44.43 % to 46.34 %. Increase in Rainfall Recharge and return flow from ground water irrigation resulted in the increase of Annual Ground Water Recharge and increase in number of irrigation wells resulted in the increase of total extraction.

7.6 DELHI

The State is covered by diverse rock types of different geological ages from Pre-Cambrian to Recent. As much as 89% of the State is occupied by alluvium and ground water is being tapped mostly through tube wells. Yields of tube wells vary from 4 to 10 lps in older alluvial deposits and from 25 to 55 lps in newer alluvium. About 11 % of the State is occupied by quartzitic hard rock where bore wells have yield of 0.6 to 5 lps.

The ground water resources assessment has been carried out tehsil-wise. The Total Annual Ground Water Recharge of the State has been assessed as 0.32 bcm and Annual Extractable Ground Water Resources is 0.29 bcm. The Total Current Annual Ground Water Extraction is 0.29 bcm and Stage of Ground Water Extraction is 101.4 %.

Out of 34 assessment units (tehsils), 17 units (50 %) have been categorized as 'Over-exploited', 7 units (20.59 %) as 'Critical', 7 units (20.59 %) as 'Semi-critical', and 3 units (8.82 %) as 'Safe' categories of assessment units. Similarly out of 1487.61 sq km recharge worthy area of the State, 769.58 sq km (51.73 %) area are under 'Over-Exploited', 348.81 sq km (23.45 %) under 'Critical', 222.06 sq km (14.93 %) under 'Semi-critical', 147.16 sq km (9.89 %) under 'Safe' categories of assessment units. Out of total 286.31 mcm annual extractable ground water resources of the State, 129.01 mcm (45.06 %) are under 'Over-exploited', 72.36 mcm (25.27 %) under 'Critical', 52.5 mcm (18.34 %) under 'Semi-critical' and 32.44 mcm (11.33 %) are under 'Safe' categories of assessment units.

As compared to 2017 assessment, the Total Annual Ground Water Recharge has almost remained same and Annual Extractable Ground Water Resources decreased marginally from 0.30 bcm to 0.29 bcm. There is a decrease in the Annual Ground Water Extraction for the state from 0.36 bcm to 0.29 bcm and the Stage of Ground Water Extraction has decreased from 119.61 % to 101 %. The State is over-exploited in terms of ground water extraction.

The decrease in the groundwater extraction can be attributed to refinement in database and reduction in number of extraction wells due to vigilant regulation by State agency and increased piped water supply by Delhi Jal Board in many areas of NCT Delhi which led to reduced dependency on ground water.

7.7 GOA

Major part of Goa State is covered by consolidated formations of Dharwar Super Group. Ground water occurs under unconfined to semi-confined conditions in beach sands, laterites and weathered and fractured crystalline rocks. The development of ground water from phreatic zone is mostly through dug wells and shallow bore wells. The Ground Water Resources has been assessed taluk-wise. Total Annual Ground Water Recharge has been assessed as 0.402 bcm and Annual Extractable Ground Water Resources as 0.322 bcm. The Annual Ground Water Extraction is 0.076 bcm and Stage of Ground Water Extraction is 23.48 %. All 12 taluks in the State have been categorized as 'Safe'.

As compared to 2017 assessment, the Total Annual Ground Water Recharge has increased due to increase in recharge from other sources. The Annual Ground Water Extraction have marginally increased. The Stage of Ground Water Extraction has decreased from 33.5 % to 23.48 %.

7.8 GUJARAT

The State is underlain by diverse rock types of different geological ages from Pre-Cambrian to Recent. As much as 60% of the State is underlain by hard rock and rest by soft rock/alluvium formations. In hard rock areas, the ground water is tapped mostly through dug wells constructed in the weathered zone. Dug cum bore wells and deep bore wells are common for irrigation. In alluvium/ soft rock areas, deep tube wells are common for both irrigation and domestic usage. The yield of open (dug) wells varies from 2 to 10 m^3/day, whereas that of tube wells ranges from less than 10 to 100 m^3/day. The assessment of groundwater resources has been carried out Taluka-wise. Total Annual Ground Water Recharge of the State has been assessed as 26.8 bcm and Annual Extractable Ground Water Resources as 24.86 bcm. The Annual Ground Water Extraction has been assessed as 13.3 bcm and Stage of Ground Water Extraction as 53.5 %.

Out of 248 assessment units (taluks), 25 units (10.08 %) have been categorized as 'Over- exploited', 4 units (1.61 %) as 'Critical', 24 units (9.68 %) as 'Semi-critical', 182 units (73.39 %) as 'Safe' and there are 13 units (5.24 %) as 'Saline' categories of assessment units. Similarly out of 158589.64 sq km recharge worthy area of the State, 20603.36 sq km (12.99 %) area are under 'Over-Exploited', 2603.39 sq km (1.64 %) under 'Critical', 14848.27 sq km (9.36 %) under 'Semi-critical', 111108.94 sq km (70.06 %) under 'Safe' and 9425.69 sq km (5.94 %) area under 'Saline' categories of assessment units. Out of total 24905.26 mcm annual extractable ground water resources of the State, 2051.83 mcm (8.24 %) are under 'Over-exploited', 493.4 mcm (1.98 %) under 'Critical', 2564.8 mcm (10.3 %) under 'Semi-critical' and 19795.23 mcm (79.48 %) are under 'Safe' categories of assessment units.

As compared to 2017 assessment, Total Annual Ground Water Recharge has increased from 22.37 bcm to 26.8 bcm and Annual Extractable Ground Water Resource has increased from 21.25 to 24.91 bcm. The increase in recharge can be attributed to recharge from surface water irrigation through Narmada canal. The Annual Ground Water Extraction has decreased from 13.58 to 13.3 bcm. As compared to 2017 assessment, the Total Annual Ground Water Recharge and Annual Extractable Ground Water Resources have increased significantly and the Annual Ground Water Extraction marginally decresed. Hence, the Stage of Ground Water Extraction has decreased from 63.89 % to 53.39 %.

7.9 HARYANA

Haryana State is mainly occupied by the alluvial deposits, which cover around 98 % of the State while hardrock covers around 2 %. Alluvial deposits are of Older and Newer types and consist chiefly of clay, silt and fine to medium sand. Other deposits are piedmont deposits, which are confined to a narrow zone, about 2 to 4 km wide, between Siwalik Hills and Alluvial Plains. Sand-dunes are found in the districts of Bhiwani, Mahendragarh, Hissar and Sirsa. Coarse sand, gravels and boulders are found to occur in piedmont areas and in the adjacent alluvial tracts. The hard rock formations belong to the formation of Delhi systems of Pre- Cambrian age and occupy the southern part of the state,while Shivalik system of Tertiary age are occupying the northern most part of the state.

Total Annual Ground Water Recharge of the State has been assessed as 9.53 bcm and Annual Extractable Ground Water Resource is 8.63 bcm. The Total Current Annual Ground Water extraction is 11.61 bcm and Stage of Ground Water extraction is 134.56 %.

Out of total 141 assessment units (blocks), 85 units (60.28 %) have been categorized as 'Over-exploited', 12 units (8.51 %) as 'Critical', 14 units (9.93 %) as 'Semi Critical' and 30 units (21.28 %) as 'Safe' categories of assessment units. Similarly out of 40391.12 sq km recharge worthy area of the State, 25035.10 sq km (61.98 %) area are under 'Over-Exploited', 2593.95 sq km (6.42 %) under 'Critical', 5203.35 sq km (12.88 %) under 'Semi-critical', 7558.72 sq km (18.71 %) under 'Safe' categories of assessment units. Out of total 8629.78 mcm annual extractable ground water resources of the State, 5568.92 mcm (64.53 %) are under 'Over-exploited', 621.32 mcm (7.2 %) under 'Critical', 983.94 mcm (11.4 %) under 'Semi-critical' and 1455.59 mcm (16.87 %) are under 'Safe' categories of assessment units.

As compared to 2017 assessment, the Total Annual Ground Water Recharge have decreased from 10.15 to 9.53 bcm in 2020, Annual Extractable Resources have decreased from 9.13 to 8.63 bcm and the Annual Ground Water Extraction from 12.5 to 11.61 bcm. The Stage of Ground Water Extraction has decreased from 137 % to 135 %. The reduction in draft is due to reduction in yield of wells.

7.10 HIMACHAL PRADESH

The diverse physiographic, climatic, topographic and geologic conditions have given rise to diversified groundwater situation in different parts of the state. The rock formations ranging in age from Archean to Recent occupy the State and control the occurrence and movement of ground water depending upon aquifer composition, structure and deposition. Hilly and mountainous parts with steep slopes mainly constitute the run off areas and have low ground water potential. In valley and low-lying areas, unconsolidated / semi-consolidated formations form potential aquifers.

In consolidated formations the water availability is restricted to weathered mantle, joints/fractures, weak planes, bedding planes and limestone caverns. The limestone associated with phyllite and quartzite forms potential aquifers. In granites, potentiality of the aquifer is highly dependable on the fracture intensity. In granitic aquifers the discharge ranges between 1-3 lps. Ground water in hard rock areas is either developed though bore wells or natural springs are tapped for both drinking and irrigation purposes.

In the unconsolidated formations the occurrence and movement of ground water is highly dependent on lithology particularly the presence of clay content. The unconsolidated formations are confined to valley areas, having good yield prospects that can sustain moderate to high capacity deep tube wells. The yield of the tube wells depends on the thickness of the total granular zones available within the aquifers tapped which ranges from 5-40 lps in different valleys. The Ground water resources have been assessed valley-wise.

Total Annual Ground Water Recharge of the State has been assessed as 1.07 bcm and Annual Extractable Groundwater Resources is 0.97 bcm. The Current Annual Ground Water Extraction for all uses is 0.357 bcm and Stage of Ground Water Extraction is 36.83 %. Out of the 10 assessment units, all the ten assessment units have been categorized as 'Safe' and there is no saline assessment unit in the State.

As compared to 2017 assessment, there is significant change in the Total Annual Ground Water Recharge and Annual Extractable Ground Water resources. However, the Ground Water Extraction has decreased from 0.39 to 0.36 bcm in 2020. This is due to refinement in the number of abstraction structures as per well census data and revision in assessment unit boundaries as per slope map and hydrogeological conditions. Hence, Stage of extraction has changed significantly.

7.11 JHARKHAND

The State is underlain by diverse rock types of different geological ages ranging from Archaean to Recent. The major rock types are igneous and metamorphic rocks covering nearly 85 percent of the geographical area of the state. The weathered zone ranging between 10-25 m acts as a good repository of ground water. However, the secondary porosities below the weathered zones also form potential aquifers. The yield of the exploratory wells ranges from negligible to 151m^3/hr.The yield of the dugwells ranges from 0.5 to 0.75m^3/hr.The dug wells tapping the weathered mantle have an average yield of 0.5 to 1.2 m^3/hr. In Gondwana Super group, bore well discharge ranges between 7 to 10m^3/hr and in Tertiary formations, yield ranges from 18 to 78 m^3/hr.TheYounger Alluvium deposits are confined to patches.The depth of dug wells in general ranges between 10 to 15m bgl and that of shallow tube wells varies between 20 to 40mbgl.

Ground Water Resource of the State has been assessed block-wise. The Total Annual Ground Water Recharge of the State has been assessed as 6.15 bcm and Annual Extractable Ground Water Resources is 5.64 bcm. The Annual Ground Water Extraction is 1.64 bcm and Stage of Extraction is 29.13 %.

Out of 259 assessment units (blocks), 3 units (1.16 %) have been categorized as 'Over-exploited', 2 units (0.77 %) as 'Critical', 10 units (3.86 %) as 'Semi-critical' and rest 244 units (94.21 %) are under 'Safe' category and there is no saline assessment unit in the State. Similarly out of 60452.52 sq km recharge worthy area of the State, 425.21 sq km (0.7 %) area are under 'Over-Exploited', 316.92 sq km (0.52 %) under 'Critical', 2409.95 sq km (3.99 %) under 'Semi-critical' and 57300.44 sq km (94.79 %) under 'Safe' categories of assessment units. Out of total 5644.32 mcm annual extractable ground water resources of the State, 48.7 mcm (0.86 %) are under 'Over-exploited', 41.1 mcm (0.73 %) under 'Critical', 284.98 mcm (5.05 %) under 'Semi-critical' and 5269.54 mcm (93.36 %) are under 'Safe' categories of assessment units.

As compared to 2017 assessment, Total Annual Ground Water Recharge and Annual Extractable Ground Water Resources have decreased from 6.21 to 6.15 bcm and 5.69 to 5.64 bcm respectively. The Annual Ground Water Extraction for the State has increased from 1.58 to 1.64 bcm and the

Stage of Ground Water Extraction has increased from 27.73 % to 29.13 %. The increase in stage of extraction is due to urbanisation and industrialization, while the changes in the parameters can be attributed to marginal decrease in recharge.

7.12 KARNATAKA

Karnataka State is underlain by rock types ranging in age from Archaean to Recent. Major portion of the State is covered by Peninsular Gneisses, Granites and Dharwar Schists of Archaean age.Substantial area in the northern part of Karnataka is underlain by basalts, which form a continuation of the Deccan Traps occurring in Maharashtra. The sedimentaries comprising Bhima and Kaladgis occupy a small area in the northern districts. The recent alluvium is restricted to a narrow belt in the coastal area and along streamcourses.

The aquifer systems are classified into nine major groups depending upon their characteristics and are Banded Gneissic Complex (BGC), Basalt, Schists, Granites, Charnockites, Limestones, Laterites, Sandstones andalluvium.

The Annual Ground Water Recharge has been assessed as 18.15 bcm and the Annual Extractable Ground Water resource is 16.4 bcm. The Current Annual Ground Water Extraction is 10.64 bcm and the Stage of Ground Water Extraction is 64.85 %.

Out of the 227 assessment units (taluks), 52 units (29.91 %) have been categorized as 'Over exploited', 10 units (4.41 %) as 'Critical', 35 units (15.42 %) as 'Semi critical' and 130 units (57.27 %) have been categorized as 'Safe'. There is no taluk under "Saline" category. Similarly out of 164340.79 sq km recharge worthy area of the State, 39262.92 sq km (23.89 %) area are under 'Over-Exploited', 8287.16 sq km (5.04 %) under 'Critical', 23867.47 sq km (14.52 %) under 'Semi-critical' and 92923.24 sq km (56.54 %) under 'Safe' categories of assessment units. Out of total 16395 mcm annual extractable ground water resources of the State, 3185.03 mcm (19.43 %) are under 'Over-exploited', 778.99 mcm (4.75 %) under 'Critical', 2313.09 mcm (14.11 %) under 'Semi-critical' and 10118.72 mcm (61.72 %) are under 'Safe' categories of assessment units.

As compared to 2017 assessment, there is increase in Annual Ground Water Recharge from 16.84 bcm to 18.16 bcm, Annual Extractable Ground Water Resources from 14.79 bcm to 16.4 bcm. This is mainly due to increase in recharge from 'Other sources'. There is marginal increase in the Current Annual Ground Water Extraction for all uses from 10.34 to 10.63 bcm during this period. Hence overall, the Stage of Ground Water Extraction has decreased from 70 % to 64.85 %.

7.13 KERALA

The State of Kerala is underlain by diverse rock types of different geological ages from Pre-Cambrian to Recent. Nearly, 88% of the State is underlain by crystalline rocks of Archaean age comprising Schistose formations, Charnockites, Khondalites and Gneisses. All these formations are intruded by dykes of younger age. The sedimentary formations of Tertiary age occurring along the western parts of the State comprise four distinct beds viz. Alleppey, Vaikom, Quilon and Warkali. The crystalline and the Tertiary formations are lateritized along the midland area. Yields of open (dug) wells in these areas vary from 2 to 10 m^3/day, whereas that of bore wells ranges from less than 1 to 35 lps. About 12% of the State is underlain by Semi-consolidated and unconsolidated sedimentary formations where dug wells and filter points have yields of 1 to 35 m^3/day, whereas deep tube wells have yields in the range of 1 to 57 lps. Laterites, which cover most of the geological formations in the major part of the state also forms an important aquifer in the state with dug wells having yields in the range of 0.5 to 6 m^3/day.

The ground water resources for the state have been assessed block-wise. Total Annual Ground Water Recharge has been estimated as 5.65 bcm and Annual Extractable Ground Water Resource is 5.12 bcm. The Annual Ground Water Extraction is 2.65 bcm and Stage of Ground Water Extraction is 51.68 **%**.

Out of total 152 assessment units (blocks), 3 units (1.97 %) have been categorized as 'Critical', 29 units (19.08 %) as 'Semi-Critical' and 120 units (78.95 %) as 'Safe' categories of assessment units. There is no 'Over- exploited' and 'Saline' assessment unit in the State. Similarly out of 27047.54 sq km recharge worthy area of the State, 777.38 sq km (2.87 %) area are under 'Critical', 4325.19 sq km (15.99 %) under 'Semi-critical' and 21944.97 sq km (81.13 %) area are under 'Safe' categories of assessment units. Out of total 5119.58 mcm annual extractable ground water resources of the State, 136.45 mcm (2.67 %) are under 'Critical', 801.49 mcm (15.66 %) under 'Semi-critical' and 4181.63 mcm (81.68 %) are under 'Safe' categories of assessment units.

As compared to 2017 assessment, Total Annual Ground Water Recharge of the State has decreased from 5.77 to 5.65 bcm and Annual Extractable Ground Water Resources from 5.21 to 5.12 bcm. The Annual Ground Water Extraction has decreased from 2.67 to 2.65 bcm and the Stage of Ground Water Extraction has increased from 51.27 % to 51.68 %. The change in precipitation, consequent water level fluctuation and deeper water levels are reasons for marginal reduction in the recharge figures. The number of Semi-critical blocks has decreased from 30 to 29. Chittur block has improved from 'Over-Exploited' to 'Critical' Category due to additional recharge from rainfall and other sources (water conservation structures). Two Semi- critical blocks i.e Parakkadavu and Elamdesom has improved to 'Safe' Category mainly due to increase from water conservation structures.

7.14 MADHYA PRADESH

The State of Madhya Pradesh has varied hydrogeological characteristics due to which ground water potential differs from place to place. The State is underlain by various Geological formations ranging in age from the Archaean to the Recent. Hard rock areas cover more than 80% of total land area of the State. These hard-rock areas show wide variations and complexities in nature and composition of rocks, geological structures, geomorphological set up and hydro meteorological conditions. The crystalline rocks of Archaean age like granite, gneiss, granulites, schist, quartzite and granitoids occupy about 15% of geographical area of the State. The basaltic rocks of Deccan lava flows are the predominant formations and occupy nearly 45% of total geographical area. The consolidated sedimentary rocks of Vindhyan Super Group and Mahakoshal (Cuddapah) Super Group of Proterozoic age occupy about 19% of total geographical area and the semi consolidated (Gondwana Formation) occupies about 7%. Recent unconsolidated alluvial sediments occupy about 14% of total geographical area.

Total Annual Ground Water Recharge of the State has been assessed as 36.16 bcm and Annual Extractable Ground Water Resources is 33.38 bcm. The Annual Ground Water Extraction is 18.97 bcm and Stage of Ground Water Extraction is 56.82 %.

Out of 317 assessment units (blocks), 26 units (8.21 %) has been categorized as 'Over Exploited', 8 units (2.52 %) as 'Critical', 50 units (15.77 %) as 'Semi-Critical' and 233 units (73.5 %) as 'Safe' categories of assessment units and there are no saline assessment unit. Similarly out of 272180.45 sq km recharge worthy area of the State, 22194.29 sq km (8.15 %) area are under 'Over-Exploited', 6078.98 sq km (2.23 %) under 'Critical', 42776.12 sq km (15.72 %) under 'Semi-critical' and 201131.06 sq km (73.90 %) under 'Safe' categories of assessment units. Out of total 33380.40 mcm annual extractable ground water resources of the State, 3349.83 mcm (10.04 %) are under 'Over-exploited', 754.83 mcm (2.26 %) under 'Critical', 5021.66 mcm (15.04 %) under 'Semi-critical' and 24254.07 mcm (72.66 %) are under 'Safe' categories of assessment units.

As compared to 2017 assessment, there is a marginal decrease in the recharge and increase in the ground water extraction. The revision of well census data and population can be attributed to the increase in ground water extraction, while the changes in the parameters can be attributed to marginal decrease in recharge.

7.15 MAHARASTRA

The State is underlain by diverse rock types of different geological ages from Pre-Cambrian to Recent. The state is mostly covered by Deccan Traps. The other geological formations, older and younger than Deccan Traps, occur in the northeast and as isolated patches in the Sindhudurg and Ratnagiri districts. Large part of the State is underlain by Basaltic hard rocks where dug wells are predominant. They mostly tap the weathered zone and fractures/joints. The yield of dug wells varies from 3 to 5 lps. A small part of the State is occupied by Semi- consolidated sedimentary rocks where tubewells have an yield of 5 to 45 lps. The central part of Maharashtra which is a drought prone area, receives very less rainfall i.e. from 400 to 700 mm, but the geology is favourable for the ground water recharge. Hence, in this area the dependency on groundwater is very high. Two-third of irrigation wells are from this area only. This primarily includes parts from Dhule, Nashik, Jalgaon, Ahmednagar, Pune, Satara, Sangli, Solapur, Osmanabad, Beed and Aurangabad districts.

The Ground water resources have been assessed for 1535 watersheds in the state and subsequently apportioned to taluk level. Total Annual Ground water Recharge of the State has been estimated as 32.01 bcm and Annual Extractable Ground Water Resources is 30.25 bcm. The Annual Ground Water Extraction is 16.63 bcm and Stage of Ground Water Extraction is 54.9 %.

Out of 353 assessment units (taluks), 10 units (2.83 %) have been categorized as 'Over-exploited', 8 units (2.27 %) as 'Critical', 63 units (17.85 %) as 'Semi-critical' and remaining 271 units (76.77 %) as 'Safe' and 1 unit (0.28 %) as 'Saline' categories of assessment units. Similarly out of 259553.28 sq km recharge worthy area of the State, 7672.81 sq km (2.96 %) area are under 'Over-Exploited', 8219.37 sq km (3.17 %) under 'Critical', 61590.57 sq km (23.73 %) under 'Semi-critical', 181293.63 sq km (69.85 %) under 'Safe' and 776.89 sq km (0.03 %) area under 'Saline' categories of assessment units. Out of total 30250.45 mcm annual extractable ground water resources of the State, 889.25 mcm (2.94 %) are under 'Over-exploited', 950.09 mcm (3.14 %) under 'Critical', 6741 mcm (22.28 %) under 'Semi-critical' and 21670.11 mcm (71.64 %) are under 'Safe' categories of assessment units.

As compared to 2017 assessment, the Annual Ground Water Recharge in 2020 has increased from 31.64 to 32.01 bcm, Annual Extractable Ground Water Recharge from 29.9 to 30.25 bcm and Annual Ground Water Extraction from 16.33 to 16.63 bcm. There is a marginal increase in the Stage of Ground Water Extraction from 54.62 % to 54.9 %. The marginal increase in recharge due to the State government intervention of water conservation activities and the marginal increase in draft/extraction is due to revision of well census data on the basis of functional wells.

7.16 MANIPUR

The State of Manipur is occupied by mostly North South parallel hill ranges made up of consolidated and semi-consolidated rocks ranging in age from pre-Mesozoic to Miocene. The consolidated rocks confined to the eastern part of the state along the Myanmar border. The semi-consolidated formations, which cover almost the entire state, comprise shale, siltstone, sandstone and conglomerate. These formations belong to Disang, Barail, Surma and Tipam group of rocks. In the western and central part of the State, unconsolidated alluvium of quaternary age occurs in the valleys and topographical lows. Ground water is restricted to secondary porosity in joints, fissures, fractures and weathered residuum of consolidated and semi-consolidated rocks and inter-granular pore spaces of alluvial deposits. In the valley, ground water is utilized through tube wells, tapping granular zones with 10 to 20 m thickness, and the yield of the tube well varies from 10 to 30 m^3/hr.

The Ground water resources for the state have been assessed district-wise due to paucity of block wise data. Total Annual Ground Water Recharge of the State has been assessed as 0.51 bcm and Annual Extractable Ground Water Resources as 0.46 bcm. The Annual Ground Water Extraction is 0.024 bcm and Stage of Ground Water extraction is 5.12 %. All the districts have been categorized as 'Safe' and there is no saline area in the state. The comparison with previous assessment shows there is increase in the total ground water recharge from 0.43 bcm in 2017 to 0.51 bcm in 2020 while annual extractable resource has increased from 0.39 bcm in 2017 to 0.46 bcm in 2020. This increase can be attributed to refinement of data. Increase in ground water extraction from 0.006 bcm in 2017 to 0.024 bcm in 2020 is due to estimation of domestic extraction using Consumptive method.

7.17 MEGHALAYA

The Meghalaya State is essentially occupied by hard rocks belonging to the Archean gneissic complex with acidic and basic intrusives and Precambrian Shillong Group of para metamorphites. Ground water occurs under unconfined condition in the weathered residuum and fractured rocks and restricted to about 150 m depth. The development of ground water is mostly by dug wells which are restricted to the weathered zone and through bore wells including hand pumps which mainly tap the semi-weathered and fractured zones in the hard rock. The south-western, southern and south-eastern parts of the state is covered by semi- consolidated formations comprising sandstones, shales, conglomerates, limestones etc. belonging to Cretaceous – Tertiary age. The aquifers are formed by rock strata that are granular/porous, fissured/fractured or cavernous. These aquifers are thick and discontinuous in nature. The unconsolidated sediments comprising sand, gravel, silt, clay, etc. are found to occur as thin veneer along rivulets and as valley-fills.

The Ground water resources have been assessed district-wise due to paucity of block wise/ watershed wise data. Ground water resources of Greater Shillong (State capital) have been assessed separately. Total Annual Ground Water Recharge of the State has been assessed as 2.04 bcm and Annual Extractable Ground Water Resources as 1.82 bcm. The Annual Ground Water Extraction is 0.077 bcm and Stage of Ground Water Extraction is 4.22 %. All the 12 assessment units have been categorized as 'Safe'.

As compared to 2017 assessment, the Annual Ground Water Recharge and Annual Extractable Ground Water Resources have increased from 1.83 to 2.04 bcm and 1.64 to 1.8195 bcm respectively. The reasons can be attributed to changes in rainfall. The Annual Ground Water Extraction has also increased from 0.04 to 0.077 bcm due to refinement in data. Stage of ground water extraction has consequently increased from 2.28 % to 4.22 %.

7.18 MIZORAM

The State is occupied mainly by the rocks of the Tertiary formation ranging in age from Oligocene to Miocene to Recent. The Barail form the lowermost rock units comprising siltstone and bands of soft and hard fine grained sandstone with strings of carbonaceous material and occur in the north eastern part of the state. The Surma is divided into two formations, Bhuban and Bokabil. The Bhuban is made up of grey sandstone and shale and occupies the major part of the State all along the length of the state. The Bokabil, predominantly argillaceous, mostly occurs along the western part of the State. The Tipam sandstone is of semi- consolidated nature comprising medium to coarse grained sandstone with subordinate shale and occurs in limited extent in the north western part of the state. The alluvial deposits comprising silt, clay and sands occur in the valley fill area with very limited thickness. Ground water is confined only to valley filled areas and secondary porosities of semi-consolidated rocks. These aquifers are the main source for springs. Ground water stored in the hill slopes emanates in the form of springs, which are being used as a source for water supply. In the valley area, the yield potential of tube wells within the depth range of 200 m tapping Tertiary sandstone ranges from 120 to 330 liters per minute for drawdown of 13 to 20m. The transmissivity and Storativity are to the tune of 11 to 46 m^2/day and 4.28 x 10^{-4} respectively.

The ground water resources for the state have been assessed block-wise. Total Annual Ground Water Recharge has been assessed as 0.222 bcm and Annual Extractable Ground Water Resource is 0.200 bcm. The Annual Ground Water Extraction is 0.008 bcm and Stage of Ground Water Extraction is 3.81 %. All the 26 assessed blocks have been categorized as 'Safe'. There are no saline areas in the state. As compared to 2017 assessment, there is no change in annual ground water recharge, ground water extraction or in stage of ground water extraction.

7.19 NAGALAND

The State is covered by rocks ranging in age from Pre-Cretaceous to Recent. The rock sequences comprise the geosynclinals facies, represented by Disang Group, Barail Group, Surma Group, Tipam Group, Namsang formation and Dihing Group. While the Disang and Surma Group of rocks are mainly argillaceous, the Barail and Tipam groups are arenacious. The Girujan clay formation overlying the Tipam sandstones is characterized by typical blue, mottled clay and argillaceous sandstone beds. Older rocks occupy southern parts of the State, where as younger rocks are exposed in the northern parts. The unconsolidated alluvial plains, comprising clay, sand pebble, cobble and boulder assemblages, occupy the narrow, intermountain and open valleys in the northern part of the state bordering upper reaches of Brahmaputra flood plains of Assam. The consolidated formations are confined to the south eastern part of the State along the Burma (Myanmar) border.

Ground water development potentiality in valley fill and alluvial deposits are restricted to construction of open wells having depth of 15 to 20 metres and deep tube well down to 100 m depth which yield to the tune of 10 to 45 m^3/day with more than 5 m drawdown. Water bearing formations pertaining to Tertiary deposits are found to have moderate potentials which can sustain deep tube wells having yield prospects varying from 10 to 20 m^3/hr. The valleys underlain by Tipam sandstones form good aquifers with yield prospects varying from 30 to 80 m^3/hr. In the consolidated formations, ground water abstraction structures can be constructed in structurally weak zones. Ground water emerges as perennial springs which are the main source of water supply for domestic needs in the state.

The ground water resources for the state have been assessed district-wise due to paucity of block-wise data. Total Annual Ground Water Recharge of the State has been assessed as 2.17 bcm and Annual Extractable Ground Water Resource as 1.95 bcm. The Annual Ground Water Extraction is 0.021 bcm and Stage of Ground Water Extraction is 1.04 %. All the 11 districts have been categorized as 'Safe'. There is no saline area in the state. As compared to 2017 assessment, the Total Annual Ground Water Recharge of the State has marginally decreased from 2.20 bcm to 2.17 bcm and similarly, the Annual Extractable Ground Water Resource has decreased from 1.98 bcm to 1.95 bcm and there is no significant change in annual ground water extraction.

7.20 ODISHA

The State is underlain by diverse rock types, which range in age from Precambrian to Cenozoic era. The Precambrians occupy nearly 80 % of the total geographical area of the State. The Tertiary and the Quaternary Alluvial formations are restricted mainly to the narrow coastal tracts. The Gondwana group of rocks belonging to Paleozoic and Mesozoic era occurs in isolated patches in different parts of the State. These formations occur in Talcher area of Angul district and in river valley area of Sambalpur and Sundargarh districts. Ground water abstraction in the state is mostly done by dug wells constructed in the weathered zone in hard rock areas and in shallow phreatic aquifers in alluvial areas. The yield of open (dug) wells varies from 1 to 5 lps. However, at present, bore wells, shallow to medium deep tube wells, filter point tube wells are also in use for ground water abstraction both for domestic and irrigational purpose. The yield of bore wells varies from 2 to 5 lps in general depending on the occurrence of saturated fractures at depths. The yield from shallow and medium deep tube wells may vary from 6 to 10 lps in general depending on the aquifer disposition.

The Ground water resources in the state have been assessed block-wise. Total Annual Ground Water Recharge of the State has been assessed as 17.08 bcm and Annual Extractable Ground Water Resource as 15.7 bcm. The Annual Ground Water Extraction is 6.86 bcm and Stage of Ground Water Extraction is 43.7 %.

Out of the total of 314 assessment units (blocks), 6 units (1.91 %) have been categorized as 'Semi-critical', 302 units (96.18 %) as 'Safe' and 6 units (1.91 %) as 'Saline' categories of assessment units. Similarly out of 121593.15 sq km recharge worthy area of the State, 2263.09 sq km (1.86 %) area are under 'Semi-critical', 117148.73 sq km (96.34 %) under 'Safe' and 2181.33 sq km (1.79 %) area under 'Saline' categories of assessment units. Out of total 15712.93 mcm annual extractable ground water resources of the State, 369.93 mcm (2.35 %) are under 'Semi-critical' and 15343.01 mcm (97.65 %) are under 'Safe' categories of assessment units.

As compared to 2017 assessment, there is an increase in Annual Ground Water Recharge and Annual Extractable Ground Water Resources; also there is an increase in Annual Ground Water Extraction. The stage of ground water extraction has increased to 43.7 % in 2020 as compared to 42.18 % in 2017.

7.21 PUNJAB

Punjab is one of the smallest states of India having 3 perennial rivers namely Sutlej, Beas and Ravi and one non- perennial river Ghaggar. The Punjab State is a flat alluvial plain having a thin belt of mountains along north eastern border and stable sand dunes are seen dotting the landscape in the south western parts. The alluvial deposits in the State comprise sand, silt and clays often mixed with kankar. Sandy zones of varying grade constitute abundant ground water resources & act as a reservoir. The alluvial plain towards the hills is bordered by the piedmont deposits comprising Kandi and Sirowal. Immediately south-west of the hills, Kandi belt is 10 to 15 km wide followed by Sirowal which imperceptibly merges with the alluvial plain. Kandi deposit explored up to 450 m depth show gradation from boulders to clays and at places an admixture of various grades in different proportions. The Sirowal deposit is essentially composed of finer sediments but occasional gravel beds are also encountered in them.

The ground water resources for the state have been assessed block-wise. Total Annual Ground Water Recharge of the State has been assessed as 22.80 bcm and Annual Extractable Ground Water Resource as 20.59 bcm. The Annual Ground Water Extraction is 33.85 bcm and Stage of Ground Water Extraction is 164.42 %.

Out of the 150 assessment units (blocks), 117 units (78 %) have been categorized as 'Over-exploited', 6 units (4 %) as 'Critical', 10 units (6.67 %) as 'Semi-Critical', and 17 units (11.33 %) as 'Safe'. Similarly out of 49264.76 sq km recharge worthy area of the State, 38418.08 sq km (77.98 %) area are under 'Over-Exploited', 1906.17 sq km (3.87 %) under 'Critical', 2392.74 sq km (4.86 %) under 'Semi-critical', 6547.77 sq km (13.29 %) under 'Safe' categories of assessment units. Out of total 20590.1 mcm annual extractable ground water resources of the State, 16263.23 mcm (78.99 %) are under 'Over-exploited', 980.13 mcm (4.76 %) under 'Critical', 827.95 mcm (4.02 %) under 'Semi-critical' and 2518.79 mcm (12.23 %) are under 'Safe' categories of assessment units.

As compared to 2017 estimates, the Annual Ground Water Recharge has decreased from 23.93 to 22.80 bcm and similarly, Annual Extractable Ground Water Resource decreased from 21.58 to 20.59 bcm and total current annual ground water extraction decreased from 35.78 to 33.85 bcm. The stage of ground water extraction has decreased from 165.77 to 164.42 %. The reduction in recharge is due to less rainfall, lining of unlined canals and decreased extraction is due to decrease in area of paddy cultivation from 29.3 lakh hectares to 26.3 lakh hectares.

7.22 RAJASTHAN

The State of Rajasthan has diversified geology,ranging from Archean metamorphic to recent alluvial sediments. Based upon geological diversities, geomorphological setup and ground water potentialities, the state of Rajasthan can be divided into three broad hydrogeological units. (i) Unconsolidated formation (ii) Semi-consolidated formation (iii) Consolidated (Fissured formation). Large part of the State is underlain by Quaternary sediments (Thar Desert) consisting of clay, silt, sand and gravel of various grades. The fine sand and clay with or without Kankar layers have formed multi layered aquifer system. Exploratory drilling data reveals that the yield vary from meagre to $10m^3$/day, transmissivity ranges between 80 to 300 m^2/day and storage co-efficient vary from 1.1x $10^{-5}$to 3.9x10^{-6}in the state. Sandstone belonging to the Vindhyan formation is compact in nature and has low primary porosity. Ground Water occurs within the weathered residue and in the secondary porosity underneath. In general,the thickness varies from 5to10m.Yield potential is limited due to compact nature of the formation. The limestone is also having low ground water potential. The yields of dug wells vary from 0.25 to $0.75m^3$/day. The yield of the wells drilled in Vindhayan formation has been observed to be $15m^3$/day, tapping fractures between 50-75mbgl. In consolidated formation (Fissured) the thickness of the weathered zone varies from5 to 50m.Ground Water occurs under unconfined condition within the weathered zone. The results of the exploratory drilling carried out by CGWB in hardrock are as indicate presence of productive fractures down to a depth of 100m and yield varies from 3 to $15m^3$/day, whereas transmissivity varies from 3 to 30 m^2/day.

The Ground water resources for the state have been assessed block-wise. Total Annual Ground water Rechargeof the State has been assessed as 12.24 bcm and Annual Extractable Ground Water Resource as 11.07 bcm. The Annual Ground Water Extraction is 16.63 bcm and the Stage of ground water extraction in the state is 150.2 %.

Out of the 295 assessment units (blocks), 203 units (68.81 %) have been categorized as 'Over Exploited', 23 units (7.8 %) as 'Critical', 29 units (9.83 %) as 'Semi-Critical', 37 units (12.54 %) blocks as 'Safe' and 3 units (1.02 %) as 'Saline'. Similarly out of 290721.07 sq km recharge worthy area of the State, 188661.64 sq km (64.89 %) area are under 'Over-Exploited', 18905.87 sq km (6.5 %) under 'Critical', 27405.92 sq km (9.43 %) under 'Semi-critical', 46811.75 sq km (16.1 %) under 'Safe' and 8935.89 sq km (3.07 %) area under 'Saline' categories of assessment units. Out of total 11073.63 mcm annual extractable ground water resources of the State, 7780.42 mcm (70.26 %) are under 'Over-exploited', 706.85 mcm (6.38 %) under 'Critical', 1441.41 mcm (13.02 %) under 'Semi-critical' and 1144.95 mcm (10.34 %) are under 'Safe' categories of assessment units.

As compared to 2017 assessment, the Annual Ground Water Recharge and Annual Extractable Ground Water Resource have decreased from 13.2 to 12.24 bcm and 11.99 to 11.07 bcm respectively. Annual ground water extraction has decreaded from 16.77 bcm to 16.63 bcm. And the stage of ground water extraction has increased from 139.88 % to 150.2 %. The change in Annual Ground Water recharge is because of change in rainfall data for recharge. The marginal change in annual ground water extraction is due to revision of well census data and change in irrigated land area.

7.23 SIKKIM

Sikkim is a small mountainous State characterized by rugged undulating topography with series of ridges and valleys. The various rock types prevalent in the state are Pelitic Carbonate rocks and Gondwanas over a gneissic basement and occasional Colluvials and valley fill deposits, as well as alluvial terrains along higher order streams and river courses. The formations reveal an intense tectonic-structurally complex deformational history. Ground water occurs largely in disconnected localized pockets and in deeper fractures zones. Springs are the main source and conduits of water.

The ground water resource assessment (in 2020) for the State of Sikkim has been carried out as per GEC 2015 guidelines through 'IN-GRES', with Districts as primary assessment units. The Total Annual Ground Water Recharge has been estimated at 0.96 bcm and the Annual Extractable Ground Water Resource has been estimated at 0.86 bcm. The Current Annual Ground Water Extraction for all uses has been estimated at 0.007 bcm, which translates into a Stage of Ground Water Extraction at 0.86 %, and as per the present assessment all the four assessment units (Four Districts – East, North, South & West) are in 'SAFE' category.

As compared to 2017 assessment, Annual Extractable Ground Water Resource reduced from 1.52 bcm to 0.8645 bcm. The Annual Ground Water Extraction from all sources though marginally increased from 0.000874 bcm to 0.007431 bcm. As a result, the Stage of Ground Water Extraction marginally increased from 0.057 % to 0.86 %.

Decrease in annual rainfall resulted in minor decrease in recharge, which is reflected in marginal decrease in Annual Extractable Resource. The marginal increase in Annual Ground Water Extraction is attributed to the growth of industries in the districts, utilizing ground water for industrial use, resulting in marginal increase in the Stage of Ground Water Extraction.

7.24 TAMIL NADU

Tamil Nadu state is underlain by diverse hydrogeological formations. Nearly 73 % of the state is occupied by hard rocks, semi-consolidated and consolidated formations which are mainly confined to the eastern part including the coastal tract. In the hard rock areas, groundwater is developed through dug wells tapping the weathered zone and dug cum bore wells and bore wells tap the deeper fractures down to a depth of 300 m. In semi consolidated and unconsolidated formation, shallow zones are tapped by filter points and shallow tube wells and deeper zones through deeper tube wells. The yield of open wells vary from 1 to 3 lps, where as in dug wells tapping soft rocks including sedimentary formations, the yield is up to 10 lps. The yield from unconsolidated and semi consolidated formations are in general 10 to 20 lps and also as high as 40 lps are also noticed at select places.

The ground water resources for the State have been assessed firka-wise. Total Annual Ground Water Recharge of the State has been assessed as 19.59 bcm and Annual Extractable Ground Water resources as 17.7 bcm. The Annual Ground Water Extraction is 14.67 bcm and Stage of Ground Water Extraction as 82.9 %.

Out of 1166 assessment units (firkas), 435 units (37.31 %) have been categorized as 'Over Exploited', 63 units (5.4 %) as 'Critical', 225 units (19.3 %) as 'Semi-Critical', 409 units (35.08 %) as 'Safe' and 34 units (2.92 %) have been categorized as 'Saline'. Similarly out of 108367.38 sq km recharge worthy area of the State, 39907.51 sq km (36.83 %) area are under 'Over-Exploited', 6075.97 sq km (5.61 %) under 'Critical', 21409.28 sq km (19.76 %) under 'Semi-critical', 37852.37 sq km (34.93 %) under 'Safe' and 3122.25 sq km (2.88 %) area under 'Saline' categories of assessment units. Out of total 17690.07 mcm annual extractable ground water resources of the State, 5744.07 mcm (32.47 %) are under 'Over-exploited', 1050.93 mcm (5.94 %) under 'Critical', 3921.48 mcm (22.17 %) under 'Semi-critical' and 6973.59 mcm (39.42 %) are under 'Safe' categories of assessment units.

As compared to 2017 assessment, Total Annual Ground Water Recharge has decreased from 20.22 to 19.59 bcm. The Annual Extractable Ground Water Resources has decreased from 18.2 to 17.7 bcm and the annual ground water extraction has decreased from 14.73 to 14.67 bcm. Consequently, there is an increase in the stage of ground water extraction from 80.94 % to 82.42 %. The marginal reduction in recharge is due to changes in rainfall recharge and decreased extraction is due to revision of well census data.

7.25 TELENGANA

The State of Telangana shares its boundaries with Andhra Pradesh, Chattisgarh, Maharashtra and Karnataka. The state has 2 major rivers, the Godavari and the Krishna. The River Godavari with its tributaries Pranahita, Manjeera, Maneru, Indravati, and Kinnerasani drains through the northern parts of the State. The river flows through Adilabad, Karimnagar, Nizamabad, Medak, Warangal and Khammam districts. The River Krishna with its tributaries Tungabhadra, Bheema, Musi, Paleru and Munneru flows through the Southern parts of the State. It drains through Mahabubnagar, Ranga Reddy and Nalgonda districts.

Telangana state is characterized by wide range of geological formations from Archaean to Recent age. Nearly 85% of the state is underlain by hard rocks (consolidated formations) belonging to the Peninsular Gneissic Complex, Dharwar and Eastern Ghats of Archaean to Middle Proterozoic age, Pakhal Group of rocks belonging to Middle to Upper Proterozoic age and Deccan Traps.In hardrocks average well yields are around 50 to 125 lpm.The rest of the state is underlain by semi consolidated sediments formations encompassing Gondwanas, Tertiary group of formations and Sub-Recent to Recent unconsolidated sediments. In Kamthi sandstones, the tube-wells constructed down to 250mbgl and yield varies from 13 to 162m^3/hour. Within the 200m depth range yield varies from 1.5 to 16.6lps for draw-down of 9 to 30m. Transmissivity of these aquifers varies between 28 and 950m^2/day. The unconsolidated formations are represented by inland river alluvium.The alluvial aquifers have high porosity and permeability. Filter points are most common in this formation. Filter points drilled down to a depth of 10 to 15m bgl yield between 150 to1500lpm.

The Ground water resources for the state have been assessed watershed-wise and apportioned to mandal-wise. Total Annual Groundwater recharge of the State has been assessed as 16.63 bcm and Annual extractable Ground Water resource as 15.03 bcm. The Annual Ground Water Extraction is 8.01 bcm and Stage of Ground Water Extraction is 53.32 %.

Out of 589 assessment units (mandals), 44 units (7.47 %) have been categorized as 'Over Exploited', 44 units (7.47 %) as 'Critical', 180 units (30.56 %) as 'Semi-Critical' and 321 units (54.5 %) as 'Safe'. There is no 'Saline' category of assessment unit in the state. Similarly out of 105171.69 sq km recharge worthy area of the State, 4062.07 sq km (3.86 %) area are under 'Over-Exploited', 6339.21 sq km (6.03 %) under 'Critical', 31428.83 sq km (29.88 %) under 'Semi-critical', 63341.58 sq km (60.23 %) under 'Safe' categories of assessment units. Out of total 15026.12 mcm annual extractable ground water resources of the State, 460.60 mcm (3.07 %) are under 'Over-exploited', 700.20 mcm (4.66 %) under 'Critical', 3461.87 mcm (23.04 %) under 'Semi-critical' and 10403.46 mcm (69.24 %) are under 'Safe' categories of assessment units.

As compared to 2017 assessment, Total Annual Ground Water Recharge of the State has incresed from 13.62 to 16.63 bcm. This is mainly due increase in recharge from 'Other sources'. The Annual Extractable Ground Water Resources has increased from 12.37 to 15.03 bcm. The Current Annual Groundwater Extraction for all uses has marginally decreased from 8.09 to 8.01 bcm. The overall Stage of Ground Water Extraction decreased from 65.45 to 53.32 %. This can be attributed to government interventions like water conservation activities under Mission Kakatiya, improvement in surface water irrigation and drinking water supply under Mission Bhagiratha etc.

7.26 TRIPURA

The State of Tripura is occupied by the rocks ranging in age from Upper Tertiary to Quaternary. Mobile trough geosynclinal deposition of Barail group followed by flysch type of Surma & Tipam sediments, overlain by Dupitila formation, is noticed in the State. Most of the longitudinal synclinal valleys of the state are the basins of deposition of recent formation. Recent alluvium occurs along the streams and the flood plains of major rivers.

Ground water occurs under unconfined condition in Dupitila, Recent & Tipam formations. Besides, it also occurs under confined to semi-confined conditions in Tipam formation at considerable depth. Recharge areas for the deeper aquifer lies in the adjacent anticlinal hills. Wherever a good thickness of impermeable clay beds underlie & overlie the saturated granular zones, auto flow artesian conditions have been found in the valleys, which are the discharge area. The artesian flowing conditions occur in patches both at shallow depth and at deeper depth. The auto discharge of the flowing wells in the State ranges from 100 to 6000 lph, the maximum auto discharge from deep tube well to the extent of 54000 lph has been found in Khowai valley near Khowai town, where the piezometric head rose up to 7 m above ground level.

Ground water resources have been assessed block-wise. Total Annual Ground Water Recharge of the State has been assessed as 1.47 bcm and Annual Extractable Ground Water Resource as 1.24 bcm. The Annual Ground Water Extraction is 0.099 bcm and Stage of Ground Water Extraction is 7.94 %. All the 59 assessment units have been categorized as 'Safe'. As compared to 2017 assessment, there is no significant change in ground water recharge and ground water extraction in the State.

7.27 UTTAR PRADESH

The State of Uttar Pradesh is categorized with five distinct hydrogeological units – Bhabar, Terai, Central Ganga Plains, Marginal Alluvial Plain, Southern Peninsular area. Bhabar is mainly the recharge zone having deeper water levels. Ground water extraction in phreatic aquifer is through hand pumps, dug wells, dug cum bore wells and shallow tube wells. The yield from these wells has been generally found to be in the range of 40 to 60 lps. Terai zone lies between Bhabar in the North and Central Ganga Plain in the South. It is characterized by fine grained sediments with occasional pebbles and boulders. The average yield of tube wells constructed in this zone varies from 30 to 60 lps with moderate drawdown. Central Ganga Plain constitutes the most promising ground water repository characterized by multi-layered aquifer systems. The yield of the open wells and hand pumps constructed in the phreatic aquifer vary from 5 to 10 lps. The tube wells in the phreatic aquifer yield between 20 to 28 lps at 6 to 8 m drawdown. Marginal alluvial plain consists of kankar mixed clay-silt beds intercalated with sand and gravel lenses. The aquifer in this area is capable of yielding 15 to 40 lps at moderate drawdown. Southern part mainly occupied by Hard rocks comprising of Granite/ Granitic Gneiss and Marginal Alluvium in Bundelkhand Region and Vindyan Sedimentary formations in Mirzapur and Sonebhadra Districts. The wells tapping these formations generally recorded yield between 2 to 8 lps.The Ground water resources have been assessed block-wise.

Total Annual Ground Water Recharge of the state has been assessed as 72.19 bcm and Annual Extractable Ground Water Resource as 66.88 bcm. The Annual Ground Water Extraction is 46.03 bcm and Stage of Ground Water Extraction is 68.83 %.

Out of the 830 assessment units consisting 820 blocks and 10 cities, 66 units (7.95 %) have been categorized as 'Over- exploited', 49 units (5.9 %) as 'Critical', 174 units (20.96 %) as 'Semi-critical' and 541 units (65.18 %) as 'Safe'. Similarly out of 229657.75 sq km recharge worthy area of the State, 15707.61 sq km (6.84 %) area are under 'Over-Exploited', 13117.04 sq km (5.71 %) under 'Critical', 52007.48 sq km (22.65 %) under 'Semi-critical', 148825.61 sq km (64.8 %) under 'Safe' categories of assessment units. Out of total 66882.45 mcm annual extractable ground water resources of the State, 4304.1 mcm (6.44 %) are under 'Over-exploited', 3822.59 mcm (5.72 %) under 'Critical', 12755.08 mcm (19.07 %) under 'Semi-critical' and 46000.68 mcm (68.78 %) are under 'Safe' categories of assessment units.

As compared to 2017 assessment, ground water extraction figure increased minutely. The stage of ground water extraction has also marginally decreased from 70.18 % to 68.83%. Increasing recharge values can be attributed to increase in rainfall during 2019 throughout the states.

7.28 UTTARAKHAND

Uttarakhand State has a distinct geological attribute with wide variety of rock units ranging in age from Archean to Quaternary. About 85 % of the geographical area of the state is mountainous and underlain by hard rocks. Ground water in the hard rock area is harnessed through the springs and hand pump tapping the weathered zone. Discharge of springs in the Lesser Himalaya and Central Himalaya is variable and ranges from 60 to 600 lpm. About 15 % of the geographical area is underlain by semi-consolidated and unconsolidated formations known as Tarai and Bhabhar. Ground water in this area is developed by open wells, shallow and deep tubewells.

The ground water resources of Uttarakhand State have been assessed block-wise. Total Annual Ground Water Recharge of the State has been assessed as 2.02 bcm. The Annual Extractable Ground Water Resources is 1.85 bcm. The Annual Ground Water Extraction is 0.87 bcm. The Stage of Ground Water Extraction is 46.8 %.

Out of the 18 assessment units, 4 units (22.22 %) lie under 'Semi-Critical' category and 14 units (77.78 %) under 'Safe' category. There are no 'Over-exploited', 'Critical' and 'Saline' units in the state. Similarly out of 4993.04 sq km recharge worthy area of the State, 950.94 sq km (19.05 %) area are under 'Semi-critical', 4042.1 sq km (80.95 %) under 'Safe' categories of assessment units. Out of total 1852.9 mcm annual extractable ground water resources of the State, 346.26 mcm (18.69 %) are under 'Semi-critical' and 1506.64 mcm (81.31 %) are under 'Safe' categories of assessment units.

As compared to 2017 assessment, there is decrease in the Total Annual Ground Water Recharge from 3.04 bcm (2017) to 2.02 bcm (2020). Similarly there is decrease in Annual Extractable Ground Water Resources from 2.89 bcm (2017) to 1.85 bcm (2020). The Annual Ground Water Extraction has decreased from 1.64 bcm (2017) to 0,87 bcm (2020). The Stage of Ground Water extraction has decreased from 56.83 % to 46.80 %. The decrease in Annual Ground Water Extraction can be attributed to refinement in well census database (reduction in number of dug wells and hand pumps currently in use) and re-evaluation of estimated drafts of the abstraction structures in a block-wise manner after consultation with the State Govt. departments. There has been improvement in stage of groundwater extraction in all the assessment units.

7.29 WEST BENGAL

Nearly two third area of the state is occupied by unconsolidated sediments; the western part of the state is partly occupied by the hard rocks. The phreatic aquifer is generally developed through dug well, dug cum bore well and shallow tube well. The yield of these wells varies from 1 to 5 lps.

The Ground Water Resource Assessment could not be completed and State Level Committee has not approved the GW Resource Assessment 2020. Hence, Central Level Expert Group recommended that the results of previous assessment in respect of West Bengal may be used in place of GWRA-2020 for national compilation on Dynamic Ground Water Resources of India, 2020. As per assessment, Total Annual Ground Water Recharge had been assessed as 29.33 bcm, Annual Extractable Ground Water Resources is 26.56 bcm and Annual Ground Water Extraction is 11.84 bcm. The Stage of Ground Water Extraction is 44.60 %.

Out of the 268 assessment units (blocks), 1 unit (0.37 %) has been categorized as ‘Critical’, 76 units (28.36 %) as ‘Semi-critical’, 191 units (71.27 %) as ‘Safe’. Similarly out of 69046.96 sq km recharge worthy area of the State, 190.03 sq km (0.28 %) area are under ‘Critical’, 16823.33 sq km (24.37 %) under ‘Semi-critical’, 52033.6 sq km (75.36 %) under ‘Safe’ categories of assessment units. Out of total 26558.47 mcm annual extractable ground water resources of the State, 68.5 mcm (0.26 %) are under ‘Critical’, 6991.06 mcm (26.32 %) under ‘Semi-critical’ and 19498.91 mcm (73.42 %) are under ‘Safe’ categories of assessment units.

7.30 ANDAMAN AND NICOBAR ISLANDS

The Andaman & Nicobar Islands comprise an arc-shaped chain of islands in the Bay of Bengal and are characterized by rugged topography, steep slope, low infiltration capacity and close proximity of hills to the sea. Marine sedimentary group of rocks comprising shale, sandstone, grit and conglomerate; extrusive and intrusive igneous rocks (volcanics and ultramafics) and coralline atolls and limestone occupy the entire geographical area. Amongst these, the Sedimentary Group is most pervasive and occupy nearly 70% of the entire area of the islands while the igneous group covers nearly 15% while the rest of 15% goes to the coralline and limestone formations. All these rock formations have been subjected to many tectonic activities, evident from the occurrence of shallow and deep focus earthquakes in the islands.

Because of tectonic activity, the Igneous and Sedimentary group of rocks are highly fractured and fissured. These fracturing in hard rock form conduits for movement of ground water in the deeper horizon. The geology of the islands is highly varied within a small distance. Marine sedimentary rocks are developed only through dug wells having meager yield of 0.1 to 0.5 lps. The igneous Ophiolite suite of rocks in the area although restricted in occurrence, are observed to yield moderate to high both in shallow and deeper locales and they are developed by dug wells and bore wells with yield ranging from 1 to 10 lps. The island area which is covered by Coralline Limestone contains appreciable quantity of groundwater with yield ranging from 5 to25 lps.

The Ground Water Resources (in 2020), following GEC 2015 guidelines, have been assessed island-wise. Total Annual Ground Water Recharge of the A&N Islands have been assessed as 0.3166 bcm and Annual Extractable Ground Water Recharge is assessed as 0.2859 bcm. The Annual Ground Water extraction is 0.0074 bcm which translates to a Stage of Ground Water Extraction of 2.5 %.

Out of 36 assessment units (Islands), 35 are ‘Safe’ and one is ‘Saline’. There is no significant change with respect to 2017 assessment.

7.31 CHANDIGARH

Chandigarh is underlain by the Quaternary alluvial deposits and comprises layers of fine sand and clay. Coarser sediments occur along the Sukhna Choe and Patialiki Rao, whereas relatively finer sediments underlie the area between these two streams. Fair to good aquifer horizons occur in most part of Chandigarh comprising medium to coarse sand, to a depth of 180 m bgl below which they become finer. Ground water in the area occurs under confined as well as semi-confined conditions. In Manimajra, ground water occurs under unconfined conditions down to about 80 m. In other areas, the semi-confined conditions prevail below 20 to 30 m. The depth of the shallow aquifer system is less than 30 m bgl, where as the depth of the deeper aquifer system ranges from 40 to 450 m bgl of explored depth. The transmissivity values for the deeper aquifer system ranges between 74 and 590 m^2/day. The transmissivity values of shallow aquifers up to 100 m depth ranges from 70 to 466 m^2/day. Ground water is found to be fresh and suitable for drinking as well as irrigation purposes.

UT of Chandigarh has very small area and whole UT has been taken as an assessment unit. Total Annual Ground Water Recharge has been assessed as 0.063 bcm and Annual Extractable Ground Water Resources as 0.057 bcm. The UT of Chandigarh has been categorized as ‘Semi Critical’ with stage of ground water extraction at 80.60 %. In comparison to 2017 assessment, Total annual recharge has increased from 0.042 to 0.063 bcm. The current ground water extraction increases from 0.03 to 0.046 bcm. The groundwater extraction in Chandigarh is completely governed by Government and only Government extracts groundwater for public water supply.

7.32 DAMAN & DIU AND DADRA & NAGAR HAVELI

Daman & Diu

The entire island area of Diu is about 40 sq. km and is underlain by Alluvium and Milliolite soft rock formation. The Daman has about 72 sq km area out of which 30 % is covered by alluvium and the rest is underlain by Basalt rocks. In UT of Daman & Diu, dug well as well as dug cum bore wells are common for irrigation and domestic use. The yields of open dug wells varies from less than1 to 5 m^3/day, where as that of Dug cum Bore wells ranges from less than 2 to 10 m^3/day.

The ground water resources have been assessed district-wise. The total Annual Ground Water Recharge has been assessed as 0.029 bcm and Annual Extractable Ground water Resources as 0.028 bcm. The total current Annual Ground Water Extraction has been assessed as 0.031 bcm and Stage of Ground Water Extraction as 113.38 %. Out of 2 assessment units, Diu has been categorized as ‘Safe’ and Daman as ‘Over Exploited’. As compared to 2017 assessment, there is substantial increase in total annual ground water extraction from 0.0097 bcm to 0.031 bcm, whereas the ground water recharge has marginally increased from 0.016 bcm in 2017 to 0.029 bcm in 2020. Consequently, the stage of groundwater extraction has increased from 61.4% to 113.38 %.

Dadra & Nagar Haveli

The entire area of UT of Dadra and Nagar Haveli is underlain by hard rock terrain (Deccan basalts). The thickness of vesicular units, ranges from 2 to 8 m. Ground water is developed by means of dug wells and dug cum bore wells. The sustainable yield of dug wells for 3 to 4 hours of pumping is 30 m^3/day. The transmissivity of shallow aquifer ranges from 5.5 to 305 m^2/day.

The entire D & NH has been considered as a single assessment unit. Total Annual Ground Water Recharge of the UT of DNH has been assessed as 0.072 bcm and Annual Extractable Ground Water Resources as 0.067 bcm. The Current Annual Ground Water Extraction for all uses is 0.031 bcm and Stage of Ground Water Extraction is 45.99 %. The entire UT of D&NH has been categorized as 'Safe'.

As compared to 2017 estimate, there is a negligible change in total annual ground water recharge from 0.07 to 0.072 bcm. However, there is a significant change in ground water extraction component due to the estimation of industrial draft for the first time due to which the current annual ground water extraction from all uses has increased from 0.02 bcm to 0.031 bcm. This change in draft has resulted in increase in stage of extraction from 31.34 % to 45.99 %.

7.33 JAMMU & KASHMIR

Jammu & Kashmir Union Territory comprises of two regions viz-Jammu, Kashmir with 10 districts each, representing different ground water regimes. In Jammu Region the ground water occurs in the outer plains extending between Munawar Tawi in the north-west to River Ravi in the south-east. The ground water occurs in piedmont deposits belonging to upper Pleistocene to Recent age, comprising unconsolidated sediments in the form of terraces and coalescent alluvial fans developed by the streams debauching out of Siwalik Hills. There are a number of isolated valleys in middle Himalayas where ground water occurs in valley fill deposits under un-confined conditions.

Kashmir valley covers an area of 5600 sq km and is occupied by Karewas that consist of a huge pile of alternating bands of sand, silt and clay interspersed by glacial boulder beds. The sands are mostly fine to very fine grained and there is considerable lateral facies variation in the nature of sediments with an aggregate thickness of 2500-3000 m. Ground water in the Karewas of Kashmir valley occurs under both confined as well as unconfined conditions.

The Ground water resources of the J&K UT have been assessed for valley areas and outer plains in 20 districts. The total recharge of ground water involves several components and the rainfall being the major one. The other components are seepage from canal and return flow from surface water and ground water irrigation. Total Annual Groundwater Recharge of the State has been estimated as 4.68 bcm and Annual Extractable Ground Water Resources is 4.22 bcm. TheTotal Current Annual Ground Water Extraction is 0.89 bcm and the Stage of Ground Water Extraction is 21.03 %. All the assessment units have been categorized as 'Safe'.

As compared to the 2017 assessment, the Total Annual Groundwater Recharge and Annual Extractable Ground Water Resources have increased from 2.78 bcm to 4.68 bcm and 2.50 bcm to 4.22 respectively. The Annual Ground Water Extraction has also increased from 0.74 bcm to 0.89 bcm. The Stage of Ground Water Extraction has decreased from 30.80 % to 21.03 %. The increase in Annual Ground Water Recharge is due to the additional recharge from canal seepage, return flow form irrigated fields, tanks and ponds, lakes and other surface water bodies.

7.34 LADAKH

Ladakh Union Territory comprises of two districts viz-Leh and Kargil. The Topography of the region is extremely rugged, mountainous and highly inaccessible. The altitude of the area varies from 3000-8000 m amsl. In Leh district, the Indus and Shyok are the main valleys and the Leh plain, More plain, Hanle Plain, Depsang plain and soda plain are some important plains. Leh plain is underlain by morainic deposits consisting of boulders, cobbles, pebbles embedded in an arenaceous matrix and the lake deposits comprising predominantly of clays, sandy- Clays and silt. The sediments are overlain by varved clays and silts of lacustrine origin again succeeded by morainic boulders and cobbles in disintegrated loose sandy matrix and alluvial deposits. Ground water in the valleys occurs in porous formations. This includes moraines and fluvio-glacial deposits of Ladakh. The major assessment areas are Leh, Nubra and Chusul valleys.

Kargil District comprises of the Suru, Zanskar, Drass Shamker Chikar, Waknaand Laws valley's. The major assessment areas are Zanskar and Suru Valleys. Ground water occurs mainly in the porous formations of morainic deposits comprising of Talus and Scree formations.

The Ground Water Resources of the Ladakh UT have been assessed for valley areas in 2 districts. The total recharge of ground water involves several components like rainfall but snowfall being the major one. The other components are seepage from canal, koohl and return flow from surface water and ground water irrigation. Total Annual Ground Water Recharge of the UT has been estimated as 0.12 bcm and Annual Extractable Ground Water Resources is 0.11 bcm. The Total Current Annual Ground Water Extraction is 0.02 bcm. The Stage of Ground Water extraction in Ladakh is 17.9 %. All the assessment units have been categorized as 'Safe'.

As compared to the 2017 assessment, the Total Annual Ground Water Recharge and Annual Extractable Ground Water Resources have increased from 0.11 bcm to 0.12 bcm and 0.10 bcm to 0.11 bcm respectively. The Annual Ground Water Extraction is increased from 0.018 bcm to 0.019 bcm. The Stage of Ground Water Extraction has increased from 16.22 % to 17.9 %. The increase in ground water recharge is due to the addition of the canal seepage, return flow form irrigated fields, tanks and ponds, lakes and other surface water bodies.

7.35 LAKSHADWEEP

Lakshadweep islands are composed of calcareous sand and materials derived from coral atolls. Alternate layers of loose sand, moderately cemented calc-arenites and well cemented, hard and compact limestone underlie the islands. In these islands, fresh ground water occurs under phreatic conditions as lens floating over the saline water and is in hydraulic continuity with sea water. Water levels in wells are strongly influenced by tides. Dug wells are the common ground water abstraction structures in the islands. The major draft component of these islands is for the domestic consumption. Irrigation draft is negligible in the islands as almost all the crops are rainfed.

Dynamic ground water resources have been assessed for individual islands. The total Annual Ground Water Recharge in the islands has been estimated as 0.01 bcm and Annual Extractable Ground Water Resources works out as 0.005 bcm. The total current Annual Ground Water Extraction has been assessed as 0.003 bcm and the Stage of Ground Water Extraction as 58.47 %. Out of the 9 islands, 2 have been categorized as 'Semi-Critical' and 7 as 'Safe'. As compared to 2017 assessment, one island shows remarkable improvement in the categorization from semi-critical to critical.

7.36 PUDUCHERRY

The UT of Puducherry is underlain by the semi-consolidated and unconsolidated sedimentary formations which mainly sustain dug wells, shallow and deep tube wells. The yield of the wells generally varies between 3 to 15 lps. High yielding wells in the range of 10 to 40 lps exists in the Tertiary sandstones.

The Dynamic ground water resources for UT of Puducherry have been assessed Region wise i.e Karaikal, Mahe, Puducherry & Yanam. The Annual Ground Water Recharge of the UT of Puducherry has been assessed as 0.22 bcm, Annual Extractable Ground Water Resources is 0.2 bcm and the Annual Ground Water Extraction is 0.15 bcm. The overall Stage of Ground Water Extraction of UT of Puducherry is 75 %. Out of 4 regions, 1 region (Puducherry) has been categorized as ‘Critical’, 2 Regions (Karaikal & Mahe) as ‘Safe’ and 1 Region (Yanam) as ‘Saline’. As compared to 2017 assessment, there is no significant change in Annual Ground Water Recharge & Ground Water Extraction. Only Puducherry Region improved from ‘Over- exploited’ category to ‘Critical’ Category. Refinement in database and groundwater augmentation measures taken up by the Government of U.T of Puducherry under various schemes are the reasons for bringing in the increase in recharge and decrease in ground water extraction & stage of groundwater extraction. However, there is no significant change in overall ground water resources of U.T. of Puducherry.

CHAPTER 8

8.0 CONCLUSIONS

Total Annual Ground Water Recharge in the country (2020) has been assessed as 436 billion cubic meters (bcm). Ground water resources are replenished through rainfall and other sources like return flow from irrigation, canal seepage, recharge from water bodies, water conservation structures etc. The main source of annual ground water recharge is rainfall, which contributes nearly 64 % of the Total Annual Ground Water Recharge. The Total Annual Extractable Ground Water Resource of the country has been assessed as 398 bcm, after keeping a provision for natural discharge. The Annual Ground Water Extraction of the country (2020) is 245 bcm, the largest user being irrigation sector. The Stage of ground water extraction for the entire country, which is the percentage of ground water extraction with respect to Annual Extractable Ground Water Recharge, has been computed as 62 %. The extraction pattern of ground water is not uniform across the country, resulting in ground water stressed conditions in some parts of the country while in some other areas; ground water extraction has been sub- optimal. Out of the total 6965 assessment units (Blocks/ Districts/ Mandals/ Talukas/Firkas) in the country, 1114 units (16 %) have been categorized as 'Over-Exploited', 270 units (4 %) have been categorized as 'Critical', 1057 units (15 %) have been categorized as 'Semi-Critical' and 4427 units (64 %) have been categorized as 'Safe'. Apart from this, there are 97 assessment units (1 %), which have been categorized as 'Saline' as major part of the ground water in phreatic aquifers is brackish or saline. Similarly out of 24.33 lakh sq km recharge worthy area of the country, 4.09 lakh sq km (17 %) are under 'Over-Exploited', 0.86 lakh sq km (4 %) are under 'Critical', 3.4 lakh sq km (14 %) are under 'Semi-Critical', 15.67 lakh sq km (64 %) are under 'Safe' and 0.3 lakh sq km (1 %) are under 'Saline' category assessment units. Out of 397.62 bcm of Total Annual Extractable Resources of the country, 50.54 bcm (13 %) are under 'Over-Exploited', 12.71 bcm (3 %) are under 'Critical', 54.11 bcm (14 %) are under 'Semi-Critical', 280.26 bcm (70 %) are under 'Safe' category assessment units.

Over-exploitation of ground water resources could be due to various region-specific reasons. Assessment units located in the north-western part of the country (particularly in the states of Punjab, Haryana, Delhi and Uttar Pradesh) have plenty of replenishable ground water resources but because of the over extraction beyond the annual ground water recharge, many of these units have become Over-exploited. Over-exploited units are also common in the western part of the country, particularly in Rajasthan and Gujarat where the prevailing arid climate results in low recharge of ground water and hence stress on these source. In peninsular India, over-exploited units are wide spread in the states of Karnataka, Tamil Nadu and parts of Andhra Pradesh and Telangana which could be attributed mainly to the low storage and transmission capacities of aquifers of the hard rock terrains, which results in reduced availability of the resource.

The total Annual Ground Water Recharge for the entire country, as in 2020 has increased by 4 bcm as compared to the last assessment (2017). The total Annual Extractable GW Resources has also increased by 5 bcm. The Annual Ground Water Extraction for irrigation, domestic and Industrial uses has also decreased by 4 bcm during this period. These variations are attributed mainly to refinement of parameters, refinement in well census data and changing ground water regime.

It is also pertinent to add that as it is advisable to restrict the ground water extraction as far as possible to annual replenishable resources, the categorization also reflects the relation between the annual replenishment and ground water extraction. An area with low groundwater potential may not be considered for ground water extraction and may remain safe and an area with good ground water potential may be heavily used for ground water extraction and may become over exploited over a period of time. Thus, water augmentation efforts can be successful in such areas, where the groundwater potential is high and there is scope for augmentation.

GEC-2015 methodology has been developed for prevalent Indian conditions, on the basis of terrain characteristics and data availability. INDIA-GROUNDWATER RESOURCE ESTIMATION SYSTEM (IN-GRES) is a Software/Web-based Application developed by CGWB in collaboration with IIT-Hyderabad for assessment of ground water resources using GEC 2015 Methodology. Constraints in data availability have been overcome through realistic assumptions based on experience in many States. A conscious effort is required on the parts of the State/ Central agencies to acquire the requisite realistic data to map the changing groundwater scenario in the country.

An analysis of assessment results leads us to the following inferences as the way forward in the assessment of Ground water resources.

8.1 WATER BALANCE STUDIES

Ground water is one of the several components of the Hydrologic Cycle, other important components being rainfall, surface water, soil moisture and evapotranspiration. Holistic water resources management interventions require proper understanding of the interactions between the different components of the hydrosphere. Studies for determining the Base flow and lateral flow components in the Water Balance equation need to be taken up to bring more accuracy to the Ground water Resources Assessment. Initially, the number of such studies can be taken up in areas representing different hydrogeological set up of India (Southern hard rock terrain, Deccan Basaltic terrain, Indo-Gangetic and Brahmaputra alluvial plains, Coastal alluvium, Desert terrain and Himalayan terrain etc.)

8.2 AQUIFER CHARACTERIZATION AND PARAMETER ESTIMATION

One of the key elements that determine the accuracy of ground water resources assessment is the realistic estimation of the recharge and discharge parameters. It is recommended that more experimental studies be taken up for refining the norms of RIF, return flow from irrigation based on soil types and agro-climatic zone, recharge from water conservation and water bodies and more field studies for evaluation of specific yield values as well as its variation with depth.

8.3 CASE STUDIES LINKING ASSESSMENT WITH MANAGEMENT

It is recommended to take up case studies in various assessment units wherein quantitative evaluation of the ground water management interventions and consequent changes in the assessment results could be analysed. Such studies would help bring out the efficacy of various management interventions on the ground water regime.

8.4 TEMPORAL AVAILABILITY OF GROUND WATER RESOURCES

Even though the GEC 2015 methodology advocates season-wise resource assessment, the estimation of recharge during monsoon and non-monsoon seasons may not be sufficient. Temporal variations in groundwater availability, particularly in hard rock terrain are not reflected in present practices. Hence, the assessment of temporal availability of ground water resources on the basis of available water columns can be attempted by considering the water levels measured frequently using Digital Water Level Recorders (DWLRs).

8.5 CREATION OF DATABASE FOR GROUND WATER RESOURCES ASSESSMENT AND ITS REGULAR UPDATING

GEC 2015 has devised the data structure of all the data elements (like water level, rainfall etc) and norms (like Specific Yield, Rainfall Infiltration Factor etc.) with its name, type of data and its precision. The templates (excel sheets) for data collection/compilation for assessment through IN-GRES using GEC 2015 has also been devised. However, major challenges are lack of dedicated manpower as well as presence of State GW/Nodal Departments (in majority of States) at District level for understanding/analysis of data/information to be collected/compiled from different State Departments (like Agriculture, Irrigation, Water Supply, Industries, Water Conservation etc.). Of particular importance in this regard are data/information related to recharge from water bodies, water conservation/harvesting structures, return flow from applied irrigation and details of ground water extraction structures in use for irrigation, domestic and industrial purpose. These need to be collected/compiled and regularly updated at district/block level so that more realistic assessment of ground water resources could be accomplished.

8.6 AQUIFER-WISE ASSESSMENT WITHIN THE PRESENT ADMINISTRATIVE UNITS (ASSESSMENT UNITS) IN AREAS OTHER THAN HARD ROCK TERRAIN

Areas occupied by unconsolidated sediments (alluvial deposits, aeolian deposits, coastal deposits etc.) usually have flat topography and assessment of ground water resources has been carried out taking administrative units (block/mandal/taluk etc.) as assessment units to facilitate the local administration in planning the ground water management programmes (both supply and demand side). However, if more than one hydrogeological/aquifer units (with distinctive characteristics, sustainability and ground water extraction patterns) exist within these administrative units, then the assessment units could be further divided into smaller units based on hydrogeological/aquifer characteristics. This will lead to more accurate assessment (aquifer wise) of resources and micro-level/area-specific interventions/management measures could be implemented.

8.7 GROUND WATER ASSESSMENT OF DEEPER AQUIFER SYSTEMS IN INDO-GANGETIC, BRAHMAPUTRA AND COASTAL ALLUVIAL TERRAIN

The dynamic ground water resources mainly comprises ground water resources available within the zone of water table fluctuation which are being regularly replenished every year through rainfall and other sources of recharge. This assessment has been carried out and categorization done based on utilization with respect to annual availability of dynamic ground water resources. However, in Indo-Gangetic, Brahmaputra and Coastal Alluvial areas multiple aquifer systems exist (on a regional scale) with sustainable and high yield characteristics. For assessment of deeper aquifers, more studies on individual aquifer potential/sustainable yield along with facilities for monitoring of piezometric heads (by establishing piezometers tapping different aquifer zones) have to be carried out. The resources of deeper aquifer systems could be considered for extraction during exigencies as well as for drinking water purpose for nearby regions.

8.8 AQUIFER-STREAM INTERACTIONS

Additional studies on aquifer-stream interactions are required to understand the contribution of ground water to streams and the requirement of environmental flows for sustainability of water resources and surrounding ecosystem.

8.9 GROUND WATER MODELLING AND PREDICTIVE SIMULATION

Besides the assessment of the dynamic ground water resources using norms prescribed in GEC 2015 methodology through automation, the concept of Ground water modelling must be included where predictive simulation can also be done. This would give an idea of the future availability of Ground water resources with respect to the changing climate and extraction patterns.

ANNEXURE - I

State-wise Ground Water Resources Availability, Utilization and Stage of Extraction

(as in 2020)

STATE-WISE GROUND WATER RESOURCES OF INDIA, 2020

(in bcm)

S. No.	States / Union Territories	Ground Water Recharge: Monsoon Season: Recharge from rainfall	Ground Water Recharge: Monsoon Season: Recharge from other sources	Ground Water Recharge: Non-monsoon Season: Recharge from rainfall	Ground Water Recharge: Non-monsoon Season: Recharge from other sources	Total Annual Ground Water Recharge	Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction: Irrigation	Current Annual Ground Water Extraction: Industrial	Current Annual Ground Water Extraction: Domestic	Current Annual Ground Water Extraction: Total	Annual GW Allocation for for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Andhra Pradesh	8.93	8.54	0.85	5.83	24.15	1.21	22.94	6.60	0.15	0.88	7.63	1.31	15.91	33.26
2	Arunachal Pradesh	2.01	0.07	1.11	0.002	3.19	0.27	2.92	0.003	0.0002	0.01	0.01	0.01	2.90	0.36
3	Assam	17.92	0.96	7.64	0.53	27.05	5.09	21.97	1.97	0.01	0.60	2.58	0.66	19.33	11.73
4	Bihar	21.02	3.32	1.29	2.42	28.05	2.60	25.46	10.33	0.65	2.04	13.02	2.29	12.23	51.14
5	Chhattisgarh	8.33	1.38	1.11	1.84	12.65	1.11	11.55	4.53	0.10	0.71	5.35	0.84	6.25	46.34
6	Delhi	0.05	0.13	0.004	0.13	0.32	0.03	0.29	0.07	0.04	0.18	0.29	0.19	0.02	101.40
7	Goa	0.34	0.02	0.003	0.04	0.40	0.08	0.32	0.02	0.004	0.05	0.08	0.05	0.24	23.48
8	Gujarat	19.59	2.89	0.00	4.32	26.81	1.90	24.91	12.65	0.03	0.62	13.30	0.78	12.52	53.39
9	Haryana	3.24	2.81	0.58	2.90	9.53	0.90	8.63	10.47	0.53	0.62	11.61	0.57	0.97	134.56
10	Himachal Pradesh	0.66	0.13	0.13	0.14	1.07	0.10	0.97	0.20	0.05	0.10	0.36	0.10	0.62	36.83
11	Jharkhand	4.91	0.43	0.47	0.35	6.15	0.51	5.64	0.93	0.20	0.51	1.64	0.52	4.02	29.13
12	Karnataka	7.47	4.68	2.23	3.77	18.16	1.76	16.40	9.60	0.00	1.03	10.63	1.16	7.08	64.85
13	Kerala	4.20	0.13	0.46	0.86	5.65	0.53	5.12	1.16	0.01	1.47	2.65	2.25	2.13	51.68
14	Madhya Pradesh	27.75	1.60	0.12	6.69	36.16	2.78	33.38	17.33	0.03	1.61	18.97	1.84	15.25	56.82
15	Maharashtra	20.66	2.38	0.53	8.45	32.01	1.76	30.25	15.29	0.003	1.34	16.63	1.34	14.20	54.99
16	Manipur	0.40	0.001	0.11	0.002	0.51	0.05	0.46	0.003	0.0002	0.02	0.02	0.02	0.44	5.12
17	Meghalaya	1.66	0.01	0.36	0.01	2.04	0.22	1.82	0.03	0.0003	0.05	0.08	0.06	1.73	4.22
18	Mizoram	0.19	0.00	0.03	0.00	0.22	0.02	0.20	0.00	0.00	0.01	0.01	0.01	0.19	3.81
19	Nagaland	1.08	0.76	0.27	0.06	2.17	0.22	1.95	0.002	0.00003	0.02	0.02	0.02	1.93	1.04
20	Odisha	10.26	2.71	1.51	2.60	17.08	1.37	15.71	5.50	0.15	1.21	6.86	1.46	8.74	43.65
21	Punjab	5.01	10.42	0.95	6.41	22.80	2.20	20.59	32.80	0.00	1.05	33.85	1.08	1.61	164.42
22	Rajasthan	8.80	0.58	0.29	2.57	12.24	1.17	11.07	14.37	0.13	2.14	16.63	2.17	0.99	150.22
23	Sikkim	0.96	0.00	0.00	0.00	0.96	0.10	0.86	0.00	0.002	0.01	0.01	0.01	0.85	0.86
24	Tamil Nadu	6.83	9.04	1.26	2.45	19.59	1.90	17.69	13.52	0.17	0.99	14.67	1.52	5.65	82.93
25	Telangana	7.50	3.29	1.10	4.75	16.63	1.60	15.03	7.13	0.14	0.73	8.01	0.74	7.14	53.32
26	Tripura	0.85	0.06	0.34	0.22	1.47	0.22	1.24	0.02	0.0002	0.08	0.10	0.09	1.14	7.94
27	Uttar Pradesh	37.75	13.16	1.30	19.99	72.20	5.32	66.88	41.29	0.00	4.74	46.03	5.38	21.53	68.83
28	Uttarakhand	1.29	0.31	0.10	0.32	2.02	0.17	1.85	0.63	0.09	0.15	0.87	0.16	0.98	46.80
29	West Bengal*	18.71	1.51	5.26	3.85	29.33	2.77	26.56	10.84	0.27	0.73	11.84	1.53	14.19	44.60
30	Andaman and Nicobar	0.32	0.0002	0.00	0.0001	0.32	0.03	0.28	0.0001	0.001	0.01	0.01	0.01	0.28	2.60
31	Chandigarh	0.01	0.02	0.005	0.03	0.06	0.01	0.06	0.01	0.002	0.03	0.05	0.03	0.01	80.60
32	Dadra & Nagar Haveli	0.04	0.01	0.003	0.02	0.07	0.005	0.07	0.01	0.01	0.02	0.03	0.02	0.03	45.99
	Daman & Diu	0.03	0.0005	0.00	0.001	0.03	0.001	0.03	0.003	0.03	0.00	0.03	0.02	0.0002	113.38
33	Jammu and Kashmir	0.80	2.04	0.95	0.88	4.68	0.46	4.22	0.20	0.13	0.56	0.89	0.57	3.32	21.03
34	Ladakh	0.01	0.05	0.02	0.04	0.12	0.01	0.11	0.001	0.0002	0.02	0.02	0.02	0.09	17.90
35	Lakshadweep	0.011	0.00	0.002	0.00	0.01	0.01	0.005	0.00	0.00	0.003	0.003	0.005	0.002	58.47
36	Puducherry	0.06	0.10	0.01	0.05	0.22	0.02	0.20	0.10	0.01	0.05	0.15	0.05	0.05	74.27
	Grand Total	249.65	73.54	30.41	82.54	436.15	38.51	397.62	217.61	2.94	24.37	244.92	28.90	184.56	61.60

NOTE-Data on Ground Water Extraction for Industries is not available for Karnataka, Punjab & Uttar Pradesh and is available only for 2 districts of Maharashtra.

*NOTE- The Ground Water resources assessment as on 2013 has been considered for the state of West Bengal.

ANNEXURE - II

District-wise Ground Water Resources Availability, Utilization and Stage of extraction

(as in 2020)

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

ANDHRA PRADESH

S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	Anantapur	84846.21	47161.42	1013.90	52467.51	185489.04	9274.69	176214.31	112733.84	597.02	16951.89	130282.75	23268.20	78547.23	73.93
2	Chittoor	92719.43	23818.96	836.85	20578.98	137954.22	6898.15	131056.07	69902.33	2868.77	5961.12	78732.21	10061.78	53480.07	60.08
3	East Godavari	68320.35	124541.66	3290.44	66276.63	262429.08	13121.77	249307.32	39158.73	4731.03	4036.93	47926.69	4780.25	203246.60	19.22
4	Guntur	49662.62	92208.88	1929.25	34149.45	177950.20	8897.56	169052.60	41753.80	298.53	10950.70	53003.04	15899.09	119482.60	31.35
5	Kadapa	83309.30	14929.77	558.32	16914.16	115711.55	5785.62	109925.89	54137.88	384.19	4305.30	58827.38	4305.30	64789.06	53.52
6	Krishna	40760.58	157301.43	16780.51	55709.77	270552.29	13527.86	257024.38	62468.67	2819.70	7396.08	72684.45	7912.62	186400.39	28.28
7	Kurnool	64814.59	86227.25	1373.14	30569.23	182984.21	9149.45	173834.74	34098.12	173.70	933.00	35204.81	933.39	141044.14	20.25
8	Nellore	120711.61	71498.40	69.41	123348.82	315628.24	15781.68	299846.58	92776.89	1782.00	4787.86	99346.75	8782.27	202391.99	33.13
9	Prakasam	65051.91	17335.00	25796.39	25068.56	133251.86	6663.23	126588.60	39039.80	313.14	1833.10	41186.04	10307.36	85908.04	32.54
10	Srikakulam	31990.92	51597.08	21640.31	22968.03	128196.34	6410.19	121786.08	19558.03	420.91	8781.27	28760.21	16816.98	92526.57	23.62
11	Vishakapatnam	67943.86	20499.99	5851.03	4612.84	98907.72	4946.16	93961.54	9179.49	496.69	15904.88	25581.07	16655.83	69745.23	27.23
12	Vizianagaram	54765.17	91315.38	5535.51	74019.61	225635.67	11282.52	214353.03	40775.74	220.32	1726.22	42722.28	5440.50	170335.18	19.93
13	West Godavari	68260.83	55634.73	131.13	56393.35	180420.04	9017.37	171402.63	43944.04	381.24	4456.02	48781.30	6494.29	123262.98	28.46
	Total (Ham)	**893157.38**	**854069.95**	**84806.19**	**583076.94**	**2415110.46**	**120756.25**	**2294353.77**	**659527.36**	**15487.25**	**88024.37**	**763038.98**	**131657.86**	**1591160.08**	**33.26**
	Total (Bcm)	**8.93**	**8.54**	**0.85**	**5.83**	**24.15**	**1.21**	**22.94**	**6.60**	**0.15**	**0.88**	**7.63**	**1.32**	**15.91**	**33.26**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

ARUNACHAL PRADESH

S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	Tirap	5429.47	268.20	1784.75	10.31	7492.73	374.63	7118.10	0.00	0.00	66.63	66.63	71.23	7046.87	0.94
2	Changlang	16679.05	1092.60	7569.09	0.86	25341.60	3951.82	21389.78	0.00	0.00	185.31	185.31	205.88	21183.90	0.87
3	Lohit	51716.05	667.50	41949.60	0.00	94333.15	7008.82	87324.33	0.00	0.24	231.12	231.36	254.34	87069.75	0.26
4	Lower Dibang Valley	42860.40	995.70	33884.40	0.00	77740.50	7774.05	69966.45	0.00	0.00	32.87	32.87	34.28	69932.17	0.05
5	East Siang	59109.22	1742.17	17483.44	171.97	78506.80	4515.50	73991.30	253.09	1.04	68.24	322.37	73.76	73663.41	0.44
6	West Siang	4445.29	0.00	916.73	0.00	5362.02	536.20	4825.82	0.00	1.44	21.99	23.43	23.04	4801.34	0.49
7	East Kameng	8567.56	480.00	3180.99	0.00	12228.55	1222.86	11005.69	0.00	0.00	28.35	28.35	35.68	10970.01	0.26
8	West Kameng	2342.95	61.20	397.31	0.00	2801.46	280.15	2521.31	0.00	0.72	11.40	12.12	12.25	2508.34	0.48
9	Lower Subansiri	2843.16	111.00	1442.42	0.00	4396.58	605.32	3791.26	0.00	0.00	20.59	20.59	28.05	3763.21	0.54
10	Upper Subansiri	141.52	101.40	73.65	5.08	321.65	32.17	289.49	0.00	0.00	19.11	19.11	26.37	263.12	6.60
11	Papum Pare	6610.99	1505.05	2465.01	1.80	10582.85	1180.76	9402.10	0.00	18.49	97.30	115.79	128.60	9255.01	1.23
	Total (Ham)	200745.65	7024.82	111147.39	190.02	319107.89	27482.27	291625.62	253.09	21.93	782.91	1057.93	893.48	290457.13	0.36
	Total (Bcm)	2.01	0.07	1.11	0.002	3.19	0.27	2.92	0.003	0.0002	0.01	0.01	0.01	2.90	0.36

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020															
ASSAM															
S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	**Baksa**	115340.08	1795.58	28746.13	1161.93	147043.72	19894.89	127148.83	2548.56	2.64	2078.68	4629.88	2226.40	122371.23	3.64
2	**Barpeta**	87974.29	6338.77	26654.44	5818.54	126786.04	13659.70	113126.34	24276.00	11.92	3910.42	28198.34	4461.22	84377.20	24.93
3	**Bongaigaon**	35036.51	2965.37	13660.22	2136.08	53798.18	6039.82	47758.36	10024.56	0.59	1733.74	11758.89	1968.20	35765.01	24.62
4	**Cachar**	52156.05	4199.83	26550.06	606.85	83512.79	43069.04	40443.75	0.00	10.56	4019.91	4030.47	4552.83	35880.36	9.97
5	**Chirang**	84224.80	1441.56	26270.41	975.03	112911.80	11585.30	101326.50	1522.08	2.37	1025.04	2549.49	1101.80	98700.25	2.52
6	**Darrang**	36880.06	4155.57	17443.22	4169.26	62648.11	15054.96	47593.15	15469.44	12.08	2035.23	17516.75	2332.28	29779.35	36.81
7	**Dhemaji**	96472.88	717.30	38006.99	325.30	135522.47	31751.51	103770.96	1631.28	4.08	1411.58	3046.94	1596.65	100538.95	2.94
8	**Dhubri**	77646.95	5532.68	24330.23	4641.76	112151.62	11215.16	100936.46	23570.40	1.77	3029.61	26601.78	3517.91	73846.38	26.35
9	**Dibrugarh**	82471.54	1314.65	47826.51	799.90	132412.60	27758.18	104654.42	4890.48	32.08	2863.50	7786.05	3088.53	96643.34	7.44
10	**Dima Hasao**	22241.16	401.07	22238.35	53.04	44933.62	4493.36	40440.26	337.68	1.18	427.05	765.91	465.88	39635.52	1.89
11	**Goalpara**	45009.20	3541.38	22991.96	2838.26	74380.80	9897.53	64483.27	9866.64	8.82	2034.10	11909.56	2337.15	52270.66	18.47
12	**Golaghat**	81020.51	2696.94	35463.84	1019.26	120200.55	16897.00	103303.55	3677.52	12.77	1647.88	5338.16	1786.15	97827.12	5.17
13	**Hailakandi**	13671.45	1588.04	9573.51	244.96	25077.96	12222.51	12855.45	5.04	0.00	778.15	783.18	887.86	11962.56	6.09
14	**Jorhat**	53640.97	3172.98	35381.99	1066.36	93262.30	27808.08	65454.22	4215.12	3.18	1654.15	5872.45	1756.71	59479.20	8.97
15	**Kamrup**	54793.37	5666.45	28027.63	4986.65	93474.10	11283.18	82190.92	20144.88	124.60	3064.54	23334.02	3412.23	58509.21	28.39
16	**Kamrup Metro Rural**	126633.39	601.84	49061.18	377.28	176673.69	20320.98	156352.71	342.72	2.66	753.31	1098.69	840.17	155167.16	0.70
17	**Kamrup Metro Urban**	37175.61	1651.19	24199.65	226.26	63252.71	15890.45	47362.26	80.64	0.58	1106.79	1188.01	1266.18	46014.86	2.51
18	**Karbi Anglong**	181765.89	2710.98	46463.12	1008.53	231948.52	23343.39	208605.13	5913.60	0.00	546.43	6460.03	566.31	202125.22	3.10
19	**Karimganj**	9034.11	617.46	4887.87	110.28	14649.72	3279.39	11370.33	1537.20	117.90	221.68	1876.78	225.11	9490.12	16.51
20	**Kokrajhar**	4278.15	107.62	2135.66	14.91	6536.34	429.52	6106.82	0.00	78.96	3417.57	3496.53	3467.72	2560.14	57.26
21	**Lakhimpur**	68853.66	4151.10	27125.97	1218.46	101349.19	46749.04	54600.15	3044.16	1.60	2155.25	5201.01	2398.64	49155.75	9.53
22	**Morigaon**	27315.21	6949.67	11597.78	3536.89	49399.55	5809.19	43590.36	10777.20	4.88	2239.44	13021.51	2583.67	30224.62	29.87
23	**Nagaon**	85595.11	11447.02	30648.31	8425.66	136116.10	13782.39	122333.71	26891.76	31.79	4386.73	31310.28	5021.40	90388.77	25.59
24	**Nalbari**	30289.99	2631.79	12700.87	176.28	45798.93	7095.62	38703.31	7153.44	5.55	1351.94	8510.92	1458.79	30085.54	21.99
25	**Sivasagar**	49611.31	3054.72	26817.94	994.06	80478.03	15012.58	65465.45	2437.68	25.65	2491.25	4954.58	2647.76	60354.37	7.57
26	**Sonitpur**	102433.62	4778.95	52643.95	2535.21	162391.73	40011.54	122380.19	8611.68	48.17	4453.72	13113.57	4908.05	108812.29	10.72
27	**Tinsukia**	89590.28	4914.30	50623.41	1161.85	146289.84	30590.40	115699.44	4033.68	27.25	3006.63	7067.56	3311.78	108326.73	6.11
28	**Udalguri**	40699.49	7075.36	22147.18	2384.96	72306.99	23800.72	48506.27	4467.12	7.78	1667.17	6142.07	1773.70	42257.66	12.66
	Total (Ham)	**1791855.64**	**96220.17**	**764218.38**	**53013.81**	**2705308.00**	**508745.43**	**2196562.57**	**197470.56**	**581.41**	**59511.47**	**257563.41**	**65961.08**	**1932549.57**	**11.73**
	Total (Bcm)	**17.92**	**0.96**	**7.64**	**0.53**	**27.05**	**5.09**	**21.97**	**1.97**	**0.01**	**0.60**	**2.58**	**0.66**	**19.33**	**11.73**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

BIHAR

S. No.	Name of District	Ground Water Recharge: Monsoon Season: Recharge from rainfall	Monsoon Season: Recharge from other sources	Non-monsoon Season: Recharge from rainfall	Non-monsoon Season: Recharge from other sources	Total Annual Ground Water Recharge	Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction: Irrigation	Industrial	Domestic	Total	Annual GW Allocation for for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Araria	65908.35	6930.94	8153.88	2580.48	83573.65	7652.45	75921.20	13511.94	927.00	5425.31	19864.24	6094.29	55387.98	26.16
2	Arwal	15059.16	2710.43	404.57	2470.90	20645.06	1938.79	18706.27	6210.75	405.00	1492.17	8107.91	1676.17	10414.35	43.34
3	Aurangabad	67552.71	9353.75	1301.00	6878.28	85085.74	8280.17	76805.57	21138.25	1278.00	5192.14	27608.37	5832.38	48556.98	35.95
4	Banka	39447.78	4999.30	3610.20	2956.46	51013.74	5101.36	45912.38	12657.33	801.00	3542.35	17000.69	3979.14	28474.89	37.03
5	Begusarai	44258.82	3732.76	2720.77	5027.23	55739.58	5573.98	50165.60	20792.43	1746.00	6194.72	28733.11	6958.59	20668.64	57.28
6	Bhagalpur	63083.74	3549.71	6881.36	3196.80	76711.61	7241.91	69469.70	14008.92	1062.00	4840.39	19911.28	5437.25	48961.56	28.66
7	Bhojpur	53685.00	13437.38	1193.71	8477.77	76793.86	7679.39	69114.47	35935.74	2313.00	5194.91	43443.64	5835.51	25030.24	62.86
8	Buxar	40348.34	7693.35	897.17	6159.91	55098.77	5509.89	49588.88	23195.56	1458.00	3219.96	27873.52	3617.02	21318.30	56.21
9	Darbhanga	56446.91	5892.93	5207.31	4448.37	71995.52	6975.55	65019.97	21147.19	1566.00	8104.12	30817.31	9103.41	33203.37	47.40
10	East Champaran	106831.15	21656.49	4731.65	7663.23	140882.52	12016.94	128865.58	42436.89	2754.00	10168.06	55358.94	11421.87	72252.83	42.96
11	Gaya	90420.38	13965.63	2384.42	12032.66	118803.09	11880.33	106922.76	56810.39	3555.00	9018.75	69384.15	10130.82	38409.24	64.89
12	Gopalganj	47449.81	8070.16	847.07	8028.35	64395.39	5284.86	59110.53	25322.60	2862.00	4974.80	33159.39	5588.24	25337.68	56.10
13	Jamui	36857.82	3511.50	1697.55	1549.11	43615.98	4361.62	39254.36	8661.82	585.00	3533.58	12780.42	3969.31	26038.20	32.56
14	Jehanabad	22393.40	4515.36	592.44	4395.75	31896.95	3189.70	28707.25	22424.41	1449.00	2404.52	26277.92	2701.02	2514.61	91.54
15	Kaimur	66094.41	7714.87	1147.78	7408.92	82365.98	8236.61	74129.37	24609.74	1422.00	3027.86	29059.60	3401.23	44696.40	39.20
16	Katihar	92741.76	14044.30	8798.56	9322.42	124907.04	12490.70	112416.34	55624.59	3042.00	6234.25	64900.84	7002.98	46746.77	57.73
17	Khagaria	45858.41	3747.88	4343.06	4811.63	58760.98	5067.34	53693.64	22763.16	1053.00	3172.03	26988.20	3563.17	26314.31	50.26
18	Kishanganj	59930.97	2869.60	5777.87	2815.08	71393.52	6550.12	64843.40	14930.00	774.00	3467.39	19171.38	3894.95	45244.46	29.57
19	Lakhisarai	23257.57	2340.13	1314.94	2116.71	29029.35	2902.96	26126.39	10251.11	432.00	2091.24	12774.34	2349.10	13094.17	48.89
20	Madhepura	42873.90	10533.28	5227.85	7821.93	66456.96	5584.61	60872.35	37525.00	1710.00	3753.44	42988.44	4216.29	17421.05	70.62
21	Madhubani	75344.57	9892.65	8756.57	7948.62	101942.41	8263.84	93678.57	35650.00	1872.00	8287.30	45809.29	9309.21	46847.38	48.90
22	Munger	26902.29	2788.99	1521.01	1925.59	33137.88	3313.80	29824.08	9038.80	612.00	3666.13	13316.93	4118.19	16055.09	44.65
23	Muzaffarpur	75861.94	16957.89	4205.59	12067.72	109093.14	10909.34	98183.80	50464.21	3627.00	9902.54	63993.77	11123.61	34957.90	65.18
24	Nalanda	50876.41	11461.53	1471.59	7573.41	71382.94	6437.84	64945.10	36353.20	2709.00	6535.34	45597.55	7341.21	18667.23	70.21
25	Nawada	43035.12	10670.07	1971.79	6213.70	61890.68	6006.09	55884.59	26413.64	1512.00	3595.06	31520.71	4038.36	23920.58	56.40
26	Patna	75973.86	11201.55	2033.42	9762.46	98971.29	9554.04	89417.25	40694.22	3069.00	11566.38	55329.59	12992.60	32661.44	61.88
27	Purnia	75342.05	11227.81	9620.24	8025.49	104215.59	7999.51	96216.08	48654.17	2916.00	5785.00	57355.22	6498.35	38147.51	59.61
28	Rohats	75998.47	6856.99	1716.99	3782.03	88354.48	8835.46	79519.02	19804.68	1296.00	6573.25	27673.96	7383.79	51034.54	34.80
29	Saharsa	42300.89	8037.07	4612.65	5775.31	60725.92	4466.89	56259.03	21157.50	990.00	3813.83	25961.33	4284.11	29827.43	46.15
30	Samastipur	70656.39	9734.37	4995.40	7936.67	93322.83	8911.20	84411.63	44368.09	2844.00	7363.22	54575.28	8271.16	28928.40	64.65
31	Saran	67255.25	12139.11	1103.17	10967.39	91464.92	9034.53	82430.39	40423.67	2529.00	7252.07	50204.74	8146.29	31331.45	60.91
32	Sheikhpura	13701.91	2324.85	628.96	1558.58	18214.30	1821.42	16392.88	6876.55	405.00	1471.87	8753.43	1653.36	7457.96	53.40
33	Sheohar	12184.76	1744.26	846.93	1331.37	16107.32	1610.73	14496.59	6568.90	378.00	1227.46	8174.37	1378.81	6170.88	56.39
34	Sitamarhi	50587.93	4923.02	4177.75	4442.80	64131.50	5542.71	58588.79	23829.10	1467.00	6554.51	31850.61	7362.71	25929.98	54.36
35	Siwan	53453.08	19115.32	932.63	14716.02	88217.05	6556.98	81660.07	42218.45	2358.00	5794.06	50370.53	6508.52	30575.10	61.68
36	Supaul	54782.70	13066.75	7045.67	7525.70	82420.82	8242.06	74178.76	24993.15	1467.00	4203.96	30664.10	4722.35	42996.28	41.34
37	Vaishali	51941.46	12873.79	1788.01	8490.10	75093.36	7509.34	67584.02	33210.58	2106.00	6824.32	42140.93	7665.81	24601.61	62.35
38	West Champaran	105446.83	15829.02	4627.59	11669.76	137573.20	11298.57	126274.63	32459.70	1782.00	8133.98	42375.70	9136.96	82895.96	33.56
	Total (Ham)	**2102146.30**	**332114.79**	**129289.12**	**241874.71**	**2805424.92**	**259833.63**	**2545591.29**	**1033136.43**	**65133.00**	**203602.27**	**1301871.73**	**228708.14**	**1223092.75**	**51.14**
	Total (Bcm)	**21.02**	**3.32**	**1.29**	**2.42**	**28.05**	**2.60**	**25.46**	**10.33**	**0.65**	**2.04**	**13.02**	**2.29**	**12.23**	**51.14**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

CHHATISGARH

S. No.	Name of District	Ground Water Recharge: Monsoon Season: Recharge from rainfall	Ground Water Recharge: Monsoon Season: Recharge from other sources	Ground Water Recharge: Non-monsoon Season: Recharge from rainfall	Ground Water Recharge: Non-monsoon Season: Recharge from other sources	Total Annual Ground Water Recharge	Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction: Irrigation	Current Annual Ground Water Extraction: Industrial	Current Annual Ground Water Extraction: Domestic	Current Annual Ground Water Extraction: Total	Annual GW Allocation for for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Balod	16181.18	7810.88	1721.84	10650.16	36364.06	3229.51	33134.55	20389.68	223.28	2132.77	22745.77	2356.22	10654.51	68.65
2	Baloda Bazar	34099.30	15141.37	4269.90	7018.98	60529.55	5941.32	54588.23	17550.27	459.41	4617.17	22626.88	6482.56	30095.96	41.45
3	Balrampur	42786.88	1374.31	6239.09	2685.88	53086.16	5308.63	47777.53	11631.10	46.48	1932.65	13610.19	2200.65	33899.34	28.49
4	Bastar	23467.96	823.65	5036.05	2484.67	31812.33	2673.35	29138.98	9096.67	49.74	2167.54	11313.93	2400.33	17592.26	38.83
5	Bemetara	16699.17	13227.34	1705.48	17583.72	49215.71	4660.82	44554.89	36300.27	343.39	2189.86	38833.51	2889.52	8115.06	87.16
6	Bijapur	56124.02	184.00	5435.44	560.02	62303.48	6230.35	56073.13	1936.38	0.40	645.83	2582.60	711.88	53424.48	4.61
7	Bilaspur	34315.47	7342.63	5598.09	6552.12	53808.31	4071.68	49736.63	16945.33	558.36	6132.77	23636.42	7853.65	24379.34	47.52
8	Dantewara	26565.42	181.77	3019.40	1198.89	30965.48	2111.21	28854.27	2838.73	153.15	737.83	3729.71	820.00	25042.38	12.93
9	Dhamtari	19870.47	9761.24	1840.12	16204.69	47676.52	4767.66	42908.85	34726.81	21.75	2020.37	36768.92	2180.05	8330.58	85.69
10	Durg	14123.23	8291.89	1438.50	10271.04	34124.66	2932.03	31192.62	20479.11	459.81	4719.97	25658.89	5135.19	6525.91	82.26
11	Gariaband	23427.62	5230.76	2119.95	6085.36	36863.69	3250.77	33612.92	18582.67	21.47	1603.33	20207.46	1877.55	13187.96	60.12
12	Janjgir-Champa	22405.85	12308.05	2889.64	10180.72	47784.26	4303.57	43480.67	19315.20	111.23	4441.57	23867.96	5146.64	18907.64	54.89
13	Jashpur	27267.04	1710.50	4685.05	3280.10	36942.69	3694.30	33248.39	10455.66	1.44	2136.04	12593.08	2320.47	20472.13	37.88
14	Kanker	61107.35	2505.81	10098.15	7847.35	81558.66	7534.12	74024.55	20154.25	21.29	1937.42	22112.99	2150.07	52023.78	29.87
15	Kawardha	33869.41	4757.42	4887.42	9579.41	53093.66	4148.27	48945.39	33365.73	6.89	2347.60	35720.21	2837.22	18491.07	72.98
16	Kondagaon	27387.25	669.02	5961.33	2093.25	36110.85	2732.21	33378.64	10777.12	2.86	1495.56	12275.54	1658.78	21687.28	36.78
17	Korba	34489.15	974.80	5341.93	2032.69	42838.57	3963.79	38874.77	8290.76	2763.40	3387.34	14441.52	3879.21	24619.32	37.15
18	Koriya	37715.72	4197.19	5018.46	2468.25	49399.62	3156.45	46243.17	7886.94	754.65	1688.69	10330.26	1819.79	35781.80	22.34
19	Mahasamund	41374.72	6898.77	4291.72	12028.97	64594.18	5275.61	59318.57	36223.57	36.19	2729.27	38989.00	3077.95	19980.89	65.73
20	Mungeli	8983.52	2914.08	994.82	2952.81	15845.23	1584.54	14260.69	6558.95	15.77	1713.68	8288.42	2236.98	5448.97	58.12
21	Narayanpur	23319.67	258.98	3730.18	447.36	27756.19	1778.25	25977.94	630.20	10.00	368.58	1008.77	412.02	24925.73	3.88
22	Raigarh	35608.77	3599.99	5037.69	4940.20	49186.65	3897.29	45289.36	16066.65	1683.01	3976.92	21726.62	4491.91	23553.46	47.97
23	Raipur	21140.58	10782.86	1931.21	12753.58	46608.23	4108.63	42499.60	20776.86	1350.98	6712.99	28840.83	8179.69	13585.14	67.86
24	Rajnandgaon	44692.98	12282.17	5372.56	19407.99	81755.70	6736.48	75019.23	42951.79	97.35	4562.56	47611.72	6010.03	27294.18	63.47
25	Sukma	46643.94	323.97	4340.78	457.55	51766.24	5176.63	46589.62	949.48	0.29	601.94	1551.73	636.60	45003.22	3.33
26	Surajpur	23229.18	2472.40	3258.89	8174.97	37135.44	2813.96	34321.48	17896.36	566.68	2053.19	20516.25	2298.05	13639.35	59.78
27	Surguja	36041.64	1491.03	5122.55	3701.20	46356.42	4635.65	41720.77	10648.73	666.83	2195.24	13510.78	2436.01	27969.22	32.38
	Total (Ham)	**832937.49**	**137516.88**	**111386.24**	**183641.93**	**1265482.54**	**110717.08**	**1154765.44**	**453425.27**	**10426.06**	**71248.66**	**535099.96**	**84499.02**	**624630.96**	**46.34**
	Total (Bcm)	**8.33**	**1.38**	**1.11**	**1.84**	**12.65**	**1.11**	**11.55**	**4.53**	**0.10**	**0.71**	**5.35**	**0.84**	**6.25**	**46.34**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

DELHI

S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	Central	191.24	887.40	16.96	910.94	2006.54	200.66	1805.90	167.09	0.00	1483.93	1651.01	1534.23	250.53	91.42
2	East	122.55	707.55	9.91	717.82	1557.83	155.78	1402.06	128.69	0.00	1122.48	1251.17	1151.87	177.92	89.24
3	New Delhi	414.97	924.52	27.96	938.46	2305.91	230.59	2075.31	477.03	0.00	2202.79	2679.81	2295.72	0.00	129.13
4	North	1096.39	1904.15	87.20	2060.58	5148.32	514.83	4633.49	263.36	3504.00	1209.58	4976.95	1241.82	45.36	107.41
5	North East	128.89	524.37	11.19	530.29	1194.74	119.47	1075.27	105.16	0.00	1005.52	1110.68	1024.82	6.78	103.29
6	North West	686.58	1282.72	48.40	1675.59	3693.29	369.33	3323.97	498.75	0.00	1829.42	2328.16	1878.03	947.18	70.04
7	Shahdara	151.53	661.26	10.85	665.63	1489.27	148.93	1340.35	239.11	0.00	1213.72	1452.83	1249.48	6.36	108.39
8	South	234.35	1223.29	16.67	1238.91	2713.22	271.32	2441.89	242.24	0.00	2678.04	2920.29	2731.66	0.00	119.59
9	South East	413.57	636.99	29.08	652.04	1731.68	173.17	1558.51	242.99	156.00	1243.25	1642.24	1290.45	36.60	105.37
10	South West	1420.17	2233.99	95.68	2347.73	6097.57	609.76	5487.82	3911.46	0.00	2075.64	5987.10	2166.33	139.75	109.10
11	West	485.78	1401.61	34.67	1431.96	3354.02	335.40	3018.61	658.55	0.00	2080.69	2739.24	2099.45	381.17	90.75
12	Nazul Land	113.66	192.72	9.19	203.80	519.37	51.94	467.47	249.20	0.00	44.06	293.26	44.89	173.34	62.73
	Total (Ham)	**5459.68**	**12580.57**	**397.76**	**13373.75**	**31811.76**	**3181.18**	**28630.55**	**7183.62**	**3660.00**	**18189.13**	**29032.77**	**18708.75**	**2164.99**	**101.40**
	Total (Bcm)	**0.0546**	**0.1258**	**0.0040**	**0.1337**	**0.3181**	**0.0318**	**0.2863**	**0.0718**	**0.0366**	**0.1819**	**0.2903**	**0.1871**	**0.0216**	**101.40**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020															
GOA															
S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	Goa North	14682.01	1334.62	53.52	2591.74	18661.89	3732.38	14929.51	1419.93	51.65	2078.58	3550.18	2264.61	11193.32	23.78
2	South Goa	19460.60	619.65	287.17	1182.76	21550.18	4310.03	17240.15	1005.21	333.74	2665.62	4004.57	2904.18	12997.01	23.23
	Total (Ham)	**34142.61**	**1954.27**	**340.69**	**3774.50**	**40212.07**	**8042.41**	**32169.66**	**2425.14**	**385.38**	**4744.19**	**7554.75**	**5168.79**	**24190.33**	**23.48**
	Total (Bcm)	**0.34**	**0.02**	**0.003**	**0.04**	**0.40**	**0.08**	**0.32**	**0.02**	**0.004**	**0.05**	**0.08**	**0.05**	**0.24**	**23.48**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

GUJARAT

S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	**Ahmedabad**	44377.69	9688.35	0.00	10358.61	64424.65	3815.88	60608.76	37210.40	1268.60	676.51	39155.51	2668.36	21359.00	64.60
2	**Amreli**	137968.04	8043.98	0.00	9991.73	156003.75	7800.19	148203.56	74640.40	5.26	202.83	74848.48	213.21	73344.69	50.50
3	**Anand**	28882.50	39882.83	0.00	35445.63	104210.96	7150.32	97060.64	22265.10	110.18	3969.68	26344.97	4688.66	70417.45	27.14
4	**Arvalli**	70906.20	3014.54	0.00	6520.91	80441.65	7690.86	72750.79	32196.30	5.48	1829.47	34031.25	2013.43	38535.58	46.78
5	**Banaskantha**	82583.48	16242.09	0.00	18448.92	117274.49	10347.74	106926.75	129523.05	62.60	3762.13	133347.78	5092.00	19192.79	124.71
6	**Bharuch**	63366.21	8169.95	0.00	14870.59	86406.75	8640.66	77766.09	15379.40	36.88	1083.63	16499.90	2032.73	61181.43	21.22
7	**Bhavnagar**	84934.69	7021.85	0.00	10546.54	102503.08	5125.15	97377.93	42198.40	0.00	64.85	42263.25	71.32	55108.21	43.40
8	**Botad**	43266.32	2441.28	0.00	3820.15	49527.75	2476.37	47051.37	23049.70	0.00	0.00	23049.70	0.00	24001.67	48.99
9	**Chhota Udepur**	39945.22	4761.27	0.00	9485.09	54191.58	4894.98	49296.60	18634.60	0.00	1727.58	20362.17	1874.63	28787.38	41.31
10	**Dahod**	34200.85	6586.17	0.00	10931.19	51718.21	4484.34	47233.87	8267.30	0.00	4576.15	12843.44	5471.59	33494.97	27.19
11	**Dang**	30173.22	848.43	0.00	925.07	31946.72	3194.67	28752.05	1715.70	61.48	452.40	2229.59	512.56	26462.30	7.75
12	**Devbhumi Dwaraka**	37488.18	2727.09	0.00	4543.48	44758.75	2237.93	42520.82	24483.80	0.00	1355.95	25839.76	1548.74	16572.46	60.77
13	**Gandhinagar**	40044.07	5073.64	0.00	7761.33	52879.04	5287.91	47591.13	57109.30	244.37	1384.10	58737.77	1482.08	5393.03	123.42
14	**Gir Somnath**	52503.68	3210.16	0.00	5115.06	60828.90	3041.45	57787.45	26281.30	0.00	2213.88	28495.19	2767.34	29134.13	49.31
15	**Jamnagar**	152729.18	6577.36	0.00	11397.39	170703.93	8535.20	162168.73	51496.90	0.00	2122.61	53619.50	2444.32	108379.24	33.06
16	**Junagadh**	76055.68	5195.42	0.00	8117.83	89368.93	8254.30	81114.63	60211.30	0.00	1904.93	62116.22	2123.43	21912.68	76.58
17	**Kachchh**	49048.75	18503.57	0.00	17598.75	85151.07	6378.25	78772.82	56933.10	0.90	867.20	57801.20	1554.58	31816.30	73.38
18	**Kheda**	77455.15	38260.81	0.00	37932.57	153648.53	7682.42	145966.11	52593.70	29.25	3091.16	55714.15	3359.45	90015.92	38.17
19	**Mahesana**	78565.77	11554.36	0.00	22091.97	112212.10	11221.22	100990.88	100905.60	199.66	2980.50	104085.78	3240.03	7824.57	103.06
20	**Mahisagar**	17449.93	4907.18	0.00	9088.11	31445.22	3144.51	28300.71	10135.20	0.00	672.87	10808.07	743.97	17421.54	38.19
21	**Morbi**	48713.01	4137.44	0.00	8088.60	60939.05	3049.69	57889.36	26253.10	0.00	1383.99	27637.10	1830.66	30086.03	47.74
22	**Narmada**	26666.89	4834.60	0.00	8077.01	39578.50	3008.21	36570.29	18038.40	0.25	463.52	18502.16	504.74	18026.91	50.59
23	**Navsari**	52834.87	4380.70	0.00	10687.48	67903.05	5501.69	62401.36	19155.60	67.53	2293.87	21517.00	2504.91	40772.34	34.48
24	**Panchmahal**	22217.36	10692.81	0.00	14646.81	47556.98	4201.20	43355.78	9404.60	27.30	1775.60	11207.50	1969.38	31954.49	25.85
25	**Patan**	20983.87	5857.67	0.00	9733.79	36575.33	2403.15	34172.18	39745.90	17.89	500.63	40264.41	1359.82	2716.81	117.83
26	**Porbandar**	21954.45	1698.08	0.00	2792.89	26445.42	1322.26	25123.16	14133.40	0.15	345.88	14479.44	397.17	10624.81	57.63
27	**Rajkot**	152287.46	14900.50	0.00	23454.28	190642.24	9532.10	181110.14	99844.20	15.50	6381.45	106241.16	7163.96	74086.45	58.66
28	**Sabarkantha**	50308.31	7772.96	0.00	16687.96	74769.23	7476.93	67292.30	49081.10	7.30	1824.53	50912.92	2007.99	17512.26	75.66
29	**Surat**	82120.97	10669.35	0.00	27662.98	120453.30	9415.95	111037.35	29018.00	15.00	3362.62	32395.62	6773.66	77637.64	29.18
30	**Surendra Nagar**	69501.38	4620.63	0.00	6376.66	80498.67	4024.96	76473.70	28902.20	0.00	629.67	29531.87	1150.20	46881.38	38.62
31	**Tapi**	49529.02	3679.08	0.00	10132.92	63341.02	5127.84	58213.18	18137.80	0.00	500.65	18638.45	536.42	39538.96	32.02
32	**Vadodara**	64018.71	10055.28	0.00	31613.19	105687.18	7843.33	97843.85	54911.90	397.50	2179.84	57489.24	2365.37	40314.12	58.76
33	**Valsad**	56234.07	3148.99	0.00	7465.02	66848.08	6046.51	60801.57	13344.80	55.85	5218.47	18619.10	5914.90	41513.84	30.62
	Total (Ham)	**1959315.18**	**289158.42**	**0.00**	**432410.51**	**2680884.11**	**190358.17**	**2490525.91**	**1265201.55**	**2628.93**	**61799.16**	**1329629.65**	**78381.61**	**1252021.38**	**53.39**
	Total (Bcm)	**19.59**	**2.89**	**0.00**	**4.32**	**26.81**	**1.90**	**24.91**	**12.65**	**0.03**	**0.62**	**13.30**	**0.78**	**12.52**	**53.39**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020															
HARYANA															
S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	Ambala	25851.47	9181.01	5607.82	7386.20	48026.50	4802.65	43223.85	39427.89	7575.00	6649.27	53652.15	6649.27	1255.45	124.13
2	Bhiwani	15738.99	12820.20	1388.30	11859.38	41806.87	3669.38	38137.49	39187.30	144.00	2612.00	41943.30	2612.00	5257.97	109.98
3	Charkhi Dadri	8957.67	5157.99	930.36	4305.69	19351.71	1935.16	17416.55	22945.08	28.00	1246.79	24219.89	832.04	3980.96	139.06
4	Faridabad	5199.25	3665.83	2749.41	4658.58	16273.07	1426.38	14846.69	12667.80	5136.00	919.22	18723.01	751.29	0.00	126.11
5	Fatehabad	11427.64	25941.43	1779.59	20326.84	59475.50	5947.55	53527.95	89094.85	135.72	1625.52	90856.11	1415.12	199.44	169.74
6	Gurgaon	9765.55	5374.69	2964.10	4587.04	22691.38	2269.16	20422.22	22073.37	17117.17	2232.48	41423.03	2232.48	0.00	202.83
7	Hisar	20573.44	14743.40	2690.55	20871.00	58878.39	5289.02	53589.37	48006.94	230.22	366.20	48603.36	323.20	9744.14	90.70
8	Jhajjar	11725.54	11279.43	1875.41	12075.97	36956.35	2914.83	34041.52	15389.40	86.00	313.94	15789.35	262.77	18303.34	46.38
9	Jind	16168.54	31649.90	7476.02	30369.38	85663.84	8566.38	77097.46	83174.71	461.63	3359.02	86995.36	3106.86	6217.00	112.84
10	Kaithal	17128.09	23863.48	2786.69	16436.40	60214.66	5459.15	54755.51	108915.69	573.77	4169.87	113659.32	4169.87	0.00	207.58
11	Karnal	29880.64	20460.98	1602.32	28750.64	80694.58	7604.60	73089.98	114374.77	2180.00	6231.32	122786.11	5029.01	3342.83	167.99
12	Kurukshetra	13561.65	12772.05	2636.87	9947.99	38918.56	3677.52	35241.04	67780.88	12575.88	6322.97	86679.74	6322.96	0.00	245.96
13	Mahendragarh	14195.25	4003.68	2506.43	7763.19	28468.55	2846.87	25621.68	24762.24	31.08	2477.93	27271.25	2477.93	4109.00	106.44
14	Mewat	7541.18	4428.13	2746.03	4866.74	19582.08	1958.21	17623.87	12526.28	19.91	1696.15	14242.33	1466.46	5012.65	80.81
15	Palwal	9120.94	12652.02	1262.10	15700.97	38736.03	3873.61	34862.42	30451.75	680.60	3318.43	34450.77	2557.19	5582.36	98.82
16	Panchkula	11474.90	1353.83	1363.58	1060.05	15252.36	1249.36	14003.00	7363.08	90.00	1257.50	8710.57	1257.50	5292.43	62.21
17	Panipat	12589.33	9702.82	1066.20	12242.63	35600.98	3560.12	32040.86	53406.36	636.00	2440.66	56483.03	2204.14	0.00	176.28
18	Rewari	13614.11	5582.56	1854.01	9870.61	30921.29	3092.12	27829.17	31833.15	1452.00	2037.47	35322.62	1388.81	702.84	126.93
19	Rohtak	11347.19	9588.22	2948.20	8550.54	32434.15	2687.56	29746.59	14166.66	166.06	435.65	14768.37	446.18	14967.69	49.65
20	Sirsa	19177.20	18031.80	1280.52	22075.08	60564.60	5818.16	54746.44	79872.61	162.90	1854.48	81889.99	1863.58	2685.16	149.58
21	Sonipat	17306.20	22927.34	3559.48	20886.26	64679.28	5324.12	59355.16	62012.69	939.29	2516.63	65468.59	1883.94	10235.53	110.30
22	Yamuna Nagar	21448.69	15838.36	5158.77	15064.44	57510.26	5751.03	51759.23	67109.37	2340.00	7801.56	77250.93	7801.56	159.41	149.25
	Total (Ham)	**323793.46**	**281019.15**	**58232.76**	**289655.62**	**952700.99**	**89722.94**	**862978.05**	**1046542.87**	**52761.23**	**61885.06**	**1161189.18**	**57054.16**	**97048.20**	**134.56**
	Total (Bcm)	**3.24**	**2.81**	**0.58**	**2.90**	**9.53**	**0.90**	**8.63**	**10.47**	**0.53**	**0.62**	**11.61**	**0.57**	**0.97**	**134.56**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020															
HIMACHAL PRADESH															
S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	Kangra	35864.75	6556.41	6044.21	8230.72	56696.09	5669.60	51026.49	7709.79	109.99	4587.26	12407.04	4587.26	38619.45	24.31
2	Mandi	2573.27	38.90	1157.81	44.12	3814.10	381.41	3432.69	262.92	0.00	849.91	1112.83	849.91	2319.85	32.42
3	Sirmaour	7545.49	168.61	1323.06	218.87	9256.03	925.61	8330.42	730.64	287.60	962.05	1980.29	962.05	6350.13	23.77
4	Solan	6341.22	4468.10	1636.13	3809.68	16255.13	1625.51	14629.62	2436.77	4914.71	1197.20	8548.68	1197.20	6757.66	58.43
5	Una	13907.79	1809.93	2887.97	2105.45	20711.14	1162.60	19548.54	8627.93	165.99	2866.58	11660.49	2866.58	7888.05	59.65
	Total (Ham)	**66232.52**	**13041.95**	**13049.18**	**14408.84**	**106732.49**	**9764.73**	**96967.76**	**19768.05**	**5478.29**	**10462.99**	**35709.33**	**10463.00**	**61935.14**	**36.83**
	Total (Bcm)	**0.66**	**0.13**	**0.13**	**0.14**	**1.07**	**0.10**	**0.97**	**0.20**	**0.05**	**0.10**	**0.36**	**0.10**	**0.62**	**36.83**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

JHARKHAND

S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	Bokaro	20046.48	1486.78	1885.13	1134.74	24553.13	2214.74	22338.39	2283.00	3660.61	3857.14	9800.77	3883.92	13416.30	43.87
2	Chatra	20963.72	2121.11	615.62	1932.24	25632.69	2028.82	23603.87	6112.00	709.17	1448.85	8270.03	1458.92	15323.78	35.04
3	Deoghar	11127.01	1390.49	1453.81	1404.77	15376.08	1107.36	14268.72	4966.13	205.19	2267.21	7438.52	2282.95	6814.44	52.13
4	Dhanbad	17567.64	3489.34	1438.62	3475.68	25971.28	2394.47	23576.82	2574.50	7905.66	5344.05	15824.21	5381.17	7983.88	67.12
5	Dumka	19606.76	2852.28	3381.78	1619.30	27460.12	2093.69	25366.44	3749.75	18.71	1847.86	5616.33	1860.69	19737.28	22.14
6	East Singhbhum	24792.29	672.08	2826.54	569.88	28860.79	2746.91	26113.88	1860.00	605.71	3639.45	6105.15	3664.71	20956.49	23.38
7	Garhwa	24600.47	2398.72	1051.99	2343.26	30394.44	2402.95	27991.49	7531.88	11.26	1742.82	9285.93	1754.92	18693.46	33.17
8	Giridih	33955.19	3370.72	2291.70	2647.96	42265.57	3443.16	38822.41	9022.88	764.77	3467.17	13254.80	3491.24	25543.55	34.14
9	Godda	16466.31	1757.06	1899.42	1032.55	21155.34	1820.90	19334.43	1869.00	312.15	1807.84	3988.97	1820.37	15332.94	20.63
10	Gumla	30917.49	884.93	3257.62	1159.17	36219.21	3005.44	33213.77	3789.50	10.03	1322.81	5122.30	1331.99	28082.29	15.42
11	Hazaribagh	25622.66	2123.01	2488.63	2478.78	32713.08	2870.44	29842.64	7851.38	695.04	2606.67	11153.10	2624.78	18671.43	37.37
12	Jamtara	5987.35	1368.34	827.22	979.09	9162.00	834.25	8327.75	2280.25	6.40	1131.29	3417.94	1139.15	4901.95	41.04
13	Khunti	10587.14	658.81	1201.58	738.68	13186.21	873.93	12312.28	2385.00	7.76	753.80	3146.55	759.03	9160.49	25.56
14	Koderma	5390.09	378.05	444.05	631.03	6843.22	438.38	6404.84	2504.38	20.30	1108.24	3632.89	1115.95	2764.23	56.72
15	Latehar	18532.60	2496.33	1030.62	1915.24	23974.79	1914.16	22060.63	5109.00	118.54	1019.17	6246.72	1026.24	15806.84	28.32
16	Lohardaga	16145.95	505.25	1478.73	590.29	18720.22	1667.87	17052.35	1833.50	13.34	675.66	2522.47	680.35	14525.19	14.79
17	Pakur	18699.81	1425.69	2956.84	908.49	23990.83	1975.38	22015.45	1911.50	22.44	1115.79	3049.72	1123.54	18957.97	13.85
18	Palamau	25961.06	5429.72	1101.53	2474.37	34966.68	2911.20	32055.48	7094.50	173.88	2820.75	10089.13	2840.32	21946.78	31.47
19	Ramgarh	10081.27	550.28	836.24	616.19	12083.98	626.14	11457.84	1428.25	3173.77	1736.60	6338.59	1748.66	5107.18	55.32
20	Ranchi	34549.24	1982.44	3453.76	2681.23	42666.67	3225.80	39440.87	9619.50	1452.12	5297.24	16368.87	5334.03	23035.20	41.50
21	Sahebganj	21717.22	2920.76	2398.89	1394.02	28430.89	2471.55	25959.34	2207.00	40.23	1702.61	3949.83	1714.44	21997.68	15.22
22	Saraikela - Kharsawa	15031.08	728.26	1707.67	462.50	17929.51	1499.59	16429.92	1099.50	405.91	1704.16	3209.57	1716.00	13208.52	19.53
23	Simdega	21266.69	548.75	837.59	586.73	23239.76	1823.54	21416.22	1807.00	0.00	840.77	2647.78	846.62	18762.58	12.36
24	West Singhbhum	41369.34	1442.98	5742.08	914.60	49469.00	4442.82	45026.18	1707.50	23.05	2234.19	3964.72	2249.72	41045.94	8.81
	Total (Ham)	**490984.86**	**42982.18**	**46607.66**	**34690.79**	**615265.49**	**50833.49**	**564432.01**	**92596.88**	**20356.02**	**51492.16**	**164444.89**	**51849.71**	**401776.39**	**29.13**
	Total (Bcm)	**4.91**	**0.43**	**0.47**	**0.35**	**6.15**	**0.51**	**5.64**	**0.93**	**0.20**	**0.51**	**1.64**	**0.52**	**4.02**	**29.13**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

KARNATAKA

S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	Bagalkot	11256.28	23990.18	5180.34	17354.82	57781.62	5723.09	52058.53	44546.20	0.00	3639.62	48185.81	3951.62	10148.48	92.56
2	Bangalore Rural	6678.59	4177.63	4317.25	5173.38	20346.86	2015.49	18331.37	23679.34	0.00	1503.34	25182.69	1708.06	109.46	137.37
3	Bangalore Urban	4817.08	3762.47	3937.49	5107.21	17624.25	1762.43	15861.82	20573.93	0.00	1419.28	21993.21	1660.57	0.00	138.66
4	Belagavi	35987.75	37053.45	9641.96	22906.21	105589.36	9827.61	95761.75	60554.28	0.00	10641.69	71196.03	11510.24	31997.84	74.35
5	Bellary	28358.71	21609.76	14524.66	15676.57	80169.70	7924.14	72245.56	39073.80	0.00	4348.48	43422.29	4745.15	32328.11	60.10
6	Bidar	17850.20	2710.99	3345.95	4799.20	28706.34	2823.24	25883.10	12085.64	0.00	1020.59	13106.23	1103.80	12743.18	50.64
7	Chamrajnagara	16245.80	7688.50	7032.93	5690.75	36657.98	3665.82	32992.17	30401.86	0.00	3105.32	33507.16	3905.17	2477.15	101.56
8	Chikballapur	11565.99	12485.10	7245.30	9873.16	41169.55	4116.94	37052.61	50780.88	0.00	3078.11	53858.98	3380.96	931.09	145.36
9	Chikkamagalur	44545.60	11262.29	10605.56	7401.10	73814.55	7014.41	66800.14	29005.13	0.00	2433.69	31438.80	2536.88	37269.31	47.06
10	Chitradurga	20748.20	9938.17	11569.17	11209.87	53465.42	5346.54	48118.88	47814.49	0.00	4358.18	52172.63	4721.16	6321.08	108.42
11	Dakshin Kanna	51614.42	3116.15	4081.54	3700.14	62512.26	6251.23	56261.03	18006.33	0.00	3077.12	21083.45	3262.79	34991.90	37.47
12	Davangere	15417.44	13708.20	8161.47	24507.25	61794.35	5346.10	56448.24	43499.13	0.00	2681.48	46180.61	2854.27	18362.85	81.81
13	Dharwad	14789.86	4529.45	5388.84	3942.03	28650.19	2555.31	26094.88	12667.49	0.00	1517.53	14185.02	1622.57	11815.93	54.36
14	Gadag	9843.45	6903.38	4934.22	7870.45	29551.50	2955.15	26596.35	21115.12	0.00	1997.33	23112.46	2127.01	5145.29	86.90
15	Hassan	24085.90	30482.39	10728.39	20321.81	85618.49	8289.73	77328.75	43953.75	0.00	3740.60	47694.35	4018.81	35182.21	61.68
16	Haveri	19737.22	25156.04	7109.86	23180.26	75183.37	6528.22	68655.15	34441.91	0.00	2947.80	37389.70	3169.49	31809.26	54.46
17	Kalburagi	35171.21	4441.39	8401.37	7729.27	55743.25	5574.30	50168.94	17963.83	0.00	4376.94	22340.77	4803.35	28605.98	44.53
18	Kodagu	27102.50	2810.88	6400.96	3444.82	39759.15	3713.60	36045.56	9372.64	0.00	1734.50	11107.16	2392.38	24280.51	30.81
19	Kolar	10502.16	11008.43	7377.30	15513.88	44401.77	4440.19	39961.58	75370.21	0.00	4537.68	79907.88	4951.10	0.00	199.96
20	Koppal	14972.25	22132.01	6148.98	27078.34	70331.58	6944.52	63387.06	33990.05	0.00	2255.50	36245.56	2494.42	28369.60	57.18
21	Mandya	12116.68	55729.72	6092.46	19805.89	93744.75	9374.48	84370.27	44055.10	0.00	3744.99	47800.11	4217.59	37439.51	56.66
22	Mysuru	21992.93	31220.70	13928.22	13011.44	80153.28	7607.79	72545.50	27001.56	0.00	6700.80	33702.36	9683.36	38007.46	46.46
23	Raichur	15428.10	17738.87	6353.36	29083.09	68603.43	6595.58	62007.85	26105.35	0.00	3727.50	29832.85	4519.87	31528.96	48.11
24	Ramanagaram	8306.39	13709.41	6134.98	13576.43	41727.21	4172.72	37554.48	31960.88	0.00	2000.57	33961.45	2758.20	3863.31	90.43
25	Shivamogga	69868.66	24405.68	6419.47	13129.97	113823.78	11338.70	102485.08	30289.08	0.00	3828.08	34117.15	3979.11	68678.94	33.29
26	Tumakuru	26857.57	23149.55	19038.71	15588.37	84634.20	8181.80	76452.40	63615.70	0.00	5531.75	69147.44	6012.41	18160.06	90.45
27	Udupi	59473.12	2552.62	3119.27	1993.41	67138.41	6713.84	60424.58	10634.17	0.00	3758.48	14392.64	3955.31	45835.10	23.82
28	Uttar Kannada	72046.43	22886.25	1945.73	5055.18	101933.59	10092.89	91840.70	19035.51	0.00	3398.44	22433.93	3602.85	69202.36	24.43
29	Vijayapura	22815.33	6609.37	9183.47	11391.29	49999.46	4627.42	45372.04	25993.67	0.00	3733.51	29727.17	4053.22	16926.21	65.52
30	Yadgir	17110.74	11112.34	4424.08	12327.63	44974.78	4497.48	40477.30	12661.68	0.00	2110.65	14772.34	2275.61	25540.12	36.50
	Total (Ham)	**747306.55**	**468081.37**	**222773.29**	**377443.23**	**1815604.44**	**176020.79**	**1639583.65**	**960248.71**	**0.00**	**102949.54**	**1063198.25**	**115977.34**	**708071.25**	**64.85**
	Total (Bcm)	**7.47**	**4.68**	**2.23**	**3.77**	**18.16**	**1.76**	**16.40**	**9.60**	**0.00**	**1.03**	**10.63**	**1.16**	**7.08**	**64.85**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020															
KERALA															
S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	Alappuzha	30068.77	428.56	4450.93	6803.64	41751.90	3010.22	38741.68	3850.09	260.98	9711.38	13822.51	10069.86	24560.69	35.68
2	Ernakulam	35404.58	1271.91	7302.58	6966.54	50945.61	4986.02	45959.59	8167.69	185.44	13367.28	21720.40	19145.59	18460.87	47.26
3	Idukki	17995.40	311.20	811.68	1856.03	20974.31	2097.41	18876.90	6063.04	13.04	4358.70	10434.78	4358.70	8442.12	55.28
4	Kannur	38455.10	873.35	1818.66	3842.01	44989.12	4351.15	40637.97	8397.78	26.13	10512.18	18936.12	14256.60	18166.93	46.60
5	Kasargod	26260.75	1272.78	508.58	4348.60	32390.71	3239.07	29151.64	15919.49	13.91	6339.27	22272.67	11055.20	3196.88	76.40
6	Kollam	27361.75	827.06	6564.38	2771.53	37524.72	3518.11	34006.61	5106.65	18.87	11416.69	16542.20	12609.60	16271.49	48.64
7	Kottayam	29715.79	762.74	4930.28	5595.41	41004.22	3812.93	37191.29	5059.88	2.97	8504.39	13567.22	9194.25	22934.22	36.48
8	Kozhikkode	31186.83	398.96	1565.21	1437.35	34588.35	3458.85	31129.50	4869.73	7.09	12883.75	17760.58	20961.63	7816.17	57.05
9	Malappuram	39631.09	886.06	4369.05	7689.59	52575.79	4979.08	47596.71	9535.32	8.74	22737.86	32281.95	60165.36	15314.76	67.82
10	Palakkad	35607.81	3975.43	699.16	24617.72	64900.12	6490.01	58410.11	18631.94	599.85	13904.83	33136.60	22761.33	19365.50	56.73
11	Pathanamthitta	18372.86	493.55	5571.76	1939.61	26377.78	2245.57	24132.21	3868.74	0.04	4681.94	8550.69	4681.94	15581.52	35.43
12	Thiruvananthapuram	21075.45	570.29	5623.81	2734.43	30003.98	2718.40	27285.58	5291.15	6.36	11910.05	17207.51	13586.05	8402.06	63.06
13	Thrissur	45874.26	840.67	1999.45	14282.56	62996.94	6114.38	56882.56	20148.87	38.96	12862.55	33050.39	17127.38	19567.33	58.10
14	Wayanad	23266.23	442.26	0.00	686.28	24394.77	2439.49	21955.28	1363.15	158.40	3785.31	5306.85	5047.47	15386.27	24.17
	Total (Ham)	**420276.67**	**13354.82**	**46215.53**	**85571.30**	**565418.32**	**53460.69**	**511957.63**	**116273.49**	**1340.78**	**146976.17**	**264590.47**	**225020.96**	**213466.81**	**51.68**
	Total (Bcm)	**4.20**	**0.13**	**0.46**	**0.86**	**5.65**	**0.53**	**5.12**	**1.16**	**0.01**	**1.47**	**2.65**	**2.25**	**2.13**	**51.68**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020															
MADHYA PRADESH															
S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	Agar Malwa	33138.64	2590.20	0.00	9681.30	45410.14	4382.30	41027.84	38041.29	0.00	1593.66	39634.97	1766.32	4711.45	96.61
2	Alirajpur	19981.86	1058.60	0.00	2063.07	23103.53	1776.22	21327.31	6306.57	0.00	2189.07	8495.65	2548.66	12472.07	39.83
3	Anuppur	36011.33	319.95	2853.65	1245.99	40430.92	2695.93	37734.99	6038.97	0.00	1512.23	7551.20	1623.03	30072.99	20.01
4	Ashoknagar	28905.41	2075.65	0.00	7824.77	38805.83	3103.98	35701.85	20681.54	0.00	1746.69	22428.24	1927.85	13092.45	62.82
5	Balaghat	81686.50	1957.93	290.51	2791.18	86726.12	8672.64	78053.48	12464.29	0.00	3597.17	16061.44	3889.78	61699.41	20.58
6	Barwani	34944.34	3415.72	0.00	18550.63	56910.69	5165.15	51745.54	33147.22	0.00	3491.24	36638.47	3939.54	19221.59	70.81
7	Betul	102040.17	3612.40	0.00	16046.71	121699.28	8221.47	113477.81	46816.25	0.00	3753.32	50569.58	4105.82	62555.74	44.56
8	Bhind	80922.82	1574.22	0.00	15453.78	97950.82	9204.22	88746.59	25344.54	0.00	3414.40	28758.94	3758.17	59643.88	32.41
9	Bhopal	30342.01	2622.81	0.00	6942.84	39907.66	3042.37	36865.29	23436.86	0.00	3579.55	27016.42	4087.34	9341.08	73.28
10	Burhanpur	30054.26	2541.78	264.63	7412.93	40273.60	2929.68	37343.92	22112.22	0.00	1469.58	23581.82	1665.18	13566.50	63.15
11	Chhatarpur	65844.51	4269.32	0.00	16628.35	86742.18	6288.59	80453.59	50832.41	0.00	2952.35	53784.73	3323.15	26298.06	66.85
12	Chhindwara	87803.07	3866.38	600.33	12436.85	104706.63	5919.69	98786.94	53283.55	0.00	5792.71	59076.21	6149.52	39353.93	59.80
13	Damoh	31619.92	2050.39	0.00	9173.22	42843.53	3545.25	39298.28	19443.36	0.00	2988.54	22431.87	3295.52	16559.44	57.08
14	Datia	36352.90	730.38	0.00	6722.30	43805.58	3037.44	40768.14	12664.84	0.00	1678.34	14343.20	1894.54	26208.75	35.18
15	Dewas	66496.05	4935.92	0.00	15466.15	86898.12	6096.06	80802.06	60554.71	25.35	4104.70	64684.74	4579.59	16963.50	80.05
16	Dhar	84490.43	7124.47	0.00	22699.40	114314.30	9401.24	104913.07	77390.91	0.00	5739.37	83130.27	6648.40	32426.91	79.24
17	Dindori	40499.20	141.01	301.21	500.43	41441.85	2604.84	38837.01	2377.60	0.00	1754.34	4131.95	1986.42	34472.98	10.64
18	Guna	60581.42	4283.83	0.00	14725.30	79590.55	4324.69	75265.86	47286.67	0.00	2408.17	49694.84	2715.98	25263.21	66.03
19	Gwalior	53338.95	8182.71	0.00	18809.43	80331.09	6641.99	73689.10	17955.82	0.00	3756.70	21712.52	4376.51	51729.54	29.47
20	Harda	33125.19	2883.56	0.00	15865.43	51874.18	5187.43	46686.75	14704.63	0.00	1183.32	15887.95	1330.85	30651.27	34.03
21	Hoshangabad	129279.31	11449.30	0.00	66364.78	207093.39	12074.20	195019.19	39144.71	0.00	2168.49	41313.17	2355.80	153518.70	21.18
22	Indore	37119.30	7338.55	0.00	15632.80	60090.65	5476.51	54614.14	59179.95	1471.40	8146.08	68797.42	10002.61	2539.19	125.97
23	Jabalpur	51628.17	3265.54	0.00	8922.50	63816.21	4819.00	58997.21	25507.40	6.48	3536.67	29050.55	3956.94	29689.42	49.24
24	Jhabua	21206.45	1494.72	0.00	5236.23	27937.40	1703.56	26233.84	10246.94	0.00	2993.56	13240.51	3548.42	12438.46	50.47
25	Katni	33856.39	1363.44	0.00	4594.03	39813.86	3136.60	36677.26	13378.93	0.00	2624.73	16003.69	2973.79	20324.50	43.63
26	Khandwa	56167.03	4407.81	0.00	37510.11	98084.95	8047.93	90037.02	40020.29	45.92	2881.48	42947.69	3243.92	46726.88	47.70
27	Khargone	63404.27	5658.22	0.00	44762.52	113825.01	7863.59	105961.41	41433.83	0.00	4293.50	45727.33	4743.84	59783.75	43.15
28	Mandla	56699.37	871.29	1095.53	4003.84	62670.03	3425.88	59244.15	6908.22	0.00	2425.78	9334.00	2690.49	49645.45	15.76
29	Mandsaur	47803.06	4507.38	0.00	14756.06	67066.50	6706.65	60359.85	61437.69	0.00	3311.25	64748.93	3604.90	2412.50	107.27
30	Morena	47301.71	1017.70	0.00	20826.71	69146.12	5361.48	63784.63	19819.30	0.00	5581.40	25400.69	6348.42	37719.42	39.82
31	Narsinghpur	102628.63	3571.16	0.00	15637.83	121837.62	8296.36	113541.26	70217.32	0.00	2263.17	72480.48	2452.96	40870.98	63.84
32	Neemuch	29881.06	4282.92	0.00	8391.84	42555.82	4255.57	38300.25	33497.06	0.00	1893.07	35390.12	2063.71	3215.25	92.40
33	Panna	57402.37	1283.65	0.00	6047.50	64733.52	6473.35	58260.17	15444.08	0.00	2363.99	17808.08	2635.57	40180.52	30.57
34	Raisen	76289.29	3279.07	0.00	9587.61	89155.97	7206.76	81949.21	39617.81	650.00	3227.11	43494.90	3646.89	38034.53	53.08
35	Rajgarh	65411.49	3848.31	0.00	13198.21	82458.01	4954.26	77503.75	61546.56	0.00	3873.19	65419.73	4534.90	11422.31	84.41
36	Ratlam	54572.43	7036.13	0.00	22822.50	84431.06	8108.40	76322.66	103519.66	208.00	4014.22	107741.87	6066.10	1491.06	141.17
37	Rewa	42008.70	1835.61	273.82	8259.36	52377.49	4009.86	48367.63	21032.59	173.74	5346.46	26552.80	6185.05	20976.23	54.90
38	Sagar	91071.07	3614.96	0.00	14072.96	108758.99	8828.73	99930.26	56586.75	0.00	3645.88	60232.63	4089.76	39253.76	60.27
39	Satna	51079.31	2498.19	1006.14	10349.00	64932.64	5640.78	59291.86	33693.62	0.00	4544.75	38238.38	5077.31	23649.88	64.49
40	Sehore	54332.97	3470.08	0.00	11992.90	69795.95	4608.14	65187.81	38035.12	0.00	2365.60	40400.72	2605.78	24992.51	61.98
41	Seoni	62350.77	1951.24	2242.88	5957.79	72502.68	4252.85	68249.83	22485.01	0.00	3136.80	25621.81	3485.41	42279.41	37.54
42	Shahdol	45582.48	368.60	1595.85	1329.18	48876.11	4887.61	43988.50	4944.24	0.00	2157.66	7101.91	2384.54	36659.72	16.14
43	Shajapur	42405.42	3246.09	0.00	11150.46	56801.97	3551.76	53250.21	54079.84	0.00	2098.73	56178.57	2288.53	2798.52	105.50
44	Sheopur	35918.59	963.24	0.00	19248.01	56129.84	4957.24	51172.60	17631.34	0.00	1719.30	19350.64	1968.51	31572.74	37.81
45	Shivpuri	62089.34	3662.39	0.00	14689.65	80441.38	5712.34	74729.04	48093.48	0.00	4394.96	52488.42	5022.47	21613.11	70.24
46	Sidhi	47076.52	795.32	667.28	2711.05	51250.17	3756.37	47493.79	8506.79	0.00	2518.87	11025.68	2894.90	36092.08	23.21
47	Singrauli	33344.80	790.04	0.00	2636.16	36771.00	2717.35	34053.65	10858.41	0.00	2174.35	13032.75	2568.08	20627.17	38.27

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

MADHYA PRADESH															
S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
48	Tikamgarh	47166.79	3180.52	0.00	11632.90	61980.21	5618.82	56361.39	36393.46	0.00	3841.62	40235.06	5083.16	14884.79	71.39
49	Ujjain	73764.02	5627.80	0.00	20805.98	100197.80	8396.96	91800.84	92923.58	28.84	3517.88	96470.30	3859.19	9505.30	105.09
50	Umaria	42947.39	559.13	811.73	1768.10	46086.35	4608.62	41477.73	8591.38	0.00	1480.99	10072.37	1714.96	31171.39	24.28
51	Vidisha	75288.67	2711.94	0.00	12747.24	90747.85	6394.74	84353.11	47660.09	0.00	3576.55	51236.64	4027.89	32665.13	60.74
	Total (Ham)	**2775256.15**	**160187.57**	**12003.56**	**668685.87**	**3616133.15**	**278093.45**	**3338039.67**	**1733319.68**	**2609.73**	**160823.56**	**1896752.85**	**183736.97**	**1525059.41**	**56.82**
	Total (Bcm)	**27.75**	**1.60**	**0.12**	**6.69**	**36.16**	**2.78**	**33.38**	**17.33**	**0.03**	**1.61**	**18.97**	**1.84**	**15.25**	**56.82**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

MAHARASHTRA

S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	Ahmednagar	85781.40	13325.98	14292.88	45925.63	159325.89	8457.06	150868.83	114588.35	0.00	6196.74	120785.10	6196.76	41700.36	80.06
2	Akola	27826.59	1472.64	205.97	8668.31	38173.52	2563.35	35610.17	21512.89	0.00	2247.83	23760.73	2247.87	11901.01	66.72
3	Amravati	53662.13	4699.59	1301.78	26837.03	86500.54	6121.87	80378.67	70883.48	0.00	4354.80	75238.41	4354.79	18151.28	93.60
4	Aurangabad	67424.51	7120.07	334.37	31424.64	106303.59	5492.72	100810.87	69352.38	0.00	3462.54	72814.94	3462.48	27995.96	72.23
5	Beed	81181.38	8213.38	6240.27	32855.58	128490.61	6424.55	122066.06	67812.03	0.00	4213.10	72025.13	4213.12	50040.93	59.01
6	Bhandara	31379.88	44876.78	417.80	15965.57	92640.03	6836.09	85803.94	22414.31	37.89	3648.19	26100.39	3648.19	59703.55	30.42
7	Buldhana	64511.58	5233.41	263.73	21719.68	91728.41	5135.03	86593.38	65197.36	0.00	3254.40	68451.82	3254.42	21164.53	79.05
8	Chandrapur	98909.31	4760.52	1471.98	11466.41	116608.22	6053.65	110554.57	14925.01	0.00	17107.51	32032.60	17107.50	78521.99	28.97
9	Dhule	44433.42	7230.56	0.00	20749.03	72413.01	4146.12	68266.89	34082.66	3.25	1754.81	35840.72	1754.80	32426.16	52.50
10	Gadchiroli	94076.16	3316.89	0.00	10239.42	107632.48	6110.64	101521.84	21046.00	0.00	3679.52	24725.60	3679.51	76796.24	24.35
11	Gondia	42973.23	6702.60	645.57	16408.00	66729.40	4180.30	62549.10	10153.58	297.06	5909.95	16360.58	5909.92	46188.52	26.16
12	Hingoli	50310.61	2780.69	1340.57	47748.08	102179.95	5174.52	97005.43	36097.50	2.53	2159.14	38259.18	2159.14	58746.25	39.44
13	Jalgaon	89195.64	6694.80	574.12	46104.57	142569.13	7304.35	135264.78	101162.32	0.00	4887.81	106050.10	4887.79	35647.21	78.40
14	Jalna	57765.54	2918.66	115.46	22359.31	83158.97	4565.42	78593.55	41634.48	0.00	1397.04	43031.55	1397.01	35561.99	54.75
15	Kolhapur	53249.23	8505.41	780.56	58343.85	120879.05	7223.87	113655.18	52115.81	0.00	2058.48	54174.30	2058.48	59616.64	47.67
16	Latur	45440.55	6912.70	0.00	15902.77	68256.02	3422.37	64833.65	33580.73	0.00	2142.34	35723.04	2142.33	29800.26	55.10
17	Nagpur	66937.32	7209.95	2587.52	19951.86	96686.65	5254.14	91432.51	37281.60	0.00	10143.48	47425.01	10143.51	44007.48	51.87
18	Nanded	101847.77	974.83	3718.27	17520.68	124061.55	6203.13	117858.42	34865.24	1.21	3344.05	38210.49	3344.07	79647.93	32.42
19	Nandurbar	39438.28	2689.61	0.00	8861.48	50989.36	3145.07	47844.30	17367.55	0.00	3065.27	20432.82	3065.28	27492.62	42.71
20	Nashik	133969.12	13444.75	0.00	48110.20	195524.07	10532.66	184991.41	104572.27	0.00	3593.64	108165.87	3593.61	84044.51	58.47
21	Osmanabad	61058.00	6445.35	2583.65	15716.20	85803.20	4326.69	81476.51	48272.70	0.00	2315.87	50588.61	2315.85	31057.67	62.09
22	Palghar	16230.20	237.02	0.00	3162.60	19629.82	1278.19	18351.63	3301.38	0.00	837.28	4138.64	837.30	14212.99	22.55
23	Parbhani	58636.77	1785.50	645.43	26071.85	87139.55	4409.73	82729.82	36212.33	0.00	1950.18	38162.49	1950.17	44567.35	46.13
24	Pune	95870.06	19431.62	1192.62	67959.95	184454.25	9998.84	174455.41	112066.91	0.00	8174.04	120240.89	8174.07	61716.72	68.92
25	Raigad	32261.27	408.29	0.00	5510.32	38179.88	1932.79	36247.09	4352.55	0.00	2014.90	6367.45	2014.89	29879.64	17.57
26	Ratnagiri	38652.05	168.71	18.49	2150.25	40989.50	2291.65	38697.85	5297.34	0.00	1291.81	6589.17	1291.81	32108.88	17.03
27	Sangli	52127.17	21434.34	128.40	65616.19	139306.10	8846.01	130460.09	69295.18	0.00	3269.54	72564.74	3269.54	58785.85	55.62
28	Satara	53419.33	10543.20	3744.03	33927.78	101634.34	5793.70	95840.64	58292.50	0.00	4849.88	63142.47	4849.90	32698.15	65.88
29	Sindhudurg	20638.77	186.03	3.83	2156.58	22985.21	1155.42	21829.79	7087.53	0.00	2215.11	9302.65	2215.11	12527.14	42.61
30	Solapur	91229.03	10919.78	2954.03	40102.16	145205.00	7294.46	137910.54	102924.75	0.00	4865.73	107790.48	4865.73	37137.73	78.16
31	Thane	14840.38	285.66	0.00	2228.47	17354.51	951.60	16402.91	2397.66	0.00	713.64	3111.28	713.64	13291.63	18.97
32	Wardha	59859.59	1393.53	1437.36	21822.72	84513.20	4314.78	80198.42	42162.18	0.00	3404.56	45566.79	3404.57	34631.62	56.82
33	Washim	42735.86	2823.67	68.85	12795.21	58423.59	3110.03	55313.56	31144.78	0.00	2006.62	33151.47	2006.63	22162.09	59.93
34	Yawatmal	98127.02	2934.50	5793.56	18140.42	124995.50	6367.98	118627.52	35679.35	0.00	7434.14	43113.46	7434.16	75593.53	36.34
	Total (Ham)	**2065999.15**	**238081.03**	**52861.10**	**844522.81**	**3201464.09**	**176418.77**	**3025045.32**	**1529132.70**	**341.94**	**133963.94**	**1663438.97**	**133963.95**	**1419526.41**	**54.99**
	Total (Bcm)	**20.66**	**2.38**	**0.53**	**8.45**	**32.01**	**1.76**	**30.25**	**15.29**	**0.00**	**1.34**	**16.63**	**1.34**	**14.20**	**54.99**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

MANIPUR

S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	Bishnupur	9572.60	0.06	2257.53	14.68	11844.87	1184.48	10660.39	57.00	0.00	277.20	334.20	290.93	10312.46	3.13
2	Churachandpur	6707.10	0.00	1510.99	15.33	8233.42	823.34	7410.08	60.00	0.00	191.00	251.00	192.05	7158.03	3.39
3	Imphal East	11895.89	63.52	2713.54	136.34	14809.29	1480.93	13328.36	33.00	18.00	500.10	551.10	502.75	12774.61	4.13
4	Imphal West	6297.13	0.02	2327.91	28.51	8653.56	865.35	7788.21	105.00	6.00	568.01	679.01	571.06	7106.15	8.72
5	Thoubal	5799.77	0.02	2075.40	24.16	7899.35	789.94	7109.41	90.00	0.00	462.92	552.92	465.39	6554.02	7.78
	Total (Ham)	**40272.49**	**63.62**	**10885.37**	**219.02**	**51440.49**	**5144.04**	**46296.45**	**345.00**	**24.00**	**1999.23**	**2368.23**	**2022.18**	**43905.27**	**5.12**
	Total (Bcm)	**0.40**	**0.001**	**0.11**	**0.002**	**0.51**	**0.05**	**0.46**	**0.003**	**0.0002**	**0.02**	**0.02**	**0.02**	**0.44**	**5.12**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

MEGHALAYA

S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	East Garo Hills	5190.20	41.55	1563.67	12.10	6807.52	680.76	6126.76	0.00	0.00	414.72	414.72	481.84	5644.92	6.77
2	East Jaintia Hills	14784.52	10.60	4900.80	0.66	19696.58	1969.66	17726.93	0.00	4.00	171.06	175.06	208.68	17514.25	0.99
3	East Khasi Hills	8401.62	64.60	1600.94	22.38	10089.54	1008.95	9080.59	0.00	10.00	694.61	704.61	806.61	8263.98	7.76
4	North Garo Hills	9615.24	75.88	2901.10	5.67	12597.89	1514.64	11083.25	51.00	0.00	437.47	488.47	508.68	10523.57	4.41
5	Ri-Bhoi	6905.74	191.10	1487.24	186.69	8770.77	877.07	7893.70	0.00	10.00	332.56	342.56	455.25	7428.45	4.34
6	South Garo Hills	8018.55	61.70	1900.06	39.31	10019.62	1001.97	9017.65	0.00	0.00	268.39	268.39	327.47	8690.18	2.98
7	South West Garo Hills	8798.49	82.60	2172.05	1023.93	12077.07	2211.14	9865.93	2655.40	0.00	266.91	2922.31	312.55	6897.98	29.62
8	South West Khasi Hills	14011.54	26.55	1974.64	6.40	16019.13	1601.91	14417.22	0.00	0.00	131.36	131.36	158.23	14258.99	0.91
9	West Garo Hills	32343.03	109.75	6677.30	148.69	39278.77	4161.18	35117.59	102.00	0.00	1075.14	1177.13	1260.45	33755.15	3.35
10	West Jaintia Hills	13462.99	79.23	4462.73	9.98	18014.93	1801.49	16213.43	8.50	5.00	569.17	582.66	679.77	15520.17	3.59
11	West Khasi Hills	44087.07	118.00	6213.17	38.71	50456.95	5045.70	45411.25	0.00	0.00	462.70	462.70	550.86	44860.39	1.02
	Total (Ham)	165618.99	861.56	35853.70	1494.52	203828.77	21874.47	181954.30	2816.90	29.00	4824.09	7669.97	5750.39	173358.03	4.22
	Total (Bcm)	1.66	0.01	0.36	0.01	2.04	0.22	1.82	0.03	0.0003	0.05	0.08	0.06	1.73	4.22

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

MIZORAM

S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	Aizawl	1295.35	0.00	340.78	0.00	1636.13	163.59	1472.54	0.00	0.00	199.09	199.09	229.32	1243.19	13.52
2	Champhai	1463.47	0.00	276.42	0.00	1739.89	174.00	1565.89	0.00	0.00	45.40	45.40	49.88	1516.02	2.90
3	Kolasib	2276.06	0.00	504.21	0.00	2780.27	278.03	2502.24	0.00	0.00	31.23	31.23	36.39	2465.85	1.25
4	Lawngtlai	2957.86	0.00	289.53	0.00	3247.39	324.74	2922.65	0.00	0.00	100.62	100.62	123.67	2798.98	3.44
5	Lunglei	5011.49	0.00	467.78	0.00	5479.27	547.93	4931.34	0.00	0.00	197.92	197.92	212.41	4718.94	4.01
6	Mamit	4366.62	0.00	1240.65	0.00	5607.27	560.74	5046.53	0.00	0.00	98.54	98.54	123.16	4923.38	1.95
7	Saiha	724.03	0.00	84.86	0.00	808.89	80.88	728.01	0.00	0.00	40.72	40.72	45.65	682.35	5.59
8	Serchhip	785.67	0.00	116.39	0.00	902.06	90.21	811.85	0.00	0.00	48.65	48.65	54.36	757.49	5.99
	Total (Ham)	**18880.55**	**0.00**	**3320.62**	**0.00**	**22201.17**	**2220.12**	**19981.05**	**0.00**	**0.00**	**762.17**	**762.17**	**874.84**	**19106.20**	**3.81**
	Total (Bcm)	**0.19**	**0.00**	**0.03**	**0.00**	**0.22**	**0.02**	**0.20**	**0.00**	**0.00**	**0.01**	**0.01**	**0.01**	**0.19**	**3.81**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

NAGALAND

S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	Dimapur	19077.02	17135.18	3711.57	1688.08	41611.85	4161.19	37450.66	208.84	2.70	815.99	1027.53	933.25	36305.86	2.74
2	Kiphire	3227.86	4797.30	1428.31	246.78	9700.25	970.03	8730.22	0.00	0.00	11.65	11.65	11.65	8718.56	0.13
3	Kohima	9012.81	6448.32	1481.68	326.16	17268.97	1726.89	15542.08	0.00	0.60	219.82	220.42	249.54	15291.95	1.42
4	Longleng	2883.22	3431.34	399.66	176.04	6890.26	689.03	6201.23	0.00	0.00	18.54	18.54	18.54	6182.69	0.30
5	Mokokchung	10684.55	6511.14	2989.47	480.60	20665.76	2066.58	18599.18	0.00	0.12	72.35	72.47	72.35	18526.71	0.39
6	Mon	8986.71	8138.04	1950.44	1100.28	20175.47	2017.55	18157.92	0.00	0.00	201.26	201.26	201.26	17956.65	1.11
7	Peren	7437.65	6352.62	2033.58	565.44	16389.29	1638.93	14750.36	0.00	0.00	89.84	89.84	92.57	14657.79	0.61
8	Phek	8700.39	2360.16	2644.20	462.78	14167.53	1416.76	12750.77	0.00	0.00	39.92	39.92	42.35	12708.43	0.31
9	Tuensang	17944.92	7117.02	5009.35	450.90	30522.19	3052.21	27469.98	0.00	0.00	90.75	90.75	93.90	27376.08	0.33
10	Wokha	11598.37	7516.68	2920.56	437.40	22473.01	2247.31	20225.70	0.00	0.00	184.44	184.44	188.31	20037.40	0.91
11	Zunheboto	8020.13	6283.98	2243.98	240.84	16788.93	1678.89	15110.04	0.00	0.00	66.36	66.36	66.36	15043.68	0.44
	Total (Ham)	**107573.63**	**76091.78**	**26812.80**	**6175.30**	**216653.51**	**21665.37**	**194988.14**	**208.84**	**3.42**	**1810.92**	**2023.18**	**1970.08**	**192805.80**	**1.04**
	Total (Bcm)	**1.08**	**0.76**	**0.27**	**0.06**	**2.17**	**0.22**	**1.95**	**0.0021**	**0.00003**	**0.02**	**0.02**	**0.02**	**1.93**	**1.04**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

ODISHA

S. No.	Name of District	Ground Water Recharge: Monsoon Season: Recharge from rainfall	Ground Water Recharge: Monsoon Season: Recharge from other sources	Ground Water Recharge: Non-monsoon Season: Recharge from rainfall	Ground Water Recharge: Non-monsoon Season: Recharge from other sources	Total Annual Ground Water Recharge	Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction: Irrigation	Current Annual Ground Water Extraction: Industrial	Current Annual Ground Water Extraction: Domestic	Current Annual Ground Water Extraction: Total	Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Angul	42123.33	8245.72	3946.78	5213.93	59529.76	4452.37	55077.39	20250.43	988.34	4297.50	25536.27	4916.11	28922.49	46.36
2	Balasore	53935.11	30857.61	17135.34	29372.84	131300.90	10016.87	121284.03	61512.34	909.44	6171.49	68593.27	7947.22	52127.95	56.56
3	Bargarh	39883.47	11467.68	136.38	11828.43	63315.96	4721.20	58594.76	25578.09	326.08	4531.13	30435.30	4861.23	28375.41	51.94
4	Bhadrak	17772.06	15468.15	4479.02	19064.75	56783.98	5455.36	51328.62	27199.14	333.71	2661.89	30194.74	4629.46	20912.13	58.83
5	Bolangir	44751.80	6656.77	898.73	7584.45	59891.75	4377.37	55514.38	20203.60	214.72	5332.90	25751.22	6244.53	28851.55	46.39
6	Boudh	18221.67	2936.05	449.44	4055.18	25662.34	2102.00	23560.34	8748.53	42.88	1366.09	10157.50	1516.93	13252.00	43.11
7	Cuttack	39498.24	14352.19	9049.08	10212.02	73111.53	6119.24	66992.29	21102.98	564.92	7514.94	29182.85	8114.15	37210.24	43.56
8	Deogarh	20728.22	5484.66	1223.69	6203.84	33640.41	2951.19	30689.22	15353.55	207.95	932.61	16494.11	1009.97	14117.77	53.75
9	Dhenkanal	29856.44	9441.84	5442.07	3509.78	48250.13	3525.56	44724.57	12370.81	291.34	3654.11	16316.26	3895.50	28166.89	36.48
10	Gajapati	12910.09	1889.41	4946.34	2166.60	21912.44	2051.13	19861.31	4875.80	109.38	1671.43	6656.61	1771.04	13105.11	33.52
11	Ganjam	44501.12	26289.62	17236.11	13517.82	101544.67	8582.37	92962.30	23498.20	1460.78	10805.69	35764.68	12346.97	55910.43	38.47
12	Jagatsinghpur	16828.01	15431.15	4359.43	11488.23	48106.82	4526.39	43580.43	21482.10	482.52	2370.54	24335.16	3219.49	19154.54	55.84
13	Jajpur	32439.37	9986.07	7250.92	7290.71	56967.07	4776.26	52190.81	28635.65	358.80	4702.13	33696.58	5505.05	18185.95	64.56
14	Jharsuguda	16904.76	1242.16	221.66	1691.10	20059.68	1501.58	18558.10	5801.91	833.28	2367.38	9002.57	2717.15	9205.75	48.51
15	Kalahandi	45664.16	9661.16	1926.11	8961.69	66213.12	5162.06	61051.06	18949.10	644.02	4803.23	24396.35	5323.94	36133.95	39.96
16	Kandhamal	26251.55	2122.44	4436.16	2900.30	35710.45	2869.73	32840.72	7005.32	157.43	2243.84	9406.59	2396.49	23281.50	28.64
17	Kendrapara	6658.70	9463.64	1731.64	8390.19	26244.17	2309.38	23934.79	9202.83	145.40	1136.84	10485.07	4395.05	13372.82	43.81
18	Keonjhar	55950.32	11788.53	11495.85	9864.13	89098.83	7919.72	81179.11	27552.61	541.85	5984.28	34078.74	6604.91	46479.77	41.98
19	Khurda	23748.04	7792.40	6000.27	8986.86	46527.57	3745.76	42781.81	15789.85	1845.35	6810.59	24445.79	7983.59	18183.64	57.14
20	Koraput	41774.15	3838.75	4155.74	5759.30	55527.94	4593.79	50934.15	5955.63	575.28	4344.40	10875.31	4827.20	39576.03	21.35
21	Malkangiri	24241.28	3944.23	1152.11	4101.58	33439.20	2971.57	30467.63	3048.64	0.00	1994.29	5042.93	2256.78	25162.18	16.55
22	Mayurbhanj	86566.10	19024.07	18391.17	23689.91	147671.25	10617.61	137053.64	48251.04	195.46	7643.41	56089.91	8297.08	80310.10	40.93
23	Nabarangapur	50789.01	3054.23	3944.29	3960.07	61747.60	4902.83	56844.77	15224.73	155.23	3738.40	19118.36	4141.86	37322.96	33.63
24	Nayagarh	22987.19	4543.21	5223.69	5964.22	38718.31	2820.30	35898.01	10896.36	19.89	3207.69	14123.94	8151.34	21461.60	39.34
25	Nuapada	22077.90	4755.56	706.77	4475.91	32016.14	2786.91	29229.23	16020.37	92.31	1861.69	17974.37	2030.79	11085.77	61.49
26	Puri	30114.07	10788.78	7134.83	16395.63	64433.31	4885.97	59547.34	25540.45	0.00	4846.58	30387.03	6169.99	28670.51	51.03
27	Rayagada	24634.67	3347.22	4565.28	2512.03	35059.20	2611.12	32448.08	5993.67	672.13	2931.97	9597.77	3199.55	22582.72	29.58
28	Sambalpur	45947.10	6636.67	311.18	10572.54	63467.49	5393.02	58074.47	12396.63	957.58	3145.44	16499.66	3356.47	41363.80	28.41
29	Subarnapur	18951.66	3373.30	155.57	4280.89	26761.42	1975.94	24785.48	9384.36	58.48	1854.45	11297.29	1988.05	13354.58	45.58
30	Sundargarh	69611.97	7402.83	2479.81	6182.00	85676.61	6372.00	79304.61	21873.00	2125.10	5957.88	29955.98	6671.02	48635.51	37.77
	Total (Ham)	**1026321.56**	**271286.10**	**150585.46**	**260196.93**	**1708390.05**	**137096.60**	**1571293.39**	**549697.72**	**15309.65**	**120884.86**	**685892.22**	**146488.91**	**874475.65**	**43.65**
	Total (Bcm)	**10.26**	**2.71**	**1.51**	**2.60**	**17.08**	**1.37**	**15.71**	**5.50**	**0.15**	**1.21**	**6.86**	**1.46**	**8.74**	**43.65**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

PUNJAB

S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	Amritsar	30246.39	81171.44	7081.70	37732.05	156231.58	14095.72	142135.86	231752.99	0.00	6118.31	237871.28	6551.93		167.35
2	Barnala	12024.40	27036.29	1666.75	19339.02	60066.46	6006.65	54059.81	111928.33	0.00	2421.33	114349.67	2601.73		211.52
3	Bathinda	20865.88	69222.77	4288.38	42111.85	136488.88	13648.89	122839.99	125652.69	0.00	5623.60	131276.27	6032.27	16351.76	106.87
4	Faridkot	11820.77	43654.25	1935.26	21663.46	79073.74	7907.38	71166.36	96187.46	0.00	2482.01	98669.47	2649.10		138.65
5	Fatehgarh Sahib	15510.46	25160.19	2491.58	19557.80	62720.03	6272.01	56448.02	111794.17	0.00	2435.62	114229.78	2617.09		202.36
6	Fazilka	17160.61	53379.95	3553.68	29992.97	104087.21	10408.72	93678.49	69207.44	0.00	4485.04	73692.47	4563.13	30009.50	78.67
7	Ferozpur	17408.13	81247.11	3062.59	47139.27	148857.10	14885.71	133971.40	176083.52	0.00	3079.35	179162.89	3132.96	0.00	133.73
8	Gurdaspur	37602.34	91102.61	8668.80	46367.17	183740.92	16447.72	167293.20	201952.04	0.00	6255.43	208207.47	6364.34	6611.82	124.46
9	Hoshiarpur	43331.75	26967.03	9165.17	17711.60	97175.55	8249.31	88926.24	85082.58	0.00	5907.19	90989.79	6010.06	13474.80	102.32
10	Jalandhar	31116.88	39687.34	6051.18	36295.24	113150.64	10713.84	102436.80	251910.53	0.00	11954.52	263865.05	12162.66		257.59
11	Kapurthala	17460.87	37042.94	2309.62	17544.56	74357.99	7435.81	66922.18	144594.63	0.00	3051.64	147646.25	3104.78		220.62
12	Ludhiana	39571.10	85019.31	6801.01	51055.03	182446.45	18244.64	164201.81	333423.17	0.00	13305.85	346729.02	13553.96		211.16
13	Mansa	14600.38	53424.87	3015.65	35633.51	106674.41	10667.45	96006.96	145003.12	0.00	2869.29	147872.41	2919.24		154.02
14	Moga	19045.87	52800.42	3611.96	24797.07	100255.32	10025.54	90229.78	222261.32	0.00	3678.05	225939.38	3742.10		250.40
15	Muktsar	17456.05	61883.00	3868.02	45742.07	128949.14	12894.91	116054.23	47104.28	0.00	3369.00	50473.28	3427.66	65522.29	43.49
16	Nawanshahar	14961.92	32545.09	2644.72	18319.99	68471.72	6847.18	61624.54	69984.97	0.00	2292.88	72277.85	2332.80	3594.93	117.29
17	Pathankot	11415.43	17734.28	2609.41	9741.37	41500.49	4150.05	37350.44	17354.51	0.00	2517.86	19872.38	2561.71	17434.21	53.21
18	Patiala	40795.53	49284.25	6088.51	43284.88	139453.17	13321.64	126131.53	278538.39	0.00	7062.23	285600.63	7185.19	0.00	226.43
19	Ropar	15453.20	14259.59	2724.13	12118.49	44555.41	3577.86	40977.55	38798.01	0.00	2550.34	41348.38	2594.75	6083.45	100.90
20	S.A.S Nagar	15697.93	6332.71	3175.73	4323.89	29530.26	2655.87	26874.39	24267.79	0.00	4004.37	28272.17	4302.72	2558.01	105.20
21	Sangrur	33711.30	52498.95	5324.79	32657.78	124192.82	12419.28	111773.54	331513.91	0.00	5617.31	337131.21	5715.12	0.00	301.62
22	Tarn Taran	23779.36	40900.63	5249.60	27745.42	97675.01	9767.51	87907.50	165811.66	0.00	4180.28	169991.95	4253.06	0.00	193.38
	Total (Ham)	**501036.55**	**1042355.02**	**95388.24**	**640874.49**	**2279654.30**	**220643.69**	**2059010.61**	**3280207.50**	**0.00**	**105261.50**	**3385469.05**	**108378.36**	**161640.77**	**164.42**
	Total (Bcm)	**5.01**	**10.42**	**0.95**	**6.41**	**22.80**	**2.21**	**20.59**	**32.80**	**0.00**	**1.05**	**33.85**	**1.08**	**1.62**	**164.42**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

RAJASTHAN

S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	Ajmer	25228.61	1333.23	67.89	14620.62	41250.35	4042.84	37207.51	61285.80	0.00	4270.52	65556.32	4270.52	0.00	176.19
2	Alwar	60356.26	1036.55	1864.89	4815.76	68073.46	6286.01	61787.45	111636.96	5019.56	12743.61	129400.14	12743.61	0.00	209.43
3	Banswara	10031.40	225.32	0.00	10027.65	20284.37	2028.44	18255.93	9683.01	0.00	2163.79	11846.81	2163.78	6413.46	64.89
4	Baran	45589.07	4421.80	0.00	18775.41	68786.28	6399.05	62387.23	65222.81	0.00	6207.26	71430.07	6207.26	7281.37	114.49
5	Barmer	34497.75	432.09	199.13	2239.72	37368.69	3394.30	33974.38	36162.09	0.00	6439.43	42601.54	7670.80	1890.03	125.39
6	Bharatpur	25726.82	1445.85	663.64	5183.97	33020.28	3203.92	29816.35	35445.92	425.43	5088.75	40960.10	6092.05	66.21	137.37
7	Bhilwara	29011.57	332.53	1884.35	11959.97	43188.42	4311.19	38877.22	53065.49	0.00	4835.15	57900.67	4835.14	1401.90	148.93
8	Bikaner	28639.77	830.04	6698.08	1711.62	37879.51	3394.98	34484.53	40642.85	0.00	7997.26	48640.12	7997.26	5217.92	141.05
9	Bundi	18242.78	1224.68	0.00	14179.82	33647.28	3294.44	30352.82	26164.40	0.00	3537.23	29701.62	3537.22	4853.45	97.85
10	Chittaurgarh	26356.67	1867.00	1244.29	13638.83	43106.79	4273.49	38833.29	57837.94	1213.07	1543.90	60594.91	1543.89	24.77	156.04
11	Churu	11301.83	12.69	1221.79	365.17	12901.48	1290.16	11611.32	10753.70	0.00	2656.47	13410.16	2656.48	1799.66	115.49
12	Dausa	24153.82	249.88	66.00	2960.93	27430.63	2743.07	24687.56	49482.21	0.00	3921.82	53404.04	3921.83	0.00	216.32
13	Dhaulpur	18236.14	1268.19	443.04	5129.12	25076.49	1895.45	23181.04	28622.04	15.03	3301.30	31938.36	3301.30	269.13	137.78
14	Dungarpur	10038.64	1760.88	313.29	7621.56	19734.37	1973.46	17760.91	9062.64	0.00	843.81	9906.46	843.81	7854.45	55.78
15	Ganganagar	5362.67	16156.82	1587.28	25830.78	48937.55	4325.09	44612.46	17352.44	0.00	33.67	17386.10	63.49	27226.37	38.97
16	Hanumangarh	5347.30	6890.83	1583.96	8418.59	22240.68	2159.42	20081.26	11859.00	0.00	850.15	12709.15	1094.45	7372.11	63.29
17	Jaipur	67546.48	2073.35	584.25	7511.09	77715.17	7771.53	69943.64	109676.81	3851.72	48192.87	161721.43	48192.86	0.00	231.22
18	Jaisalmer	7906.18	304.47	325.92	913.40	9449.97	945.00	8504.97	24357.56	0.00	2741.58	27099.13	2741.57	0.00	318.63
19	Jalor	42489.21	1576.22	0.00	11889.22	55954.65	5393.43	50561.22	90890.21	0.00	4186.08	95076.31	4229.28	1350.09	188.04
20	Jhalawar	39501.08	2773.79	0.00	12723.91	54998.78	5284.28	49714.49	52632.47	0.00	3584.73	56217.16	3584.73	5422.11	113.08
21	Jhunjhunun	21604.23	296.41	1448.35	1482.03	24831.02	2483.12	22347.90	35569.02	0.00	11482.48	47051.50	11531.53	0.00	210.54
22	Jodhpur	33250.31	729.37	1169.67	2845.68	37995.03	3691.77	34303.26	71501.08	0.00	15653.64	87154.73	15900.80	732.80	254.07
23	Karauli	28404.44	493.35	1057.52	4155.72	34111.03	3286.11	30824.92	43466.39	0.00	4808.02	48274.43	4808.02	1640.09	156.61
24	Kota	29223.01	2595.11	0.00	18094.52	49912.64	4991.27	44921.37	35688.23	0.00	7296.40	42984.61	7296.41	7033.32	95.69
25	Nagaur	48061.87	177.80	1380.13	3935.98	53555.78	4731.41	48824.36	82274.92	0.00	13933.66	96208.60	14476.86	280.21	197.05
26	Pali	28632.36	786.53	0.00	3484.46	32903.35	3290.37	29612.98	41224.14	0.00	3140.36	44364.49	3144.97	497.18	149.81
27	Pratapgarh	14063.20	169.69	647.52	7344.23	22224.64	2045.86	20178.77	25014.94	0.00	520.14	25535.09	520.15	1225.10	126.54
28	Rajsamand	8092.47	317.26	9.26	3028.23	11447.22	1096.87	10350.35	9916.66	256.30	2138.37	12311.36	2138.37	478.12	118.95
29	Sawai Madhopur	27299.42	1942.60	0.00	8890.04	38132.06	3813.21	34318.85	56358.79	0.00	7836.38	64195.21	7836.38	0.00	187.06
30	Sikar	30938.42	1187.97	4924.70	1979.22	39030.31	3701.37	35328.94	49295.17	0.00	11413.89	60709.06	11413.89	385.42	171.84
31	Sirohi	24865.07	547.74	0.00	2035.40	27448.21	2744.83	24703.38	29659.80	327.00	1558.40	31545.22	1558.40	1320.04	127.70
32	Tonk	28339.46	2297.11	0.00	10053.33	40689.90	3658.11	37031.79	31925.48	0.00	5686.61	37612.12	5686.62	5097.20	101.57
33	Udaipur	21414.21	520.39	0.00	9155.41	31090.01	3109.01	27981.01	23157.91	1955.92	2911.42	28025.30	2911.41	1676.56	100.16
	Total (Ham)	**879752.52**	**58277.54**	**29384.95**	**257001.39**	**1224416.40**	**117052.86**	**1107363.46**	**1436888.85**	**13064.03**	**213519.14**	**1663472.32**	**216915.14**	**98809.07**	**150.22**
	Total (Bcm)	**8.80**	**0.58**	**0.29**	**2.57**	**12.24**	**1.17**	**11.07**	**14.37**	**0.13**	**2.14**	**16.63**	**2.17**	**0.99**	**150.22**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020															
SIKKIM															
S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	East	13769.38	0.00	0.00	0.00	13769.38	1376.94	12392.44	0.00	91.54	271.01	362.55	688.14	11612.77	2.93
2	North	63769.76	0.00	0.00	0.00	63769.76	6376.98	57392.78	0.00	0.00	37.09	37.09	94.17	57298.61	0.06
3	South	6614.02	0.00	0.00	0.00	6614.02	661.40	5952.62	0.00	83.16	135.78	218.94	344.75	5524.71	3.68
4	West	11896.96	0.00	0.00	0.00	11896.96	1189.70	10707.26	0.00	0.00	124.53	124.53	316.20	10391.06	1.16
	Total (Ham)	**96050.12**	**0.00**	**0.00**	**0.00**	**96050.12**	**9605.02**	**86445.10**	**0.00**	**174.70**	**568.41**	**743.11**	**1443.26**	**84827.15**	**0.86**
	Total (Bcm)	**0.96**	**0.00**	**0.00**	**0.00**	**0.96**	**0.10**	**0.86**	**0.00**	**0.00**	**0.01**	**0.01**	**0.01**	**0.85**	**0.86**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

TAMIL NADU

S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	Ariyalur	18394.24	18888.59	2555.34	1710.97	41549.14	3871.58	37677.56	14318.00	0.00	972.91	15290.90	1052.41	22307.16	40.58
2	Chengalpattu	19018.25	31821.01	6.24	2411.59	53257.09	5227.37	48029.72	32704.52	546.80	1137.72	34389.02	1259.10	14087.01	71.60
3	Chennai	4276.33	558.10	216.29	185.95	5236.67	518.92	4717.75	241.05	1914.64	4601.06	6756.72	4633.31	572.90	143.22
4	Coimbatore	19884.52	16371.35	3032.65	9362.26	48650.78	4743.27	43907.51	44737.00	483.01	4415.54	49635.60	4796.26	4130.24	113.05
5	Cuddalore	16047.48	47709.53	7604.28	14833.81	86195.10	8515.68	77679.42	57970.79	1053.80	7677.42	66702.03	7885.93	21388.14	85.87
6	Dharmapuri	17992.27	10404.79	2685.36	9539.28	40621.70	3914.19	36707.51	40988.15	12.60	3184.04	44184.81	8615.42	2652.30	120.37
7	Dindigul	16954.55	25490.31	1900.40	10364.91	54710.17	5471.07	49239.10	57604.36	217.90	3680.14	61502.41	3951.82	9021.46	124.91
8	Erode	14780.37	37362.81	3635.10	9925.64	65703.92	6237.95	59465.96	57899.30	193.02	6389.51	64481.82	18345.24	3904.35	108.43
9	Kallakkurichi	19286.24	28264.92	12373.71	8493.49	68418.36	6718.97	61699.39	51598.01	31.60	3138.88	54768.49	3159.60	10021.86	88.77
10	Kancheepuram	16254.98	22915.01	29.60	6639.50	45839.09	4138.91	41700.19	21698.52	1181.50	859.51	23739.53	924.41	18370.94	56.93
11	Kanniyakumari	6280.63	15764.92	1944.60	4196.64	28186.79	2747.26	25439.53	3961.60	211.41	853.40	5026.37	913.87	20955.83	19.76
12	Karur	11455.44	13675.39	2623.56	2541.53	30295.92	2982.18	27313.74	27672.86	214.56	1008.71	28896.11	1087.61	4500.80	105.79
13	Krishnagiri	17565.97	17462.09	2748.45	7766.40	45542.91	4400.72	41142.19	39233.20	1073.10	3986.90	44293.19	9836.46	4458.84	107.66
14	Madurai	23069.49	29627.51	3160.92	11487.47	67345.39	6550.27	60795.13	37692.26	1009.70	3383.61	42085.52	3534.46	22609.98	69.23
15	Nagapattinam	7004.73	4598.75	174.21	300.19	12077.88	1207.79	10870.09	14322.99	0.00	960.80	15283.78	1566.86	622.93	140.60
16	Namakkal	20489.02	14612.50	4640.01	3113.56	42855.09	4285.56	38569.53	50663.88	57.50	1550.85	52272.21	1661.17	7293.50	135.53
17	Perambalur	9486.75	10711.09	715.74	2959.35	23872.93	2387.31	21485.62	24733.40	0.00	657.75	25391.14	711.52	5786.71	118.18
18	Pudukkottai	36670.97	60538.64	4434.57	4967.63	106611.81	10469.86	96141.95	43627.36	0.00	1739.91	45367.30	1882.08	50661.05	47.19
19	Ramanathapuram	25925.73	40116.62	4366.17	7150.55	77559.07	7671.00	69888.07	5938.64	0.00	1405.08	7343.72	1892.69	62457.12	10.51
20	Ranipet	15060.12	13640.59	2272.37	1111.57	32084.65	3208.49	28876.17	24215.42	1091.20	1200.27	26506.88	2006.76	4046.25	91.79
21	Salem	19063.63	23103.66	1706.95	7480.34	51354.58	5112.99	46241.57	65802.06	14.60	4906.98	70723.54	13277.35	10870.52	152.94
22	Sivaganga	29475.64	32179.39	2800.34	1049.57	65504.94	6453.07	59051.87	12751.48	0.00	2532.30	15283.77	6851.96	39448.48	25.88
23	Tenkasi	10786.63	32622.57	3637.76	2218.01	49264.97	4884.66	44380.32	38217.43	173.60	1842.04	40233.08	1975.57	27256.02	90.66
24	Thanjavur	44861.47	31650.81	7628.47	6514.66	90655.41	8975.28	81680.12	83201.68	131.00	2819.40	86152.07	2921.66	21368.43	105.47
25	The Nilgiris	8018.46	357.54	1279.14	155.86	9811.00	981.09	8829.91	595.00	48.42	997.17	1640.57	1835.92	6547.16	18.58
26	Theni	6744.92	21722.00	5589.77	4343.88	38400.57	3840.06	34560.51	24893.49	57.98	1224.87	26176.34	1270.84	8821.63	75.74
27	Thiruvallur	52490.70	29458.56	52.79	6593.62	88595.67	8244.91	80350.76	43350.32	3336.48	4851.92	51538.74	6511.82	28590.15	64.14
28	Thiruvarur	7655.24	17694.98	389.91	1499.12	27239.25	2723.95	24515.31	20228.15	19.25	1986.41	22233.84	3507.92	5581.81	90.69
29	Thoothukkudi	19749.66	24603.43	3091.47	5797.82	53242.38	5069.47	48172.91	20101.70	155.00	1425.66	21682.34	1506.32	28441.22	45.01
30	Tiruchirappalli	19657.35	44195.08	2586.98	7536.49	73975.90	7195.05	66780.85	52797.68	152.00	5000.71	57950.38	8217.82	21738.93	86.78
31	Tirunelveli	27076.53	30639.94	4025.75	4829.67	66571.89	6431.86	60140.03	27698.90	30.40	1002.60	28731.92	1062.47	33791.57	47.78
32	Tirupathur	4787.14	6484.95	411.30	926.71	12610.10	1260.99	11349.10	11903.91	66.02	3512.06	15481.99	3821.94	284.58	136.42
33	Tiruppur	16871.93	25789.27	3973.39	10052.02	56686.61	5390.16	51296.45	52856.94	251.60	2879.93	55988.43	3106.37	3489.51	109.15
34	Tiruvannamalai	31800.51	48568.90	4079.28	32127.84	116576.53	10084.47	106492.06	103985.34	456.40	3092.21	107533.93	5858.15	6884.97	100.98
35	Vellore	6396.47	9315.73	1131.55	4561.48	21405.23	2140.54	19264.68	21968.21	344.10	2849.74	25162.05	5770.45	1443.77	130.61
36	Viluppuram	24904.61	35320.61	17673.62	20576.76	98475.60	9847.56	88628.04	88617.45	29.00	3011.49	91657.98	3191.60	7901.29	103.42
37	Virudhunagar	16675.69	30205.60	5319.35	9893.72	62094.36	6167.71	55926.65	31051.16	2011.67	1799.66	34862.47	1924.03	22984.27	62.34
	Total (Ham)	**682914.66**	**904447.05**	**126497.39**	**245219.86**	**1959078.96**	**190072.12**	**1769006.83**	**1351842.21**	**16569.86**	**98539.16**	**1466950.98**	**152329.17**	**565293.24**	**82.93**
	Total (Bcm)	**6.83**	**9.04**	**1.26**	**2.45**	**19.59**	**1.90**	**17.69**	**13.52**	**0.17**	**0.99**	**14.67**	**1.52**	**5.65**	**82.93**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

TELANGANA

S. No.	Name of District	Ground Water Recharge: Monsoon Season: Recharge from rainfall	Ground Water Recharge: Monsoon Season: Recharge from other sources	Ground Water Recharge: Non-monsoon Season: Recharge from rainfall	Ground Water Recharge: Non-monsoon Season: Recharge from other sources	Total Annual Ground Water Recharge	Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction: Irrigation	Current Annual Ground Water Extraction: Industrial	Current Annual Ground Water Extraction: Domestic	Current Annual Ground Water Extraction: Total	Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Adilabad	23518.98	3093.24	1595.41	3008.09	31215.73	3121.57	28094.16	11088.21	93.69	4766.07	15947.99	4766.07	12146.17	56.77
2	Bhadradri	62334.41	8660.38	8741.83	9210.29	88946.91	8210.99	80735.92	21723.49	2664.71	5763.22	30151.40	5763.23	51396.74	37.35
3	Hyderabad	1392.04	3.49	333.39	3.49	1732.41	173.24	1559.17	0.00	0.00	1750.54	1750.54	2018.36	0.00	112.27
4	Jagtial	18814.03	10648.21	2086.34	17169.92	48718.50	4235.27	44483.23	27245.34	0.00	999.14	28244.51	999.12	17134.13	63.49
5	Jangaon	15617.01	2436.31	2485.42	6366.56	26905.30	2690.52	24214.78	18669.07	367.39	2221.54	21257.99	2221.54	3547.19	87.79
6	Jayashankar	19464.45	5269.97	1006.51	7536.70	33277.62	3090.14	30187.49	14534.42	0.00	1252.11	15786.52	1252.11	14419.52	52.29
7	Jogulamba	8659.81	15647.88	2057.02	9374.99	35739.70	3573.99	32165.71	12738.71	98.38	481.47	13318.56	481.45	18847.15	41.41
8	Kamareddy	29644.39	6944.78	3024.48	13237.20	52850.84	5168.10	47682.74	29056.34	0.00	2050.97	31107.34	2050.98	16575.39	65.24
9	Karimnagar	16310.44	6876.03	2132.74	30542.62	55861.83	5586.18	50275.65	24508.23	91.78	1647.15	26247.18	1647.14	24113.85	52.21
10	Khammam	32508.58	34933.54	6163.33	43130.66	116736.10	11650.29	105085.81	37780.46	39.60	3768.67	41588.70	3768.67	64094.80	39.58
11	Komarambhem	35570.49	788.28	820.67	1435.92	38615.37	3086.70	35528.67	6487.09	0.00	2067.00	8554.05	2067.01	26974.62	24.08
12	Mahabubabad	26150.10	7796.88	3512.20	14412.96	51872.14	5187.28	46684.86	25102.86	1052.28	1503.41	27658.57	1503.41	19034.24	59.25
13	Mahabubnagar	12051.88	3822.94	2557.81	7203.39	25636.03	2410.44	23225.58	17743.81	32.00	850.53	18626.34	850.54	4682.83	80.20
14	Mancherial	52883.45	21950.84	446.72	17738.33	93019.33	7508.99	85510.34	20541.33	148.75	6517.44	27207.52	6517.44	58302.82	31.82
15	Medak	19297.86	9570.17	2776.51	12415.69	44060.23	4343.04	39717.19	25614.91	141.16	825.70	26581.77	825.70	13135.42	66.93
16	Medchal	6346.52	815.01	1348.63	1382.75	9892.91	989.28	8903.63	3438.78	1505.60	1067.12	6011.52	1067.12	2892.11	67.52
17	Mulug	23641.35	5969.12	1932.83	8432.90	39976.21	3997.64	35978.57	15807.78	37.57	198.10	16043.44	198.09	19935.13	44.59
18	Nagarkurnool	27095.82	4968.34	7025.10	9041.39	48130.66	4813.09	43317.57	24731.66	127.12	5003.20	29862.00	5003.19	13474.85	68.94
19	Nalgonda	36370.33	34403.22	8545.77	43366.36	122685.67	12183.56	110502.11	47544.69	2596.16	5542.71	55683.53	5542.72	55204.42	50.39
20	Narayanpet	9665.91	8957.20	2337.25	8561.13	29521.50	2952.17	26569.33	12197.94	379.03	58.18	12635.15	58.17	13934.18	47.56
21	Nirmal	28589.72	8178.28	2175.45	12910.32	51853.77	5087.25	46766.52	18586.19	0.00	1840.86	20427.10	1840.84	26339.42	43.68
22	Nizamabad	39765.93	16014.93	3522.02	22496.68	81799.56	8179.97	73619.60	51729.34	194.52	1944.54	53868.41	1944.54	20692.52	73.17
23	Peddapalle	15796.65	4444.77	1603.25	26518.36	48363.03	3902.40	44460.63	18460.14	0.00	1561.77	20021.89	1561.77	24442.11	45.03
24	Rajanna	14453.61	3610.11	2051.95	6229.01	26344.67	2634.49	23710.18	25854.46	135.54	569.70	26559.70	569.71	2300.63	112.02
25	Rangareddy	26064.28	4038.11	6193.31	6043.43	42339.12	4233.97	38105.15	24129.71	1701.84	4936.10	30767.67	4936.10	7459.98	80.74
26	Sangareddy	21759.89	4089.32	4970.77	5671.63	36491.61	3575.74	32915.86	20410.94	301.21	2171.20	22883.37	2171.20	10344.26	69.52
27	Siddipet	22936.68	9656.88	4317.55	16748.55	53659.65	5365.99	48293.66	36649.84	247.82	969.28	37866.96	969.28	10448.43	78.41
28	Suryapet	22902.26	53466.56	3509.49	54329.06	134207.37	13420.75	120786.62	31331.39	38.16	2562.87	33932.44	2562.86	86913.23	28.09
29	Vikarabad	21417.22	2075.60	3143.47	5520.89	32157.18	3044.36	29112.82	16581.64	33.65	2768.12	19383.43	2768.12	9729.39	66.58
30	Wanaparthy	8998.53	5048.28	10289.35	7168.27	31504.43	3094.89	28409.53	11954.01	0.00	1306.33	13260.32	1306.33	15149.50	46.68
31	Warangal_Rural	19164.15	10249.42	2243.65	24970.10	56627.32	5539.56	51087.75	19725.88	1376.55	349.06	21451.49	505.54	29481.87	41.99
32	Warangal_Urban	11101.28	3564.15	378.50	6195.92	21239.84	2097.03	19142.81	15842.96	0.00	1172.60	17015.55	1172.60	4405.61	88.89
33	Yadadri	19356.16	10514.91	4392.68	16506.29	50770.04	4991.49	45778.54	25676.92	1024.12	2795.82	29496.86	2795.81	16351.38	64.43
	Total (Ham)	**749644.22**	**328507.14**	**109721.39**	**474879.83**	**1662752.58**	**160140.38**	**1502612.20**	**713488.53**	**14428.63**	**73282.50**	**801199.87**	**73706.75**	**713903.91**	**53.32**
	Total (Bcm)	**7.50**	**3.29**	**1.10**	**4.75**	**16.63**	**1.60**	**15.03**	**7.13**	**0.14**	**0.73**	**8.01**	**0.74**	**7.14**	**53.32**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020															
TRIPURA															
S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	Dhalai	13299.86	627.91	6788.58	2913.84	23630.19	5533.75	18096.44	40.80	2.90	891.00	934.70	1011.80	17041.00	5.17
2	Gomati	14330.39	1014.36	5729.11	3656.41	24730.27	3078.38	21651.89	84.00	0.12	859.63	943.76	934.71	20633.05	4.36
3	Khowai	6767.03	678.78	2710.15	2365.27	12521.23	1089.42	11431.81	306.60	2.38	631.88	940.86	679.23	10443.59	8.23
4	North Tripura	7477.90	547.36	3906.47	2098.15	14029.88	3478.86	10551.02	32.40	1.87	948.50	982.76	1049.11	9467.63	9.31
5	Siphahijala	10870.68	868.40	4039.85	3120.79	18899.72	2401.15	16498.57	703.80	1.51	982.03	1687.33	1055.63	14737.64	10.23
6	South Tripura	15127.23	853.58	4232.66	3087.70	23301.17	3909.95	19391.22	171.60	0.95	908.81	1081.38	988.18	18230.46	5.58
7	Unakoti	6288.23	531.75	2799.21	1948.38	11567.57	1303.51	10264.06	4.80	0.05	632.42	637.27	699.51	9559.70	6.21
8	West Tripura	10678.63	838.67	3749.89	3002.57	18269.76	1700.34	16569.42	624.00	5.69	2043.65	2673.32	2208.41	13731.34	16.13
	Total (Ham)	**84839.95**	**5960.81**	**33955.92**	**22193.11**	**146949.79**	**22495.36**	**124454.43**	**1968.00**	**15.47**	**7897.90**	**9881.34**	**8626.55**	**113844.41**	**7.94**
	Total (Bcm)	**0.85**	**0.06**	**0.34**	**0.22**	**1.47**	**0.22**	**1.24**	**0.02**	**0.0002**	**0.08**	**0.10**	**0.09**	**1.14**	**7.94**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

UTTAR PRADESH

S. No.	Name of District	Ground Water Recharge: Monsoon Season: Recharge from rainfall	Ground Water Recharge: Monsoon Season: Recharge from other sources	Ground Water Recharge: Non-monsoon Season: Recharge from rainfall	Ground Water Recharge: Non-monsoon Season: Recharge from other sources	Total Annual Ground Water Recharge	Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction: Irrigation	Current Annual Ground Water Extraction: Industrial	Current Annual Ground Water Extraction: Domestic	Current Annual Ground Water Extraction: Total	Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Agra	46874.16	14095.73	652.55	23756.78	85379.22	6203.69	79175.53	82090.24	0.00	10386.66	92476.90	11671.76	4936.82	116.80
2	Aligarh	55114.00	14673.90	3079.62	32242.43	105109.95	8674.49	96435.46	58849.03	0.00	11080.98	69930.01	12635.10	28986.07	72.51
3	Ambedkar Nagar	51627.40	12365.43	387.87	16021.81	80402.51	7062.11	73340.40	39455.32	0.00	6033.74	45489.06	6670.83	27214.24	62.02
4	Amethi	40352.54	20923.02	891.90	28145.88	90313.34	8286.10	82027.24	45357.00	0.00	4729.24	50086.24	5243.71	31426.53	61.06
5	Amroha	35354.74	6202.05	2016.91	9923.03	53496.73	2674.85	50821.88	44426.08	0.00	4564.47	48990.55	5188.02	3481.23	96.40
6	Aurraiya	32998.17	12464.06	1414.93	25970.98	72848.14	6502.76	66345.38	29753.60	0.00	2811.57	32565.17	3041.69	33550.08	49.08
7	Ayodhya	54982.69	15418.54	715.74	28749.66	99866.63	7889.13	91977.50	51372.96	0.00	6691.13	58064.09	7822.51	32782.02	63.13
8	Azamgarh	62092.79	23175.98	0.00	35731.33	121000.10	7748.38	113251.72	64876.48	0.00	12787.70	77664.18	14836.82	33538.44	68.58
9	Baghpat	16608.52	8267.17	1222.67	12927.22	39025.58	3119.27	35906.31	35149.16	0.00	2.45	35151.61	2.60	2419.68	97.90
10	Bahraich	87156.59	18078.22	3863.07	31599.66	140697.54	8406.59	132290.95	62375.08	0.00	9178.60	71553.68	10470.83	59445.07	54.09
11	Ballia	57231.32	13717.04	547.50	22032.83	93528.69	6465.43	87063.26	46915.44	0.00	7698.07	54613.51	8772.29	31375.53	62.73
12	Balrampur	61981.74	9818.66	6270.59	17104.81	95175.80	7884.46	87291.34	43492.24	0.00	5795.61	49287.85	6750.02	37049.06	56.46
13	Banda	49146.14	6735.10	519.80	11056.88	67457.92	4389.58	63068.34	37248.09	0.00	3762.52	41010.61	4256.96	21563.31	65.03
14	Barabanki	73808.32	45072.05	1657.39	84096.03	204633.79	15406.27	189227.52	107211.15	0.00	8511.84	115722.99	9670.51	72345.88	61.16
15	Bareili	82098.23	17554.41	3109.74	29694.68	132457.06	7003.68	125453.38	72084.80	0.00	13150.76	85235.56	14695.65	41749.49	67.94
16	Basti	63481.53	5522.12	829.32	9011.66	78844.63	6365.42	72479.21	39328.12	0.00	6212.45	45540.57	6902.14	26248.92	62.83
17	Bijnaur	90035.80	18274.04	6117.09	32201.59	146628.52	11040.00	135588.52	86484.11	0.00	7567.86	94051.97	8345.53	40758.88	69.37
18	Budaun	68192.08	5836.08	943.26	9595.56	84566.98	5441.57	79125.41	52939.36	0.00	8091.96	61031.32	9105.51	18340.29	77.13
19	Bulandshahar	49271.23	43536.67	2414.01	68823.75	164045.66	12285.66	151760.00	132226.74	0.00	6449.51	138676.25	6972.13	18475.12	91.38
20	Chandauli	32077.50	15410.99	0.00	8485.84	55974.33	4531.65	51442.68	22626.09	0.00	4439.93	27066.02	4896.29	23920.30	52.61
21	Chitrakoot	30697.23	4131.54	305.36	6042.80	41176.93	3539.43	37637.50	28736.33	0.00	2375.04	31111.37	2726.88	6174.29	82.66
22	Deoria	48883.60	45209.84	1534.42	45516.00	141143.86	12066.32	129077.54	69475.14	0.00	6870.06	76345.20	7468.53	52133.91	59.15
23	Etah	34631.75	9164.26	0.00	18546.08	62342.09	5151.70	57190.39	41172.57	0.00	4426.67	45599.24	4840.12	11177.70	79.73
24	Etawah	37198.53	15074.13	985.42	28143.00	81401.08	7023.72	74377.36	28675.37	0.00	3091.88	31767.25	3431.04	42270.94	42.71
25	Farrukhabad	36840.10	4924.99	1221.68	12972.81	55959.58	4727.45	51232.13	33753.52	0.00	3784.93	37538.45	4244.47	13234.14	73.27
26	Fatehpur	84640.60	24327.98	3736.62	36214.51	148919.71	10830.96	138088.75	90085.36	0.00	6945.93	97031.29	7940.09	40520.76	70.27
27	Firozabad	36615.11	11409.37	663.76	23645.80	72334.04	5335.15	66998.89	68630.88	0.00	6405.04	75035.92	7151.21	7236.25	112.00
28	G.B. Nagar	17852.82	18170.90	938.55	30197.13	67159.40	5924.21	61235.19	60634.00	0.00	1530.81	62164.81	1620.99	3882.66	101.52
29	Ghaziabad	13308.85	10988.67	1078.71	17617.85	42994.08	3456.81	39537.27	37002.24	0.00	8060.30	45062.54	12199.42	1678.00	113.97
30	Ghazipur	52829.48	17785.91	959.94	29128.33	100703.66	5641.14	95062.52	51244.48	0.00	6582.80	57827.28	7362.55	36455.44	60.83
31	Gonda	62117.13	14574.16	2546.00	21572.87	100810.16	5711.68	95098.48	48974.41	0.00	9194.93	58169.34	10644.32	35479.78	61.17
32	Gorakhpur	81953.64	64410.14	2056.40	29233.48	177653.66	15079.09	162574.57	88464.86	0.00	8686.27	97151.13	9644.51	64465.23	59.76
33	Hamirpur	40206.10	5725.02	0.00	7498.95	53430.07	4155.43	49274.64	31428.77	0.00	2125.79	33554.56	2255.14	15590.73	68.10
34	Hapur	17655.02	12863.80	1372.91	20510.59	52402.32	3162.81	49239.51	49326.80	0.00	3.27	49330.07	3.56	2391.80	100.18
35	Hardoi	104565.74	29991.19	5035.71	51362.01	190954.65	15909.95	175044.70	93874.65	0.00	8219.51	102094.16	9183.18	71986.87	58.32
36	Hathras	26825.12	13727.91	579.02	24930.66	66062.71	5162.58	60900.13	54238.10	0.00	3966.28	58204.38	4390.96	7743.60	95.57
37	Jalaun	77303.79	11887.53	949.23	26719.68	116860.23	9216.36	107643.87	50166.00	0.00	4162.29	54328.29	4509.25	52968.61	50.47
38	Jaunpur	75996.21	19753.21	0.00	36126.92	131876.34	10516.36	121359.98	74007.00	0.00	12180.13	86187.13	13725.89	33627.11	71.02
39	Jhansi	35884.12	21075.00	22.39	23350.22	80331.73	5122.30	75209.43	40434.77	0.00	3030.01	43464.78	3439.34	31335.34	57.79
40	Kannauj	37361.83	10242.60	1667.92	24076.62	73348.97	5180.20	68168.77	39944.50	0.00	4191.18	44135.68	4685.36	28671.84	64.74
41	Kanpur Dehat	53815.45	14683.33	461.51	27480.12	96440.41	7041.54	89398.87	61299.46	0.00	3925.70	65225.16	4202.93	23896.49	72.96
42	Kanpur Nagar	40715.03	14570.10	2014.96	31183.44	88483.53	5876.82	82606.71	55330.64	0.00	7502.80	62833.44	8000.00	19276.06	76.06
43	Kasganj	25330.22	14008.47	0.00	20681.08	60019.77	4222.71	55797.06	37232.13	0.00	3786.70	41018.83	4325.08	14239.85	73.51
44	Kaushambi	32336.86	7841.99	3333.26	12394.10	55906.21	4449.76	51456.45	35109.06	0.00	4266.45	39375.51	4995.90	12138.36	76.52
45	Kushi Nagar	54020.64	67119.23	2246.95	52404.24	175791.06	16913.59	158877.47	59050.84	0.00	8272.46	67323.30	9485.76	90340.84	42.37
46	Lakhimpur Khiri	127372.32	25179.80	7177.41	55419.80	215149.33	14291.34	200857.99	109722.42	0.00	11307.14	121029.56	13690.09	77445.49	60.26
47	Lalitpur	19387.84	6892.54	0.00	18060.74	44341.12	3189.85	41151.27	29491.40	0.00	3256.65	32748.05	3775.90	7883.96	79.58

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

UTTAR PRADESH															
S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
48	Lucknow	33891.13	16500.84	1193.78	25626.73	77212.48	5774.79	71437.69	35829.96	0.00	11666.73	47496.69	13872.83	25306.78	66.49
49	Maharajganj	67611.57	16810.53	1967.16	21137.60	107526.86	7857.60	99669.26	53353.07	0.00	6716.82	60069.89	7698.58	38617.58	60.27
50	Mahoba	9639.68	4883.41	0.00	6948.60	21471.69	1388.53	20083.16	17677.50	0.00	1114.08	18791.58	1212.54	1993.42	93.57
51	Mainpuri	39523.87	19822.93	0.00	35612.15	94958.95	7572.53	87386.42	55734.83	0.00	4770.12	60504.95	5240.74	28499.35	69.24
52	Mathura	45496.28	30198.40	0.00	48416.41	124111.09	9353.76	114757.33	77715.34	0.00	6175.51	83890.85	6972.00	33236.75	73.10
53	Mau	32398.04	5798.58	3213.88	8604.81	50015.31	3893.92	46121.39	24303.69	0.00	5989.67	30293.36	7033.82	14783.86	65.68
54	Meerut	42116.25	15539.14	2834.37	24596.20	85085.96	5989.79	79096.17	52687.00	0.00	8766.22	61453.22	9444.78	18415.22	77.69
55	Mirzapur	27003.16	16601.62	57.63	20096.67	63759.08	5317.05	58442.03	28771.40	0.00	6474.91	35246.31	7319.87	22542.11	60.31
56	Moradabad	40862.74	11462.40	1855.13	17827.52	72007.79	4440.87	67566.92	47402.83	0.00	10051.78	57454.61	11804.71	12582.82	85.03
57	Muzaffarnagar	50587.49	23665.46	3128.13	40176.05	117557.13	9403.86	108153.27	71932.20	0.00	6555.94	78488.14	7363.97	30173.69	72.57
58	Pilibhit	73382.69	14857.06	4318.14	27281.73	119839.62	7654.22	112185.40	59010.41	0.00	5158.34	64168.75	5768.94	47406.05	57.20
59	Pratapgarh	69552.90	32203.93	0.00	46208.37	147965.20	10344.54	137620.66	95016.46	0.00	7853.59	102870.05	8699.65	33904.57	74.75
60	Prayagraj	75007.83	29080.57	1663.88	41326.10	147078.38	12026.33	135052.05	83776.69	0.00	16415.99	100192.68	18291.78	35279.67	74.19
61	Rae Bareli	62824.50	25566.80	1502.35	41900.83	131794.48	9694.67	122099.81	61253.82	0.00	6725.43	67979.25	7673.42	53172.60	55.68
62	Rampur	44976.14	11690.95	1837.12	18880.57	77384.78	5494.18	71890.60	46907.99	0.00	4930.74	51838.73	5579.04	19403.58	72.11
63	S.Kabir Nagar	35894.70	4030.38	320.30	7004.99	47250.37	2986.50	44263.87	25180.86	0.00	4110.76	29291.62	4631.67	14451.35	66.18
64	S.Ravidas Nagar	18854.50	7720.63	184.70	9928.07	36687.90	3170.36	33517.54	23564.51	0.00	3336.18	26900.69	3626.50	6326.52	80.26
65	Saharanpur	67123.72	22036.58	5801.71	37584.63	132546.64	7829.98	124716.66	125786.56	0.00	6976.31	132762.87	7702.09	11256.03	106.45
66	Shahjahanpur	88882.69	17119.02	5231.84	25391.20	136624.75	9403.68	127221.07	69330.63	0.00	8071.57	77402.20	9367.31	48523.13	60.84
67	Shambhal	38786.21	3429.23	2040.90	5358.13	49614.47	3073.58	46540.89	34589.16	0.00	5401.36	39990.52	6263.01	5910.42	85.93
68	Shamli	20926.70	9034.87	1544.69	13703.88	45210.14	2660.34	42549.80	41319.36	0.00	3009.89	44329.25	3066.96	2004.04	104.18
69	Shrawasti	33714.02	4479.09	3478.99	7410.28	49082.38	2454.12	46628.26	27471.96	0.00	4.53	27476.49	5.29	19151.01	58.93
70	Siddharth Nagar	64816.89	10830.58	1409.47	15781.93	92838.87	5237.28	87601.59	47152.30	0.00	6930.18	54082.48	8079.37	32369.89	61.74
71	Sitapur	109136.46	39979.52	4825.97	70649.18	224591.13	18029.93	206561.20	107818.20	0.00	10628.90	118447.10	12255.85	86487.23	57.34
72	Sonbhadra	16651.40	4834.56	72.92	3645.20	25204.08	1830.31	23373.77	11043.47	0.00	4071.87	15115.34	4747.94	7582.39	64.67
73	Sultanpur	45564.14	18448.49	499.32	26403.64	90915.59	7272.67	83642.92	44641.36	0.00	5776.60	50417.96	6429.21	32572.33	60.28
74	Unnao	75358.84	45363.14	2650.76	65733.87	189106.61	11605.65	177500.96	99531.27	0.00	8150.97	107682.24	9372.65	68597.04	60.67
75	Varanasi	27605.99	11147.16	342.97	17952.64	57048.76	3654.40	53394.36	38375.40	0.00	10328.05	48703.45	10946.31	8690.25	91.21
	Total (Ham)	**3775021.15**	**1316010.74**	**129518.20**	**1999390.22**	**7219940.31**	**531695.79**	**6688244.52**	**4128945.02**	**0.00**	**474261.11**	**4603205.95**	**538364.20**	**2153092.69**	**68.83**
	Total (Bcm)	**37.75**	**13.16**	**1.30**	**19.99**	**72.20**	**5.32**	**66.88**	**41.29**	**0.00**	**4.74**	**46.03**	**5.38**	**21.53**	**68.83**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

UTTARAKHAND

S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	Dehradun	52367.83	2327.64	2937.08	2077.35	59709.90	4826.06	54883.83	5889.71	596.29	5460.81	11946.81	5460.81	42937.02	21.77
2	Haridwar	26494.64	6584.74	3519.38	9401.96	46000.72	4302.29	41698.43	20371.08	2330.90	2908.17	25610.14	3287.61	15708.85	61.42
3	Udham Singh Nagar	43261.97	17155.21	2439.48	15275.40	78132.06	6104.52	72027.55	31268.56	4955.87	3372.39	39596.84	3545.70	32257.40	54.97
4	Nainital	6621.38	4671.62	1601.95	5638.80	18533.75	1853.38	16680.38	5352.69	888.00	3316.11	9556.80	3316.11	7123.58	57.29
	Total (Ham)	**128745.82**	**30739.21**	**10497.89**	**32393.51**	**202376.44**	**17086.25**	**185290.19**	**62882.04**	**8771.06**	**15057.48**	**86710.59**	**15610.23**	**98026.85**	**46.80**
	Total (Bcm)	**1.29**	**0.31**	**0.10**	**0.32**	**2.02**	**0.17**	**1.85**	**0.63**	**0.09**	**0.15**	**0.87**	**0.16**	**0.98**	**46.80**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

WEST BENGAL

S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	**Bankura**	98905.53	21562.59	24886.50	32647.44	178002.06	16232.96	161769.10	69980.27	972.51	3729.71	74682.48	7362.46	84426.38	46.17
2	**Birbhum**	83998.75	7628.72	20743.15	16112.27	128482.89	11908.95	116573.94	36191.80	253.08	3695.06	40139.94	7780.42	72601.72	34.43
3	**Burdwan**	170643.19	13283.39	42504.98	35214.86	261646.42	24768.66	236877.76	94059.60	1526.33	8081.69	103667.61	15762.29	127055.87	43.76
4	**Coochbehar**	185334.09	5143.37	60379.13	12100.71	262957.30	26295.71	236661.59	42261.50	1482.42	2964.85	46708.77	5988.25	188411.84	19.74
5	**Dakshin Dinajpur**	65504.74	6432.72	17257.72	18756.55	107951.73	9115.64	98836.09	50706.00	872.90	1745.81	53324.71	3349.33	44780.76	53.95
6	**Darjeeling**	39186.21	0.00	13052.71	0.00	52238.92	5223.89	47015.03	1169.10	492.68	985.37	2647.15	2012.74	43833.19	5.63
7	**Hooghly**	87499.21	6344.07	24032.23	21148.49	139024.00	13902.41	125121.59	54601.80	1422.50	5748.92	61773.22	10669.27	59850.52	49.37
8	**Howrah**	18922.39	1114.80	5987.95	6932.33	32957.47	3295.74	29661.73	4970.00	531.85	1824.48	7326.32	6038.57	18653.16	24.70
9	**Jalpaiguri**	228086.62	3939.51	65301.46	12078.29	309405.88	30940.59	278465.29	8241.20	1465.25	2930.50	12636.95	5908.97	264315.12	4.54
10	**Malda**	96263.27	9181.20	21992.81	23347.70	150784.98	14697.37	136087.61	59108.60	2130.81	4261.62	65501.03	9828.37	67150.64	48.13
11	**Murshidabad**	137803.88	19693.42	38349.83	53252.88	249100.01	23373.65	225726.36	186187.00	2722.14	7564.57	196473.71	17323.82	22215.54	87.04
12	**Nadia**	113617.65	18299.88	43916.37	47699.21	223533.10	18795.48	204737.62	179222.20	2705.75	5411.50	187339.45	10601.16	14914.26	91.50
13	**North 24-Parganas**	105327.29	8147.66	27207.49	25564.50	166246.93	16307.62	149939.31	84524.60	4801.59	9603.18	98929.37	19035.91	46378.80	65.98
14	**Paschim Medinipore**	241691.73	12698.55	68840.05	40624.33	363854.66	34991.16	328863.50	110919.60	1666.58	6276.58	118862.75	12907.78	205036.12	36.14
15	**Purba Medinipore**	53800.58	1957.01	15434.60	10220.33	81412.52	8141.26	73271.26	21562.40	936.80	2111.08	24610.28	4341.44	47367.42	33.59
16	**Purulia**	53190.45	8011.53	14077.33	4806.45	80085.76	7361.68	72724.08	2232.80	1542.36	3084.73	6859.89	6411.97	64079.31	9.43
17	**Uttar Dinajpur**	91467.43	7541.41	22166.67	24353.83	145529.34	12014.51	133514.83	78133.60	1603.76	3207.51	82944.87	7569.33	47811.90	62.12
	Total (Ham)	**1871243.01**	**150979.82**	**526130.98**	**384860.18**	**2933213.98**	**277367.28**	**2655846.70**	**1084072.07**	**27129.31**	**73227.13**	**1184428.50**	**152892.08**	**1418882.56**	**44.60**
	Total (Bcm)	**18.71**	**1.51**	**5.26**	**3.85**	**29.33**	**2.77**	**26.56**	**10.84**	**0.27**	**0.73**	**11.84**	**1.53**	**14.19**	**44.60**

Note- The Ground water Resources Estimation 2013 (calculated using GEC 1997 Methodology) has been considered in case of West Bengal

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020															
ANDAMAN & NICOBAR ISLANDS															
S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	N & M Andaman	9770.87	10.11	0.00	2.52	9783.50	978.34	8805.16	0.80	83.04	244.17	327.99	269.19	8452.16	3.72
2	Nicobar	15184.09	0.80	0.00	0.20	15185.09	1518.51	13666.58	0.44	0.94	82.26	83.63	93.92	13574.55	0.61
3	South Andaman	6570.21	10.01	0.00	2.50	6582.72	562.40	6020.32	13.54	13.54	300.82	327.87	331.62	5661.64	5.45
	Total (Ham)	**31525.17**	**20.92**	**0.00**	**5.22**	**31551.31**	**3059.25**	**28492.06**	**14.79**	**97.52**	**627.25**	**739.49**	**694.73**	**27688.35**	**2.60**
	Total (Bcm)	**0.32**	**0.0002**	**0.00**	**0.0001**	**0.32**	**0.03**	**0.28**	**0.0001**	**0.001**	**0.0063**	**0.01**	**0.01**	**0.28**	**2.60**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020															
CHANDIGARH															
S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	Chandigarh	1187.79	1610.84	481.54	3095.43	6375.60	637.56	5738.04	950.70	190.80	3483.20	4624.70	3483.20	1113.34	80.60
	Total (Ham)	1187.79	1610.84	481.54	3095.43	6375.60	637.56	5738.04	950.70	190.80	3483.20	4624.70	3483.20	1113.34	80.60
	Total (Bcm)	0.01	0.02	0.005	0.03	0.06	0.006	0.06	0.01	0.002	0.03	0.05	0.03	0.01	80.60

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

DADRA & NAGAR HAVELI

S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
	Dadra & Nagar Haveli	4306.48	661.77	329.73	1948.30	7246.26	494.21	6752.05	888.62	649.04	1568.14	3105.80	1798.23	3416.16	45.99
	Total (Ham)	**4306.48**	**661.77**	**329.73**	**1948.30**	**7246.26**	**494.21**	**6752.05**	**888.62**	**649.04**	**1568.14**	**3105.80**	**1798.23**	**3416.16**	**45.99**
	Total (Bcm)	**0.04**	**0.01**	**0.003**	**0.02**	**0.07**	**0.005**	**0.07**	**0.01**	**0.01**	**0.02**	**0.03**	**0.02**	**0.03**	**45.99**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

DAMAN & DIU

S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	Daman	2551.89	35.50	0.00	67.92	2655.31	132.77	2522.54	215.10	2867.00	0.00	3082.10	1412.67	0.00	122.18
2	Diu	208.15	14.13	0.00	23.09	245.37	12.26	233.11	42.20	0.00	0.00	42.20	175.69	15.22	18.10
	Total (Ham)	**2760.04**	**49.63**	**0.00**	**91.01**	**2900.68**	**145.03**	**2755.65**	**257.30**	**2867.00**	**0.00**	**3124.30**	**1588.36**	**15.22**	**113.38**
	Total (Bcm)	**0.03**	**0.0005**	**0.00**	**0.0009**	**0.03**	**0.001**	**0.03**	**0.003**	**0.03**	**0.00**	**0.03**	**0.02**	**0.0002**	**113.38**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

JAMMU & KASHMIR

S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	Anantnag	2429.26	7761.42	9570.73	2013.10	21774.51	2177.45	19597.06	420.80	37.80	3626.64	4085.24	3626.64	15511.82	20.85
2	Bandipora	103.97	7.10	515.52	14.50	641.09	64.11	576.98	31.54	3.50	361.38	396.42	404.37	137.57	68.71
3	Baramulla	4342.60	25244.20	18631.91	8574.35	56793.06	5679.31	51113.75	51.51	17.29	5918.26	5987.06	5918.26	45126.69	11.71
4	Budgam	2226.42	26972.65	7847.64	5244.91	42291.62	4229.17	38062.45	103.04	4721.46	4036.61	8861.11	4036.61	29201.34	23.28
5	Doda	51.68	661.15	200.84	161.07	1074.74	107.47	967.27	105.10	17.60	308.76	431.46	344.85	499.72	44.61
6	Ganderbal	236.00	1290.00	805.31	702.00	3033.31	303.33	2729.98	420.48	31.83	443.39	895.69	506.60	1771.08	32.81
7	Jammu	29803.72	29627.23	12249.84	17131.74	88812.53	8881.25	79931.28	10084.80	2427.81	10852.36	23364.97	10852.36	56566.31	29.23
8	Kathua	17246.22	13411.33	4401.97	10059.18	45118.70	3930.82	41187.87	4050.86	1019.66	6238.86	11309.38	6320.23	29797.12	27.46
9	Kishtwar	101.29	745.00	393.62	390.00	1629.91	162.99	1466.92	31.50	0.00	147.17	178.67	147.17	1288.25	12.18
10	Kulgam	532.35	4542.65	2097.34	2206.23	9378.57	937.86	8440.71	147.28	29.16	1650.38	1826.83	1650.38	6613.88	21.64
11	Kupwara	1581.89	17403.20	9533.57	5467.41	33986.07	3398.61	30587.46	51.51	35.00	3132.58	3219.09	3132.58	27368.37	10.52
12	Poonch	3202.66	9401.90	3023.84	6974.31	22602.71	2260.28	20342.43	717.50	17.50	1339.41	2074.40	1495.85	18111.59	10.20
13	Pulwama	1787.54	13828.05	4395.03	3837.02	23847.64	2384.76	21462.88	1391.01	3572.18	3195.65	8158.82	3195.65	13304.06	38.01
14	Rajouri	4318.86	15657.48	1576.88	7557.19	29110.41	2911.05	26199.36	304.50	17.50	1479.02	1801.03	1528.60	24348.75	6.87
15	Ramban	107.77	665.55	321.06	349.63	1444.01	144.40	1299.61	31.50	17.50	337.97	386.97	381.68	868.93	29.78
16	Reasi	790.68	2776.04	1669.25	1249.15	6485.12	648.52	5836.60	178.70	52.56	935.78	1167.05	986.04	4619.29	20.00
17	Samba	4338.50	13492.81	8287.72	9273.21	35392.24	3539.22	31853.02	1274.46	126.12	1762.85	3163.43	1798.98	28653.46	9.93
18	Shopian	946.31	8053.40	2425.84	3575.33	15000.88	1500.09	13500.79	100.80	27.00	1336.04	1463.84	1336.04	12036.95	10.84
19	Srinagar	1343.10	7556.15	4799.30	617.40	14315.95	1431.60	12884.35	51.51	336.38	7150.86	7538.76	7801.29	4695.16	58.51
20	Udhampur	4369.58	5211.22	2467.72	2850.41	14898.93	1406.50	13492.43	336.38	141.24	1868.45	2346.06	1977.66	11037.16	17.39
	Total (Ham)	**79860.40**	**204308.53**	**95214.93**	**88248.14**	**467632.00**	**46098.79**	**421533.20**	**19884.80**	**12649.10**	**56122.39**	**88656.28**	**57441.84**	**331557.50**	**21.03**
	Total (Bcm)	**0.80**	**2.04**	**0.95**	**0.88**	**4.68**	**0.46**	**4.22**	**0.20**	**0.13**	**0.56**	**0.89**	**0.57**	**3.32**	**21.03**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

LADAKH

S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	Kargil	509.74	2571.17	1180.83	2305.70	6567.44	656.74	5910.70	24.22	4.14	172.50	200.86	290.92	5591.42	3.40
2	Leh	531.40	2071.21	683.77	1934.58	5220.96	522.09	4698.87	89.86	20.70	1587.31	1697.87	1587.31	3001.00	36.13
	Total (Ham)	**1041.14**	**4642.38**	**1864.60**	**4240.28**	**11788.40**	**1178.83**	**10609.57**	**114.08**	**24.84**	**1759.81**	**1898.73**	**1878.23**	**8592.42**	**17.90**
	Total (Bcm)	**0.01**	**0.05**	**0.02**	**0.04**	**0.12**	**0.01**	**0.11**	**0.001**	**0.0002**	**0.02**	**0.02**	**0.02**	**0.09**	**17.90**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020															
LAKSHADWEEP															
S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	Agatti	114.96	0.00	19.33	0.00	134.29	53.71	51.20	0.00	0.00	34.58	34.58	61.28	16.62	67.54
2	Amini	109.87	0.00	18.47	0.00	128.34	51.34	46.33	0.00	0.00	34.28	34.28	45.04	1.29	73.98
3	Androth	205.32	0.00	34.52	0.00	239.84	95.94	89.47	0.00	0.00	50.53	50.53	67.04	22.44	56.48
4	Chetlat	44.12	0.00	7.42	0.00	51.54	20.62	18.61	0.00	0.00	8.86	8.86	10.43	8.17	47.62
5	Kadmat	132.36	0.00	22.25	0.00	154.61	61.84	57.78	0.00	0.00	20.58	20.58	22.37	35.42	35.61
6	Kalpeni	96.72	0.00	16.26	0.00	112.98	45.19	42.09	0.00	0.00	17.29	17.29	20.02	22.06	41.08
7	Kavaratti	153.99	0.00	25.89	0.00	179.88	71.96	68.61	0.00	0.00	56.19	56.19	126.37	12.42	81.89
8	Kiltan	69.15	0.00	11.63	0.00	80.78	32.31	29.03	0.00	0.00	16.76	16.76	28.96	0.07	57.73
9	Minicoy	178.10	0.00	64.12	0.00	242.22	96.89	96.30	0.00	0.00	52.96	52.96	110.52	43.34	55.00
	Total (Ham)	**1104.59**	**0.00**	**219.89**	**0.00**	**1324.48**	**529.80**	**499.42**	**0.00**	**0.00**	**292.03**	**292.03**	**492.03**	**161.83**	**58.47**
	Total (Bcm)	**0.01**	**0.00**	**0.002**	**0.00**	**0.01**	**0.01**	**0.005**	**0.00**	**0.00**	**0.003**	**0.003**	**0.005**	**0.002**	**58.47**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020															
PUDUCHERRY															
S. No.	Name of District	Ground Water Recharge					Total Natural Discharges	Annual Extractable Ground Water Resource	Current Annual Ground Water Extraction				Annual GW Allocation for Domestic Use as on 2025	Net Ground Water Availability for future use	Stage of Ground Water Extraction (%)
		Monsoon Season		Non-monsoon Season		Total Annual Ground Water Recharge			Irrigation	Industrial	Domestic	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	16
1	Karaikal	1542.26	3936.85	20.98	1481.15	6981.24	698.12	6283.12	786.98	17.00	528.71	1332.69	973.37	4895.12	21.21
2	Mahe	218.70	0.00	2.79	0.00	221.49	22.15	199.34	0.00	0.00	138.65	138.65	149.84	49.04	69.55
3	Puducherry	4270.18	6135.05	1445.95	3280.02	15131.20	1513.12	13618.08	8983.50	631.50	3841.42	13456.42	4338.92	161.67	98.81
	Total (Ham)	**6031.14**	**10071.90**	**1469.72**	**4761.17**	**22333.93**	**2233.39**	**20100.54**	**9770.48**	**648.50**	**4508.78**	**14927.75**	**5462.13**	**5105.83**	**74.27**
	Total (Bcm)	**0.06**	**0.10**	**0.01**	**0.05**	**0.22**	**0.02**	**0.20**	**0.10**	**0.01**	**0.05**	**0.15**	**0.05**	**0.05**	**74.27**

Annexure - III(A)

State-Wise Categorization of Blocks/ Mandals/ Taluks in India (as in 2020)

CATEGORIZATION OF BLOCKS/ MANDALS/ TALUKAS IN INDIA (2020)

S.No.	State/Union Territories	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
	States		Nos.	%	Nos.	%	Nos.	%	Nos.	%	Nos.	%
1	Andhra Pradesh	667	551	82.61	40	6.00	15	2.25	23	3.45	38	5.70
2	Arunachal Pradesh	11	11	100.00								
3	Assam	28	28	100.00								
4	Bihar	534	471	88.20	51	9.55	5	0.94	7	1.31		
5	Chhattisgarh	146	110	75.34	27	18.49	9	6.16				
6	Delhi	34	3	8.82	7	20.59	7	20.59	17	50.00		
7	Goa	12	12	100.00								
8	Gujarat	248	182	73.39	24	9.68	4	1.61	25	10.08	13	5.24
9	Haryana	141	30	21.28	14	9.93	12	8.51	85	60.28		
10	Himachal Pradesh	10	10	100.00								
11	Jharkhand	259	244	94.21	10	3.86	2	0.77	3	1.16		
12	Karnataka	227	130	57.27	35	15.42	10	4.41	52	22.91		
13	Kerala	152	120	78.95	29	19.08	3	1.97				
14	Madhya Pradesh	317	233	73.50	50	15.77	8	2.52	26	8.21		
15	Maharashtra	353	271	76.77	63	17.85	8	2.27	10	2.83	1	0.28
16	Manipur	9	9	100.00								
17	Meghalaya	12	12	100.00								
18	Mizoram	26	26	100.00								
19	Nagaland	11	11	100.00								
20	Odisha	314	302	96.18	6	1.91					6	1.91
21	Punjab	150	17	11.33	10	6.67	6	4.00	117	78.00		
22	Rajasthan	295	37	12.54	29	9.83	23	7.80	203	68.81	3	1.02
23	Sikkim	4	4	100.00								
24	Tamil Nadu	1166	409	35.08	225	19.30	63	5.40	435	37.31	34	2.92
25	Telangana	589	321	54.50	180	30.56	44	7.47	44	7.47		
26	Tripura	59	59	100.00								
27	Uttar Pradesh	830	541	65.18	174	20.96	49	5.90	66	7.95		
28	Uttarakhand	18	14	77.78	4	22.22						
29	West Bengal*	268	191	71.27	76	28.36	1	0.37				
30	Andaman and Nicobar	36	35	97.22							1	2.78
31	Chandigarh	1			1	100.00						
32	Dadra & Nagar Haveli	1	1	100.00								
	Daman & Diu	2	1	50.00					1	50.00		
33	Jammu and Kashmir	20	20	100.00								
34	Ladakh	2	2	100.00								
35	Lakshadweep	9	7	77.78	2	22.22						
36	Puducherry	4	2	50.00			1	25.00			1	25.00
	Grand Total	6965	4427	63.56	1057	15.18	270	3.88	1114	15.99	97	1.39

Note

Blocks- Bihar, Chhatisgarh, Haryana, Jharkhand, Kerala, Madhya Pradesh, Manipur, Mizoram, Odisha, Punjab, Rajasthan, Tripura, Uttar Pradesh, Uttarakhand, West Bengal

Taluks- Goa, Gujarat, Karnataka, Maharashtra

Mandals- Andhra Pradesh, Telangana

District- Arunachal Pradesh, Assam, Meghalaya, Nagaland, Sikkim, Dadra & Nagar Haveli, Daman & Diu, Jammu & Kashmir, Ladakh

Valley- Himachal Pradesh,

Islands- Andaman & Nicobar, Lakshadweep

Firka- Tamil Nadu

Region- Puducherry

UT- Chandigarh

Tehsil- Delhi

***West Bengal- The Ground Water Resource Assessment as on 2013 has been considered for state of West Bengal.**

Annexure - III(B)

District-Wise Categorization of Blocks/ Mandals/ Taluks in India (as in 2020)

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

ANDHRA PRADESH

S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Anantapur	63	43	68.25	4	6.35	1	1.59	15	23.81		
2	Chittoor	66	41	62.12	19	28.79	6	9.09				
3	East Godavari	64	54	84.38	2	3.13					8	12.50
4	Guntur	57	52	91.23		0.00	1	1.75	2	3.51	2	3.51
5	Kadapa	51	37	72.55	7	13.73	5	9.80	2	3.92		
6	Krishna	50	36	72.00	1	2.00					13	26.00
7	Kurnool	54	51	94.44	2	3.70	1	1.85				
8	Nellore	46	44	95.65	1	2.17	1	2.17				
9	Prakasam	56	47	83.93	4	7.14			4	7.14	1	1.79
10	Srikakulam	38	38	100.00								
11	Visakhapatnam	40	40	100.00								
12	Vizianagaram	34	34	100.00								
13	West Godavari	48	34	70.83							14	29.17
	Total	**667**	**551**	**82.61**	**40**	**6.00**	**15**	**2.25**	**23**	**3.45**	**38**	**5.70**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

ARUNACHAL PRADESH

S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Tirap	1	1	100.00								
2	Changlang	1	1	100.00								
3	Lohit	1	1	100.00								
4	Lower Dibang Valley	1	1	100.00								
5	East Siang	1	1	100.00								
6	West Siang	1	1	100.00								
7	East Kameng	1	1	100.00								
8	West Kameng	1	1	100.00								
9	Lower Subansiri	1	1	100.00								
10	Upper Subansiri	1	1	100.00								
11	Papum Pare	1	1	100.00								
	Total	**11**	**11**	**100.00**								

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

ASSAM

S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Baksa	1	1	100.00								
2	Barpeta	1	1	100.00								
3	Bongaigaon	1	1	100.00								
4	Cachar	1	1	100.00								
5	Chirang	1	1	100.00								
6	Darrang	1	1	100.00								
7	Dhemaji	1	1	100.00								
8	Dhubri	1	1	100.00								
9	Dibrugarh	1	1	100.00								
10	Dima Hasao	1	1	100.00								
11	Goalpara	1	1	100.00								
12	Golaghat	1	1	100.00								
13	Hailakandi	1	1	100.00								
14	Jorhat	1	1	100.00								
15	Kamrup	1	1	100.00								
16	Kamrup Metro Rural	1	1	100.00								
17	Kamrup Metro Urban	1	1	100.00								
18	Karbi Anglong	1	1	100.00								
19	Karimganj	1	1	100.00								
20	Kokrajhar	1	1	100.00								
21	Lakhimpur	1	1	100.00								
22	Morigaon	1	1	100.00								
23	Nagaon	1	1	100.00								
24	Nalbari	1	1	100.00								
25	Sivasagar	1	1	100.00								
26	Sonitpur	1	1	100.00								
27	Tinsukia	1	1	100.00								
28	Udalguri	1	1	100.00								
	Total	**28**	**28**	**100.00**								

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

BIHAR

S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Araria	9	9	100.00								
2	Arwal	5	5	100.00								
3	Aurangabad	11	11	100.00								
4	Banka	11	11	100.00								
5	Begusarai	18	16	88.89	2	11.11						
6	Bhagalpur	16	16	100.00								
7	Bhojpur	14	10	71.43	4	28.57						
8	Buxar	11	10	90.91	1	9.09						
9	Darbhanga	18	18	100.00								
10	East Champaran	27	27	100.00								
11	Gaya	24	16	66.67	5	20.83			3	12.50		
12	Gopalganj	14	14	100.00								
13	Jamui	10	10	100.00								
14	Jehanabad	7	0	0.00	3	42.86	3	42.86	1	14.29		
15	Kaimur	11	11	100.00								
16	Katihar	16	15	93.75	1	6.25						
17	Khagaria	7	7	100.00								
18	Kishanganj	7	7	100.00								
19	Lakhisarai	7	6	85.71	1	14.29						
20	Madhepura	13	6	46.15	7	53.85						
21	Madhubani	21	21	100.00								
22	Munger	9	9	100.00								
23	Muzaffarpur	16	13	81.25	1	6.25			2	12.50		
24	Nalanda	20	14	70.00	5	25.00			1	5.00		
25	Nawada	14	11	78.57	2	14.29	1	7.14				
26	Patna	23	14	60.87	9	39.13						
27	Purnia	14	13	92.86	1	7.14						
28	Rohats	19	19	100.00								
29	Saharsa	10	10	100.00								
30	Samastipur	20	19	95.00	1	5.00						
31	Saran	20	19	95.00	1	5.00						
32	Sheikhpura	6	6	100.00								
33	Sheohar	5	5	100.00								
34	Sitamarhi	17	16	94.12	1	5.88						
35	Siwan	19	18	94.74	1	5.26						
36	Supaul	11	11	100.00								
37	Vaishali	16	10	62.50	5	31.25	1	6.25				
38	West Champaran	18	18	100.00								
	Total	**534**	**471**	**88.20**	**51**	**9.55**	**5**	**0.94**	**7**	**1.31**		

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

CHHATISGARH

S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Balod	5	2	40.00	2	40.00	1	20.00				
2	Baloda Bazar	6	5	83.33	1	16.67						
3	Balrampur	6	6	100.00								
4	Bastar	7	7	100.00								
5	Bemetara	4			2	50.00	2	50.00				
6	Bijapur	4	4	100.00								
7	Bilaspur	7	6	85.71	1	14.29						
8	Dantewara	4	4	100.00								
9	Dhamtari	4			3	75.00	1	25.00				
10	Durg	3			2	66.67	1	33.33				
11	Gariaband	5	4	80.00	1	20.00						
12	Janjgir-Champa	9	6	66.67	3	33.33						
13	Jashpur	8	8	100.00								
14	Kanker	7	6	85.71	1	14.29						
15	Kawardha	4	1	25.00	1	25.00	2	50.00				
16	Kondagaon	5	5	100.00								
17	Korba	5	4	80.00	1	20.00						
18	Koriya	5	5	100.00								
19	Mahasamund	5	3	60.00	2	40.00						
20	Mungeli	3	3	100.00								
21	Narayanpur	2	2	100.00								
22	Raigarh	9	6	66.67	3	33.33						
23	Raipur	4	3	75.00			1	25.00				
24	Rajnandgaon	9	5	55.56	3	33.33	1	11.11				
25	Sukma	3	3	100.00								
26	Surajpur	6	5	83.33	1	16.67						
27	Surguja	7	7	100.00								
	Total	**146**	**110**	**75.34**	**27**	**18.49**	**9**	**6.16**				

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

DELHI

S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Central	3			2	66.67			1	33.33		
2	East	3			2	66.67			1	33.33		
3	New Delhi	3							3	100.00		
4	North	3					2	66.67	1	33.33		
5	North East	3					2	66.67	1	33.33		
6	North West	3	2	66.67	1	33.33						
7	Shahdara	3					1	33.33	2	66.67		
8	South	3							3	100.00		
9	South East	3					1	33.33	2	66.67		
10	South West	3					1	33.33	2	66.67		
11	West	3			2	66.67			1	33.33		
12	Nazul Land	1	1	100.00								
	Total	**34**	**3**	**8.82**	**7**	**20.59**	**7**	**20.59**	**17**	**50.00**		

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

GOA

S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Goa North	5	5	100.00								
2	South Goa	7	7	100.00								
	Total	**12**	**12**	**100.00**								

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

GUJARAT

S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Ahmedabad	9	4	44.44	2	22.22	1	11.11			2	22.22
2	Amreli	11	10	90.91	1	9.09						
3	Anand	8	8	100.00								
4	Arvalli	6	6	100.00								
5	Banaskantha	14	2	14.29	2	14.29			7	50.00	3	21.43
6	Bharuch	9	9	100.00								
7	Bhavnagar	10	10	100.00								
8	Botad	4	4	100.00								
9	Chhota Udepur	6	6	100.00								
10	Dahod	9	9	100.00								
11	Dang	3	3	100.00								
12	Devbhumi Dwaraka	4	4	100.00								
13	Gandhinagar	4			2	50.00			2	50.00		
14	Gir Somnath	6	5	83.33	1	16.67						
15	Jamnagar	6	6	100.00								
16	Junagadh	9	3	33.33	2	22.22	1	11.11	3	33.33		
17	Kachchh	10	6	60.00					3	30.00	1	10.00
18	Kheda	10	9	90.00	1	10.00						
19	Mahesana	10			3	30.00	1	10.00	6	60.00		
20	Mahisagar	6	6	100.00								
21	Morbi	5	4	80.00							1	20.00
22	Narmada	5	4	80.00	1	20.00						
23	Navsari	6	6	100.00								
24	Panchmahal	7	7	100.00								
25	Patan	9			1	11.11	1	11.11	2	22.22	5	55.56
26	Porbandar	3	2	66.67	1	33.33						
27	Rajkot	11	9	81.82	2	18.18						
28	Sabarkantha	8	4	50.00	3	37.50			1	12.50		
29	Surat	9	9	100.00								
30	Surendra Nagar	10	8	80.00	1	10.00					1	10.00
31	Tapi	7	7	100.00								
32	Vadodara	8	6	75.00	1	12.50			1	12.50		
33	Valsad	6	6	100.00								
	Total	**248**	**182**	**73.39**	**24**	**9.68**	**4**	**1.61**	**25**	**10.08**	**13**	**5.24**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

HARYANA

S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Ambala	6			1	16.67	2	33.33	3	50.00		
2	Bhiwani	7	1	14.29	2	28.57		0.00	4	57.14		
3	Charkhi Dadri	4	2	50.00		0.00		0.00	2	50.00		
4	Faridabad	3		0.00		0.00		0.00	3	100.00		
5	Fatehabad	7		0.00		0.00	1	14.29	6	85.71		
6	Gurgaon	4		0.00		0.00		0.00	4	100.00		
7	Hisar	9	2	22.22	3	33.33	2	22.22	2	22.22		
8	Jhajjar	7	6	85.71	1	14.29		0.00		0.00		
9	Jind	8	2	25.00	1	12.50		0.00	5	62.50		
10	Kaithal	7		0.00		0.00		0.00	7	100.00		
11	Karnal	8		0.00	1	12.50		0.00	7	87.50		
12	Kurukshetra	7		0.00		0.00		0.00	7	100.00		
13	Mahendragarh	8	3	37.50	1	12.50	1	12.50	3	37.50		
14	Mewat	7	3	42.86	1	14.29	2	28.57	1	14.29		
15	Palwal	6	1	16.67	2	33.33	1	16.67	2	33.33		
16	Panchkula	3	2	66.67		0.00	1	33.33		0.00		
17	Panipat	6		0.00		0.00		0.00	6	100.00		
18	Rewari	7		0.00		0.00	1	14.29	6	85.71		
19	Rohtak	5	5	100.00		0.00		0.00		0.00		
20	Sirsa	7		0.00	1	14.29		0.00	6	85.71		
21	Sonipat	8	3	37.50		0.00		0.00	5	62.50		
22	Yamuna Nagar	7		0.00		0.00	1	14.29	6	85.71		
	Total	**141**	**30**	**21.28**	**14**	**9.93**	**12**	**8.51**	**85**	**60.28**		

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

HIMACHAL PRADESH

S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Kangra	2	2	100.00								
2	Mandi	2	2	100.00								
3	Sirmaour	2	2	100.00								
4	Solan	1	1	100.00								
5	Una	3	3	100.00								
	Total	**10**	**10**	**100.00**								

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020												
JHARKHAND												
S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Bokaro	9	7	77.78	1	11.11			1	11.11		
2	Chatra	12	12	100.00								
3	Deoghar	10	9	90.00	1	10.00						
4	Dhanbad	8	5	62.50	1	12.50	1	12.50	1	12.50		
5	Dumka	10	10	100.00								
6	East Singhbhum	11	10	90.91					1	9.09		
7	Garhwa	19	18	94.74	1	5.26						
8	Giridih	13	13	100.00								
9	Godda	9	9	100.00								
10	Gumla	12	12	100.00								
11	Hazaribagh	16	15	93.75	1	6.25						
12	Jamtara	6	6	100.00								
13	Khunti	6	6	100.00								
14	Koderma	6	6	100.00								
15	Latehar	9	9	100.00								
16	Lohardaga	7	7	100.00								
17	Pakur	6	6	100.00								
18	Palamau	20	20	100.00								
19	Ramgarh	6	3	50.00	3	50.00						
20	Ranchi	18	15	83.33	2	11.11	1	5.56				
21	Sahebganj	9	9	100.00								
22	Saraikela - Kharsawa	9	9	100.00								
23	Simdega	10	10	100.00								
24	West Singhbhum	18	18	100.00								
	Total	**259**	**244**	**94.21**	**10**	**3.86**	**2**	**0.77**	**3**	**1.16**		

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

KARNATAKA

S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Bagalkot	9	3	33.33	2	22.22	1	11.11	3	33.33		
2	Bangalore Rural	4							4	100.00		
3	Bangalore Urban	5							5	100.00		
4	Belagavi	14	5	35.71	4	28.57	1	7.14	4	28.57		
5	Bellary	11	7	63.64	1	9.09			3	27.27		
6	Bidar	8	6	75.00	2	25.00						
7	Chamrajnagara	5			2	40.00	1	20.00	2	40.00		
8	Chikballapur	6							6	100.00		
9	Chikkamagalur	8	6	75.00					2	25.00		
10	Chitradurga	6	1	16.67					5	83.33		
11	Dakshin Kanna	7	7	100.00								
12	Davangere	6	1	16.67	2	33.33	1	16.67	2	33.33		
13	Dharwad	8	8	100.00								
14	Gadag	7	1	14.29	3	42.86	1	14.29	2	28.57		
15	Hassan	8	6	75.00			1	12.50	1	12.50		
16	Haveri	8	4	50.00	4	50.00						
17	Kalburagi	11	10	90.91	1	9.09						
18	Kodagu	3	3	100.00								
19	Kolar	6							6	100.00		
20	Koppal	7	4	57.14	2	28.57			1	14.29		
21	Mandya	7	6	85.71	1	14.29						
22	Mysuru	8	7	87.50	1	12.50						
23	Raichur	7	5	71.43	2	28.57						
24	Ramanagaram	4			1	25.00	3	75.00				
25	Shivamogga	7	7	100.00								
26	Tumakuru	10	3	30.00	1	10.00			6	60.00		
27	Udupi	7	7	100.00								
28	Uttar Kannada	12	12	100.00								
29	Vijayapura	12	7	58.33	4	33.33	1	8.33				
30	Yadgir	6	4	66.67	2	33.33						
	Total	**227**	**130**	**57.27**	**35**	**15.42**	**10**	**4.41**	**52**	**22.91**		

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020													
KERALA													
S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline		
			No.	%	No.	%	No.	%	No.	%	No.	%
1	**Alappuzha**	12	12	100.00								
2	**Ernakulam**	14	14	100.00								
3	**Idukki**	8	6	75.00	2	25.00						
4	**Kannur**	11	8	72.73	3	27.27						
5	**Kasargod**	6	2	33.33	3	50.00	1	16.67				
6	**Kollam**	11	10	90.91	1	9.09						
7	**Kottayam**	11	11	100.00								
8	**Kozhikkode**	12	10	83.33	2	16.67						
9	**Malappuram**	15	7	46.67	8	53.33						
10	**Palakkad**	13	9	69.23	2	15.38	2	15.38				
11	**Pathanamthitta**	8	8	100.00								
12	**Thiruvananthapuram**	11	6	54.55	5	45.45						
13	**Thrissur**	16	13	81.25	3	18.75						
14	**Wayanad**	4	4	100.00								
	Total	**152**	**120**	**78.95**	**29**	**19.08**	**3**	**1.97**				

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020												
MADHYA PRADESH												
S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Agar Malwa	4	1	25.00	1	25.00			2	50.00		
2	Alirajpur	6	6	100.00								
3	Anuppur	4	4	100.00								
4	Ashoknagar	4	3	75.00	1	25.00						
5	Balaghat	10	10	100.00								
6	Barwani	7	5	71.43	1	14.29			1	14.29		
7	Betul	10	8	80.00	2	20.00						
8	Bhind	6	6	100.00								
9	Bhopal	3	1	33.33	2	66.67						
10	Burhanpur	2	2	100.00								
11	Chhatarpur	8	4	50.00	4	50.00						
12	Chhindwara	11	8	72.73	2	18.18	1	9.09				
13	Damoh	7	6	85.71	1	14.29						
14	Datia	3	3	100.00								
15	Dewas	6	3	50.00	1	16.67			2	33.33		
16	Dhar	13	9	69.23			1	7.69	3	23.08		
17	Dindori	7	7	100.00								
18	Guna	5	5	100.00								
19	Gwalior	5	4	80.00	1	20.00						
20	Harda	3	3	100.00								
21	Hoshangabad	7	6	85.71	1	14.29						
22	Indore	5			1	20.00			4	80.00		
23	Jabalpur	8	7	87.50			1	12.50				
24	Jhabua	6	5	83.33	1	16.67						
25	Katni	6	6	100.00								
26	Khandwa	7	6	85.71	1	14.29						
27	Khargone	9	8	88.89	1	11.11						
28	Mandla	9	9	100.00								
29	Mandsaur	5			1	20.00	2	40.00	2	40.00		
30	Morena	7	7	100.00								
31	Narsinghpur	6	5	83.33	1	16.67						
32	Neemuch	3			1	33.33			2	66.67		
33	Panna	5	5	100.00								
34	Raisen	7	6	85.71	1	14.29						
35	Rajgarh	6	1	16.67	3	50.00	2	33.33				
36	Ratlam	6			2	33.33			4	66.67		
37	Rewa	9	8	88.89	1	11.11						
38	Sagar	11	11	100.00								
39	Satna	8	5	62.50	3	37.50						
40	Sehore	5	4	80.00			1	20.00				
41	Seoni	8	8	100.00								
42	Shahdol	5	5	100.00								
43	Shajapur	4			1	25.00			3	75.00		
44	Sheopur	3	3	100.00								
45	Shivpuri	8	3	37.50	5	62.50						
46	Sidhi	5	5	100.00								
47	Singrauli	3	3	100.00								
48	Tikamgarh	6	1	16.67	5	83.33						
49	Ujjain	6			3	50.00			3	50.00		
50	Umaria	3	3	100.00								
51	Vidisha	7	5	71.43	2	28.57						
	Total	**317**	**233**	**73.50**	**50**	**15.77**	**8**	**2.52**	**26**	**8.20**		

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020												
MAHARASHTRA												
S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	**Ahmednagar**	14	4	28.57	5	35.71	4	28.57	1	7.14		
2	**Akola**	7	6	85.71	1	14.29						
3	**Amravati**	14	6	42.86	3	21.43			4	28.57	1	7.14
4	**Aurangabad**	9	2	22.22	7	77.78						
5	**Beed**	11	11	100.00								
6	**Bhandara**	7	7	100.00								
7	**Buldhana**	13	2	15.38	9	69.23			2	15.38		
8	**Chandrapur**	15	15	100.00								
9	**Dhule**	4	4	100.00								
10	**Gadchiroli**	12	12	100.00								
11	**Gondia**	8	8	100.00								
12	**Hingoli**	5	5	100.00								
13	**Jalgaon**	15	4	26.67	9	60.00			2	13.33		
14	**Jalna**	8	8	100.00								
15	**Kolhapur**	12	12	100.00								
16	**Latur**	10	9	90.00	1	10.00						
17	**Nagpur**	13	11	84.62	2	15.38						
18	**Nanded**	16	16	100.00								
19	**Nandurbar**	6	6	100.00								
20	**Nashik**	15	9	60.00	3	20.00	3	20.00				
21	**Osmanabad**	8	6	75.00	2	25.00						
22	**Palghar**	8	8	100.00								
23	**Parbhani**	9	9	100.00								
24	**Pune**	13	5	38.46	7	53.85	1	7.69				
25	**Raigad**	15	15	100.00								
26	**Ratnagiri**	9	9	100.00								
27	**Sangli**	10	9	90.00	1	10.00						
28	**Satara**	11	6	54.55	5	45.45						
29	**Sindhudurg**	8	8	100.00								
30	**Solapur**	11	3	27.27	7	63.64			1	9.09		
31	**Thane**	7	7	100.00								
32	**Wardha**	8	7	87.50	1	12.50						
33	**Washim**	6	6	100.00								
34	**Yeotmal**	16	16	100.00								
	Total	**353**	**271**	**76.77**	**63**	**17.85**	**8**	**2.27**	**10**	**2.83**	**1**	**0.28**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

MANIPUR

S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Bishnupur	2	2	100.00								
2	Churachandpur	1	1	100.00								
3	Imphal East	2	2	100.00								
4	Imphal West	2	2	100.00								
5	Thoubal	2	2	100.00								
	Total	**9**	**9**	**100.00**								

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

MEGHALAYA

S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	East Garo Hills	1	1	100.00								
2	East Jaintia Hills	1	1	100.00								
3	East Khasi Hills	2	2	100.00								
4	North Garo Hills	1	1	100.00								
5	Ri-Bhoi	1	1	100.00								
6	South Garo Hills	1	1	100.00								
7	South West Garo Hills	1	1	100.00								
8	South West Khasi Hills	1	1	100.00								
9	West Garo Hills	1	1	100.00								
10	West Jaintia Hills	1	1	100.00								
11	West Khasi Hills	1	1	100.00								
	Total	**12**	**12**	**100.00**								

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

MIZORAM

S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Aizawl	5	5	100.00								
2	Champhai	4	4	100.00								
3	Kolasib	2	2	100.00								
4	Lawngtlai	4	4	100.00								
5	Lunglei	4	4	100.00								
6	Mamit	3	3	100.00								
7	Saiha	2	2	100.00								
8	Serchhip	2	2	100.00								
	Total	**26**	**26**	**100.00**								

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020												
NAGALAND												
S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	**Dimapur**	1	1	100.00								
2	**Kiphire**	1	1	100.00								
3	**Kohima**	1	1	100.00								
4	**Longleng**	1	1	100.00								
5	**Mokokchung**	1	1	100.00								
6	**Mon**	1	1	100.00								
7	**Peren**	1	1	100.00								
8	**Phek**	1	1	100.00								
9	**Tuensang**	1	1	100.00								
10	**Wokha**	1	1	100.00								
11	**Zunheboto**	1	1	100.00								
	Total	**11**	**11**	**100.00**								

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

ODISHA

S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Angul	8	8	100.00								
2	Balasore	12	11	91.67	1	8.33						
3	Bargarh	12	12	100.00								
4	Bhadrak	7	6	85.71							1	14.29
5	Bolangir	14	14	100.00								
6	Boudh	3	3	100.00								
7	Cuttack	14	14	100.00								
8	Deogarh	3	3	100.00								
9	Dhenkanal	8	8	100.00								
10	Gajapati	7	7	100.00								
11	Ganjam	22	22	100.00								
12	Jagatsinghpur	8	7	87.50							1	12.50
13	Jajpur	10	9	90.00	1	10.00						
14	Jharsuguda	5	5	100.00								
15	Kalahandi	13	13	100.00								
16	Kandhamal	12	12	100.00								
17	Kendrapara	9	4	44.44	1	11.11					4	44.44
18	Keonjhar	13	13	100.00								
19	Khurda	10	8	80.00	2	20.00						
20	Koraput	14	14	100.00								
21	Malkangiri	7	7	100.00								
22	Mayurbhanj	26	26	100.00								
23	Nabarangapur	10	10	100.00								
24	Nayagarh	8	8	100.00								
25	Nuapada	5	4	80.00	1	20.00						
26	Puri	11	11	100.00								
27	Rayagada	11	11	100.00								
28	Sambalpur	9	9	100.00								
29	Subarnapur	6	6	100.00								
30	Sundargarh	17	17	100.00								
	Total	**314**	**302**	**96.18**	**6**	**1.91**					**6**	**1.91**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020												
PUNJAB												
S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Amritsar	9							9	100.00		
2	Barnala	3							3	100.00		
3	Bathinda	9	1	11.00	1	11.00	1	11.00	6	67.00		
4	Faridkot	3							3	100.00		
5	Fateh Garh Sahib	5							5	100.00		
6	Fazilka	5	2	40.00			1	20.00	2	40.00		
7	Ferozpur	6							6	100.00		
8	Gurdaspur	11	1	9.00	1	9.00	3	27.00	6	55.00		
9	Hoshiarpur	10	3	30.00	3	30.00			4	40.00		
10	Jalandhar	11							11	100.00		
11	Kapurthala	5							5	100.00		
12	Ludhiana	13							13	100.00		
13	Mansa	5							5	100.00		
14	Moga	5							5	100.00		
15	Mohali	3	1	33.00					2	67.00		
16	Muktsar	4	4	100.00								
17	Nawanshahar	5	1	20.00	1	20.00			3	60.00		
18	Pathankot	6	3	50.00	3	50.00						
19	Patiala	9							9	100.00		
20	Ropar	5	1	20.00	1	20.00	1	20.00	2	40.00		
21	Sangrur	10							10	100.00		
22	Tarn Taran	8							8	100.00		
	Total	**150**	**17**	**11.33**	**10**	**6.67**	**6**	**4.00**	**117**	**78.00**		

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

RAJASTHAN

S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Ajmer	9							9	100.00		
2	Alwar	14							14	100.00		
3	Banswara	11	6	54.55	5	45.45						
4	Baran	7			3	42.86			4	57.14		
5	Barmer	17	2	11.76	1	5.88	2	11.76	12	70.59		
6	Bharatpur	10					1	10.00	9	90.00		
7	Bhilwara	12							12	100.00		
8	Bikaner	7	2	28.57	1	14.29			3	42.86	1	14.29
9	Bundi	5	1	20.00	1	20.00	1	20.00	2	40.00		
10	Chittaurgarh	11							11	100.00		
11	Churu	7	1	14.29			1	14.29	4	57.14	1	14.29
12	Dausa	6							6	100.00		
13	Dhaulpur	5					1	20.00	4	80.00		
14	Dungarpur	10	8	80.00	2	20.00						
15	Ganganagar	9	9	100.00								
16	Hanumangarh	7	6	85.71							1	14.29
17	Jaipur	15							15	100.00		
18	Jaisalmer	3							3	100.00		
19	Jalor	8			1	12.50			7	87.50		
20	Jhalawar	8			3	37.50	1	12.50	4	50.00		
21	Jhunjhunun	8							8	100.00		
22	Jodhpur	16			1	6.25	1	6.25	14	87.50		
23	Karauli	6			1	16.67			5	83.33		
24	Kota	5			3	60.00			2	40.00		
25	Nagaur	14					1	7.14	13	92.86		
26	Pali	10	1	10.00	1	10.00			8	80.00		
27	Pratapgarh	5	1	20.00			1	20.00	3	60.00		
28	Rajsamand	7					2	28.57	5	71.43		
29	Sawai Madhopur	6							6	100.00		
30	Sikar	9					1	11.11	8	88.89		
31	Sirohi	5			1	20.00			4	80.00		
32	Tonk	6			2	33.33	1	16.67	3	50.00		
33	Udaipur	17			3	17.65	9	52.94	5	29.41		
	Total	**295**	**37**	**12.54**	**29**	**9.83**	**23**	**7.80**	**203**	**68.81**	**3**	**1.02**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020													
SIKKIM													
S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline		
			No.	%	No.	%	No.	%	No.	%	No.	%	
1	**East**	1	1	100.00									
2	**North**	1	1	100.00									
3	**South**	1	1	100.00									
4	**West**	1	1	100.00									
	Total	**4**	**4**	**100.00**									

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

TAMIL NADU

S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Ariyalur	15	14	93.33	1	6.67	0	0.00	0	0.00	0	0.00
2	Chengalpattu	40	18	45.00	17	42.50	2	5.00	3	7.50	0	0.00
3	Chennai	30	3	10.00	1	3.33	0	0.00	26	86.67	0	0.00
4	Coimbatore	38	1	2.63	5	13.16	2	5.26	30	78.95	0	0.00
5	Cuddalore	32	13	40.63	12	37.50	1	3.13	6	18.75	0	0.00
6	Dharmapuri	23	2	8.70	7	30.43	0	0.00	14	60.87	0	0.00
7	Dindigul	40	4	10.00	5	12.50	5	12.50	26	65.00	0	0.00
8	Erode	34	3	8.82	10	29.41	1	2.94	20	58.82	0	0.00
9	Kallakkurichi	23	6	26.09	5	21.74	6	26.09	6	26.09	0	0.00
10	Kancheepuram	25	15	60.00	6	24.00	1	4.00	3	12.00	0	0.00
11	Kanniyakumari	18	17	94.44	1	5.56	0	0.00	0	0.00	0	0.00
12	Karur	20	2	10.00	4	20.00	0	0.00	14	70.00	0	0.00
13	Krishnagiri	29	9	31.03	7	24.14	1	3.45	12	41.38	0	0.00
14	Madurai	51	30	58.82	7	13.73	3	5.88	11	21.57	0	0.00
15	Nagapattinam	31	1	3.23	0	0.00	0	0.00	13	41.94	17	54.84
16	Namakkal	30	3	10.00	4	13.33	1	3.33	22	73.33	0	0.00
17	Perambalur	11	3	27.27	1	9.09	0	0.00	7	63.64	0	0.00
18	Pudukkottai	45	32	71.11	10	22.22	0	0.00	0	0.00	3	6.67
19	Ramanathapuram	38	29	76.32	0	0.00	0	0.00	0	0.00	9	23.68
20	Ranipet	18	1	5.56	11	61.11	2	11.11	4	22.22	0	0.00
21	Salem	44	6	13.64	2	4.55	2	4.55	34	77.27	0	0.00
22	Sivaganga	39	39	100.00	0	0.00	0	0.00	0	0.00	0	0.00
23	Tenkasi	31	9	29.03	4	12.90	1	3.23	17	54.84	0	0.00
24	Thanjavur	50	4	8.00	8	16.00	4	8.00	34	68.00	0	0.00
25	The Nilgiris	15	13	86.67	2	13.33	0	0.00	0	0.00	0	0.00
26	Theni	17	5	29.41	8	47.06	2	11.76	2	11.76	0	0.00
27	Thiruvallur	47	20	42.55	17	36.17	2	4.26	7	14.89	1	2.13
28	Thiruvarur	27	9	33.33	3	11.11	1	3.70	10	37.04	4	14.81
29	Thoothukkudi	41	35	85.37	2	4.88	1	2.44	3	7.32	0	0.00
30	Tiruchirappalli	43	17	39.53	8	18.60	1	2.33	17	39.53	0	0.00
31	Tirunelveli	29	20	68.97	6	20.69	1	3.45	2	6.90	0	0.00
32	Tirupathur	11	0	0.00	3	27.27	2	18.18	6	54.55	0	0.00
33	Tiruppur	33	1	3.03	5	15.15	4	12.12	23	69.70	0	0.00
34	Tiruvannamalai	52	0	0.00	23	44.23	6	11.54	23	44.23	0	0.00
35	Vellore	23	1	4.35	4	17.39	2	8.70	16	69.57	0	0.00
36	Viluppuram	34	5	14.71	6	17.65	4	11.76	19	55.88	0	0.00
37	Virudhunagar	39	19	48.72	10	25.64	5	12.82	5	12.82	0	0.00
	Total	**1166**	**409**	**35.08**	**225**	**19.30**	**63**	**5.40**	**435**	**37.31**	**34**	**2.92**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

TELANGANA

S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Adilabad	18	8	44.44	10	55.56						
2	Bhadradri	23	15	65.22	8	34.78						
3	Hyderabad	16		0.00					16	100.00		
4	Jagtial	18	13	72.22	1	5.56	1	5.56	3	16.67		
5	Jangaon	12	2	16.67	5	41.67	1	8.33	4	33.33		
6	Jayashankar	11	9	81.82	2	18.18						
7	Jogulamba	12	11	91.67	1	8.33						
8	Kamareddy	22	14	63.64	6	27.27	2	9.09				
9	Karimnagar	16	10	62.50	4	25.00	2	12.50				
10	Khammam	21	14	66.67	7	33.33						
11	Komarambhem	15	15	100.00								
12	Mahabubabad	16	8	50.00	7	43.75	1	6.25				
13	Mahabubnagar	15	1	6.67	12	80.00	1	6.67	1	6.67		
14	Mancherial	18	18	100.00								
15	Medak	20	9	45.00	11	55.00						
16	Medchal	15	8	53.33	3	20.00	4	26.67				
17	Mulug	9	9	100.00								
18	Nagarkurnool	20	7	35.00	8	40.00	3	15.00	2	10.00		
19	Nalgonda	31	15	48.39	12	38.71	4	12.90				
20	Narayanpet	11	7	63.64	4	36.36						
21	Nirmal	19	18	94.74	1	5.26						
22	Nizamabad	29	12	41.38	10	34.48	5	17.24	2	6.90		
23	Peddapalle	14	13	92.86			1	7.14				
24	Rajanna	13		0.00	2	15.38	3	23.08	8	61.54		
25	Rangareddy	27	4	14.81	15	55.56	7	25.93	1	3.70		
26	Sangareddy	26	13	50.00	10	38.46	2	7.69	1	3.85		
27	Siddipet	23	5	21.74	15	65.22	2	8.70	1	4.35		
28	Suryapet	23	15	65.22	7	30.43	1	4.35				
29	Vikarabad	18	10	55.56	8	44.44						
30	Wanaparthy	14	14	100.00								
31	Warangal_Rural	16	16	100.00								
32	Warangal_Urban	11	3	27.27	3	27.27	1	9.09	4	36.36		
33	Yadadri	17	5	29.41	8	47.06	3	17.65	1	5.88		
		589	**321**	**54.50**	**180**	**30.56**	**44**	**7.47**	**44**	**7.47**	**0**	**0.00**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020												
TRIPURA												
S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Dhalai	8	8	100.00								
2	Gomati	8	8	100.00								
3	Khowai	6	6	100.00								
4	North Tripura	8	8	100.00								
5	Siphahijala	7	7	100.00								
6	South Tripura	8	8	100.00								
7	Unakoti	4	4	100.00								
8	West Tripura	10	10	100.00								
	Total	**59**	**59**	**100.00**								

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

UTTAR PRADESH

S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Agra	16	1	6.25	3	18.75	2	12.50	10	62.50		
2	Aligarh	13	6	46.15	5	38.46	1	7.69	1	7.69		
3	Ambedkar Nagar	9	8	88.89	1	11.11						
4	Amethi	13	12	92.31	1	7.69						
5	Amroha	6			2	33.33	3	50.00	1	16.67		
6	Aurraiya	7	7	100.00								
7	Ayodhya	11	9	81.82	2	18.18						
8	Azamgarh	22	15	68.18	7	31.82						
9	Baghpat	6			2	33.33	1	16.67	3	50.00		
10	Bahraich	14	14	100.00								
11	Ballia	17	17	100.00								
12	Balrampur	9	9	100.00								
13	Banda	8	4	50.00	4	50.00						
14	Barabanki	15	15	100.00								
15	Bareili	16	11	68.75	4	25.00			1	6.25		
16	Basti	14	14	100.00								
17	Bijnaur	11	6	54.55	4	36.36	1	9.09				
18	Budaun	15	5	33.33	7	46.67			3	20.00		
19	Bulandshahar	16	2	12.50	4	25.00	4	25.00	6	37.50		
20	Chandauli	9	9	100.00								
21	Chitrakoot	5	1	20.00	3	60.00	1	20.00				
22	Deoria	16	16	100.00								
23	Etah	8	2	25.00	4	50.00	2	25.00				
24	Etawah	8	8	100.00								
25	Farrukhabad	7	3	42.86	4	57.14						
26	Fatehpur	13	7	53.85	4	30.77	1	7.69	1	7.69		
27	Firozabad	9			3	33.33	1	11.11	5	55.56		
28	G.B. Nagar	4			1	25.00	2	50.00	1	25.00		
29	Ghaziabad	5			1	20.00			4	80.00		
30	Ghazipur	16	15	93.75	1	6.25						
31	Gonda	16	16	100.00								
32	Gorakhpur	19	19	100.00								
33	Hamirpur	7	3	42.86	4	57.14						
34	Hapur	4			1	25.00	2	50.00	1	25.00		
35	Hardoi	19	18	94.74	1	5.26						
36	Hathras	7	1	14.29	1	14.29	2	28.57	3	42.86		
37	Jalaun	9	9	100.00								
38	Jaunpur	21	11	52.38	8	38.10	2	9.52				
39	Jhansi	8	4	50.00	4	50.00						
40	Kannauj	8	3	37.50	3	37.50			2	25.00		
41	Kanpur Dehat	10	3	30.00	7	70.00						
42	Kanpur Nagar	11	3	27.27	6	54.55	2	18.18				
43	Kasganj	7	3	42.86	3	42.86	1	14.29				
44	Kaushambi	8	2	25.00	4	50.00			2	25.00		
45	Kushi Nagar	14	14	100.00								
46	Lakhimpur Khiri	15	15	100.00								
47	Lalitpur	6			6	100.00						
48	Lucknow	9	8	88.89					1	11.11		
49	Maharajganj	12	12	100.00								
50	Mahoba	4			2	50.00			2	50.00		
51	Mainpuri	9	5	55.56	3	33.33			1	11.11		
52	Mathura	10	6	60.00	1	10.00	1	10.00	2	20.00		
53	Mau	9	9	100.00								

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

UTTAR PRADESH

S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
54	Meerut	13	5	38.46	4	30.77	3	23.08	1	7.69		
55	Mirzapur	12	7	58.33	2	16.67	2	16.67	1	8.33		
56	Moradabad	9	1	11.11	6	66.67	1	11.11	1	11.11		
57	Muzaffarnagar	9	4	44.44	3	33.33	1	11.11	1	11.11		
58	Pilibhit	7	7	100.00								
59	Pratapgarh	17	5	29.41	8	47.06	4	23.53				
60	Prayagraj	21	12	57.14	6	28.57	2	9.52	1	4.76		
61	Rae Bareli	18	18	100.00								
62	Rampur	6	2	33.33	3	50.00	1	16.67				
63	S.Kabir Nagar	9	9	100.00								
64	S.Ravidas Nagar	6			6	100.00						
65	Saharanpur	11	1	9.09	5	45.45	1	9.09	4	36.36		
66	Shahjahanpur	15	15	100.00								
67	Shambhal	8	1	12.50	2	25.00	5	62.50				
68	Shamli	5			1	20.00			4	80.00		
69	Shrawasti	5	5	100.00								
70	Siddharth Nagar	14	14	100.00								
71	Sitapur	19	19	100.00								
72	Sonbhadra	8	6	75.00	2	25.00						
73	Sultanpur	13	13	100.00								
74	Unnao	16	16	100.00								
75	Varanasi	9	1	11.11	5	55.56			3	33.33		
	Total	**830**	**541**	**65.18**	**174**	**20.96**	**49**	**5.90**	**66**	**7.95**		

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

UTTARAKHAND

S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Dehradun	3	3	100.00								
2	Haridwar	6	4	66.66	2	33.34						
3	Udham Singh Nagar	7	6	85.71	1	14.29						
4	Nainital	2	1	50.00	1	50.00						
	Total	**18**	**14**	**77.78**	**4**	**22.22**						

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2013													
WEST BENGAL													
S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline		
			No.	%	No.	%	No.	%	No.	%	No.	%	
1	Bankura	22	21	95.45	1	4.55							
2	Barddhaman	32	21	65.63	11	34.38							
3	Birbhum	19	13	68.42	6	31.58							
4	Dakshin Dinajpur	8	8	100.00									
5	Darjiling	2	2	100.00									
6	Haora	5	5	100.00									
7	Hugli	18	5	27.78	12	66.67	1	5.56					
8	Jalpaiguri	8	8	100.00									
9	Koch Bihar	12	12	100.00									
10	Malda	15	14	93.33	1	6.67							
11	Murshidabad	26	9	34.62	17	65.38							
12	Nadia	17	6	35.29	11	64.71							
13	North 24 Parganas	17	16	94.12	1	5.88							
14	Paschim Medinipur	29	22	75.86	7	24.14							
15	Purba Medinipur	9			9	100.00							
16	Puruliya	20	20	100.00									
17	Uttar Dinajpur	9	9	100.00									
	Total	**268**	**191**	**71.27**	**76**	**28.36**	**1**	**0.37**					

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

ANDAMAN & NICOBAR ISLANDS

S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	N & M Andaman	13	13	100.00								
2	Nicobar	13	12	92.30							1	7.70
3	South Andaman	10	10	100.00								
	Total	**36**	**35**	**97.22**							**1**	**2.78**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

CHANDIGARH

S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Chandigarh	1			1	100.00						
	Total	**1**			**1**	**100.00**						

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

DADRA & NAGAR HAVELI

S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Dadra & Nagar Haveli	1	1	100.00								
	Total	**1**	**1**	**100.00**								

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020												
DAMAN & DIU												
S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Daman	1	0	0.00					1	100.00		
2	Diu	1	1	100.00					0	0.00		
	Total	**2**	**1**	**50.00**					**1**	**50.00**		

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

JAMMU & KASHMIR

S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Anantnag	1	1	100.00								
2	Bandipora	1	1	100.00								
3	Baramulla	1	1	100.00								
4	Budgam	1	1	100.00								
5	Doda	1	1	100.00								
6	Ganderbal	1	1	100.00								
7	Jammu	1	1	100.00								
8	Kathua	1	1	100.00								
9	Kishtwar	1	1	100.00								
10	Kulgam	1	1	100.00								
11	Kupwara	1	1	100.00								
12	Poonch	1	1	100.00								
13	Pulwama	1	1	100.00								
14	Rajouri	1	1	100.00								
15	Ramban	1	1	100.00								
16	Reasi	1	1	100.00								
17	Samba	1	1	100.00								
18	Shopian	1	1	100.00								
19	Srinagar	1	1	100.00								
20	Udhampur	1	1	100.00								
	Total	**20**	**20**	**100.00**								

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

LADAKH

S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Kargil	1	1	100.00								
2	Leh	1	1	100.00								
	Total	**2**	**2**	**100.00**								

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020													
LAKSHADWEEP													
S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Agatti	1	1	100.00								
2	Amini	1			1	100.00						
3	Androth	1	1	100.00								
4	Chetlat	1	1	100.00								
5	Kadmat	1	1	100.00								
6	Kalpeni	1	1	100.00								
7	Kavaratti	1			1	100.00						
8	Kiltan	1	1	100.00								
9	Minicoy	1	1	100.00								
	Total	**9**	**7**	**77.78**	**2**	**22.22**						

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

PUDUCHERRY

S.No	Name of District	Total No. of Assessed Units	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			No.	%	No.	%	No.	%	No.	%	No.	%
1	Karaikal	1	1	100.00								
2	Mahe	1	1	100.00								
3	Puducherry	1					1	100.00				
4	Yanam	1									1	100.00
	Total	**4**	**2**	**50.00**			**1**	**25.00**			**1**	**25.00**

Annexure - III(C)

State-Wise Annual Extractable Ground Water Resource of Assessment Units under Different Category in India (as in 2020)

ANNUAL EXTRACTABLE RESOURCE OF ASSESSMENT UNITS UNDER DIFFERENT CATEGORIES IN INDIA(2020)

S.No.	State/Union Territories	Total Annual Extractable Resource of Assessed Units (in mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Total Annual Extractable Resource (in mcm)	%	Total Annual Extractable Resource (in mcm)	%	Total Annual Extractable Resource (in mcm)	%	Total Annual Extractable Resource (in mcm)	%
1	Andhra Pradesh	22943.54	21492.71	93.68	733.38	3.20	279.23	1.22	438.21	1.91
2	Arunachal Pradesh	2916.26	2916.26	100.00						
3	Assam	21965.63	21965.63	100.00						
4	Bihar	25455.91	22771.55	89.45	2206.14	8.67	171.72	0.67	306.51	1.20
5	Chhattisgarh	11547.65	8367.50	72.46	2232.50	19.33	947.66	8.21		
6	Delhi	286.31	32.44	11.33	52.50	18.34	72.36	25.27	129.01	45.06
7	Goa	321.70	321.70	100.00						
8	Gujarat	24905.26	19795.23	79.48	2564.80	10.30	493.40	1.98	2051.83	8.24
9	Haryana	8629.78	1455.59	16.87	983.94	11.40	621.32	7.20	5568.92	64.53
10	Himachal Pradesh	969.67	969.67	100.00						
11	Jharkhand	5644.32	5269.54	93.36	284.98	5.05	41.10	0.73	48.70	0.86
12	Karnataka	16395.84	10118.72	61.72	2313.09	14.11	778.99	4.75	3185.03	19.43
13	Kerala	5119.58	4181.63	81.68	801.49	15.66	136.45	2.67		
14	Madhya Pradesh	33380.40	24254.07	72.66	5021.66	15.04	754.83	2.26	3349.83	10.04
15	Maharashtra	30250.45	21670.11	71.64	6741.00	22.28	950.09	3.14	889.25	2.94
16	Manipur	462.96	462.96	100.00						
17	Meghalaya	1819.54	1819.54	100.00						
18	Mizoram	199.81	199.81	100.00						
19	Nagaland	1949.88	1949.88	100.00						
20	Odisha	15712.93	15343.01	97.65	369.93	2.35				
21	Punjab	20590.10	2518.79	12.23	827.95	4.02	980.13	4.76	16263.23	78.99
22	Rajasthan	11073.63	1144.95	10.34	1441.41	13.02	706.85	6.38	7780.42	70.26
23	Sikkim	864.45	864.45	100.00						
24	Tamil Nadu	17690.07	6973.59	39.42	3921.48	22.17	1050.93	5.94	5744.07	32.47
25	Telangana	15026.12	10403.46	69.24	3461.87	23.04	700.20	4.66	460.60	3.07
26	Tripura	1244.54	1244.54	100.00						
27	Uttar Pradesh	66882.45	46000.68	68.78	12755.08	19.07	3822.59	5.72	4304.10	6.44
28	Uttarakhand	1852.90	1506.64	81.31	346.26	18.69				
29	West Bengal*	26558.47	19498.91	73.42	6991.06	26.32	68.50	0.26		
30	Andaman and Nicobar	284.92	284.92	100.00						
31	Chandigarh	57.38			57.38	100.00				
32	Dadra & Nagar Haveli	67.52	67.52	100.00						
	Daman & Diu	27.56	2.33	8.45					25.23	91.55
33	Jammu and Kashmir	4215.33	4215.33	100.00						
34	Ladakh	106.10	106.10	100.00						
35	Lakshadweep	4.99	3.84	76.99	1.15	23.01				
36	Puducherry	201.01	64.82	32.25			136.18	67.75		
	Grand Total	397624.96	280258.44	70.48	54109.04	13.61	12712.53	3.20	50544.94	12.71

NOTE

***West Bengal- The Ground Water Resource Assessment as on 2013 has been considered for state of West Bengal.**

Annexure - III(D)

District-Wise Annual Extractable Ground Water Resource of Assessment Units under Different Category in India (as in 2020)

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020											
ANDHRA PRADESH											
S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited		
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	**Anantapur**	1762.14	1329.96	75.47	107.21	6.08	28.43	1.61	296.55	16.83
2	**Chittoor**	1310.56	889.35	67.86	324.56	24.77	96.64	7.37		
3	**East Godavari**	2493.07	2468.32	99.01	24.75	0.99				
4	**Guntur**	1690.53	1621.51	95.92			21.02	1.24	47.99	2.84
5	**Kadapa**	1099.26	857.59	78.02	122.19	11.12	88.99	8.10	30.49	2.77
6	**Krishna**	2570.24	2538.80	98.78	31.44	1.22				
7	**Kurnool**	1738.35	1702.85	97.96	27.79	1.60	7.71	0.44		
8	**Nellore**	2998.47	2931.31	97.76	30.72	1.02	36.44	1.22		
9	**Prakasam**	1265.88	1137.99	89.90	64.72	5.11			63.17	4.99
10	**Srikakulam**	1217.86	1217.86	100.00		0.00				
11	**Visakhapatnam**	939.61	939.61	100.00		0.00				
12	**Vizianagaram**	2143.53	2143.53	100.00		0.00				
13	**West Godavari**	1714.03	1714.03	100.00		0.00				
	Total	**22943.54**	**21492.71**	**93.68**	**733.38**	**3.20**	**279.23**	**1.22**	**438.21**	**1.91**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020										
ARUNACHAL PRADESH										
S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	Tirap	71.18	71.18	100.00						
2	Changlang	213.90	213.90	100.00						
3	Lohit	873.24	873.24	100.00						
4	Lower Dibang Valley	699.66	699.66	100.00						
5	East Siang	739.91	739.91	100.00						
6	West Siang	48.26	48.26	100.00						
7	East Kameng	110.06	110.06	100.00						
8	West Kameng	25.21	25.21	100.00						
9	Lower Subansiri	37.91	37.91	100.00						
10	Upper Subansiri	2.89	2.89	100.00						
11	Papum Pare	94.02	94.02	100.00						
	Total	**2916.26**	**2916.26**	**100.00**						

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

ASSAM

S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	Baksa	1271.49	1271.49	100.00						
2	Barpeta	1131.26	1131.26	100.00						
3	Bongaigaon	477.58	477.58	100.00						
4	Cachar	404.44	404.44	100.00						
5	Chirang	1013.27	1013.27	100.00						
6	Darrang	475.93	475.93	100.00						
7	Dhemaji	1037.71	1037.71	100.00						
8	Dhubri	1009.36	1009.36	100.00						
9	Dibrugarh	1046.54	1046.54	100.00						
10	Dima Hasao	404.40	404.40	100.00						
11	Goalpara	644.83	644.83	100.00						
12	Golaghat	1033.04	1033.04	100.00						
13	Hailakandi	128.55	128.55	100.00						
14	Jorhat	654.54	654.54	100.00						
15	Kamrup	821.91	821.91	100.00						
16	Kamrup Metro Rural	1563.53	1563.53	100.00						
17	Kamrup Metro Urban	473.62	473.62	100.00						
18	Karbi Anglong	2086.05	2086.05	100.00						
19	Karimganj	113.70	113.70	100.00						
20	Kokrajhar	61.07	61.07	100.00						
21	Lakhimpur	546.00	546.00	100.00						
22	Morigaon	435.90	435.90	100.00						
23	Nagaon	1223.34	1223.34	100.00						
24	Nalbari	387.03	387.03	100.00						
25	Sivasagar	654.65	654.65	100.00						
26	Sonitpur	1223.80	1223.80	100.00						
27	Tinsukia	1156.99	1156.99	100.00						
28	Udalguri	485.06	485.06	100.00						
	Total	**21965.63**	**21965.63**	**100.00**						

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

BIHAR

S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	Araria	759.21	759.21	100.00						
2	Arwal	187.06	187.06	100.00						
3	Aurangabad	768.06	768.06	100.00						
4	Banka	459.12	459.12	100.00						
5	Begusarai	501.66	451.52	90.01	50.14	9.99				
6	Bhagalpur	694.70	694.70	100.00						
7	Bhojpur	691.14	432.81	62.62	258.33	37.38				
8	Buxar	495.89	449.45	90.64	46.43	9.36				
9	Darbhanga	650.20	650.20	100.00						
10	East Champaran	1288.66	1288.66	100.00						
11	Gaya	1069.23	649.99	60.79	275.21	25.74			144.02	13.47
12	Gopalganj	591.11	591.11	100.00						
13	Jamui	392.54	392.54	100.00						
14	Jehanabad	287.07			137.28	47.82	109.02	37.98	40.78	14.21
15	Kaimur	741.29	741.29	100.00						
16	Katihar	1124.16	1084.53	96.47	39.63	3.53				
17	Khagaria	536.94	536.94	100.00						
18	Kishanganj	648.43	648.43	100.00						
19	Lakhisarai	261.26	222.25	85.07	39.01	14.93				
20	Madhepura	608.72	306.50	50.35	302.23	49.65				
21	Madhubani	936.79	936.79	100.00						
22	Munger	298.24	298.24	100.00						
23	Muzaffarpur	981.84	841.99	85.76	44.71	4.55			95.14	9.69
24	Nalanda	649.45	471.25	72.56	151.63	23.35			26.57	4.09
25	Nawada	558.85	445.73	79.76	98.13	17.56	14.99	2.68		
26	Patna	894.17	562.95	62.96	331.23	37.04				
27	Purnia	962.16	887.64	92.26	74.52	7.74				
28	Rohats	795.19	795.19	100.00						
29	Saharsa	562.59	562.59	100.00						
30	Samastipur	844.12	782.11	92.65	62.01	7.35				
31	Saran	824.30	805.90	97.77	18.40	2.23				
32	Sheikhpura	163.93	163.93	100.00						
33	Sheohar	144.97	144.97	100.00						
34	Sitamarhi	585.89	538.75	91.95	47.14	8.05				
35	Siwan	816.60	770.70	94.38	45.90	5.62				
36	Supaul	741.79	741.79	100.00						
37	Vaishali	675.84	443.92	65.68	184.21	27.26	47.71	7.06		
38	West Champaran	1262.75	1262.75	100.00						
	Total	**25455.91**	**22771.55**	**89.45**	**2206.14**	**8.67**	**171.72**	**0.67**	**306.51**	**1.20**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020											
CHHATISGARH											
S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited		
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	
1	Balod	331.35	147.68	44.57	123.40	37.24	60.27	18.19			
2	Baloda Bazar	545.88	443.96	81.33	101.92	18.67					
3	Balrampur	477.78	477.78	100.00							
4	Bastar	291.39	291.39	100.00							
5	Bemetara	445.55			211.28	47.42	234.27	52.58			
6	Bijapur	560.73	560.73	100.00							
7	Bilaspur	497.37	393.70	79.16	103.66	20.84					
8	Dantewara	288.54	288.54	100.00							
9	Dhamtari	429.09			290.04	67.59	139.05	32.41			
10	Durg	311.93			217.04	69.58	94.88	30.42			
11	Gariaband	336.13	244.23	72.66	91.90	27.34					
12	Janjgir-Champa	434.81	298.95	68.75	135.86	31.25					
13	Jashpur	332.48	332.48	100.00							
14	Kanker	740.25	675.41	91.24	64.83	8.76					
15	Kawardha	489.45	168.82	34.49	109.00	22.27	211.63	43.24			
16	Kondagaon	333.79	333.79	100.00							
17	Korba	388.75	327.31	84.20	61.44	15.80					
18	Koriya	462.43	462.43	100.00							
19	Mahasamund	593.19	355.64	59.95	237.55	40.05					
20	Mungeli	142.61	142.61	100.00							
21	Narayanpur	259.78	259.78	100.00							
22	Raigarh	452.89	313.78	69.28	139.12	30.72					
23	Raipur	425.00	328.03	77.18			96.97	22.82			
24	Rajnandgaon	750.19	374.70	49.95	264.91	35.31	110.59	14.74			
25	Sukma	465.90	465.90	100.00							
26	Surajpur	343.21	262.68	76.54	80.53	23.46					
27	Surguja	417.21	417.21	100.00							
	Total	11547.65	8367.50	72.46	2232.50	19.33	947.66	8.21			

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

DELHI

S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	Central	18.06			11.95	66.20			6.10	33.80
2	East	14.02			8.62	61.51			5.40	38.49
3	New Delhi	20.75							20.75	100.00
4	North	46.33					25.12	54.22	21.21	45.78
5	North East	10.75					9.04	84.05	1.71	15.95
6	North West	33.24	27.76	83.52	5.48	16.48				
7	Shahdara	13.40					4.86	36.29	8.54	63.71
8	South	24.42							24.42	100.00
9	South East	15.59					7.03	45.09	8.56	54.91
10	South West	54.88					26.31	47.94	28.57	52.06
11	West	30.19			26.44	87.60			3.74	12.40
12	Nazul Land	4.67	4.67	100.00						
	Total	**286.31**	**32.44**	**11.33**	**52.50**	**18.34**	**72.36**	**25.27**	**129.01**	**45.06**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020										
GOA										
S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	**Goa North**	149.30	149.30	100.00						
2	**South Goa**	172.40	172.40	100.00						
	Total	**321.70**	**321.70**	**100.00**						

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

GUJARAT

S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	Ahmedabad	606.09	291.78	48.14	231.79	38.24	82.52	13.62		
2	Amreli	1482.04	1438.13	97.04	43.91	2.96				
3	Anand	970.61	970.61	100.00						
4	Arvalli	727.51	727.51	100.00						
5	Banaskantha	1069.27	191.89	17.95	309.11	28.91			568.27	53.15
6	Bharuch	777.66	777.66	100.00						
7	Bhavnagar	973.78	973.78	100.00						
8	Botad	470.51	470.51	100.00						
9	Chhota Udepur	492.97	492.97	100.00						
10	Dahod	472.34	472.34	100.00						
11	Dang	287.52	287.52	100.00						
12	Devbhumi Dwaraka	425.21	425.21	100.00						
13	Gandhinagar	475.91	0.00	0.00	211.16	44.37			264.75	55.63
14	Gir Somnath	577.87	500.42	86.60	77.46	13.40				
15	Jamnagar	1621.69	1621.69	100.00						
16	Junagadh	811.15	315.23	38.86	194.13	23.93	121.23	14.95	180.56	22.26
17	Kachchh	787.73	530.47	67.34					257.26	32.66
18	Kheda	1459.66	1448.38	99.23	11.28	0.77				
19	Mahesana	1009.91	0.00	0.00	374.85	37.12	152.47	15.10	482.59	47.79
20	Mahisagar	283.01	283.01	100.00						
21	Morbi	578.89	578.89	100.00						
22	Narmada	365.70	185.27	50.66	180.43	49.34				
23	Navsari	624.01	624.01	100.00						
24	Panchmahal	433.56	433.56	100.00						
25	Patan	341.72	0.02	0.01	96.06	28.11	137.18	40.14	108.46	31.74
26	Porbandar	251.23	173.40	69.02	77.83	30.98				
27	Rajkot	1811.10	1605.73	88.66	205.38	11.34				
28	Sabarkantha	672.92	268.85	39.95	330.29	49.08			73.78	10.96
29	Surat	1110.37	1110.37	100.00						
30	Surendra Nagar	764.74	714.39	93.42	50.35	6.58				
31	Tapi	582.13	582.13	100.00						
32	Vadodara	978.44	691.50	70.67	170.79	17.46			116.15	11.87
33	Valsad	608.02	608.02	100.00						
	Total	**24905.26**	**19795.23**	**79.48**	**2564.80**	**10.30**	**493.40**	**1.98**	**2051.83**	**8.24**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020										
HARYANA										
S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	Ambala	432.24	0.00	0.00	72.13	16.69	162.37	37.56	197.75	45.75
2	Bhiwani	381.37	58.06	15.22	147.44	38.66	0.00	0.00	175.87	46.12
3	Charkhi Dadri	174.17	76.88	44.14	0.00	0.00	0.00	0.00	97.28	55.86
4	Faridabad	148.47	0.00	0.00	0.00	0.00	0.00	0.00	148.47	100.00
5	Fatehabad	535.28	0.00	0.00	0.00	0.00	64.14	11.98	471.14	88.02
6	Gurgaon	204.22	0.00	0.00	0.00	0.00	0.00	0.00	204.22	100.00
7	Hisar	535.89	86.75	16.19	212.91	39.73	98.29	18.34	137.94	25.74
8	Jhajjar	340.42	311.20	91.42	29.22	8.58	0.00	0.00	0.00	0.00
9	Jind	770.97	106.31	13.79	79.05	10.25	0.00	0.00	585.61	75.96
10	Kaithal	547.56	0.00	0.00	0.00	0.00	0.00	0.00	547.56	100.00
11	Karnal	730.90	0.00	0.00	136.11	18.62	0.00	0.00	594.79	81.38
12	Kurukshetra	352.41	0.00	0.00	0.00	0.00	0.00	0.00	352.41	100.00
13	Mahendragarh	256.22	63.06	24.61	21.60	8.43	44.26	17.28	127.30	49.68
14	Mewat	176.24	60.79	34.49	17.03	9.66	68.48	38.86	29.94	16.99
15	Palwal	348.62	77.24	22.16	155.11	44.49	57.95	16.62	58.32	16.73
16	Panchkula	140.03	102.87	73.46	0.00	0.00	37.16	26.54	0.00	0.00
17	Panipat	320.41	0.00	0.00	0.00	0.00	0.00	0.00	320.41	100.00
18	Rewari	278.29	0.00	0.00	0.00	0.00	54.08	19.43	224.21	80.57
19	Rohtak	297.47	297.47	100.00	0.00	0.00	0.00	0.00	0.00	0.00
20	Sirsa	547.46	0.00	0.00	113.34	20.70	0.00	0.00	434.12	79.30
21	Sonipat	593.55	214.97	36.22	0.00	0.00	0.00	0.00	378.59	63.78
22	Yamuna Nagar	517.59	0.00	0.00	0.00	0.00	34.58	6.68	483.01	93.32
	Total	**8629.78**	**1455.59**	**16.87**	**983.94**	**11.40**	**621.32**	**7.20**	**5568.93**	**64.53**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

HIMACHAL PRADESH

S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	Kangra	510.26	510.26	100.00						
2	Mandi	34.33	34.33	100.00						
3	Sirmaour	83.30	83.30	100.00						
4	Solan	146.30	146.30	100.00						
5	Una	195.49	195.49	100.00						
	Total	**969.67**	**969.67**	**100.00**						

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

JHARKHAND

S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	Bokaro	223.38	167.80	75.12	41.77	18.70			13.82	6.19
2	Chatra	236.04	236.04	100.00						
3	Deoghar	142.69	134.37	94.17	8.31	5.83				
4	Dhanbad	235.77	115.92	49.17	89.35	37.90	13.39	5.68	17.11	7.26
5	Dumka	253.66	253.66	100.00						
6	East Singhbhum	261.14	243.37	93.20					17.77	6.80
7	Garhwa	279.91	250.80	89.60	29.11	10.40				
8	Giridih	388.22	388.22	100.00						
9	Godda	193.34	193.34	100.00						
10	Gumla	332.14	332.14	100.00						
11	Hazaribagh	298.43	289.52	97.02	8.91	2.98				
12	Jamtara	83.28	83.28	100.00						
13	Khunti	123.12	123.12	100.00						
14	Koderma	64.05	64.05	100.00						
15	Latehar	220.61	220.61	100.00						
16	Lohardaga	170.52	170.52	100.00						
17	Pakur	220.15	220.15	100.00						
18	Palamau	320.55	320.55	100.00						
19	Ramgarh	114.58	64.89	56.63	49.69	43.37				
20	Ranchi	394.41	308.85	78.31	57.84	14.67	27.71	7.03		
21	Sahebganj	259.59	259.59	100.00						
22	Saraikela - Kharsawa	164.30	164.30	100.00						
23	Simdega	214.16	214.16	100.00						
24	West Singhbhum	450.26	450.26	100.00						
	Total	**5644.32**	**5269.54**	**93.36**	**284.98**	**5.05**	**41.10**	**0.73**	**48.70**	**0.86**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020										
KARNATAKA										
S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	**Bagalkot**	520.59	122.05	23.44	170.25	32.70	63.79	12.25	164.49	31.60
2	**Bangalore Rural**	183.31							183.31	100.00
3	**Bangalore Urban**	158.62							158.62	100.00
4	**Belagavi**	957.62	350.88	36.64	328.19	34.27	43.22	4.51	235.33	24.57
5	**Bellary**	722.46	481.05	66.59	86.42	11.96			154.99	21.45
6	**Bidar**	258.83	186.78	72.16	72.05	27.84				
7	**Chamrajnagara**	329.92			115.34	34.96	30.23	9.16	184.36	55.88
8	**Chikballapur**	370.53							370.53	100.00
9	**Chikkamagalur**	668.00	534.18	79.97					133.82	20.03
10	**Chitradurga**	481.19	71.66	14.89					409.53	85.11
11	**Dakshin Kanna**	562.61	562.61	100.00						
12	**Davangere**	564.48	216.59	38.37	112.28	19.89	83.47	14.79	152.14	26.95
13	**Dharwad**	260.95	260.95	100.00						
14	**Gadag**	265.96	27.15	10.21	127.96	48.11	66.14	24.87	44.72	16.81
15	**Hassan**	773.29	531.66	68.75			142.86	18.47	98.76	12.77
16	**Haveri**	686.55	427.51	62.27	259.04	37.73				
17	**Kalburagi**	501.69	411.35	81.99	90.34	18.01				
18	**Kodagu**	360.46	360.46	100.00						
19	**Kolar**	399.62							399.62	100.00
20	**Koppal**	633.87	433.58	68.40	154.21	24.33			46.08	7.27
21	**Mandya**	843.70	676.46	80.18	167.24	19.82				
22	**Mysuru**	725.45	668.00	92.08	57.46	7.92				
23	**Raichur**	620.08	429.91	69.33	190.17	30.67				
24	**Ramanagaram**	375.54			68.32	18.19	307.22	81.81		
25	**Shivamogga**	1024.85	1024.85	100.00						
26	**Tumakuru**	764.52	251.11	32.85	64.67	8.46			448.74	58.70
27	**Udupi**	604.25	604.25	100.00						
28	**Uttar Kannada**	918.41	918.41	100.00						
29	**Vijayapura**	453.72	296.17	65.28	115.50	25.46	42.05	9.27		
30	**Yadgir**	404.77	271.12	66.98	133.65	33.02				
	Total	**16395.84**	**10118.72**	**61.72**	**2313.09**	**14.11**	**778.99**	**4.75**	**3185.03**	**19.43**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020										
KERALA										
S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	Alappuzha	387.42	387.42	100.00						
2	Ernakulam	459.60	459.60	100.00						
3	Idukki	188.77	145.06	76.85	43.71	23.15				
4	Kannur	406.38	345.25	84.96	61.13	15.04				
5	Kasargod	291.52	92.25	31.65	153.30	52.59	45.97	15.77		
6	Kollam	340.07	308.73	90.79	31.33	9.21				
7	Kottayam	371.91	371.91	100.00						
8	Kozhikode	311.30	257.93	82.86	53.36	17.14				
9	Malappuram	475.97	252.44	53.04	223.53	46.96				
10	Palakkad	584.10	433.97	74.30	59.64	10.21	90.49	15.49		
11	Pathanamthitta	241.32	241.32	100.00						
12	Thiruvananthapuram	272.86	193.54	70.93	79.31	29.07				
13	Thrissur	568.83	472.65	83.09	96.17	16.91				
14	Wayanad	219.55	219.55	100.00						
	Total	**5119.58**	**4181.63**	**81.68**	**801.49**	**15.66**	**136.45**	**2.67**		

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

MADHYA PRADESH

S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	Agar Malwa	410.28	111.64	27.21	106.19	25.88			192.46	46.91
2	Alirajpur	213.27	213.27	100.00						
3	Anuppur	377.35	377.35	100.00						
4	Ashoknagar	357.02	283.47	79.40	73.55	20.60				
5	Balaghat	780.53	780.53	100.00						
6	Barwani	517.46	354.96	68.60	103.68	20.04			58.81	11.36
7	Betul	1134.78	823.52	72.57	311.26	27.43				
8	Bhind	887.47	887.47	100.00						
9	Bhopal	368.65	206.30	55.96	162.35	44.04				
10	Burhanpur	373.44	373.44	100.00						
11	Chhatarpur	804.54	438.95	54.56	365.58	45.44				
12	Chhindwara	987.87	671.36	67.96	218.60	22.13	97.91	9.91		
13	Damoh	392.98	338.45	86.12	54.53	13.88				
14	Datia	407.68	407.68	100.00						
15	Dewas	808.02	427.58	52.92	114.76	14.20			265.68	32.88
16	Dhar	1049.13	623.22	59.40			76.18	7.26	349.73	33.34
17	Dindori	388.37	388.37	100.00						
18	Guna	752.66	752.66	100.00						
19	Gwalior	736.89	712.21	96.65	24.68	3.35				
20	Harda	466.87	466.87	100.00						
21	Hoshangabad	1950.19	1749.06	89.69	201.14	10.31				
22	Indore	546.14			107.28	19.64			438.86	80.36
23	Jabalpur	589.97	582.55	98.74			7.42	1.26		
24	Jhabua	262.34	238.59	90.95	23.75	9.05				
25	Katni	366.77	366.77	100.00						
26	Khandwa	900.37	781.31	86.78	119.06	13.22				
27	Khargone	1059.61	998.02	94.19	61.60	5.81				
28	Mandla	592.44	592.44	100.00						
29	Mandsaur	603.60			136.36	22.59	161.97	26.83	305.27	50.57
30	Morena	637.85	637.85	100.00						
31	Narsinghpur	1135.41	931.36	82.03	204.05	17.97				
32	Neemuch	383.00			139.58	36.44			243.42	63.56
33	Panna	582.60	582.60	100.00						
34	Raisen	819.49	725.29	88.51	94.20	11.49				
35	Rajgarh	775.04	149.65	19.31	330.79	42.68	294.60	38.01		
36	Ratlam	763.23			103.28	13.53			659.94	86.47
37	Rewa	483.68	449.39	92.91	34.29	7.09				
38	Sagar	999.30	999.30	100.00						
39	Satna	592.92	382.62	64.53	210.30	35.47				

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

MADHYA PRADESH										
S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
40	**Sehore**	651.88	535.13	82.09			116.75	17.91		
41	**Seoni**	682.50	682.50	100.00						
42	**Shahdol**	439.89	439.89	100.00						
43	**Shajapur**	532.50			129.10	24.24			403.40	75.76
44	**Sheopur**	511.73	511.73	100.00						
45	**Shivpuri**	747.29	300.26	40.18	447.04	59.82				
46	**Sidhi**	474.94	474.94	100.00						
47	**Singrauli**	340.54	340.54	100.00						
48	**Tikamgarh**	563.61	101.62	18.03	461.99	81.97				
49	**Ujjain**	918.01			485.74	52.91			432.26	47.09
50	**Umaria**	414.78	414.78	100.00						
51	**Vidisha**	843.53	646.61	76.66	196.92	23.34				
	Total	33380.40	24254.07	72.66	5021.66	15.04	754.83	2.26	3349.83	10.04

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020										
MAHARASHTRA										
S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	Ahmednagar	1508.69	461.57	30.59	548.34	36.35	420.36	27.86	78.42	5.20
2	Akola	356.10	302.66	84.99	53.44	15.01				
3	Amravati	803.79	260.44	32.40	204.45	25.44			338.90	42.16
4	Aurangabad	1008.11	205.88	20.42	802.22	79.58				
5	Beed	1220.66	1220.66	100.00						
6	Bhandara	858.04	858.04	100.00						
7	Buldhana	865.93	139.99	16.17	631.67	72.95			94.27	10.89
8	Chandrapur	1105.55	1105.55	100.00						
9	Dhule	682.67	682.67	100.00						
10	Gadchiroli	1015.22	1015.22	100.00						
11	Gondia	625.49	625.49	100.00						
12	Hingoli	970.05	970.05	100.00						
13	Jalgaon	1352.65	292.78	21.64	877.10	64.84			182.77	13.51
14	Jalna	785.94	785.94	100.00						
15	Kolhapur	1136.55	1136.55	100.00						
16	Latur	648.34	550.83	84.96	97.51	15.04				
17	Nagpur	914.33	781.38	85.46	132.94	14.54				
18	Nanded	1178.58	1178.58	100.00						
19	Nandurbar	478.44	478.44	100.00						
20	Nashik	1849.91	1118.84	60.48	351.40	19.00	379.67	20.52		
21	Osmanabad	814.77	565.61	69.42	249.15	30.58				
22	Palghar	183.52	183.52	100.00						
23	Parbhani	827.30	827.30	100.00						
24	Pune	1744.55	376.49	21.58	1218.01	69.82	150.06	8.60		
25	Raigad	362.47	362.47	100.00						
26	Ratnagiri	386.98	386.98	100.00						
27	Sangli	1304.60	1187.56	91.03	117.04	8.97				
28	Satara	958.41	464.05	48.42	494.35	51.58				
29	Sindhudurg	218.30	218.30	100.00						
30	Solapur	1379.11	300.07	21.76	884.15	64.11			194.89	14.13
31	Thane	164.03	164.03	100.00						
32	Wardha	801.98	722.76	90.12	79.23	9.88				
33	Washim	553.14	553.14	100.00						
34	Yawatmal	1186.28	1186.28	100.00						
	Total	30250.45	21670.11	71.64	6741.00	22.28	950.09	3.14	889.25	2.94

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020										
MANIPUR										
S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	Bishnupur	106.60	106.60	100.00						
2	Churachandpur	74.10	74.10	100.00						
3	Imphal East	133.28	133.28	100.00						
4	Imphal West	77.88	77.88	100.00						
5	Thoubal	71.09	71.09	100.00						
	Total	**462.96**	**462.96**	**100.00**						

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020										
MEGHALAYA										
S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	**East Garo Hills**	61.27	61.27	100.00						
2	**East Jaintia Hills**	177.27	177.27	100.00						
3	**East Khasi Hills**	90.81	90.81	100.00						
4	**North Garo Hills**	110.83	110.83	100.00						
5	**Ri-Bhoi**	78.94	78.94	100.00						
6	**South Garo Hills**	90.18	90.18	100.00						
7	**South West Garo Hills**	98.66	98.66	100.00						
8	**South West Khasi Hills**	144.17	144.17	100.00						
9	**West Garo Hills**	351.18	351.18	100.00						
10	**West Jaintia Hills**	162.13	162.13	100.00						
11	**West Khasi Hills**	454.11	454.11	100.00						
	Total	**1819.54**	**1819.54**	**100.00**						

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020											
MIZORAM											
S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited		
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	
1	Aizawl	14.73	14.73	100.00							
2	Champhai	15.66	15.66	100.00							
3	Kolasib	25.02	25.02	100.00							
4	Lawngtlai	29.23	29.23	100.00							
5	Lunglei	49.31	49.31	100.00							
6	Mamit	50.47	50.47	100.00							
7	Saiha	7.28	7.28	100.00							
8	Serchhip	8.12	8.12	100.00							
	Total	**199.81**	**199.81**	**100.00**							

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

NAGALAND

S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	Dimapur	374.51	374.51	100.00						
2	Kiphire	87.30	87.30	100.00						
3	Kohima	155.42	155.42	100.00						
4	Longleng	62.01	62.01	100.00						
5	Mokokchung	185.99	185.99	100.00						
6	Mon	181.58	181.58	100.00						
7	Peren	147.50	147.50	100.00						
8	Phek	127.51	127.51	100.00						
9	Tuensang	274.70	274.70	100.00						
10	Wokha	202.26	202.26	100.00						
11	Zunheboto	151.10	151.10	100.00						
	Total	**1949.88**	**1949.88**	**100.00**						

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

ODISHA

S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	Angul	550.77	550.77	100.00						
2	Balasore	1212.84	1153.16	95.08	59.68	4.92				
3	Bargarh	585.95	585.95	100.00						
4	Bhadrak	513.29	513.29	100.00						
5	Bolangir	555.14	555.14	100.00						
6	Boudh	235.60	235.60	100.00						
7	Cuttack	669.92	669.92	100.00						
8	Deogarh	306.89	306.89	100.00						
9	Dhenkanal	447.25	447.25	100.00						
10	Gajapati	198.61	198.61	100.00						
11	Ganjam	929.62	929.62	100.00						
12	Jagatsinghpur	435.80	435.80	100.00						
13	Jajpur	521.91	434.60	83.27	87.31	16.73				
14	Jharsuguda	185.58	185.58	100.00						
15	Kalahandi	610.51	610.51	100.00						
16	Kandhamal	328.41	328.41	100.00						
17	Kendrapara	239.35	202.97	84.80	36.38	15.20				
18	Keonjhar	811.79	811.79	100.00						
19	Khurda	427.82	327.23	76.49	100.59	23.51				
20	Koraput	509.34	509.34	100.00						
21	Malkangiri	304.68	304.68	100.00						
22	Mayurbhanj	1370.54	1370.54	100.00						
23	Nabarangapur	568.45	568.45	100.00						
24	Nayagarh	358.98	358.98	100.00						
25	Nuapada	292.29	206.32	70.59	85.97	29.41				
26	Puri	595.47	595.47	100.00						
27	Rayagada	324.48	324.48	100.00						
28	Sambalpur	580.74	580.74	100.00						
29	Subarnapur	247.85	247.85	100.00						
30	Sundargarh	793.05	793.05	100.00						
	Total	**15712.93**	**15343.01**	**97.65**	**369.93**	**2.35**				

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

PUNJAB

S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	**Amritsar**	1421.36							1421.36	100.00
2	**Barnala**	540.60							540.60	100.00
3	**Bathinda**	1228.40	197.94	16.11	171.33	13.95	222.01	18.07	637.12	51.87
4	**Faridkot**	711.66							711.66	100.00
5	**Fatehgarh Sahib**	564.48							564.48	100.00
6	**Fazilka**	936.78	440.22	46.99			185.03	19.75	311.53	33.26
7	**Ferozpur**	1339.71							1339.71	100.00
8	**Gurdaspur**	1672.93	53.90	3.22	112.70	6.74	524.28	31.34	982.05	58.70
9	**Hoshiarpur**	889.26	224.08	25.20	244.80	27.53			420.37	47.27
10	**Jalandhar**	1024.37							1024.37	100.00
11	**Kapurthala**	669.22							669.22	100.00
12	**Ludhiana**	1642.02							1642.02	100.00
13	**Mansa**	960.07							960.07	100.00
14	**Moga**	902.30							902.30	100.00
15	**Muktsar**	1160.54	1160.54	100.00						
16	**Nawanshahar**	616.24	42.18	6.85	102.31	16.60			471.76	76.55
17	**Pathankot**	373.50	249.76	66.87	123.75	33.13				
18	**Patiala**	1261.32							1261.32	100.00
19	**Ropar**	409.78	93.70	22.87	73.06	17.83	48.82	11.91	194.19	47.39
20	**S.A.S Nagar**	268.74	56.46	21.01					212.28	78.99
21	**Sangrur**	1117.74							1117.74	100.00
22	**Tarn Taran**	879.08							879.08	100.00
	Total	**20590.10**	**2518.79**	**12.23**	**827.95**	**4.02**	**980.13**	**4.76**	**16263.23**	**78.99**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

RAJASTHAN

S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	Ajmer	372.08							372.08	100.00
2	Alwar	617.87							617.87	100.00
3	Banswara	182.56	105.89	58.00	76.67	42.00				
4	Baran	623.87			335.83	53.83			288.04	46.17
5	Barmer	339.74	39.10	11.51	13.29	3.91	94.87	27.92	192.49	56.66
6	Bharatpur	298.16					34.92	11.71	263.24	88.29
7	Bhilwara	388.77							388.77	100.00
8	Bikaner	344.85	96.44	27.97	46.02	13.35			202.38	58.69
9	Bundi	303.53	38.71	12.75	77.48	25.53	55.35	18.24	131.99	43.49
10	Chittaurgarh	388.33							388.33	100.00
11	Churu	116.11	43.71	37.65			9.84	8.48	62.55	53.87
12	Dausa	246.88							246.88	100.00
13	Dhaulpur	231.81					63.67	27.47	168.14	72.53
14	Dungarpur	177.61	136.98	77.13	40.63	22.87				
15	Ganganagar	446.12	446.12	100.00						
16	Hanumangarh	200.81	200.81	100.00						
17	Jaipur	699.44							699.44	100.00
18	Jaisalmer	85.05							85.05	100.00
19	Jalor	505.61			90.08	17.82			415.53	82.18
20	Jhalawar	497.14			172.48	34.69	44.40	8.93	280.26	56.37
21	Jhunjhunun	223.48							223.48	100.00
22	Jodhpur	343.03			34.32	10.01	21.62	6.30	287.09	83.69
23	Karauli	308.25			28.29	9.18			279.96	90.82
24	Kota	449.21			297.67	66.26			151.54	33.74
25	Nagaur	488.24					32.72	6.70	455.52	93.30
26	Pali	296.13	3.67	1.24	11.43	3.86			281.03	94.90
27	Pratapgarh	201.79	33.52	16.61			20.25	10.04	148.02	73.35
28	Rajsamand	103.50					39.86	38.51	63.64	61.49
29	Sawai Madhopur	343.19							343.19	100.00
30	Sikar	353.29					41.13	11.64	312.16	88.36
31	Sirohi	247.03			51.40	20.81			195.63	79.19
32	Tonk	370.32			117.70	31.78	98.77	26.67	153.85	41.54
33	Udaipur	279.81			48.11	17.19	149.44	53.41	82.26	29.40
	Total	**11073.63**	**1144.95**	**10.34**	**1441.41**	**13.02**	**706.85**	**6.38**	**7780.42**	**70.26**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

SIKKIM

S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	East	123.92	123.92	100.00						
2	North	573.93	573.93	100.00						
3	South	59.53	59.53	100.00						
4	West	107.07	107.07	100.00						
	Total	**864.45**	**864.45**	**100.00**						

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020										
TAMIL NADU										
S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	Ariyalur	376.78	362.68	96.26	14.10	3.74	0.00	0.00	0.00	0.00
2	Chengalpattu	480.30	201.24	41.90	217.98	45.38	35.53	7.40	25.56	5.32
3	Chennai	47.18	9.19	19.48	4.41	9.35	0.00	0.00	33.57	71.17
4	Coimbatore	439.08	30.06	6.85	66.44	15.13	35.43	8.07	307.15	69.95
5	Cuddalore	776.79	271.99	35.01	347.10	44.68	14.09	1.81	143.61	18.49
6	Dharmapuri	367.08	46.94	12.79	142.35	38.78	0.00	0.00	177.79	48.43
7	Dindigul	492.39	50.97	10.35	57.13	11.60	52.10	10.58	332.20	67.47
8	Erode	594.66	57.55	9.68	203.40	34.21	18.66	3.14	315.05	52.98
9	Kallakkurichi	616.99	162.74	26.38	129.14	20.93	143.56	23.27	181.56	29.43
10	Kancheepuram	417.00	256.01	61.39	101.46	24.33	9.98	2.39	49.55	11.88
11	Kanniyakumari	254.40	241.02	94.74	13.37	5.26	0.00	0.00	0.00	0.00
12	Karur	273.14	63.43	23.22	64.84	23.74	0.00	0.00	144.87	53.04
13	Krishnagiri	411.42	123.73	30.07	120.22	29.22	18.89	4.59	148.58	36.11
14	Madurai	607.95	292.86	48.17	96.82	15.93	37.51	6.17	180.76	29.73
15	Nagapattinam	108.70	6.92	6.37	0.00	0.00	0.00	0.00	101.78	93.63
16	Namakkal	385.70	34.50	8.95	70.37	18.24	31.33	8.12	249.50	64.69
17	Perambalur	214.86	44.96	20.92	9.46	4.40	0.00	0.00	160.44	74.67
18	Pudukkottai	961.42	786.14	81.77	175.28	18.23	0.00	0.00	0.00	0.00
19	Ramanathapuram	698.88	698.88	100.00	0.00	0.00	0.00	0.00	0.00	0.00
20	Ranipet	288.76	14.29	4.95	177.57	61.49	47.50	16.45	49.41	17.11
21	Salem	462.42	41.96	9.07	26.22	5.67	25.21	5.45	369.02	79.80
22	Sivaganga	590.52	590.52	100.00	0.00	0.00	0.00	0.00	0.00	0.00
23	Tenkasi	443.80	169.83	38.27	70.79	15.95	11.32	2.55	191.86	43.23
24	Thanjavur	816.80	61.03	7.47	142.33	17.43	64.94	7.95	548.50	67.15
25	The Nilgiris	88.30	85.90	97.29	2.40	2.71	0.00	0.00	0.00	0.00
26	Theni	345.61	107.71	31.17	181.09	52.40	29.84	8.64	26.96	7.80
27	Thiruvallur	803.51	457.99	57.00	255.47	31.79	36.08	4.49	53.96	6.72
28	Thiruvarur	245.15	103.35	42.16	29.15	11.89	9.90	4.04	102.75	41.91
29	Thoothukkudi	481.73	404.82	84.04	30.83	6.40	8.16	1.69	37.92	7.87
30	Tiruchirappalli	667.81	294.02	44.03	126.07	18.88	12.22	1.83	235.49	35.26
31	Tirunelveli	601.40	448.16	74.52	103.33	17.18	18.36	3.05	31.55	5.25
32	Tirupathur	113.49	0.00	0.00	16.12	14.20	19.58	17.26	77.79	68.54
33	Tiruppur	512.96	27.64	5.39	104.09	20.29	51.94	10.13	329.30	64.19
34	Tiruvannamalai	1064.92	0.00	0.00	469.90	44.13	123.62	11.61	471.40	44.27
35	Vellore	192.65	19.80	10.28	48.21	25.03	14.13	7.34	110.49	57.36
36	Viluppuram	886.28	118.11	13.33	155.81	17.58	115.53	13.04	496.84	56.06
37	Virudhunagar	559.27	286.66	51.26	148.24	26.51	65.50	11.71	58.87	10.53
	Total	**17690.07**	**6973.59**	**39.42**	**3921.48**	**22.17**	**1050.93**	**5.94**	**5744.07**	**32.47**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020										
TELANGANA										
S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	Adilabad	280.94	174.25	62.02	106.69	37.98				
2	Bhadradri	807.36	601.10	74.45	206.25	25.55				
3	Hyderabad	15.59	0.00	0.00	0.00	0.00			15.59	100.00
4	Jagtial	444.83	333.08	74.88	30.36	6.83	28.47	6.40	52.92	11.90
5	Jangaon	242.15	45.09	18.62	104.69	43.24	9.91	4.09	82.45	34.05
6	Jayashankar	301.87	257.23	85.21	44.65	14.79				
7	Jogulamba	321.66	308.63	95.95	13.03	4.05				
8	Kamareddy	476.83	319.89	67.09	126.12	26.45	30.82	6.46		
9	Karimnagar	502.76	392.17	78.00	70.87	14.10	39.72	7.90		
10	Khammam	1050.86	834.86	79.45	216.00	20.55				
11	Komarambhem	355.29	355.29	100.00						
12	Mahabubabad	466.85	280.11	60.00	171.33	36.70	15.41	3.30		
13	Mahabubnagar	232.26	11.19	4.82	191.24	82.34	14.94	6.43	14.88	6.41
14	Mancherial	855.10	855.10	100.00						
15	Medak	397.17	197.58	49.75	199.59	50.25				
16	Medchal	89.04	53.96	60.60	25.65	28.80	9.43	10.60		
17	Mulug	359.79	359.79	100.00						
18	Nagarkurnool	433.18	193.29	44.62	155.12	35.81	52.72	12.17	32.04	7.40
19	Nalgonda	1105.02	743.26	67.26	265.51	24.03	96.25	8.71		
20	Narayanpet	265.69	204.36	76.92	61.33	23.08	0.00			
21	Nirmal	467.67	444.92	95.14	22.75	4.86	0.00			
22	Nizamabad	736.20	334.45	45.43	263.31	35.77	111.54	15.15	26.90	3.65
23	Peddapalle	444.61	427.80	96.22			16.81	3.78		
24	Rajanna Siricilla	237.10	0.00		61.18	25.80	69.87	29.47	106.06	44.73
25	Rangareddy	381.05	66.60	17.48	241.61	63.41	66.63	17.49	6.22	1.63
26	Sangareddy	329.16	180.65	54.88	124.46	37.81	18.36	5.58	5.68	1.73
27	Siddipet	482.94	121.51	25.16	309.94	64.18	31.63	6.55	19.87	4.11
28	Suryapet	1207.87	1038.63	85.99	153.40	12.70	15.84	1.31		
29	Vikarabad	291.13	181.18	62.24	109.94	37.76				
30	Wanaparthy	284.10	284.10	100.00						
31	Warangal_Rural	510.88	510.88	100.00						
32	Warangal_Urban	191.43	68.86	35.97	28.31	14.79	16.95	8.85	77.31	40.39
33	Yadadri	457.79	223.65	48.85	158.56	34.64	54.90	11.99	20.68	4.52
	Total	**15026.12**	**10403.46**	**69.24**	**3461.87**	**23.04**	**700.20**	**4.66**	**460.60**	**3.07**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

TRIPURA

S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	Dhalai	180.96	180.96	100.00						
2	Gomati	216.52	216.52	100.00						
3	Khowai	114.32	114.32	100.00						
4	North Tripura	105.51	105.51	100.00						
5	Siphahijala	164.99	164.99	100.00						
6	South Tripura	193.91	193.91	100.00						
7	Unakoti	102.64	102.64	100.00						
8	West Tripura	165.69	165.69	100.00						
	Total	**1244.54**	**1244.54**	**100.00**						

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

UTTAR PRADESH

S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	Agra	791.76	50.54	6.38	150.65	19.03	150.34	18.99	440.23	55.60
2	Aligarh	964.35	491.61	50.98	397.69	41.24	64.84	6.72	10.21	1.06
3	Ambedkar Nagar	733.40	649.31	88.53	84.09	11.47				
4	Amethi	820.27	785.46	95.76	34.81	4.24				
5	Amroha	508.22			197.67	38.89	226.55	44.58	84.00	16.53
6	Aurraiya	663.45	663.45	100.00						
7	Ayodhya	919.78	796.38	86.58	123.39	13.42				
8	Azamgarh	1132.52	844.64	74.58	287.88	25.42				
9	Baghpat	359.06			139.45	38.84	54.51	15.18	165.10	45.98
10	Bahraich	1322.91	1322.91	100.00						
11	Ballia	870.63	870.63	100.00						
12	Balrampur	872.91	872.91	100.00						
13	Banda	630.68	329.82	52.30	300.86	47.70				
14	Barabanki	1892.28	1892.28	100.00						
15	Bareili	1254.53	1002.85	79.94	233.87	18.64			17.81	1.42
16	Basti	724.79	724.79	100.00						
17	Bijnaur	1355.89	763.73	56.33	471.51	34.78	120.65	8.90		
18	Budaun	791.25	240.54	30.40	399.93	50.54	0.00	0.00	150.79	19.06
19	Bulandshahar	1517.60	168.95	11.13	505.81	33.33	360.84	23.78	482.00	31.76
20	Chandauli	514.43	514.43	100.00						
21	Chitrakoot	376.38	80.67	21.43	198.11	52.64	97.60	25.93		
22	Deoria	1290.78	1290.78	100.00						
23	Etah	571.90	125.34	21.92	315.99	55.25	130.57	22.83		
24	Etawah	743.77	743.77	100.00						
25	Farrukhabad	512.32	264.26	51.58	248.06	48.42				
26	Fatehpur	1380.89	720.62	52.19	418.89	30.33	88.82	6.43	152.56	11.05
27	Firozabad	669.99			317.67	47.41	54.67	8.16	297.65	44.43
28	G.B. Nagar	612.35			111.88	18.27	372.76	60.87	127.71	20.86
29	Ghaziabad	395.37			120.17	30.40			275.20	69.60
30	Ghazipur	950.63	884.64	93.06	65.99	6.94				
31	Gonda	950.98	950.98	100.00						
32	Gorakhpur	1625.75	1625.75	100.00						
33	Hamirpur	492.75	214.60	43.55	278.14	56.45				
34	Hapur	492.40			97.68	19.84	228.26	46.36	166.45	33.80
35	Hardoi	1750.45	1650.86	94.31	99.59	5.69				
36	Hathras	609.00	120.22	19.74	91.21	14.98	210.60	34.58	186.97	30.70
37	Jalaun	1076.44	1076.44	100.00						
38	Jaunpur	1213.60	734.66	60.54	379.04	31.23	99.90	8.23		
39	Jhansi	752.09	491.88	65.40	260.22	34.60				

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

UTTAR PRADESH										
S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
40	Kannauj	681.69	405.11	59.43	189.47	27.79			87.11	12.78
41	Kanpur Dehat	893.99	240.03	26.85	653.96	73.15				
42	Kanpur Nagar	826.07	232.54	28.15	457.53	55.39	136.00	16.46		
43	Kasganj	557.97	281.16	50.39	212.45	38.08	64.36	11.53		
44	Kaushambi	514.56	146.26	28.42	293.80	57.10			74.51	14.48
45	Kushi Nagar	1588.77	1588.77	100.00						
46	Lakhimpur Khiri	2008.58	2008.58	100.00						
47	Lalitpur	411.51			411.51	100.00				
48	Lucknow	714.38	662.40	92.72					51.98	7.28
49	Maharajganj	996.69	996.69	100.00						
50	Mahoba	200.83			101.95	50.77			98.88	49.23
51	Mainpuri	873.86	558.89	63.96	268.85	30.77			46.12	5.28
52	Mathura	1147.57	712.68	62.10	97.62	8.51	94.74	8.26	242.53	21.13
53	Mau	461.21	461.21	100.00						
54	Meerut	790.96	345.53	43.68	304.11	38.45	118.61	15.00	22.72	2.87
55	Mirzapur	584.42	417.32	71.41	94.42	16.16	60.05	10.27	12.63	2.16
56	Moradabad	675.67	126.66	18.75	466.45	69.03	65.35	9.67	17.21	2.55
57	Muzaffarnagar	1081.53	663.62	61.36	252.46	23.34	73.23	6.77	92.23	8.53
58	Pilibhit	1121.85	1121.85	100.00						
59	Pratapgarh	1376.21	506.71	36.82	547.30	39.77	322.19	23.41		
60	Prayagraj	1350.52	811.91	60.12	383.91	28.43	129.35	9.58	25.35	1.88
61	Rae Bareli	1221.00	1221.00	100.00						
62	Rampur	718.91	351.58	48.91	301.28	41.91	66.04	9.19		
63	S.Kabir Nagar	442.64	442.64	100.00						
64	S. Ravidas Nagar	335.18			335.18	100.00				
65	Saharanpur	1247.17	107.27	8.60	527.47	42.29	144.55	11.59	467.87	37.51
66	Shahjahanpur	1272.21	1272.21	100.00						
67	Shambhal	465.41	68.30	14.67	109.90	23.61	287.21	61.71		
68	Shamli	425.50			87.42	20.54			338.08	79.46
69	Shrawasti	466.28	466.28	100.00						
70	Siddharth Nagar	876.02	876.02	100.00						
71	Sitapur	2065.61	2065.61	100.00						
72	Sonbhadra	233.74	203.51	87.07	30.23	12.93				
73	Sultanpur	836.43	836.43	100.00						
74	Unnao	1775.01	1775.01	100.00						
75	Varanasi	533.94	66.19	12.40	297.56	55.73			170.19	31.87
	Total	**66882.45**	**46000.68**	**68.78**	**12755.08**	**19.07**	**3822.59**	**5.72**	**4304.10**	**6.44**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020										
UTTARAKHNAD										
S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	Dehradun	548.84	548.84	100.00						
2	Haridwar	416.98	242.42	58.14	174.57	41.86				
3	Udham Singh Nagar	720.28	624.88	86.76	95.40	13.24				
4	Nainital	166.80	90.51	54.26	76.29	45.74				
	Total	1852.90	1506.64	81.31	346.26	18.69				

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2013

WEST BENGAL

S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	**Bankura**	1617.69	1509.73	93.33	107.96	6.67				
2	**Barddhaman**	2368.78	1467.39	61.95	901.39	38.05				
3	**Birbhum**	1165.74	739.11	63.40	426.63	36.60				
4	**Dakshin Dinajpur**	988.36	988.36	100.00						
5	**Darjiling**	470.15	470.15	100.00						
6	**Haora**	296.62	296.62	100.00						
7	**Hugli**	1251.22	325.85	26.04	856.87	68.48	68.50	5.47		
8	**Jalpaiguri**	2784.65	2784.65	100.00						
9	**Koch Bihar**	2366.62	2366.62	100.00						
10	**Malda**	1360.88	1230.45	90.42	130.42	9.58				
11	**Murshidabad**	2257.26	680.02	30.13	1577.25	69.87				
12	**Nadia**	2047.38	511.68	24.99	1535.69	75.01				
13	**North 24 Parganas**	1499.39	1451.66	96.82	47.73	3.18				
14	**Paschim Medinipur**	3288.63	2614.24	79.49	674.40	20.51				
15	**Purba Medinipur**	732.71			732.71	100.00				
16	**Puruliya**	727.24	727.24	100.00						
17	**Uttar Dinajpur**	1335.15	1335.15	100.00						
	Total	**26558.47**	**19498.91**	**73.42**	**6991.06**	**26.32**	**68.50**	**0.26**		

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020											
ANDAMAN & NICOBAR ISLAND											
S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited		
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	
1	N & M Andaman	88.05	88.05	100.00							
2	Nicobar	136.67	136.67	100.00							
3	South Andaman	60.20	60.20	100.00							
	Total	**284.92**	**284.92**	**100.00**							

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020										
CHANDIGARH										
S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	Chandigarh	57.38			57.38	100.00				
	Total	**57.38**			**57.38**	**100.00**				

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020										
DADRA & NAGAR HAVELI										
S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	Dadra & Nagar Haveli	67.52	67.52	100.00						
	Total	**67.52**	**67.52**	**100.00**						

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

DAMAN & DIU

S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	Daman	25.23							25.23	100.00
2	Diu	2.33	2.33	100.00						
	Total	**27.56**	**2.33**	**8.45**					**25.23**	**91.55**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

JAMMU & KASHMIR

S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	Anantnag	195.97	195.97	100.00						
2	Bandipora	5.77	5.77	100.00						
3	Baramulla	511.14	511.14	100.00						
4	Budgam	380.62	380.62	100.00						
5	Doda	9.67	9.67	100.00						
6	Ganderbal	27.30	27.30	100.00						
7	Jammu	799.31	799.31	100.00						
8	Kathua	411.88	411.88	100.00						
9	Kishtwar	14.67	14.67	100.00						
10	Kulgam	84.41	84.41	100.00						
11	Kupwara	305.87	305.87	100.00						
12	Poonch	203.42	203.42	100.00						
13	Pulwama	214.63	214.63	100.00						
14	Rajouri	261.99	261.99	100.00						
15	Ramban	13.00	13.00	100.00						
16	Reasi	58.37	58.37	100.00						
17	Samba	318.53	318.53	100.00						
18	Shopian	135.01	135.01	100.00						
19	Srinagar	128.84	128.84	100.00						
20	Udhampur	134.92	134.92	100.00						
	Total	**4215.33**	**4215.33**	**100.00**						

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

LADAKH

S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	Kargil	59.11	59.11	100.00						
2	Leh	46.99	46.99	100.00						
	Total	**106.10**	**106.10**	**100.00**						

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

LAKSHADWEEP

S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	**Agatti**	0.51	0.51	100.00						
2	**Amini**	0.46			0.46	100.00				
3	**Androth**	0.89	0.89	100.00						
4	**Chetlat**	0.19	0.19	100.00						
5	**Kadmat**	0.58	0.58	100.00						
6	**Kalpeni**	0.42	0.42	100.00						
7	**Kavaratti**	0.69			0.69	100.00				
8	**Kiltan**	0.29	0.29	100.00						
9	**Minicoy**	0.96	0.96	100.00						
	Total	**4.99**	**3.84**	**76.99**	**1.15**	**23.01**				

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020										
PUDUCHERRY										
S.No	Name of District	Total Annual Extractable Resource of Assessed Units (in Mcm)	Safe		Semi-Critical		Critical		Over-Exploited	
			Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%	Annual Extractable Resource (in Mcm)	%
1	Karaikal	62.83	62.83	100.00						
2	Mahe	1.99	1.99	100.00						
3	Puducherry	136.18					136.18	100.00		
	Total	**201.01**	**64.82**	**32.25**			**136.18**	**67.75**		

Annexure - III(E)

State-Wise Recharge worthy Area of

Assessment Unit under Different Category in India

(as in 2020)

AREA OF ASSESSMENT UNITS UNDER DIFFERENT CATEGORIES IN INDIA (2020)

S.No.	States/Union Territories	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area (in sq.km)	%	Recharge Worthy Area (in sq.km)	%	Recharge Worthy Area (in sq.km)	%	Recharge Worthy Area (in sq.km)	%	Recharge Worthy Area (in sq.km)	%
	States											
1	**Andhra Pradesh**	137393.11	116145.20	84.53	7179.98	5.23	2625.82	1.91	5560.45	4.05	5881.65	4.28
2	**Arunachal Pradesh**	5721.38	5721.38	100.00								
3	**Assam**	68817.93	68817.93	100.00								
4	**Bihar**	90348.70	81540.12	90.25	7108.13	7.87	613.97	0.68	1086.47	1.20		
5	**Chhattisgarh**	106078.71	83746.92	78.95	16034.59	15.12	6297.20	5.94				
6	**Delhi**	1487.61	147.16	9.89	222.06	14.93	348.81	23.45	769.58	51.73		
7	**Goa**	2209.59	2209.59	100.00								
8	**Gujarat**	158589.64	111108.94	70.06	14848.27	9.36	2603.39	1.64	20603.36	12.99	9425.69	5.94
9	**Haryana**	40391.12	7558.72	18.71	5203.35	12.88	2593.95	6.42	25035.10	61.98		
10	**Himachal Pradesh**	3468.00	3468.00	100.00								
11	**Jharkhand**	60452.52	57300.44	94.79	2409.95	3.99	316.92	0.52	425.21	0.70		
12	**Karnataka**	164340.79	92923.24	56.54	23867.47	14.52	8287.16	5.04	39262.92	23.89		
13	**Kerala**	27047.54	21944.97	81.13	4325.19	15.99	777.38	2.87				
14	**Madhya Pradesh**	272180.45	201131.06	73.90	42776.12	15.72	6078.98	2.23	22194.29	8.15		
15	**Maharashtra**	259553.28	181293.63	69.85	61590.57	23.73	8219.37	3.17	7672.81	2.96	776.89	0.30
16	**Manipur**	2559.00	2559.00	100.00								
17	**Meghalaya**	10645.56	10645.56	100.00								
18	**Mizoram**	3149.41	3149.41	100.00								
19	**Nagaland**	14091.48	14091.48	100.00								
20	**Odisha**	121593.15	117148.73	96.34	2263.09	1.86					2181.33	1.79
21	**Punjab**	49264.76	6547.77	13.29	2392.74	4.86	1906.17	3.87	38418.08	77.98		
22	**Rajasthan**	290721.07	46811.75	16.10	27405.92	9.43	18905.87	6.50	188661.64	64.89	8935.89	3.07
23	**Sikkim**	6722.52	6722.52	100.00								
24	**Tamil Nadu**	108367.38	37852.37	34.93	21409.28	19.76	6075.97	5.61	39907.51	36.83	3122.25	2.88
25	**Telangana**	105171.69	63341.58	60.23	31428.83	29.88	6339.21	6.03	4062.07	3.86		
26	**Tripura**	6197.84	6197.84	100.00								
27	**Uttar Pradesh**	229657.75	148825.61	64.80	52007.48	22.65	13117.04	5.71	15707.61	6.84		
28	**Uttarakhand**	4993.04	4042.10	80.95	950.94	19.05						
29	**West Bengal***	69046.96	52033.60	75.36	16823.33	24.37	190.03	0.28				
30	**Andaman and Nicobar**	2113.87	2111.79	99.90							2.08	0.10
31	**Chandigarh**	114.00			114.00	100.00						
32	**Dadra & Nagar Haveli**	416.00	416.00	100.00								
	Daman & Diu	110.90	40.00	36.07					70.90	63.93		
33	**Jammu and Kashmir**	8723.68	8723.68	100.00								
34	**Ladakh**	914.00	914.00	100.00								
35	**Lakshadweep**	26.21	19.99	76.27	6.22	23.73						
36	**Puducherry**	483.00	108.60	22.48			293.00	60.66			81.40	16.85
	Grand Total	2433163.63	1567360.67	64.42	340367.51	13.99	85590.25	3.52	409438.00	16.83	30407.18	1.25

NOTE

***West Bengal- The Ground Water Resource Assessment as on 2013 has been considered for state of West Bengal.**

Annexure - III(F)

District–Wise Recharge Worthy Area of Assessment Unit under Different Category in India (as in 2020)

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

ANDHRA PRADESH

S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	Anantapur	17101.03	12710.12	74.32	1036.26	6.06	286.10	1.67	3068.55	17.94		
2	Chittoor	10127.78	6797.15	67.11	2609.07	25.76	721.56	7.12				
3	East Godavari	10430.73	9042.04	86.69	162.46	1.56					1226.23	11.76
4	Guntur	10433.61	9008.31	86.34			292.80	2.81	875.02	8.39	257.48	2.47
5	Kadapa	12193.03	9474.11	77.70	1367.06	11.21	940.15	7.71	411.71	3.38		
6	Krishna	8572.67	5671.31	66.16	207.55	2.42					2693.81	31.42
7	Kurnool	14770.82	14125.04	95.63	424.06	2.87	221.72	1.50				
8	Nellore	12472.34	12063.19	96.72	245.66	1.97	163.49	1.31				
9	Prakasam	14693.93	12360.90	84.12	1127.86	7.68			1205.17	8.20		
10	Srikakulam	5563.55	5563.55	100.00								
11	Visakhapatnam	6480.99	6480.99	100.00								
12	Vizianagaram	6133.42	6133.42	100.00								
13	West Godavari	8419.20	6715.06	79.76							1704.14	20.24
	Total	**137393.11**	**116145.20**	**84.53**	**7179.98**	**5.23**	**2625.82**	**1.91**	**5560.45**	**4.05**	**5881.65**	**4.28**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020												
ARUNACHAL PRADESH												
S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	Tirap	125.00	125.00	100.00								
2	Changlang	530.00	530.00	100.00								
3	Lohit	2000.00	2000.00	100.00								
4	Lower Dibang Valley	1200.00	1200.00	100.00								
5	East Siang	1101.00	1101.00	100.00								
6	West Siang	104.59	104.59	100.00								
7	East Kameng	312.50	312.50	100.00								
8	West Kameng	61.75	61.75	100.00								
9	Lower Subansiri	101.35	101.35	100.00								
10	Upper Subansiri	7.00	7.00	100.00								
11	Papum Pare	178.19	178.19	100.00								
	Total	**5721.38**	**5721.38**	**100.00**								

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

ASSAM

S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	Baksa	2448.73	2448.73	100.00								
2	Barpeta	2270.55	2270.55	100.00								
3	Bongaigaon	997.30	997.30	100.00								
4	Cachar	2733.58	2733.58	100.00								
5	Chirang	1917.94	1917.94	100.00								
6	Darrang	1576.54	1576.54	100.00								
7	Dhemaji	3151.56	3151.56	100.00								
8	Dhubri	2143.92	2143.92	100.00								
9	Dibrugarh	3346.88	3346.88	100.00								
10	Dima Hasao	2343.00	2343.00	100.00								
11	Goalpara	1719.83	1719.83	100.00								
12	Golaghat	3481.40	3481.40	100.00								
13	Hailakandi	1049.81	1049.81	100.00								
14	Jorhat	2794.08	2794.08	100.00								
15	Kamrup	2630.24	2630.24	100.00								
16	Kamrup Metro Rural	458.70	458.70	100.00								
17	Kamrup Metro Urban	200.42	200.42	100.00								
18	Karbi Anglong	6560.91	6560.91	100.00								
19	Karimganj	1676.48	1676.48	100.00								
20	Kokrajhar	3270.30	3270.30	100.00								
21	Lakhimpur	2249.30	2249.30	100.00								
22	Morigaon	1490.66	1490.66	100.00								
23	Nagaon	3773.41	3773.41	100.00								
24	Nalbari	1036.30	1036.30	100.00								
25	Sivasagar	2644.59	2644.59	100.00								
26	Sonitpur	5132.24	5132.24	100.00								
27	Tinsukia	3717.57	3717.57	100.00								
28	Udalguri	2001.69	2001.69	100.00								
	Total	**68817.93**	**68817.93**	**100.00**								

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

BIHAR

S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	Araria	2789.37	2789.37	100.00								
2	Arwal	636.83	636.83	100.00								
3	Aurangabad	3090.54	3090.54	100.00								
4	Banka	2673.00	2673.00	100.00								
5	Begusarai	1891.31	1725.20	91.22	166.11	8.78						
6	Bhagalpur	2602.55	2602.55	100.00								
7	Bhojpur	2275.30	1550.60	68.15	724.70	31.85						
8	Buxar	1710.06	1539.56	90.03	170.50	9.97						
9	Darbhanga	2504.29	2504.29	100.00								
10	East Champaran	3958.87	3958.87	100.00								
11	Gaya	4909.78	3160.71	64.38	1162.71	23.68			586.36	11.94		
12	Gopalganj	2019.13	2019.13	100.00								
13	Jamui	2551.14	2551.14	100.00								
14	Jehanabad	932.57			456.17	48.92	352.11	37.76	124.29	13.33		
15	Kaimur	2980.40	2980.40	100.00								
16	Katihar	3009.91	2920.70	97.04	89.21	2.96						
17	Khagaria	1485.72	1485.72	100.00								
18	Kishanganj	1911.43	1911.43	100.00								
19	Lakhisarai	1144.94	1010.75	88.28	134.19	11.72						
20	Madhepura	1788.40	949.89	53.11	838.51	46.89						
21	Madhubani	3486.45	3486.45	100.00								
22	Munger	1331.42	1331.42	100.00								
23	Muzaffarpur	3042.77	2637.39	86.68	110.49	3.63			294.89	9.69		
24	Nalanda	2316.46	1626.37	70.21	609.16	26.30			80.93	3.49		
25	Nawada	2456.58	1995.71	81.24	339.04	13.80	121.83	4.96				
26	Patna	3200.84	2142.06	66.92	1058.78	33.08						
27	Purnia	3202.39	2992.44	93.44	209.95	6.56						
28	Rohats	3751.43	3751.43	100.00								
29	Saharsa	1661.28	1661.28	100.00								
30	Samastipur	2612.87	2441.65	93.45	171.22	6.55						
31	Saran	2629.57	2575.74	97.95	53.83	2.05						
32	Sheikhpura	662.59	662.59	100.00								
33	Sheohar	442.99	442.99	100.00								
34	Sitamarhi	2185.20	2045.88	93.62	139.31	6.38						
35	Siwan	2223.07	2098.76	94.41	124.31	5.59						
36	Supaul	2410.26	2410.26	100.00								
37	Vaishali	1995.18	1305.21	65.42	549.94	27.56	140.03	7.02				
38	West Champaran	3871.81	3871.81	100.00								
	Total	90348.70	81540.12	90.25	7108.13	7.87	613.97	0.68	1086.47	1.20		

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020												
CHHATISGARH												
S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	Balod	2614.70	1292.95	49.45	984.95	37.67	336.80	12.88				
2	Baloda Bazar	4994.40	4379.34	87.69	615.06	12.31						
3	Balrampur	5661.31	5661.31	100.00								
4	Bastar	3835.33	3835.33	100.00								
5	Bemetara	2854.81			1349.84	47.28	1504.97	52.72				
6	Bijapur	4377.29	4377.29	100.00								
7	Bilaspur	4827.18	3948.28	81.79	878.90	18.21						
8	Dantewara	3118.66	3118.66	100.00								
9	Dhamtari	2487.06			1808.23	72.71	678.83	27.29				
10	Durg	2319.99			1644.82	70.90	675.17	29.10				
11	Gariaband	2631.40	2036.10	77.38	595.30	22.62						
12	Janjgir-Champa	3696.47	2592.84	70.14	1103.63	29.86						
13	Jashpur	4510.05	4510.05	100.00								
14	Kanker	6260.36	5805.01	92.73	455.35	7.27						
15	Kawardha	4239.63	1628.92	38.42	962.82	22.71	1647.89	38.87				
16	Kondagaon	3722.41	3722.41	100.00								
17	Korba	4314.30	3843.14	89.08	471.16	10.92						
18	Koriya	4024.87	4024.87	100.00								
19	Mahasamund	4597.20	3142.20	68.35	1455.00	31.65						
20	Mungeli	1639.42	1639.42	100.00								
21	Narayanpur	3510.43	3510.43	100.00								
22	Raigarh	5208.65	3860.01	74.11	1348.64	25.89						
23	Raipur	2891.98	2239.67	77.44			652.31	22.56				
24	Rajnandgaon	5636.52	3039.14	53.92	1796.15	31.87	801.23	14.21				
25	Sukma	5211.99	5211.99	100.00								
26	Surajpur	2637.88	2073.14	78.59	564.74	21.41						
27	Surguja	4254.42	4254.42	100.00								
	Total	**106078.71**	**83746.92**	**78.95**	**16034.59**	**15.12**	**6297.20**	**5.94**				

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020												
DELHI												
S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	**Central**	79.31			74.18	93.54			5.13	6.46		
2	**East**	31.60			14.83	46.93			16.77	53.07		
3	**New Delhi**	158.09							158.09	100.00		
4	**North**	291.14					143.56	49.31	147.58	50.69		
5	**North East**	35.67					30.10	84.38	5.57	15.62		
6	**North West**	154.36	121.37	78.63	32.99	21.37						
7	**Shahdara**	34.59					7.24	20.94	27.34	79.06		
8	**South**	157.85							157.85	100.00		
9	**South East**	103.52					39.38	38.04	64.14	61.96		
10	**South West**	305.16					128.53	42.12	176.63	57.88		
11	**West**	110.54			100.06	90.52			10.48	9.48		
12	**Nazul Land**	25.79	25.79	100.00								
	Total	**1487.61**	**147.16**	**9.89**	**222.06**	**14.93**	**348.81**	**23.45**	**769.58**	**51.73**		

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020													
GOA													
S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	Goa North	989.87	989.87	100.00								
2	South Goa	1219.72	1219.72	100.00								
	Total	**2209.59**	**2209.59**	**100.00**								

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

GUJARAT

S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	Ahmedabad	7018.65	3044.75	43.38	1430.12	20.38	774.55	11.04			1769.23	25.21
2	Amreli	7375.45	6527.85	88.51	847.60	11.49						
3	Anand	2826.48	2826.48	100.00								
4	Arvalli	3154.49	3154.49	100.00								
5	Banaskantha	10107.23	1200.69	11.88	1335.09	13.21			5447.53	53.90	2123.93	21.01
6	Bharuch	5196.69	5196.69	100.00					0.00	0.00		
7	Bhavnagar	6693.90	6693.90	100.00					0.00	0.00		
8	Botad	2561.12	2561.12	100.00					0.00	0.00		
9	Chhota Udepur	3287.32	3287.32	100.00					0.00	0.00		
10	Dahod	3528.22	3528.22	100.00					0.00	0.00		
11	Dang	1353.10	1353.10	100.00					0.00	0.00		
12	Devbhumi Dwaraka	3952.82	3952.82	100.00					0.00	0.00		
13	Gandhinagar	2165.84	0.00	0.00	860.02	39.71			1305.82	60.29		
14	Gir Somnath	3762.95	2589.25	68.81	1173.70	31.19			0.00	0.00		
15	Jamnagar	6018.52	6018.52	100.00					0.00	0.00		
16	Junagadh	4946.18	1329.50	26.88	1096.30	22.16	901.70	18.23	1618.68	32.73		
17	Kachchh	19506.50	11399.75	58.44					7953.40	40.77	153.35	0.79
18	Kheda	3366.26	3140.84	93.30	225.42	6.70			0.00	0.00		
19	Mahesana	4382.29	0.00	0.00	1495.27	34.12	552.36	12.60	2334.66	53.27		
20	Mahisagar	2453.50	2453.50	100.00					0.00	0.00		
21	Morbi	4803.71	4033.73	83.97					0.00	0.00	769.98	16.03
22	Narmada	2468.31	1744.01	70.66	724.30	29.34			0.00	0.00		
23	Navsari	2141.24	2141.24	100.00					0.00	0.00		
24	Panchmahal	3190.03	3190.03	100.00					0.00	0.00		
25	Patan	5731.04	0.00	0.00	479.71	8.37	374.78	6.54	1009.11	17.61	3867.44	67.48
26	Porbandar	2261.95	1144.35	50.59	1117.60	49.41			0.00	0.00		
27	Rajkot	7473.83	6478.59	86.68	995.24	13.32			0.00	0.00		
28	Sabarkantha	3777.97	1481.27	39.21	1897.14	50.22			399.56	10.58		
29	Surat	4107.72	4107.72	100.00					0.00	0.00		
30	Surendra Nagar	9218.12	7975.60	86.52	500.76	5.43			0.00	0.00	741.76	8.05
31	Tapi	3030.33	3030.33	100.00					0.00	0.00		
32	Vadodara	4096.10	2891.50	70.59	670.00	16.36			534.60	13.05		
33	Valsad	2631.78	2631.78	100.00					0.00	0.00		
	Total	**158589.64**	**111108.94**	**70.06**	**14848.27**	**9.36**	**2603.39**	**1.64**	**20603.36**	**12.99**	**9425.69**	**5.94**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

HARYANA

S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	Ambala	1509.05	0.00	0.00	351.23	23.27	394.67	26.15	763.14	50.57		
2	Bhiwani	2674.95	415.67	15.54	978.66	36.59	0.00	0.00	1280.63	47.87		
3	Charkhi Dadri	1343.36	653.27	48.63	0.00	0.00	0.00	0.00	690.09	51.37		
4	Faridabad	577.31	0.00	0.00	0.00	0.00	0.00	0.00	577.31	100.00		
5	Fatehabad	2518.50	0.00	0.00	0.00	0.00	380.77	15.12	2137.73	84.88		
6	Gurgaon	1211.13	0.00	0.00	0.00	0.00	0.00	0.00	1211.13	100.00		
7	Hisar	4068.38	528.97	13.00	1933.29	47.52	696.82	17.13	909.30	22.35		
8	Jhajjar	1536.60	1327.82	86.41	208.77	13.59	0.00	0.00	0.00	0.00		
9	Jind	2680.27	660.07	24.63	196.18	7.32	0.00	0.00	1824.03	68.05		
10	Kaithal	2228.72	0.00	0.00	0.00	0.00	0.00	0.00	2228.72	100.00		
11	Karnal	2468.66	0.00	0.00	243.01	9.84	0.00	0.00	2225.65	90.16		
12	Kurukshetra	1684.20	0.00	0.00	0.00	0.00	0.00	0.00	1684.20	100.00		
13	Mahendragarh	1885.42	622.46	33.01	224.70	11.92	207.28	10.99	830.98	44.07		
14	Mewat	1107.02	434.71	39.27	171.50	15.49	314.77	28.43	186.05	16.81		
15	Palwal	1200.20	301.70	25.14	399.26	33.27	154.60	12.88	344.65	28.72		
16	Panchkula	506.72	398.44	78.63	0.00	0.00	108.28	21.37	0.00	0.00		
17	Panipat	1296.37	0.00	0.00	0.00	0.00	0.00	0.00	1296.37	100.00		
18	Rewari	1440.18	0.00	0.00	0.00	0.00	198.10	13.76	1242.08	86.24		
19	Rohtak	1503.89	1503.89	100.00	0.00	0.00	0.00	0.00	0.00	0.00		
20	Sirsa	3521.00	0.00	0.00	496.75	14.11	0.00	0.00	3024.24	85.89		
21	Sonipat	1996.41	711.74	35.65	0.00	0.00	0.00	0.00	1284.68	64.35		
22	Yamuna Nagar	1432.77	0.00	0.00	0.00	0.00	138.65	9.68	1294.12	90.32		
	Total	**40391.12**	**7558.72**	**18.71**	**5203.35**	**12.88**	**2593.95**	**6.42**	**25035.10**	**61.98**		

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020												
HIMACHAL PRADESH												
S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	Kangra	1476.00	1476.00	100.00								
2	Mandi	159.00	159.00	100.00								
3	Sirmour	358.00	358.00	100.00								
4	Solan	336.00	336.00	100.00								
5	Una	1139.00	1139.00	100.00								
	Total	**3468.00**	**3468.00**	**100.00**								

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020												
JHARKHAND												
S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	**Bokaro**	2624.43	1990.78	75.86	540.95	20.61			92.70	3.53		
2	**Chatra**	3260.87	3260.87	100.00								
3	**Deoghar**	1906.98	1794.43	94.10	112.55	5.90						
4	**Dhanbad**	1759.69	1071.18	60.87	438.07	24.89	121.17	6.89	129.27	7.35		
5	**Dumka**	2813.67	2813.67	100.00								
6	**East Singhbhum**	2509.93	2306.69	91.90					203.24	8.10		
7	**Garhwa**	2916.43	2706.62	92.81	209.81	7.19						
8	**Giridih**	4400.79	4400.79	100.00								
9	**Godda**	1664.02	1664.02	100.00								
10	**Gumla**	4071.15	4071.15	100.00								
11	**Hazaribagh**	3526.62	3416.42	96.88	110.20	3.12						
12	**Jamtara**	983.46	983.46	100.00								
13	**Khunti**	1670.05	1670.05	100.00								
14	**Koderma**	909.02	909.02	100.00								
15	**Latehar**	2385.13	2385.13	100.00								
16	**Lohardaga**	1275.63	1275.63	100.00								
17	**Pakur**	1277.59	1277.59	100.00								
18	**Palamau**	3473.44	3473.44	100.00								
19	**Ramgarh**	1112.67	636.90	57.24	475.77	42.76						
20	**Ranchi**	3723.53	3005.18	80.71	522.60	14.04	195.75	5.26				
21	**Sahebganj**	1144.09	1144.09	100.00								
22	**Saraikela - Kharsawa**	2070.39	2070.39	100.00								
23	**Simdega**	3090.60	3090.60	100.00								
24	**West Singhbhum**	5882.34	5882.34	100.00								
	Total	**60452.52**	**57300.44**	**94.79**	**2409.95**	**3.99**	**316.92**	**0.52**	**425.21**	**0.70**		

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

KARNATAKA

S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	Bagalkot	5952.57	2187.55	36.75	981.65	16.49	816.14	13.71	1967.24	33.05		
2	Bangalore Rural	2035.77							2035.77	100.00		
3	Bangalore Urban	1720.61							1720.61	100.00		
4	Belagavi	12196.30	4066.12	33.34	3094.71	25.37	1483.71	12.17	3551.75	29.12		
5	Bellary	9239.57	5934.41	64.23	944.29	10.22			2360.87	25.55		
6	Bidar	4014.71	2883.07	71.81	1131.64	28.19						
7	Chamrajnagara	3828.27			1311.25	34.25	186.06	4.86	2330.96	60.89		
8	Chikballapur	3407.08							3407.08	100.00		
9	Chikkamagalur	5937.91	4348.22	73.23					1589.69	26.77		
10	Chitradurga	7687.13	667.34	8.68					7019.79	91.32		
11	Dakshin Kanna	3376.01	3376.01	100.00								
12	Davangere	4284.23	994.25	23.21	762.84	17.81	662.05	15.45	1865.09	43.53		
13	Dharwad	3596.67	3596.67	100.00								
14	Gadag	3893.27	396.98	10.20	1589.13	40.82	812.50	20.87	1094.65	28.12		
15	Hassan	6455.66	4150.02	64.29			1000.87	15.50	1304.77	20.21		
16	Haveri	4812.20	2594.29	53.91	2217.91	46.09						
17	Kalburagi	10254.86	8937.00	87.15	1317.86	12.85						
18	Kodagu	3634.44	3634.44	100.00								
19	Kolar	2988.53							2988.53	100.00		
20	Koppal	5029.76	3152.33	62.67	1228.42	24.42			649.02	12.90		
21	Mandya	4240.26	3534.46	83.35	705.80	16.65						
22	Mysuru	5316.16	4507.34	84.79	808.82	15.21						
23	Raichur	5849.31	4003.26	68.44	1846.05	31.56						
24	Ramanagaram	3164.06			591.39	18.69	2572.67	81.31				
25	Shivamogga	7391.72	7391.72	100.00								
26	Tumakuru	9414.13	2818.50	29.94	1218.54	12.94			5377.09	57.12		
27	Udupi	3036.67	3036.67	100.00								
28	Uttar Kannada	7707.85	7707.85	100.00								
29	Vijayapura	9824.24	6372.15	64.86	2698.94	27.47	753.16	7.67				
30	Yadgir	4050.82	2632.59	64.99	1418.23	35.01						
	Total	164340.79	92923.24	56.54	23867.47	14.52	8287.16	5.04	39262.92	23.89		

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

KERALA

S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	Alappuzha	1414.03	1414.03	100.00								
2	Ernakulam	2269.48	2269.48	100.00								
3	Idukki	1088.91	854.63	78.48	234.28	21.52						
4	Kannur	2323.96	2002.78	86.18	321.18	13.82						
5	Kasargod	1648.30	550.63	33.41	838.91	50.90	258.76	15.70				
6	Kollam	2112.00	1964.97	93.04	147.03	6.96						
7	Kottayam	1970.88	1970.88	100.00								
8	Kozhikode	1661.80	1352.33	81.38	309.47	18.62						
9	Malappuram	2541.81	1327.05	52.21	1214.76	47.79						
10	Palakkad	2982.28	2084.06	69.88	379.60	12.73	518.62	17.39				
11	Pathanamthitta	1296.65	1296.65	100.00								
12	Thiruvananthapuram	1942.97	1452.78	74.77	490.19	25.23						
13	Thrissur	2366.85	1977.08	83.53	389.77	16.47						
14	Wayanad	1427.62	1427.62	100.00								
	Total	27047.54	21944.97	81.13	4325.19	15.99	777.38	2.87				

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020												
MADHYA PRADESH												
S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	Agar Malwa	2515.76	654.46	26.01	700.83	27.86			1160.47	46.13		
2	Alirajpur	3054.00	3054.00	100.00								
3	Anuppur	2942.00	2942.00	100.00								
4	Ashoknagar	4622.44	3551.29	76.83	1071.15	23.17						
5	Balaghat	8914.93	8914.93	100.00								
6	Barwani	3668.31	2646.15	72.14	730.36	19.91			291.80	7.95		
7	Betul	8564.50	6663.50	77.80	1901.00	22.20						
8	Bhind	4459.00	4459.00	100.00								
9	Bhopal	2648.00	1364.00	51.51	1284.00	48.49						
10	Burhanpur	2570.50	2570.50	100.00								
11	Chhatarpur	7904.34	3938.28	49.82	3966.06	50.18						
12	Chhindwara	8793.01	6577.13	74.80	1580.72	17.98	635.16	7.22				
13	Damoh	4746.19	3842.82	80.97	903.37	19.03						
14	Datia	2662.00	2662.00	100.00								
15	Dewas	5770.82	3313.70	57.42	876.31	15.19			1580.81	27.39		
16	Dhar	8126.40	5169.00	63.61			534.00	6.57	2423.40	29.82		
17	Dindori	4963.00	4963.00	100.00								
18	Guna	6175.14	6175.14	100.00								
19	Gwalior	4475.60	4052.25	90.54	423.35	9.46						
20	Harda	2700.90	2700.90	100.00								
21	Hoshangabad	5583.52	4914.52	88.02	669.00	11.98						
22	Indore	3818.97			1020.92	26.73			2798.05	73.27		
23	Jabalpur	4505.38	4362.38	96.83			143.00	3.17				
24	Jhabua	3112.00	2699.00	86.73	413.00	13.27						
25	Katni	4666.48	4666.48	100.00								
26	Khandwa	6242.49	5381.49	86.21	861.00	13.79						
27	Khargone	6568.97	6074.57	92.47	494.40	7.53						
28	Mandla	7269.10	7269.10	100.00								
29	Mandsaur	4990.47			1136.00	22.76	1312.47	26.30	2542.00	50.94		
30	Morena	4384.89	4384.89	100.00								
31	Narsinghpur	4791.00	3947.00	82.38	844.00	17.62						
32	Neemuch	3757.44			1153.00	30.69			2604.44	69.31		
33	Panna	6824.69	6824.69	100.00								
34	Raisen	6609.39	5744.99	86.92	864.40	13.08						
35	Rajgarh	6154.98	1105.00	17.95	2776.98	45.12	2273.00	36.93				
36	Ratlam	4616.00			973.00	21.08			3643.00	78.92		
37	Rewa	5911.36	5464.10	92.43	447.26	7.57						
38	Sagar	9254.18	9254.18	100.00								
39	Satna	6721.06	4229.20	62.92	2491.86	37.08						

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020												
MADHYA PRADESH												
S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
40	Sehore	4627.16	3445.81	74.47			1181.35	25.53				
41	Seoni	8050.50	8050.50	100.00								
42	Shahdol	4978.00	4978.00	100.00								
43	Shajapur	3396.17			883.07	26.00			2513.10	74.00		
44	Sheopur	5334.80	5334.80	100.00								
45	Shivpuri	9770.49	4354.54	44.57	5415.95	55.43						
46	Sidhi	3603.85	3603.85	100.00								
47	Singrauli	4512.60	4512.60	100.00								
48	Tikamgarh	4881.64	939.62	19.25	3942.02	80.75						
49	Ujjain	5939.33			3302.11	55.60			2637.22	44.40		
50	Umaria	4219.00	4219.00	100.00								
51	Vidisha	6807.70	5156.70	75.75	1651.00	24.25						
	Total	**272180.45**	**201131.06**	**73.90**	**42776.12**	**15.72**	**6078.98**	**2.23**	**22194.29**	**8.15**		

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020												
MAHARASHTRA												
S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	Ahmednagar	15624.75	5172.01	33.10	5972.85	38.23	3825.41	24.48	654.48	4.19		
2	Akola	5141.65	4458.18	86.71	683.47	13.29						
3	Amravati	8392.39	2819.41	33.59	2105.96	25.09			2690.13	32.05	776.89	9.26
4	Aurangabad	9501.74	1889.75	19.89	7611.99	80.11						
5	Beed	10352.05	10352.05	100.00								
6	Bhandara	3964.97	3964.97	100.00								
7	Buldhana	8206.15	1412.64	17.21	5735.06	69.89			1058.45	12.90		
8	Chandrapur	10476.57	10476.57	100.00								
9	Dhule	6421.32	6421.32	100.00								
10	Gadchiroli	8866.49	8866.49	100.00								
11	Gondia	4597.05	4597.05	100.00								
12	Hingoli	4662.41	4662.41	100.00								
13	Jalgaon	11378.83	2411.85	21.20	7190.22	63.19			1776.76	15.61		
14	Jalna	7718.00	7718.00	100.00								
15	Kolhapur	5621.76	5621.76	100.00								
16	Latur	6635.48	5724.75	86.27	910.73	13.73						
17	Nagpur	7990.42	6875.12	86.04	1115.30	13.96						
18	Nanded	10177.71	10177.71	100.00								
19	Nandurbar	4152.78	4152.78	100.00								
20	Nashik	13488.56	7485.45	55.49	3096.05	22.95	2907.06	21.55				
21	Osmanabad	6716.28	4671.26	69.55	2045.02	30.45						
22	Palghar	2400.11	2400.11	100.00								
23	Parbhani	6214.00	6214.00	100.00								
24	Pune	12757.28	3018.35	23.66	8252.02	64.68	1486.91	11.66				
25	Raigad	3747.59	3747.59	100.00								
26	Ratnagiri	5113.07	5113.07	100.00								
27	Sangli	8427.58	7678.05	91.11	749.53	8.89						
28	Satara	8775.07	3521.35	40.13	5253.72	59.87						
29	Sindhudurg	2793.06	2793.06	100.00								
30	Solapur	14838.90	3080.47	20.76	10265.44	69.18			1492.99	10.06		
31	Thane	2334.47	2334.47	100.00								
32	Wardha	5812.16	5208.96	89.62	603.20	10.38						
33	Washim	4811.96	4811.96	100.00								
34	Yawatmal	11440.67	11440.67	100.00								
	Total	**259553.28**	**181293.63**	**69.85**	**61590.57**	**23.73**	**8219.37**	**3.17**	**7672.81**	**2.96**	**776.89**	**0.30**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020													
MANIPUR													
S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	Bishnupur	496.00	496.00	100.00								
2	Churachandpur	321.00	321.00	100.00								
3	Imphal East	709.00	709.00	100.00								
4	Imphal West	519.00	519.00	100.00								
5	Thoubal	514.00	514.00	100.00								
	Total	**2559.00**	**2559.00**	**100.00**								

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020													
MEGHALAYA													
S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline		
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	East Garo Hills	661.17	661.17	100.00								
2	East Jaintia Hills	1000.87	1000.87	100.00								
3	East Khasi Hills	1052.61	1052.61	100.00								
4	North Garo Hills	505.28	505.28	100.00								
5	Ri-Bhoi	909.15	909.15	100.00								
6	South Garo Hills	867.71	867.71	100.00								
7	South West Garo Hills	560.23	560.23	100.00								
8	South West Khasi Hills	608.73	608.73	100.00								
9	West Garo Hills	1830.11	1830.11	100.00								
10	West Jaintia Hills	997.26	997.26	100.00								
11	West Khasi Hills	1652.44	1652.44	100.00								
	Total	**10645.56**	**10645.56**	**100.00**								

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020													
MIZORAM													
S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline		
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	
1	Aizawl	217.34	217.34	100.00									
2	Champhai	286.73	286.73	100.00									
3	Kolasib	395.15	395.15	100.00									
4	Lawngtlai	520.75	520.75	100.00									
5	Lunglei	744.87	744.87	100.00									
6	Mamit	716.31	716.31	100.00									
7	Saiha	106.60	106.60	100.00									
8	Serchhip	161.66	161.66	100.00									
	Total	3149.41	3149.41	100.00									

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020												
NAGALAND												
S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	Dimapur	711.67	711.67	100.00								
2	Kiphire	903.12	903.12	100.00								
3	Kohima	1228.77	1228.77	100.00								
4	Longleng	363.89	363.89	100.00								
5	Mokokchung	1369.33	1369.33	100.00								
6	Mon	1551.00	1551.00	100.00								
7	Peren	1415.27	1415.27	100.00								
8	Phek	1824.92	1824.92	100.00								
9	Tuensang	2299.66	2299.66	100.00								
10	Wokha	1395.99	1395.99	100.00								
11	Zunheboto	1027.86	1027.86	100.00								
	Total	**14091.48**	**14091.48**	**100.00**								

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020													
ODISHA													
S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline		
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	Angul	5085.85	5085.85	100.00								
2	Balasore	3564.77	3299.70	92.56	265.07	7.44						
3	Bargarh	5251.77	5251.77	100.00								
4	Bhadrak	2522.36	1901.92	75.40							620.44	24.60
5	Bolangir	6297.77	6297.77	100.00								
6	Boudh	2140.98	2140.98	100.00								
7	Cuttack	3400.69	3400.69	100.00								
8	Deogarh	2185.29	2185.29	100.00								
9	Dhenkanal	3978.75	3978.75	100.00								
10	Gajapati	1424.58	1424.58	100.00								
11	Ganjam	6104.20	6104.20	100.00								
12	Jagatsinghpur	1889.88	1513.89	80.11							375.99	19.89
13	Jajpur	2662.13	2333.95	87.67	328.18	12.33						
14	Jharsuguda	2118.42	2118.42	100.00								
15	Kalahandi	5581.37	5581.37	100.00								
16	Kandhamal	4473.71	4473.71	100.00								
17	Kendrapara	2263.44	932.66	41.21	145.88	6.45					1184.90	52.35
18	Keonjhar	6847.90	6847.90	100.00								
19	Khurda	2607.17	1924.87	73.83	682.30	26.17						
20	Koraput	6006.06	6006.06	100.00								
21	Malkangiri	3398.99	3398.99	100.00								
22	Mayurbhanj	8340.16	8340.16	100.00								
23	Nabarangapur	5344.64	5344.64	100.00								
24	Nayagarh	2578.45	2578.45	100.00								
25	Nuapada	3083.04	2241.38	72.70	841.66	27.30						
26	Puri	2586.11	2586.11	100.00								
27	Rayagada	3659.73	3659.73	100.00								
28	Sambalpur	5670.92	5670.92	100.00								
29	Subarnapur	2320.54	2320.54	100.00								
30	Sundargarh	8203.48	8203.48	100.00								
	Total	**121593.15**	**117148.73**	**96.34**	**2263.09**	**1.86**					**2181.33**	**1.79**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

PUNJAB

S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	Amritsar	2676.40							2676.40	100.00		
2	Barnala	1413.01							1413.01	100.00		
3	Bathinda	3374.24	482.01	14.28	332.58	9.86	573.73	17.00	1985.92	58.86		
4	Faridkot	1475.98							1475.98	100.00		
5	Fatehgarh Sahib	1142.46							1142.46	100.00		
6	Fazilka	2739.54	1557.00	56.83			376.10	13.73	806.44	29.44		
7	Ferozpur	2519.53							2519.53	100.00		
8	Gurdaspur	2614.25	109.20	4.18	197.34	7.55	767.62	29.36	1540.09	58.91		
9	Hoshiarpur	2824.21	658.01	23.30	925.57	32.77			1240.63	43.93		
10	Jalandhar	2629.99							2629.99	100.00		
11	Kapurthala	1628.75							1628.75	100.00		
12	Ludhiana	3707.15							3707.15	100.00		
13	Mansa	2168.62							2168.62	100.00		
14	Moga	2230.96							2230.96	100.00		
15	Muktsar	2634.28	2634.28	100.00								
16	Nawanshahar	1228.36	136.77	11.13	324.64	26.43			766.95	62.44		
17	Pathankot	710.60	351.30	49.44	359.30	50.56						
18	Patiala	3318.47							3318.47	100.00		
19	Ropar	1112.53	338.56	30.43	253.31	22.77	188.72	16.96	331.94	29.84		
20	S.A.S Nagar	1093.83	280.64	25.66					813.19	74.34		
21	Sangrur	3603.25							3603.25	100.00		
22	Tarn Taran	2418.35							2418.35	100.00		
	Total	**49264.76**	**6547.77**	**13.29**	**2392.74**	**4.86**	**1906.17**	**3.87**	**38418.08**	**77.98**		

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020													
RAJASTHAN													
S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	**Ajmer**	7466.76						0.00	7466.76	100.00		
2	**Alwar**	7201.61						0.00	7201.61	100.00		
3	**Banswara**	3979.96	2186.91	54.95	1793.05	45.05		0.00				
4	**Baran**	6892.21			3841.66	55.74		0.00	3050.55	44.26		
5	**Barmer**	28578.58	3065.79	10.73	831.62	2.91	2490.93	8.72	22190.24	77.65		
6	**Bharatpur**	4751.52					470.82	9.91	4280.70	90.09		
7	**Bhilwara**	9354.85						0.00	9354.85	100.00		
8	**Bikaner**	30381.77	14298.88	47.06	1912.89	6.30		0.00	8716.76	28.69	5453.24	17.95
9	**Bundi**	4240.18	462.53	10.91	1152.88	27.19	773.11	18.23	1851.66	43.67		
10	**Chittaurgarh**	5833.89						0.00	5833.89	100.00		
11	**Churu**	13793.01	3860.80	27.99			1606.87	11.65	6514.94	47.23	1810.40	13.13
12	**Dausa**	3085.62						0.00	3085.62	100.00		
13	**Dhaulpur**	2485.26					813.90	32.75	1671.36	67.25		
14	**Dungarpur**	2634.13	2026.50	76.93	607.63	23.07		0.00				
15	**Ganganagar**	11141.59	11141.59	100.00				0.00				
16	**Hanumangarh**	9579.60	7907.35	82.54				0.00			1672.25	17.46
17	**Jaipur**	10334.73						0.00	10334.73	100.00		
18	**Jaisalmer**	12090.04						0.00	12090.04	100.00		
19	**Jalor**	10251.53			1817.85	17.73		0.00	8433.68	82.27		
20	**Jhalawar**	6096.26			2382.49	39.08	640.87	10.51	3072.90	50.41		
21	**Jhunjhunun**	5393.47						0.00	5393.47	100.00		
22	**Jodhpur**	22250.00			3833.90	17.23	1978.95	8.89	16437.15	73.87		
23	**Karauli**	3902.42			571.06	14.63		0.00	3331.36	85.37		
24	**Kota**	5123.17			3328.43	64.97		0.00	1794.74	35.03		
25	**Nagaur**	17718.26					1577.78	8.90	16140.48	91.10		
26	**Pali**	10551.39	1377.90	13.06	1279.91	12.13		0.00	7893.58	74.81		
27	**Pratapgarh**	2950.39	483.50	16.39			458.56	15.54	2008.33	68.07		
28	**Rajsamand**	3540.09					1212.42	34.25	2327.67	65.75		
29	**Sawai Madhopur**	4328.50							4328.50	100.00		
30	**Sikar**	7356.92					1291.23	17.55	6065.69	82.45		
31	**Sirohi**	4075.70			882.90	21.66			3192.80	78.34		
32	**Tonk**	5586.74			2153.23	38.54	1164.90	20.85	2268.61	40.61		
33	**Udaipur**	7770.92			1016.42	13.08	4425.53	56.95	2328.97	29.97		
	Total	**290721.07**	**46811.75**	**16.10**	**27405.92**	**9.43**	**18905.87**	**6.50**	**188661.64**	**64.89**	**8935.89**	**3.07**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

SIKKIM

S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	East	943.13	943.13	100.00								
2	North	3927.67	3927.67	100.00								
3	South	710.96	710.96	100.00								
4	West	1140.76	1140.76	100.00								
	Total	**6722.52**	**6722.52**	**100.00**								

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020												
TAMIL NADU												
S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	**Ariyalur**	1926.59	1839.74	95.49	86.85	4.51	0.00	0.00	0.00	0.00	0.00	0.00
2	**Chengalpattu**	2424.15	978.77	40.38	1118.23	46.13	174.42	7.20	152.73	6.30	0.00	0.00
3	**Chennai**	533.46	94.76	17.76	48.76	9.14	0.00	0.00	389.94	73.10	0.00	0.00
4	**Coimbatore**	3622.30	206.76	5.71	407.36	11.25	221.76	6.12	2786.42	76.92	0.00	0.00
5	**Cuddalore**	3636.73	1392.80	38.30	1579.53	43.43	121.44	3.34	542.96	14.93	0.00	0.00
6	**Dharmapuri**	2812.87	454.78	16.17	877.55	31.20	0.00	0.00	1480.54	52.63	0.00	0.00
7	**Dindigul**	4877.41	524.89	10.76	692.36	14.20	507.23	10.40	3152.93	64.64	0.00	0.00
8	**Erode**	3481.10	219.06	6.29	1185.65	34.06	123.25	3.54	1953.15	56.11	0.00	0.00
9	**Kallakkurichi**	2529.20	732.01	28.94	481.73	19.05	601.49	23.78	713.97	28.23	0.00	0.00
10	**Kancheepuram**	1667.88	1034.03	62.00	373.60	22.40	50.02	3.00	210.23	12.60	0.00	0.00
11	**Kanniyakumari**	1130.45	1064.44	94.16	66.01	5.84	0.00	0.00	0.00	0.00	0.00	0.00
12	**Karur**	2833.70	266.07	9.39	608.38	21.47	0.00	0.00	1959.24	69.14	0.00	0.00
13	**Krishnagiri**	3103.95	1106.32	35.64	709.47	22.86	112.11	3.61	1176.06	37.89	0.00	0.00
14	**Madurai**	3256.68	1624.06	49.87	576.88	17.71	175.42	5.39	880.32	27.03	0.00	0.00
15	**Nagapattinam**	2641.03	80.22	3.04	0.00	0.00	0.00	0.00	993.02	37.60	1567.80	59.36
16	**Namakkal**	2928.10	289.12	9.87	476.10	16.26	124.88	4.26	2038.00	69.60	0.00	0.00
17	**Perambalur**	1594.54	391.74	24.57	115.08	7.22	0.00	0.00	1087.72	68.22	0.00	0.00
18	**Pudukkottai**	4427.94	3331.86	75.25	948.21	21.41	0.00	0.00	0.00	0.00	147.87	3.34
19	**Ramanathapuram**	4074.87	3122.51	76.63	0.00	0.00	0.00	0.00	0.00	0.00	952.36	23.37
20	**Ranipet**	1755.84	94.70	5.39	1084.58	61.77	197.43	11.24	379.12	21.59	0.00	0.00
21	**Salem**	3915.35	405.11	10.35	227.14	5.80	174.43	4.45	3108.66	79.40	0.00	0.00
22	**Sivaganga**	4032.62	4032.62	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	**Tenkasi**	2503.71	596.72	23.83	406.93	16.25	45.71	1.83	1454.35	58.09	0.00	0.00
24	**Thanjavur**	3350.53	304.43	9.09	569.55	17.00	346.36	10.34	2130.19	63.58	0.00	0.00
25	**The Nilgiris**	1119.08	996.17	89.02	122.91	10.98	0.00	0.00	0.00	0.00	0.00	0.00
26	**Theni**	1894.17	472.05	24.92	1032.34	54.50	164.01	8.66	225.78	11.92	0.00	0.00
27	**Thiruvallur**	3060.29	1605.31	52.46	960.30	31.38	175.79	5.74	237.80	7.77	81.09	2.65
28	**Thiruvarur**	2072.57	784.69	37.86	189.24	9.13	72.13	3.48	653.40	31.53	373.12	18.00
29	**Thoothukkudi**	4597.12	3834.55	83.41	252.97	5.50	119.10	2.59	390.49	8.49	0.00	0.00
30	**Tiruchirappalli**	4036.10	1143.37	28.33	767.88	19.03	69.60	1.72	2055.24	50.92	0.00	0.00
31	**Tirunelveli**	2982.61	1922.19	64.45	669.13	22.43	155.01	5.20	236.28	7.92	0.00	0.00
32	**Tirupathur**	941.33	0.00	0.00	173.11	18.39	186.48	19.81	581.75	61.80	0.00	0.00
33	**Tiruppur**	4645.42	104.46	2.25	576.62	12.41	551.06	11.86	3413.28	73.48	0.00	0.00
34	**Tiruvannamalai**	4783.96	0.00	0.00	2136.34	44.66	467.83	9.78	2179.78	45.56	0.00	0.00
35	**Vellore**	1399.56	116.46	8.32	289.66	20.70	101.44	7.25	892.01	63.73	0.00	0.00
36	**Viluppuram**	3772.29	537.73	14.25	715.42	18.97	449.67	11.92	2069.47	54.86	0.00	0.00
37	**Virudhunagar**	4001.89	2147.89	53.67	883.40	22.07	587.91	14.69	382.69	9.56	0.00	0.00
	Total	**108367.38**	**37852.37**	**34.93**	**21409.28**	**19.76**	**6075.97**	**5.61**	**39907.51**	**36.83**	**3122.25**	**2.88**

S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe: Recharge Worthy Area of Assessed Units (in sq.km)	Safe: %	Semi-Critical: Recharge Worthy Area of Assessed Units (in sq.km)	Semi-Critical: %	Critical: Recharge Worthy Area of Assessed Units (in sq.km)	Critical: %	Over-Exploited: Recharge Worthy Area of Assessed Units (in sq.km)	Over-Exploited: %	Saline: Recharge Worthy Area of Assessed Units (in sq.km)	Saline: %
DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020												
TELANGANA												
1	Adilabad	3776.85	1987.42	52.62	1789.43	47.38						
2	Bhadradri	7106.29	5102.73	71.81	2003.56	28.19						
3	Hyderabad	217.82	0.00	0.00	0.00	0.00			217.82	100.00		
4	Jagtial	2645.51	1876.78	70.94	189.70	7.17	186.79	7.06	392.24	14.83		
5	Jangaon	2043.44	400.21	19.59	841.67	41.19	87.61	4.29	713.95	34.94		
6	Jayashankar	2176.64	1950.57	89.61	226.08	10.39	0.00		0.00			
7	Jogulamba	2610.41	2433.35	93.22	177.06	6.78	0.00		0.00			
8	Kamareddy	3482.00	2273.73	65.30	992.44	28.50	215.83	6.20	0.00			
9	Karimnagar	2085.06	1372.67	65.83	449.99	21.58	262.39	12.58	0.00			
10	Khammam	4281.59	2683.53	62.68	1598.05	37.32	0.00		0.00			
11	Komarambhem	3831.15	3831.15	100.00	0.00		0.00		0.00			
12	Mahabubabad	3409.13	2276.88	66.79	1029.09	30.19	103.16	3.03	0.00			
13	Mahabubnagar	2489.05	121.50	4.88	2029.88	81.55	169.34	6.80	168.33	6.76		
14	Mancherial	5019.48	5019.48	100.00	0.00		0.00		0.00			
15	Medak	2547.07	1174.65	46.12	1372.41	53.88	0.00		0.00			
16	Medchal	1037.47	620.62	59.82	294.82	28.42	122.03	11.76	0.00			
17	Mulug	2400.80	2400.80	100.00	0.00		0.00		0.00			
18	Nagarkurnool	5257.84	2494.12	47.44	1728.44	32.87	658.69	12.53	376.59	7.16		
19	Nalgonda	7028.06	3249.81	46.24	2773.97	39.47	1004.28	14.29	0.00			
20	Narayanpet	2336.51	1585.92	67.88	750.59	32.12	0.00		0.00			
21	Nirmal	3264.37	3102.42	95.04	161.95	4.96	0.00		0.00			
22	Nizamabad	4088.55	1737.81	42.50	1576.17	38.55	622.28	15.22	152.29	3.72		
23	Peddapalle	1962.64	1788.62	91.13	0.00		174.02	8.87	0.00			
24	Rajanna	1731.39	0.00		312.64	18.06	441.79	25.52	976.95	56.43		
25	Rangareddy	4806.64	718.28	14.94	3054.88	63.56	946.92	19.70	86.56	1.80		
26	Sangareddy	4089.70	2134.15	52.18	1675.87	40.98	209.56	5.12	70.12	1.71		
27	Siddipet	3393.70	757.17	22.31	2202.42	64.90	262.47	7.73	171.64	5.06		
28	Suryapet	3607.50	2415.51	66.96	1054.16	29.22	137.83	3.82	0.00			
29	Vikarabad	3583.55	2093.38	58.42	1490.17	41.58	0.00		0.00			
30	Wanaparthy	2097.86	2097.86	100.00	0.00		0.00		0.00			
31	Warangal_Rural	2101.23	2101.23	100.00	0.00		0.00		0.00			
32	Warangal_Urban	1260.39	369.18	29.29	203.93	16.18	120.09	9.53	567.19	45.00		
33	Yadadri	3402.01	1170.04	34.39	1449.47	42.61	614.12	18.05	168.39	4.95		
	Total	105171.69	63341.58	60.23	31428.83	29.88	6339.21	6.03	4062.07	3.86		

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

TRIPURA

S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	**Dhalai**	995.81	995.81	100.00								
2	**Gomati**	1098.28	1098.28	100.00								
3	**Khowai**	495.60	495.60	100.00								
4	**North Tripura**	543.82	543.82	100.00								
5	**Siphahijala**	871.70	871.70	100.00								
6	**South Tripura**	981.03	981.03	100.00								
7	**Unakoti**	428.78	428.78	100.00								
8	**West Tripura**	782.82	782.82	100.00								
	Total	**6197.84**	**6197.84**	**100.00**								

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

UTTAR PRADESH

S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	Agra	3947.17	296.38	7.51	848.76	21.50	561.58	14.23	2240.45	56.76		
2	Aligarh	3718.96	1762.31	47.39	1641.78	44.15	246.37	6.62	68.50	1.84		
3	Ambedkar Nagar	2458.98	2158.67	87.79	300.31	12.21						
4	Amethi	2329.92	2228.16	95.63	101.76	4.37						
5	Amroha	2149.03			734.77	34.19	1064.54	49.54	349.72	16.27		
6	Aurraiya	2094.27	2094.27	100.00								
7	Ayodhya	2522.01	2097.35	83.16	424.66	16.84						
8	Azamgarh	4171.19	3020.63	72.42	1150.56	27.58						
9	Baghpat	1351.39			482.18	35.68	210.63	15.59	658.57	48.73		
10	Bahraich	4396.45	4396.45	100.00								
11	Ballia	3042.36	3042.36	100.00								
12	Balrampur	3348.57	3348.57	100.00								
13	Banda	4404.60	2159.49	49.03	2245.11	50.97						
14	Barabanki	3891.32	3891.32	100.00								
15	Bareili	4093.64	3244.34	79.25	742.83	18.15			106.47	2.60		
16	Basti	2938.07	2938.07	100.00								
17	Bijnaur	4589.03	2809.11	61.21	1398.84	30.48	381.08	8.30				
18	Budaun	4237.88	1341.79	31.66	2136.10	50.40			759.99	17.93		
19	Bulandshahar	3609.47	386.86	10.72	1023.77	28.36	1002.49	27.77	1196.35	33.14		
20	Chandauli	1849.27	1849.27	100.00								
21	Chitrakoot	3006.65	1041.84	34.65	1410.80	46.92	554.01	18.43				
22	Deoria	2538.00	2538.00	100.00								
23	Etah	2427.57	485.67	20.01	1361.60	56.09	580.30	23.90				
24	Etawah	2403.01	2403.01	100.00								
25	Farrukhabad	2206.23	1063.82	48.22	1142.41	51.78						
26	Fatehpur	4252.55	2270.83	53.40	1287.95	30.29	349.59	8.22	344.18	8.09		
27	Firozabad	2419.53			891.92	36.86	202.61	8.37	1325.00	54.76		
28	G.B. Nagar	1442.73			473.82	32.84	636.66	44.13	332.25	23.03		
29	Ghaziabad	1169.14			228.16	19.52			940.98	80.48		
30	Ghazipur	3300.52	3082.02	93.38	218.50	6.62						
31	Gonda	3996.09	3996.09	100.00								
32	Gorakhpur	3226.54	3226.54	100.00								
33	Hamirpur	3815.40	1597.48	41.87	2217.92	58.13						
34	Hapur	1144.81			238.01	20.79	560.55	48.96	346.25	30.25		
35	Hardoi	5948.43	5645.63	94.91	302.80	5.09						
36	Hathras	1837.99	327.40	17.81	290.96	15.83	537.95	29.27	681.68	37.09		
37	Jalaun	4565.83	4565.83	100.00								
38	Jaunpur	3968.25	2204.19	55.55	1360.87	34.29	403.19	10.16				
39	Jhansi	4619.37	2644.95	57.26	1974.42	42.74						

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020												
UTTAR PRADESH												
S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
40	Kannauj	2143.46	996.35	46.48	773.25	36.07			373.86	17.44		
41	Kanpur Dehat	3237.37	943.68	29.15	2293.69	70.85						
42	Kanpur Nagar	3345.79	949.51	28.38	1920.02	57.39	476.26	14.23				
43	Kasganj	1993.88	1098.74	55.11	688.08	34.51	207.06	10.38				
44	Kaushambi	1780.01	484.65	27.23	1015.97	57.08			279.39	15.70		
45	Kushi Nagar	2873.78	2873.78	100.00								
46	Lakhimpur Khiri	6555.05	6555.05	100.00								
47	Lalitpur	3819.42			3819.42	100.00						
48	Lucknow	2452.86	2142.76	87.36					310.10	12.64		
49	Maharajganj	2477.60	2477.60	100.00								
50	Mahoba	2293.41			1417.74	61.82			875.67	38.18		
51	Mainpuri	2760.72	1663.68	60.26	886.69	32.12			210.35	7.62		
52	Mathura	3360.78	2082.21	61.96	262.94	7.82	316.86	9.43	698.77	20.79		
53	Mau	1716.24	1716.24	100.00								
54	Meerut	2802.20	1184.97	42.29	939.52	33.53	499.93	17.84	177.78	6.34		
55	Mirzapur	2954.37	2137.01	72.33	487.67	16.51	232.99	7.89	96.70	3.27		
56	Moradabad	2249.44	317.95	14.13	1585.16	70.47	269.08	11.96	77.25	3.43		
57	Muzaffarnagar	2756.66	1469.32	53.30	743.91	26.99	304.70	11.05	238.73	8.66		
58	Pilibhit	3369.59	3369.59	100.00								
59	Pratapgarh	3717.43	1166.46	31.38	1591.70	42.82	959.27	25.80				
60	Prayagraj	4947.63	3352.78	67.77	1140.30	23.05	384.50	7.77	70.05	1.42		
61	Rae Bareli	3924.58	3924.58	100.00								
62	Rampur	2297.90	933.32	40.62	1149.00	50.00	215.58	9.38				
63	S.Kabir Nagar	1646.99	1646.99	100.00								
64	S.Ravidas Nagar	983.05			983.05	100.00						
65	Saharanpur	3689.41	260.96	7.07	1652.30	44.78	415.60	11.26	1360.55	36.88		
66	Shahjahanpur	4581.31	4581.31	100.00								
67	Shambhal	2415.20	304.73	12.62	566.81	23.47	1543.66	63.91				
68	Shamli	1361.26			234.40	17.22			1126.86	82.78		
69	Shrawasti	1857.82	1857.82	100.00								
70	Siddharth Nagar	2895.03	2895.03	100.00								
71	Sitapur	5746.95	5746.95	100.00								
72	Sonbhadra	2382.06	2080.98	87.36	301.08	12.64						
73	Sultanpur	2670.20	2670.20	100.00								
74	Unnao	4602.34	4602.34	100.00								
75	Varanasi	1563.74	179.37	11.47	923.21	59.04			461.16	29.49		
	Total	**229657.75**	**148825.61**	**64.80**	**52007.48**	**22.65**	**13117.04**	**5.71**	**15707.61**	**6.84**		

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020												
UTTARAKHAND												
S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	Dehradun	1255.44	1255.44	100.00								
2	Haridwar	1568.35	915.35	58.36	653.00	41.64						
3	Udham Singh Nagar	1932.82	1747.65	90.42	185.17	9.58						
4	Nainital	236.43	123.66	52.30	112.77	47.70						
	Total	**4993.04**	**4042.10**	**80.95**	**950.94**	**19.05**						

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2013

WEST BENGAL

S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	Bankura	6873.65	6485.91	94.36	387.74	5.64						
2	Barddhaman	7263.30	4620.26	63.61	2643.04	36.39						
3	Birbhum	4543.61	3175.50	69.89	1368.11	30.11						
4	Dakshin Dinajpur	2250.82	2250.82	100.00								
5	Darjiling	802.01	802.01	100.00								
6	Haora	590.41	590.41	100.00								
7	Hugli	3137.55	711.03	22.66	2236.49	71.28	190.03	6.06				
8	Jalpaiguri	3824.39	3824.39	100.00								
9	Koch Bihar	3388.43	3388.43	100.00								
10	Malda	3678.61	3282.54	89.23	396.07	10.77						
11	Murshidabad	5351.13	1605.45	30.00	3745.68	70.00						
12	Nadia	3944.33	1126.95	28.57	2817.38	71.43						
13	North 24 Parganas	3039.94	2922.73	96.14	117.21	3.86						
14	Paschim Medinipur	9345.38	7904.18	84.58	1441.20	15.42						
15	Purba Medinipur	1670.41			1670.41	100.00						
16	Puruliya	6223.86	6223.86	100.00								
17	Uttar Dinajpur	3119.13	3119.13	100.00								
	Total	**69046.96**	**52033.60**	**75.36**	**16823.33**	**24.37**	**190.03**	**0.28**				

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

ANDAMAN & NICOBAR ISLANDS

S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	N & M Andaman	580.40	580.40	100.00								
2	Nicobar	1218.23	1216.15	99.80							2.08	0.20
3	South Andaman	315.24	315.24	100.00								
	Total	**2113.87**	**2111.79**	**99.90**							**2.08**	**0.10**

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020													
CHANDIGARH													
S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline		
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	
1	Chandigarh	114.00			114.00	100.00							
	Total	**114.00**			**114.00**	**100.00**							

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020												
DADRA & NAGAR HAVELI												
S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	**Dadra & Nagar Haveli**	416.00	416.00	100.00								
	Total	**416.00**	**416.00**	**100.00**								

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

DAMAN & DIU

S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	Daman	70.90							70.90	100.00		
2	Diu	40.00	40.00	100.00								
	Total	**110.90**	**40.00**	**36.07**					**70.90**	**63.93**		

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

JAMMU & KASHMIR

S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	Anantnag	657.11	657.11	100.00								
2	Bandipora	51.28	51.28	100.00								
3	Baramulla	1150.78	1150.78	100.00								
4	Budgam	850.00	850.00	100.00								
5	Doda	22.45	22.45	100.00								
6	Ganderbal	59.00	59.00	100.00								
7	Jammu	1652.11	1652.11	100.00								
8	Kathua	775.00	775.00	100.00								
9	Kishtwar	20.00	20.00	100.00								
10	Kulgam	144.00	144.00	100.00								
11	Kupwara	600.00	600.00	100.00								
12	Poonch	242.63	242.63	100.00								
13	Pulwama	660.65	660.65	100.00								
14	Rajouri	350.00	350.00	100.00								
15	Ramban	18.31	18.31	100.00								
16	Reasi	70.00	70.00	100.00								
17	Samba	447.89	447.89	100.00								
18	Shopian	234.00	234.00	100.00								
19	Srinagar	500.00	500.00	100.00								
20	Udhampur	218.47	218.47	100.00								
	Total	**8723.68**	**8723.68**	**100.00**								

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

LADAKH

S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	Kargil	200.00	200.00	100.00								
2	Leh	714.00	714.00	100.00								
	Total	**914.00**	**914.00**	**100.00**								

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020

LAKSHADWEEP

S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	Agatti	2.71	2.71	100.00								
2	Amini	2.59			2.59	100.00						
3	Androth	4.84	4.84	100.00								
4	Chetlat	1.04	1.04	100.00								
5	Kadmat	3.12	3.12	100.00								
6	Kalpeni	2.28	2.28	100.00								
7	Kavaratti	3.63			3.63	100.00						
8	Kiltan	1.63	1.63	100.00								
9	Minicoy	4.37	4.37	100.00								
	Total	**26.21**	**19.99**	**76.27**	**6.22**	**23.73**						

DYNAMIC GROUND WATER RESOURCES OF INDIA, 2020												
PUDUCHERRY												
S.No	Name of District	Total Recharge Worthy Area of Assessed Units (in sq.km)	Safe		Semi-Critical		Critical		Over-Exploited		Saline	
			Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%	Recharge Worthy Area of Assessed Units (in sq.km)	%
1	Karaikal	161.00	99.60	61.86							61.40	38.14
2	Mahe	9.00	9.00	100.00								
3	Puducherry	293.00					293.00	100.00				
4	Yanam	20.00									20.00	100.00
	Total	**483.00**	**108.60**	**22.48**			**293.00**	**60.66**			**81.40**	**16.85**

Annexure - IV(A)

State-wise Categorization of Blocks/ Mandals/ Taluks in India (as in 2020)

CATEGORIZATION of ASSESSMENT UNITS, 2020							
ANDHRA PRADESH							
S. No	Name of District	S. No	Name of Semi-Critical Assessment Units	S. No	Name of Critical Assessment Units	S. No	Name of Over-Exploited Assessment Units
1	**Ananthapur**	1	Chilamathur	1	Nambulipulikunta	1	Somandepalle
		2	Amadagur			2	Tanakal
		3	Madakasira			3	Putlur
		4	Roddam			4	Yadiki
						5	Hindupur
						6	Yellanur
						7	Rolla
						8	Amarapuram
						9	Gandlapenta
						10	Gudibanda
						11	Agali
						12	Lepakshi
						13	Kothacheruvu
						14	Nallacheruvu
						15	Talupula
2	**Chittoor**	1	Chandragiri	1	Srirangarajapuram		
		2	Kurabalakota	2	Nindra		
		3	Palasamudram	3	Tirupati		
		4	Santhi Puram	4	Gudi Palle		
		5	Rama Kuppam	5	Ramasamudram		
		6	Thavanampalle	6	Puthalapattu		
		7	Gurramkonda				
		8	Pakala				
		9	Baireddi Palle				
		10	Pedda Panjani				
		11	Ramachandrapuram-17				
		12	Nimmanapalle				
		13	Venkatagiri Kota				
		14	Chowdepalle				
		15	Nagari				
		16	Penumuru				
		17	Gangavaram				
		18	Pulicherla				
		19	Puttur				
3	**East Godavari**	1	Rangampeta				
		2	Rajahmundry (Urban)				
4	**Guntur**			1	Piduguralla	1	Bollapalle
						2	Veldurthi
5	**Kadapa**	1	Chennur	1	Vemula	1	Chitvel
		2	Proddutur	2	Vempalle	2	Pulivendla
		3	Royachoti	3	Kamalapuram		
		4	Brahmamgarimattam	4	Sambepalle		
		5	Obulavaripalle	5	Chapad		
		6	Duvvur				
		7	Chinnamandem				
6	**Krishna**	1	Musunuru				
7	**Kurnool**	1	Kosigi	1	Bethamcherla		
		2	Chagalamarri				
8	**Nellore**	1	Gudur	1	Naidupeta		
9	**Prakasam**	1	Cumbum			1	Racherla
		2	Tarlapadu			2	Pedaaraveedu
		3	Giddaluru			3	Pullalacheruvu
		4	Komarolu			4	Markapur

ABSTRACT

Total No. of Assessed Units	Number of Semicritical Assessment Units	Number of Critical Assessment Units	Number of Over Exploited Assessment Units
667	40	15	23

CATEGORIZATION of ASSESSMENT UNITS, 2020							
BIHAR							
S. No	Name of District	S. No	Name of Semi-Critical Assessment Units	S. No	Name of Critical Assessment Units	S. No	Name of Over-Exploited Assessment Units
1	**Begusarai**	1	Bhagwanpur				
		2	Navkothi				
2	**Bhojpur**	1	Bihiyan				
		2	Jagdishpur				
		3	Koilwar				
		4	Piro				
3	**Buxar**	1	Simri				
4	**Gaya**	1	Dumaria			1	Belaganj
		2	Gaya			2	Imamganj
		3	Khizirsarai			3	Manpur
		4	Konch				
		5	Tikari				
5	**Jehanabad**	1	Kako	1	Ghoshi	1	Ratni Faridpur
		2	Madanganj	2	Hulhasganj		
		3	Makhdumpur	3	Jehanabad		
6	**Katihar**	1	Dandkhora				
7	**Lakhisarai**	1	Halsi				
8	**Madhepura**	1	Alamnagar				
		2	Biharriganj				
		3	Gamharia				
		4	Gwalpara				
		5	Kishanganj				
		6	Shankarpur				
		7	Singheswar				
9	**Muzaffarpur**	1	Bendra			1	Musahari
						2	Sakra
10	**Nalanda**	1	Eknagarsari			1	Giriak
		2	Islampur				
		3	Karaiparsurai				
		4	Noorsarai				
		5	Prabalpur				
11	**Nawada**	1	Nawada	1	Maskaur		
		2	Warisaliganj				
12	**Patna**	1	Athmalgola				
		2	Belchi				
		3	Danapur/Khagaul				
		4	Masaurhi				
		5	Naubatpur				
		6	Patna Sadar				
		7	Phulwarisharif				
		8	Punpun				
		9	Sampatchak				
13	**Purnia**	1	Dagaura				
14	**Samastipur**	1	Ujjiarpur				
15	**Saran**	1	Nagra				
16	**Sitamarhi**	1	Bajpatti				
17	**Siwan**	1	Daeundah				
18	**Vaishali**	1	Chehra Kalan	1	Patepur		
		2	Hajipur				
		3	Jandaha				
		4	Lalganj				
		5	Raja Pakar				

ABSTRACT			
Total No. of Assessed Units	**Number of Semicritical Assessment Units**	**Number of Critical Assessment Units**	**Number of Over Exploited Assessment Units**
534	**51**	**5**	**7**

CATEGORIZATION of ASSESSMENT UNITS, 2020							
CHHATISGARH							
S. No	Name of District	S. No	Name of Semi-Critical Assessment Units	S. No	Name of Critical Assessment Units	S. No	Name of Over-Exploited Assessment Units
1	**Balod**	1	Balod	1	Gurur		
		2	Gunderdehi				
2	**Baloda Bazar**	1	Simga				
3	**Bemetara**	1	Nawagarh	1	Bemetara		
		2	Saja	2	Berla		
4	**Bilaspur**	1	Belha				
5	**Dhamtari**	1	Kurud	1	Dhamtari		
		2	Magarlod				
		3	Nagri				
6	**Durg**	1	Dhamdha	1	Durg		
		2	Patan				
7	**Gariaband**	1	Rajim				
8	**Janjgir-Champa**	1	Dabhara				
		2	Malkharoda				
		3	Sakti				
9	**Kanker**	1	Charama				
10	**Kawardha**	1	Sahaspur Lohara	1	Kawardha		
				2	Pandariya		
11	**Korba**	1	Katghora				
12	**Mahasamund**	1	Basna				
		2	Pithora				
13	**Raigarh**	1	Baramkela				
		2	Pussore				
		3	Tamnar				
14	**Raipur**			1	Dharsiwa		
15	**Rajnandgaon**	1	Chhuikhadan	1	Khairagarh		
		2	Dongargaon				
		3	Dongargarh				
16	**Surajpur**	1	Surajpur				

ABSTRACT

Total No. of Assessed Units	Number of Semicritical Assessment Units	Number of Critical Assessment Units	Number of Over Exploited Assessment Units
146	27	9	Nil

CATEGORIZATION of ASSESSMENT UNITS, 2020							
DELHI							
S. No	**Name of District**	**S. No**	**Name of Semi-Critical Assessment Units**	**S. No**	**Name of Critical Assessment Units**	**S. No**	**Name of Over-Exploited Assessment Units**
1	**Central**	1	Civil Lines			1	Karol Bag
		2	Kotwali				
2	**East**	1	Gandhi Nagar			1	Maur Vihar
		2	Preet Vihar				
3	**New Delhi**					1	Chanakyapuri
						2	Delhi Cantonment
						3	Vasant Vihar
4	**North**			1	Alipur	1	Narela
				2	Model Town		
5	**North East**			1	Karawal Nagar	1	Yamuna Vihar
				2	Seelampur		
6	**North West**	1	Saraswati Vihar				
7	**Shahdara**			1	Seemapuri	1	Shahdara
						2	Vivek Vihar
8	**South**					1	Hauz Khas
						2	Mehrauli
						3	Saket
9	**South East**			1	Defence Colony	1	Kalka Ji
						2	Sarita Vihar
10	**South West**			1	Najafgarh	1	Dwarka
						2	Kapashera
11	**West**	1	Patel Nagar			1	Rajauri Garden
		2	Punjabi Bag				

ABSTRACT

Total No. of Assessed Units	Number of Semicritical Assessment Units	Number of Critical Assessment Units	Number of Over Exploited Assessment Units
34	7	7	17

CATEGORIZATION of ASSESSMENT UNITS, 2020

GUJARAT

S. No	Name of District	S. No	Name of Semi-Critical Assessment Units	S. No	Name of Critical Assessment Units	S. No	Name of Over-Exploited Assessment Units
1	**Ahmedabad**	1	Mandal	1	Bavla		
		2	Ahmedabad City & Dascroi				
2	**Amreli**	1	Rajula				
3	**Banaskantha**	1	Vadgam			1	Dantiwada
		2	Palanpur			2	Deesa
						3	Deodar
						4	Dhanera
						5	Kankrej
						6	Lakhani
						7	Tharad
4	**Gandhinagar**	1	Kalol			1	Dehgam
		2	Mansa			2	Gandhinagar
5	**Gir Somnath**	1	Una				
6	**Junagadh**	1	Keshod	1	Visavadar	1	Bhesan
		2	Malia			2	Junagadh City & Juna
						3	Manavadar
7	**Kachchh**					1	Bhachau
						2	Bhuj
						3	Mandvi
8	**Kheda**	1	Galteshwar				
9	**Mahesana**	1	Kadi	1	Vijapur	1	Becharaji
		2	Unjha			2	Jotana
		3	Visnagar			3	Kheralu
						4	Mahesana
						5	Satlasana
						6	Vadnagar
10	**Narmada**	1	Nandod				
11	**Patan**	1	Patan	1	Sidhpur	1	Chanasma
						2	Sarsvati(Patan)
12	**Porbandar**	1	Porbandar				
13	**Rajkot**	1	Dhoraji				
		2	Vinchchiya				
14	**Sabarkantha**	1	Himatnagar			1	Prantij
		2	Idar				
		3	Vadali				
15	**Surendranagar**	1	Chuda				
16	**Vadodara**	1	Vadodara			1	Padra

ABSTRACT

Total No. of Assessed Units	Number of Semicritical Assessment Units	Number of Critical Assessment Units	Number of Over Exploited Assessment Units
248	24	4	25

CATEGORIZATION of ASSESSMENT UNITS, 2020							
HARYANA							
S. No	Name of District	S. No	Name of Semi-Critical Assessment Units	S. No	Name of Critical Assessment Units	S. No	Name of Over-Exploited Assessment Units
1	**Ambala**	1	Ambala-II	1	Shahzadpur	1	Saha
				2	Ambala-I	2	Barara
						3	Naraingarh
2	**Bhiwani**	1	Bawani Khera			1	Kairu
		2	Bhiwani			2	Behal
						3	Tosham
						4	Loharu
3	**Charkhi Dadri**					1	Jhojhu
						2	Badhra
4	**Faridabad**					1	Ballabgarh
						2	Faridabad
						3	Tigaon
5	**Fatehabad**			1	Bhuna	1	Ratia
						2	Jakhal
						3	Tohana
						4	Fatehabad
						5	Bhattu Kalan
						6	Nagpur
6	**Gurgaon**					1	Pataudi
						2	Farrukh Nagar
						3	Sohna
						4	Gurgaon
7	**Hisar**	1	Hansi	1	Agroha	1	Barwala
		2	Hisar-I	2	Adampur	2	Narnaund
		3	Hisar-Ii				
8	**Jhajjar**	1	Badli				
9	**Jind**	1	Pillukhera			1	Safidon
						2	Uchana
						3	Alewa
						4	Jind
						5	Ujhana
10	**Kaithal**					1	Kalayat
						2	Pundri
						3	Guhla
						4	Kaithal
						5	Rajound
						6	Siwan
						7	Dhand
11	**Karnal**	1	Indri			1	Karnal
						2	Munak
						3	Gharaunda (Part)
						4	Kunjpura
						5	Nilokheri
						6	Assandh
						7	Nissing At Chirao
12	**Kurukshetra**					1	Ladwa
						2	Thanesar
						3	Pipli
						4	Shahbad
						5	Pehowa
						6	Babain
						7	Ismailabad
13	**Mahendragarh**	1	Satnali	1	Ateli Nangal	1	Sihma
						2	Mahendragarh
						3	Kanina
14	**Mewat**	1	Indri	1	Ferozepur Jhirka	1	Taoru
				2	Punahana		
15	**Palwal**	1	Hodal	1	Hassanpur	1	Badoli
		2	Palwal			2	Prithla
16	**Panchkula**			1	Raipur Rani		
17	**Panipat**					1	Panipat
						2	Sanauli Khurd
						3	Israna
						4	Bapoli
						5	Madlauda
						6	Samalkha
18	**Rewari**			1	Dahina	1	Khol At Rewari
						2	Nahar
						3	Rewari
						4	Dharuhera
						5	Jatusana
						6	Bawal
20	**Sirsa**	1	Baragudha			1	Sirsa
						2	Dabwali
						3	Odhan
						4	Nathusari Chopta
						5	Rania
						6	Ellenabad

CATEGORIZATION of ASSESSMENT UNITS, 2020							
HARYANA							
S. No	Name of District	S. No	Name of Semi-Critical Assessment Units	S. No	Name of Critical Assessment Units	S. No	Name of Over-Exploited Assessment Units
21	**Sonipat**					1	Murthal
						2	Sonipat
						3	Rai
						4	Mundlana
						5	Ganaur
22	**Yamuna Nagar**			1	Sadaura (Part)	1	Radaur
						2	Chhachhrauli
						3	Mustafabad
						4	Khizrabad
						5	Jagadhri
						6	Bilaspur

ABSTRACT

Total No. of Assessed Units	Number of Semicritical Assessment Units	Number of Critical Assessment Units	Number of Over Exploited Assessment Units
141	14	12	85

CATEGORIZATION of ASSESSMENT UNITS, 2020							
JHARKHAND							
S. No	Name of District	S. No	Name of Semi-Critical Assessment Units	S. No	Name of Critical Assessment Units	S. No	Name of Over-Exploited Assessment Units
1	**Bokaro**	1	Chas			1	Bermo
2	**Deoghar**	1	Sonaraithadhi				
3	**Dhanbad**	1	Dhanbad & Jharia	1	Baliapur	1	Topchanchi
4	**Garhwa**	1	Bhawanathpur				
5	**Hazaribagh**	1	Daru				
6	**Ramgarh**	1	Chitarpur				
		2	Mandu				
		3	Ramgarh				
7	**Ranchi**	1	Kanke	1	Silli		
		2	Khelari				
8	**East Singhbhum**					1	Golmuri Cum Jugsalai

ABSTRACT			
Total No. of Assessed Units	**Number of Semicritical Assessment Units**	**Number of Critical Assessment Units**	**Number of Over Exploited Assessment Units**
259	**10**	**2**	**3**

CATEGORIZATION of ASSESSMENT UNITS, 2020							
KARNATAKA							
S. No	Name of District	S. No	Name of Semi-Critical Assessment Units	S. No	Name of Critical Assessment Units	S. No	Name of Over-Exploited Assessment Units
1	**Bagalkot**	1	Hungund	1	Mudhol	1	Badami
		2	Rabakavi Banahatti			2	Bagalkote
						3	Guledagudda
2	**Bangalore Rural**					1	Devenhalli
						2	Dodaballapur
						3	Hoskote
						4	Nelamangala
3	**Bangalore Urban**					1	Anekal
						2	Bengaluru East
						3	Bengaluru North
						4	Bengaluru South
						5	Yelahanka
4	**Belagavi**	1	Chikodi	1	Athani	1	Bailahongal
		2	Gokak			2	Kagavada
		3	Hukkeri			3	Ramdurg
		4	Mudalagi			4	Saundatti
5	**Bellary**	1	Hadagalli			1	H.B.Halli
						2	Harapanahalli
						3	Kotturu
6	**Bidar**	1	Bhalki				
		2	Hulasuru				
7	**Chamrajnagara**	1	Kollegal	1	Yelandur	1	Chamrajnagara
		2	Kollegala(Hanur)			2	Gundlupet
8	**Chikballapur**					1	Bagepalli
						2	Chikballapur
						3	Chintamani
						4	Gauribidalur
						5	Gudibanda
						6	Sidlaghata
9	**Chikkamagalur**					1	Ajjampura
						2	Kadur
10	**Chitradurga**					1	Challakere
						2	Chitradurga
						3	Hiriyur
						4	Holalkere
						5	Hosadurga
11	**Davangere**	1	Honnalli	1	Davangere	1	Channagiri
		2	Nyamati			2	Jagalur
12	**Gadag**	1	Mundargi	1	Gadag	1	Gajendragad
		2	Nargund			2	Ron
		3	Shirhatti				
13	**Hassan**			1	C R Patna	1	Arsikere
14	**Haveri**	1	Byadgi				
		2	Hirekerur				
		3	Ranibennur				
		4	Ratteehalli				
15	**Kalburagi**	1	Afzalpur				
16	**Kolar**					1	Bangarpet
						2	K.G.F
						3	Kolar
						4	Malur
						5	Mulbagal
						6	Srinivaspur
17	**Koppal**	1	Kanakagiri			1	Kukanuru
		2	Yelbarga				
18	**Mandya**	1	Malavalli				
19	**Mysuru**	1	Mysuru				
20	**Raichur**	1	Raichur				
		2	Sirivara				
21	**Ramanagaram**	1	Channapatana	1	Kanakapura		
				2	Magadi		
				3	Ranmanagara		
22	**Tumakuru**	1	Pavagada			1	Chicknayakanhalli
						2	Koratagere
						3	Madhugiri
						4	Sira
						5	Tiptur
						6	Tumakuru

CATEGORIZATION of ASSESSMENT UNITS, 2020							
KARNATAKA							
S. No	Name of District	S. No	Name of Semi-Critical Assessment Units	S. No	Name of Critical Assessment Units	S. No	Name of Over-Exploited Assessment Units
23	**Vijayapura**	1	Basavana Bagevadi	1	Chadachana		
		2	Kolhara				
		3	Nidagundi				
		4	Tikota				
24	**Yadgir**	1	Gurumithakala				
		2	Yadgir				

ABSTRACT			
Total No. of Assessed Units	Number of Semicritical Assessment Units	Number of Critical Assessment Units	Number of Over Exploited Assessment Units
227	35	10	52

CATEGORIZATION of ASSESSMENT UNITS, 2020							
KERALA							
S. No	**Name of District**	**S. No**	**Name of Semi-Critical Assessment Units**	**S. No**	**Name of Critical Assessment Units**	**S. No**	**Name of Over-Exploited Assessment Units**
1	**Idukki**	1	Kattappana				
		2	Nedumkandam				
2	**Kannur**	1	Kannur				
		2	Panur				
		3	Thalassery				
3	**Kasargod**	1	Kanhangad	1	Kasaragod		
		2	Karadka				
		3	Manjeswar				
4	**Kollam**	1	Mukhathala				
5	**Kozhikode**	1	Ballussery				
		2	Kunnamangalam				
6	**Malappuram**	1	Kondotty				
		2	Kuttippuram				
		3	Malappuram				
		4	Mankada				
		5	Thanur				
		6	Thriurangadi				
		7	Tirur				
		8	Vengara				
7	**Palakkad**	1	Pattambi	1	Chittur		
		2	Thrithala	2	Malampuzha		
8	**Thiruvananthapuram**	1	Athiyannur				
		2	Chirayinkil				
		3	Nedumangad				
		4	Parassala				
		5	Pothencode				
9	**Thrissur**	1	Chowannur				
		2	Mathilakom				
		3	Thalikkulam				

ABSTRACT

Total No. of Assessed Units	Number of Semicritical Assessment Units	Number of Critical Assessment Units	Number of Over Exploited Assessment Units
152	29	3	Nil

CATEGORIZATION of ASSESSMENT UNITS, 2020							
MADHYA PRADESH							
S. No	Name of District	S. No	Name of Semi-Critical Assessment Units	S. No	Name of Critical Assessment Units	S. No	Name of Over-Exploited Assessment Units
1	**Agar Malwa**	1	Barod			1	Susner
						2	Nalkhera
2	**Ashoknagar**	1	Ishagarh				
3	**Barwani**	1	Rajpur			1	Pansemal
4	**Betul**	1	Betul				
		2	Multai				
5	**Bhopal**	1	Bhopal_Urban				
		2	Phanda				
6	**Chhatarpur**	1	Bijawar				
		2	Buxwaha				
		3	Chhatarpur				
		4	Nowgaon				
7	**Chhindwara**	1	Mohkhed	1	Chhindwara		
		2	Pandhurna				
8	**Damoh**	1	Patheriya				
9	**Dewas**	1	Khategaon			1	Sonkutch
						2	Dewas
10	**Dhar**			1	Tirla	1	Dhar
						2	Nalcha
						3	Badnawar
11	**Gwalior**	1	Gwalior_Urban				
12	**Hoshangabad**	1	Bankhedi				
13	**Indore**	1	Mhow			1	Indore_Urban
						2	Sanwer
						3	Indore
						4	Depalpur
14	**Jabalpur**			1	Jabalpur		
15	**Jhabua**	1	Jhabua				
16	**Khandwa**	1	Chhegaon Makhan				
17	**Khargone**	1	Khargone				
18	**Mandsaur**	1	Garoth	1	Malahargarh	1	Mandsaur
				2	Bhanpura	2	Sitamau
19	**Narsinghpur**	1	Narsinghpur				
20	**Neemuch**	1	Manasa			1	Jawad
						2	Neemuch
21	**Raisen**	1	Obedullaganj				
22	**Rajgarh**	1	Zeerapur	1	Narsingh Garh		
		2	Khilchipur	2	Sarangpur		
		3	Biora				
23	**Ratlam**	1	Sailana			1	Ratlam
		2	Bajna			2	Alote
						3	Jaora
						4	Piploda
24	**Rewa**	1	Mauganj				
25	**Satna**	1	Sohawal				
		2	Maihar				
		3	Rampur Baghalan				
26	**Sehore**			1	Ashta		
27	**Shajapur**	1	Shajapur			1	Kalapipal
						2	Shujalpur
						3	Mohan Berodia
28	**Shivpuri**	1	Kolaras				
		2	Badarwas				
		3	Pichor				
		4	Narwar				
		5	Khanniyadhana				
29	**Tikamgarh**	1	Jatara				
		2	Tikamgarh				
		3	Baldeogarh				
		4	Palera				
		5	Niwari				
30	**Ujjain**	1	Mahidpur			1	Ujjain
		2	Tarana			2	Ghatia
		3	Kachrod			3	Badnagar
31	**Vidisha**	1	Gyraspur				
		2	Kurwai				

ABSTRACT

Total No. of Assessed Units	Number of Semicritical Assessment Units	Number of Critical Assessment Units	Number of Over Exploited Assessment Units
317	50	8	26

CATEGORIZATION of ASSESSMENT UNITS, 2020							
MAHARASHTRA							
S. No	**Name of District**	**S. No**	**Name of Semi-Critical Assessment Units**	**S. No**	**Name of Critical Assessment Units**	**S. No**	**Name of Over-Exploited Assessment Units**
1	**Ahmednagar**	1	Akola	1	Kopargaon	1	Rahata
		2	Newasa	2	Rahuri		
		3	Pathardi	3	Sangamner		
		4	Shevgaon	4	Shrirampur		
		5	Shrigonda				
2	**Akola**	1	Barsi Takli				
3	**Amravati**	1	Amravati			1	Achalpur
		2	Dhamangaon Railway			2	Chandur Bazar
		3	Nandgaon			3	Morshi
						4	Warud
4	**Aurangabad**	1	Aurangabad				
		2	Fulambre				
		3	Gangapur				
		4	Khuldabad				
		5	Paithan				
		6	Sillod				
		7	Vaijapur				
5	**Buldhana**	1	Buldhana			1	Jalgaon
		2	Chikhali			2	Sangrampur
		3	Deulgaon Raja				
		4	Khamgaon				
		5	Lonar				
		6	Malakapur				
		7	Motala				
		8	Nandura				
		9	Sindkhed Raja				
6	**Jalgaon**	1	Amalner			1	Raver
		2	Bhadgaon			2	Yawal
		3	Bhusaval				
		4	Bodwad				
		5	Chalisgaon				
		6	Chopda				
		7	Jamner				
		8	Pachora				
		9	Parola				
7	**Latur**	1	Latur				
8	**Nagpur**	1	Katol				
		2	Saoner				
9	**Nashik**	1	Baglan Satana	1	Deola		
		2	Chandwad	2	Niphad		
		3	Yeola	3	Sinnar		
10	**Osmanabad**	1	Kalamb				
		2	Osmanabad				
11	**Pune**	1	Ambegaon	1	Shirur		
		2	Baramati				
		3	Daund				
		4	Indapur				
		5	Junnar				
		6	Khed				
		7	Purandhar				
12	**Sangli**	1	Kavathe Mahankal				
13	**Satara**	1	Khatav				
		2	Man				
		3	Patan				
		4	Phaltan				
		5	Wai				
14	**Solapur**	1	Barshi			1	Malshiras
		2	Karmala				
		3	Madha				
		4	Mangalveda				
		5	Mohol				
		6	Pandharpur				
		7	Sangola				
15	**Wardha**	1	Karanja				

ABSTRACT

Total No. of Assessed Units	Number of Semicritical Assessment Units	Number of Critical Assessment Units	Number of Over Exploited Assessment Units
353	**63**	**8**	**10**

CATEGORIZATION of ASSESSMENT UNITS, 2020							
ODISHA							
S. No	Name of District	S. No	Name of Semi-Critical Assessment Units	S. No	Name of Critical Assessment Units	S. No	Name of Over-Exploited Assessment Units
1	**Balasore**	1	Baliapal				
2	**Jajpur**	1	Korei				
3	**Kendrapara**	1	Garadpur				
4	**Khurda**	1	Bhubaneswar				
		2	Bologarh				
5	**Nuapada**	1	Nuapada				

ABSTRACT			
Total No. of Assessed Units	Number of Semicritical Assessment Units	Number of Critical Assessment Units	Number of Over Exploited Assessment Units
314	6	Nil	Nil

CATEGORIZATION of ASSESSMENT UNITS, 2020							
PUNJAB							
S. No	Name of District	S. No	Name of Semi-Critical Assessment Units	S. No	Name of Critical Assessment Units	S. No	Name of Over-Exploited Assessment Units
1	**Amritsar**					1	Ajnala
						2	Attari
						3	Chogawan
						4	Harsha China
						5	Jandiala
						6	Majitha
						7	Rayya
						8	Tarsika
2	**Barnala**					1	Verka
						2	Barnala
						3	Mahal Kalan
						4	Sehna
3	**Bathinda**	1	Rampura	1	Talwandi Saboo	1	Bathinda
						2	Bhagta Bhai Ka
						3	Goniana Mandi
						4	Maur
						5	Nathana
						6	Phul
4	**Faridkot**					1	Faridkot
						2	Jaiton
						3	Kot Kapura
5	**Fatehgarh Sahib**					1	Amloh
						2	Bassi Pathana
						3	Khamanon
						4	Khera
						5	Sirhind
6	**Fazilka**			1	Fazilka	1	Arniwala Sheikh Subanpur
						2	Jalalabad
7	**Ferozepur**					1	Ferozpur
						2	Ghall Khurd
						3	Guru Har Sahai
						4	Makhu
						5	Mamdot
						6	Zira
8	**Gurdaspur**	1	Dina Nagar	1	Gurdaspur	1	Batala
				2	Qadian	2	Dera Baba Nanak
				3	Sri Hargobindpur	3	Dhariwal
						4	Fatehgarh Churian
						5	Kahnuwan
						6	Kalanaur
9	**Hoshiarpur**	1	Mahilpur			1	Dasuya
		2	Mukerian			2	Garhsahnkar
		3	Hoshiarpur II			3	Hoshiarpur-1
						4	Tanda
10	**Jalandhar**					1	Adampur
						2	Bhogpur
						3	Jalandhar-East
						4	Jalandhar-West
						5	Lohian
						6	Mehatpur
						7	Nakodar
						8	Nur Mahal
						9	Phillaur
						10	Rurka Kalan
						11	Shahkot
11	**Kapurthala**					1	Dhilwan
						2	Kapurthala
						3	Nadala
						4	Phagwara
						5	Sultanpur Lodhi
12	**Ludhiana**					1	Dehlon
						2	Doraha
						3	Jagraon
						4	Khanna
						5	Ludhiana - I
						6	Ludhiana - II
						7	Machhiwara
						8	Maloud
						9	Pakhowal
						10	Raikot
						11	Samrala
						12	Sidhwan Bet
						13	Sudhar
13	**Mansa**					1	Bhikhi
						2	Budhlada
						3	Jhunir
						4	Mansa
						5	Sardulgarh

CATEGORIZATION of ASSESSMENT UNITS, 2020							
PUNJAB							
S. No	**Name of District**	**S. No**	**Name of Semi-Critical Assessment Units**	**S. No**	**Name of Critical Assessment Units**	**S. No**	**Name of Over-Exploited Assessment Units**
14	**Moga**					1	Bagha Purana
						2	Dharamkot (Kot Isa K
						3	Moga I
						4	Moga II
						5	Nihal Singh Wala
15	**Sas Nagar**					1	Dera Bassi
						2	Kharar
16	**Nawanshahr**	1	Balachaur			1	Aur
						2	Banga
						3	Nawan Shahr
17	**Pathankot**	1	Bamyal				
		2	Gharota				
		3	Narot Jamal Singh				
18	**Patiala**					1	Bhuner Heri
						2	Ghanaur
						3	Nabha
						4	Patiala
						5	Patran
						6	Rajpura
						7	Samana
						8	Sanaur
						9	Shambu Kalan
19	**Ropar**	1	Anandpur Sahib	1	Nurpur Bedi	1	Chamkaur Sahib
						2	Morinda
						3	Andana
20	**Sangrur**					1	Bhiwanigarh
						2	Dhuri
						3	Dirba
						4	Lehraghaga
						5	Maler Kotla
						6	Malerkotla-2
						7	Sangrur
						8	Sherpur
						9	Sunam
21	**Tarn Taran**					1	Bhikhiwind
						2	Chola Sahib
						3	Gandiwind
						4	Khadur Sahib
						5	Naushehra Panuan
						6	Patti
						7	Tarn Taran
						8	Valtoha

ABSTRACT

Total No. of Assessed Units	Number of Semicritical Assessment Units	Number of Critical Assessment Units	Number of Over Exploited Assessment Units
150	**10**	**6**	**117**

CATEGORIZATION of ASSESSMENT UNITS, 2020							
RAJASTHAN							
S. No	Name of District	S. No	Name of Semi-Critical Assessment Units	S. No	Name of Critical Assessment Units	S. No	Name of Over-Exploited Assessment Units
1	**Ajmer**					1	Arain
						2	Bhinay
						3	Jawaja
						4	Kekri
						5	Kishangarh
						6	Masooda
						7	Peesangan
						8	Sarwar
						9	Shrinagar
2	**Alwar**					1	Bansur
						2	Behror
						3	Kathumar
						4	Kishangarh Bas
						5	Kotkasim
						6	Laxmangarh
						7	Mandawar
						8	Neemrana
						9	Rajgarh
						10	Ramgarh
						11	Reni
						12	Thanagazi
						13	Tijara
						14	Umren
3	**Banswara**	1	Anandpuri				
		2	Bagidora				
		3	Gangar Talai				
		4	Garhi				
		5	Kushalgarh				
4	**Baran**	1	Antah			1	Atru
		2	Kishanganj			2	Baran
		3	Shahbad			3	Chhabra
						4	Chhipabarod
5	**Barmer**	1	Patodi	1	Siwana	1	Balotra
				2	Gudhamalani	2	Barmer
						3	Baytoo
						4	Dhanaoo
						5	Dhorimanna
						6	Gadraroad
						7	Gira
						8	Ramsar
						9	Samdari
						10	Serwa
						11	Sheo
						12	Sindhari
6	**Bharatpur**			1	Deeg	1	Bayana
						2	Kaman
						3	Kumher
						4	Nadbai
						5	Nagar
						6	Pahari
						7	Rupbas
						8	Sewar
						9	Weir
7	**Bhilwara**					1	Asind
						2	Banera
						3	Bijoliyan
						4	Hurda
						5	Jahazpur
						6	Kotri
						7	Mandal
						8	Mandalgarh
						9	Raipur
						10	Sahara
						11	Shahpura
						12	Suwana
8	**Bikaner**	1	Panchoo			1	Bikaner
						2	Dungargarh
						3	Nokha
9	**Bundi**	1	Keshorai Patan	1	Bundi	1	Hindoli
						2	Nainwa
10	**Chittaurgarh**					1	Bari Sadri
						2	Begun
						3	Bhadesar
						4	Bhainsrorgarh

CATEGORIZATION of ASSESSMENT UNITS, 2020							
RAJASTHAN							
S. No	Name of District	S. No	Name of Semi-Critical Assessment Units	S. No	Name of Critical Assessment Units	S. No	Name of Over-Exploited Assessment Units
						5	Bhopalsagar
						6	Chittaurgarh
						7	Dungla
						8	Gangrar
						9	Kapasan
						10	Nimbahera
						11	Rashmi
11	**Churu**			1	Churu	1	Rajgarh
						2	Ratangarh
						3	Sujangarh
						4	Bidasar
12	**Dausa**					1	Bandikui
						2	Dausa
						3	Lalsot
						4	Lawan
						5	Mahwa
						6	Sikrai
13	**Dhaulpur**			1	Baseri	1	Dhaulpur
						2	Rajakhera
						3	Saipau
						4	Bari
14	**Dungarpur**	1	Dovra				
		2	Sagwara				
15	**Jaipur**					1	Amber
						2	Bassi
						3	Chaksu
						4	Dudu
						5	Govindgarh
						6	Jalsoo
						7	Jamwa Ramgarh
						8	Jhotwara
						9	Kotputli
						10	Paota
						11	Phagi
						12	Sambhar
						13	Sanganer
						14	Shahpura
						15	Viratnagar
16	**Jaisalmer**					1	Jaisalmer
						2	Sam
						3	Sankra
17	**Jalor**	1	Chitalwana			1	Ahore
						2	Bhinmal
						3	Jalore
						4	Jaswantpura
						5	Raniwara
						6	Sanchore
						7	Sayla
18	**Jhalawar**	1	Aklera	1	Manohar Thana	1	Bakani
		2	Bhawani Mandi			2	Dag
		3	Pirawa			3	Jhalrapatan
						4	Khanpur
19	**Jhunjhunun**					1	Alsisar
						2	Buhana
						3	Chirawa
						4	Jhunjhunu
						5	Khetri
						6	Nawalgarh
						7	Surajgarh
						8	Udaipurwati
20	**Jodhpur**	1	Bap	1	Luni	1	Balesar
						2	Baori
						3	Bapini
						4	Bhopalgarh
						5	Bilara
						6	Dechoo
						7	Lohawat
						8	Mandor
						9	Osian
						10	Phalodi
						11	Pipar City
						12	Shekhala
						13	Shergarh
						14	Tiwari

CATEGORIZATION of ASSESSMENT UNITS, 2020							
RAJASTHAN							
S. No	**Name of District**	**S. No**	**Name of Semi-Critical Assessment Units**	**S. No**	**Name of Critical Assessment Units**	**S. No**	**Name of Over-Exploited Assessment Units**
21	**Karauli**	1	Nadoti			1	Hindaun
						2	Karauli
						3	Mandrail
						4	Sapotra
						5	Todabhim
22	**Kota**	1	Itawa			1	Khairabad
		2	Ladpura			2	Sangod
		3	Sultanpur				
23	**Nagaur**			1	Nagaur	1	Degana
						2	Didwana
						3	Jayal
						4	Kheenvsar
						5	Kuchaman City
						6	Ladnu
						7	Makrana
						8	Merta
						9	Molasar
						10	Mundwa
						11	Nawa
						12	Parbatsar
						13	Riyan Bari
24	**Pali**	1	Pali			1	Bali
						2	Desuri
						3	Jaitaran
						4	Kharchi (Marwar Junc
						5	Raipur
						6	Rani Station
						7	Sojat
						8	Sumerpur
25	**Pratapgarh**			1	Dhariawad	1	Arnod
						2	Chhoti Sadri
						3	Pratapgarh
26	**Rajsamand**			1	Khamnor	1	Amet
				2	Kumbhalgarh	2	Bhim
						3	Deogarh
						4	Railmagra
						5	Rajsamand
27	**Sawai Madhopur**					1	Bamanwas
						2	Bonli
						3	Chauth Ka Barwara
						4	Gangapur
						5	Khandar
						6	Sawai Madhopur
28	**Sikar**			1	Fatehpur	1	Danta Ramgarh
						2	Dhond
						3	Khandela
						4	Lachhmangarh
						5	Neem Ka Thana
						6	Patan
						7	Piprali
						8	Srimadhopur
29	**Sirohi**	1	Pindwara			1	Abu Road
						2	Reodar
						3	Sheoganj
						4	Sirohi
30	**Tonk**	1	Deoli	1	Tonk	1	Malpura
		2	Todaraisingh			2	Niwai
						3	Uniara
31	**Udaipur**	1	Jhalara	1	Bhindar	1	Bargaon
		2	Salumbar	2	Girwa	2	Kotra
		3	Semari	3	Gogunda	3	Lasadiya
				4	Jhadol	4	Mavli
				5	Kherwara	5	Rishabhdev
				6	Kurawar		
				7	Phalasiya		
				8	Sarada		
				9	Sayra		

ABSTRACT

Total No. of Assessed Units	Number of Semicritical Assessment Units	Number of Critical Assessment Units	Number of Over Exploited Assessment Units
295	29	23	203

CATEGORIZATION of ASSESSMENT UNITS, 2020							
TAMIL NADU							
S. No	**Name of District**	**S. No**	**Name of Semi-Critical Assessment Units**	**S. No**	**Name of Critical Assessment Units**	**S. No**	**Name of Over-Exploited Assessment Units**
1	**Ariyalur**	1	Sendurai				
2	**Chengalpattu**	1	Perumpakkam	1	Nerumbur	1	Chengalpattu
		2	Karumbakkam	2	Thirukazhukundram	2	Appur
		3	Singaperumalkoil			3	Orathi
		4	Kattankulathur				
		5	Acchirupakkam				
		6	Pallur(K)				
		7	Jameenendathur				
		8	Vandalur				
		9	Chithamur				
		10	L.Endathur				
		11	Mamallapuram				
		12	Onampakkam				
		13	Guduvancheri				
		14	Ponvilayanthakalathur				
		15	Kodur				
		16	Kayapakkam				
		17	Cheyyur				
3	**Chennai**	1	Madhavaram			1	Mambalam - Guindy-I
						2	Purasawalkam -Perambur-IV
						3	Kottai - Thondiarpet-I
						4	Mambalam - Guindy-IV
						5	Mylapore - Tiruvallikeni-IV
						6	Kottai - Thondiarpet-III
						7	Mambalam - Guindy-III
						8	Korattur
						9	Mylapore - Tiruvallikeni-I
						10	Mambalam - Guindy-II
						11	Manali
						12	Mylapore - Tiruvallikeni-III
						13	Ambattur
						14	Mylapore - Tiruvallikeni-II
						15	Maduravoil
						16	Purasawalkam -Perambur-II
						17	Egmore - Nungambakkam-III
						18	Egmore - Nungambakkam-I
						19	Purasawalkam -Perambur-I
						20	Porur
						21	Purasawalkam -Perambur-III
						22	Egmore - Nungambakkam-IV
						23	Kottai - Thondiarpet-IV
						24	Kottai - Thondiarpet-II
						25	Thiruvottiyur
						26	Egmore - Nungambakkam-II
4	**Coimbatore**	1	Thudialur	1	Kottur	1	Kinathukatavu
		2	Anamalai	2	Sulur	2	Pollachi(N)
		3	Kuniamuthur			3	Thondamuthur
		4	Kurichi			4	Pollachi(S)
		5	Marchinaickenpalayam			5	Annur(S)
						6	Kovilpalayam
						7	Vadavalli
						8	Thirumalaiampalayam
						9	Ottakkal Mandabam
						10	Varapatti
						11	Sarkar Samakulam
						12	Annur(N)
						13	Perianegamam
						14	Mettupalayam
						15	Vadachittur
						16	Karumathampatti
						17	Madukkarai
						18	Singanallur
						19	Karamadai
						20	Selakkarichal
						21	Ganapathi
						22	Alandurai
						23	Saravanampatti
						24	Kolarpatti
						25	Ramapattinam
						26	Anupparpalayam
						27	Periyanaickenpalayam
						28	Perur
						29	Coimbatore
						30	Madampatti

CATEGORIZATION of ASSESSMENT UNITS, 2020							
TAMIL NADU							
S. No	**Name of District**	**S. No**	**Name of Semi-Critical Assessment Units**	**S. No**	**Name of Critical Assessment Units**	**S. No**	**Name of Over-Exploited Assessment Units**
5	**Cuddalore**	1	Tittagudi (E)	1	Thozhudur	1	Rettichavadi
		2	Panruti			2	Nellikuppam
		3	Umangalam			3	Kammapuram (W)
		4	Sirupakkam			4	Pennadam
		5	Manjakuppam			5	Virudhachalam(S)
		6	Udaiyarkudi			6	Kammapuram (E)
		7	Kadampuliyur				
		8	Tittagudi (W)				
		9	Kurinjipadi				
		10	Kullanchavadi				
		11	Virudhachalam(N)				
		12	Thiruvanthipuram				
6	**Dharmapuri**	1	Palacode			1	Karimangalam
		2	Nallampalli			2	Marandahalli
		3	Harur			3	Indur
		4	Pappireddipatty			4	Bommidi
		5	Dharmapuri			5	Papparapatty
		6	Morappur			6	Thenkaraikottai
		7	Krishnapuram			7	Pennagaram
						8	Pulikarai
						9	Perianahalli
						10	Kadathur
						11	Vellichandai
						12	Palayam
						13	Perumbalai
						14	Kambainallur
7	**Dindigul**	1	Natham	1	Neikkarapattai	1	Chinnalpatti
		2	Pappampatti	2	Korikadavu	2	Nilakottai
		3	Dindigul East	3	Kambiliampatti	3	Kottanatham
		4	Reddiapatti	4	Athoor	4	Devathur
		5	Senthurai	5	Pillaiyarnatham	5	Puliyurnatham
						6	Dindigul West
						7	Palakkanoothu
						8	Shanarpatti
						9	Kovilur
						10	Reddiarchatram
						11	Vatlagundu
						12	Kallimanthayam
						13	Oruthattu
						14	Vadamadurai
						15	Silvathur
						16	Eriodu
						17	Vedasandur
						18	Dharmathupatti
						19	Thoppampatti
						20	Ayyampalayam
						21	Oddanchathram
						22	Palayam
						23	Ayyalur
						24	Chinnakkampatti
						25	Viruveedu
						26	Ayakudi
8	**Erode**	1	Kurichi	1	Ammapettai	1	Elathur
		2	Kanjikoil			2	Kodumudi
		3	Thalavadi			3	Athani
		4	Sivagiri			4	Anthiyur
		5	Bhavani			5	Erode East
		6	Siruvalur			6	Punjaipuliampatti
		7	Kuthiyalathur			7	Bhavanisagar
		8	Poondurai			8	Arachalur
		9	Kavandapadi			9	Perundurai
		10	Vaniputhur			10	Sathyamangalam
						11	Nambiyur
						12	Kilampadi
						13	Chennimalai
						14	Erode West
						15	Modakurichi
						16	Vellode
						17	Thingalur
						18	Kasipalayam
						19	Arasur
						20	Erode North
9	**Kallakkurichi**	1	Sankarapuram	1	Nagalur	1	Nainarpalayam
		2	Vadakanandal	2	Kallakurichi	2	Elavanasurkottai
		3	Sengurichi	3	Kalvarayan Malai	3	Thiruppalapandal
		4	Manalurpettai	4	Chinnaselam	4	Eraiyur
		5	Alathaur	5	Kalamarudur	5	Indili
				6	Ulundurpettai	6	Thiyagadurgam
10	**Kancheepuram**	1	Kunnavakkam	1	Govindhavadi	1	Thirupulivanam
		2	Thiruppu Kuzhi			2	Arumpuliyur
		3	Sirukaveripakkam			3	Walajabad
		4	Uthiramerur				
		5	Kollapakkam				
		6	Kaliyampoondi				

CATEGORIZATION of ASSESSMENT UNITS, 2020							
TAMIL NADU							
S. No	**Name of District**	**S. No**	**Name of Semi-Critical Assessment Units**	**S. No**	**Name of Critical Assessment Units**	**S. No**	**Name of Over-Exploited Assessment Units**
11	**Kanniyakumari**	1	Rajakkamangalam				
12	**Karur**	1	Manmangalam			1	Pallapatti
		2	Chinthalavadi			2	Thalapatti
		3	Chinnadharapuram			3	Vangal
		4	Aravakurichi			4	Thoranakalpatti
						5	Kattalai
						6	Velliyanai
						7	Mailampatti
						8	K.Paramathy
						9	Kadavur
						10	Thogaimalai
						11	Pugalur
						12	Panjapatti
						13	Thennilai
						14	Karur
13	**Krishnagiri**	1	Kelamangalam	1	Rayakottai	1	Singarapettai
		2	Periyamuthur			2	Uthangarai
		3	Krishnagiri			3	Berigai
		4	Mathigiri			4	Guruparapalli
		5	Pochampalli			5	Alapatti
		6	Hosur			6	Nagarasampatti
		7	Bagalur			7	Mathur
						8	Samalpatti
						9	Palepalli
						10	Kallavi
						11	Veppanapalli
						12	Bargur
14	**Madurai**	1	Madurai East	1	Madurai West	1	Sindhupatti
		2	Peraiyur	2	Karumathur	2	Usilampatti
		3	Valayankulam	3	Thirumangalam	3	Kokkulam
		4	Valanthur			4	Sedapatti
		5	Kalligudi			5	Uthappanaickanur
		6	Pannikkundu			6	Nagamalali Pudukotta
		7	Elumalai			7	A.Vellalapatti
						8	Vellalur
						9	Muduvarpatti
						10	Kottampatti
						11	Palamedu
15	**Nagapattinam**					1	Sirkali
						2	Palaiyur
						3	Madhanam
						4	Kuttalam
						5	Melaiyur
						6	Sembanarkoil
						7	Puthur
						8	Pattavarthi
						9	Thiruvenkadu
						10	Vaitheeswaran Koil
						11	Manganallur
						12	Mayiladuthurai
						13	Thiruvilaiyattam
16	**Namakkal**	1	Jedarpalayam	1	Elachipalayam	1	Senthamagalam
		2	Manickampalayam			2	Nallipalayam
		3	Molasi			3	Valaiyapatti
		4	Pallapatti			4	Pandamangalam
						5	Mangalapuram
						6	Puduchatram
						7	Namakkal
						8	Vennandur
						9	Kumarapalayam
						10	Alanganatham
						11	Mallasamudram
						12	Namagiripettai
						13	Vaiyappamalai
						14	Paramathi
						15	Rasipuram
						16	Erumaipatti
						17	Tiruchengode
						18	Kalappanaikanpatti
						19	Mullukurichi
						20	Nallur
						21	Sellappampatti
						22	Mohanur
17	**Perambalur**	1	Koothur			1	Kurumbalur
						2	Valikandapuram
						3	Keelapuliyur
						4	Vengalam
						5	Pasumbalur
						6	Perambalur
						7	Chettikulam
18	**Pudukkottai**	1	Ponnamaravathy				
		2	Viralimalai				
		3	Arasarkulam				
		4	Arasamalai				

CATEGORIZATION of ASSESSMENT UNITS, 2020

TAMIL NADU

S. No	Name of District	S. No	Name of Semi-Critical Assessment Units	S. No	Name of Critical Assessment Units	S. No	Name of Over-Exploited Assessment Units
		5	Kottur				
		6	Keeramangalam				
		7	Kodumbalur				
		8	Narthamalai				
		9	Karaiyur				
		10	Vennavalkudi				
19	**Ranipet**	1	Velam	1	Kalavai	1	Arcot
		2	Arakonam(South)	2	Nemili(V)	2	Walajah
		3	Kaveripakkam			3	Pudupadi
		4	Visharam			4	Timiri
		5	Banavaram				
		6	Mambakkam				
		7	Pallur				
		8	Sholinghur				
		9	Panapakkam				
		10	Paranji				
		11	Ranipet				
20	**Salem**	1	Kolathur	1	Karupur	1	Omalur
		2	Patchamalai	2	Panamarathuppatti	2	Poolampatti
						3	Pottaneri
						4	Karippatti
						5	Thalaivasal
						6	Alagapuram
						7	Gangavalli
						8	Valasaiyur
						9	Palamalai
						10	Mecheri
						11	Veeraganoor
						12	Sankari East
						13	Kadayampatti
						14	Kondalampatti
						15	Ernapuram
						16	Kattukkottai
						17	Malliyakarai
						18	Yethapur
						19	Veerapandi
						20	Mettur
						21	Pethanaickanpalayam
						22	Thirumalaigiri
						23	Tharamangalam
						24	Vembadithalam
						25	Sankari West
						26	Nangavalli
						27	Vazhappadi
						28	Semmandappatti
						29	Belur
						30	Suramangalam
						31	Salem Town
						32	Attur
						33	Konganapuram
						34	Edappadi
21	**Tenkasi**	1	Alankulam	1	Veerakeralampudur	1	Keezhapavoor
		2	Vasudevanallur			2	Veerasigamani
		3	Thiruvengadem			3	Kallurani
		4	Kadayanallur			4	Karivaklamvandanallur
						5	Sernthamangalam
						6	Surandai
						7	Pazhankottai
						8	Uthumalai
						9	Karuvantha
						10	Kurukkalpatti
						11	Puliyankudi
						12	Sankarankoil
						13	Ayikudi
						14	Gudalur
						15	Karisal Kulam
						16	Nettur
						17	Venkadampatti
22	**Tirupathur**	1	Ambalur	1	Andiyappanur	1	Vaniyambadi
		2	Pudurnadu	2	Alangayam	2	Kandhili
		3	Jolarpet			3	Tirupathur
						4	Natrampalli
						5	Koratti
						6	Ammanankoil
23	**Thanjavur**	1	Orathanad	1	Thambikkottai	1	Thirukkattupalli
		2	Peravurani	2	Nambivayal	2	Avanam
		3	Saliyamangalam	3	Periyakottai	3	Kumbakonam
		4	Budalur	4	Ulur	4	Pattukkottai
		5	Thekkur			5	Andikkadu
		6	Kurichi			6	Thiruvaiyaru
		7	Perambur			7	Ammapet
		8	Thanjavur			8	Thiruvidamarudur
						9	Adirampattinam
						10	Aduthurai
						11	Nachiyarkoil
						12	Devanancheri
						13	Thuvarankurichi

CATEGORIZATION of ASSESSMENT UNITS, 2020							
TAMIL NADU							
S. No	**Name of District**	**S. No**	**Name of Semi-Critical Assessment Units**	**S. No**	**Name of Critical Assessment Units**	**S. No**	**Name of Over-Exploited Assessment Units**
						14	Sillathur
						15	Kathiramangalam
						16	Agarapettai
						17	Kuruvikarambai
						18	Murukkangudi
						19	Kavalipatti
						20	Thondarampattu
						21	Melattur
						22	Thirumangalakottai
						23	Pandanallur
						24	Nanjikottai
						25	Papanasam
						26	Tiruchitrambalam
						27	Madukkur
						28	Vallam
						29	Ramapuram
						30	Kandiyur
						31	Kabisthalam
						32	Ayyampettai
						33	Tiruppanandal
						34	Nadukaveri
24	**The Nilgiris**	1	Ithalar				
		2	Kundah				
25	**Theni**	1	Andipatti	1	Kandamanur	1	Thevaram
		2	Kodangipatti	2	Rajathani	2	Erasakkanaickanur
		3	Theni				
		4	Devathanapatti				
		5	Uthamapalayam				
		6	Mayladumparai				
		7	Thenkarai				
		8	Kodivilarpatti				
26	**Thiruvallur**	1	Uthukkottai	1	Tiruttani	1	Voyalanallur
		2	Morai	2	Vengathur	2	Avadi
		3	Tirur			3	Thirumullaivoyil
		4	Poonimangadu			4	Vellanur
		5	Pallipattu			5	R.K.Pet
		6	Thirumazhisai			6	Thiruninravur
		7	Poondi			7	Poonamallee
		8	Kannigaipair				
		9	Mappedu				
		10	Erumbi				
		11	Manavor				
		12	Kanagammachattram				
		13	Cherukkanoor				
		14	Nemam				
		15	Velliyur				
		16	Puzhal				
		17	Balapuram				
27	**Thiruvarur**	1	Koothanallur	1	Vadapathimangalam	1	Thirukkannamangai
		2	Nannilam			2	Agarathirumalam
		3	Sannanallur			3	Avoor
						4	Kulikkarai
						5	Kodavasal
						6	Peralam
						7	Valangaiman
						8	Thiruvizhimazhalai
						9	Alangudi
						10	Koradacheri
28	**Thoothukkudi**	1	Sattankulam	1	Parivallikottai	1	Pallakurichi
		2	Kayathar			2	Ilayarasanendal
						3	Udangudi
29	**Tiruchirappalli**	1	Valanadu	1	Uppiliyapuram	1	Kannanur
		2	Peruvalpur			2	Sengattuppatti
		3	Ealurpatti			3	V.Periyapatti
		4	Kattuputhur			4	Thathaiyangarpettai
		5	Thottiyam			5	Valaieduppu
		6	Musiri			6	Kariyamanickam
		7	Mannachanallur			7	Koppampatti
		8	Sirugambur			8	Manikandam
						9	Thumbalam
						10	Pulivalam
						11	Marungapuri
						12	Pannappatti
						13	Thuraiyur
						14	Vaiyampatti
						15	Thuvarangurichi
						16	Manapparai
						17	Eragudi
30	**Tirunelveli**	1	Moolakaraipatti	1	Radhapuram	1	Vannikonenthal
		2	Vijayanarayanapuram			2	Pazhavoor
		3	Levinjipuram				
		4	Manur				
		5	Thalaiyuthu				
		6	Sivanthipatti				

CATEGORIZATION of ASSESSMENT UNITS, 2020							
TAMIL NADU							
S. No	Name of District	S. No	Name of Semi-Critical Assessment Units	S. No	Name of Critical Assessment Units	S. No	Name of Over-Exploited Assessment Units
31	**Tiruppur**	1	Nallur	1	Tiruppur (N)	1	Kunnathur
		2	Udumalpet	2	Sankarandampalayam	2	Karadivavi
		3	Kurichikottai	3	Alangiyam	3	Tiruppur (S)
		4	Thungavi	4	Nathakadaiyur	4	Velampalayam
		5	Dharapuram			5	Gudimangalam
						6	Samalapuram
						7	Kannivadi
						8	Kundadam
						9	Avinashi(E)
						10	Vellakoil
						11	Pongalur
						12	Uthiyur
						13	Kangeyam
						14	Mulanur
						15	Ponnapuram
						16	Avinashi(W)
						17	Avinashipalayam(S)
						18	Palladam
						19	Cheyur
						20	Periavalavadi
						21	Uthukuli
						22	Pethappampatti
						23	Perumanallur
32	**Tiruvannamalai**	1	T.V.Malai (North)	1	Mangalam	1	Kolappalur
		2	T.V.Malai(South)	2	Veraiyur	2	Thatchampattu
		3	Nateri	3	Vadathandalam	3	Kilkodungalur
		4	Devikapuram	4	Kilpennathur	4	Thachambadi
		5	Perungattur	5	Vandavasi	5	Mullipattu
		6	Arni	6	Modayur	6	Eraiyur
		7	Kalasapakkam			7	Melpallipattu
		8	Vanapuram			8	Pudupalayam
		9	Cheyyar			9	Thanipadi
		10	Kannamangalam			10	Desur
		11	Anakavoor			11	Kettavarampalayam
		12	Dusi			12	Nedungunam
		13	Vembakkam			13	Somaspadi
		14	Vakkadai			14	Osur
		15	Thandarampat			15	Chengam Jawadhuhills
		16	Mandakolathur			16	Kelur
		17	Thellar			17	Malaiyur
		18	Polur			18	Santhavasal
		19	Thethurai			19	Chennavaram
		20	Sathyavijayanagaram			20	Vettavlam
		21	Agrapalayam			21	Kadaladi
		22	Peranamallur			22	Pachal
		23	Nayadumangalam			23	Thurinjapuram
33	**Vellore**	1	Katpadi	1	Pennathur	1	Valathur
		2	Thiruvalam	2	Ussoor	2	Gudiyatham(East)
		3	Kaniyambadi			3	Pallikonda
		4	Pernampattu			4	Vaduganthangal
						5	K.V.Kuppam
						6	Vellore
						7	Sathuvachari
						8	Anaicut
						9	Melasannankuppam
						10	Agaram
						11	Odugathur
						12	Ambur
						13	Melpatti
						14	Gudiyatham (West)
						15	Thuthipattu
						16	Madhanur
34	**Viluppuram**	1	Mugaiyur	1	Vikkiravandi	1	Kanjanur
		2	Kanai	2	Kandamangalam	2	Nemili
		3	Avanipur	3	Valavanur	3	Olakkur
		4	Villupuram	4	Kiliyanur	4	Sathiyamangalam
		5	Marakanam			5	Gingee
		6	Tindivanam			6	Sathampati
						7	Brammadesam
						8	Siruvadi
						9	Uppuvelur
						10	Vallam
						11	Melmalayanur
						12	Arasur
						13	T.V.Nallur
						14	Anniyur
						15	Avalurpettai
						16	Sithalampattu
						17	Melolakkur
						18	Chithalingamadam
						19	Vadasiruvalur

CATEGORIZATION of ASSESSMENT UNITS, 2020							
TAMIL NADU							
S. No	**Name of District**	**S. No**	**Name of Semi-Critical Assessment Units**	**S. No**	**Name of Critical Assessment Units**	**S. No**	**Name of Over-Exploited Assessment Units**
35	**Virudhunagar**	1	Malli	1	Mangalam	1	Keelarajakularaman
		2	Iyankollankondan	2	Vatchakara-Patti	2	Nathampatti
		3	Srivilliputtur	3	Alangulam	3	Vembakottai
		4	Rajapalayam	4	Mallankinar	4	Pillaiyarkulam
		5	Salwarpatti	5	Amathur	5	Cholapuram
		6	Ondipulinaickanur				
		7	Watrap				
		8	Elayiram- Pannai				
		9	Sivakasi				
		10	Kottaiyur				

ABSTRACT

Total No. of Assessed Units	Number of Semicritical Assessment Units	Number of Critical Assessment Units	Number of Over Exploited Assessment Units
1166	**225**	**63**	**435**

CATEGORIZATION of ASSESSMENT UNITS, 2020							
TELANGANA							
S. No	Name of District	S. No	Name of Semi-Critical Assessment Units	S. No	Name of Critical Assessment Units	S. No	Name of Over-Exploited Assessment Units
1	**Adilabad**	1	Adilabad Urban				
		2	Bheempoor				
		3	Gudihathnur				
		4	Inderavelly				
		5	Mavala				
		6	Neradigonda				
		7	Sirikonda				
		8	Talamadugu				
		9	Tamsi				
		10	Utnur				
2	**Bhadradri**	1	Aswaraopeta				
		2	Chunchupally				
		3	Dammapeta				
		4	Julurpad				
		5	Kothagudem				
		6	Manuguru				
		7	Sujathanagar				
		8	Yellandu				
3	**Hyderabad**					1	Amberpet
						2	Ammerpet
						3	Asifnagar
						4	Bahadurpura
						5	Bandlaguda
						6	Charminar
						7	Golkonda
						8	Himayatnagar
						9	Khairatabad
						10	Maredpally
						11	Musheerabad
						12	Nampally
						13	Saidabad
						14	Secunderabad
						15	Shaikpet
						16	Tirumalgiri
4	**Jagtial**	1	Metpalle	1	Medipalle	1	Kathlapur
						2	Kodimial
						3	Malial
5	**Jangaon**	1	Chilpur	1	Tharigoppula	1	Bachannapeta
		2	Ganpur_stn			2	Jangaon
		3	Narmetta			3	Kodakandla
		4	Raghunathpalle			4	Palakurthi
		5	Zaffergadh				
6	**Jayashankar**	1	Mogullapalle				
		2	Tekumatla				
7	**Jogulamba**	1	Kaloor_Timmanadoddi				
8	**Kamareddy**	1	Domakonda	1	Bhiknur		
		2	Lingampet	2	Bibipet		
		3	Machareddy				
		4	Rajampet				
		5	Sadasivanagar				
		6	Tadwai				
9	**Karimnagar**	1	Chigurumamidi	1	Ramadugu		
		2	Gannervaram	2	Gangadhara		
		3	Karimnagar				
		4	V_Saidapur				
10	**Khammam**	1	Kamepalle				
		2	Penuballi				
		3	Raghunadhapalem				
		4	Sathupalle				
		5	Singareni				
		6	Thirumalayapalem				
		7	Vemsoor				
11	**Mahabubabad**	1	Chinnagudur	1	Danthalapalle		
		2	Garla				
		3	Maripeda				
		4	Narsimhulapet				
		5	Nellikudur				
		6	Peddavangara				
		7	Thorrur				
12	**Mahabubnagar**	1	Bhoothpur	1	Balanagar	1	Midjil
		2	Chinna_Chintha_Kunta				
		3	Devarkadara				
		4	Gandeed				
		5	Hanwada				
		6	Jadcherla				
		7	Koilkonda				
		8	Mahabubnagar_Rural				
		9	Mahabubnagar_Urban				
		10	Musapet				
		11	Nawabpet				
		12	Rajapur				

CATEGORIZATION of ASSESSMENT UNITS, 2020							
TELANGANA							
S. No	**Name of District**	**S. No**	**Name of Semi-Critical Assessment Units**	**S. No**	**Name of Critical Assessment Units**	**S. No**	**Name of Over-Exploited Assessment Units**
13	**Medak**	1	Chegunta				
		2	Manoharabad				
		3	Medak				
		4	Narsapur				
		5	Narsingi				
		6	Nizampet				
		7	Ramayampet				
		8	Shankarampet_R				
		9	Shivampet				
		10	Tupran				
		11	Yeldurthy				
14	**Medchal**	1	Alwal	1	Bachpalle		
		2	Dundigal_Gandimaisamma	2	Balanagar		
		3	Medchel	3	Kukatpally		
				4	Quthbullapur		
15	**Nagarkurnool**	1	Balmoor	1	Kalwakurthy	1	Charakonda
		2	Bijinapalle	2	Urkonda	2	Veldanda
		3	Lingal	3	Vangoor		
		4	Nagar_Kurnool				
		5	Tadoor				
		6	Telkapalle				
		7	Thimmajipeta				
		8	Uppunuthala				
16	**Nalgonda**	1	Chandampet	1	Chinthapalle		
		2	Chandur	2	Kattangoor		
		3	Chityala	3	Nampalle		
		4	Devarakonda	4	Narketpalle		
		5	Gundlapalle				
		6	Kangal				
		7	Kethepalle				
		8	Marriguda				
		9	Munugode				
		10	Nalgonda				
		11	Neredugommu				
		12	Thipparthi				
17	**Narayanpet**	1	Dhanwada				
		2	Kosgi				
		3	Marikal				
		4	Narayanpet				
18	**Nirmal**	1	Lokeswaram				
19	**Nizamabad**	1	Armur	1	Chandur	1	Mortad
		2	Balkonda	2	Jakranpalle	2	Rudrur
		3	Bheemgal	3	Kammarpalle		
		4	Dharpalle	4	Vailpur		
		5	Dichpalle	5	Varni		
		6	Indalwai				
		7	Mendora				
		8	Mosra				
		9	Mupkal				
		10	Sirkonda				
20	**Peddapalle**			1	Srirampur		
21	**Rajanna**	1	Boinpalle	1	Chandurthi	1	Gambhiraopeta
		2	Thangallapalle	2	Ellanthakunta	2	Konaraopeta
				3	Rudrangi	3	Mustabad
						4	Sirsilla
						5	Veernapalle
						6	Vemulawada
						7	Vemulawada_Rural
						8	Yellareddypeta
22	**Rangareddy**	1	Abdullapurmet	1	Kothur	1	Serilingampally
		2	Amangal	2	Maheshwaram		
		3	Balapur	3	Nandigam		
		4	Chevella	4	Rajendranagar		
		5	Chowdergudem	5	Saroornagar		
		6	Farooqnagar	6	Shamshabad		
		7	Gandipet	7	Talakondapalle		
		8	Ibrahimpatnam				
		9	Kandukur				
		10	Keshampeta				
		11	Kondurg				
		12	Manchal				
		13	Moinabad				
		14	Shankarpalle				
		15	Yacharam				
23	**Sangareddy**	1	Hathanoora	1	Ameenapur	1	Ramachandrapuram
		2	Jharasangam	2	Patancheruvu		
		3	Kandi				
		4	Kohir				
		5	Kondapur				
		6	Manoor				
		7	Mogdampalle				

CATEGORIZATION of ASSESSMENT UNITS, 2020							
TELANGANA							
S. No	Name of District	S. No	Name of Semi-Critical Assessment Units	S. No	Name of Critical Assessment Units	S. No	Name of Over-Exploited Assessment Units
		8	Naykal				
		9	Sangareddy				
		10	Zahirabad				
24	**Siddipet**	1	Bejjanki	1	Husnabad	1	Anthakkapeta
		2	Cheriyal	2	Koheda		
		3	Doultabad				
		4	Dubbak				
		5	Jagadevpur				
		6	Komaravelly				
		7	Kondapak				
		8	Maddur				
		9	Markook				
		10	Mirdoddi				
		11	Mulug				
		12	Rayapole				
		13	Siddipet_Rural				
		14	Thoguta				
		15	Wargal				
25	**Suryapet**	1	Atmakur_S	1	Thungathurthi		
		2	Jajireddigudem				
		3	Maddirala				
		4	Mothey				
		5	Nagaram				
		6	Noothankal				
		7	Thirumalagiri				
26	**Vikarabad**	1	Bantwaram				
		2	Bomraspeta				
		3	Doma				
		4	Doulatabad				
		5	Marpalle				
		6	Mominpet				
		7	Nawabpet				
		8	Peddemul				
27	**Warangal_Urban**	1	Khazipet	1	Elkathurthi	1	Bheemadevarapalle
		2	Khilla_Warangal			2	Dharmasagar
		3	Warangal			3	Inole
						4	Velair
28	**Yadadri**	1	Addagudur	1	Mootakondur	1	Gundala
		2	Alair	2	Narayanapur		
		3	Atmakur_M	3	Yadagirigutta		
		4	Bhongiri				
		5	Bommalaramaram				
		6	Mothkur				
		7	Rajapet				
		8	Turkapalle_M				

ABSTRACT

Total No. of Assessed Units	Number of Semicritical Assessment Units	Number of Critical Assessment Units	Number of Over Exploited Assessment Units
589	180	44	44

CATEGORIZATION of ASSESSMENT UNITS, 2020							
UTTAR PRADESH							
S. No	**Name of District**	**S. No**	**Name of Semi-Critical Assessment Units**	**S. No**	**Name of Critical Assessment Units**	**S. No**	**Name of Over-Exploited Assessment Units**
1	**Agra**	1	Jagner	1	Achhnera	1	Agra City
		2	Jaitpur Kalan	2	Bah	2	Akola
		3	Kheragarh			3	Barauli Ahir
						4	Bichpuri
						5	Etmadpur
						6	Fatehabad
						7	Fatehpur Sikri
						8	Khandauli
						9	Saiyana
						10	Shamsabad
2	**Aligarh**	1	Chandaus	1	Iglas	1	Aligarh City
		2	Gangiri				
		3	Jawa Sikandairpur				
		4	Khair				
		5	Lodha				
3	**Ambedkar Nagar**	1	Jalalpur				
4	**Amethi**	1	Sangrampur				
5	**Amroha**	1	Amroha	1	Dhanaura	1	Joya
		2	Gangeshwari	2	Gajraula		
				3	Hasanpur		
6	**Ayodhya**	1	Bikapur				
		2	Milkipur				
7	**Azamgarh**	1	Ahiraula				
		2	Atraulia				
		3	Koilsa				
		4	Palhana				
		5	Palhani				
		6	Sathiyaon				
		7	Tarwa				
8	**Baghpat**	1	Baraut	1	Baghpat	1	Binauli
		2	Chhaprauli			2	Khekra
						3	Pilana
9	**Banda**	1	Baberu				
		2	Jaspura				
		3	Naraini				
		4	Tindwari				
10	**Bareili**	1	Alampur Jafarabad			1	Bareilly City
		2	Fatehganj				
		3	Majhgawa				
		4	Ramnagar				
12	**Bijnaur**	1	Kotwali	1	Jaleelpur		
		2	Nehtaur (Aaku)				
		3	Noorpur				
		4	Seohara (Budhanpur)				
13	**Budaun**	1	Bisauli			1	Ambiapur
		2	Jagat			2	Asafpur
		3	Miaon			3	Islamnagar
		4	Quadar Chowk				
		5	Sahaswan				
		6	Salarpur				
		7	Ujhani				
14	**Bulandshahar**	1	Anup Shahar	1	Arnia Khurd	1	Bhawan Bahadur Nagar
		2	Jahangirabad	2	Khurja	2	Bulandshahar
		3	Lakhaothi	3	Shikarpur	3	Danpur
		4	Pahasu	4	Unchagaon	4	Gulaothi
						5	Siana
						6	Sikandrabad
15	**Chitrakoot**	1	Mau	1	Karwi		
		2	Pahari				
		3	Ramnagar				
17	**Etah**	1	Jaithara	1	Aliganj		
		2	Nidhauli Kalan	2	Jalesar		
		3	Sakit				
		4	Shitalpur				
18	**Farrukhabad**	1	Barhpur				
		2	Kamalganj				
		3	Mohamadabad				
		4	Nawabganj				
19	**Fatehpur**	1	Airaya	1	Amauli	1	Bhitaura
		2	Khajuha				
		3	Malawan				
		4	Telyani				
20	**Firozabad**	1	Eka	1	Aron	1	Firozabad
		2	Jasrana			2	Hathwant
		3	Madanpur			3	Narkhi
						4	Shikohabad
						5	Tundla
21	**G.B.Nagar**	1	Dadri	1	Dankaur	1	Bisrakh
				2	Jewar		
22	**Ghaziabad**	1	Muradnagar			1	Bhojpur
						2	Loni
						3	Razapur
						4	Ghaziabad City
23	**Ghazipur**	1	Saidpur				

CATEGORIZATION of ASSESSMENT UNITS, 2020							
UTTAR PRADESH							
S. No	Name of District	S. No	Name of Semi-Critical Assessment Units	S. No	Name of Critical Assessment Units	S. No	Name of Over-Exploited Assessment Units
24	**Hamirpur**	1	Gohand				
		2	Rath				
		3	Sarila				
		4	Sumerpur				
25	**Hapur**	1	Dholana	1	Hapur	1	Garh
				2	Simbholi		
26	**Hardoi**	1	Todarpur				
27	**Hathras**	1	Sadabad	1	Hathras	1	Mursan
				2	Sikandra Rao	2	Sahpau
						3	Sasni
28	**Jaunpur**	1	Baksha	1	Badlapur		
		2	Barsathi	2	Maharajganj		
		3	Dharmapur				
		4	Karanja Kalan				
		5	Kerakat				
		6	Muftiganj				
		7	Sikrara				
		8	Sirkoni				
29	**Jhansi**	1	Babina				
		2	Bangra				
		3	Baragaon				
		4	Mauranipur				
30	**Kannauj**	1	Chhibramau			1	Jalalabad
		2	Gograpur			2	Talgram
		3	Kannauj				
31	**Kanpur Dehat**	1	Akbarpur				
		2	Derapur				
		3	Jhinjhak				
		4	Maitha				
		5	Malsa				
		6	Rasulabad				
		7	Sarwan Khera				
32	**Kanpur Nagar**	1	Bidhnu	1	Kanpur City		
		2	Bilhaur	2	Chaubepur		
		3	Ghatampur				
		4	Patara				
		5	Sarsol				
		6	Shivrajapur				
33	**Kasganj**	1	Kasganj	1	Ganjdundwara		
		2	Patiyali				
		3	Sahawar				
34	**Kaushambi**	1	Kara			1	Chail
		2	Manjhanpur			2	Muratganj
		3	Newada				
		4	Sirathu				
35	**Lalitpur**	1	Bar				
		2	Birdha				
		3	Jakhora				
		4	Madaora				
		5	Mahroni				
		6	Talbehat				
36	**Mahoba**	1	Charkhari			1	Jaitpur
		2	Kabrai			2	Panwari
37	**Mainpuri**	1	Jagir			1	Barnahal
		2	Kurawali				
		3	Mainpuri				
38	**Mathura**	1	Farah	1	Baldeo	1	Nohjhil
						2	Raya
39	**Meerut**	1	Hastinapur	1	Kharkhoda	1	Meerut City
		2	Mawana Kalan	2	Machhra		
		3	Meerut	3	Rajpura		
		4	Parichhatgarh				
40	**Mirzapur**	1	Chanbey	1	Majhawan	1	Kon
		2	City	2	Sikhar		
41	**Moradabad**	1	Bhagatpur Tanda	1	Bilari	1	Moradabad City
		2	Chhajlet				
		3	Dilari				
		4	Kundarki (Dengapur)				
		5	Moradabad				
		6	Mundapandey				
42	**Muzaffarnagar**	1	Charthawal	1	Budhana	1	Bhaghara
		2	Muzaffarnagar				
		3	Shahpur				
43	**Pratapgarh**	1	Aspur Deosara	1	Mandhata		
		2	Baba Belkhar Nath Dh	2	Sadar		
		3	Gaura	3	Sandwa Chandika		
		4	Lakshamanpur	4	Shivgarh		
		5	Lalganj				
		6	Mangaraura				
		7	Patti				
		8	Rampur- Sangramgarg				
44	**Rampur**	1	Said Nagar	1	Chamrauwa		
		2	Saur				
		3	Shahabad				
45	**S.Ravidas Nagar**	1	Abhauli				
		2	Aurai				
		3	Bhadohi				

CATEGORIZATION of ASSESSMENT UNITS, 2020							
UTTAR PRADESH							
S. No	Name of District	S. No	Name of Semi-Critical Assessment Units	S. No	Name of Critical Assessment Units	S. No	Name of Over-Exploited Assessment Units
		4	Deegh				
		5	Gyanpur				
		6	Suriyawan				
46	**Saharanpur**	1	Ballia Kheri	1	Sadhauli Kadeem	1	Gangoh
		2	Deoband			2	Nagal
		3	Muzaffarabad			3	Nakur
		4	Nanauta			4	Sarsawa
		5	Rampur Maniharan				
47	**Shambhal**	1	Asmoli	1	Bahjoi		
		2	Janawai	2	Baniakhera		
				3	Gunnaur		
				4	Pawansa		
				5	Sambhal		
48	**Shamli**	1	Thana Bhawan			1	Kairana
						2	Kandhala
						3	Shamli
						4	Un
49	**Sonbhadra**	1	Dudhi				
		2	Nagawa				
50	**Varanasi**	1	Baragaon			1	Araziline
		2	Chiraigaon			2	Harahua
		3	Kashi Vidyapith			3	Varanasi City
		4	Pindra				
		5	Sevapuri				
51	**Prayagraj**	1	Bahadurpur	1	Baharia	1	Prayagraj City
		2	Dhanupur	2	Chaka		
		3	Holagarh				
		4	Mauaima				
		5	Pratappur				
		6	Saidabad				
52	**Lucknow**					1	Lucknow City
ABSTRACT							
Total No. of Assessed Units		Number of Semicritical Assessment Units		Number of Critical Assessment Units		Number of Over Exploited Assessment Units	
830		174		49		66	

CATEGORIZATION of ASSESSMENT UNITS, 2020							
UTTARAKHAND							
S. No	**Name of District**	**S. No**	**Name of Semi-Critical Assessment Units**	**S. No**	**Name of Critical Assessment Units**	**S. No**	**Name of Over-Exploited Assessment Units**
1	**Haridwar**	1	Bhagwanpur				
		2	Bahadrabad				
2	**Udham singh Nagar**	1	Kashipur				
3	**Nainital**	1	Haldwani				

ABSTRACT

Total No. of Assessed Units	Number of Semicritical Assessment Units	Number of Critical Assessment Units	Number of Over Exploited Assessment Units
18	4	Nil	Nil

CATEGORIZATION of ASSESSMENT UNITS, 2013							
WEST BENGAL							
S. No	**Name of District**	**S. No**	**Name of Semi-Critical Assessment Units**	**S. No**	**Name of Critical Assessment Units**	**S. No**	**Name of Over-Exploited Assessment Units**
1	**Malda**	1	Habibpur				
2	**Murshidabad**	1	Barwan				
		2	Bhagabangola-I				
		3	Bhagabangola-Ii				
		4	Bharatpur-I				
		5	Bharatpur-II				
		6	Domkal				
		7	Jalangi				
		8	Kandi				
		9	Khargram				
		10	Lalgola				
		11	Mur-Jiaganj				
		12	Nabagram				
		13	Nowda				
		14	Raninagar-I				
		15	Raninagar-II				
		16	Sagardighi				
		17	Suti-II				
3	**Nadia**	1	Chapra				
		2	Hanskhali				
		3	Kaligunj				
		4	Karimpur-I				
		5	Karimpur-II				
		6	Krishnaganj				
		7	Krishnagar-I				
		8	Nakashipara				
		9	Ranaghat-Ii				
		10	Tehatta-I				
		11	Tehatta-II				
4	**North 24-Parganas**	1	Barrackpore-II				
5	**Hooghly**	1	Arambag	1	Goghat-II		
		2	Chanditala-I				
		3	Chanditala-II				
		4	Dhaniakhali				
		5	Goghat-I				
		6	Jangipara				
		7	Khanakul-I				
		8	Pandua				
		9	Polba-Dadpur				
		10	Purshura				
		11	Singur				
		12	Tarakeswar				
6	**Burdwan**	1	Bhatar				
		2	Kalna-II				
		3	Katwa-I				
		4	Katwa-II				
		5	Ketugram-I				
		6	Ketugram-II				
		7	Memari-II				
		8	Mongalkote				
		9	Monteswar				
		10	Raina-I				
		11	Raina-II				
7	**Birbhum**	1	Labhpur				
		2	Murarai-II				
		3	Nalhati-II				
		4	Nanoor				
		5	Rampurhat-II				
		6	Sainthia				
8	**Bankura**	1	Bishnupur				
9	**Purba Medinipore**	1	Bhagawanpur-I				
		2	Bhagawanpur-Ii				
		3	Egra-I				
		4	Egra-II				
		5	Kolaghat (Panskura-II)				
		6	Moyna				
		7	Panskura-I				
		8	Potashpur-I				
		9	Potashpur-II				
10	**Paschim Medinipore**	1	Chandrakona-II				
		2	Dantan-II				
		3	Daspur-II				
		4	Debra				
		5	Ghatal				
		6	Pingla				
		7	Sabang				

ABSTRACT

Total No. of Assessed Units	Number of Semicritical Assessment Units	Number of Critical Assessment Units	Number of Over Exploited Assessment Units
268	76	1	Nil

Note-For West Bengal,2013 is used as the 2020 Resources of the State was not approved by CLEG, 2020.

CATEGORIZATION of ASSESSMENT UNITS, 2020							
CHANDIGARH							
S. No	**Name of District**	**S. No**	**Name of Semi-Critical Assessment Units**	**S. No**	**Name of Critical Assessment Units**	**S. No**	**Name of Over-Exploited Assessment Units**
1	**Chandigarh**	1	Chandigarh				

ABSTRACT

Total No. of Assessed Units	Number of Semicritical Assessment Units	Number of Critical Assessment Units	Number of Over Exploited Assessment Units
1	**1**	**Nil**	**Nil**

CATEGORIZATION of ASSESSMENT UNITS, 2020							
DAMAN & DIU							
S. No	Name of District	S. No	Name of Semi-Critical Assessment Units	S. No	Name of Critical Assessment Units	S. No	Name of Over-Exploited Assessment Units
1	Daman					1	Daman

ABSTRACT

Total No. of Assessed Units	Number of Semicritical Assessment Units	Number of Critical Assessment Units	Number of Over Exploited Assessment Units
2	Nil	Nil	1

CATEGORIZATION of ASSESSMENT UNITS, 2020							
LAKSHADWEEP							
S. No	Name of District	S. No	Name of Semi-Critical Assessment Units	S. No	Name of Critical Assessment Units	S. No	Name of Over-Exploited Assessment Units
1	**Amini**	1	Amini				
2	**Kavratti**	2	Kavratti				

ABSTRACT			
Total No. of Assessed Units	Number of Semicritical Assessment Units	Number of Critical Assessment Units	Number of Over Exploited Assessment Units
9	2	Nil	Nil

CATEGORIZATION of ASSESSMENT UNITS, 2020							
PUDUCHERRY							
S. No	**Name of District**	**S. No**	**Name of Semi-Critical Assessment Unit**	**S. No**	**Name of Critical Assessment Unit**	**S. No**	**Name of Over-Exploited Assessment Unit**
1	**Puducherry**			1	Puducherry		

ABSTRACT			
Total No. of Assessed Units	**Number of Semicritical Assessment Units**	**Number of Critical Assessment Units**	**Number of Over Exploited Assessment Units**
4	**Nil**	**1**	**Nil**

ANNEXURE - IV(B)

Quality Problems in Assessment Units (as in 2020)

NOTE:

 # Only Assessment Units where the Quality Tag of As, F & Salinity have been reported are provided against respective districts and states.

 # The Assessment Units with "C", indicates the phreatic aquifer in the assessment unit is almost/ completely brackish /saline

 # The Quality Tag In Respect of As & F indicates Sporadic Occurrences.

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2020							
ANDHRA PRADESH							
S. No	Name of District	S. No	Name of Assessment Units affected by Fluoride	S. No	Name of Assessment Units affected by Arsenic	S. No	Name of Assessment Units affected by Salinity
1	East Godavari					1	Kajuluru (C)
						2	Allavaram (C)
						3	Karapa (C)
						4	Thallarevu (C)
						5	Uppalaguptam (C)
						6	Sakhinetipalle (C)
						7	Katrenikona (C)
						8	I Polavaram (C)
2	Guntur					1	Pedanandipadu (C)
						2	Vatticherukuru (C)
						1	Duggirala
						2	Nagaram
						3	Chebrole
						4	Amruthalur
						5	Nadendla
						6	Bapatla
						7	Nizampatnam
						8	Karlapalem
						9	Kakumanu
						10	Prathipadu
						11	Tenali
						12	Amaravathi
						13	Sattenapalle
						14	Pedakakani
						15	Vinukonda
						16	Thullur
						17	Chilakaluripet
						18	Edlapadu
						19	Tadikonda
						20	Ponnur
						21	Repalle
						22	Medikonduru
						23	Phirangipuram
						24	Tsundur
						25	Pittalavanipalem
						26	Guntur
3	Krishna					1	Gudur (Krishna) (C)
						2	Pedana (C)
						3	Kalidindi (C)
						4	Mandavalli (C)
						5	Gudlavalleru (C)
						6	Nandivada (C)
						7	Nagayalanka (C)
						8	Bantumilli (C)
						9	Kaikalur (C)
						10	Kruthivennu (C)
						11	Mudinapalle (C)
						12	Koduru (C)
						13	Machilipatnam (C)
4	Nellore					1	Tada
						2	Chittamur
5	Prakasam					1	Karamchedu (C)
						1	Addanki
						2	Naguluppalapadu
						3	Parchur
						4	Mundlamuru
						5	Darsi
						6	Tangutur
						7	Yeddanapudi
						8	Kothapatnam
						9	Inkollu
						10	Maddipadu
						11	Ongole
						12	Janakavarampangulu
						13	Santhanuthlapadu

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2020							
ANDHRA PRADESH							
S. No	Name of District	S. No	Name of Assessment Units affected by Fluoride	S. No	Name of Assessment Units affected by Arsenic	S. No	Name of Assessment Units affected by Salinity
6	**West Godavari**					1	Kalla (C)
						2	Akiveedu (C)
						3	Mogalthur (C)
						4	Veeravasaram (C)
						5	Undi (C)
						6	Poduru (C)
						7	Ganapavaram (C)
						8	Narasapuram (C)
						9	Palacole (C)
						10	Pentapadu (C)
						11	Bheemavaram (C)
						12	Nidamarru (C)
						13	Palakoderu (C)
						14	Yelamanchili (C)

ABSTRACT

Total Number of Assessed Units	Number of Assessment Units affected by Fluoride	Number of Assessment Units affected by Arsenic	Number of Assessment Units affected by Salinity
667	Nil	Nil	79, 38 (Completely Saline)

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2020							
ASSAM							
S. No	Name of District	S. No	Name of Assessment Units affected by Fluoride	S. No	Name of Assessment Units affected by Arsenic	S. No	Name of Assessment Units affected by Salinity
1	**Baksa**	1	Dhubri	1	Cachar		
2	**Barpeta**	1	Goalpara	1	Darrang		
3	**Bongaigaon**	1	Golaghat	1	Dhemaji		
4	**Cachar**	1	Jorhat	1	Dhubri		
5	**Chirang**	1	Kamprup Metro Rural	1	Goalpara		
6	**Darrang**	1	Kamprup Metro Urban	1	Golaghat		
7	**Dhemaji**	1	Kamrup	1	Hailakandi		
8	**Dhubri**	1	Karbi Anglong	1	Jorhat		
9	**Dibrugarh**	1	Karimganj	1	Kamprup Metro Rural		
10	**Dima Hasao**	1	Nagaon	1	Kamrup		
11	**Goalpara**	1	Nalbari	1	Karimganj		
12	**Golaghat**	1	Udalguri	1	Kokrajhar		
13	**Hailakandi**			1	Lakhimpur		
14	**Jorhat**			1	Morigaon		
15	**Kamrup**			1	Nagaon		
16	**Kamrup Metro Rural**			1	Nalbari		
17	**Kamrup Metro Urban**			1	Sivasagar		
18	**Karbi Anglong**			1	Sonitpur		

ABSTRACT

Total Number of Assessed Units	Number of Assessment Units affected by Fluoride	Number of Assessment Units affected by Arsenic	Number of Assessment Units affected by Salinity
28	12	18	Nil

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2020							
BIHAR							
S. No	**Name of District**	**S. No**	**Name of Assessment Units affected by Fluoride**	**S. No**	**Name of Assessment Units affected by Arsenic**	**S. No**	**Name of Assessment Units affected by Salinity**
1	**Aurangabad**	1	Aurangabad				
		2	Barun				
		3	Deo				
		4	Goh				
		5	Haspura				
		6	Kutumba				
		7	Madanpur				
		8	Nabinagar				
		9	Obra				
		10	Rafiganj				
2	**Banka**	1	Amarpur				
		2	Banka				
		3	Barahat				
		4	Bausi				
		5	Belhar				
		6	Charian				
		7	Dhuraiya				
		8	Katoria				
		9	Phuldumar				
		10	Rajon				
		11	Shambhuganj				
3	**Begusarai**			1	Bachhwara		
				2	Balia		
				3	Barauni		
				4	Begusarai		
				5	Mathani		
				6	Navkothi		
				7	Sahebpur Kamal		
4	**Bhagalpur**	1	Goradih	1	Jagdishpur		
		2	Jagdishpur	2	Kahalgaon		
		3	Kahalgaon	3	Nathnagar		
		4	Kharik	4	Piroainti		
		5	Narayanpur	5	Sabour		
		6	Nathnagar	6	Sultanganj		
		7	Naugachhia				
		8	Piroainti				
		9	Sabour				
		10	Sanhaula				
		11	Sultanganj				
5	**Bhojpur**			1	Arrah		
				2	Barahara		
				3	Bihiyan		
				4	Koilwar		
				5	Shahpur		
				6	Udwantnagar		
6	**Buxar**			1	Brahampur		
				2	Buxar		
				3	Chakki		
				4	Simri		
7	**Darbhanga**			1	Baheri		
				2	Biraul		
8	**Gaya**	1	Amas				
		2	Atri				
		3	Bankebazar				
		4	Barachatti				
		5	Belaganj				
		6	Bodhgaya				
		7	Dobhi				
		8	Dumaria				
		9	Fatehpur				
		10	Gaya				
		11	Guraru				
		12	Gurua				
		13	Imamganj				
		14	Khizirsarai				
		15	Konch				
		16	Manpur				
		17	Mohanpur				
		18	Muhra				
		19	Neemchak				
		20	Pariaya				
		21	Sherghati				
		22	Tankuppa				

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2020							
BIHAR							
S. No	**Name of District**	**S. No**	**Name of Assessment Units affected by Fluoride**	**S. No**	**Name of Assessment Units affected by Arsenic**	**S. No**	**Name of Assessment Units affected by Salinity**
		23	Tikari				
		24	Wazirganj				
9	**Jamui**	1	Aliganj				
		2	Barhat				
		3	Chakai				
		4	Gidhaur				
		5	Jamui				
		6	Jhajha				
		7	Khaira				
		8	Lakshmipur				
		9	Sikandra				
		10	Sono				
10	**Jehanabad**	1	Hulhasganj				
		2	Jehanabad				
		3	Ratni Faridpur				
11	**Kaimur**	1	Bhabhua				
		2	Bhagwanpur				
		3	Chainpur				
		4	Chand				
		5	Durgawati				
		6	Kudra				
		7	Mohania				
		8	Nuaon				
		9	Ramgarh				
		10	Rampur				
12	**Katihar**			1	Amdabad		
				2	Balrampur		
				3	Kursela		
				4	Manihari		
				5	Manshi		
				6	Samoli		
13	**Khagaria**			1	Gogri		
				2	Khagaria		
				3	Mansi		
				4	Parbatta		
14	**Kishanganj**			1	Bahadurganj		
				2	Kishanganj		
15	**Lakhisarai**	1	Ramgarh Chowk	1	Barahiya		
				2	Lakhisarai		
				3	Piparia		
				4	Surajgarha		
16	**Munger**	1	Asarganj	1	Bariarpur		
		2	Bariarpur	2	Dharhara		
		3	Dharhara	3	Jamalpur		
		4	Jamalpur	4	Munger		
		5	Karagpur				
		6	Munger				
		7	Sangrampur				
		8	Tarapur				
		9	Tetia Bhambar				
17	**Nalanda**	1	Asthawan				
		2	Bari				
		3	Bihar Shariff				
		4	Bind				
		5	Chandi				
		6	Eknagarsari				
		7	Giriak				
		8	Harnaut				
		9	Hilsa				
		10	Islampur				
		11	Karaiparsurai				
		12	Kathsarai				
		13	Nagar Nausa				
		14	Noorsarai				
		15	Prabalpur				
		16	Rahul				
		17	Rajgir				
		18	Sarmara				
		19	Silao				
		20	Tharthari				
18	**Nawada**	1	Akbarpur				
		2	Gobindpur				
		3	Hisua				
		4	Kashi Chak				
		5	Kawakol				
		6	Maskaur				
		7	Nardiganj				
		8	Narhat				
		9	Nawada				
		10	Pakribarwan				
		11	Rajauli				
		12	Roh				
		13	Sirdauli				
		14	Warisaliganj				

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2020							
BIHAR							
S. No	Name of District	S. No	Name of Assessment Units affected by Fluoride	S. No	Name of Assessment Units affected by Arsenic	S. No	Name of Assessment Units affected by Salinity
19	**Patna**			1	Bakhtiarpur		
				2	Barh		
				3	Danapur/Khagaul		
				4	Maner		
20	**Purnia**			1	Kasba		
				2	Purnia East		
21	**Rohats**	1	Akorhi Gota				
		2	Bikramganj				
		3	Chenari				
		4	Dawath				
		5	Dehri				
		6	Dinara				
		7	Karakat				
		8	Karghar				
		9	Narsiganj				
		10	Nokha				
		11	Sanjhauli				
		12	Sheosagar				
22	**Samastipur**			1	Mohanpur		
				2	Mohiuddinnagar		
				3	Patori		
				4	Vidyapatinagar		
31	**Saran**			1	Chapra		
				2	Dighwara		
				3	Ravelganj		
				4	Sonepur		
32	**Sheikhpura**	1	Ariari				
		2	Barbhiga				
		3	Charware				
		4	Ghat Kusumba				
		5	Sheikhpura				
		6	Shekhopur Sarai				
37	**Vaishali**			1	Bidupur		
				2	Dehri		
				3	Hajipur		
				4	Raghopur		
				5	Sahdal Buzurg		

ABSTRACT

Total Number of Assessed Units	Number of Assessment Units affected by Fluoride	Number of Assessment Units affected by Arsenic	Number of Assessment Units affected by Salinity
534	141	64	Nil

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2020							
CHHATISGARH							
S. No	**Name of District**	**S. No**	**Name of Assessment Units affected by Fluoride**	**S. No**	**Name of Assessment Units affected by Arsenic**	**S. No**	**Name of Assessment Units affected by Salinity**
1	**Dhamtari**	1	Kurud				
2	**Gariyaband**	1	Chhura				
		2	Deobhog				
		3	Mainpur				
3	**Jashpur**	1	Kunkuri				
		2	Pathalgaon				
		3	Pharsabahar				
4	**Kanker**	1	Kanker				
5	**Korba**	1	Katghora				
		2	Korba				
		3	Pali				
6	**Koriya**	1	Manendragarh				
7	**Mahasamund**	1	Bagbahera				
		2	Mahasamund				
		3	Pithora				
8	**Raigarh**	1	Dharamjaigarh				
		2	Sarangarh				
		3	Tamnar				
9	**Rajnandgaon**			1	Ambagarh Chowki		
10	**Surajpur**	1	Pratappur				

ABSTRACT

Total Number of Assessed Units	Number of Assessment Units affected by Fluoride	Number of Assessment Units affected by Arsenic	Number of Assessment Units affected by Salinity
146	**19**	**1**	**Nil**

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2020							
DELHI							
S. No	Name of District	S. No	Name of Assessment Units affected by Fluoride	S. No	Name of Assessment Units affected by Arsenic	S. No	Name of Assessment Units affected by Salinity
1	**New Delhi**					1	Delhi Cantonment
						2	Vasant Vihar
2	**North**	1	Alipur			1	Alipur
						2	Model Town
						3	Narela
3	**North West**	1	Saraswati Vihar			1	Kanjhawala
						2	Saraswati Vihar
4	**South West**					1	Dwarka
						2	Kapashera
						3	Najafgarh
5	**West**					1	Patel Nagar
						2	Punjabi Bagh
						3	Rajouri Garden

ABSTRACT

Total Number of Assessed Units	Number of Assessment Units affected by Fluoride	Number of Assessment Units affected by Arsenic	Number of Assessment Units affected by Salinity
34	2	Nil	13

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2020							
GUJARAT							
S. No	**Name of District**	**S. No**	**Name of Assessment Units affected by Fluoride**	**S. No**	**Name of Assessment Units affected by Arsenic**	**S. No**	**Name of Assessment Units affected by Salinity**
1	**Aravalli**	1	Bayad				
		2	Bhiloda				
		3	Dhansura				
		4	Malpur				
		5	Meghraj				
		6	Modasa				
2	**Banaskantha**	1	Amirgadh			1	Bhabhar (C)
		2	Bhabhar			2	Suigam (C)
		3	Danta			3	Vav (C)
		4	Dantiwada				
		5	Deesa				
		6	Dhanera				
		7	Kankrej				
		8	Palanpur				
		9	Tharad				
		10	Vadgam				
		11	Vav				
3	**Gandhinagar**	1	Mansa				
4	**Mehsana**	1	Becharaji				
		2	Kadi				
		3	Kheralu				
		4	Mehsana				
		5	Satlasana				
		6	Unjha				
		7	Vadnagar				
		8	Vijapur				
		9	Visnagar				
5	**Patan**	1	Chanasma			1	Harij (C)
		2	Harij			2	Radhanpur (C)
		3	Patan			3	Sami(C)
		4	Radhanpur			4	Sankheswar(C)
		5	Sami			5	Santalpur(C)
		6	Shankheshvar				
6	**Sabarkantha**	1	Himatnagar				
		2	Idar				
		3	Khedbrahma				
		4	Talod				
		5	Vadali				
7	**Kachchh**	1	Mundra			1	Gandhidham (C)
		2	Abdasa				
		3	Nakhatrana				
8	**Rajkot**	1	Tankara				
		2	Gondal				
9	**Amreli**	1	Rajula				
		2	Dhari				
10	**Bhavnagar**	1	Vallabhipur				
		2	Mahuva				
		3	Talaja				
11	**Dev Bhumi Dwaraka**	1	Okhamandal				
		2	Kalyanpur				
12	**Gir Somnath**	1	Kodinar				
13	**Ahmedabad**	1	Bavla			1	Dhandhuka (C)
		2	Dholka			2	Dholera (C)
		3	Sanand				
14	**Botad**	1	Barwala				
		2	Ranpur				
15	**Kheda**	1	Kathlal				
16	**Mahisagar**	1	Santrampur				
		2	Virpur				
17	**Navsari**	1	Gandevi				
18	**Surat**	1	Mandvi				
		2	Palsana				
19	**Surendranagar**	1	Chuda			1	Lakhtar (C)
		2	Dasada				
		3	Lakhtar				
		4	Limdi				
		5	Muli				
20	**Morbi**					1	Maliya (C)

ABSTRACT

Total Number of Assessed Units	**Number of Assessment Units affected by Fluoride**	**Number of Assessment Units affected by Arsenic**	**Number of Assessment Units affected by Salinity**
248	**67**	**Nil**	**13 (Completely Saline)**

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2020							
HARYANA							
S. No	**Name of District**	**S. No**	**Name of Assessment Units affected by Fluoride**	**S. No**	**Name of Assessment Units affected by Arsenic**	**S. No**	**Name of Assessment Units affected by Salinity**
1	**Bhiwani**	1	Bawani Khera			1	Bawani Khera
		2	Bhiwani			2	Kairu
		3	Siwani			3	Bhiwani
		4	Tosham			4	Siwani
						5	Tosham
2	**Charkhi Dadri**	1	Charkhi Dadri			1	Jhojhu
		2	Tohana			2	Charkhi Dadri
3	**Faridabad**					1	Ballabgarh
						2	Faridabad
4	**Fatehabad**	1	Fatehabad			1	Fatehabad
5	**Gurgaon**					1	Farrukh Nagar
						2	Gurgaon
						3	Pataudi
						4	Sohna
6	**Hisar**	1	Adampur			1	Adampur
		2	Agroha			2	Agroha
		3	Barwala			3	Barwala
		4	Hansi			4	Hansi
		5	Hisar-I			5	Hisar-I
		6	Uklana			6	Uklana
						7	Narnaund
7	**Jhajjar**	1	Bahadurgarh			1	Salhawas
		2	Beri			2	Bahadurgarh
		3	Matannail			3	Beri
						4	Matannail
8	**Jind**	1	Julana			1	Jind
		2	Pillukhera			2	Narwana
		3	Safidon			3	Uchana
		4	Narwana				
		5	Uchana				
9	**Kaithal**	1	Rajound			1	Guhla
						2	Kaithal
						3	Kalayat
10	**Mahendragarh**					1	Kanina
						2	Mahendragarh
						3	Narnaul
11	**Mewat**					1	Ferozepur Jhirka
						2	Nagina
						3	Nuh
						4	Punahana
12	**Palwal**					1	Hathin
						2	Hodal
						3	Palwal
13	**Rewari**					1	Bawal
						2	Nahar
						3	Rewari
14	**Panipat**	1	Panipat			1	Israna
		2	Samalkha				
		3	Israna				
15	**Rohtak**	1	Kalanaur			1	Maham
		2	Rohtak			2	Rohtak
16	**Sirsa**	1	Dabwali			1	Dabwali
		2	Ellenabad			2	Ellenabad
		3	Nathusari Chopta			3	Nathusari Chopta
		4	Sirsa			4	Odhan
		5	Odhan			5	Baragudha
						6	Rania
17	**Sonipat**	1	Gohana			1	Gohana
		2	Mundlana			2	Mundlana
						3	Ganaur
						4	Kathura
						5	Rai
						6	Sonipat

ABSTRACT

Total Number of Assessed Units	Number of Assessment Units affected by Fluoride	Number of Assessment Units affected by Arsenic	Number of Assessment Units affected by Salinity
141	34	Nil	59

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2020							
JHARKHAND							
S. No	**Name of District**	**S. No**	**Name of Assessment Units affected by Fluoride**	**S. No**	**Name of Assessment Units affected by Arsenic**	**S. No**	**Name of Assessment Units affected by Salinity**
1	**Bokaro**	1	Chas			1	
		2	Chandankyari				
		3	Peterbar				
2	**Dhanbad**	1	Baliapur				
		2	Dhanbad				
3	**Garhwa**	1	Bhandaria				
		2	Bhawanathpur				
		3	Chinia				
		4	Dandai				
		5	Dhurki				
		6	Garhwa				
		7	Kandi				
		8	Majhiaon				
		9	Meral				
		10	Ramkanda				
		11	Ramna				
		12	Ranka				
		13	Untari				
4	**Giridih**	1	Giridih				
		2	Tisri				
5	**Godda**	1	Boarijor				
		2	Godda				
		3	Mahagama				
		4	Pathargama				
		5	Poreyahat				
6	**Gumla**	1	Bishunpur				
		2	Chainpur				
		3	Dumri				
		4	Ghaghra				
		5	Gumla				
		6	Sisai				
7	**Khunti**	1	Karra				
		2	Murhu				
8	**Koderma**	1	Chandwara				
		2	Jainagar				
		3	Koderma				
		4	Markachho				
		5	Satgawan				
9	**Pakur**	1	Amrapara				
		2	Litipara				
		3	Pakuria				
10	**Palamau**	1	Bishrampur				
		2	Chainpur				
		3	Chhatarpur				
		4	Daltonganj				
		5	Hariharganj				
		6	Leslieganj				
		7	Manatu				
		8	Pandu				
		9	Panki				
		10	Patan				
		11	Satbarwa				
11	**Ranchi**	1	Namkum				
		2	Ormanjhi				
		3	Silli				
12	**Sahebganj**	1	Barhait	1	Rajmahal		
		2	Borio	2	Sahebganj		
		3	Rajmahal	3	Udhua		
		4	Sahebganj				

ABSTRACT

Total Number of Assessed Units	**Number of Assessment Units affected by Fluoride**	**Number of Assessment Units affected by Arsenic**	**Number of Assessment Units affected by Salinity**
259	**59**	**3**	**Nil**

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2020							
KERALA							
S. No	**Name of District**	**S. No**	**Name of Assessment Units affected by Fluoride**	**S. No**	**Name of Assessment Units affected by Arsenic**	**S. No**	**Name of Assessment Units affected by Salinity**
1	**Alappuzha**	1	Aryad				
2	**Palakkad**	1	Chittur				
		2	Kollengode				
		3	Malampuzha				
		4	Palakkad				
3	**Thrissur**					1	Thalikkulam

ABSTRACT

Total Number of Assessed Units	Number of Assessment Units affected by Fluoride	Number of Assessment Units affected by Arsenic	Number of Assessment Units affected by Salinity
152	**5**	**Nil**	**1**

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2020							
MAHARASHTRA							
S. No	**Name of District**	**S. No**	**Name of Assessment Units affected by Fluoride**	**S. No**	**Name of Assessment Units affected by Arsenic**	**S. No**	**Name of Assessment Units affected by Salinity**
1	**Ahmednagar**					1	Nagar
						2	Newasa
						3	Parner
						4	Rahuri
						5	Shrigonda
2	**Akola**					1	Akola
						2	Akot
						3	Balapur
						4	Mutizapur
						5	Telhara
3	**Amravati**					1	Achalpur
						2	Amravati
						3	Anjangaon Surji
						4	Bhatkuli
						5	Chandur Bazar
						6	Daryapur (C)
4	**Buldhana**					1	Jalgaon
						2	Nandura
						3	Sangrampur
						4	Shegaon
5	**Pune**					1	Baramati
						2	Daund
						3	Indapur
						4	Purandhar
6	**Sangli**					1	Miraj
						2	Palus
						3	Shirala
						4	Tasgaon
						5	Walwa

ABSTRACT

Total Number of Assessed Units	Number of Assessment Units affected by Fluoride	Number of Assessment Units affected by Arsenic	Number of Assessment Units affected by Salinity
353	**Nil**	**Nil**	**29, 1(Completely Saline)**

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2020							
NAGALAND							
S. No	Name of District	S. No	Name of Assessment Units affected by Fluoride	S. No	Name of Assessment Units affected by Arsenic	S. No	Name of Assessment Units affected by Salinity
1	**Dimapur**	1	Dimapur	1		1	
ABSTRACT							
Total Number of Assessed Units		Number of Assessment Units affected by Fluoride		Number of Assessment Units affected by Arsenic		Number of Assessment Units affected by Salinity	
11		1		Nil		Nil	

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2020							
ODISHA							
S. No	**Name of District**	**S. No**	**Name of Assessment Units affected by Fluoride**	**S. No**	**Name of Assessment Units affected by Arsenic**	**S. No**	**Name of Assessment Units affected by Salinity**
1	**Balasore**					1	Bahanaga
						2	Balasore
						3	Baliapal
						4	Basta
						5	Bhograi
						6	Remuna
2	**Bhadrak**					1	Basudevpur
						2	Chandbali (C)
						3	Dhamnagar
						1	Tihidi
3	**Ganjam**					2	Chhatrapur
						3	Chikiti
						4	Ganjam
						5	Khalikote
						6	Rangeilunda
4	**Jagatsinghpur**					1	Balikuda
						2	Ersama (C)
						3	Kujanga
						4	Naugaon
5	**Jajpur**					1	Bari
						2	Binjharpur
						3	Dasarathpur
6	**Kendrapara**					1	Aul
						2	Derabish
						3	Garadpur
						4	Kendrapara
						5	Mahakalpada(C)
						6	Marshaghai (C)
						7	Pattamundai
						8	Rajkanika (C)
						9	Rajnagar (C)
7	**Puri**					1	Astarang
						2	Brahmagiri
						3	Delang
						4	Gop
						5	Kakatpur
						6	Kanas
						7	Krushnaprasad
						8	Nimapara
						9	Pipili
						10	Puri
						11	Satyabadi

ABSTRACT

Total Number of Assessed Units	Number of Assessment Units affected by Fluoride	Number of Assessment Units affected by Arsenic	Number of Assessment Units affected by Salinity
314	**Nil**	**Nil**	**42, 6 (Completely Saline)**

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2020							
PUNJAB							
S. No	Name of District	S. No	Name of Assessment Units affected by Fluoride	S. No	Name of Assessment Units affected by Arsenic	S. No	Name of Assessment Units affected by Salinity
1	**Amritsar**			1	Ajnala		
2	**Bathinda**	1	Maur	1	Rampura	1	Bathinda
		2	Nathana			2	Talwandi Saboo
		3	Phul				
		4	Rampura				
3	**Faridkot**	1	Faridkot			1	Faridkot
		2	Kotkapura			2	Kotkapura
4	**Fazilka**	1	Abohar	1	Fazilka	1	Abohar
		2	Fazilka	2	Jalalabad	2	Jalalabad
		3	Jalalabad			3	Khuiyan Sarwar
5	**Gurdaspur**			1	Dera Baba Nanak		
				2	Gurdaspur		
				3	Sri Hargobindpur		
6	**Hoshiarpur**			1	Mukerian		
				2	Hoshiarpur-Ii		
7	**Jalandhar**	1	Phillaur				
8	**Kapurthala**			1	Sultanpur Lodhi		
9	**Ludhiana**	1	Doraha				
10	**Mansa**	2	Jhunir			1	Jhunir
						2	Sardulgarh
11	**Moga**	1	Moga I				
12	**Muktsar**	2	Malout			1	Malout
						2	Muktsar
18	**Patiala**	1	Rajpura	1	Samana	1	Rajpura
		2	Bhunerheri			2	Ghanaur
13	**S.A.S Nagar**	1	Dera Bassi	1	S.A.S Nagar	1	Dera Bassi
14	**Tarn Taran**	1	Tarn Taran	1	Bhikhiwind		
		2	Valtoha	2	Gandiwind		
		3	Patti	3	Patti		
		4	Gandiwind				
		5	Bhikhiwind				

ABSTRACT

Total Number of Assessed Units	Number of Assessment Units affected by Fluoride	Number of Assessment Units affected by Arsenic	Number of Assessment Units affected by Salinity
150	22	15	14

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2020							
RAJASTHAN							
S. No	Name of District	S. No	Name of Assessment Units affected by Fluoride	S. No	Name of Assessment Units affected by Arsenic	S. No	Name of Assessment Units affected by Salinity
1	**Alwar**					1	Kathumar
						2	Laxmangarh
2	**Barmer**					1	Balotra
						2	Barmer
						3	Baytoo
						4	Chohtan
						5	Dhorimanna
						6	Gadraroad
						7	Gira
						8	Gudhamalani
						9	Kalyanpur
						10	Patodi
						11	Ramsar
						12	Samdari
						13	Serwa
						14	Sheo
						15	Sindhari
						16	Siwana
3	**Bharatpur**					1	Deeg
						2	Kumher
						3	Nadbai
						4	Nagar
						5	Sewar
						6	Weir
4	**Bikaner**					1	Bikaner
						2	Dungargarh
						3	Khajuwala(C)
						4	Kolayat
						5	Lunkaransar
						6	Panchoo
5	**Churu**					1	Bidasar
						2	Churu
						3	Rajgarh
						4	Ratangarh
						5	Sardarshahar
						6	Sujangarh
						7	Taranagar(C)
6	**Ganganagar**					1	Anupgarh
						2	Ganganagar
						3	Ghadsana
						4	Karanpur
						5	Padampur
						6	Raisinghnagar
						7	Sadulshahar
						8	Sri Vijaynagar
						9	Suratgarh
7	**Hanumangarh**					1	Bhadra
						2	Hanumangarh
						3	Nohar
						4	Pilibanga
						5	Rawatsar(C)
						6	Sangariya
						7	Tibi
8	**Jaipur**					1	Phagi
9	**Jaisalmer**					1	Jaisalmer
						2	Sam
						3	Sankra
10	**Jalor**					1	Ahore
						2	Bhinmal
						3	Chitalwana
						4	Jalore
						5	Sayla
11	**Jhunjhunun**					1	Alsisar
12	**Jodhpur**					1	Balesar
						2	Bap
						3	Bilara
						4	Luni
						5	Mandor
						6	Shergarh
13	**Nagaur**					1	Degana
						2	Jayal
						3	Ladnu
						4	Makrana
						5	Merta
						6	Nagaur
						7	Nawa

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2020							
RAJASTHAN							
S. No	Name of District	S. No	Name of Assessment Units affected by Fluoride	S. No	Name of Assessment Units affected by Arsenic	S. No	Name of Assessment Units affected by Salinity
14	**Pali**					1	Jaitaran
						2	Kharchi (Marwar Junc)
						3	Pali
						4	Rani Station
						5	Rohat
						6	Sojat
						7	Sumerpur
15	**Sikar**					1	Fatehpur
						2	Lachhmangarh
						3	Piprali
16	**Tonk**					1	Malpura
						2	Tonk

ABSTRACT

Total Number of Assessed Units	Number of Assessment Units affected by Fluoride	Number of Assessment Units affected by Arsenic	Number of Assessment Units affected by Salinity
295	Nil	Nil	88, 3 (Completely Saline)

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2020							
TAMIL NADU							
S. No	**Name of District**	**S. No**	**Name of Assessment Units affected by Fluoride**	**S. No**	**Name of Assessment Units affected by Arsenic**	**S. No**	**Name of Assessment Units affected by Salinity**
1	**Coimbatore**	1	Saravanampatti				
2	**Cuddalore**	1	Thozhudur				
3	**Dharmapuri**	1	Bommidi				
		2	Dharmapuri				
		3	Harur				
		4	Indur				
		5	Karimangalam				
		6	Marandahalli				
		7	Morappur				
		8	Nallampalli				
		9	Palacode				
		10	Pappireddipatty				
		11	Pennagaram				
		12	Pulikarai				
		13	Theerthamalai				
4	**Dindigul**	1	Vatlagundu				
5	**Erode**	1	Ammapettai				
		2	Sathyamangalam				
		3	Vaniputhur				
6	**Kallakkurichi**	1	Thirukoilur				
7	**Karur**	1	Chinnadharapuram				
		2	K.Paramathy				
		3	Pugalur				
8	**Krishnagiri**	1	Bagalur				
		2	Bargur				
		3	Barur				
		4	Hosur				
		5	Kelamangalam				
		6	Krishnagiri				
		7	Mathur				
		8	Pochampalli				
		9	Shoolagiri				
		10	Uthangarai				
		11	Veppanapalli				
9	**Madurai**	1	Melur				
		2	Neerathan				
		3	Othakkadai				
		4	T.Kallupatti				
		5	Thirumangalam				
10	**Namakkal**	1	Nallipalayam				
		2	Namakkal				
		3	Paramathi				
11	**Nagapattinam**					1	Valivalam(C)
						2	Thalainayar(C)
						3	Nagappattinam(C)
						4	Nirmulai(C)
						5	Thillayadi(C)
						6	Thirukannapuram(C)
						7	Thirukkuvalai(C)
						8	Kariyapattinam(C)
						9	Thagatur(C)
						10	Kilvelur(C)
						11	Kangalancheri(C)
						12	Thirumarugal(C)
						13	Keelaiyur(C)
						14	Therkupoigainallur(C)
						15	Thevoor(C)
						16	Vedaranyam(C)
						17	Velanganni(C)
12	**Perambalur**	1	Varagur				
13	**Pudukkottai**	1	Karaiyur			1	Perumaruthur(C)
						2	Kottaipattinam(C)
						3	Sinkavanam(C)
14	**Ranipet**	1	Ranipet				
15	**Ramanathapuram**	1	Keelakkarai			1	Thirupullani(C)
						2	Kadaladi(C)
						3	Sikkal(C)
						4	Mangalakudi(C)
						5	Mudukulathur South(C)
						6	Melachelvanur(C)
						7	Thondi(C)
						8	Sayalkudi(C)
						9	S.Tharaikudi(C)
16	**Salem**	1	Edappadi				
		2	Ernapuram				
		3	Gangavalli				
		4	Kadayampatti				
		5	Karippatti				
		6	Konganapuram				
		7	Mettur				
		8	Salem Town				
		9	Veerapandi				
		10	Vembadithalam				

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2020							
TAMIL NADU							
S. No	Name of District	S. No	Name of Assessment Units affected by Fluoride	S. No	Name of Assessment Units affected by Arsenic	S. No	Name of Assessment Units affected by Salinity
17	**Sivaganga**	1	Kallal				
		2	Pallathur				
		3	Sivagangai				
18	**Tenkasi**	1	Alankulam				
19	**Tirupathur**	1	Alangayam				
		2	Andiyappanur				
		3	Tirupathur				
		4	Vaniyambadi				
20	**Theni**	1	Cumbam				
		2	Devathanapatti				
21	**Thiruvallur**					1	Minjur(C)
22	**Thiruvarur**					1	Muthupet(C)
						2	Thiruthuraipoondi(C)
						3	Edaiyur(C)
						4	Alathampadi(C)
23	**Tiruchirappalli**	1	Trichy West Taluk-Trichy North				
		2	Trichy West Taluk-Trichy South				
24	**Tiruppur**	1	Avinashipalayam(S)				
		2	Kangeyam				
		3	Mulanur				
		4	Nallur				
		5	Tiruppur (S)				
		6	Vellakoil				
25	**Tiruvannamalai**	1	Melpallipattu				
26	**Viluppuram**	1	Arasur				
		2	Avanipur				

ABSTRACT

Total Number of Assessed Units	Number of Assessment Units affected by Fluoride	Number of Assessment Units affected by Arsenic	Number of Assessment Units affected by Salinity
1166	77	0	34 (Completely Saline)

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2020							
TELANAGNA							
S. No	Name of District	S. No	Name of Assessment Units affected by Fluoride	S. No	Name of Assessment Units affected by Arsenic	S. No	Name of Assessment Units affected by Salinity
1	**Bhadradri**	1	Aswapuram				
		2	Burgampadu				
		3	Manuguru				
2	**Jagtial**	1	Kodimial				
		2	Velgatoor				
3	**Jangaon**	1	Bachannapet				
		2	Chilpur				
		3	Devaruppula				
		4	Ganpur_stn				
4	**Jayashankar**	1	Mahadevpur				
		2	Mogullapally				
5	**Jogulamba**	1	Alampur				
6	**Kamareddy**	1	Banswada				
		2	Bichkunda				
		3	Gandhari				
		4	Jukkal				
		5	Kamareddy				
		6	Machareddy				
		7	Madnoor				
		8	Nasrullabad				
		9	Pd kodapgal				
		10	Ramareddy				
		11	Thadwai				
7	**Karimnagar**	1	Ramadugu				
		2	Shankarapatnam				
		3	Thimmapur				
		4	V.saidapur				
		5	Veenavanka				
8	**Khammam**	1	Madhira				
		2	Wyra				
9	**Komarambhem**	1	Bejjur				
10	**Mahabubabad**	1	Mahabubabad				
		2	Nellikuduru				
11	**Mahabubnagar**	1	C.c.kunta				
		2	Dhanwada				
		3	Mahboobnagar(urban)				
		4	Marikal				
		5	Midjil				
		6	Narayanpet				
		7	Utkoor				
12	**Mancherial**	1	Bellampally				
		2	Chennur				
13	**Medak**	1	Chegunta				
14	**Medchal**	1	Alwal				
		2	Balanagar				
		3	Keesara				
		4	Malkajgiri				
		5	Shamirpet				
15	**Nagarkurnool**	1	Balmoor				
		2	Bijinepally				
		3	Charakonda				
		4	Kalwakurthy				
		5	Nagarkurnool				
		6	Urkonda				
		7	Vangoor				
		8	Veladanda				
16	**Peddapalli**	1	Eligadu				
		2	Julapalle				
		3	Odela				
		4	Peddapalle				
		5	Srirampur				
		6	Sultanabad				
17	**Rangareddy**	1	Abdullapurmet				
		2	Chevella				
		3	Hayathnagar				
		4	Manchal				
		5	Talakondapally				
		6	Yacharam				
18	**Sangareddy**	1	Kandi				
		2	Mogudampally				
		3	Sangareddy				
		4	Zaherabad				
19	**Siddipet**	1	Cherial				
		2	Chinnakodur				
		3	Mulugu				
		4	Raipole				
20	**Warangal_Rural**	1	Atmakur				
		2	Damera				
		3	Narsampet				
21	**Warangal_Urban**	1	Bheemdevarapally				
		2	Elkathurthy				
		3	Hanamkonda				
		4	Inavolu				

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2020							
TELANAGNA							
S. No	Name of District	S. No	Name of Assessment Units affected by Fluoride	S. No	Name of Assessment Units affected by Arsenic	S. No	Name of Assessment Units affected by Salinity
22	**Yadadri**	1	Addagudur				
		2	Alair				
		3	Bhunvanagiri				
		4	Bibinagar				
		5	Choutuppal				
		6	Mothkur				
		7	Rajapet				
		8	Ramannapet				
		9	Turkapalle_m				
		10	Yadagirigutta				

ABSTRACT			
Total Number of Assessed Units	Number of Assessment Units affected by Fluoride	Number of Assessment Units affected by Arsenic	Number of Assessment Units affected by Salinity
589	93	Nil	Nil

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2013							
WEST BENGAL							
S. No	Name of District	S. No	Name of Assessment Units affected by Fluoride	S. No	Name of Assessment Units affected by Arsenic	S. No	Name of Assessment Units affected by Salinity
1	**Coochbehar**			1	Coochbehar-I		
2	**Bankura**	1	Bankura- II				
		2	Borjora				
		3	Chhatna				
		4	Gangajalghati				
		5	Hirbundh				
		6	Indpur				
		7	Raipur				
		8	Saltora				
		9	Simlapal				
		10	Taldangra				
3	**Birbhum**	1	Khayrasole				
		2	Mayureswar-I				
		3	Nalhati-I				
		4	Rajnagar				
		5	Rampurhat-I				
		6	Sainthia				
		7	Suri-II				
4	**Dakshin Dinajpur**	1	Bansihari	1	Balurghat		
		2	Gangarampur				
		3	Kumarganj				
		4	Kushmandi				
		5	Tapan				
5	**Hooghly**			1	Balagarh		
				2	Chanditala-II		
				3	Dhaniakhali		
				4	Goghat-I		
				5	Haripal		
				6	Khanakul-I		
				7	Khanakul-II		
				8	Pandua		
				9	Polba-Dadpur		
				10	Serampur-Uttarpara		
				11	Singur		
6	**Malda**	1	Bamongola	1	Chanchol-II		
		2	Ratua-Ii	2	Englishbazar		
				3	Kaliachak-I		
				4	Kaliachak-II		
				5	Kaliachak-III		
				6	Manickchak		
				7	Ratua-I		
				8	Ratua-II		
7	**Murshidabad**			1	Beldanga-I		
				2	Beldanga-II		
				3	Berhampur		
				4	Bhagabangola-I		
				5	Bhagabangola-II		
				6	Bharatpur-I		
				7	Domkal		
				8	Farraka		
				9	Hariharpara		
				10	Jalangi		
				11	Kandi		
				12	Khargram		
				13	Lalgola		
				14	Mur-Jiaganj		
				15	Nowda		
				16	Raghunathganj-I		
				17	Raghunathganj-II		
				18	Raninagar-I		
				19	Raninagar-II		
				20	Sagardighi		
				21	Samserganj		
				22	Suti-I		
				23	Suti-II		

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2013							
WEST BENGAL							
S. No	Name of District	S. No	Name of Assessment Units affected by Fluoride	S. No	Name of Assessment Units affected by Arsenic	S. No	Name of Assessment Units affected by Salinity
8	**Nadia**			1	Chakdaha		
				2	Chapra		
				3	Hanskhali		
				4	Haringhata		
				5	Kaligunj		
				6	Karimpur-I		
				7	Karimpur-II		
				8	Krishnaganj		
				9	Krishnagar-I		
				10	Krishnagar-II		
				11	Nabadwip		
				12	Nakashipara		
				13	Ranaghat-I		
				14	Ranaghat-II		
				15	Shantipur		
				16	Tehatta-I		
				17	Tehatta-II		
9	**North 24-Parganas**			1	Amdanga		
				2	Baduria		
				3	Bagdah		
				4	Barasat-I		
				5	Barasat-II		
				6	Barrackpore-I		
				7	Barrackpore-II		
				8	Basirhat-I		
				9	Basirhat-II		
				10	Bongaon		
				11	Deganga		
				12	Gaighata		
				13	Habra-I		
				14	Habra-II		
				15	Haroa		
				16	Rajarhat		
				17	Swarupnagar		
10	**Purbo Burdwan**			1	Kalna-I		
				2	Kalna-II		
				3	Katwa-I		
				4	Katwa-II		
				5	Purbasthali-I		
				6	Purbasthali-II		
11	**Purulia**	1	Arsha				
		2	Baghmundi				
		3	Balarampur				
		4	Barabazar				
		5	Hura				
		6	Jhalda-I				
		7	Joypur				
		8	Kashipur				
		9	Manbazar-I				
		10	Neturia				
		11	Para				
		12	Puncha				
		13	Purulia-I				
		14	Purulia-II				
		15	Raghunathpur-I				
		16	Raghunathpur-II				
		17	Santuri				
12	**Uttar Dinajpur**	1	Itahar	1	Goalpukur-II		

ABSTRACT			
Total Number of Assessed Units	**Number of Assessment Units affected by Fluoride**	**Number of Assessment Units affected by Arsenic**	**Number of Assessment Units affected by Salinity**
268	**42**	**85**	

NOTE-For West Bengal,2013 is used as the 2020 Resources of the State was not approved by CLEG, 2020.

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2020							
ANDAMAN & NICOBAR ISLANDS							
S. No	**Name of District**	**S. No**	**Name of Assessment Units affected by Fluoride**	**S. No**	**Name of Assessment Units affected by Arsenic**	**S. No**	**Name of Assessment Units affected by Salinity**
1	**Nicobar**					1	Chowra (C)

ABSTRACT			
Total Number of Assessed Units	**Number of Assessment Units affected by Fluoride**	**Number of Assessment Units affected by Arsenic**	**Number of Assessment Units affected by Salinity**
36	**Nil**	**Nil**	**1 (Completely Saline)**

QUALITY PROBLEMS IN ASSESSMENT UNITS, 2020							
PUDUCHERRY							
S. No	**Name of District**	**S. No**	**Name of Assessment Units affected by Fluoride**	**S. No**	**Name of Assessment Units affected by Arsenic**	**S. No**	**Name of Assessment Units affected by Salinity**
1	**Yanam**					1	Yanam (C)

ABSTRACT			
Total Number of Assessed Units	**Number of Assessment Units affected by Fluoride**	**Number of Assessment Units affected by Arsenic**	**Number of Assessment Units affected by Salinity**
4	**Nil**	**Nil**	**1 (Completely Saline)**

Annexure - V(A)

State-wise Summary of Assessment units Improved or deteriorated from 2017 to 2020 assessment

State-Wise Summary Of Assessmet Units Improved Or Deteriorated From 2017 To 2020 Assessment				
S. No.	**Name of States / Union Territories**	**Number of Assessment Units Improved**	**Number of Assessment Units Deteriorated**	**Number of Assessment Units With No Change**
1	Andhra Pradesh	94	23	550
2	Arunachal Pradesh	Nil	Nil	11
3	Assam	Nil	Nil	28
4	Bihar	61	9	464
5	Chhattisgarh	2	19	125
6	Delhi	8	3	23
7	Goa	Nil	Nil	12
8	Gujarat	16	22	210
9	Haryana	13	15	113
10	Himachal Pradesh	5	Nil	5
11	Jharkhand	4	8	247
12	Karnataka	7	3	117
13	Kerala	3	1	148
14	Madhya Pradesh	3	16	294
15	Maharashtra	5	3	345
16	Manipur	Nil	Nil	9
17	Meghalaya	Nil	Nil	12
18	Mizoram	Nil	Nil	26
19	Nagaland	Nil	Nil	11
20	Odisha	1	2	311
21	Punjab	5	11	122
22	Rajasthan	10	40	245
23	Sikkim	Nil	Nil	4
24	Tamil Nadu	98	65	1003
25	Telangana	160	90	334
26	Tripura	Nil	Nil	59
27	Uttar Pradesh	77	31	722
28	Uttarakhand	1	0	17
29	West Bengal*			
30	Andaman and Nicobar	Nil	Nil	36
31	Chandigarh	Nil	Nil	1
32	Dadra & Nagar Haveli	Nil	Nil	1
	Daman & Diu	1	1	Nil
33	Jammu and Kashmir	Nil	Nil	20
34	Lakshadweep	1	Nil	8
35	Puducherry	1	Nil	3
36	Ladakh	Nil	Nil	2
	Grand Total	576	362	5638
Note				
*In the State of West Bengal, the Ground Water Resources of 2013 is considered				

Annexure - V(B)

Comparison of Categorization of assessment Units (2017 to 2020)

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

ANDHRA PRADESH

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
				Improved					
1	**Anantapur**	Brahmasamudram	91.35	Critical	**Anantapur**	Brahmasamudram	66.38	Safe	Improved
2	**Anantapur**	Kambadur	98.46	Critical	**Anantapur**	Kambadur	49.04	Safe	Improved
3	**Anantapur**	Obuladevaracheruvu	95.94	Critical	**Anantapur**	Obuladevaracheruvu	59.49	Safe	Improved
4	**Anantapur**	Puttaparthi	98.62	Critical	**Anantapur**	Puttaparthi	47.18	Safe	Improved
5	**Anantapur**	Gorantla	139.69	Over-Exploited	**Anantapur**	Gorantla	64.35	Safe	Improved
6	**Anantapur**	Nallamada	136.79	Over-Exploited	**Anantapur**	Nallamada	62.85	Safe	Improved
7	**Anantapur**	Parigi	172.72	Over-Exploited	**Anantapur**	Parigi	37.63	Safe	Improved
8	**Anantapur**	Settur	131.13	Over-Exploited	**Anantapur**	Settur	65.10	Safe	Improved
9	**Anantapur**	Tadpatri	179.48	Over-Exploited	**Anantapur**	Tadpatri	54.53	Safe	Improved
10	**Anantapur**	Amadagur	116.61	Over-Exploited	**Anantapur**	Amadagur	86.54	Semi-Critical	Improved
11	**Anantapur**	Chilamathur	125.62	Over-Exploited	**Anantapur**	Chilamathur	80.38	Semi-Critical	Improved
12	**Anantapur**	Madakasira	123.90	Over-Exploited	**Anantapur**	Madakasira	87.25	Semi-Critical	Improved
13	**Anantapur**	Roddam	124.03	Over-Exploited	**Anantapur**	Roddam	84.80	Semi-Critical	Improved
14	**Anantapur**	Atmakur	70.33	Semi-Critical	**Anantapur**	Atmakur	61.25	Safe	Improved
15	**Anantapur**	Kudair	71.05	Semi-Critical	**Anantapur**	Kudair	63.74	Safe	Improved
16	**Anantapur**	Kundurpi	88.01	Semi-Critical	**Anantapur**	Kundurpi	63.60	Safe	Improved
17	**Anantapur**	Mudigubba	89.95	Semi-Critical	**Anantapur**	Mudigubba	55.81	Safe	Improved
18	**Anantapur**	Tadimarri	76.55	Semi-Critical	**Anantapur**	Tadimarri	60.06	Safe	Improved
19	**Chittoor**	Pakala	90.28	Critical	**Chittoor**	Pakala	75.16	Semi-Critical	Improved
20	**Chittoor**	Pedda Panjani	93.36	Critical	**Chittoor**	Pedda Panjani	74.76	Semi-Critical	Improved
21	**Chittoor**	Penumuru	96.07	Critical	**Chittoor**	Penumuru	75.71	Semi-Critical	Improved
22	**Chittoor**	Pulicherla	94.28	Critical	**Chittoor**	Pulicherla	73.89	Semi-Critical	Improved
23	**Chittoor**	Rama Kuppam	92.90	Critical	**Chittoor**	Rama Kuppam	85.48	Semi-Critical	Improved
24	**Chittoor**	Ramachandrapuram-17	93.65	Critical	**Chittoor**	Ramachandrapuram-17	73.44	Semi-Critical	Improved
25	**Chittoor**	Santhi Puram	93.71	Critical	**Chittoor**	Santhi Puram	72.96	Semi-Critical	Improved
26	**Chittoor**	Thavanampalle	90.38	Critical	**Chittoor**	Thavanampalle	78.01	Semi-Critical	Improved
27	**Chittoor**	Venkatagiri Kota	99.51	Critical	**Chittoor**	Venkatagiri Kota	89.49	Semi-Critical	Improved
28	**Chittoor**	Gudi Palle	119.49	Over-Exploited	**Chittoor**	Gudi Palle	91.91	Critical	Improved
29	**Chittoor**	Nindra	106.27	Over-Exploited	**Chittoor**	Nindra	92.57	Critical	Improved
30	**Chittoor**	Puthalapattu	116.50	Over-Exploited	**Chittoor**	Puthalapattu	93.62	Critical	Improved
31	**Chittoor**	Ramasamudram	141.73	Over-Exploited	**Chittoor**	Ramasamudram	91.77	Critical	Improved
32	**Chittoor**	Tirupati	101.11	Over-Exploited	**Chittoor**	Tirupati	94.38	Critical	Improved
33	**Chittoor**	Chinnagottigallu	73.26	Semi-Critical	**Chittoor**	Chinnagottigallu	46.30	Safe	Improved
34	**Chittoor**	Chittoor Mandal	70.39	Semi-Critical	**Chittoor**	Chittoor Mandal	61.69	Safe	Improved
35	**Chittoor**	Gangadhara Nellore	87.09	Semi-Critical	**Chittoor**	Gangadhara Nellore	60.03	Safe	Improved
36	**Chittoor**	Kalikiri	70.56	Semi-Critical	**Chittoor**	Kalikiri	40.75	Safe	Improved
37	**Chittoor**	Karvetinagar	71.43	Semi-Critical	**Chittoor**	Karvetinagar	54.08	Safe	Improved
38	**Chittoor**	Pileru	80.25	Semi-Critical	**Chittoor**	Pileru	44.39	Safe	Improved
39	**Chittoor**	Punganur	80.50	Semi-Critical	**Chittoor**	Punganur	58.99	Safe	Improved
40	**Chittoor**	Vadamalapeta	70.10	Semi-Critical	**Chittoor**	Vadamalapeta	33.54	Safe	Improved
41	**East Godavari**	Yeleswaram	72.84	Semi-Critical	**East Godavari**	Yeleswaram	51.35	Safe	Improved
42	**Guntur**	Karempudi	71.87	Semi-Critical	**Guntur**	Karempudi	41.55	Safe	Improved
43	**Kadapa**	Penagaluru	99.43	Critical	**Kadapa**	Penagaluru	60.62	Safe	Improved
44	**Kadapa**	Porumamilla	92.93	Critical	**Kadapa**	Porumamilla	56.78	Safe	Improved
45	**Kadapa**	Rajampet	92.88	Critical	**Kadapa**	Rajampet	46.51	Safe	Improved
46	**Kadapa**	Simhadripuram	91.60	Critical	**Kadapa**	Simhadripuram	43.20	Safe	Improved
47	**Kadapa**	Kamalapuram	114.95	Over-Exploited	**Kadapa**	Kamalapuram	92.43	Critical	Improved
48	**Kadapa**	Sambepalle	101.13	Over-Exploited	**Kadapa**	Sambepalle	93.81	Critical	Improved
49	**Kadapa**	Vempalle	125.91	Over-Exploited	**Kadapa**	Vempalle	92.35	Critical	Improved
50	**Kadapa**	Vemula	106.13	Over-Exploited	**Kadapa**	Vemula	92.65	Critical	Improved
51	**Kadapa**	Kodur	126.94	Over-Exploited	**Kadapa**	Kodur	64.72	Safe	Improved
52	**Kadapa**	Lingala	165.69	Over-Exploited	**Kadapa**	Lingala	66.37	Safe	Improved

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

ANDHRA PRADESH

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Improved									
53	**Kadapa**	Pullampeta	140.04	Over-Exploited	**Kadapa**	Pullampeta	46.45	Safe	Improved
54	**Kadapa**	Chinnamandem	108.22	Over-Exploited	**Kadapa**	Chinnamandem	70.42	Semi-Critical	Improved
55	**Kadapa**	Obulavaripalle	117.95	Over-Exploited	**Kadapa**	Obulavaripalle	83.37	Semi-Critical	Improved
56	**Kadapa**	B Kodur	76.51	Semi-Critical	**Kadapa**	B Kodur	52.81	Safe	Improved
57	**Kadapa**	Chintha Kommadinne	84.30	Semi-Critical	**Kadapa**	Chintha Kommadinne	56.97	Safe	Improved
58	**Kadapa**	Gopavaram	89.75	Semi-Critical	**Kadapa**	Gopavaram	62.31	Safe	Improved
59	**Kadapa**	Jammalamadugu	77.09	Semi-Critical	**Kadapa**	Jammalamadugu	57.21	Safe	Improved
60	**Kadapa**	Lakkireddipalle	76.57	Semi-Critical	**Kadapa**	Lakkireddipalle	53.53	Safe	Improved
61	**Kadapa**	Ramapuram	71.19	Semi-Critical	**Kadapa**	Ramapuram	13.12	Safe	Improved
62	**Kadapa**	Sidhout	79.32	Semi-Critical	**Kadapa**	Sidhout	57.51	Safe	Improved
63	**Kadapa**	Sri Avadhutha Kasinayana	76.76	Semi-Critical	**Kadapa**	Sri Avadhutha Kasinayana	19.62	Safe	Improved
64	**Kadapa**	Thandur	72.93	Semi-Critical	**Kadapa**	Thandur	41.25	Safe	Improved
65	**Kadapa**	Vallur	84.48	Semi-Critical	**Kadapa**	Vallur	40.56	Safe	Improved
66	**Kadapa**	Veerapunayunipalle	78.61	Semi-Critical	**Kadapa**	Veerapunayunipalle	19.73	Safe	Improved
67	**Krishna**	Musunuru	107.85	Over-Exploited	**Krishna**	Musunuru	76.96	Semi-Critical	Improved
68	**Krishna**	Nuzvid	81.49	Semi-Critical	**Krishna**	Nuzvid	61.43	Safe	Improved
69	**Kurnool**	Chagalamarri	91.25	Critical	**Kurnool**	Chagalamarri	75.25	Semi-Critical	Improved
70	**Kurnool**	Gonegandla	86.47	Semi-Critical	**Kurnool**	Gonegandla	64.36	Safe	Improved
71	**Kurnool**	Kodumur	73.54	Semi-Critical	**Kurnool**	Kodumur	35.62	Safe	Improved
72	**Kurnool**	Nandi Kotkur	86.14	Semi-Critical	**Kurnool**	Nandi Kotkur	42.28	Safe	Improved
73	**Kurnool**	Orvakal	74.15	Semi-Critical	**Kurnool**	Orvakal	60.96	Safe	Improved
74	**Kurnool**	Peapally	86.89	Semi-Critical	**Kurnool**	Peapally	66.29	Safe	Improved
75	**Prakasam**	Bestavaripeta	114.79	Over-Exploited	**Prakasam**	Bestavaripeta	36.13	Safe	Improved
76	**Prakasam**	Giddaluru	190.75	Over-Exploited	**Prakasam**	Giddaluru	80.49	Semi-Critical	Improved
77	**Prakasam**	Dornala	77.63	Semi-Critical	**Prakasam**	Dornala	51.21	Safe	Improved
78	**Prakasam**	Yerragondapalem	75.31	Semi-Critical	**Prakasam**	Yerragondapalem	57.90	Safe	Improved
79	**Srikakulam**	Ganguvari Singadam	97.93	Critical	**Srikakulam**	Ganguvari Singadam	31.91	Safe	Improved
80	**Srikakulam**	Laveru	162.14	Over-Exploited	**Srikakulam**	Laveru	33.99	Safe	Improved
81	**Srikakulam**	Ranastalam	171.10	Over-Exploited	**Srikakulam**	Ranastalam	59.24	Safe	Improved
82	**Srikakulam**	Kaviti	77.45	Semi-Critical	**Srikakulam**	Kaviti	46.50	Safe	Improved
83	**Srikakulam**	Kotabommal	88.15	Semi-Critical	**Srikakulam**	Kotabommal	59.09	Safe	Improved
84	**Srikakulam**	Ponduru	79.50	Semi-Critical	**Srikakulam**	Ponduru	24.39	Safe	Improved
85	**Srikakulam**	Rajam	75.03	Semi-Critical	**Srikakulam**	Rajam	52.49	Safe	Improved
86	**Visakhapatnam**	Munagapaka	76.19	Semi-Critical	**Visakhapatnam**	Munagapaka	52.90	Safe	Improved
87	**West Godavari**	Jangareddigudem	95.19	Critical	**West Godavari**	Jangareddigudem	64.84	Safe	Improved
88	**West Godavari**	Lingapalem	95.35	Critical	**West Godavari**	Lingapalem	61.86	Safe	Improved
89	**West Godavari**	Padavegi	90.27	Critical	**West Godavari**	Padavegi	56.32	Safe	Improved
90	**West Godavari**	Chintalapudi	70.50	Semi-Critical	**West Godavari**	Chintalapudi	63.70	Safe	Improved
91	**West Godavari**	Dwaraka Tirumala	81.22	Semi-Critical	**West Godavari**	Dwaraka Tirumala	54.45	Safe	Improved
92	**West Godavari**	Koyyalagudem	81.06	Semi-Critical	**West Godavari**	Koyyalagudem	53.37	Safe	Improved
93	**West Godavari**	T Narasapuram	84.21	Semi-Critical	**West Godavari**	T Narasapuram	67.54	Safe	Improved
94	**West Godavari**	Tadepalligudem	71.75	Semi-Critical	**West Godavari**	Tadepalligudem	39.00	Safe	Improved

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

ANDHRA PRADESH

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
				Deteriorated					
1	**Anantapur**	Nallacheruvu	97.25	Critical	**Anantapur**	Nallacheruvu	111.85	Over-Exploited	Deteriorated
2	**Anantapur**	Nambulipulikunta	67.14	Safe	**Anantapur**	Nambulipulikunta	97.55	Critical	Deteriorated
3	**Anantapur**	Lepakshi	82.90	Semi-Critical	**Anantapur**	Lepakshi	114.56	Over-Exploited	Deteriorated
4	**Anantapur**	Somandepalle	88.08	Semi-Critical	**Anantapur**	Somandepalle	102.76	Over-Exploited	Deteriorated
5	**Chittoor**	Chandragiri	22.98	Safe	**Chittoor**	Chandragiri	80.39	Semi-Critical	Deteriorated
6	**Chittoor**	Chowdepalle	67.54	Safe	**Chittoor**	Chowdepalle	75.30	Semi-Critical	Deteriorated
7	**Chittoor**	Gangavaram	44.16	Safe	**Chittoor**	Gangavaram	82.60	Semi-Critical	Deteriorated
8	**Chittoor**	Kurabalakota	59.91	Safe	**Chittoor**	Kurabalakota	73.62	Semi-Critical	Deteriorated
9	**Chittoor**	Nagari	50.62	Safe	**Chittoor**	Nagari	88.77	Semi-Critical	Deteriorated
10	**Chittoor**	Nimmanapalle	57.84	Safe	**Chittoor**	Nimmanapalle	78.52	Semi-Critical	Deteriorated
11	**Chittoor**	Puttur	55.00	Safe	**Chittoor**	Puttur	87.37	Semi-Critical	Deteriorated
12	**East Godavari**	Rajahmundry (Urban)	41.12	Safe	**East Godavari**	Rajahmundry (Urban)	75.80	Semi-Critical	Deteriorated
13	**Guntur**	Piduguralla	55.75	Safe	**Guntur**	Piduguralla	90.89	Critical	Deteriorated
14	**Kadapa**	Pulivendla	64.15	Safe	**Kadapa**	Pulivendla	112.20	Over-Exploited	Deteriorated
15	**Kadapa**	Chennur	65.00	Safe	**Kadapa**	Chennur	80.53	Semi-Critical	Deteriorated
16	**Kadapa**	Proddutur	57.01	Safe	**Kadapa**	Proddutur	84.99	Semi-Critical	Deteriorated
17	**Kadapa**	Chapad	79.26	Semi-Critical	**Kadapa**	Chapad	96.70	Critical	Deteriorated
18	**Kadapa**	Chitvel	76.97	Semi-Critical	**Kadapa**	Chitvel	183.44	Over-Exploited	Deteriorated
19	**Kurnool**	Kosigi	61.08	Safe	**Kurnool**	Kosigi	73.06	Semi-Critical	Deteriorated
20	**Kurnool**	Bethamcherla	76.31	Semi-Critical	**Kurnool**	Bethamcherla	95.14	Critical	Deteriorated
21	**Nellore**	Gudur	61.71	Safe	**Nellore**	Gudur	72.59	Semi-Critical	Deteriorated
22	**Nellore**	Naidupeta	83.35	Semi-Critical	**Nellore**	Naidupeta	92.36	Critical	Deteriorated
23	**Prakasam**	Pullalacheruvu	60.14	Safe	**Prakasam**	Pullalacheruvu	161.72	Over-Exploited	Deteriorated

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

BIHAR

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Improved									
1	**Begusarai**	Bhagwanpur	96.63	Critical	**Begusarai**	Bhagwanpur	74.98	Semi-Critical	Improved
2	**Begusarai**	Khudabandpur	82.36	Semi-Critical	**Begusarai**	Khudabandpur	64.25	Safe	Improved
3	**Begusarai**	Naokothi	96.26	Critical	**Begusarai**	Naokothi	89.26	Semi-Critical	Improved
4	**Bhojpur**	Arrah	85.15	Semi-Critical	**Bhojpur**	Arrah	68.18	Safe	Improved
5	**Bhojpur**	Behea	93.70	Critical	**Bhojpur**	Bihiyan	72.27	Semi-Critical	Improved
6	**Bhojpur**	Koilbar	91.21	Critical	**Bhojpur**	Koilwar	80.12	Semi-Critical	Improved
7	**Bhojpur**	Shahpur	75.09	Semi-Critical	**Bhojpur**	Shahpur	69.40	Safe	Improved
8	**Buxar**	Chaungai	77.90	Semi-Critical	**Buxar**	Chaugain	56.19	Safe	Improved
9	**East Champaran**	Madhuban	88.01	Semi-Critical	**East Champaran**	Madhuban	55.98	Safe	Improved
10	**Gaya**	Bodhgaya	78.81	Semi-Critical	**Gaya**	Bodhgaya	19.92	Safe	Improved
11	**Gaya**	Dumaria	91.45	Critical	**Gaya**	Dumaria	78.99	Semi-Critical	Improved
12	**Gopalganj**	Barauli	71.55	Semi-Critical	**Gopalganj**	Barauli	68.30	Safe	Improved
13	**Gopalganj**	Bijaipur	112.31	Over-Exploited	**Gopalganj**	Bijaipur	57.06	Safe	Improved
14	**Gopalganj**	Bhore	85.87	Semi-Critical	**Gopalganj**	Bhorey	66.78	Safe	Improved
15	**Gopalganj**	Hathwa	84.15	Semi-Critical	**Gopalganj**	Hatwa	47.46	Safe	Improved
16	**Gopalganj**	Kateyan	76.25	Semi-Critical	**Gopalganj**	Kataiya	50.99	Safe	Improved
17	**Gopalganj**	Manjha	80.30	Semi-Critical	**Gopalganj**	Manjha	56.63	Safe	Improved
18	**Gopalganj**	Panchdeori	78.39	Semi-Critical	**Gopalganj**	Pachdeori	49.46	Safe	Improved
19	**Gopalganj**	Thawe	100.83	Over-Exploited	**Gopalganj**	Thawe	65.47	Safe	Improved
20	**Gopalganj**	Uchkagaon	113.54	Over-Exploited	**Gopalganj**	Uchkagaon	69.13	Safe	Improved
21	**Jehanabad**	Kako	91.59	Critical	**Jehanabad**	Kako	82.37	Semi-Critical	Improved
22	**Katihar**	Azamnagar	88.43	Semi-Critical	**Katihar**	Azamnagar	69.21	Safe	Improved
23	**Katihar**	Balrampur	72.48	Semi-Critical	**Katihar**	Balrampur	57.64	Safe	Improved
24	**Katihar**	Barsoi	76.22	Semi-Critical	**Katihar**	Barsoi	59.47	Safe	Improved
25	**Katihar**	Dandkhora	95.49	Critical	**Katihar**	Dandkhora	76.75	Semi-Critical	Improved
26	**Katihar**	Kadwa	70.15	Semi-Critical	**Katihar**	Kadwa	63.41	Safe	Improved
27	**Katihar**	Korha	76.15	Semi-Critical	**Katihar**	Korha	62.04	Safe	Improved
28	**Katihar**	Mansahi	88.79	Semi-Critical	**Katihar**	Manshi	67.66	Safe	Improved
29	**Katihar**	Pranpur	80.43	Semi-Critical	**Katihar**	Pranpur	68.10	Safe	Improved
30	**Muzaffarpur**	Bochaha	74.84	Semi-Critical	**Muzaffarpur**	Bochaha	65.45	Safe	Improved
31	**Muzaffarpur**	Kurahni	76.74	Semi-Critical	**Muzaffarpur**	Kurhani	64.75	Safe	Improved
32	**Muzaffarpur**	Minapur	71.46	Semi-Critical	**Muzaffarpur**	Minapur	65.66	Safe	Improved
33	**Muzaffarpur**	Moraul (Dholi)	77.67	Semi-Critical	**Muzaffarpur**	Dholi	62.68	Safe	Improved
34	**Nalanda**	Asthawan	93.39	Critical	**Nalanda**	Asthawan	66.90	Safe	Improved
35	**Nalanda**	Ben	79.34	Semi-Critical	**Nalanda**	Bari	64.22	Safe	Improved
36	**Nalanda**	Bind	92.97	Critical	**Nalanda**	Bind	61.33	Safe	Improved
37	**Nalanda**	Harnaut	82.34	Semi-Critical	**Nalanda**	Harnaut	67.23	Safe	Improved
38	**Nalanda**	Karai parsauni	97.69	Critical	**Nalanda**	Karaiparsurai	85.99	Semi-Critical	Improved
39	**Nalanda**	Rahui	73.61	Semi-Critical	**Nalanda**	Rahul	69.34	Safe	Improved
40	**Nalanda**	Rajgir	91.54	Critical	**Nalanda**	Rajgir	69.17	Safe	Improved
41	**Nawada**	Roh	74.37	Semi-Critical	**Nawada**	Roh	52.02	Safe	Improved
42	**Patna**	Athmalgola	113.44	Over-Exploited	**Patna**	Athmalgola	82.23	Semi-Critical	Improved
43	**Patna**	Khusrupur	74.20	Semi-Critical	**Patna**	Khusrupur	64.83	Safe	Improved
44	**Patna**	Patna Sadar	93.87	Critical	**Patna**	Patna Sadar	89.92	Semi-Critical	Improved
45	**Patna**	Phulwarisarif	100.95	Over-Exploited	**Patna**	Phulwarisharif	77.84	Semi-Critical	Improved
46	**Patna**	Punpun	94.47	Critical	**Patna**	Punpun	88.21	Semi-Critical	Improved
47	**Patna**	Sampatchak	90.19	Critical	**Patna**	Sampatchak	87.41	Semi-Critical	Improved
48	**Purnia**	Amaur	82.98	Semi-Critical	**Purnia**	Amaur	69.48	Safe	Improved
49	**Purnia**	Baisi	71.69	Semi-Critical	**Purnia**	Baisi	68.93	Safe	Improved
50	**Saran**	Garakha	82.00	Semi-Critical	**Saran**	Garkha	66.97	Safe	Improved
51	**Saran**	Lahladpur	75.17	Semi-Critical	**Saran**	Lahlad	67.37	Safe	Improved
52	**Saran**	Manjhi	71.89	Semi-Critical	**Saran**	Manjhi	65.97	Safe	Improved
53	**Saran**	Nagra	91.37	Critical	**Saran**	Nagra	71.94	Semi-Critical	Improved

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

BIHAR

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Improved									
54	**Siwan**	Basantpur	72.25	Semi-Critical	**Siwan**	Basantpur	55.36	Safe	Improved
55	**Siwan**	Guthani	72.70	Semi-Critical	**Siwan**	Guthani	68.11	Safe	Improved
56	**Siwan**	Hussainganj	73.14	Semi-Critical	**Siwan**	Hussainganj	58.81	Safe	Improved
57	**Siwan**	Jeradei	84.13	Semi-Critical	**Siwan**	Ziradei	62.94	Safe	Improved
58	**Siwan**	Siswan	71.63	Semi-Critical	**Siwan**	Siswan	66.35	Safe	Improved
59	**Vaishali**	Bhagwanpur	80.32	Semi-Critical	**Vaishali**	Bhagwanpur	67.68	Safe	Improved
60	**Vaishali**	Patepur	107.89	Over-Exploited	**Vaishali**	Patepur	97.55	Critical	Improved
61	**Vaishali**	Premraj/ Desri	71.04	Semi-Critical	**Vaishali**	Dehri	65.41	Safe	Improved

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

BIHAR

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Deteriorated									
1	**Gaya**	Belaganj	73.36	Semi-Critical	**Gaya**	Belaganj	119.47	Over-Exploited	Deteriorated
2	**Jehanabad**	Hulasganj	88.93	Semi-Critical	**Jehanabad**	Hulhasganj	93.36	Critical	Deteriorated
3	**Lakhisarai**	Halsi	54.82	Safe	**Lakhisarai**	Halsi	82.41	Semi-Critical	Deteriorated
4	**Madhepura**	Alam nagar	61.07	Safe	**Madhepura**	Alamnagar	77.35	Semi-Critical	Deteriorated
5	**Muzaffarpur**	Bandra	67.52	Safe	**Muzaffarpur**	Bendra	83.60	Semi-Critical	Deteriorated
6	**Nalanda**	Ekangasarai	62.44	Safe	**Nalanda**	Eknagarsari	73.65	Semi-Critical	Deteriorated
7	**Nawada**	Warsaliganj	61.82	Safe	**Nawada**	Warisaliganj	72.33	Semi-Critical	Deteriorated
8	**Patna**	Danapur	66.59	Safe	**Patna**	Danapur/Khagaul	77.75	Semi-Critical	Deteriorated
9	**Patna**	Naubatpur	67.01	Safe	**Patna**	Naubatpur	72.00	Semi-Critical	Deteriorated

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

CHHATISGARH

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Improved									
1	**Bilaspur**	Takhatpur	81.02	Semi-Critical	**Bilaspur**	Takhatpur	61.12	Safe	Improved
2	**Rajnandgaon**	Rajnandgaon	85.73	Semi-Critical	**Rajnandgaon**	Rajnandgaon	65.28	Safe	Improved

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

CHHATISGARH

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Deteriorated									
1	**Balod**	Gunderdehi	52.14	Safe	**Balod**	Gunderdehi	70.81	Semi-Critical	Deteriorated
2	**Baloda Bazar**	Simga	66.81	Safe	**Baloda Bazar**	Simga	73.20	Semi-Critical	Deteriorated
3	**Bemetara**	Bemetara	71.30	Semi-Critical	**Bemetara**	Bemetara	92.15	Critical	Deteriorated
4	**Bemetara**	Berla	86.24	Semi-Critical	**Bemetara**	Berla	90.85	Critical	Deteriorated
5	**Dhamtari**	Dhamtari	74.28	Semi-Critical	**Dhamtari**	Dhamtari	94.76	Critical	Deteriorated
6	**Dhamtari**	Magarlod	36.21	Safe	**Dhamtari**	Magarlod	70.48	Semi-Critical	Deteriorated
7	**Dhamtari**	Nagri	54.10	Safe	**Dhamtari**	Nagri	88.86	Semi-Critical	Deteriorated
8	**Durg**	Durg	86.84	Semi-Critical	**Durg**	Durg	90.48	Critical	Deteriorated
9	**Janjgir-Champa**	Dabhara	62.82	Safe	**Janjgir-Champa**	Dabhara	74.04	Semi-Critical	Deteriorated
10	**Janjgir-Champa**	Sakti	49.59	Safe	**Janjgir-Champa**	Sakti	70.64	Semi-Critical	Deteriorated
11	**Kanker**	Charama	66.29	Safe	**Kanker**	Charama	77.90	Semi-Critical	Deteriorated
12	**Kawardha**	Kawardha	89.15	Semi-Critical	**Kawardha**	Kawardha	96.10	Critical	Deteriorated
13	**Kawardha**	Pandariya	73.67	Semi-Critical	**Kawardha**	Pandariya	93.59	Critical	Deteriorated
14	**Kawardha**	Sahaspur Lohara	64.46	Safe	**Kawardha**	Sahaspur Lohara	83.12	Semi-Critical	Deteriorated
15	**Korba**	Katghora	68.76	Safe	**Korba**	Katghora	82.94	Semi-Critical	Deteriorated
16	**Raigarh**	Tamnar	50.50	Safe	**Raigarh**	Tamnar	71.41	Semi-Critical	Deteriorated
17	**Rajnandgaon**	Chhuikhadan	67.83	Safe	**Rajnandgaon**	Chhuikhadan	85.71	Semi-Critical	Deteriorated
18	**Rajnandgaon**	Dongargarh	61.56	Safe	**Rajnandgaon**	Dongargarh	77.41	Semi-Critical	Deteriorated
19	**Surajpur**	Surajpur	68.65	Safe	**Surajpur**	Surajpur	73.78	Semi-Critical	Deteriorated

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)									
DELHI									
S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Improved									
1	**East**	Preet Vihar	99.74	Critical	**East**	Preet Vihar	75.62	Semi-Critical	Improved
2	**North-East**	Karawal Nagar	105.72	Over-exploited	**North-East**	Karawal Nagar	98.69	Critical	Improved
3	**North-East**	Seelampur	126.73	Over-exploited	**North-East**	Seelampur	99.27	Critical	Improved
4	**North-West**	Sarwaswati Vihar	109.92	Over-exploited	**North-West**	Sarwaswati Vihar	85.07	Semi-Critical	Improved
5	**Shahdara**	Seemapuri	246.55	Over-exploited	**Shahdara**	Seemapuri	98.69	Critical	Improved
6	**South-East**	Defence Colony	181.19	Over-exploited	**South-East**	Defence Colony	94.79	Critical	Improved
7	**South-West**	Najafgarh	230.57	Over-exploited	**South-West**	Najafgarh	94.18	Critical	Improved
8	**West**	Punjabi Bagh	92.02	Critical	**West**	Punjabi Bagh	87.39	Semi-Critical	Improved

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)									
DELHI									
S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Deteriorated									
1	**North**	Alipur	81.15	Semi-Critical	**North**	Alipur	97.90	Critical	Deteriorated
2	**North**	Model Town	71.41	Semi-Critical	**North**	Model Town	98.51	Critical	Deteriorated
3	**North**	Narela	89.29	Semi-Critical	**North**	Narela	118.52	Over-exploited	Deteriorated

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

GUJARAT

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
				Improved					
1	**Ahmedabad**	Detroj-Rampura	78.13	Semi-Critical	**Ahmedabad**	Detroj-Rampura	49.80	Safe	Improved
2	**Ahmedabad**	Dholka	79.20	Semi-Critical	**Ahmedabad**	Dholka	54.95	Safe	Improved
3	**Ahmedabad**	Viramgam	81.53	Semi-Critical	**Ahmedabad**	Viramgam	34.03	Safe	Improved
4	**Banaskantha**	Palanpur	95.34	Critical	**Banaskantha**	Palanpur	72.01	Semi-Critical	Improved
5	**Banaskantha**	Vadgam	117.13	Over-Exploited	**Banaskantha**	Vadgam	75.20	Semi-Critical	Improved
6	**Gandhinagar**	Kalol	114.03	Over-Exploited	**Gandhinagar**	Kalol	75.80	Semi-Critical	Improved
7	**Gandhinagar**	Mansa	139.35	Over-Exploited	**Gandhinagar**	Mansa	73.16	Semi-Critical	Improved
8	**Kachchh**	Nakhatrana	87.01	Semi-Critical	**Kachchh**	Nakhatrana	59.70	Safe	Improved
9	**Kachchh**	Anjar	91.45	Critical	**Kachchh**	Anjar	58.65	Safe	Improved
10	**Mahesana**	Kadi	126.11	Over-Exploited	**Mahesana**	Kadi	82.49	Semi-Critical	Improved
11	**Mahesana**	Unjha	104.09	Over-Exploited	**Mahesana**	Unjha	76.71	Semi-Critical	Improved
12	**Mahesana**	Vijapur	127.75	Over-Exploited	**Mahesana**	Vijapur	94.96	Critical	Improved
13	**Mahesana**	Visnagar	106.64	Over-Exploited	**Mahesana**	Visnagar	81.35	Semi-Critical	Improved
14	**Patan**	Patan	102.23	Over-Exploited	**Patan**	Patan	81.88	Semi-Critical	Improved
15	**Patan**	Sidhpur	103.83	Over-Exploited	**Patan**	Sidhpur	92.78	Critical	Improved
16	**Sabarkantha**	Talod	75.10	Semi-Critical	**Sabarkantha**	Talod	58.07	Safe	Improved

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

GUJARAT

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
				Deteriorated					
1	**Ahmedabad**	Bavla	48.88	Safe	**Ahmedabad**	Bavla	90.61	Critical	Deteriorated
2	**Ahmedabad**	Mandal	31.24	Safe	**Ahmedabad**	Mandal	80.97	Semi-Critical	Deteriorated
3	**Amreli**	Rajula	62.10	Safe	**Amreli**	Rajula	88.61	Semi-Critical	Deteriorated
4	**Banaskantha**	Dantiwada	56.11	Safe	**Banaskantha**	Dantiwada	132.30	Over-Exploited	Deteriorated
5	**Gir Somnath**	Una	53.66	Safe	**Gir Somnath**	Una	71.85	Semi-Critical	Deteriorated
6	**Junagadh**	Bhesan	64.63	Safe	**Junagadh**	Bhesan	128.07	Over-Exploited	Deteriorated
7	**Junagadh**	Junagadh City & Juna	62.60	Safe	**Junagadh**	Junagadh City & Juna	103.12	Over-Exploited	Deteriorated
8	**Junagadh**	Keshod	64.82	Safe	**Junagadh**	Keshod	85.14	Semi-Critical	Deteriorated
9	**Junagadh**	Malia	64.72	Safe	**Junagadh**	Malia	75.07	Semi-Critical	Deteriorated
10	**Junagadh**	Manavadar	65.97	Safe	**Junagadh**	Manavadar	126.04	Over-Exploited	Deteriorated
11	**Junagadh**	Visavadar	65.24	Safe	**Junagadh**	Visavadar	91.12	Critical	Deteriorated
12	**Kachchh**	Bhuj	92.47	Critical	**Kachchh**	Bhuj	179.61	Over-Exploited	Deteriorated
13	**Kheda**	Galteshwar	41.97	Safe	**Kheda**	Galteshwar	82.98	Semi-Critical	Deteriorated
14	**Mahesana**	Vadnagar	91.79	Critical	**Mahesana**	Vadnagar	126.95	Over-Exploited	Deteriorated
15	**Narmada**	Nandod	26.25	Safe	**Narmada**	Nandod	70.44	Semi-Critical	Deteriorated
16	**Patan**	Sarsvati(Patan)	90.65	Critical	**Patan**	Sarsvati(Patan)	186.99	Over-Exploited	Deteriorated
17	**Rajkot**	Dhoraji	65.93	Safe	**Rajkot**	Dhoraji	72.38	Semi-Critical	Deteriorated
18	**Rajkot**	Vinchchiya	63.09	Safe	**Rajkot**	Vinchchiya	77.85	Semi-Critical	Deteriorated
19	**Sabarkantha**	Himatnagar	62.40	Safe	**Sabarkantha**	Himatnagar	77.02	Semi-Critical	Deteriorated
20	**Sabarkantha**	Prantij	76.38	Semi-Critical	**Sabarkantha**	Prantij	117.84	Over-Exploited	Deteriorated
21	**Surendranagar**	Chuda	62.71	Safe	**Surendranagar**	Chuda	75.58	Semi-Critical	Deteriorated
22	**Vadodara**	Padra	57.55	Safe	**Vadodara**	Padra	100.90	Over-Exploited	Deteriorated

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

HARYANA

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
					Improved				
1	**Charkhi Dadri**	Charkhi Dadri	82.00	Semi-Critical	**Charkhi Dadri**	Charkhi Dadri	65.00	Safe	Improved
2	**Hisar**	Adampur	116.00	Over-Exploited	**Hisar**	Adampur	92.00	Critical	Improved
3	**Hisar**	Agroha	101.00	Over-Exploited	**Hisar**	Agroha	95.30	Critical	Improved
4	**Hisar**	Hansi-Ii	89.00	Semi-Critical	**Hisar**	Hansi-Ii	64.00	Safe	Improved
5	**Hisar**	Uklana	76.00	Semi-Critical	**Hisar**	Uklana	20.00	Safe	Improved
6	**Mahendragarh**	Nangal Chaudhry	74.00	Semi-Critical	**Mahendragarh**	Nangal Chaudhry	61.61	Safe	Improved
7	**Mewat**	Nuh	78.00	Semi-Critical	**Mewat**	Nuh	36.00	Safe	Improved
8	**Mewat**	Punahana	125.00	Over-Exploited	**Mewat**	Punahana	93.43	Critical	Improved
9	**Palwal**	Hassanpur	106.00	Over-Exploited	**Palwal**	Hassanpur	99.00	Critical	Improved
10	**Palwal**	Hathin	105.00	Over-Exploited	**Palwal**	Hathin	65.00	Safe	Improved
11	**Palwal**	Hodal	104.00	Over-Exploited	**Palwal**	Hodal	86.12	Semi-Critical	Improved
12	**Palwal**	Palwal	110.00	Over-Exploited	**Palwal**	Palwal	77.00	Semi-Critical	Improved
13	**Sirsa**	Baragudha	119.00	Over-Exploited	**Sirsa**	Baragudha	76.00	Semi-Critical	Improved

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

HARYANA

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
					Deteriorated				
1	**Ambala**	Ambala-I	72	Semi-Critical	**Ambala**	Ambala-I	97.47	Critical	Deteriorated
2	**Ambala**	Ambala-Ii	53	Safe	**Ambala**	Ambala-Ii	87.86	Semi-Critical	Deteriorated
3	**Bhiwani**	Bawani Khera	69	Safe	**Bhiwani**	Bawani Khera	78.16	Semi-Critical	Deteriorated
4	**Hisar**	Barwala	92	Critical	**Hisar**	Barwala	120.00	Over-Exploited	Deteriorated
5	**Hisar**	Hansi	67	Safe	**Hisar**	Hansi	81.00	Semi-Critical	Deteriorated
6	**Mahendragarh**	Ateli Nangal	77	Semi-Critical	**Mahendragarh**	Ateli Nangal	91.29	Critical	Deteriorated
7	**Mahendragarh**	Sihma	82	Semi-Critical	**Mahendragarh**	Sihma	126.15	Over-Exploited	Deteriorated
8	**Mewat**	Ferozepur Jhirka	80	Semi-Critical	**Mewat**	Ferozepur Jhirka	91.00	Critical	Deteriorated
9	**Panchkula**	Raipur Rani	88	Semi-Critical	**Panchkula**	Raipur Rani	99.00	Critical	Deteriorated
10	**Rewari**	Bawal	65	Safe	**Rewari**	Bawal	113.00	Over-Exploited	Deteriorated
11	**Rewari**	Dahina	80	Semi-Critical	**Rewari**	Dahina	92.18	Critical	Deteriorated
12	**Rewari**	Jatusana	79	Semi-Critical	**Rewari**	Jatusana	166.00	Over-Exploited	Deteriorated
13	**Sonipat**	Mundlana	78	Semi-Critical	**Sonipat**	Mundlana	120.00	Over-Exploited	Deteriorated
14	**Yamuna Nagar**	Bilaspur	90	Semi-Critical	**Yamuna Nagar**	Bilaspur	126.00	Over-Exploited	Deteriorated
15	**Yamuna Nagar**	Sadaura (Part)	77	Semi-Critical	**Yamuna Nagar**	Sadaura (Part)	95.39	Critical	Deteriorated

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)									
HIMACHAL PRADESH									
S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Improved									
1	**Kangra**	Indaura Valley	119.00	Over-Exploited	**Kangra**	Nurpur Indaura Valley	29.27	Safe	Improved
2	**Sirmour**	Kala Amb Valley	385.11	Over-Exploited	**Sirmour**	Kala Amb Valley	27.51	Safe	Improved
3	**Nalagarh Valley**	Solan	110.60	Over-Exploited	**Nalagarh Valley**	Solan	58.41	Safe	Improved
4	**Una Valley**	Una	108.37	Over-Exploited	**Una Valley**	Una	60.99	Safe	Improved
3	**Hum valley**	Una	75.50	Semi-Critical	**Hum valley**	Una	58.12	Safe	Improved

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

JHARKHAND

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
				Improved					
1	**Bokaro**	Chandrapura	74.70	Semi-Critical	**Bokaro**	Chandrapura	55.25	Safe	Improved
2	**Dhanbad**	Baghmara	91.10	Critical	**Dhanbad**	Baghmara	45.95	Safe	Improved
3	**Dhanbad**	Dhanbad	105.56	Over-Exploited	**Dhanbad**	Dhanbad and Jharia	84.39	Semi-Critical	Improved
4	**Ramgarh**	Patratu	84.14	Semi-Critical	**Ramgarh**	Patratu	50.60	Safe	Improved

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

JHARKHAND

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
				Deteriorated					
1	**Deoghar**	Sonaraithadhi	58.74	Safe	**Deoghar**	Sonaraithadhi	71.08	Semi-Critical	Deteriorated
2	**Dhanbad**	Baliapur	83.92	Semi-Critical	**Dhanbad**	Baliapur	92.84	Critical	Deteriorated
3	**Dhanbad**	Topchanchi	99.50	Critical	**Dhanbad**	Topchanchi	115.57	Over-Exploited	Deteriorated
4	**East Singhbhum**	Golmuri cum Jugsalai	79.52	Semi-Critical	**East Singhbhum**	Golmuri cum Jugsalai	153.93	Over-Exploited	Deteriorated
5	**Garhwa**	Bhawanathpur	26.05	Safe	**Garhwa**	Bhawanathpur	74.63	Semi-Critical	Deteriorated
6	**Hazaribagh**	Daru	56.63	Safe	**Hazaribagh**	Daru	75.44	Semi-Critical	Deteriorated
7	**Ramgarh**	Chitarpur	67.87	Safe	**Ramgarh**	Chitarpur	84.13	Semi-Critical	Deteriorated
8	**Ranchi**	Silli	78.01	Semi-Critical	**Ranchi**	Silli	95.28	Critical	Deteriorated

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)									
KARNATAKA									
S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Improved									
1	**Dharwad**	Kalghatgi	75.00	Semi-Critical	**Dharwad**	Kalghatgi	46.84	Safe	Improved
2	**Gadag**	Gadag	101.00	Over-Exploited	**Gadag**	Gadag	95.15	Critical	Improved
3	**Haveri**	Ranibennur	92.00	Critical	**Haveri**	Ranibennur	74.62	Semi-Critical	Improved
4	**Ramanagaram**	Kanakapura	102.00	Over-Exploited	**Ramanagaram**	Kanakapura	92.37	Critical	Improved
5	**Ramanagaram**	Ranmanagara	105.00	Over-Exploited	**Ramanagaram**	Ranmanagara	96.87	Critical	Improved
6	**Uttar Kannada**	Haliyal	74.00	Semi-Critical	**Uttar Kannada**	Haliyal	48.34	Safe	Improved
7	**Vijayapura**	Indi	91.00	Critical	**Vijayapura**	Indi	59.01	Safe	Improved

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)									
KARNATAKA									
S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Deteriorated									
1	**Chamrajnagara**	Chamrajnagara	75.00	Semi-Critical	**Chamrajnagara**	Chamrajnagara	105.661378	Over-Exploited	Deteriorated
2	**Kalburagi**	Afzalpur	40.00	Safe	**Kalburagi**	Afzalpur	71.53906988	Semi-Critical	Deteriorated
3	**Tumakuru**	Sira	96.00	Critical	**Tumakuru**	Sira	101.03184	Over-Exploited	Deteriorated

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

KERALA

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Improved									
1	**Ernakulam**	Parakkadavu	79.12	Semi-Critical	**Ernakulam**	Parakkadavu	69.81	Safe	Improved
2	**Idukki**	Elam Desom	73.8	Semi-Critical	**Idukki**	Elam Desom	68.13	Safe	Improved
3	**Palakkad**	Chittur	104.49	Over-Exploited	**Palakkad**	Chittur	99.89	Critical	Improved

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

KERALA

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Deteriorated									
1	**Malappuram**	Mankada	69.43	Safe	**Malappuram**	Mankada	70.07	Semi-Critical	Deteriorated

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

MADHYA PRADESH

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Improved									
1	**Raisen**	Sanchi	73.15	Semi-Critical	**Raisen**	Sanchi	63.49	Safe	Improved
2	**Damoh**	Batiyagarh	73.37	Semi-Critical	**Damoh**	Batiyagarh	65.34	Safe	Improved
3	**Sagar**	Banda	70.38	Semi-Critical	**Sagar**	Banda	57.92	Safe	Improved

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

MADHYA PRADESH

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Deteriorated									
1	**Sehore**	Ashta	77.36	Semi-Critical	**Sehore**	Ashta	99.67	Critical	Deteriorated
2	**Hoshangabad**	Bankhedi	68.56	Safe	**Hoshangabad**	Bankhedi	72.96	Semi-Critical	Deteriorated
3	**Narsinghpur**	Narsinghpur	67.48	Safe	**Narsinghpur**	Narsinghpur	74.25	Semi-Critical	Deteriorated
4	**Chhindwara**	Chhindwara	88.50	Semi-Critical	**Chhindwara**	Chhindwara	96.55	Critical	Deteriorated
5	**Chhindwara**	Mohkhed	67.73	Safe	**Chhindwara**	Mohkhed	70.83	Semi-Critical	Deteriorated
6	**Neemuch**	Jawad	96.10	Critical	**Neemuch**	Jawad	100.30	Over-Exploited	Deteriorated
7	**Neemuch**	Neemuch	94.64	Critical	**Neemuch**	Neemuch	102.25	Over-Exploited	Deteriorated
8	**Ashoknagar**	Ishagarh	67.06	Safe	**Ashoknagar**	Ishagarh	77.74	Semi-Critical	Deteriorated
9	**Shajapur**	Kalapipal	97.33	Critical	**Shajapur**	Kalapipal	108.83	Over-Exploited	Deteriorated
10	**Jhabua**	Jhabua	67.74	Safe	**Jhabua**	Jhabua	77.13	Semi-Critical	Deteriorated
11	**Shivpuri**	Kolaras	69.56	Safe	**Shivpuri**	Kolaras	78.97	Semi-Critical	Deteriorated
12	**Rewa**	Mauganj	65.62	Safe	**Rewa**	Mauganj	72.00	Semi-Critical	Deteriorated
13	**Vidisha**	Gyraspur	67.58	Safe	**Vidisha**	Gyraspur	71.96	Semi-Critical	Deteriorated
14	**Vidisha**	Kurwai	69.26	Safe	**Vidisha**	Kurwai	71.06	Semi-Critical	Deteriorated
15	**Dhar**	Tirla	87.60	Semi-Critical	**Dhar**	Tirla	94.44	Critical	Deteriorated
16	**Chhatarpur**	Bijawar	66.91	Safe	**Chhatarpur**	Bijawar	76.28	Semi-Critical	Deteriorated

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

MAHARASHTRA

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
				Improved					
1	**Pune**	Purandhar	91.06	Critical	**Pune**	Purandhar	86.30	Semi-Critical	Improved
2	**Sangli**	Kavathe Mahankal	100.47	Over-Exploited	**Sangli**	Kavathe Mahankal	77.25	Semi-Critical	Improved
3	**Jalgaon**	Erandol	71.01	Semi-Critical	**Jalgaon**	Erandol	67.68	Safe	Improved
4	**Nashik**	Kalwan	70.10	Semi-Critical	**Nashik**	Kalwan	68.70	Safe	Improved
5	**Sangli**	Jat	87.43	Semi-Critical	**Sangli**	Jat	69.45	Safe	Improved

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

MAHARASHTRA

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
				Deteriorated					
1	**Buldhana**	Khamgaon	67.57	Safe	**Buldhana**	Khamgaon	70.14	Semi-Critical	Deteriorated
2	**Buldhana**	Lonar	63.81	Safe	**Buldhana**	Lonar	70.14	Semi-Critical	Deteriorated
3	**Buldhana**	Malakapur	66.09	Safe	**Buldhana**	Malakapur	76.93	Semi-Critical	Deteriorated

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)									
ODISHA									
S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Improved									
1	**Balasore**	Bahanaga	73.11	Semi-Critical	**BALASORE**	BAHANAGA	67.87	Safe	Improved

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)									
ODISHA									
S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Deteriorated									
1	**Khurda**	Bhubaneswar	64.94	Safe	**Khurda**	Bhubaneswar	80.34	Semi-Critical	Deteriorated
2	**Nuapada**	Nuapada	57.16	Safe	**Nuapada**	Nuapada	75.35	Semi-Critical	Deteriorated

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

PUNJAB

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Improved									
1	**Gurdaspur**	Qadian	143.00	Over-Exploited	**Gurdaspur**	Qadian	99.09	Critical	Improved
2	**Gurdaspur**	SriHargobindpur	129.00	Over-Exploited	**Gurdaspur**	SriHargobindpur	91.23	Critical	Improved
3	**Hoshiarpur**	Talwara	81.00	Semi-Critical	**Hoshiarpur**	Talwara	52.78	Safe	Improved
4	**Pathankot**	Pathankot	81.00	Semi-Critical	**Pathankot**	Pathankot	54.48	Safe	Improved
5	**Ropar**	Nurpur Bedi	109.00	Over-Exploited	**Ropar**	Nurpur Bedi	91.73	Critical	Improved

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

PUNJAB

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Deteriorated									
1	**Bathinda**	Nathana	73.00	Semi-Critical	**Bathinda**	Nathana	108.91	Over-Exploited	Deteriorated
2	**Bathinda**	Talwandi Saboo	65.00	Safe	**Bathinda**	Talwandi Saboo	94.40	Critical	Deteriorated
3	**Bathinda**	Rampura	69.00	Safe	**Bathinda**	Rampura	80.57	Semi-Critical	Deteriorated
4	**Fazilka**	Fazilka	155.00	Safe	**Fazilka**	Fazilka	95.74	Critical	Deteriorated
5	**Gurdaspur**	Dinanagar	101.00	Safe	**Gurdaspur**	Dinanagar	74.41	Semi-Critical	Deteriorated
6	**Hoshiarpur**	Hoshiarpur II	68.00	Safe	**Hoshiarpur**	Hoshiarpur II	77.56	Semi-Critical	Deteriorated
7	**Hoshiarpur**	Mahilpur	70.00	Safe	**Hoshiarpur**	Mahilpur	80.65	Semi-Critical	Deteriorated
8	**Mansa**	Jhunir	99.00	Critical	**Mansa**	Jhunir	119.73	Over-Exploited	Deteriorated
9	**Nawanshahr**	Balachaur	63.00	Safe	**Nawanshahr**	Balachaur	87.92	Semi-Critical	Deteriorated
10	**Pathankot**	Bamyal	105.00	Safe	**Pathankot**	Bamyal	82.65	Semi-Critical	Deteriorated
11	**Pathankot**	Narot Jaimal Singh	107.00	Safe	**Pathankot**	Narot Jaimal Singh	84.55	Semi-Critical	Deteriorated

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

RAJASTHAN

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Improved									
1	**Barmer**	Gudhamalani	133.84	Over-Exploited	**Barmer**	Gudhamalani	97.94	Critical	Improved
2	**Barmer**	Kalyanpur	92.73	Critical	**Barmer**	Kalyanpur	62.43	Safe	Improved
3	**Barmer**	Patodi	138.57	Over-Exploited	**Barmer**	Patodi	88.04	Semi-Critical	Improved
4	**Barmer**	Siwana	135.90	Over-Exploited	**Barmer**	Siwana	98.08	Critical	Improved
5	**Bikaner**	Kolayat	99.87	Critical	**Bikaner**	Kolayat	60.08	Safe	Improved
6	**Dungarpur**	Dungarpur	89.32	Semi-Critical	**Dungarpur**	Dungarpur	63.69	Safe	Improved
7	**Dungarpur**	Simalwara	86.58	Semi-Critical	**Dungarpur**	Simalwara	69.15	Safe	Improved
8	**Jhalawar**	Pirawa	99.55	Critical	**Jhalawar**	Pirawa	71.67	Semi-Critical	Improved
9	**Kota**	Ladpura	98.85	Critical	**Kota**	Ladpura	82.65	Semi-Critical	Improved
10	**Udaipur**	Bhindar	123.99	Over-Exploited	**Udaipur**	Bhindar	92.45	Critical	Improved

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

RAJASTHAN

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
				Deteriorated					
1	**Banswara**	Anandpuri	68.77	Safe	**Banswara**	Anandpuri	84.01	Semi-Critical	Deteriorated
2	**Banswara**	Bagidora	68.76	Safe	**Banswara**	Bagidora	84.75	Semi-Critical	Deteriorated
3	**Banswara**	Gangar Talai	62.14	Safe	**Banswara**	Gangar Talai	73.53	Semi-Critical	Deteriorated
4	**Banswara**	Garhi	53.36	Safe	**Banswara**	Garhi	70.45	Semi-Critical	Deteriorated
5	**Banswara**	Kushalgarh	67.25	Safe	**Banswara**	Kushalgarh	86.93	Semi-Critical	Deteriorated
6	**Barmer**	Barmer	64.13	Safe	**Barmer**	Barmer	126.24	Over-Exploited	Deteriorated
7	**Barmer**	Dhanaoo	96.69	Critical	**Barmer**	Dhanaoo	103.57	Over-Exploited	Deteriorated
8	**Barmer**	Ramsar	97.08	Critical	**Barmer**	Ramsar	101.36	Over-Exploited	Deteriorated
9	**Barmer**	Serwa	96.11	Critical	**Barmer**	Serwa	112.25	Over-Exploited	Deteriorated
10	**Barmer**	Sindhari	99.50	Critical	**Barmer**	Sindhari	107.20	Over-Exploited	Deteriorated
11	**Bharatpur**	Kaman	99.48	Critical	**Bharatpur**	Kaman	106.22	Over-Exploited	Deteriorated
12	**Bharatpur**	Nagar	97.66	Critical	**Bharatpur**	Nagar	104.70	Over-Exploited	Deteriorated
13	**Bharatpur**	Pahari	99.76	Critical	**Bharatpur**	Pahari	123.84	Over-Exploited	Deteriorated
14	**Bundi**	Bundi	81.87	Semi-Critical	**Bundi**	Bundi	98.50	Critical	Deteriorated
15	**Bundi**	Keshorai Patan	69.37	Safe	**Bundi**	Keshorai Patan	73.24	Semi-Critical	Deteriorated
16	**Churu**	Churu	89.83	Semi-Critical	**Churu**	Churu	98.15	Critical	Deteriorated
17	**Churu**	Ratangarh	79.88	Semi-Critical	**Churu**	Ratangarh	104.47	Over-Exploited	Deteriorated
18	**Dhaulpur**	Bari	88.81	Semi-Critical	**Dhaulpur**	Bari	106.98	Over-Exploited	Deteriorated
19	**Dhaulpur**	Baseri	89.38	Semi-Critical	**Dhaulpur**	Baseri	98.31	Critical	Deteriorated
20	**Dungarpur**	Sagwara	69.23	Safe	**Dungarpur**	Sagwara	87.50	Semi-Critical	Deteriorated
21	**Jaipur**	Phagi	98.87	Critical	**Jaipur**	Phagi	118.70	Over-Exploited	Deteriorated
22	**Jhalawar**	Bakani	99.61	Critical	**Jhalawar**	Bakani	139.49	Over-Exploited	Deteriorated
23	**Jhalawar**	Dag	89.97	Semi-Critical	**Jhalawar**	Dag	117.83	Over-Exploited	Deteriorated
24	**Jhalawar**	Jhalrapatan	99.08	Critical	**Jhalawar**	Jhalrapatan	136.72	Over-Exploited	Deteriorated
25	**Jodhpur**	Bap	65.48	Safe	**Jodhpur**	Bap	84.83	Semi-Critical	Deteriorated
6	**Jodhpur**	Luni	39.47	Safe	**Jodhpur**	Luni	90.19	Critical	Deteriorated
27	**Nagaur**	Ladnu	90.96	Critical	**Nagaur**	Ladnu	117.16	Over-Exploited	Deteriorated
28	**Nagaur**	Nagaur	72.97	Semi-Critical	**Nagaur**	Nagaur	91.44	Critical	Deteriorated
29	**Pali**	Pali	69.26	Safe	**Pali**	Pali	82.09	Semi-Critical	Deteriorated
30	**Pali**	Sumerpur	95.06	Critical	**Pali**	Sumerpur	125.55	Over-Exploited	Deteriorated
31	**Rajsamand**	Deogarh	99.13	Critical	**Rajsamand**	Deogarh	112.90	Over-Exploited	Deteriorated
32	**Sikar**	Fatehpur	78.72	Semi-Critical	**Sikar**	Fatehpur	90.63	Critical	Deteriorated
33	**Sirohi**	Abu Road	99.90	Critical	**Sirohi**	Abu Road	124.02	Over-Exploited	Deteriorated
34	**Sirohi**	Sirohi	91.30	Critical	**Sirohi**	Sirohi	110.72	Over-Exploited	Deteriorated
35	**Tonk**	Todaraisingh	69.82	Safe	**Tonk**	Todaraisingh	73.13	Semi-Critical	Deteriorated
36	**Tonk**	Tonk	84.89	Semi-Critical	**Tonk**	Tonk	99.19	Critical	Deteriorated
37	**Udaipur**	Kotra	89.15	Semi-Critical	**Udaipur**	Kotra	101.33	Over-Exploited	Deteriorated
28	**Udaipur**	Lasadiya	99.03	Critical	**Udaipur**	Lasadiya	117.46	Over-Exploited	Deteriorated
39	**Udaipur**	Rishabhdev	98.38	Critical	**Udaipur**	Rishabhdev	105.79	Over-Exploited	Deteriorated
40	**Udaipur**	Sarada	89.44	Semi-Critical	**Udaipur**	Sarada	92.26	Critical	Deteriorated

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

TAMIL NADU

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Improved									
1	**Chengalpattu**	L.Endathur	98.03	Critical	**Chengalpattu**	L.Endathur	88.15	Semi-Critical	Improved
2	**Chengalpattu**	Nerumbur	109.90	Over-Exploited	**Chengalpattu**	Nerumbur	93.55	Critical	Improved
3	**Chengalpattu**	Singaperumalkoil	102.55	Over-Exploited	**Chengalpattu**	Singaperumalkoil	88.54	Semi-Critical	Improved
4	**Coimbatore**	Anamalai	105.80	Over-Exploited	**Coimbatore**	Anamalai	84.24	Semi-Critical	Improved
5	**Coimbatore**	Sulur	118.51	Over-Exploited	**Coimbatore**	Sulur	96.43	Critical	Improved
6	**Cuddalore**	Marungur	82.66	Semi-Critical	**Cuddalore**	Marungur	53.25	Safe	Improved
7	**Cuddalore**	Sethiyathoppu	74.57	Semi-Critical	**Cuddalore**	Sethiyathoppu	64.74	Safe	Improved
8	**Cuddalore**	Thiruvanthipuram	109.32	Over-Exploited	**Cuddalore**	Thiruvanthipuram	84.80	Semi-Critical	Improved
9	**Cuddalore**	Umangalam	102.42	Over-Exploited	**Cuddalore**	Umangalam	89.44	Semi-Critical	Improved
10	**Dharmapuri**	Krishnapuram	92.64	Critical	**Dharmapuri**	Krishnapuram	88.30	Semi-Critical	Improved
11	**Dharmapuri**	Morappur	98.59	Critical	**Dharmapuri**	Morappur	89.96	Semi-Critical	Improved
12	**Dharmapuri**	Nallampalli	97.13	Critical	**Dharmapuri**	Nallampalli	85.94	Semi-Critical	Improved
13	**Dharmapuri**	Palacode	134.62	Over-Exploited	**Dharmapuri**	Palacode	84.17	Semi-Critical	Improved
14	**Dharmapuri**	Pappireddipatty	93.13	Critical	**Dharmapuri**	Pappireddipatty	89.92	Semi-Critical	Improved
15	**Kallakkurichi**	Kalamarudur	105.92	Over-Exploited	**Kallakkurichi**	Kalamarudur	96.51	Critical	Improved
16	**Kallakkurichi**	Vellimalai	81.47	Semi-Critical	**Kallakkurichi**	Vellimalai	61.89	Safe	Improved
17	**Kancheepuram**	Govindhavadi	116.23	Over-Exploited	**Kancheepuram**	Govindhavadi	95.13	Critical	Improved
18	**Kancheepuram**	Sirukaveripakkam	103.39	Over-Exploited	**Kancheepuram**	Sirukaveripakkam	86.03	Semi-Critical	Improved
19	**Kancheepuram**	Thiruppu Kuzhi	93.51	Critical	**Kancheepuram**	Thiruppu Kuzhi	85.81	Semi-Critical	Improved
20	**Krishnagiri**	Hosur	123.50	Over-Exploited	**Krishnagiri**	Hosur	87.74	Semi-Critical	Improved
21	**Krishnagiri**	Kakkadasam	72.48	Semi-Critical	**Krishnagiri**	Kakkadasam	60.06	Safe	Improved
22	**Krishnagiri**	Krishnagiri	196.85	Over-Exploited	**Krishnagiri**	Krishnagiri	89.11	Semi-Critical	Improved
23	**Krishnagiri**	Mathigiri	98.78	Critical	**Krishnagiri**	Mathigiri	87.84	Semi-Critical	Improved
24	**Krishnagiri**	Pochampalli	163.21	Over-Exploited	**Krishnagiri**	Pochampalli	88.97	Semi-Critical	Improved
25	**Krishnagiri**	Thally	77.56	Semi-Critical	**Krishnagiri**	Thally	68.86	Safe	Improved
26	**Krishnagiri**	Uthanapalli	80.43	Semi-Critical	**Krishnagiri**	Uthanapalli	67.54	Safe	Improved
27	**Pudukkottai**	Keeramangalam	91.79	Critical	**Pudukkottai**	Keeramangalam	86.79	Semi-Critical	Improved
28	**Pudukkottai**	Varappur	78.52	Semi-Critical	**Pudukkottai**	Varappur	68.13	Safe	Improved
29	**Pudukkottai**	Veerapatty	82.52	Semi-Critical	**Pudukkottai**	Veerapatty	68.87	Safe	Improved
30	**Ranipet**	Kalavai	109.21	Over-Exploited	**Ranipet**	Kalavai	93.73	Critical	Improved
31	**Ranipet**	Mambakkam	93.96	Critical	**Ranipet**	Mambakkam	84.66	Semi-Critical	Improved
32	**Ranipet**	Nemili(V)	116.20	Over-Exploited	**Ranipet**	Nemili(V)	92.30	Critical	Improved
33	**Ranipet**	Pallur	91.77	Critical	**Ranipet**	Pallur	81.68	Semi-Critical	Improved
34	**Salem**	Karupur	123.84	Over-Exploited	**Salem**	Karupur	98.41	Critical	Improved
35	**Sivaganga**	Varappur	78.52	Semi-Critical	**Sivaganga**	Varappur	68.12	Safe	Improved
36	**Tenkasi**	Kadayanallur	99.12	Critical	**Tenkasi**	Kadayanallur	88.14	Semi-Critical	Improved
37	**Tirupathur**	Alangayam	101.10	Over-Exploited	**Tirupathur**	Alangayam	95.51	Critical	Improved
38	**Tirupathur**	Ambalur	98.86	Critical	**Tirupathur**	Ambalur	89.04	Semi-Critical	Improved
39	**Tirupathur**	Andiyappanur	101.08	Over-Exploited	**Tirupathur**	Andiyappanur	92.35	Critical	Improved
40	**Tirupathur**	Pudurnadu	93.32	Critical	**Tirupathur**	Pudurnadu	86.19	Semi-Critical	Improved
41	**Thiruvallur**	Ammanambakkam	74.91	Semi-Critical	**Thiruvallur**	Ammanambakkam	68.42	Safe	Improved
42	**Thiruvallur**	Cherukkanoor	92.86	Critical	**Thiruvallur**	Cherukkanoor	87.32	Semi-Critical	Improved
43	**Thiruvallur**	Kadambathur	87.56	Semi-Critical	**Thiruvallur**	Kadambathur	63.06	Safe	Improved
44	**Thiruvallur**	Kanagammachattram	93.62	Critical	**Thiruvallur**	Kanagammachattram	82.51	Semi-Critical	Improved
45	**Thiruvallur**	Kannigaipair	95.28	Critical	**Thiruvallur**	Kannigaipair	82.30	Semi-Critical	Improved
46	**Thiruvallur**	Kattur	81.47	Semi-Critical	**Thiruvallur**	Kattur	59.26	Safe	Improved
47	**Thiruvallur**	Kolur	72.08	Semi-Critical	**Thiruvallur**	Kolur	57.36	Safe	Improved
48	**Thiruvallur**	Morai	113.16	Over-Exploited	**Thiruvallur**	Morai	88.42	Semi-Critical	Improved
49	**Thiruvallur**	Nemam	101.67	Over-Exploited	**Thiruvallur**	Nemam	89.32	Semi-Critical	Improved
50	**Thiruvallur**	Thirumazhisai	99.44	Critical	**Thiruvallur**	Thirumazhisai	89.84	Semi-Critical	Improved
51	**Thiruvallur**	Thiruvalangadu	73.93	Semi-Critical	**Thiruvallur**	Thiruvalangadu	51.66	Safe	Improved
52	**Thiruvallur**	Vengathur	106.96	Over-Exploited	**Thiruvallur**	Vengathur	99.32	Critical	Improved
53	**Tiruchirappalli**	Andanallur	70.57	Semi-Critical	**Tiruchirappalli**	Andanallur	55.82	Safe	Improved

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

TAMIL NADU

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
				Improved					
54	**Tiruchirappalli**	Ealurpatti	91.67	Critical	**Tiruchirappalli**	Ealurpatti	86.21	Semi-Critical	Improved
55	**Tiruchirappalli**	Kattuputhur	99.66	Critical	**Tiruchirappalli**	Kattuputhur	88.18	Semi-Critical	Improved
56	**Tiruchirappalli**	Thottiyam	97.69	Critical	**Tiruchirappalli**	Thottiyam	86.77	Semi-Critical	Improved
57	**Tiruchirappalli**	Uppiliyapuram	100.99	Over-Exploited	**Tiruchirappalli**	Uppiliyapuram	94.49	Critical	Improved
58	**Tiruchirappalli**	Valadi	71.70	Semi-Critical	**Tiruchirappalli**	Valadi	65.00	Safe	Improved
59	**Tiruppur**	Alangiyam	102.86	Over-Exploited	**Tiruppur**	Alangiyam	92.80	Critical	Improved
60	**Tiruppur**	Dharapuram	93.62	Critical	**Tiruppur**	Dharapuram	72.25	Semi-Critical	Improved
61	**Tiruppur**	Nathakadaiyur	117.46	Over-Exploited	**Tiruppur**	Nathakadaiyur	94.66	Critical	Improved
62	**Tiruppur**	Sankarandampalayam	102.13	Over-Exploited	**Tiruppur**	Sankarandampalayam	94.02	Critical	Improved
63	**Tiruppur**	Thungavi	95.23	Critical	**Tiruppur**	Thungavi	82.69	Semi-Critical	Improved
64	**Tiruvannamalai**	Anakavoor	98.66	Critical	**Tiruvannamalai**	Anakavoor	83.37	Semi-Critical	Improved
65	**Tiruvannamalai**	Arni	112.46	Over-Exploited	**Tiruvannamalai**	Arni	88.45	Semi-Critical	Improved
66	**Tiruvannamalai**	Cheyyar	111.44	Over-Exploited	**Tiruvannamalai**	Cheyyar	88.48	Semi-Critical	Improved
67	**Tiruvannamalai**	Devikapuram	99.67	Critical	**Tiruvannamalai**	Devikapuram	82.72	Semi-Critical	Improved
68	**Tiruvannamalai**	Dusi	110.69	Over-Exploited	**Tiruvannamalai**	Dusi	89.05	Semi-Critical	Improved
69	**Tiruvannamalai**	Kalasapakkam	112.44	Over-Exploited	**Tiruvannamalai**	Kalasapakkam	89.95	Semi-Critical	Improved
70	**Tiruvannamalai**	Kannamangalam	98.04	Critical	**Tiruvannamalai**	Kannamangalam	89.12	Semi-Critical	Improved
71	**Tiruvannamalai**	Kilpennathur	134.42	Over-Exploited	**Tiruvannamalai**	Kilpennathur	95.35	Critical	Improved
72	**Tiruvannamalai**	Mangalam	148.64	Over-Exploited	**Tiruvannamalai**	Mangalam	98.94	Critical	Improved
73	**Tiruvannamalai**	Modayur	102.38	Over-Exploited	**Tiruvannamalai**	Modayur	93.70	Critical	Improved
74	**Tiruvannamalai**	Nayadumangalam	111.29	Over-Exploited	**Tiruvannamalai**	Nayadumangalam	89.93	Semi-Critical	Improved
75	**Tiruvannamalai**	Peranamallur	109.14	Over-Exploited	**Tiruvannamalai**	Peranamallur	88.73	Semi-Critical	Improved
76	**Tiruvannamalai**	Polur	111.88	Over-Exploited	**Tiruvannamalai**	Polur	89.81	Semi-Critical	Improved
77	**Tiruvannamalai**	T.V.Malai (North)	93.30	Critical	**Tiruvannamalai**	T.V.Malai (North)	88.12	Semi-Critical	Improved
78	**Tiruvannamalai**	Thandarampat	107.25	Over-Exploited	**Tiruvannamalai**	Thandarampat	88.24	Semi-Critical	Improved
79	**Tiruvannamalai**	Thellar	99.28	Critical	**Tiruvannamalai**	Thellar	89.91	Semi-Critical	Improved
80	**Tiruvannamalai**	Thethurai	98.80	Critical	**Tiruvannamalai**	Thethurai	88.82	Semi-Critical	Improved
81	**Tiruvannamalai**	Vanapuram	100.89	Over-Exploited	**Tiruvannamalai**	Vanapuram	85.86	Semi-Critical	Improved
82	**Tiruvannamalai**	Vandavasi	114.35	Over-Exploited	**Tiruvannamalai**	Vandavasi	98.21	Critical	Improved
83	**Tiruvannamalai**	Veraiyur	101.70	Over-Exploited	**Tiruvannamalai**	Veraiyur	95.21	Critical	Improved
84	**Vellore**	Katpadi	129.58	Over-Exploited	**Vellore**	Katpadi	81.68	Semi-Critical	Improved
85	**Vellore**	Pennathur	104.59	Over-Exploited	**Vellore**	Pennathur	98.81	Critical	Improved
86	**Vellore**	Pernampattu	110.64	Over-Exploited	**Vellore**	Pernampattu	89.08	Semi-Critical	Improved
87	**Viluppuram**	Kiliyanur	133.46	Over-Exploited	**Viluppuram**	Kiliyanur	95.59	Critical	Improved
88	**Viluppuram**	Mailam	74.16	Semi-Critical	**Viluppuram**	Mailam	55.07	Safe	Improved
89	**Viluppuram**	Marakanam	104.53	Over-Exploited	**Viluppuram**	Marakanam	87.60	Semi-Critical	Improved
90	**Viluppuram**	Tindivanam	126.88	Over-Exploited	**Viluppuram**	Tindivanam	88.39	Semi-Critical	Improved
91	**Viluppuram**	Vanur	89.08	Semi-Critical	**Viluppuram**	Vanur	65.88	Safe	Improved
92	**Viluppuram**	Villupuram	109.56	Over-Exploited	**Viluppuram**	Villupuram	82.34	Semi-Critical	Improved
93	**Virudhunagar**	Mallankinar	103.36	Over-Exploited	**Virudhunagar**	Mallankinar	96.13	Critical	Improved
94	**Virudhunagar**	Ondipulinaickanur	98.70	Critical	**Virudhunagar**	Ondipulinaickanur	85.69	Semi-Critical	Improved
95	**Virudhunagar**	Rajapalayam	110.44	Over-Exploited	**Virudhunagar**	Rajapalayam	83.26	Semi-Critical	Improved
96	**Virudhunagar**	Salwarpatti	95.98	Critical	**Virudhunagar**	Salwarpatti	82.55	Semi-Critical	Improved
97	**Virudhunagar**	Srivilliputtur	95.30	Critical	**Virudhunagar**	Srivilliputtur	83.49	Semi-Critical	Improved
98	**Virudhunagar**	Vatchakara-Patti	101.02	Over-Exploited	**Virudhunagar**	Vatchakara-Patti	98.93	Critical	Improved

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

TAMIL NADU

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Deteriorated									
1	**Chengalpattu**	Kodur	65.76	Safe	**Chengalpattu**	Kodur	80.53	Semi-Critical	Deteriorated
2	**Coimbatore**	Karamadai	89.37	Semi-Critical	**Coimbatore**	Karamadai	107.78	Over-Exploited	Deteriorated
3	**Coimbatore**	Madukkarai	100.30	Critical	**Coimbatore**	Madukkarai	111.95	Over-Exploited	Deteriorated
4	**Coimbatore**	Mettupalayam	92.38	Critical	**Coimbatore**	Mettupalayam	121.87	Over-Exploited	Deteriorated
5	**Coimbatore**	Periyanaickenpalayam	85.01	Semi-Critical	**Coimbatore**	Periyanaickenpalayam	117.88	Over-Exploited	Deteriorated
6	**Coimbatore**	Saravanampatti	93.41	Critical	**Coimbatore**	Saravanampatti	110.00	Over-Exploited	Deteriorated
7	**Coimbatore**	Thirumalaiampalayam	93.45	Critical	**Coimbatore**	Thirumalaiampalayam	119.55	Over-Exploited	Deteriorated
8	**Cuddalore**	Kadampuliyur	66.50	Safe	**Cuddalore**	Kadampuliyur	89.69	Semi-Critical	Deteriorated
9	**Cuddalore**	Kullanchavadi	24.48	Safe	**Cuddalore**	Kullanchavadi	72.45	Semi-Critical	Deteriorated
10	**Cuddalore**	Kurinjipadi	40.44	Safe	**Cuddalore**	Kurinjipadi	83.13	Semi-Critical	Deteriorated
11	**Cuddalore**	Pennadam	95.70	Critical	**Cuddalore**	Pennadam	149.82	Over-Exploited	Deteriorated
12	**Cuddalore**	Thozhudur	60.91	Safe	**Cuddalore**	Thozhudur	91.03	Critical	Deteriorated
13	**Cuddalore**	Tittagudi (E)	68.60	Safe	**Cuddalore**	Tittagudi (E)	89.90	Semi-Critical	Deteriorated
14	**Cuddalore**	Tittagudi (W)	51.66	Safe	**Cuddalore**	Tittagudi (W)	71.33	Semi-Critical	Deteriorated
15	**Cuddalore**	Udaiyarkudi	49.93	Safe	**Cuddalore**	Udaiyarkudi	88.44	Semi-Critical	Deteriorated
16	**Cuddalore**	Virudhachalam(N)	57.19	Safe	**Cuddalore**	Virudhachalam(N)	87.87	Semi-Critical	Deteriorated
17	**Dindigul**	Athoor	90.26	Semi-Critical	**Dindigul**	Athoor	97.30	Critical	Deteriorated
18	**Dindigul**	Dindigul East	58.91	Safe	**Dindigul**	Dindigul East	80.64	Semi-Critical	Deteriorated
19	**Dindigul**	Kambiliampatti	79.70	Semi-Critical	**Dindigul**	Kambiliampatti	90.21	Critical	Deteriorated
20	**Dindigul**	Korikadavu	83.42	Semi-Critical	**Dindigul**	Korikadavu	96.52	Critical	Deteriorated
21	**Dindigul**	Natham	70.49	Safe	**Dindigul**	Natham	72.42	Semi-Critical	Deteriorated
22	**Dindigul**	Oruthattu	91.48	Critical	**Dindigul**	Oruthattu	102.18	Over-Exploited	Deteriorated
23	**Dindigul**	Reddiapatti	66.42	Safe	**Dindigul**	Reddiapatti	75.45	Semi-Critical	Deteriorated
24	**Dindigul**	Senthurai	64.81	Safe	**Dindigul**	Senthurai	70.08	Semi-Critical	Deteriorated
25	**Erode**	Kasipalayam	95.77	Critical	**Erode**	Kasipalayam	119.55	Over-Exploited	Deteriorated
26	**Erode**	Kilampadi	92.05	Critical	**Erode**	Kilampadi	112.38	Over-Exploited	Deteriorated
27	**Erode**	Kuthiyalathur	65.27	Safe	**Erode**	Kuthiyalathur	76.13	Semi-Critical	Deteriorated
28	**Erode**	Poondurai	60.10	Safe	**Erode**	Poondurai	84.34	Semi-Critical	Deteriorated
29	**Erode**	Sathyamangalam	90.59	Critical	**Erode**	Sathyamangalam	102.47	Over-Exploited	Deteriorated
30	**Erode**	Sivagiri	65.46	Safe	**Erode**	Sivagiri	86.69	Semi-Critical	Deteriorated
31	**Erode**	Thingalur	91.90	Critical	**Erode**	Thingalur	119.41	Over-Exploited	Deteriorated
32	**Erode**	Vaniputhur	69.15	Safe	**Erode**	Vaniputhur	81.55	Semi-Critical	Deteriorated
33	**Kallakkurichi**	Alathaur	48.55	Safe	**Kallakkurichi**	Alathaur	75.53	Semi-Critical	Deteriorated
34	**Kallakkurichi**	Chinnaselam	88.72	Semi-Critical	**Kallakkurichi**	Chinnaselam	96.70	Critical	Deteriorated
35	**Kallakkurichi**	Kallakurichi	75.18	Semi-Critical	**Kallakkurichi**	Kallakurichi	97.63	Critical	Deteriorated
36	**Kallakkurichi**	Kalvarayan Malai	68.35	Safe	**Kallakkurichi**	Kalvarayan Malai	94.27	Critical	Deteriorated
37	**Kallakkurichi**	Sankarapuram	58.81	Safe	**Kallakkurichi**	Sankarapuram	88.38	Semi-Critical	Deteriorated
38	**Karur**	Aravakurichi	60.88	Safe	**Karur**	Aravakurichi	70.18	Semi-Critical	Deteriorated
39	**Krishnagiri**	Nagarasampatti	95.53	Critical	**Krishnagiri**	Nagarasampatti	105.48	Over-Exploited	Deteriorated
40	**Ranipet**	Banavaram	65.86	Safe	**Ranipet**	Banavaram	76.89	Semi-Critical	Deteriorated
41	**Ranipet**	Sholinghur	54.09	Safe	**Ranipet**	Sholinghur	77.21	Semi-Critical	Deteriorated
42	**Salem**	Panamarathuppatti	38.39	Safe	**Salem**	Panamarathuppatti	94.68	Critical	Deteriorated
43	**Thanjavur**	Adirampattinam	97.22	Critical	**Thanjavur**	Adirampattinam	102.80	Over-Exploited	Deteriorated
44	**Thanjavur**	Agarapettai	95.72	Critical	**Thanjavur**	Agarapettai	102.77	Over-Exploited	Deteriorated
45	**Thanjavur**	Pattukkottai	95.89	Critical	**Thanjavur**	Pattukkottai	116.70	Over-Exploited	Deteriorated
46	**Thanjavur**	Sillathur	99.63	Critical	**Thanjavur**	Sillathur	113.19	Over-Exploited	Deteriorated
47	**Thanjavur**	Thekkur	66.97	Safe	**Thanjavur**	Thekkur	70.67	Semi-Critical	Deteriorated
48	**The Nilgiris**	Ithalar	44.17	Safe	**The Nilgiris**	Ithalar	71.97	Semi-Critical	Deteriorated
49	**The Nilgiris**	Kundah	61.85	Safe	**The Nilgiris**	Kundah	73.19	Semi-Critical	Deteriorated
50	**Theni**	Mayladumparai	62.79	Safe	**Theni**	Mayladumparai	82.05	Semi-Critical	Deteriorated
51	**Thiruvallur**	Balapuram	59.85	Safe	**Thiruvallur**	Balapuram	81.97	Semi-Critical	Deteriorated
52	**Thiruvallur**	Manavor	42.11	Safe	**Thiruvallur**	Manavor	84.87	Semi-Critical	Deteriorated
53	**Thiruvallur**	Poondi	61.14	Safe	**Thiruvallur**	Poondi	74.76	Semi-Critical	Deteriorated
54	**Thiruvallur**	Puzhal	69.11	Safe	**Thiruvallur**	Puzhal	70.03	Semi-Critical	Deteriorated

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

TAMIL NADU

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Deteriorated									
55	**Thiruvallur**	Tirur	49.02	Safe	**Thiruvallur**	Tirur	75.93	Semi-Critical	Deteriorated
56	**Thoothukkudi**	Kayathar	70.02	Safe	**Thoothukkudi**	Kayathar	86.79	Semi-Critical	Deteriorated
57	**Tiruchirappalli**	Valanadu	68.88	Safe	**Tiruchirappalli**	Valanadu	83.74	Semi-Critical	Deteriorated
58	**Viluppuram**	Arasur	97.59	Critical	**Viluppuram**	Arasur	118.66	Over-Exploited	Deteriorated
59	**Viluppuram**	Chithalingamadam	99.05	Critical	**Viluppuram**	Chithalingamadam	113.87	Over-Exploited	Deteriorated
60	**Viluppuram**	Kandamangalam	80.45	Semi-Critical	**Viluppuram**	Kandamangalam	91.29	Critical	Deteriorated
61	**Viluppuram**	Olakkur	97.09	Critical	**Viluppuram**	Olakkur	107.92	Over-Exploited	Deteriorated
62	**Viluppuram**	T.V.Nallur	70.54	Semi-Critical	**Viluppuram**	T.V.Nallur	156.10	Over-Exploited	Deteriorated
63	**Viluppuram**	Vadasiruvalur	99.93	Critical	**Viluppuram**	Vadasiruvalur	105.34	Over-Exploited	Deteriorated
64	**Viluppuram**	Valavanur	63.45	Safe	**Viluppuram**	Valavanur	96.56	Critical	Deteriorated
65	**Viluppuram**	Vikkiravandi	60.25	Safe	**Viluppuram**	Vikkiravandi	99.35	Critical	Deteriorated

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

TELANGANA

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Improved									
1	**Adilabad**	Bazarhathnoor	80.74	Semi-Critical	**Adilabad**	Bazarhathnoor	67.86	Safe	Improved
2	**Adilabad**	Boath	94.45	Critical	**Adilabad**	Boath	69.18	Safe	Improved
3	**Adilabad**	Gudihathnur	109.30	Over-Exploited	**Adilabad**	Gudihathnur	75.33	Semi-Critical	Improved
4	**Adilabad**	Ichoda	120.49	Over-Exploited	**Adilabad**	Ichoda	69.10	Safe	Improved
5	**Adilabad**	Mavala	93.79	Critical	**Adilabad**	Mavala	77.46	Semi-Critical	Improved
6	**Adilabad**	Narnoor	86.21	Semi-Critical	**Adilabad**	Narnoor	67.30	Safe	Improved
7	**Adilabad**	Neradigonda	93.48	Critical	**Adilabad**	Neradigonda	73.32	Semi-Critical	Improved
8	**Adilabad**	Tamsi	109.03	Over-Exploited	**Adilabad**	Tamsi	75.63	Semi-Critical	Improved
9	**Jagtial**	Ibrahimpatnam	74.50	Semi-Critical	**Jagtial**	Ibrahimpatnam	66.48	Safe	Improved
10	**Jagtial**	Jagityal_Rural	72.21	Semi-Critical	**Jagtial**	Jagityal_Rural	59.01	Safe	Improved
11	**Jagtial**	Mallapur	78.65	Semi-Critical	**Jagtial**	Mallapur	64.84	Safe	Improved
12	**Jangaon**	Devaruppala	99.50	Critical	**Jangaon**	Devaruppala	61.47	Safe	Improved
13	**Jangaon**	Lingalaghanpur	99.36	Critical	**Jangaon**	Lingalaghanpur	67.50	Safe	Improved
14	**Jangaon**	Raghunathpalle	93.01	Critical	**Jangaon**	Raghunathpalle	84.40	Semi-Critical	Improved
15	**Jangaon**	Zaffergadh	90.33	Critical	**Jangaon**	Zaffergadh	79.06	Semi-Critical	Improved
16	**Jayashankar_Bhupalapally**	Bhupalpalle	71.24	Semi-Critical	**Jayashankar**	Bhupalpalle	57.27	Safe	Improved
17	**Jayashankar_Bhupalapally**	Ghanapur_Mulug	81.60	Semi-Critical	**Jayashankar**	Ghanapur_Mulug	56.27	Safe	Improved
18	**Jayashankar_Bhupalapally**	Kataram	110.16	Over-Exploited	**Jayashankar**	Kataram	41.53	Safe	Improved
19	**Jayashankar_Bhupalapally**	Regonda	76.79	Semi-Critical	**Jayashankar**	Regonda	65.06	Safe	Improved
20	**Jogulamba_Gadwal**	Maldakal	79.86	Semi-Critical	**Jogulamba**	Maldakal	56.00	Safe	Improved
21	**Kamareddy**	Bichkunda	75.33	Semi-Critical	**Kamareddy**	Bichkunda	68.91	Safe	Improved
22	**Kamareddy**	Birkoor	71.33	Semi-Critical	**Kamareddy**	Birkoor	51.37	Safe	Improved
23	**Kamareddy**	Domakonda	97.03	Critical	**Kamareddy**	Domakonda	86.83	Semi-Critical	Improved
24	**Kamareddy**	Gandhari	73.50	Semi-Critical	**Kamareddy**	Gandhari	63.74	Safe	Improved
25	**Kamareddy**	Jukkal	81.10	Semi-Critical	**Kamareddy**	Jukkal	62.07	Safe	Improved
26	**Kamareddy**	Kamareddy	92.70	Critical	**Kamareddy**	Kamareddy	69.76	Safe	Improved
27	**Kamareddy**	Machareddy	92.13	Critical	**Kamareddy**	Machareddy	79.75	Semi-Critical	Improved
28	**Kamareddy**	Madnur	84.49	Semi-Critical	**Kamareddy**	Madnur	64.68	Safe	Improved
29	**Kamareddy**	Nasurullabad	75.87	Semi-Critical	**Kamareddy**	Nasurullabad	50.83	Safe	Improved
30	**Kamareddy**	Pedda Kodapgal	70.92	Semi-Critical	**Kamareddy**	Pedda Kodapgal	69.14	Safe	Improved
31	**Kamareddy**	Pitlam	76.13	Semi-Critical	**Kamareddy**	Pitlam	69.73	Safe	Improved
32	**Kamareddy**	Ramareddy	96.02	Critical	**Kamareddy**	Ramareddy	69.14	Safe	Improved
33	**Karimnagar**	Chigurumamidi	96.80	Critical	**Karimnagar**	Chigurumamidi	74.00	Semi-Critical	Improved
34	**Karimnagar**	Choppadandi	98.94	Critical	**Karimnagar**	Choppadandi	62.39	Safe	Improved
35	**Karimnagar**	Ellandakunta	76.88	Semi-Critical	**Karimnagar**	Ellandakunta	49.21	Safe	Improved
36	**Karimnagar**	Gangadhara	116.72	Over-Exploited	**Karimnagar**	Gangadhara	94.51	Critical	Improved
37	**Karimnagar**	Gannervaram	99.53	Critical	**Karimnagar**	Gannervaram	71.03	Semi-Critical	Improved
38	**Karimnagar**	Huzurabad	71.70	Semi-Critical	**Karimnagar**	Huzurabad	45.26	Safe	Improved
39	**Karimnagar**	Kothapalle	73.42	Semi-Critical	**Karimnagar**	Kothapalle	62.40	Safe	Improved
40	**Karimnagar**	Manakondur	72.19	Semi-Critical	**Karimnagar**	Manakondur	35.51	Safe	Improved
41	**Karimnagar**	Thimmapur	83.94	Semi-Critical	**Karimnagar**	Thimmapur	57.82	Safe	Improved
42	**Khammam**	Chinthakani	73.99	Semi-Critical	**Khammam**	Chinthakani	30.45	Safe	Improved
43	**Khammam**	Khammam_Rural	138.06	Over-Exploited	**Khammam**	Khammam_Rural	54.11	Safe	Improved
44	**Khammam**	Kusumanchi	120.00	Over-Exploited	**Khammam**	Kusumanchi	62.29	Safe	Improved
45	**Khammam**	Mudigonda	77.74	Semi-Critical	**Khammam**	Mudigonda	26.51	Safe	Improved
46	**Khammam**	Nelakondapalle	70.06	Semi-Critical	**Khammam**	Nelakondapalle	24.25	Safe	Improved
47	**Khammam**	Raghunadhapalem	95.89	Critical	**Khammam**	Raghunadhapalem	82.25	Semi-Critical	Improved
48	**Khammam**	Thirumalayapalem	122.14	Over-Exploited	**Khammam**	Thirumalayapalem	80.51	Semi-Critical	Improved
49	**Komarambhem_Asifabad**	Kagaznagar	74.97	Semi-Critical	**Komarambhem**	Kagaznagar	40.65	Safe	Improved
50	**Mahabubabad**	Danthalapalle	104.88	Over-Exploited	**Mahabubabad**	Danthalapalle	91.27	Critical	Improved
51	**Mahabubabad**	Mahabubabad	74.78	Semi-Critical	**Mahabubabad**	Mahabubabad	63.08	Safe	Improved
52	**Mahabubabad**	Maripeda	103.37	Over-Exploited	**Mahabubabad**	Maripeda	89.89	Semi-Critical	Improved
53	**Mahabubabad**	Narsimhulapet	100.39	Over-Exploited	**Mahabubabad**	Narsimhulapet	88.48	Semi-Critical	Improved

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

TELANGANA

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Improved									
54	**Mahabubabad**	Peddavangara	114.52	Over-Exploited	**Mahabubabad**	Peddavangara	71.07	Semi-Critical	Improved
55	**Mahabubabad**	Thorrur	92.60	Critical	**Mahabubabad**	Thorrur	73.97	Semi-Critical	Improved
56	**Mahabubnagar**	Addakal	75.56	Semi-Critical	**Mahabubnagar**	Addakal	69.36	Safe	Improved
57	**Mahabubnagar**	Balanagar	100.56	Over-Exploited	**Mahabubnagar**	Balanagar	93.60	Critical	Improved
58	**Mahabubnagar**	Hanwada	92.63	Critical	**Mahabubnagar**	Hanwada	88.99	Semi-Critical	Improved
59	**Mahabubnagar**	Rajapur	91.49	Critical	**Mahabubnagar**	Rajapur	88.79	Semi-Critical	Improved
60	**Mancherial**	Chennur	75.95	Semi-Critical	**Mancherial**	Chennur	49.03	Safe	Improved
61	**Medak**	Chilipched	74.42	Semi-Critical	**Medak**	Chilipched	35.20	Safe	Improved
62	**Medak**	Kowdipalle	81.18	Semi-Critical	**Medak**	Kowdipalle	52.28	Safe	Improved
63	**Medak**	Nizampet	90.23	Critical	**Medak**	Nizampet	84.56	Semi-Critical	Improved
64	**Medak**	Regode	75.33	Semi-Critical	**Medak**	Regode	65.09	Safe	Improved
65	**Medchal_Malkajgiri**	Balanagar	297.97	Over-Exploited	**Medchal**	Balanagar	95.40	Critical	Improved
66	**Medchal_Malkajgiri**	Kapra	111.79	Over-Exploited	**Medchal**	Kapra	57.09	Safe	Improved
67	**Medchal_Malkajgiri**	Keesara	70.68	Semi-Critical	**Medchal**	Keesara	57.36	Safe	Improved
68	**Medchal_Malkajgiri**	Kukatpally	131.71	Over-Exploited	**Medchal**	Kukatpally	95.40	Critical	Improved
69	**Medchal_Malkajgiri**	Malkajgiri	185.08	Over-Exploited	**Medchal**	Malkajgiri	57.09	Safe	Improved
70	**Medchal_Malkajgiri**	Medchel	91.80	Critical	**Medchal**	Medchel	78.92	Semi-Critical	Improved
71	**Medchal_Malkajgiri**	Medipally	85.65	Semi-Critical	**Medchal**	Medipally	57.09	Safe	Improved
72	**Medchal_Malkajgiri**	Quthbullapur	138.34	Over-Exploited	**Medchal**	Quthbullapur	95.40	Critical	Improved
73	**Medchal_Malkajgiri**	Shamirpet	76.01	Semi-Critical	**Medchal**	Shamirpet	55.38	Safe	Improved
74	**Medchal_Malkajgiri**	Uppal	168.49	Over-Exploited	**Medchal**	Uppal	57.09	Safe	Improved
75	**Mulug**	Venkatapuram	73.07	Semi-Critical	**Mulug**	Venkatapuram	48.10	Safe	Improved
76	**Nagarkurnool**	Kodair	80.13	Semi-Critical	**Nagarkurnool**	Kodair	61.63	Safe	Improved
77	**Nagarkurnool**	Peddakothapalle	83.05	Semi-Critical	**Nagarkurnool**	Peddakothapalle	66.83	Safe	Improved
78	**Nagarkurnool**	Tadoor	97.81	Critical	**Nagarkurnool**	Tadoor	73.45	Semi-Critical	Improved
79	**Nalgonda**	Kangal	102.72	Over-Exploited	**Nalgonda**	Kangal	87.58	Semi-Critical	Improved
80	**Nalgonda**	Kattangoor	122.26	Over-Exploited	**Nalgonda**	Kattangoor	97.22	Critical	Improved
81	**Nalgonda**	Kondamallapally	77.14	Semi-Critical	**Nalgonda**	Kondamallapally	58.36	Safe	Improved
82	**Nalgonda**	Madugulapally	76.46	Semi-Critical	**Nalgonda**	Madugulapally	55.66	Safe	Improved
83	**Nalgonda**	Miryalaguda	79.05	Semi-Critical	**Nalgonda**	Miryalaguda	22.06	Safe	Improved
84	**Nalgonda**	Nakrekal	87.02	Semi-Critical	**Nalgonda**	Nakrekal	69.12	Safe	Improved
85	**Nalgonda**	Peddavura	115.43	Over-Exploited	**Nalgonda**	Peddavura	28.48	Safe	Improved
86	**Nalgonda**	Tirumalagiri_Sagar	73.10	Semi-Critical	**Nalgonda**	Tirumalagiri_Sagar	21.02	Safe	Improved
87	**Nalgonda**	Vemulapalle	118.32	Over-Exploited	**Nalgonda**	Vemulapalle	49.25	Safe	Improved
88	**Narayanpet**	Narva	91.59	Critical	**Narayanpet**	Narva	47.22	Safe	Improved
89	**Nirmal**	Dilawarpur	73.08	Semi-Critical	**Nirmal**	Dilawarpur	69.92	Safe	Improved
90	**Nirmal**	Nirmal_Rural	70.87	Semi-Critical	**Nirmal**	Nirmal_Rural	60.59	Safe	Improved
91	**Nizamabad**	Armur	101.56	Over-Exploited	**Nizamabad**	Armur	87.88	Semi-Critical	Improved
92	**Nizamabad**	Bodhan	71.99	Semi-Critical	**Nizamabad**	Bodhan	51.08	Safe	Improved
93	**Nizamabad**	Makloor	80.47	Semi-Critical	**Nizamabad**	Makloor	67.78	Safe	Improved
94	**Nizamabad**	Mupkal	101.90	Over-Exploited	**Nizamabad**	Mupkal	74.42	Semi-Critical	Improved
95	**Nizamabad**	Nandipet	74.75	Semi-Critical	**Nizamabad**	Nandipet	64.39	Safe	Improved
96	**Nizamabad**	Nizamabad_North	107.80	Over-Exploited	**Nizamabad**	Nizamabad_North	58.24	Safe	Improved
97	**Peddapalli**	Manthani	82.49	Semi-Critical	**Peddapalle**	Manthani	59.63	Safe	Improved
98	**Rangareddy**	Amangal	92.69	Critical	**Rangareddy**	Amangal	75.94	Semi-Critical	Improved
99	**Rangareddy**	Hayathnagar	88.80	Semi-Critical	**Rangareddy**	Hayathnagar	65.72	Safe	Improved
100	**Rangareddy**	Kadthal	91.84	Critical	**Rangareddy**	Kadthal	69.12	Safe	Improved
101	**Rangareddy**	Kondurg	93.43	Critical	**Rangareddy**	Kondurg	81.43	Semi-Critical	Improved
102	**Rangareddy**	Kothur	105.45	Over-Exploited	**Rangareddy**	Kothur	99.03	Critical	Improved
103	**Rangareddy**	Madgul	83.59	Semi-Critical	**Rangareddy**	Madgul	66.91	Safe	Improved
104	**Rangareddy**	Moinabad	96.31	Critical	**Rangareddy**	Moinabad	76.76	Semi-Critical	Improved
105	**Rangareddy**	Shabad	70.01	Semi-Critical	**Rangareddy**	Shabad	67.38	Safe	Improved
106	**Sangareddy**	Ameenapur	105.83	Over-Exploited	**Sangareddy**	Ameenapur	99.03	Critical	Improved
107	**Sangareddy**	Gummadidala	75.29	Semi-Critical	**Sangareddy**	Gummadidala	64.60	Safe	Improved
108	**Sangareddy**	Jharasangam	105.15	Over-Exploited	**Sangareddy**	Jharasangam	73.48	Semi-Critical	Improved
109	**Sangareddy**	Jinnaram	81.05	Semi-Critical	**Sangareddy**	Jinnaram	67.81	Safe	Improved
110	**Sangareddy**	Kalher	100.00	Critical	**Sangareddy**	Kalher	52.01	Safe	Improved
111	**Sangareddy**	Naykal	127.69	Over-Exploited	**Sangareddy**	Naykal	76.11	Semi-Critical	Improved
112	**Sangareddy**	Patancheruvu	104.29	Over-Exploited	**Sangareddy**	Patancheruvu	96.86	Critical	Improved

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

TELANGANA

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
				Improved					
113	**Sangareddy**	Zahirabad	105.18	Over-Exploited	**Sangareddy**	Zahirabad	84.40	Semi-Critical	Improved
114	**Siddipet**	Bejjanki	94.23	Critical	**Siddipet**	Bejjanki	85.46	Semi-Critical	Improved
115	**Siddipet**	Cheriyal	98.73	Critical	**Siddipet**	Cheriyal	81.36	Semi-Critical	Improved
116	**Siddipet**	Chinnakodur	89.34	Semi-Critical	**Siddipet**	Chinnakodur	66.91	Safe	Improved
117	**Siddipet**	Doultabad	93.79	Critical	**Siddipet**	Doultabad	79.53	Semi-Critical	Improved
118	**Siddipet**	Dubbak	91.41	Critical	**Siddipet**	Dubbak	82.08	Semi-Critical	Improved
119	**Siddipet**	Gajwel	84.50	Semi-Critical	**Siddipet**	Gajwel	69.10	Safe	Improved
120	**Siddipet**	Jagadevpur	95.30	Critical	**Siddipet**	Jagadevpur	72.94	Semi-Critical	Improved
121	**Siddipet**	Komaravelly	95.61	Critical	**Siddipet**	Komaravelly	89.06	Semi-Critical	Improved
122	**Siddipet**	Kondapak	108.80	Over-Exploited	**Siddipet**	Kondapak	71.07	Semi-Critical	Improved
123	**Siddipet**	Maddur	114.76	Over-Exploited	**Siddipet**	Maddur	83.22	Semi-Critical	Improved
124	**Siddipet**	Markook	108.27	Over-Exploited	**Siddipet**	Markook	73.69	Semi-Critical	Improved
125	**Siddipet**	Mirdoddi	101.76	Over-Exploited	**Siddipet**	Mirdoddi	89.87	Semi-Critical	Improved
126	**Siddipet**	Mulug	103.89	Over-Exploited	**Siddipet**	Mulug	81.73	Semi-Critical	Improved
127	**Siddipet**	Nanganur	102.58	Over-Exploited	**Siddipet**	Nanganur	59.16	Safe	Improved
128	**Siddipet**	Rayapole	94.18	Critical	**Siddipet**	Rayapole	74.65	Semi-Critical	Improved
129	**Siddipet**	Siddipet_Rural	91.70	Critical	**Siddipet**	Siddipet_Rural	71.02	Semi-Critical	Improved
130	**Siddipet**	Siddipet_Urban	89.36	Semi-Critical	**Siddipet**	Siddipet_Urban	69.25	Safe	Improved
131	**Siddipet**	Wargal	100.38	Over-Exploited	**Siddipet**	Wargal	85.87	Semi-Critical	Improved
132	**Suryapet**	Atmakur_S	91.55	Critical	**Suryapet**	Atmakur_S	87.19	Semi-Critical	Improved
133	**Suryapet**	Chivvemla	93.18	Critical	**Suryapet**	Chivvemla	63.81	Safe	Improved
134	**Suryapet**	Mothey	92.04	Critical	**Suryapet**	Mothey	87.79	Semi-Critical	Improved
135	**Suryapet**	Nagaram	107.45	Over-Exploited	**Suryapet**	Nagaram	88.52	Semi-Critical	Improved
136	**Vikarabad**	Kotepally	73.25	Semi-Critical	**Vikarabad**	Kotepally	68.41	Safe	Improved
137	**Wanaparthy**	Amarchinta	75.14	Semi-Critical	**Wanaparthy**	Amarchinta	54.87	Safe	Improved
138	**Wanaparthy**	Ghanpur	80.20	Semi-Critical	**Wanaparthy**	Ghanpur	57.35	Safe	Improved
139	**Wanaparthy**	Gopalpeta	95.99	Critical	**Wanaparthy**	Gopalpeta	67.07	Safe	Improved
140	**Wanaparthy**	Pangal	74.34	Semi-Critical	**Wanaparthy**	Pangal	46.72	Safe	Improved
141	**Wanaparthy**	Peddamandadi	78.99	Semi-Critical	**Wanaparthy**	Peddamandadi	59.48	Safe	Improved
142	**Wanaparthy**	Revelly	84.37	Semi-Critical	**Wanaparthy**	Revelly	60.45	Safe	Improved
143	**Wanaparthy**	Wanaparthy	77.00	Semi-Critical	**Wanaparthy**	Wanaparthy	50.22	Safe	Improved
144	**Warangal_Rural**	Chennaraopeta	78.24	Semi-Critical	**Warangal_Rural**	Chennaraopeta	30.20	Safe	Improved
145	**Warangal_Rural**	Duggondi	123.05	Over-Exploited	**Warangal_Rural**	Duggondi	34.79	Safe	Improved
146	**Warangal_Rural**	Geesugonda	95.00	Critical	**Warangal_Rural**	Geesugonda	44.82	Safe	Improved
147	**Warangal_Rural**	Nallabelly	97.82	Critical	**Warangal_Rural**	Nallabelly	46.86	Safe	Improved
148	**Warangal_Rural**	Nekkonda	75.75	Semi-Critical	**Warangal_Rural**	Nekkonda	38.34	Safe	Improved
149	**Warangal_Rural**	Parvathagiri	81.47	Semi-Critical	**Warangal_Rural**	Parvathagiri	41.22	Safe	Improved
150	**Warangal_Rural**	Raiparthy	123.91	Over-Exploited	**Warangal_Rural**	Raiparthy	63.71	Safe	Improved
151	**Warangal_Rural**	Sangem	95.63	Critical	**Warangal_Rural**	Sangem	41.88	Safe	Improved
152	**Warangal_Rural**	Wardhannapet	99.61	Critical	**Warangal_Rural**	Wardhannapet	56.73	Safe	Improved
153	**Warangal_Urban**	Elkathurthi	140.67	Over-Exploited	**Warangal_Urban**	Elkathurthi	94.53	Critical	Improved
154	**Warangal_Urban**	Kamalapur	77.39	Semi-Critical	**Warangal_Urban**	Kamalapur	50.75	Safe	Improved
155	**Warangal_Urban**	Khilla_Warangal	120.06	Over-Exploited	**Warangal_Urban**	Khilla_Warangal	85.40	Semi-Critical	Improved
156	**Yadadri_Bhongiri**	Bhongiri	94.51	Critical	**Yadadri**	Bhongiri	81.59	Semi-Critical	Improved
157	**Yadadri_Bhongiri**	Choutuppal	74.06	Semi-Critical	**Yadadri**	Choutuppal	48.24	Safe	Improved
158	**Yadadri_Bhongiri**	Rajapet	92.98	Critical	**Yadadri**	Rajapet	88.46	Semi-Critical	Improved
159	**Yadadri_Bhongiri**	Ramannapeta	79.13	Semi-Critical	**Yadadri**	Ramannapeta	43.13	Safe	Improved
160	**Yadadri_Bhongiri**	Turkapalle_M	92.22	Critical	**Yadadri**	Turkapalle_M	89.70	Semi-Critical	Improved

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

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S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
				Deteriorated					
1	**Adilabad**	Adilabad Urban	50.49	Safe	**Adilabad**	Adilabad Urban	77.46	Semi-Critical	Deteriorated
2	**Adilabad**	Bheempoor	50.93	Safe	**Adilabad**	Bheempoor	72.42	Semi-Critical	Deteriorated
3	**Adilabad**	Sirikonda	67.73	Safe	**Adilabad**	Sirikonda	71.02	Semi-Critical	Deteriorated
4	**Adilabad**	Talamadugu	66.09	Safe	**Adilabad**	Talamadugu	77.46	Semi-Critical	Deteriorated
5	**Adilabad**	Utnur	58.81	Safe	**Adilabad**	Utnur	74.06	Semi-Critical	Deteriorated
6	**Bhadradri_Kothagudem**	Aswaraopeta	26.29	Safe	**Bhadradri**	Aswaraopeta	76.15	Semi-Critical	Deteriorated
7	**Bhadradri_Kothagudem**	Chunchupally	14.18	Safe	**Bhadradri**	Chunchupally	73.34	Semi-Critical	Deteriorated
8	**Bhadradri_Kothagudem**	Julurpad	59.17	Safe	**Bhadradri**	Julurpad	73.34	Semi-Critical	Deteriorated
9	**Bhadradri_Kothagudem**	Kothagudem	45.89	Safe	**Bhadradri**	Kothagudem	73.34	Semi-Critical	Deteriorated
10	**Bhadradri_Kothagudem**	Manuguru	56.58	Safe	**Bhadradri**	Manuguru	77.10	Semi-Critical	Deteriorated
11	**Bhadradri_Kothagudem**	Sujathanagar	50.36	Safe	**Bhadradri**	Sujathanagar	73.34	Semi-Critical	Deteriorated
12	**Bhadradri_Kothagudem**	Yellandu	58.18	Safe	**Bhadradri**	Yellandu	72.12	Semi-Critical	Deteriorated
13	**Jagtial**	Kodimial	94.78	Critical	**Jagtial**	Kodimial	112.46	Over-Exploited	Deteriorated
14	**Jagtial**	Malial	78.65	Semi-Critical	**Jagtial**	Malial	109.35	Over-Exploited	Deteriorated
15	**Jangaon**	Bachannapeta	96.44	Critical	**Jangaon**	Bachannapeta	105.83	Over-Exploited	Deteriorated
16	**Jangaon**	Kodakandla	87.05	Semi-Critical	**Jangaon**	Kodakandla	106.10	Over-Exploited	Deteriorated
17	**Jangaon**	Palakurthi	92.09	Critical	**Jangaon**	Palakurthi	105.37	Over-Exploited	Deteriorated
18	**Khammam**	Kamepalle	61.48	Safe	**Khammam**	Kamepalle	75.49	Semi-Critical	Deteriorated
19	**Khammam**	Penuballi	59.03	Safe	**Khammam**	Penuballi	71.39	Semi-Critical	Deteriorated
20	**Khammam**	Sathupalle	36.14	Safe	**Khammam**	Sathupalle	82.17	Semi-Critical	Deteriorated
21	**Khammam**	Singareni	62.27	Safe	**Khammam**	Singareni	85.97	Semi-Critical	Deteriorated
22	**Mahabubabad**	Garla	54.03	Safe	**Mahabubabad**	Garla	72.61	Semi-Critical	Deteriorated
23	**Mahabubnagar**	Boothpur	57.49	Safe	**Mahabubnagar**	Bhoothpur	73.52	Semi-Critical	Deteriorated
24	**Mahabubnagar**	Chinna_Chintha_Kun	58.77	Safe	**Mahabubnagar**	Chinna_Chintha_Kunta	73.55	Semi-Critical	Deteriorated
25	**Mahabubnagar**	Devarkadara	62.82	Safe	**Mahabubnagar**	Devarkadara	74.79	Semi-Critical	Deteriorated
26	**Mahabubnagar**	Gandeed	68.31	Safe	**Mahabubnagar**	Gandeed	74.12	Semi-Critical	Deteriorated
27	**Mahabubnagar**	Jadcherla	68.28	Safe	**Mahabubnagar**	Jadcherla	76.68	Semi-Critical	Deteriorated
28	**Mahabubnagar**	Koilkonda	65.24	Safe	**Mahabubnagar**	Koilkonda	74.90	Semi-Critical	Deteriorated
29	**Mahabubnagar**	Mahabubnagar_Rural	69.50	Safe	**Mahabubnagar**	Mahabubnagar_Rural	75.21	Semi-Critical	Deteriorated
30	**Mahabubnagar**	Mahabubnagar_Urban	52.15	Safe	**Mahabubnagar**	Mahabubnagar_Urban	73.31	Semi-Critical	Deteriorated
31	**Medak**	Medak	46.63	Safe	**Medak**	Medak	75.02	Semi-Critical	Deteriorated
32	**Medak**	Yeldurthy	55.69	Safe	**Medak**	Yeldurthy	74.88	Semi-Critical	Deteriorated
33	**Jayashankar**	Tekumatla	61.61	Safe	**Jayashankar**	Tekumatla	70.77	Semi-Critical	Deteriorated
34	**Nagarkurnool**	Charakonda	71.28	Semi-Critical	**Nagarkurnool**	Charakonda	100.62	Over-Exploited	Deteriorated
35	**Nagarkurnool**	Kalwakurthy	78.71	Semi-Critical	**Nagarkurnool**	Kalwakurthy	95.87	Critical	Deteriorated
36	**Nagarkurnool**	Urkonda	72.29	Semi-Critical	**Nagarkurnool**	Urkonda	96.00	Critical	Deteriorated
37	**Nagarkurnool**	Vangoor	85.18	Semi-Critical	**Nagarkurnool**	Vangoor	93.89	Critical	Deteriorated
38	**Nagarkurnool**	Veldanda	96.16	Critical	**Nagarkurnool**	Veldanda	100.29	Over-Exploited	Deteriorated
39	**Nalgonda**	Chinthapalle	77.27	Semi-Critical	**Nalgonda**	Chinthapalle	92.29	Critical	Deteriorated
40	**Nalgonda**	Devarakonda	66.29	Safe	**Nalgonda**	Devarakonda	78.89	Semi-Critical	Deteriorated
41	**Nalgonda**	Gundlapalle	55.33	Safe	**Nalgonda**	Gundlapalle	79.04	Semi-Critical	Deteriorated
42	**Nalgonda**	Marriguda	67.61	Safe	**Nalgonda**	Marriguda	82.33	Semi-Critical	Deteriorated
43	**Nalgonda**	Nampalle	81.24	Semi-Critical	**Nalgonda**	Nampalle	94.74	Critical	Deteriorated
44	**Nalgonda**	Narketpalle	54.95	Safe	**Nalgonda**	Narketpalle	90.25	Critical	Deteriorated
45	**Nalgonda**	Neredugommu	64.88	Safe	**Nalgonda**	Neredugommu	86.50	Semi-Critical	Deteriorated
46	**Nalgonda**	Thipparthi	61.95	Safe	**Nalgonda**	Thipparthi	73.94	Semi-Critical	Deteriorated
47	**Narayanpet**	Dhanwada	65.87	Safe	**Narayanpet**	Dhanwada	75.28	Semi-Critical	Deteriorated
48	**Narayanpet**	Narayanpet	34.64	Safe	**Narayanpet**	Narayanpet	71.69	Semi-Critical	Deteriorated
49	**Nirmal**	Lokeswaram	39.11	Safe	**Nirmal**	Lokeswaram	71.90	Semi-Critical	Deteriorated
50	**Nizamabad**	Balkonda	56.47	Safe	**Nizamabad**	Balkonda	83.43	Semi-Critical	Deteriorated
51	**Nizamabad**	Dharpalle	67.33	Safe	**Nizamabad**	Dharpalle	88.54	Semi-Critical	Deteriorated
52	**Nizamabad**	Indalwai	65.54	Safe	**Nizamabad**	Indalwai	83.64	Semi-Critical	Deteriorated
53	**Nizamabad**	Jakranpalle	87.35	Semi-Critical	**Nizamabad**	Jakranpalle	94.21	Critical	Deteriorated
54	**Nizamabad**	Kammarpalle	63.81	Safe	**Nizamabad**	Kammarpalle	92.66	Critical	Deteriorated
55	**Nizamabad**	Mendora	47.55	Safe	**Nizamabad**	Mendora	87.12	Semi-Critical	Deteriorated

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

TELANGANA

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Deteriorated									
56	**Nizamabad**	Rudrur	78.32	Semi-Critical	**Nizamabad**	Rudrur	100.04	Over-Exploited	Deteriorated
57	**Nizamabad**	Varni	81.94	Semi-Critical	**Nizamabad**	Varni	95.31	Critical	Deteriorated
58	**Peddapalli**	Srirampur	69.44	Safe	**Peddapalle**	Srirampur	93.59	Critical	Deteriorated
59	**Rajanna_Sircilla**	Boinpalle	65.12	Safe	**Rajanna**	Boinpalle	82.35	Semi-Critical	Deteriorated
60	**Rajanna_Sircilla**	Chandurthi	83.89	Semi-Critical	**Rajanna**	Chandurthi	98.82	Critical	Deteriorated
61	**Rajanna_Sircilla**	Ellanthakunta	84.36	Semi-Critical	**Rajanna**	Ellanthakunta	97.62	Critical	Deteriorated
62	**Rajanna_Sircilla**	Gambhiraopeta	69.42	Safe	**Rajanna**	Gambhiraopeta	114.40	Over-Exploited	Deteriorated
63	**Rajanna_Sircilla**	Konaraopeta	95.80	Critical	**Rajanna**	Konaraopeta	161.73	Over-Exploited	Deteriorated
64	**Rajanna_Sircilla**	Rudrangi	41.74	Safe	**Rajanna**	Rudrangi	91.94	Critical	Deteriorated
65	**Rajanna_Sircilla**	Veernapalle	70.77	Semi-Critical	**Rajanna**	Veernapalle	134.68	Over-Exploited	Deteriorated
66	**Rajanna_Sircilla**	Vemulawada	74.98	Semi-Critical	**Rajanna**	Vemulawada	166.41	Over-Exploited	Deteriorated
67	**Rajanna_Sircilla**	Vemulawada_Rural	75.68	Semi-Critical	**Rajanna**	Vemulawada_Rural	119.73	Over-Exploited	Deteriorated
68	**Rajanna_Sircilla**	Yellareddypeta	84.60	Semi-Critical	**Rajanna**	Yellareddypeta	103.23	Over-Exploited	Deteriorated
69	**Rangareddy**	Abdullapurmet	62.42	Safe	**Rangareddy**	Abdullapurmet	77.54	Semi-Critical	Deteriorated
70	**Rangareddy**	Chevella	63.02	Safe	**Rangareddy**	Chevella	74.34	Semi-Critical	Deteriorated
71	**Rangareddy**	Gandipet	31.43	Safe	**Rangareddy**	Gandipet	88.15	Semi-Critical	Deteriorated
72	**Rangareddy**	Maheshwaram	75.64	Semi-Critical	**Rangareddy**	Maheshwaram	92.61	Critical	Deteriorated
73	**Rangareddy**	Nandigam	89.58	Semi-Critical	**Rangareddy**	Nandigam	98.65	Critical	Deteriorated
74	**Rangareddy**	Serilingampally	99.32	Critical	**Rangareddy**	Serilingampally	101.30	Over-Exploited	Deteriorated
75	**Rangareddy**	Yacharam	67.02	Safe	**Rangareddy**	Yacharam	87.76	Semi-Critical	Deteriorated
76	**Sangareddy**	Manoor	68.73	Safe	**Sangareddy**	Manoor	71.11	Semi-Critical	Deteriorated
77	**Sangareddy**	Ramachandrapuram	82.62	Semi-Critical	**Sangareddy**	Ramachandrapuram	121.89	Over-Exploited	Deteriorated
78	**Siddipet**	Anthakkapeta	77.40	Semi-Critical	**Siddipet**	Anthakkapeta	100.28	Over-Exploited	Deteriorated
79	**Siddipet**	Husnabad	76.51	Semi-Critical	**Siddipet**	Husnabad	93.94	Critical	Deteriorated
80	**Vikarabad**	Marpalle	52.66	Safe	**Vikarabad**	Marpalle	76.02	Semi-Critical	Deteriorated
81	**Vikarabad**	Mominpet	53.13	Safe	**Vikarabad**	Mominpet	71.88	Semi-Critical	Deteriorated
82	**Vikarabad**	Peddemul	57.05	Safe	**Vikarabad**	Peddemul	72.02	Semi-Critical	Deteriorated
83	**Warangal_Urban**	Bheemadevarapalle	94.28	Critical	**Warangal_Urban**	Bheemadevarapalle	121.40	Over-Exploited	Deteriorated
84	**Warangal_Urban**	Khazipet	60.97	Safe	**Warangal_Urban**	Khazipet	85.40	Semi-Critical	Deteriorated
85	**Warangal_Urban**	Warangal	17.66	Safe	**Warangal_Urban**	Warangal	72.90	Semi-Critical	Deteriorated
86	**Yadadri_Bhongiri**	Addagudur	52.28	Safe	**Yadadri**	Addagudur	85.15	Semi-Critical	Deteriorated
87	**Yadadri_Bhongiri**	Gundala	91.05	Critical	**Yadadri**	Gundala	103.37	Over-Exploited	Deteriorated
88	**Yadadri_Bhongiri**	Mootakondur	71.71	Semi-Critical	**Yadadri**	Mootakondur	92.18	Critical	Deteriorated
89	**Yadadri_Bhongiri**	Narayanapur	85.35	Semi-Critical	**Yadadri**	Narayanapur	92.22	Critical	Deteriorated
90	**Yadadri_Bhongiri**	Yadagirigutta	65.03	Safe	**Yadadri**	Yadagirigutta	91.28	Critical	Deteriorated

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

UTTAR PRADESH

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
				Improved					
1	**Ambedkar Nagar**	Baskhari	74.00	Semi-Critical	**Ambedkar Nagar**	Baskhari	67.83	Safe	Improved
2	**Ambedkar Nagar**	Bhiti	89.09	Semi-Critical	**Ambedkar Nagar**	Bhiti	68.48	Safe	Improved
3	**Ambedkar Nagar**	Jahangirgani	89.81	Semi-Critical	**Ambedkar Nagar**	Jahangirgani	57.61	Safe	Improved
4	**Ambedkar Nagar**	Katehari	74.03	Semi-Critical	**Ambedkar Nagar**	Katehari	61.50	Safe	Improved
5	**Amroha**	Dhanaura	104.43	Over-Exploited	**Amroha**	Dhanaura	97.09	Critical	Improved
6	**Amroha**	Gajraula	110.42	Over-Exploited	**Amroha**	Gajraula	98.04	Critical	Improved
7	**Amroha**	Hasanpur	111.60	Over-Exploited	**Amroha**	Hasanpur	92.35	Critical	Improved
8	**Barabanki**	Bani Kodar	80.40	Semi-Critical	**Barabanki**	Bani Kodar	65.64	Safe	Improved
9	**Bijnaur**	Jaleelpur	110.20	Over-Exploited	**Bijnaur**	Jaleelpur	92.02	Critical	Improved
10	**Bijnaur**	Noorpur	96.24	Critical	**Bijnaur**	Noorpur	89.93	Semi-Critical	Improved
11	**Chitrakoot**	Manikpur	70.66	Semi-Critical	**Chitrakoot**	Manikpur	65.54	Safe	Improved
12	**Etah**	Awagarh	71.36	Semi-Critical	**Etah**	Awagarh	68.32	Safe	Improved
13	**Farrukhabad**	Shamsabad	70.98	Semi-Critical	**Farrukhabad**	Shamsabad	68.15	Safe	Improved
14	**Fatehpur**	Bahua	71.40	Semi-Critical	**Fatehpur**	Bahua	69.07	Safe	Improved
15	**Fatehpur**	Dhata	71.49	Semi-Critical	**Fatehpur**	Dhata	64.02	Safe	Improved
16	**Fatehpur**	Haswa	74.96	Semi-Critical	**Fatehpur**	Haswa	63.55	Safe	Improved
17	**Fatehpur**	Hathgaon	73.37	Semi-Critical	**Fatehpur**	Hathgaon	66.28	Safe	Improved
18	**G.B. Nagar**	Jewar	108.81	Over-Exploited	**G.B. Nagar**	Jewar	98.36	Critical	Improved
19	**Ghazipur**	Mohammadabad	78.89	Semi-Critical	**Ghazipur**	Mohammadabad	57.87	Safe	Improved
20	**Ghazipur**	Varachakwar	72.96	Semi-Critical	**Ghazipur**	Varachakwar	68.35	Safe	Improved
21	**Hamirpur**	Maudaha	80.22	Semi-Critical	**Hamirpur**	Maudaha	54.39	Safe	Improved
22	**Hapur**	Hapur	112.42	Over-Exploited	**Hapur**	Hapur	96.87	Critical	Improved
23	**Hapur**	Simbholi	102.44	Over-Exploited	**Hapur**	Simbholi	96.87	Critical	Improved
24	**Jaunpur**	Badlapur	123.05	Over-Exploited	**Jaunpur**	Badlapur	92.64	Critical	Improved
25	**Jaunpur**	Baksha	96.15	Critical	**Jaunpur**	Baksha	80.16	Semi-Critical	Improved
26	**Jaunpur**	Dobhi	83.39	Semi-Critical	**Jaunpur**	Dobhi	66.57	Safe	Improved
27	**Jaunpur**	Karanja Kalan	100.64	Over-Exploited	**Jaunpur**	Karanja Kalan	79.34	Semi-Critical	Improved
28	**Jaunpur**	Kerakat	104.41	Over-Exploited	**Jaunpur**	Kerakat	87.65	Semi-Critical	Improved
29	**Jaunpur**	Maharajganj	113.25	Over-Exploited	**Jaunpur**	Maharajganj	93.16	Critical	Improved
30	**Jaunpur**	Muftiganj	95.83	Critical	**Jaunpur**	Muftiganj	86.90	Semi-Critical	Improved
31	**Jaunpur**	Ramnagar	81.35	Semi-Critical	**Jaunpur**	Ramnagar	64.30	Safe	Improved
32	**Jaunpur**	Rampur	71.36	Semi-Critical	**Jaunpur**	Rampur	67.98	Safe	Improved
33	**Jaunpur**	Sikrara	103.87	Over-Exploited	**Jaunpur**	Sikrara	76.21	Semi-Critical	Improved
34	**Jaunpur**	Sirkoni	104.46	Over-Exploited	**Jaunpur**	Sirkoni	78.30	Semi-Critical	Improved
35	**Kanpur Nagar**	Chaubepur	109.89	Over-Exploited	**Kanpur Nagar**	Chaubepur	97.91	Critical	Improved
36	**Kanpur Nagar**	Ghatampur	93.99	Critical	**Kanpur Nagar**	Ghatampur	88.59	Semi-Critical	Improved
37	**Kanpur Nagar**	Kanpur City	102.35	Over-Exploited	**Kanpur Nagar**	Kanpur City	94.49	Critical	Improved
38	**Kanpur Nagar**	Sarsol	90.41	Critical	**Kanpur Nagar**	Sarsol	87.59	Semi-Critical	Improved
39	**Kasganj**	Kasganj	99.19	Critical	**Kasganj**	Kasganj	87.51	Semi-Critical	Improved
40	**Mathura**	Baldeo	102.73	Over-Exploited	**Mathura**	Baldeo	95.79	Critical	Improved
41	**Meerut**	Kharkhoda	110.86	Over-Exploited	**Meerut**	Kharkhoda	97.36	Critical	Improved
42	**Meerut**	Machhra	114.91	Over-Exploited	**Meerut**	Machhra	95.04	Critical	Improved
43	**Meerut**	Meerut	91.70	Critical	**Meerut**	Meerut	86.93	Semi-Critical	Improved
44	**Meerut**	Parichhatgarh	90.94	Critical	**Meerut**	Parichhatgarh	85.68	Semi-Critical	Improved
45	**Meerut**	Rajpura	104.29	Over-Exploited	**Meerut**	Rajpura	95.52	Critical	Improved
46	**Meerut**	Sarurpur	72.04	Semi-Critical	**Meerut**	Sarurpur	68.12	Safe	Improved
47	**Mirzapur**	Chanbey	93.63	Critical	**Mirzapur**	Chanbey	77.89	Semi-Critical	Improved
48	**Mirzapur**	City	95.94	Critical	**Mirzapur**	City	88.10	Semi-Critical	Improved
49	**Moradabad**	Bhagatpur Tanda	94.95	Critical	**Moradabad**	Bhagatpur Tanda	88.43	Semi-Critical	Improved
50	**Moradabad**	Dilari	97.70	Critical	**Moradabad**	Dilari	82.68	Semi-Critical	Improved
51	**Muzaffarnagar**	Budhana	101.11	Over-Exploited	**Muzaffarnagar**	Budhana	99.21	Critical	Improved
52	**Muzaffarnagar**	Charthawal	95.11	Critical	**Muzaffarnagar**	Charthawal	89.54	Semi-Critical	Improved
53	**Pratapgarh**	Mandhata	107.37	Over-Exploited	**Pratapgarh**	Mandhata	95.65	Critical	Improved
54	**Pratapgarh**	Mangaraura	91.28	Critical	**Pratapgarh**	Mangaraura	82.02	Semi-Critical	Improved

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

UTTAR PRADESH

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Improved									
55	**Pratapgarh**	Patti	95.06	Critical	**Pratapgarh**	Patti	81.37	Semi-Critical	Improved
56	**Pratapgarh**	Sadar	120.43	Over-Exploited	**Pratapgarh**	Sadar	95.02	Critical	Improved
57	**Pratapgarh**	Sandwa Chandika	138.73	Over-Exploited	**Pratapgarh**	Sandwa Chandika	94.44	Critical	Improved
58	**Pratapgarh**	Shivgarh	107.93	Over-Exploited	**Pratapgarh**	Shivgarh	90.56	Critical	Improved
59	**Prayagraj**	Bahadurpur	90.75	Critical	**Prayagraj**	Bahadurpur	84.10	Semi-Critical	Improved
60	**Prayagraj**	Chaka	106.43	Over-Exploited	**Prayagraj**	Chaka	93.29	Critical	Improved
61	**Prayagraj**	Dhanupur	94.63	Critical	**Prayagraj**	Dhanupur	85.78	Semi-Critical	Improved
62	**Prayagraj**	Pratappur	91.46	Critical	**Prayagraj**	Pratappur	86.99	Semi-Critical	Improved
63	**Rae Bareli**	Saraini	79.99	Semi-Critical	**Rae Bareli**	Saraini	66.30	Safe	Improved
64	**Rampur**	Chamrauwa	133.15	Over-Exploited	**Rampur**	Chamrauwa	94.46	Critical	Improved
65	**S.Ravidas Nagar**	Bhadohi	91.35	Critical	**S.Ravidas Nagar**	Bhadohi	74.97	Semi-Critical	Improved
66	**S.Ravidas Nagar**	Gyanpur	96.88	Critical	**S.Ravidas Nagar**	Gyanpur	85.42	Semi-Critical	Improved
67	**Saharanpur**	Deoband	91.90	Critical	**Saharanpur**	Deoband	86.12	Semi-Critical	Improved
68	**Saharanpur**	Muzaffarabad	92.74	Critical	**Saharanpur**	Muzaffarabad	86.27	Semi-Critical	Improved
69	**Saharanpur**	Nanauta	93.90	Critical	**Saharanpur**	Nanauta	87.50	Semi-Critical	Improved
70	**Saharanpur**	Rampur Maniharan	92.85	Critical	**Saharanpur**	Rampur Maniharan	89.74	Semi-Critical	Improved
71	**Saharanpur**	Sadhauli Kadeem	138.97	Over-Exploited	**Saharanpur**	Sadhauli Kadeem	91.76	Critical	Improved
72	**Shambhal**	Asmoli	94.41	Critical	**Shambhal**	Asmoli	82.67	Semi-Critical	Improved
73	**Shambhal**	Bahjoi	108.46	Over-Exploited	**Shambhal**	Bahjoi	92.08	Critical	Improved
74	**Shambhal**	Baniakhera	101.08	Over-Exploited	**Shambhal**	Baniakhera	92.44	Critical	Improved
75	**Shambhal**	Pawansa	102.61	Over-Exploited	**Shambhal**	Pawansa	92.59	Critical	Improved
76	**Varanasi**	Cholapur	71.18	Semi-Critical	**Varanasi**	Cholapur	68.65	Safe	Improved
77	**Varanasi**	Pindra	91.46	Critical	**Varanasi**	Pindra	83.27	Semi-Critical	Improved

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)									
UTTAR PRADESH									
S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Deteriorated									
1	**Agra**	Agra City	93.37	Critical	**Agra**	Agra City	174.33	Over-Exploited	Deteriorated
2	**Agra**	Akola	96.54	Critical	**Agra**	Akola	117.64	Over-Exploited	Deteriorated
3	**Agra**	Bah	83.98	Semi-Critical	**Agra**	Bah	96.37	Critical	Deteriorated
4	**Agra**	Jaitpur Kalan	65.13	Safe	**Agra**	Jaitpur Kalan	80.44	Semi-Critical	Deteriorated
5	**Azamgarh**	Ahiraula	69.76	Safe	**Azamgarh**	Ahiraula	71.48	Semi-Critical	Deteriorated
6	**Azamgarh**	Atraulia	65.94	Safe	**Azamgarh**	Atraulia	71.22	Semi-Critical	Deteriorated
7	**Azamgarh**	Koilsa	69.28	Safe	**Azamgarh**	Koilsa	73.56	Semi-Critical	Deteriorated
8	**Azamgarh**	Palhana	69.72	Safe	**Azamgarh**	Palhana	72.84	Semi-Critical	Deteriorated
9	**Azamgarh**	Palhani	67.65	Safe	**Azamgarh**	Palhani	77.95	Semi-Critical	Deteriorated
10	**Azamgarh**	Tarwa	65.03	Safe	**Azamgarh**	Tarwa	86.81	Semi-Critical	Deteriorated
11	**Bareili**	Majhgawa	68.84	Safe	**Bareili**	Majhgawa	70.08	Semi-Critical	Deteriorated
12	**Bijnaur**	Kotwali	68.70	Safe	**Bijnaur**	Kotwali	71.86	Semi-Critical	Deteriorated
13	**Budaun**	Asafpur	97.06	Critical	**Budaun**	Asafpur	100.41	Over-Exploited	Deteriorated
14	**Bulandshahar**	Arnia Khurd	88.53	Semi-Critical	**Bulandshahar**	Arnia Khurd	94.00	Critical	Deteriorated
15	**Bulandshahar**	Bhawan Bahadur Nagar	97.84	Critical	**Bulandshahar**	Bhawan Bahadur Nagar	101.98	Over-Exploited	Deteriorated
16	**Etah**	Aliganj	88.26	Semi-Critical	**Etah**	Aliganj	90.02	Critical	Deteriorated
17	**Etah**	Sakit	69.34	Safe	**Etah**	Sakit	70.48	Semi-Critical	Deteriorated
18	**Fatehpur**	Khajuha	50.97	Safe	**Fatehpur**	Khajuha	72.09	Semi-Critical	Deteriorated
19	**Firozabad**	Eka	66.84	Safe	**Firozabad**	Eka	72.40	Semi-Critical	Deteriorated
20	**Firozabad**	Jasrana	62.84	Safe	**Firozabad**	Jasrana	78.61	Semi-Critical	Deteriorated
21	**Hardoi**	Todarpur	66.84	Safe	**Hardoi**	Todarpur	73.00	Semi-Critical	Deteriorated
22	**Hathras**	Sikandra Rao	88.58	Semi-Critical	**Hathras**	Sikandra Rao	91.43	Critical	Deteriorated
23	**Kanpur Dehat**	Derapur	48.86	Safe	**Kanpur Dehat**	Derapur	74.96	Semi-Critical	Deteriorated
24	**Kanpur Dehat**	Jhinjhak	68.98	Safe	**Kanpur Dehat**	Jhinjhak	75.36	Semi-Critical	Deteriorated
25	**Kanpur Dehat**	Maitha	67.78	Safe	**Kanpur Dehat**	Maitha	73.90	Semi-Critical	Deteriorated
26	**Kasganj**	Ganjdundwara	77.10	Semi-Critical	**Kasganj**	Ganjdundwara	92.04	Critical	Deteriorated
27	**Kasganj**	Patiyali	64.40	Safe	**Kasganj**	Patiyali	76.56	Semi-Critical	Deteriorated
28	**Mainpuri**	Kurawali	68.57	Safe	**Mainpuri**	Kurawali	70.30	Semi-Critical	Deteriorated
29	**Mirzapur**	Kon	98.14	Critical	**Mirzapur**	Kon	113.85	Over-Exploited	Deteriorated
30	**Mirzapur**	Sikhar	85.44	Semi-Critical	**Mirzapur**	Sikhar	91.81	Critical	Deteriorated
31	**Sonbhadra**	Nagawa	66.58	Safe	**Sonbhadra**	Nagawa	74.11	Semi-Critical	Deteriorated

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

UTTARAKHAND

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Improved									
1	**Udham Singh Nagar**	Khatima	82.11	Semi-Critical	**Udham Singh Nagar**	Khatima	66.19	Safe	Improved

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

DAMAN & DIU

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Improved									
1	**Diu**	Diu	91.13	Critical	**Diu**	Diu	18.10	Safe	Improved

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

DAMAN & DIU

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Deteriorated									
1	**Daman**	Daman	43.75	Safe	**Daman**	Daman	122.18	Over-Exploited	Deteriorated

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

LAKSHADWEEP

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Improved									
1	**Lakshadweep**	Agatti	73.57	Semi-Critical	**Lakshadweep**	Agatti	67.54	Safe	Improved

COMPARISON OF CATEGORIZATION OF ASSESSMENT UNITS (2020 AND 2017)

PUDUCHERRY

S. No	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2017	Categorization 2017	Name of District	Name of Assessment Unit	Stage of Ground Water Extraction (%) in 2020	Categorization 2020	Remark
Improved									
1	**Puducherry**	Puducherry	102.00	Over-Exploited	**Puducherry**	Puducherry	98.81	Critical	Improved

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ABBREVIATIONS

ARDC	Agriculture Refinance and Development Corporation
CGWA	Central Ground Water Authority
CGWB	Central Ground Water Board
bcm	Billion cubic metre
CLEG	Central Level Expert Group for overall reassessment of ground water resource of the country
GEC-1997	Ground Water Resources Estimation Committee, 1997
GWRA- 2020	Ground Water Resources Assessment, 2020
GSDA	Ground Water Survey and Development Agency, Maharashtra
ham	Hectare metre
IMD	India Meteorological Department
LPA	Long Period Average
lps	Litres per second
m	Meter
m bgl	Meter below ground level
m ham	Million hectare metre
M.I.	Minor Irrigation
DOWR, RD & GR	Department of Water Resources, River Development & Ganga Rejuvenation, Ministry of Jal Shakti, Govt. of India
NABARD	National Bank for Agricultural and Rural Development
NAQUIM	National Aquifer Mapping & Management Programme
UT	Union Territory

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