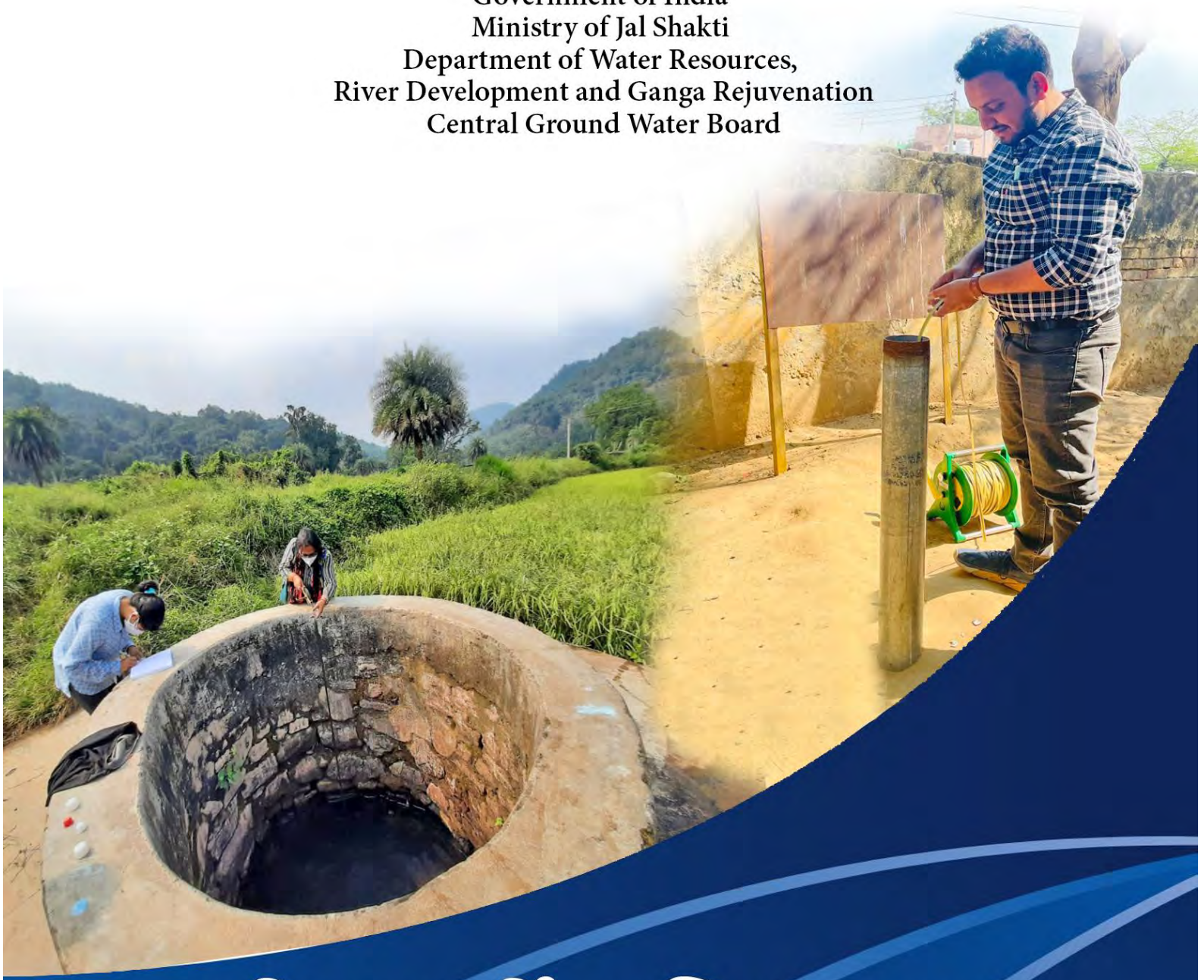
भारत सरकार
जल शक्ति मंत्रालय
जल संसाधन, नदी विकास और गंगा संरक्षण विभाग
केंद्रीय भूमि जल बोर्ड

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



भूमि जल वार्षिक पुस्तिका- भारत

GROUND WATER YEAR BOOK - INDIA

2023-2024

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

डॉ. सुनील कुमार अम्बष्ट
अध्यक्ष
Dr. Sunil Kumar Ambast
Chairman

भारत सरकार
जल शक्ति मंत्रालय
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FOREWORD

Groundwater is vital for sustaining human life, agriculture, and ecosystems, supplying a significant portion of the world's drinking water and supporting food security. It acts as a natural buffer against drought and contributes to the health of wetlands. As demands on this resource increase due to population growth and climate change, sustainable groundwater management has become increasingly crucial for ensuring long-term water security.

The fluctuation of groundwater levels is influenced by both natural and human factors. Understanding these dynamics is essential for effective water management, agricultural productivity, and ecosystem health. As climate change and rising water demands pose new challenges, monitoring and addressing these fluctuations is more important than ever.

The Ground Water Year Book 2023-2024 serves as a vital resource for user agencies and stakeholders involved in the planning and management of groundwater resources. This report focuses on the groundwater regime for the year 2023-2024, providing key insights into monitored groundwater levels, seasonal and annual fluctuations, and long-term trends. The data presented will assist planners, technocrats, researchers, and academic institutions in developing effective groundwater-based initiatives.

The dedicated efforts of Shri D. N. Mandal, Dr. Gajanan Ramteke, Shri Rajesh Kumar, Shri Ajit Singh, and Mrs. Poonam Panchal in compiling data and preparing this report are greatly appreciated. Their hard work and commitment were instrumental in its completion.

(Dr. Sunil Kumar Ambast)
Chairman

Faridabad
December, 2024

पी. के. त्रिपाठी
सदस्य (उत्तर और पश्चिम)
P. K. Tripathi
Member (North & West)

भारत सरकार
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आमुख

पृथ्वी पर उपलब्ध जल संसाधन मुख्यतः खारा है। इस संसाधन का कुछ प्रतिशत ही मानव उपयोग के लिए स्वच्छ जल के रूप में उपलब्ध है। भूजल इस स्वच्छ जल का एक महत्वपूर्ण भाग है तथा यह पेय, कृषि और आर्थिक गतिविधियों के लिए आवश्यक है। यह सूखे की स्थिति में प्राकृतिक समाधान की भूमिका निभाता है। पारिस्थितिकी तंत्र के समर्थन में, विशेष रूप से जलवायु परिवर्तन के संदर्भ में इसकी महत्वपूर्ण भूमिका है । भावी पीढ़ियों के लिए इसकी उपलब्धता सुनिश्चित करने के लिए भूजल का सतत प्रबंधन अनिवार्य रूप से महत्वपूर्ण है।

पेयजल की आपूर्ति, कृषि, आर्थिक गतिविधियों और पारिस्थितिकी तंत्र के लिए भूजल एक अत्यंत महत्वपूर्ण संसाधन है। इस महत्वपूर्ण संसाधन के संरक्षण और इसके पुनर्भरण के लिए स्थायी प्रबंधन प्रथाओं को अपनाना आवश्यक हैं, जिससे भावी पीढ़ियों के लिए इसकी उपलब्धता सुनिश्चित की जा सके । जल संसाधनों की स्थायित्वता को सुनिश्चित करने तथा और जलवायु परिवर्तन एवं जनसंख्या वृद्धि से उत्पन्न चुनौतियों के समाधान के लिए इस बहुमूल्य संसाधन की महता को स्वीकारना आवश्यक है।

जल संसाधनों के सतत प्रबंधन में भूजल की मॉनीटरिंग की महत्वपूर्ण भूमिका होती है। केंद्रीय भूमि जल बोर्ड पिछले 50 वर्षों से अधिक समय से जल स्तर के रिकॉर्ड का अनुरक्षण कर रहा है। इन दीर्घकालिक उतार-चढ़ाव का विश्लेषण कर, जलभृतों की प्रकृति और रुझानों के संबंध में सार्थक एवं व्यापक सूचना प्राप्त की जा सकती है, जिससे सटीक निर्णय लेने की क्षमता और संसाधन प्रबंधन कार्यनीतियों के विकास हेतु सहायता प्राप्त होगी।

भूजल वार्षिकी 2023-2024 में देश के भूजल स्तर से संबंधित समग्र सूचनाओं का संग्रह किया गया है। यह भूजल की आयोजना और प्रबंधन में शामिल उपयोक्ता एजेंसियों और हितधारकों के लिए संदर्भ का एक महत्वपूर्ण विकल्प है। इन आकड़ों से योजनाकारों, टेक्नोक्रेट, शोधकर्ताओं और शैक्षणिक संस्थानों को भूजल संबंधी नीतियों के निर्धारण एवं कार्यान्वयन में सहायता प्राप्त होगी।

इस रिपोर्ट के संकलन एवं प्रकाशन के सराहनीय प्रयास के लिए मेरी हार्दिक शुभकामनाएं।

(पी. के. त्रिपाठी)
सदस्य (उत्तर और पश्चिम)

फरीदाबाद

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कार्यकारी सारांश

"भूजल वार्षिकी" - भारत 2023-2024" भारत की विविध भू-जल वैज्ञानिक संरचनाओं का समग्र चित्रण प्रस्तुत करती है। इसमे विभिन्न भूवैज्ञानिक संरचनाओं में भूजल वितरण, इसकी विशिष्टताओं और संसाधनों का व्यापक विवरण प्रस्तुत किया गया है। इस रिपोर्ट में भारत के जलभृतों को दो मुख्य प्रकारों में वर्गीकृत किया गया है: सरंध्र और विदारित संरचनाएं। नदी घाटियों और डेल्टा क्षेत्रों में जलोढ़ जलभृत जैसी सरंध्र संरचनाएं महत्वपूर्ण भूजल भंडार हैं, जिनमे विशेष रूप से सिंधु-गंगा-ब्रह्मपुत्र बेसिन में महत्वपूर्ण वार्षिक पुनःपूर्ति होती है । इसके अतिरिक्त आग्नेय, ज्वालामुखीय और समेकित तलछटी चट्टानों सहित विखंडित संरचनाएं, देश के दो-तिहाई हिस्से में आच्छादित हैं, परंतु इनमे चट्टान के प्रकार और विखंडन जैसे कारकों के आधार पर विविध क्षमता वाली जल धारक संरचनाएं हैं। प्रमुख खंडों में सरंध्र जलभृतों में समेकित और अर्ध-समेकित संरचनाएं शामिल हैं। इनमें मुख्यतः डग वेल और नलकूपों के माध्यम से भूजल की निकासी की जाती है। विदारित संरचनाओं में आग्नेय और ज्वालामुखीय चट्टानें शामिल हैं, जिनमें भूजल की उपलब्धता चट्टान के प्रकार और अपक्षय स्तरों पर आधारित है। इस भूजल वार्षिकी में अपरिरुद्ध और परिरुद्ध जलभृत क्षेत्रों पर प्रकाश डालते हुए भविष्य में स्थायी भूजल प्रबंधन के महत्व पर बल दिया गया है।

वर्षा विश्लेषण 2023 रिपोर्ट में वर्ष 2023 के लिए भारत के वर्षा पैटर्न का विस्तृत चित्रण प्रस्तुत किया गया है। इसमे विभिन्न राज्यों में मौसमी और वार्षिक वर्षा वितरण पर डेटा प्रस्तुत किया गया है । कुल वार्षिक वर्षा का 73.61% मानसून वर्षा रिकार्ड की गई, जो सामान्य 914.46 मिमी वर्षा (13.21% की कमी) की तुलना में 793.66 मिमी की वास्तविक वर्षा है । मेघालय (-61.06%), केरल (-41.24%), अरुणाचल प्रदेश (-30.94%), कर्नाटक (-30.86%), झारखंड (-25.92%), उत्तर प्रदेश (-24.18%), मणिपुर (-23.11%), बिहार (-21.45%) और दिल्ली (-13.78%) राज्यों में वर्षा में महत्वपूर्ण कमी देखी गई। कुल वार्षिक वर्षा में गैर-मानसून वर्षा का योगदान 26.39% रहा जो 6.82% (सामान्य 305.32 मिमी की तुलना में 284.51 मिमी) की मामूली कमी को दर्शाता है। कुछ राज्यों में उल्लेखनीय रूप से इसमे वृद्धि दर्ज की गई, जैसे चंडीगढ़ (+33.02%), पंजाब (+45.36%), और राजस्थान (+198.22%)। दमन और दीव एवं राजस्थान जैसे राज्यों में मानसून और गैर-मानसून वर्षा प्रतिशत में पर्याप्त वृद्धि देखी गई, जो सामान्य से 100% तक अधिक है। इसके विपरीत, पूर्वोत्तर राज्यों, विशेष रूप से अरुणाचल प्रदेश, मणिपुर और मेघालय में उक्त दोनों अवधियों के दौरान वर्षा में उल्लेखनीय कमी दर्ज की गई, जिससे कुल वार्षिक वर्षा में विपरीत प्रभाव पड़ा । भारत की संचयी वार्षिक वर्षा सामान्य औसत से 11.61% कम थी, जो अपेक्षित 1219.78 मिमी की तुलना में कुल 1078.17 मिमी थी।

देश भर के 27,163 प्रेक्षण कूपों से डेटा एकत्र किया जाता है, जिससे भूजल स्तर की मॉनीटरिंग वर्ष में चार बार जनवरी, मानसून-पूर्व (मार्च / अप्रैल / मई), अगस्त और मानसून पश्चात (नवंबर) में की जाती है। इस रिपोर्ट में भूजल स्तर, इस पर जलवायु और मानवजनित कारकों के प्रभाव और विभिन्न मौसमों के दौरान उतार-चढ़ाव शामिल हैं। मौसमी, वार्षिक और दशकीय पैटर्न दर्शाने के लिए भूजल स्तर की मैपिंग और विश्लेषण किया जाता है।

मानसून-पूर्व जल स्तर की गहराई के आंकड़ों के विश्लेषण से यह पता चलता है कि अधिकांश क्षेत्रों में जल स्तर की औसत गहराई 5-10 मीटर बीजीएल के मध्य थी। उत्तर-पश्चिमी राज्यों (दिल्ली, हरियाणा, पंजाब, राजस्थान) में जल स्तर की गहराई में निरंतर वृद्धि देखी जा रही है। मानसून पश्चात के आंकड़ों से जल स्तर की गहराई मे उल्लेखनीय पुनर्भरण का पता चला है। विशेष रूप से अगस्त में 67% कूपों की गहराई 5 मीटर बीजीएल से कम थी। नवंबर तक, लगभग 60% कूपों में अभी भी उथले स्तर दर्ज किए गए, जिससे अच्छे मानसून पुनर्भरण का संकेत प्राप्त होता है परंतु उत्तरी क्षेत्रों में जनवरी 2024 तक जल स्तर में पुनः गिरावट देखी गई । नवंबर और जनवरी माह के आकड़ों से भी इसी प्रकार के रुझान प्राप्त हुए। भूजल निष्कर्षण के कारण कुछ क्षेत्रों में जल स्तर में उल्लेखनीय गिरावट पाई गई। उत्तर और उत्तर-पश्चिमी क्षेत्रों में भूजल स्तर में निरंतर गिरावट पाई गई, जबकि मध्य और दक्षिणी क्षेत्रों में आमतौर पर वर्ष भर भूजल मध्यम स्तर पाया गया।

वार्षिक भूजल उतार-चढ़ाव से यह ज्ञात होता है कि वर्ष 2022 और 2023 के मध्य मानसून पूर्व और मानसून पश्चात की तुलना में लगभग 60% कूपों सहित अधिकांश क्षेत्रों में वार्षिक रूप से जल स्तर में गिरावट पाई गई। यह उतार-चढ़ाव लगभग 0-2 मीटर के मध्य था, हालांकि कुछ क्षेत्रों, विशेष रूप से आंध्र प्रदेश, कर्नाटक और महाराष्ट्र जैसे राज्यों में अधिक गिरावट देखी गई। हिमाचल प्रदेश और पश्चिम बंगाल जैसे राज्यों में जलस्तर में मामूली वृद्धि देखी गई। कुल मिलाकर, पूरे भारत में वार्षिक भूजल उतार-चढ़ाव भूजल स्तर में गिरावट की एक सामान्य प्रवृत्ति का संकेत देते हैं, जिसमें छिट पुट स्थानीय क्षेत्रों में वृद्धि अथवा अपेक्षाकृत स्थिर भू-जल स्तर देखा गया है।

पूरे भारत में भूजल स्तर की दशकीय तुलना से यह ज्ञात होता है कि अधिकांश क्षेत्रों में सामान्य उतार-चढ़ाव के साथ साथ उल्लेखनीय रूप से क्षेत्रीय भिन्नताएं भी विद्यमान हैं। पिछले एक दशक में, विशेष रूप गुजरात, दिल्ली और तमिलनाडु में उपस्थित लगभग आधे कूपों के जल स्तर में मामूली वृद्धि देखी गई। हालांकि, आंध्र प्रदेश, कर्नाटक और पंजाब जैसे क्षेत्रों में भूजल स्तर में लगातार गिरावट देखी गई, जिससे इन क्षेत्रों में जल संसाधनों पर अतिरिक्त दबाव का पता चलता है। भूजल स्तर में अधिकांश परिवर्तन उथले सीमा (0-2 मीटर) के मध्य पाए गए हैं, जिससे प्रबल परिवर्तनों की अपेक्षा क्रमिक बदलाव का संकेत प्राप्त होता है। हालांकि कुछ क्षेत्र अभी भी भूजल की कमी का सामना कर रहे हैं। यह प्रवृत्ति निरंतर

गिरावट दिखाने वाले क्षेत्रों में योजनाबद्ध रूप से भूजल प्रबंधन प्रयासों की आवश्यकता को रेखांकित करती है।

परिरुद्ध / अर्ध-परिरुद्ध जलभृत्तों में अधिकांश कूपों (60%) में भूजल स्तर की गहराई 5 से 20 मीटर बीजीएल के मध्य पाई गई है। गुजरात, हरियाणा, पंजाब और तमिलनाडु जैसे क्षेत्रों में गहरे स्तर (>40 मीटर बीजीएल) पाए गए। वार्षिक उतार-चढ़ाव से यह संकेत मिलता है कि 45% कूपों में जल स्तर में वृद्धि हुई है, जबकि 54% कूपों में गिरावट पाई गई है । मुख्यतः उत्तराखंड, तेलंगाना और गुजरात में वृद्धि जबकि तमिलनाडु और पश्चिम बंगाल में गिरावट पाई गई । मॉनसून पूर्व 2023 के साथ दशकीय औसत की तुलना करने पर यह ज्ञात हुआ है कि 54% कूपों में भूजल स्तर में वृद्धि हुई है। आंध्र प्रदेश और कर्नाटक में उल्लेखनीय सुधार तथा पंजाब और पश्चिम बंगाल में गिरावट दर्ज की गई । समग्र रूप से कुछ क्षेत्रों में मौसमी प्रभावों या बेहतर पुनर्भरण के परिणामस्वरूप परिरुद्ध / अर्ध- परिरुद्ध जलभृतों में भूजल स्तर में वृद्धि हुई है, शेष जलभृतों में निरंतर गिरावट पाई गई जिससे भूजल पर अतिरिक्त दवाब अथवा अतिदोहन का पता चलता है। पंजाब और हरियाणा में लगातार गिरावट देखी गई। इसका कारण संभवतः गहन सिंचाई प्रथाएं हैं।

मॉनसून-पूर्व 2023 के भूजल सूखा के परिदृश्य (जीडब्ल्यूडीआई विश्लेषण) से पता चलता है कि 13,779 मॉनीटरिंग किए गए स्टेशनों में से 84.4% में सामान्य स्थिति पाई गई जबकि 15.6% में सूखे का पता चला । सूखा प्रभावित स्टेशनों में से 1377 को सामान्य सूखे, 483 को मध्यम, 141 को गंभीर और 141 को अति गंभीर सूखे की श्रेणी में पाया गया । अगस्त 2023 के विश्लेषण से पता चलता है कि 29.4% स्टेशनों में सूखे की स्थिति पाई गई जो मानसून पूर्व के अवधि की अपेक्षा वृद्धि को दर्शाता है। 464 और 910 स्टेशनों पर क्रमशः गंभीर और अति गंभीर सूखे की स्थिति दर्ज की गई। मानसून पश्चात 2023 के जीडब्ल्यूडीआई विश्लेषण से यह ज्ञात होता है कि 27.4% स्टेशनों में सूखे की स्थिति पाई गई, जो अगस्त माह की तुलना में मामूली राहत को दर्शाता है। तथापि, 869 स्टेशनों पर अत्यधिक सूखे की स्थिति रही । जनवरी 2024 के जीडब्ल्यूडीआई विश्लेषण से पता चलता है कि सूखे की स्थिति घटकर 22.2% हो गई, जिसमें 275 स्टेशनों को गंभीर और 511 को अति गंभीर के रूप में वर्गीकृत किया गया ।

EXECUTIVE SUMMARY

The "Groundwater Year Book - India 2023-2024" provides an overview of India's complex hydrogeological framework, detailing groundwater distribution, characteristics, and resources across various geological formations. The report categorizes India's aquifers into two main types: porous and fissured formations. Porous formations, such as alluvial aquifers in river basins and deltaic areas, are critical groundwater reservoirs with significant annual replenishment, especially in the Indo-Ganga-Brahmaputra basin. Meanwhile, fissured formations, including igneous, volcanic, and consolidated sedimentary rocks, cover two-thirds of the country but have variable water-bearing capacities dependent on factors like rock type and fracturing. Key segments cover unconsolidated and semi-consolidated formations in porous aquifers, where groundwater development is widespread through dug wells and tube wells. Fissured formations include igneous and volcanic rocks, with groundwater availability governed by rock type and weathering levels. The Year Book highlights both the unconfined and confined aquifer zones, emphasizing the importance of sustainable groundwater management for India's future.

The rainfall analysis 2023 report provides a detailed overview of India's rainfall patterns for the year 2023, presenting data on seasonal and annual rainfall distribution across various states. Monsoon rainfall accounted for 73.61% of the annual total, with an actual rainfall of 793.66 mm compared to the normal 914.46 mm (a 13.21% deficit). Significant deficits were observed in states like Meghalaya (-61.06%), Kerala (-41.24%), Arunachal Pradesh (-30.94%), Karnataka (-30.86%), Jharkhand (-25.92%), Uttar Pradesh (-24.18%), Manipur (-23.11%), Bihar (-21.45%) and Delhi (-13.78%). Non-monsoon rainfall contributed 26.39% to the annual total, with a slight deficit of 6.82% (284.51 mm compared to the normal 305.32 mm). Some states experienced significant positive deviations, such as Chandigarh (+33.02%), Punjab (+45.36%), and Rajasthan (+198.22%). States like Daman & Diu and Rajasthan saw substantial increases in monsoon and non-monsoon rainfall percentages, exceeding normal values by over 100%. Conversely, the north-eastern states, particularly Arunachal Pradesh, Manipur and Meghalaya recorded marked deficits across both periods, impacting overall annual rainfall totals. India's cumulative annual rainfall was below the normal average by 11.61%, totaling 1078.17 mm against the expected 1219.78 mm.

Data is gathered from 27,163 observation wells across the country, with groundwater levels monitored four times a year January, pre-monsoon (March/April/May), August and post-monsoon (November). The report includes measurements on groundwater levels, influences of climatic and anthropogenic factors, and fluctuations observed during different seasons. The groundwater levels are mapped and analyzed to reveal seasonal, annual, and decadal patterns.

Pre-monsoon depth to water level data shows, the average depth to water in most areas was between 5-10 m bgl, deepening in north-western states (Delhi, Haryana, Punjab, Rajasthan). Post-monsoon depth to water level data showed significant replenishment, especially in August, where 67% of wells had depths under 5 m bgl. By November, approximately 60% of wells still recorded shallow levels, indicating good monsoon recharge, but levels deepened again by January 2024 in northern areas. November and January readings reveal similar patterns, with notable depth to water level increases in certain areas due to groundwater extraction. North and north-western regions consistently showed deeper groundwater, while central and southern areas generally maintained moderate levels across seasons.

Annual groundwater fluctuations reveals that most regions showed annual declines, with nearly 60% of wells recording decreases in water levels between 2022 and 2023 in both pre- and post-monsoon comparisons. Fluctuations largely ranged from 0-2 m, though some areas, especially in states like Andhra Pradesh, Karnataka, and Maharashtra, saw more substantial declines. Increases in water levels were scattered, with states like Himachal Pradesh and West Bengal showing slight gains. Overall, annual groundwater fluctuations indicate a general trend of declining groundwater levels across India, with localized areas experiencing either rises or relatively stable levels.

A decadal comparison of groundwater levels across India, shows slight fluctuations in most areas but significant regional variances. Over the past decade, slight rises were observed in about half of the wells, particularly in Gujarat, Delhi, and Tamil Nadu. However, regions like Andhra Pradesh, Karnataka, and Punjab consistently exhibited declines in groundwater levels, suggesting stress on water resources in these areas. Most changes in groundwater levels occurred within a shallow range (0-2 m), indicating gradual

shifts rather than drastic changes, though certain regions still face considerable groundwater depletion. This trend highlights the need for targeted groundwater management efforts in regions showing persistent declines.

Depth to groundwater levels in Confined/Semi-Confined Aquifers show majority (60%) of wells show depths between 5 to 20 m bgl. Deeper levels (>40 m bgl) observed in regions like Gujarat, Haryana, Punjab, and Tamil Nadu. Annual fluctuations indicate 45% reported a rise in water levels, while 54% showed a decline. Major rises in Uttarakhand, Telangana, and Gujarat; declines in Tamil Nadu and West Bengal. Comparing the decadal mean with Pre-Monsoon 2023 shows that 54% of wells recorded a rise in groundwater levels. Notable improvement in Andhra Pradesh and Karnataka; declines in Punjab and West Bengal. Overall, some regions showed improvements in groundwater levels in Confined/Semi-Confined Aquifers due to seasonal effects or better recharge, others experienced consistent declines indicating stress or over-extraction. Punjab and Haryana consistently showed declines, possibly due to intensive irrigation practices.

Groundwater Drought Scenario (GWDI Analysis) of Pre-Monsoon 2023 shows among 13,779 monitored stations, 84.4% showed normal conditions, while 15.6% experienced drought. Among the drought-affected, 1377 stations faced mild drought, 483 moderate, 141 severe, and 141 extreme conditions. August 2023 analysis reveals 29.4% of stations indicated drought conditions, an increase from the pre-monsoon period. Severe and extreme drought conditions were noted in 464 and 910 stations, respectively. Post-Monsoon 2023 GWDI analysis demonstrates 27.4% of stations recorded drought, showing minor relief compared to August. However, 869 stations faced extreme drought. GWDI analysis of January 2024 indicates drought conditions reduced to 22.2%, with 275 stations categorized as severe and 511 as extreme.

1. HYDROGEOLOGICAL SETUP OF THE COUNTRY

1.1 GROUNDWATER OCCURRENCE

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

1.1.1 POROUS FORMATION

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

UNCONSOLIDATED FORMATIONS

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

SEMI-CONSOLIDATED FORMATIONS

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

water-bearing formations are quite productive. The Upper Gondwanas, which are generally arenaceous, in general, constitute prolific aquifers.

1.1.2 FISSURED FORMATIONS (CONSOLIDATED FORMATIONS)

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

IGNEOUS AND METAMORPHIC ROCKS EXCLUDING VOLCANIC AND CARBONATE ROCKS

The most common rock types under this category are granites, gneisses, charnockites, khondalites, quartzites, schists and associated phyllites, slates, etc. These rocks possess negligible primary porosity but attain porosity and permeability due to fracturing and weathering. Groundwater yield also depends on the rock type and grade of metamorphism. Generally, the granites, Khondalites and biotite gneisses have better yield potential as compared to charnockites.

VOLCANIC ROCKS

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

CONSOLIDATED SEDIMENTARY ROCKS EXCLUDING CARBONATE ROCKS

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

CARBONATE ROCKS

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

1.2 HYDROGEOLOGICAL UNITS AND THEIR GROUNDWATER POTENTIAL

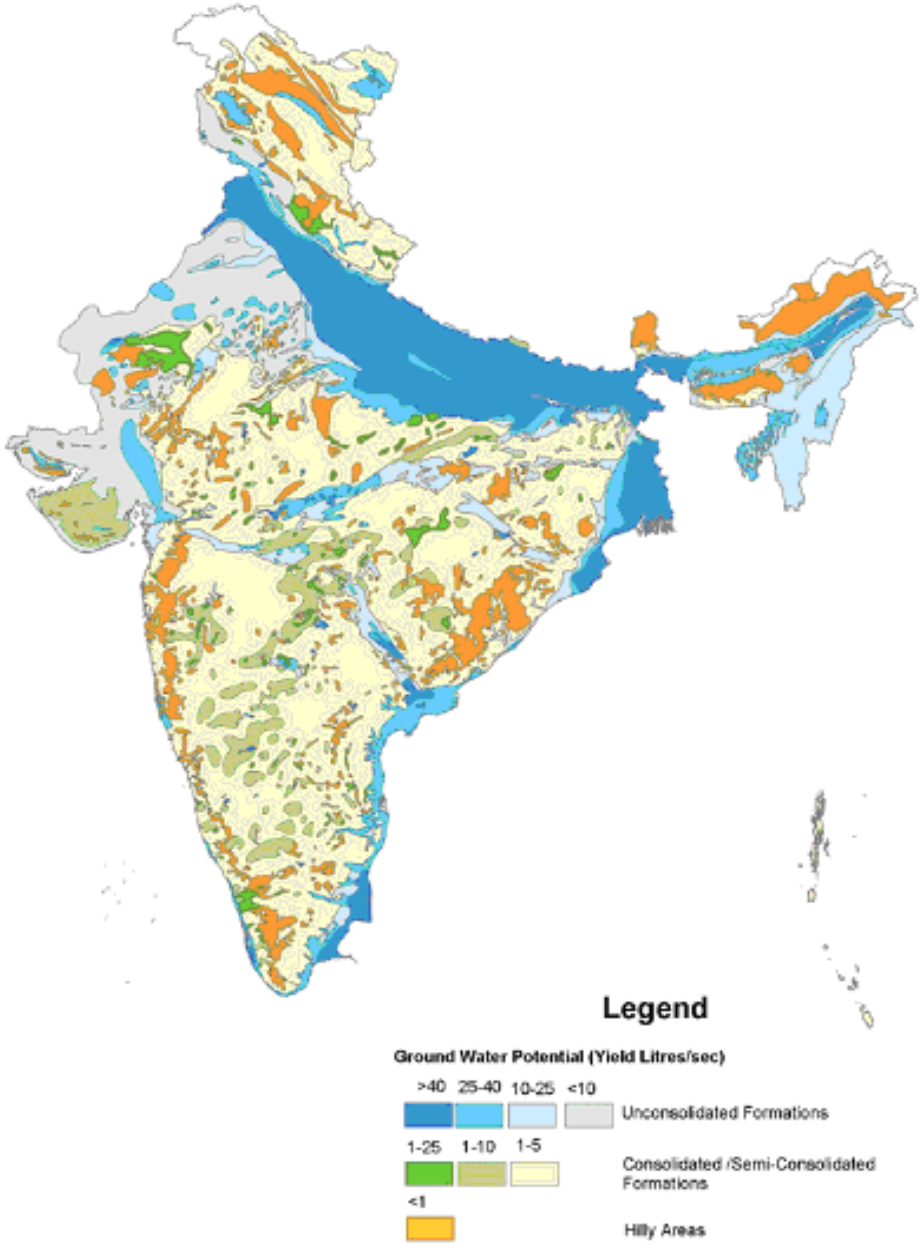
Hydrogeological map of India is depicted in **Plate-I** and the geographical distribution of hydrogeological units along with their Groundwater potential is given in **Table 1**.

TABLE 1: AQUIFER SYSTEM IN THE COUNTRY

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

PLATE – I

Hydrogeological Map of India



2. RAINFALL VARIATIONS

Variability in the onset, withdrawal and quantum of rainfall during the monsoon season has profound impacts on water resources, power generation, agriculture, economics and ecosystems in the country. The variation in climate is perhaps greater than any other area of similar size in the world. There is a large variation in the amounts of rainfall received at different locations. The average annual rainfall is about 122 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. The rainfall pattern roughly reflects the different climate regimes of the country, which vary from humid in the northeast (about 180 days rainfall in a year), to arid in Rajasthan (20 days rainfall in a year). Due to climatic changes, in recent times, the occurrence of high intensity rainfall event has increased and the number of rainy days has decreased. In some years, it has been observed that, the southwest monsoon has extended beyond its normal withdrawal date.

Normal Annual Rainfall

The rainfall over India has large spatial as well as temporal variability. Annual rainfall is more than 200 cm over these regions. For the country as whole, mean monthly rainfall during July (301 mm) is highest and contributes about 24.6% of annual rainfall (1219.77 mm). The mean rainfall during August is slightly lower and contributes about 21.9% of annual rainfall. June and September rainfall are almost similar and contribute 13.8% and 14.5% of annual rainfall, respectively. The mean southwest monsoon (June, July, August & September) rainfall (914 mm) contributes 75.5% of annual rainfall (1219.77 mm). Contribution of pre-monsoon (March, April & May) rainfall and post-monsoon (October, November & December) rainfall in annual rainfall is mostly the same (11%). Coefficient of variation is higher during the months of November, December, January and February. The Thematic map of distribution of annual normal rainfall is given in **Plate-II**. The map shows that, one state i.e., Rajasthan receives annual rainfall between 250 – 500 mm, 9 states and UTs between 500 mm – 1000 mm, 15 states between 1000 – 2000 mm, 4 states between 2000-3000 mm and 5 states more than 3000 mm in a year.

Normal Monsoon Rainfall

The SW monsoon is the most significant feature of the Indian climate. The season is spread over four months, but the actual period at a particular place depends on onset and withdrawal dates. It varies from less than 75 days over West Rajasthan, to more than 120

days over the south-western regions of the country contributing to about 75% of the annual rainfall. The onset of the SW monsoon normally starts over the Kerala coast, the southern tip of the country by 1 June, advances along the Konkan coast in early June and covers the whole country by middle of July. However, onset occurs 42 about a week earlier over islands in the Bay of Bengal. The monsoon is influenced by global and local phenomenon like El Nino, northern hemispheric temperatures, sea surface temperatures, snow cover etc. Normal monsoon rainfall more than 1500 mm is being observed over most parts of northeast India, Konkan & Goa. It ranges from 317 mm in Tamil Nadu state to 6218 mm in Meghalaya state with an average of 914.46 mm.

Normal Post-monsoon rainfall

North-East (NE) monsoon or post-monsoon season is transition season associated with the establishment of the north-easterly wind regime over the Indian subcontinent. Meteorological subdivisions namely Coastal Andhra Pradesh Rayalaseema, Tamil Nadu, Kerala and South Interior Karnataka receive good amount of rainfall accounting for about 35% of their annual total in these months. Many parts of Tamil Nadu and some parts of Andhra Pradesh and Karnataka receive rainfall during this season due to the storms forming in the Bay of Bengal. It ranges from 18 mm in Rajasthan state to 910 mm in Puducherry UT with an average of 200 mm. In the north eastern states, it ranges from it ranges from 169 mm to 315 mm with an average of 239 mm.

Rainfall Variation in 2023

The distribution of annual rainfall in 2023 is given in a thematic map in **Plate III**. The map shows that Ladakh received yearly rainfall less than 500 mm, 10 states between 500 mm – 1000 mm, 18 states between 1000 – 2000 mm, 3 states between 2000-3000 mm and 3 states more than 3000 mm. State-wise seasonal and annual observed rainfall, and its percentage departure from normal rainfall is given in **Table 2**. This data is based on India-WRIS, IMD Gridded Data. It may be observed that during 2023, the highest rainfall of 3672.97 mm was received at Meghalaya state and the lowest rainfall of 316.05 mm was received at Ladakh state. However, on comparing with normal rainfall, it may be seen that, Daman & Diu has the highest positive departure of 192% from its normal whereas Meghalaya is with highest negative departure of 59.94% from its normal rainfall. Negative departure from normal annual rainfall is observed in 22 states. The national average rainfall is 1078.17 mm with a negative departure of 11.61% from normal.

TABLE 2: STATE-WISE SEASONAL AND ANNUAL RAINFALL DISTRIBUTION -2023

STATE/UT	Non-Monsoon Period				Monsoon Period				Cumulative (Annual)		
	Actual (mm)	Normal (mm)	% Deviation	Percentage of Non-Monsoon Rainfall from Annual	Actual (mm)	Normal (mm)	% Deviation	Percentage of Monsoon Rainfall from Annual	Actual (mm)	Normal (mm)	% Deviation
Andaman & Nicobar	--	1461.72	--	--	--	1447.72	--	--	-	2909.44	--
Andhra Pradesh	403.42	377.42	6.89	45.81	477.16	492.12	-3.04	54.19	880.58	869.54	1.27
Arunachal Pradesh	771.36	1066.08	-27.65	36.60	1336.35	1935.05	-30.94	63.40	2107.71	3001.13	-29.77
Assam	564.8	830.39	-31.98	30.01	1317.13	1442.10	-8.67	69.99	1881.93	2272.49	-17.19
Bihar	178.95	187.98	-4.8	18.05	812.40	1034.27	-21.45	81.95	991.35	1222.25	-18.89
Chandigarh	307.4	231.1	33.02	19.66	1255.80	846.60	48.33	80.34	1563.2	1077.7	45.05
Chhattisgarh	198.57	160	24.11	15.80	1057.93	1140.08	-7.21	84.20	1256.5	1300.08	-3.35
Dadra And Nagar Haveli	65.12	--	--	2.44	2604.40	--	--	97.56	2669.52	-	--
Daman & Diu	43.08	50.8	-15.2	2.35	1786.52	574.20	211.13	97.65	1829.6	625	192.74
Delhi	171.39	126.9	35.06	22.96	575.19	667.10	-13.78	77.04	746.58	794	-5.97
Goa	251.84	271.3	-7.17	6.86	3421.13	2773.90	23.33	93.14	3672.97	3045.2	20.62
Gujarat	64.2	38.21	68.02	7.22	825.30	672.68	22.69	92.78	889.5	710.89	25.12
Haryana	152.02	97.92	55.25	25.05	454.89	460.09	-1.13	74.95	606.91	558.01	8.76
Himachal Pradesh	417.86	550.45	-24.09	33.02	847.60	772.36	9.74	66.98	1265.46	1322.81	-4.34
Jammu & Kashmir	560.29	648.47	-13.6	53.53	486.35	552.99	-12.05	46.47	1046.64	1201.46	-12.89
Jharkhand	296.98	230.5	28.84	26.80	811.20	1095.08	-25.92	73.20	1108.18	1325.58	-16.4
Karnataka	246.95	319.73	-22.76	28.50	619.58	896.12	-30.86	71.50	866.53	1215.85	-28.73
Kerala	991.15	956.38	3.64	44.07	1257.86	2140.62	-41.24	55.93	2249.01	3097	-27.38
Ladakh	189.88	--	--	60.08	126.17	--	--	39.92	316.05	-	--
Madhya Pradesh	130.17	105.23	23.7	12.11	945.01	996.91	-5.21	87.89	1075.18	1102.14	-2.45

Maharashtra	128.17	141.56	-9.46	11.96	943.51	1001.60	-5.80	88.04	1071.68	1143.16	-6.25
Manipur	289.7	527.35	-45.06	30.93	646.87	841.25	-23.11	69.07	936.57	1368.6	-31.57
Meghalaya	785.24	1786.3	-56.04	24.49	2421.64	6218.27	-61.06	75.51	3206.88	8004.57	-59.94
Mizoram	503.92	833.1	-39.51	29.68	1194.12	1345.10	-11.22	70.32	1698.04	2178.2	-22.04
Nagaland	482.67	559.82	-13.78	27.33	1283.48	1341.80	-4.35	72.67	1766.15	1901.62	-7.12
Odisha	307.99	310.48	-0.8	21.97	1093.75	1159.49	-5.67	78.03	1401.74	1469.97	-4.64
Pondicherry	875.23	1036.5	-15.56	66.00	450.82	326.70	37.99	34.00	1326.05	1363.2	-2.73
Punjab	211.81	145.71	45.36	28.27	537.44	500.42	7.40	71.73	749.25	646.13	15.96
Rajasthan	129.28	43.35	198.22	20.93	488.41	418.13	16.81	79.07	617.69	461.48	33.85
Sikkim	1209.64	1066.6	13.41	39.47	1854.92	2023.90	-8.35	60.53	3064.56	3090.5	-0.84
Tamil Nādu	683.19	605.59	12.81	66.07	350.79	316.35	10.89	33.93	1033.98	921.94	12.15
Telangana	235.79	175.51	34.35	20.81	897.27	766.95	16.99	79.19	1133.06	942.46	20.22
Tripura	534.36	882.88	-39.48	27.60	1401.55	1478.47	-5.20	72.40	1935.91	2361.35	-18.02
Uttar Pradesh	121.5	124.02	-2.03	15.76	649.61	856.79	-24.18	84.24	771.11	980.81	-21.38
Uttarakhand	297.11	357.19	-16.82	18.69	1292.21	1212.52	6.57	81.31	1589.32	1569.71	1.25
West Bengal	422.06	397.04	6.3	26.07	1196.94	1342.21	-10.82	73.93	1619	1739.25	-6.91
India	**284.51**	**305.32**	**-6.82**	**26.39**	**793.66**	**914.46**	**-13.21**	**73.61**	**1078.17**	**1219.78**	**-11.61**

(Source: IMD Gridded Data, IndiaWRIS)

It may be observed from the data that the variation of southwest monsoon rainfall is very high and it ranges from 196 mm in Ladakh to 3344.38 mm in Dadra and Nagar Haveli. The states of Andhra Pradesh, Daman & Diu, Goa, Gujarat, Jammu & Kashmir, Madhya Pradesh, Maharashtra, Pondicherry, Rajasthan, Sikkim, Tamil Nadu and Telangana has received more than normal (positive departure of more than 10%) rainfall in the monsoon season. The states of Arunachal Pradesh, Bihar, Delhi, Jharkhand, Kerala, Meghalaya, Nagaland, Tripura, Uttar Pradesh and West Bengal have received rainfall with negative departure (more than 10%) from normal. The national average monsoon rainfall is 900 mm with a negative departure of 1.58% from normal.

PLATE – II

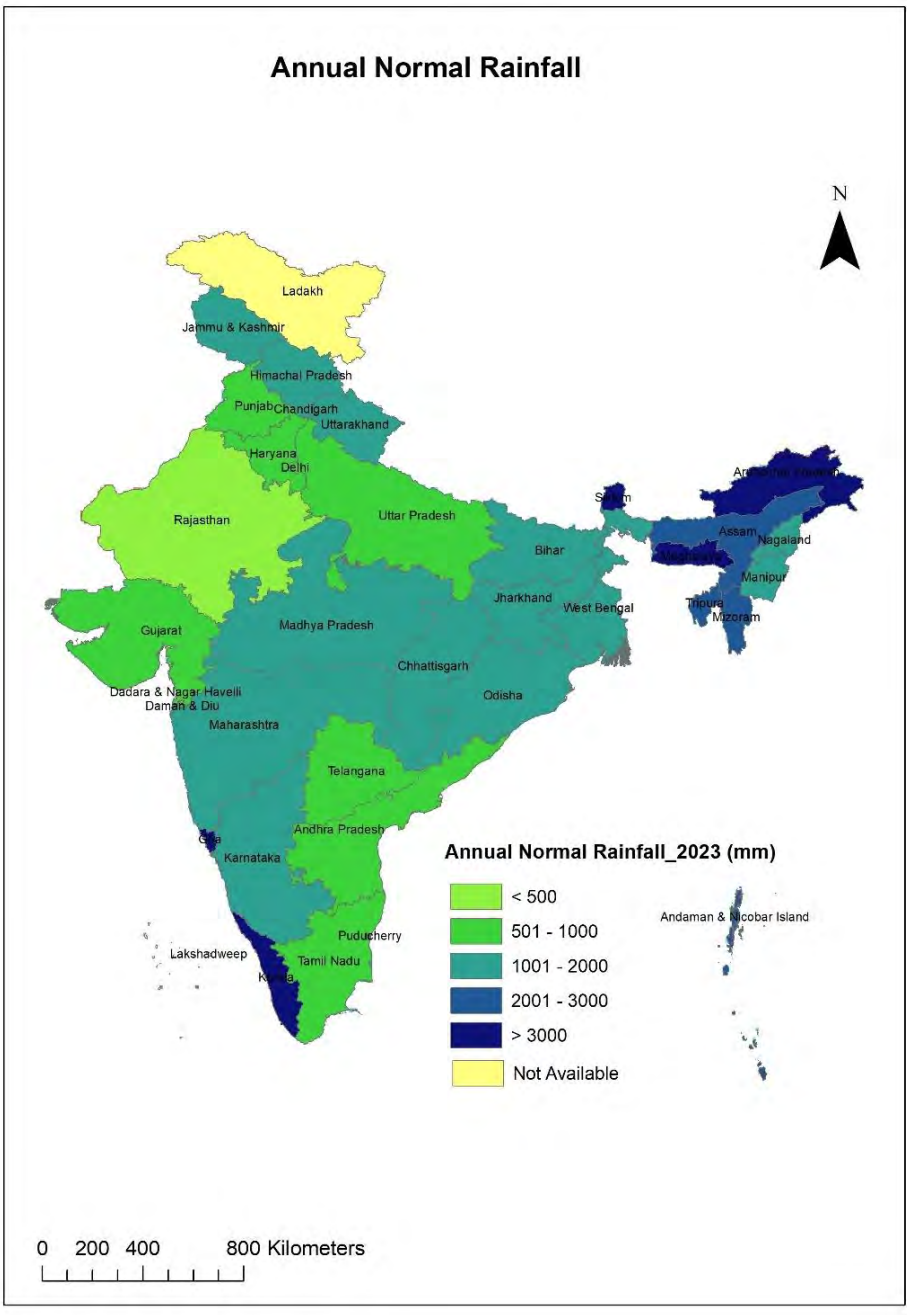
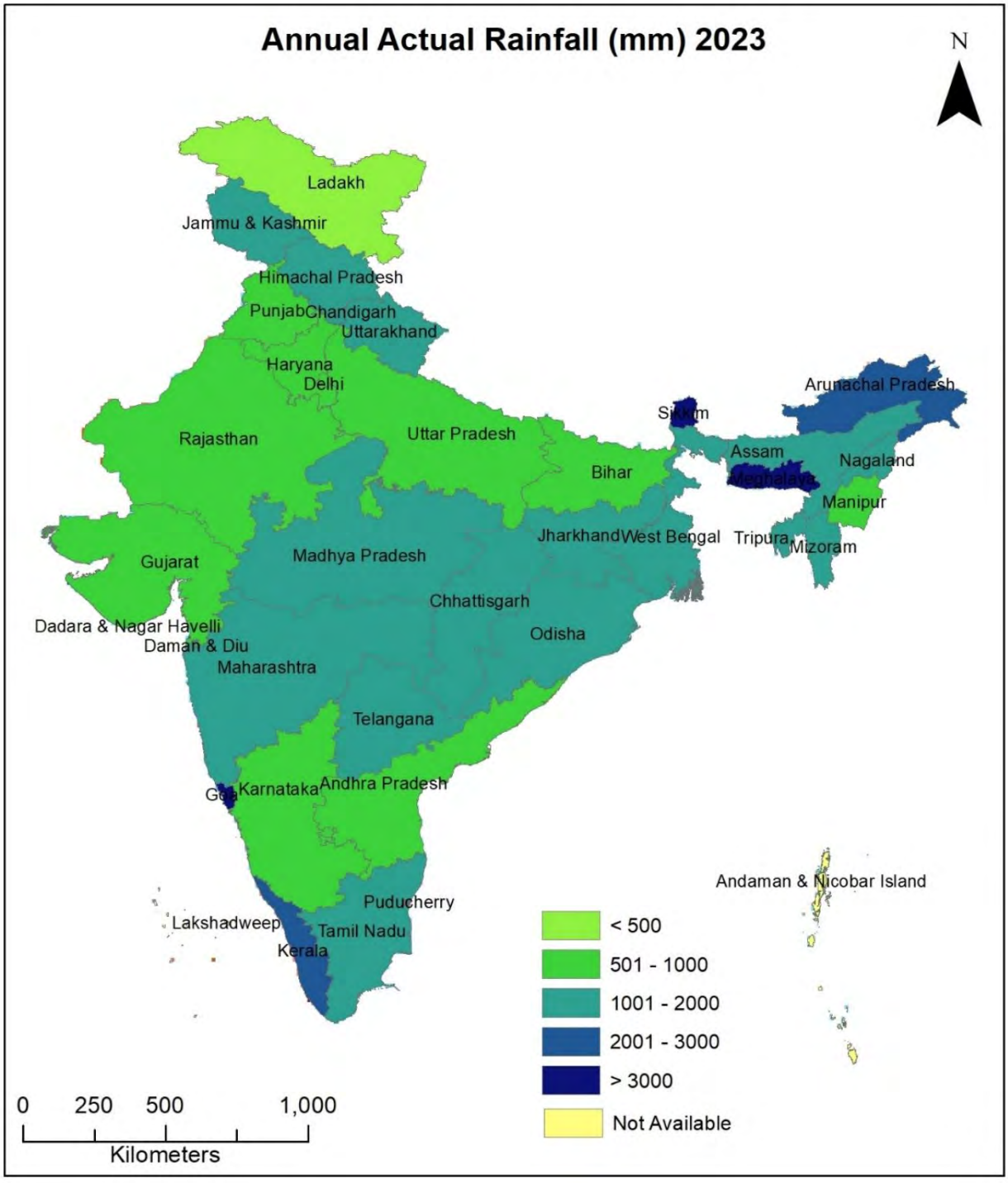


PLATE – III


Annual Actual Rainfall (mm) 2023
N
Ladakh
Jammu & Kashmir
Himachal Pradesh
Punjab
Chandigarh
Uttarakhand
Haryana
Delhi
Rajasthan
Uttar Pradesh
Bihar
Sikkim
Arunachal Pradesh
Assam
Nagaland
Meghalaya
Manipur
Tripura
Mizoram
Jharkhand
West Bengal
Madhya Pradesh
Gujarat
Chhattisgarh
Odisha
Dadara & Nagar Havelli
Daman & Diu
Maharashtra
Telangana
Goa
Karnataka
Andhra Pradesh
Puducherry
Lakshadweep
Tamil Nadu
Kerala
Andaman & Nicobar Island
< 500
501 - 1000
1001 - 2000
2001 - 3000
> 3000
Not Available
0 250 500 1,000
Kilometers

3.0 GROUNDWATER LEVEL SCENARIO

3.1 INTRODUCTION

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

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

Groundwater levels are being measured by Central Ground Water Board four times a year during January, March/April/ May, August and November. The regime monitoring started in the year 1969 by Central Groundwater Board. A network of 27163 observation wells, as on March 2024, located all over the country is being monitored. Groundwater samples are collected from these observation wells once a year during the month of March/April/May to obtain background information of groundwater quality changes on regional scale. The database thus generated forms the basis for planning the groundwater development and management programmes. The groundwater level and quality monitoring are of particular importance in coastal as well inland saline environment to assess the changes in salt water/fresh water interface as also the gradual quality changes in the fresh groundwater regime. This data is used for assessment of groundwater resources and changes in the regime consequent to various development and management activities.

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

The data is analyzed to know about the frequency distribution of water levels during different periods and seasonal, annual and decadal fluctuations in water levels. The water

level and water level fluctuation maps are prepared for each monitoring period to study the spatial and temporal changes in groundwater regime.

The State/UT-wise distribution of the groundwater observation wells is given in **Table 3** and depicted in **Plate-IV**.

PLATE - IV

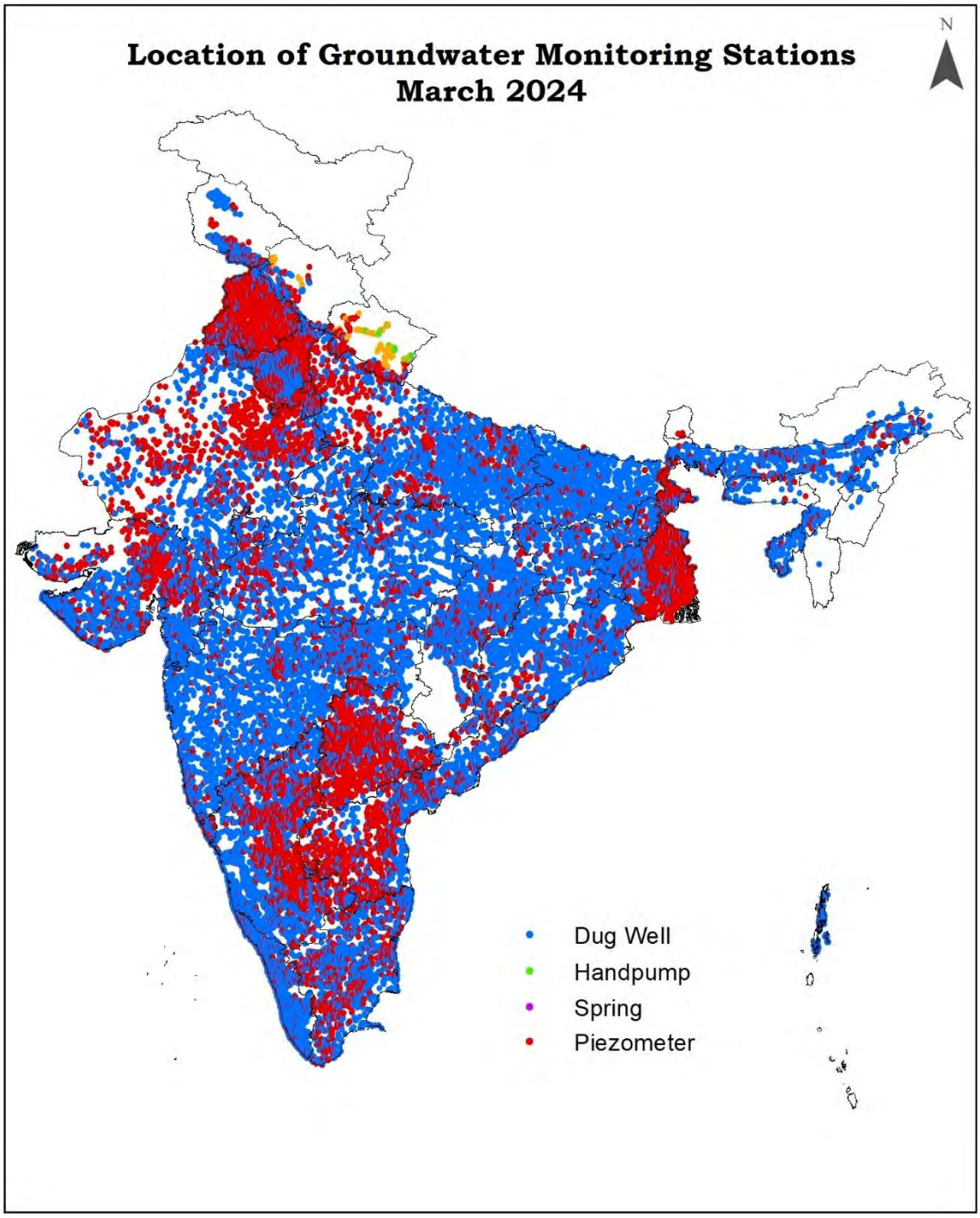


TABLE3: STATE/UT -WISE STATUS OF GROUNDWATER MONITORING WELLS

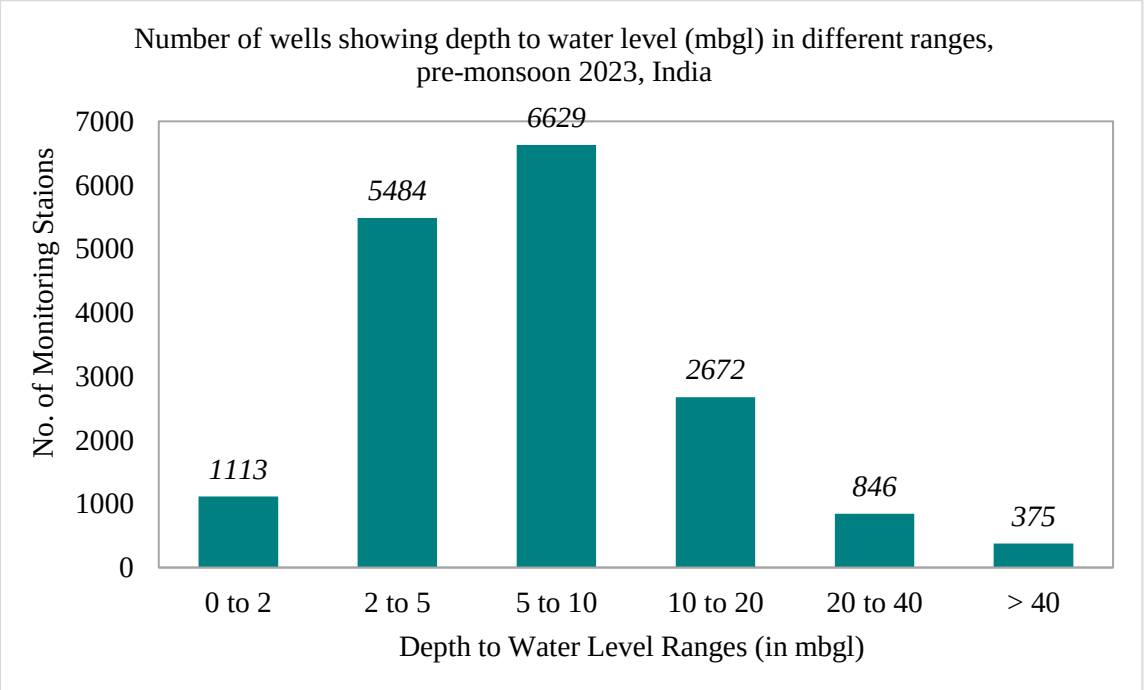
Name of the State/UTs	Dug Well	Piezometer	Handpump	Spring	Total Monitoring Stations (March 2024)
Andhra Pradesh	676	797	0	0	1473
Arunachal Pradesh	26	6	0	0	32
Assam	355	80	8	0	443
Bihar	796	120	0	0	916
Chhattisgarh	1044	269	5	0	1318
Delhi	22	113	0	0	135
Goa	83	52	0	0	135
Gujarat	789	504	0	0	1293
Haryana	478	819	0	0	1297
Himachal Pradesh	138	55	0	24	217
Jammu & Kashmir	313	106	0	6	425
Jharkhand	460	122	0	0	582
Karnataka	1360	931	0	0	2291
Kerala	1330	296	0	24	1650
Madhya Pradesh	1386	485	0	0	1871
Maharashtra	1779	296	0	0	2075
Manipur	4	0	0	2	6
Meghalaya	67	13	0	19	99
Mizoram	3	0	0	0	3
Nagaland	99	1	0	28	128
Odisha	1507	277	0	0	1784
Punjab	175	995	0	0	1170
Rajasthan	642	660	0	0	1302
Sikkim	0	4	0	0	4
Tamil Nadu	743	694	0	0	1437
Telangana	273	1008	0	0	1281
Tripura	97	18	0	0	115
Uttar Pradesh	978	486	0	0	1464
Uttarakhand	39	12	149	79	279
West Bengal	695	286	751	0	1732
UTs					
Andaman & Nicobar	111	2	0	0	113
Chandigarh	1	22	0	0	23
Daman & Diu and Dadra & Nagar Haveli	38	5	0	0	43
Puducherry	9	18	0	0	27
Total	**16516**	**9552**	**913**	**182**	**27163**

3.2 GROUNDWATER REGIME IN UNCONFINED AQUIFER

3.2.1 DEPTH TO WATER LEVEL IN UNCONFINED AQUIFER

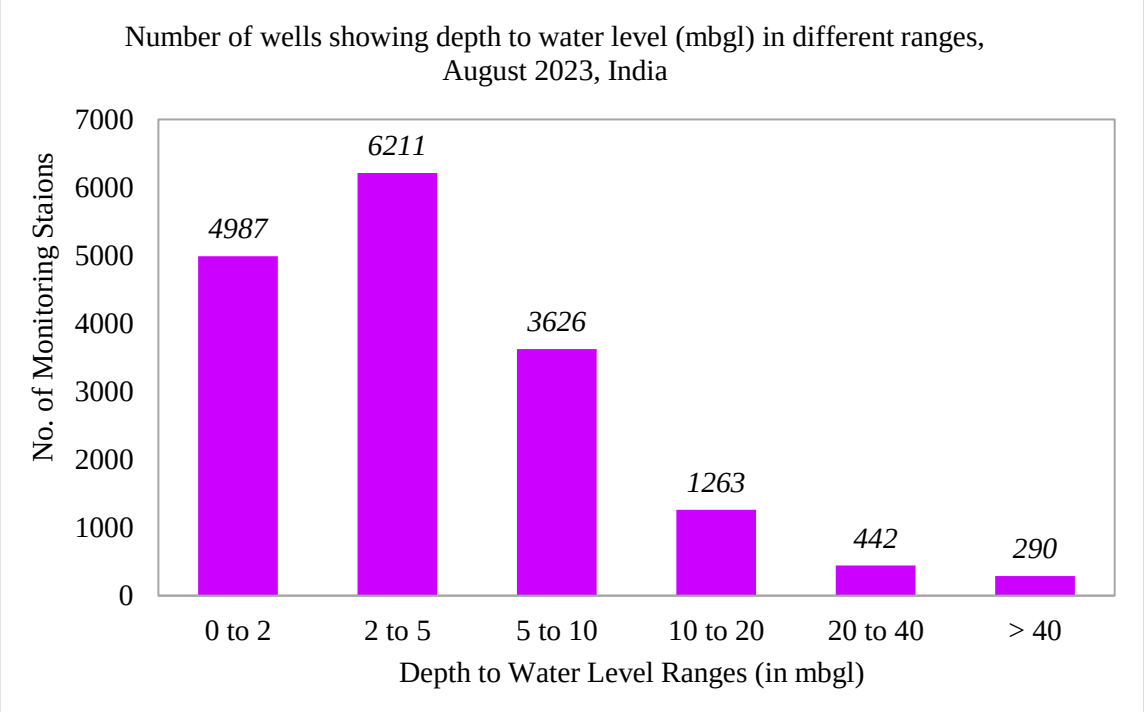
DEPTH TO WATER LEVEL – PRE-MONSOON 2023

The groundwater level data for pre-monsoon 2023 indicates that out of the total 17119 wells analysed, 1113 (6.5%) wells are showing water level less than 2 m bgl (metres below ground level), 5484 (32.0%) wells are showing water level in the depth range of 2 to 5 m bgl, 6629 (38.7%) wells are showing water level in the depth range of 5 to10 m bgl, 2672 (15.6%) wells are showing water level in the depth range of 10 to 20 m bgl, 846 (4.9%) wells are showing water level in the depth range of 20 to 40 m bgl and the remaining 375 (2.2%) wells are showing water level more than 40 m bgl. **(Plate VI, *Annexure I*)**. Groundwater level data of pre-monsoon 2023 for the country 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 considerable number of wells in almost all states except Chandigarh, Nagaland and Dadra And Nagar Haveli and Daman and Diu. Groundwater level in the range of 2 to 5 m bgl is prominently seen in Assam, Uttar Pradesh, Bihar, Coastal parts of Odisha, few pockets in Andhra Pradesh, Gujarat, Kerala, Tamil Nadu, Telangana and Maharashtra. Major part of the country shows water level in the range 5 to 10 m bgl, in almost all states of the country. 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.



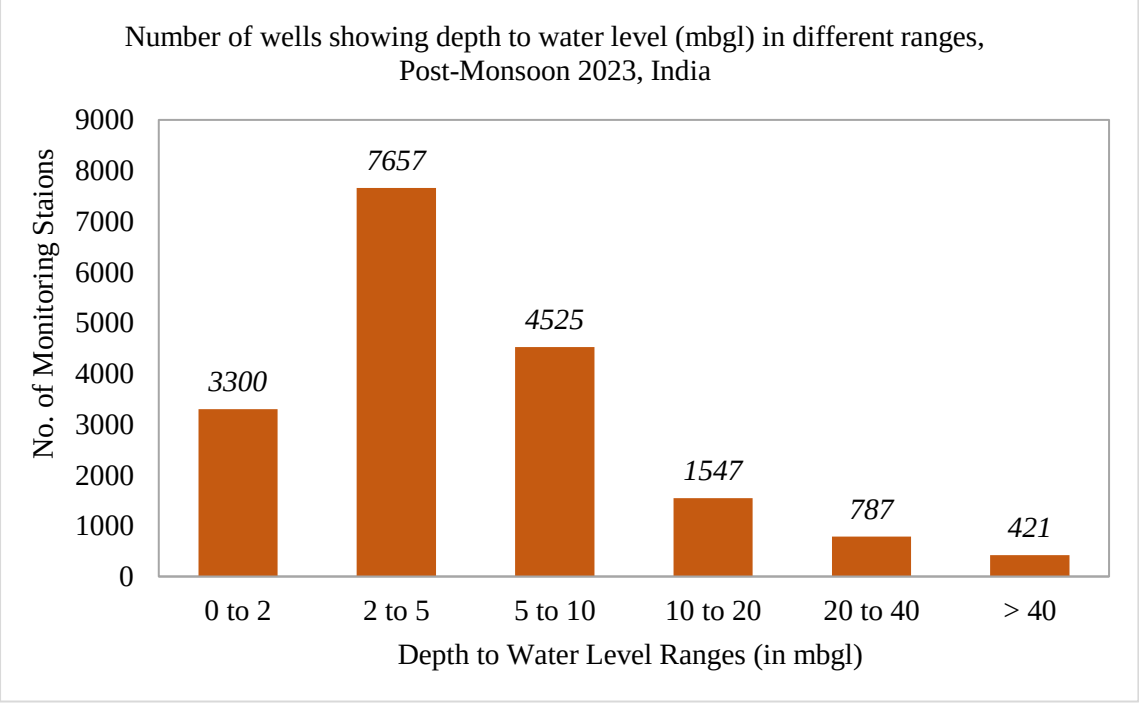
DEPTH TO WATER LEVEL – AUGUST 2023

The groundwater level data for August 2023 **(*Annexure-II*)** indicates that, out of the 16819 wells analysed, 4987 (29.7 %) wells are showing water level less than 2 m bgl (metres below ground level), 6211 (36.9%) wells are showing water level in the depth range of 2-5 m bgl, 3626 (21.6%) wells are showing water level in the depth range of 5-10 m bgl, 1263 (7.5%) wells are showing water level in the depth range of 10-20 m bgl, 442 (2.6%) wells are showing water level in the depth range of 20-40 m bgl and the remaining 290 (1.7%) wells are showing water level more than 40 m bgl, The map of depth to water levels during August 2023 is shown in **Plate-VII**. The general depth to water level of the country ranges from 0 to 5 m bgl. Almost 67% of the wells analysed show water level in the range of 0 to 5 m bgl. Very shallow water level of less than 2 m bgl is observed in considerable number of wells in almost all the states, except Chandigarh, Nagaland and Puddycherry. Water level in the range of 2 to 5 m bgl, is observed in almost all states. Punjab, where less than 15 % of wells have water level of 2 to 5 mbgl. In major parts of north-western and western states, depth to water level is generally deeper and ranges from about 10 to 40 m bgl. In parts Delhi, Haryana, Punjab and Rajasthan, water level of more than 40 m bgl is also recorded. ***(Annexure-II)***



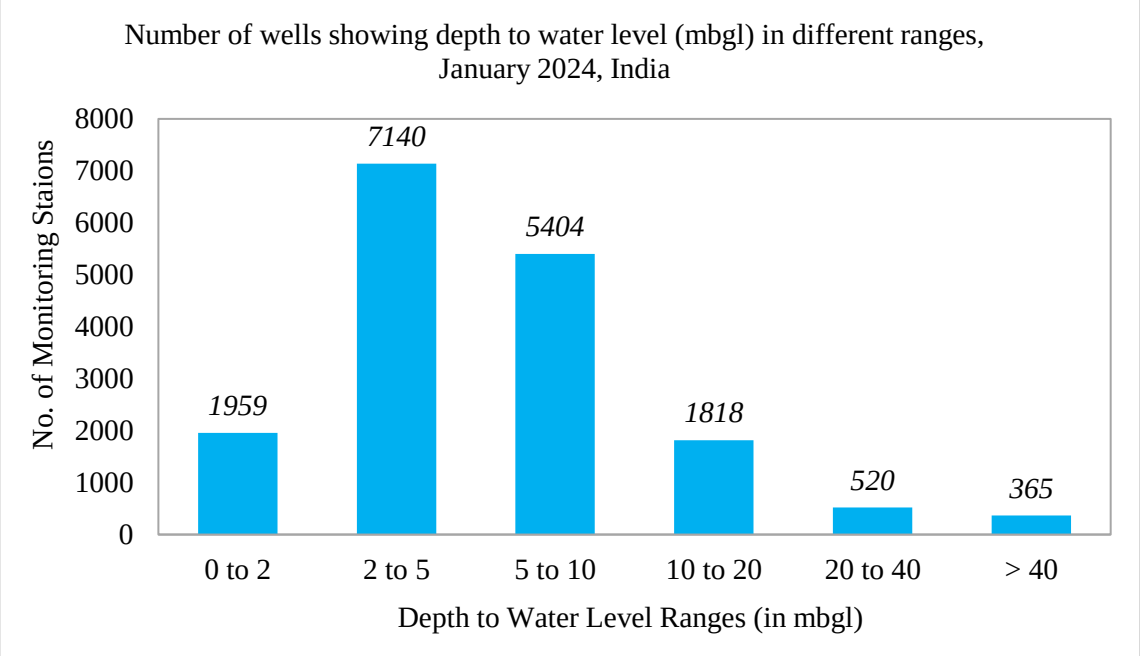
DEPTH TO WATER LEVEL – NOVEMBER 2023 (POST-MONSOON)

The groundwater level data for November 2023 indicates that out of the total 18237 wells analysed, 3300 (18.1 %) wells are showing water level less than 2 m bgl,7657 (42.0%) wells are showing water level in the depth range of 2 to 5 m bgl, 4525 (24.8%) wells are showing water level in the depth range of 5 to 10 m bgl, 1547 (8.5%) wells are showing water level in the depth range of 10 to 20 m bgl, 787 (4.3%) wells are showing water level in the depth range of 20 to 40 m bgl and the remaining 421 (2.3%) wells are showing water level more than 40 m bgl. In general, depth to water level ranges from 0 to 5 m bgl as observed at about 60.0% of the monitoring stations. Very shallow water level of less than 2 m bgl is observed in all the states, except Chandigarh and Nagaland. Groundwater level in the range of 2 to 5 m bgl is predominant in the entire country, as major part of the country shows water level in the range 2 to 5 m bgl. In parts of north-western and western states, especially in the states/UTs of Chandigarh, Delhi, Haryana, Punjab and Rajasthan, depth to water level is generally deeper and ranges from about 10m bgl to more than 40 m bgl. The peninsular part of country recorded a water level in the range of 2 to 10 m bgl **(Plate-VIII, *Annexure- III*)**.



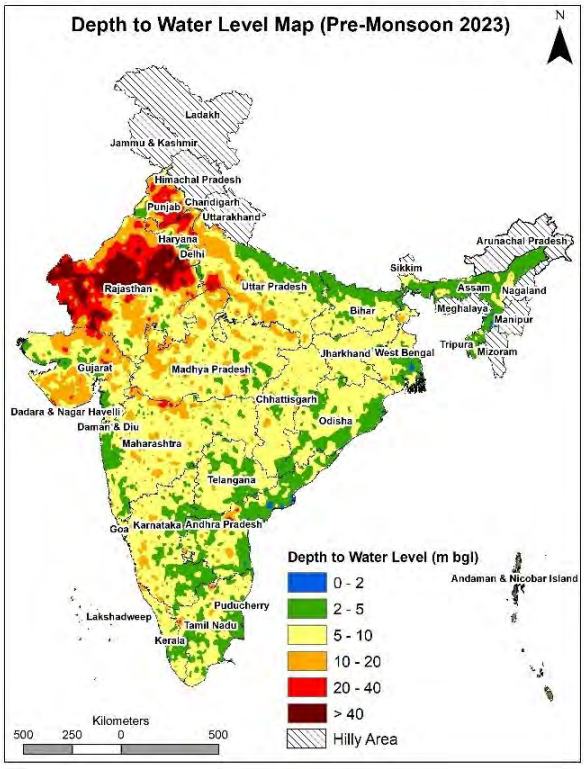
DEPTH TO WATER LEVEL– JANUARY 2024

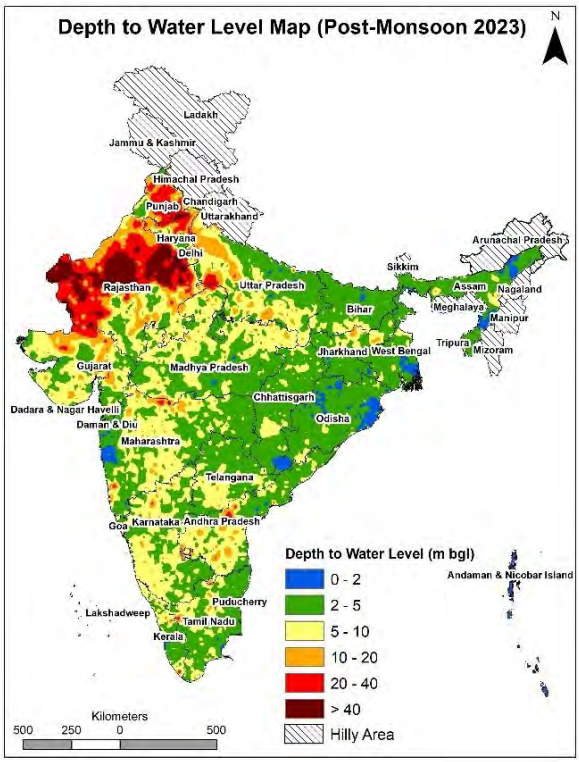
The groundwater level data for January 2024 indicates that out of the total 17206 wells analysed, 1959 (11.4%) wells are showing water level less than 2 m bgl (metres below ground level), 7140 (41.5%) wells are showing water level in the depth range of 2 to 5 m bgl, 5404 (31.4%) wells are showing water level in the depth range of 5 to 10 m bgl, 1818 (10.6%) wells are showing water level in the depth range of 10 to 20 m bgl, 520 (3.0%) wells are showing water level in the depth range of 20 to 40 m bgl and the remaining 365 (2.1%) wells are showing water level more than 40 m bgl. **(Plate-IX,*Annexure-IV*)**. The depth to water level map of January 2024 for the country indicates that in general depth to water level ranges from 2 to 10 m bgl as observed at about 73% of the monitoring stations. Shallow water level of less than 2 m bgl is observed in very small and isolated pockets in the states of Assam, Odisha, Andhra Pradesh, Tamil Nadu, Konkan areas of Maharashtra and northern parts of Bihar. Water level in the range of 5 to 10 m bgl is prominent in all the states of central and western parts of Karnataka and Kerala in Southern India. In major parts of north-western states depth to water level generally ranges from 10 to 40 m bgl. Water level of more than 40 m bgl is also prevalent in the north western part of the country. In some parts of Haryana, Punjab and Delhi and major parts of Rajasthan, water level of more than 40 m bgl is recorded.

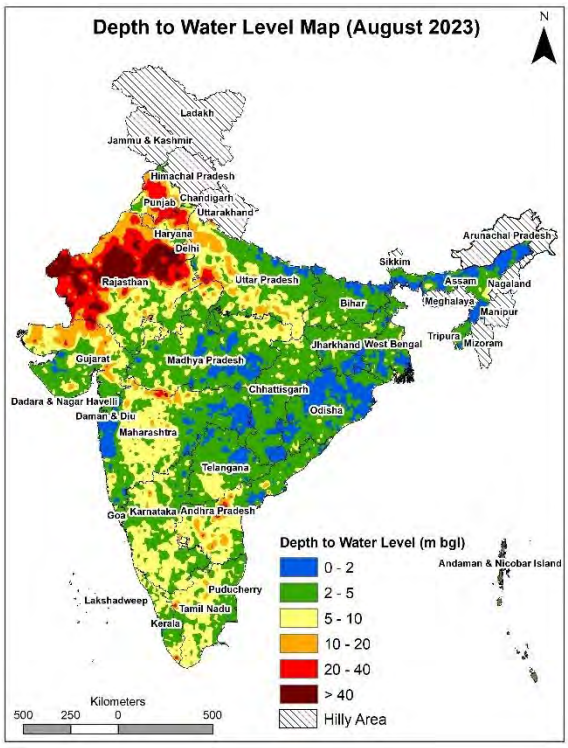


PLATE–V

DEPTH TO WATER LEVEL AT A GLANCE







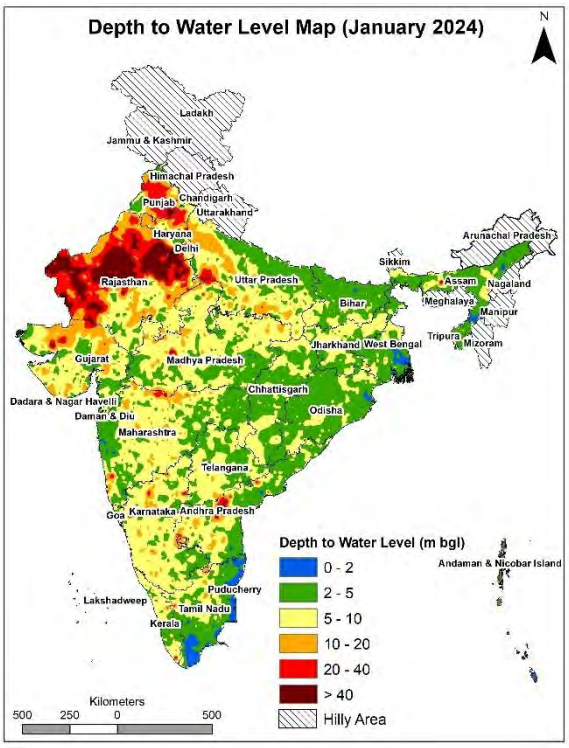


PLATE- VI

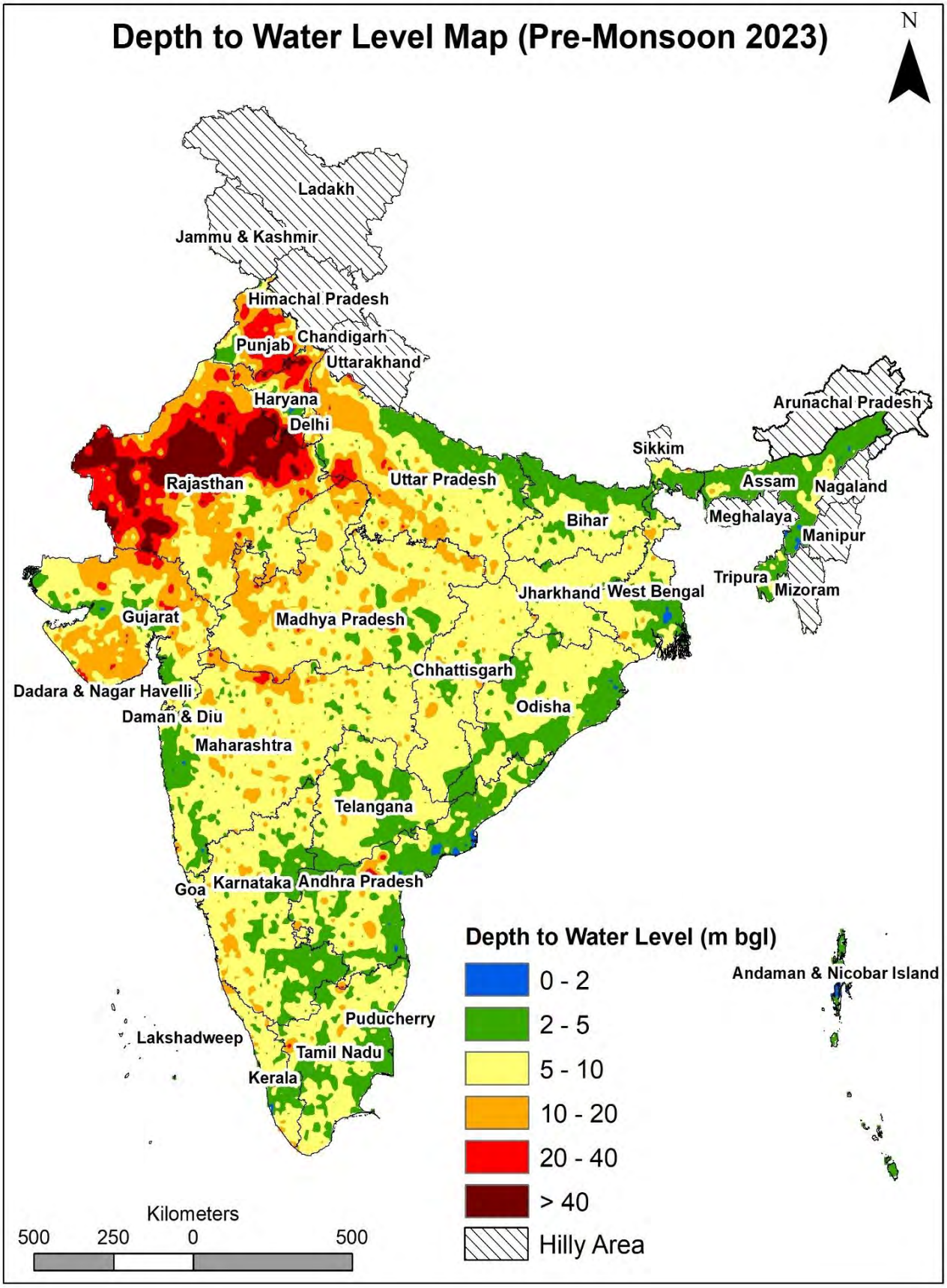

Depth to Water Level Map (Pre-Monsoon 2023)
N
Ladakh
Jammu & Kashmir
Himachal Pradesh
Punjab
Chandigarh
Uttarakhand
Haryana
Delhi
Rajasthan
Uttar Pradesh
Bihar
Sikkim
Arunachal Pradesh
Assam
Nagaland
Meghalaya
Manipur
Tripura
Mizoram
Jharkhand
West Bengal
Gujarat
Madhya Pradesh
Chhattisgarh
Odisha
Dadara & Nagar Havelli
Daman & Diu
Maharashtra
Telangana
Goa
Karnataka
Andhra Pradesh
Puducherry
Lakshadweep
Tamil Nadu
Kerala
Andaman & Nicobar Island
Depth to Water Level (m bgl)
0 - 2
2 - 5
5 - 10
10 - 20
20 - 40
> 40
Hilly Area
Kilometers
500 250 0 500

PLATE- VII

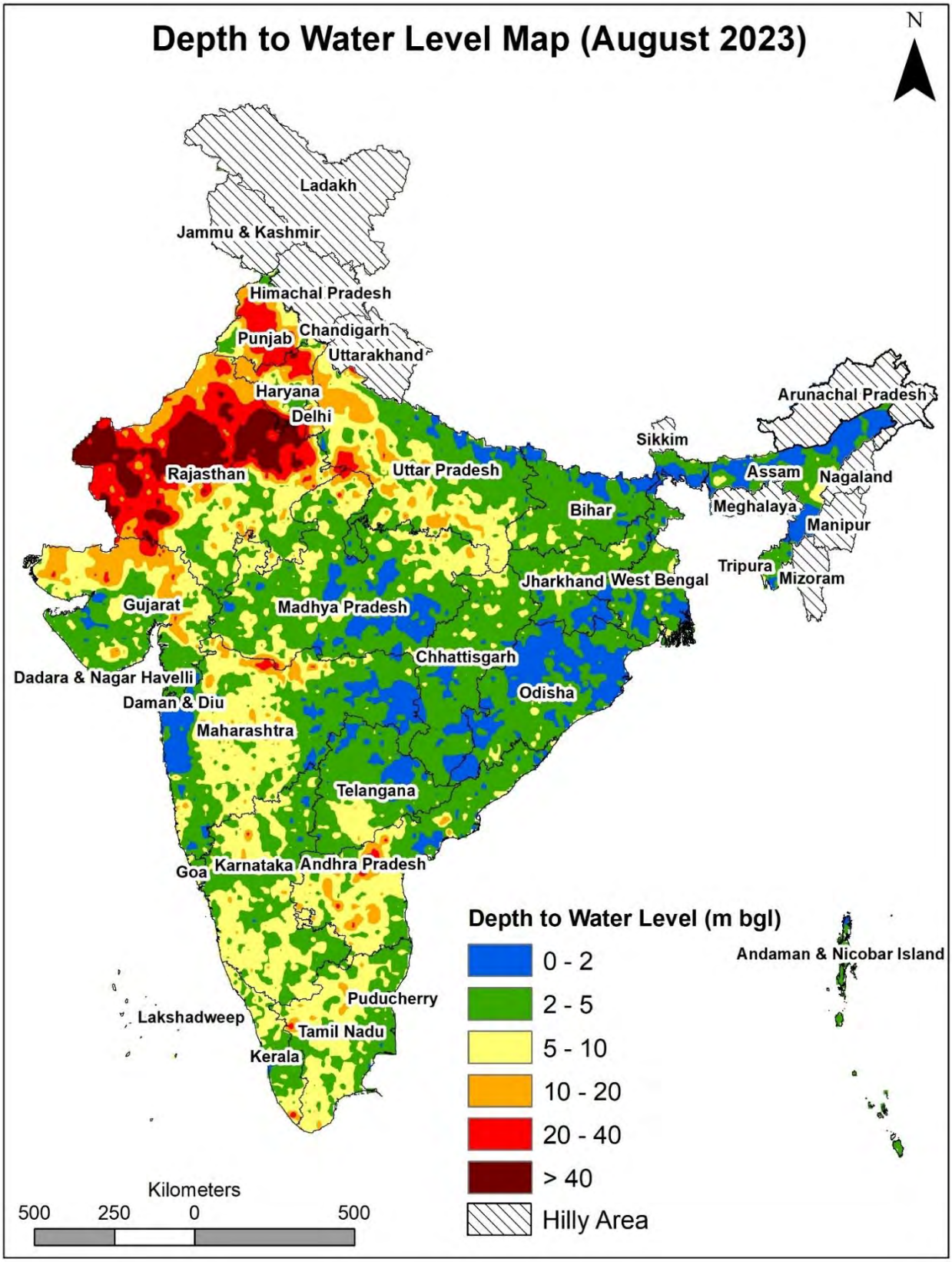

Depth to Water Level Map (August 2023)
N
Ladakh
Jammu & Kashmir
Himachal Pradesh
Punjab
Chandigarh
Uttarakhand
Haryana
Delhi
Rajasthan
Uttar Pradesh
Bihar
Sikkim
Arunachal Pradesh
Assam
Nagaland
Meghalaya
Manipur
Tripura
Mizoram
Jharkhand
West Bengal
Gujarat
Madhya Pradesh
Chhattisgarh
Odisha
Dadara & Nagar Havelli
Daman & Diu
Maharashtra
Telangana
Goa
Karnataka
Andhra Pradesh
Puducherry
Lakshadweep
Tamil Nadu
Kerala
Andaman & Nicobar Island
Depth to Water Level (m bgl)
0 - 2
2 - 5
5 - 10
10 - 20
20 - 40
> 40
Hilly Area
Kilometers
500 250 0 500

PLATE- VIII

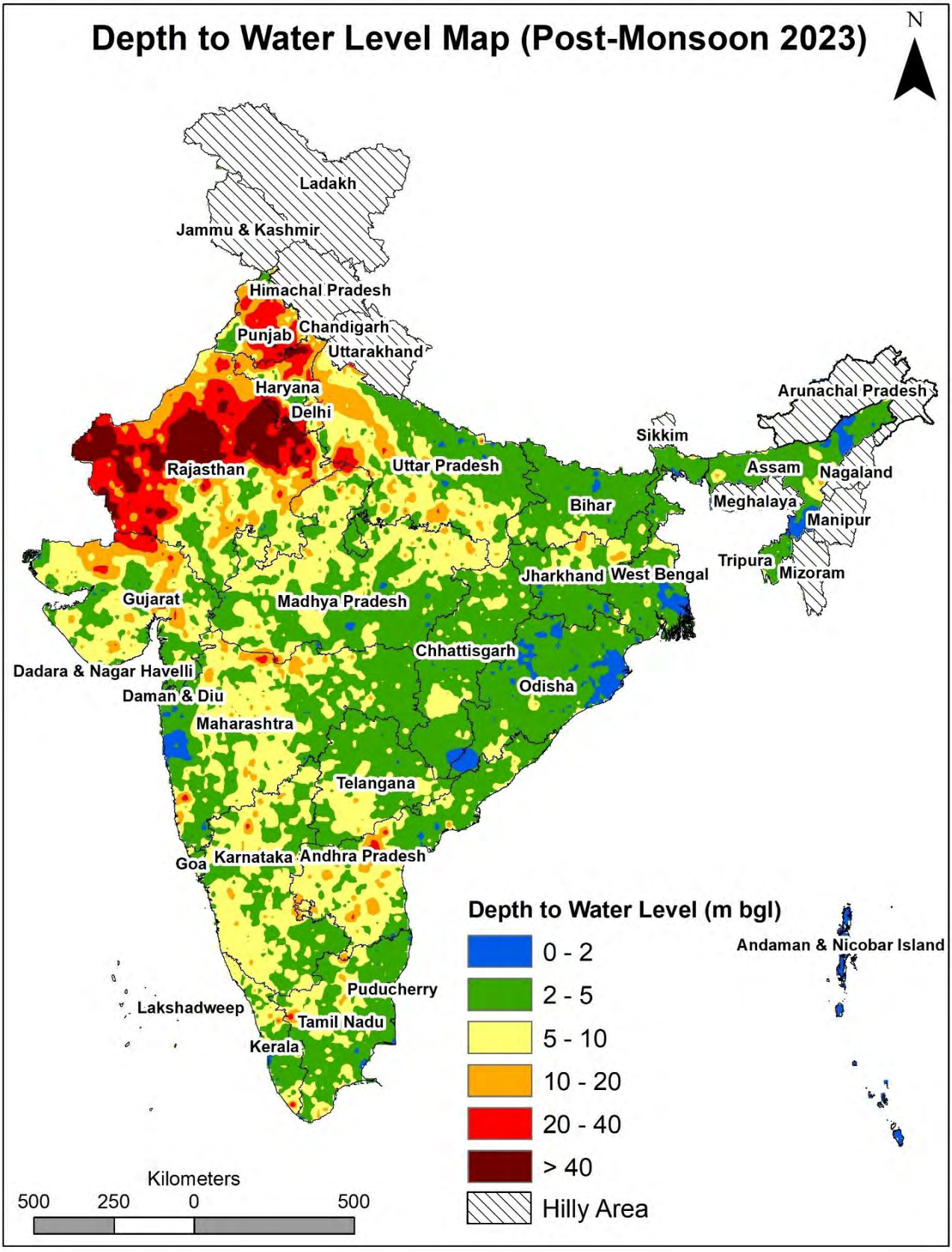
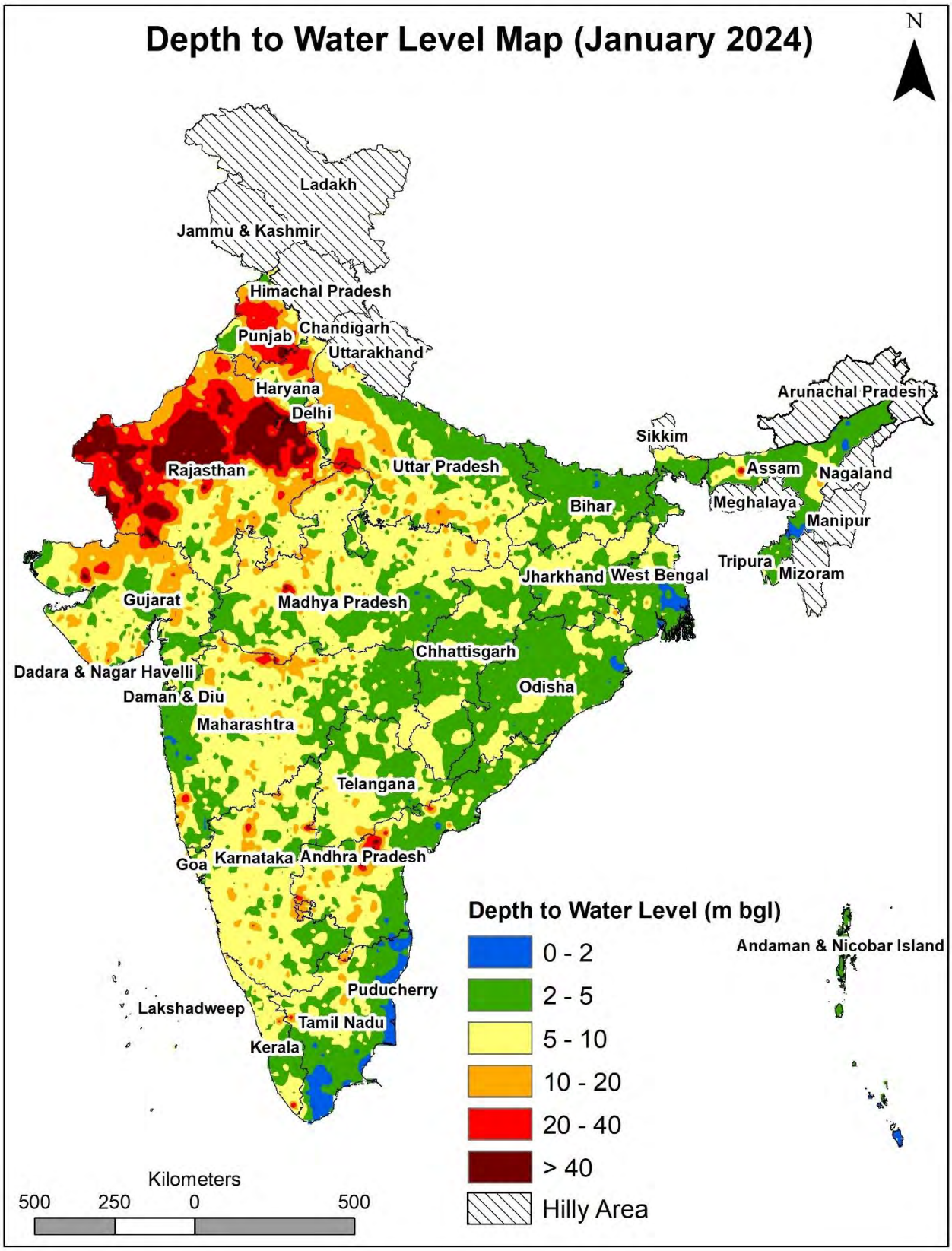

Depth to Water Level Map (Post-Monsoon 2023)
N
Ladakh
Jammu & Kashmir
Himachal Pradesh
Punjab
Chandigarh
Uttarakhand
Haryana
Delhi
Rajasthan
Uttar Pradesh
Bihar
Sikkim
Arunachal Pradesh
Assam
Nagaland
Meghalaya
Manipur
Tripura
Mizoram
Jharkhand
West Bengal
Gujarat
Madhya Pradesh
Chhattisgarh
Odisha
Dadara & Nagar Havelli
Daman & Diu
Maharashtra
Telangana
Goa
Karnataka
Andhra Pradesh
Puducherry
Lakshadweep
Tamil Nadu
Kerala
Andaman & Nicobar Island
Depth to Water Level (m bgl)
0 - 2
2 - 5
5 - 10
10 - 20
20 - 40
> 40
Hilly Area
Kilometers
500 250 0 500

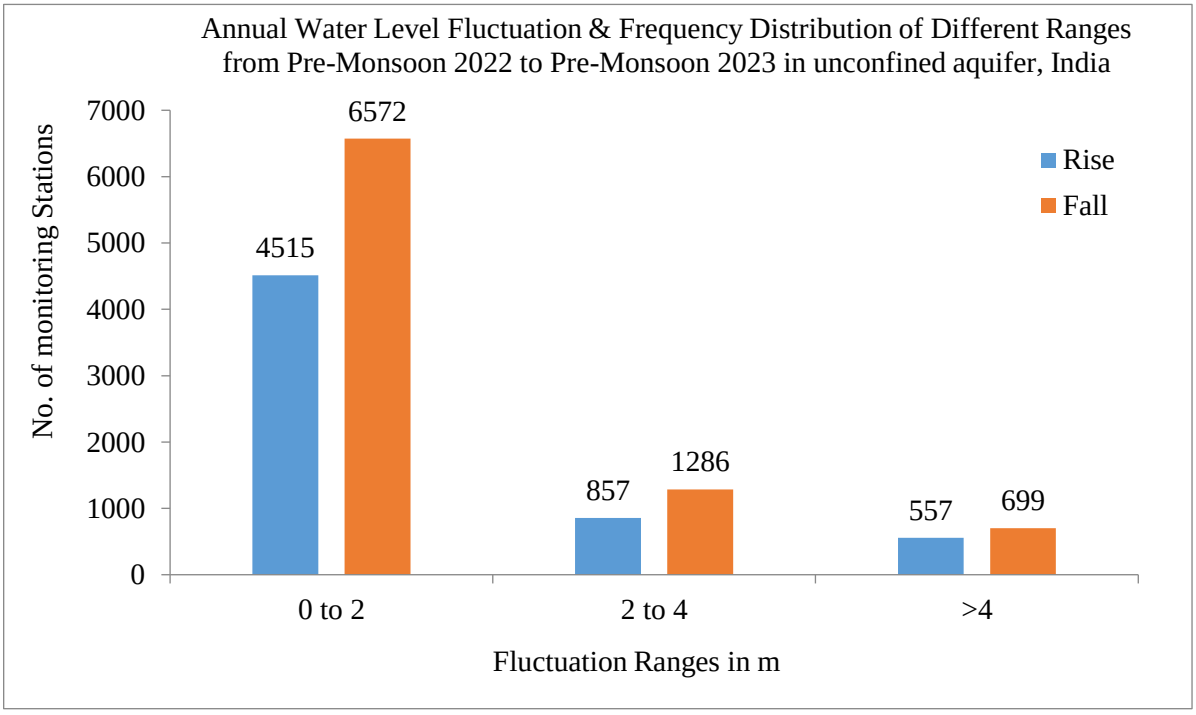
PLATE- IX


Depth to Water Level Map (January 2024)
N
Ladakh
Jammu & Kashmir
Himachal Pradesh
Punjab
Chandigarh
Uttarakhand
Haryana
Delhi
Rajasthan
Uttar Pradesh
Bihar
Sikkim
Arunachal Pradesh
Assam
Nagaland
Meghalaya
Manipur
Tripura
Mizoram
Jharkhand
West Bengal
Gujarat
Madhya Pradesh
Chhattisgarh
Odisha
Dadara & Nagar Havelli
Daman & Diu
Maharashtra
Telangana
Goa
Karnataka
Andhra Pradesh
Puducherry
Lakshadweep
Tamil Nadu
Kerala
Andaman & Nicobar Island
Depth to Water Level (m bgl)
0 - 2
2 - 5
5 - 10
10 - 20
20 - 40
> 40
Hilly Area
Kilometers
500 250 0 500

3.2.2 ANNUAL WATER LEVEL FLUCTUATION IN UNCONFINED AQUIFER

ANNUAL WATER LEVEL FLUCTUATION (PREMONSOON 2023 - PREMONSOON 2022)

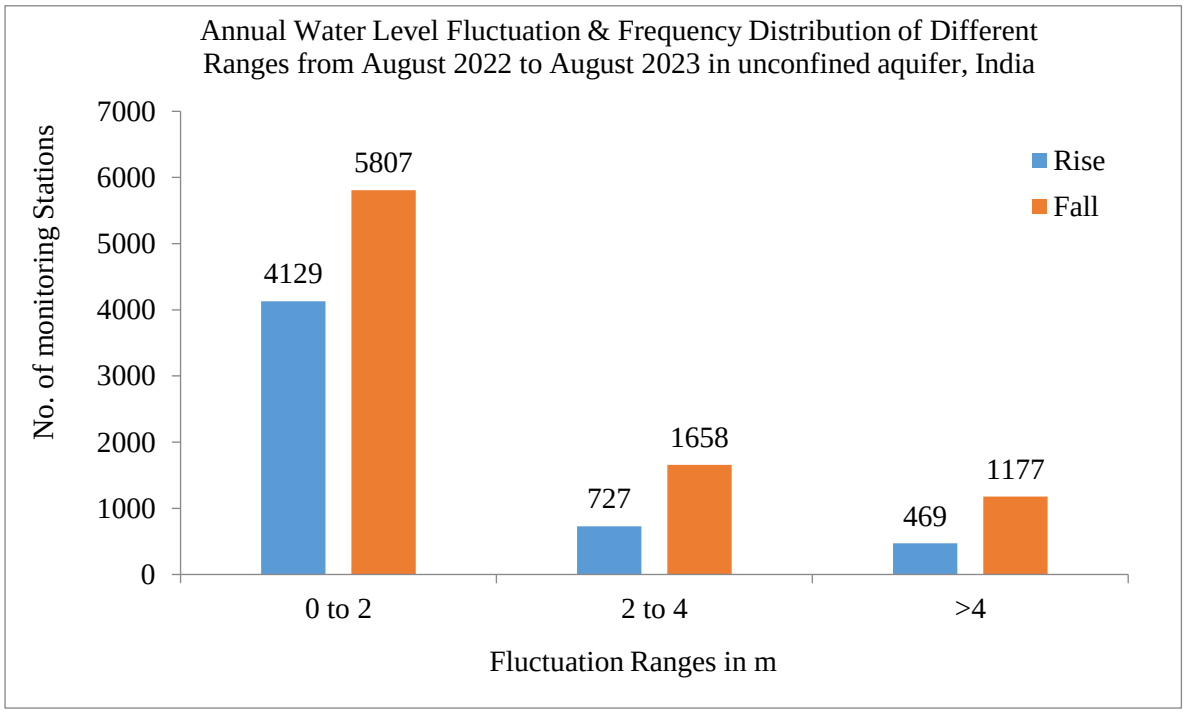
The water level fluctuation of Pre-monsoon 2023 compared to Pre-monsoon 2022 shows that out of 14722 wells analyzed, 5929 (40.2%) are showing rise and 8557 (58.12%) are showing fall in water level. The remaining 236 (1.6%) stations analyzed do not show any change in water level. Both rise and fall are equally predominant in the country. About 30.7% wells are showing rise in the water level in the range of less than 2 m. About 5.8% wells are showing rise in water level in 2 to 4 m range and 3.8% wells showing rise in water level more than 4 m range. Similarly, 44.6% wells are showing decline in water level in less than 2 m range. About 8.7% wells are showing decline in water level in 2 to 4 m range and 4.7% wells are showing decline in water level more than 4 m range. Fluctuation is mainly in the range of 0 to 2 m (**Plate XI,** ***Annexure V***). A comparison of depth to water level of pre-monsoon 2023 to pre-monsoon 2022 also reveals that in general there is fall in water level in most part of the country. The declining groundwater level is prominently observed in the parts of states of Andaman and Nicobar Islands, Assam, Bihar, Chandigarh, Chhattisgarh, Delhi, Goa, Jharkhand, Karnataka, Kerala, Nagaland, Odisha, Puducherry, Punjab, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh, West Bengal. The rising groundwater level is observed in the parts of states of Andhra Pradesh, Arunachal Pradesh, Daman and Diu, Dadra and Nagar Haveli, Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Madhya Pradesh, Maharashtra, Meghalaya, Rajasthan and Telangana.



ANNUAL WATER LEVEL FLUCTUATION (AUGUST 2023-AUGUST 2022)

The water level fluctuation of August 2023 compared to August 2022 shows that out of 14076 wells analyzed, 5325 (37.8%) are showing rise and 8642 (61.4%) are showing fall in water level. The remaining 109 (0.8%) stations analyzed do not show any change in water level. Both rise and fall are equally predominant in the country. About 29.3% wells are showing rise in the water level in the range of less than 2 m. About 5.2% wells are showing rise in water level in 2 to 4 m range and 3.3% wells showing rise in water level more than 4 m range. Similarly, 41.3% wells are showing decline in water level in less than 2 m range. About 11.8% wells are showing decline in water level in 2 to 4 m range and 8.4% wells are showing decline in water level more than 4 m range.

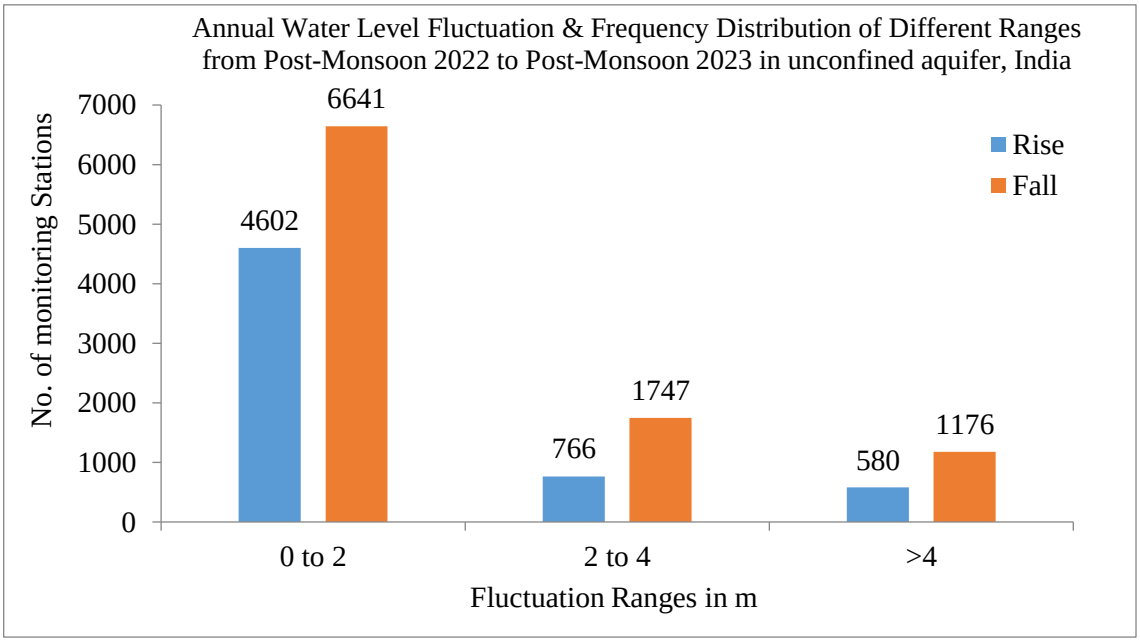
A comparison of depth to water level of August 2023 with August 2022 reveals that in general, there is fall in water level in the peninsular and western parts of the country. Rise and fall are mostly in the range of 0 to 2 m. Rise in water level has been observed in the parts of states of Himachal Pradesh, Puducherry, Uttarakhand, Assam, Arunachal Pradesh, Delhi, Meghalaya, Chandigarh, Uttar Pradesh, Bihar, Haryana, Punjab, Tripura, Jharkhand **(Plate-XII, *Annexure-VI*)**. The falling water level is observed in parts of Karnataka, Goa, The Dadra And Nagar Haveli And Daman And Diu, Nagaland, Telangana, Rajasthan, Maharashtra, Madhya Pradesh, Chhattisgarh, Andhra Pradesh and Odisha.



ANNUAL WATER LEVEL FLUCTUATION (NOVEMBER 2023- NOVEMBER 2022) POST-MONSOON

The water level fluctuation of November 2023 compared to November 2022 shows that out of 15649 wells analysed, 5948 (38.0%) are showing rise and 9564 (61.1%) are showing fall in water level. The remaining 137 (0.9%) stations analyzed do not show any change in water level. About 29.4% wells (4602) are showing rise in the water level in the range of less than 2 m. About 4.9% wells (766) are showing rise in water level in 2 to 4 m range and 3.7% wells (580) showing rise in water level more than 4 m range. About 61.1% wells are showing decline in water level, out of which 6641 wells (42.4%) are showing decline in water level in less than 2 m range. The majority of the wells showing rise/decline falls in the range of 0 to 2 m **(Plate-XIII, *Annexure-VII*).**

A comparison of depth to water level of November 2023 compared to November 2022 is presented in the form of water level fluctuation map reveals that in general, there is fall in water level in the central peninsular and the central part of the country. The rise in water level was notably observed in the scattered areas of states/UTs of Andaman and Nicobar Islands, Chandigarh, Delhi, Goa, Himachal Pradesh, Jammu and Kashmir, Kerala, and West Bengal. Groundwater levels have decreased in various areas of all states in a scattered pattern, with more significant decreases observed in states such as Andhra Pradesh, Assam, Bihar, Chhattisgarh, Gujarat, Haryana, Jharkhand, Karnataka, Maharashtra, Madhya Pradesh, Odisha, Punjab, Rajasthan, Tamil Nadu, Telangana, Tripura and Uttar Pradesh.



ANNUAL WATER LEVEL FLUCTUATION (JANUARY 2024- JANUARY 2023)

The water level fluctuation of January 2024 to January 2023 shows that out of 14743 wells analysed, 6818 (46.2%) are showing rise and 7778 (52.8%) are showing fall in water level. The remaining 147 (1.0%) stations analyzed do not show any change in water level. About 35.5% (5227) wells are showing rise in the water level in the range of less than 2 m. About 6.3% (924) wells are showing rise in water level in 2 to 4 m range and 4.5% (667) wells showing rise in water level more than 4 m range. About 52.8% wells are showing decline in water level, out of which 38.2% (5629) wells are showing decline in water level in less than 2 m range. About 8.5% (1256) wells are showing decline in water level in 2 to 4 m range and 6.1% (893) wells are showing decline in water level more than 4 m range. The majority of the wells showing rise/decline falls in the range of 0 to 2 m **(Plate-XIV, *Annexure-VIII*)**.

The rise in water level was notably observed in the scattered areas of states/UTs of Puducherry, Meghalaya, Chandigarh, Himachal Pradesh, Tamil Nadu, Tripura, West Bengal, Jammu and Kashmir, Arunachal Pradesh, Jharkhand and Kerala. Groundwater levels have decreased in various areas of all states in a scattered pattern, with more significant decreases observed in states such as Telangana, Andhra Pradesh, The Dadra And Nagar Haveli And Daman And Diu, Nagaland, Rajasthan, Bihar, Uttar Pradesh, Haryana, Karnataka, Delhi and Maharashtra.

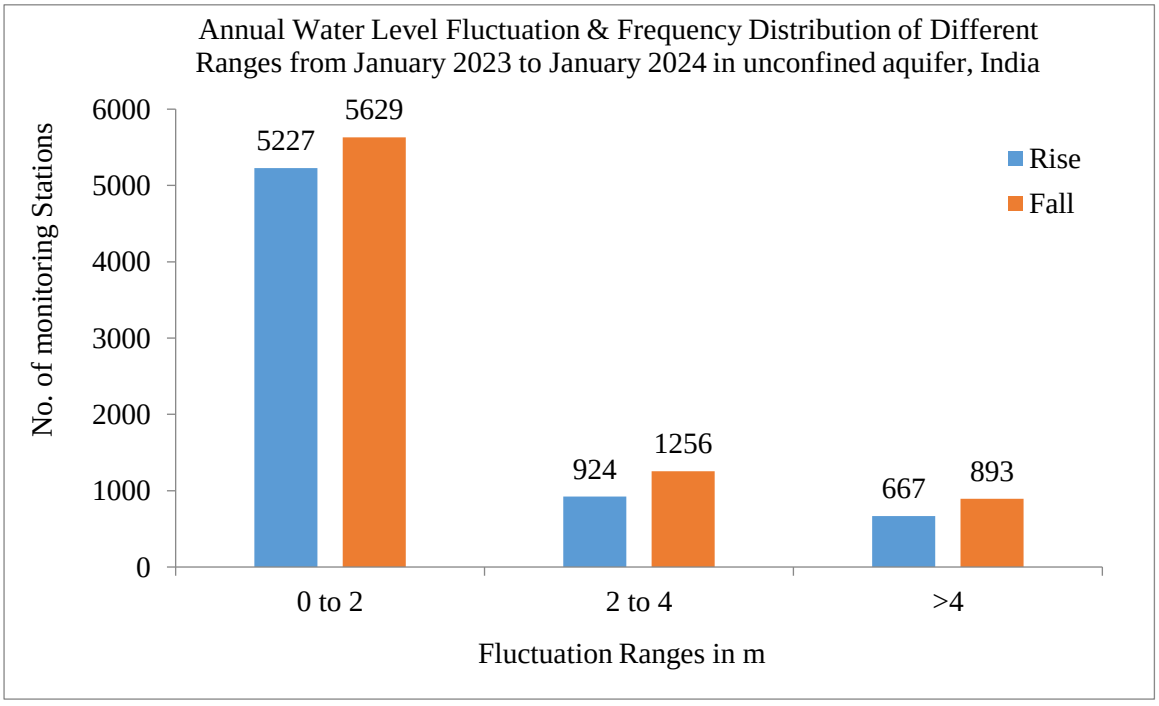
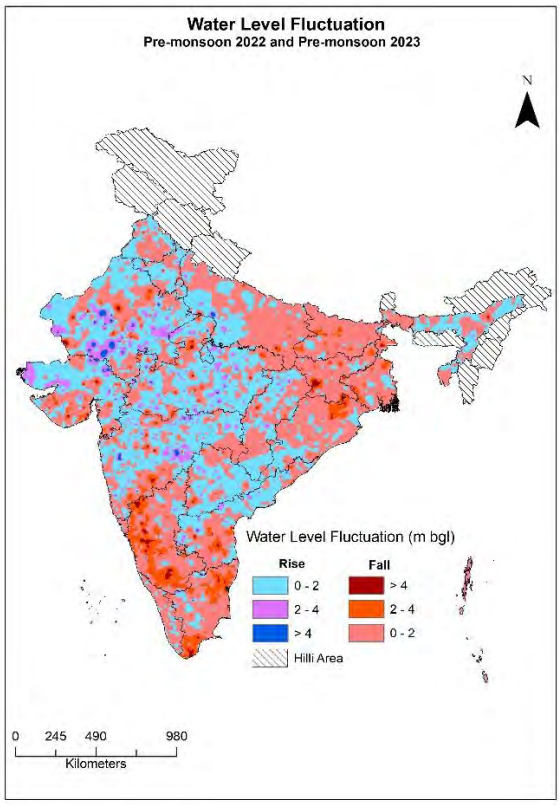
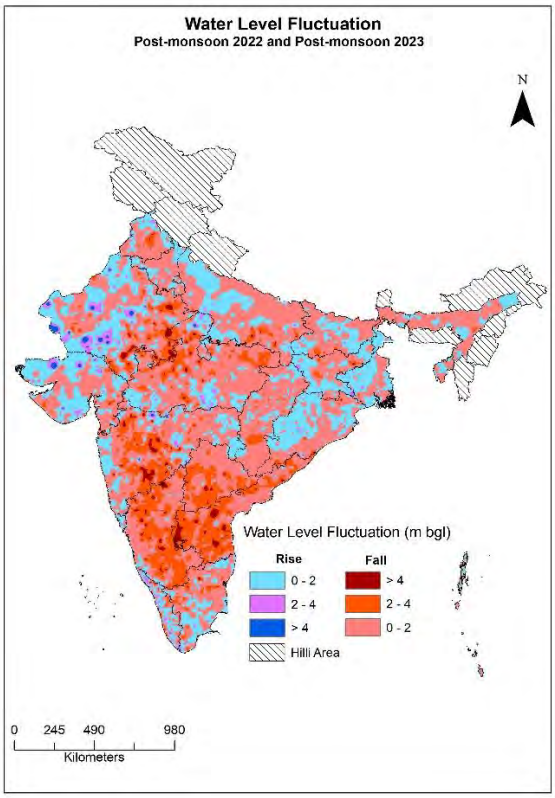
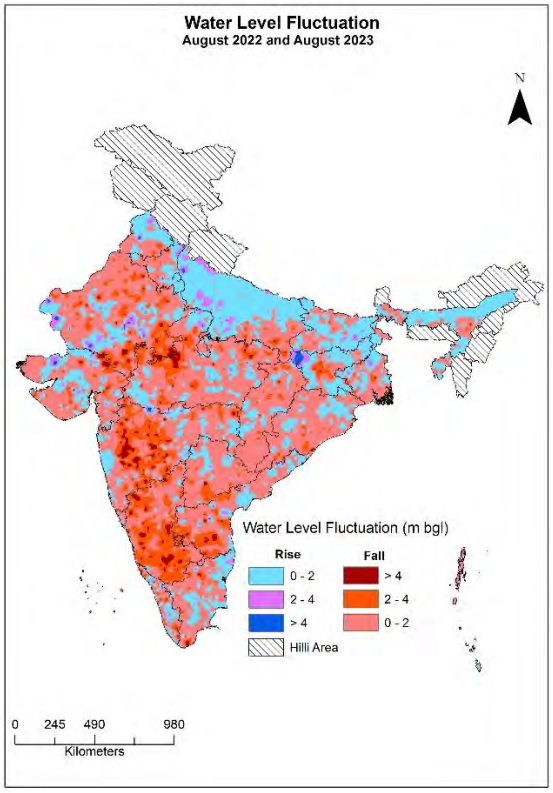


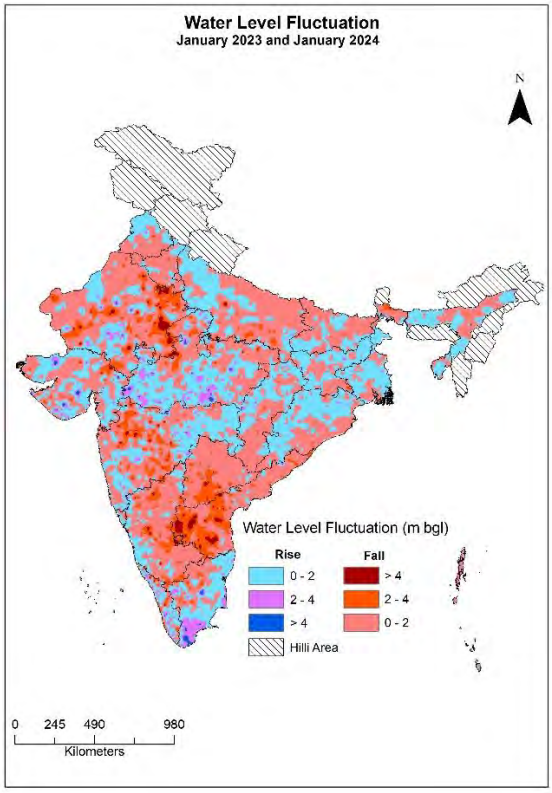
PLATE – X

ANNUAL WATER LEVEL FLUCTUATION AT A GLANCE









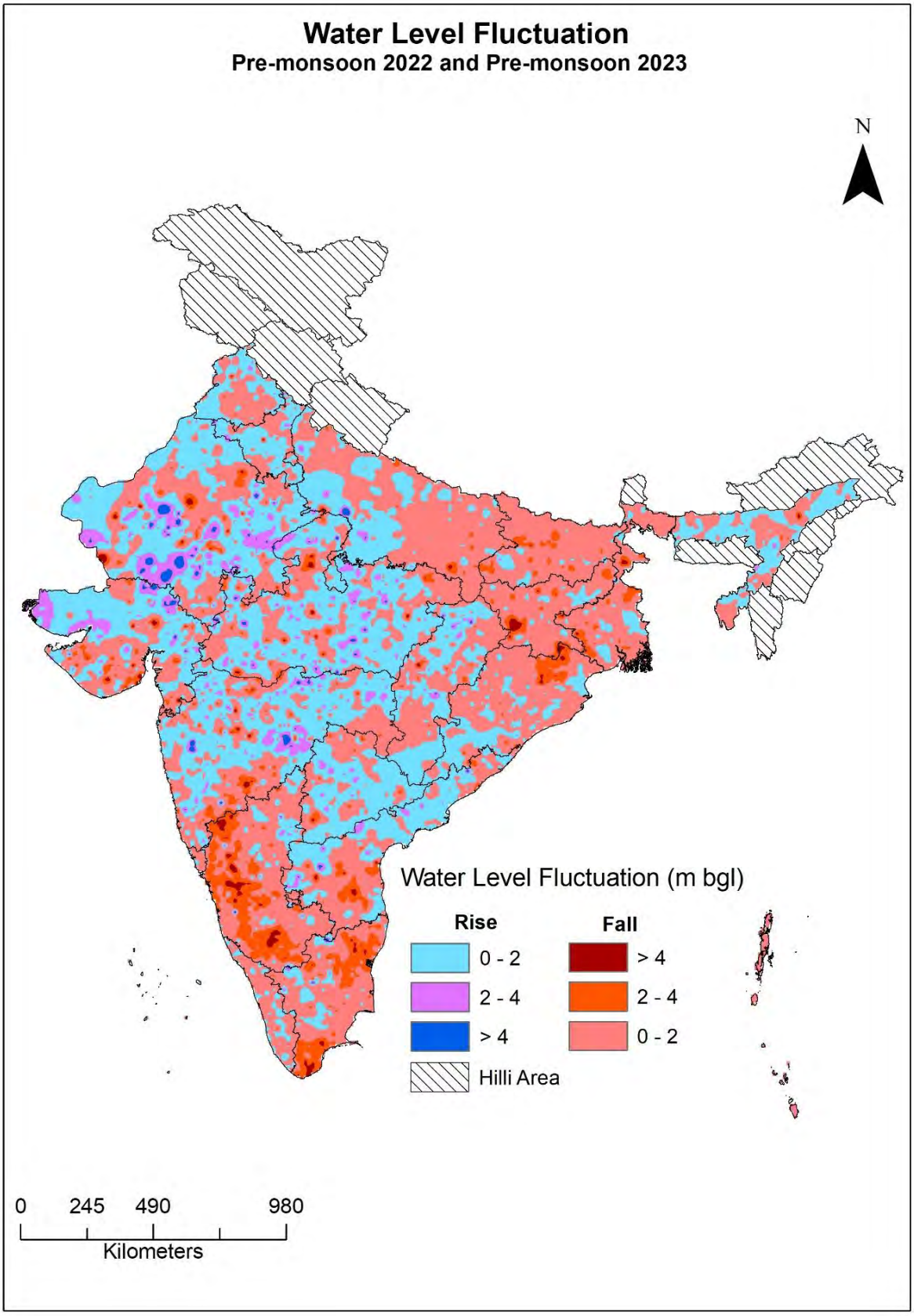
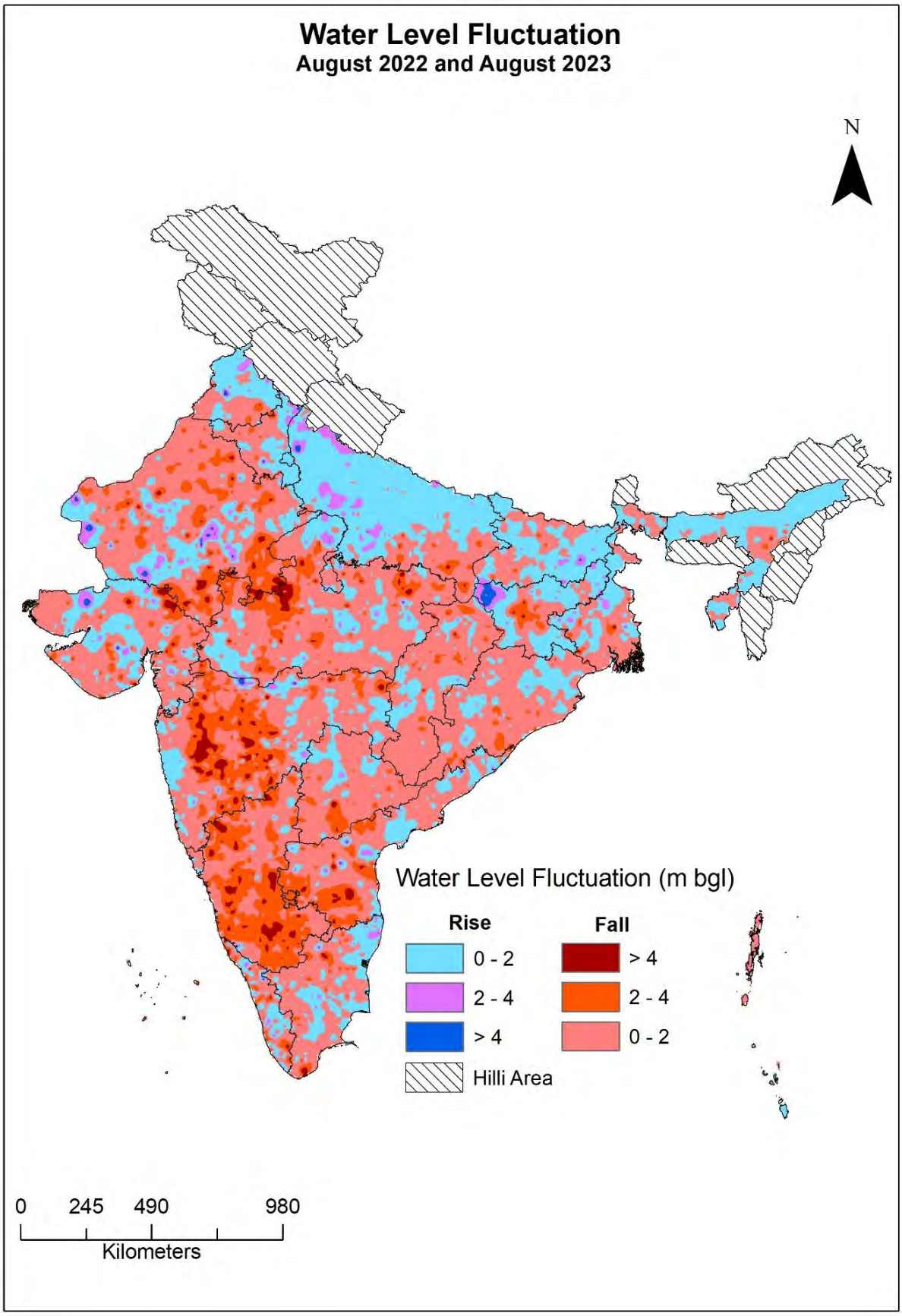

Water Level Fluctuation
Pre-monsoon 2022 and Pre-monsoon 2023
N
Water Level Fluctuation (m bgl)
Rise
0 - 2
2 - 4
> 4
Fall
> 4
2 - 4
0 - 2
Hilli Area
0
245
490
980
Kilometers

PLATE – XII


Water Level Fluctuation
August 2022 and August 2023
N
Water Level Fluctuation (m bgl)
Rise
0 - 2
2 - 4
> 4
Fall
> 4
2 - 4
0 - 2
Hilli Area
0 245 490 980
Kilometers

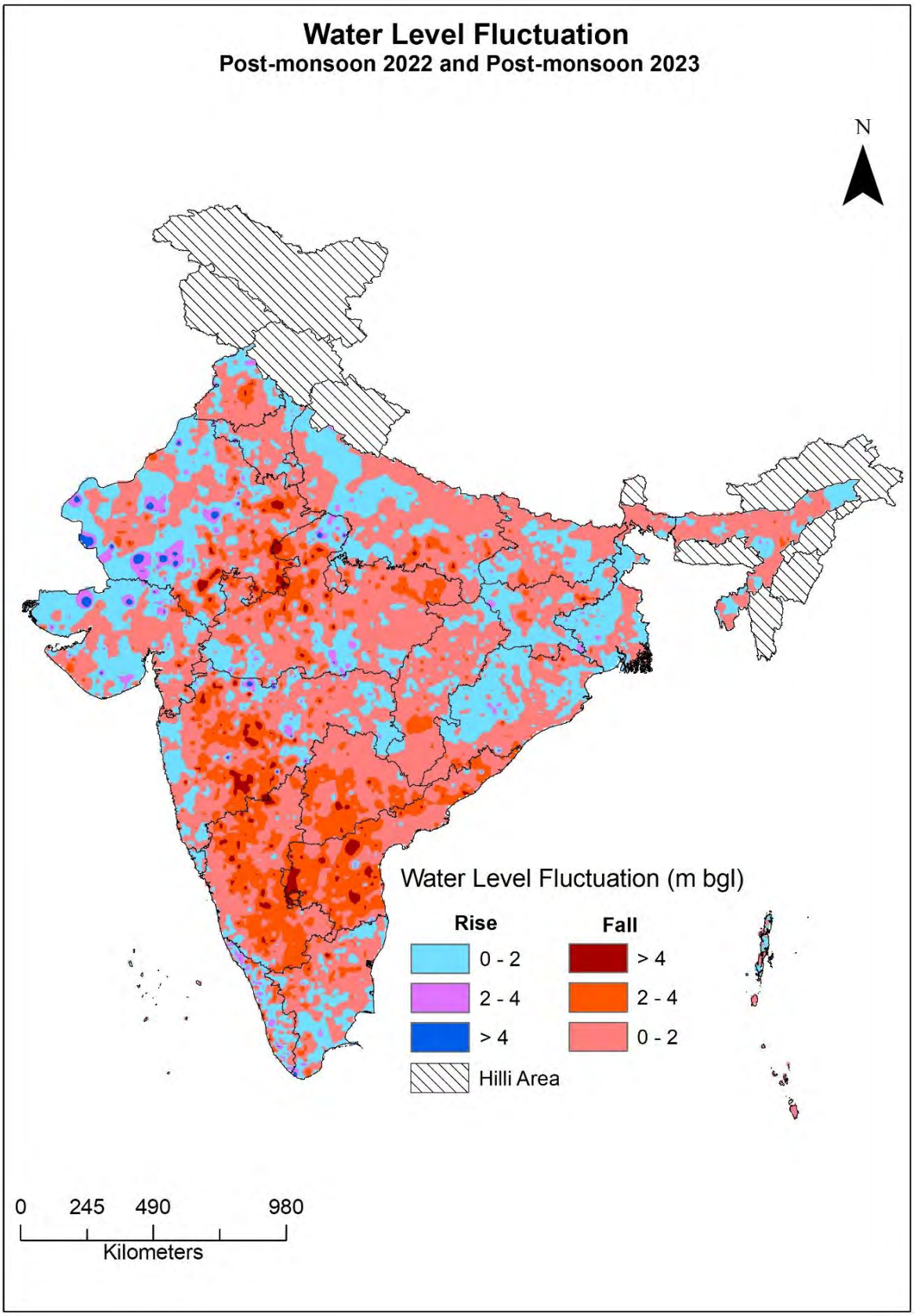
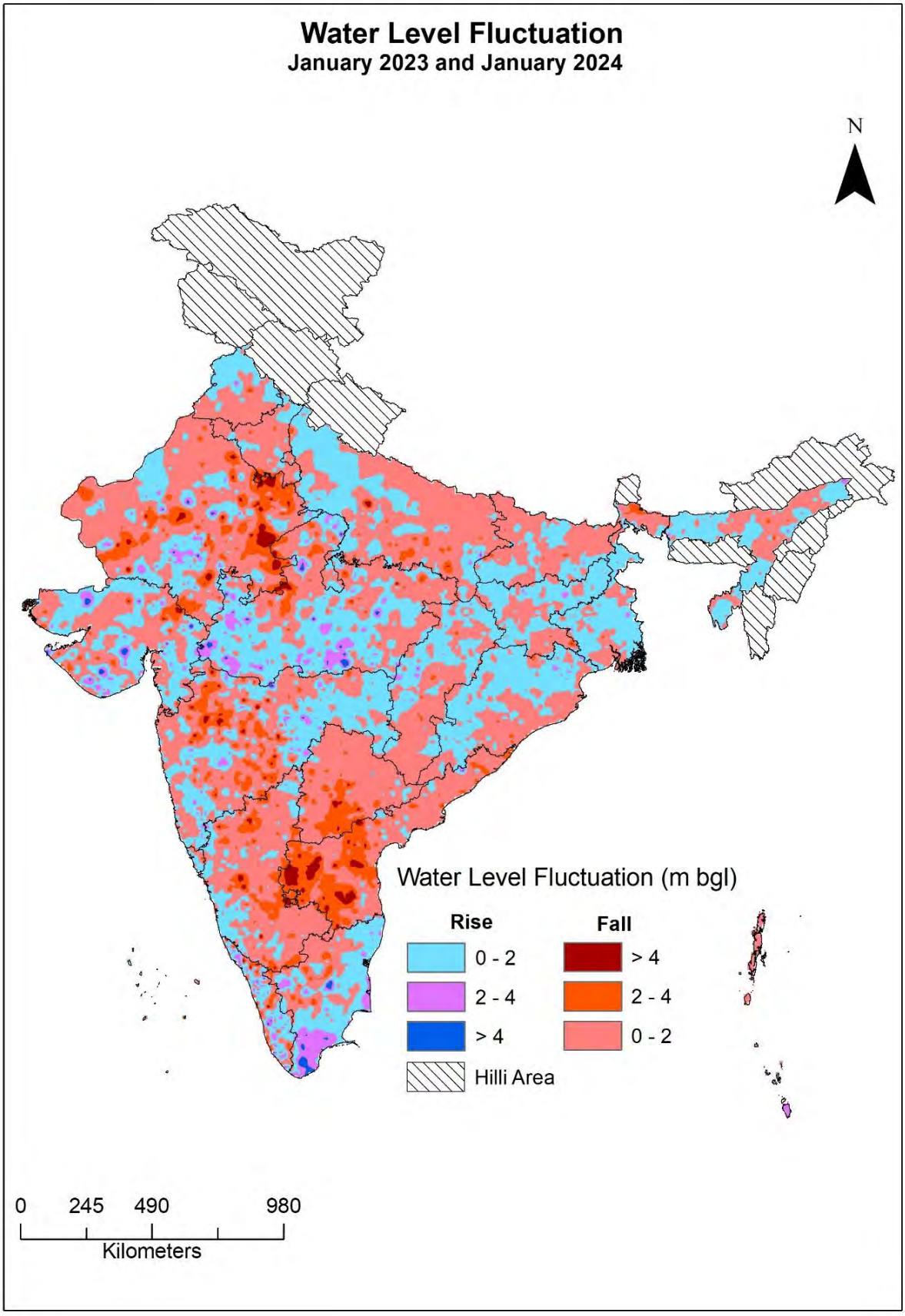

Water Level Fluctuation
Post-monsoon 2022 and Post-monsoon 2023
N
Water Level Fluctuation (m bgl)
Rise
0 - 2
2 - 4
> 4
Fall
> 4
2 - 4
0 - 2
Hilli Area
0
245
490
980
Kilometers

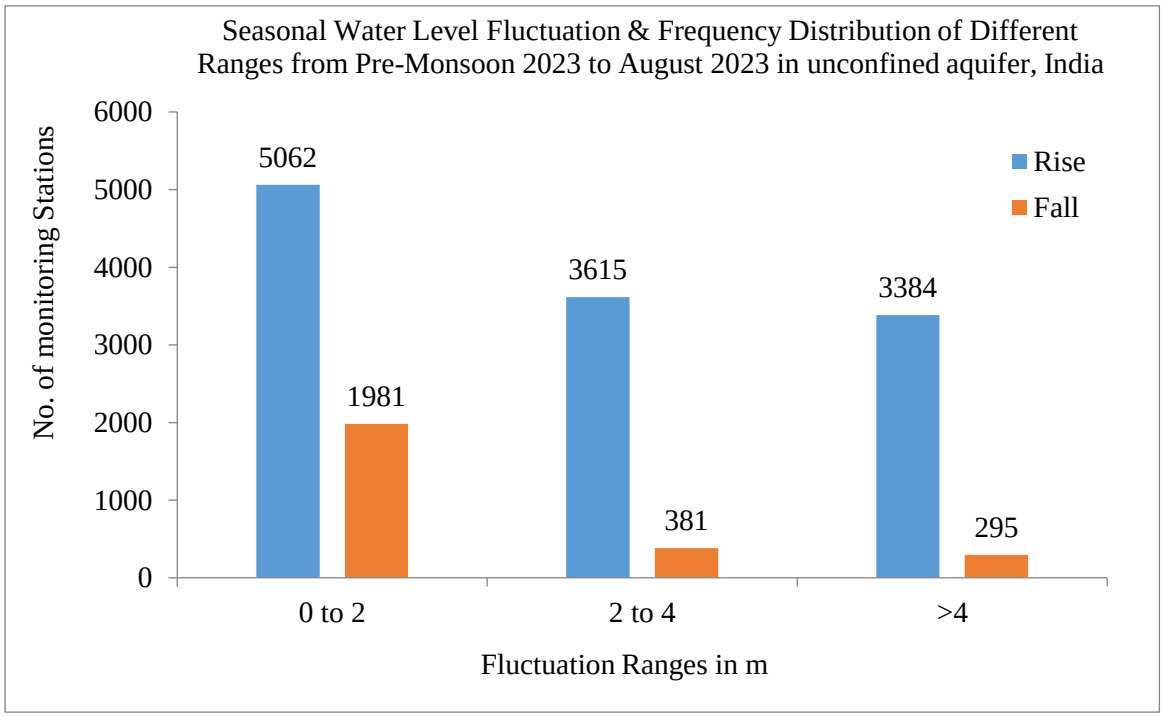
PLATE – XIV


Water Level Fluctuation
January 2023 and January 2024
N
Water Level Fluctuation (m bgl)
Rise
0 - 2
2 - 4
> 4
Fall
> 4
2 - 4
0 - 2
Hilli Area
0
245
490
980
Kilometers

3.2.3 SEASONAL WATER LEVEL FLUCTUATION IN UNCONFINED AQUIFER

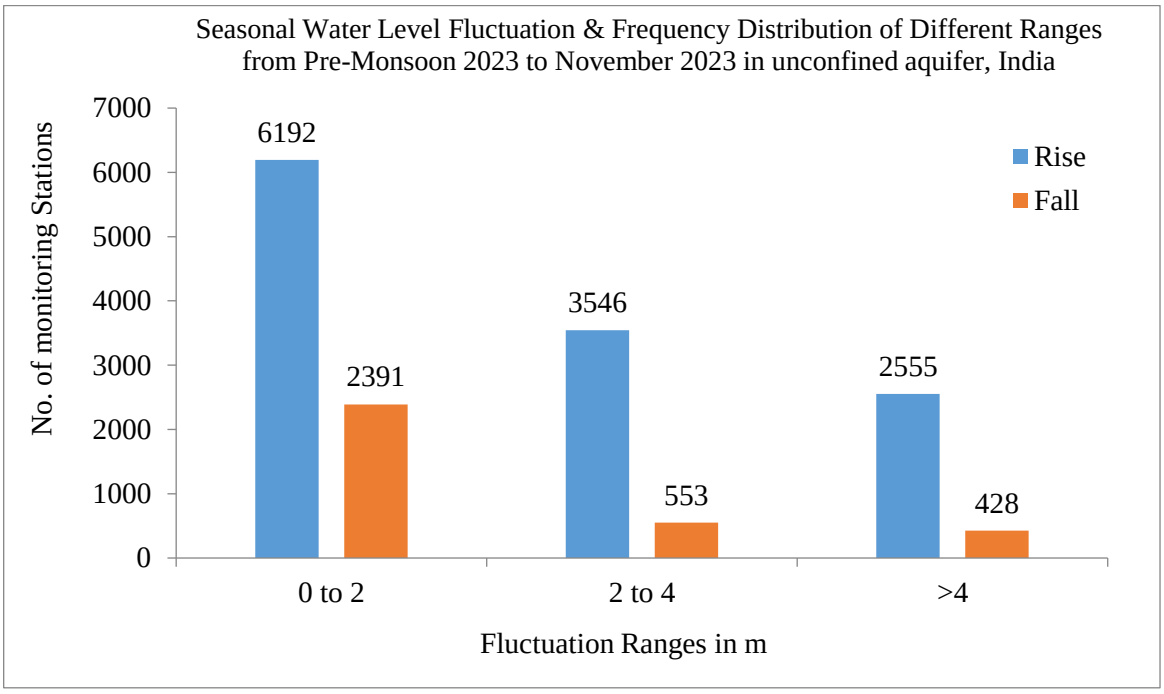
SEASONAL WATER LEVEL FLUCTUATION (PRE-MONSOON 2023-AUGUST 2023)

A comparison of depth to water level of pre-monsoon 2023 with August 2023 indicates that out of analysed 14783 wells, about 81.6% (12061) of wells are showing rise in water levels, out of which 34.2% (5062) wells are showing rise of less than 2 m range. About 24.5% (3615) wells are showing rise in water level in the range of 2 to 4 m and another 22.9 % (3384) wells are showing rise in water in range of more than 4 m. Similarly,18.0 % (2657) wells are showing decline in water level, out of which 13.4% (1981) wells are showing decline in water in the range of 0 to 2 m, 2.6% (381) wells are showing fall in water level in the range of 2 to 4 m and 2.0 % (295) wells are showing fall in water level of more than 4 m. The remaining 0.4% wells are showing no change. **(Plate-XVI, *Annexure-IX*)**. Rise in water level prominently observed all over the country covering in all the states. Fall in water level is observed in parts of Haryana, Punjab, Rajasthan, Tamil Nadu and Karnataka.



SEASONAL WATER LEVEL FLUCTUATION (PRE-MONSOON 2023-NOVEMBER 2023)

A comparison of depth to water level of pre-monsoon 2023 with November 2023 indicates that about 78.0% of wells (12293) analysed are showing rise in water levels, out of which 39.3% (6192) wells are showing rise of less than 2 m range. About 22.5% (3546) wells are showing rise in water level in the range of 2 to 4 m and another 16.2 % (2555) wells are showing rise in water in range of more than 4 m. About 21.4% wells are showing decline in water level, out of which 15.2 % wells (2391) are showing decline in water in the range of 0 to 2 m. About 3.5 % (553) wells are showing decline in water in the range of 2 to 4 m and 2.7% wells are showing decline in water in range of more than 4 m. Rise in water level is prominent in all the states of the country. Rise in water level prominently observed all over the country covering in all the states. Fall in water levels has been observed in some areas of western Rajasthan, Punjab, Haryana, Delhi, Andhra Pradesh, Karnataka and Kerala. **(Plate XVII, *Annexure X*)**.



SEASONAL WATER LEVEL FLUCTUATION (PREMONSOON 2023 JANUARY 2024)

The water level fluctuation of pre-monsoon 2023 with January 2024 indicates that out of 14609 wells analysed, 10403 (71.1%) are showing rise and 4115 (28.2%) are showing fall in water level. The remaining 91 (0.6%) wells analysed do not show any change in water level. About 43.0% (6276) wells are showing rise in the water level in the range of less than 2 m. About 17.7% (2581) wells are showing rise in water level in 2 to 4 m range and another 10.6% (1546) wells showing rise in water level more than 4 m range. About 28.2% (4115) wells are showing decline in water level, out of which 20.3% (2960) wells are showing decline in water level in less than 2 m range. About 4.4 % (648) wells are showing decline in water in the range of 2 to 4 m and 3.5% (507) wells are showing decline in water in range of more than 4 m. Majority of the wells showing rise/decline falls in the range of 0 to 2 m **(Plate XVIII, *Annexure XI*)**.

A comparison of depth to water level of pre-monsoon 2023 with January 2024 with reveals that in general, there is rise in water level in almost the entire country, except in a few states such as Rajasthan, Haryana, Punjab, Delhi, Andhra Pradesh, Telangana and Karnataka. Rise in water level is prominent in all the states of the country. Rise in water level is prominent in the range of 0 to 2 m.

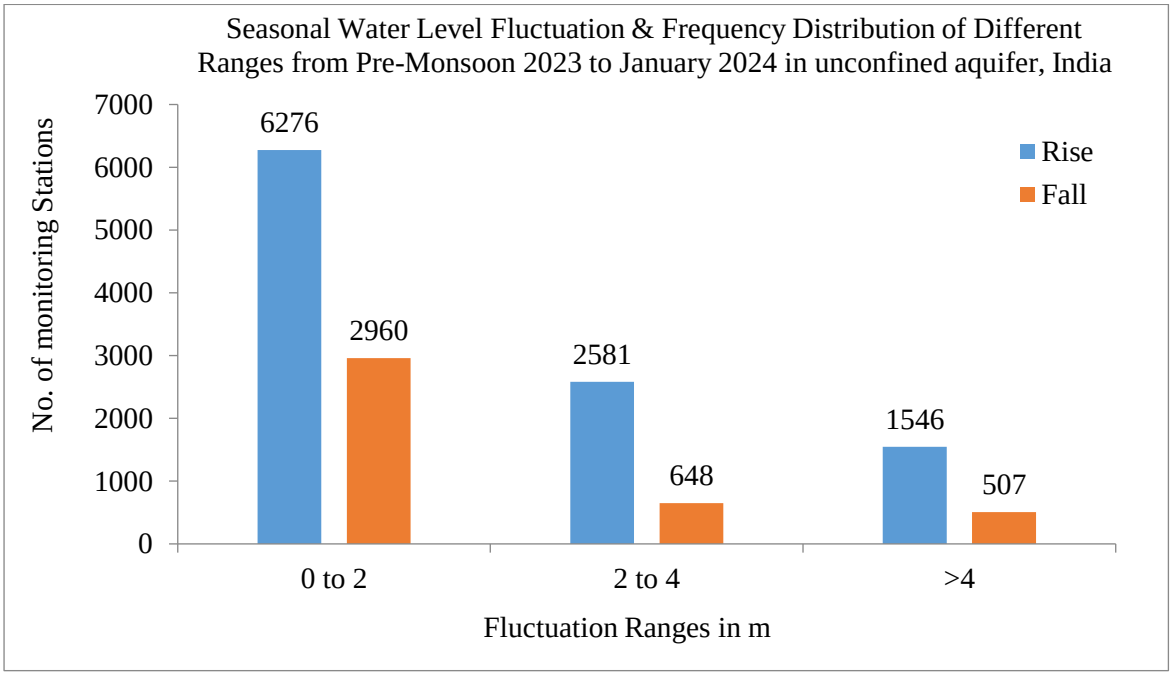
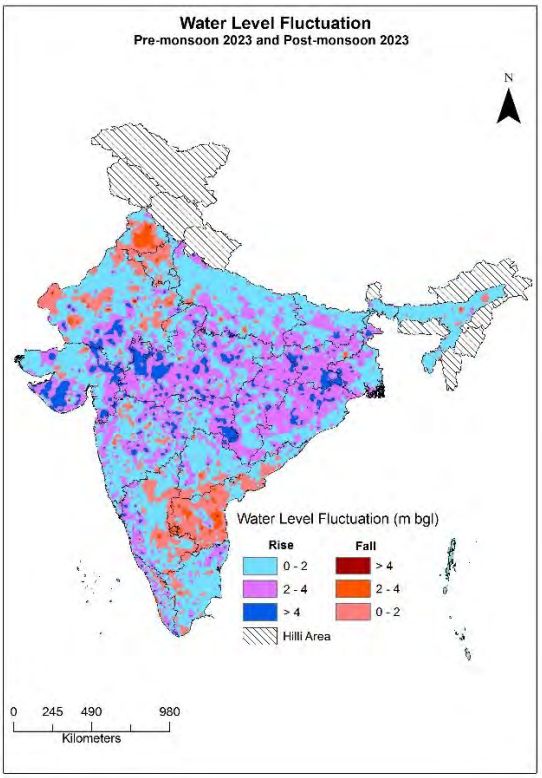
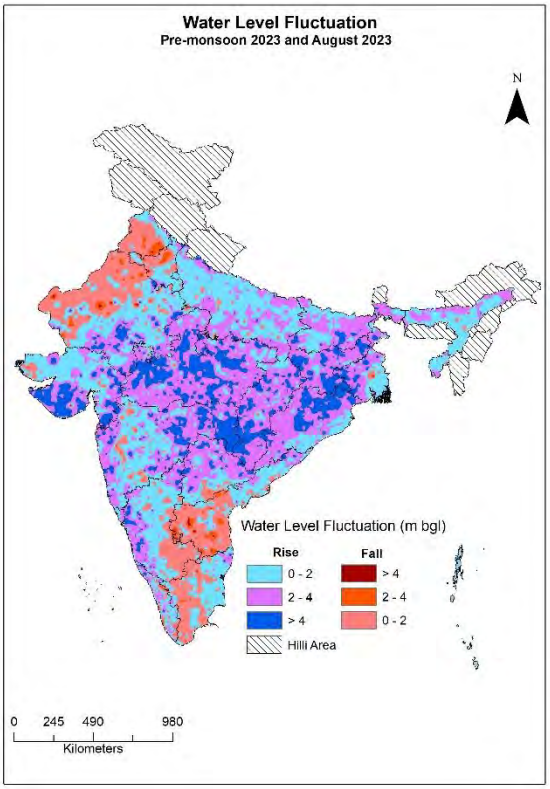
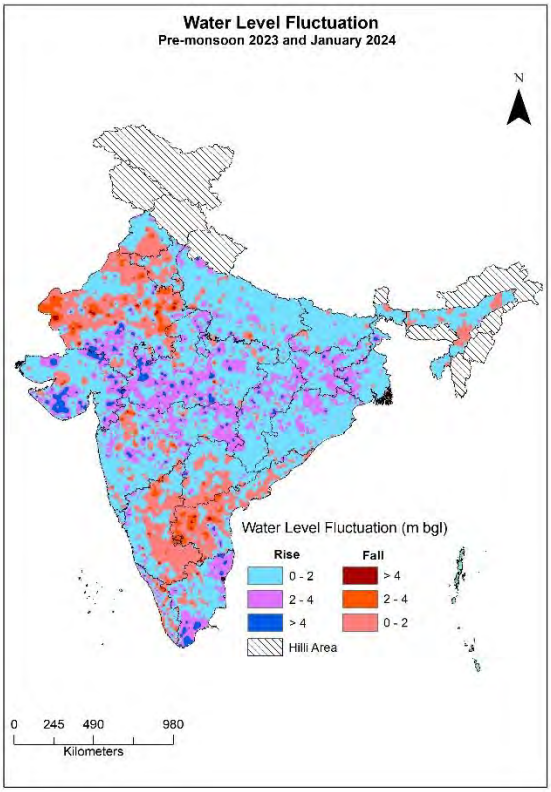


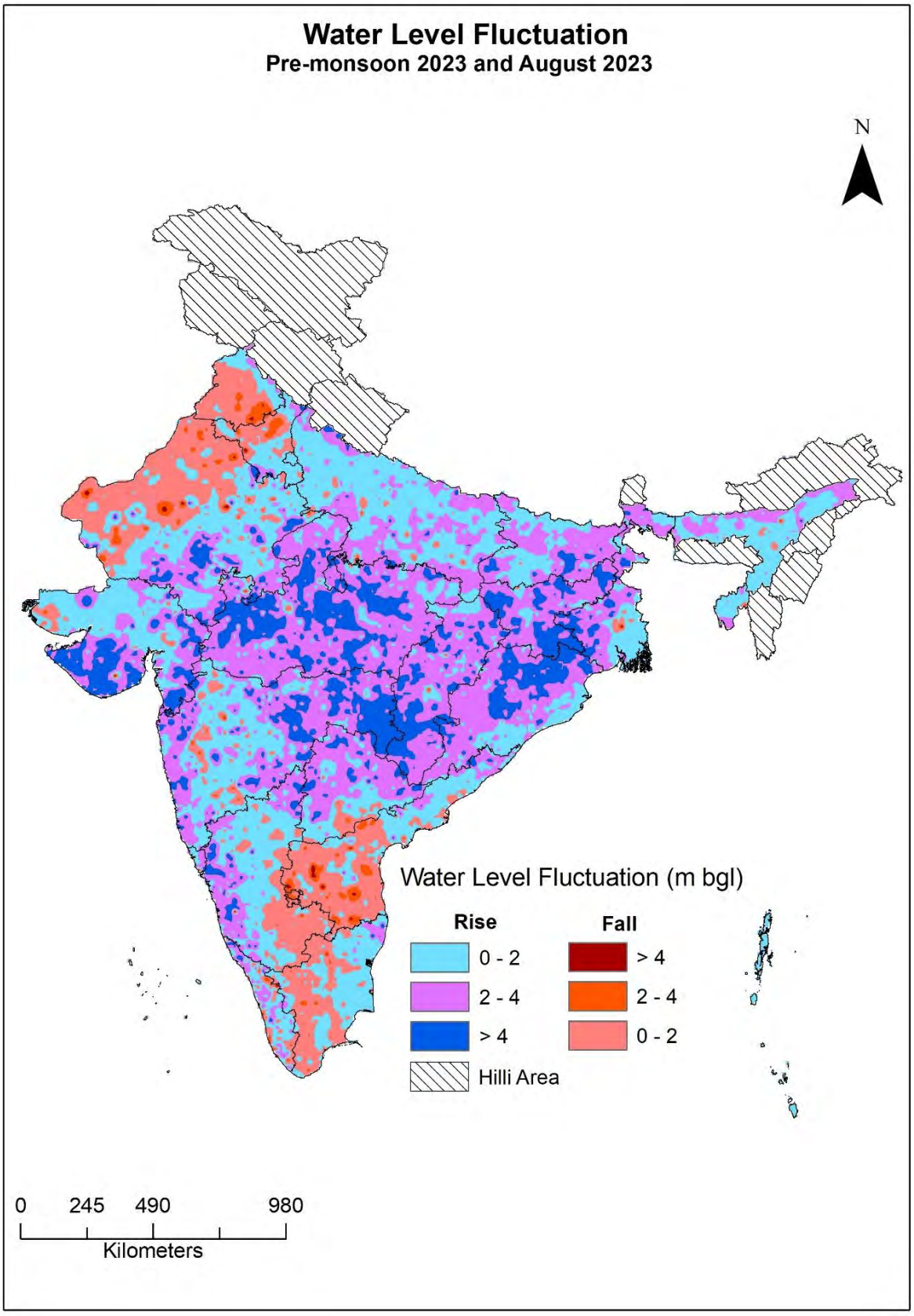
PLATE - XV

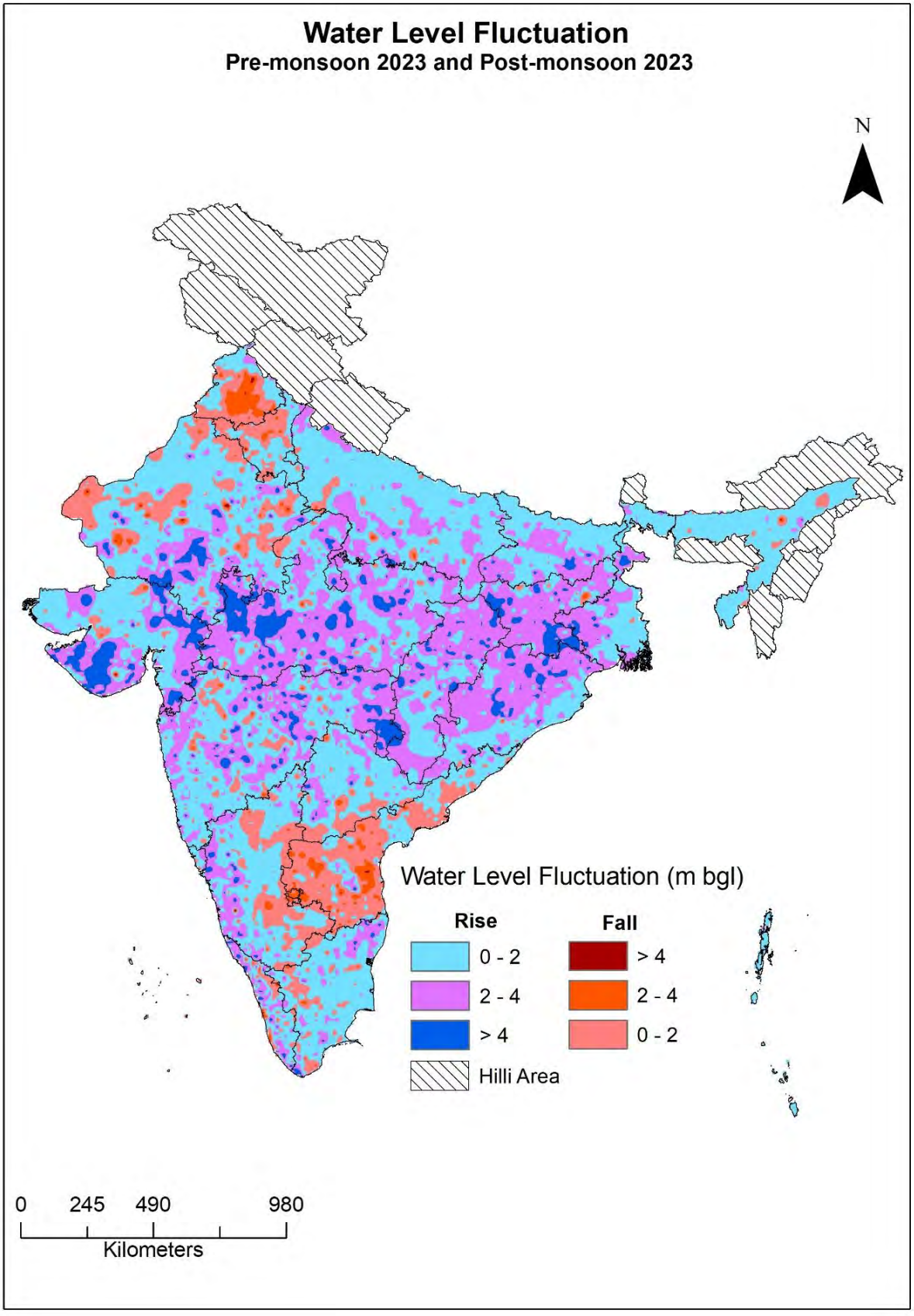
SEASONAL WATER LEVEL FLUCTUATION AT A GLANCE

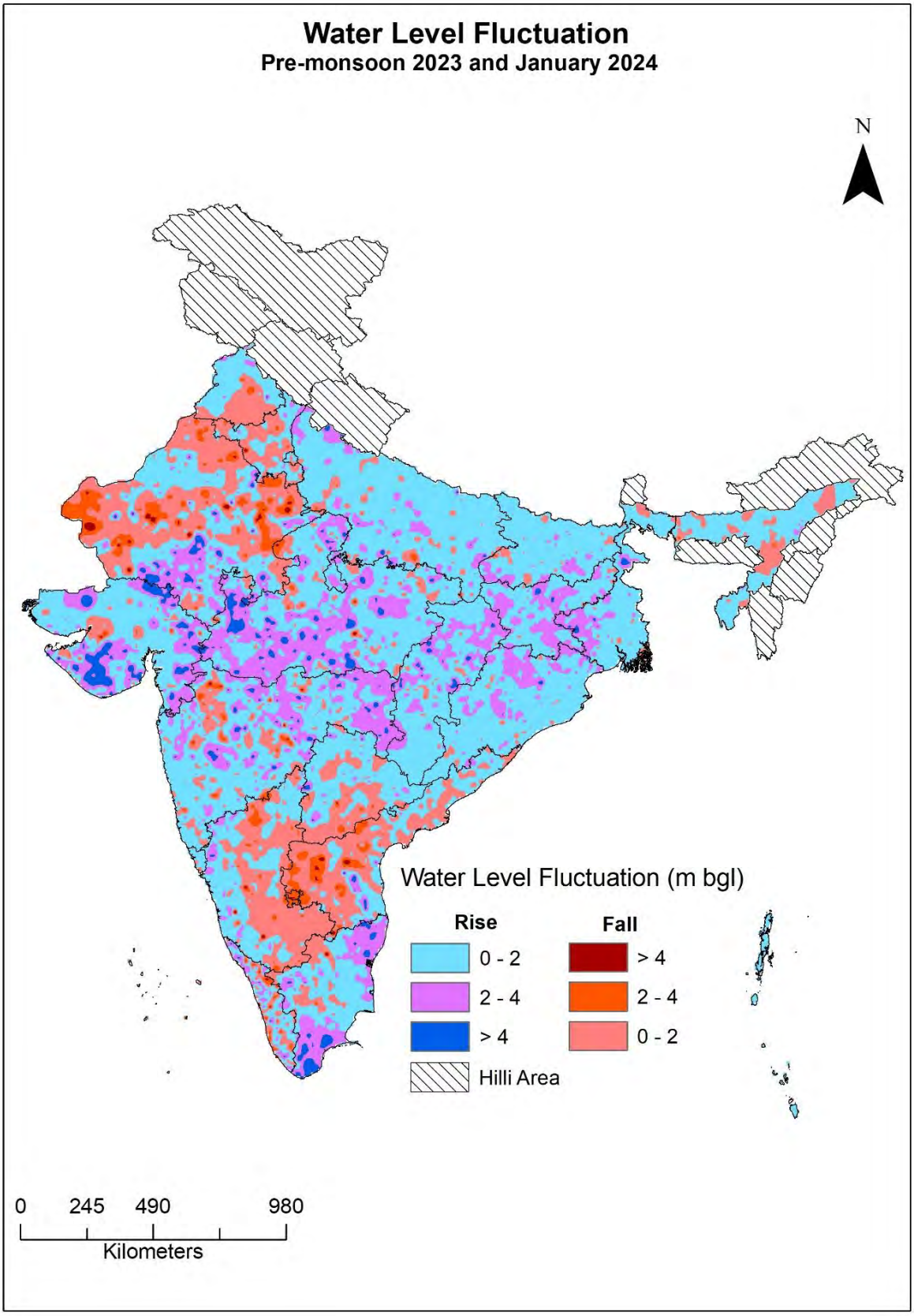







Water Level Fluctuation
Pre-monsoon 2023 and August 2023
N
Water Level Fluctuation (m bgl)
Rise
0 - 2
2 - 4
> 4
Fall
> 4
2 - 4
0 - 2
Hilli Area
0 245 490 980
Kilometers


Water Level Fluctuation
Pre-monsoon 2023 and Post-monsoon 2023
N
Water Level Fluctuation (m bgl)
Rise
0 - 2
2 - 4
> 4
Fall
> 4
2 - 4
0 - 2
Hilli Area
0
245
490
980
Kilometers

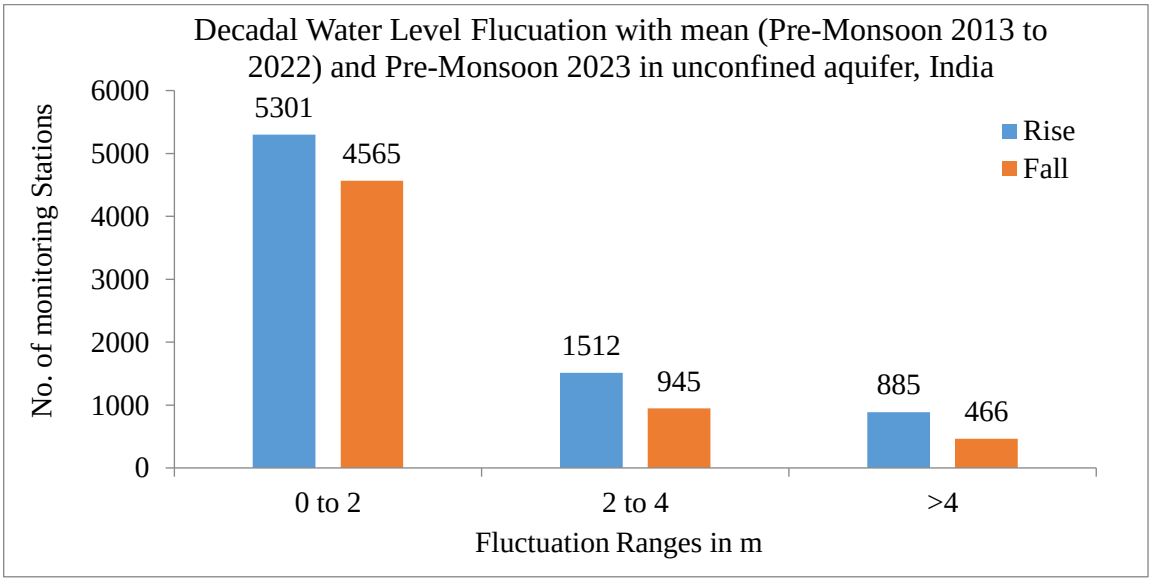

Water Level Fluctuation
Pre-monsoon 2023 and January 2024
N
Water Level Fluctuation (m bgl)
Rise
0 - 2
2 - 4
> 4
Fall
> 4
2 - 4
0 - 2
Hilli Area
0
245
490
980
Kilometers

3.2.4 DECADAL WATER LEVEL FLUCTUATION

WATER LEVEL FLUCTUATION WITH DECADAL MEAN (PRE-MONSOON 2013 TO 2022) TO PRE-MONSOON 2023

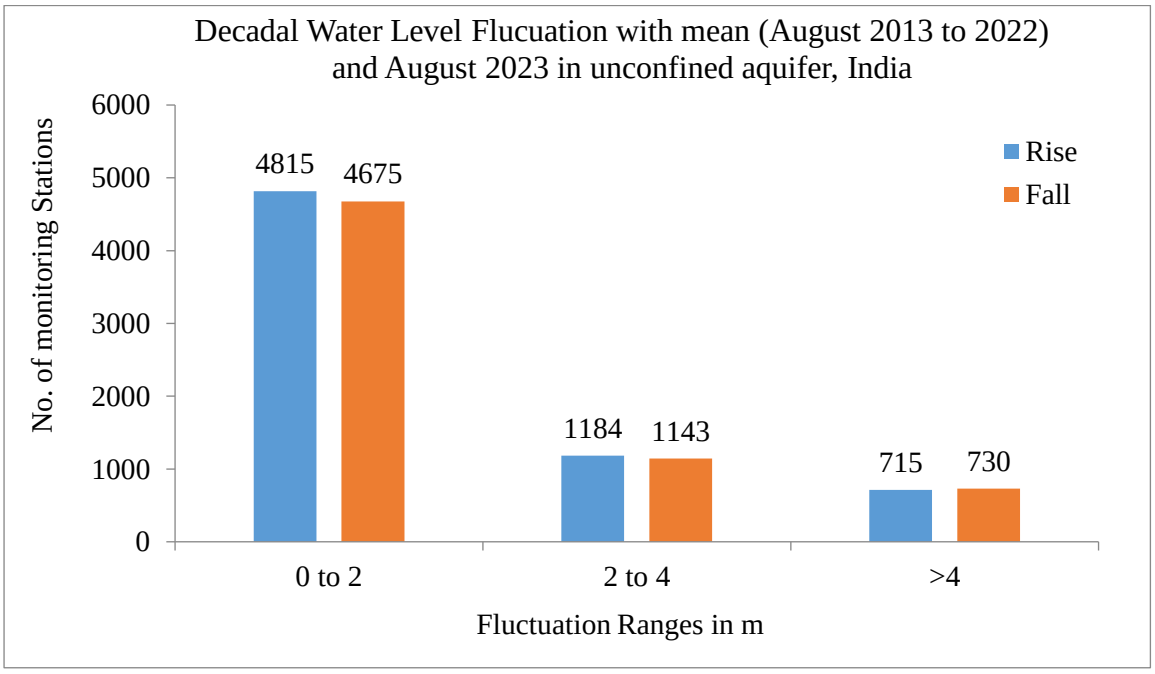
A comparison of depth to water level of pre-monsoon 2023 with decadal mean of pre-monsoon (2013-2022) indicate that 7698 (56.1%) of wells are showing rise in water level, out of which 38.6% (5301) wells are showing rise of less than 2 m. About 11.0% (1512) wells are showing rise in water level in the range of 2 to 4 m and about 6.5% (885) wells are showing rise in water level in the range of more than 4 m. 4565 (43.6%) wells are showing decline in water level, out of which 33.3% (4565) wells are showing decline in water in the range of 0 to 2 m. 6.9% (945) wells are showing decline in water level in 2 to 4 m range and remaining 3.4% (466) are in the range of more than 4 m. A comparison of depth to water level of pre-monsoon 2023 with decadal mean of pre-monsoon (2013-2022) indicates that 56.1% of the analysed wells show rise in water level whereas 43.6% wells show decline in water level. Less than 0.4% well show no change. Rise and decline in water level are primarily in the 0 to 2 m range.

The rise in water levels is prominently seen in the parts of states/UTs of Andhra Pradesh, Assam, Chandigarh, Delhi, Gujarat, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Meghalaya, Odisha, Puducherry, Rajasthan, Tamil Nadu, Telangana, and The Dadra and Nagar Haveli and Daman and Diu. Similarly, states where a decline in water levels is prominently observed include significant parts of Andaman and Nicobar Islands, Arunachal Pradesh, Bihar, Chhattisgarh, Goa, Haryana, Jammu and Kashmir, Jharkhand, Punjab, Tripura, Uttar Pradesh, Uttarakhand, and West Bengal **(Plate-XX, *Annexure-XII*).**



WATER LEVEL FLUCTUATION WITH DECADAL MEAN (AUGUST 2013 TO AUGUST 2022) TO AUGUST 2023

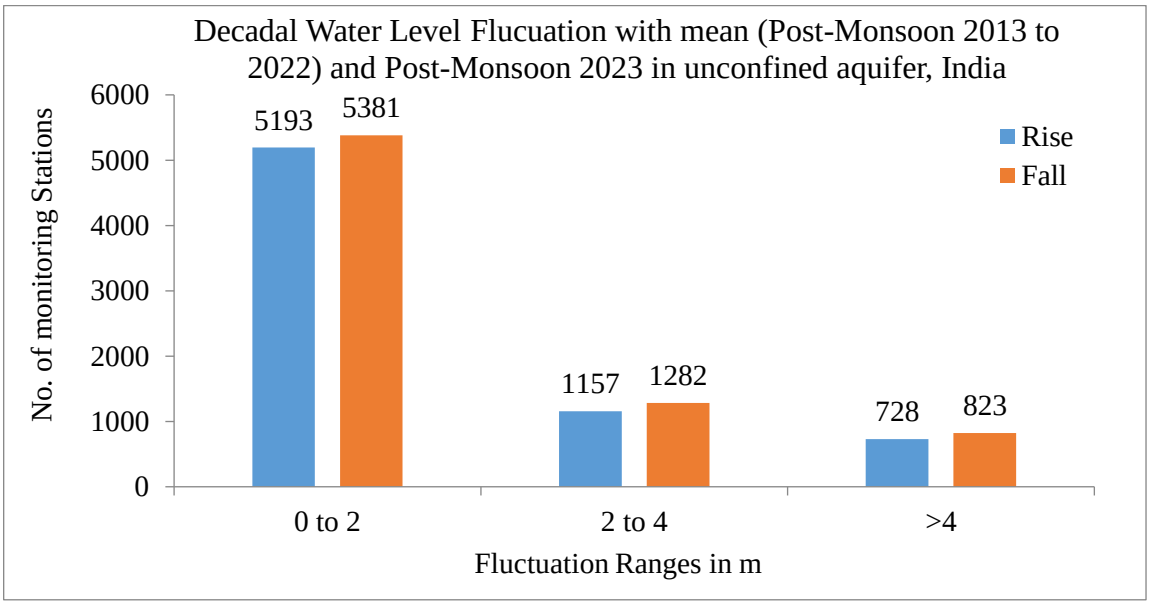
A comparison of depth to water level of August 2022 with decadal mean of August (2013-2022) indicate that about 50.5% (6714) of wells are showing rise in water level, out of which 36.2% (4815) wells are showing rise of less than 2 m. About 8.9% (1184) wells are showing rise in water in the range of 2 to 4 m and about 5.4% (715) wells are showing rise in water level in the range of more than 4 m. About 49.2% (6548) wells are showing decline in water level, out of which 35.1% (4675) wells are showing decline in water in the range of 0 to 2 m. 8.6% (1143) wells are showing decline in water level in 2 to 4 m range and remaining 5.5% (730) are in the range of more than 4 m. A comparison of depth to water level of August 2023 with decadal mean of August (2013-2022) indicates that 50.5% of the wells analysed have registered rise in groundwater level, mostly in the range of 0 to 2 m, in the states/UTs namely Andhra Pradesh, Arunachal Pradesh, Assam, Chandigarh, Delhi, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Maharashtra, Meghalaya, Puducherry, Tamil Nadu, Telangana and Uttarakhand. A decline in water level has been observed in pockets in the states/UTs of Bihar, Chhattisgarh, Goa, Karnataka, Madhya Pradesh, Nagaland, Punjab, Rajasthan, The Dadra And Nagar Haveli And Daman And Diu, Tripura and West Bengal. **(Plate XXI, *Annexure XIII*)**.



WATER LEVEL FLUCTUATION WITH DECADAL MEAN (POST- MONSOON-2013 TO POST-MONSOON-2022) TO POST-MONSOON-2023

A comparison of depth to water level of post-monsoon 2023 with decadal mean of post-monsoon (2013-2022) indicate that, out of 14616 wells analysed, 7078 (48.4%) of wells are showing rise in water level, out of which 35.5% (5193) wells are showing rise of less than 2 m. About 7.9% (1157) wells are showing rise in water level in the range of 2 to 4 m and about 5.0% (728) wells are showing rise in water level in the range of more than 4 m. About 7486 (51.2%) wells showing decline in water level, out of which 36.8% (5381) wells are showing decline in water in the range of 0 to 2 m. About 8.8% (1282) wells are showing decline in water level in 2 to 4 m range and remaining 5.6% (823) are in the range of more than 4 m **(Plate XXII, *Annexure-XIV*)**.

A comparison of decadal water level fluctuation with mean of post-monsoon (2013 to 2022) and post-monsoon 2023 (Fig. 5.6) indicates that 48.43% of the analysed wells show rise in water level whereas 51.22% wells show decline in water level. Only 0.36% of the wells have shown no change. Rise and decline in water level are primarily in the 0 to 2 m range. Rise in water level is prominently seen in the states/UTs of Andaman And Nicobar Islands, Chandigarh, Chhattisgarh, Delhi, Gujarat, Himachal Pradesh, Jammu and Kashmir, Kerala, Madhya Pradesh, Odisha, Puducherry, Tamil Nadu, Telangana, The Dadra And Nagar Haveli And Daman And Diu, Uttar Pradesh, Uttarakhand and West Bengal. Similarly, states where a decline in water levels is observed include significant parts of Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Goa, Haryana, Jharkhand, Karnataka, Maharashtra, Meghalaya, Punjab, Rajasthan and Tripura.



WATER LEVEL FLUCTUATION WITH DECADAL MEAN (JANUARY 2014 TO JANUARY 2023) TO JANUARY 2024

A comparison of depth to water level of January 2024 with decadal mean of January (2014-2023) indicates that out of 13558 well analysed, 7038 (about 51.9%) of wells are showing rise in water level, out of which 37.6% (5103) wells are showing rise of less than 2 m. About 9.0% (1226) wells are showing rise in water level in the range of 2 to 4 m and only 5.2% (709) wells are showing rise in the range of more than 4 m. Total 6480 (about 47.8%) wells showing the decline in water level, out of which 35.5% (4816) wells are showing decline in water in the range of 0 to 2 m. 7.3% (994) wells are showing decline in water level in 2 to 4 m range and remaining 4.9% (670) are in the range of more than 4 m. Rise in water level is prominently observed in parts of the states/UTs as Arunachal Pradesh, Assam, Chandigarh, Chhattisgarh, Delhi, Gujarat, Haryana, Himachal Pradesh, Kerala, Madhya Pradesh, Maharashtra, Meghalaya, Puducherry, Tamil Nadu, Tripura, Uttarakhand and West Bengal. Decline in water level is observed in parts of Andhra Pradesh, Bihar, Goa, Jammu and Kashmir, Jharkhand, Karnataka, Nagaland, Odisha, Punjab, Rajasthan, Telangana, The Dadra And Nagar Haveli And Daman And Diu and Uttar Pradesh. **(Plate XXIII, *Annexure-XV*)**.

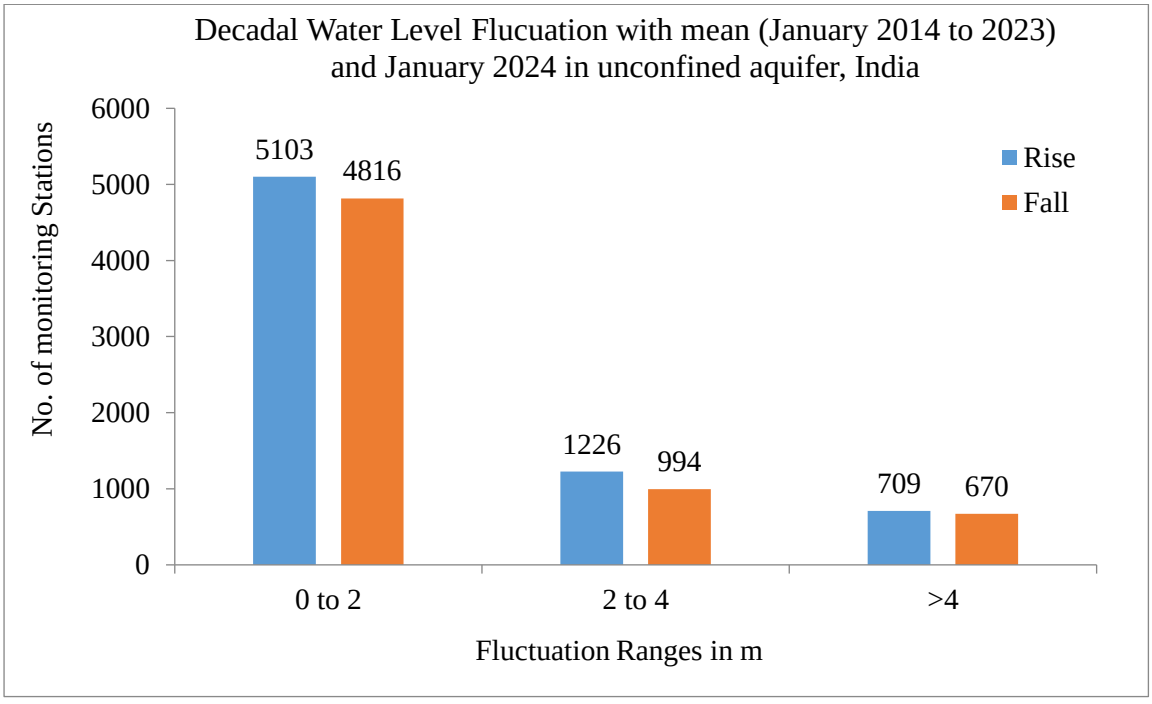
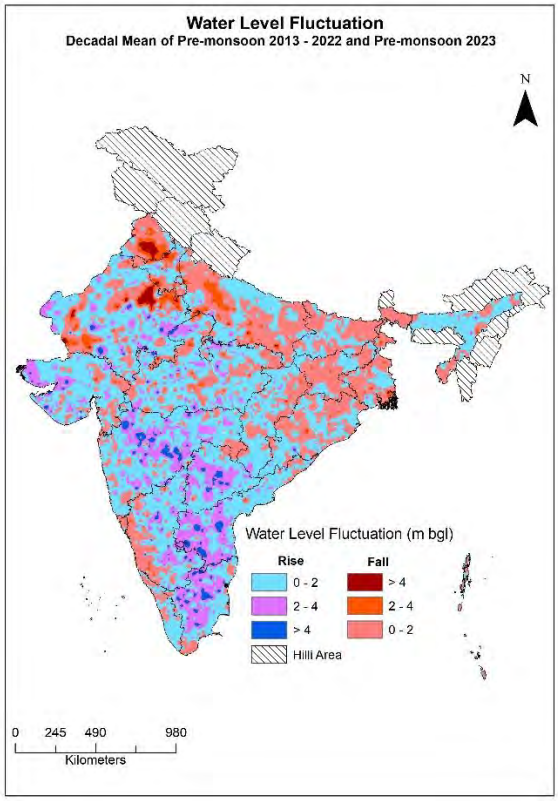
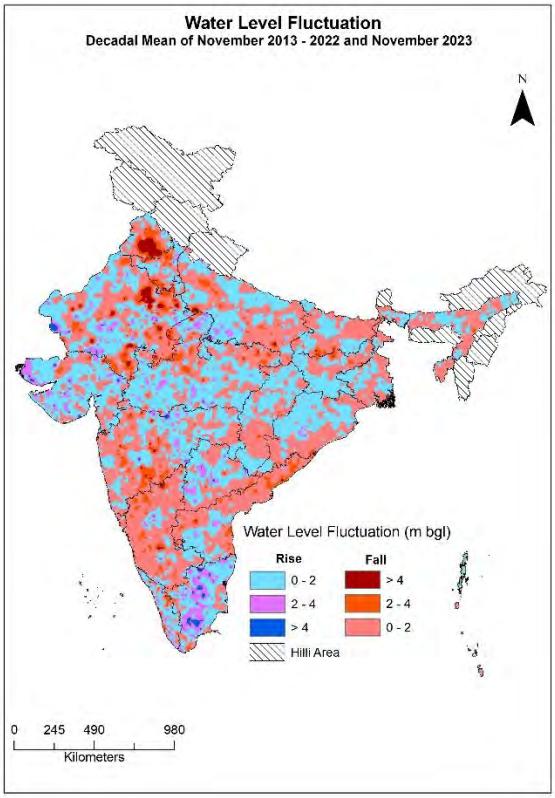
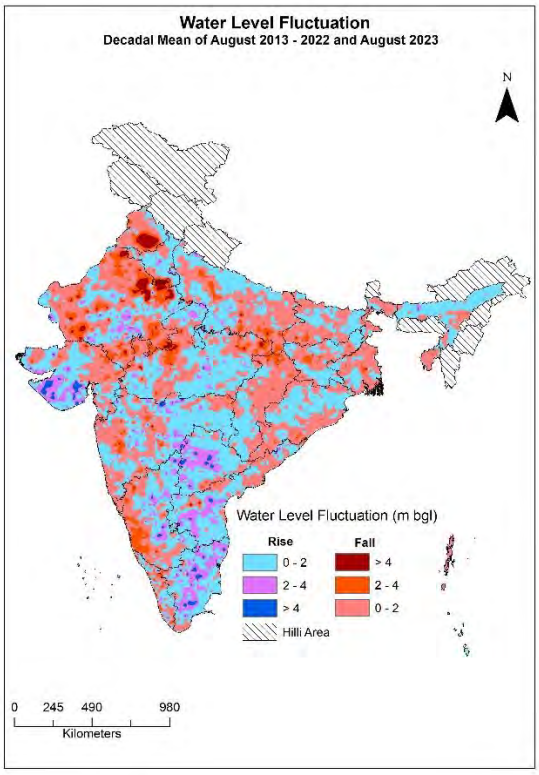


PLATE – XIX

DECADAL WATER LEVEL FLUCTUATION AT A GLANCE







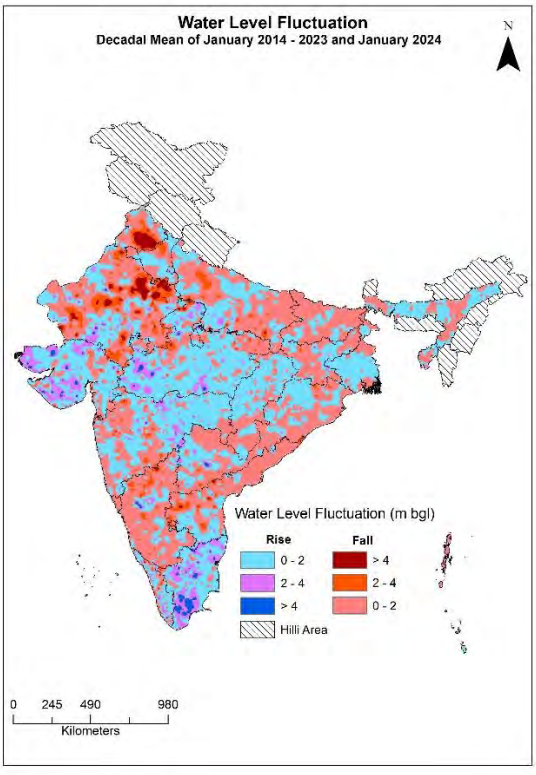


PLATE – XX

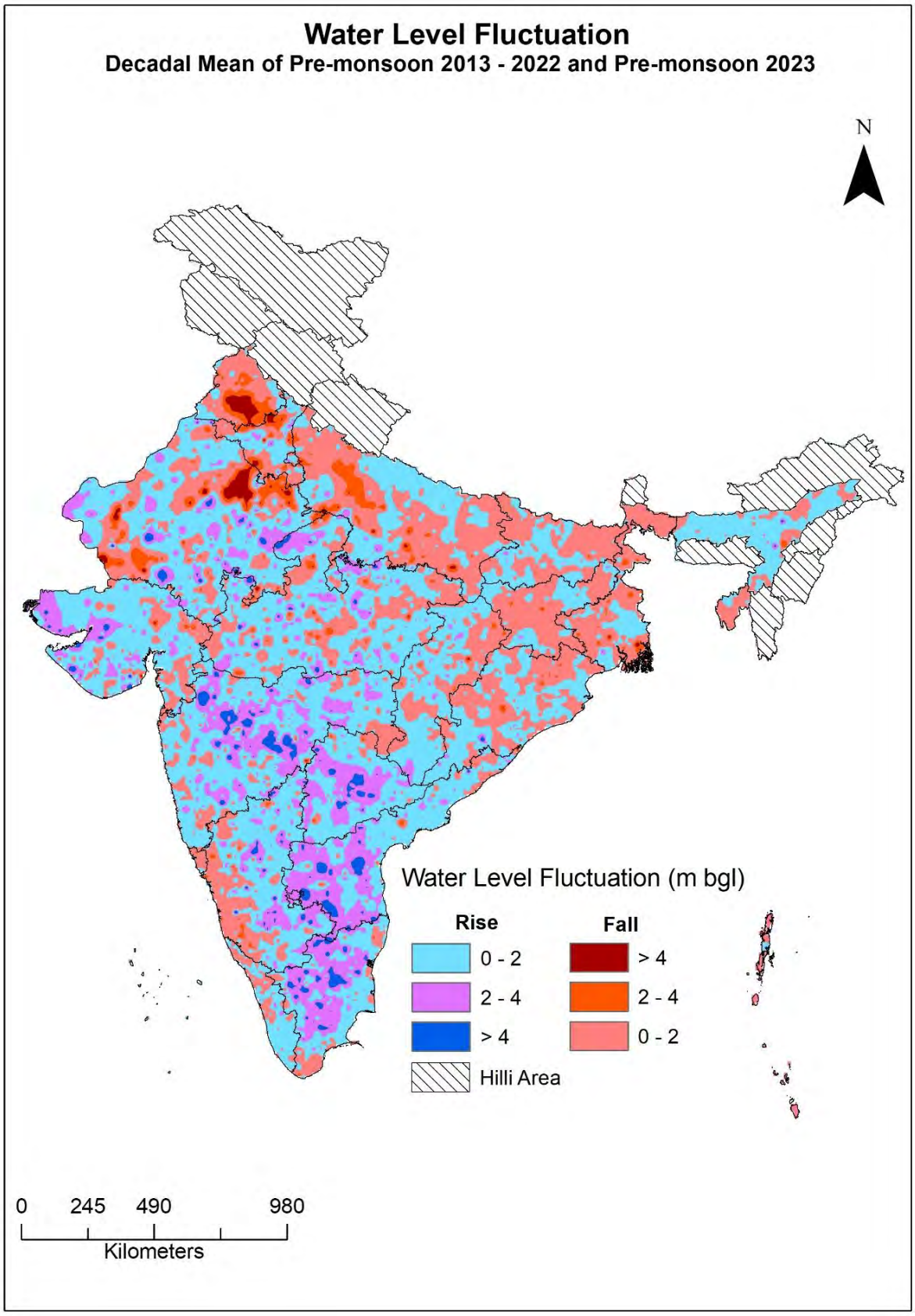
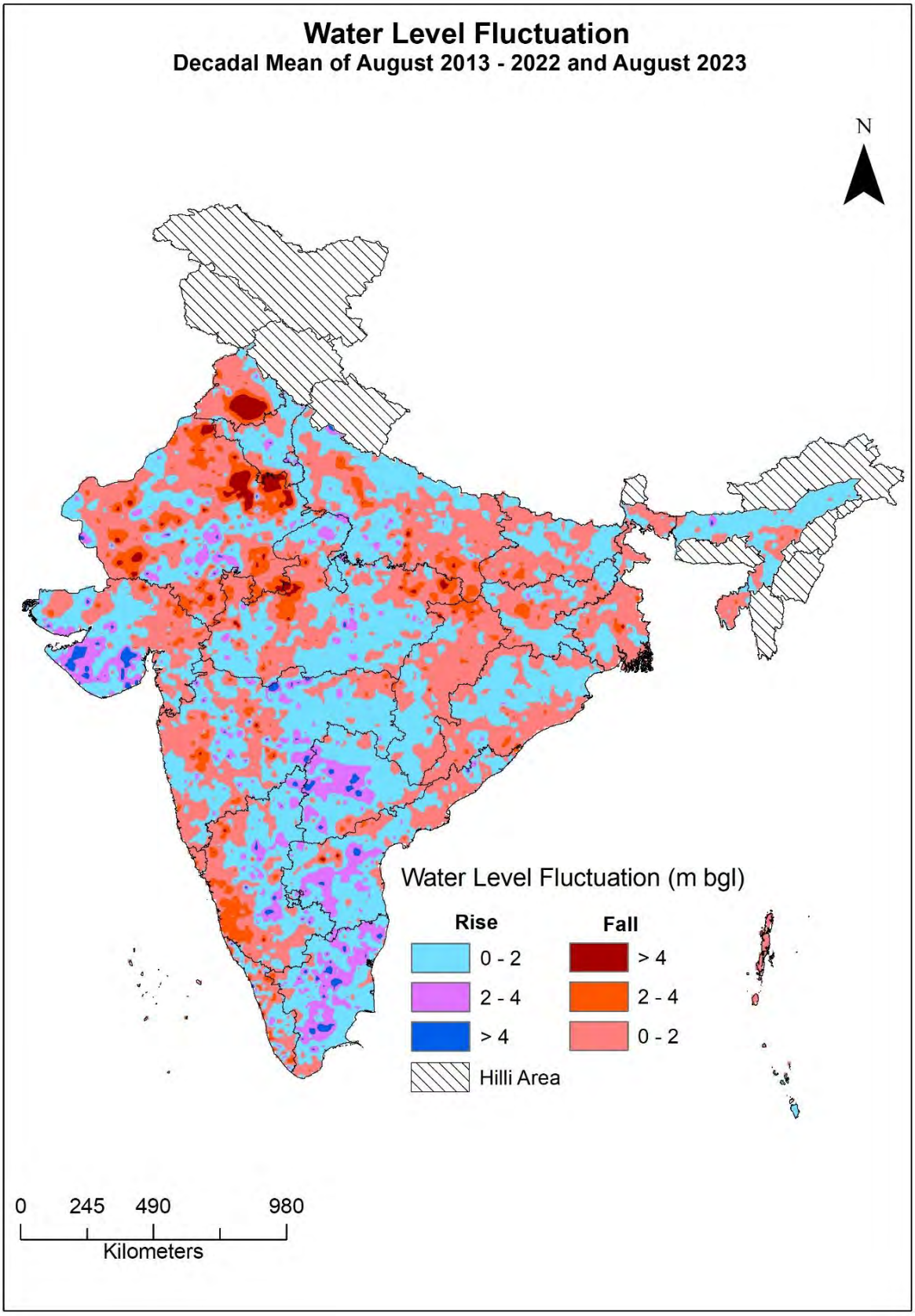

Water Level Fluctuation
Decadal Mean of Pre-monsoon 2013 - 2022 and Pre-monsoon 2023
N
Water Level Fluctuation (m bgl)
Rise
0 - 2
2 - 4
> 4
Fall
> 4
2 - 4
0 - 2
Hilli Area
0 245 490 980
Kilometers

PLATE – XXI


Water Level Fluctuation
Decadal Mean of August 2013 - 2022 and August 2023
N
Water Level Fluctuation (m bgl)
Rise
0 - 2
2 - 4
> 4
Fall
> 4
2 - 4
0 - 2
Hilli Area
0
245
490
980
Kilometers

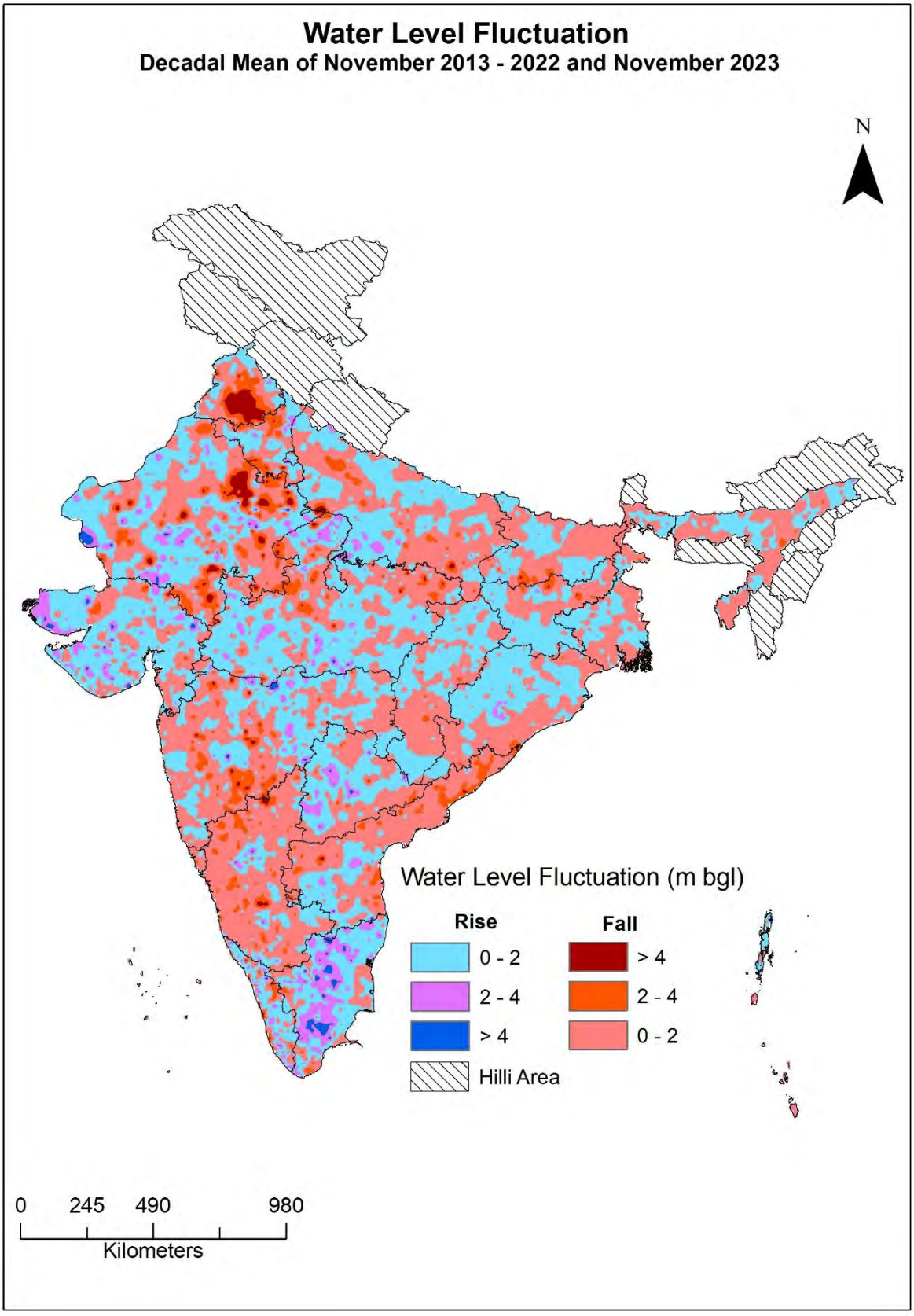
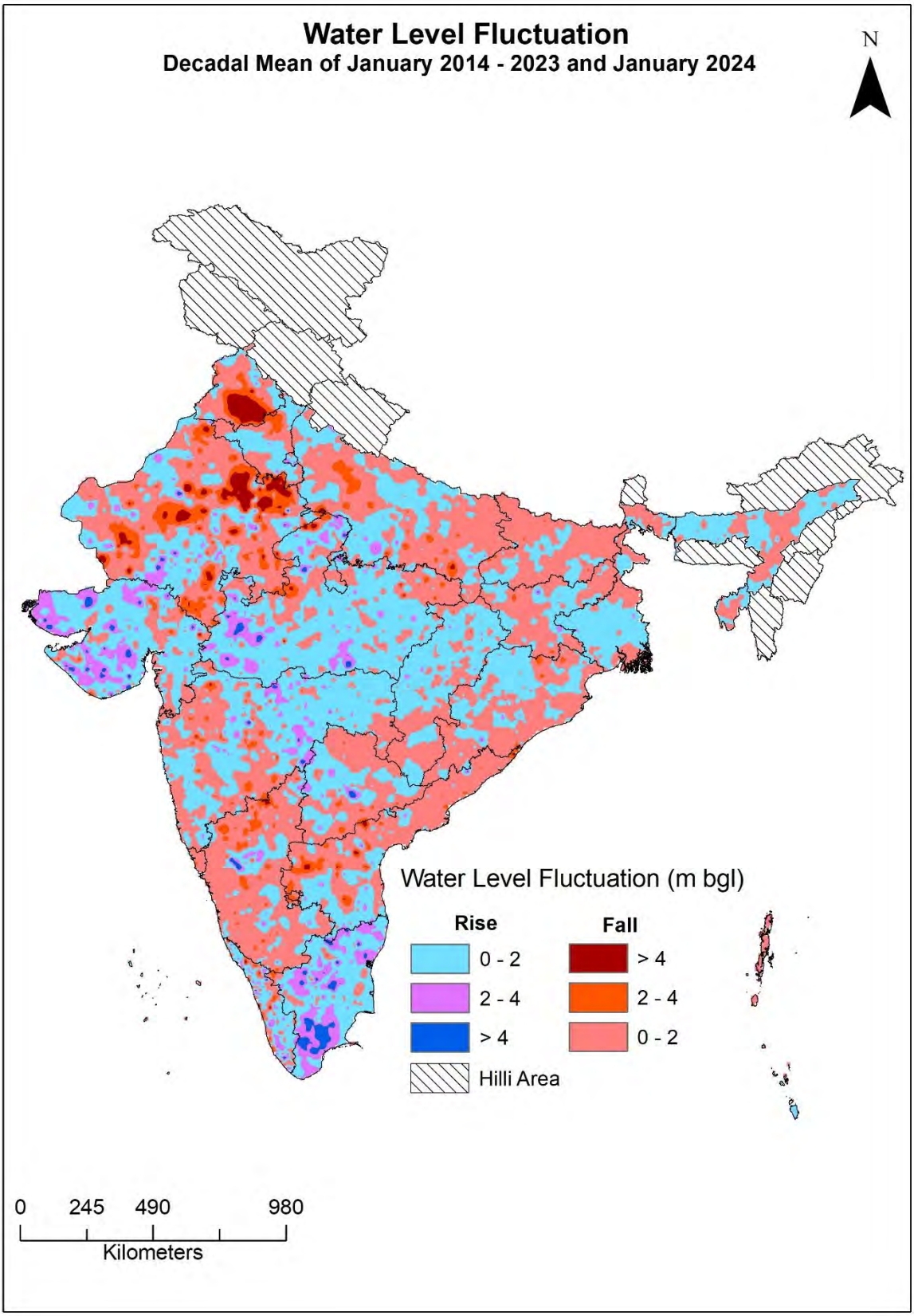

Water Level Fluctuation
Decadal Mean of November 2013 - 2022 and November 2023
N
Water Level Fluctuation (m bgl)
Rise
0 - 2
2 - 4
> 4
Fall
> 4
2 - 4
0 - 2
Hilli Area
0 245 490 980
Kilometers

PLATE – XXIII

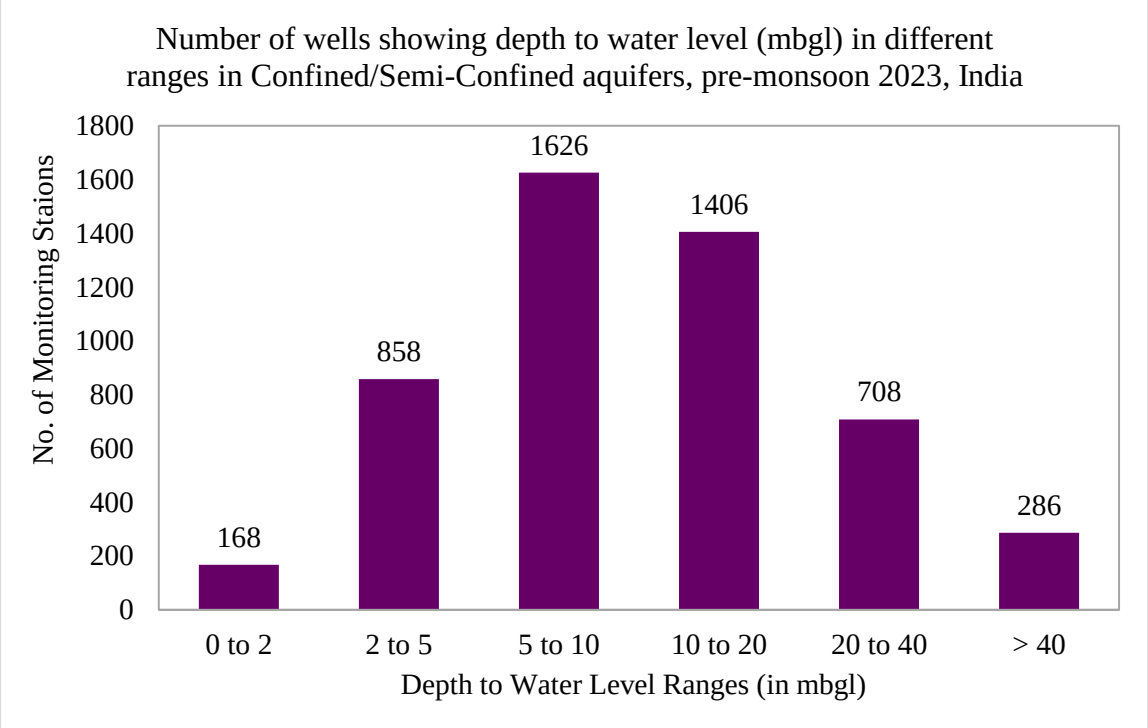

Water Level Fluctuation
Decadal Mean of January 2014 - 2023 and January 2024
N
Water Level Fluctuation (m bgl)
Rise
0 - 2
2 - 4
> 4
Fall
> 4
2 - 4
0 - 2
Hilli Area
0
245
490
980
Kilometers

3.3 GROUNDWATER REGIME IN CONFINED/SEMI-CONFINED AQUIFER

3.3.1 DEPTH TO WATER LEVEL IN CONFINED/SEMI-CONFINED AQUIFER

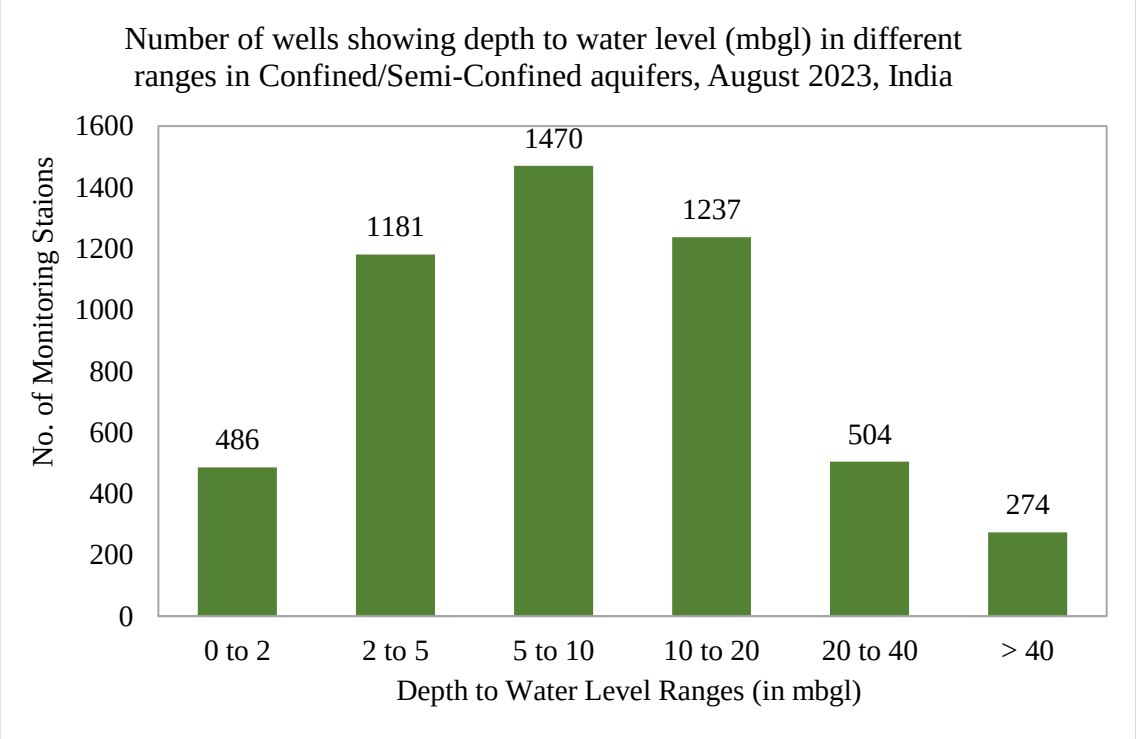
DEPTH TO WATER LEVEL – PRE-MONSOON 2023 IN CONFINED/SEMI-CONFINED AQUIFER

The groundwater level data ***(Annexure-XVI)*** of confined/semi-confined aquifers for pre-monsoon 2023 indicates that out of the total 5052 wells analysed, 168 (3.3%) wells are showing water level less than 2 m bgl, 858 (17.0%) wells are showing water level in the depth range of 2 to 5 m bgl, 1626 (32.2%) wells are showing water level in the depth range of 5 to 10 m bgl, 1406 (27.8%) wells are showing water level in the depth range of 10 to 20 m bgl, 708 (14.0%) wells are showing water level in the depth range of 20 to 40 m bgl and the remaining 286 (5.7%) wells are showing water level more than 40 m bgl**.** Thus, in general, the range of depth to water level is between 5 to 20m. From the analysis of the data, it's also revealed that deeper piezometric level of more than 40 m is observed in Chandigarh, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Punjab, Tamil Nadu, Telangana and Uttarakhand.



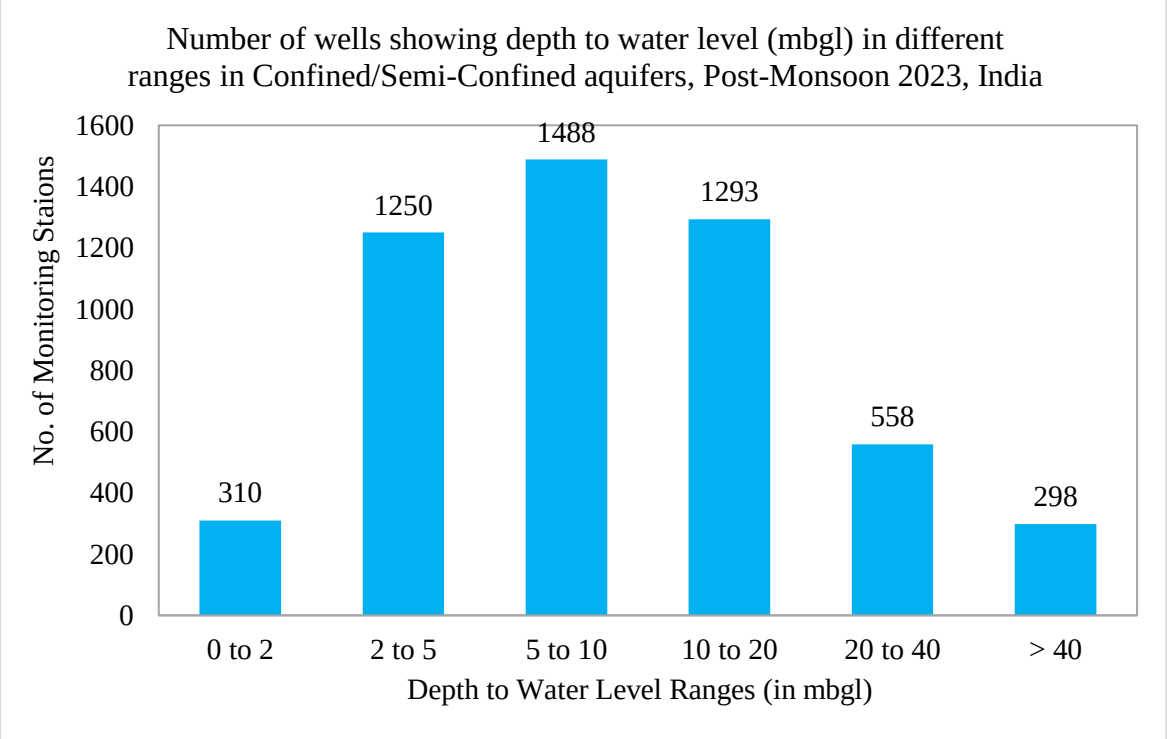
DEPTH TO WATER LEVEL – AUGUST 2023 IN CONFINED/SEMI-CONFINED AQUIFER

The groundwater level data ***(Annexure-XVII)*** of confined/semi-confined aquifers for August 2023 indicates that out of the total 5152 wells analysed, 486 (9.4%) wells are showing water level less than 2 m bgl, 1181 (22.9%) wells are showing water level in the depth range of 2 to 5 m bgl, 1470 (28.5%) wells are showing water level in the depth range of 5 to 10 m bgl, 1237 (24.0%) wells are showing water level in the depth range of 10 to 20 m bgl, 504 (9.8%) wells are showing water level in the depth range of 20 to 40 m bgl and the remaining 274 (5.3%) wells are showing water level more than 40 m bgl**.** Thus, the general range of water level is between 2 to 20m. From the analysis of the data, it's also revealed that the deeper piezometric level of 20 to 40 m is observed in parts of Andhra Pradesh, Chhattisgarh, Goa, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Punjab, Tamil Nadu, Tripura, Uttar Pradesh, West Bengal, Chandigarh and Puducherry. A deeper piezometric level of more than 40 m is observed Andhra Pradesh, Gujarat, Haryana, Madhya Pradesh, Maharashtra, Punjab, Tamil Nadu, Uttarakhand and Chandigarh.



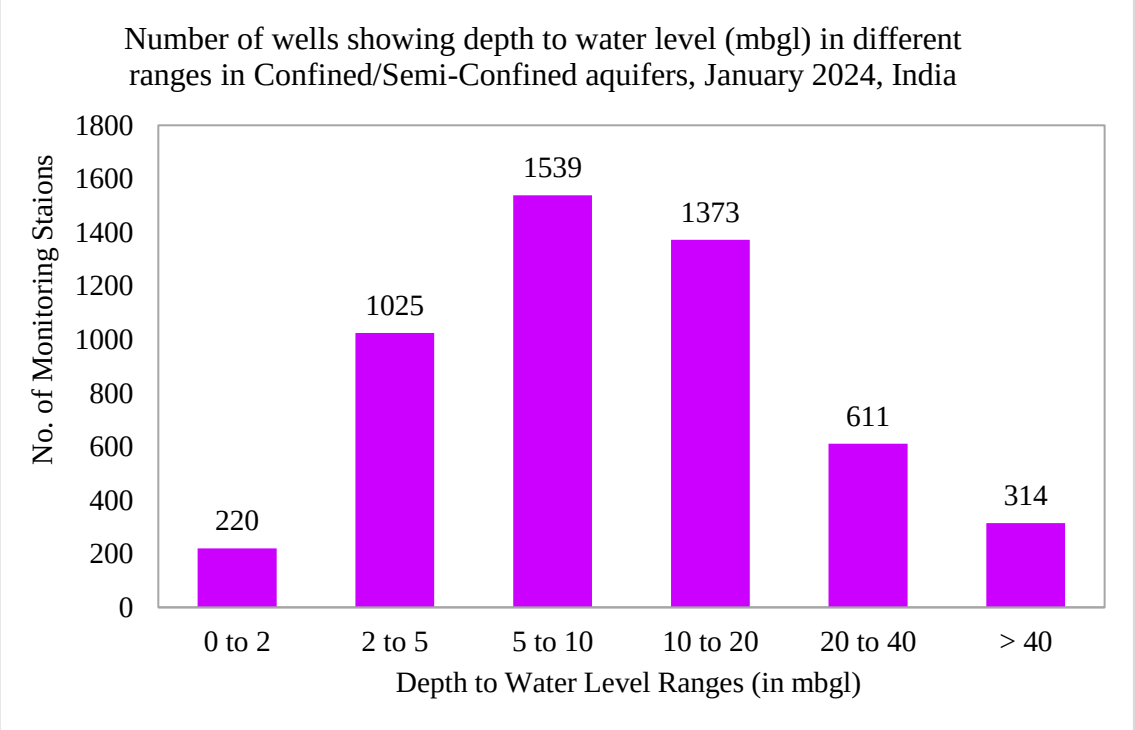
DEPTH TO WATER LEVEL – NOVEMBER 2023 IN CONFINED/SEMI-CONFINED AQUIFER

The groundwater level data ***(Annexure-XVIII)*** of confined/semi-confined aquifers for November 2023, indicates that out of the total 5197 wells analysed, 310 (6.0%) wells are showing water level less than 2 m bgl, 1250 (24.1%) wells are showing water level in the depth range of 2 to 5 m bgl, 1488 (28.6%) wells are showing water level in the depth range of 5 to 10 m bgl, 1293 (24.9%) wells are showing water level in the depth range of 10 to 20 m bgl, 558 (10.7%) wells are showing water level in the depth range of 20 to 40 m bgl and the remaining 298 (5.7%) wells are showing water level more than 40 m bgl**.** Thus, the general range of water level is between 2 to 20m. From the analysis of the data, it's also revealed that deeper piezometric level of 20 to 40 m is observed in Andhra Pradesh, Chhattisgarh, Goa, Gujarat, Haryana, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Meghalaya, Punjab, Tamil Nadu, Tripura, Uttar Pradesh, West Bengal, Chandigarh and Puducherry; and more than 40m in Andhra Pradesh, Chhattisgarh, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Meghalaya, Punjab, Tamil Nadu, Telangana, Uttarakhand and Chandigarh.



DEPTH TO WATER LEVEL – JANUARY 2024 IN CONFINED/SEMI-CONFINED AQUIFER

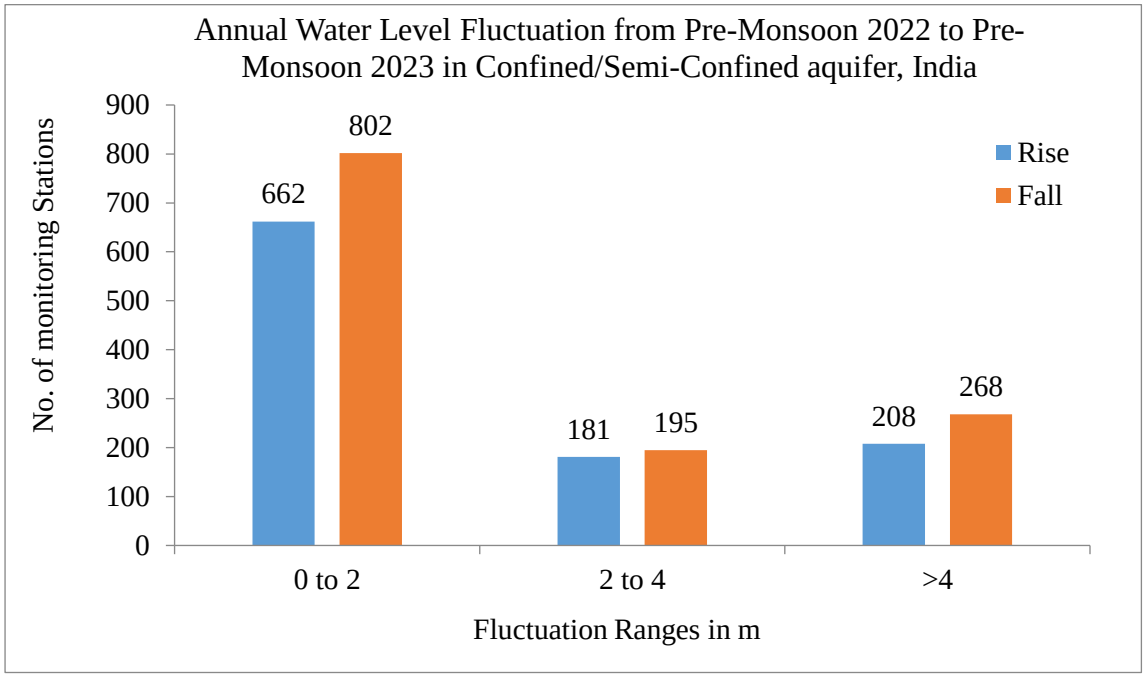
The groundwater level data ***(Annexure-XIX)*** of confined/semi-confined aquifers for January 2024, indicates that out of the total 5082 wells analysed, 220 (4.3%) wells are showing water level less than 2 m bgl, 1025 (20.2%) wells are showing water level in the depth range of 2 to 5 m bgl, 1539 (30.3%) wells are showing water level in the depth range of 5 to 10 m bgl, 1373 (27.0%) wells are showing water level in the depth range of 10 to 20 m bgl, 611 (12.0%) wells are showing water level in the depth range of 20 to 40 m bgl and the remaining 314 (6.2%) wells are showing water level more than 40 m bgl**.** Thus, the general range of water level is between 2 to 20m. From the analysis of the data, it's also revealed that deeper piezometric level of 20 to 40 m is observed in Andhra Pradesh, Chhattisgarh, Goa, Gujarat, Haryana, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Meghalaya, Odisha, Punjab, Tamil Nadu, Telangana, Uttar Pradesh, West Bengal, Chandigarh and Puducherry and more than 40 m in Andhra Pradesh, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Punjab, Tamil Nadu, Uttarakhand and Chandigarh.



3.3.2 ANNUAL WATER LEVEL FLUCTUATION IN CONFINED/SEMI-CONFINED AQUIFER

ANNUAL WATER LEVEL FLUCTUATION (PREMONSOON 2023 - PREMONSOON 2022)

A comparison of depth to water level of pre-monsoon 2023 with pre-monsoon 2022 reveals that out of total 2326 wells analysed ***(Annexure-XX)***, 1051 (45.2%) of wells are showing rise in water level, among which 28.5% (662) wells are showing rise of less than 2 m. About 7.8% (181) wells are showing rise in water level in the range of 2 to 4 m and 8.9% (208) wells are showing rise in the range of more than 4 m. Among the 1265 (54.4%) wells showing decline in water level, 34.5% (802) wells are showing decline in water in the range of 0 to 2 m. 8.4% (195) wells are showing decline in water level in 2 to 4 m range and remaining 11.5% (268) are in the range of more than 4 m.

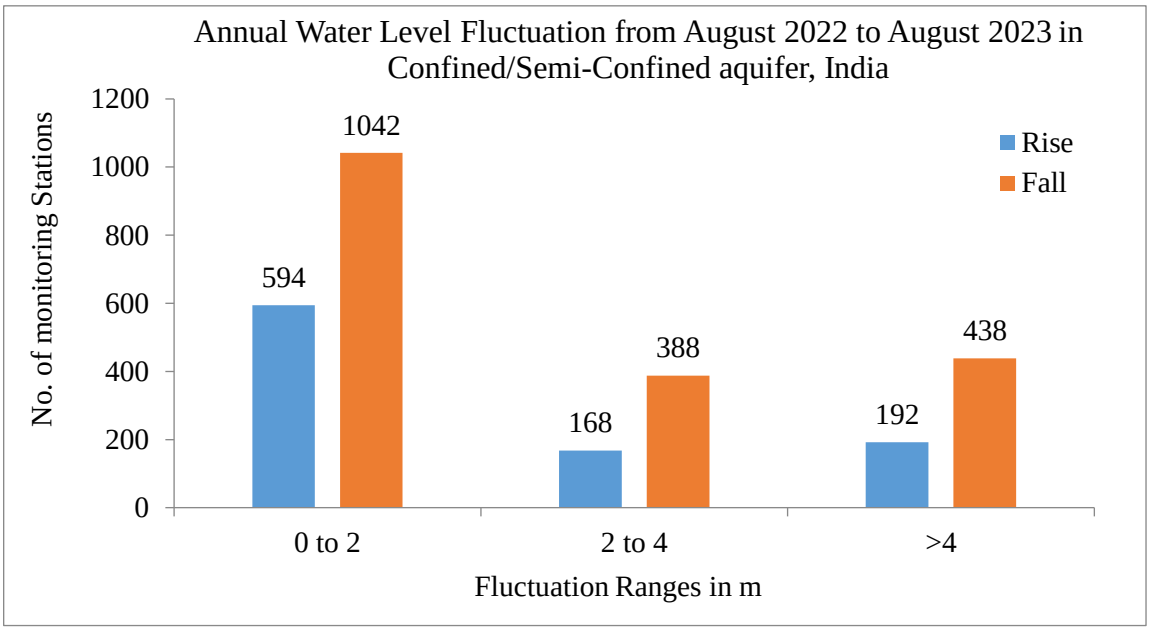


Rise in water level in majority of wells observed in Arunachal Pradesh, Jharkhand, Meghalaya, Uttarakhand, Telangana, Madhya Pradesh, Chandigarh, Gujarat and Uttar Pradesh. Similarly fall in significant number of wells is observed in Assam, Bihar, Chhattisgarh, Goa, Haryana, Karnataka, Kerala, Odisha, Puducherry, Tamil Nadu and West Bengal.

ANNUAL WATER LEVEL FLUCTUATION (AUGUST 2023 - AUGUST 2022)

A comparison of depth to water level of August 2023 with August 2022 reveals that out of total 2826 wells analysed ***(Annexure-XXI)***, 954 (47.9%) of wells are showing rise in water level, among which 21.0% (594) wells are showing rise of less than 2 m. About

5.9% (168) wells are showing rise in water level in the range of 2 to 4 m and 6.8% (192) wells are showing rise in the range of more than 4 m. Among the 1868 (66.1%) wells showing decline in water level, 36.9% (1042) wells are showing decline in water in the range of 0 to 2 m. 13.7% (388) wells are showing decline in water level in 2 to 4 m range and remaining 15.5% (438) are in the range of more than 4 m.

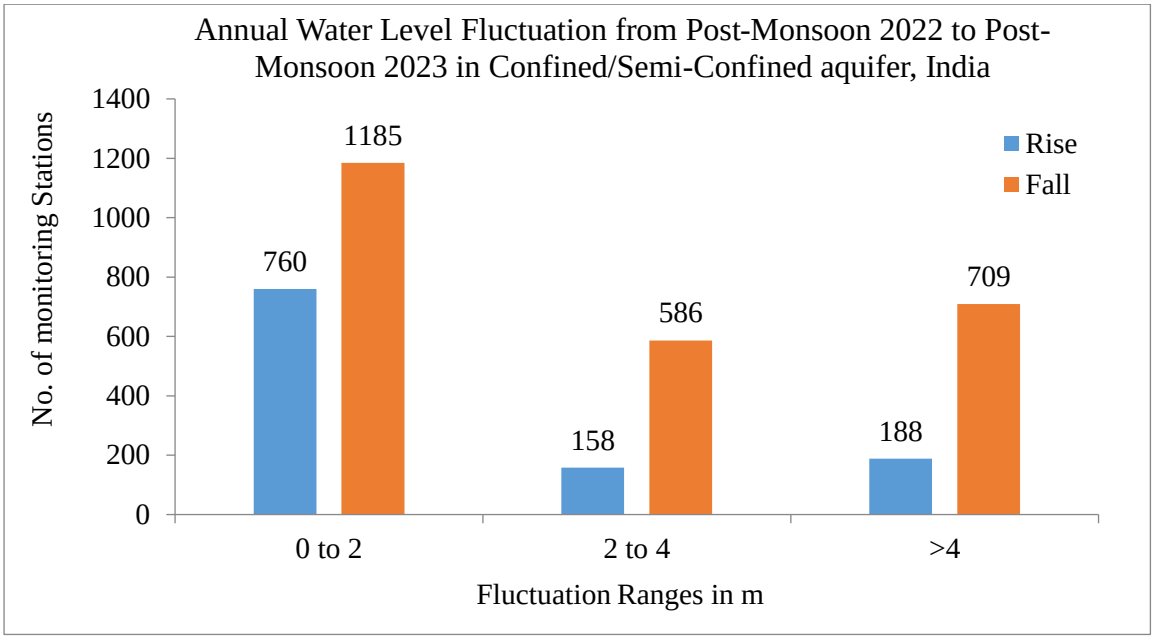


Rise in water level in majority of wells observed in Arunachal Pradesh, Delhi, Haryana, Jharkhand, Kerala, Uttar Pradesh and Uttarakhand. Similarly fall in significant number of wells is observed in Gujarat, Assam, Odisha, Tamil Nadu, Puducherry, West Bengal, Chhattisgarh, Chandigarh, Madhya Pradesh, Andhra Pradesh, Telangana, Goa, Maharashtra, Karnataka and Meghalaya.

ANNUAL WATER LEVEL FLUCTUATION (NOVEMBER 2023 - NOVEMBER 2022)

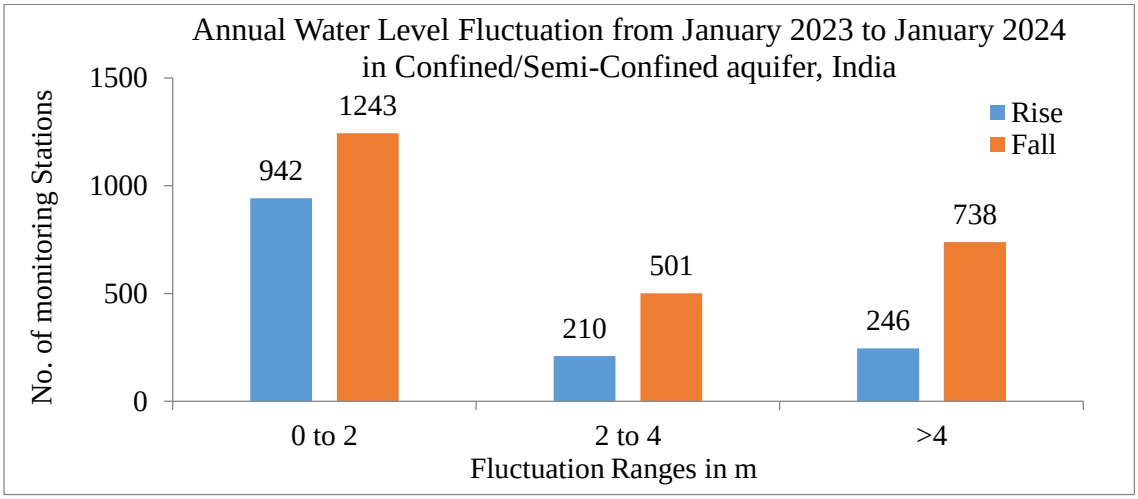
A comparison of depth to water level of November 2023 with November 2022 reveals that out of total 3594 wells analysed ***(Annexure-XXII)***, 1106 (30.8%) of wells are showing rise in water level, among which 21.1% (760) wells are showing rise of less than 2 m. About 4.4% (158) wells are showing rise in water level in the range of 2 to 4 m and 5.2% (188) wells are showing rise in the range of more than 4 m. Among the 2480 (69.0%) wells showing decline in water level, 33.0% (1185) wells are showing decline in water in the range of 0 to 2 m. 16.3% (586) wells are showing decline in water level in 2 to 4 m range and remaining 19.7% (709) are in the range of more than 4 m. Rise in water level in

majority of wells observed in Delhi, Goa, Gujarat, Haryana and Kerala. Similarly fall in significant number of wells is observed in all states.



ANNUAL WATER LEVEL FLUCTUATION (JANUARY 2024 - JANUARY 2023)

A comparison of depth to water level of January 2024 with January 2023 reveals that out of total 3892 wells analysed ***(Annexure-XXIII)***, 1398 (35.9%) of wells are showing rise in water level, among which 24.2% (942) wells are showing rise of less than 2 m. About 5.4% (210) wells are showing rise in water level in the range of 2 to 4 m and 6.3% (246) wells are showing rise in the range of more than 4 m. Among the 2482 (63.8%) wells showing decline in water level, 31.9% (1243) wells are showing decline in water in the range of 0 to 2 m. 12.9% (501) wells are showing decline in water level in 2 to 4 m range and remaining 19.0% (738) are in the range of more than 4 m.

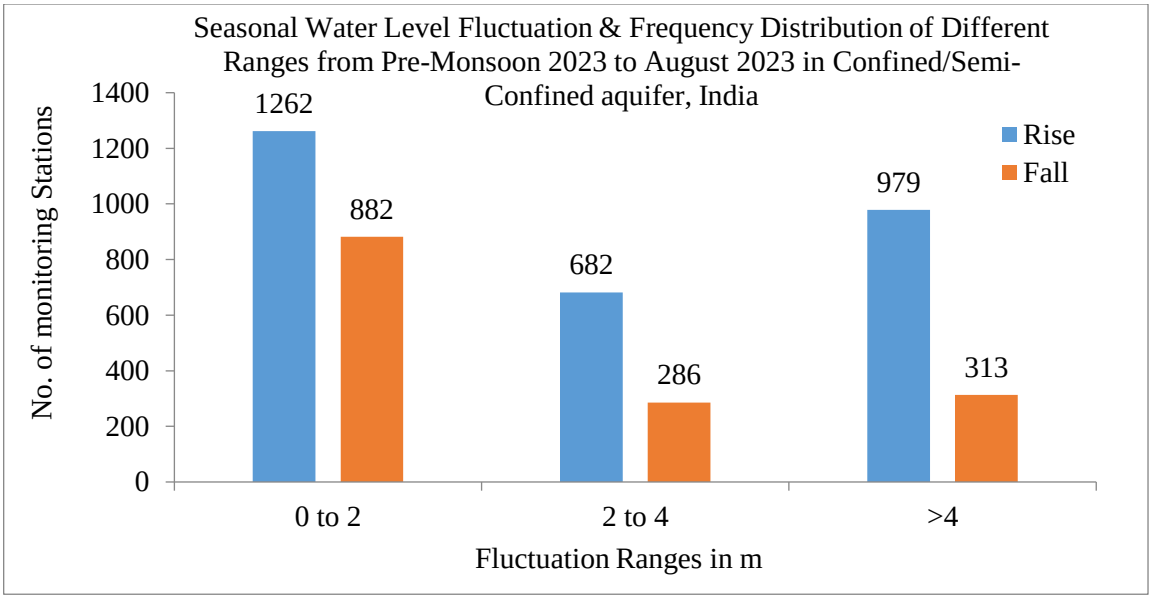


Rise in water level in majority of wells observed in Chhattisgarh, Goa, Gujarat, Jharkhand, Kerala, Madhya Pradesh, Meghalaya, Odisha, Puducherry, Tamil Nadu, Uttarakhand and West Bengal. Similarly fall in significant number of wells is observed in Andhra Pradesh, Chandigarh, Haryana, Karnataka, Maharashtra, Telangana, Tripura and Uttar Pradesh.

3.3.3 SEASONAL WATER LEVEL FLUCTUATION IN CONFINED/SEMI-CONFINED AQUIFER

SEASONAL WATER LEVEL FLUCTUATION (PRE-MONSOON 2023- AUGUST 2023)

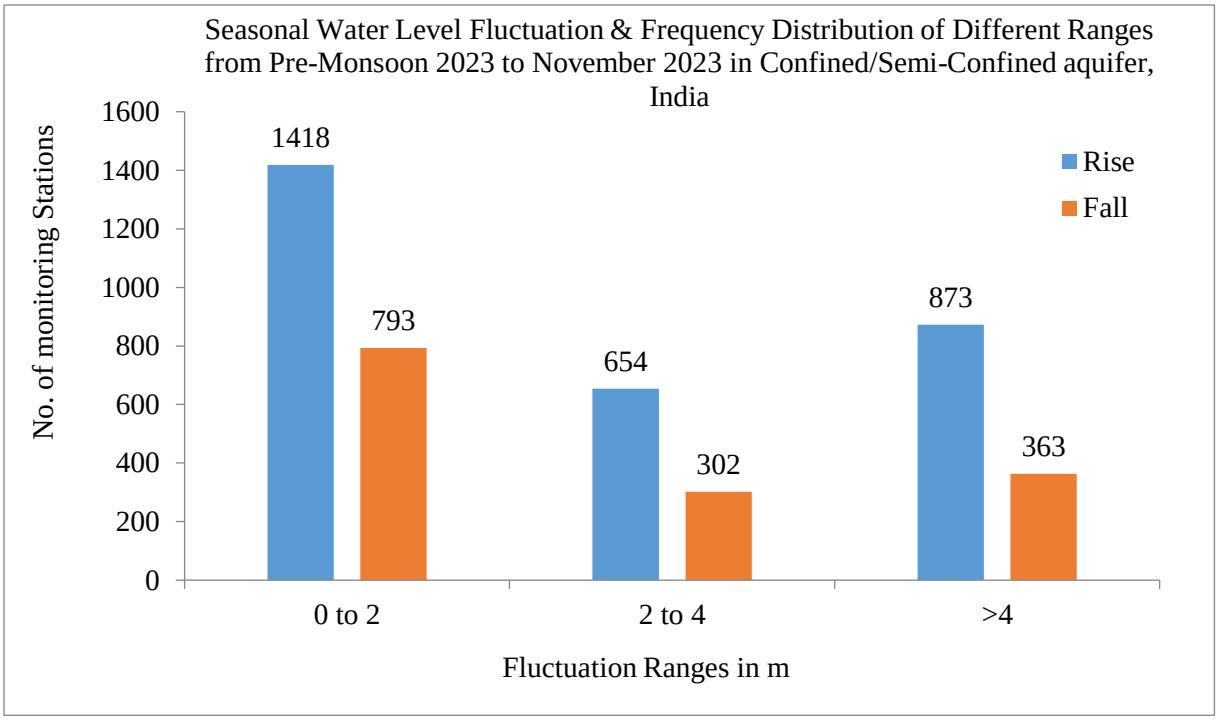
A comparison of depth to water level of pre-monsoon 2023 with August 2023 indicates that out of analysed 4421 wells (***Annexure-XXIV***), about 66.1% (2923) of wells are showing rise in water levels, out of which 28.5% (1262) wells are showing rise of less than 2 m range. About 15.4% (682) wells are showing rise in water level in the range of 2 to 4 m and another 22.1% (979) wells are showing rise in water in range of more than 4 m. Similarly, 35.5% (1481) wells are showing decline in water level, out of which 20.0% (882) wells are showing decline in water in the range of 0 to 2 m, 6.5% (286) wells are showing fall in water level in the range of 2 to 4 m and the remaining 7.1% (313) wells are showing fall in water level of more than 4 m.



Rise in water level is most prominently observed in Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Goa, Gujarat, Jharkhand, Kerala, Madhya Pradesh, Maharashtra, Meghalaya, Odisha, Puducherry, Telangana, Tripura, Uttar Pradesh, Uttarakhand and West Bengal.

SEASONAL WATER LEVEL FLUCTUATION (PRE-MONSOON 2023-NOVEMBER 2023)

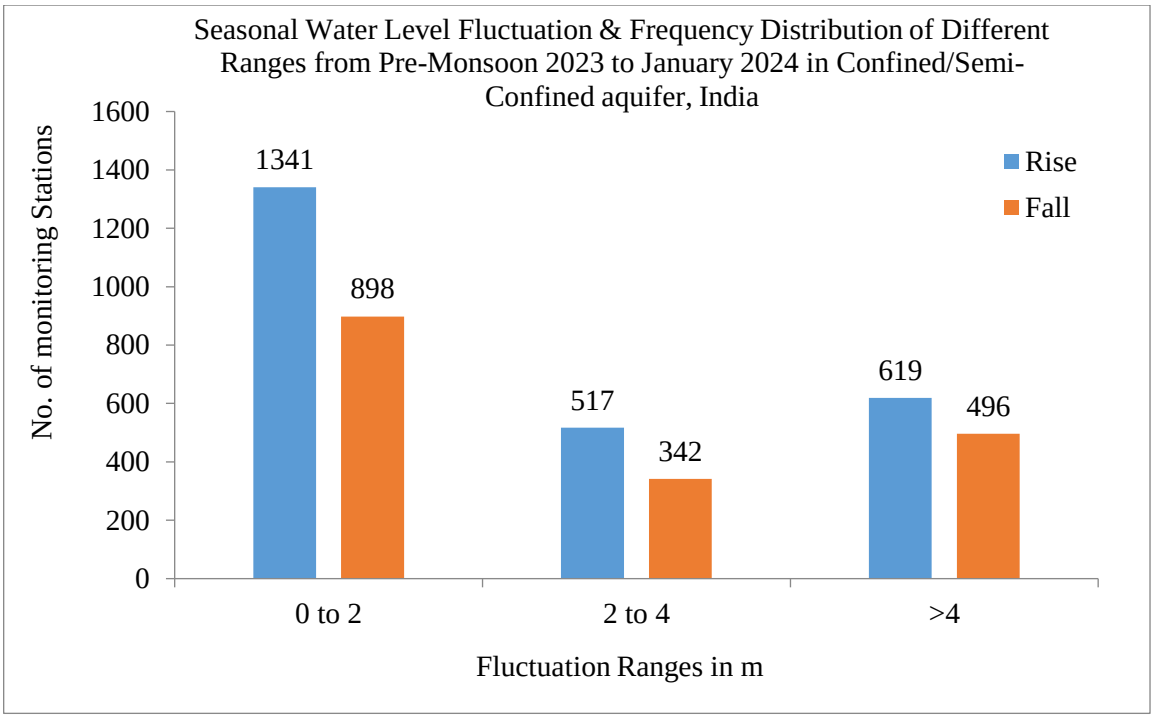
A comparison of depth to water level of pre-monsoon 2023 with November 2023 indicates that out of analysed 4416 wells (***Annexure-XXV***), about 66.7% (2945) of wells are showing rise in water levels, out of which 32.1% (1418) wells are showing rise of less than 2 m range. About 14.8% (654) wells are showing rise in water level in the range of 2 to 4 m and another 19.8% (873) wells are showing rise in water in range of more than 4 m. Similarly, 33.0% (1458) wells are showing decline in water level, out of which 18% (793) wells are showing decline in water in the range of 0 to 2 m, 6.8% (302) wells are showing fall in water level in the range of 2 to 4 m and the remaining 8.2% (363) wells are showing fall in water level of more than 4 m.



Rise in water level is mostly prominent all over the country covering in all the states except Andhra Pradesh and Punjab. Rise in water levels is observed in Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Goa, Gujarat, Haryana, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Meghalaya, Odisha, Puducherry, Sikkim, Tamil Nadu, Telangana, Tripura, Uttar Pradesh, Uttarakhand and West Bengal.

SEASONAL WATER LEVEL FLUCTUATION (PRE-MONSOON 2023-JANUARY 2024)

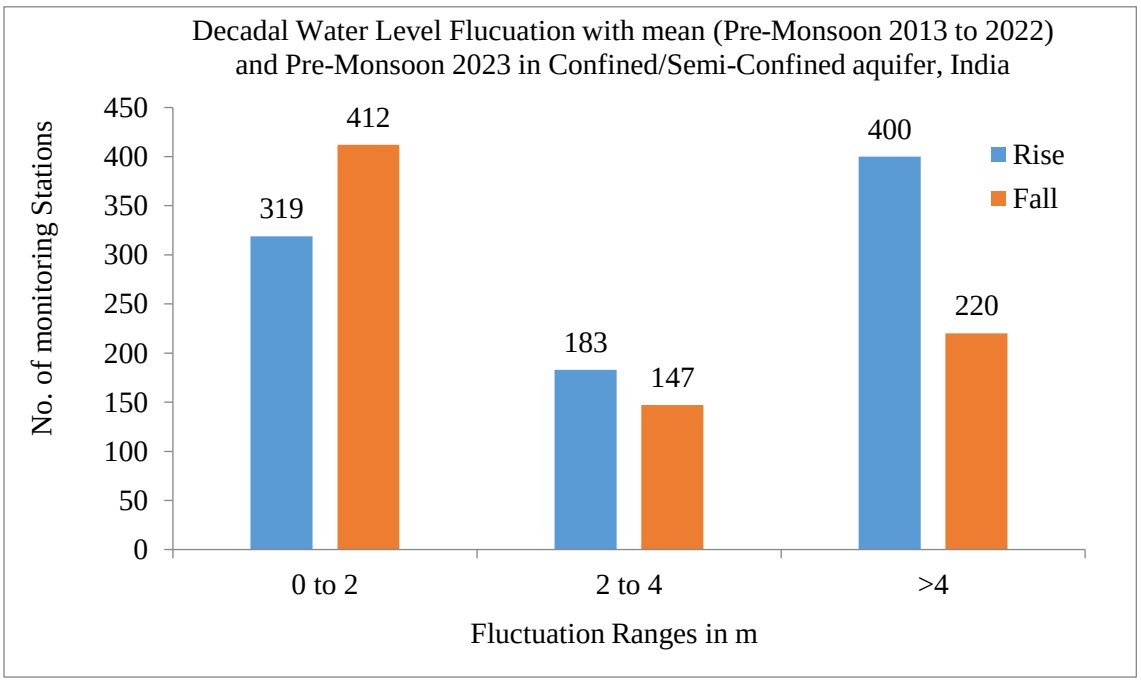
A comparison of depth to water level of pre-monsoon 2023 with January 2024 indicates that out of analysed 4225 wells (***Annexure-XXVI***), about 58.6% (2477) of wells are showing rise in water levels, out of which 31.7% (1341) wells are showing rise of less than 2 m range. About 12.2% (517) wells are showing rise in water level in the range of 2 to 4 m and another 14.7% (619) wells are showing rise in water in range of more than 4 m. Similarly, 41.1% (1736) wells are showing decline in water level, out of which 21.3% (898) wells are showing decline in water in the range of 0 to 2 m, 8.1% (342) wells are showing fall in water level in the range of 2 to 4 m and the remaining 11.7% (496) wells are showing fall in water level of more than 4 m. Rise in water level is mostly prominent all over the country covering in all the states. Fall of 2 to 4 m or more significantly observed in scattered patches Andhra Pradesh, Assam, Bihar, Chhattisgarh, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Punjab, Tamil Nadu, Telangana, Uttar Pradesh and West Bengal. A rise in water levels is observed in almost all states.



3.3.4 DECADAL WATER LEVEL FLUCTUATION IN CONFINED/SEMI-CONFINED AQUIFERS

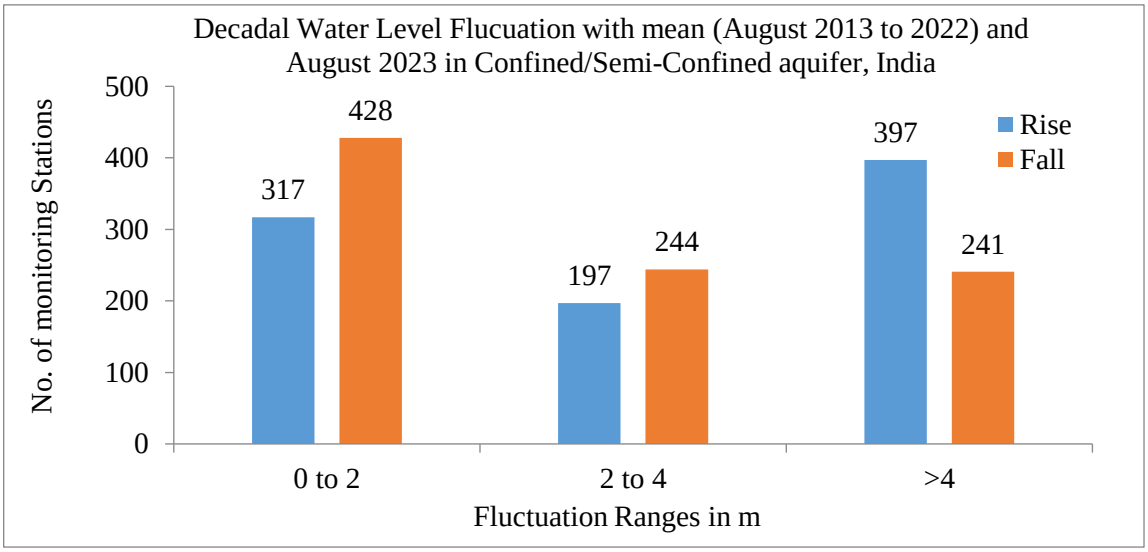
WATER LEVEL FLUCTUATION WITH DECADAL MEAN (PRE-MONSOON-2013 TO PRE-MONSOON-2022) TO PRE-MONSOON 2023 IN CONFINED/SEMI-CONFINED AQUIFERS

A comparison of depth to water level of pre-monsoon 2023 with decadal mean of pre-monsoon (2013-2022) indicates that, out of total 1681 wells analysed ***(Annexure-XXVII)***, 902 (53.7%) of wells are showing rise in water level, among which 19.0% (319) wells are showing rise of less than 2 m. About 10.9% (183) wells are showing rise in water level in the range of 2 to 4 m and only 23.8% (400) wells are showing rise in the range of more than 4 m. Among the 779 (46.3%) wells showing decline in water level, 24.5% (412) wells are showing decline in water in the range of 0 to 2 m. 8.7% (147) wells are showing decline in water level in 2 to 4 m range and remaining 13.1% (220) are in the range of more than 4 m. Rise in water level in majority of wells observed in Andhra Pradesh, Assam, Delhi, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Tamil Nadu and Telangana. Similarly fall in significant number of wells is observed in Bihar, Chandigarh, Goa, Haryana, Meghalaya, Puducherry, Punjab, Tripura, Uttar Pradesh and West Bengal.



WATER LEVEL FLUCTUATION WITH DECADAL MEAN (AUGUST-2013 TO AUGUST-2022) TO AUGUST 2023 IN CONFINED/SEMI-CONFINED AQUIFER

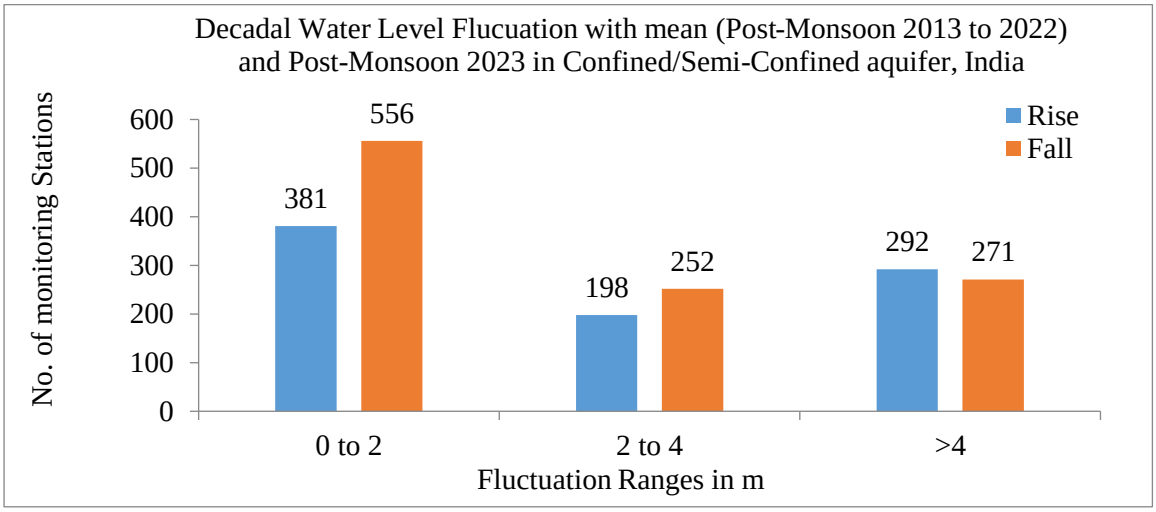
A comparison of depth to water level of August 2023 with decadal mean of August (2013-2022) indicates that, out of total 1824 wells analysed ***(Annexure-XXVIII)***, 911 (49.9%) of wells are showing rise in water level, among which 17.4% (317) wells are showing rise of less than 2 m. About 10.8% (197) wells are showing rise in water level in the range of 2 to 4 m and 21.8% (397) wells are showing rise in the range of more than 4 m. Among the 913 (50.1%) wells showing decline in water level, 23.5% (428) wells are showing decline in water in the range of 0 to 2 m. 13.4% (244) wells are showing decline in water level in 2 to 4 m range and remaining 13.2% (241) are in the range of more than 4 m. Rise in water level in majority of wells observed in Andhra Pradesh, Chandigarh, Delhi, Haryana, Karnataka, Kerala, Madhya Pradesh, Odisha, Puducherry, Tamil Nadu, Telangana, Uttar Pradesh and Uttarakhand. Similarly fall in significant number of wells is observed in Assam, Bihar, Chhattisgarh, Goa, Meghalaya, Punjab, Tripura and West Bengal.



WATER LEVEL FLUCTUATION WITH DECADAL MEAN (NOVEMBER2013 TO NOVEMBER2022) TO NOVEMBER 2023 IN CONFINED/SEMI-CONFINED AQUIFERS

A comparison of depth to water level of November 2023 with decadal mean of November (2013-2022) indicates that, out of total 1950 wells analysed ***(Annexure-XXIX)***, 871 (44.7%) of wells are showing rise in water level, among which 19.5% (381) wells are showing rise of less than 2 m. About 10.2% (198) wells are showing rise in water level in the range of 2 to 4 m and only 15.0% (292) wells are showing rise in the range of more

than 4 m. Among the 1079 (55.3%) wells showing decline in water level, 28.5% (556) wells are showing decline in water in the range of 0 to 2 m. 12.9% (252) wells are showing decline in water level in 2 to 4 m range and remaining 13.9% (271) are in the range of more than 4 m.

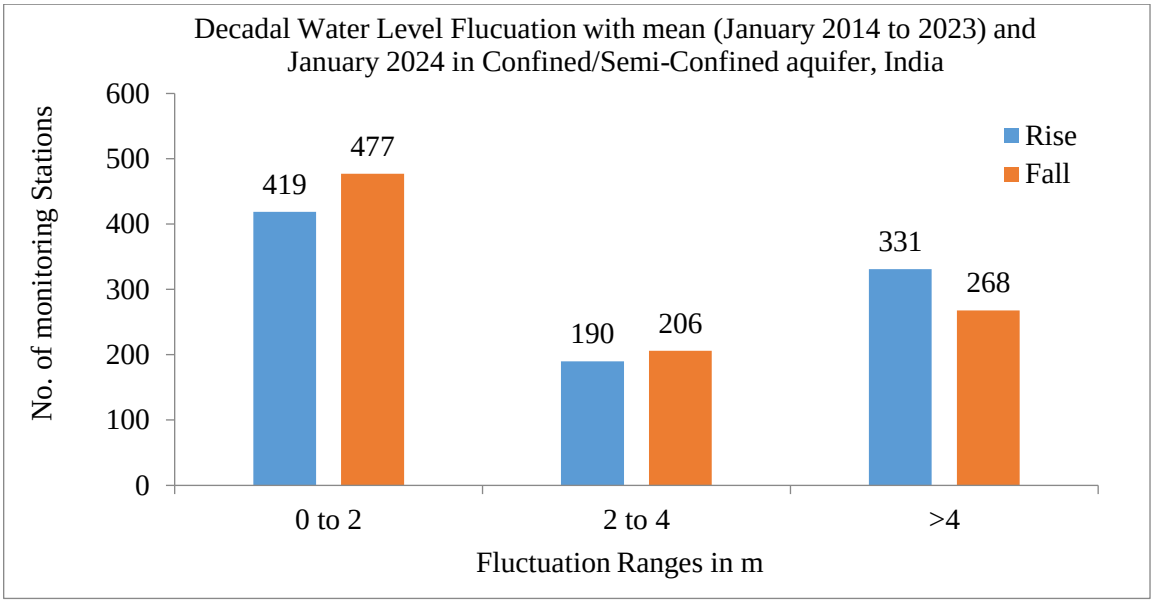


Rise in water level in majority of wells observed in Andhra Pradesh, Chandigarh, Delhi, Jharkhand, Kerala, Madhya Pradesh, Maharashtra, Puducherry, Tamil Nadu, Telangana and Uttarakhand. Similarly fall in significant number of wells is observed in Assam, Bihar, Chhattisgarh, Goa, Gujarat, Karnataka, Meghalaya, Punjab, Tripura, Uttar Pradesh and West Bengal.

WATER LEVEL FLUCTUATION WITH DECADAL MEAN (JANUARY-2014 TO JANUARY-2023) TO JANUARY-2024 IN CONFINED/SEMI-CONFINED AQUIFERS

A comparison of depth to water level of January 2024 with decadal mean of January (2014-2023) indicates that, out of total 1892 wells analysed ***(Annexure-XXX)***, 940 (49.7%) of wells are showing rise in water level, out of which 22.1% (419) wells are showing rise of less than 2 m. About 10.0% (190) wells are showing rise in water level in the range of 2 to 4 m and 17.5% (331) wells are showing rise in the range of more than 4 m. Among the 951 (50.3%) wells showing decline in water level, 25.2% (477) wells are showing decline in water in the range of 0 to 2 m. 10.9% (206) wells are showing decline in water level in 2 to 4 m range and remaining 14.2% (268) are in the range of more than 4 m. Rise in water level in majority of wells observed in Andhra Pradesh, Gujarat, Jharkhand, Kerala, Madhya Pradesh, Meghalaya, Puducherry, Tamil Nadu, Telangana, Uttar Pradesh and

Uttarakhand. Similarly fall in significant number of wells is observed in Assam, Bihar, Chandigarh, Goa, Haryana, Karnataka, Odisha, Punjab, Tripura and West Bengal.



4.0 GROUNDWATER DROUGHT INDEX (GWDI)

4.1 INTRODUCTION

The groundwater drought is a relative deficit in a specific area or station compared to its average or usual water availability in the form of groundwater storage. The groundwater storage will fluctuate above and below the long-term average value for a particular period due to the climatic variability over an area/region. Thus, groundwater drought is a temporary phenomenon. It is dependent on the year to year change the climatic conditions over an area/region.

4.2 GROUNDWATER DROUGHT INDEX (GWDI) AND GROUNDWATER DEFICIT CLASSES

The rate of depletion of groundwater table is useful for making an assessment of groundwater availability for agriculture and drinking water supply purposes.

The monthly groundwater (GW) table records are required for a minimum period of 10 years for computation of mean value of monthly groundwater depletion rate. When rate of depletion of groundwater table in a given month/period is more than the corresponding mean value then it is an indication of water deficit.

The computation procedure for Ground Water Drought Index (GWDI) is as follows:

$$GWDI_{ij} = \frac{MGWD_j - GWD_{ij}}{GWD_{iMax}}$$

where,

$GWDI_{ij}$ = Ground Water Drought Index for i^{th} month and j^{th} year.

$MGWD_j$ = Mean depth to groundwater table below surface (in meter)

GWD_{ij} = Depth to groundwater table in i^{th} month and j^{th} year (in meter).

GWD_{iMax} = Maximum depth to groundwater table in i^{th} month in available data set for n number of years (in meter).

i=1, 2, 3, 4, ---------- ,12.

j=1, 2, 3, ----------, n

n = total numbers of years for which monthly groundwater records are used.

The groundwater drought can be classified into the following classes based on GWDI-

Table 4: GWDI and GW Deficit Classes

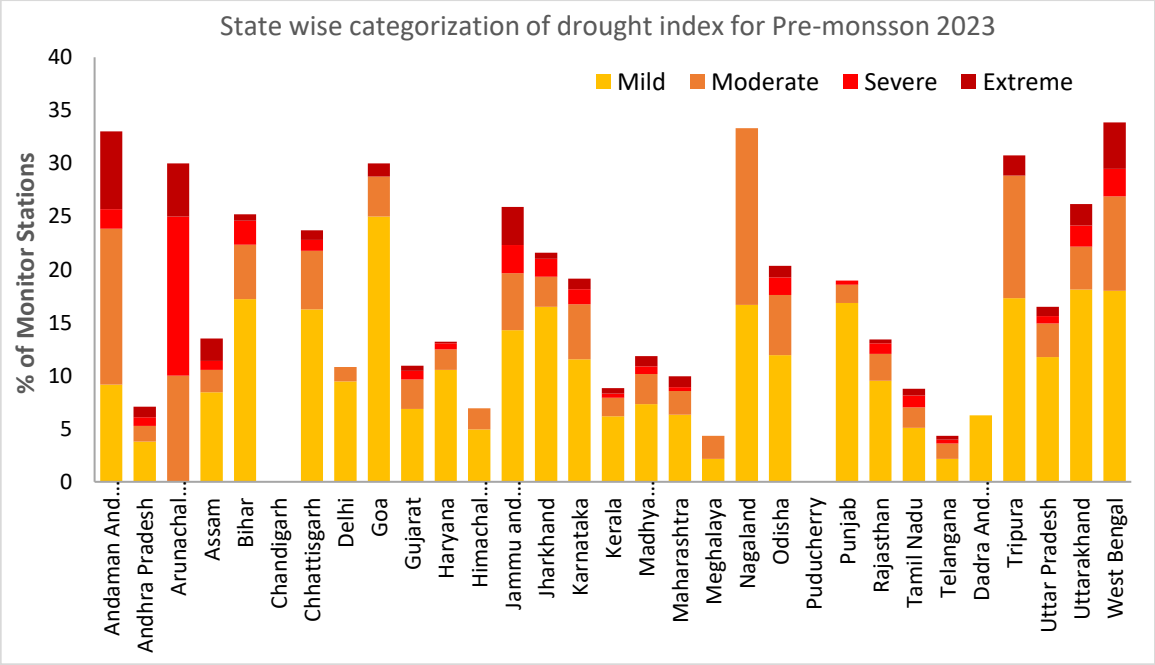
Groundwater Drought Index (GWDI)	Groundwater deficit class
> -0.15	Normal
-0.16 to -0.30	Mild
-0.31 to -0.45	Moderate
-0.46 to -0.60	Severe
< -0.60	Extreme

4.3 GROUNDWATER DROUGHT SCENARIO IN THE COUNTRY

GROUND WATER DROUGHT INDICES DURING PRE-MONSOON 2023

The GWDI indices were calculated using the depth to water level measured in the monitoring stations during the pre-monsoon of 2023 and the average pre-monsoon water level for the years 2013-2022. It is observed from the analysis that among the 13779 analyzed stations, 11557 (84.4%) monitoring stations are showing normal conditions and 2142 (15.6%) monitoring stations are showing drought conditions. ***(Annexure – XXXI)***

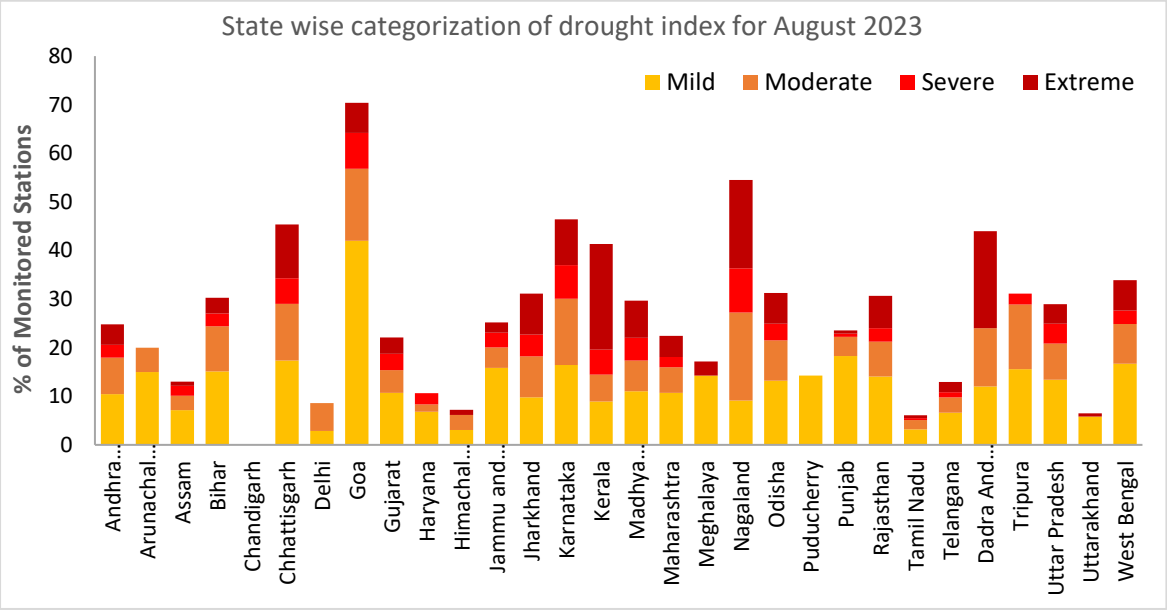
The analyzed stations, that show drought situations are categorized as 1377 in mild, 483 in moderate, 141 in severe and 141 in the extreme category. A state-wise categorization and percentage distribution of monitoring stations in different drought categories are depicted in the following figure.



GROUND WATER DROUGHT INDICES DURING AUGUST 2023

The GWDI indices were calculated using the depth to water level measured in the monitoring wells during the August of 2023 and the average August water level for the years 2013-2022. It is observed from the analysis that among the 13305 analyzed stations, 9388 (70.6%) monitoring stations are showing normal conditions and 3917 (29.4%) monitoring stations are showing drought conditions. ***(Annexure – XXXII)***

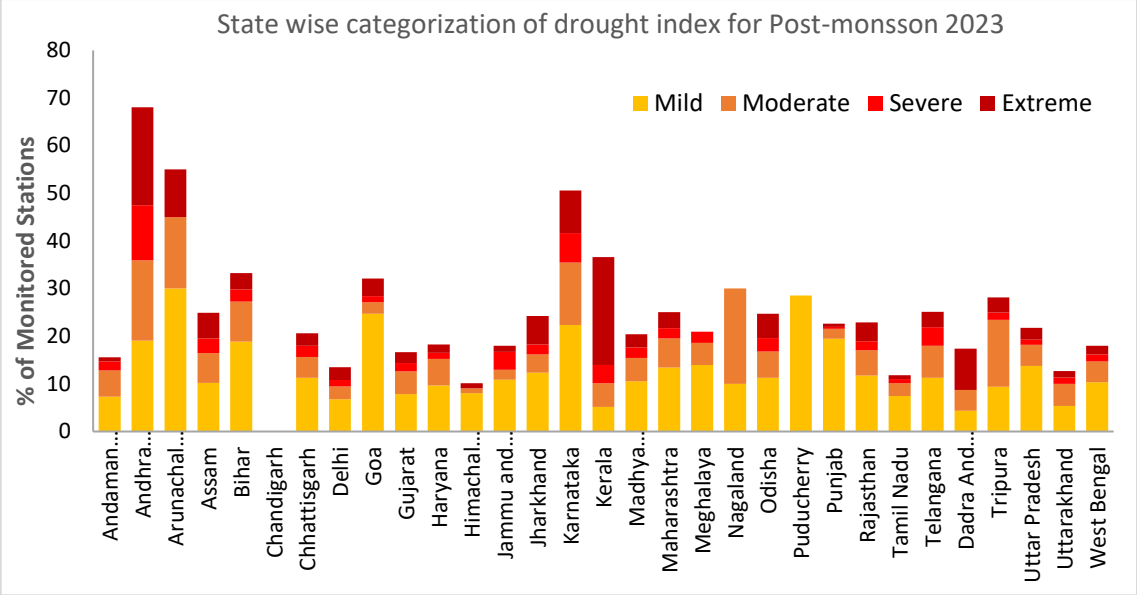
The analyzed stations, that show drought situations are categorized as 1606 in mild, 937 in moderate, 464 in severe and 910 in the extreme category. A state-wise categorization and percentage distribution of monitoring stations in different drought categories are depicted in the following figure.



GROUND WATER DROUGHT INDICES DURING POST-MONSOON 2023

The GWDI indices were calculated using the depth to water level measured in the monitoring wells during the post-monsoon of 2023 and the average post-monsoon water level for the years 2013-2022. It is observed from the analysis that among the 14416 analyzed stations, 10611 (72.6%) monitoring stations are showing normal conditions and 4005 (27.4%) monitoring stations are showing drought conditions. ***(Annexure – XXXIII)***

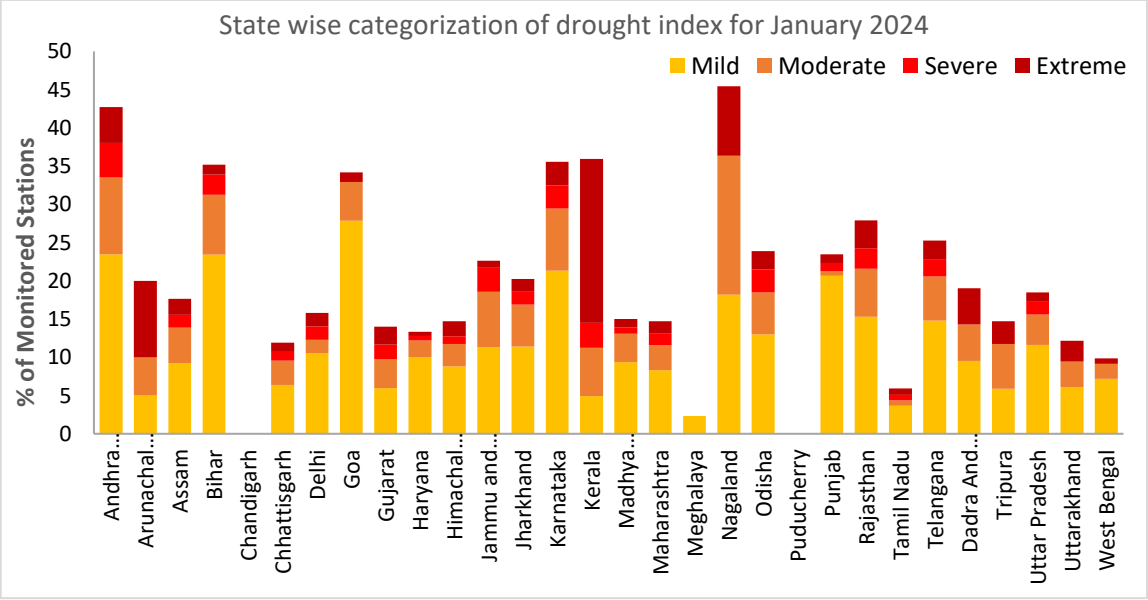
The analyzed stations, that show drought situations are categorized as 1810 in mild, 905 in moderate, 421 in severe and 869 in the extreme category. A state-wise categorization and percentage distribution of monitoring stations in different drought categories are depicted in the following figure.



GROUND WATER DROUGHT INDICES DURING JANUARY 2024

The GWDI indices were calculated using the depth to water level measured in the monitoring wells during the January of 2024 and the average Post-monsoon water level for the years 2014-2023. It is observed from the analysis that among the 13558 analyzed stations, 10544 (77.8%) monitoring stations are showing normal conditions and 3014 (22.2%) monitoring stations are showing drought conditions. ***(Annexure – XXXIV)***

The analyzed stations, that show drought situations are categorized as 1565 wells in mild, 663 in moderate, 275 in severe and 511 in the extreme category. A state-wise categorization and percentage distribution of monitoring stations in different drought categories are depicted in the following figure.



Annexures

Depth to Water Level Distribution of Percentage of Observation Wells Pre-Monsoon 2023

Sr. No.	State/UT Name	No of well analyzed	No./Percentage of Wells Showing Depth to Water Level (mbgl) in the Range of											
			0 to 2		2 to 5		5 to 10		10 to 20		20 to 40		> 40	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	Andhra Pradesh	815	149	18.3	390	47.9	203	24.9	57	7.0	10	1.2	6	0.7
2	Arunachal Pradesh	27	6	22.2	11	40.7	8	29.6	2	7.4	0	0.0	0	0.0
3	Assam	318	55	17.3	206	64.8	45	14.2	11	3.5	1	0.3	0	0.0
4	Bihar	657	21	3.2	284	43.2	343	52.2	9	1.4	0	0.0	0	0.0
5	Chhattisgarh	1166	30	2.6	368	31.6	605	51.9	147	12.6	16	1.4	0	0.0
6	Goa	82	1	1.2	32	39.0	37	45.1	12	14.6	0	0.0	0	0.0
7	Gujarat	744	24	3.2	173	23.3	253	34.0	243	32.7	50	6.7	1	0.1
8	Haryana	751	60	8.0	132	17.6	136	18.1	168	22.4	176	23.4	79	10.5
9	Himachal Pradesh	107	12	11.2	40	37.4	27	25.2	21	19.6	6	5.6	1	0.9
10	Jharkhand	351	11	3.1	68	19.4	230	65.5	42	12.0	0	0.0	0	0.0
11	Karnataka	1278	76	5.9	421	32.9	514	40.2	259	20.3	8	0.6	0	0.0
12	Kerala	1267	109	8.6	394	31.1	553	43.6	201	15.9	8	0.6	2	0.2
13	Madhya Pradesh	1283	29	2.3	268	20.9	623	48.6	319	24.9	37	2.9	7	0.5
14	Maharashtra	1724	77	4.5	451	26.2	864	50.1	307	17.8	21	1.2	4	0.2
15	Meghalaya	61	17	27.9	38	62.3	6	9.8	0	0.0	0	0.0	0	0.0
16	Nagaland	10	0	0.0	3	30.0	4	40.0	3	30.0	0	0.0	0	0.0
17	Odisha	1279	106	8.3	574	44.9	557	43.5	42	3.3	0	0.0	0	0.0
18	Punjab	577	15	2.6	71	12.3	92	15.9	159	27.6	215	37.3	25	4.3
19	Rajasthan	1014	24	2.4	113	11.1	228	22.5	240	23.7	191	18.8	218	21.5
20	Tamil Nadu	861	37	4.3	393	45.6	342	39.7	83	9.6	5	0.6	1	0.1
21	Telangana	312	26	8.3	117	37.5	136	43.6	33	10.6	0	0.0	0	0.0
22	Tripura	84	13	15.5	41	48.8	28	33.3	2	2.4	0	0.0	0	0.0
23	Uttar Pradesh	911	20	2.2	350	38.4	348	38.2	156	17.1	34	3.7	3	0.3
24	Uttarakhand	164	3	1.8	23	14.0	48	29.3	44	26.8	28	17.1	18	11.0
25	West Bengal	711	79	11.1	298	41.9	273	38.4	54	7.6	7	1.0	0	0.0
26	Andaman And Nicobar Islands	110	49	44.5	54	49.1	7	6.4	0	0.0	0	0.0	0	0.0
27	Chandigarh	8	0	0.0	3	37.5	2	25.0	1	12.5	2	25.0	0	0.0
28	The Dadra And Nagar Haveli And Daman And Diu	26	0	0.0	8	30.8	14	53.8	4	15.4	0	0.0	0	0.0
29	Delhi	85	2	2.4	18	21.2	28	32.9	22	25.9	11	12.9	4	4.7
30	Jammu and Kashmir	327	60	18.3	138	42.2	72	22.0	31	9.5	20	6.1	6	1.8
31	Puducherry	9	2	22.2	4	44.4	3	33.3	0	0.0	0	0.0	0	0.0
	Total	**17119**	**1113**	**6.5**	**5484**	**32.0**	**6629**	**38.7**	**2672**	**15.6**	**846**	**4.9**	**375**	**2.2**

Depth to Water Level Distribution of Percentage of Observation Wells August 2023

Sr. No.	State/UT Name	No of well analysed	No./Percentage of Wells Showing Depth to Water Level (mbgl) in the Range of											
			0 to 2		2 to 5		5 to 10		10 to 20		20 to 40		> 40	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	Andhra Pradesh	823	220	26.7	319	38.8	200	24.3	58	7.0	17	2.1	9	1.1
2	Arunachal Pradesh	29	21	72.4	4	13.8	3	10.3	1	3.4	0	0.0	0	0.0
3	Assam	347	225	64.8	92	26.5	21	6.1	8	2.3	1	0.3	0	0.0
4	Bihar	719	210	29.2	403	56.1	102	14.2	4	0.6	0	0.0	0	0.0
5	Chhattisgarh	1042	343	32.9	506	48.6	167	16.0	23	2.2	2	0.2	1	0.1
6	Goa	83	15	18.1	44	53.0	18	21.7	6	7.2	0	0.0	0	0.0
7	Gujarat	771	186	24.1	313	40.6	160	20.8	83	10.8	27	3.5	2	0.3
8	Haryana	198	39	19.7	44	22.2	30	15.2	50	25.3	24	12.1	11	5.6
9	Himachal Pradesh	105	39	37.1	43	41.0	7	6.7	11	10.5	5	4.8	0	0.0
10	Jharkhand	392	134	34.2	164	41.8	88	22.4	6	1.5	0	0.0	0	0.0
11	Karnataka	1293	144	11.1	564	43.6	491	38.0	90	7.0	4	0.3	0	0.0
12	Kerala	1271	280	22.0	402	31.6	469	36.9	109	8.6	9	0.7	2	0.2
13	Madhya Pradesh	1441	440	30.5	560	38.9	313	21.7	116	8.0	11	0.8	1	0.1
14	Maharashtra	1913	638	33.4	649	33.9	444	23.2	159	8.3	21	1.1	2	0.1
15	Meghalaya	56	35	62.5	19	33.9	2	3.6	0	0.0	0	0.0	0	0.0
16	Mizoram	2	1	50.0	1	50.0	0	0.0	0	0.0	0	0.0	0	0.0
17	Nagaland	11	0	0.0	4	36.4	4	36.4	3	27.3	0	0.0	0	0.0
18	Odisha	1382	811	58.7	483	34.9	84	6.1	4	0.3	0	0.0	0	0.0
19	Punjab	185	18	9.7	42	22.7	29	15.7	39	21.1	50	27.0	7	3.8
20	Rajasthan	1032	68	6.6	187	18.1	191	18.5	175	17.0	184	17.8	227	22.0
21	Tamil Nadu	838	101	12.1	348	41.5	294	35.1	86	10.3	7	0.8	2	0.2
22	Telangana	313	117	37.4	127	40.6	59	18.8	10	3.2	0	0.0	0	0.0
23	Tripura	93	39	41.9	41	44.1	13	14.0	0	0.0	0	0.0	0	0.0
24	Uttar Pradesh	1025	255	24.9	371	36.2	244	23.8	128	12.5	24	2.3	3	0.3
25	Uttarakhand	168	33	19.6	38	22.6	37	22.0	25	14.9	23	13.7	12	7.1
26	West Bengal	737	417	56.6	242	32.8	65	8.8	12	1.6	1	0.1	0	0.0
27	Chandigarh	9	0	0.0	4	44.4	2	22.2	1	11.1	2	22.2	0	0.0
28	The Dadra And Nagar Haveli And Daman And Diu	36	13	36.1	18	50.0	5	13.9	0	0.0	0	0.0	0	0.0
29	Delhi	122	16	13.1	22	18.0	37	30.3	26	21.3	16	13.1	5	4.1
30	Jammu and Kashmir	375	129	34.4	150	40.0	46	12.3	30	8.0	14	3.7	6	1.6
31	Puducherry	8	0	0.0	7	87.5	1	12.5	0	0.0	0	0.0	0	0.0
	Total	**16819**	**4987**	**29.7**	**6211**	**36.9**	**3626**	**21.6**	**1263**	**7.5**	**442**	**2.6**	**290**	**1.7**

Depth to Water Level Distribution of Percentage of Observation Wells November 2023

Sr. No.	State/UT Name	No of well analysed	No./Percentage of Wells Showing Depth to Water Level (mbgl) in the Range of											
			0 to 2		2 to 5		5 to 10		10 to 20		20 to 40		> 40	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	Andhra Pradesh	818	108	13.2	388	47.4	247	30.2	55	6.7	13	1.6	7	0.9
2	Arunachal Pradesh	29	13	44.8	8	27.6	7	24.1	1	3.4	0	0.0	0	0.0
3	Assam	329	130	39.5	157	47.7	34	10.3	6	1.8	2	0.6	0	0.0
4	Bihar	796	120	15.1	506	63.6	160	20.1	10	1.3	0	0.0	0	0.0
5	Chhattisgarh	1109	194	17.5	645	58.2	242	21.8	24	2.2	3	0.3	1	0.1
6	Goa	82	7	8.5	44	53.7	24	29.3	7	8.5	0	0.0	0	0.0
7	Gujarat	818	112	13.7	325	39.7	235	28.7	109	13.3	33	4.0	4	0.5
8	Haryana	789	70	8.9	145	18.4	131	16.6	158	20.0	189	24.0	96	12.2
9	Himachal Pradesh	106	20	18.9	45	42.5	19	17.9	18	17.0	4	3.8	0	0.0
10	Jharkhand	398	48	12.1	223	56.0	112	28.1	8	2.0	7	1.8	0	0.0
11	Karnataka	1270	114	9.0	522	41.1	521	41.0	106	8.3	5	0.4	2	0.2
12	Kerala	1416	319	22.5	476	33.6	493	34.8	108	7.6	15	1.1	5	0.4
13	Madhya Pradesh	1447	177	12.2	639	44.2	481	33.2	136	9.4	13	0.9	1	0.1
14	Maharashtra	1902	315	16.6	819	43.1	588	30.9	157	8.3	21	1.1	2	0.1
15	Meghalaya	66	32	48.5	32	48.5	2	3.0	0	0.0	0	0.0	0	0.0
16	Mizoram	2	2	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	Nagaland	10	0	0.0	6	60.0	3	30.0	1	10.0	0	0.0	0	0.0
18	Odisha	1377	539	39.1	690	50.1	142	10.3	6	0.4	0	0.0	0	0.0
19	Punjab	526	32	6.1	74	14.1	74	14.1	118	22.4	187	35.6	41	7.8
20	Rajasthan	1041	52	5.0	181	17.4	176	16.9	215	20.7	192	18.4	225	21.6
21	Tamil Nadu	841	187	22.2	350	41.6	234	27.8	58	6.9	10	1.2	2	0.2
22	Telangana	310	33	10.6	169	54.5	92	29.7	16	5.2	0	0.0	0	0.0
23	Tripura	97	27	27.8	57	58.8	13	13.4	0	0.0	0	0.0	0	0.0
24	Uttar Pradesh	1075	174	16.2	466	43.3	267	24.8	133	12.4	31	2.9	4	0.4
25	Uttarakhand	170	17	10.0	48	28.2	35	20.6	31	18.2	24	14.1	15	8.8
26	West Bengal	741	232	31.3	409	55.2	85	11.5	14	1.9	1	0.1	0	0.0
27	Andaman And Nicobar Islands	111	103	92.8	8	7.2	0	0.0	0	0.0	0	0.0	0	0.0
28	Chandigarh	8	0	0.0	4	50.0	1	12.5	1	12.5	2	25.0	0	0.0
29	The Dadra And Nagar Haveli And Daman And Diu	36	8	22.2	20	55.6	8	22.2	0	0.0	0	0.0	0	0.0
30	Delhi	126	9	7.1	31	24.6	40	31.7	24	19.0	14	11.1	8	6.3
31	Jammu and Kashmir	382	103	27.0	166	43.5	57	14.9	27	7.1	21	5.5	8	2.1
32	Puducherry	9	3	33.3	4	44.4	2	22.2	0	0.0	0	0.0	0	0.0
	Total	**18237**	**3300**	**18.1**	**7657**	**42.0**	**4525**	**24.8**	**1547**	**8.5**	**787**	**4.3**	**421**	**2.3**

Depth to Water Level Distribution of Percentage of Observation Wells January 2024

Sr. No.	State/UT Name	No of well analysed	No./Percentage of Wells Showing Depth to Water Level (mbgl) in the Range of											
			0 to 2		2 to 5		5 to 10		10 to 20		20 to 40		> 40	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	Andhra Pradesh	812	114	14.0	403	49.6	205	25.2	59	7.3	21	2.6	10	1.2
2	Arunachal Pradesh	29	5	17.2	17	58.6	5	17.2	2	6.9	0	0.0	0	0.0
3	Assam	363	92	25.3	205	56.5	52	14.3	9	2.5	4	1.1	1	0.3
4	Bihar	673	38	5.6	392	58.2	229	34.0	14	2.1	0	0.0	0	0.0
5	Chhattisgarh	1052	72	6.8	557	52.9	371	35.3	47	4.5	4	0.4	1	0.1
6	Goa	80	3	3.8	37	46.3	30	37.5	10	12.5	0	0.0	0	0.0
7	Gujarat	826	88	10.7	276	33.4	288	34.9	142	17.2	28	3.4	4	0.5
8	Haryana	229	26	11.4	62	27.1	35	15.3	62	27.1	34	14.8	10	4.4
9	Himachal Pradesh	158	24	15.2	51	32.3	31	19.6	34	21.5	13	8.2	5	3.2
10	Jharkhand	450	18	4.0	192	42.7	222	49.3	18	4.0	0	0.0	0	0.0
11	Karnataka	1298	65	5.0	435	33.5	578	44.5	209	16.1	5	0.4	6	0.5
12	Kerala	1316	193	14.7	414	31.5	520	39.5	172	13.1	15	1.1	2	0.2
13	Madhya Pradesh	1472	109	7.4	505	34.3	636	43.2	199	13.5	16	1.1	7	0.5
14	Maharashtra	1943	202	10.4	793	40.8	695	35.8	222	11.4	26	1.3	5	0.3
15	Manipur	4	2	50.0	2	50.0	0	0.0	0	0.0	0	0.0	0	0.0
16	Meghalaya	66	27	40.9	35	53.0	4	6.1	0	0.0	0	0.0	0	0.0
17	Mizoram	2	1	50.0	1	50.0	0	0.0	0	0.0	0	0.0	0	0.0
18	Nagaland	95	20	21.1	42	44.2	22	23.2	10	10.5	1	1.1	0	0.0
19	Odisha	1376	222	16.1	859	62.4	286	20.8	9	0.7	0	0.0	0	0.0
20	Punjab	210	15	7.1	44	21.0	36	17.1	49	23.3	53	25.2	13	6.2
21	Rajasthan	1103	22	2.0	178	16.1	212	19.2	231	20.9	195	17.7	265	24.0
22	Tamil Nadu	772	248	32.1	300	38.9	172	22.3	47	6.1	4	0.5	1	0.1
23	Telangana	302	19	6.3	140	46.4	122	40.4	20	6.6	1	0.3	0	0.0
24	Tripura	96	24	25.0	56	58.3	15	15.6	1	1.0	0	0.0	0	0.0
25	Uttar Pradesh	1090	80	7.3	496	45.5	334	30.6	146	13.4	30	2.8	4	0.4
26	Uttarakhand	176	11	6.3	50	28.4	36	20.5	35	19.9	30	17.0	14	8.0
27	West Bengal	749	149	19.9	420	56.1	158	21.1	19	2.5	3	0.4	0	0.0
28	Chandigarh	9	0	0.0	4	44.4	2	22.2	1	11.1	2	22.2	0	0.0
29	The Dadra And Nagar Haveli And Daman And Diu	36	1	2.8	19	52.8	16	44.4	0	0.0	0	0.0	0	0.0
30	Delhi	107	4	3.7	28	26.2	38	35.5	18	16.8	11	10.3	8	7.5
31	Jammu and Kashmir	303	58	19.1	126	41.6	53	17.5	33	10.9	24	7.9	9	3.0
32	Puducherry	9	7	77.8	1	11.1	1	11.1	0	0.0	0	0.0	0	0.0
	Total	**17206**	**1959**	**11.4**	**7140**	**41.5**	**5404**	**31.4**	**1818**	**10.6**	**520**	**3.0**	**365**	**2.1**

State-wise Annual Fluctuation & Frequency Distribution of Different Ranges from Pre-Monsoon 2022 to Pre-Monsoon 2023 in Unconfined Aquifer

Sr. No.	State/UT Name	No of wells analysed	No. of wells in different depth range												Total No. of wells	
			Rise						Fall							
			0 to 2	%	2 to 4	%	> 4	%	0 to 2	%	2 to 4	%	> 4	%	Rise	Fall
1	Andhra Pradesh	653	294	45.0	34	5.2	18	2.8	235	36.0	39	6.0	25	3.8	346	299
2	Arunachal Pradesh	26	13	50.0	1	3.8	0	0.0	11	42.3	1	3.8	0	0.0	14	12
3	Assam	266	109	41.0	16	6.0	1	0.4	128	48.1	4	1.5	4	1.5	126	136
4	Bihar	469	82	17.5	8	1.7	3	0.6	287	61.2	70	14.9	17	3.6	93	374
5	Chhattisgarh	791	249	31.5	53	6.7	40	5.1	317	40.1	56	7.1	34	4.3	342	407
6	Goa	64	16	25.0	1	1.6	0	0.0	46	71.9	1	1.6	0	0.0	17	47
7	Gujarat	645	216	33.5	58	9.0	51	7.9	206	31.9	49	7.6	44	6.8	325	299
8	Haryana	681	282	41.4	55	8.1	19	2.8	273	40.1	29	4.3	10	1.5	356	312
9	Himachal Pradesh	107	49	45.8	7	6.5	3	2.8	41	38.3	2	1.9	4	3.7	59	47
10	Jharkhand	262	69	26.3	6	2.3	5	1.9	140	53.4	22	8.4	15	5.7	80	177
11	Karnataka	1212	123	10.1	28	2.3	29	2.4	588	48.5	294	24.3	149	12.3	180	1031
12	Kerala	1212	328	27.1	38	3.1	15	1.2	734	60.6	61	5.0	26	2.1	381	821
13	Madhya Pradesh	1072	405	37.8	106	9.9	91	8.5	309	28.8	78	7.3	53	4.9	602	440
14	Maharashtra	1535	580	37.8	169	11.0	100	6.5	464	30.2	126	8.2	72	4.7	849	662
15	Meghalaya	59	37	62.7	5	8.5	0	0.0	17	28.8	0	0.0	0	0.0	42	17
16	Nagaland	9	1	11.1	1	11.1	2	22.2	3	33.3	1	11.1	1	11.1	4	5
17	Odisha	1155	336	29.1	42	3.6	4	0.3	622	53.9	89	7.7	36	3.1	382	747
18	Punjab	525	217	41.3	19	3.6	14	2.7	253	48.2	9	1.7	7	1.3	250	269
19	Rajasthan	832	257	30.9	100	12.0	105	12.6	274	32.9	47	5.6	43	5.2	462	364
20	Tamil Nadu	795	125	15.7	31	3.9	16	2.0	415	52.2	142	17.9	65	8.2	172	622
21	Telangana	283	127	44.9	13	4.6	11	3.9	103	36.4	14	4.9	8	2.8	151	125
22	Tripura	78	32	41.0	2	2.6	0	0.0	39	50.0	4	5.1	0	0.0	34	43
23	Uttar Pradesh	717	218	30.4	20	2.8	11	1.5	415	57.9	32	4.5	10	1.4	249	457
24	Uttarakhand	158	40	25.3	7	4.4	4	2.5	82	51.9	10	6.3	14	8.9	51	106
25	West Bengal	638	116	18.2	17	2.7	5	0.8	363	56.9	74	11.6	56	8.8	138	493
26	Andaman And Nicobar Islands	109	15	13.8	0	0.0	0	0.0	79	72.5	10	9.2	2	1.8	15	91
27	Chandigarh	7	2	28.6	0	0.0	1	14.3	4	57.1	0	0.0	0	0.0	3	4
28	The Dadra And Nagar Haveli And Daman And Diu	24	11	45.8	0	0.0	1	4.2	8	33.3	2	8.3	1	4.2	12	11
29	Delhi	77	34	44.2	3	3.9	1	1.3	33	42.9	5	6.5	1	1.3	38	39
30	Jammu and Kashmir	252	130	51.6	17	6.7	7	2.8	79	31.3	12	4.8	2	0.8	154	93
31	Puducherry	9	2	22.2	0	0.0	0	0.0	4	44.4	3	33.3	0	0.0	2	7
	Total	**14722**	**4515**	**30.7**	**857**	**5.8**	**557**	**3.8**	**6572**	**44.6**	**1286**	**8.7**	**699**	**4.7**	**5929**	**8557**

N.B.: 236 monitoring wells (1.6%) show no change in Water Level.

State-wise Annual Fluctuation & Frequency Distribution of Different Ranges from with August 2022 to August 2023 in Unconfined Aquifer

Sr. No.	State/UT Name	No of wells analysed	No. of wells in different depth range												Total No. of wells	
			Rise						Fall							
			0 to 2	%	2 to 4	%	> 4	%	0 to 2	%	2 to 4	%	> 4	%	Rise	Fall
1	Andhra Pradesh	601	169	28.1	17	2.8	15	2.5	290	48.3	60	10.0	48	8.0	201	398
2	Arunachal Pradesh	26	17	65.4	2	7.7	0	0.0	6	23.1	0	0.0	0	0.0	19	6
3	Assam	286	209	73.1	10	3.5	0	0.0	56	19.6	8	2.8	2	0.7	219	66
4	Bihar	549	265	48.3	39	7.1	11	2.0	197	35.9	24	4.4	7	1.3	315	228
5	Chhattisgarh	850	203	23.9	32	3.8	16	1.9	449	52.8	97	11.4	46	5.4	251	592
6	Goa	79	9	11.4	2	2.5	1	1.3	58	73.4	5	6.3	3	3.8	12	66
7	Gujarat	623	163	26.2	31	5.0	21	3.4	265	42.5	91	14.6	48	7.7	215	404
8	Haryana	156	72	46.2	11	7.1	6	3.8	52	33.3	10	6.4	3	1.9	89	65
9	Himachal Pradesh	61	40	65.6	12	19.7	7	11.5	1	1.6	0	0.0	1	1.6	59	2
10	Jharkhand	327	116	35.5	37	11.3	15	4.6	101	30.9	32	9.8	20	6.1	168	153
11	Karnataka	1161	92	7.9	7	0.6	12	1.0	500	43.1	337	29.0	211	18.2	111	1048
12	Kerala	1173	211	18.0	130	11.1	154	13.1	256	21.8	168	14.3	254	21.7	495	678
13	Madhya Pradesh	1171	285	24.3	34	2.9	23	2.0	559	47.7	143	12.2	114	9.7	342	816
14	Maharashtra	1558	355	22.8	47	3.0	30	1.9	674	43.3	238	15.3	191	12.3	432	1103
15	Meghalaya	54	37	68.5	1	1.9	0	0.0	14	25.9	0	0.0	0	0.0	38	14
16	Nagaland	9	2	22.2	0	0.0	0	0.0	2	22.2	0	0.0	5	55.6	2	7
17	Odisha	1292	400	31.0	28	2.2	1	0.1	757	58.6	75	5.8	18	1.4	429	850
18	Punjab	132	64	48.5	4	3.0	6	4.5	51	38.6	5	3.8	2	1.5	74	58
19	Rajasthan	846	139	16.4	39	4.6	54	6.4	358	42.3	147	17.4	107	12.6	232	612
20	Tamil Nadu	784	296	37.8	63	8.0	16	2.0	278	35.5	88	11.2	41	5.2	375	407
21	Telangana	287	67	23.3	6	2.1	5	1.7	155	54.0	37	12.9	17	5.9	78	209
22	Tripura	77	37	48.1	4	5.2	0	0.0	34	44.2	1	1.3	1	1.3	41	36
23	Uttar Pradesh	741	371	50.1	71	9.6	14	1.9	224	30.2	47	6.3	12	1.6	456	283
24	Uttarakhand	156	61	39.1	39	25.0	31	19.9	13	8.3	5	3.2	7	4.5	131	25
25	West Bengal	690	267	38.7	51	7.4	22	3.2	296	42.9	28	4.1	15	2.2	340	339
26	Chandigarh	8	3	37.5	0	0.0	2	25.0	3	37.5	0	0.0	0	0.0	5	3
27	The Dadra And Nagar Haveli And Daman And Diu	29	6	20.7	0	0.0	0	0.0	18	62.1	4	13.8	1	3.4	6	23
28	Delhi	69	36	52.2	8	11.6	5	7.2	18	26.1	1	1.4	1	1.4	49	20
29	Jammu and Kashmir	274	131	47.8	2	0.7	2	0.7	121	44.2	7	2.6	2	0.7	135	130
30	Puducherry	7	6	85.7	0	0.0	0	0.0	1	14.3	0	0.0	0	0.0	6	1
	Total	**14076**	**4129**	**29.3**	**727**	**5.2**	**469**	**3.3**	**5807**	**41.3**	**1658**	**11.8**	**1177**	**8.4**	**5325**	**8642**

N.B.: 109 monitoring wells (0.8%) show no change in Water Level.

State-wise Annual Fluctuation & Frequency Distribution of Different Ranges from with November 2022 to November 2023 in Unconfined Aquifer

Sr. No.	State/UT Name	No of wells analysed	No. of wells in different depth range												Total No. of wells	
			Rise						Fall							
			0 to 2	%	2 to 4	%	> 4	%	0 to 2	%	2 to 4	%	> 4	%	Rise	Fall
1	Andhra Pradesh	662	36	5.4	5	0.8	4	0.6	332	50.2	180	27.2	103	15.6	45	615
2	Arunachal Pradesh	27	10	37.0	1	3.7	1	3.7	15	55.6	0	0.0	0	0.0	12	15
3	Assam	266	90	33.8	6	2.3	2	0.8	145	54.5	14	5.3	7	2.6	98	166
4	Bihar	622	237	38.1	19	3.1	3	0.5	314	50.5	35	5.6	10	1.6	259	359
5	Chhattisgarh	914	250	27.4	27	3.0	9	1.0	495	54.2	75	8.2	37	4.0	286	607
6	Goa	81	52	64.2	4	4.9	3	3.7	18	22.2	2	2.5	2	2.5	59	22
7	Gujarat	633	197	31.1	35	5.5	32	5.1	293	46.3	43	6.8	30	4.7	264	366
8	Haryana	672	205	30.5	29	4.3	17	2.5	335	49.9	44	6.5	29	4.3	251	408
9	Himachal Pradesh	81	55	67.9	6	7.4	2	2.5	17	21.0	1	1.2	0	0.0	63	18
10	Jharkhand	367	138	37.6	17	4.6	6	1.6	148	40.3	36	9.8	16	4.4	161	200
11	Karnataka	1227	138	11.2	23	1.9	16	1.3	624	50.9	245	20.0	180	14.7	177	1049
12	Kerala	1340	289	21.6	186	13.9	263	19.6	231	17.2	176	13.1	193	14.4	738	600
13	Madhya Pradesh	1117	236	21.1	55	4.9	39	3.5	523	46.8	149	13.3	109	9.8	330	781
14	Maharashtra	1641	447	27.2	55	3.4	42	2.6	664	40.5	239	14.6	171	10.4	544	1074
15	Meghalaya	54	18	33.3	2	3.7	0	0.0	33	61.1	1	1.9	0	0.0	20	34
16	Nagaland	10	1	10.0	1	10.0	0	0.0	5	50.0	1	10.0	2	20.0	2	8
17	Odisha	1318	539	40.9	70	5.3	10	0.8	573	43.5	86	6.5	22	1.7	619	681
18	Punjab	408	124	30.4	15	3.7	14	3.4	189	46.3	47	11.5	15	3.7	153	251
19	Rajasthan	846	235	27.8	55	6.5	68	8.0	268	31.7	98	11.6	110	13.0	358	476
20	Tamil Nadu	804	304	37.8	50	6.2	14	1.7	281	35.0	87	10.8	68	8.5	368	436
21	Telangana	271	13	4.8	1	0.4	2	0.7	162	59.8	65	24.0	28	10.3	16	255
22	Tripura	89	35	39.3	4	4.5	0	0.0	42	47.2	5	5.6	2	2.2	39	49
23	Uttar Pradesh	827	258	31.2	33	4.0	7	0.8	433	52.4	69	8.3	24	2.9	298	526
24	Uttarakhand	144	43	29.9	14	9.7	12	8.3	58	40.3	11	7.6	6	4.2	69	75
25	West Bengal	697	381	54.7	41	5.9	9	1.3	228	32.7	23	3.3	6	0.9	431	257
26	Andaman And Nicobar Islands	109	58	53.2	0	0.0	0	0.0	50	45.9	0	0.0	0	0.0	58	50
27	Chandigarh	7	3	42.9	1	14.3	0	0.0	3	42.9	0	0.0	0	0.0	4	3
28	The Dadra And Nagar Haveli And Daman And Diu	28	10	35.7	0	0.0	0	0.0	16	57.1	1	3.6	1	3.6	10	18
29	Delhi	73	33	45.2	4	5.5	0	0.0	31	42.5	3	4.1	2	2.7	37	36
30	Jammu and Kashmir	306	163	53.3	7	2.3	5	1.6	111	36.3	11	3.6	3	1.0	175	125
31	Puducherry	8	4	50.0	0	0.0	0	0.0	4	50.0	0	0.0	0	0.0	4	4
	Total	**15649**	**4602**	**29.4**	**766**	**4.9**	**580**	**3.7**	**6641**	**42.4**	**1747**	**11.2**	**1176**	**7.5**	**5948**	**9564**

N. B.: 137 monitoring wells (0.8%) show no change in Water Level.

State-wise Annual Fluctuation & Frequency Distribution of Different Ranges from with January 2023 to January 2024 in Unconfined Aquifer

Sr. No.	State/UT Name	No of wells analysed	No. of wells in different depth range												Total No. of wells	
			Rise						Fall							
			0 to 2	%	2 to 4	%	> 4	%	0 to 2	%	2 to 4	%	> 4	%	Rise	Fall
1	Andhra Pradesh	688	70	10.2	9	1.3	7	1.0	390	56.7	121	17.6	90	13.1	86	601
2	Arunachal Pradesh	27	12	44.4	2	7.4	1	3.7	12	44.4	0	0.0	0	0.0	15	12
3	Assam	276	133	48.2	9	3.3	2	0.7	115	41.7	12	4.3	5	1.8	144	132
4	Bihar	633	207	32.7	20	3.2	6	0.9	344	54.3	42	6.6	9	1.4	233	395
5	Chhattisgarh	923	406	44.0	46	5.0	31	3.4	339	36.7	60	6.5	24	2.6	483	423
6	Goa	79	35	44.3	0	0.0	5	6.3	34	43.0	1	1.3	2	2.5	40	37
7	Gujarat	677	221	32.6	50	7.4	56	8.3	239	35.3	56	8.3	51	7.5	327	346
8	Haryana	191	68	35.6	4	2.1	0	0.0	104	54.5	10	5.2	2	1.0	72	116
9	Himachal Pradesh	107	63	58.9	9	8.4	3	2.8	25	23.4	2	1.9	3	2.8	75	30
10	Jharkhand	378	187	49.5	15	4.0	5	1.3	136	36.0	22	5.8	6	1.6	207	164
11	Karnataka	1266	439	34.7	40	3.2	27	2.1	528	41.7	137	10.8	79	6.2	506	744
12	Kerala	1233	232	18.8	199	16.1	242	19.6	192	15.6	148	12.0	219	17.8	673	559
13	Madhya Pradesh	1046	339	32.4	105	10.0	74	7.1	381	36.4	80	7.6	49	4.7	518	510
14	Maharashtra	1663	558	33.6	105	6.3	62	3.7	628	37.8	174	10.5	106	6.4	725	908
15	Meghalaya	46	34	73.9	1	2.2	1	2.2	10	21.7	0	0.0	0	0.0	36	10
16	Nagaland	11	2	18.2	0	0.0	1	9.1	4	36.4	0	0.0	4	36.4	3	8
17	Odisha	1308	618	47.2	59	4.5	14	1.1	550	42.0	44	3.4	9	0.7	691	603
18	Punjab	168	83	49.4	4	2.4	1	0.6	72	42.9	5	3.0	3	1.8	88	80
19	Rajasthan	879	172	19.6	60	6.8	56	6.4	306	34.8	146	16.6	138	15.7	288	590
20	Tamil Nadu	723	337	46.6	100	13.8	36	5.0	168	23.2	40	5.5	38	5.3	473	246
21	Telangana	272	25	9.2	4	1.5	1	0.4	175	64.3	49	18.0	16	5.9	30	240
22	Tripura	89	55	61.8	3	3.4	0	0.0	25	28.1	5	5.6	1	1.1	58	31
23	Uttar Pradesh	847	293	34.6	17	2.0	8	0.9	458	54.1	48	5.7	18	2.1	318	524
24	Uttarakhand	155	50	32.3	15	9.7	11	7.1	59	38.1	13	8.4	6	3.9	76	78
25	West Bengal	707	412	58.3	35	5.0	13	1.8	201	28.4	28	4.0	13	1.8	460	242
26	Chandigarh	8	5	62.5	1	12.5	0	0.0	2	25.0	0	0.0	0	0.0	6	2
27	The Dadra And Nagar Haveli And Daman And Diu	28	5	17.9	1	3.6	0	0.0	20	71.4	2	7.1	0	0.0	6	22
28	Delhi	56	20	35.7	1	1.8	2	3.6	27	48.2	3	5.4	2	3.6	23	32
29	Jammu and Kashmir	250	140	56.0	7	2.8	2	0.8	85	34.0	8	3.2	0	0.0	149	93
30	Puducherry	9	6	66.7	3	33.3	0	0.0	0	0.0	0	0.0	0	0.0	9	0
	Total	**14743**	**5227**	**35.5**	**924**	**6.3**	**667**	**4.5**	**5629**	**38.2**	**1256**	**8.5**	**893**	**6.1**	**6818**	**7778**

N. B.: 147 monitoring wells (1.0%) show no change in Water Level.

State-wise Seasonal Fluctuation & Frequency Distribution of Different Ranges from Pre-Monsoon 2023 to August 2023 in Unconfined Aquifer

Sr. No.	State/UT Name	No of wells analysed	No. of wells in different depth range												Total No. of wells	
			Rise						Fall							
			0 to 2	%	2 to 4	%	> 4	%	0 to 2	%	2 to 4	%	> 4	%	Rise	Fall
1	Andhra Pradesh	781	273	35.0	69	8.8	45	5.8	301	38.5	51	6.5	39	5.0	387	391
2	Arunachal Pradesh	27	10	37.0	11	40.7	6	22.2	0	0.0	0	0.0	0	0.0	27	0
3	Assam	297	151	50.8	108	36.4	16	5.4	20	6.7	1	0.3	1	0.3	275	22
4	Bihar	561	219	39.0	228	40.6	82	14.6	28	5.0	2	0.4	0	0.0	529	30
5	Chhattisgarh	995	259	26.0	348	35.0	338	34.0	30	3.0	9	0.9	3	0.3	945	42
6	Goa	82	39	47.6	24	29.3	13	15.9	3	3.7	1	1.2	2	2.4	76	6
7	Gujarat	585	167	28.5	124	21.2	237	40.5	43	7.4	7	1.2	6	1.0	528	56
8	Haryana	178	78	43.8	14	7.9	5	2.8	64	36.0	9	5.1	7	3.9	97	80
9	Himachal Pradesh	103	54	52.4	20	19.4	25	24.3	3	2.9	0	0.0	1	1.0	99	4
10	Jharkhand	332	77	23.2	111	33.4	132	39.8	9	2.7	1	0.3	1	0.3	320	11
11	Karnataka	1248	511	40.9	249	20.0	191	15.3	247	19.8	31	2.5	9	0.7	951	287
12	Kerala	1054	212	20.1	179	17.0	277	26.3	174	16.5	96	9.1	114	10.8	668	384
13	Madhya Pradesh	1210	249	20.6	366	30.2	513	42.4	43	3.6	11	0.9	16	1.3	1128	70
14	Maharashtra	1681	566	33.7	423	25.2	503	29.9	131	7.8	29	1.7	20	1.2	1492	180
15	Meghalaya	54	33	61.1	14	25.9	1	1.9	5	9.3	0	0.0	0	0.0	48	5
16	Nagaland	10	10	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	10	0
17	Odisha	1247	443	35.5	434	34.8	334	26.8	36	2.9	0	0.0	0	0.0	1211	36
18	Punjab	153	44	28.8	13	8.5	6	3.9	70	45.8	16	10.5	4	2.6	63	90
19	Rajasthan	935	285	30.5	100	10.7	175	18.7	303	32.4	37	4.0	29	3.1	560	369
20	Tamil Nadu	780	351	45.0	61	7.8	15	1.9	274	35.1	53	6.8	22	2.8	427	349
21	Telangana	305	120	39.3	76	24.9	70	23.0	32	10.5	3	1.0	4	1.3	266	39
22	Tripura	82	52	63.4	20	24.4	5	6.1	4	4.9	1	1.2	0	0.0	77	5
23	Uttar Pradesh	812	399	49.1	249	30.7	77	9.5	70	8.6	8	1.0	6	0.7	725	84
24	Uttarakhand	162	24	14.8	56	34.6	79	48.8	2	1.2	0	0.0	1	0.6	159	3
25	West Bengal	687	238	34.6	226	32.9	189	27.5	26	3.8	5	0.7	3	0.4	653	34
26	Chandigarh	8	7	87.5	1	12.5	0	0.0	0	0.0	0	0.0	0	0.0	8	0
27	The Dadra And Nagar Haveli And Daman And Diu	23	7	30.4	7	30.4	9	39.1	0	0.0	0	0.0	0	0.0	23	0
28	Delhi	66	37	56.1	10	15.2	3	4.5	15	22.7	0	0.0	0	0.0	50	15
29	Jammu and Kashmir	318	146	45.9	73	23.0	38	11.9	43	13.5	10	3.1	7	2.2	257	60
30	Puducherry	7	1	14.3	1	14.3	0	0.0	5	71.4	0	0.0	0	0.0	2	5
	Total	**14783**	**5062**	**34.2**	**3615**	**24.5**	**3384**	**22.9**	**1981**	**13.4**	**381**	**2.6**	**295**	**2.0**	**12061**	**2657**

N. B.: 65 monitoring wells (0.4 %) show no change in Water Level.

State-wise Seasonal Fluctuation & Frequency Distribution of Different Ranges from Pre-Monsoon 2023 to November 2023 in Unconfined Aquifer

Sr. No.	State/UT Name	No of wells analysed	No. of wells in different depth range												Total No. of wells	
			Rise						Fall							
			0 to 2	%	2 to 4	%	> 4	%	0 to 2	%	2 to 4	%	> 4	%	Rise	Fall
1	Andhra Pradesh	775	212	27.4	50	6.5	29	3.7	355	45.8	74	9.5	53	6.8	291	482
2	Arunachal Pradesh	27	19	70.4	3	11.1	2	7.4	3	11.1	0	0.0	0	0.0	24	3
3	Assam	275	179	65.1	39	14.2	4	1.5	43	15.6	2	0.7	4	1.5	222	49
4	Bihar	609	324	53.2	212	34.8	38	6.2	28	4.6	3	0.5	2	0.3	574	33
5	Chhattisgarh	1038	369	35.5	337	32.5	255	24.6	58	5.6	9	0.9	6	0.6	961	73
6	Goa	80	43	53.8	19	23.8	6	7.5	8	10.0	1	1.3	3	3.8	68	12
7	Gujarat	619	178	28.8	137	22.1	218	35.2	60	9.7	12	1.9	13	2.1	533	85
8	Haryana	608	258	42.4	50	8.2	14	2.3	226	37.2	30	4.9	23	3.8	322	279
9	Himachal Pradesh	104	61	58.7	19	18.3	14	13.5	9	8.7	0	0.0	1	1.0	94	10
10	Jharkhand	335	83	24.8	118	35.2	100	29.9	18	5.4	4	1.2	11	3.3	301	33
11	Karnataka	1215	516	42.5	218	17.9	137	11.3	263	21.6	42	3.5	26	2.1	871	331
12	Kerala	1177	232	19.7	221	18.8	324	27.5	181	15.4	100	8.5	118	10.0	777	399
13	Madhya Pradesh	1163	349	30.0	329	28.3	338	29.1	86	7.4	27	2.3	18	1.5	1016	131
14	Maharashtra	1666	622	37.3	415	24.9	330	19.8	197	11.8	58	3.5	27	1.6	1367	282
15	Meghalaya	55	42	76.4	4	7.3	0	0.0	9	16.4	0	0.0	0	0.0	46	9
16	Nagaland	9	2	22.2	5	55.6	1	11.1	0	0.0	1	11.1	0	0.0	8	1
17	Odisha	1231	486	39.5	438	35.6	209	17.0	77	6.3	16	1.3	5	0.4	1133	98
18	Punjab	459	142	30.9	31	6.8	18	3.9	163	35.5	74	16.1	29	6.3	191	266
19	Rajasthan	910	326	35.8	114	12.5	168	18.5	218	24.0	32	3.5	43	4.7	608	293
20	Tamil Nadu	787	420	53.4	146	18.6	47	6.0	121	15.4	29	3.7	19	2.4	613	169
21	Telangana	302	129	42.7	54	17.9	22	7.3	85	28.1	7	2.3	4	1.3	205	96
22	Tripura	83	63	75.9	12	14.5	1	1.2	5	6.0	2	2.4	0	0.0	76	7
23	Uttar Pradesh	839	470	56.0	230	27.4	56	6.7	65	7.7	6	0.7	10	1.2	756	81
24	Uttarakhand	158	46	29.1	49	31.0	53	33.5	8	5.1	1	0.6	1	0.6	148	10
25	West Bengal	690	316	45.8	206	29.9	123	17.8	35	5.1	7	1.0	3	0.4	645	45
26	Andaman And Nicobar Islands	110	81	73.6	20	18.2	2	1.8	7	6.4	0	0.0	0	0.0	103	7
27	Chandigarh	8	8	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	8	0
28	The Dadra And Nagar Haveli And Daman And Diu	26	8	30.8	11	42.3	6	23.1	1	3.8	0	0.0	0	0.0	25	1
29	Delhi	69	39	56.5	6	8.7	4	5.8	17	24.6	1	1.4	2	2.9	49	20
30	Jammu and Kashmir	319	165	51.7	52	16.3	36	11.3	42	13.2	15	4.7	7	2.2	253	64
31	Puducherry	8	4	50.0	1	12.5	0	0.0	3	37.5	0	0.0	0	0.0	5	3
	Total	**15754**	**6192**	**39.3**	**3546**	**22.5**	**2555**	**16.2**	**2391**	**15.2**	**553**	**3.5**	**428**	**2.7**	**12293**	**3372**

N. B.: 89 monitoring wells (0.6 %) show no change in Water Level.

State-wise Seasonal Fluctuation & Frequency Distribution of Different Ranges from Pre-Monsoon 2023 to January 2024 in Unconfined Aquifer

Sr. No.	State/UT Name	No of wells analysed	No. of wells in different depth range												Total No. of wells	
			Rise						Fall							
			0 to 2	%	2 to 4	%	> 4	%	0 to 2	%	2 to 4	%	> 4	%	Rise	Fall
1	Andhra Pradesh	760	221	29.1	44	5.8	27	3.6	359	47.2	56	7.4	49	6.4	292	464
2	Arunachal Pradesh	26	15	57.7	3	11.5	0	0.0	8	30.8	0	0.0	0	0.0	18	8
3	Assam	280	166	59.3	22	7.9	3	1.1	72	25.7	9	3.2	3	1.1	191	84
4	Bihar	541	349	64.5	81	15.0	14	2.6	84	15.5	7	1.3	3	0.6	444	94
5	Chhattisgarh	989	424	42.9	274	27.7	128	12.9	115	11.6	25	2.5	10	1.0	826	150
6	Goa	78	52	66.7	9	11.5	1	1.3	12	15.4	2	2.6	1	1.3	62	15
7	Gujarat	616	214	34.7	108	17.5	168	27.3	87	14.1	25	4.1	13	2.1	490	125
8	Haryana	194	76	39.2	21	10.8	3	1.5	79	40.7	9	4.6	6	3.1	100	94
9	Himachal Pradesh	105	58	55.2	10	9.5	11	10.5	21	20.0	3	2.9	1	1.0	79	25
10	Jharkhand	338	155	45.9	116	34.3	23	6.8	35	10.4	4	1.2	5	1.5	294	44
11	Karnataka	1239	474	38.3	140	11.3	57	4.6	436	35.2	80	6.5	45	3.6	671	561
12	Kerala	1101	220	20.0	171	15.5	245	22.3	166	15.1	138	12.5	159	14.4	636	463
13	Madhya Pradesh	1132	449	39.7	257	22.7	212	18.7	140	12.4	34	3.0	21	1.9	918	195
14	Maharashtra	1672	712	42.6	331	19.8	209	12.5	296	17.7	57	3.4	49	2.9	1252	402
15	Meghalaya	55	41	74.5	2	3.6	0	0.0	12	21.8	0	0.0	0	0.0	43	12
16	Nagaland	8	4	50.0	0	0.0	1	12.5	1	12.5	0	0.0	2	25.0	5	3
17	Odisha	1227	682	55.6	286	23.3	47	3.8	193	15.7	16	1.3	1	0.1	1015	210
18	Punjab	160	76	47.5	14	8.8	7	4.4	48	30.0	11	6.9	4	2.5	97	63
19	Rajasthan	945	218	23.1	100	10.6	112	11.9	325	34.4	107	11.3	82	8.7	430	514
20	Tamil Nadu	717	346	48.3	178	24.8	88	12.3	63	8.8	21	2.9	17	2.4	612	101
21	Telangana	294	113	38.4	24	8.2	14	4.8	121	41.2	13	4.4	8	2.7	151	142
22	Tripura	83	62	74.7	8	9.6	1	1.2	10	12.0	2	2.4	0	0.0	71	12
23	Uttar Pradesh	838	526	62.8	147	17.5	29	3.5	111	13.2	10	1.2	11	1.3	702	132
24	Uttarakhand	157	55	35.0	39	24.8	46	29.3	7	4.5	6	3.8	4	2.5	140	17
25	West Bengal	692	350	50.6	157	22.7	79	11.4	92	13.3	8	1.2	5	0.7	586	105
26	Chandigarh	8	8	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	8	0
27	The Dadra And Nagar Haveli And Daman And Diu	21	10	47.6	7	33.3	2	9.5	1	4.8	0	0.0	0	0.0	19	1
28	Delhi	52	27	51.9	1	1.9	1	1.9	20	38.5	1	1.9	2	3.8	29	23
29	Jammu and Kashmir	272	166	61.0	29	10.7	18	6.6	46	16.9	4	1.5	6	2.2	213	56
30	Puducherry	9	7	77.8	2	22.2	0	0.0	0	0.0	0	0.0	0	0.0	9	0
	Total	**14609**	**6276**	**43.0**	**2581**	**17.7**	**1546**	**10.6**	**2960**	**20.3**	**648**	**4.4**	**507**	**3.5**	**10403**	**4115**

N. B.: 91 monitoring wells (0.6%) show no change in Water Level

State-wise Decadal Water Level Fluctuation with Mean [Pre-monsoon (2013 to 2022)] and Pre-monsoon 2023 in Unconfined Aquifer

Sr. No.	State/UT Name	No of wells analysed	No. of wells in different depth range												Total No. of wells	
			Rise						Fall							
			0 to 2	%	2 to 4	%	> 4	%	0 to 2	%	2 to 4	%	> 4	%	Rise	Fall
1	Andhra Pradesh	608	315	51.8	104	17.1	63	10.4	106	17.4	13	2.1	7	1.2	482	126
2	Arunachal Pradesh	20	6	30.0	0	0.0	0	0.0	12	60.0	2	10.0	0	0.0	6	14
3	Assam	237	131	55.3	14	5.9	2	0.8	82	34.6	5	2.1	3	1.3	147	90
4	Bihar	488	181	37.1	27	5.5	6	1.2	249	51.0	23	4.7	0	0.0	214	272
5	Chhattisgarh	671	214	31.9	77	11.5	28	4.2	256	38.2	74	11.0	18	2.7	319	348
6	Goa	80	14	17.5	0	0.0	0	0.0	63	78.8	2	2.5	1	1.3	14	66
7	Gujarat	612	232	37.9	96	15.7	70	11.4	142	23.2	43	7.0	23	3.8	398	208
8	Haryana	682	227	33.3	83	12.2	18	2.6	204	29.9	91	13.3	57	8.4	328	352
9	Himachal Pradesh	101	45	44.6	8	7.9	2	2.0	38	37.6	2	2.0	4	4.0	55	44
10	Jharkhand	176	58	33.0	4	2.3	6	3.4	89	50.6	16	9.1	2	1.1	68	107
11	Karnataka	1196	378	31.6	162	13.5	84	7.0	447	37.4	94	7.9	29	2.4	624	570
12	Kerala	1213	639	52.7	37	3.1	21	1.7	470	38.7	31	2.6	7	0.6	697	508
13	Madhya Pradesh	1122	482	43.0	152	13.5	98	8.7	267	23.8	77	6.9	45	4.0	732	389
14	Maharashtra	1389	549	39.5	299	21.5	178	12.8	275	19.8	69	5.0	17	1.2	1026	361
15	Meghalaya	46	33	71.7	1	2.2	0	0.0	11	23.9	1	2.2	0	0.0	34	12
16	Nagaland	6	1	16.7	1	16.7	1	16.7	2	33.3	1	16.7	0	0.0	3	3
17	Odisha	1022	463	45.3	48	4.7	7	0.7	450	44.0	44	4.3	6	0.6	518	500
18	Punjab	522	106	20.3	10	1.9	3	0.6	217	41.6	123	23.6	63	12.1	119	403
19	Rajasthan	797	249	31.2	122	15.3	77	9.7	182	22.8	74	9.3	93	11.7	448	349
20	Tamil Nadu	628	220	35.0	119	18.9	137	21.8	127	20.2	15	2.4	8	1.3	476	150
21	Telangana	277	102	36.8	81	29.2	49	17.7	37	13.4	1	0.4	5	1.8	232	43
22	Tripura	52	18	34.6	1	1.9	0	0.0	29	55.8	4	7.7	0	0.0	19	33
23	Uttar Pradesh	570	242	42.5	18	3.2	6	1.1	249	43.7	36	6.3	17	3.0	266	302
24	Uttarakhand	149	44	29.5	6	4.0	1	0.7	60	40.3	22	14.8	16	10.7	51	98
25	West Bengal	617	184	29.8	27	4.4	8	1.3	306	49.6	55	8.9	36	5.8	219	397
26	Andaman And Nicobar Islands	109	45	41.3	1	0.9	0	0.0	55	50.5	5	4.6	1	0.9	46	61
27	Chandigarh	8	5	62.5	0	0.0	0	0.0	2	25.0	0	0.0	1	12.5	5	3
28	The Dadra And Nagar Haveli And Daman And Diu	16	7	43.8	0	0.0	2	12.5	7	43.8	0	0.0	0	0.0	9	7
29	Delhi	74	27	36.5	6	8.1	16	21.6	15	20.3	6	8.1	4	5.4	49	25
30	Jammu and Kashmir	224	78	34.8	8	3.6	2	0.9	115	51.3	16	7.1	3	1.3	88	134
31	Puducherry	7	6	85.7	0	0.0	0	0.0	1	14.3	0	0.0	0	0.0	6	1
	Total	**13719**	**5301**	**38.6**	**1512**	**11.0**	**885**	**6.5**	**4565**	**33.3**	**945**	**6.9**	**466**	**3.4**	**7698**	**5976**

N. B.: 45 monitoring wells (0.3%) show no change in Water Level

State-wise Decadal Water Level Fluctuation with Mean [August (2013 to 2022)] and August 2023 in Unconfined Aquifer

Sr. No.	State/UT Name	No of wells analysed	No. of wells in different depth range												Total No. of wells	
			Rise						Fall							
			0 to 2	%	2 to 4	%	> 4	%	0 to 2	%	2 to 4	%	> 4	%	Rise	Fall
1	Andhra Pradesh	613	246	40.1	67	10.9	26	4.2	233	38.0	26	4.2	10	1.6	339	269
2	Arunachal Pradesh	20	14	70.0	0	0.0	0	0.0	6	30.0	0	0.0	0	0.0	14	6
3	Assam	238	166	69.7	3	1.3	1	0.4	61	25.6	4	1.7	2	0.8	170	67
4	Bihar	562	239	42.5	16	2.8	4	0.7	252	44.8	42	7.5	8	1.4	259	302
5	Chhattisgarh	668	197	29.5	21	3.1	4	0.6	344	51.5	70	10.5	30	4.5	222	444
6	Goa	81	10	12.3	0	0.0	0	0.0	63	77.8	4	4.9	4	4.9	10	71
7	Gujarat	597	198	33.2	74	12.4	72	12.1	185	31.0	51	8.5	15	2.5	344	251
8	Haryana	132	63	47.7	26	19.7	4	3.0	31	23.5	6	4.5	2	1.5	93	39
9	Himachal Pradesh	97	53	54.6	6	6.2	8	8.2	27	27.8	1	1.0	2	2.1	67	30
10	Jharkhand	225	104	46.2	20	8.9	4	1.8	58	25.8	30	13.3	8	3.6	128	96
11	Karnataka	1211	271	22.4	113	9.3	48	4.0	512	42.3	201	16.6	63	5.2	432	776
12	Kerala	1185	254	21.4	171	14.4	162	13.7	235	19.8	169	14.3	194	16.4	587	598
13	Madhya Pradesh	1189	438	36.8	84	7.1	44	3.7	433	36.4	102	8.6	85	7.1	566	620
14	Maharashtra	1547	640	41.4	159	10.3	74	4.8	528	34.1	100	6.5	43	2.8	873	671
15	Meghalaya	35	20	57.1	0	0.0	0	0.0	14	40.0	0	0.0	0	0.0	20	14
16	Nagaland	11	0	0.0	2	18.2	0	0.0	5	45.5	2	18.2	2	18.2	2	9
17	Odisha	1122	516	46.0	29	2.6	3	0.3	516	46.0	46	4.1	9	0.8	548	571
18	Punjab	153	43	28.1	8	5.2	2	1.3	59	38.6	22	14.4	18	11.8	53	99
19	Rajasthan	809	169	20.9	81	10.0	55	6.8	223	27.6	116	14.3	162	20.0	305	501
20	Tamil Nadu	724	283	39.1	176	24.3	109	15.1	118	16.3	23	3.2	13	1.8	568	154
21	Telangana	286	121	42.3	41	14.3	49	17.1	60	21.0	9	3.1	2	0.7	211	71
22	Tripura	45	17	37.8	1	2.2	0	0.0	25	55.6	1	2.2	1	2.2	18	27
23	Uttar Pradesh	605	254	42.0	39	6.4	7	1.2	223	36.9	52	8.6	29	4.8	300	304
24	Uttarakhand	154	72	46.8	27	17.5	16	10.4	28	18.2	5	3.2	6	3.9	115	39
25	West Bengal	652	274	42.0	8	1.2	2	0.3	304	46.6	41	6.3	17	2.6	284	362
26	Chandigarh	8	5	62.5	1	12.5	0	0.0	1	12.5	0	0.0	1	12.5	6	2
27	The Dadra And Nagar Haveli And Daman And Diu	25	7	28.0	1	4.0	0	0.0	15	60.0	2	8.0	0	0.0	8	17
28	Delhi	70	25	35.7	7	10.0	20	28.6	9	12.9	6	8.6	3	4.3	52	18
29	Jammu and Kashmir	234	111	47.4	3	1.3	1	0.4	105	44.9	12	5.1	1	0.4	115	118
30	Puducherry	7	5	71.4	0	0.0	0	0.0	2	28.6	0	0.0	0	0.0	5	2
	Total	**13305**	**4815**	**36.2**	**1184**	**8.9**	**715**	**5.4**	**4675**	**35.1**	**1143**	**8.6**	**730**	**5.5**	**6714**	**6548**

N. B.: 43 monitoring wells (0.3%) show no change in Water Level

State-wise Decadal Water Level Fluctuation with Mean [Post-monsoon (2013 to 2022)] and post-monsoon 2023 in Unconfined Aquifer

Sr. No.	State/UT Name	No of wells analysed	No. of wells in different depth range												Total No. of wells	
			Rise						Fall							
			0 to 2	%	2 to 4	%	> 4	%	0 to 2	%	2 to 4	%	> 4	%	Rise	Fall
1	Andhra Pradesh	623	83	13.3	15	2.4	18	2.9	373	59.9	105	16.9	29	4.7	116	507
2	Arunachal Pradesh	20	3	15.0	1	5.0	0	0.0	15	75.0	1	5.0	0	0.0	4	16
3	Assam	225	101	44.9	9	4.0	1	0.4	98	43.6	9	4.0	4	1.8	111	111
4	Bihar	631	227	36.0	30	4.8	1	0.2	324	51.3	33	5.2	14	2.2	258	371
5	Chhattisgarh	717	343	47.8	40	5.6	6	0.8	273	38.1	34	4.7	15	2.1	389	322
6	Goa	81	18	22.2	1	1.2	0	0.0	58	71.6	1	1.2	3	3.7	19	62
7	Gujarat	625	245	39.2	84	13.4	54	8.6	182	29.1	36	5.8	23	3.7	383	241
8	Haryana	623	177	28.4	53	8.5	29	4.7	235	37.7	70	11.2	55	8.8	259	360
9	Himachal Pradesh	99	54	54.5	2	2.0	4	4.0	37	37.4	1	1.0	1	1.0	60	39
10	Jharkhand	235	95	40.4	11	4.7	3	1.3	102	43.4	14	6.0	10	4.3	109	126
11	Karnataka	1212	201	16.6	54	4.5	19	1.6	677	55.9	203	16.7	57	4.7	274	937
12	Kerala	1333	283	21.2	222	16.7	239	17.9	230	17.3	173	13.0	186	14.0	744	589
13	Madhya Pradesh	1145	476	41.6	104	9.1	50	4.4	371	32.4	81	7.1	57	5.0	630	509
14	Maharashtra	1573	622	39.5	100	6.4	42	2.7	606	38.5	127	8.1	70	4.5	764	803
15	Meghalaya	43	19	44.2	0	0.0	0	0.0	23	53.5	0	0.0	0	0.0	19	23
16	Nagaland	10	4	40.0	1	10.0	0	0.0	4	40.0	1	10.0	0	0.0	5	5
17	Odisha	1132	572	50.5	35	3.1	8	0.7	438	38.7	58	5.1	13	1.1	615	509
18	Punjab	482	119	24.7	18	3.7	11	2.3	157	32.6	84	17.4	90	18.7	148	331
19	Rajasthan	808	206	25.5	101	12.5	64	7.9	212	26.2	94	11.6	129	16.0	371	435
20	Tamil Nadu	738	272	36.9	148	20.1	115	15.6	153	20.7	35	4.7	13	1.8	535	201
21	Telangana	283	93	32.9	37	13.1	23	8.1	100	35.3	21	7.4	9	3.2	153	130
22	Tripura	64	20	31.3	1	1.6	0	0.0	38	59.4	4	6.3	1	1.6	21	43
23	Uttar Pradesh	638	295	46.2	35	5.5	9	1.4	227	35.6	50	7.8	20	3.1	339	297
24	Uttarakhand	150	56	37.3	21	14.0	12	8.0	47	31.3	10	6.7	4	2.7	89	61
25	West Bengal	666	363	54.5	11	1.7	2	0.3	254	38.1	22	3.3	10	1.5	376	286
26	Andaman And Nicobar Islands	109	73	67.0	0	0.0	0	0.0	36	33.0	0	0.0	0	0.0	73	36
27	Chandigarh	8	5	62.5	1	12.5	0	0.0	1	12.5	0	0.0	1	12.5	6	2
28	The Dadra And Nagar Haveli And Daman And Diu	23	13	56.5	0	0.0	0	0.0	8	34.8	1	4.3	1	4.3	13	10
29	Delhi	74	27	36.5	15	20.3	15	20.3	5	6.8	5	6.8	7	9.5	57	17
30	Jammu and Kashmir	239	124	51.9	6	2.5	3	1.3	95	39.7	9	3.8	1	0.4	133	105
31	Puducherry	7	4	57.1	1	14.3	0	0.0	2	28.6	0	0.0	0	0.0	5	2
	Total	**14616**	**5193**	**35.5**	**1157**	**7.9**	**728**	**5.0**	**5381**	**36.8**	**1282**	**8.8**	**823**	**5.6**	**7078**	**7486**

N. B.: 52 monitoring wells (0.3%) show no change in Water Level

State-wise Decadal Water Level Fluctuation with Mean [January (2014 to 2023)] and January 2024 in Unconfined Aquifer

Sr. No.	State/UT Name	No of wells analysed	No. of wells in different depth range												Total No. of wells	
			Rise						Fall							
			0 to 2	%	2 to 4	%	> 4	%	0 to 2	%	2 to 4	%	> 4	%	Rise	Fall
1	Andhra Pradesh	618	151	24.4	27	4.4	10	1.6	349	56.5	56	9.1	23	3.7	188	428
2	Arunachal Pradesh	20	12	60.0	0	0.0	0	0.0	6	30.0	2	10.0	0	0.0	12	8
3	Assam	238	128	53.8	6	2.5	2	0.8	89	37.4	7	2.9	4	1.7	136	100
4	Bihar	534	151	28.3	15	2.8	1	0.2	331	62.0	29	5.4	5	0.9	167	365
5	Chhattisgarh	721	379	52.6	71	9.8	12	1.7	211	29.3	38	5.3	9	1.2	462	258
6	Goa	79	7	8.9	1	1.3	0	0.0	65	82.3	4	5.1	1	1.3	8	70
7	Gujarat	635	230	36.2	106	16.7	78	12.3	160	25.2	37	5.8	21	3.3	414	218
8	Haryana	180	78	43.3	15	8.3	2	1.1	62	34.4	18	10.0	4	2.2	95	84
9	Himachal Pradesh	102	45	44.1	6	5.9	3	2.9	39	38.2	4	3.9	5	4.9	54	48
10	Jharkhand	237	96	40.5	9	3.8	2	0.8	112	47.3	13	5.5	4	1.7	107	129
11	Karnataka	1232	290	23.5	54	4.4	22	1.8	662	53.7	145	11.8	57	4.6	366	864
12	Kerala	1235	250	20.2	198	16.0	234	18.9	197	16.0	150	12.1	205	16.6	682	552
13	Madhya Pradesh	1099	491	44.7	129	11.7	77	7.0	302	27.5	68	6.2	32	2.9	697	402
14	Maharashtra	1596	755	47.3	186	11.7	49	3.1	461	28.9	91	5.7	46	2.9	990	598
15	Meghalaya	43	32	74.4	1	2.3	0	0.0	9	20.9	0	0.0	0	0.0	33	9
16	Nagaland	11	0	0.0	0	0.0	1	9.1	6	54.5	3	27.3	1	9.1	1	10
17	Odisha	1131	514	45.4	29	2.6	2	0.2	523	46.2	45	4.0	12	1.1	545	580
18	Punjab	179	50	27.9	4	2.2	2	1.1	77	43.0	21	11.7	25	14.0	56	123
19	Rajasthan	857	175	20.4	71	8.3	57	6.7	260	30.3	134	15.6	158	18.4	303	552
20	Tamil Nadu	707	298	42.1	173	24.5	114	16.1	95	13.4	15	2.1	11	1.6	585	121
21	Telangana	277	92	33.2	23	8.3	10	3.6	121	43.7	20	7.2	11	4.0	125	152
22	Tripura	68	37	54.4	2	2.9	0	0.0	28	41.2	0	0.0	1	1.5	39	29
23	Uttar Pradesh	628	270	43.0	24	3.8	7	1.1	261	41.6	46	7.3	15	2.4	301	322
24	Uttarakhand	148	54	36.5	14	9.5	10	6.8	52	35.1	12	8.1	6	4.1	78	70
25	West Bengal	668	399	59.7	41	6.1	4	0.6	196	29.3	19	2.8	9	1.3	444	224
26	Chandigarh	8	5	62.5	1	12.5	0	0.0	1	12.5	1	12.5	0	0.0	6	2
27	The Dadra And Nagar Haveli And Daman And Diu	21	9	42.9	0	0.0	0	0.0	10	47.6	2	9.5	0	0.0	9	12
28	Delhi	57	16	28.1	14	24.6	10	17.5	9	15.8	3	5.3	5	8.8	40	17
29	Jammu and Kashmir	221	84	38.0	4	1.8	0	0.0	121	54.8	11	5.0	0	0.0	88	132
30	Puducherry	8	5	62.5	2	25.0	0	0.0	1	12.5	0	0.0	0	0.0	7	1
	Total	**13558**	**5103**	**37.6**	**1226**	**9.0**	**709**	**5.2**	**4816**	**35.5**	**994**	**7.3**	**670**	**4.9**	**7038**	**6480**

N. B.: 40 monitoring wells (0.3%) show no change in Water Level

State-wise Depth to Water Level Distribution of Percentage of Observation Wells Pre-Monsoon 2023 in Confined/Semi-Confined Aquifer

Sr. No.	State/UT Name	No of well analysed	No./Percentage of Wells Showing Depth to Water Level (mbgl) in the Range of											
			0 to 2		2 to 5		5 to 10		10 to 20		20 to 40		> 40	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	Andhra Pradesh	508	29	5.7	104	20.5	190	37.4	122	24.0	49	9.6	14	2.8
2	Arunachal Pradesh	2	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0	0	0.0
3	Assam	41	6	14.6	22	53.7	11	26.8	1	2.4	1	2.4	0	0.0
4	Bihar	67	0	0.0	12	17.9	38	56.7	17	25.4	0	0.0	0	0.0
5	Chhattisgarh	173	1	0.6	23	13.3	34	19.7	71	41.0	37	21.4	7	4.0
6	Goa	50	2	4.0	11	22.0	17	34.0	15	30.0	5	10.0	0	0.0
7	Gujarat	146	0	0.0	14	9.6	26	17.8	24	16.4	28	19.2	54	37.0
8	Haryana	208	4	1.9	17	8.2	26	12.5	39	18.8	73	35.1	49	23.6
9	Jharkhand	83	0	0.0	5	6.0	46	55.4	25	30.1	6	7.2	1	1.2
10	Karnataka	848	35	4.1	152	17.9	243	28.7	279	32.9	109	12.9	30	3.5
11	Kerala	43	4	9.3	11	25.6	13	30.2	14	32.6	1	2.3	0	0.0
12	Madhya Pradesh	248	4	1.6	9	3.6	44	17.7	101	40.7	58	23.4	32	12.9
13	Maharashtra	124	1	0.8	12	9.7	44	35.5	33	26.6	16	12.9	18	14.5
14	Meghalaya	10	0	0.0	3	30.0	2	20.0	1	10.0	3	30.0	1	10.0
15	Odisha	224	11	4.9	46	20.5	103	46.0	55	24.6	6	2.7	3	1.3
16	Punjab	139	7	5.0	8	5.8	15	10.8	27	19.4	65	46.8	17	12.2
17	Sikkim	4	0	0.0	1	25.0	1	25.0	1	25.0	1	25.0	0	0.0
18	Tamil Nadu	337	10	3.0	78	23.1	113	33.5	55	16.3	44	13.1	37	11.0
19	Telangana	851	44	5.2	228	26.8	305	35.8	205	24.1	52	6.1	17	2.0
20	Tripura	6	0	0.0	0	0.0	0	0.0	5	83.3	1	16.7	0	0.0
21	Uttar Pradesh	98	2	2.0	22	22.4	36	36.7	24	24.5	14	14.3	0	0.0
22	Uttarakhand	12	0	0.0	1	8.3	4	33.3	2	16.7	2	16.7	3	25.0
23	West Bengal	811	8	1.0	75	9.2	314	38.7	284	35.0	130	16.0	0	0.0
24	Andaman And Nicobar Islands	2	0	0.0	1	50.0	0	0.0	1	50.0	0	0.0	0	0.0
25	Chandigarh	10	0	0.0	1	10.0	0	0.0	2	20.0	4	40.0	3	30.0
26	Delhi	2	0	0.0	0	0.0	1	50.0	1	50.0	0	0.0	0	0.0
27	Puducherry	5	0	0.0	0	0.0	0	0.0	2	40.0	3	60.0	0	0.0
	Total	**5052**	**168**	**3.3**	**858**	**17.0**	**1626**	**32.2**	**1406**	**27.8**	**708**	**14.0**	**286**	**5.7**

State-wise Depth to Water Level Distribution of Percentage of Observation Wells August 2023 in Confined/Semi-Confined Aquifer

Sr. No.	State/UT Name	No of well analysed	No./Percentage of Wells Showing Depth to Water Level (mbgl) in the Range of											
			0 to 2		2 to 5		5 to 10		10 to 20		20 to 40		> 40	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	Andhra Pradesh	514	31	6.0	102	19.8	163	31.7	154	30.0	45	8.8	19	3.7
2	Arunachal Pradesh	2	2	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
3	Assam	40	14	35.0	18	45.0	7	17.5	0	0.0	1	2.5	0	0.0
4	Bihar	59	7	11.9	20	33.9	20	33.9	12	20.3	0	0.0	0	0.0
5	Chhattisgarh	133	13	9.8	37	27.8	37	27.8	37	27.8	8	6.0	1	0.8
6	Goa	45	10	22.2	15	33.3	8	17.8	10	22.2	2	4.4	0	0.0
7	Gujarat	214	13	6.1	32	15.0	22	10.3	24	11.2	30	14.0	93	43.5
8	Haryana	102	4	3.9	12	11.8	10	9.8	26	25.5	29	28.4	21	20.6
9	Jharkhand	89	10	11.2	35	39.3	28	31.5	13	14.6	3	3.4	0	0.0
10	Karnataka	862	41	4.8	172	20.0	263	30.5	256	29.7	100	11.6	30	3.5
11	Kerala	123	23	18.7	42	34.1	42	34.1	14	11.4	2	1.6	0	0.0
12	Madhya Pradesh	261	21	8.0	51	19.5	74	28.4	74	28.4	27	10.3	14	5.4
13	Maharashtra	148	11	7.4	37	25.0	40	27.0	31	20.9	16	10.8	13	8.8
14	Meghalaya	8	1	12.5	2	25.0	1	12.5	0	0.0	3	37.5	1	12.5
15	Odisha	225	61	27.1	73	32.4	50	22.2	30	13.3	10	4.4	1	0.4
16	Punjab	127	4	3.1	9	7.1	13	10.2	26	20.5	50	39.4	25	19.7
17	Tamil Nadu	310	12	3.9	53	17.1	98	31.6	58	18.7	46	14.8	43	13.9
18	Telangana	838	165	19.7	259	30.9	273	32.6	107	12.8	28	3.3	6	0.7
19	Tripura	8	0	0.0	2	25.0	2	25.0	2	25.0	2	25.0	0	0.0
20	Uttar Pradesh	103	16	15.5	37	35.9	21	20.4	16	15.5	13	12.6	0	0.0
21	Uttarakhand	4	0	0.0	1	25.0	0	0.0	0	0.0	0	0.0	3	75.0
22	West Bengal	917	27	2.9	170	18.5	297	32.4	342	37.3	81	8.8	0	0.0
23	Chandigarh	11	0	0.0	1	9.1	0	0.0	3	27.3	3	27.3	4	36.4
24	The Dadra And Nagar Haveli And Daman And Diu	1	0	0.0	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0
25	Delhi	1	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0
26	Puducherry	7	0	0.0	1	14.3	0	0.0	2	28.6	4	57.1	0	0.0
	Total	**5152**	**486**	**9.4**	**1181**	**22.9**	**1470**	**28.5**	**1237**	**24.0**	**504**	**9.8**	**274**	**5.3**

State-wise Depth to Water Level Distribution of Percentage of Observation Wells November 2023 in Confined/Semi-Confined Aquifer

Sr. No.	State/UT Name	No of well analysed	No./Percentage of Wells Showing Depth to Water Level (mbgl) in the Range of											
			0 to 2		2 to 5		5 to 10		10 to 20		20 to 40		> 40	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	Andhra Pradesh	507	19	3.7	110	21.7	175	34.5	143	28.2	38	7.5	22	4.3
2	Arunachal Pradesh	1	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0
3	Assam	40	10	25.0	20	50.0	9	22.5	0	0.0	1	2.5	0	0.0
4	Bihar	58	3	5.2	23	39.7	21	36.2	11	19.0	0	0.0	0	0.0
5	Chhattisgarh	132	2	1.5	35	26.5	37	28.0	46	34.8	8	6.1	4	3.0
6	Goa	46	8	17.4	16	34.8	9	19.6	10	21.7	3	6.5	0	0.0
7	Gujarat	223	10	4.5	21	9.4	27	12.1	23	10.3	37	16.6	105	47.1
8	Haryana	179	4	2.2	16	8.9	19	10.6	36	20.1	62	34.6	42	23.5
9	Jharkhand	77	3	3.9	24	31.2	28	36.4	16	20.8	6	7.8	0	0.0
10	Karnataka	821	45	5.5	151	18.4	237	28.9	249	30.3	118	14.4	21	2.6
11	Kerala	139	29	20.9	42	30.2	49	35.3	16	11.5	3	2.2	0	0.0
12	Madhya Pradesh	227	11	4.8	43	18.9	65	28.6	61	26.9	33	14.5	14	6.2
13	Maharashtra	147	7	4.8	34	23.1	47	32.0	33	22.4	12	8.2	14	9.5
14	Meghalaya	9	0	0.0	3	33.3	2	22.2	0	0.0	3	33.3	1	11.1
15	Odisha	229	27	11.8	92	40.2	68	29.7	36	15.7	6	2.6	0	0.0
16	Punjab	137	7	5.1	9	6.6	9	6.6	31	22.6	56	40.9	25	18.2
17	Sikkim	4	0	0.0	1	25.0	1	25.0	1	25.0	1	25.0	0	0.0
18	Tamil Nadu	299	28	9.4	70	23.4	79	26.4	49	16.4	38	12.7	35	11.7
19	Telangana	844	71	8.4	260	30.8	300	35.5	169	20.0	37	4.4	7	0.8
20	Tripura	10	3	30.0	2	20.0	2	20.0	2	20.0	1	10.0	0	0.0
21	Uttar Pradesh	114	12	10.5	40	35.1	31	27.2	20	17.5	11	9.6	0	0.0
22	Uttarakhand	11	0	0.0	4	36.4	2	18.2	2	18.2	0	0.0	3	27.3
23	West Bengal	920	11	1.2	230	25.0	270	29.3	333	36.2	76	8.3	0	0.0
24	Andaman And Nicobar Islands	2	0	0.0	1	50.0	1	50.0	0	0.0	0	0.0	0	0.0
25	Chandigarh	12	0	0.0	1	8.3	0	0.0	3	25.0	3	25.0	5	41.7
26	The Dadra And Nagar Haveli And Daman And Diu	1	0	0.0	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0
27	Delhi	1	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0
28	Puducherry	7	0	0.0	1	14.3	0	0.0	2	28.6	4	57.1	0	0.0
	Total	**5197**	**310**	**6.0**	**1250**	**24.1**	**1488**	**28.6**	**1293**	**24.9**	**558**	**10.7**	**298**	**5.7**

State-wise Depth to Water Level Distribution of Percentage of Observation Wells January 2024 in Confined/Semi-Confined Aquifer

Sr. No.	State/UT Name	No of well analysed	No./Percentage of Wells Showing Depth to Water Level (mbgl) in the Range of											
			0 to 2		2 to 5		5 to 10		10 to 20		20 to 40		> 40	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	Andhra Pradesh	527	21	4.0	112	21.3	168	31.9	147	27.9	54	10.2	25	4.7
2	Arunachal Pradesh	2	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0	0	0.0
3	Assam	50	9	18.0	28	56.0	12	24.0	1	2.0	0	0.0	0	0.0
4	Bihar	52	1	1.9	14	26.9	27	51.9	10	19.2	0	0.0	0	0.0
5	Chhattisgarh	141	0	0.0	16	11.3	50	35.5	50	35.5	22	15.6	3	2.1
6	Goa	43	6	14.0	10	23.3	15	34.9	9	20.9	3	7.0	0	0.0
7	Gujarat	212	4	1.9	29	13.7	33	15.6	42	19.8	24	11.3	80	37.7
8	Haryana	125	4	3.2	13	10.4	11	8.8	27	21.6	40	32.0	30	24.0
9	Jharkhand	84	1	1.2	18	21.4	41	48.8	16	19.0	7	8.3	1	1.2
10	Karnataka	762	19	2.5	96	12.6	192	25.2	259	34.0	142	18.6	54	7.1
11	Kerala	131	17	13.0	39	29.8	55	42.0	17	13.0	3	2.3	0	0.0
12	Madhya Pradesh	222	7	3.2	33	14.9	64	28.8	54	24.3	40	18.0	24	10.8
13	Maharashtra	180	5	2.8	30	16.7	55	30.6	51	28.3	20	11.1	19	10.6
14	Meghalaya	12	0	0.0	4	33.3	3	25.0	1	8.3	3	25.0	1	8.3
15	Nagaland	1	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0
16	Odisha	235	12	5.1	73	31.1	103	43.8	38	16.2	9	3.8	0	0.0
17	Punjab	143	6	4.2	10	7.0	18	12.6	32	22.4	56	39.2	21	14.7
18	Tamil Nadu	266	41	15.4	61	22.9	63	23.7	38	14.3	26	9.8	37	13.9
19	Telangana	843	47	5.6	217	25.7	314	37.2	217	25.7	35	4.2	13	1.5
20	Tripura	8	0	0.0	2	25.0	2	25.0	2	25.0	2	25.0	0	0.0
21	Uttar Pradesh	118	9	7.6	38	32.2	37	31.4	23	19.5	11	9.3	0	0.0
22	Uttarakhand	3	0	0.0	1	33.3	0	0.0	0	0.0	0	0.0	2	66.7
23	West Bengal	904	11	1.2	178	19.7	275	30.4	333	36.8	107	11.8	0	0.0
24	Chandigarh	12	0	0.0	1	8.3	0	0.0	3	25.0	4	33.3	4	33.3
25	The Dadra And Nagar Haveli And Daman And Diu	1	0	0.0	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0
26	Puducherry	5	0	0.0	0	0.0	0	0.0	3	60.0	2	40.0	0	0.0
	Total	**5082**	**220**	**4.3**	**1025**	**20.2**	**1539**	**30.3**	**1373**	**27.0**	**611**	**12.0**	**314**	**6.2**

State-wise Annual Fluctuation & Frequency Distribution of Different Ranges from Pre-Monsoon 2022 to Pre-Monsoon 2023 in Confined/Semi-Confined Aquifer

Sr. No.	State/UT Name	No of wells analysed	No. of wells in different depth range												Total No. of wells	
			Rise						Fall							
			0 to 2	%	2 to 4	%	> 4	%	0 to 2	%	2 to 4	%	> 4	%	Rise	Fall
1	Andhra Pradesh	163	43	26.4	13	8.0	18	11.0	62	38.0	12	7.4	15	9.2	74	89
2	Arunachal Pradesh	2	1	50.0	1	50.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0
3	Assam	21	9	42.9	0	0.0	0	0.0	10	47.6	2	9.5	0	0.0	9	12
4	Bihar	4	0	0.0	1	25.0	0	0.0	2	50.0	0	0.0	1	25.0	1	3
5	Chhattisgarh	66	20	30.3	2	3.0	6	9.1	17	25.8	3	4.5	17	25.8	28	37
6	Goa	32	4	12.5	0	0.0	0	0.0	26	81.3	0	0.0	2	6.3	4	28
7	Gujarat	85	31	36.5	5	5.9	12	14.1	17	20.0	5	5.9	14	16.5	48	36
8	Haryana	140	46	32.9	9	6.4	3	2.1	61	43.6	5	3.6	15	10.7	58	81
9	Jharkhand	1	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0	1	0
10	Karnataka	194	33	17.0	12	6.2	37	19.1	53	27.3	26	13.4	33	17.0	82	112
11	Kerala	32	4	12.5	3	9.4	1	3.1	21	65.6	2	6.3	1	3.1	8	24
12	Madhya Pradesh	98	23	23.5	14	14.3	26	26.5	11	11.2	7	7.1	17	17.3	63	35
13	Maharashtra	61	18	29.5	7	11.5	6	9.8	13	21.3	4	6.6	12	19.7	31	29
14	Meghalaya	8	6	75.0	1	12.5	0	0.0	1	12.5	0	0.0	0	0.0	7	1
15	Odisha	83	26	31.3	7	8.4	4	4.8	34	41.0	6	7.2	5	6.0	37	45
16	Punjab	97	35	36.1	5	5.2	6	6.2	39	40.2	9	9.3	2	2.1	46	50
17	Tamil Nadu	215	54	25.1	10	4.7	13	6.0	81	37.7	23	10.7	33	15.3	77	137
18	Telangana	471	212	45.0	66	14.0	39	8.3	107	22.7	20	4.2	27	5.7	317	154
19	Tripura	6	3	50.0	0	0.0	0	0.0	1	16.7	0	0.0	2	33.3	3	3
20	Uttar Pradesh	16	9	56.3	0	0.0	0	0.0	7	43.8	0	0.0	0	0.0	9	7
21	Uttarakhand	4	3	75.0	0	0.0	0	0.0	0	0.0	1	25.0	0	0.0	3	1
22	West Bengal	513	77	15.0	25	4.9	34	6.6	234	45.6	68	13.3	72	14.0	136	374
23	Andaman And Nicobar Islands	2	1	50.0	0	0.0	0	0.0	0	0.0	1	50.0	0	0.0	1	1
24	Chandigarh	5	3	60.0	0	0.0	0	0.0	2	40.0	0	0.0	0	0.0	3	2
25	Delhi	2	1	50.0	0	0.0	0	0.0	1	50.0	0	0.0	0	0.0	1	1
26	Puducherry	5	0	0.0	0	0.0	2	40.0	2	40.0	1	20.0	0	0.0	2	3
	Total	**2326**	**662**	**28.5**	**181**	**7.8**	**208**	**8.9**	**802**	**34.5**	**195**	**8.4**	**268**	**11.5**	**1051**	**1265**

State-wise Annual Fluctuation & Frequency Distribution of Different Ranges from August 2022 to August 2023 in Confined/Semi-Confined Aquifer

Sr. No.	State/UT Name	No of wells analysed	No. of wells in different depth range												Total No. of wells	
			Rise						Fall							
			0 to 2	%	2 to 4	%	> 4	%	0 to 2	%	2 to 4	%	> 4	%	Rise	Fall
1	Andhra Pradesh	175	24	13.7	16	9.1	13	7.4	59	33.7	30	17.1	33	18.9	53	122
2	Arunachal Pradesh	2	1	50.0	1	50.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0
3	Assam	23	9	39.1	1	4.3	0	0.0	11	47.8	2	8.7	0	0.0	10	13
4	Bihar	26	9	34.6	3	11.5	1	3.8	10	38.5	2	7.7	1	3.8	13	13
5	Chhattisgarh	73	16	21.9	7	9.6	3	4.1	29	39.7	10	13.7	8	11.0	26	47
6	Goa	21	4	19.0	0	0.0	0	0.0	12	57.1	4	19.0	1	4.8	4	17
7	Gujarat	73	15	20.5	7	9.6	12	16.4	21	28.8	5	6.8	13	17.8	34	39
8	Haryana	61	18	29.5	12	19.7	3	4.9	15	24.6	5	8.2	8	13.1	33	28
9	Jharkhand	66	25	37.9	9	13.6	9	13.6	16	24.2	5	7.6	2	3.0	43	23
10	Karnataka	351	33	9.4	8	2.3	15	4.3	97	27.6	66	18.8	132	37.6	56	295
11	Kerala	73	7	9.6	7	9.6	27	37.0	12	16.4	5	6.8	15	20.5	41	32
12	Madhya Pradesh	122	19	15.6	6	4.9	12	9.8	33	27.0	21	17.2	31	25.4	37	85
13	Maharashtra	64	9	14.1	1	1.6	1	1.6	25	39.1	11	17.2	17	26.6	11	53
14	Meghalaya	7	1	14.3	0	0.0	0	0.0	4	57.1	0	0.0	2	28.6	1	6
15	Odisha	92	33	35.9	5	5.4	2	2.2	39	42.4	6	6.5	7	7.6	40	52
16	Punjab	83	30	36.1	8	9.6	4	4.8	31	37.3	5	6.0	5	6.0	42	41
17	Tamil Nadu	198	56	28.3	13	6.6	11	5.6	57	28.8	26	13.1	35	17.7	80	118
18	Telangana	614	116	18.9	23	3.7	30	4.9	291	47.4	87	14.2	63	10.3	169	441
19	Tripura	8	4	50.0	0	0.0	0	0.0	3	37.5	1	12.5	0	0.0	4	4
20	Uttar Pradesh	13	7	53.8	2	15.4	0	0.0	2	15.4	1	7.7	1	7.7	9	4
21	Uttarakhand	4	0	0.0	1	25.0	3	75.0	0	0.0	0	0.0	0	0.0	4	0
22	West Bengal	662	155	23.4	37	5.6	44	6.6	270	40.8	95	14.4	61	9.2	236	426
23	Chandigarh	9	2	22.2	0	0.0	1	11.1	4	44.4	0	0.0	2	22.2	3	6
24	Delhi	1	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0
25	Puducherry	5	0	0.0	1	20.0	1	20.0	1	20.0	1	20.0	1	20.0	2	3
	Total	**2826**	**594**	**21.0**	**168**	**5.9**	**192**	**6.8**	**1042**	**36.9**	**388**	**13.7**	**438**	**15.5**	**954**	**1868**

State-wise Annual Fluctuation & Frequency Distribution of Different Ranges from November 2022 to November 2023 in Confined/Semi-Confined Aquifer

Sr. No.	State/UT Name	No of wells analysed	No. of wells in different depth range												Total No. of wells	
			Rise						Fall							
			0 to 2	%	2 to 4	%	> 4	%	0 to 2	%	2 to 4	%	> 4	%	Rise	Fall
1	Andhra Pradesh	272	18	6.6	8	2.9	17	6.3	68	25.0	72	26.5	89	32.7	43	229
2	Arunachal Pradesh	1	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0	0	1
3	Assam	32	12	37.5	0	0.0	1	3.1	17	53.1	2	6.3	0	0.0	13	19
4	Bihar	45	15	33.3	3	6.7	1	2.2	19	42.2	3	6.7	3	6.7	19	25
5	Chhattisgarh	80	19	23.8	4	5.0	2	2.5	35	43.8	16	20.0	4	5.0	25	55
6	Goa	39	28	71.8	3	7.7	1	2.6	7	17.9	0	0.0	0	0.0	32	7
7	Gujarat	109	42	38.5	8	7.3	12	11.0	22	20.2	8	7.3	17	15.6	62	47
8	Haryana	131	48	36.6	12	9.2	11	8.4	42	32.1	9	6.9	8	6.1	71	59
9	Jharkhand	57	18	31.6	6	10.5	3	5.3	19	33.3	5	8.8	6	10.5	27	30
10	Karnataka	472	43	9.1	3	0.6	13	2.8	118	25.0	88	18.6	207	43.9	59	413
11	Kerala	117	18	15.4	12	10.3	42	35.9	12	10.3	14	12.0	18	15.4	72	44
12	Madhya Pradesh	165	21	12.7	8	4.8	17	10.3	46	27.9	27	16.4	46	27.9	46	119
13	Maharashtra	69	15	21.7	2	2.9	2	2.9	21	30.4	9	13.0	19	27.5	19	49
14	Meghalaya	8	2	25.0	1	12.5	0	0.0	3	37.5	1	12.5	1	12.5	3	5
15	Odisha	189	71	37.6	11	5.8	13	6.9	63	33.3	19	10.1	12	6.3	95	94
16	Punjab	101	40	39.6	5	5.0	6	5.9	36	35.6	10	9.9	4	4.0	51	50
17	Tamil Nadu	269	77	28.6	12	4.5	4	1.5	73	27.1	40	14.9	62	23.0	93	175
18	Telangana	640	37	5.8	16	2.5	12	1.9	267	41.7	163	25.5	144	22.5	65	574
19	Tripura	8	1	12.5	0	0.0	1	12.5	5	62.5	1	12.5	0	0.0	2	6
20	Uttar Pradesh	63	14	22.2	1	1.6	0	0.0	42	66.7	4	6.3	2	3.2	15	48
21	Uttarakhand	11	3	27.3	2	18.2	0	0.0	2	18.2	2	18.2	2	18.2	5	6
22	West Bengal	695	210	30.2	41	5.9	29	4.2	259	37.3	90	12.9	64	9.2	280	413
23	Andaman And Nicobar Islands	2	0	0.0	0	0.0	1	50.0	0	0.0	1	50.0	0	0.0	1	1
24	Chandigarh	11	5	45.5	0	0.0	0	0.0	4	36.4	1	9.1	1	9.1	5	6
25	Delhi	1	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0
26	Puducherry	7	2	28.6	0	0.0	0	0.0	4	57.1	1	14.3	0	0.0	2	5
	Total	**3594**	**760**	**21.1**	**158**	**4.4**	**188**	**5.2**	**1185**	**33.0**	**586**	**16.3**	**709**	**19.7**	**1106**	**2480**

State-wise Annual Fluctuation & Frequency Distribution of Different Ranges from January 2024 to January 2023 in Confined/Semi-Confined Aquifer

Sr. No.	State/UT Name	No of wells analysed	No. of wells in different depth range												Total No. of wells	
			Rise						Fall							
			0 to 2	%	2 to 4	%	> 4	%	0 to 2	%	2 to 4	%	> 4	%	Rise	Fall
1	Andhra Pradesh	380	27	7.1	11	2.9	17	4.5	106	27.9	83	21.8	136	35.8	55	325
2	Arunachal Pradesh	2	1	50.0	0	0.0	0	0.0	0	0.0	1	50.0	0	0.0	1	1
3	Assam	35	17	48.6	1	2.9	0	0.0	17	48.6	0	0.0	0	0.0	18	17
4	Bihar	34	12	35.3	2	5.9	2	5.9	14	41.2	0	0.0	3	8.8	16	17
5	Chhattisgarh	91	28	30.8	7	7.7	13	14.3	21	23.1	9	9.9	12	13.2	48	42
6	Goa	38	27	71.1	4	10.5	0	0.0	6	15.8	1	2.6	0	0.0	31	7
7	Gujarat	87	32	36.8	2	2.3	16	18.4	20	23.0	4	4.6	13	14.9	50	37
8	Haryana	82	28	34.1	6	7.3	4	4.9	31	37.8	7	8.5	6	7.3	38	44
9	Jharkhand	67	26	38.8	7	10.4	6	9.0	20	29.9	6	9.0	2	3.0	39	28
10	Karnataka	680	77	11.3	16	2.4	20	2.9	192	28.2	116	17.1	258	37.9	113	566
11	Kerala	105	12	11.4	9	8.6	42	40.0	9	8.6	17	16.2	16	15.2	63	42
12	Madhya Pradesh	153	39	25.5	18	11.8	30	19.6	29	19.0	9	5.9	25	16.3	87	63
13	Maharashtra	69	22	31.9	4	5.8	2	2.9	15	21.7	8	11.6	17	24.6	28	40
14	Meghalaya	11	6	54.5	2	18.2	1	9.1	2	18.2	0	0.0	0	0.0	9	2
15	Odisha	176	75	42.6	12	6.8	9	5.1	59	33.5	11	6.3	10	5.7	96	80
16	Punjab	103	43	41.7	7	6.8	2	1.9	44	42.7	3	2.9	4	3.9	52	51
17	Tamil Nadu	252	83	32.9	29	11.5	22	8.7	57	22.6	27	10.7	34	13.5	134	118
18	Telangana	720	59	8.2	15	2.1	22	3.1	339	47.1	133	18.5	150	20.8	96	622
19	Tripura	7	2	28.6	0	0.0	0	0.0	5	71.4	0	0.0	0	0.0	2	5
20	Uttar Pradesh	80	23	28.8	3	3.8	2	2.5	43	53.8	6	7.5	3	3.8	28	52
21	Uttarakhand	3	2	66.7	0	0.0	0	0.0	1	33.3	0	0.0	0	0.0	2	1
22	West Bengal	701	293	41.8	55	7.8	36	5.1	207	29.5	60	8.6	47	6.7	384	314
23	Chandigarh	11	3	27.3	0	0.0	0	0.0	6	54.5	0	0.0	2	18.2	3	8
24	Puducherry	5	5	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5	0
	Total	**3892**	**942**	**24.2**	**210**	**5.4**	**246**	**6.3**	**1243**	**31.9**	**501**	**12.9**	**738**	**19.0**	**1398**	**2482**

State-wise Seasonal Fluctuation & Frequency Distribution of Different Ranges from Pre-Monsoon 2023 to August 2023 in Confined/Semi-Confined Aquifer

Sr. No.	State/UT Name	No of wells analysed	No. of wells in different depth range												Total No. of wells	
			Rise						Fall							
			0 to 2	%	2 to 4	%	> 4	%	0 to 2	%	2 to 4	%	> 4	%	Rise	Fall
1	Andhra Pradesh	474	92	19.4	39	8.2	39	8.2	177	37.3	60	12.7	63	13.3	170	300
2	Arunachal Pradesh	2	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0
3	Assam	31	19	61.3	5	16.1	2	6.5	4	12.9	1	3.2	0	0.0	26	5
4	Bihar	49	14	28.6	14	28.6	9	18.4	10	20.4	1	2.0	1	2.0	37	12
5	Chhattisgarh	125	27	21.6	29	23.2	60	48.0	7	5.6	2	1.6	0	0.0	116	9
6	Goa	45	23	51.1	14	31.1	6	13.3	2	4.4	0	0.0	0	0.0	43	2
7	Gujarat	95	28	29.5	19	20.0	23	24.2	13	13.7	3	3.2	9	9.5	70	25
8	Haryana	73	26	35.6	2	2.7	0	0.0	28	38.4	7	9.6	10	13.7	28	45
9	Jharkhand	74	12	16.2	28	37.8	28	37.8	3	4.1	2	2.7	1	1.4	68	6
10	Karnataka	823	287	34.9	74	9.0	105	12.8	229	27.8	60	7.3	61	7.4	466	350
11	Kerala	35	5	14.3	4	11.4	13	37.1	1	2.9	5	14.3	7	20.0	22	13
12	Madhya Pradesh	226	25	11.1	30	13.3	141	62.4	6	2.7	3	1.3	20	8.8	196	29
13	Maharashtra	120	20	16.7	23	19.2	56	46.7	9	7.5	3	2.5	5	4.2	99	17
14	Meghalaya	7	4	57.1	1	14.3	0	0.0	2	28.6	0	0.0	0	0.0	5	2
15	Odisha	197	54	27.4	54	27.4	66	33.5	10	5.1	5	2.5	8	4.1	174	23
16	Punjab	101	13	12.9	2	2.0	0	0.0	44	43.6	25	24.8	17	16.8	15	86
17	Tamil Nadu	280	69	24.6	14	5.0	11	3.9	122	43.6	32	11.4	32	11.4	94	186
18	Telangana	808	261	32.3	182	22.5	229	28.3	86	10.6	24	3.0	26	3.2	672	136
19	Tripura	6	3	50.0	0	0.0	2	33.3	1	16.7	0	0.0	0	0.0	5	1
20	Uttar Pradesh	84	43	51.2	18	21.4	11	13.1	5	6.0	3	3.6	4	4.8	72	12
21	Uttarakhand	4	0	0.0	0	0.0	4	100.0	0	0.0	0	0.0	0	0.0	4	0
22	West Bengal	748	231	30.9	128	17.1	172	23.0	120	16.0	50	6.7	46	6.1	531	216
23	Chandigarh	8	4	50.0	0	0.0	0	0.0	3	37.5	0	0.0	1	12.5	4	4
24	Delhi	1	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0
25	Puducherry	5	1	20.0	0	0.0	2	40.0	0	0.0	0	0.0	2	40.0	3	2
	Total	**4421**	**1262**	**28.5**	**682**	**15.4**	**979**	**22.1**	**882**	**20.0**	**286**	**6.5**	**313**	**7.1**	**2923**	**1481**

State-wise Seasonal Fluctuation & Frequency Distribution of Different Ranges from Pre-Monsoon 2023 to November 2023 in Confined/Semi-Confined Aquifer

Sr. No.	State/UT Name	No of wells analysed	No. of wells in different depth range												Total No. of wells	
			Rise						Fall							
			0 to 2	%	2 to 4	%	> 4	%	0 to 2	%	2 to 4	%	> 4	%	Rise	Fall
1	Andhra Pradesh	467	85	18.2	34	7.3	59	12.6	140	30.0	70	15.0	79	16.9	178	289
2	Arunachal Pradesh	1	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0
3	Assam	32	26	81.3	4	12.5	0	0.0	2	6.3	0	0.0	0	0.0	30	2
4	Bihar	53	20	37.7	22	41.5	6	11.3	3	5.7	0	0.0	2	3.8	48	5
5	Chhattisgarh	126	29	23.0	33	26.2	53	42.1	4	3.2	0	0.0	4	3.2	115	8
6	Goa	44	24	54.5	14	31.8	3	6.8	2	4.5	0	0.0	1	2.3	41	3
7	Gujarat	104	40	38.5	12	11.5	31	29.8	11	10.6	4	3.8	6	5.8	83	21
8	Haryana	133	52	39.1	14	10.5	8	6.0	41	30.8	10	7.5	8	6.0	74	59
9	Jharkhand	67	18	26.9	22	32.8	21	31.3	0	0.0	1	1.5	5	7.5	61	6
10	Karnataka	759	258	34.0	64	8.4	91	12.0	172	22.7	78	10.3	92	12.1	413	342
11	Kerala	40	7	17.5	2	5.0	16	40.0	3	7.5	5	12.5	7	17.5	25	15
12	Madhya Pradesh	205	22	10.7	24	11.7	123	60.0	7	3.4	5	2.4	24	11.7	169	36
13	Maharashtra	117	19	16.2	27	23.1	49	41.9	8	6.8	3	2.6	9	7.7	95	20
14	Meghalaya	7	4	57.1	0	0.0	2	28.6	1	14.3	0	0.0	0	0.0	6	1
15	Odisha	199	70	35.2	60	30.2	40	20.1	14	7.0	4	2.0	11	5.5	170	29
16	Punjab	109	32	29.4	3	2.8	5	4.6	40	36.7	22	20.2	7	6.4	40	69
17	Sikkim	4	3	75.0	0	0.0	0	0.0	1	25.0	0	0.0	0	0.0	3	1
18	Tamil Nadu	275	101	36.7	32	11.6	25	9.1	74	26.9	18	6.5	25	9.1	158	117
19	Telangana	813	264	32.5	130	16.0	169	20.8	155	19.1	53	6.5	39	4.8	563	247
20	Tripura	6	3	50.0	0	0.0	3	50.0	0	0.0	0	0.0	0	0.0	6	0
21	Uttar Pradesh	93	51	54.8	19	20.4	8	8.6	8	8.6	3	3.2	4	4.3	78	15
22	Uttarakhand	11	2	18.2	1	9.1	6	54.5	2	18.2	0	0.0	0	0.0	9	2
23	West Bengal	733	276	37.7	137	18.7	154	21.0	99	13.5	26	3.5	40	5.5	567	165
24	Andaman And Nicobar Islands	2	0	0.0	0	0.0	1	50.0	1	50.0	0	0.0	0	0.0	1	1
25	Chandigarh	10	5	50.0	0	0.0	0	0.0	5	50.0	0	0.0	0	0.0	5	5
26	Delhi	1	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0
27	Puducherry	5	5	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5	0
	Total	**4416**	**1418**	**32.1**	**654**	**14.8**	**873**	**19.8**	**793**	**18.0**	**302**	**6.8**	**363**	**8.2**	**2945**	**1458**

State-wise Seasonal Fluctuation & Frequency Distribution of Different Ranges from Pre-Monsoon 2023 to January 2024 in Confined/Semi-Confined Aquifer

Sr. No.	State/UT Name	No of wells analysed	No. of wells in different depth range												Total No. of wells	
			Rise						Fall							
			0 to 2	%	2 to 4	%	> 4	%	0 to 2	%	2 to 4	%	> 4	%	Rise	Fall
1	Andhra Pradesh	470	101	21.5	40	8.5	49	10.4	137	29.1	62	13.2	79	16.8	190	278
2	Arunachal Pradesh	2	2	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0
3	Assam	32	22	68.8	0	0.0	0	0.0	8	25.0	2	6.3	0	0.0	22	10
4	Bihar	44	23	52.3	9	20.5	3	6.8	6	13.6	2	4.5	1	2.3	35	9
5	Chhattisgarh	132	44	33.3	20	15.2	39	29.5	12	9.1	6	4.5	10	7.6	103	28
6	Goa	43	34	79.1	7	16.3	1	2.3	1	2.3	0	0.0	0	0.0	42	1
7	Gujarat	92	38	41.3	12	13.0	25	27.2	10	10.9	2	2.2	4	4.3	75	16
8	Haryana	84	32	38.1	11	13.1	6	7.1	23	27.4	5	6.0	6	7.1	49	34
9	Jharkhand	69	29	42.0	22	31.9	7	10.1	7	10.1	1	1.4	3	4.3	58	11
10	Karnataka	695	142	20.4	29	4.2	38	5.5	204	29.4	109	15.7	172	24.7	209	485
11	Kerala	38	3	7.9	2	5.3	15	39.5	3	7.9	3	7.9	12	31.6	20	18
12	Madhya Pradesh	196	30	15.3	31	15.8	84	42.9	13	6.6	6	3.1	32	16.3	145	51
13	Maharashtra	120	26	21.7	21	17.5	38	31.7	13	10.8	6	5.0	15	12.5	85	34
14	Meghalaya	9	5	55.6	0	0.0	1	11.1	3	33.3	0	0.0	0	0.0	6	3
15	Odisha	196	89	45.4	33	16.8	20	10.2	34	17.3	6	3.1	14	7.1	142	54
16	Punjab	110	43	39.1	9	8.2	5	4.5	40	36.4	6	5.5	6	5.5	57	52
17	Tamil Nadu	247	86	34.8	60	24.3	42	17.0	34	13.8	15	6.1	10	4.0	188	59
18	Telangana	814	235	28.9	88	10.8	117	14.4	237	29.1	67	8.2	69	8.5	440	373
19	Tripura	6	2	33.3	0	0.0	2	33.3	2	33.3	0	0.0	0	0.0	4	2
20	Uttar Pradesh	93	56	60.2	14	15.1	5	5.4	10	10.8	3	3.2	5	5.4	75	18
21	Uttarakhand	3	0	0.0	2	66.7	1	33.3	0	0.0	0	0.0	0	0.0	3	0
22	West Bengal	717	291	40.6	104	14.5	121	16.9	99	13.8	41	5.7	58	8.1	516	198
23	Chandigarh	8	6	75.0	0	0.0	0	0.0	2	25.0	0	0.0	0	0.0	6	2
24	Puducherry	5	2	40.0	3	60.0	0	0.0	0	0.0	0	0.0	0	0.0	5	0
	Total	**4225**	**1341**	**31.7**	**517**	**12.2**	**619**	**14.7**	**898**	**21.3**	**342**	**8.1**	**496**	**11.7**	**2477**	**1736**

State-wise Decadal Water Level Fluctuation with Mean [Pre-monsoon (2013 to 2022)] and Pre-monsoon 2023 in Confined/Semi-Confined Aquifer

Sr. No.	State/UT Name	No of wells analysed	No. of wells in different depth range												Total No. of wells	
			Rise						Fall							
			0 to 2	%	2 to 4	%	> 4	%	0 to 2	%	2 to 4	%	> 4	%	Rise	Fall
1	Andhra Pradesh	42	12	28.6	7	16.7	14	33.3	6	14.3	0	0.0	3	7.1	33	9
2	Assam	10	6	60.0	0	0.0	0	0.0	4	40.0	0	0.0	0	0.0	6	4
3	Bihar	7	1	14.3	0	0.0	0	0.0	4	57.1	2	28.6	0	0.0	1	6
4	Chhattisgarh	63	15	23.8	10	15.9	8	12.7	12	19.0	5	7.9	13	20.6	33	30
5	Goa	42	10	23.8	1	2.4	0	0.0	29	69.0	1	2.4	1	2.4	11	31
6	Gujarat	77	16	20.8	13	16.9	13	16.9	12	15.6	4	5.2	19	24.7	42	35
7	Haryana	98	21	21.4	7	7.1	1	1.0	31	31.6	11	11.2	27	27.6	29	69
8	Karnataka	179	30	16.8	16	8.9	84	46.9	36	20.1	5	2.8	8	4.5	130	49
9	Kerala	33	13	39.4	3	9.1	4	12.1	11	33.3	2	6.1	0	0.0	20	13
10	Madhya Pradesh	113	19	16.8	12	10.6	45	39.8	12	10.6	4	3.5	21	18.6	76	37
11	Maharashtra	29	6	20.7	3	10.3	14	48.3	1	3.4	0	0.0	5	17.2	23	6
12	Meghalaya	4	1	25.0	0	0.0	0	0.0	3	75.0	0	0.0	0	0.0	1	3
13	Odisha	35	18	51.4	1	2.9	0	0.0	11	31.4	3	8.6	2	5.7	19	16
14	Punjab	55	3	5.5	0	0.0	1	1.8	13	23.6	21	38.2	17	30.9	4	51
15	Tamil Nadu	124	24	19.4	17	13.7	46	37.1	23	18.5	1	0.8	13	10.5	87	37
16	Telangana	300	46	15.3	66	22.0	154	51.3	17	5.7	7	2.3	10	3.3	266	34
17	Tripura	5	2	40.0	0	0.0	0	0.0	1	20.0	0	0.0	2	40.0	2	3
18	Uttar Pradesh	4	1	25.0	0	0.0	0	0.0	2	50.0	0	0.0	1	25.0	1	3
19	Uttarakhand	4	2	50.0	0	0.0	0	0.0	0	0.0	1	25.0	1	25.0	2	2
20	West Bengal	442	71	16.1	25	5.7	14	3.2	178	40.3	80	18.1	74	16.7	110	332
21	Andaman And Nicobar Islands	2	0	0.0	0	0.0	1	50.0	1	50.0	0	0.0	0	0.0	1	1
22	Chandigarh	7	0	0.0	1	14.3	1	14.3	2	28.6	0	0.0	3	42.9	2	5
23	Delhi	1	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0
24	Puducherry	5	2	40.0	0	0.0	0	0.0	3	60.0	0	0.0	0	0.0	2	3
	Total	**1681**	**319**	**19.0**	**183**	**10.9**	**400**	**23.8**	**412**	**24.5**	**147**	**8.7**	**220**	**13.1**	**902**	**779**

State-wise Decadal Water Level Fluctuation with Mean [August (2013 to 2022)] and August 2023 in Confined/Semi-Confined Aquifer

Sr. No.	State/UT Name	No of wells analysed	No. of wells in different depth range												Total No. of wells	
			Rise						Fall							
			0 to 2	%	2 to 4	%	> 4	%	0 to 2	%	2 to 4	%	> 4	%	Rise	Fall
1	Andhra Pradesh	51	16	31.4	7	13.7	17	33.3	6	11.8	1	2.0	4	7.8	40	11
2	Assam	7	0	0.0	0	0.0	0	0.0	7	100.0	0	0.0	0	0.0	0	7
3	Bihar	6	1	16.7	0	0.0	0	0.0	2	33.3	3	50.0	0	0.0	1	5
4	Chhattisgarh	59	10	16.9	4	6.8	0	0.0	24	40.7	14	23.7	7	11.9	14	45
5	Goa	39	2	5.1	0	0.0	0	0.0	27	69.2	8	20.5	2	5.1	2	37
6	Gujarat	71	15	21.1	8	11.3	13	18.3	7	9.9	8	11.3	20	28.2	36	35
7	Haryana	36	16	44.4	3	8.3	1	2.8	8	22.2	5	13.9	3	8.3	20	16
8	Karnataka	180	31	17.2	11	6.1	68	37.8	39	21.7	23	12.8	8	4.4	110	70
9	Kerala	65	8	12.3	9	13.8	28	43.1	7	10.8	4	6.2	9	13.8	45	20
10	Madhya Pradesh	128	28	21.9	20	15.6	22	17.2	28	21.9	10	7.8	20	15.6	70	58
11	Maharashtra	39	4	10.3	4	10.3	11	28.2	12	30.8	2	5.1	6	15.4	19	20
12	Meghalaya	3	0	0.0	0	0.0	0	0.0	3	100.0	0	0.0	0	0.0	0	3
13	Odisha	41	22	53.7	4	9.8	0	0.0	13	31.7	2	4.9	0	0.0	26	15
14	Punjab	44	4	9.1	1	2.3	1	2.3	9	20.5	18	40.9	11	25.0	6	38
15	Tamil Nadu	193	48	24.9	47	24.4	59	30.6	13	6.7	8	4.1	18	9.3	154	39
16	Telangana	317	64	20.2	54	17.0	154	48.6	30	9.5	5	1.6	10	3.2	272	45
17	Tripura	6	0	0.0	0	0.0	0	0.0	5	83.3	1	16.7	0	0.0	0	6
18	Uttar Pradesh	5	2	40.0	1	20.0	0	0.0	1	20.0	0	0.0	1	20.0	3	2
19	Uttarakhand	4	0	0.0	3	75.0	0	0.0	1	25.0	0	0.0	0	0.0	3	1
20	West Bengal	513	42	8.2	19	3.7	19	3.7	185	36.1	130	25.3	118	23.0	80	433
21	Chandigarh	9	3	33.3	1	11.1	1	11.1	1	11.1	1	11.1	2	22.2	5	4
22	Delhi	1	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0
23	Puducherry	7	1	14.3	0	0.0	3	42.9	0	0.0	1	14.3	2	28.6	4	3
	Total	**1824**	**317**	**17.4**	**197**	**10.8**	**397**	**21.8**	**428**	**23.5**	**244**	**13.4**	**241**	**13.2**	**911**	**913**

State-wise Decadal Water Level Fluctuation with Mean [November (2013 to 2022)] and November 2023 in Confined/Semi-Confined Aquifer

Sr. No.	State/UT Name	No of wells analysed	No. of wells in different depth range												Total No. of wells	
			Rise						Fall							
			0 to 2	%	2 to 4	%	> 4	%	0 to 2	%	2 to 4	%	> 4	%	Rise	Fall
1	Andhra Pradesh	70	10	14.3	12	17.1	16	22.9	9	12.9	12	17.1	11	15.7	38	32
2	Assam	10	4	40.0	0	0.0	0	0.0	6	60.0	0	0.0	0	0.0	4	6
3	Bihar	9	1	11.1	0	0.0	0	0.0	4	44.4	4	44.4	0	0.0	1	8
4	Chhattisgarh	59	17	28.8	6	10.2	2	3.4	20	33.9	5	8.5	9	15.3	25	34
5	Goa	40	10	25.0	3	7.5	1	2.5	25	62.5	1	2.5	0	0.0	14	26
6	Gujarat	84	14	16.7	9	10.7	13	15.5	21	25.0	5	6.0	22	26.2	36	48
7	Haryana	93	26	28.0	10	10.8	10	10.8	17	18.3	16	17.2	14	15.1	46	47
8	Jharkhand	1	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0
9	Karnataka	184	25	13.6	17	9.2	45	24.5	53	28.8	25	13.6	19	10.3	87	97
10	Kerala	76	11	14.5	7	9.2	34	44.7	8	10.5	8	10.5	8	10.5	52	24
11	Madhya Pradesh	120	31	25.8	23	19.2	30	25.0	17	14.2	9	7.5	10	8.3	84	36
12	Maharashtra	38	15	39.5	6	15.8	4	10.5	7	18.4	0	0.0	6	15.8	25	13
13	Meghalaya	5	2	40.0	0	0.0	0	0.0	3	60.0	0	0.0	0	0.0	2	3
14	Odisha	43	18	41.9	2	4.7	1	2.3	17	39.5	3	7.0	2	4.7	21	22
15	Punjab	54	6	11.1	0	0.0	4	7.4	17	31.5	10	18.5	17	31.5	10	44
16	Tamil Nadu	194	46	23.7	38	19.6	51	26.3	28	14.4	10	5.2	21	10.8	135	59
17	Telangana	327	80	24.5	54	16.5	74	22.6	77	23.5	22	6.7	20	6.1	208	119
18	Tripura	8	0	0.0	0	0.0	1	12.5	7	87.5	0	0.0	0	0.0	1	7
19	Uttar Pradesh	4	1	25.0	0	0.0	0	0.0	3	75.0	0	0.0	0	0.0	1	3
20	Uttarakhand	4	2	50.0	1	25.0	0	0.0	1	25.0	0	0.0	0	0.0	3	1
21	West Bengal	506	51	10.1	6	1.2	5	1.0	215	42.5	121	23.9	108	21.3	62	444
22	Andaman And Nicobar Islands	2	1	50.0	0	0.0	0	0.0	1	50.0	0	0.0	0	0.0	1	1
23	Chandigarh	11	3	27.3	2	18.2	1	9.1	0	0.0	1	9.1	4	36.4	6	5
24	Delhi	1	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0
25	Puducherry	7	6	85.7	1	14.3	0	0.0	0	0.0	0	0.0	0	0.0	7	0
	Total	**1950**	**381**	**19.5**	**198**	**10.2**	**292**	**15.0**	**556**	**28.5**	**252**	**12.9**	**271**	**13.9**	**871**	**1079**

State-wise Decadal Water Level Fluctuation with Mean [January (2014 to 2023)] and January 2024 in Confined/Semi-Confined Aquifer

Sr. No.	State/UT Name	No of wells analysed	No. of wells in different depth range												Total No. of wells	
			Rise						Fall							
			0 to 2	%	2 to 4	%	> 4	%	0 to 2	%	2 to 4	%	> 4	%	Rise	Fall
1	Andhra Pradesh	77	15	19.5	12	15.6	16	20.8	19	24.7	4	5.2	11	14.3	43	34
2	Assam	9	4	44.4	0	0.0	0	0.0	5	55.6	0	0.0	0	0.0	4	5
3	Bihar	11	0	0.0	0	0.0	0	0.0	7	63.6	2	18.2	2	18.2	0	11
4	Chhattisgarh	65	19	29.2	6	9.2	6	9.2	13	20.0	8	12.3	13	20.0	31	34
5	Goa	38	4	10.5	1	2.6	0	0.0	33	86.8	0	0.0	0	0.0	5	33
6	Gujarat	65	18	27.7	10	15.4	16	24.6	6	9.2	2	3.1	13	20.0	44	21
7	Haryana	64	19	29.7	6	9.4	2	3.1	20	31.3	8	12.5	9	14.1	27	37
8	Jharkhand	1	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0	1	0
9	Karnataka	180	29	16.1	12	6.7	42	23.3	56	31.1	20	11.1	21	11.7	83	97
10	Kerala	80	8	10.0	6	7.5	41	51.3	5	6.3	5	6.3	15	18.8	55	25
11	Madhya Pradesh	108	19	17.6	18	16.7	44	40.7	11	10.2	7	6.5	9	8.3	81	27
12	Maharashtra	39	11	28.2	5	12.8	4	10.3	10	25.6	2	5.1	6	15.4	20	18
13	Meghalaya	5	2	40.0	1	20.0	0	0.0	2	40.0	0	0.0	0	0.0	3	2
14	Odisha	44	17	38.6	2	4.5	0	0.0	16	36.4	5	11.4	4	9.1	19	25
15	Punjab	56	4	7.1	1	1.8	0	0.0	14	25.0	17	30.4	20	35.7	5	51
16	Tamil Nadu	187	51	27.3	35	18.7	70	37.4	14	7.5	2	1.1	15	8.0	156	31
17	Telangana	327	79	24.2	66	20.2	78	23.9	60	18.3	23	7.0	21	6.4	223	104
18	Tripura	7	1	14.3	0	0.0	0	0.0	5	71.4	0	0.0	1	14.3	1	6
19	Uttar Pradesh	5	3	60.0	0	0.0	0	0.0	2	40.0	0	0.0	0	0.0	3	2
20	Uttarakhand	3	2	66.7	0	0.0	0	0.0	0	0.0	0	0.0	1	33.3	2	1
21	West Bengal	506	109	21.5	6	1.2	10	2.0	176	34.8	101	20.0	104	20.6	125	381
22	Chandigarh	10	3	30.0	0	0.0	1	10.0	3	30.0	0	0.0	3	30.0	4	6
23	Puducherry	5	2	40.0	3	60.0	0	0.0	0	0.0	0	0.0	0	0.0	5	0
	Total	**1892**	**419**	**22.1**	**190**	**10.0**	**331**	**17.5**	**477**	**25.2**	**206**	**10.9**	**268**	**14.2**	**940**	**951**

State-wise Categorization of Groundwater Deficit Classes and Their Percentage Distribution for Pre-Monsoon 2023

Sr. No	States	No of Wells Analysed	Groundwater deficit class										Drought	
			Normal		Mild		Moderate		Severe		Extreme			
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	Andaman And Nicobar Islands	109	73	67.0	10	9.2	16	14.7	2	1.8	8	7.3	36	33.0
2	Andhra Pradesh	608	565	92.9	23	3.8	9	1.5	5	0.8	6	1.0	43	7.1
3	Arunachal Pradesh	20	14	70.0	0	0.0	2	10.0	3	15.0	1	5.0	6	30.0
4	Assam	237	205	86.5	20	8.4	5	2.1	2	0.8	5	2.1	32	13.5
5	Bihar	488	365	74.8	84	17.2	25	5.1	11	2.3	3	0.6	123	25.2
6	Chandigarh	8	8	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	Chhattisgarh	671	512	76.3	109	16.2	37	5.5	7	1.0	6	0.9	159	23.7
8	Delhi	74	66	89.2	7	9.5	1	1.4	0	0.0	0	0.0	8	10.8
9	Goa	80	56	70.0	20	25.0	3	3.8	0	0.0	1	1.3	24	30.0
10	Gujarat	612	545	89.1	42	6.9	17	2.8	5	0.8	3	0.5	67	10.9
11	Haryana	682	592	86.8	72	10.6	13	1.9	4	0.6	1	0.1	90	13.2
12	Himachal Pradesh	101	94	93.1	5	5.0	2	2.0	0	0.0	0	0.0	7	6.9
13	Jammu and Kashmir	224	166	74.1	32	14.3	12	5.4	6	2.7	8	3.6	58	25.9
14	Jharkhand	176	138	78.4	29	16.5	5	2.8	3	1.7	1	0.6	38	21.6
15	Karnataka	1196	967	80.9	138	11.5	62	5.2	17	1.4	12	1.0	229	19.1
16	Kerala	1213	1106	91.2	75	6.2	21	1.7	5	0.4	6	0.5	107	8.8
17	Madhya Pradesh	1122	989	88.1	82	7.3	32	2.9	8	0.7	11	1.0	133	11.9
18	Maharashtra	1389	1251	90.1	88	6.3	31	2.2	5	0.4	14	1.0	138	9.9
19	Meghalaya	46	44	95.7	1	2.2	1	2.2	0	0.0	0	0.0	2	4.3
20	Nagaland	6	4	66.7	1	16.7	1	16.7	0	0.0	0	0.0	2	33.3
21	Odisha	1022	814	79.6	122	11.9	58	5.7	17	1.7	11	1.1	208	20.4
22	Puducherry	7	7	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	Punjab	522	423	81.0	88	16.9	9	1.7	2	0.4	0	0.0	99	19.0
24	Rajasthan	797	690	86.6	76	9.5	20	2.5	8	1.0	3	0.4	107	13.4
25	Tamil Nadu	628	573	91.2	32	5.1	12	1.9	7	1.1	4	0.6	55	8.8
26	Telangana	277	265	95.7	6	2.2	4	1.4	1	0.4	1	0.4	12	4.3
27	Dadra Nagar Haveli And Daman Diu	16	15	93.8	1	6.3	0	0.0	0	0.0	0	0.0	1	6.3
28	Tripura	52	36	69.2	9	17.3	6	11.5	0	0.0	1	1.9	16	30.8
29	Uttar Pradesh	570	476	83.5	67	11.8	18	3.2	4	0.7	5	0.9	94	16.5
30	Uttarakhand	149	110	73.8	27	18.1	6	4.0	3	2.0	3	2.0	39	26.2
31	West Bengal	617	408	66.1	111	18.0	55	8.9	16	2.6	27	4.4	209	33.9
	Total	**13719**	**11577**	**84.4**	**1377**	**10.0**	**483**	**3.5**	**141**	**1.0**	**141**	**1.0**	**2142**	**15.6**

State-wise Categorization of Groundwater Deficit Classes and Their Percentage Distribution for August 2023

Sr No	States	No of Wells Analysed	Groundwater deficit class										Drought	
			Normal		Mild		Moderate		Severe		Extreme			
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	Andhra Pradesh	613	461	75.2	64	10.4	46	7.5	16	2.6	26	4.2	152	24.8
2	Arunachal Pradesh	20	16	80.0	3	15.0	1	5.0	0	0.0	0	0.0	4	20.0
3	Assam	238	207	87.0	17	7.1	7	2.9	5	2.1	2	0.8	31	13.0
4	Bihar	562	392	69.8	85	15.1	52	9.3	15	2.7	18	3.2	170	30.2
5	Chandigarh	8	8	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	Chhattisgarh	668	365	54.6	116	17.4	78	11.7	35	5.2	74	11.1	303	45.4
7	Delhi	70	64	91.4	2	2.9	4	5.7	0	0.0	0	0.0	6	8.6
8	Goa	81	24	29.6	34	42.0	12	14.8	6	7.4	5	6.2	57	70.4
9	Gujarat	597	465	77.9	64	10.7	28	4.7	20	3.4	20	3.4	132	22.1
10	Haryana	132	118	89.4	9	6.8	2	1.5	3	2.3	0	0.0	14	10.6
11	Himachal Pradesh	97	90	92.8	3	3.1	3	3.1	0	0.0	1	1.0	7	7.2
12	Jammu and Kashmir	234	175	74.8	37	15.8	10	4.3	7	3.0	5	2.1	59	25.2
13	Jharkhand	225	155	68.9	22	9.8	19	8.4	10	4.4	19	8.4	70	31.1
14	Karnataka	1211	649	53.6	199	16.4	165	13.6	84	6.9	114	9.4	562	46.4
15	Kerala	1185	695	58.6	106	8.9	65	5.5	61	5.1	258	21.8	490	41.4
16	Madhya Pradesh	1189	836	70.3	131	11.0	75	6.3	56	4.7	91	7.7	353	29.7
17	Maharashtra	1547	1200	77.6	166	10.7	81	5.2	33	2.1	67	4.3	347	22.4
18	Meghalaya	35	29	82.9	5	14.3	0	0.0	0	0.0	1	2.9	6	17.1
19	Nagaland	11	5	45.5	1	9.1	2	18.2	1	9.1	2	18.2	6	54.5
20	Odisha	1122	771	68.7	148	13.2	93	8.3	39	3.5	71	6.3	351	31.3
21	Puducherry	7	6	85.7	1	14.3	0	0.0	0	0.0	0	0.0	1	14.3
22	Punjab	153	117	76.5	28	18.3	6	3.9	1	0.7	1	0.7	36	23.5
23	Rajasthan	809	561	69.3	114	14.1	58	7.2	22	2.7	54	6.7	248	30.7
24	Tamil Nadu	724	680	93.9	23	3.2	14	1.9	3	0.4	4	0.6	44	6.1
25	Telangana	286	249	87.1	19	6.6	9	3.1	3	1.0	6	2.1	37	12.9
26	Dadra And Nagar Haveli And Daman And Diu	25	14	56.0	3	12.0	3	12.0	0	0.0	5	20.0	11	44.0
27	Tripura	45	31	68.9	7	15.6	6	13.3	1	2.2	0	0.0	14	31.1
28	Uttar Pradesh	605	430	71.1	81	13.4	45	7.4	25	4.1	24	4.0	175	28.9
29	Uttarakhand	154	144	93.5	9	5.8	0	0.0	0	0.0	1	0.6	10	6.5
30	West Bengal	652	431	66.1	109	16.7	53	8.1	18	2.8	41	6.3	221	33.9
	Total	**13305**	**9388**	**70.6**	**1606**	**12.1**	**937**	**7.0**	**464**	**3.5**	**910**	**6.8**	**3917**	**29.4**

State-wise Categorization of Groundwater Deficit Classes and Their Percentage Distribution for Post-Monsoon 2023

Sr No	States	No of Wells Analysed	Groundwater deficit class										Drought	
			Normal		Mild		Moderate		Severe		Extreme			
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	Andaman And Nicobar Islands	109	92	84.4	8	7.3	6	5.5	2	1.8	1	0.9	17	15.6
2	Andhra Pradesh	623	199	31.9	119	19.1	105	16.9	72	11.6	128	20.5	424	68.1
3	Arunachal Pradesh	20	9	45.0	6	30.0	3	15.0	0	0.0	2	10.0	11	55.0
4	Assam	225	169	75.1	23	10.2	14	6.2	7	3.1	12	5.3	56	24.9
5	Bihar	631	421	66.7	119	18.9	53	8.4	16	2.5	22	3.5	210	33.3
6	Chandigarh	8	8	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	Chhattisgarh	717	569	79.4	81	11.3	31	4.3	17	2.4	19	2.6	148	20.6
8	Delhi	74	64	86.5	5	6.8	2	2.7	1	1.4	2	2.7	10	13.5
9	Goa	81	55	67.9	20	24.7	2	2.5	1	1.2	3	3.7	26	32.1
10	Gujarat	625	521	83.4	49	7.8	30	4.8	11	1.8	14	2.2	104	16.6
11	Haryana	623	509	81.7	60	9.6	35	5.6	8	1.3	11	1.8	114	18.3
12	Himachal Pradesh	99	89	89.9	8	8.1	1	1.0	0	0.0	1	1.0	10	10.1
13	Jammu and Kashmir	239	196	82.0	26	10.9	5	2.1	9	3.8	3	1.3	43	18.0
14	Jharkhand	235	178	75.7	29	12.3	9	3.8	5	2.1	14	6.0	57	24.3
15	Karnataka	1212	599	49.4	271	22.4	159	13.1	75	6.2	108	8.9	613	50.6
16	Kerala	1333	845	63.4	69	5.2	66	5.0	51	3.8	302	22.7	488	36.6
17	Madhya Pradesh	1145	911	79.6	121	10.6	56	4.9	25	2.2	32	2.8	234	20.4
18	Maharashtra	1573	1179	75.0	211	13.4	96	6.1	34	2.2	53	3.4	394	25.0
19	Meghalaya	43	34	79.1	6	14.0	2	4.7	1	2.3	0	0.0	9	20.9
20	Nagaland	10	7	70.0	1	10.0	2	20.0	0	0.0	0	0.0	3	30.0
21	Odisha	1132	852	75.3	128	11.3	62	5.5	32	2.8	58	5.1	280	24.7
22	Puducherry	7	5	71.4	2	28.6	0	0.0	0	0.0	0	0.0	2	28.6
23	Punjab	482	373	77.4	94	19.5	10	2.1	2	0.4	3	0.6	109	22.6
24	Rajasthan	808	623	77.1	95	11.8	43	5.3	15	1.9	32	4.0	185	22.9
25	Tamil Nadu	738	651	88.2	55	7.5	20	2.7	6	0.8	6	0.8	87	11.8
26	Telangana	283	212	74.9	32	11.3	19	6.7	11	3.9	9	3.2	71	25.1
27	Dadra And Nagar Haveli And Daman And Diu	23	19	82.6	1	4.3	1	4.3	0	0.0	2	8.7	4	17.4
28	Tripura	64	46	71.9	6	9.4	9	14.1	1	1.6	2	3.1	18	28.1
29	Uttar Pradesh	638	499	78.2	88	13.8	28	4.4	7	1.1	16	2.5	139	21.8
30	Uttarakhand	150	131	87.3	8	5.3	7	4.7	2	1.3	2	1.3	19	12.7
31	West Bengal	666	546	82.0	69	10.4	29	4.4	10	1.5	12	1.8	120	18.0
	Total	**14616**	**10611**	**72.6**	**1810**	**12.4**	**905**	**6.2**	**421**	**2.9**	**869**	**5.9**	**4005**	**27.4**

State-wise Categorization of Groundwater Deficit Classes and Their Percentage Distribution for January 2024

Sr. No.	States	No of Wells Analysed	Groundwater deficit class										Drought	
			Normal		Mild		Moderate		Severe		Extreme			
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	Andhra Pradesh	618	354	57.3	145	23.5	62	10.0	28	4.5	29	4.7	264	42.7
2	Arunachal Pradesh	20	16	80.0	1	5.0	1	5.0	0	0.0	2	10.0	4	20.0
3	Assam	238	196	82.4	22	9.2	11	4.6	4	1.7	5	2.1	42	17.6
4	Bihar	534	346	64.8	125	23.4	42	7.9	14	2.6	7	1.3	188	35.2
5	Chandigarh	8	8	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	Chhattisgarh	721	635	88.1	46	6.4	23	3.2	9	1.2	8	1.1	86	11.9
7	Delhi	57	48	84.2	6	10.5	1	1.8	1	1.8	1	1.8	9	15.8
8	Goa	79	52	65.8	22	27.8	4	5.1	0	0.0	1	1.3	27	34.2
9	Gujarat	635	546	86.0	38	6.0	24	3.8	12	1.9	15	2.4	89	14.0
10	Haryana	180	156	86.7	18	10.0	4	2.2	1	0.6	1	0.6	24	13.3
11	Himachal Pradesh	102	87	85.3	9	8.8	3	2.9	1	1.0	2	2.0	15	14.7
12	Jammu and Kashmir	221	171	77.4	25	11.3	16	7.2	7	3.2	2	0.9	50	22.6
13	Jharkhand	237	189	79.7	27	11.4	13	5.5	4	1.7	4	1.7	48	20.3
14	Karnataka	1232	794	64.4	263	21.3	100	8.1	37	3.0	38	3.1	438	35.6
15	Kerala	1235	791	64.0	61	4.9	78	6.3	40	3.2	265	21.5	444	36.0
16	Madhya Pradesh	1099	934	85.0	103	9.4	41	3.7	9	0.8	12	1.1	165	15.0
17	Maharashtra	1596	1361	85.3	133	8.3	52	3.3	24	1.5	26	1.6	235	14.7
18	Meghalaya	43	42	97.7	1	2.3	0	0.0	0	0.0	0	0.0	1	2.3
19	Nagaland	11	6	54.5	2	18.2	2	18.2	0	0.0	1	9.1	5	45.5
20	Odisha	1131	861	76.1	147	13.0	62	5.5	34	3.0	27	2.4	270	23.9
21	Puducherry	8	8	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	Punjab	179	137	76.5	37	20.7	1	0.6	2	1.1	2	1.1	42	23.5
23	Rajasthan	857	618	72.1	131	15.3	54	6.3	23	2.7	31	3.6	239	27.9
24	Tamil Nadu	707	665	94.1	26	3.7	5	0.7	5	0.7	6	0.8	42	5.9
25	Telangana	277	207	74.7	41	14.8	16	5.8	6	2.2	7	2.5	70	25.3
26	Dadra And Nagar Haveli And Daman And Diu	21	17	81.0	2	9.5	1	4.8	0	0.0	1	4.8	4	19.0
27	Tripura	68	58	85.3	4	5.9	4	5.9	0	0.0	2	2.9	10	14.7
28	Uttar Pradesh	628	512	81.5	73	11.6	25	4.0	11	1.8	7	1.1	116	18.5
29	Uttarakhand	148	130	87.8	9	6.1	5	3.4	0	0.0	4	2.7	18	12.2
30	West Bengal	668	599	89.7	48	7.2	13	1.9	0	0.0	5	0.7	66	9.9
	Total	**13558**	**10544**	**77.8**	**1565**	**11.5**	**663**	**4.9**	**275**	**2.0**	**511**	**3.8**	**3014**	**22.2**

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