

भारतसरकार  
जलशक्ति मंत्रालय  
जलसंसाधन, नदीविकास व गंगा  
संरक्षण विभाग के द्वीय भूमजल बोर्ड

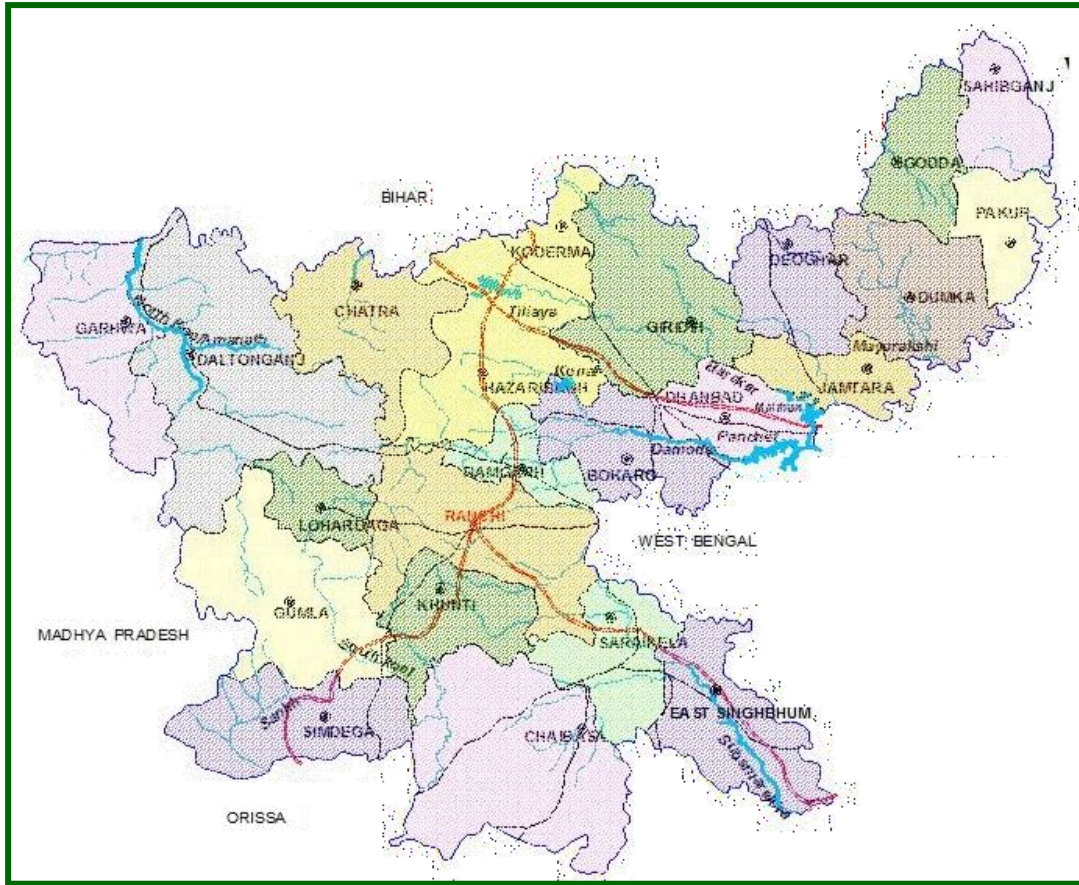
GOVERNMENT OF INDIA  
MINISTRY OF JALSHAKTI  
DEPT OF WATER RESOURCES, RIVER  
DEVELOPMENT & GANGA  
REJUVENATION  
CENTRAL GROUND WATER BOARD

गंगा नदी के जल संचयन का आकलन  
(2022-2023)

## GROUND WATER YEAR BOOK

### JHARKHAND

(2022-2023)



#### मुख्य योगदानकर्ता/Principal Contributors

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July, 2023

भारतसरकार जलशक्ति  
मंत्रालय  
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**CENTRAL GROUND WATER BOARD**

िक्तषक भूजल पुस्ततका

झारख  
(2022 - 2023)

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**JHARKHAND**  
(2022 - 2023)

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**JHARKHAND**  
**(2022-2023)**

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## प्रततािना

विक्रिध हाइड्रोसुजयोलॉसुजकल िातािरण मेें भूजल सतिमितयों को समझने के मलए, भूजल केक्तिमभनन पहलुओं म पररितिन, जैसे जल ततर और जल गुणितिा मेें मभननता की मनगरानी की जानी चाहहए। झारखंर राज्य के मलए केेंद्रीय

भूजल बोर्ड, एमईआर पटना द्वारा अिलोकन कु ओं यानी ग्राउंर िॉटर मॉमनटररंग िेल (जीरुयूएमरुयू) के नेटिकड के माध्यम से भूजल वितिा की मनयमत मनगरानी की जा रही है। प्रारंभ मेें यह कायड कु छ GWMW की मदद से शुुरूहकया गया िा, लेहकन धीरे-धीरे तटेशनों की संख्या बढ़ाई गई, जो अब कु ल 515 GWMW है (माचड 2023 तक) जो राज्य के सभी 24 सुजलों और लगभग सभी ब्लॉकों का प्रमतमनमधत्ति करता है।

यह झारखंर राज्य के मलए एक ररपोटड के रूप में एक प्रततुमत देने का एक प्रयास है जहां िषड 2022-2023 के मलए जल ततर के पररदृश्य तैयार हकए गए हैं। दशकीय माध्य, उतार-चढाि, भूजल की रासायमनक मौसमी और िासुणितिा, र्ेटा के साि क्तिमभनन मानमचत्रों की तुलना शाममल की गई है।

2022-2023 मेें एक िषड मेें 4 बार (अिास मई 2022, अगतत 2022, नितंबर 2022 और जनिरी 2023 के महीनों मेें)

आमधक जल ततर माप मलया गया। हाइड्रोकेमकल िों का अध्ययन करने के मलए मई-2022 क वितिा मेें पररितबौरान GWMW से पानी के नमूने एकत्र हकए गए िे।

झारखंर के राज्य इकाई कायाडलय रांची के िैज्ञामनक अमधकाररयों और तकनीकी कममयों ने मनगरानी उद्देश्यों के मलए आश्यकतानुसार जीरुयूएमरुयू से विसुतित रूप से फीर् र्ेटा एकत्र हकया और प्री-मानसून अिमिध के दौरान पानी के नमूने एकत्र हकए सुजनका इस क्षेत्र की रासायमनक प्रयोगशाला में क्तिश्लेषण हकया गया।

र्ेटा का संकलन और क्तिश्लेषण, उसकी पुनप्राप्ति, मूयान्कन, उपयुि मानमचत्र तैयार करना और ितमान ररपोटड के रूप म

उनका पुनरुत्पादन शरीमती सुलेखा भाया, िैज्ञामनक-सी और ममस सपना साक्षी िैज्ञामनक-बी द्वारा शरीमती रोज अनीता कु जूर, िैज्ञामनक-ई ििं प्रभारी अमधकारी, सीजीरुयूबी, एसयूओ, रांची की देखरेख मेें हकया गया है। ।

पूरी उम्मीद है हक इस ररपोटड मेें संलग्न लेख, मानमचत्र और बुनयदादी जानकारी झारखंर राज्य मेें योजनाकारों और



संबंधित लाभान्धियों के मलए बहुतु

उपयोगी होगी।

राज्ीरंजन  
शुक्लल क्षेत्रीय  
मनदेशक

## FOREWORD

To understand the groundwater situations in diverse hydrogeological environments, changes in various facets of ground water, like variation in water level and water quality are to be monitored. A regular monitoring of ground water regime through a network of observation wells i.e., Ground water Monitoring Well (GWMW) is being carried out by Central Ground Water Board, MER Patna for the state of Jharkhand. Initially the task was taken up with the help of a few GWMW but gradually the numbers of stations were increased, which is now totals 515 GWMW (as on March 2023) which represents all 24 districts and almost all blocks of the state.

This is an attempt to make a presentation in the form of a report for Jharkhand State where the scenarios of water levels for the year 2022-2023 have been produced. The comparisons with decadal mean, seasonal & annual fluctuations, chemical quality of ground water, different maps along with data have been incorporated.

Periodic water level measurements were taken 4 times in a year in 2022-2023, (i.e., in the months of May 2022, August 2022, November 2022 and January 2023). Water samples from the GWMW were collected during the month of May-2022 to study the changes in hydrochemical regime.

The scientific officers and technical personnel of the state unit office Ranchi of Jharkhand, systematically collected field data from the GWMW as required for monitoring purposes and collected water samples during the pre-monsoon period which were analysed in the chemical lab of this region.

The compilation and analyzing data, its retrieval, evaluation, preparation of suitable maps and their reproduction in the form of present report has been carried out by **Mrs Sulekha Bhaya, Scientist-C and Miss Sapna Sakshi Scientist-B**, in supervision of Mrs Rose Anita Kujur, Scientist- E & Officer-in-Charge, CGWB, SUO, Ranchi.

It is sincerely hoped that the appended write up, maps and basic information in this report would be very useful to the Planners and concerned beneficiaries in Jharkhand State

**Rajeev Ranjan Shukla**  
**Regional Director**

**GROUND WATER YEAR BOOK-JHARKHAND 2021-22**

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## **EXECUTIVE SUMMARY**

In Jharkhand state ground water levels of 515 Ground Water Monitoring Wells (GWMW) were monitored four times in the year 2022 - 2023 as a part of regime monitoring of phreatic aquifer in different hydrogeological and agro-climatic zones. The water level monitoring was carried out in the months of May 2022, August 2022, November 2022 and January 2023 and ground water samples were collected in pre-monsoon period (May, 2022) for chemical analysis. In the state the phreatic aquifer consists of weathered mantle and saprolite zone. Over 78% area of the state is underlain by rocks of Chotanagpur Granitic Gneissic Complex (CGGC) suit. Hence, most of the GWMW represented water level in weathered CGGC. A few GWMW represented water level of phreatic aquifer of Gondwana Super Group, Basalts, Limestones, Tertiary Formation and recent alluvium.

The observed water level data had been grouped into four categories viz. 0 -2m, 2-5m, 5-10m,10-20m and >20m. Thematic maps depicting ground water levels measured in different periods have been prepared. The water levels have been further analysed to study its change with respect to measurement of pre-monsoon period of the same year, previous year water level data of corresponding period, and decadal mean water level data of the corresponding period. The fluctuations have been shown under rise and fall categories. In each category there are three groups viz. 0-2 m, 2-4 m and >4 m. Thematic maps have been prepared for each category.

The depth to water level data of all the Ground Water Monitoring Wells collected during the four measurements are also presented along with the general well information. The water samples were collected during May, 2022 chemical analysis report is under progress.

During pre-monsoon 2022, 324 monitoring wells have been monitored in 24 districts. The minimum and the maximum depth to water levels during pre-monsoon period have been recorded as 0.03 m bgl and 33 m bgl at Gumla and Ranchi. . In general, the water level throughout the State varies in the range of 5 – 10 m bgl and has been observed in the 203 wells (63%) out of 324 analysed wells. Water level 2 - 5 m bgl has been observed in the 77 wells (24%). The water level in the range of 10-20 m bgl has been observed in the 34 wells (10%) whereas the water level in 0-2 m bgl has been observed in 09 wells(3%) and water level >20mbgl observed in 1 well.

Fluctuation in water level for May 2021 compared with May 2022 shows fall in water level 57 and rise in 18 wells. When compare the data of August 2022 with respect to August 2021, it shows rise in 62% GWMW as well as fall in 38% GWMW of the total 334 analysed wells. When compare the data of November 2022 with respect to November 2021, it shows rise in 74% GWMW as well as fall in 26% GWMW of the total 303 analysed wells. January 2022 data compared to January 2023

shows the major part of the state shows rise in 80% GWMW as well as fall in 20% GWMW of the total 325 analysed wells.

The fluctuation in water level between May 2022 and August 2022 indicates a general rise in water level in 265 well, 31 well shows fall in water level out of 296 well which may be mainly due to temporal withdrawal of ground water and less rainfall in those areas. Fluctuation in water level for November 2022 compared with May 2022 shows rise in water level (91%) for the entire state of Jharkhand. Fluctuation in water level for November 2022 compared with January 2023 shows general rise (244 wells) in water level, in the range of 0.00 to 2.00 m (57%), 2.00 to 4.00 m (20%) and > 4 mbgl (5%), whereas 54 wells of the state shows fall in water level.

The fluctuation of water level of May, 2022 with respect to decadal mean water level of May 2012 to May 2021 indicate 74% (159) wells shows rise and 26% (55) wells shows fall out of 214 well analysed. The fluctuation of water level of August, 2021 with respect to decadal mean water level of August 2011 to August 2020 indicate 69% (99) wells shows rise and 31% (96) wells shows fall out of 195 well analysed. The fluctuation of water level of November 2022 with respect to decadal mean water level of November 2012 to November 2021 rise in 115 wells (60%) and fall in 85 wells (40%) out of 200 wells analysed. The fluctuation of water level of January 2023 with respect to decadal mean water level of January 2013 to January 2022 indicates 42 % rise and 58% fall out of 189 well analysed.

The ground water scenario of confined aquifer of Jharkhand, total 96 bore wells of Jharkhand has been taken up for regular monitoring. The bore wells are being monitored from August 2022. Total 88 bore wells monitored during August 2022 and 84 bore wells monitored during November 2022 and 92 bore wells monitored during January 2023.

# GROUND WATER YEAR BOOK OF JHARKHAND

2022 – 2023

## JHARKHAND AT A GLANCE

Geographical Area (sq. km.)	79714
Population (Census 2011)	3,29,66,238
Population density (Persons/Sqkm)	413
Male Population (Million)	16.93
Female Population (Million)	16.03
Decadal Growth (2001-2011)	22.3%
Literacy Rate	67.63%
Sex ratio	947 females to 1000 males
No. of Districts	24
No. of Blocks	260
Normal Annual Rainfall (mm)	1251.2
Net sown area (in hectare)-2014-15	13,84515
Area under forest (in hectare) -2014-15	2339481
Barren and uncultivated area (in hectare)-2014-15	568009
Cultivable waste land (in hectare)-2014-15	352871
Cropping intensity (%) – 2011	114 %
Annual Replenishable Ground Water Resource in BCM (2022)	6.2
Net ground water availability in BCM (2022)	5.69
Annual Ground Water Draft for Domestic & Industrial use in BCM	0.86
Gross annual ground water draft in BCM (2022)	1.79
Stage of ground water development (in %) (2022)	31.35
Number of over-exploited blocks (as on 2022)	5
Number of critical blocks (as on 2022)	6
Number of semi critical blocks (as on 2022)	11
Number of Safe block (as on March-2022)	241
Ground Water Quality	In general, chemical Constituents are within permissible limit except nitrate contamination in parts of Bokaro, Dhanbad, Giridih, Hazaribagh, Ramgarh and Garhwa districts.

# GROUND WATER YEAR BOOK OF JHARKHAND

2022 – 2023

## 1.0 INTRODUCTION:

Jharkhand state, was created on 15th November, 2000, consists of districts falling on Chotanagpur Plateau of erstwhile Bihar on the birthday of legendary tribal freedom fighter Birsa Munda. Presently it consists of 24 districts and 260 administrative blocks. The capital of the state is Ranchi. The state spreads over 79714 sq km, between Latitude 21° 55' 00" and 25° 15' 00" and Longitude 83° 15' 00" and 87° 55' 00". The state is bounded by Bihar in the north and by West Bengal in the east. The other two sides, west and south, are bounded by Chhattisgarh and Orissa states respectively (Plate-I).

The population of the state as per 2011 census is 03.30 crore. The population density is 414 person/km<sup>2</sup>. The urban population is 7.912 million and the rural population is 25.05 million. The tribal population constitutes about 28% of total population. The state is moderately urbanized with Ranchi as its capital city. Nearly 24% of total population of the state lives in urban areas. Important urban centers are in the state are Jamshedpur, Dhanbad, Hazaribagh, Daltonganj, Dumka and Deoghar.

To acquire a detailed knowledge vis-a-vis scenario of ground water level with respect to behaviour, availability and quality, Ground Water monitoring is essential in time and space. Thus, the data so collected during monitoring gives an important input for ground water management. Periodical monitoring of ground water regime covering different geomorphic, hydrogeological units is an effort to get information on the behaviour of ground water levels and chemical quality of formation water through representative sampling. Monitoring of ground water regime includes:

- (a) Monitoring of ground water levels
- (b) Monitoring of ground water quality and
- (c) Temperature of ground water.

Monitoring is being carried out by establishing suitable Ground Water Monitoring Well (GWMW) based on Geomorphology, Geology, Hydrogeology and status of ground water resource of the area with a view to observe the trend of water level and change of chemical quality with time and space. It is also very useful to estimate the dynamic ground water resources and to demarcate the water logged as well as drought prone areas.

## 2.0 BACKGROUND:

The Central Ground Water Board, State Unit office, Ranchi, is at present monitoring 515 GWMW (Ground water monitoring wells) to delineate the behaviour of ground water level with time and space covering 24 districts in the State of Jharkhand (Plate-I) four times a year, viz January (from 1st to 10th), May (from 20th to 30th), August (from 20th to 30th) and November (from 1st to 10th). The locations of GWMW are shown in Plate - II.

The district-wise status of GWMW in Jharkhand during the period from May 2022 to January, 2023 is given in Table 2. The district-wise water level data of GWMW for the period May, 2022, August, 2022, November, 2022 and January, 2023 are given in Annexure- I and Annexure-II.

## 3.0 GEOLOGY AND HYDROGEOLOGY:

The generalized geological succession of Jharkhand state is given Table 1- Generalized geological succession of Jharkhand state.

**Table 1. General Stratigraphic sequences of geological formations in Jharkhand State**

Age	Formation	Broad Lithology
Quaternary	Alluvial deposits	Sand, clay, silt and occasional gravel
Tertiary	Dhalbhumgarh Gravel beds	Sandstone, conglomerate, clay-stone, gravel
Upper Jurassic to Lower Cretaceous	Rajmahal Volcanics	Basalt flows with inter-trappean sedimentary beds
Upper Jurassic to Carboniferous	Gondwana Supergroup	Sandstone, shale, clay, conglomerate with coal beds
Lower Cambrian to Proterozoic	Vindhyan Supergroup	Sandstone, dolomite, chart, shale <i>etc.</i>
Proterozoic	Rocks of Singhbhum-Greenstone-Granite domain, basic volcanics and Chhotanagpur Gneiss Granulite Complex including BMB	Granites, granite-gneiss, schists, phyllites, dolomites, basic and ultrabasic lavas, amphibolites
Archaean	Older Metamorphic Gneiss, Older Metamorphic Tonalite Gneiss	Gneiss, schists, arenites, amphibolites



## **GRANITE - GNEISS, SCHIST, PHYLLITE, AND OTHER ROCKS BELONGING TO CGGC**

It covers nearly 85 % of the geographical area of the state. The phreatic aquifer in this formation consists of weathered mantle and underlying secondary porosities like fractures, joints and fissures. In general, the thickness of weathered zone varies between 10 and 25 m, however in localized patches it is > 35 m. The weathered zone is the main repository of ground water. Exploratory wells of CGWB reveal that the fractures underlying the weathered zones form the potential aquifer. The fracture zones (generally beyond 100 m depth) are exploited particularly in urban areas. In general, 2-5 sets of fractures have been encountered within 150 m bgl. In a few wells, fractures have been encountered beyond 150 m depth. The ground water occurs under semi-confined to confined condition in the fractures situated at a deeper level. In this formation discharge from negligible to 30 lps has been recorded from the bore wells.

## **VINDHYAN SUPERGROUP**

The rocks of this group are exposed in Palamu and Garhwa districts over a limited aerial extent, in the south of the river Son. The sandstones are hard and compact. The ground water occurs within the secondary porosities like fractures and joints. The fractured sandstone has good ground water potential in comparison to the shale. The ground water occurs under unconfined condition in weathered zone. The yield potential of sandstone is poorer than granite gneiss.

## **VOLCANIC ROCKS**

The volcanic rocks occur mainly in the northeastern part of the state in Sahebganj, Pakur, Dumka and Godda districts as Rajmahal Traps and in southeastern part of the state in East & West Singhbhum, and Saraikela districts as other volcanics. The Rajmahal trap is a series of basaltic flows horizontally disposed. In an individual flow, the lower part is massive and the upper part is vesicular. In some cases, vesicles are filled with secondary material. Partially filled interconnected vesicles form the potential aquifers. Thin inter-trappean beds are also observed between the flows. The ground water occurs under unconfined conditions in upper vesicular flows, which are exposed generally at the ground level. In the vesicular layers disposed at deeper levels the ground water occurs under semi-confined to confined condition.

## **GONDWANA SUPERGROUP**

The Gondwana Super Group ranging in age from Upper Carboniferous to Cretaceous is considered as semi-consolidated formation. Ground water occurs within inter-granular space as well as within the secondary porosities like fractures and joints. Rocks of this unit are exposed as patches in the districts of Hazaribagh, Dhanbad, Giridih, Bokaro, Ranchi, Dumka, Jamtara, Latehar, Godda and Garhwa districts. The sandstones form repository of ground water. The exploratory drilling of CGWB and other agencies indicate that ground water occur in semi-confined to confined condition in aquifers

situated at deeper level, and under unconfined condition at shallow level. At few places, the piezometric head rises above the ground level to give rise to auto flow condition.

## **LATERITES AND TERTIARY SEDIMENTS**

The Dhalbhumgarh Formation of Tertiary age occur in Chakulia- Bahragora-Dhalbhumgarh tract of East Singhbhum district. Exploration to a depth of 120 m indicates presence of 2 to 4 sedimentary layers. Laterite formations also occur as cappings in some parts of the state. These sedimentary layers are repository of ground water, which occurs under unconfined condition in aquifers disposed at shallow level and under confined to semi-confined condition in aquifers situated at deeper levels.

## **YOUNGER ALLUVIUM**

The Younger Alluvium deposits are confined mainly to the bordering area of the state and occur in patches in the districts of Godda, Sahebganj and Pakur in the northeast and in Latehar, Palamu, Deoghar and Garhwa districts. In the bordering areas alluvial patches is extension of the Gangetic Plain. There is a patch of alluvial deposit in Ranchi district also. The ground water occurs under unconfined condition in aquifer disposed at shallow level. The depth of dug wells ranges between 10 –15 m in general while the depth of shallow tube well ranges between 20 - 30 m. The hydrogeological map & Geological map of Jharkhand is given in Plate III & IV.

## **4.0 GROUND WATER SCENARIO**

### **4.1 DEPTH TO WATER LEVELS IN JHARKHAND DURING 2021 - 2022**

#### **May 2022**

Water levels during May, 2022 were monitored from 324 wells . The district-wise status of distribution of Ground Water Monitoring Wells with different ranges of depth to water level is presented in Table-3

The minimum and the maximum depth to water levels have been recorded as 0.45 m bgl in Gumla district and 33 m bgl in Ranch district. In general, the water level throughout the State varies in the range of 5 – 10 m bgl and has been observed in the 203 wells (63%) out of 324 analysed wells. Water level 2 - 5 m bgl has been observed in the 77 wells (24%). The water level in the range of 10- 20 m bgl has been observed in the 34 wells (10%) whereas the water level in 0-2 m bgl has been observed in 09 wells(3%) and water level >20mbgl observed in 1 well (Plate V).

#### **August 2022**

Water levels during August, 2022 were monitored from 379 Dug wells. The district-wise status of distribution of Ground Water Monitoring Wells with different ranges of depth to water level is presented in Table 4.

The minimum and the maximum depth to water levels have been recorded as 0.09 m bgl and 19.17 m bgl both in Ranchi district. About 166 wells (44%) out of 379 wells have water level ranging

between 2 to 5 mbgl. 108 wells(28%), 97 wells (26%) , 8 wells (2%) shows depth to water level within 0 to 2 m bgl, 5 to 10 m bgl and 10 -20m bgl respectively (Plate VI).

### **November 2022**

A total of 366 GWMW has been monitored during post-monsoon period in November 2022. The district-wise status of distribution of network hydrograph stations with different ranges of depth to water level is presented in Table 5.

Minimum and the maximum depth to water levels have been recorded as 0.4 m bgl and 16.10 m bgl in Gumla and East Singhbhum district respectively. Out of 366 wells, 226 (62%) of GWMW, water level ranges 2 - 5 m bgl which covers almost entire Jharkhand State. The water level in the range of 5-10 m bgl has been observed in the 90 wells (25%). Ground water level of 0 – 2 m bgl depth range has been observed only in 45 wells (12%) at different locations. Only 5wells (1%) have shown water level more than 10 m bgl (Plate VI).

### **January 2023**

To study the water levels of recession period data were collected during January, 2023 from 396 wells, five groupings were made based on the range of water level data viz. 0-2, 2-5, 5-10, 10-20, and > 20 m bgl The district-wise status of distribution of network hydrograph stations with different ranges of depth to water level is presented in Table 6.

The minimum and the maximum depth to water levels in the State have been recorded 0.26 m bgl in Gumla district and 32.51 m bgl in Simdega district. The water level in the range of 5 - 10 m bgl has been observed in the 215 wells (54%) covered almost entire State and 2-5 m ranges in 143 wells about 36%. Water level range from 0 to 2 m bgl has been observed 24(6%) wells. The water level below 10-20 m has been observed in 13 wells (3%) and water level >20mbgl observed in 1 well (Plate VIII).

## **4.2 SCENARIO OF ANNUAL FLUCTUATIONS IN JHARKHAND DURING 2021-22 TO 2022-23**

The annual fluctuation in water levels for the periods of (1 ) May 2021 and May 2022 (2) August 2021 and August 2022, (3) November 2021 and November 2022 and (4) January 2022 and January 2023 have been analysed to study the net status of ground water conditions during the previous and current year.

### **May 2021 and May 2022**

The annual fluctuation in water level between May 2021 and May 2022 indicates the status of ground water condition during the previous year and current pre monsoon measurement.

Due to countrywide locked down during Covid situation, limited number of wells has been monitored. The district wise statement of frequency of distribution of network hydrograph stations falling in different ranges of water level fluctuation is presented in Table 8.

A general fall in water level (57 wells) has been found in major part of the state whereas rise in 18 wells has been observed. Water level fall is recorded in 76% of wells and fall in 24% wells . 32% wells shows fall >4m, 23% wells shows water fall within 2-4m and 21% (16 wells) shows water level within range of 0-2m . 13% (10 wells) shows rise in water level range of > 4m. Only 3 (04%) and 5 wells (07%) shows the water level rise within range of 2-4m and 0-2m respectively.

### **August 2021 and August 2022**

The annual fluctuation in water level between Aug, 2021 and Aug, 2022(Plate XII) indicates the status of ground water condition during the previous year and current monsoon measurement The district wise statement of frequency of distribution of network hydrograph stations falling in different ranges of water level fluctuation is presented in Table 8.

A general rise in water level (208 wells) has been found in major part of the state whereas fall in 126 wells has been observed. Water level rise is recorded in 62% of wells and fall in 38% wells (126). 36% wells shows rise within the range of 0 to 2 m whereas 18% of wells shows rise in water level within range of 2 to 4m and 28 wells (8%) shows rise >4m. Out of 38% well (126), fall of water level within 0 – 2m has been observed in 91 wells (27%). Water level rise ranging from 2 to 4 m has been observed in 26 wells(8%). Only 9 wells shows water level fall >4m .

### **November 2021 and November 2022**

The Annual fluctuation in water level between November 2021 and November 2022 indicates the net status of ground water conditions during the previous and post-monsoon year and the same is presented in Plate XIII. The district-wise statement of distribution of network hydrograph stations in different ranges of water level fluctuation is presented in Table 9.

The comparison of fluctuation in water level between November 2020 and November 2021 shows rise in 74% GWMW as well fall in 26% GWMW of the total 303 analysed wells during the period.The major part of the state shows a general rise in water level within 2.00 m. Out of 303 wells rise of water level within 0 – 2m has been observed in 170 wells (56%) while water level fall ranging from 0 to 2 m has been observed in 59 wells. Only 34 and 20 wells show water level rise within range of 2 to 4 m and >4m respectively. Incase of fall, 17 (6%) and 3 (1%) wells shows the water level fall within range of 2-4m and >4m respectively.

### **January 2022 and January 2023**

The annual fluctuation in water level between January 2022 and January 2023 indicates the status of ground water condition during the previous year and post monsoon measurement and the same is presented in Plate XIV. The district wise statement of frequency of distribution of network hydrograph stations falling in different ranges of water level fluctuation is presented in Table 13.

The major part of the state shows rise in 80% GWMW as well as fall in 20% GWMW of the total 325 analysed wells. 182(56%) wells showing rise in water level between 0 to 2m. 62 (19%)wells shows rise in range of 2 to 4 m and only 16 wells (5%) shows rise >4m . In case of fall, 56 wells(17%) shows water level range <2m and 9 wells (3%) shows water level range of 2-4m.

### **4.3 SCENARIO OF SEASONAL FLUCTUATIONS IN JHARKHAND DURING THE GROUND WATER YEAR 2022 – 2023:**

An attempt has been made to compare the pre-monsoon water levels of May, 2022 with water levels of August 2022, November 2022 and January 2023 to delineate the impact of rainfall as well as ground water development on ground water regime in the state during the above period.

#### **May 2022 and August 2022**

The fluctuation in water level between May 2022 and August 2022 indicates the change in water level from pre-monsoon measurement to monsoon measurement and the same is presented in Plate IX. Fluctuation in water level map for May 2022 and August 2022 has been prepared from 296 analyzed wells. The district wise statement of frequency distribution of network hydrograph stations falling in different ranges of water level fluctuation is presented in Table 07.

During this period the entire state of Jharkhand shows a general rise in water level in 265 well, which is mainly due to recharging of ground water on onset of monsoon from June 2022. However 31 well shows fall in water level which may be mainly due to temporal withdrawal of ground water and less rainfall in those areas.

#### **May 2022 and November 2022**

The seasonal fluctuation in water level between May 2022 and November 2022 indicates the change in water level from pre-monsoon measurement to post-monsoon measurement and the same is presented in Plate X. The district-wise statement of distribution of network hydrograph stations in different ranges of water level fluctuation is presented in Table 08.

Fluctuation in water level for November 2022 compared with May 2022 shows rise in water level (91%) for the entire state of Jharkhand. Out of 304 wells analysed, in the tune of 0 - 2.00 m (31%), 2.00 - 4.00 m (36%) and above 4 m (24%) during the period, which is a normal phenomenon due to recharge of ground water, as a result of onset of monsoon and rapid recharge due to moderate to steep slope in undulating tracts. A fall in water level is recorded in 27 wells out of 304 wells of the state which is mainly due to temporal withdrawal of ground water in those areas.

#### **May 2022 and January 2023**

The fluctuation in water level between May 2022 and January 2023 indicates the change in water level from pre-monsoon measurement to January measurement and the same is presented in Plate XI. Fluctuation in water level maps for May 2022 and January 2023 have been retrieved from 298 analyzed wells. The district wise statement of frequency distribution of network hydrograph stations

falling in different ranges of water level fluctuation is presented in Table 09.

During the period the entire state of Jharkhand shows a general rise (244 wells) in water level, in the range of 0.00 to 2.00 m (57%), 2.00 to 4.00 m (20%) and > 4 mbgl (5%), whereas 54 wells of the state shows fall in water level which may be due to temporal withdrawal of ground water at that area.

#### **4.4 SCENARIO OF DECADAL WATER LEVEL FLUCTUATIONS WITH THE GROUND WATER YEAR 2022 – 2023**

##### **Decadal Mean and May 2022**

Water level fluctuation has been compared the water level data of 158 wells for May Mean (2012-2021) with the depth to water level data May 2022(Plate XVI). The district wise statement of frequency distribution of network hydrograph stations falling in different ranges of water level fluctuation is presented in Table 14.

69% (109) wells show rise and 31% (49) wells shows fall out of 158 wells analysed. 87 numbers of wells show rise within 0 to 2 m. 11 numbers of well show rise in water level within 2 to 4 m and 7 wells shows rise >4m. 44 number of well shows fall in water level within 0 to 2m. Only 5 wells show fall in water level >4m .

However, overall regional fluctuation of water level in the entire state is mainly restricted within 2 m only which is normal phenomenon and no abnormal rise or fall in water level is observed except in few localized well. Fall > 2 mbgl may be due to irregularities of rainfall during last 3 to 4 years.

##### **Decadal Mean and August 2022**

Water level fluctuation has been compared the water level data of 195 wells for August Mean (2012-2021) with the depth to water level data August 2022(Plate XVI). The district wise statement of frequency distribution of network hydrograph stations falling in different ranges of water level fluctuation is presented in Table 15.

51% (99) wells show rise and 49% (96) wells shows fall out of 195 well analysed. 83 numbers of wells show rise within 0 to 2 m. 13 numbers of well show rise in water level within 2 to 4 m and 3 wells shows rise >4m. 76 number of well shows fall in water level within 0 to 2m. Only 18 and 2 wells show fall in water level 2 to 4 m and >4m respectively.

However, overall regional fluctuation of water level in the entire state is mainly restricted within 2 m only which is normal phenomenon and no abnormal rise or fall in water level is observed except in few localized well. Fall > 2 mbgl may be due to irregularities of rainfall during last 3 to 4 years.

### **Decadal Mean and November 2022**

The fluctuation map of water level between November Mean and November 2022 (Plate XVII) has been prepared on the basis of available Mean water level data (200 wells) of November for last 10 years (2012-2021) with the present water level data for Jharkhand. The district-wise statement of distribution of network hydrograph stations in different ranges of water level fluctuation is presented in Table 16.

The fluctuation of water level of November 2022 with respect to decadal mean water level of November 2012 to November 2021 shows rise in 115 wells (60%) and fall in 85 wells (40%) out of 200 wells analysed. 98 wells (50.8%) show rise within 0 to 2 m, 12 wells (6.5%) show rise in water level within 2 to 4m and only 5 wells show rise >4m. 75 (35.1%) and 7 (3.2%) wells show fall in water level within 0 to 2 m and 2 to 4m respectively. Only 3 (2%) wells show water level fall >4m. However, overall regional fluctuation of water level in the entire state is mainly restricted within 2 m only which is normal phenomenon and no abnormal rise or fall in water level is observed except in few localized wells.

### **Decadal Mean and January 2023**

Water level fluctuation map (Plate XVIII) has been prepared by comparing the water level data (189 wells) for January Mean (2013-2022) with the depth to water level data January, 2023. The district wise statement of frequency distribution of network hydrograph stations falling in different ranges of water level fluctuation is presented in Table 17.

The fluctuation of water level of January, 2023 with respect to decadal mean water level of January, 2013 to January 2022 indicates 42 % rise and 58% fall out of 189 wells analysed. 96 (50%) and 12 (5%) wells show fall in water level within 0 to 2 m and 2 to 4m respectively. 70 (39%) and 8 (5%) wells show rise in water level within 0 to 2 m and 2 to 4m respectively. Only 2 wells show water level rise >4m.

## **4.5 TREND OF GROUND WATER LEVEL**

The Trend of ground water level data for January 2013 to December 2022 is presented in Annexure-III.

The observation shows the rising trend of ground water level in 119 wells and falling trend in 80 wells. The trend of ground water level of the entire state is mainly restricted within 0.5 m only which is normal phenomenon and no abnormal rise or fall in water level is observed in the well of the state.

## 5.0 GROUND WATER SCENARIO IN CONFINED AQUIFER

To know the ground water scenario of confined aquifer of Jharkhand, total 96 bore wells of Jharkhand has been taken up for regular monitoring. The bore wells are being monitored from August 2022. Total 88 bore wells monitored during August 2022 and 84 bore wells monitored during November 2022 and 92 bore wells monitored during January 2023.

### **August 2022**

During August 2022 shallowest (0.12 below ground level) water level observed in Banuwadih, Silli block, Ranchi district. The deepest (27.6 m below ground level) water level during august 2022 has been observed in Kutia, Chhatarpur block, Palamu district. Maximum (30 nos, 34%) bore wells shows depth to water level 5m to 10m bgl, situated in Deoghar, Dumka, Garhwa, Koderma, Latehar, Pakur, Ramgarh, Palamu and Simdega district. 26 (30%) wells shows water level within the range 2m to 5m bgl, situated mainly in Jamtara, Khunti, Hazaribagh, Deoghar, Smdega, Saraikela and West singhbhum. 26 (30%) wells shows water level deeper than 10 m bgl which are mainly situated in Deoghar, Dumka, Latehar, Palamu ans Simdega district. Only 6 (6%) wells situated at Chatra, Deoghar, Gumla, Hazaribagh, Ranchi and W Singhbhum district shows water level within 2m bgl. *Plate XIX*

### **November 2022**

During November 2022 shallowest (1.8 below ground level) water level observed in Cahinpur, Gumla district. The deepest (26.35 m below ground level) water level during august 2022 has been observed in Manjhladih, Litipara, Pakur district. Maximum (35 nos, 42%) bore wells shows depth to water level 5m to 10m bgl, situated in Chatra, Deoghar, Dumka, Garhwa, Hazaribagh, Jamtara, Latehar, Pakur, Ramgarh, Palamu and Simdega district. 21 (25%) wells shows water level within the range 2m to 5m bgl, situated mainly in Chatra, Deoghar, Jamtara, Koderma and Lohardaga district. 27 (32%) wells

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shows water level deeper than 10 m bgl which are mainly situated in Deoghar, Dumka, Gridih, Gumla, Latehar, Pakur, Palamu, Ramgarh, Ranchi and Simdega district. Only 1 (1%) wells situated at Gumla district shows water level within 2m bgl. *Plate XX*

### **January 2023**

During January 2023 shallowest (1.8 below ground level) water level observed in Chapri, E Singhbhum district. The deepest (33.12 m below ground level) water level during august 2022 has been observed in Bengadiya, Dumka district. Maximum (42 nos, 46%) bore wells shows depth to water level 5m to 10m bgl, situated in Chatra, Deoghar, Garhwa, Hazaribagh, Jamtara, and W Singhbhum district. 12 (13%) wells shows water level within the range 2m to 5m bgl, situated mainly in Chatra, East Singhbhum, Hazaribagh, Deoghar, Jamtara and Khunti district. 27 (29%) wells shows water level deeper 10-20 m bgl which are mainly situated in Saraikela Kharsawan, Ramarh, Ranchi, Gumla, Latehar, Palamu, Pakur, Dumka, and Giridih district. 9 (10%) wells situated at Dumka, Pakur, Bokaro, Kharsawan, Gumla, Simdega and Sahebganj district shows water level more than 20 m bgl. Only 2 wells situated in E Singhbhum shows water level within 2 m bgl. *Plate XXI*

## **6.0 HYDROGRAPH OF MONITORING STATIONS**

The hydrograph of selected NHNS is depicted in *Annexure V*.

Table - 2

*District-wise status of NHNS as on March 2022*

<b>Sl.No</b>	<b>District</b>	<b>DW</b>	<b>PZ</b>	<b>TOTAL</b>
1	Bokaro	16	2	18
2	Chatra	17	4	21
3	Deoghar	11	6	17
4	Dhanbad	19	3	22
5	Dumka	17	7	24
6	E. Singhbhum	31	2	33
7	Garhwa	11	3	14
8	Giridih	18	4	22
9	Godda	17	3	20
10	Gumla	17	3	20
11	Hazaribagh	27	4	31
12	Jamtara	10	5	15
13	Khunti	14	4	18
14	Koderma	7	3	10
15	Latehar	12	6	18
16	Lohardaga	11	2	13
17	Pakur	11	3	14
18	Palamu	18	6	24
19	Ramgarh	17	4	21
20	Ranchi	54	11	65
21	Sahibganj	21	3	24
22	Saraikela	12	1	13
23	Simdega	14	4	18
24	W Singhbhum	17	3	20
<b>Total</b>		<b>419</b>	<b>96</b>	<b>515</b>

**Table 3: District wise categorisation of depth to water level - May, 2022**

District wise well frequency for different ranges of depth to water level of HNS in <b>May.2022</b> in Jharkhand state														
SN	District	No. of wells analysed	Depth to water level (m bgl)		0-2 m		2-5 m		5-10 m		10-20 m		>20 m	
			Min.	Max.	No.	%	No.	%	No.	%	No.	%	No.	%
1	Bokaro	16	2.2	11.9	0	0	4	25	11	69	1	6	0	0
2	Chatra	10	3.35	12.35	0	0	2	20	7	70	1	10	0	0
3	Deoghar	5	6.11	8.1	0	0	0	0	5	100		0	0	0
4	Dhanbad	12	1.7	11.94	1	8	0	0	10	83	1	8	0	0
5	Dumka	13	3	10.15	0	0	3	23	9	69	1	8	0	0
6	E. Singhbhum	20	1.2	14.55	3	15	10	50	5	25	2	10	0	0
7	Garhwa	9	4.78	8.88	0	0	1	11	8	89		0	0	0
8	Giridih	11	5.25	10.2	0	0	0	0	10	91	1	9	0	0
9	Godda	6	4.45	11.1	0	0	1	17	4	67	1	17	0	0
10	Gumla	10	0.45	8.2	5	50	3	30	2	20		0	0	0
11	Hazaribagh	22	4.8	11.2	0	0	1	5	16	73	5	23	0	0
12	Jamtara	6	4.91	9.3	0	0	1	17	5	83		0	0	0
13	Khunti	13	3	8.9	0	0	2	15	11	85		0	0	0
14	Koderma	6	4.2	10	0	0	3	50	3	50		0	0	0
15	Latehar	9	7	11.1		0		0	8	89	1	11	0	0
16	Lohardaga	10	3.9	12.42	0	0	1	10	8	80	1	10	0	0
17	Pakur	7	2.55	14.2	0	0	1	14	5	71	1	14	0	0
18	Palamu	7	3.73	11.8	0	0	2	29	3	43	2	29	0	0
19	Ramgarh	19	3.5	10.2	0	0	5	26	13	68	1	5	0	0
20	Ranchi	57	2.4	33	0	0	11	19	34	60	11	19	1	2
21	Sahibganj	20	2.75	8.35	0	0	13	65	7	35		0	0	0
22	Saraikela	4	2.1	8.3	0	0	1	25	3	75		0	0	0
23	Simdega	14	2.23	13.1	0	0	6	43	7	50	1	7	0	0
24	W.Singhbhum	18	2.5	13.8	0	0	6	33	9	50	3	17	0	0
	<b>Total</b>	<b>324</b>	<b>0.45</b>	<b>33</b>	<b>9</b>	<b>3</b>	<b>77</b>	<b>24</b>	<b>203</b>	<b>63</b>	<b>34</b>	<b>10</b>	<b>1</b>	<b>0</b>

**Table 4: District wise categorisation of depth to water level – August, 2022**

District wise well frequency for different ranges of depth to water level of HNS in Aug.2022 in Jharkhand state												
SN	District	No. of wells analysed	Depth to water level (m bgl)		0-2 m		2-5 m		5-10 m		10-20 m	
			Min.	Max.	No.	%	No.	%	No.	%	No.	%
1	Bokaro	14	0.64	10.8	7	50	4	29	2	14	1	7
2	Chatra	15	0.75	7.45	4	27	10	67	1	7		0
3	Deoghar	6	2	6.05	1	17	3	50	2	33		0
4	Dhanbad	18	0.6	8.25	3	17	8	44	7	39		0
5	Dumka	17	1.32	9.3	1	6	9	53	7	41		0
6	E. Singhbhum	18	1.09	10.15	8	44	8	44	1	6	1	6
7	Garhwa	10	5.1	9.6	0	0	0	0	10	100		0
8	Giridih	12	2.05	7.2	0	0	8	67	4	33		0
9	Godda	15	1.97	10.62	1	7	8	53	5	33	1	7
10	Gumla	15	0.7	5.8	2	13	10	67	3	20		0
11	Hazaribagh	25	0.9	10.38	7	28	11	44	6	24	1	4
12	Jamtara	10	0.96	7	3	30	2	20	5	50		0
13	Khunti	10	0.85	2.99	4	40	6	60		0		0
14	Koderma	7	2.15	6.2	0	0	4	57	3	43		0
15	Latehar	9	1.3	9.5	1	11	4	44	4	44		0
16	Lohardaga	11	2.1	6.8	0	0	4	36	7	64		0
17	Pakur	12	1.66	6.6	3	25	8	67	1	8		0
18	Palamu	15	4.8	12.1	0	0	1	7	12	80	2	13
19	Ramgarh	21	0.4	6.25	6	29	12	57	3	14		0
20	Ranchi	61	0.09	19.17	34	56	19	31	6	10	2	3
21	Sahibganj	23	1.8	7.98	2	9	15	65	6	26		0
22	Saraikela	6	0.78	2.3	4	67	2	33		0		0
23	Simdega	12	0.55	4.29	5	42	7	58		0		0
24	W Singhbhum	17	0.44	7.08	12	71	3	18	2	12		0
	<b>Total</b>	<b>379</b>	<b>0.09</b>	<b>19.17</b>	<b>108</b>	<b>28</b>	<b>166</b>	<b>44</b>	<b>97</b>	<b>26</b>	<b>8</b>	<b>2</b>

**Table 5: District wise categorisation of depth to water level – November, 2022**

District wise well frequency for different ranges of depth to water level of HNS in Nov.2022 in Jharkhand state												
SN	District	No. of wells analysed	Depth to water level (m bgl)		0-2 m		2-5 m		5-10 m		10-20 m	
			Min.	Max.	No.	%	No.	%	No.	%	No.	%
1	Bokaro	14	1.48	8.38	4	29	6	43	4	29		0
2	Chatra	9	1.45	4.4	2	22	7	78		0		0
3	Deoghar	6	2.47	6.55	0	0	3	50	3	50		0
4	Dhanbad	18	1.16	7.77	3	17	10	56	5	28		0
5	Dumka	16	1.75	8.85	1	6	8	50	7	44		0
6	E. Singhbhum	27	1.12	16.1	5	19	17	63	2	7	3	11
7	Garhwa	10	2.8	7.8	0	0	4	40	6	60		0
8	Giridih	11	2.05	5.75	0	0	10	91	1	9		0
9	Godda	13	2.53	8.01	0	0	6	46	7	54		0
10	Gumla	14	0.4	5.9	2	14	11	79	1	7		0
11	Hazaribagh	21	1.68	9.02	1	5	14	67	6	29		0
12	Jamtara	10	2.12	6.6	0	0	4	40	6	60		0
13	Khunti	13	1	5.91	2	15	9	69	2	15		0
14	Koderma	6	1.85	9.4	2	33	3	50	1	17		0
15	Latehar	11	2.5	8.9	0	0	7	64	4	36		0
16	Lohardaga	10	2.5	7.2	0	0	9	90	1	10		0
17	Pakur	9	1.4	8.4	1	11	5	56	3	33		0
18	Palamu	15	2.1	12.8	0	0	4	27	9	60	2	13
19	Ramgarh	17	1.17	8.26	1	6	11	65	5	29		0
20	Ranchi	53	0.7	5.64	6	11	40	75	7	13		0
21	Sahibganj	21	1.5	6.71	3	14	13	62	5	24		0
22	Saraikeela	10	1.51	6.1	3	30	6	60	1	10		0
23	Simdega	14	0.8	4.82	3	21	11	79		0		0
24	W Singhbhum	18	0.86	7.81	6	33	8	44	4	22		0
	<b>Total</b>	<b>366</b>	<b>0.4</b>	<b>16.1</b>	<b>45</b>	<b>12</b>	<b>226</b>	<b>62</b>	<b>90</b>	<b>25</b>	<b>5</b>	<b>1</b>

**Table 6: District wise categorisation of depth to water level – January, 2023**

District wise well frequency for different ranges of depth to water level of HNS in Jan 2023 in Jharkhand state														
SN	District	No. of wells analysed	Depth to water level (m bgl)		0-2 m		2-5 m		5-10 m		10-20 m		>20 m	
			Min.	Max.	No.	%	No.	%	No.	%	No.	%	No.	%
1	Bokaro	17	1.7	9.87	2	12	9	53	6	35		0	0	0
2	Chatra	14	1.8	12.8	1	7	4	29	8	57	1	7	0	0
3	Deoghar	11	4.07	9.12		0	3	27	8	73		0	0	0
4	Dhanbad	21	1.56	9.55	1	5	9	43	11	52		0	0	0
5	Dumka	18	2.33	9.49	0	0	6	33	12	67		0	0	0
6	E. Singhbhum	21	1.1	15.6	6	29	8	38	5	24	2	10	0	0
7	Garhwa	11	3.26	9.97	0	0	3	27	8	73		0	0	0
8	Giridih	18	2.9	10.5	0	0	6	33	11	61	1	6	0	0
9	Godda	16	4.41	11.14	0	0	3	19	12	75	1	6	0	0
10	Gumla	17	0.26	8.87	3	18	4	24	10	59		0	0	0
11	Hazaribagh	22	3.1	9.8	0	0	4	18	18	82		0	0	0
12	Jamtara	10	3	8.06	0	0	3	30	7	70		0	0	0
13	Khunti	13	1.9	7.04	2	15	8	62	3	23		0	0	0
14	Koderma	10	3.8	9.5	0	0	2	20	8	80		0	0	0
15	Latehar	10	4.04	10.76	0	0	3	30	6	60	1	10	0	0
16	Lohardaga	10	2.97	11.15	0	0	3	30	6	60	1	10	0	0
17	Pakur	11	2.59	12.05	0	0	3	27	7	64	1	9	0	0
18	Palamu	10	4.8	9.5	0	0	1	10	9	90		0	0	0
19	Ramgarh	20	1.93	18.95	1	5	11	55	7	35	1	5	0	0
20	Ranchi	60	1.43	11.47	5	8	19	32	33	55	3	5	0	0
21	Sahibganj	20	2.44	9.97	0	0	10	50	10	50		0	0	0
22	Saraikela	6	1.6	4.6	1	17	5	83		0		0	0	0
23	Simdega	14	1.54	32.51	1	7	7	50	5	36		0	1	0
24	W Singhbhum	16	1.7	11.5	1	6	9	56	5	31	1	6	0	0
	<b>Total</b>	<b>396</b>	<b>0.26</b>	<b>32.51</b>	<b>24</b>	<b>6</b>	<b>143</b>	<b>36</b>	<b>215</b>	<b>54</b>	<b>13</b>	<b>3</b>	<b>1</b>	<b>0</b>

**Table 7: District wise categorisation of fluctuation (Seasonal) in water level and frequency  
Distribution of August 2022 wrt May 2022**

District wise categorization of fluctuation and their frequency of water levels of HNS of Aug 2022 w.r.t. May 2022																				
SN	District	No. of HNS wells	Range of fluctuation (m)				No. of Wells / Percentage showing fluctuation												Total	
			Rise		Fall		Rise						Fall						Rise	Fall
			Min.	Max.	Min.	Max.	<2m	%	2-4m	%	>4m	%	<2m	%	2-4m	%	>4m	%		
1	Bokaro	14	0.74	8.35	_	_	4	29	6	43	4	29	0	0	0	0		0	14	0
2	Chatra	9	1.65	8.4	_		1	11	3	33	5	56	0	0	0	0		0	9	0
3	Deoghar	4	2.09	5.2	_	_	0	0	3	75	1	25	0	0	0	0		0	4	0
4	Dhanbad	12	0.6	6.66			7	58	3	25	2	17	0	0	0	0		0	12	0
5	Dumka	13	0.3	4.45			6	46	5	38	2	15	0	0	0	0		0	13	0
6	E. Singhbhum	16	0.5	8.68	0.41	4.05	6	38	0	0	6	38	3	19	0	0	1	6	12	4
7	Garhwa	9	0.2	2.28	0.03	3.02	3	33	1	11		0	4	44	1	11		0	4	5
8	Giridih	10	1.21	6.7	_	_	2	20	3	30	5	50	0	0	0	0		0	10	0
9	Godda	6	0.48	6.37	_	_	3	50	2	33	1	17	0	0	0	0		0	6	0
10	Gumla	10	_	5.6	0.75	4.7	3	30	0	0	1	10	3	30	1	10	2	20	4	6
11	Hazaribagh	20	0.62	9.8	0.35	3.13	3	15	4	20	11	55	1	5	1	5		0	18	2
12	Jamtara	6	1.8	5.6	_	_	2	33	2	33	2	33	0	0	0	0		0	6	0
13	Khunti	10	2.15	7.4	_	_	0	0	5	50	5	50	0	0	0	0		0	10	0
14	Koderma	5	1.58	3.8	_	_	4	80	1	20		0	0	0	0	0		0	5	0
15	Latehar	7	1.35	6.03	0.33	0.56	1	14	1	14	3	43	2	29	0	0		0	5	2
16	Lohardaga	10	0.75	5.62	2.2	2.2	2	20	3	30	4	40	1	10	0	0		0	9	1
17	Pakur	6	2.05	4.92	0.54	0.54	0	0	4	67	1	17	1	17	0	0		0	5	1
18	Palamu	7	0.13	0.13	0.28	4.4	1	14	0	0		0	3	43	2	29	1	14	1	6
19	Ramgarh	19	0.94	6.3			3	16	10	53	6	32	0	0	0	0		0	19	0
20	Ranchi	53	1.48	10.35			3	6	12	23	38	72	0	0	0	0		0	53	0
21	Sahibganj	19	0.1	3.76	0.11	3.21	7	37	8	42		0	3	16	1	5		0	15	4
22	Saraikela	4	1.32	6.75			1	25	1	25	2	50	0	0	0	0		0	4	0
23	Simdega	12	1.13	8.81			4	33	6	50	2	17	0	0	0	0		0	12	0
24	W Singhbhum	15	0.82	6.86			3	20	5	33	7	47	0	0	0	0		0	15	0
	<b>Total</b>	<b>296</b>	<b>0.1</b>	<b>10.35</b>	<b>0.03</b>	<b>4.7</b>	<b>69</b>	<b>23.3</b>	<b>88</b>	<b>30</b>	<b>108</b>	<b>36</b>	<b>21</b>	<b>7.1</b>	<b>6</b>	<b>2</b>	<b>4</b>	<b>1.4</b>	<b>265</b>	<b>31</b>

**Table 8: District wise categorisation of fluctuation (Seasonal) in water level and frequency  
Distribution of November 2022 wrt May 2022**

District wise categorization of fluctuation and their frequency of water levels of HNS of Nov 2022 w.r.t. May 2022																				
SN	District	No. of HNS wells	Range of fluctuation (m)				No. of Wells / Percentage showing fluctuation												Total	
			Rise		Fall		Rise						Fall						Rise	Fall
			Min.	Max.	Min.	Max.	<2m	%	2-4m	%	>4m	%	<2m	%	2-4m	%	>4m	%		
1	Bokaro	14	0.74	8.35			4	29	6	43	4	29	0	0	0	0	0	0	14	0
2	Chatra	9	1.65	8.4			1	11	3	33	5	56	0	0	0	0	0	0	9	0
3	Deoghar	4	2.09	5.2			0	0	3	75	1	25	0	0	0	0	0	0	4	0
4	Dhanbad	12	0.54	4.95			8	67	2	17	2	17	0	0	0	0	0	0	12	0
5	Dumka	13	0.94		5.55		7	54	5	38	1	8	0	0	0	0	0	0	13	0
6	E. Singhbhum	17	5.6	5.6	0.2	1.95	5	29	3	18	3	18	6	35	0	0	0	0	11	6
7	Garhwa	9	0.2	3.03	2.32		5	56	3	33	0	0	0	0	1	11	0	0	8	1
8	Giridih	9	2.4	5.1			0	0	5	56	4	44	0	0	0	0	0	0	9	0
9	Godda	5	0.44	3.5			4	80	1	20	0	0	0	0		0	0	0	5	0
10	Gumla	8	1.85		0.5	2.55	1	13		0	0	0	6	75	1	13	0	0	1	7
11	Hazaribagh	21	0.55	8.7			3	14	9	43	9	43	0	0	0	0	0	0	21	0
12	Jamtara	6	2.2	3.75			0	0	6	100	0	0	0	0	0	0	0	0	6	0
13	Khunti	12	1.8	6	1.8		3	25	5	42	3	25	1	8	0	0	0	0	11	1
14	Koderma	5	0.6	3.3			1	20	4	80	0	0	0	0	0	0	0	0	5	0
15	Latehar	9	0.37	6.5			3	33	3	33	3	33	0	0	0	0	0	0	9	0
16	Lohardaga	10	1.4	6.15			2	20	3	30	5	50	0	0	0	0	0	0	10	0
17	Pakur	6	1.25	6.35	0.75		2	33	2	33	1	17	1	17	0	0	0	0	5	1
18	Palamu	8	0.5	2.1	0.25	1	4	50	1	13	0	0	3	38	0	0	0	0	5	3
19	Ramgarh	20	0.1	15.27	0.88		10	50	8	40	1	5	1	5	0	0	0	0	19	1
20	Ranchi	56	0.4	11.89			12	21	21	38	23	41	0	0	0	0	0	0	56	0
21	Sahibganj	17	0.6	4.85	0.01	2.12	8	47	2	12	1	6	6	35	0	0	0	0	11	6
22	Saraikela	4	0.12	6.38			1	25	2	50	1	25	0	0	0	0	0	0	4	0
23	Simdega	14	0.49	8.3	1.12		4	29	7	50	2	14	1	7	0	0	0	0	13	1
24	W Singhbhum	16	5.44	5.44			5	31	6	38	5	31	0	0	0	0	0	0	16	0
	<b>Total</b>	<b>304</b>	<b>0.1</b>	<b>15.27</b>	<b>0.01</b>	<b>2.55</b>	<b>93</b>	<b>31</b>	<b>110</b>	<b>36</b>	<b>74</b>	<b>24</b>	<b>25</b>	<b>8</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>277</b>	<b>27</b>



**Table 9: District wise categorisation of fluctuation (Seasonal) in water level and frequency  
Distribution of January 2023 wrt May 2022**

District wise categorization of fluctuation and their frequency of water levels of HNS of <b>Jan. 2023 w.r.t. May 2022</b>																				
SN	District	No. of HNS wells	Range of fluctuation (m)				No. of Wells / Percentage showing fluctuation												Total	
			Rise		Fall		Rise						Fall							
			Min.	Max.	Min.	Max.	<2m	%	2-4m	%	>4m	%	<2m	%	2-4m	%	>4m	%	Rise	Fall
1	Bokaro	15	0.1	5.7	0.85		6	40	5	33	3	20	1	7	0	0	0	0	14	1
2	Chatra	7	0.7	1.33	0.1	0.45	5	71	0	0	0	0	2	29	0	0	0	0	5	2
3	Deoghar	5	0.75	3.13			4	80	1	20	0	0	0	0	0	0	0	0	5	0
4	Dhanbad	12	0.6	4.14			10	83	2	17	0	0	0	0	0	0	0	0	12	0
5	Dumka	13	0.6	4.59	0.43		10	77	1	8	1	8	1	8	0	0	0	0	12	1
6	E. Singhbhum	19	0.15	5.5	0.1	4.2	8	42	6	32	1	5	3	16	1	5	0	0	15	4
7	Garhwa	9	0.5	2.21	0.23		7	78	1	11	0	0	1	11	0	0	0	0	8	1
8	Giridih	10	0.2	2.8	0.4		6	60	3	30	0	0	1	10	0	0	0	0	9	1
9	Godda	6	0.04	2.94	0.4		4	67	1	17	0	0	1	17	0	0	0	0	5	1
10	Gumla	10		2.36	0.74	7.3	0	0	1	10	0	0	3	30	1	10	5	50	1	9
11	Hazaribagh	20	0.1	4.3	0.3	0.13	9	45	6	30	2	10	3	15	0	0	0	0	17	3
12	Jamtara	6	0.42	2.24			5	83	1	17	0	0	0	0	0	0	0	0	6	0
13	Khunti	12	0.63	5.1			10	83	1	8	1	8	0	0	0	0	0	0	12	0
14	Koderma	5	0.4	0.95			5	100	0	0	0	0	0	0	0	0	0	0	5	0
15	Latehar	8	0.8	3.98	0.25		5	63	2	25	0	0	1	13	0	0	0	0	7	1
16	Lohardaga	10	0.37	5.75	0.1	0.51	7	70	0	0	1	10	2	20	0	0	0	0	8	2
17	Pakur	7	0.8	2.15	0.4	1.73	3	43	1	14	0	0	3	43	0	0	0	0	4	3
18	Palamu	5	0.43		0.48	2.37	1	20	0	0	0	0	2	40	2	40	0	0	1	4
19	Ramgarh	18	0.5	2.65	1.1	2.01	15	83	1	6	0	0	2	11	0	0	0	0	16	2
20	Ranchi	52	0.38	5.97	0.4	3.73	25	48	19	37	4	8	2	4	2	4	0	0	48	4
21	Sahibganj	16	0.11	3.97	0.11	5.37	2	13	2	13	0	0	7	44	3	19	2	13	4	12
22	Saraikela	4	0.5	3.7			2	50	2	50	0	0	0	0	0	0	0	0	4	0
23	Simdega	13	0.35	2.48	0.45	1.4	10	77	1	8	0	0	2	15	0	0	0	0	11	2
24	W Singhbhum	16	0.1	4.4	0.89		11	69	3	19	1	6	1	6	0	0	0	0	15	1
	<b>Total</b>	<b>298</b>	<b>0.04</b>	<b>5.97</b>	<b>0.1</b>	<b>7.3</b>	<b>170</b>	<b>57</b>	<b>60</b>	<b>20</b>	<b>14</b>	<b>5</b>	<b>38</b>	<b>13</b>	<b>9</b>	<b>0</b>	<b>7</b>	<b>2</b>	<b>244</b>	<b>54</b>

**Table 10: District wise categorisation of fluctuation (Annual) in water level and frequency  
Distribution of May 2022 wrt May 2021**

Table – 10 District wise categorization of fluctuation and their frequency of water levels of HNS of May. 2022 w.r.t. May 2021																				
SN	District	No. of HNS	Range of fluctuation (m)				No. of Wells / Percentage showing fluctuation												Total	
			Rise		Fall		Rise						Fall						Rise	Fall
			Min.	Max.	Min.	Max.	<2m	%	2-4m	%	>4m	%	<2m	%	2-4m	%	>4m	%		
1	Bokaro	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	Chatra	7	0.38	0.38	1.25	8.6	1	14	0	0	0	0	1	14	1	14	4	57	1	6
3	Deoghar	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Dhanbad	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Dumka	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0
6	E. Singhbhum	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Garhwa	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Giridih	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Godda	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Gumla	10	3.55	6.25	0.3	2.95	0	0	1	10	5	50	2	20	2	20	0	0	6	4
11	Hazaribagh	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Jamtara	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Khunti	1	1.37	1.37	-	-	1	100	0	0	0	0	0	0	0	0	0	0	1	0
14	Koderma	5	2.45	2.45	0.15	2.93	-	0	1	20	0	0	2	40	2	40	0	0	1	4
15	Latehar	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Lohardaga	5	2.2	2.2	0.48	1.73	-	0	1	20	0	0	4	80	0	0	0	0	1	4
17	Pakur	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Palamu	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Ramgarh	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Ranchi	37	0.5	13.5	0.25	29.9	1	3	0	0	3	8	4	11	10	27	19	51	4	33
21	Sahibganj	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0
22	Saraikela	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Simdega	10	0.95	4.35	0.35	7.33	2	20	0	0	2	20	3	30	2	20	1	10	4	6
24	W Singhbhum	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0
	<b>Total</b>	<b>75</b>	-	-	-	-	<b>5</b>	<b>7</b>	<b>3</b>	<b>4</b>	<b>10</b>	<b>13</b>	<b>16</b>	<b>21</b>	<b>17</b>	<b>23</b>	<b>24</b>	<b>32</b>	<b>18</b>	<b>57</b>

**Table 11: District wise categorisation of fluctuation (Annual) in water level and frequency  
Distribution of August 2022 wrt August 2021**

District wise categorization of fluctuation and their frequency of water levels of HNS of Aug. 2022 w.r.t. Aug 2021																						
SN	District	No. of HNS wells	Range of fluctuation (m)				No. of Wells / Percentage showing fluctuation														Total	
			Rise		Fall		Rise						Fall								Rise	Fall
			Min.	Max.	Min.	Max.	<2m	%	2-4m	%	>4m	%	<2m	%	2-4m	%	>4m	%				
1	Bokaro	12	0.37	5.17	0.19	1.68	3	25	3	25	1	8	5	42		0	0	0	7	5		
2	Chatra	9	0.5	1.05	0.3	4.85	4	44	0	0	0	0	2	22	3	33	0	0	4	5		
3	Deoghar	4	0.97	3.62	–	–	1	25	3	75	0	0		0	0	0	0	4	0			
4	Dhanbad	10	0.3	3.53	0.12	0.2	5	50	2	20	0	0	3	30	0	0	0	7	3			
5	Dumka	15	0.12	5.1	–	–	8	53	4	27	2	13	1	7	0	0	0	14	1			
6	E. Singhbhum	18	0.13	9.15	0.1	5.35	6	33		0	1	6	7	39	3	17	1	6	7	11		
7	Garhwa	10	3.4	6.8	–	–	0	0	5	50	5	50		0	0	0	0	10	0			
8	Giridih	11	0.17	4.7	0.47		6	55	4	36	0	0	1	9	0	0	0	10	1			
9	Godda	14	0.48	5.53	0.61		6	43	5	36	2	14	1	7	0	0	0	13	1			
10	Gumla	15	0.05	3.2	0.05	1.25	8	53	3	20	0	0	4	27	0	0	0	11	4			
11	Hazaribagh	24	0.28	8.28	0.35	3.9	8	33	6	25	3	13	5	21	2	8	0	17	7			
12	Jamtara	10	0.57	3.63	0.02	0.21	3	30	5	50	0	0	2	20	0	0	0	8	2			
13	Khunti	10	0.1	1.95	0.01	0.35	8	80		0	0	0	2	20	0	0	0	8	2			
14	Koderma	5	1.5	4.1	–	–	2	40	2	40	1	20		0	0	0	0	5	0			
15	Latehar	9	1.3	5.8	0.1	0.3	4	44	1	11	2	22	2	22	0	0	0	7	2			
16	Lohardaga	10	0.1	3.7	0.25	0.5	4	40	4	40	0	0	2	20	0	0	0	8	2			
17	Pakur	12	0.18	3.22	0.45	2.4	9	75	1	8	0	0	1	8	1	8	0	10	2			
18	Palamu	15	0.6	8.2	–	–	2	13	3	20	10	67		0	0	0	0	15	0			
19	Ramgarh	18	0.1	2.3	0.44	1.67	7	39	1	6	0	0	10	56	0	0	0	8	10			
20	Ranchi	58	0.1	5.37	0.1	10.33	8	14	2	3	1	2	24	41	15	26	8	14	11	47		
21	Sahibganj	14	0.05	2.88	0.25	0.35	8	57	4	29	0	0	2	14	0	0	0	12	2			
22	Saraikela	6	0.09	0.5	0.55	1.98	2	33	0	0	0	0	4	67	0	0	0	2	4			
23	Simdega	12	0.1	2.57	0.07	1.05	6	50	1	8	0	0	5	42	0	0	0	7	5			
24	W Singhbhum	13	0.32	0.32	0.1	2.78	3	23	0	0	0	0	8	62	2	15	0	3	10			
	<b>Total</b>	<b>334</b>	<b>0.05</b>	<b>9.15</b>	<b>0.77</b>	<b>10.33</b>	<b>121</b>	<b>36</b>	<b>59</b>	<b>18</b>	<b>28</b>	<b>8</b>	<b>91</b>	<b>27</b>	<b>26</b>	<b>8</b>	<b>9</b>	<b>3</b>	<b>208</b>	<b>126</b>		

**Table 12: District wise categorisation of fluctuation (Annual) in water level and frequency  
Distribution of November 2022 wrt November 2021**

District wise categorization of fluctuation and their frequency of water levels of HNS of Nov. 2022 w.r.t. Nov 2021																				
SN	District	No. of HNS wells	Range of fluctuation (m)				No. of Wells / Percentage showing fluctuation												Total	
			Rise		Fall		Rise						Fall						Rise	Fall
			Min.	Max.	Min.	Max.	<2m	%	2-4m	%	>4m	%	<2m	%	2-4m	%	>4m	%		
1	Bokaro	13	0.01	2.36	0.5		10	77	2	15		0	1	8					12	1
2	Chatra	8	0.05		0.05	3.96	1	13		0		0	4	50	3	38			1	7
3	Deoghar	4	0.67	2.18	-	-	3	75	1	25		0		0		0			4	
4	Dhanbad	15	0.24	1.67	0.22	3.43	8	53		0		0	5	33	2	13			8	7
5	Dumka	13	0.06	3.4	0.05	-	10	77	2	15		0	1	8		0			12	1
6	E. Singhbhum	9	0.03	7.07	2	-	5	56	1	11	2	22	1	11		0			8	1
7	Garhwa	10	0.7	3.9	0.2	3.8	5	50	2	20		0	1	10	2	20			7	3
8	Giridih	7	0.05	2.15	0.3	-	5	71	1	14		0	1	14		0			6	1
9	Godda	12	0.93	4.3	-	-	7	58	4	33	1	8		0		0			12	
10	Gumla	13	1.67	7.7	-	-	1	8	3	23	9	69		0		0			13	
11	Hazaribagh	21	0.05	5.77	0.06	5.83	7	33	1	5	1	5	8	38	2	10	2	10	9	12
12	Jamtara	10	0.01	4.64	0.22	-	5	50	3	30	1	10	1	10		0		0	9	1
13	Khunti	11	0.23	4.4	0.03	1.56	8	73		0	1	9	2	18		0		0	9	2
14	Koderma	5	0.85	4.7	0.35	3.25	1	20		0	1	20	2	40	1	20		0	2	3
15	Latehar	7	0.15	0.9	0.3	0.7	3	43		0		0	4	57		0		0	3	4
16	Lohardaga	8	0.25	0.25	0.15	2.48	3	38		0		0	2	25	3	38		0	3	5
17	Pakur	9	1.56	1.56	0.35	2.9	6	67		0		0	2	22	1	11		0	6	3
18	Palamu	14	0.4	4.5	0.3	2.3	2	14	6	43	3	21	2	14	1	7		0	11	3
19	Ramgarh	17	0.09	3.2	0.19	0.51	12	71	3	18		0	2	12		0		0	15	2
20	Ranchi	49	0.02	4.13	0.01	6.12	29	59	3	6	1	2	15	31		0	1	2	33	16
21	Sahibganj	17	2.47	2.47	1.48	2.89	12	71	1	6		0	2	12	2	12		0	13	4
22	Saraikele	4	0.03	0.06	0.03		3	75		0		0	1	25		0		0	3	1
23	Simdega	14	0.03	0.79			14	100		0		0		0		0		0	14	
24	W Singhbhum	13	0.03	3.73	0.1	0.2	10	77	1	8		0	2	15		0		0	11	2
	<b>Total</b>	<b>303</b>	<b>0.01</b>	<b>7.7</b>	<b>0.01</b>	<b>6.12</b>	<b>170</b>	<b>56</b>	<b>34</b>	<b>11</b>	<b>20</b>	<b>7</b>			<b>17</b>	<b>6</b>	<b>3</b>	<b>1</b>	<b>225</b>	<b>79</b>

**Table 13: District wise categorisation of fluctuation (Annual) in water level and frequency  
Distribution of January 2023 wrt January 2022**

District wise categorization of fluctuation and their frequency of water levels of HNS of Jan 2023 w.r.t. Jan 2022																				
SN	District	No. of HNS wells	Range of fluctuation (m)				No. of Wells / Percentage showing fluctuation												Total	
			Rise		Fall		Rise						Fall						Rise	Fall
			Min.	Max.	Min.	Max.	<2m	%	2-4m	%	>4m	%	<2m	%	2-4m	%	>4m	%		
1	Bokaro	12	0.05	1.3	0.06	1.38	6	50	0	0	0	0	6	50	0	0	0	0	6	6
2	Chatra	7	0.5	3.7	0.5	—	4	57	2	29	0	0	1	14	0	0	0	0	6	1
3	Deoghar	6	0.35	1.06	0.24	—	5	83		0	0	0	1	17	0	0	0	0	5	1
4	Dhanbad	18	0.2	6.44	0.04	2.38	10	56	1	6	1	6	5	28	1	6	0	0	12	6
5	Dumka	14	0.4	3.09	—	—	11	79	3	21	0	0		0	0	0	0	0	14	
6	E. Singhbhum	6	0.57	6.27	0.2	0.31	1	17	2	33	1	17	2	33	0	0	0	0	4	2
7	Garhwa	10	0.5	3.65	0.1	3.18	4	40	2	20	0	0	3	30	1	10	0	0	6	4
8	Giridih	12	0.3	6.05	0.6	—	7	58	2	17	2	17	1	8		0	0	0	11	1
9	Godda	14	1.21	4.25	—	—	7	50	6	43	1	7		0		0	0	0	14	
10	Gumla	15	0.15	1.39	0.04	2.69	13	87		0	0	0	1	7	1	7	0	0	13	2
11	Hazaribagh	21	5	5	0.75	4.5	9	43	6	29	1	5	3	14	2	10	0	0	16	5
12	Jamtara	10	0.16	5.99	—	—	4	40	5	50	1	10		0		0	0	0	10	
13	Khunti	13	0.09	3.94	0.25	2.88	7	54	1	8		0	4	31	1	8	0	0	8	5
14	Koderma	6	0.8	4.68	—	—	4	67	1	17	1	17		0		0	0	0	6	
15	Latehar	9	0.51	2.05	1.14	—	6	67	2	22		0	1	11		0	0	0	8	1
16	Lohardaga	9	0.37	2.21	2.25	—	6	67	2	22		0		0	1	11	0	0	8	1
17	Pakur	11	0.21	4.36	0.72	—	7	64	2	18	1	9	1	9		0	0	0	10	1
18	Palamu	10	1.3	4.3	2		3	30	5	50	1	10	1	10		0	0	0	9	1
19	Ramgarh	18	0.2	6.75	0.06	3.34	9	50	1	6	1	6	5	28	2	11	0	0	11	7
20	Ranchi	54	0.06	6.71	0.2	1.65	35	65	8	15	4	7	7	13		0	0	0	47	7
21	Sahibganj	16	0.53	3.7	0.67	1.51	7	44	5	31	0	0	4	25		0	0	0	12	4
22	Saraikela	5	1.18	1.94	0.9	1.75	2	40	0	0	0	0	3	60		0	0	0	2	3
23	Simdega	13	0.09	1.95	0.1	0.21	10	77	0	0	0	0	3	23		0	0	0	10	3
24	W Singhbhum	16	0.8	4.62	0.73	1.62	5	31	6	38	1	6	4	25		0	0	0	12	4
	<b>Total</b>	<b>325</b>	<b>0.05</b>	<b>6.75</b>	<b>0.04</b>	<b>4.5</b>	<b>182</b>	<b>56</b>	<b>62</b>	<b>19</b>	<b>16</b>	<b>5</b>	<b>56</b>	<b>17</b>	<b>9</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>260</b>	<b>65</b>

**Table 14: District wise categorisation of fluctuation (Decadal) in water level and frequency  
Distribution between May (2012-2021 mean) - May, 2022**

District	No.	Range of fluctuation (m)				No. of Wells / Percentage showing fluctuation											
		Rise		Fall		Rise						Fall					
		Min.	Max.	Min.	Max.	<2m	%	2-	%	>4m	%	<2m	%	2-	%	>4m	%
Bokaro	9	0.63	8.8	0.26	0.47	5	55.6	0	0	1	11.1	3	33.3	0	0	0	0
Chatra	6	0.01	1.15	0.15	1.07	4	66.7	0	0	0	0	2	33.3	0	0	0	0
Devghar	6	0.04	2.02	5	83.3	1	16.7	0	0	0	0	0	0	0	0		
Dhanbad	4	0.97	2.18	3	75	1	25	0	0	0	0	0	0	0	0		
Dumka	13	0.1	2.55	0.11	2.09	3	23.1	1	7.7	0	0	8	61.5	1	7.7	0	0
Garhwa	1	1.04	1.04	0	0	0	0	0	0	1	100	0	0	0	0		
Giridih	12	0.37	5.91	0.05	0.97	6	50	1	8.3	2	16.7	3	25	0	0	0	0
Godda	4	0.61	1.62	0.76	0.76	3	75	0	0	0	0	1	25	0	0	0	0
Gumla	9	2.28	7.64	0.44	0.44	0	0	1	11.1	7	77.8	1	11.1	0	0	0	0
Hazaribag	7	0.76	5	0.39	1.21	3	42.9	0	0	1	14.3	3	42.9	0	0	0	0
Jamtara	2	0.44	0.73	0	0	0	0	0	0	2	100	0	0	0	0		
Khunti	3	0.12	3.71	2	66.7	1	33.3	0	0	0	0	0	0	0	0		
Koderma	1	0.3	0.3	1	100	0	0	0	0	0	0	0	0	0	0		
Latehar	5	0.08	1.45	2.18	2.18	4	80	0	0	0	0	0	0	1	20	0	0
Lohardaga	6	0.55	1.65	0.25	2.68	2	33.3	0	0	0	0	3	50	1	16.7	0	0
Pakur	3	0.41	0.41	0.62	2.54	1	33.3	0	0	0	0	1	33.3	1	33.3	0	0
Palamu	7	0.06	0.95	7	100	0	0	0	0	0	0	0	0	0	0		
Paschim Singbhum	8	0.02	1.77	8	100	0	0	0	0	0	0	0	0	0	0		
Purba Singbhum	6	0.51	3.04	1.68	1.68	3	50	2	33.3	0	0	1	16.7	0	0	0	0
Ramgarh	5	0.29	0.78	1.16	1.16	4	80	0	0	0	0	1	20	0	0	0	0
Ranchi	22	0.06	1.97	0.07	3.21	9	40.9	0	0	0	0	12	54.5	1	4.5	0	0
Sahebganj	8	0.66	3.83	6	75	2	25	0	0	0	0	0	0	0	0		
Saraikele-Kharswan	3	0.19	1.26	3	100	0	0	0	0	0	0	0	0	0	0		
Simdega	8	0.33	2.68	0.31	0.36	5	62.5	1	12.5	0	0	2	25	0	0	0	0
<b>Total</b>	<b>158</b>					<b>87</b>	<b>53</b>	<b>11</b>	<b>7.3</b>	<b>11</b>	<b>7.3</b>	<b>44</b>	<b>29.1</b>	<b>5</b>	<b>3.3</b>	<b>0</b>	<b>0</b>

**Table 15: District wise categorisation of fluctuation (Decadal) in water level and frequency  
Distribution between August (2012-2021 mean) - August, 2022**

District	No. of HNS	Range of fluctuation (m)				No. of Wells / Percentage showing fluctuation											
		Rise		Fall		Rise						Fall					
		Min.	Max.	Min.	Max.	<2m	%	2-4m	%	>4m	%	<2m	%	2-4m	%	>4m	%
Bokaro	7	0.2	8.31	0.32	2.13	3	42.9	0	0	1	14.3	2	28.6	1	14.3	0	0
Chatra	6	0.83	6.61	0.06	0.24	1	16.7	2	33.3	1	16.7	2	33.3	0	0	0	0
Devghar	6	0.35	2.89	0.22	1.08	2	33.3	2	33.3	0	0	2	33.3	0	0	0	0
Dhanbad	7	0.06	1.15	0.49	1.86	2	28.6	0	0	0	0	5	71.4	0	0	0	0
Dumka	14	0.08	1.32	0.26	1.98	5	35.7	0	0	0	0	9	64.3	0	0	0	0
Garhwa	4	2.03	3.78	0	0	0	0	0	0	0	0	4	100	0	0		
Giridih	12	0.07	2.84	0.48	2.64	5	41.7	1	8.3	0	0	4	33.3	2	16.7	0	0
Godda	8	0	3.08	1.06	1.33	3	37.5	1	12.5	0	0	4	50	0	0	0	0
Gumla	14	0.05	1.18	0.02	1.67	9	64.3	0	0	0	0	5	35.7	0	0	0	0
Hazaribag	13	0.04	3.83	0.27	1.36	6	46.2	1	7.7	0	0	6	46.2	0	0	0	0
Jamtara	4	0.29	1.23	2.32	2.86	2	50	0	0	0	0	0	0	2	50	0	0
Khunti	2	0.81	0.89	2	100	0	0	0	0	0	0	0	0	0	0		
Koderma	2	2.33	2.33	2.42	2.42	0	0	1	50	0	0	0	0	1	50	0	0
Latehar	4	1.79	4.68	0	0	0	0	0	0	2	50	1	25	1	25		
Lohardaga	7	0.68	2.03	0.45	2.28	1	14.3	1	14.3	0	0	3	42.9	2	28.6	0	0
Pakur	5	0.07	1.33	0.62	1.07	2	40	0	0	0	0	3	60	0	0	0	0
Palamau	2	0.1	3.09	0	0	0	0	0	0	1	50	1	50	0	0		
Paschim Singbhum	11	0.22	1.92	0.12	1.97	8	72.7	0	0	0	0	3	27.3	0	0	0	0
Purba Singbhum	7	0.02	2.14	0.22	8.54	3	42.9	1	14.3	0	0	2	28.6	0	0	1	14.3
Ramgarh	7	0.21	3.19	0.79	2.59	4	57.1	1	14.3	0	0	1	14.3	1	14.3	0	0
Ranchi	26	0.05	4.22	0.07	0.88	16	61.5	2	7.7	1	3.8	7	26.9	0	0	0	0
Sahebganj	17	0.05	3.54	0.06	1.02	4	24	0	0	0	0	10	58	3	18	0	0
Saraikele-Kharswan	4	0.05	1.12	0.15	0.15	3	75	0	0	0	0	1	25	0	0	0	0
Simdega	6	0.65	0.7	0.01	0.59	2	33.3	0	0	0	0	4	66.7	0	0	0	0
<b>Total</b>	<b>195</b>					<b>83</b>	<b>44.4</b>	<b>13</b>	<b>7.3</b>	<b>3</b>	<b>1.7</b>	<b>76</b>	<b>37.1</b>	<b>18</b>	<b>8.4</b>	<b>2</b>	<b>1.1</b>

**Table 16: District wise categorisation of fluctuation (Decadal) in water level and frequency Distribution between November (2012-2021 mean) - November, 2022**

District	No. of HNS well	Range of fluctuation (m)				No. of Wells / Percentage showing fluctuation											
		Rise		Fall		Rise						Fall					
		Min.	Max.	Min.	Max.	<2m	%	2-4m	%	>4m	%	<2m	%	2-4m	%	>4m	%
Bokaro	8	0.16	0.97	0.01	0.9	6	75	0	0	0	0	2	25	0	0	0	0
Chatra	6	0.36	6.03	3	50	2	33.3	1	16.7	0	0	0	0	0	0	0	0
Devghar	6	0.06	1.24	0.9	0.91	4	66.7	0	0	0	0	2	33.3	0	0	0	0
Dhanbad	8	0.02	1.94	0.21	1.05	2	25	0	0	0	0	6	75	0	0	0	0
Dumka	14	0.05	0.36	0.13	1.42	3	21.4	0	0	0	0	11	78.6	0	0	0	0
Garhwa	3	0.27	1.73	1.81	1.81	2	66.7	0	0	0	0	1	33.3	0	0	0	0
Giridih	11	0.55	1.99	0.17	1.83	6	54.5	0	0	0	0	5	45.5	0	0	0	0
Godda	7	0.66	1.94	0.34	1.82	2	28.6	0	0	0	0	5	71.4	0	0	0	0
Gumla	12	0.03	2.79	0.38	0.38	10	83.3	1	8.3	0	0	1	8.3	0	0	0	0
Hazaribag	11	0.22	5.27	1.27	1.32	7	63.6	0	0	2	18.2	2	18.2	0	0	0	0
Jamtara	4	0.74	0.91	0.78	1.62	2	50	0	0	0	0	2	50	0	0	0	0
Khunti	5	0.49	2.82	0.06	3.56	1	20	1	20	0	0	2	40	1	20	0	0
Koderma	3	2	4.38	0.25	0.25	0	0	1	33.3	1	33.3	1	33.3	0	0	0	0
Latehar	6	0.19	1.9	0.09	0.11	4	66.7	0	0	0	0	2	33.3	0	0	0	0
Lohardaga	7	0.92	2.86	0.32	0.35	1	14.3	4	57.1	0	0	2	28.6	0	0	0	0
Pakur	2	1.46	2.33	0	0	0	0	0	0	1	50	1	50	0	0	0	0
Palamau	2	1.09	1.09	0.63	0.63	1	50	0	0	0	0	1	50	0	0	0	0
Paschim Singbhum	13	0.35	2.63	0.21	2.05	7	53.8	2	15.4	0	0	3	23.1	1	7.7	0	0
Purba Singbhum	6	0.05	0.28	0.01	6.88	2	33.3	0	0	0	0	2	33.3	0	0	2	33.3
Ramgarh	9	0	1.9	0.11	5.3	5	55.6	0	0	0	0	2	22.2	1	11.1	1	11.1
Ranchi	32	0.19	5.1	0	2.16	22	68.8	0	0	1	3.1	7	21.9	2	6.3	0	0
Sahebganj	15	1.25	1.49	0.17	2.25	4	27	0	0	0	0	10	66	1	7	0	0
Saraikela-Kharswan	3	0.89	0.89	0.07	0.29	1	33.3	0	0	0	0	2	66.7	0	0	0	0
Simdega	7	0.33	3.51	0.05	1.79	3	42.9	1	14.3	0	0	3	42.9	0	0	0	0
<b>Total</b>	<b>200</b>					<b>98</b>	<b>50.8</b>	<b>12</b>	<b>6.5</b>	<b>5</b>	<b>2.7</b>	<b>75</b>	<b>35.1</b>	<b>7</b>	<b>3.2</b>	<b>3</b>	<b>1.6</b>



**Table 17: District wise categorisation of fluctuation (Decadal) in water level and frequency  
Distribution between January (2013-2022 mean) - January, 2023**

District	No. of HNS	Range of fluctuation (m)				No. of Wells / Percentage showing fluctuation											
		Rise		Fall		Rise						Fall					
		Min.	Max.	Min.	Max.	<2m	%	2-4m	%	>4m	%	<2m	%	2-4m	%	>4m	%
Bokaro	8	0.2	6.9	0.01	0.04	5	62.5	0	0	1	12.5	2	25	0	0	0	0
Chatra	6	0.04	0.15	1.28	1.58	3	50	0	0	0	0	3	50	0	0	0	0
Devghar	7	0.03	2.53	0.34	0.74	4	57.1	1	14.3	0	0	2	28.6	0	0	0	0
Dhanbad	7	0.14	1.12	0.05	0.69	2	28.6	0	0	0	0	5	71.4	0	0	0	0
Dumka	13	0.03	0.07	0.04	1.33	2	15.4	0	0	0	0	11	84.6	0	0	0	0
Garhwa	4	0.11	3	0	0	0	0	0	0	2	50	2	50	0	0		
Giridih	13	0.07	1.15	0.34	3.72	6	46.2	0	0	0	0	6	46.2	1	7.7	0	0
Godda	8	0.11	0.11	0.15	3.13	1	12.5	0	0	0	0	6	75	1	12.5	0	0
Gumla	14	0.05	2.18	0.03	1.13	6	42.9	1	7.1	0	0	7	50	0	0	0	0
Hazaribag	12	0.15	4.55	0.01	1.7	4	33.3	2	16.7	1	8.3	5	41.7	0	0	0	0
Jamtara	4	0.04	0.04	0.64	1.45	1	25	0	0	0	0	3	75	0	0	0	0
Khunti	5	0.16	2.68	0.05	0.05	3	60	1	20	0	0	1	20	0	0	0	0
Koderma	3	0.25	1.44	0	0	0	0	0	0	3	100	0	0	0	0		
Latehar	5	0.61	0.61	0.17	0.94	1	20	0	0	0	0	4	80	0	0	0	0
Lohardaga	7	0.05	1.18	0.15	1.38	3	42.9	0	0	0	0	4	57.1	0	0	0	0
Pakur	4	1.1	3.62	0	0	0	0	0	0	2	50	2	50	0	0		
Palamau	2	1.27	1.27	0.44	0.44	1	50	0	0	0	0	1	50	0	0	0	0
Paschim Singbhum	14	0.26	2.68	0.08	3.03	5	35.7	2	14.3	0	0	5	35.7	2	14.3	0	0
Purba Singbhum	6	0.36	1.41	0.17	4.9	3	50	0	0	0	0	2	33.3	0	0	1	16.7
Ramgarh	6	0.39	1.1	0.05	0.54	2	33.3	0	0	0	0	4	66.7	0	0	0	0
Ranchi	17	0.1	3.68	0.58	2.2	12	70.6	1	5.9	0	0	3	17.6	1	5.9	0	0
Sahebganj	14	0.69	1.74	0.03	2.4	2	14.29	0	0	0	0	9	64.28	3	21.43	0	0
Saraikela-Kharswan	3	0.63	1.69	0.06	0.06	2	66.7	0	0	0	0	1	33.3	0	0	0	0
Simdega	7	0.27	0.89	0.55	0.97	2	28.6	0	0	0	0	5	71.4	0	0	0	0
<b>Total</b>	<b>189</b>					<b>70</b>	<b>38.9</b>	<b>8</b>	<b>4.6</b>	<b>2</b>	<b>1.1</b>	<b>96</b>	<b>49.7</b>	<b>12</b>	<b>5.1</b>	<b>1</b>	<b>0.6</b>

PLATE I

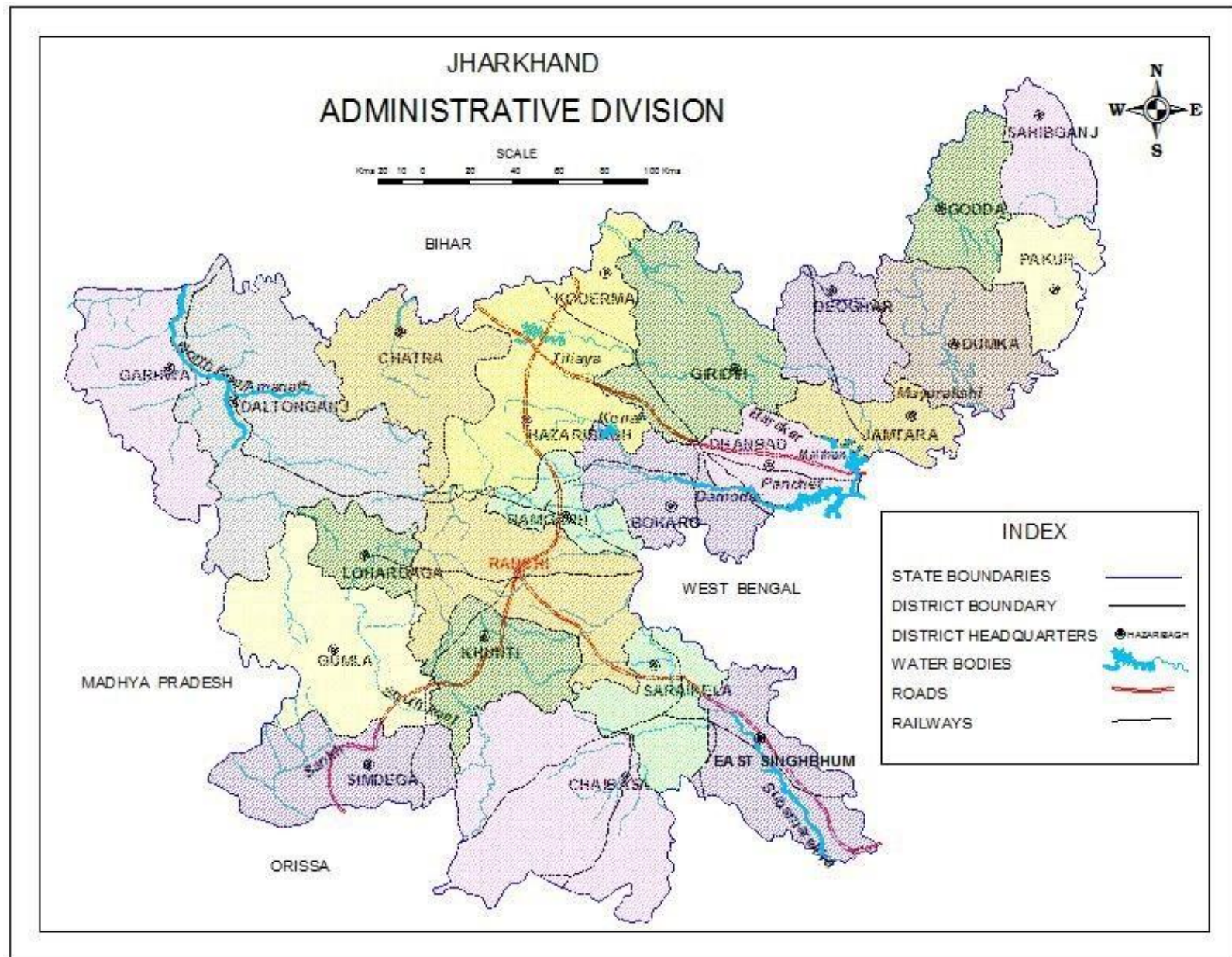
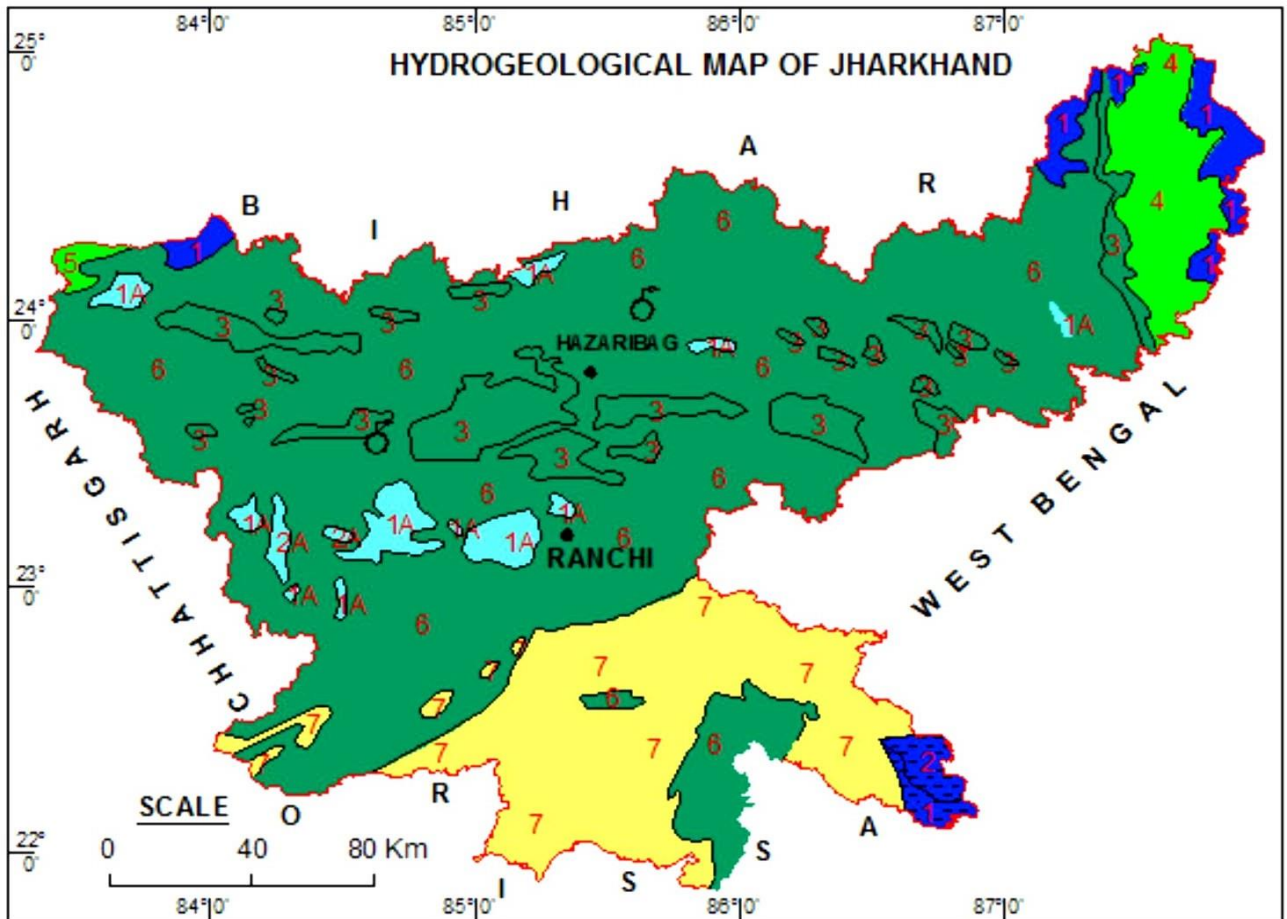




PLATE III



**FISSURED & SEMI-CONSOLIDATED FORMATIONS**









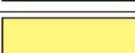
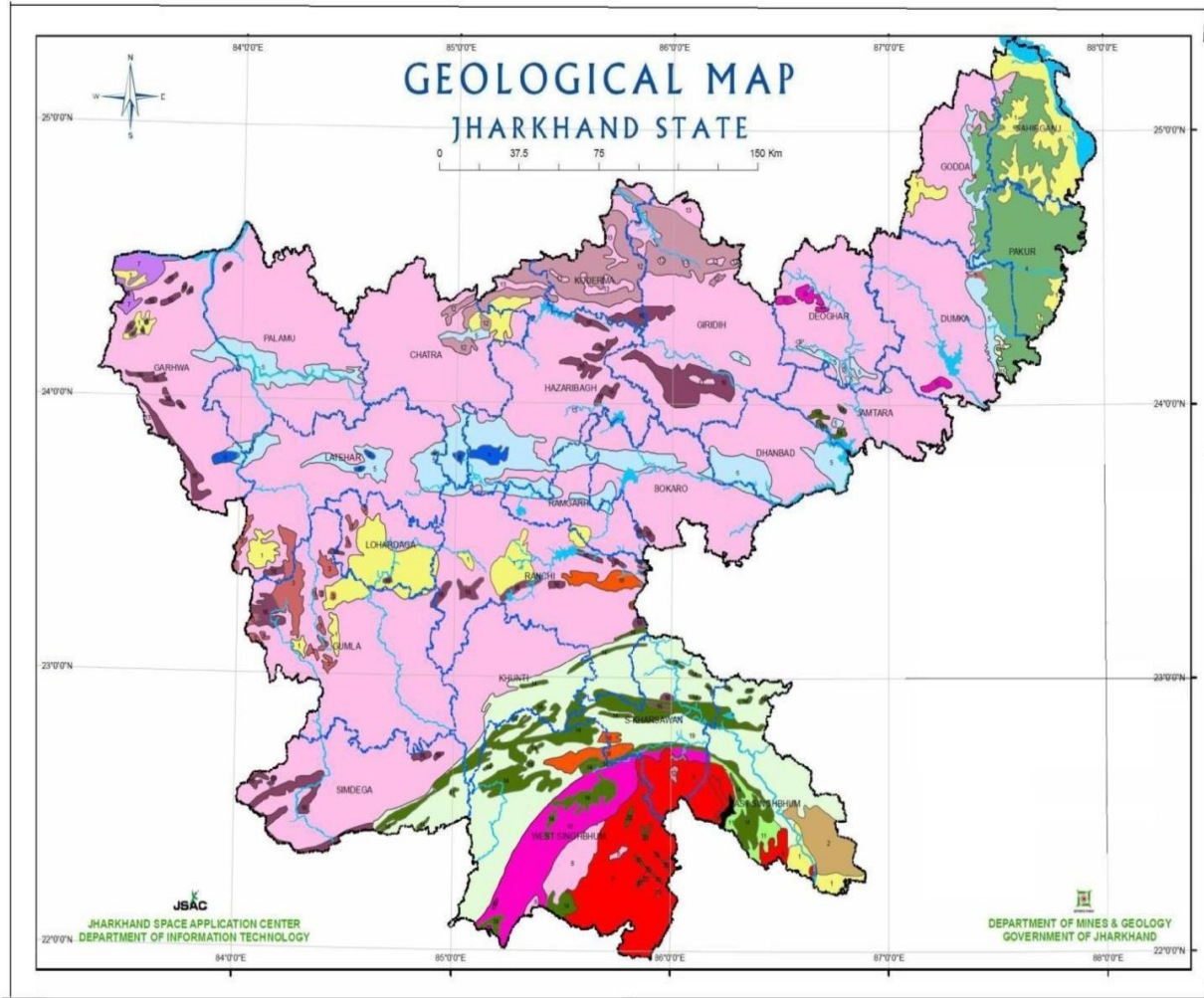
UNITS	AGE GROUP	FORMATION	COLOUR	LITHOLOGY	GROUN WATER POTENTIAL
1	QUATERNARY	ALLUVIUM		CLAY, SILT, GRAVEL, PEBBLES & CALC	>40 m <sup>3</sup> /hr
1A	QUATERNARY	ALLUVIUM		CLAY, SILT & SAND	1-10 m <sup>3</sup> /hr
2	PLEISTOCENE TERTIARY	LATERITES		LATERITES & LITHOMARGE	1-10 m <sup>3</sup> /hr
2A	PLEISTOCENE TERTIARY	TERTIARY		SAND, SILT, CLAY, PABLE & GRAVEL	10-40 m <sup>3</sup> /hr
3	CARBONIFEROUS ECRETACEOUS	GONDWANA		CLAY, SILT, GRIT, SANDSTONE & SHALE	1->25 m <sup>3</sup> /hr
4	L JURASSIC E CRETACEOUS	RAJMAHAL BASALT		BASALT FLOWS WITH INTERTRAPPEANS	1-25 m <sup>3</sup> /hr
5	PROTEROZOIC E CAMBRIAN	VINDHYAN		QUARTZITE, LIMESTONE, SANDSTONE, DOLOMITE & SHALE	1-25 m <sup>3</sup> /hr
6	PROTEROZOIC ARCHEAN	CHHOTNAGPUR GNEISS COMPLEX		GNEISSES & GRANITES	1->25 m <sup>3</sup> /hr
7	PROTEROZOIC ARCHEAN	VOLCANO-SEDIMENTARY		SCHISTS, PHYLLITES, BASIC & ACIDIC INTRUSIVES	1-15 m <sup>3</sup> /hr

PLATE IV



INDEX

















- |   |   |   |   |
|---|---|---|---|
|  | 1, Alluvium, Soil/Boulder Conglomerate, Older Alluvium & Laterite |  | 11, Dhanjori Quartzite and Conglomerate                         |
|  | 2, Tertiary Gravels   |  | 12, Micaschist, Phyllite, Quartzite/Metamorphic of Chhotanagpur |
|  | 3, Laterite   |  | 13, Chhotanagpur Gneiss & Granophyre                            |
|  | 4, Rajmahal Trap/Intertrappean Beds/Trap Dykes                    |  | 14, Dhanjori Lava/Dalma Lava/ Basic rocks                       |
|  | 5, Lower Gondwana System/Carbonaceous Shale/Sandstone/Coal Seams  |  | 15, Sandstone, Shale (Dubrajpur Formation)                      |
|  | 6, Upper Godwana System/Sandstone/Red Clay                        |  | 16, Basic & Ultrabasic  |
|  | 7, Lower Vindhyan System/Limestone/Shale                          |  | 17, Gabbro - Anorthosite  |
|  | 8, Kolhan Series/Limestone/Sandstone/Quartzite                    |  | 18, Granite   |
|  | 9, Singhbhum Granite  |  | 19, Volcanogenic Meta-sediments and Metasedimentary rocks       |
|  | 10, BHQ/BHJ/Metavolcanics/Metasedimentary                         |  | 20, Newer Dolerite  |
|   |   |  | River/Water Body  |
|   |   |  | District Boundary   |
|   |   |  | State Boundary  |

PLATE V

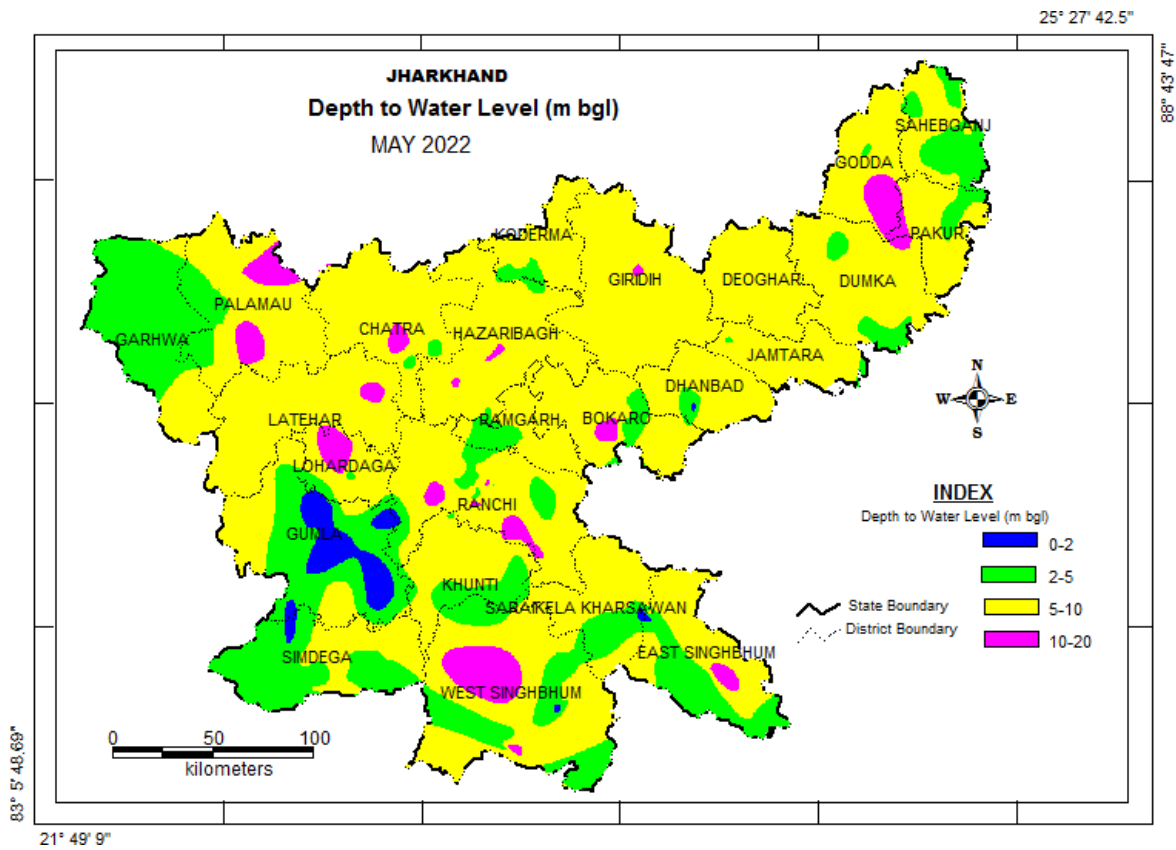


PLATE VI

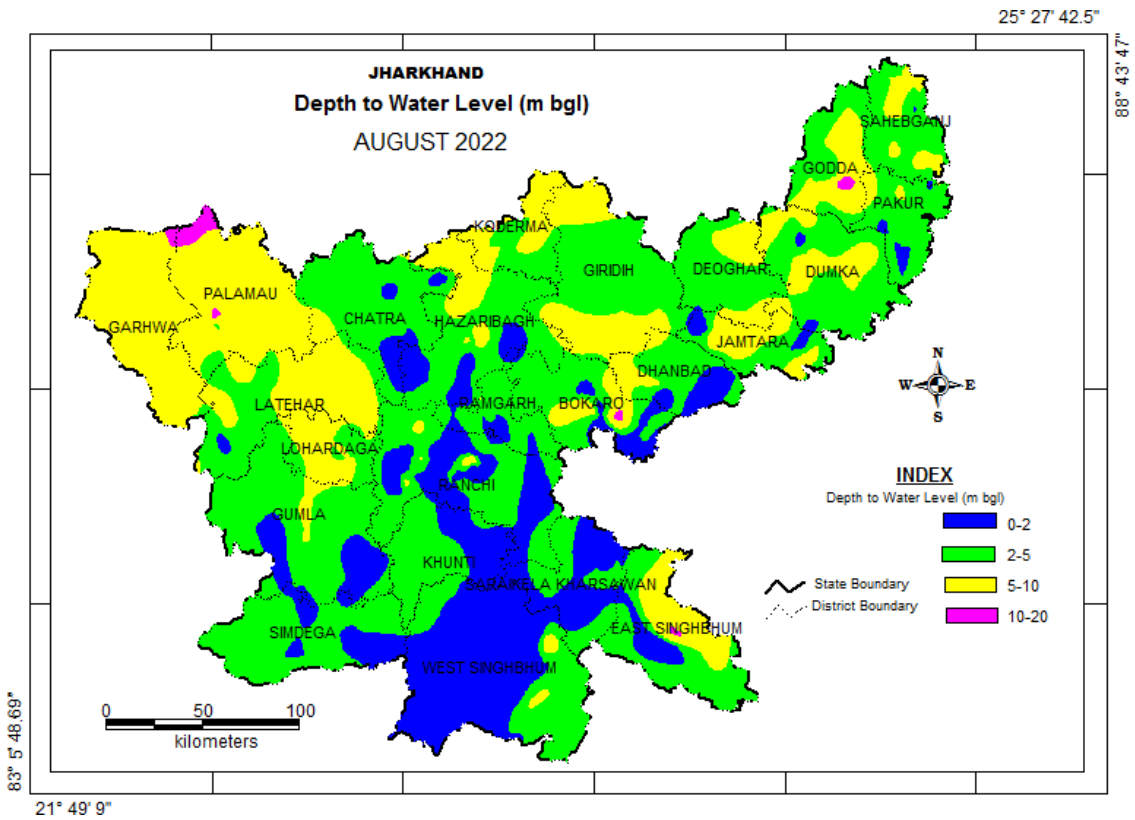


PLATE VII

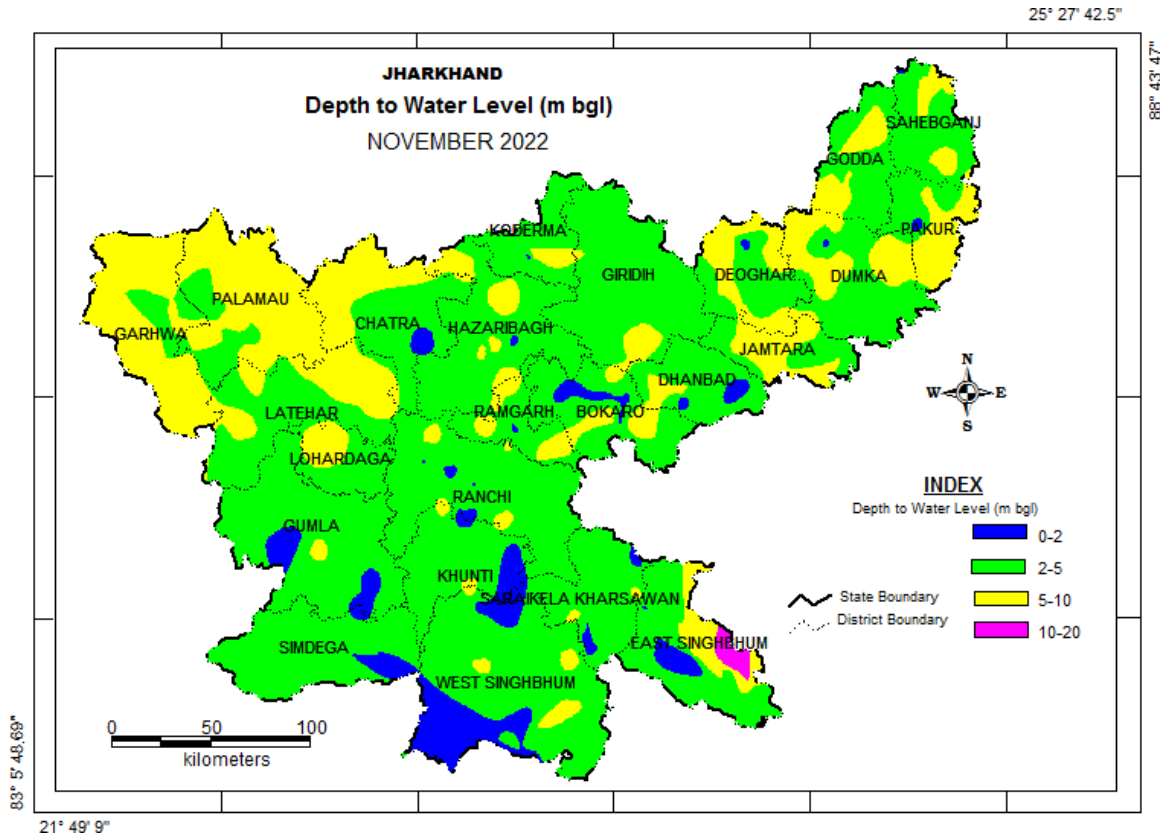


PLATE VIII

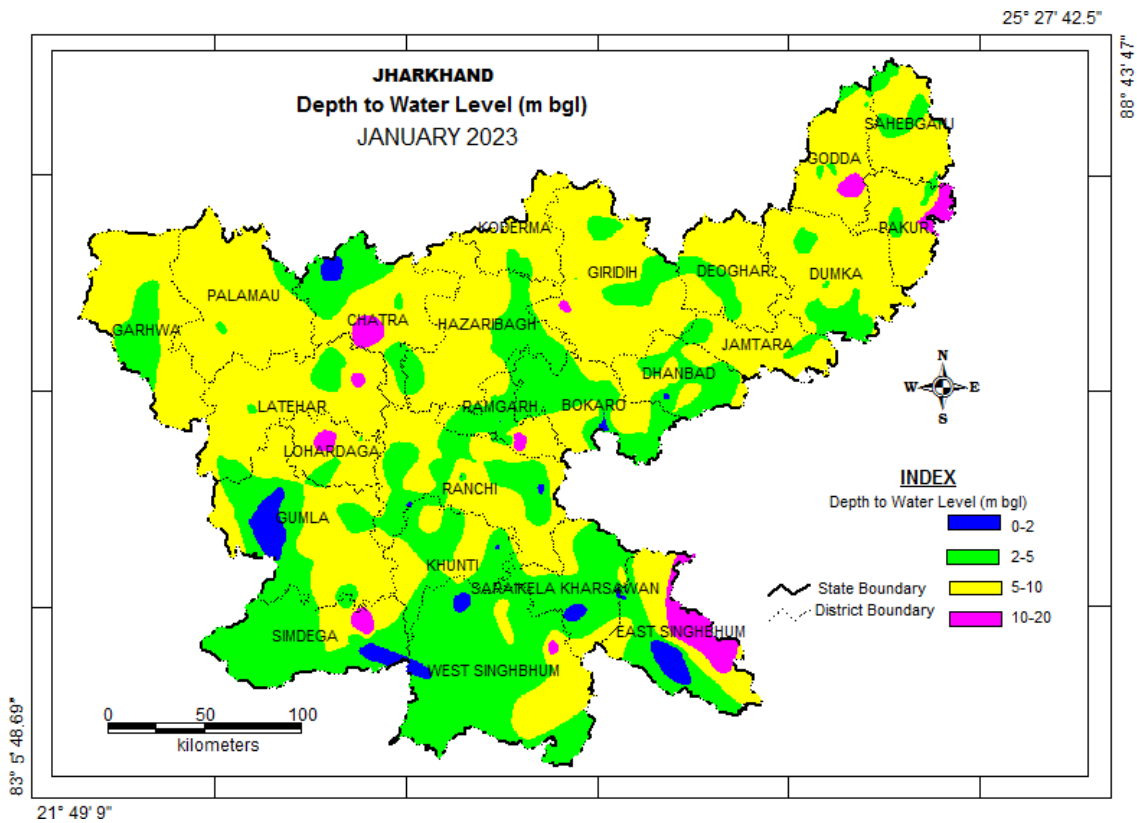


PLATE-IX

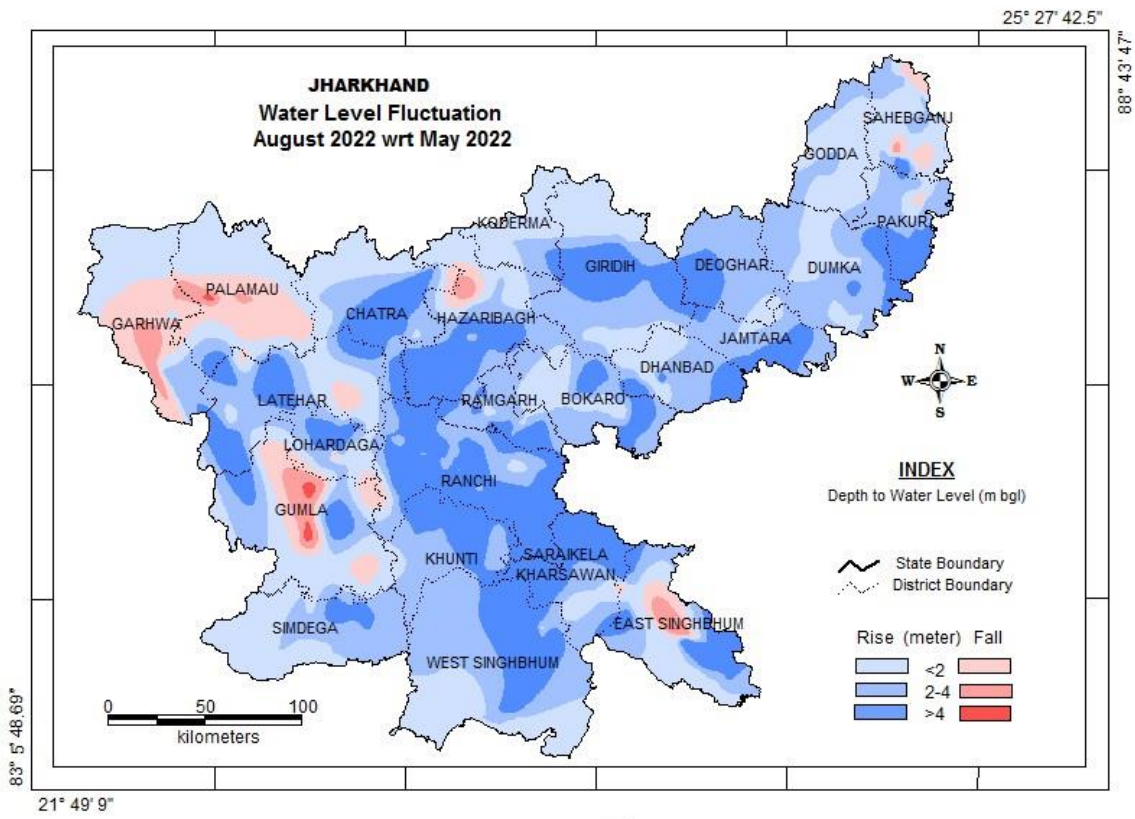


PLATE-X

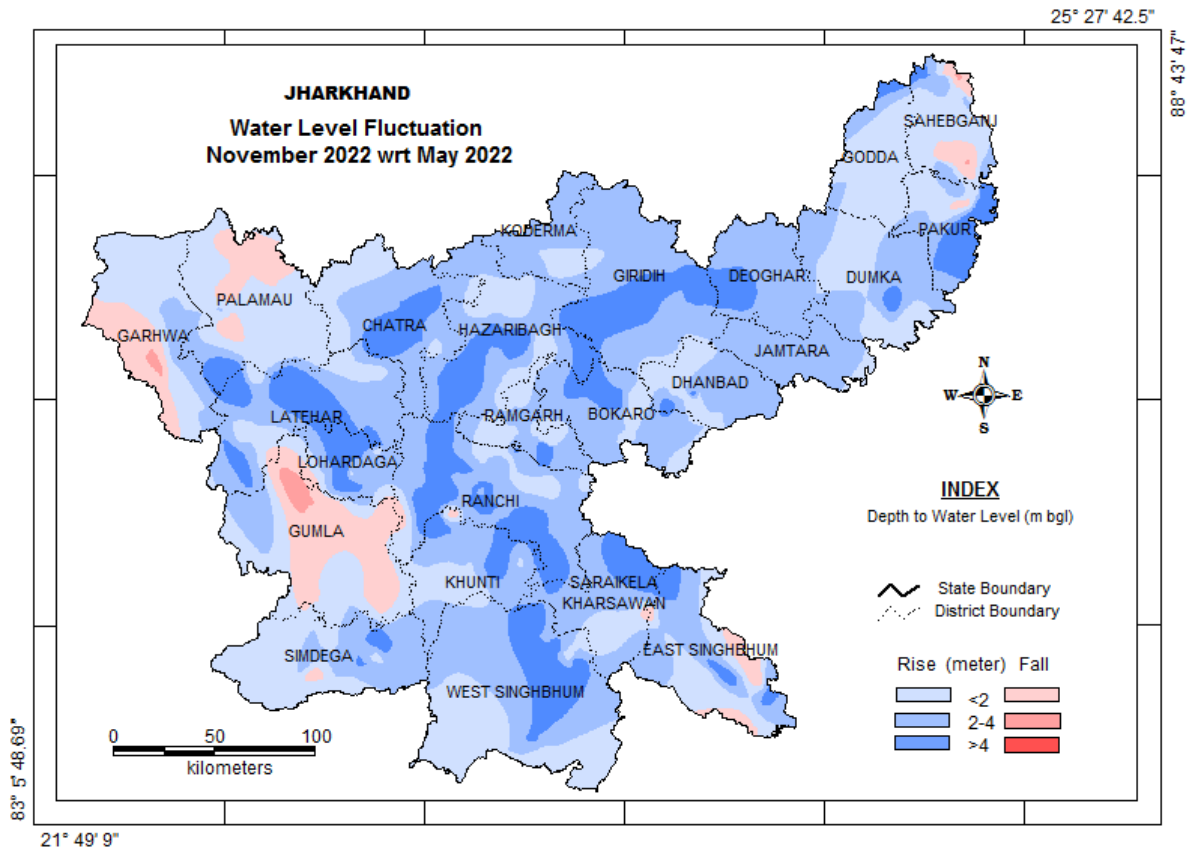




PLATE-XI

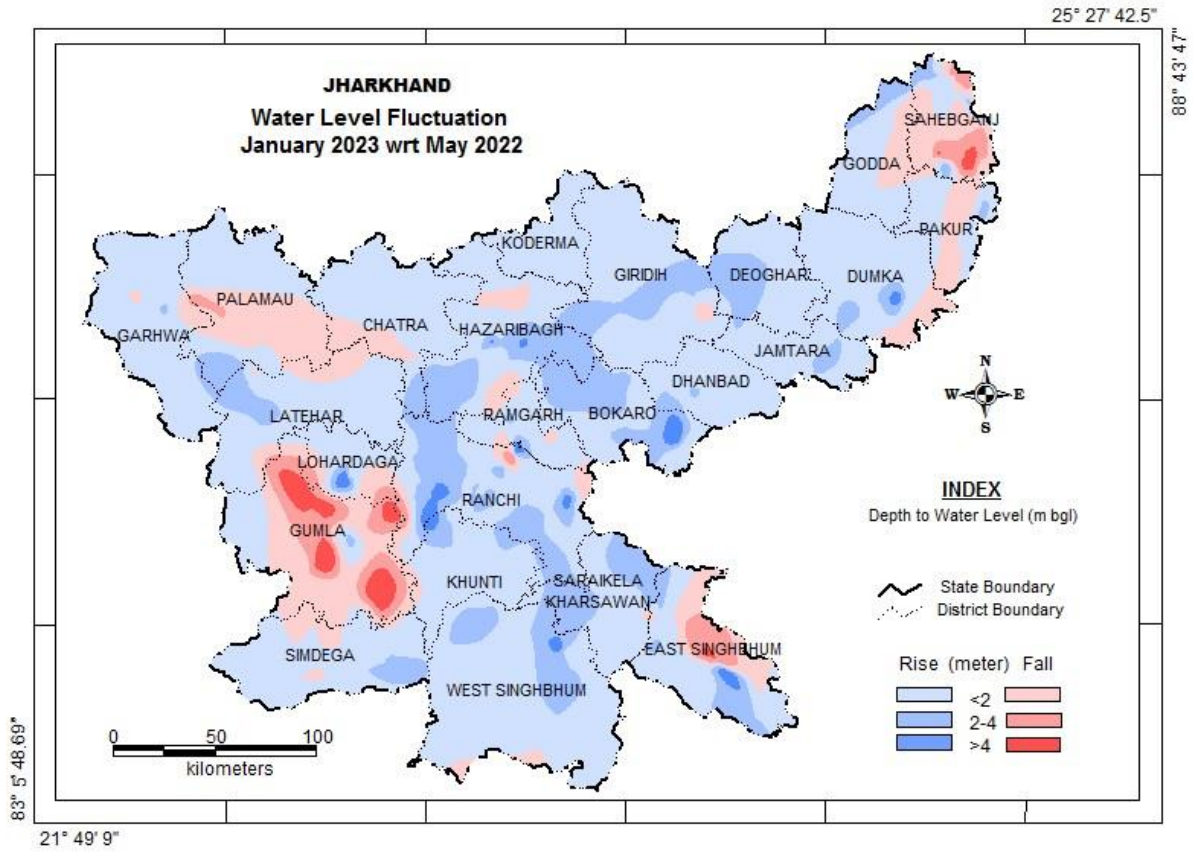


PLATE-XII

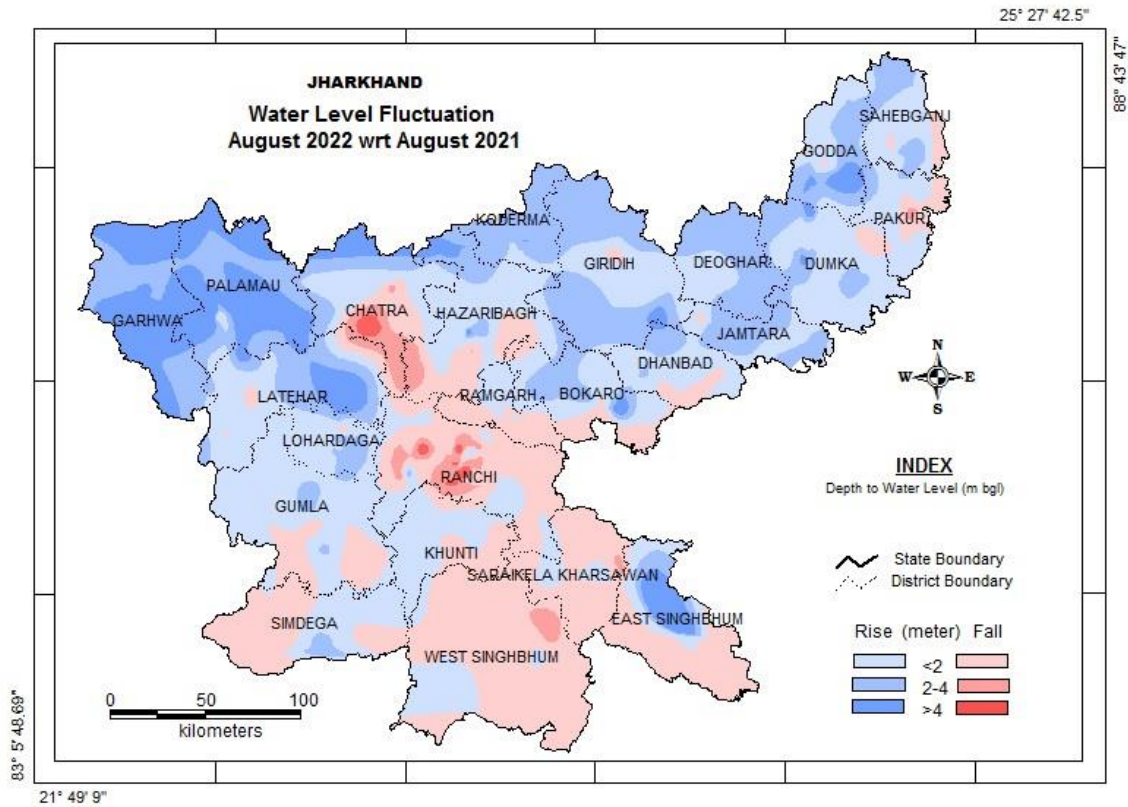


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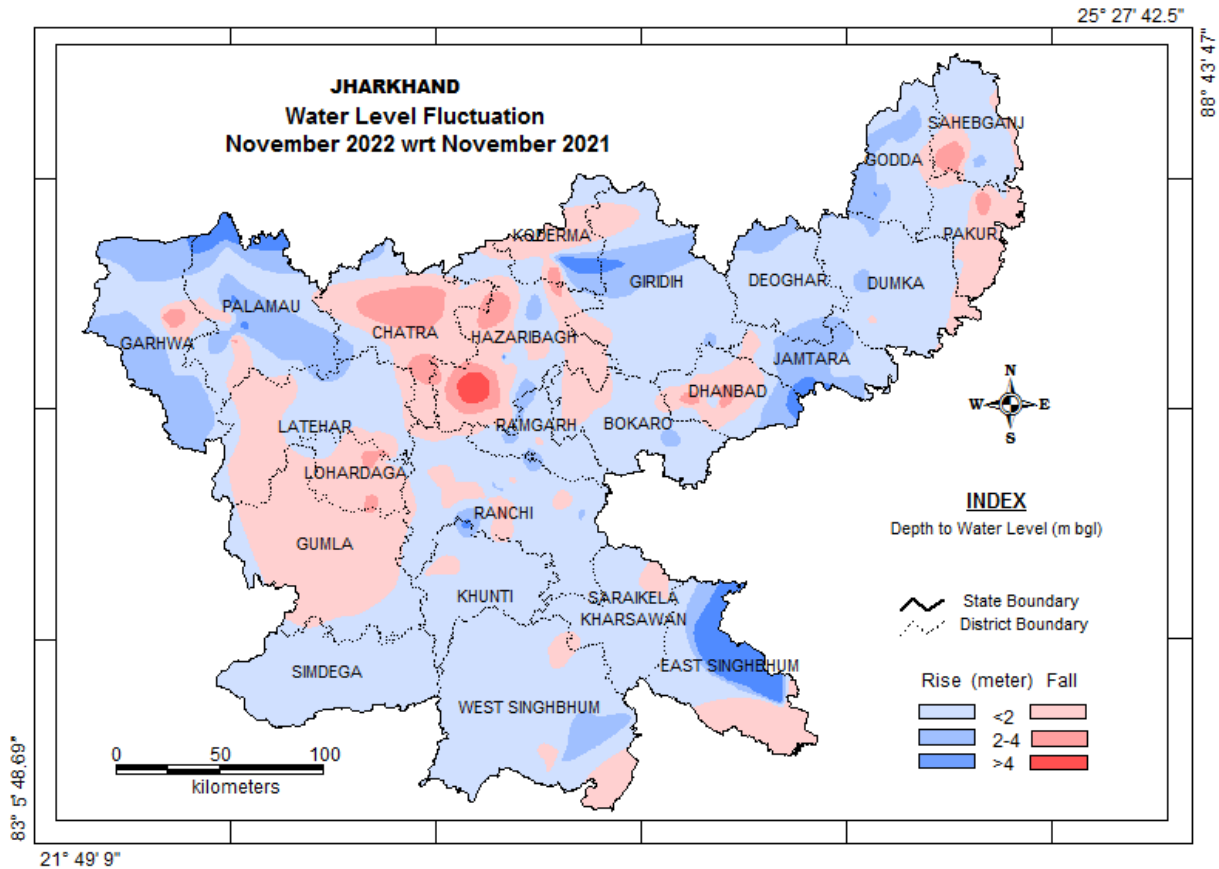


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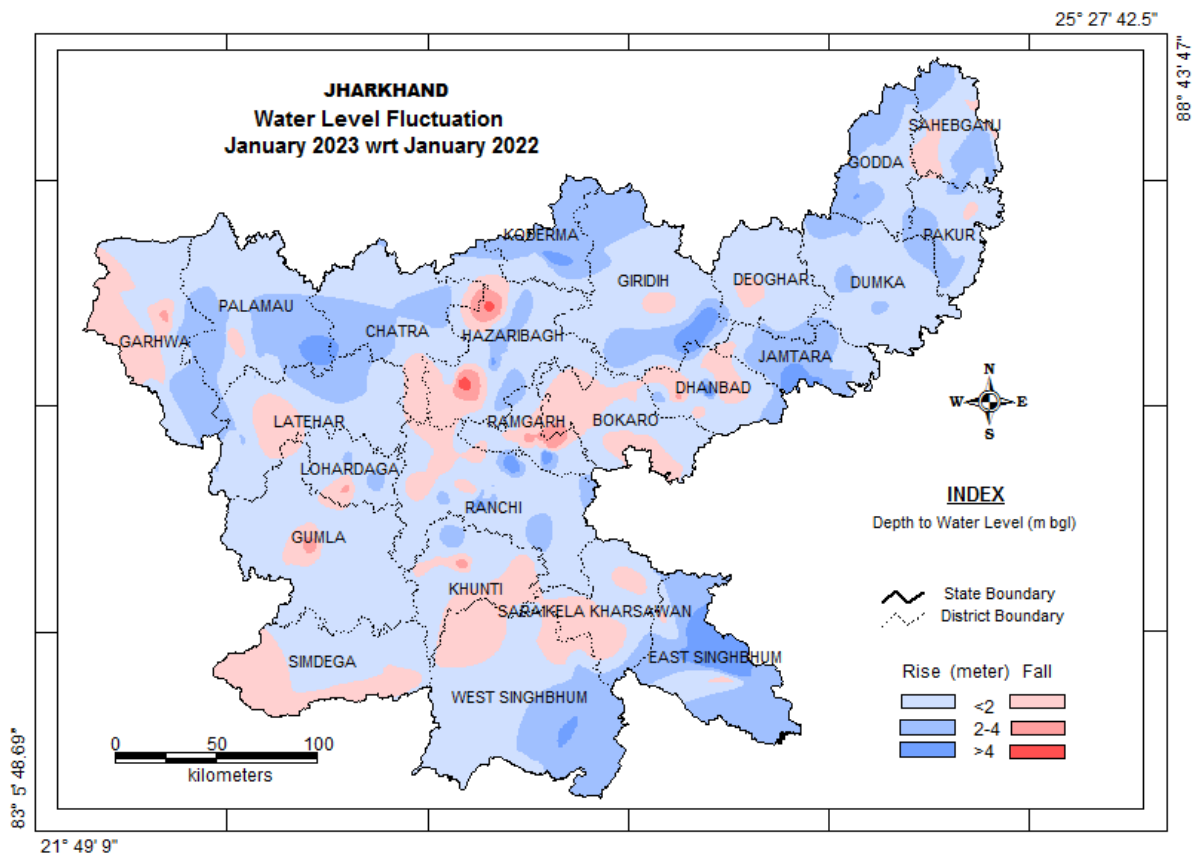


PLATE-XV

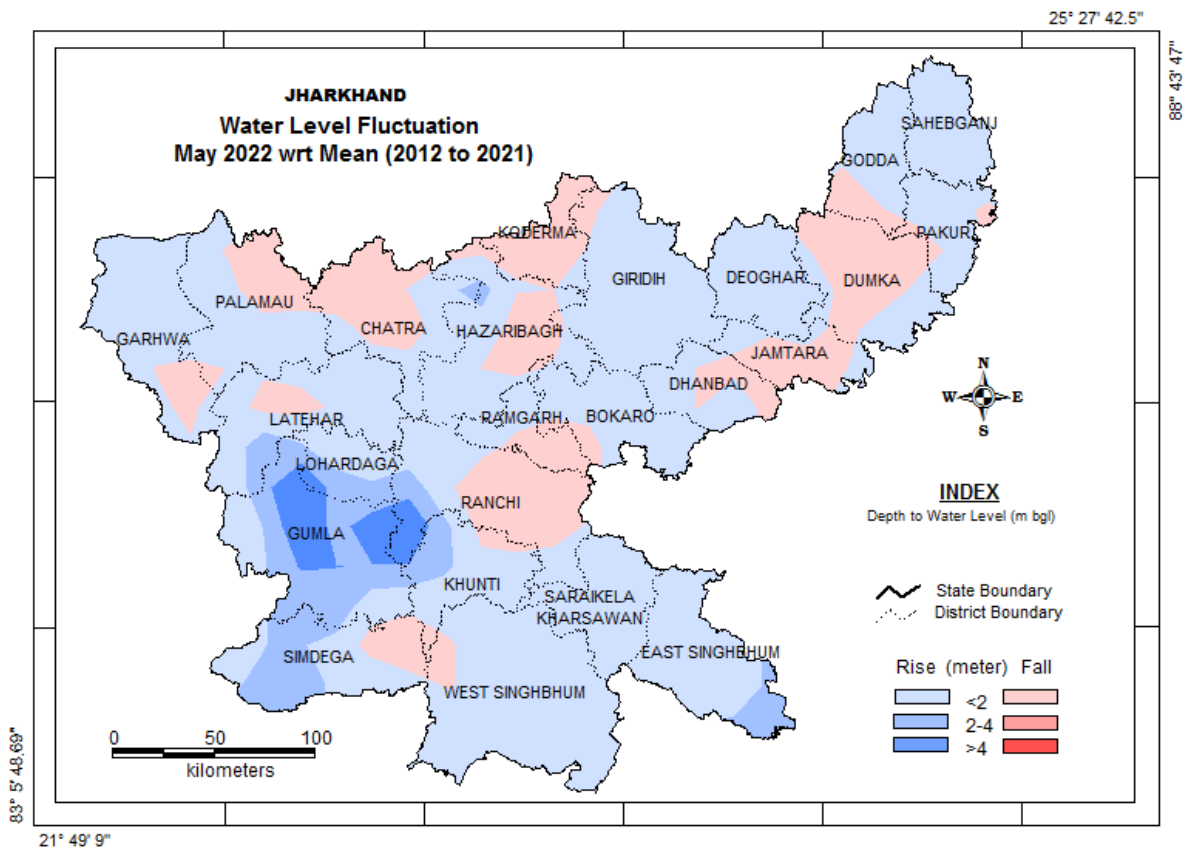


PLATE-XVI

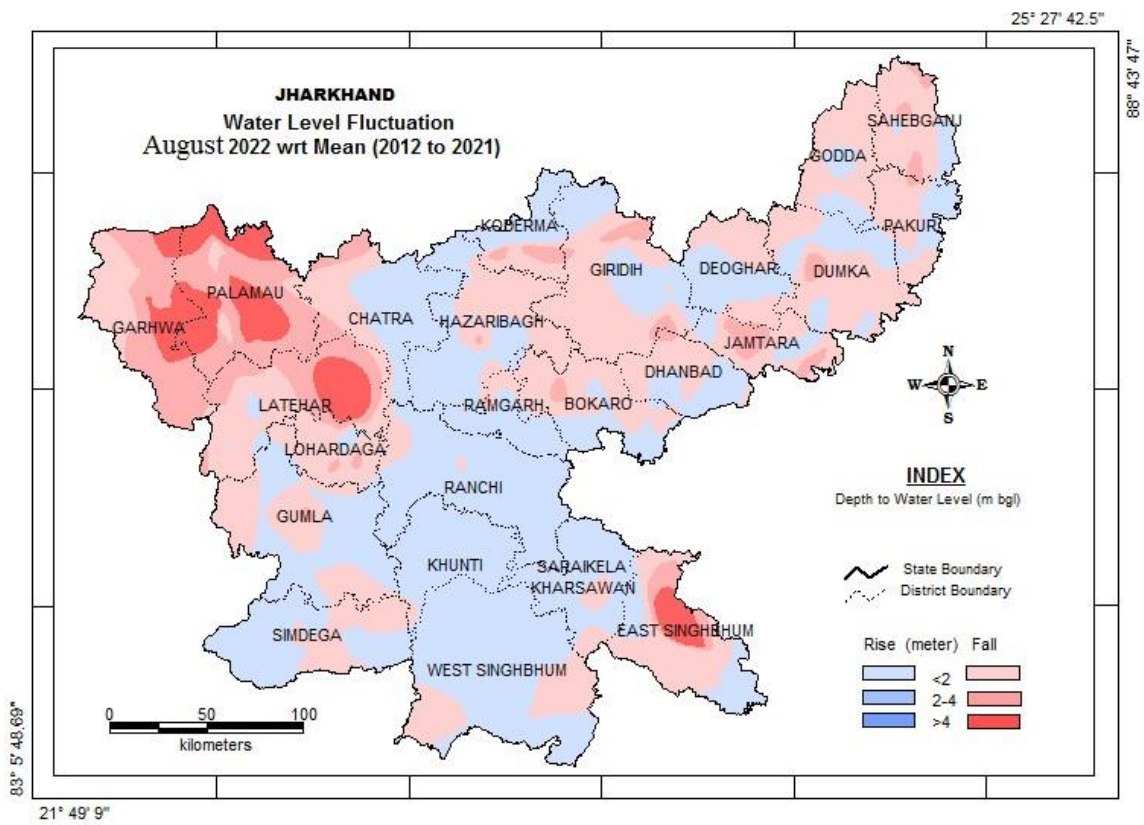


PLATE-XVII

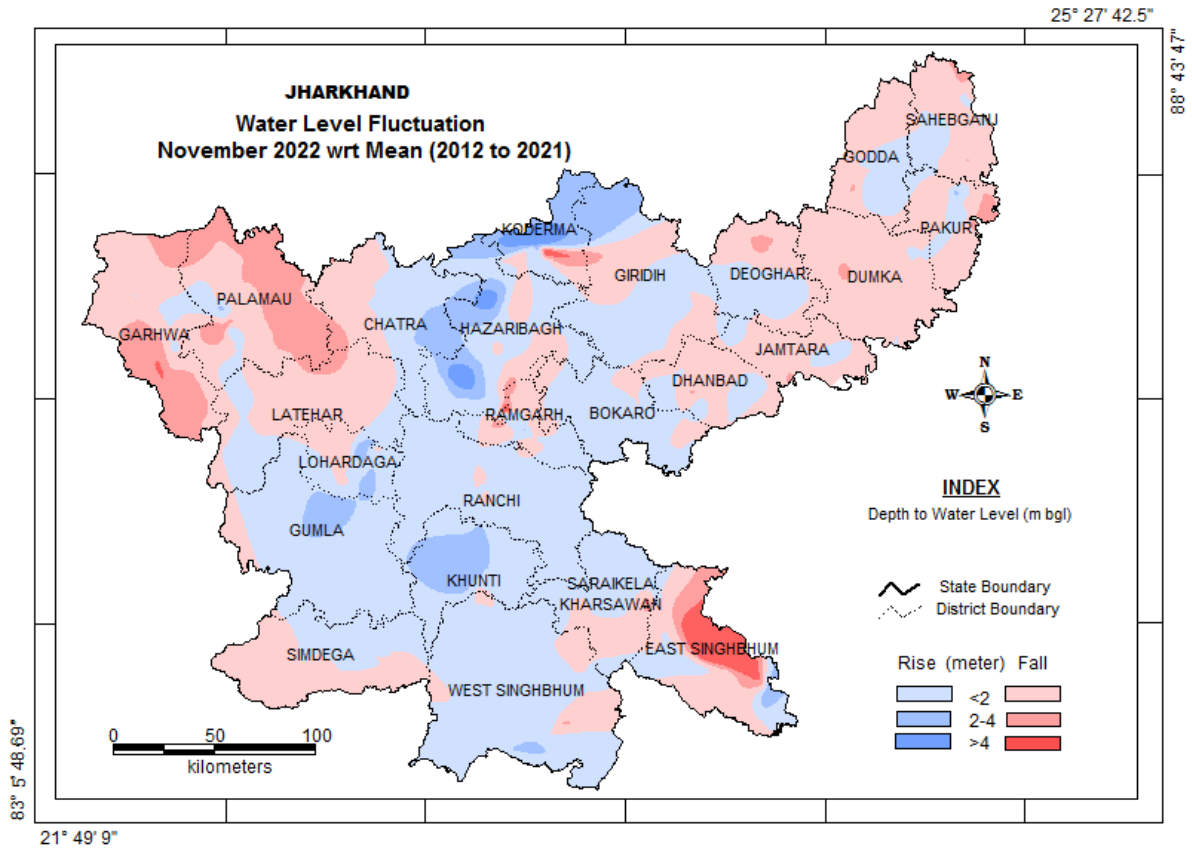


PLATE-XVIII

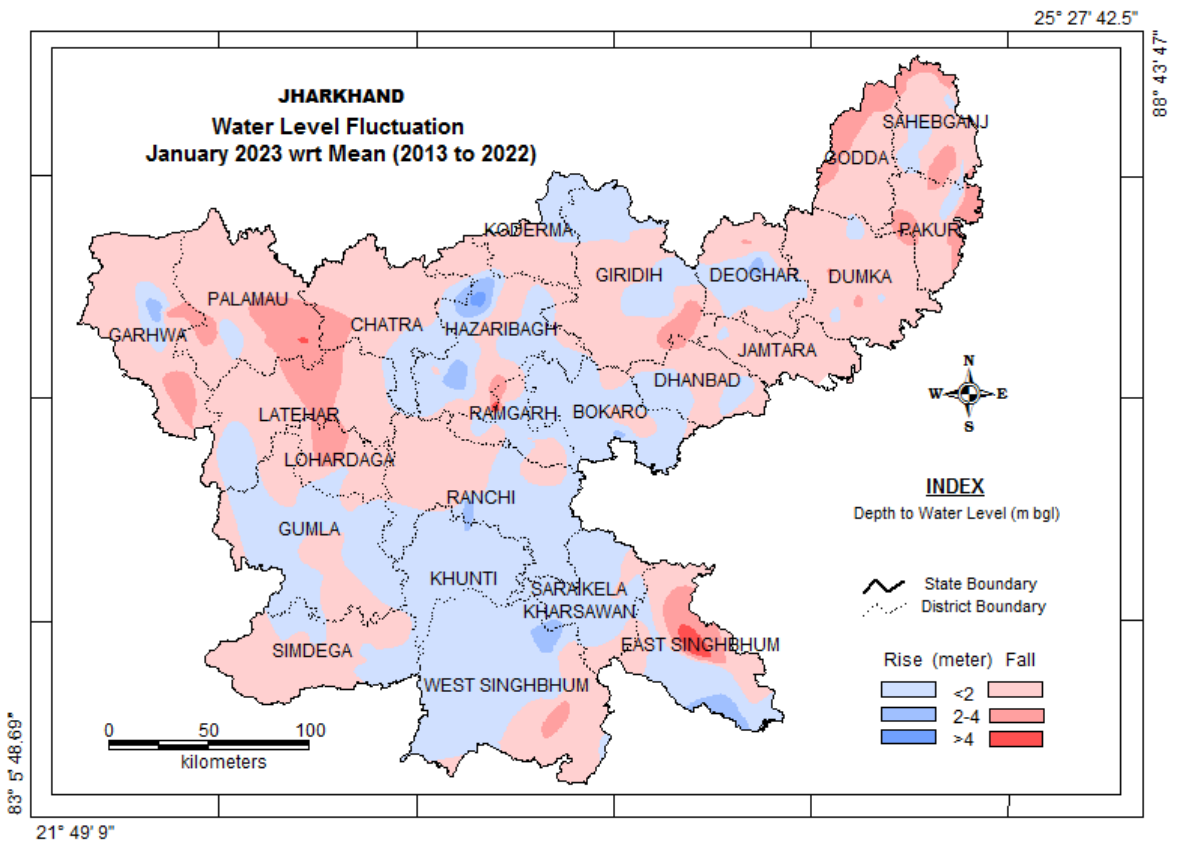


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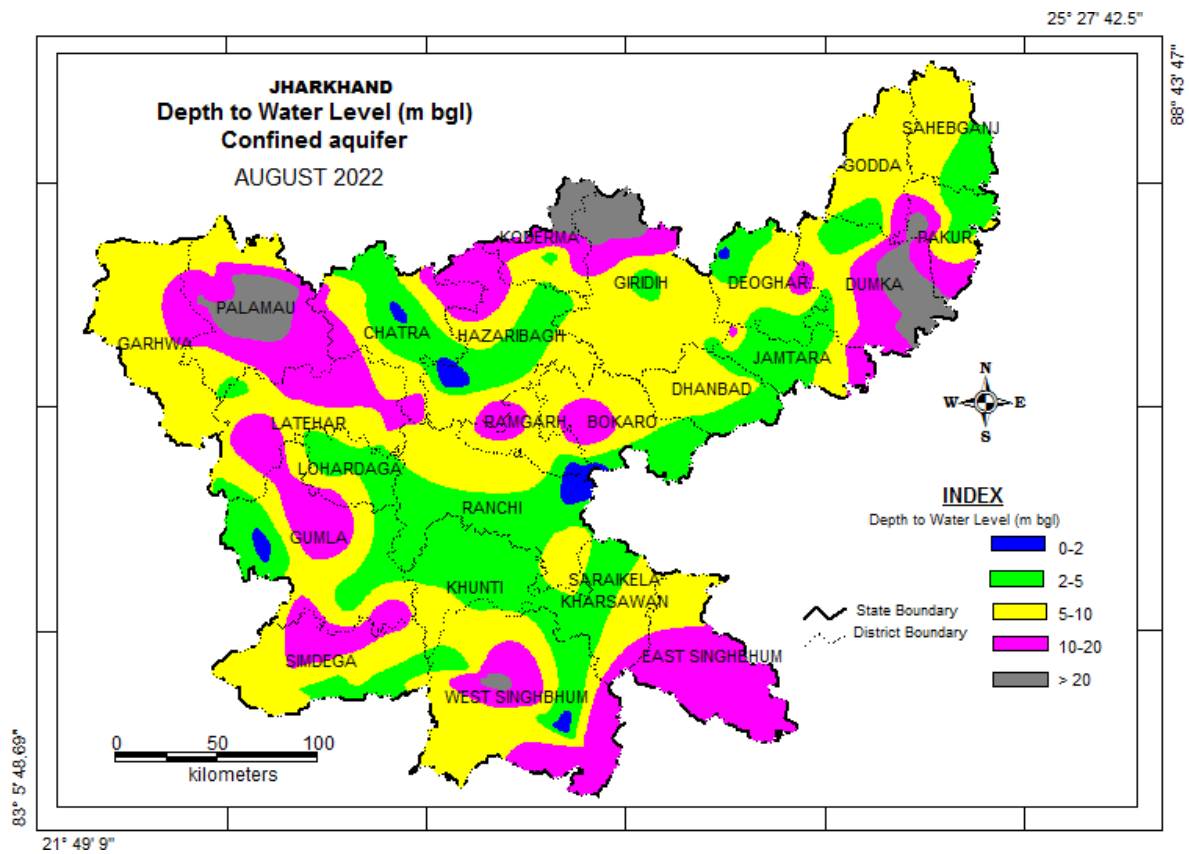


PLATE-XX

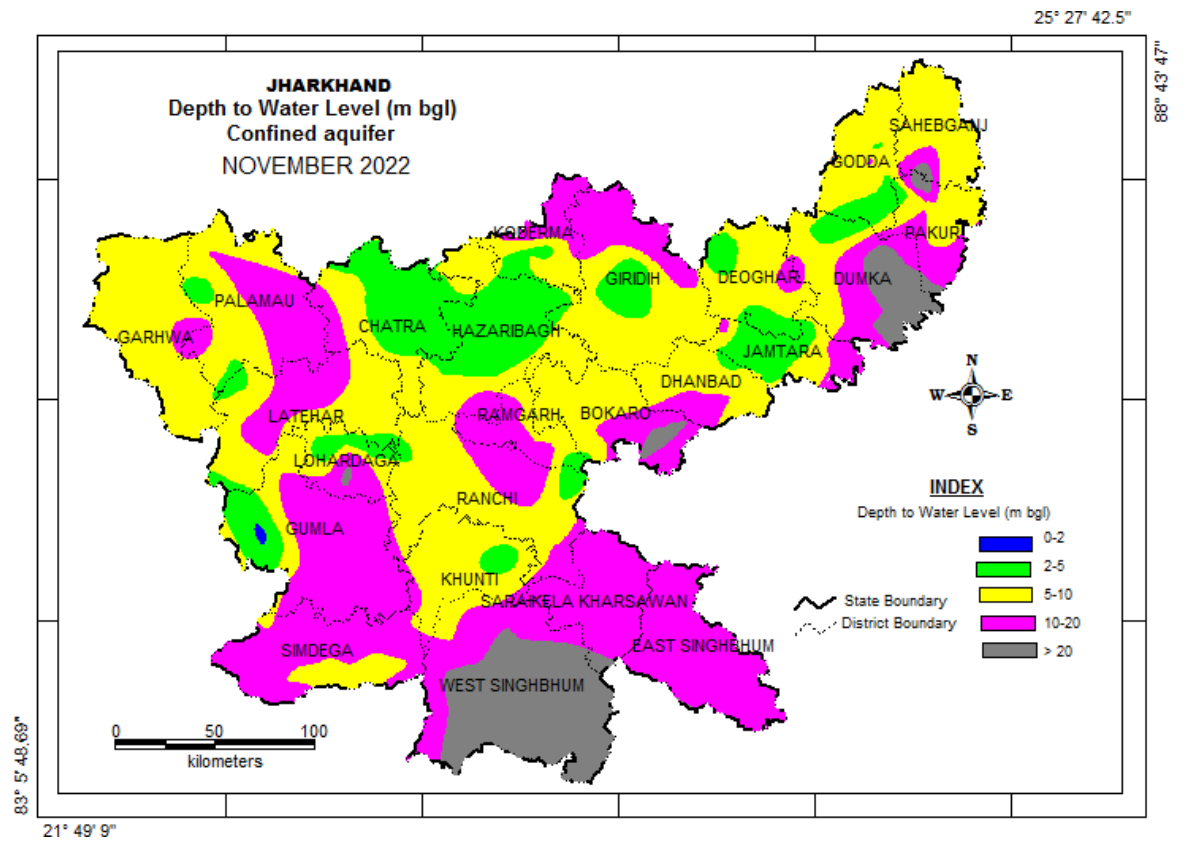
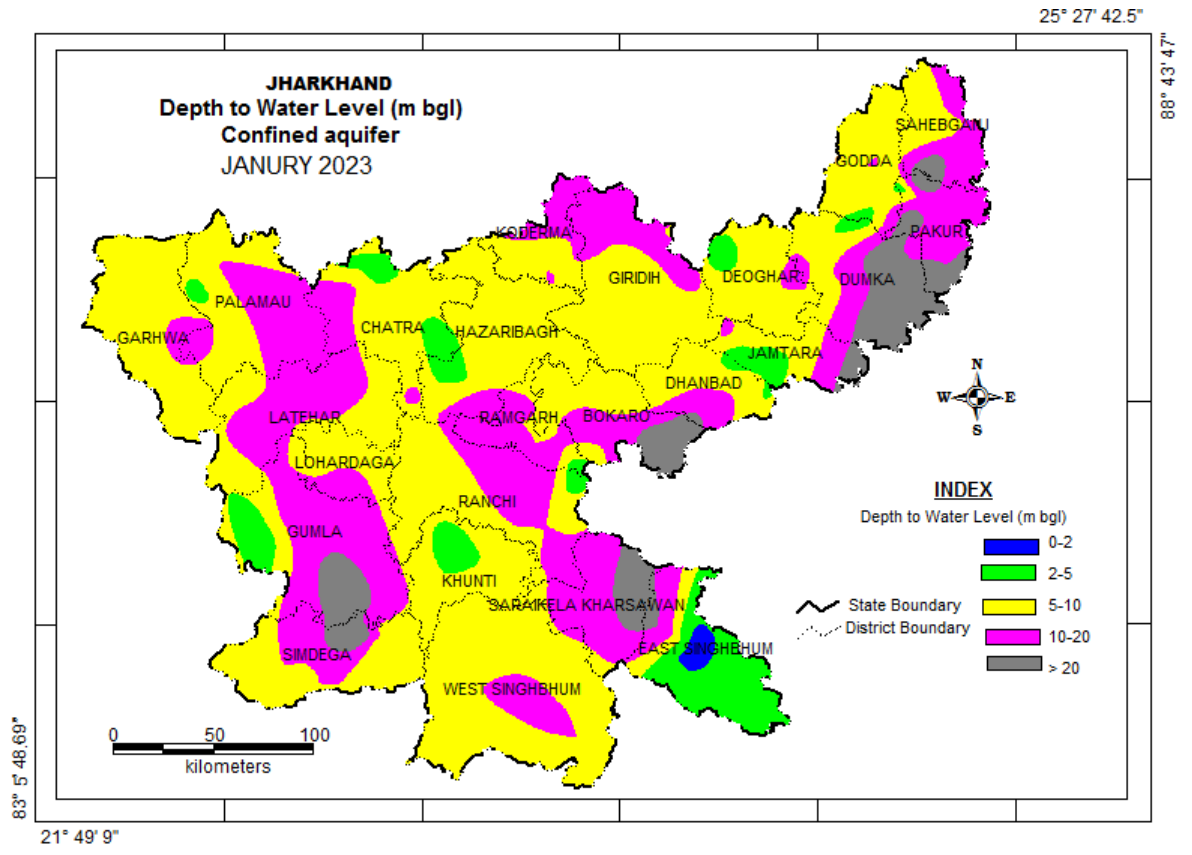


PLATE-XXI



## ANNEXURE-I

**WATER LEVEL DATA OF NETWORK STATIONS MEASURED BY CGWB, SUO,  
RANCHI, JHARKHAND**

District	Block	Location	Depth to Water Level (m bgl)			
			2022			2023
			May	August	November	January
Bokaro	Chas	Chas	11.9	10.8	8.38	9.87
Bokaro	Chas	Jaina More	9.35	8.08	6.87	7.85
Bokaro	Chas	Pindrajora	6.1	1.3	2.33	3.5
Bokaro	Chandankiyari	Chandankiyari	5.7	1.8	2.44	4.04
Bokaro	Chandankiyari	Laghla	5.8	3.4	3.68	_
Bokaro	Chandankiyari	Nutandih	5.95	2.94	4.05	4.84
Bokaro	Chandankiyari	Baramasia	3.8	0.97	2.58	4.65
Bokaro	Chandankiyari	Chandra	10	1.65	_	4.3
Bokaro	Peterwar	Chandrapura	2.5	_	1.85	2.4
Bokaro	Gomia	Gomia	6.2	_	1.78	2.93
Bokaro	Nawadih	Nawadih	8.7	4	5.45	6.33
Bokaro	Paterwar	Peterwar	7.9	5.4	5.05	6.18
Bokaro	Bermo	Bermo/ Phusro	6.93	0.64	1.48	2.96
Bokaro	Gomia	Tenughat	5.29	4.55	2.53	3.2
Bokaro	Chas	Radhagaon Rly Station	4.2	1.14	2.36	1.7
Bokaro	Chas	Bokaro Rly Station	2.2	1.29	1.69	1.95
Bokaro	Kasmar	Harmu	_	_	4.9	6.24
Chatra	Simaria	Bagra	12.35	3.95	4.05	12.8
Chatra	Simaria	Birhu	6.85	3.7	3.25	6.3
Chatra	Chatra	Chatra	7.75	3.9	4.4	6.6
Chatra	Itkhor	Itkhor	7.6	3.15	4.1	6.8
Chatra	Itkhor	Pitij	8.5	3.1	4.02	7.8
Chatra	Simaria	Tutilawa	7.13	2.3	3.05	5.8
Chatra	Chatra	Behra chocha	6.19	0.89	1.54	_
Chatra	Simaria	Piri	3.35	1.7	2.2	_
Chatra	Tandwa	Teliyadiah	4	0.75	1.45	4.1
Chatra	Lavalong	Bandu	_	7.45	7.9	3.6
Chatra	Kanha Chatti	Kanha Chatti	_	2.6	2.7	5.1
Chatra	Mayurhand	Mayurhand	_	0.9	1.85	6.1
Chatra	Gidhaur	Gidhaur	_	2.6	2.8	4.7
Chatra	Hunterganj	Lohsinghna Khurd	_	2.35	3.05	dry
Chatra	Kunda	Bariya Chak	_	4.05	4.65	3.3
Chatra	Pratap pur	Kukurman	_	_	4.05	1.8
Chatra	Pathalgora	Barwadiah	_	_	4.6	6.8
Deoghar	Deoghar	Deoghar	_	6.05	6.55	7.89

District	Block	Location	Depth to Water Level (m bgl)			
			2022			2023
			May	August	November	January
Deoghar	Mohanpur	Ghormara	–	5.88	6.24	7.11
Deoghar	Deoghar	Jasidih	8.1	4.65	5.08	6.37
Deoghar	Madhupur	Madhupur	7.2	2	2.47	4.07
Deoghar	Palajori	Palajori	6.3	4.21	4.3	5.55
Deoghar	Sarath	Sarath	6.11	3.97	3.68	5.29
Deoghar	Sarawan	Sarawan	7.7	–	–	5.75
Deoghar	Karon	Karon Bus stand	–	–	2.9	4.64
Deoghar	Devipur	Chaudharidih	–	–	4.37	4.74
Deoghar	Margomunda	Rampur	–	–	7.92	9.12
Deoghar	Sonaraithadih	Ashubandha	–	–	5.88	6.35
Dhanbad	Jharia	Jharia	1.7	1	1.16	1.56
Dhanbad	Baghmara	Baghmara	–	8.25	6.75	9.55
Dhanbad	Katras	Balajee Mandrir	6.25	5.65	5.27	5.47
Dhanbad	Dhanbad	Basudeopur	6.85	5.58	5.48	6.49
Dhanbad	Dhanbad	DBI Bunglow	5.25	1.95	3.17	3.43
Dhanbad	Dhanbad	Dhaiya ISM	5.2	3.3	3.67	4.36
Dhanbad	Dhanbad	Dhansar MRS	–	2.82	3.64	4.33
Dhanbad	Dhanbad	Godhar Basti	11.94	5.28	6.99	7.8
Dhanbad	Govindpur	Govindpur	–	2.9	2.93	3.75
Dhanbad	Jharia	Kandra Madal Basti	–	–	4.15	5.16
Dhanbad	Baghmara	Mahuda	9.7	4.56	5.33	6.68
Dhanbad	Nirsa	Nirsa	–	0.6	1.5	2.01
Dhanbad	Dhanbad	Panderpalli	–	8.1	7.77	6.45
Dhanbad	Dhanbad	P. K. Roy College	8.7	5.25	4.9	8.62
Dhanbad	Rajganj	Rajganj	5.3	4.3	3.65	4.41
Dhanbad	Jharia	Sindri Gosala More	5.08	2.15	3.15	3.85
Dhanbad	Topchanchi	Topchanchi	5.9	5.3	4.95	5.3
Dhanbad	Tundi	Tundi	5.7	4.65	4	4.93
Dhanbad	Baliapur	Pandadih	–	–	7.1	8.11
Dhanbad	Purvitundi	Mairanwatand	–	–	5.12	6.4
Dumka	Dumka	Chapodia	–	4.74	4.1	5.22
Dumka	Jama	Chikania	–	6.25	6.2	7.6
Dumka	Dumka	Dumka(db ib)	5.95	3.55	4.02	4.87
Dumka	Ramgarh	Gamharia	–	9	8.85	9.37
Dumka	Gopikandar	Gopikandar	10.15	5.78	7.11	8.92
Dumka	Saraighat	Hansdiha pwdib	8.3	5.12	5.78	7.55
Dumka	Jama	Jama I	9.6	9.3	8.28	9.49
Dumka	Jharmundi	Jarmundi db.ib	7.65	3.85	5.7	6.82
Dumka	Kathikund	Kathikund	7.85	6.01	5.4	6.91
Dumka	Masalia	Masalia	6.94	3.03	3.8	4.55
Dumka	Raneshwar	Masanjor	3.85	2.31	2.91	3.59



District	Block	Location	Depth to Water Level (m bgl)			
			2022			2023
			May	August	November	January
Dumka	Jharmundi	Nunihaat	3	1.32	1.75	2.33
Dumka	Jama	Barapalashi	7.7	6.37	6.34	7.1
Dumka	Sikaripara	Patabari	9.45	5	3.9	4.86
Dumka	Raneswar	Raneswar	4.25	2.4	3.26	4.68
Dumka	Shikaripara	Sikaripara	7.45	4.23	4.92	6.15
Dumka	Godda	Dhadhakia	—			6.85
Dumka	Ramgargh	Ramgargh	—	2.28	3.55	5.1
E. Singhbhum	Jugsalai/Jamshedpur sadar	Pardih	8.6	3.2	4.81	5.8
E. Singhbhum	Jugsalai/Jamshedpur sadar	Bagun Nagar	3.6	—	—	3.1
E. Singhbhum	Jugsalai/Jamshedpur sadar	Baridih	1.45	2	3.1	1.3
E. Singhbhum	Jugsalai/Jamshedpur sadar	Barmamines Thana	3.2	1.51	1.75	2.4
E. Singhbhum	Chakulia	Chakulia	14.55	8.19	16.1	15.6
E. Singhbhum	Jugsalai/Jamshedpur sadar	Telco	2.1	1.6	2.1	2.1
E. Singhbhum	Dalbhumgarh	Dhalbhumgarh	12.4	3.72	6.8	6.9
E. Singhbhum	Jugsalai/Jamshedpur sadar	Garhabasa	3.35		1.4	1.1
E. Singhbhum	Ghatsila	Ghatsila	6.1	10.15	10.21	10.3
E. Singhbhum	Jugsalai/Jamshedpur sadar	Golmuri	4.8	2.89	2.32	2.8
E. Singhbhum	Bahragora	Hana Bautia	4.5	3.79	4.9	2.1
E. Singhbhum	Jugsalai/Jamshedpur sadar	Jugsalai Thana	1.2	1.69	2.35	1.85
E. Singhbhum	Chakulia	Kalapathar	8.7	3.56	4.1	8.3
E. Singhbhum	Potka	Kalikapur	3.1	1.33	1.64	2.7
E. Singhbhum	Mosabani	Mosabani	2.6	1.09	1.12	1.1
E. Singhbhum	Jugsalai	Paridih	8	3.2	4.81	5.8
E. Singhbhum	Potka	Potka	8	2.9	3.96	5.8
E. Singhbhum	Potka	Rankini Madir Jadugora	2.2	—	2.4	1.5
E. Singhbhum	Jugsalai/Jamshedpur sadar	Shitla Mandir Sakchi	1.5	1.91	1.98	1.6

District	Block	Location	Depth to Water Level (m bgl)			
			2022			2023
			May	August	November	January
E. Singhbhum	Jugsalai/Jamshedpur sadar	Barmamines	–	1.51	1.75	2.4
E. Singhbhum	Jamshed-pur	Sundarnagar I	–	2.78	6.51	dry
Garhwa	Garhwa	Garhwa	–	9.6	5.8	9.97
Garhwa	Manjhian	Manjhian	6.87	6.6	5.9	5.1
Garhwa	Nagar Utari	Nagaruntari	6.5	6.1	6.3	6
Garhwa	Ramna	Ramna I	5.07	5.1	4.4	5.3
Garhwa	Ranka	Ranka	6.77	8.7	4.3	5.28
Garhwa	Ranka	Godarmana	8.88	6.6	7.8	8.25
Garhwa	Meral	Meral	5.15	6.6	4.8	3.95
Garhwa	Meral	Lagama	5.83	6.8	2.8	3.62
Garhwa	Ranka	Bishrampur (Ranka)	4.78	7.8	7.1	3.78
Garhwa	Garhwa	Obra	8.3	8.1	5.4	8.07
Garhwa	Kanli	Hariganwa	–	–	4.25	
Giridih	Bagodar	Bagodar	7.95	5.27	3.25	5.6
Giridih	Bengabad	Bengabad	7.1	3.02	2.85	4.4
Giridih	Chirki (Pirtanr)	Pirtanr	9.3	7.2	5.75	8.2
Giridih	Dewri	Dewri	5.9	4.69	2.95	5.7
Giridih	Giridih	Dhanaydih	6.7	2.35	2.05	3.9
Giridih	Dhanwar	Nawadih Ruptola (Dhanwar)	–	3.35	3.75	5.8
Giridih	Dumri	Dumri	7.5	5.65	4	7.1
Giridih	Gandey	Gandey	8.4	3.55	4.5	8.8
Giridih	Giridih	Giridih	5.25	2.05	2.85	4.7
Giridih	Jamua	Jamua	10.2	3.5	–	8.8
Giridih	Gandey	Maheshmunda	7.9	2.22	2.8	5.9
Giridih	Gandey	Pandri	–	6.75	4.9	9.2
Giridih	Saraiya	Saraiya	7.3	abandoned		
Giridih	Tisri	Tisri	5.6	abandoned		
Giridih	Ganwan	Ganwan	–	–	5	5.6
Giridih	Tisri	Khijui	–	–	4.4	4.1
Giridih	Saria	Saria	–	–	7	10.5
Giridih	Birni	Barmasia	–	–	1.7	2.9
Godda	Boarijore	Boarijore	–	3.95	3.68	5.49
Godda	Mehegama	Doi	–	3.69	4.43	6.64
Godda	Godda	Godda	–	2.3	3.55	5.03
Godda	Godda	Jainipaharpur	7.3	4.09	6.17	7.24
Godda	Mahagama	Lalmatia	8.45	7.81	8.01	8.41
Godda	Pathargama	Maheshpur2	–	1.97	2.53	4.41
Godda	Pathergama	Pathargama	4.45	abandoned		
Godda	Poraiya Haat	Poraiyahaat	dry	6.15	6.2	7.47

District	Block	Location	Depth to Water Level (m bgl)			
			2022			2023
			May	August	November	January
Godda	Sunder Pahari	Sundar Pahari	11.1	10.62	dry	11.14
Godda	Poreyahat	Chamudih	–	6.85	6.55	8.19
Godda	Godda	Siktia	9.5	3.13	6	6.56
Godda	Poreyahat	Raghunathpur	–	6.03	6.66	7.69
Godda	Pathergama	Bisaha	–	3.78	5.13	6.03
Godda	Godda	Kumardih	6.1	3.78	4.14	4.5
Godda	Godda	Bargacha Hariyari	8.3	6.9	7.05	8.15
Godda	Mahagama	Gobra	–	3.55	4.67	5.58
Gumla	Ghaghra	Adar	–	2.1	3.6	1.86
Gumla	Gumla	Anjam gram	–	2.6	2.1	3.11
Gumla	Palkot	Baghma	–	2.8	3.6	5
Gumla	Basia	Baisia	0.45	1.2	1.8	6.02
Gumla	Bharno	Bharno bdo	0.9	2.5	2.7	5.56
Gumla	Bishunpur	Bishunpur	1.75	3.6	4.3	6.3
Gumla	Chainpur	Chainpur I	–	2.8	3.4	1.76
Gumla	Ghagra	Ghagra	0.67	5.1	2.6	5.34
Gumla	Gumla	Gumla I	0.5	5.2	5.9	7.8
Gumla	Raidih	Kasir		0.7	0.4	0.26
Gumla	Gumla	Kharke	2.1	5.8	3.1	5.39
Gumla	Bharno	Nagfeni	8.2	2.6	–	5.84
Gumla	Palkot	Palkot	6.45	4.8	4.6	7.19
Gumla	Raidih	Raidih	2.15	2.1	2.8	3.86
Gumla	Sisai	Sisai	2.2	2.2	2.7	4.15
Gumla	Dumri	Dumri	–	–	2.6	5.45
Gumla	Kamdara	Kamdara	–	–	8.6	8.87
Gumla	Albert Ekka	Albert Ekka Chowk	–	–	2.5	–
Hazaribagh	Hazaribagh	Amritnagar	7.5	4.01	3.95	5.7
Hazaribagh	Barhi	Barhi	–	6	–	5.85
Hazaribagh	Barkagaon	Barkagaon	10.1	2.68	4.26	6.6
Hazaribagh	Barkatha	Barkatha	5.7	4.25	2.7	4.15
Hazaribagh	Churchu	Dari	4.8	1.25	2.64	5.7
Hazaribagh	Daru	Daru	7.3	0	1.68	3.1
Hazaribagh	Hazaribagh	Habib nagar	7.7	8.05	5.35	7.3
Hazaribagh	Hazaribagh	Hatyari	6.2	1.15	2.73	5.7
Hazaribagh	Hazaribagh	Hazaribagh	8	2.45	3.19	5.7
Hazaribagh	Ichak	Ichak more	8	4.1	3.5	6.9
Hazaribagh	Keredari	Keradari	7.05	0.9	3.32	4.02
Hazaribagh	Hazaribagh sadar	Korra Chowk	11.05	10.38	9.02	
Hazaribagh	Hazaribagh sadar	Kud Ashram	11.1	1.3	2.4	7.6
Hazaribagh	Hazaribagh sadar	Masipiri	9.9	5.15	7.68	9.8
Hazaribagh	Hazaribagh	Meru(Silwar)	10.7	6.35	6.51	8.6

District	Block	Location	Depth to Water Level (m bgl)			
			2022			2023
			May	August	November	January
Hazaribagh	Hazaribagh sadar	Old Bus Stand	9.25	2.95	4.06	7.5
Hazaribagh	Padma	Padma	5.37	8.5	4.78	5.5
Hazaribagh	Barkathha	Sakrej	6.6	4.5	6.05	6.9
Hazaribagh	Hazaribagh sadar	Sindur	11.2	2.66	3.59	6.9
Hazaribagh	Bishnugarh	Tatijharia	5.37	0.95	4.3	3.2
Hazaribagh	Barkagaon	Urimari	8.55	2.25	4.42	6.85
Hazaribagh	Chowparan	Chauparan I	8.1	7.48	5.6	6.4
Jamtara	Jamtara	Jamtara	8.4	6.4	5.82	7.43
Jamtara	Nala	Nala	7.1	2.11	3.35	4.86
Jamtara	Mihijam	Mihijam	9.3	3.7	6.3	8.06
Jamtara	Kundahit	Kundahit	—	1.3	2.3	4.43
Jamtara	Fatehpur	Dhootala	—	5.55	5.13	5.8
Jamtara	Narayanpur	Narayanpur	4.91	0.96	2.12	3
Jamtara	Karmatarn	Jasaydih	—	5.95	5.47	7.21
Jamtara	Fatehpur	Basti Palajori	—	1.68	3.78	5.23
Jamtara	Narayanpur	Mohanpur	8.2	5.75	5.37	7.78
Jamtara	Fatehpur	Fatehpur	8.8	7	6.6	7.88
Khunti	Torpa	Dorma	5.3	2.85	3.5	4.55
Khunti	Kerra	Bala	6.2	2.15	3.1	4.3
Khunti	Kerra	Binagoan	8.9	2.45	4.8	6.74
Khunti	Kerra	Govindpur village	6	2.8	3.9	4.82
Khunti	Kerra	Jariya	6.6	—	4.4	5.5
Khunti	Lapung	Kakriya	7.6	2.99	closed	
Khunti	Khunti	Kalimati	7	1.9	1	1.9
Khunti	Khunti	Karapurti	8.75	1.35	3.3	7.04
Khunti	Khunti	Khunti	5.4	—	3.28	4
Khunti	Karra	Lodhama	4.73	—	5.91	3.82
Khunti	murhu	Murhu	5.5	1.8	3.75	4.87
Khunti	murhu	Pelaul	5.85	2.05	3.5	3.97
Khunti	Khunti	Seringathu	3	0.85	1.16	1.9
Koderma	Chandwara	Chandwara	4.65	abandoned		
Koderma	Koderma	Jhumri Tilaiya	7.25	5.3	3.95	6.3
Koderma	Koderma	Kodarma	—	2.15	2	7.1
Koderma	Jainagar	Jainagar	4.53	2.75	2.25	4.1
Koderma	Koderma	Pathaldiha	4.2	2.5	1.85	3.8
Koderma	Koderma	Kanobigha	6.33	4.75	3.4	5.6
Koderma	Tilaya	Buchitar	10	6.2	9.4	9.5
Koderma	Satganwa	Karcheta	—	5.95	5.95	7.1
Koderma	Domchanch	Karakhut	—	—	3.8	6.3
Koderma	Chandwara	Soni mohalla	—	—	3.1	6.8
Koderma	Markachcho	Dongadih	—	—	4.1	7.6

District	Block	Location	Depth to Water Level (m bgl)			
			2022			2023
			May	August	November	January
Latehar	Mahuadanr	Aksi	7.33	1.3	2.8	6.4
Latehar	Balumath	Balumath	11.1		8.9	10.76
Latehar	Garu	Baresad(Lalmatia)	7.45	6.1	6.4	6.65
Latehar	Balumath	Bariatu	7		5.7	6.52
Latehar	Barwadih	Barwadih	9.1	4.1	2.6	5.12
Latehar	Barwadih	Betla	9.17	9.5	8.8	9.42
Latehar	Chandwa	Chandwa	7.54	8.1	3.75	5.54
Latehar	Harhanj	Chiru			3.45	4.04
Latehar	Garu	Garu	7.2	3.4	4.8	4.96
Latehar	Latehar	Latehar	_	5.5	4.1	dry
Latehar	Mahuadanr	Mahuadanr	dry	2.6	2.5	4.16
Latehar	Manika	Manika	8.8	3.3	3.1	dry
Lohardaga	Bhandara	Bhandara	8.15	6	4.1	8.25
Lohardaga	Lohardaga	Hesal (Mangan Toli)	7.48	2.1	3.2	7.11
Lohardaga	Kuru	Hinjila	6.85	5.75	4.25	5.8
Lohardaga	Lohardaga	Irgaon	5.8	5.05	2.6	6.31
Lohardaga	Kisko	Kisko	12.42	6.8	7.2	11.15
Lohardaga	Kuru	Kuru	6.33	3.6	4.75	4.85
Lohardaga	Lohardaga	Lohardaga	6.65	2.1	3.25	5.31
Lohardaga	Lohardaga	Lohardaga (Barwatoli Chowk)	3.9	5.8	2.5	2.97
Lohardaga	Kuru	Rudh	8.25	3.6	2.6	6.63
Lohardaga	Senha (Sneha)	Senha bdo	8.85	5.9	2.7	3.1
Pakur	Amrapara	Amrapara	_	1.66	_	5.37
Pakur	Hiranpur	Hiranpur	6.65	4	3.15	7.27
Pakur	Litipara	Kariodih	6.85	3.74	4.59	6.47
Pakur	Litipara	Litipara	9.65	6.6	8.4	9.28
Pakur	Litipara	Litipara 2	5.25	3.2	3.78	4.45
Pakur	Pakur	Pakur 1	14.2	3	7.85	12.05
Pakur	Amrapara	Pochaibera	_	2.48	1.4	2.59
Pakur	Maheshpur	Sahargram	_	4.4	7.63	9.98
Pakur	Maheshpur	Salgapara	6.6	1.68	_	7
Pakur	Hiranpur	Torai	2.55	3.09	3.3	4.28
Pakur	Pakur	Vikrapur		4.02	3.86	6.96
Palamu	Chainpur	Baraw	_	8.6	6.3	7.4
Palamu	Bishrampur	Bishrampur	_	6.8	dry	dry
Palamu	Chhatarpur	Chhatarpur	10.35	dry	10.6	dry
Palamu	Daltonganj	Daltonganj	_	4.8	4.3	4.8
Palamu	Husainabad	Japla	dry	11.3	9.1	dry
Palamu	Bishrampur	Kajri	11.8	12.1	12.8	dry
Palamu	Patan	Kanda	5.62	5.9	6.3	6.1

District	Block	Location	Depth to Water Level (m bgl)			
			2022			2023
			May	August	November	January
Palamu	Bishrampur	Ketat Kala	3.73	6.8	2.3	6.1
Palamu	Lesliganj	Lesliganj	–	8.1	4.2	5.5
Palamu	Patan	Nawadih1	dry	8.6	8.85	dry
Palamu	Panki	Panki	6.85	7.5	6.8	8.4
Palamu	Patan	Patan	7.57	9.7	5.7	dry
Palamu	Bishrampur	Rajhara	4.2	8.6	2.1	6.3
Palamu	Panki	Sagalim	–	7.2	8.4	9.5
Palamu	Chhattarpur	Sandha	–	6.1	5.8	6.6
Palamu	Satbarwa	Satbarwa	8.93	8.8	7.6	8.5
Ramgarh	Mandu	Barkachumba	5.5	2.9	3.15	3.95
Ramgarh	Ramgarh	Barkakana	3.6	1.85	2.79	3.1
Ramgarh	Ramgarh	Barlong	5.8	2.05	3.89	4.59
Ramgarh	Patratu	Bhurkunda	5.6	2.3	5.5	4.08
Ramgarh	Chitarpur	Chitarpur	6.2	2.16	3.25	5.58
Ramgarh	Chitarpur	Chitarpur	4.5	2.06	3.3	3.66
Ramgarh	Dulmi	Dulmi	5	0.4	2.76	3.45
Ramgarh	Gola	Gola	8.2	1.9	5.59	7.12
Ramgarh	Dulmi	Harhadkander	5.66	2.38	3.88	4.97
Ramgarh	Chitarpur	K.B.A. School, Lari	8.3	6.25	6.37	6.46
Ramgarh	Ramgarh	Kaitha	3.5	1.45	1.17	1.93
Ramgarh	Mandu	Kanjgi	6.05	4.25	2.75	3.4
Ramgarh	Mandu	Kuju	6.05	3.5	4.03	4.78
Ramgarh	Dulmi	Kusumbha	6.9	1.25	4.5	5.38
Ramgarh	Mandu	Mandu	7.2	3.85	6.79	8.3
Ramgarh	Chitarpur	PHED campus, Chitarpur	5.3	4.36	6.18	7.31
Ramgarh	Dulmi	Potamdaga	29.75	5.05	14.48	18.95
Ramgarh	Ramgarh	Ramgarh	–	3.15	3.9	4.04
Ramgarh	Patratu	Sayal	4	1.4	2.1	3.86
Ramgarh	Mandu	Sirka	8.05	2.96	7.95	
Ramgarh	Mandu	Thakur Gora	10.2	5.15	8.26	8.99
Ranchi	Angara	Angara1	7.85	3.4	4.85	6.07
Ranchi	Ratu	Bajra	4.85	1.47	2.77	3.85
Ranchi	Nagri	Bandhea	12.4	7.09	0.51	9.53
Ranchi	Angara	Barwadag	3.85	1.85	2.58	2.94
Ranchi	Bero	Berro	7.8	1.21	2.15	4.85
Ranchi	Chanho	Bijupara Tangar	5.75	2.05	2.24	3.4
Ranchi	Mandar	Bishakhatanga	6.25	0.8	2.7	4.27
Ranchi	Kanke	Bit More	7.8	0.46	2.7	1.83
Ranchi	Ratu	Brambey	9	5.17	4.3	6.5
Ranchi	Namkom	Bridge Ford School	7.85	0.8	3.82	5.8

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			2022			2023
			May	August	November	January
Ranchi	Bundu	Bundu	10.3	3.1	4.14	7.62
Ranchi	Kanke	Bunti	2.4	0.92	1.85	2.02
Ranchi	Burmoo	Burmoo	9.6	5.15	5.21	7.19
Ranchi	Itki	Chachgura	10.6	5.85	3.76	6.7
Ranchi	Namkom	Chutiya (Sani Mandir)	2.9	0.4	0.7	1.43
Ranchi	Ormanjhi	Chutupalu	9.45	1.07	5.29	4.65
Ranchi	Kanke	Daily Market	14.3	2.45	4.55	11.47
Ranchi	Angarha	Gondlipokhar	4.9	1.22	3.03	4.49
Ranchi	Namkom	Hanuman Mandir (Near AG.Office)	9.3	2.45	5.02	7.62
Ranchi	Kanke	Harmu	10	3.02	4.83	7.03
Ranchi	Namkom	Hatia	12.4	2.05	5.01	9.22
Ranchi	Namkom	Hatia	—	19.17	—	—
Ranchi	ormanjhi	Hochar	5.55	1.05	3.57	4.33
Ranchi	Ormanjhi	Hombai B.I.T. Mesra	—	—	4.8	7.78
Ranchi	Ratu	Hurhuri	7.95	0.09	2.03	5.26
Ranchi	Itki	Itki	12	1.9	3.43	7.44
Ranchi	namkom	Jamchuan Kgbav	—	11.13	10.87	11.01
Ranchi	Angara	Jonha	4.7	3.18	3.31	3.59
Ranchi	Kanke	Kanke Chowk	3.1	—	2.7	3.5
Ranchi	Kanke	Kanke School (High School)	19.6	2.96	9.85	10.45
Ranchi	Kanke	Kanke I	2.95	0.6	1.09	1.65
Ranchi	Namkom	Kharsidag	6.75	3.21	2.49	5.46
Ranchi	Ratu	Khatitanr	4.7	0.6	1.7	2
Ranchi	Silli	Kita	5.2	1.5	2.78	3.33
Ranchi	Itki	Kurgi	8.98	1.92	6.25	5.55
Ranchi	Namkom	Ladnapiri	5.35	1.5	3.56	4.6
Ranchi	Namkom	Lalganj	7.1	0.65	4.05	6.05
Ranchi	Namkom	Lowadih	9.1	1.89	3.42	—
Ranchi	Namkom	Mahilong Forest Nur	11.46	5.07	6.15	—
Ranchi	Mandar	Mandar	6.9	0.9	1.99	3.02
Ranchi	Namkom	Mani Tola (Doranda)	2.45	0.5	1.34	5.79
Ranchi	Namkom	Military Farm Namkom	12.63	3.72	5.93	9.24
Ranchi	Ormanjhi	Ormanji	7.65	2	3.74	4.83
Ranchi	Silli	Patrahatu	6.5	0.7	3.04	1.73
Ranchi	namkom	Pindarcom	8.75	1.74	5.24	6.7
Ranchi	Kanke	Pithoria	4.2	1.36	2.24	3
Ranchi	Kanke	Ramkrishna mission Morabadi	8.75	1.25	4.98	7.78
Ranchi	Namkom	Rampur	6.7	2.16	3.65	5.4
Ranchi	Kanke	Ranchi College	—	3.1	5.14	6.75

District	Block	Location	Depth to Water Level (m bgl)			
			2022			2023
			May	August	November	January
Ranchi	Tamar	Rangamati	7.8	3.4	4.6	6.17
Ranchi	Namkom	Shyamali,Mecon colony	–	3.45	4.4	7.83
Ranchi	Silli	Silli	6.7	2.56	4.76	7.7
Ranchi	Namkom	Siramtoli	6.5	1.69	3.95	5.2
Ranchi	Namkom	Sithipokhartoli	6.25	1.2	3.04	4.47
Ranchi	Sonahatu	Sonahatu	5.5	1	2.23	4.25
Ranchi	Chanho	Sonsbazar	6.9	2.85	3.93	5.23
Ranchi	Kanke	Sukurhutu	–	1.35	3.02	3.98
Ranchi	Bundu	Taimara	10.9	3.4	5.64	7.75
Ranchi	Tamar	Tamar	10.4	1.57	3.89	7.68
Ranchi	Namkom	Tati Silway(E.F.)	7.75	1.7	4.6	6.15
Ranchi	Ormanjhi	Tungri Tola	7.4	1.35	5.15	5.79
Ranchi	Ormanjhi	Ukrid	5.9	3.42	4.22	9.63
Sahibganj	Berhait	Barhait	3	6.21	3.84	7.18
Sahibganj	Berhait	Baramasia	4	4.11	4.97	8.11
Sahibganj	Barharwa	Barharwa	4.6	5.86	6.71	9.97
Sahibganj	Mandro	Belbhadri	–	–	2.98	3.86
Sahibganj	Borio	Borio	4.65	3.67	2	2.44
Sahibganj	Taljhari	Brindavan	4.85	2.5	–	–
Sahibganj	Berhait	Chota Kadma	5.2	3.11	3.53	6.07
Sahibganj	Sahibganj	Dihari	6.85	3.09	2	3.06
Sahibganj	Udhwa	Fudkipur	3.15	2.36		
Sahibganj	Rajmahal	Ghat Selumpur	5.6	3.11	2.45	3.18
Sahibganj	Borio	Harinchara Chowk	4.05	2.38	3.28	4.44
Sahibganj	Sahibganj	Hazipur	–	2.91	1.5	2.68
Sahibganj	Udhwa	Kathalwadi	4.15	2.12	–	–
Sahibganj	Barharwa	Kotalpokhar	3.4	1.8	2.93	3.77
Sahibganj	Mandro	Mandro	3.65		3.05	5.5
Sahibganj	Rajmahal	Mangal hat	5.55	3.47	4.2	5.44
Sahibganj	Borio	Maricho	7.1	5.92	5.48	6.38
Sahibganj	Rajlmahal	Rajmahal	5.35	3.32	3.39	4.47
Sahibganj	Pathna	Ranga	4.77	4.67	5.4	7.2
Sahibganj	Sahebganj	Sahebganj1	8.35	6.14	5.7	7.24
Sahibganj	Sahibganj	Sakrigali	3.75	5.46	5.87	6.76
Sahibganj	Pathana	Taljhari	–	2.97	3.67	4.97
Sahibganj	Taljhari	Taljhari 1	2.75	1.88	2.76	3.46
Sahibganj	Udhwa	Udhwa	4.15	2.52	3.11	7.05
Saraikela	Chandil	Chandil	dry	1.12	–	dry
Saraikela	Nimdih	Jamdih	8.3	1.55	1.92	4.6
Saraikela	Gamharia/adityapur	Kandra	5.75	2.3	2.41	4.5



District	Block	Location	Depth to Water Level (m bgl)			
			2022			2023
			May	August	November	January
Saraikela	Kharsawan	Kharsawan	6.7	2.07	3.89	3.8
Saraikela	Nimdih	Lupungdih	–	1.1	2.22	2.2
Saraikela	Saraikela	Saraikela	2.1	0.78	1.98	1.6
Simdega	Bano	Bano	7	3.87	3.92	5.65
Simdega	Jaldega	Baribringa	4.02	0.55	1.55	1.54
Simdega	Simdega	Biru	2.9	1.19	2.41	4.3
Simdega	Bolba	Bolba	4.35	2.65	3	4
Simdega	Jaldega	Jaldega	4	1.08	2.89	3.14
Simdega	Thethai Thangar	Kerio	5.35	3.62	3.72	4.8
Simdega	Kolebira	Kolebira	8.7	3.35	4.82	7.85
Simdega	Kolebira	LacharaGarh	7	3.1	3.24	6.44
Simdega	Jaldega	Lamboi	6.15	–	3.25	5.06
Simdega	Kolebira	Puthritoli	3.05	1	0.8	2.15
Simdega	Simdega	Simdega	6.07	2.35	2.58	4.58
Simdega	Jaldega	Tengratuku	6.25		1.95	5.3
Simdega	Thethai Thangar	Thethai Thangar	2.23	1.1	3.35	2.68
W Singhbhum	Bandgaon	Bandgaon	6.42	3.08	5.64	5.8
W Singhbhum	Noamundi	Barajamda	2.5	1.13	1.25	2.2
W Singhbhum	Jagnnathpur	Barananda	5.43	0.68	1.1	4.9
W Singhbhum	Noamundi	Bhandgaon	2.71	1.89	1.86	3.6
W Singhbhum	Chaibasa	Chaibasa	13.25	7.08	7.81	11.5
W Singhbhum	Chakradharpur	Chakradharpur	7	1.52	3.15	3.1
W Singhbhum	Goiekera	Hat Gamhariya	9.29	5.3	5.81	9.2
W Singhbhum	Hatgamhariya	Hesadih	4.07	1.3	1.68	1.7
W Singhbhum	Bandgaon	Jagannathpur	8.4	2.95	4.7	7.8
W Singhbhum	Jagnnathpur	Jaitgarh	4.83	–	–	4.8
W Singhbhum	Jagnnathpur	Jhinkpani	7.34	1.42	2.1	3.7
W Singhbhum	Jhinkpani	Kerekela	6.65	1.12	1.82	5.4
W Singhbhum	Khuntpani	Khuntpani	7.3	0.44	2.9	2.9

District	Block	Location	Depth to Water Level (m bgl)			
			2022			2023
			May	August	November	January
W Singhbhum	Tantnagar	Kokcho	7.1	3.39	3.45	6.8
W Singhbhum	Noamundi	Noamundi	3.6	0.5	0.86	2.8
W Singhbhum	Chaibasa	Putida	2.6	0.94	2.05	2.5
W Singhbhum	Sonua	Sonua	—	1.6	3.1	—

## ANNEXURE-II

**WATER LEVEL DATA OF CONFINED AQUIFER MEASURED BY CGWB, SUO,  
RANCHI, JHARKHAND**

<b>District</b>	<b>Block</b>	<b>Location</b>	<b>Depth to water level m bgl August 2022</b>	<b>Depth to water level m bgl November 2022</b>	<b>Depth to water level m bgl January 2023</b>
Bokaro	Chas	Kamaldih		9.68	11.21
Bokaro	Chandrapura	Dugda		21.34	24.02
Chatra	Chatra	Chatra	1.85	2.7	5.3
Chatra	Partapur	Partapur	7.8	8.96	11.7
Chatra	Tandwa	Laharnga	10.27	7.95	10.3
Chatra	Hunterganj	Bishunpur	2.88	3.89	4.7
Deoghar	Margomunda	Margomunda	7.31	7.8	9.01
Deoghar	Deogarh	Sikdardih	4.04	5.09	5.28
Deoghar	Palojori	Farasimal	4	5.58	6.62
Deoghar	Deogarh	Punasi	1.64	2.27	2.84
Deoghar	Sonaraithari	Mahapur	15.62	16.39	16.52
Deoghar	Sarwan	Lokhoriya	7.47	8.17	7.72
Dhanbad	Purvi Tundi	Mairanawatand	3.62	3.87	4.47
Dhanbad	Givindpur	Chitahi(Bagdudih)	6.8	6.61	7.28
Dhanbad	Chirkunda	Kushiya	7.38	7.3	6.68
Dumka	Saraiyahat	Dighi	5.32	5.15	5.86
Dumka	Sihkaripara	Benagadiya	22.29	23.61	33.12
Dumka	Gopikandar	Durgapur	10.75	12.18	13.31
Dumka	Kathikund	Amgachhi	24.69	25.48	26.94
Dumka	Gopikandar	Gopikandar	20.1	20.39	21.8
Dumka	Ramgarh	Lakhanpur	2.06	3.18	4.36
Dumka	Sariyahat	Gadojhopa	5.9	6.02	7.98
East Singhbhum	Golmuri	Parsudih AMD Campus			22.5
East Singhbhum	Mosabani	Chapri			1.8
Garhwa	Bhandaria	Bargarh	5.75	5.1	6.75
Garhwa	Chinia	Ranpura	7.1	5.1	6.22
Garhwa	Bhawanathpur	Bhawanathpur	6.7	6.9	9.2

District	Block	Location	Depth to water level m bgl August 2022	Depth to water level m bgl November 2022	Depth to water level m bgl January 2023
Giridih	Gawan	Gawan	24.12	16.3	13.8
Giridih	Sariya	Sariya Inter College	7.65	5.65	8.9
Giridih	Bengabad	Chotki Kharagdiha	7.15	13.8	13.2
Giridih	Jamua	Jamua	4.53	3.45	5.6
Godda	Godda	Kurmichak	7.01	7.56	9.42
Godda	Sundarpahari	Kauadhab	10.2	11.1	11.35
Godda	Poreyahat	Rajabhita	5.6	4.99	6.12
Grahwa	Ranka	Chutru	8.6		
Grahwa	Garhwa	Dumaria	14.25		
Gumla	Chainpur	Chainpur	1.65	1.8	3.53
Gumla	Ghagra	Nauni	16.2	16.7	17.61
Gumla	Palkot	Bangru	4.4	13.8	23.42
Hazaribagh	Hazaribagh	Hatyari	3.61	4.36	6.7
Hazaribagh	Chalkusa	Ragdihi	3.2	4.05	gate close
Hazaribagh	Chauparan	Chauparan	16.12	5.3	5.71
Hazaribagh	Keredari	Garrikala	1.13	5	4
Jamtara	Narayanpur	Tongodih	11.32	11.9	13.24
Jamtara	Vidyasagar	Sahajpur	3.6	3.91	5.37
Jmatara	Narayanpur	Chainpur	4.9	5.7	5.87
Jmatara	Fatehpur	Majhladih	3.9	4.47	gate close
Jmatara	Jamtara	Kelahi	3.47	4.79	4.7
Khunti	Murhu	Pelloal	2.96	5.75	4.46
Khunti	Arki	Hunt	2.34	4.26	5.89
Khunti	Rania	Rania	6.65	7.25	7.08
Koderma	Koderma	Sujanpur	6.5	4.85	7.35
Koderma	Domechanch	Golwadhab	3.1	3.05	5.2
Koderma	Jaynagar	khagradih	7.84	7.5	10
Latehar	Manika	Matlang	13.3	12.2	13.35
Latehar	Chanduwa	Kali	10.1	6.35	8.18
Latehar	Mahuadant	Hami	5.15	5.5	5.82
Latehar	Barwadih	Barwadih	4.5	4.3	5.81
Latehar	Latehar	Banbirwa	6	locked	locked
Latehar	Garu	Maromar	14.15	11.2	14.08
Lohardaga	Peshrar	Jawakheda	2.75	3.9	5.06
Lohardaga	Kisko	Tisiya	4.8	4.75	7.7

District	Block	Location	Depth to water level m bgl August 2022	Depth to water level m bgl November 2022	Depth to water level m bgl January 2023
Pakur	Ltipara	Manjhladih	5.09	26.35	31.1
Pakur	Hiranpur	Daldali	4.07	6.12	closed
Pakur	Maheshpur	Sahargaon	3.83	7.37	10.61
Pakur	Amarapara	Dumarchir	23.05	not found	25.28
Pakur	Litipara	Litipara	7.86	10.03	10.12
Palamu	Chainpur	Khura Kalan	10.45	12.1	12.5
Palamu	Chhatarpur	Kerki Khurd(Kutia)	27.6	13	13.75
Palamu	Heidernagar	Itwa	6.3	13	8.5
Palamu	Heidernagar	Itwa	6.3	6.85	8.4
Palamu	Pandu	Kajur Kalan	10.6	5.9	7.8
Palamu	Pandwa	Kokrasa	24.1	6.9	7.8
Palamu	Bishrampur	Bishrampur	20.6	3.6	3.95
Ramgarh	Orla EW	Mandu	12	12.43	13.66
Ramgarh	Chitarpur	K.B.A. School, Lari Campus	7.26	6.37	6.46
Ramgarh	DWSD Burha Kokhra (EW)	Ramgarh	7.86	8.48	9.11
Ramgarh	Dulmi	Potamdagga		14.48	18.95
Ranchi	Silli	Banuwadih	0.12	2.1	3.4
Ranchi	Tamar	Roladih	8.26	10.6	11.89
Saraikela-Kharsawan	Kharsawan	Kharsawan	2.6	not found	12.21
Simdega	Bano	Unikel	6.13	11.2	7.31
Simdega	Thethaitangar	Kereya	3.98	7.92	10.98
Simdega	Kolebira	Kolebira	11.75	13.95	32.51
Simdega	Jaldega	Gangu Toli	6.66	_	10.14
Simdega	Bolba	Auga	5.72	12.1	6.62
Simdega	Pakartand	Pakartand	14.4	17.35	15.6
Simdega	Bano	Kuladurum	14.8	19.1	
Simdega	Thethaitangar	Tara boga	4.97	8.81	7.49
Simdega	Bansjor	Bansjor	4.15	8.51	5.8
W Singhbhum	Kumardungi	Kumardungi	13.75	_	8.7
W Singhbhum	Jhinkpani	Asura High School (EW)	3.06	_	6.2
W Singhbhum	Hatgamhria	Hatgamharia	1.25	Gate closed	12.05
Sahebganj	Barharwa	Kotal Pokhar		3.8	4.68
Sahebganj	Taljhari	Nischinta		5.27	7.03
Sahebganj	Pathna	Taljhari			12.21

## Trend of Ground Water Level

Perio	01-Jan-13 to	01-Dec-22	Premonsoon			
Tahsil/Taluk	Location	Well No	No of Data	Rise	Fall	Intercept
				(meter/yr.)	(meter/yr)	01-Jan-13
<b>District: Bokaro</b>						
	Pupunki	BGH22	7	0.088	-	5.663
Bermo	Chandrapura	BDD12A	8	0.009	-	3.026
	Phusro/Bermo	BGH07	7	-	0.054	6.757
Chandankyari	Chandankiyari	BDD15	8	0.063	-	7.473
Chas	Chas	BDD05	9	1.185	-	15.109
	Jaina More	BGH13	9	0.074	-	10.644
Gomia	Gomia	BGH01	9	0.595	-	8.322
	Tenughat	BGH15	9	-	0.003	5.903
Nawadih	Nawadih	BGH16	8	-	0.181	7.733
Petarwar	Petarbar	BGH11	9	0.106	-	9.676
<b>District: Chatra</b>						
	Birhu	BHB27	8	0.290	-	9.373
	Chatra	BHB07A	7	-	0.022	6.713
	Itkhori	BHB08A	6	0.264	-	9.584
	Pitij	BHB28	8	-	0.063	8.050
	Tandwa	BHB16	7	0.526	-	10.660
	Tutilawa	BHB06A	7	0.034	-	7.821
Simaira	Bagra	BHB18	9	0.266	-	14.081
	Simaria	BHB17	7	0.386	-	13.406
<b>District: Devghar</b>						
	Jharia	BDD01	7	-	0.083	1.744
Deoghar	Deoghar	BDR06	7	-	0.182	6.584
	Jasidih	BDR02	8	-	0.097	7.605
Madhupur	Madhupur	BDR01	8	-	0.180	7.063
	Madhupur	BDR01A	8	-	0.180	7.060
Mohanpur	Ghormara	BDR08	6	-	0.495	5.794
Palojori	Palajori	BDR07	8	0.313	-	9.210
Sarath	Sarath	BDR03	8	-	0.076	7.558
Sarwan	Sarawan	BDR04	8	0.207	-	9.528
<b>District: Dhanbad</b>						
Baghmara	Baghmara	BDD14	6	0.295	-	14.109
	Rajganj	BDD09	8	0.064	-	7.157
Dhanbad	Dhanbad	BDD13	6	0.290	-	6.695
Jharia	Sindri	BDD11	8	0.137	-	6.294
Nirsa	Nirsa ecl l.qtr	BDD03A	7	-	0.040	2.802

Topchachi	Topchanchi	BDD04	8	0.167	-	8.535
Tundi	Tundi	BDD02	7	0.033	-	6.808

**District: Dumka**

Dumka	Dumka (db ib)	BDK03	9	0.167	-	5.774
Gopikandar	Gopikandar	BDK23	9	-	0.070	8.086
	Narayanpur	BDK18	6	0.191	-	5.775
Jama	Chikania	BDK22	6	0.923	-	11.266
	Jama	BDK13	9	0.245	-	9.520
Jarmundi	Jarmundi db.ib	BDK07	9	0.218	-	8.489
	Nunihaat	BDK19	8	0.018	-	2.552
Kathikund	Kathikund	BDK02	9	0.098	-	7.402
Masalia	Masalia	BDK15	9	0.170	-	6.297
Ramgarh	Gamharia	BDK20	7	0.608	-	11.273
Raneshwar	Masanjor	BDK05	8	-	0.008	3.627
	Raneswar	BDK14	7	0.294	-	7.540
Saraiyahat	Hansdiha pwdib	BDK04	8	0.152	-	8.119
Shikaripara	Patabari	BDK17	9	-	0.069	7.136
	Sikaripara	BDK06	6	0.262	-	7.968

**District: Garhwa**

	Ramna	BPL37	6	-	0.029	6.828
Garhwa	Garhwa	BPL06	6	0.420	-	14.311
Majhiaon	Manjhian	BPL31	7	-	0.512	3.758

**District: Giridih**

	Maheshmunda	BGH24	8	-	0.260	6.085
	Saraiya	BGH23	8	-	0.112	7.854
Bagodar	Bagodar	BGH02	8	-	0.093	7.484
Bengabad	Bengabad	BGH17	8	0.130	-	9.050
Birni	Birini	BGH08	7	0.481	-	10.563
Deori	Dewri	BGH10	7	-	0.002	6.947
Dhanwar	Dhanwar	BGH05	6	-	0.569	5.642
Dumri	Dumri	BGH14	8	-	0.004	10.271
Gandey	Gandey	BGH21	8	0.030	-	9.691
	Pandri	BGH09	7	-	0.349	7.342
Giridih	Bandhutanr	BGH19	7	0.073	-	9.657
	Dhanidih	BGH20	8	0.017	-	8.026
	Giridih	BGH03	8	0.111	-	9.051
Jamua	Jamua pwd ib	BGH06	7	-	0.096	10.557
	Khijri	BGH12	7	-	0.996	5.123
Pirtanr	Chirki (pirtanr)	BGH18	6	-	0.067	10.713
Tsri	Tisri	BGH04	8	-	0.316	3.460

**District: Godda**

	Jaminipahar	BGD11	6	-	0.146	6.390
Mahagama	Doi	BGD02	6	0.178	-	5.434
	Lalmatia	BGD05	8	0.100	-	9.154

	Mahagama	BGD06A	7	0.191	-	9.151
Pathargama	Maheshpur	BGD03A	7	0.278	-	8.568
	Pathargama	BGD04	7	0.123	-	6.312
Sundar pahari	Sundar Pahari	BGD07	8	0.166	-	13.109

#### District: Gumla

	Bhagma	BGL19	7	0.374	-	8.714
	Kasir	BGL20	8	0.060	-	1.624
Basia	Baisia	BGL10	10	0.698	-	9.202
Bharno	Bharno bdo	BGL04	9	0.206	-	7.362
	Nagfeni	BGL14	9	0.016	-	7.875
Bishunpur	Bishunpur	BGL06	8	0.464	-	8.981
Chainpur	Chainpur	BGL13	8	0.234	-	5.528
Ghaghra	Ghagra	BGL05	8	0.543	-	10.126
Gumla	Anjam gram	BGL18	7	0.076	-	2.719
	Gumla	BGL02A1	8	0.440	-	9.079
Palkot	Palkot	BGL07	9	0.238	-	9.747
Raidih	Raidih	BGL12	8	0.355	-	7.671
Sisai	Sisai	BGL03	8	0.526	-	9.373

#### District: Hazaribag

	Barkagaon	BHB19	6	0.048	-	11.771
	Daru	BHB25	6	-	0.071	6.971
	Garrikalan	BHB23	6	0.490	-	8.575
	Ichak More	BHB13A	7	-	0.165	6.253
	Keredari	BHB22	8	0.351	-	9.456
	Meru (silwar)	BHB24	7	0.230	-	11.320
	Padma	BHB26	7	0.452	-	12.135
	Sakrej	BHB52	7	0.418	-	8.737
Barhi	Barhi	BHB01	8	0.173	-	10.553
Barkatha	Barkatha	BHB10	9	0.342	-	8.338
Hazaribagh	Hazaribagh	BHB04	8	0.589	-	12.101

#### District: Jamtara

	Mihijam db ib	BDK01	8	0.126	-	8.597
Jamtara	Jamatara	BDK12	8	0.194	-	8.805
Kundhit	Kundahit	BDK11	8	0.299	-	7.272
Nala	Nala	BDK16	9	0.134	-	7.013

#### District: Khunti

	Dorma	BRC34	6	0.098	-	6.431
Arki	Seringathu	BRC12A	6	0.294	-	4.814
Karra	Lodma	BRC20	7	-	0.124	4.350
Khunti	Kalimati	BRC15	6	-	0.047	6.342
	Khunti	BRC02	7	0.403	-	9.946
Murhu	Murhu	BRC16	6	0.262	-	5.131



**District: Koderma**

	Chandwara	BHB36	7	0.233	-	6.180
	Jhumritilaiya	BHB37	6	-	0.233	6.043
Koderma	Kodarma	BHB03	7	-	0.059	7.584

**District: Latehar**

Balumath	Balumath	BPL15	9	0.006	-	11.724
	Barjatu	BPL30	9	0.210	-	8.403
Barwadih	Barwadih	BPL16	8	0.034	-	9.288
Chandwa	Chandwa	BPL02	8	0.131	-	9.288
Latehar	Latehar	BPL03	6	0.033	-	6.278
Manika	Manika	BPL12	8	-	0.515	4.799

**District: Lohardaga**

	Hesal	BLD09	6	0.139	-	9.195
	Irgaon	BLD11	6	0.376	-	9.527
	Lohardaga (patra Toli)	BLD08	7	-	0.016	6.734
Bhandara	Bhandara	BLD04	9	-	0.090	7.489
Kisko	Kisko	BLD05A	7	0.050	-	11.930
Kuru	Hinjla	BLD03B	8	0.094	-	7.836
	Kuru	BLD02A	7	0.351	-	9.424
	Rudh	BLD06	7	0.078	-	8.651
Lohardaga	Lohardaga (pwdib)	BLD01	8	0.300	-	7.615
Senha	Senha Bdo	BLD07	8	-	0.329	4.363

**District: Pakur**

Littipara	Litipara	BSG07	8	-	0.187	8.234
Maheshpur	Salgapara	BSG14	8	-	0.026	6.851
Pakur	Pakur	BSG08	7	-	0.399	10.036
Pakuria	Pakuria	BSG04	6	0.840	-	7.180

**District: Palamau**

	Baraw	BPL36	6	0.015	-	6.712
Bishrampur	Kajri	BPL27	6	-	0.231	10.539
	Rajhara	BPL08	6	0.324	-	9.626
Chhatarpur	Chhatarpur	BPL05	7	-	0.324	8.199
Daltonganj	Daltonganj	BPL07	7	-	0.106	6.210
Garu	Garu	BPL14	6	0.046	-	7.687
Lesliganj	Lesliganj	BPL26	6	-	0.438	5.830
Panki	Panki	BPL22	7	-	1.235	2.934
Patan	Kanda	BPL25	6	0.189	-	6.909
	Nawadih	BPL18	6	-	0.976	9.155
Satbarwah	Satbarwa	BPL24	6	-	0.034	8.794

**District: Paschim Singhum**

	Jagnnathpur	BSM42	6	0.153	-	10.095
	Jaitgarh	BSM41	6	0.089	-	6.460
	Noamundi	BSM39	6	0.047	-	4.010
Bandgaon	Bandgaon	BSM23	7	0.202	-	8.768
	Hesadih	BSM30A	8	0.123	-	6.040

	Kereikela	BSM22A	8	0.382	-	9.187
Chaibasa	Chaibasa	BSM07	8	-	0.090	12.977
Chakradharpur	Chakradharpur	BSM01	8	-	0.040	7.028
Jagnnathpur	Kokcho	BSM26	8	0.216	-	9.477
Jhinkpani	Jhinkpani	BSM16	8	0.044	-	7.227
Khuntpani	Khuntpani	BSM17	7	0.121	-	8.548

### District: Purba Singbhum

	Pithajudi	BSM33	6	0.009	-	4.972
Bahragora	Baharagora	BSM02	7	0.133	-	14.480
Chakulia	Chakulia	BSM03	8	0.261	-	18.278
Dhalbhumgarh	Dhalbhumgarh	BSM08	8	-	0.133	10.630
Ghatsila	Ghatsila	BSM04	8	0.140	-	7.462
Musabani	Mosabani	BSM09	7	0.252	-	4.197
Potka	Kalikapur	BSM24	8	0.497	-	7.549
	Potka	BSM10	7	0.047	-	8.929

### District: Ramgarh

	Kanjgi	BHB31	6	0.704	-	10.304
	Kuju	BHB21	7	0.186	-	7.496
	Sayal	BHB34	8	0.474	-	7.385
	Sirka (bazartanr )	BHB32	6	0.302	-	9.222
	Urimari	BHB35	7	-	0.048	7.278
Gola	Chitarpur	BHB15A	6	0.129	-	7.589
	Gola	BHB12	6	0.471	-	10.550
Ramgarh	Barkakhana	BHB14	9	0.242	-	5.044

### District: Ranchi

	Angara	BRC17A	10	0.246	-	9.096
	Bit More	BRC26	8	0.173	-	5.957
	Gondlipokhar	BRC42	7	0.492	-	8.685
	Harmu	BRC33	6	0.572	-	12.649
	Kanke	BRC32	6	-	0.079	2.406
	Kita	BRC27	7	0.243	-	6.855
	Lalganj	BRC41	6	0.206	-	7.961
	Patrahau	BRC28	6	-	0.162	1.814
	Pithoria	BRC49	8	0.274	-	6.337
	Rangamati	BRC29	7	0.234	-	8.043
	Siramtoli	BRC47	6	0.495	-	9.589
	Sonsbazar	BRC40	7	0.167	-	7.157
	Taimara	BRC30	9	0.482	-	12.699
Angara	Barwadag	BRC08	8	0.336	-	6.076
	Jonha	BRC25	9	0.143	-	5.675
Bero	Berro	BRC07	9	0.332	-	10.855
Bundu	Bundu	BRC04	9	0.240	-	10.330
Burmu	Burmoo	BRC05	8	0.293	-	11.096
Itki	Chachgura	BRC24	9	0.060	-	11.072
Kanke	Hatia	BRC19A	6	0.064	-	10.323

Mandar	Mandar	BRC06	8	0.105	-	6.453
Ormanjhi	Bunti	BRC18	6	0.015	-	2.253
	Chutupalu	BRC22	8	0.202	-	8.809
	Ormanji	BRC01	7	-	0.054	5.834
Ratu	Kantitanr	BRC21A	7	0.162	-	5.457
Silli	Silli	BRC09	8	0.126	-	6.964
Sonahatu	Sonahatu	BRC23	7	0.335	-	6.865
Tamar	Tamar	BRC11	8	0.288	-	11.499

#### District: Sahebganj

	Ghat Selampur	BSG17	7	0.284	-	7.879
	Ranga	BSG16	6	0.335	-	8.959
	Udvababutala	BSG18	6	0.399	-	9.055
Barhait	Berhait	BSG09	7	0.411	-	8.176
Borio	Borio	BSG11	7	0.287	-	7.318
	Sakrigali	BSG13	7	0.361	-	6.464
Mandro	Mandro	BSG12	8	0.111	-	5.058
Rajmahal	Rajmahal	BSG02	8	-	0.071	5.640
Sahibganj	Sahebganj	BSG01	8	0.074	-	9.250
Taljhari	Taljhari	BSG03	8	0.378	-	5.201

#### District: Saraikela-Kharswan

Chandil	Chandil	BSM06	7	-	0.744	5.684
Gumhariya	Kandra	BSM19	6	0.083	-	6.990
Rajnagar	Keshargaria	BSM28	6	0.764	-	5.975
Saraikela	Kharsawan	BSM18	8	-	0.072	6.489
	Saraikela	BSM14	8	0.270	-	3.999

#### District: Simdega

	Biru	BGL23	8	0.151	-	5.972
	Tengratuku	BGL22	7	0.131	-	7.193
Bano	Bano	BGL08	7	0.013	-	6.719
Jaldega	Jaldega	BGL17	8	-	0.010	5.205
Kolebira	Kolebira	BGL11	9	-	0.015	8.401
	Lachargarh	BGL16	8	0.113	-	8.102
Simdega	Simdega	BGL01	6	0.184	-	7.804
Thethaitangar	Thethai Thangar	BGL09	8	-	0.012	2.670

## Trend of Ground Water Level

Perio 01-Jan-13 to 01-Dec-22 Postmonsoon

Tahsil/Taluk	Location	Well No	No of Data	Ris (meter/yr.)	Fal (meter/yr.)	Intercept 01-Jan-13
<b>District: Bokaro</b>						
	Pupunki	BGH22	6	-	0.085	2.706
Bermo	Chandrapura	BDD12A	10	0.049	-	2.119
	Phusro/Bermo	BGH07	7	0.183	-	2.588
Chandankiyari	Chandankiyari	BDD15	10	0.092	-	3.075
	Pindrajora	BDD06A	7	-	0.002	3.166
Chas	Chas	BDD05	7	0.117	-	10.481
	Jaina More	BGH13	10	-	0.018	7.056
Gomia	Gomia	BGH01	10	0.227	-	3.720
	Tenughat	BGH15	10	0.034	-	3.151
Nawadih	Nawadih	BGH16	10	-	0.145	3.927
Petarwar	Petarbar	BGH11	10	0.107	-	6.260
<b>District: Chatra</b>						
	Birhu	BHB27	10	0.411	-	7.996
	Chatra	BHB07A	9	0.020	-	4.823
	Itkhor	BHB08A	10	0.212	-	6.745
	Pitij	BHB28	10	0.184	-	6.698
	Tandwa	BHB16	8	-	0.345	2.135
	Tutilawa	BHB06A	9	0.157	-	5.724
Simaira	Bagra	BHB18	10	0.762	-	13.423
	Simaria	BHB17	8	0.016	-	8.034
<b>District: Devghar</b>						
	Jharia	BDD01	9	-	0.080	1.366
Deoghar	Jasidih	BDR02	10	0.193	-	5.162
Madhupur	Madhupur	BDR01	10	0.204	-	4.668
	Madhupur	BDR01A	10	0.204	-	4.668
Mohanpur	Ghormara	BDR08	10	0.065	-	5.782
Palojori	Palajori	BDR07	10	0.188	-	5.186
Sarath	Sarath	BDR03	8	-	0.012	4.486
Sarwan	Sarawan	BDR04	8	0.177	-	6.445
<b>District: Dhanbad</b>						
	Dhansar M R S	BDD23	8	0.046	-	3.696
	Godhar Basti	bdd21	6	-	0.287	3.555
	Mahuda	BDD07	6	-	0.205	3.167
Baghmara	Baghmara	BDD14	10	0.270	-	9.936
	Rajganj	BDD09	10	0.039	-	3.832
Dhanbad	Dhanbad	BDD13	9	0.134	-	2.937
Gobindpur	Govindpur	BDD08	9	-	0.131	2.077
Jharia	Sindri	BDD11	8	0.083	-	3.148

Nirsa	Nirsa ecl l.qtr	BDD03A	8	-	0.054	1.525
Topchachi	Topchanchi	BDD04	10	0.013	-	4.126
Tundi	Tundi	BDD02	9	-	0.026	2.864

**District: Dumka**

Dumka	Dumka(db ib)	BDK03	9	-	0.006	3.312
Gopikandar	Gopikandar	BDK23	9	0.160	-	8.132
Jama	Chikania	BDK22	7	-	0.180	4.421
	Jama	BDK13	9	-	0.082	5.419
Jarmundi	Jarmundi db.ib	BDK07	7	0.102	-	5.827
	Nunihaat	BDK19	9	0.043	-	2.002
Kathikund	Kathikund	BDK02	8	-	0.044	4.613
Masalia	Masalia	BDK15	9	0.034	-	4.061
Ramgarh	Gamharia	BDK20	8	-	0.075	7.190
Raneshwar	Masanjor	BDK05	9	0.130	-	3.445
	Raneswar	BDK14	8	0.218	-	4.645
Saraiyahat	Hansdiha pwdib	BDK04	8	-	0.058	4.637
Shikaripara	Patabari	BDK17	9	0.002	-	3.751
	Sikaripara	BDK06	8	0.103	-	5.005

**District: Garhwa**

	Ramna	BPL37	8	0.246	-	5.828
Bhandaria	Godarmana	BPL28	6	-	0.236	3.767
Bhawnathpur+kandi	Bhawanathpur	BPL20	6	-	0.062	5.321
Garhwa	Garhwa	BPL06	7	0.051	-	7.621
Majhiaon	Manjhian	BPL31	9	-	0.261	2.942

**District: Giridih**

	Maheshmunda	BGH24	10	-	0.008	2.604
	Saraiya	BGH23	7	0.036	-	4.014
Bagodar	Bagodar	BGH02	10	0.012	-	3.969
Bengabad	Bengabad	BGH17	9	0.183	-	4.269
Birni	Birini	BGH08	8	-	0.050	4.354
Deori	Dewri	BGH10	9	-	0.019	2.344
Dhanwar	Dhanwar	BGH05	8	-	0.116	1.553
Dumri	Dumri	BGH14	10	0.202	-	7.001
Gandey	Gandey	BGH21	9	0.194	-	5.184
	Pandri	BGH09	10	-	0.029	3.233
Giridih	Bandhutanr	BGH19	8	-	0.040	4.108
	Dhanidih	BGH20	9	0.179	-	3.735
	Giridih	BGH03	10	0.193	-	5.149
Jamua	Jamua pwd ib	BGH06	8	-	0.094	5.126
	Khijri	BGH12	7	-	0.306	1.882
Tsri	Tisri	BGH04	8	0.068	-	2.632

**District: Godda**

	Jaminipahar	BGD11	9	0.073	-	5.334
Boarijor	Bara borijore	BGD09	8	0.096	-	3.580
Godda	Godda	BGD01A	7	0.018	-	4.060

Mahagama	Doi	BGD02	9	0.007	-	3.014
	Lalmatia	BGD05	10	0.121	-	7.132
Mahagama	Mahagama	BGD06A	7	0.025	-	6.237
Pathargama	Maheshpur	BGD03A	10	0.312	-	5.456
	Pathargama	BGD04	6	-	0.623	2.767
Porayahat	Poraiyahaat	BGD08	7	0.021	-	4.760
Sundar pahari	Sundar Pahari	BGD07	8	0.270	-	9.274

#### District: Gumla

	Bhagma	BGL19	8	0.021	-	3.928
	Kasir	BGL20	9	0.027	-	0.851
Basia	Baisia	BGL10	9	0.076	-	3.635
Bharno	Bharno bdo	BGL04	9	0.159	-	4.570
	Nagfeni	BGL14	8	0.204	-	5.816
Bishunpur	Bishunpur	BGL06	9	0.108	-	5.303
Chainpur	Chainpur	BGL13	9	0.145	-	4.296
Ghaghra	Ghagra	BGL05	9	0.373	-	7.082
Gumla	Anjam gram	BGL18	9	0.025	-	1.635
	Gumla	BGL02	7	0.055	-	3.189
	Gumla	BGL02A1	9	0.097	-	6.371
Palkot	Palkot	BGL07	9	0.130	-	5.830
Raidih	Raidih	BGL12	9	0.184	-	4.070
Sisai	Sisai	BGL03	9	0.136	-	4.357

#### District: Hazaribag

	Barkagaon	BHB19	9	0.183	-	10.044
	Daru	BHB25	9	0.118	-	3.104
	Garrikalan	BHB23	7	-	0.054	3.322
	Hatyari	BHB51	8	-	0.011	3.182
	Ichak More	BHB13A	8	0.201	-	5.735
	Keredari	BHB22	7	-	0.065	3.906
	Meru(silwar)	BHB24	9	-	0.008	6.658
	Padma	BHB26	9	0.358	-	10.958
	Sakrej	BHB52	9	0.274	-	6.352
	Tatijhariya	BHB53	7	-	0.110	2.553
Barhi	Barhi	BHB01	7	0.300	-	6.922
Barkatha	Barkatha	BHB10	7	0.057	-	3.777
Hazaribagh	Hazaribagh	BHB04	9	-	0.003	3.603

#### District: Jamtara

	Dhootala	BDK24	8	0.163	-	5.361
	Mihijam db ib	BDK01	7	-	0.142	3.913
Jamtara	Jamtara	BDK12	9	0.022	-	4.652
Kundhit	Kundahit	BDK11	8	0.232	-	4.391
Nala	Nala	BDK16	9	0.207	-	5.218

#### District: Khunti

	Dorma	BRC34	9	0.015	-	3.529
	Pokta	BRC58	6	0.233	-	3.321

Arki	Karapurti	BRC14	6	0.067	-	3.764
	Seringathu	BRC12A	7	0.045	-	1.363
Karra	Lodma	BRC20	6	-	0.230	1.657
Khunti	Kalimati	BRC15	9	0.226	-	4.553
	Khunti	BRC02	8	0.002	-	3.724
Murhu	Murhu	BRC16	7	0.456	-	5.515
<b>District: Koderma</b>						
	Chandwara	BHB36	9	0.209	-	3.854
	Jainagar	BHB58	8	0.168	-	5.063
	Jhumritilaiya	BHB37	9	0.053	-	4.032
Koderma	Kodarma	BHB03	7	-	0.111	5.265
<b>District: Latehar</b>						
Balumath	Balumath	BPL15	10	-	0.185	8.070
	Barjatu	BPL30	8	-	0.290	4.161
Barwadiah	Barwadiah	BPL16	8	0.073	-	4.820
Chandwa	Chandwa	BPL02	10	-	0.353	2.892
Latehar	Latehar	BPL03	10	-	0.296	2.821
Mahuadanr	Mahuadanr	BPL17	6	-	0.179	2.691
Manika	Manika	BPL12	10	-	0.184	2.090
<b>District: Lohardaga</b>						
	Hesal	BLD09	9	0.260	-	7.260
	Irgaon	BLD11	9	0.330	-	6.361
	Lohardaga(patra Toli)	BLD08	8	0.462	-	5.832
Bhandara	Bhandara	BLD04	9	0.179	-	7.060
Kuru	Hinjla	BLD03B	10	0.130	-	5.650
	Kuru	BLD02A	10	0.042	-	4.507
	Rudh	BLD06	9	0.271	-	5.795
Lohardaga	Lohardaga(pwdib)	BLD01	8	0.205	-	4.725
Senha	Senha Bdo	BLD07	7	-	0.076	1.942
<b>District: Pakur</b>						
Amrapara	Amrapara	BSG06	9	-	0.049	1.431
Littipara	Litipara	BSG07	9	-	0.108	6.517
Maheshpur	Salgapara	BSG14	8	-	0.050	2.816
Pakur	Pakur	BSG08	10	0.061	-	6.083
Pakuria	Pakuria	BSG04	9	0.087	-	2.256
<b>District: Palamau</b>						
	Baraw	BPL36	6	-	0.322	2.599
	Hydernagar	BPL35	6	-	0.295	3.280
	Sagalim	BPL34	7	-	0.221	5.365
Bishrampur	Bishrampur	BPL09	8	-	0.283	3.059
	Kajri	BPL27	7	-	0.240	10.243
	Rajhara	BPL08	7	-	0.590	2.579
Chhatarpur	Chhatarpur	BPL05	8	-	0.312	7.593
	Sandha	BPL29	6	-	0.455	3.502
Daltonganj	Daltonganj	BPL07	7	0.087	-	5.718

Garu	Garu	BPL14	8	-	0.190	4.547
Hariharganj	Hariharganj	BPL19	7	-	0.081	5.550
Lesliganj	Lesliganj	BPL26	7	-	0.410	3.818
Panki	Panki	BPL22	8	-	0.558	2.285
Patan	Kanda	BPL25	7	-	0.322	4.037
	Patan	BPL21	7	-	0.396	3.523
Satbarwah	Betla	BPL04	7	-	0.349	6.442
	Satbarwa	BPL24	8	-	0.196	6.385

#### District: Paschim Singbhum

	Bangaon	BSM40	8	0.206	-	5.443
	Barajamda	BSM38	7	0.100	-	2.051
	Hatgamhariya	BSM43	9	0.192	-	5.108
	Jagnnathpur	BSM42	9	0.490	-	8.895
	Jaitgarh	BSM41	7	0.411	-	6.107
	Noamundi	BSM39	9	0.418	-	5.283
Bandgaon	Bandgaon	BSM23	8	-	0.295	3.387
	Hesadih	BSM30A	9	0.128	-	3.051
	Kereikela	BSM22A	10	0.389	-	5.692
Chaibasa	Chaibasa	BSM07	10	0.106	-	8.188
Chakradharpur	Chakradharpur	BSM01	10	0.159	-	4.473
Jagnnathpur	Kokcho	BSM26	10	0.068	-	4.095
Jhinkpani	Jhinkpani	BSM16	9	0.285	-	4.516
Khuntpani	Khuntpani	BSM17	10	0.069	-	2.937

#### District: Purba Singbhum

Bahragora	Baharagora	BSM02	7	-	0.077	5.284
Chakulia	Chakulia	BSM03	9	-	0.404	9.694
Dhalbhumgarh	Dhalbhumgarh	BSM08	9	-	0.317	3.648
Ghatsila	Ghatsila	BSM04	10	-	0.331	2.246
Musabani	Mosabani	BSM09	10	0.029	-	1.323
Potka	Kalikapur	BSM24	10	0.038	-	2.162
	Potka	BSM10	10	-	0.113	3.428

#### District: Ramgarh

	Barkachumba	BHB54	6	0.171	-	4.419
	Kanjgi	BHB31	8	0.509	-	7.380
	Kuju	BHB21	10	0.035	-	4.116
	Soyal	BHB34	10	0.311	-	4.959
	Sirka(bazartanr)	BHB32	8	0.034	-	5.678
	Thakur Gaon	BHB55	7	-	0.535	0.525
	Urimari	BHB35	8	0.237	-	5.689
Gola	Chitarpur	BHB15A	8	0.338	-	6.140
	Gola	BHB12	9	0.305	-	7.665
Ramgarh	Barkakhana	BHB14	10	0.055	-	2.942



**District: Ranchi**

	Angara	BRC17A	9	0.032	-	5.327
	Bajra	BRC48	7	0.171	-	4.576
	Bit More	BRC26	9	0.260	-	4.747
	Gondlipokhar	BRC42	10	0.076	-	3.610
	Harmu	BRC33	7	0.365	-	8.415
	Kanke	BRC32	10	0.104	-	2.446
	Kharsidag	BRC45	8	0.117	-	4.854
	Kita	BRC27	9	0.004	-	2.728
	Lalganj	BRC41	7	-	0.008	4.175
	Lowadih	BRC43	8	-	0.038	4.190
	Patrahau	BRC28	7	-	0.096	0.648
	Pithoria	BRC49	8	0.050	-	2.826
	Rampur	BRC44	8	-	0.174	2.227
	Rangamati	BRC29	8	0.035	-	3.959
	Siramtoli	BRC47	8	0.196	-	5.391
	Sithipokhartoli	BRC46	7	0.086	-	4.989
	Sonsbazar	BRC40	7	0.127	-	4.649
	Taimara	BRC30	9	-	0.011	5.164
Angara	Barwadag	BRC08	9	0.012	-	3.278
	Jonha	BRC25	9	0.066	-	3.931
Bero	Berro	BRC07	7	0.417	-	8.697
Bundu	Bundu	BRC04	9	0.035	-	4.375
Burmu	Burmoo	BRC05	8	0.333	-	8.008
Itki	Chachgura	BRC24	9	0.358	-	7.160
Kanke	Hatia	BRC19A	9	0.053	-	5.931
Mandar	Mandar	BRC06	8	0.092	-	3.435
Ormanjhi	Bunti	BRC18	8	0.134	-	2.733
	Chutupalu	BRC22	8	-	0.088	2.941
	Ormanji	BRC01	8	0.050	-	4.297
Ratu	Kantitanr	BRC21A	7	0.093	-	3.267
Silli	Silli	BRC09	8	-	0.086	3.888
Sonahatu	Sonahatu	BRC23	8	0.090	-	2.687
Tamar	Tamar	BRC11	7	-	0.171	2.463

**District: Sahebganj**

	Ghat Selampur	BSG17	9	0.062	-	3.519
	Ranga	BSG16	8	0.317	-	5.236
	Udvababutala	BSG18	8	0.098	-	4.470
Borio	Borio	BSG11	8	0.039	-	4.174
	Sakrigali	BSG13	6	0.256	-	4.471
Mandro	Mandro	BSG12	8	0.170	-	3.277
Rajmahal	Rajmahal	BSG02	9	0.045	-	3.651
Sahibganj	Sahebganj	BSG01	8	0.079	-	5.391
Taljhari	Taljhari	BSG03	9	0.285	-	3.965

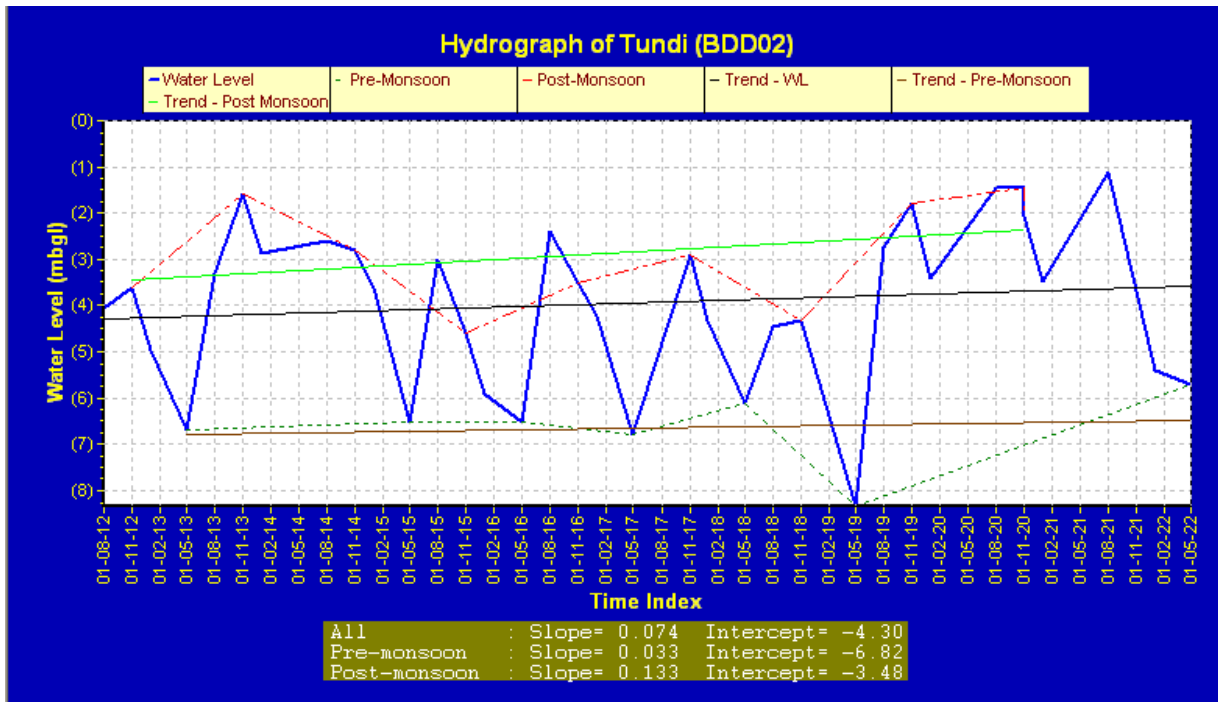
**District: Saraikela-Kharswan**

Chandil	Chandil	BSM06	8	-	0.487	1.736
Gumhariya	Kandra	BSM19	9	-	0.048	2.923
Rajnagar	Keshargaria	BSM28	8	-	0.014	0.952
Saraikela	Kharsawan	BSM18	9	-	0.036	3.560
	Saraikela	BSM14	10	-	0.116	1.106

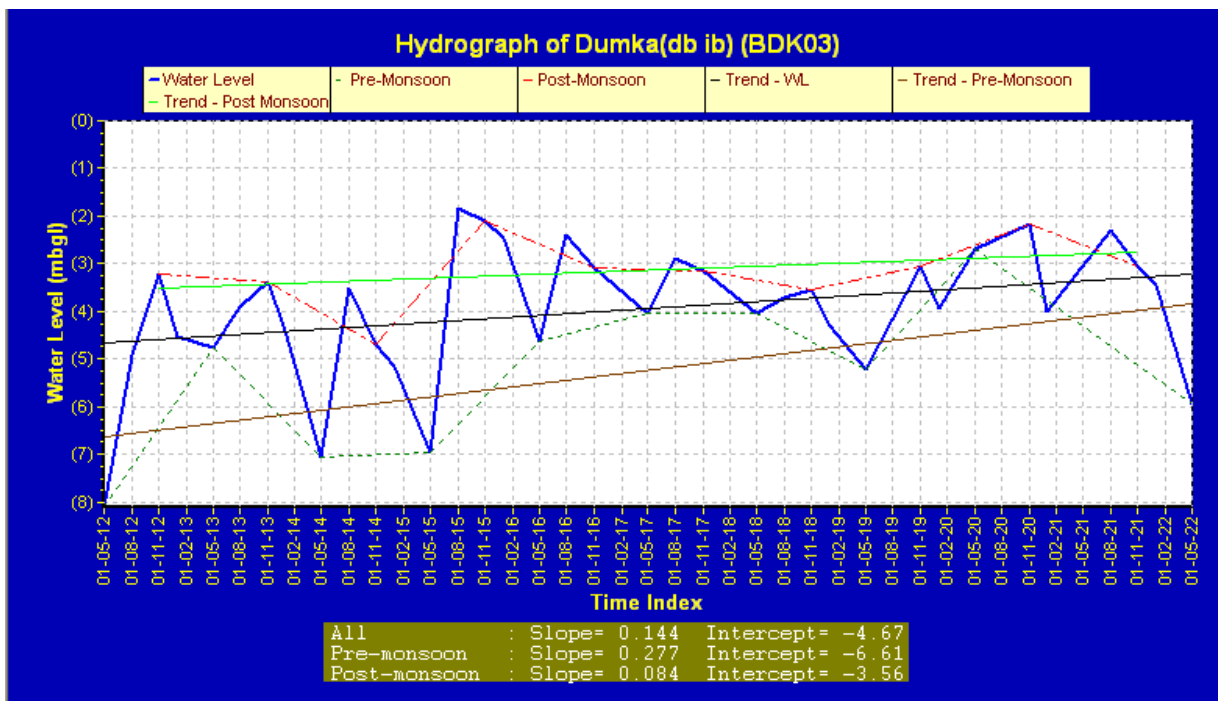
**District: Simdega**

	Biru	BGL23	10	-	0.750	1.900
	Puthritoli	BGL24	6	0.057	-	1.467
	Tengratuku	BGL22	10	0.053	-	2.959
Bano	Bano	BGL08	9	0.045	-	4.048
Jaldega	Jaldega	BGL17	10	0.046	-	3.061
Kolebira	Kolebira	BGL11	10	0.051	-	5.483
	Lachargarh	BGL16	10	0.097	-	4.307
Thethaitangar	Thethai Thangar	BGL09	10	-	0.169	0.910

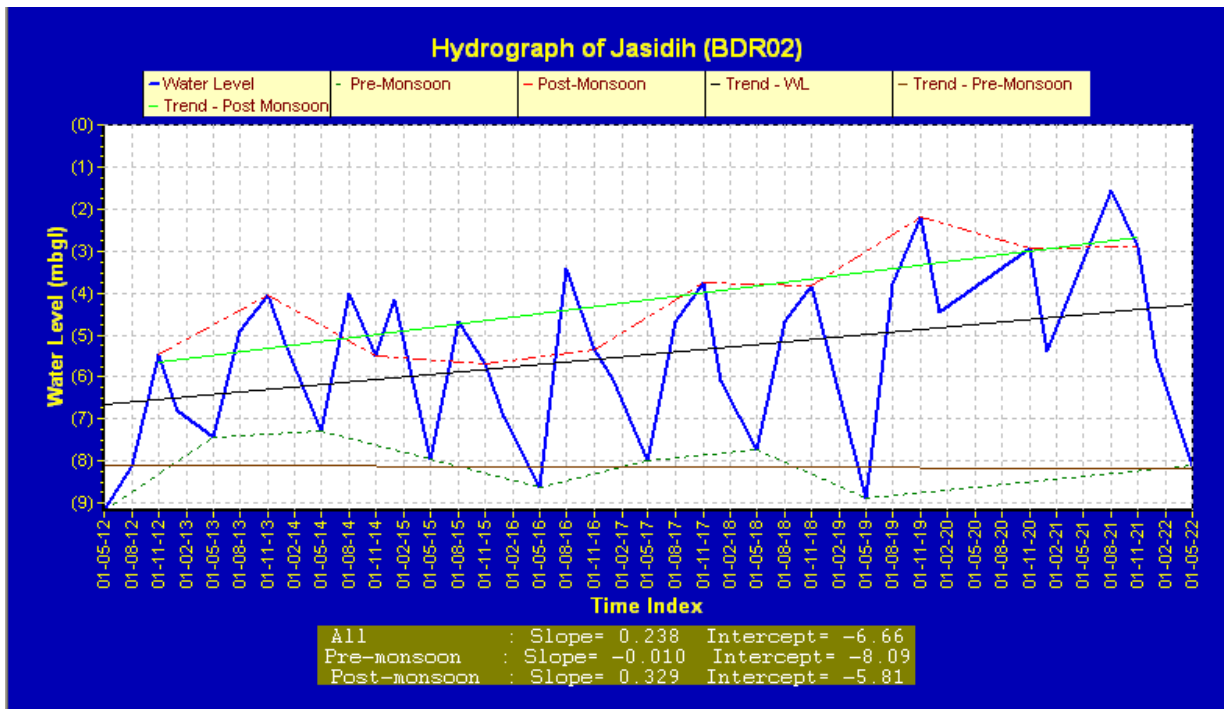
HYDROGRAPHS OF SELECTED NHNS



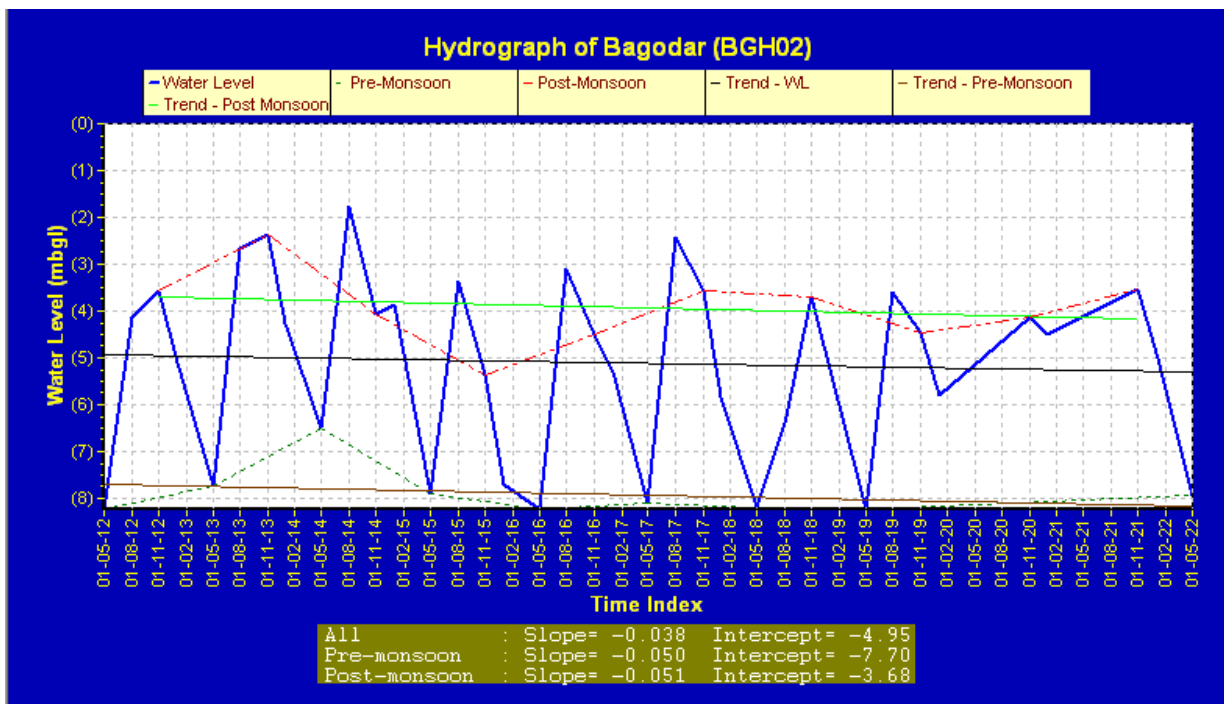
Hydrograph : Jharia, Jharia, Dhanbad



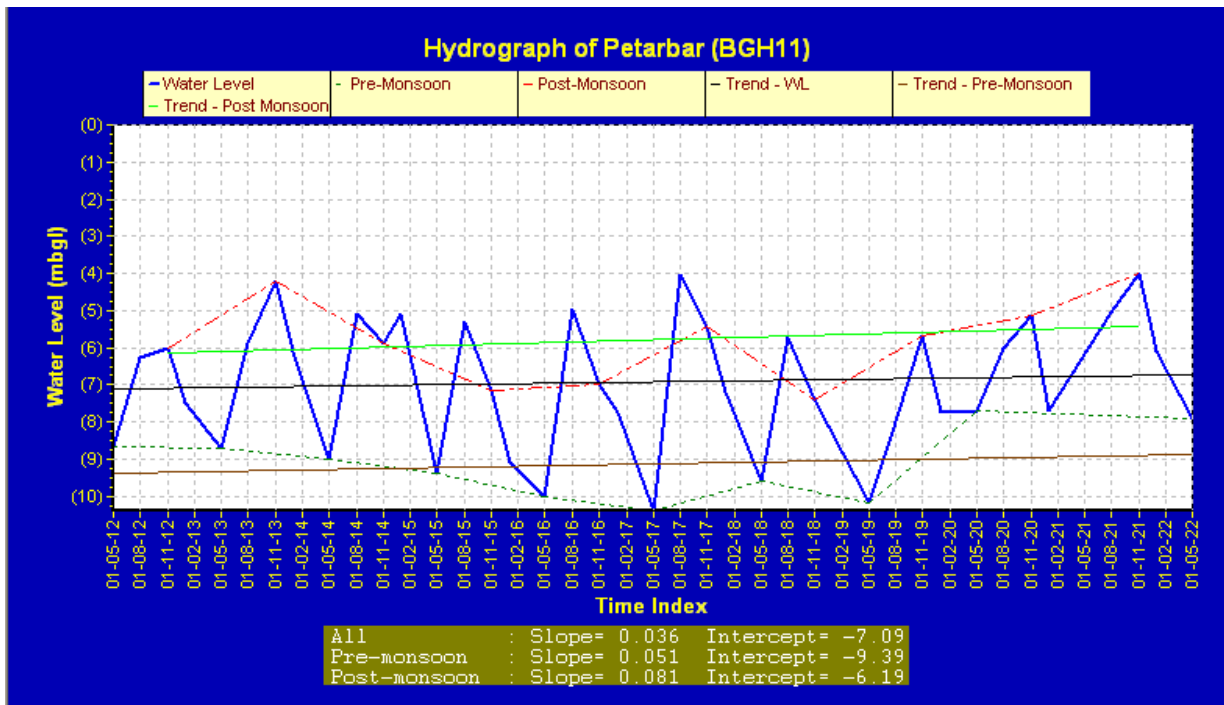
Hydrograph : Dumka dbib, Dumka, Dumka



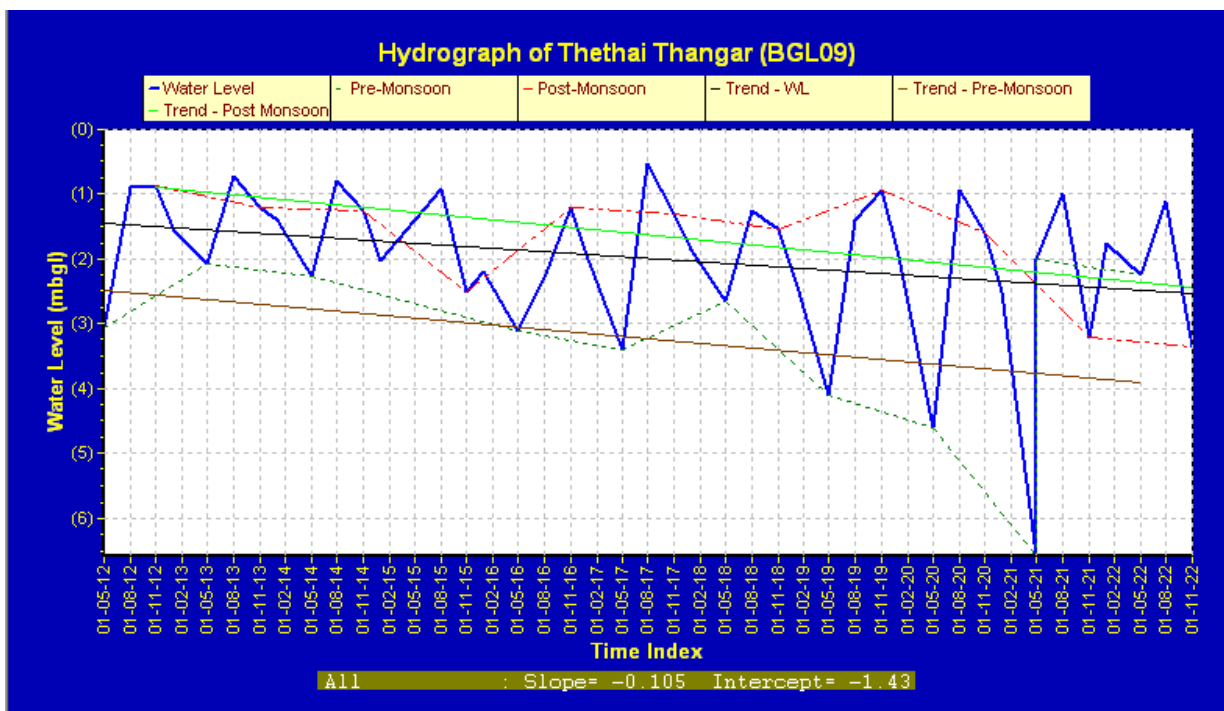
Hydrograph : Jashidih, Deoghar, Deoghar



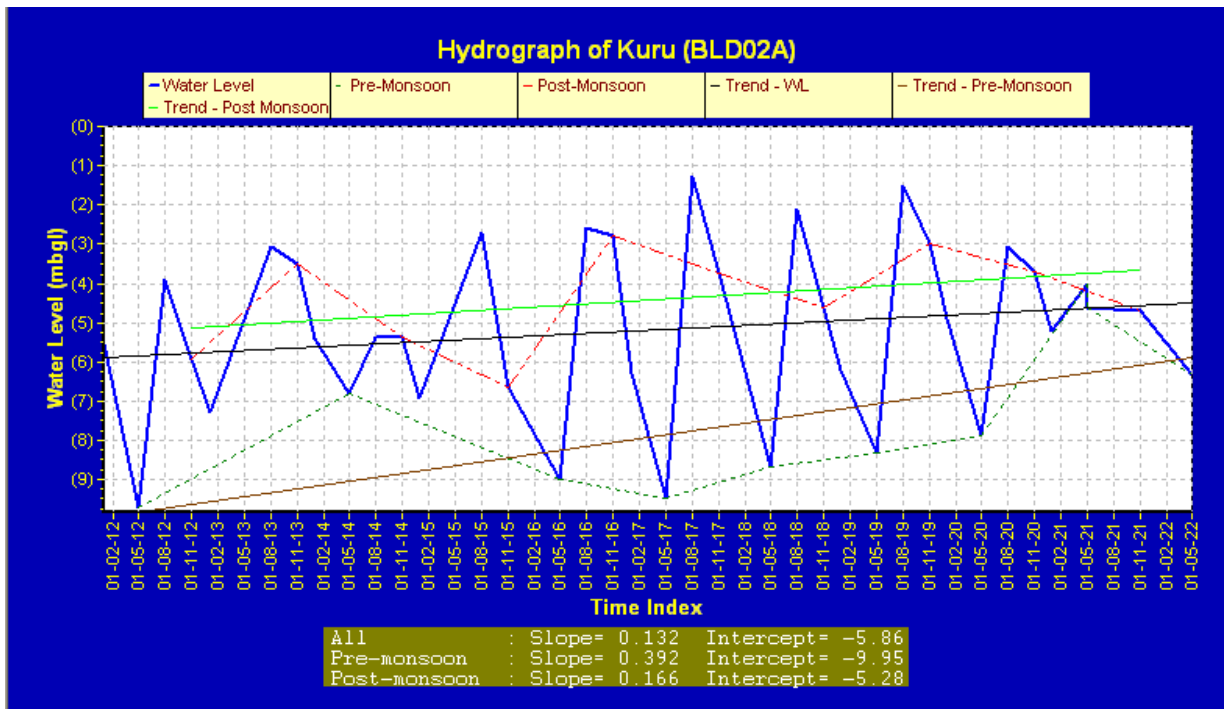
Hydrograph : Bagodar, Bagodar, Giridih



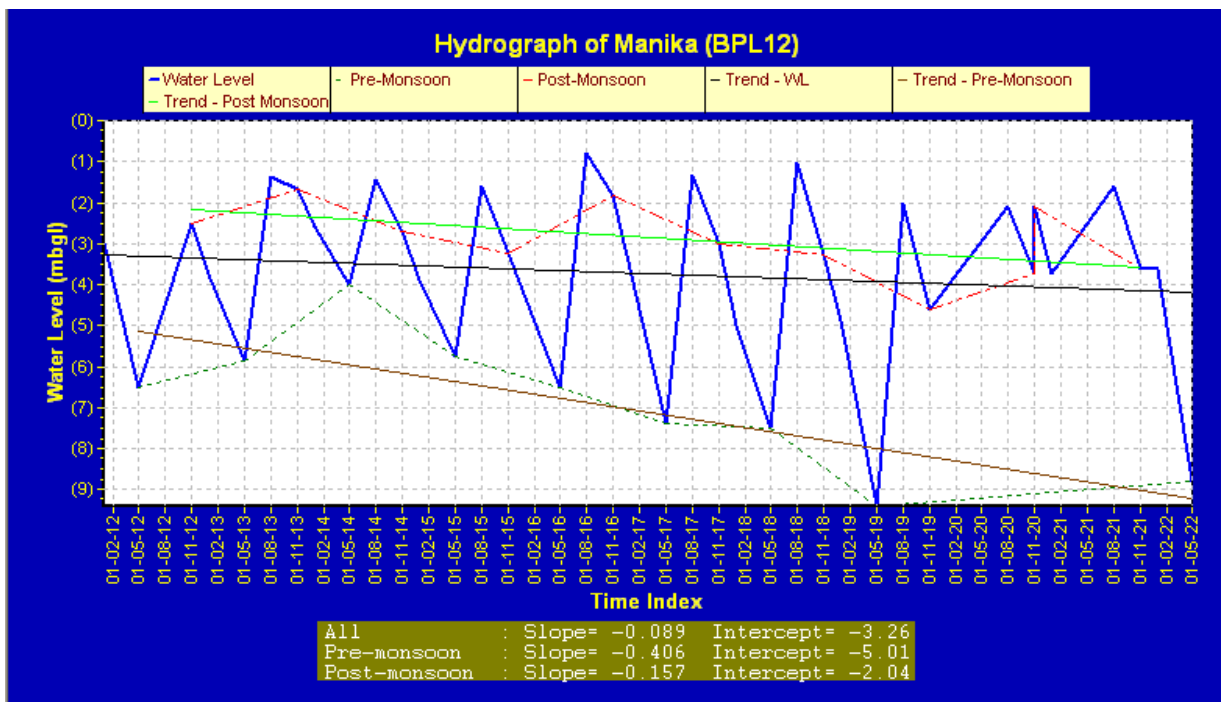
Hydrograph : Petarbar, Petarbar, Bokaro



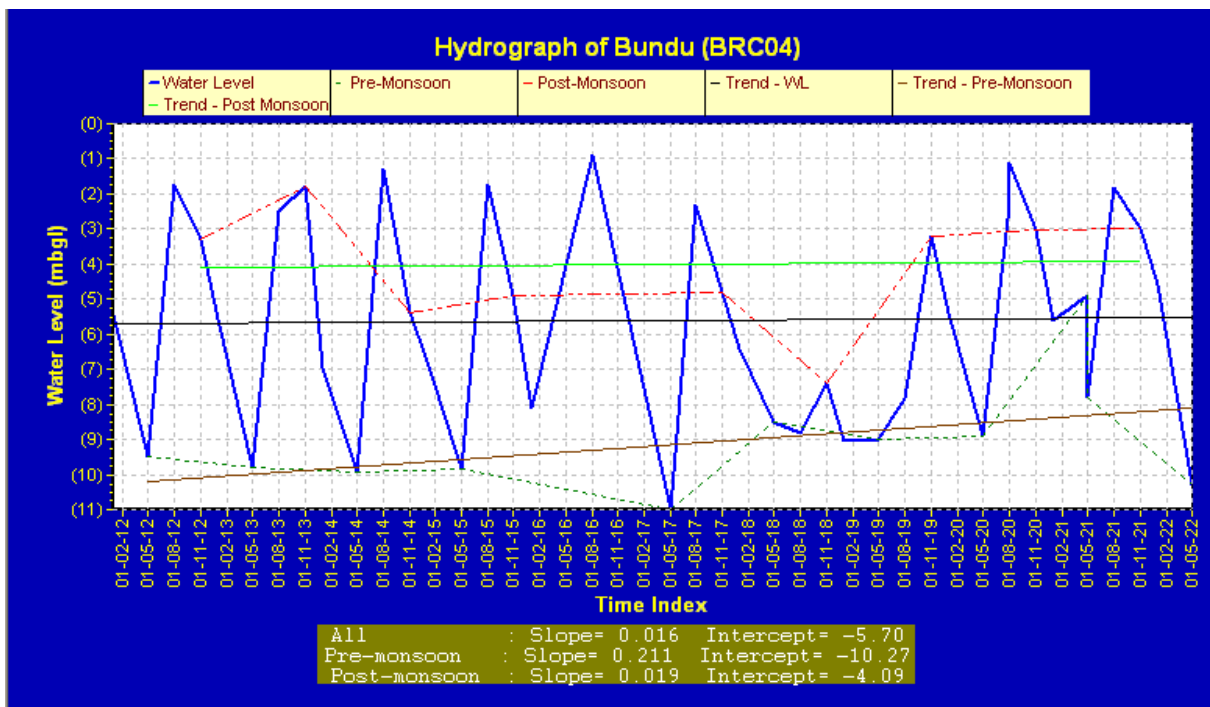
Hydrograph : Thethai Thangar, Thethai Thangar, Simdega



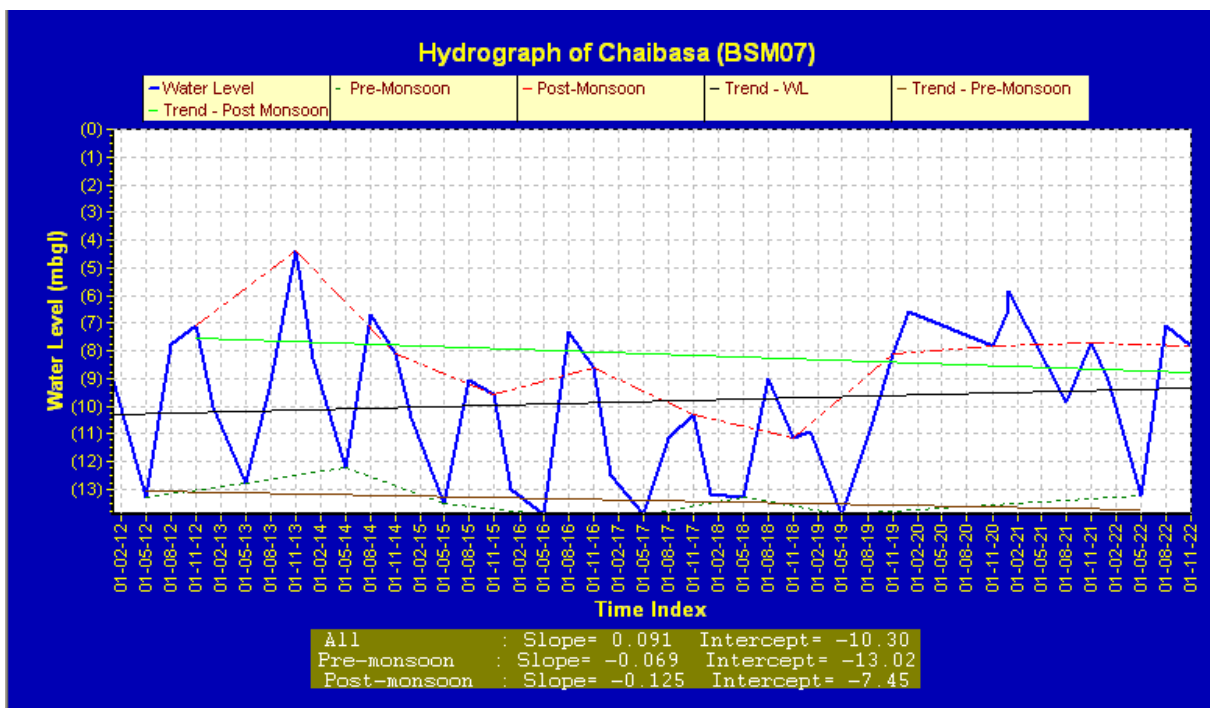
Hydrograph : Kuru, Kuru, Lohardaga



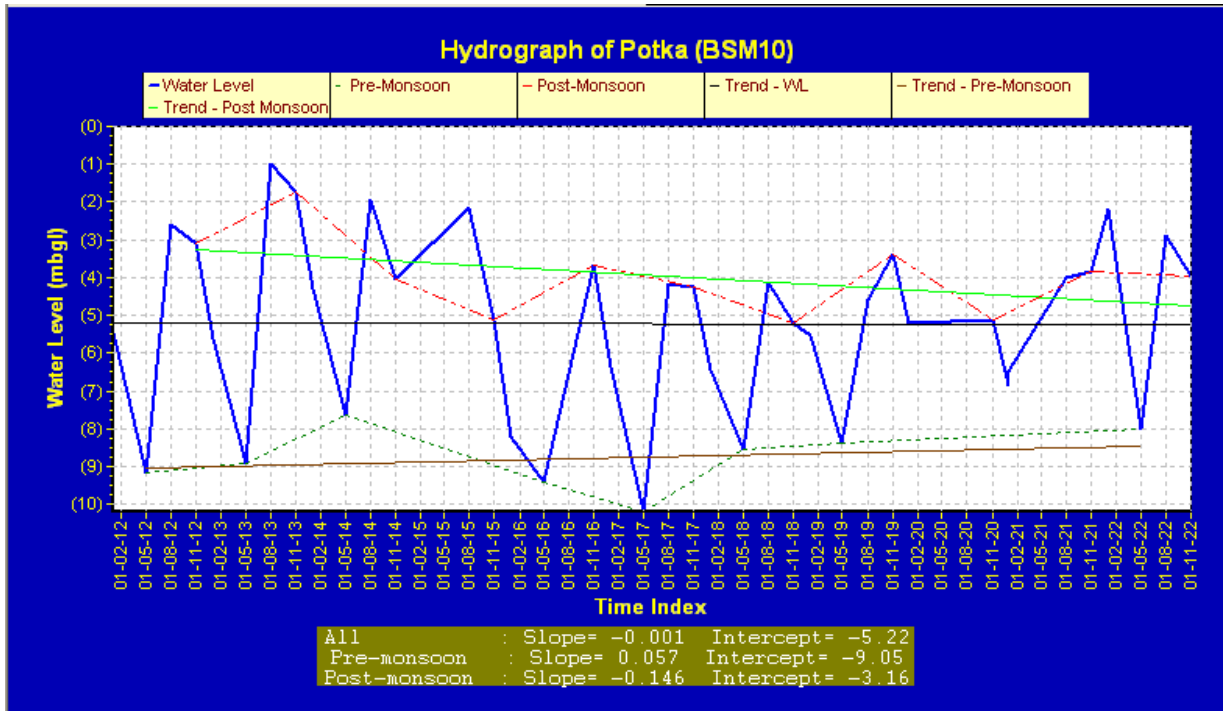
Hydrograph : Manika, Manika, Latehar



Hydrograph : Bundu, Bundu, Ranchi



Hydrograph : Chaibasa, Chaibasa, Pashchim Singhbhum



Hydrograph : Potka, Potka, Purba Singhbhum