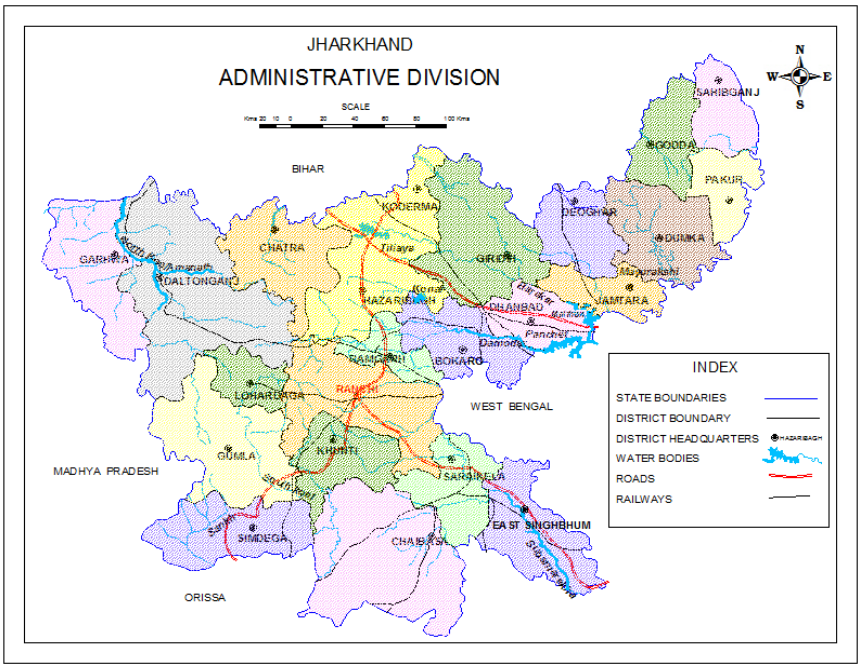
कार्यालय उपयोग हेतू

भारत सरकार
जल संसाधन मंत्रालय
केन्द्रीय भूमि जल बोर्ड

GOVT. OF INDIA
MINISTRY OF WATER RESOURCES
CENTRAL GROUND WATER BOARD

वार्षिक भूजल पुस्तिका, झारखंड
(2013 – 2014)

GROUND WATER YEAR BOOK, JHARKHAND
(2013 - 2014)



मध्य पूर्वी क्षेत्र,पटना
राज्य एकक कार्यलय, रांची
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MID-EASTERN REGION, PATNA
STATE UNIT OFFICE, RANCHI

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GROUND WATER YEAR BOOK, JHARKHAND (2013-2014)

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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 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 number of stations were increased, which now totals 325 GWMW (as on March 2014) 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 2013-2014 has been produced. The comparison with decadal mean, seasonal & annual fluctuation, 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 2013-2014, (i.e. in the months of January, May, August and November `13 and January `14). Water samples from the GWMW were collected during the month of May-2013 to study the changes in hydrochemical regime.

The scientific officers and technical personnel of the state unit office and the Mid Eastern Regional office, systematically collected field data from the GWMW as required for monitoring purposes and collected water samples during the premonsoon period which were latter analysed in the monitoring and chemical cells of this region.

The assignment of compiling 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 Rose Anita Kujur, Senior Hydrogeologist, under the supervision of Shri S.N.Sinha, Superintending Hydrogeologist. The work related to chemical analysis of ground water was performed by), Sri. Atlanta Choudhury , Assistant Chemist, Sri Suresh Kumar , ACH requires special mention.

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

(G.K.Roy)
Head of Office

ABSTRACT

In Jharkhand state ground water levels of 325 Ground Water Monitoring Wells (GWMW) were monitored four times in the year 2013 - 2014 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'13, August'13, November'13, and January'14, and ground water samples were collected in pre-monsoon period (May 2014) for chemical analysis. In the state the phreatic aquifer consists of weathered mantle, saprolite zone, and fractures in hard rocks underneath. Over 78% area of the state is underlain by rocks of Chotanagpur 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 and Tertiary Formation.

The observed water level data had been grouped into four categories viz. 0 -2m, 2-5m, 5-10m and >10m. 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 had 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 collected during May 2013 measurements were chemically analysed and the data generated has been presented in the tabular form, while iso-cloride and iso-conductance were presented in the form of maps in this report.

During 2013-14 the water level in the State ranges between 0.1 to 18.73mbgl. The minimum and the maximum depth to water levels during premonsoon have been recorded as 0.5 m bgl at Dhanbad district and 18.73 m bgl at E.Singhbhum and in general the water level throughout the State varies in the range of 5 – 10 m bgl. During postmonsoon the minimum and the maximum depth to water levels have been recorded as 0.39 m bgl at Amrapara, Pakur district and 12.28 m bgl at Kajri, Palamu district and in general the water level throughout the State varies in the range of 2 – 5 m bgl.

The annual fluctuation of water level between May 2012 and May 2013 , the major part of the state shows general rise in water level in the range between 0-2 m bgl (47.6%) and fall (31.2%). The annual fluctuation of water level between November 2012 and November 2013 , the major part of the state shows general rise in water level in the range between 0-2 m bgl (58%) and fall (17.5%).

The fluctuation of water level of May 2013 with respect to decadal mean water level of May indicate the fall (51.7%) as well as rise (32%) in water level in the range of 0 – 2 m. The fluctuation of water level of November 2013 with respect to decadal mean water level of November indicate the fall (44.3%) as well as rise (45%) in water level in the range of 0 – 2 m. 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.

The pH of ground water ranged between 6.79 and 8.96. The water was mildly alkaline in nature in most of the wells. The Electrical Conductivity (EC) varies between 8.7 microS/cm(Gandey, Giridih) and 3705(Daru, Hazaribagh dist) microS/cm. Spatially in major part of the state EC rested in the range of 61-500 micro S/cm. In majority of the samples the concentration of chloride in ground water is within the desirable limit for drinking water of 250 mg/l.

To study the water level behavior in the urban areas water level measurements at Dhanbad, Hazaribagh and Jamshedpur urban area are being carried out through outsourcing, the water level data is incorporated in this year book.

GROUND WATER YEAR BOOK OF JHARKHAND
2013 – 2014
JHARKHAND AT A GLANCE

Geographical Area (sq. km.)	79714
Population (Census 2011)	3,29,66,238
Population density	413
Male Population(Million)	16.93
Female Population(Million)	16.03
Decadal Growth (2001-2013)	22.3%
Literacy Rate	67.63%
Sex ratio	947 females to 1000 males
No. of Districts	24
No. of Blocks	210
Normal Annual Rainfall (mm)	1251.2
Net sown area (in Thousand hectare)-2009	2238.1
Area under forest(in Thousand hectare) -2009	2332.55
Barren and uncultivated area (in Thousand hectare)-2009	573.09
Cultivable waste land (in Thousand hectare)-2009	274.46
Cropping intensity(%)-2009	114 %
Annual Replenishable Ground Water Resource in BCM (2011)	6.31
Net ground water availability in BCM (2011)	5.76
Annual Ground Water Draft For irrigation in BCM	1.31
Annual Ground Water Draft For Domestic & Industrial use in BCM	0.54
Gross annual ground water draft in BCM(2011)	1.86
Stage of ground water development ((based on GEC '97 methodology) in % (2011)	32
Number of over-exploited blocks (As on March-2011)	6
Number of critical blocks (As on March-2011)	0
Number of semi critical blocks (As on March-2011)	5
Number of Safe block (As on March-2011)	199
Volume of unsaturated zone available for recharge	24935.16
Volume of water required at 75% efficiency (mcm)	1127.6937
No. of percolation tank required for harnessing	3759
No. of nala band required for harnessing	22554

No. of RTRWH structures	190932
Estimated cost of structures in rupees (2013)(crores)	1735.644
Ground Water Quality	In general chemical constituents are within permissible limit except fluoride contamination in Palamu, Garhwa, Koderma, Pakur districts and Arsenic contamination in Sahebganj district

GROUND WATER YEAR BOOK OF JHARKHAND

2013 – 2014

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 210 administrative blocks. The capital of the state is located at Ranchi. The state spreads over 79714 sq km, between Latitude 21º 55′ 00″ and 25º 15′ 00″ and Longitude 83º 15′ 00″ and 87º 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 (Fig.1).

The population of the state as per 2011 census is 03.30 crore. The population density is 414 person/km^2. The urban population is 79.12 million and the rural population is 250.54 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 behavior of ground water levels and chemical quality of formation water through representative sampling. Monitoring of ground water regime includes: (a) monitoring ground water levels, (b) monitoring 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 283 GWMW (Ground water monitoring wells) to delineate the behavior 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**. Water Level Monitoring through outsourcing in Jamshedpur(15 wells), Dhanbad(15 wells) , Hazaribagh(12 wells) urban areas has been started since November 2011. At present it is being carried out monthly.

The district-wise status of GWMW (operational and monitored) in Jharkhand during the period from May '2013 to January '2014 is given in **Table 1 and 2**. The district-wise water level data of GWMW for the period May 2013; August 2013; November 2013 and January 2014 are given in **Annexure- I.**

The Trend of ground water level data (March 2004- January 2014) is presented in

Annexure-II.

The results of chemical analysis of water samples collected during May 2013 is also discussed and analytical data is given in **Annexure – III**.

The water level data of urban areas for the period 2013-2014 are given in **Annexure- IV.**

3.0 GEOLOGY AND HYDROGEOLOGY:

The generalized geological succession of Jharkhand state is given in **Table 1**.

Table 1 - Generalized geological succession of Jharkhand state.

Age	Formation	Broad Lithology
Quaternary	Alluvial deposits	Sand, clay, silt and occasional gravels.
Tertiary	Dhalbhumgarh Formation	Boulder, pebbly grits, sand, and mottled clay
L-Cretaceous U-Jurassic	Rajmahal Trap	Basalt flows with inter-trappean sedimentary beds
Cretaceous Carboniferous	Gondwana Supergroup	Sandstone, shale, clay conglomerate and coal beds.
L-Cambrian Proterozoic	Vindhyan Supergroup	Sandstone, quartzite, shale, limestone etc.
Proterozoic	Younger Granite, Granophyre and Soda Granite. Chhotanagpur Granite Gneissic Complex. Kolhan Group, Singhbhum Group, Gangpur Group. Mahakosal Group. Volcano-Sedimentary Sequence. Iron Ore Group. Singhbhum Granite.	Granites, granite gneiss, schists, phyllites, dolomites, basic lavas, amphibolites, gabbro anorthosite

Archean	Older Metamorphics 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 phreatic 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 and Godda districts, and in southeastern part of the state in East & West Singhbhum, and Saraikela districts. The Rajmahal trap is a series of 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.

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 - 40 m. The hydrogeological map & Geological map of Jharkhand is given in Plate III & IV.

4.0 SCENARIO OF DEPTH TO WATER LEVELS IN JHARKHAND DURING 2013 – 2014:

MAY, 2013

Water levels during May 2013 were monitored from 241 wells (out of 277 existing 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 0.5 m bgl and 18.73 m bgl in Dhanbad district and E.Singhbhum respectively. In general the water level throughout the State varies in the range of 5 – 10 m bgl and has been observed in the 161 wells (68.5%) out of 235 analysed wells. Secondly, water level >10 m bgl has been observed in the 41 wells (17.4%). The water level in the range of 2 – 5 m bgl has been observed in the 12.3% of the wells. The water level below 2 m has been observed only in 4 wells at Gumla & Dhanbad (2each) district.

As depicted in **Plate V,** the entire state shows water level varying between 5 and 10 mbgl. Water level above 10 mbgl is observed in Hazaribagh, Palamu, Giridih, Ranchi and East Singhbhum districts.

AUGUST 2013

Water levels during August, 2013 were monitored from 252 Dug wells and 17 OW (out of 294 existing 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 0.1 m bgl in Saraikela Kharsawan district and 13.27 m bgl in Sundar pahari, Godda. In general the water level throughout the State varies in the range of 0 - 2 (25%) & 2 – 5 (43.3%) m bgl from 252 analysed wells. Secondly, the water level in the range of 5 – 10 m bgl has been observed in the 28.6 % of the wells. Water level >10 m bgl has been observed only in the 8 wells (3.2%) one each in Chatra, Devghar Bokaro, Hazaribagh and Dhanbad and 2 well in Palamu district district.

As depicted in **Plate VI,** the entire State shows water level varying between 0 and 2 mbgl and 2 - 5 mbgl. Water level above 5 mbgl is observed mainly in northern and north western part of the state.

NOVEMBER 2013

A total of 244 GWMW has been monitored during post-monsoon period in November 2013, five groupings were made based on the range of water level data viz. 0-2, 2-5, 5-10, 10-20 and 20-40 m bgl. 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 0.39 m bgl and 10.8 m bgl in Pakur and Chatra district respectively. In about 53.5% of GWMW, water level rests in range of 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 40 wells out of 244 analysed wells, which occurs mainly in northern and north-eastern part of the state. Ground water level in 0 – 2 mbgl depth range occurs mainly in the southern part of the state. 3 wells (one in Chatra and 2 in Palamu) has been observed water level above 10 m bgl, which may be due to huge consumption of water for domestic and industrial uses.(**Plate VII).**

JANUARY, 2014

To study the water levels of recession period data were collected during January, 2014 from 296 wells (out of 325 existing dug wells). 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 have been recorded as 0.58 m bgl and 11.75 m bgl in Bagha, Jharia block, Dhanbad district and Chalulia, E.Singhbhum respectively. The water level in general varies between 2 and 5 mbgl as the water level in the range of 5 – 10 m bgl has been observed in the 90 wells (30.4%) out of 296 analysed wells and the water level in the range of 10 – 20 m bgl has been observed in the 8 wells (2.7 %) of wells mainly in Dhanbad and East Sinbhum in 2 wells each and one well in Bokaro, Chatra, Godda and Hazaribagh. The water level below 2 m has been observed in 4.4% of the State. **Plate VIII**

5.0 SCENARIO OF ANNUAL FLUCTUATIONS IN JHARKHAND DURING 2013 – 2014:

The annual fluctuation in water levels for the periods of (1) May 2012 and May 2013, (2) August 2012 and August 2013, (3) November 2012 and November 2013 and (4) January 2013 and January 2014 have been analysed to study the net status of ground water conditions during the previous and current year.

MAY 2012 AND MAY 2013

The annual fluctuation in water level between May ’2012 and May ’2013 indicates the net status of ground water condition during the previous year and current summer measurement and the same is presented in **Plate IX**. The district wise statement of frequency of distribution of ground water monitoring wells falling in different ranges of water level fluctuation is presented in ***Table-7.***

The major part of the state shows general rise in water level in the range between 0-2 m bgl (47.6%) and fall (31.2%). Total 90 wells out of 189 analysed well comes under 0-2 m risng zone

category, on the other hand 59 wells show fall within 2 m, which may indicate that the regional fluctuation of the state(78.8%) is mainly restricted within 2 m. The next higher magnitude of fluctuation is of 2 -4 mbgl rise in water level in the state (11.4%) is observed in some part of the state.

Overall the entire State is covers under rising zone category (118 wells out of 189 analysed well), which may indicate the normal monsoon and ground water recharge during the analysed period.

AUGUST 2012 AND AUGUST 2013

The annual fluctuation in water level between Aug '2012 and Aug '2013 indicates the net status of ground water condition during the previous year and current monsoon measurement and the same is presented in Plate X. 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 (52.68%) has been observed throughout the State. Fall in Water level recorded in 33.2% wells within 2 m , 14.1%wells ranges between 2 – 4 m and 5.4 % wells above 4 m bgl out of 205 analysed well. Out of 205 analyzed wells rise in water level is recorded in 72 wells within 2 mbgl.

Overall the entire State is covers under falling zone category (108 wells out of 205 analysed well) which may be due to less rainfall in respect to during previous year.

As depicted in **Plate II,** the entire State shows fall & rise in water level varying between 0 and 2 mbgl. Water level above 5 mbgl is observed mainly in northern and north western part of the state.

NOVEMBER 2012 AND NOVEMBER 2013

The Annual fluctuation in water level between November 2012 and November 2013 indicates the net status of ground water conditions during the previous and current post-monsoon year and the same is presented in **Plate XI**. 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 2012 with November 2013 shows rise in 79% GWMW as well as fall in 22% GWMW of the total 200 analysed wells during the period. The major part (58%) of the state shows a general rise in water level within 2.00 m. Similarly, risel in water level within 2.00 m recorded in 17.5% of the wells. The rise in water level in the range of 2 – 4 m bgl has been observed in the 17% of the total analysed wells. The higher magnitude(>4mbgl) of rise or fall has observed in the localised patches during the period.

JANUARY 2013 AND JANUARY 2014

The annual fluctuation in water level between January '2013 and January '2014 indicates the net status of ground water condition during the previous year and current measurement and the same is presented in **Plate XII**. The district wise statement of frequency of distribution of network hydrograph stations falling in different ranges of water level fluctuation is presented in ***Table 10.***

The major part of the state shows general rise (82.8%) in water level in the range between 0-2 m bgl as well as fall (7.2%). Total 135 wells out of 203 of the analysed well comes under 0-2 m rising

zone category, on the other hand 33 wells show fall within 2 m, which may indicate that the regional fluctuation (83%) of the state is mainly restricted within 2 m. The fall in water level above 2 mbgl has been observed in isolated patches of the State. The rise in water level above 2 mbgl(6 wells) in the state is mainly due to recharge during monsoon observed mainly in northern part of the state.

6.0 SCENARIO OF SEASONAL FLUCTUATIONS IN JHARKHAND DURING THE GROUND WATER YEAR 2013 – 2014:

An attempt has been made to compare the pre-monsoon water levels of May, 2013 with water levels of August 2013 and November 2013and January 2014 to delineate the impact of rainfall as well as ground water development on ground water regime in the state during the above period.

MAY 2013 AND AUGUST 2013

The fluctuation in water level between May 2013 and August 2013 indicates the change in water level from pre-monsoon measurement to monsoon measurement and the same is presented in Plate XIII. Fluctuation in water level maps for May 2013 and August 2013 have been prepared from 234 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 11.*

During this period the entire state of Jharkhand shows a general rise in water level ,which is mainly due to recharging of ground water on onset of monsoon from June 2013. However 13 wells shows fall in water level which may be mainly due to temporal withdrawal of ground water and less rainfall in those areas.

MAY 2013 AND NOVEMBER 2013

The seasonal fluctuation in water level between May 2013 and November 2013 indicates the change in water level from pre-monsoon measurement to post-monsoon measurement and the same is presented in Plate XIV. The district-wise statement of distribution of network hydrograph stations in different ranges of water level fluctuation is presented in *Table 12.*

Fluctuation in water level for November 2013 compared with May 2013 shows rise in water level (95.5%) for the entire state of Jharkhand. Out of which in the tune of 0.02 - 2.00 m (13.4%), 2.00 - 4.00 m (30.4%) and above 4 m (51.8%) 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 10 wells out of 224 wells of the state which is mainly due to temporal withdrawal of ground water in those areas.

MAY 2013 AND JANUARY 2014

The fluctuation in water level between May 2013 and January 2014 indicates the change in water level from pre-monsoon measurement to January measurement and the same is presented in Plate

XV. Fluctuation in water level maps for May 2013 and January 2014 have been retrieved from 209 analyzed wells. The district wise statement of frequency distribution of network hydrograph stations falling in different ranges of wa**ter level fluctuation is presented in *Table13.***

During the period the entire state of Jharkhand shows a general rise in water level in the range of 0.00 to 2.00 m(24.4%) and 2.00 to 4.00 m (44.5%) and > 4 mbgl (25.8%) which is mainly due to recharge on ground water for onset monsoon from June 2013 and rainfall during November & December 2013. However 11 wells of the state shows fall in water level, out of which 2 wells at Palamu district shows fall above 4 mbgl, which may be due to temporal withdrawal of ground water at that area.

7.0 SCENARIO OF DECADAL WATER LEVEL FLUCTUATIONS WITH THE GROUND WATER YEAR 2013 – 2014:

DECADAL MEAN AND MAY 2013

Water level fluctuation map (Plate XVI) has been prepared by comparing the water level data (142 wells) for May Mean (2003-2012) with the depth to water level data May 2013. The district wise statement of frequency distribution of ground water monitoring wells falling in different ranges of water level fluctuation is presented in *Table-14.*

The fall (42.3%) as well as rise (42.3%) in water level in the range of 0 – 2 m shows variation in almost the entire state. The higher magnitude (>4m) of fall also recorded in only one well at West Singhbhum which may be due to temporal higher withdrawal of ground water on that area.

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.

DECADAL MEAN AND AUGUST 2013

Water level fluctuation map (Plate XVII) has been prepared by comparing the water level data (149 wells) for August Mean (2003-2012) with the depth to water level data August 2013. The district wise statement of frequency distribution of network hydrograph stations falling in different ranges of water level fluctuation is presented in *Table 15.*

The rise (39.6%) as well and fall (34.9%) in water level in the range of 0 – 2 m shows variation almost in the entire state. Fluctuation in water level in the range of 2 – 4 mbgl is recorded in 20.2% wells and for > 4 m in 5.4% through entire state.
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 2013

The fluctuation map of water level between November Mean and November 2013 (Plate XVIII) has been prepared on the basis of available Mean water level data of November for last 10 years (2003-2012) 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 entire state shows rise as well as fall in water level below 2 m covering more than 77.6% of the area. Fall in water below 2 m has been recorded in more than 17.7 % of the area and rise in 59.9% of the wells.
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.

DECADAL MEAN AND JANUARY 2014

Water level fluctuation map (PlateXIX) has been prepared by comparing the water level data (140 wells) for January Mean (2004-2013) with the depth to water level data January 2014. 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 rise (59.3%) as well as fall (28.6 %) in water level in the range of 0 – 2 m has been observed in almost entire state, covering 88% of the entire state. Rise in water level in the range of 2 – 4 m has been observed in 9.3% and fall in 2.4% well of total analysed wells.

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.

8.0 TREND OF GROUND WATER LEVEL

Trend of ground water level map (Plate XX) has been prepared by comparing the water level trend data (208 wells) for the period of 2004 to 2013. The Trend of ground water level data is presented in Annexure-II.

The observation shows the rising trend of ground water level in 100 and fall in 108 wells. The trend of ground water level of the entire state(65.86%) 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.

9.0 HYDROCHEMESTRY:

The chemical quality of groundwater is dependent on the source of water and on the course over which it flow. Ground water carries a higher mineral content than surface water due to the slow circulation and longer period of contact with the formation. Depending on the dissolved salts, the quality of ground water in Jharkhand has been depicted with the help of Iso-Conductance and Iso-Chloride map in Plate XXI and XXII. In order to assess the chemical quality of ground water of phreatic aquifers of Jharkhand state ground water samples have been analysed for major 15 parameters viz. EC, pH, HCO_3, CO_3, Cl, TH, Ca, Mg, K, Na, F, SiO_2, PO_4 and NO_3. The chemical analysis data of ground water samples collected(206) during the period May 2013 from Ground Water Monitoring wells are given in Annexure III.

Ground water samples throughout the state found to be slightly alkaline in nature as the pH mostly varies between 6.21 – 8.68. The quality of ground water in most of part of the state is potable with low mineral contents having electrical conductance varying from 8.7 (recorded at Gandey, Giridih) to 3705 (at Daru, Hazaribagh) µS/cm at 25^0c. The samples found to be suitable for drinking and irrigation purposes. Only 4 samples are having electrical conductivity greater than 2000 µS/cm, which can be treated as brackish water. Spatially in major part of the state EC rested in the range of 500-1000 µS/cm. In most of the samples the concentration of chloride is within the desirable limit of drinking water (250 mg/l). Concentration of chloride in ground water >250 mg/l is recorded in small patches in Giridih, Koderma, Palamu, E&W Singhbhum and Sahebganj districts.

Thus it is observed that the quality of ground water in shallow aquifers in the entire state is suitable for drinking, irrigation and industrial purposes except in arsenic & fluoride infested areas.

WATER LEVEL DATA OF NETWORK STATIONS MEASURED BY CENTRAL GROUND WATER BOARD, STATE UNIT OFFICE, RANCHI

ANNEXURE - I

Dist	Village	Well No	May-13	Aug-13	Nov-13	Jan-14
District: Bokaro			**mbgl**	**mbgl**	**mbgl**	**mbgl**
	Chas	BDD05	12.65	10.97	7.23	10.02
	Pindrajora	BDD06A	8.05	1.88	1.25	2.52
	Mahuda	BDD07	5.65	-	-	-
	Chandrapura	BDD12A	2.25	5.89	1.37	1.75
	Chandankiyari	BDD15	5.1	4.96	1.05	1.85
	Gomia	BGH01	11.54	4	3.84	5.06
	Phusro/Bermo	BGH07	10.13	0.74	4.04	4.48
	Petarbar	BGH11	8.72	5.89	4.21	6.10
	Jaina More	BGH13	10.05	7.72	4.95	6.67
	Tenughat	BGH15	4.85	2.2	1.46	3.06
	Nawadih	BGH16	6.75	4.87	2.68	3.10
	Pupunki	BGH22	-	-	-	2.68
District: Chatra						
	Tutilawa	BHB06A	8.43	4.56	4.10	5.90
	Chatra	BHB07A	7.16	6.19	5.23	5.32
	Itkhori	BHB08A	8.93	7.33	5.65	6.55
	Tandwa	BHB16	8.15	6.56	0.95	-
	Simaria	BHB17	12.72	9.32	7.12	7.78
	Bagra	BHB18	13.8	13.1	10.80	11.40
	Birhu	BHB27	7.75	4.66	7.70	9.00
	Pitij	BHB28	8.36	6.17	5.70	6.68
District: Devghar						
	Madhupur	BDR01A	6.6	4.38	2.85	3.97
	Jasidih	BDR02	7.45	4.9	4.05	5.21
	Sarath	BDR03	7.1	4.18	2.31	3.91
	Sarawan	BDR04	12.05	11.59	4.60	8.39
	Deoghar	BDR06A	7.2	4.13	3.56	4.60
	Palajori	BDR07	8.87	6.82	5.05	6.26
	Ghormara	BDR08	7.57	4.63	2.39	6.67
District: Dhanbad						
	Bhaga	BDD01A	0.5	1.64	0.90	0.58
	Tundi	BDD02	6.7	3.31	1.58	2.88
	Nirsa ecl l.qtr	BDD03A	1.85	5.98	1.00	1.63
	Topchanchi	BDD04	7.6	4.4	3.33	4.53
	Mahuda	BDD07	-	4.94	4.05	6.16
	Govindpur	BDD08	2.12	2.2	2.10	2.20
	Rajganj	BDD09	5.5	3.44	2.89	3.85
	Katras	BDD10A	14.6	10.35	5.95	10.07
	Sindri(gosalmore)	BDD11A	5.25	2.5	2.73	2.70
	Dhanbad	BDD13	7.1	2.86	1.67	2.05
	Baghmara	BDD14	14.5	-	8.27	10.32
	D.B.L.Bunglow	BDD16	-	-	-	5.45
	Panderpalli	BDD17	-	-	-	5.7
	Bhuli A Block	BDD18	-	-	-	6.4
	Balajee Mandir	BDD19	-	-	-	6.5
	Basdeopur CISF Camp	BDD20	-	-	-	6.3
	Godhar Basti	BDD21	-	-	-	6.75

	Matkuria	BDD22	-	-	-	3.55
	Dhansar M.R.S	BDD23	-	-	-	3.8
	Purnadih Jorapokhar	BDD24	-	-	-	6.1
	Sunil Talkies Bhaga(Lodna)	BDD25	-	-	-	6.4
	Kandra Mandal Basti	BDD26	-	-	-	5.9
	Sindri Gousala More	BDD27	-	-	-	4.6
	Dhaiya I.S.M	BDD28	-	-	-	3.6
	P.K.Roy College Campus	BDD29	-	-	-	3.4
	Chiragora Hirapur	BDD30	-	-	-	6.2
District: Dumka						
	Kathikund	BDK02	7.3	3.79	2.97	5.09
	Dumka(db ib)	BDK03	4.76	3.9	3.37	4.40
	Hansdiha pwdib	BDK04	8.11	6.94	4.16	6.27
	Masanjor	BDK05	2.48	1.16	3.12	1.29
	Sikaripara	BDK06	-	-	2.58	5.73
	Jarmundi db.ib	BDK07	8.89	7.45	6.12	7.10
	Maheshpur templ	BDK08	-	-	8.32	-
	Jama	BDK13	8.72	8.47	4.28	6.67
	Raneswar	BDK14	7.02	3.1	-	4.77
	Masalia	BDK15	5.67	3.4	3.09	4.37
	Patabari	BDK17	6.18	2.8	2.78	3.26
	Nunihaat	BDK19	2.77	1.25	1.67	1.95
	Gamharia	BDK20	10.1	-	-	-
	Chikania	BDK22	-	7.01	4.53	6.55
	Gopikandar	BDK23	8.46	7.59	7.84	8.26
District: Garhwa						
	Garhwa	BPL06	11.5	9.7	7.11	8.29
	Nagaruntari	BPL10	7.32	5.35	4.20	4.95
	Ranka	BPL11	7.6	5.06	2.98	4.08
	Bhawanathpur	BPL20	7.7	4.8	4.40	4.80
	Godarmana	BPL28	-	6.52	-	-
	Manjhian	BPL31	4.3	7.9	1.26	2.28
	Ramna	BPL37	6.56	5.25	5.24	5.45
District: Giridih						
	Bagodar	BGH02	7.75	2.66	2.38	4.27
	Giridih	BGH03	8.78	5.27	3.38	4.57
	Tisri	BGH04	3.15	2.2	1.75	2.27
	Dhanwar	BGH05	4.65	1.4	1.25	3.18
	Jamua pwd ib	BGH06	11.2	7.4	5.19	7.28
	Birini	BGH08	10.82	1.57	2.10	4.07
	Pandri	BGH09	7.95	-	1.85	3.26
	Dewri	BGH10	7.56	2.25	1.48	1.89
	Khijri	BGH12	7.35	2.6	1.60	2.10
	Dumri	BGH14	8.45	7.13	4.70	6.47
	Bengabad	BGH17	8.7	3.8	2.96	4.74
	Chirki (pirtanr)	BGH18	-	7.5	-	-
	Bandhutanr	BGH19	11.65	3.3	2.25	4.98
	Dhanidih	BGH20	7.9	2.32	1.64	4.30
	Pupunki	BGH22	5	2.28	2.19	-
	Saraiya	BGH23	7.42	4.64	-	5.15
	Maheshmunda	BGH24	6.15	3.5	1.95	3.40

	Gandey	BGH25	9.46	7.3	2.85	4.85
District: Godda						
	Godda	BGD01A	-	5.43	2.90	4.38
	Doi	BGD02	5.91	2.23	-	2.85
	Maheshpur	BGD03A	-	4.7	1.56	4.10
	Pathargama	BGD04	6.33	5.1	2.32	4.30
	Lalmatia	BGD05	9.15	8.19	6.93	8.11
	Mahagama	BGD06A	-	9.5	4.23	7.15
	Sundar Pahari	BGD07	13.3	13.27	8.98	10.49
	Poraiyahaat	BGD08	-	-	4.73	9.75
	Boarijore	BGD09A	-	-	-	5.15
	Mahadeo-asthan	BGD10	-	-	5.23	-
	Jaminipaharpur	BGD11	-	-	-	5.69
District: Gumla	Gumla	BGL02A1	7.41	3.44	5.98	7.00
	Sisai	BGL03	8.88	2.55	2.90	4.40
	Bharno bdo	BGL04	6.11	2.97	3.26	3.72
	Ghagra	BGL05	9.04	7.9	6.10	6.67
	Bishnupur	BGL06	7.91	5.8	4.90	5.25
	Palkot	BGL07	10.15	4.79	4.64	5.39
	Baisia	BGL10	8.11	2.2	4.15	5.43
	Raidih	BGL12	6.37	2.15	3.50	3.73
	Chainpur	BGL13	4.25	2.6	4.00	-
	Nagfeni	BGL14	6.99	4.64	4.56	5.44
	Adar	BGL15	5.22	2.8	3.98	3.85
	Anjam gram	BGL18	1.78	1.3	2.20	-
	Bhagma	BGL19	8.55	3.56	3.20	4.60
	Kasir	BGL20	1.05	0.55	0.90	-
	Kharka	BGL21	8.17	5.98	3.90	6.04
District: Hazaribag						
	Barhi	BHB01	10.4	8.54	-	7.10
	Hazaribagh	BHB04	10.9	2.6	2.57	4.15
	Chouparan	BHB09A	9.6	8.99	6.47	7.55
	Barkatha	BHB10	8.9	3.25	-	4.60
	Ichak More	BHB13A	7.2	5.8	5.10	5.45
	Barkagaon	BHB19	11.7	7.54	8.68	10.50
	Keredari	BHB22	6.15	2.59	1.75	2.90
	Garrikalan	BHB23	6.3	0.77	2.40	3.40
	Meru(silwar)	BHB24	12.1	5.7	4.60	7.00
	Daru	BHB25	8.4	3.22	1.80	3.45
	Padma	BHB26	11	10.4	8.86	10.00
	HZ Urban Area					
	Holy Cross Social Service Centre	BHB38	-	-	-	2.16
	Baban Gupta	BHB39	-	-	-	8.24
	Ganesh Purthi School	BHB40	-	-	-	6.33
	Suchandan Gupta	BHB41	-	-	-	2.54
	Fasi Well	BHB42	-	-	-	7.56
	Panch Mandir Pangan	BHB43	-	-	-	10.48
	Jamal Ansari	BHB44	-	-	-	8.52
	Dipak nath Sahay	BHB45	-	-	-	5.27
	Shiv Mandir Prangan	BHB46	-	-	-	8.11
	Santosh Sahu	BHB47	-	-	-	8.61

	S.C. Sharma	BHB48	-	-	-	8.63
	Nanda Hotel	BHB49	-	-	-	8.84
District: Jamtara						
	Mihijam	BDK01A	9.27	3.36	3.68	7.12
	Chapuria	BDK10	-	1.25	1.88	-
	Kundahit	BDK11	6.29	-	-	4.41
	Jamatara	BDK12	8.22	4.33	2.70	5.60
	Nala	BDK16	7.83	4.42	2.63	4.57
	Dhootala	BDR12	-	-	-	5.03
District: Khunti						
	Dorma	BRC34	6.28	1.58	1.66	3.84
	Kalimati	BRC15	6.5	3.85	2.32	3.80
	Karra	BRC10A	7.67	4.25	0.80	-
	Khunti	BRC02A	9.87	2.6	2.22	4.10
	Lodma	BRC20	3.85	1	1.52	-
	Murhu	BRC16	5.2	4.3	4.10	5.14
	Seringathu	BRC12A	-	-	-	4.95
	Torpa	BRC35	7.87	7.2	4.30	5.75
District: Koderma	Chandwara	BHB36	6.75	0.98	4.35	4.40
	Jhumritilaiya	BHB37	-	-	-	3.90
	Kodarma	BHB03	8.2	5.27	4.03	5.00
District: Latehar						
	Balumath	BPL15	12.05	8.25	6.80	8.95
	Barjatu	BPL30	9.4	7.35	3.85	6.68
	Barwadih	BPL16	9.64	2.2	-	3.90
	Chandwa	BPL02	10.95	3.84	2.47	4.02
	Latehar	BPL03	7.12	4.49	3.06	3.89
	Manika	BPL12	5.85	1.37	1.66	2.57
	Netarhat	BPL01	4.76	-	-	-
District: Lohardaga						
	Bhandara	BLD04	7.2	6.6	4.87	6.65
	Hinjla	BLD03B	8.25	6.7	4.77	1.95
	Kisko	BLD05B	-	-	-	8.15
	Kuru	BLD02A	7.72	3.06	3.51	5.41
	Lohardaga(pwdib	BLD01	7.36	1.75	2.90	3.85
	Lohardaga(patra Toli)	BLD08	-	4.7	2.97	-
	Rudh	BLD06	8.33	4.83	4.40	6.40
	Senha Bdo	BLD07	7.77	2.3	2.38	3.03
District: Pakur						
	Amrapara	BSG06	-	0.45	0.39	2.28
	Hiranpur	BSG15	6.15	3.05	4.92	6.20
	Litipara	BSG07	7.9	4.95	5.62	7.01
	Maheshpur	BSG05	-	6.8	6.94	7.63
	Pakur	BSG08	10.52	4.85	4.92	-
	Pakuria	BSG04	7.68	1.07	0.73	2.19
	Salgapara	BSG14	7.32	1	0.66	5.00
District: Palamau						
	Baraw	BPL36	7.25	2.76	2.07	3.10
	Betla	BPL04	2.6	7.72	7.74	8.77
	Bishrampur	BPL09	-	4.9	4.00	5.18

	Chhatarpur	BPL05	9.81	8.6	8.84	9.09
	Daltenganj	BPL07	3.77	5.15	8.50	8.85
	Garu	BPL14	7.64	4.86	-	-
	Hariharganj	BPL19	-	7.6	6.70	-
	Hydernagar	BPL35	7.05	4.6	2.53	5.25
	Japla	BPL23	4.58	8.7	5.75	-
	Kajri	BPL27	10.47	12.6	12.28	-
	Kanda	BPL25	6.11	6.1	4.89	-
	Lesliganj	BPL26	6.7	4.4	2.94	-
	Nawa	BPL33	12.9	6		-
	Nawadih	BPL18	6.8	10.6	10.28	-
	Panki	BPL22	2.01	5.15	2.15	-
	Patan	BPL21	7.1	8.6	-	-
	Rajhara	BPL08	9	6.5	2.25	3.50
	Sagalim	BPL34	9.9	6.2	6.10	6.85
	Sandha	BPL29	6.42	9	4.28	5.10
	Satbarwa	BPL24	9.32	6.08	6.51	-
District: Paschim Singbhum						
	Bandgaon	BSM23	8.65	4.2	3.33	5.95
	Bangaon	BSM40	-	-	-	2.60
	Barajamda	BSM38	-	-	-	2.07
	Chaibasa	BSM07	12.8	9.1	4.37	8.30
	Chakradharpur	BSM01	7.12	2.62	2.52	4.70
	Hatgamhariya	BSM43	-	-	-	4.00
	Hesadih	BSM30A	5.75	0.8	1.75	3.53
	Jagnathpur	BSM42	-	-	-	6.60
	Jaitgarh	BSM41	-	-	-	4.60
	Jhinkpani	BSM16	7	0.6	1.65	3.90
	Kereikela	BSM22A	9.3	0.25	2.75	7.95
	Khuntpani	BSM17	9.3	0.95	0.72	3.35
	Kokcho	BSM26	8.2	2.65	1.32	5.60
	Noamundi	BSM39	-	-	-	2.02
	Pandrasalai	BSM27	3.65	0.1	0.91	3.90
District: Purba Singbhum						
	Baharagora	BSM02	14.8	1.06	2.00	10.50
	Chakulia	BSM03	18.73	2.61	3.42	11.75
	Dhalbhumgarh	BSM08	10.4	1	1.10	5.73
	Galudih	BSM15A	14.7	1.38	1.68	3.25
	Ghatsila	BSM04	7.35	0.6	1.70	4.70
	Hana Bautia	BSM34	8.65	0.6	1.35	4.75
	Hata/Tirin	BSM29	5.55	0.5	0.97	2.48
	Kalikapur	BSM24	8.9	0.6	0.90	2.50
	Mosabani	BSM09A	3.53	0.67	0.80	2.30
	Paridih	BSM32	9.3	1.38	3.28	7.30
	Pithajudi	BSM33	5.17	0.44	1.99	3.94
	Potka	BSM10	8.9	1	1.74	4.30
	Ramgarh	BSM12A	7.78	0.18	1.10	3.58
	Sakshi	BSM09A	-	1.38	2.98	2.60
	Sundarnagar	BSM11	12.9	2.33	1.76	6.25
	Jamshedpur UA Kadma	BSM44	-	-	-	2.4

Bistupur	BSM45	-	-	-	2.1
Jugsalai Thana	BSM46	-	-	-	3.2
Sundernagar	BSM47	-	-	-	4.8
Burmamines – Shiv Mandir	BSM48	-	-	-	3.1
Burmamines Thana	BSM49	-	-	-	2
Garhabasa	BSM50	-	-	-	1.6
Golmuri	BSM51	-	-	-	2.2
Shree Maria Mandir, Golmuri	BSM52	-	-	-	1.4
Shiv Mandir, Telco	BSM53	-	-	-	3
Telco – Zone No. 11	BSM54	-	-	-	3.5
Baridih	BSM55	-	-	-	3.2
Baridih	BSM56	-	-	-	4.9
Sakchi	BSM57	-	-	-	3.8
Mango	BSM58	-	-	-	2.62

District: Ramgarh

Barkachumba	BHB37	-	-	-	3.20
Barkakhana	BHB14	4.5	2.41	2.46	2.75
Barwatola	BHB11A	2.2	2.16	1.62	1.75
Bhurkunda	BHB20	10.7	4.5	3.94	5.70
Chitarpur	BHB15A	9.8	3.91	-	4.92
Gola	BHB12	9.9	6.4	-	6.60
Kanjgi	BHB31	6	5.59	2.70	-
Kuju	BHB21	6.27	5.19	3.55	4.20
Mandu	BHB05	7.1	4.69	3.65	4.65
Ramgarh1	BHB02A	8	5.19	4.45	5.05
Saunda(budhbazar)	BHB33	11.3	4.66	4.48	4.50
Sayal	BHB34	7.3	5.09	4.05	5.80
Sirka(bazartanr)	BHB32	9.3	4.4	6.30	7.95
Urimari	BHB35	7.4	4.1	7.22	5.70

District: Ranchi

Angara	BRC17A	7.75	6.15	3.57	2.08
Bajra	BRC48	10.1	3.25	3.35	4.17
Barwadag	BRC08	5.1	1.9	2.50	3.67
Berro	BRC07	11.02	7.45	7.75	8.50
Bit More	BRC26	3.97	2.85	3.50	4.75
Bundu	BRC04	9.8	2.5	1.80	5.25
Bunti	BRC18	2.1	1.65	1.88	1.88
Burmoo	BRC05	-	-	-	6.90
Chachgura	BRC24	11.35	9.3	5.10	6.95
Chutupalu	BRC22	7.36	0.46	1.91	2.42
Gondlipokhar	BRC42	6.52	1.9	1.73	4.80
Harmu	BRC33	-	9.9	5.23	-
Hatia	BRC19A	10.4	2.3	1.71	6.15
Jonha	BRC25	4.85	3.57	3.40	3.65
Kanke	BRC32	5.08	2.6	1.00	3.00
Kanke	BRC33	-	-	-	7.55
Kantitanr	BRC21A	5.2	1.7	2.41	2.84
Kharsidag	BRC45	6.35	4.3	3.75	5.25
Kita	BRC27	5.95	1.45	2.00	3.47

Kurapurti	BRC14	-	1.25	-	-
Lalganj	BRC41	7.8	2.75	2.20	5.24
Lowadih	BRC43	4.3	4.06	2.52	4.92
Mandar	BRC06	6.1	1.77	2.70	3.67
Namkom Bz Chowk	BRC31	3.46	1.65	1.19	2.87
Ormanji	BRC01	6.17	2.52	3.43	4.08
Patrahau	BRC28	-	0.7	0.67	0.97
Pithoria	BRC49	7.7	1.95	2.42	3.05
Rampur	BRC44	6.7	1.55	1.85	3.30
Ranchi	BRC03A	4.1	0.45	2.45	-
Rangamati	BRC29	9.85	0.85	2.60	5.70
Seringathu	BRC12A	-	-	1.72	-
Silli	BRC09	5.54	4.25	3.60	5.65
Siramtoli	BRC47	8.1	2.3	3.90	3.12
Sithipokhartoli	BRC46	6.86	3.4	3.35	3.90
Sonahatu	BRC23	6.36	1.27	1.15	3.48
Sonsbazar	BRC40	6.6	4.15	4.42	5.06
Taimara	BRC30	12.08	3.15	4.14	6.94
Tamar	BRC11	11.4	1	1.15	6.80

District: Sahebganj

Barharwa	BSG10	9.62	5.47	5.74	2.30
Berhait	BSG09	-	7.67	-	8.36
Borio	BSG11	6.83	4.02	3.80	-
Ghat Selampur	BSG17	-	2	2.48	7.02
Mandro	BSG12	6.1	1.37	-	3.58
Rajmahal	BSG02	5.57	3.92	3.47	3.50
Ranga	BSG16	8.3	5.7	-	5.08
Sahebganj	BSG01	10.09	6.5	4.90	6.85
Sakrigali	BSG13	4.77	3.17	5.65	3.87
Taljhari	BSG03A	7.42	-	-	1.25
Udvababutala	BSG18	7.9	3.27	2.48	3.43

District: Saraikela-Kharswan

Chandil	BSM06	6.75	0.95	1.48	2.93
Kandra	BSM19	7.65	1.55	1.15	4.15
Keshargaria	BSM28	4.68	0.58	0.63	1.80
Kharsawan	BSM18	5.95	3.55	1.80	6.20
Nimdih	BSM31	5.22	0.52	1.07	
Rajnagar	BSM13	12.2	3	2.05	7.00
Saraikela	BSM14	5.25	0.1	0.46	2.48

District: Simdega

Biru	BGL23	5.4	0.3	2.90	3.76
Bano	BGL08	-	-	3.80	4.48
Jaldega	BGL17	4.42	3.8	2.80	4.30
Kolebira	BGL11	8.11	3.75	4.65	5.90
Lachargarh	BGL16	8.24	4.05	3.60	5.00
Simdega	BGL01	7.96	0.9	3.08	3.13
Tengratuku	BGL22	6.76	-	1.85	3.25
Thethai Thangar	BGL09	2.08	0.72	1.21	1.39

Trend of Ground Water Level

Annexure II

Period 01-May-04 to 01-Jan-14

Tahsil/Taluk	Location	Well No	No of Data	Rise (meter/yr.)	Fall (meter/yr.)	Intercept 01-May-04
		District: Bokaro				
Bermo	Chandrapura	BDD12A	29	0.224	-	4.437
	Phusro/Bermo	BGH07	11	0.407	-	7.573
Chandankyari	Pindarjora	BDD06	18	0.448	-	5.896
	Pindrajora	BDD06A	10	0.509	-	7.790
Chas	Chas	BDD05	38	-	0.198	8.261
	Jaina More	BGH13	35	-	0.097	7.319
Gomia	Gomia	BGH01	38	-	0.109	4.736
	Tenughat	BGH15	35	0.102	-	4.074
Nawadih	Nawadih	BGH16	18	0.128	-	5.169
Petarwar	Petarbar	BGH11	37	0.204	-	8.399
		District: Chatra				
	Tandwa	BHB16	11	0.250	-	6.937
Chatra	Chatra	BHB07	29	-	0.227	4.712
Itkhori	Itkhori	BHB08	30	-	0.390	4.253
Simaira	Bagra	BHB18	37	-	0.170	10.221
	Simaria	BHB17	33	-	0.060	8.394
	Tutilawa	BHB06	25	-	0.194	4.453
		District: Devghar				
Deoghar	Deoghar	BDR06	33	-	0.111	4.692
	Jasidih	BDR02	40	-	0.000	6.528
Madhupur	Madhupur	BDR01A	33	0.071	-	5.877
Mohanpur	Ghormara	BDR08	36	-	0.142	4.720
Palojori	Palajori	BDR07	38	-	0.087	6.304
Sarath	Asnamore	BDR05	18	-	0.014	5.256
	Sarath	BDR03	40	0.108	-	5.690
Sarwan	Sarawan	BDR04	38	-	0.405	7.181
		District: Dhanbad				
	Katras	BDD10	17	0.090	-	9.225
	Mahuda	BDD07	37	-	0.082	6.482
Baghmara	Baghmara	BDD14	10	1.094	-	21.512
Baghmara	Rajganj	BDD09	40	0.023	-	4.739
Dhanbad	Dhanbad	BDD13	20	0.360	-	9.215
Gobindpur	Govindpur	BDD08	40	0.007	-	2.480
Jharia	Jharia	BDD01	32	-	0.003	1.400
	Sindri	BDD11	33	-	0.121	4.860
Nirsa	Nirsa ecl l.qtr	BDD03A	40	0.206	-	4.408
Topchachi	Topchanchi	BDD04	39	0.009	-	5.367
Tundi	Tundi	BDD02	35	-	0.031	3.566
		District: Dumka				
Dumka	Dumka(db ib)	BDK03	34	0.163	-	6.915
Gopikandar	Gopikandar	BDK23	34	-	0.151	7.951
Jama	Chikania	BDK22	34	-	0.140	5.382
	Jama	BDK13	37	-	0.103	6.184

Jarmundi	Jarmundi db.ib	BDK07	37	-	0.213	5.287
	Maheshpur templ	BDK08	20	-	0.184	5.524
	Nunihaat	BDK19	31	-	0.055	1.512
Kathikund	Kathikund	BDK02	36	-	0.021	5.542
Masalia	Masalia	BDK15	32	0.128	-	5.529
Raneshwar	Masanjor	BDK05	35	0.070	-	3.301
	Raneswar	BDK14	33	-	0.110	3.671
Saraiyahat	Hansdiha pwdib	BDK04	33	-	0.188	4.524
	Ramgarh	BDK09	12	-	0.684	2.320
Shikaripara	Patabari	BDK17	33	0.040	-	4.993
	Sikaripara	BDK06	28	-	0.042	4.778
District: Garhwa						
Bhawnathpur+kandi	Bhawanathpur	BPL20	22	-	0.032	5.462
Garhwa	Garhwa	BPL06	25	-	0.175	6.397
Majhiaon	Manjhian	BPL31	10	-	0.166	2.492
Nagaruntari	Nagaruntari	BPL10	30	0.057	-	6.596
District: Giridih						
Bagodar	Bagodar	BGH02	38	0.140	-	5.763
Bengabad	Bengabad	BGH17	37	0.023	-	5.254
Birni	Birini	BGH08	31	-	0.008	7.009
Deori	Dewri	BGH10	15	0.014	-	4.165
Dhanwar	Dhanwar	BGH05	38	0.223	-	4.544
Dumri	Dumri	BGH14	38	0.223	-	9.245
Gandey	Pandri	BGH09	27	-	0.005	4.996
Giridih	Bandhutanr	BGH19	32	-	0.128	5.821
	Dhanidih	BGH20	36	-	0.161	3.696
	Giridih	BGH03	40	-	0.126	6.909
Jamua	Jamua pwd ib	BGH06	40	-	0.151	6.394
	Khijri	BGH12	13	0.024	-	4.982
Pirtanr	Chirki (pirtanr)	BGH18	18	-	0.036	8.654
Tsri	Tisri	BGH04	14	0.015	-	2.860
District: Godda						
Boarijor	Bara borijore	BGD09	21	-	0.178	3.844
Godda	Godda	BGD01A	39	-	0.070	3.852
Mahagama	Doi	BGD02	33	0.076	-	4.048
	Lalmatia	BGD05	37	-	0.301	5.358
	Mahagama	BGD06A	33	-	0.321	4.348
Pathargama	Maheshpur	BGD03A	21	-	0.072	4.355
	Pathargama	BGD04	38	-	0.033	3.771
Porayahat	Poraiyahaat	BGD08	29	-	0.324	5.745
Sundar pahari	Sundar Pahari	BGD07	30	-	0.265	7.791
District: Gumla						
Basia	Baisia	BGL10	39	-	0.218	2.845
Bharno	Bharno bdo	BGL04	40	0.094	-	4.778
	Nagfeni	BGL14	40	0.080	-	6.049
Bishunpur	Bishnupur	BGL06	32	0.087	-	6.599
Chainpur	Chainpur	BGL13	28	-	0.028	3.492
Ghaghra	Adar	BGL15	25	-	0.115	3.233
	Ghagra	BGL05	39	-	0.146	5.785
Gumla	Anjam gram	BGL18	24	-	0.090	1.364
	Gumla	BGL02A	19	-	0.031	6.714

Gumla	Gumla	BGL02A1	36	0.094	-	7.059
Palkot	Palkot	BGL07	39	-	0.013	6.094
Raidih	Raidih	BGL12	36	-	0.040	3.650
Sisai	Sisai	BGL03	39	0.046	-	4.636
District: Hazaribag						
Barhi	Barhi	BHB01	39	-	0.368	4.878
Barkatha	Barkatha	BHB10	35	-	0.064	5.037
Chauparan	Chauparan	BHB09	26	-	0.314	5.449
Hazaribagh	Hazaribagh	BHB04	38	0.017	-	7.146
Ichak	Ichak	BHB13	29	-	0.165	5.974
District: Jamtara						
	Mihijam db ib	BDK01	31	-	0.180	5.825
Jamtara	Jamatara	BDK12	40	-	0.084	4.625
Kundhit	Kundahit	BDK11	23	-	0.311	2.156
Nala	Nala	BDK16	33	-	0.096	3.692
District: Khunti						
Arki	Karapurti	BRC14	12	0.569	-	6.408
	Seringathu	BRC12A	13	0.126	-	3.569
Karra	Karra	BRC10A	38	0.264	-	8.106
	Lodma	BRC20	35	0.150	-	4.664
Khunti	Kalimati	BRC15	36	-	0.115	3.780
	Khunti	BRC02	30	0.407	-	8.029
Murhu	Murhu	BRC16	39	-	0.171	2.445
District: Koderma						
Koderma	Kodarma	BHB03	36	-	0.074	5.345
District: Latehar						
Balumath	Balumath	BPL15	35	-	0.173	8.391
	Barjatu	BPL30	34	-	0.138	5.668
Barwadih	Barwadih	BPL16	21	0.255	-	7.119
Chandwa	Chandwa	BPL02	40	-	0.004	5.710
Latehar	Latehar	BPL03	37	0.092	-	5.400
Manika	Manika	BPL12	39	0.082	-	4.419
District: Lohardaga						
Bhandara	Bhandara	BLD04	33	-	0.187	4.693
Kuru	Hinjla	BLD03B	36	-	0.282	3.177
	Kuru	BLD02A	39	-	0.076	5.396
	Rudh	BLD06	28	-	0.068	6.321
Lohardaga	Lohardaga(pwdib	BLD01	38	-	0.066	4.055
Senha	Senha Bdo	BLD07	38	0.063	-	4.672
District: Pakur						
Amrapara	Amrapara	BSG06	36	0.035	-	2.841
Hiranpur	Hiranpur	BSG15	35	0.026	-	5.824
Littipara	Litipara	BSG07	39	-	0.087	6.326
Maheshpur	Maheshpur	BSG05	35	-	0.312	4.583
	Salgapara	BSG14	30	0.057	-	4.543
Pakur	Pakur	BSG08	36	-	0.111	6.415
Pakuria	Pakuria	BSG04	31	0.049	-	3.028
District: Palamau						
Bishrampur	Bishrampur	BPL09	36	-	0.163	3.962
	Kajri	BPL27	34	-	0.045	10.650

	Rajhara	BPL08	35	0.189	-	6.782
Chhatarpur	Chhatarpur	BPL05	39	-	0.082	8.289
	Nawa	BPL33	13	-	0.100	6.221
	Sandha	BPL29	25	0.097	-	6.782
Daltonganj	Daltenganj	BPL07	38	-	0.247	5.323
Hariharganj	Hariharganj	BPL19	30	-	0.115	4.964
Husainabad	Japla	BPL23	22	0.008	-	7.081
Lesliganj	Lesliganj	BPL26	27	0.149	-	7.345
Panki	Panki	BPL22	16	0.078	-	5.609
Patan	Kanda	BPL25	34	0.045	-	5.595
	Nawadih	BPL18	27	-	0.344	7.500
	Patan	BPL21	26	0.081	-	6.664
Satbarwah	Betla	BPL04	32	-	0.038	8.040
Satbarwah	Satbarwa	BPL24	36	-	0.029	6.905
District: Paschim Singbhum						
Bandgaon	Bandgaon	BSM23	36	0.097	-	5.858
	Hesadih	BSM30A	35	0.094	-	4.214
	Kereikela	BSM22A	36	0.136	-	6.747
Chaibasa	Chaibasa	BSM07	37	-	1.067	-0.402
Chakradharpur	Chakradharpur	BSM01	35	0.123	-	7.281
Jagnnathpur	Kokcho	BSM26	37	0.046	-	5.442
Jhinkpani	Jhinkpani	BSM16	29	0.152	-	4.803
Khuntpani	Khuntpani	BSM17	33	0.027	-	4.660
	Pandrasalai	BSM27	37	0.087	-	3.215
District: Purba Singbhum						
	Hata/Tirin	BSM29	38	0.103	-	3.515
Bahragora	Baharagora	BSM02	37	0.017	-	9.163
Chakulia	Chakulia	BSM03	37	0.406	-	15.952
Dhalbhumgarh	Dhalbhumgarh	BSM08	38	-	0.015	6.548
Ghatsila	Galudih	BSM15A	36	-	0.097	4.290
	Ghatsila	BSM04	37	0.084	-	5.245
Jugsalai	Jamshedpur	BSM05	25	0.999	-	10.855
	Paridih	BSM32	10	-	0.416	1.377
	Ramgarh	BSM12A	33	0.074	-	4.437
	Sundarnagar	BSM11	36	-	0.202	5.894
Musabani	Mosabani	BSM09	31	0.049	-	2.663
	Mosabani	BSM09A	33	0.047	-	2.833
Potka	Kalikapur	BSM24	36	0.255	-	5.255
	Potka	BSM10	38	0.084	-	5.882
District: Ramgarh						
Gola	Gola	BHB12	38	-	0.128	6.557
	Rajrappa	BHB15	22	-	0.091	4.767
Mandu	Mandu	BHB05	37	0.037	-	5.559
Patratu	Patratu	BHB11	26	0.145	-	3.003
Ramgarh	Barkakhana	BHB14	35	0.018	-	3.353
Ramgarh	Ramgarh	BHB02	27	-	0.327	5.628
	Ramgarh1	BHB02A	12	0.707	-	11.730
District: Ranchi						
Angara	Angara	BRC17	30	-	0.084	5.450
	Barwadag	BRC08	39	0.071	-	4.447
	Jonha	BRC25	11	-	0.112	2.874

Bero	Berro	BRC07	37	-	0.053	7.518
Bundu	Bundu	BRC04	36	0.230	-	7.147
Burmu	Burmoo	BRC05	13	-	0.121	6.817
Itki	Chachgura	BRC24	13	0.239	-	9.603
Kanke	Hatia	BRC19A	39	-	0.103	4.788
	Ranchi	BRC03A	37	0.009	-	2.930
Mandar	Mandar	BRC06	39	0.001	-	4.270
Ormanjhi	Bunti	BRC18	40	0.029	-	2.211
	Chutupalu	BRC22	38	0.038	-	4.449
	Ormanji	BRC01	40	-	0.116	2.928
Ratu	Kantitanr	BRC21A	15	0.450	-	6.885
Silli	Silli	BRC09	39	0.182	-	6.346
Sonahatu	Sonahatu	BRC23	14	0.864	-	10.999
Tamar	Tamar	BRC11	40	-	0.185	5.820

District: Sahebganj

Barhait	Berhait	BSG09	33	-	0.295	5.553
Barharwa	Barharwa	BSG10	27	0.154	-	7.606
Borio	Borio	BSG11	31	0.103	-	5.167
	Sakrigali	BSG13	27	-	0.054	4.106
Mandro	Mandro	BSG12	17	0.021	-	3.681
Rajmahal	Rajmahal	BSG02	31	-	0.122	3.354
Sahibganj	Sahebganj	BSG01	37	-	0.338	4.971
Taljhari	Taljhari	BSG03A	29	0.273	-	6.618

District: Saraikela-Kharswan

Chandil	Chandil	BSM06	38	0.137	-	5.435
Gumhariya	Kandra	BSM19	37	-	0.075	3.995
Rajnagar	Keshargaria	BSM28	23	0.326	-	5.063
	Rajnagar	BSM13	29	0.119	-	8.434
Saraikela	Kharsawan	BSM18	35	0.133	-	5.920
	Saraikela	BSM14	36	0.049	-	2.698

District: Simdega

Bano	Bano	BGL08	33	-	0.029	5.181
Jaldega	Jaldega	BGL17	37	-	0.118	3.035
Kolebira	Kolebira	BGL11	38	0.006	-	5.981
	Lachargarh	BGL16	36	-	0.160	4.582
Simdega	Simdega	BGL01	40	0.033	-	4.364
Thethaitangar	Thethai Thangar	BGL09	36	0.015	-	1.980

MAJOR CHEMICAL PARAMETERS OF GROUND WATER SAMPLES OF GWMS COLLECTED DURING PRE-MONSOON 2013 IN JHARKHAND STATE **Annexure III**

Dist	Village	Well No	E.C. micro Siemens/cm at 25° C	pH	CO_3 mg/l	HCO_3 mg/l	Cl mg/l	F mg/l	N03 mg/l	SO4 mg/l	TH as $CaCO_3$ mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	Si02 mg/l	P04 mg/l
District: Bokaro																	
	Pindrajora	BDD06A	715	8.1		104	135	0.8	35	50	240	72	15	52	1.2	60	nd
	Mahuda	BDD07	1062	7.66	nil	586	28.36	0.55	3.1	nd	360	48	58	76	5	19	nd
	Chandrapura	BDD12A	1500	7.74	nil	427	269	1.28	9.8	nd	400	124	22	136	10	29	nd
	Chandankiyari	BDD15	1339	8	nil	405	209	0.41	38	nd	330	84	29	137	4.2	28	nd
	Petarbar	BGH11	367	7.73	nil	85	35	0.12	23	40	140	28	17	19	1.7	35	nd
	Jaina More	BGH13	611	8.24	nil	171	57	0.3	13.7	60	200	48	19	43	5.7	31	nd
	Tenughat	BGH15	1459	7.62	nil	464	227	0.26	31	nd	510	116	54	81	2.5	33	nd
	Pupunki	BGH22	805	7.92	nil	171	135	0.62	40	19	220	72	10	78	2.6	48	nd
District: Chatra																	
	Tutilawa	BHB06A	914	7.78	ND	271	89	0.11	37	-	425	56	69	24	3	11	BDL
	Chatra	BHB07A	3144	7.38	ND	357	567	-	40	-	740	136	97	221	4	19	BDL
	Itkhori	BHB08A	751	7.24	ND	479	32	0.14	9	-	300	40	49	40	7	16	BDL
	Tandwa	BHB16	1090	7.75	ND	676.5	60.3				385	38	70.47	111.7	5.35	16	BDL
	Simaria	BHB17	1601	7.48	ND	104	14	-	11	-	110	12	19	9	2	25	BDL
	Bagra	BHB18	760	7.75	ND	178	85	-	38	-	215	26	36	67	9	5	BDL
	Birhu	BHB27	305	8.67	6	85	32	-	31	-	115	16	18	16	2	19	BDL
	Pitij	BHB28	1547	7.60	ND	283	355	0.42	11	-	225	52	23	195	3	14	BDL
District: Devghar																	
	Deoghar	BDR06A	1141	8	nil	464	128	0.6	31	19	380	32	72	103	1.3	22	nil
	Ghormara	BDR08	1065	7.95	nil	405	92	0.55	82	10	350	64	46	94	0.44	31	nil
	Jasidih	BDR02	1444	8.04	nil	457	177	0.35	20	34	480	68	75	94	2.1	35	nil
	Madhupur	BDR01A	1430	7.8	nil	427	206	0.5	79	36	475	80	66	103	0.9	33	nil
	Palajori	BDR07	1017	7.62	nil	366	142	0.33	25	9.6	425	70	60	63	2.8	26	nil
	Sarath	BDR03	1055	8.16	nil	323	149	0.28	52	9.6	425	80	54	39	3.7	42	nil
	Sarawan	BDR04	976	7.9	nil	252	128	0.78	18	nd	320	88	24	66	3.1	32	nil
District: Dhanbad																	
	Baghmara	BDD14															
	Bhaga	BDD01A	654	7.55	nil	232	53	0.72	4.8	51	170	52	10	66	13	19	nd
	Dhanbad	BDD13	1355	7.85	nil	209	113	0.96	15.16	298	410	110	32.8	125	3.8	48	nd

	Govindpur	BDD08	405	7.81	nil	464	213	0.78	2.3	nd	390	68	54.67	126	1.6	54	nd
	Nirsa ecl l.qtr	BDD03A	1161	8.11	nil	183	142	0.1	25	190	310	72	32	122	19	19	nd
	Rajganj	BDD09	1458	7.44	nil	464	227	0.26	31	nd	510	116	54	80	2.4	35	nd
	Sindri(gosalmore)	BDD11A	1002	8.1	nil	256	184	0.87	28	nd	405	116	28	36	1.5	57	nd
	Topchanchi	BDD04	2205	7.53	nil	268	333	0.61	219	192	865	160	113	107	206	42	nd
	Tundi	BDD02	373	8.14	nil	183	121	0.37	34	120	340	88	29	64	20	33	nd
District: Dumka																	
	Dumka(db ib)	BDK03	1310	8	nil	354	177	0.87	7.4	34	360	44	60	95	1.5	33	nil
	Gopikandar	BDK23	317	7.75	nil	183	21	0.47	4	nd	120	20	17	21	12	24	nil
	Hansdiha pwdib	BDK04	226	7.56	nil	95	28	0.15	14	nd	80	16	19	8	3	24	nil
	Jama	BDK13	585	8.11	nil	293	50	0.26	15	nd	230	36	34	44	1.2	13	
	Jarmundi db.ib	BDK07	838	8.14	nil	342	120	0.41	36	nd	320	76	31	71	0.9	31	nil
	Kathikund	BDK02	641	7.91	nil	195	92	0.27	23	nd	175	56	8.5	50	6.8	21	nil
	Maheshpur templ	BDK08	1041	7.76	nil	104	262	0.45	78	nd	290	88	12	71	8	30	nil
	Masalia	BDK15	710	7.88	nil	207	92	0.67	20	nd	160	24	24	70	0.5	18	nil
	Masanjor	BDK05	261	7.87	nil	146	7	0.58	48	nd	90	16	12	15	1.2	21	nil
	Patabari	BDK17	1138	8.01	nil	403	120	0.71	30	24	430	52	72	50	5.1	31	nil
	Raneswar	BDK14	436	8.25	nil	146	35	0.27	nil	nd	140	40	9.6	25	2.6	33	nil
	Sikaripara	BDK06															
District: Garhwa																	
	Garhwa	BPL06	918	8.48	12	360	96	0.24	8	18	255	42	36	58	3.8	27	nd
	Nagaruntari	BPL10	8.22	330	nil	329	78	0.23	28	12	250	24	46	46	1	17	nd
	Bhawanathpur	BPL20	8.36	1520	3	439	156	0.38	20	14	320	36	56	157	1.7	14	nd
	Manjhian	BPL31	7.58	801	nil	424.35	35.45	0.12	5	10	340	80	34.02	50.83	0.54	14	nd
	Ramna	BPL37	7.45	1823	nil	541.2	251.69	0.14	34	22	530	140	37.66	115.6	2.42	38	nd
District: Giridih																	
	Bagodar	BGH02	451	8.13	nil	122	71	0.57	29	nd	155	40	13	26	1.2	52	nd
	Giridih	BGH03	808	8.18	nil	214	142	0.31	29	nd	370	68	49	48	7.2	37	nd
	Dhanwar	BGH05	394	8	nil	85	50	0.32	20	30	170	36	19	9.9	1.9	45	nd
	Pandri	BGH09	310	8.2	nil	86	53	0.65	5.2	nd	120	40	5	15	0.5	42	nd
	Dewri	BGH10															
	Khijri	BGH12	138	7.6	nil	98	57	0.24	6.2	40	195	52	16	6.9	3.6	34	nd
	Dumri	BGH14	695	7.82	nil	61	121	0.13	17	108	250	90	6	44	3.5	56	nd
	Bengabad	BGH17	1165	8.22	nil	313	180	0.41	82	nd	330	56	46	101	0.8	59	nd

	Chirki (pirtanr)	BGH18														
	Bandhutanr	BGH19	630	7.78	nil	232	78	0.58	13	nd	240	44	32	23	4.8	31	nd
	Dhanidih	BGH20	403	7.82	nil	153	50	0.68	2.3	nd	145	36	13	20	2.3	28	nd
	Pupunki	BGH22															
	Saraiya	BGH23	172	8.1	nil	61	14	0.12	21	nd	60	8	10	3.3	2.1	18	nd
	Maheshmunda	BGH24	550	8.1	nil	171	92	0.19	3.9	nd	240	64	19	6.9	5.4	41	nd
	Gandey	BGH25	8.7	7.88	nil	189	35	0.47	9	154	50	16	2.43	151	0.4	40	nd
District: Godda																	
	Boarijore	BGD09A	567	7..60	nil	293	21	0.14	8	nd	150	24	22	35	25	38	nil
	Doi	BGD02	1420	7.76	nil	317	284	0.41	16	38	350	60	48	122	60	47	nil
	Lalmatia	BGD05	649	8.18	nil	274	64	0.14	8	nd	215	28	35	42	17	48	nil
	Pathargama	BGD04	1044	7.62	nil	305	170	0.12	10	nd	240	52	26	91	40	36	nil
	Poraiyahaat	BGD08	1082	7.6	nil	348	120	0.24	20	9.6	300	64	34	80	7.5	70	nil
	Sundar Pahari	BGD07	625	7.78	nil	305	24	0.17	2	nd	160	24	24	50	12	45	nil
District: Gumla	Gumla	BGL02A1	1276	6.8	nil	430.5	163	0.28	2	68	435	96	47.38	97	16	22	nd
	Sisai	BGL03	1022	7.1	nil	172.2	184	0.14	126	nd	230	76	9.7	117	15	21	nd
	Bharno bdo	BGL04	207	7.42	nil	61.5	28	0.06	14	nd	55	18	2.43	22	2.7	19	nd
	Ghagra	BGL05															
	Bishnupur	BGL06	746	7.55	nil	215	63	0.19	61	nd	250	92	4.86	57	3	30	nd
	Palkot	BGL07	331	8.13	nil	166	21	0.26	3.3	nd	125	32	10.93	24	2.1	25	nd
	Baisia	BGL10	517	7.82	nil	220	21	0.12	11	19	150	40	50	48	4.1	21	nil
	Raidih	BGL12	504	8.14	nil	214	50	0.22	4.5	31	150	40	12	43	16	27	nd
	Chainpur	BGL13	808	7.61	nil	166	116	0.17	78	18	265	78	17	54	11	23	nd
	Nagfeni	BGL14															
	Adar	BGL15	1820	8.1	nil	325	212	0.6	68	103	545	116	62	156	1.74	38	nd
	Anjam gram	BGL18	344	8.1	nil	146	28	0.12	10	11	105	28	8.5	35	0.14	37	nd
	Bhagma	BGL19	479	7.57	nil	122	64	0.16	34	33	150	40	12	47	7.7	22	nd
	Kasir	BGL20	555	7.63	nil	189	57	0.29	28	25	200	40	24	38	4.6	38	nd
	Kharka	BGL21	214	7.7	nil	61.5	32	0.08	13	nd	55	6	10	25	2.6	31	nd
District: Hazaribag																	
	Barhi	BHB01	1464	8.23	ND	92	291	0.65	40	nd	545	78	85	71	5	26	BDL
	Hazaribagh	BHB04	1261	8.04	ND	314	177	0.2	41	48.66	405	72	55	72	4	17	BDL
	Chouparan	BHB09A	2630	7.52	ND	394	432	0.48	40	ND	615	96	91	217	8	18	BDL

	Barkatha	BHB10	283	8.22	ND	122	32	0.43	11	nd	120	20	17	14	3	14	BDL
	Ichak More	BHB13A	673	8.23	ND	165	96	1.48	40	nd	230	32	36	51	3	37	BDL
	Barkagaon	BHB19	827	7.71	ND	314	67	0.28	33	9.27	320	44	51	53	3	16	BDL
	Keredari	BHB22	997	7.72	ND	409	99	0.99	6	nd	310	24	49	82	4	11	BDL
	Garrikalan	BHB23	1051	8.14	ND	350	152	0.45	8	5.1	295	36	47	74	17	10	BDL
	Meru(silwar)	BHB24	508	8.68	6	80	67	0.23	38	13.03	175	26	27	21	4	16	BDL
	Daru	BHB25	3705	7.77	ND	332	819	0.66	37	53	835	84	153	438	12	21	BDL
	Padma	BHB26	554	8.23	4	202	46	0.53	28	4	195	24	21	25	2	20	BDL
District: Jamtara																	
	Jamatara	BDK12	911	7.7	nil	320	106	0.25	6	9.6	290	88	17	70	0.7	31	nil
	Kundahit	BDK11	680	7.6	nil	183	92	0.66	76	nd	230	52	24	29	1.8	36	nil
	Mihijam	BDK01A	910	8.13	nil	305	106	0.3	24	nd	335	72	37	51	3.8	29	nil
	Nala	BDK16	13.1	8.08	nil	171	156	0.0.70	1.9	nd	390	60	58	104	1.1	35	nil
District: Khunti																	
	Karra	BRC10A	291	7.18	0	100	77	0	1	11	226	74	11	12	2	16	nd
	Kalimati	BRC15	171	7.16	0	120	31	0	0	25	176	61	6	8	7	12	nd
	Murhu	BRC16	492	7.04	0	220	52	0.86	11	30	476	180	8	15	9	20	nd
	Lodma	BRC20	175	6.78	0	100	23	0	12	3	60	19	3	21	2	2	nd
	Dorma	BRC34	217	7.02	0	180	23	0.92	0	7	108	26	11	10	3	5	nd
	Torpa	BRC35	239	7.04	0	120	122	0.24	1	6	328	85	28	12	1	5	nd
District: Koderma	Kodarma	BHB03	427	7.4	nil	92	60	0.48	14	24	150	28	19	21	3.8	44	nd
	Chandwara	BHB36	942	7.53	ND	283	145	0.17	13	32	205	44	23	155	0	26	BDL
	Jhumritilaiya	BHB37															
District: Latehar																	
	Netarhat	BPL01	44	8	nil	18.45	3.54	0.08	2	0	20	4	2.43	2	1	8	nd
	Latehar	BPL03	562	7.7	nil	146	92	0.08	25	nd	200	76	2.4	32	59	30	nd
	Manika	BPL12	1018	7.5	nil	61	241	0.52	31	74	350	112	17.01	65	13	33	nd
	Balumath	BPL15	758	8.1	nil	256	92	0.24	39	nd	210	76	12.15	46	34	51	nd
	Barwadih	BPL16	1912	7.58	nil	381.3	355	0.24	134	52	780	212	61	85	9	26	nd
	Barjatu	BPL30	735	7.7	nil	289	99.26	0.4	4.3	nd	290	78	23.08	37	39	43	nd
District: Lohardaga																	
	Lohardaga(pwdib	BLD01	1092	7.22	NA	140	258	0.55	1	73	684	173	60	9	4	6	nd
	Kuru	BLD02A	801	7.13	NA	460	142	0	0	42	488	157	23	4	5	26	nd

	Hinjla	BLD03B	440	7.02	NA	300	57	0	17	23	224	95	3	11	7	22	nd
	Rudh	BLD06	207	7.14	NA	100	23	1	0	14	96	27	7	17	1	3	nd
	Senha Bdo	BLD07	440	7.2	NA	280	54	0	0	1	272	96	10	10	4	7	nd
District: Pakur																	
	Maheshpur	BSG05	369	7.88	nil	146	28	0.8	1.58	nd	65	16	6	44	1.4	17	nil
	Amrapara	BSG06	362	8.06	nil	165	28	0.22	nil	nd	160	12	31	7	1	18	nil
	Litipara	BSG07	1500	8.04	nil	305	312	nil	nil	19	415	116	30	96	66	56	nil
	Pakur	BSG08	992	8.22	nil	455	92	0.24	12	nd	280	28	9.6	95	65	24	nil
District: Palamau																	
	Betla	BPL04	688	7.92	nil	354	35	*0.61*	7	14	290	76	24	28	2	57	nd
	Chhatarpur	BPL05	1818	7.67	nil	634	206	0.75	9	248	600	140	61	209	18	44	nd
	Daltenganj	BPL07	1308	7.56	nil	510	131.16	0.61	11	41	430	132	24	102	6	51	nd
	Rajhara	BPL08	748	7.65	nil	305	74.44	0.78	8	41	250	40	36	77	16	22	nd
	Garu	BPL14	210	7.78	nil	98.4	14.18	0.25	5	2	80	18	8.5	14.81	1	9	nd
	Nawadih	BPL18	144	7.88	nil	146	35	0.22	11	2	140	40	9.6	46	1.5	36	nil
	Patan	BPL21	1276	8.28	nil	281	248	0.15	8	50	470	136	32	73	9	38	nd
	Panki	BPL22	1202	7.74	nil	305	230	0.66	8	47	530	180	19.44	49	4	41	nd
	Satbarwa	BPL24	1028	8.2	nil	439	106	0.46	3.8	nd	355	112	18	56	8.4	34	nd
	Kanda	BPL25	620	7.62	nil	342	21	1.48	1	15	210	64	12	62	2	**37**	nd
	Kajri	BPL27	341	8.4	6	147.6	24.81	0.77	6	30	150	28	19	28	2	55	nd
	Sandha	BPL29	625	8.3	nil	369	35.45	0.58	17	5	240	64	19.44	58	3	21	nd
	Nawa	BPL33	802	8.11	nil	307.5	95.45	0.42	11	20	280	52	36.45	56.33	0.78	28	nd
	Sagalim	BPL34	631	7.7	nil	375.15	32	0.31	3	10	240	60	22	51	3	26	nd
	Hydernagar	BPL35	8.14	nil	342	149	0.9	5	69	380	72	49	80	6	23	nd	
	Baraw	BPL36	*1066*	7.52	nil	399.75	95	1.1	47	71	400	64	58.32	81	4.6	50	nd
District: Paschim Singbhum																	
	Chakradharpur	BSM01	922	7.81	nil	354	99	0.22	17	17	350	64	46	52	0.8	38	nd
	Chaibasa	BSM07	507	7.7	nil	500	92	0.8	nil	nd	245	68	18.22	104	44	52	nd
	Jhinkpani	BSM16	775	7.95	nil	153	149	0.38	7	nd	220	36	31	31	55	28	nd
	Khuntpani	BSM17	918	8.12	nil	418	67	0.36	36	8	400	104	34	32	1.2	51	nd
	Kereikela	BSM22A	630	8.18	nil	159	103	0.22	18	46	280	60	32	27	17	40	nd
	Bandgaon	BSM23	1491	8.11	nil	116.85	389	0.17	66	43	370	68	49	165	18	28	nd
	Kokcho	BSM26	621	7.65	nil	207	71	0.22	5	nd	220	52	23	24	6.6	50	nd
	Pandrasalai	BSM27	896	7.84	nil	378	67	0.25	7	nd	275	72	23	52	7.5	27	nd

	Hesadih	BSM30A	298	7.78	nil	147.6	21	0.15	11	15	150	38	13.36	11	14	23	nd
District: Purba Singbhum																	
	Ghatsila	BSM04	862	8.17	nil	313	99	0.51	4	nd	310	84	24	44	16	21	nd
	Dhalbhumgarh	BSM08	111	7.66	nil	61	7	nil	2.4	nd	36	8	3.9	9.4	2.4	12	nd
	Mosabani	BSM09A	1431	7.11	nil	378	135	0.34	72	155	490	140	34	86	13	22	nd
	Sakshi	BSM09A	1436	7.24	nil	378	135	0.41	87	154	490	140	34	86	14	21	nd
	Potka	BSM10	1033	8.68	36	354	71	0.65	3	35	400	60	61	48	1.6	34	nd
	Ramgarh	BSM12A	1202	8.48	48	293	81.53	0.3	8	106	500	52	65.61	33	11	33	nd
	Galudih	BSM15A	459	7.71	nil	184.5	35	0.14	7	nd	160	32	19.44	25	5	19	nd
	Kalikapur	BSM24	1844	7.12	nil	430	350	0.92	21	nd	540	150	40	152	26	27	nd
	Keshargaria	BSM-28	638	8.21	nil	220	71	0.28	18	nd	230	52	24	33	2.7	18	nd
	Hata/Tirin	BSM29	1212	8.62	36	305	159	0.5	21	nd	400	140	12	70	30	38	0.28
	Pithajudi	BSM33	278	8.26	nil	141	24.81	nil	2.4	nd	70	16	7.2	32	11	17	nd
	Hana Bautia	BSM34	265	8.23	nil	73.8	24.81	0.14	14	nd	80	18	8.5	18	3.5	18	nd
District: Ramgarh																	
	Ramgarh1	BHB02A	314	8.2	nil	98.4	35.45	0.33	17	8	120	40	5	18	1	28	nd
	Mandu	BHB05	618	7.82	nil	195	71	0.34	55	nd	180	64	5	51	2.8	22	nd
	Barwatola	BHB11A	525	8.11	nil	92	110	0.42	32	nd	145	56	1	46	1.1	47	nd
	Gola	BHB12	416	7.65	nil	79	74	1.75	31	nd	100	38	1	44	3	48	nd
	Barkakhana	BHB14	1128	7.65	nil	332	184	0.71	14	4	450	120	36	39	1	28	nd
	Chitarpur	BHB15A	772	7.10	ND	277	50	0.18	18	21	300	66	33	42	2	24	BDL
	Bhurkunda	BHB20	798	7.78	nil	159	113	0.38	68	24	260	72	19	57	4.2	31	nd
	Kuju	BHB21	756	7.55	nil	226	106	1.31	45	nd	275	104	3.64	39	1.6	32	nd
	Kanjgi	BHB31	633	6.21	ND	172	71	0.22	31	24	220	62	16	45	0	28	BDL
	Sirka(bazartanr)	BHB32	1127	6.96	ND	234	216	0.27	31	27	335	84	28	97	27	25	BDL
	Saunda(budhbazar)	BHB33	524	7.23	ND	203	57	0.17	2	7	165	48	11	41	2	21	BDL
	Sayal	BHB34	645	7.15	nil	234	64	0.15	10	8	165	54	7	60	19	21	nd
	Urimari	BHB35	475	7.33	ND	203	39	0.14	5	4	160	54	1	28	1	18	BDL
	Barkachumba	BHB37															

District: Ranchi

Ormanji	BRC01	587	8.17	0	123	74	0.33	14	26	235	62	19	26	2.8	21	nd
Bundu	BRC04	666	7.44	0	300	147	1.02	1	69	380	88	40	25	4	17	nd
Mandar	BRC06	468	7.12	0	140	145	0.12	0	55	255	80	13.36	12	6	30	nd
Berro	BRC07	250	7.18	0	140	11	0.2	8	2	110	61	7	9	5	18	nd
Barwadag	BRC08	630	7.1	0	300	79	0	1	18	362	101	27	26	3	22	nd
Silli	BRC09	415	7.1	0	360	68	0.98	0	43	232	81	8	25	6	8	nd
Angara	BRC17A	292	7.38	0	220	26	0.87	0	12	306	106	11	27	6	12	nd
Bunti	BRC18	311	6.98	0	140	57	0	0	58	140	38	11	15	6	15	nd
Hatia	BRC19A	248	6.7	0	100	60	0	0	2	100	29	7	8	10	14	nd
Kantitanr	BRC21A	355	6.85	0	220	60	0	0	8	176	61	6	26	5	17	nd
Chutupalu	BRC22	378	7.21	0	180	108	1	0	65	216	74	8	31	7	11	nd
Sonahatu	BRC23	272	7	0	180	68	0	4	6	145	37	13	14	4	8	nd
Chachgura	BRC24	141	7.22	0	40	34	0	1	0	52	24	4	19	1	5	nd
Jonha	BRC25	295	7.12	0	360	20	0	1	8	110	34	7	11	7	3	nd
Bit More	BRC26	266	7.08	0	100	71	0.02	0	13	115	35	7	34	10	4	nd
Kita	BRC27	294	7.14	0	140	34	0.11	0	19	232	30	13	19	4	7	nd
Rangamati	BRC29	751	7.1	0	200	170	0	1	92	456	56	76	31	2	10	nd
Taimara	BRC30	293	7.11	0	360	20	0	1	8	112	34	7	11	8	12	nd
Namkom Bz Chowk	BRC31	411	7.02	0	280	88	0.56	1	24	236	83	7	16	2	23	nd

District: Sahebganj

Sahebganj	BSG01	536	7.6	nil	250	42	0.49	nil	nd	180	32	24	30	16 I	20	nil
Rajmahal	BSG02	650	7.41	nil	295	50	0.52	0.93	nd	215	20	40	32	11	24	nil
Taljhari	BSG03A	1118	8.21	nil	457	113	0.37	nil	24	305	84	23	95	40	41	nil
Berhait	BSG09	414	7.75	nil	195	28	0.13	4.4	nd	175	32	23	14	1.6	25	nil
Barharwa	BSG10	8.26	275	nil	134	21	0.29	30	nd	80	24	4.8	26	3.1	19	
Borio	BSG11	1250	7.9	nil	354	220	0.27	nil	0.48	210	44	24	143	58	29	nil
Mandro	BSG12	1237	7.58	nil	293	255	0.44	nil	0.78	330	72	36	94	52	12	nil
Sakrigali	BSG13	994	8.18	nil	305	149	0.19	2.5	19	240	64	19	69	65	47	nil
Ranga	BSG16	1055	8.2	nil	317	135	1.33	nil	nd	275	80	18	87	7.8	24	nil
Udvababutala	BSG18	695	7.96	nil	281	50	nil	nil	nd	230	8	50	28	7.8	19	nil

District: Saraikela-Kharswan

Chandil	BSM06	811	8.44	36	171	128	0.23	4	nd	300	88	19	40	4.3	19	nd
Kharsawan	BSM18	1344	8.2	nil	488	106	0.47	24	24	310	16	65	111	35	27	nd
Nimdih	BSM31	567	8.48	24	183	67	0.27	10.7	nd	220	60	17	40	3.8	25	nd
Saraikela	BSM14	615	7.61	nil	610	723	0.36	84	53	1120	152	202	169	43	52	nd

District: Simdega

Simdega	BGL01	206	8.1	nil	67	21	nd	7.8	5	75	20	6	13	1	34	nd
Thethai Thangar	BGL09	216	7.22	nil	85	28	0.18	2.5	8	70	24	2.4	18	1.1	20	nd
Kolebira	BGL11	585	7.7	nil	141	74	0.06	18	38	160	20	27	56	5.3	32	nd
Lachargarh	BGL16	631	7.93	nil	183	92	0.05	8	22	235	60	21	37	1.8	34	nd
Jaldega	BGL17	744	8.25	nil	182	114	0.12	23	48	260	76	17	52	1.6	30	nd
Tengratuku	BGL22	329	8.21	nil	116	35.45	0.17	9.7	20	110	18	16	28	0.9	34	nd
Biru	BGL23	540	7.78	nil	190	74.44	0.26	5.2	nd	195	36	13.75	26	21	33	nd

Annexure IV

Water Level data(in mbgl) for Urban Areas in Jharkhand through outsourcing

DHANBAD URBAN AREA

S. No.	Location	May-12	Jul-12	Sep-12	Nov-12	Jan-13	Mar-13
1.	District Board(I.B.),Opposite Circuit house	8.6	8.2	5.4	5.6	5.1	6.15
2.	Pandrapala(Backside of Polytechnic Road)	8.3	6.8	4.5	4.65	5.3	5.35
3.	Bhuli-A Block,Near Bhuli T.O.P.,Near House of kailash Kr.Gupta	12.5	8.4	6.35	5.2	6.1	6.55
4.	Balaji Mandir campus, Katrasgarh,Near ICICI Bank and opposite Choudhary Nursing home	8.1	7.1	5.3	4.8	6.45	5.6
5.	Matkuria Burning ghat	3.8	5.35	3.5	5.8	4.1	4.75
6.	Godhar Basti	10.4	6.7	4.15	6.4	7.15	5.8
7.	CISF Campus,Basdeopur Colliery	6.6	3.1	2.3	3.8	7.1	4.1
8.	Dhansar Mines Rescue station	13	4.5	3.3	4.3	3.8	4.15
9.	Lodna(Near Anil-Sunil Talkies)	11.1	6.25	5.1	4.6	5.8	5.9
10.	Kandra (Mandal Basti)	14.1	7.8	5.3	4.7	6.4	5.8
11.	Purnadih,Jealgora(Opposite jorapokhar Thana)	5.6	5.3	4.2	5.45	6.3	4.5
12.	Gosala More,Sindri,Near the petrol Pump and Trijunction	7.6	3.7	2.5	5.6	4.5	3.45
13.	Dhaiya,Rani Talab	5.75	4.2	3.1	5	4.2	3.85
14.	PK ROY Memorial College,Saraidehla	8.35	6.7	5.35	3.65	3.1	6.1
15.	In the house of Avdesh Singh, Chiragora, Hirapur	13.8	6.2	5.1	3.2	4.15	5.8

HAZARIBAGH URBAN AREA

S. No.	Location	Mar-12	May-12	Jul-12	Sep-12	Jan-13	Mar-13
1.	Holy Cross Social Service Centre	2.4	3.87	4.69	0.66	2.43	4.26
2.	Baban Gupta	7.63	9.12	5.53	5.47	6.84	9.09
3.	Ganesh Purthi School	6.43	7.77	8.71	4.9	5.79	7.62
4.	Suchandan Gupta	2.85	4.98	5.96	1.14	2.33	4.22
5.	Fasi Well (Government)	7.98	8.37	8.37	8.34	8.16	8.37
6.	Panch Mandir Pangan	12.58	12.68	12.68	12.46	12.52	12.68
7.	Jamal Ansari	8.18	8.7	9.71	6.6	7.51	9.4
8.	Dipak nath Sahay	5.53	5.01	5.32	1.69	8.79	4.68
9.	Shiv Mandir Prangan	7.56	8.61	8.61	6.16	7.07	8.61
10.	Santosh Sahu	7.06	8.31	9.77	6.97	8.28	9.74
11.	S.C. Sharma	8.35	9.28	9.84	4.05	9.17	9.73
12.	Mitri Singh/Nanda Hotel	9.93	10.54	1.88	8.83	9.29	10.42

JAMSHEDPUR URBAN AREA

S. No.	Location	Apr-12	Jun-12	Aug-12	Otc-12	Jan-13	Mar-13
1.	Jugsalai Thana	5.3	6.01	2.78	2.68	3.08	3.1
2.	Sundernagar	Dry	3.25	5.67	5.04	10.92	11.15
3.	Burmamines – Shiv Mandir	4.2	2.1	2.78	2.37	3.52	3.75
4.	Burmamines Thana	2.1	1.05	1.18	1.16	1.98	2
5.	Garhabasa	1.5	0.64	0.7	0.65	0.55	0.75
6.	Golmuri	2	1.1	0.94	1.01	1.3	1.8
7.	Shree Maria Mandir, Golmuri	4	2.01	2.1	2.15	3.02	3.15
8.	Shree Deen Bandhu Shiv Mandir, Telco	1.5	0.84	0.86	0.74	3.11	3.25
9.	Telco – Zone No. 11	5	3.1	2.23	2.45	2.24	2.6
10.	Baridih	5.2	0.79	0.55	0.54	3.04	3.25
11.	Bagun Nagar, Baridih	Dry	3.84	4.62	3.81	6.18	6.35
12.	Shitla Mandir, Sakchi	4.5	3.5	3.23	3.16	3.81	4
13.	Rankini Mandir, Kadma	3	1.21	1.14	1.52	1.15	1.3
14.	Jamshedpur Blood Bank, Bistupur	3	2.08	1.9	2.19	1.02	1.2
15.	Amar Jyoti School, Mango	4.5	2.5	1.56	2.49	1.25	1.6

PLATE I

PLATE II

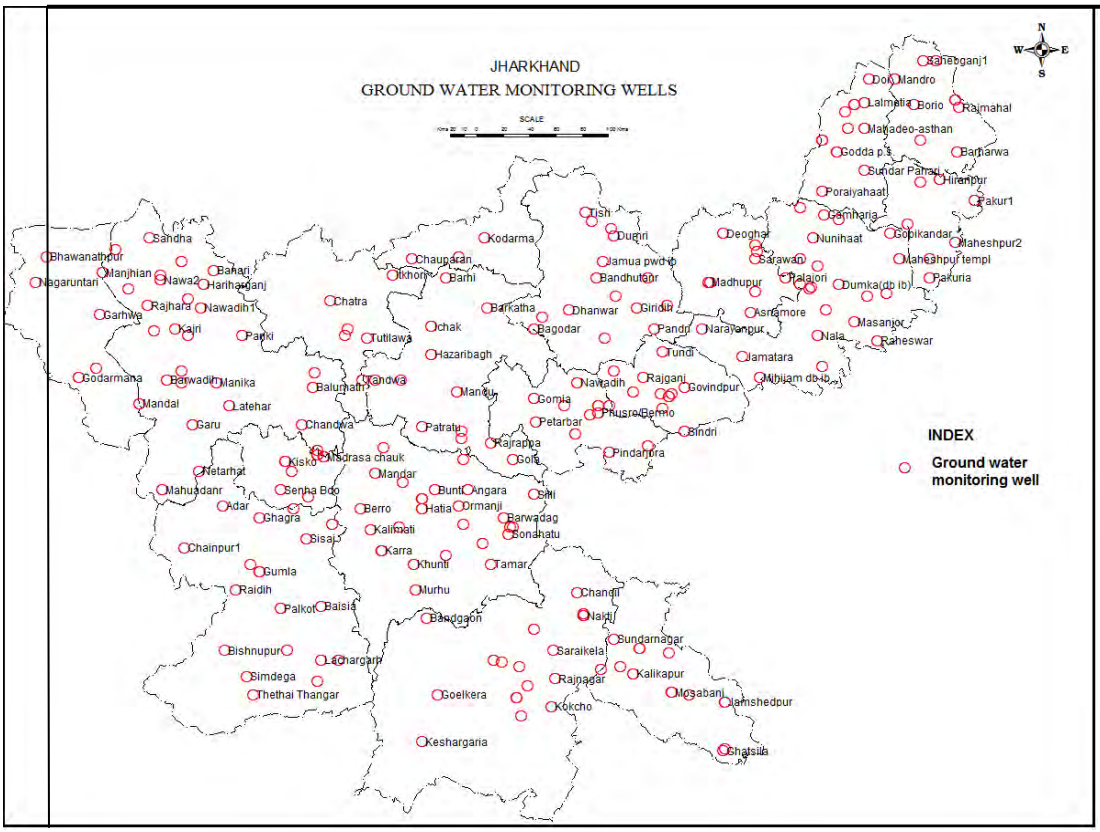
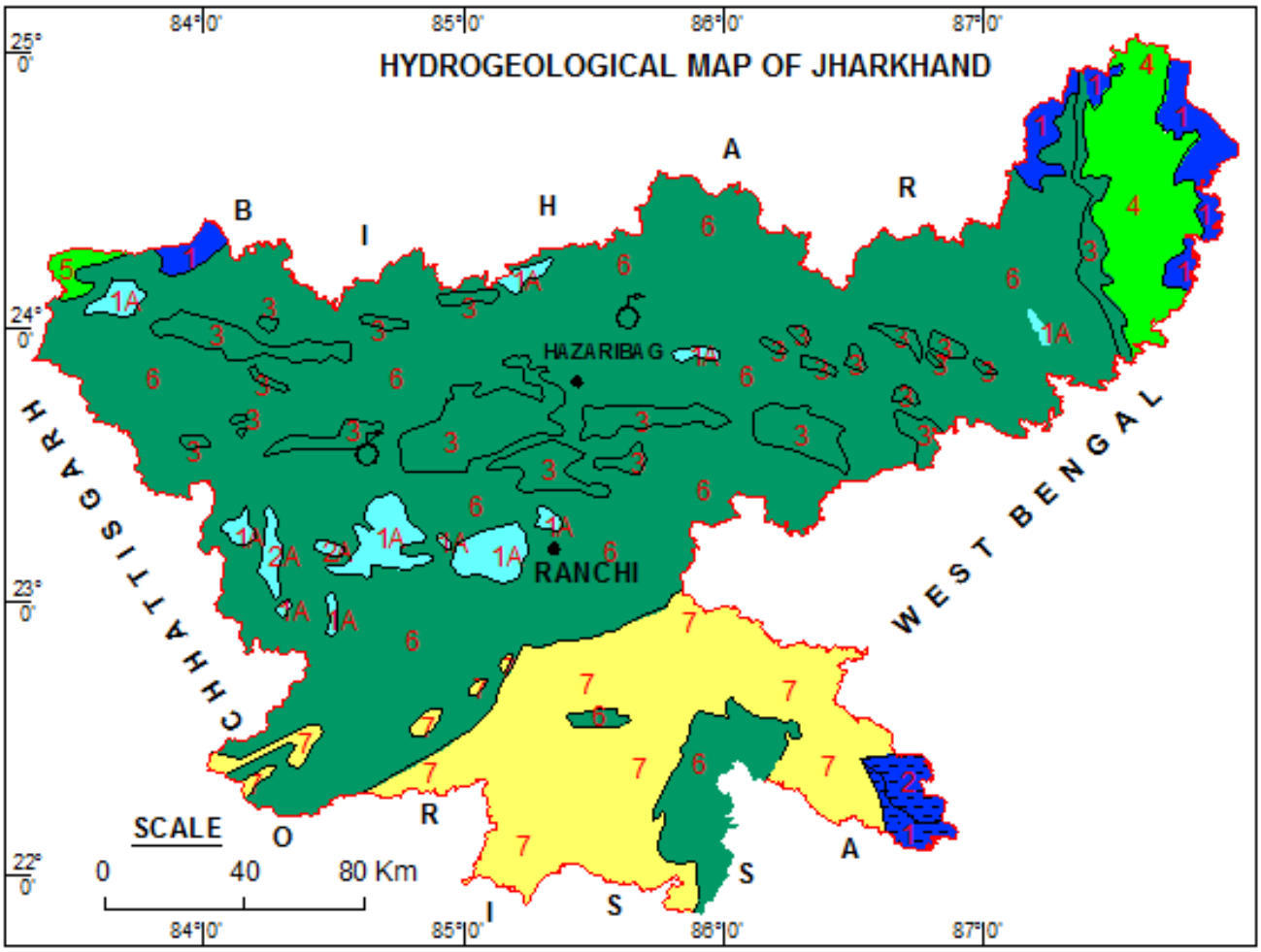


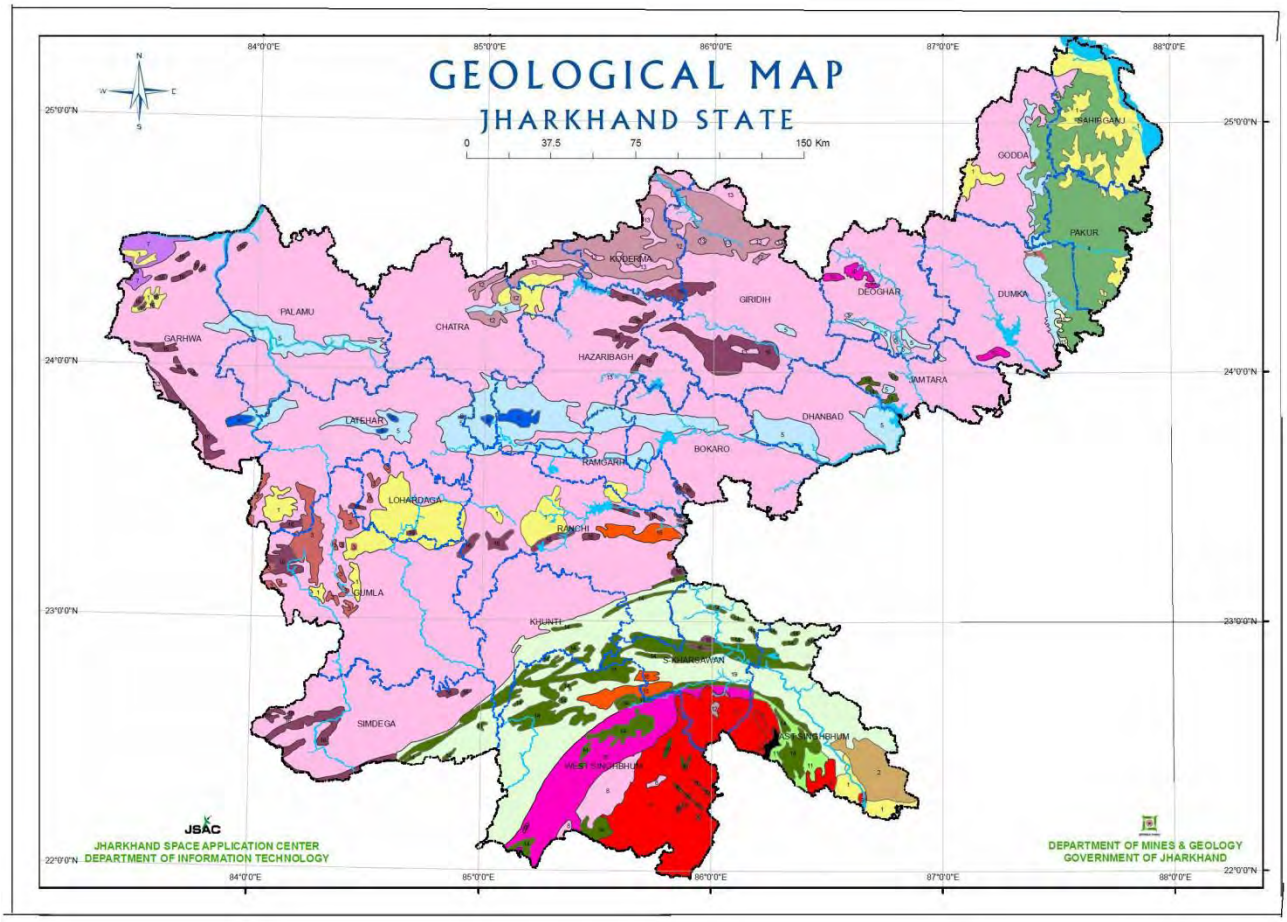
PLATE III



FISSURED & SEMI-CONSOLIDATED FORMATIONS

UNITS	AGE GROUP	FORMATION	COLOUR	LITHOLOGY	GROUN WATER POTENTIAL
1	QUATERNARY	ALLUVIUM		CLAY, SILT, GRAVEL, PEBBLES & CALC	>40 m³/hr
1A	QUATERNARY	ALLUVIUM		CLAY, SILT & SAND	1-10 m³/hr
2	PLEISTOCENE TERTIARY	LATERITES		LATERITES & LITHOMARGE	1-10 m³/hr
2A	PLEISTOCENE TERTIARY	TERTIARY		SAND, SILT, CLAY, PABLE & GRAVEL	10-40 m³/hr
3	CARBONIFEROUS E CRETACEOUS	GONDWANA		CLAY, SILT, GRIT, SANDSTONE & SHALE	1->25 m³/hr
4	L JURASSIC E CRETACEOUS	RAJMAHAL BASALT		BASALT FLOWS WITH INTERTRAPPEANS	1-25 m³/hr
5	PROTEROZOIC E CAMBRIAN	VINDHYAN		QUARTZITE, LIMESTONE, SANDSTONE, DOLOMITE & SHALE	1-25 m³/hr
6	PROTEROZOIC ARCHEAN	CHHOTNAGPUR GNEISSC COMPLEX		GNEISSES & GRANITES	1->25 m³/hr
7	PROTEROZOIC ARCHEAN	VOLCANO-SEDIMENTARY		SCHISTS, PHYLLITES, BASIC & ACIDIC INTRUSIVES	1-15 m³/hr

PLATE IV



INDEX

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

PLATE V

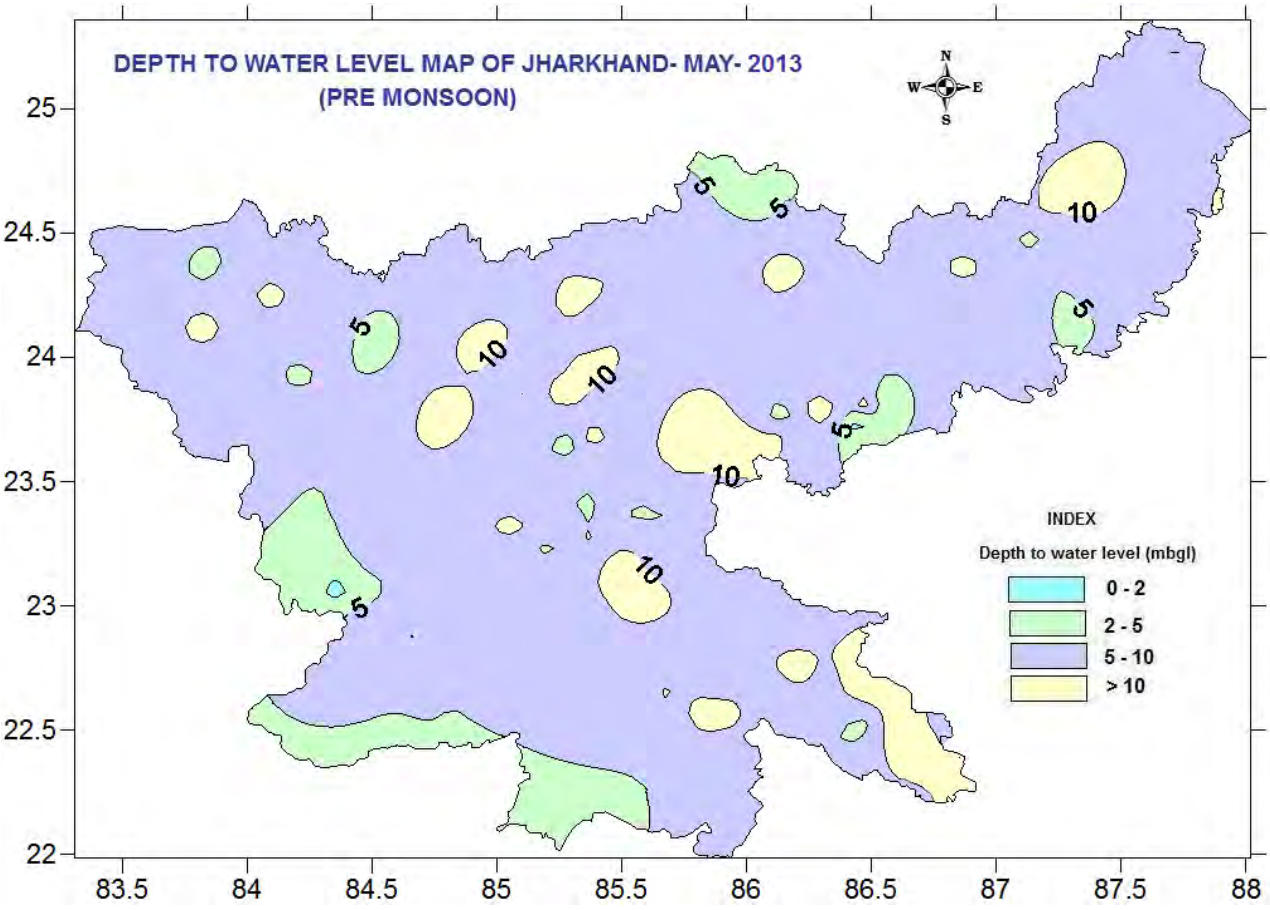
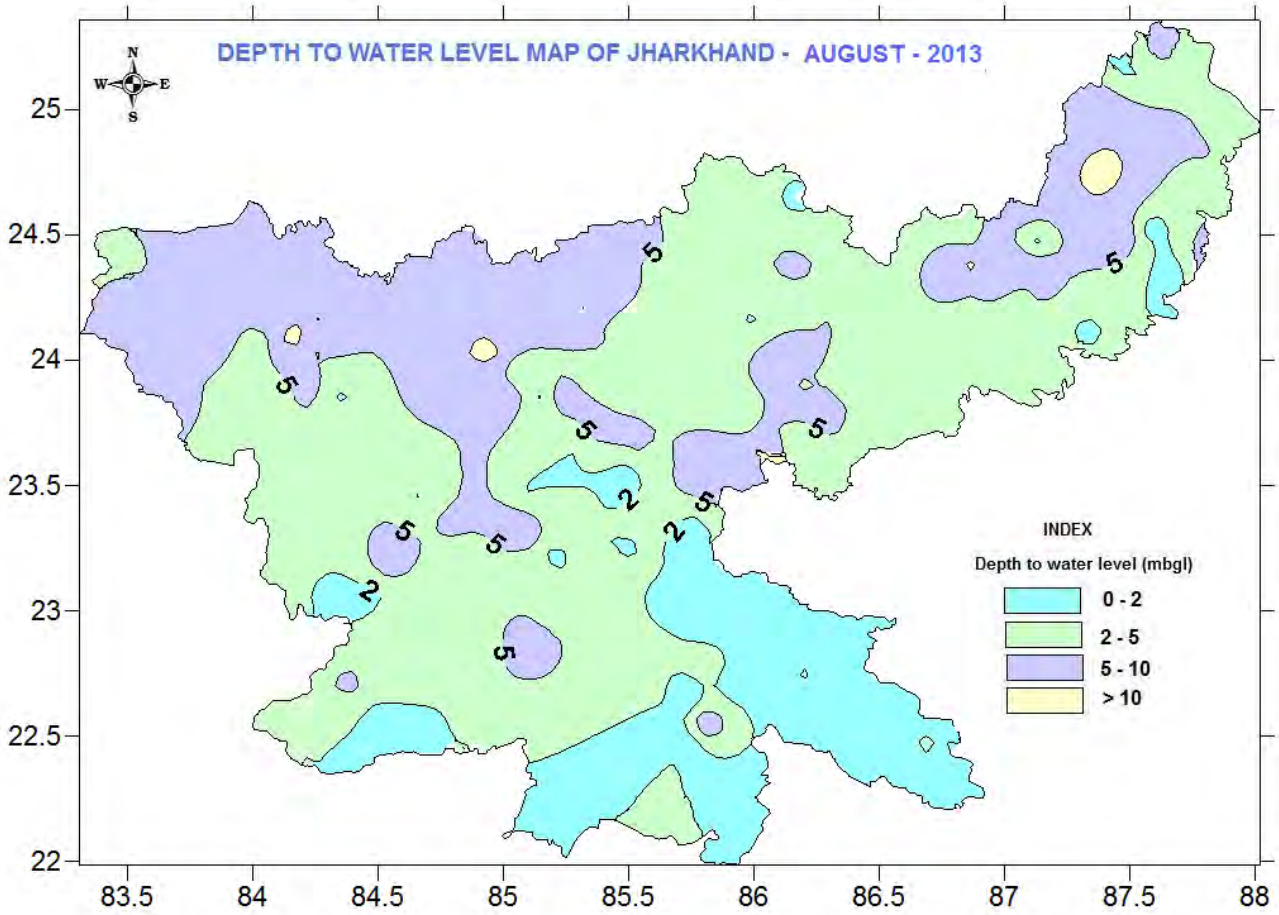


PLATE VI



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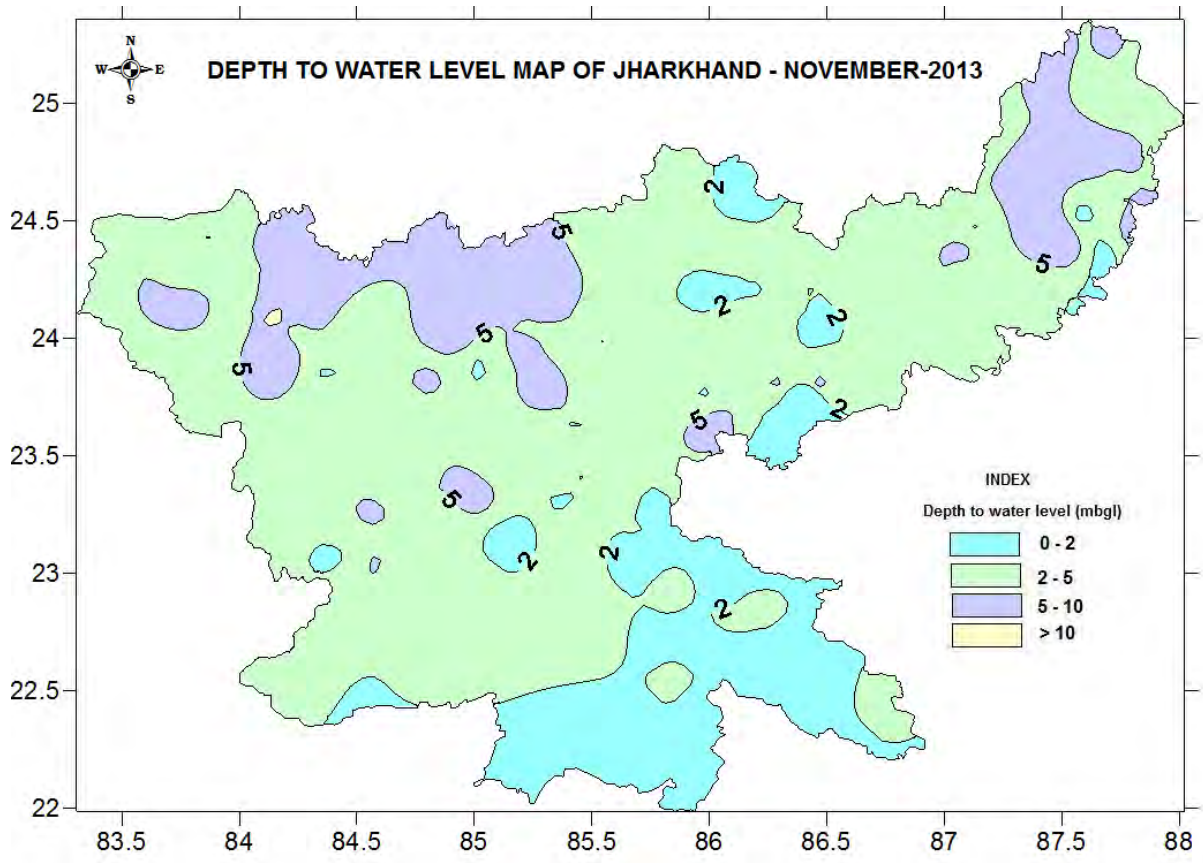

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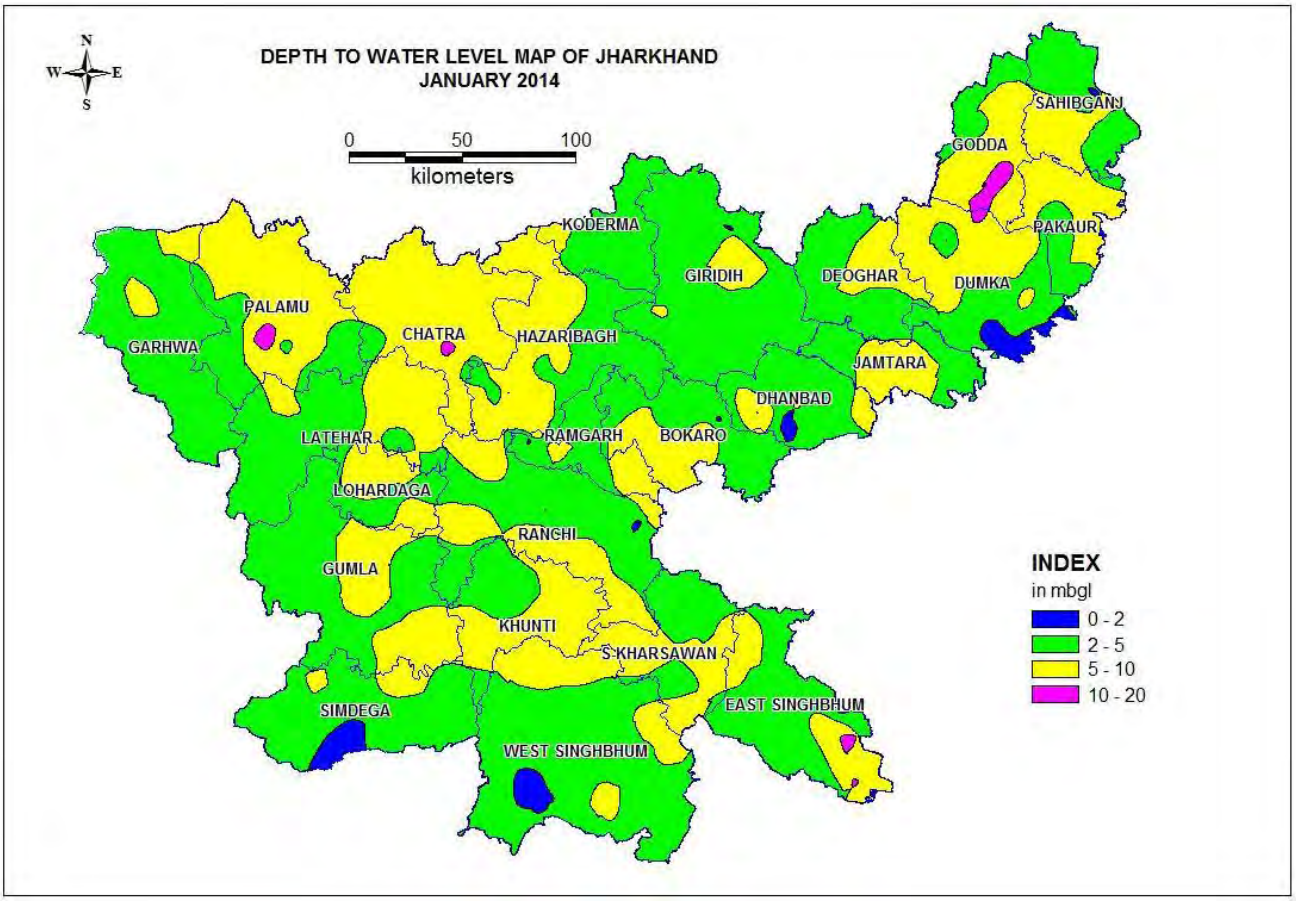


PLATE IX

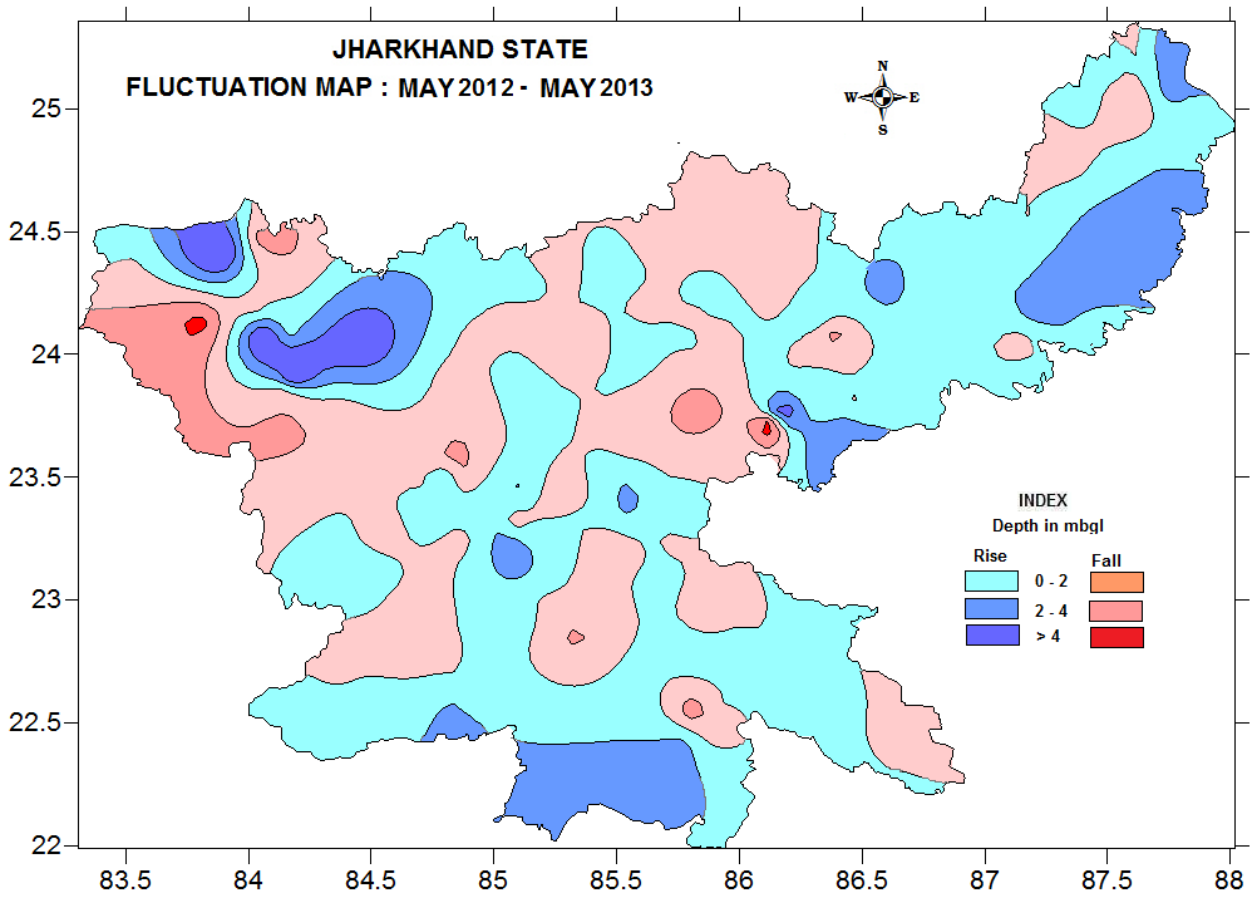
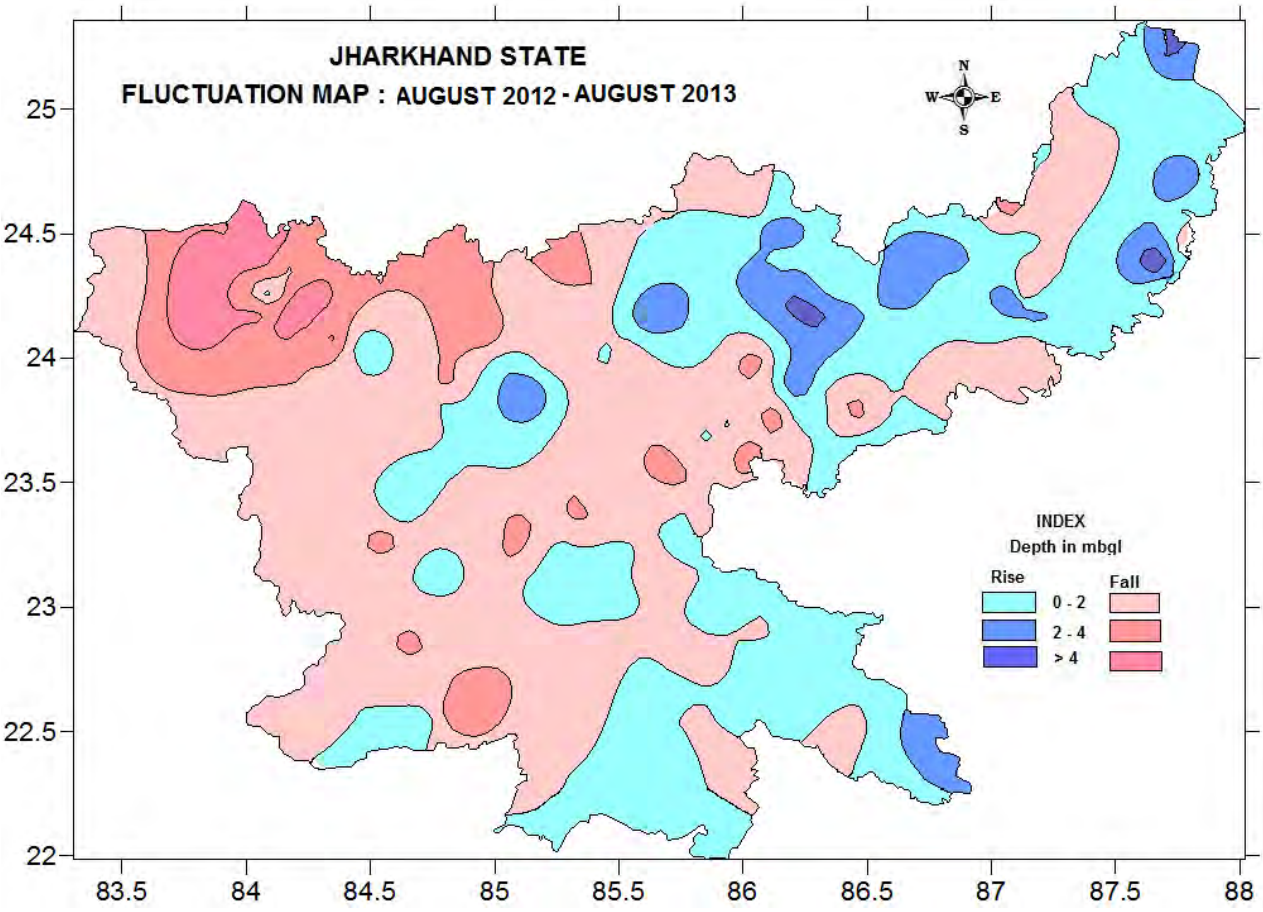


PLATE X



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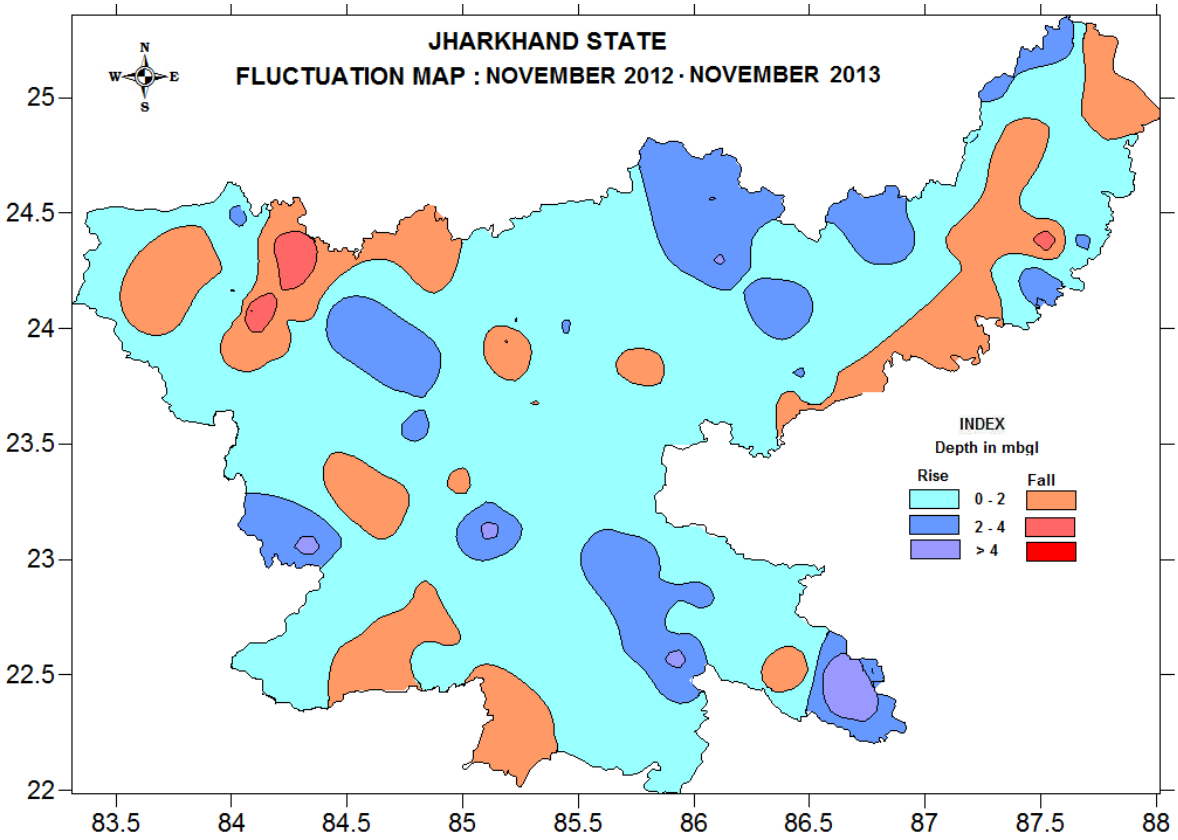

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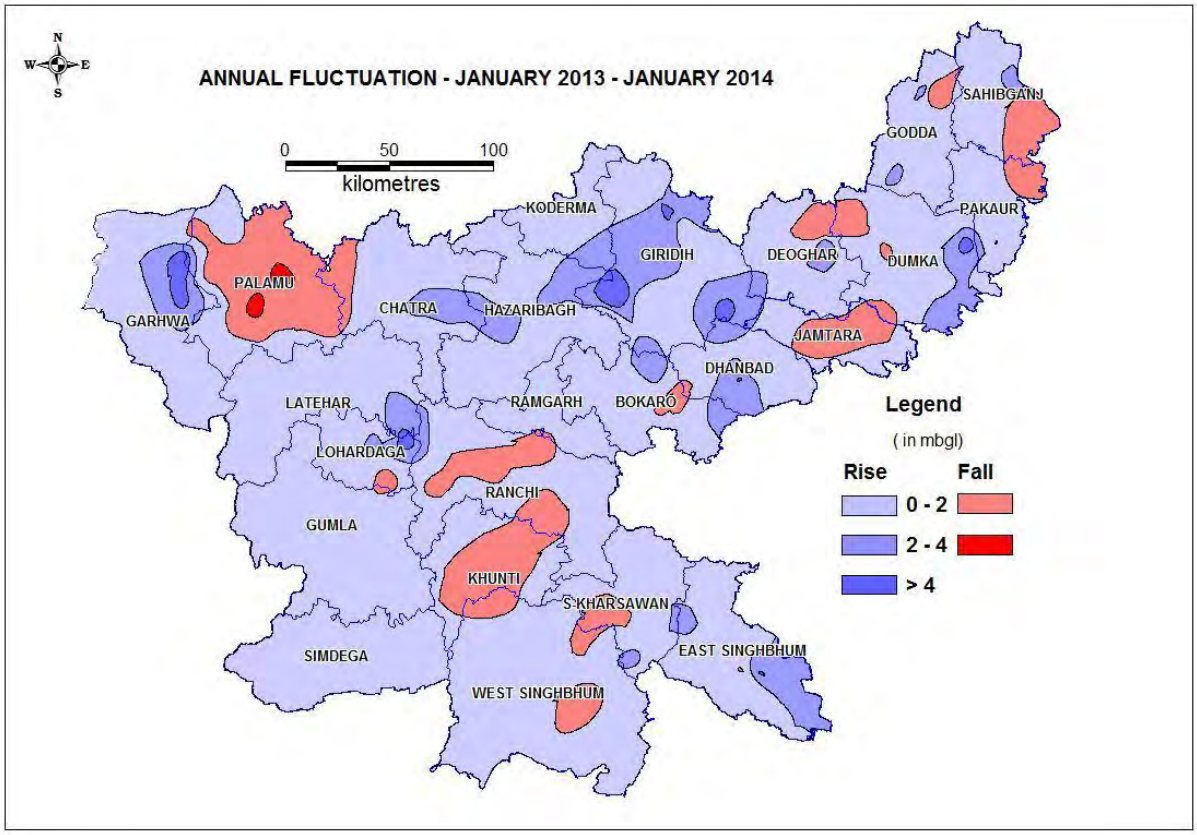


PLATE XIII

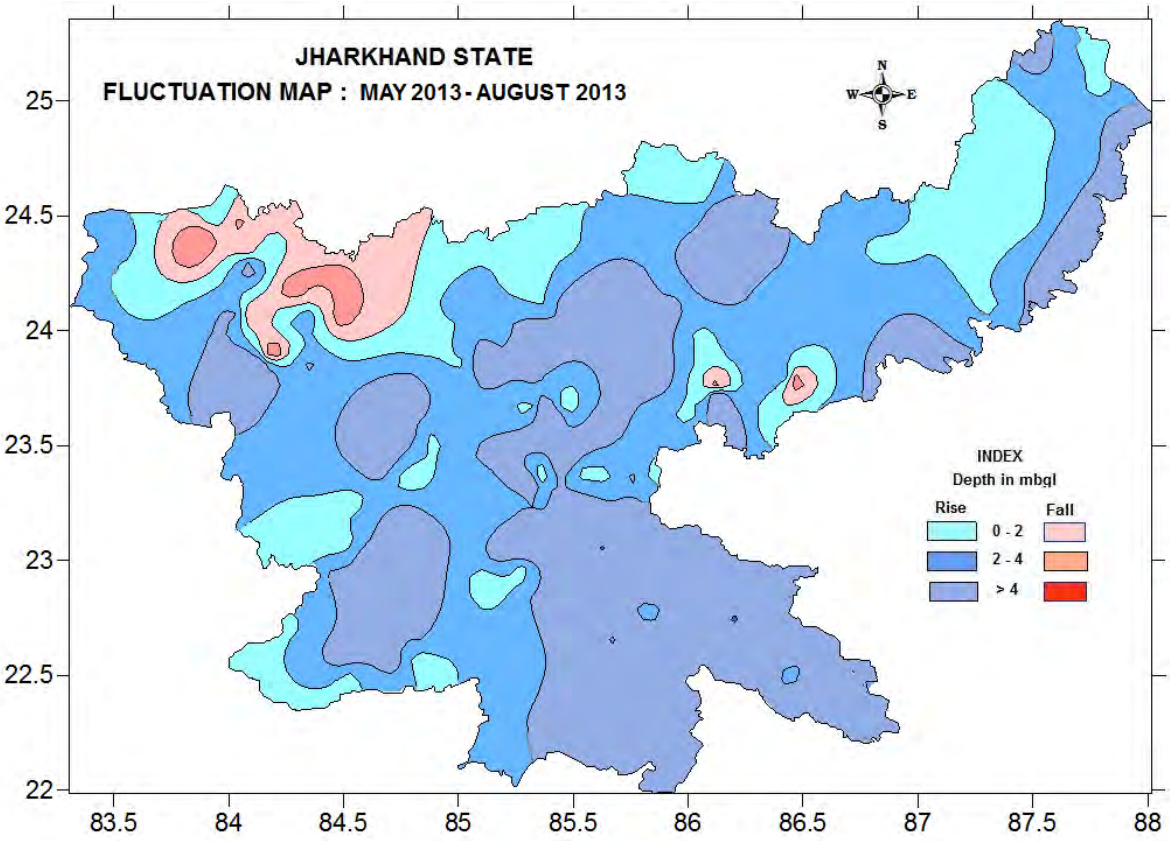


PLATE XIV

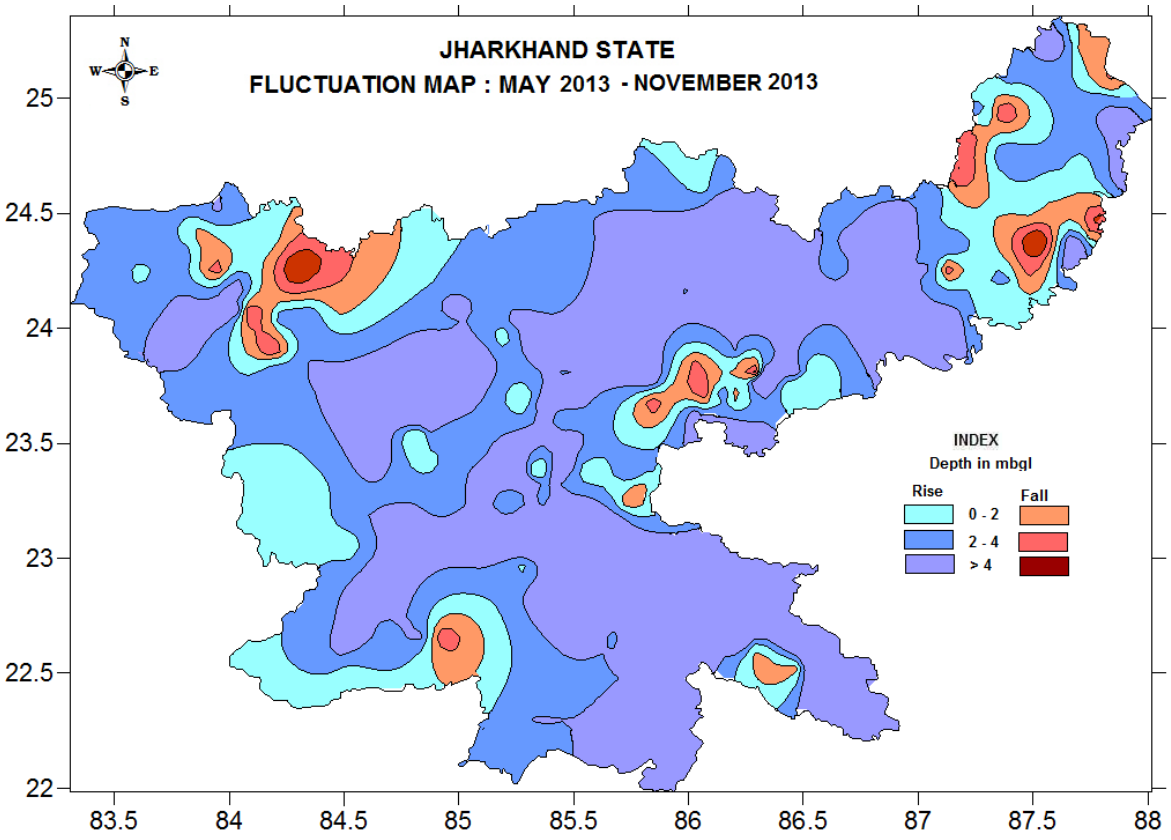


PLATE XV

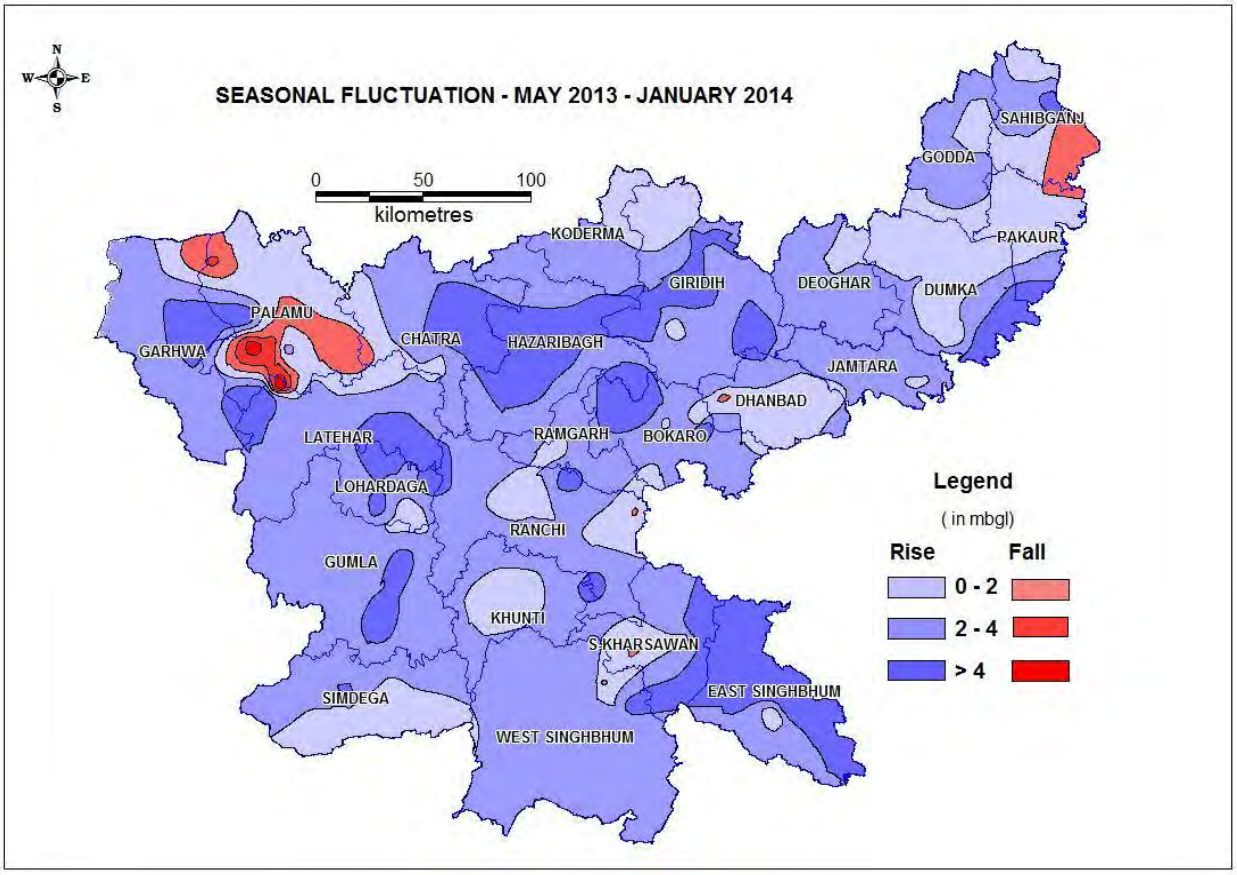


PLATE XVI

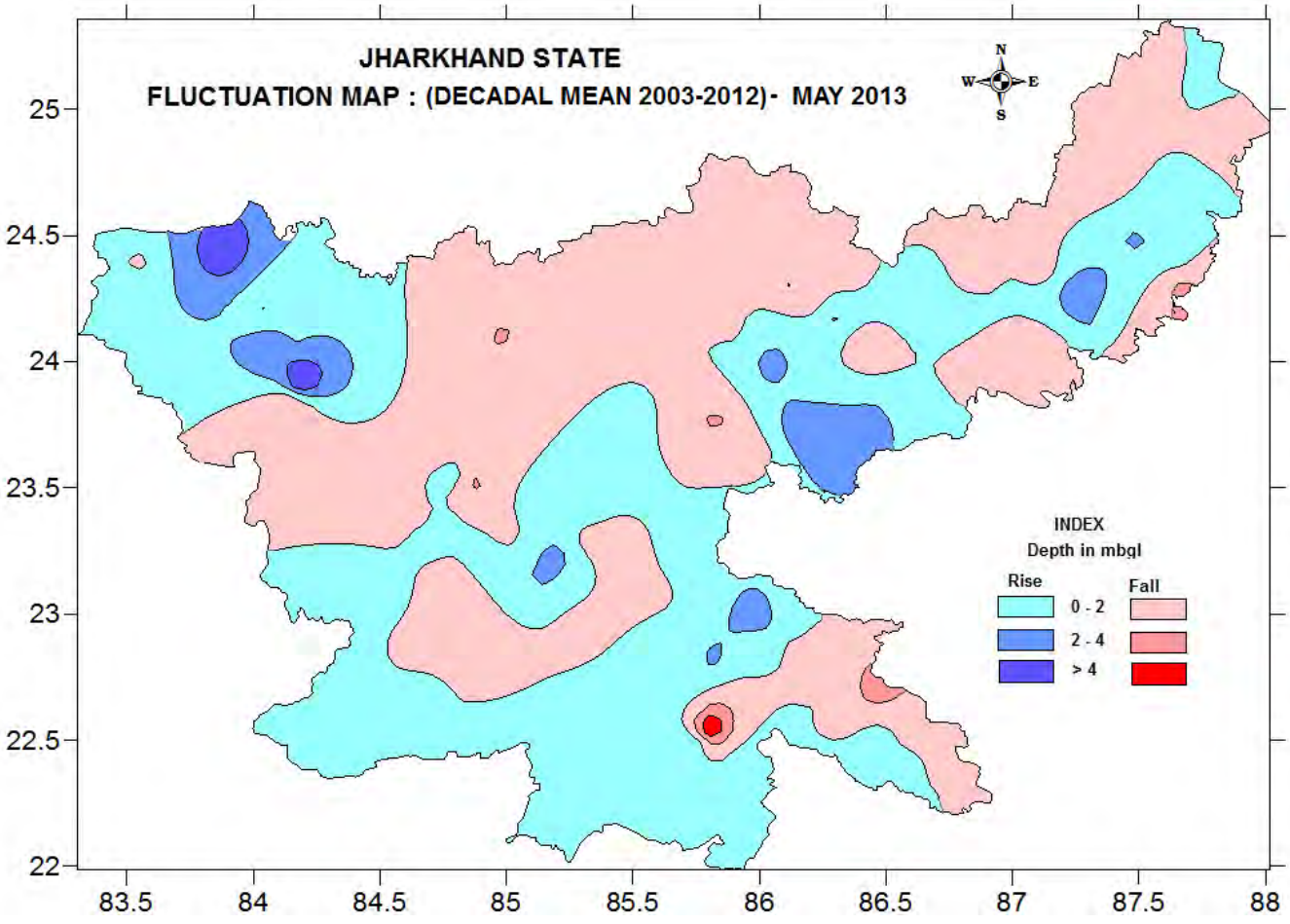


PLATE XVII

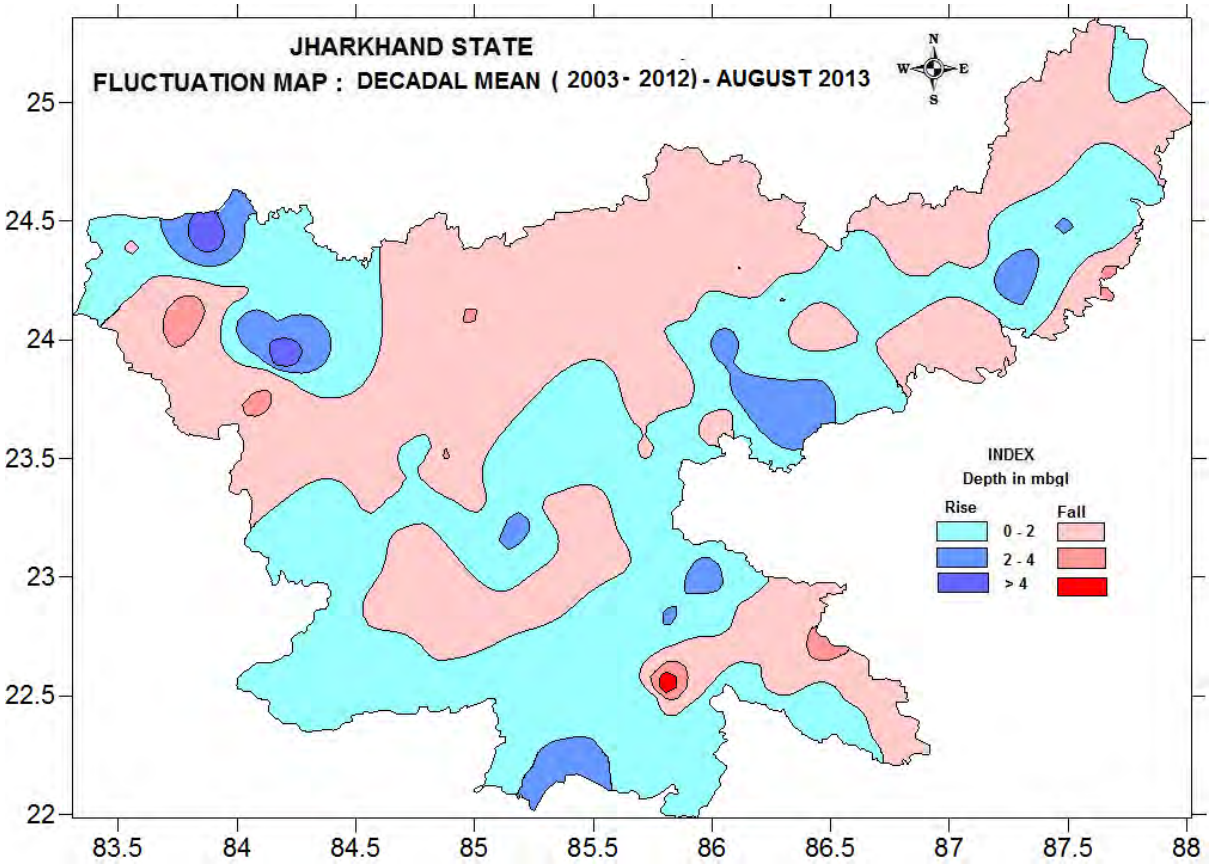


PLATE XVIII

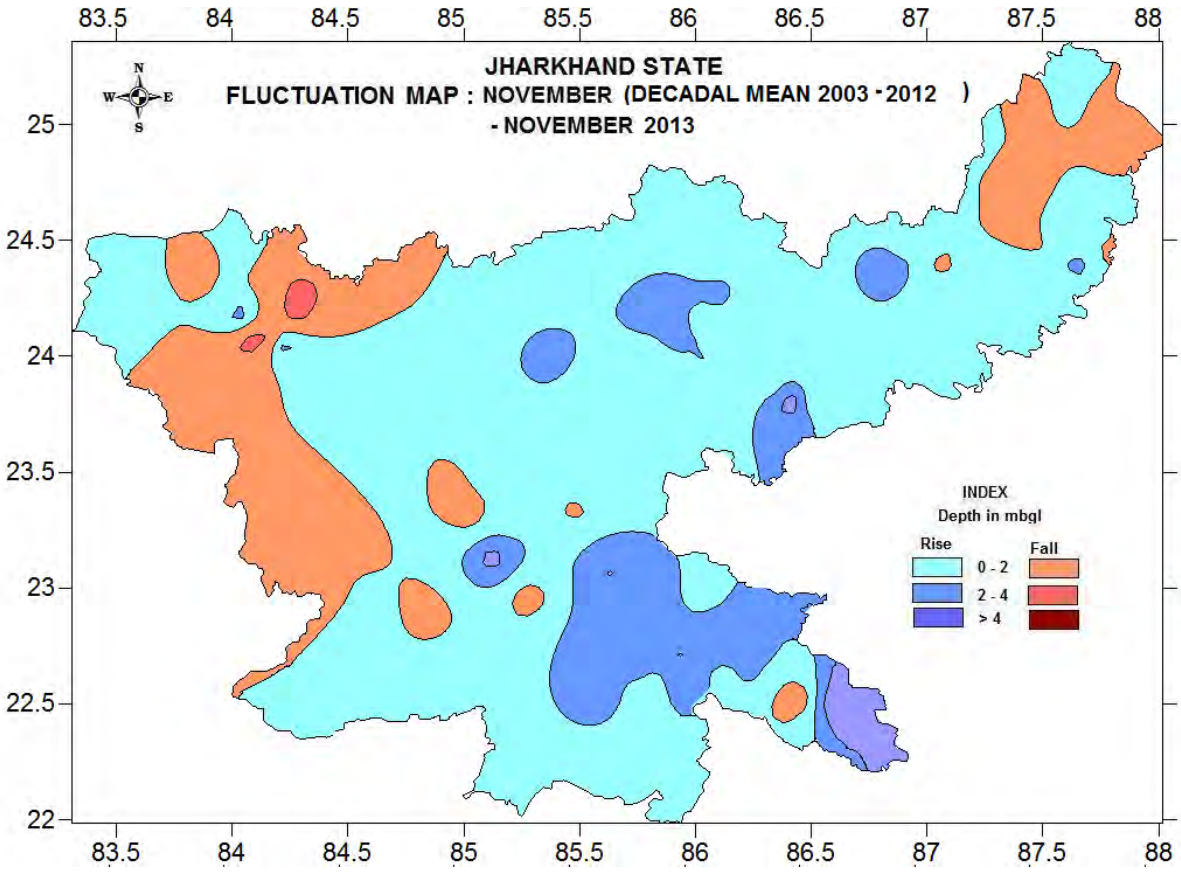


PLATE XIX

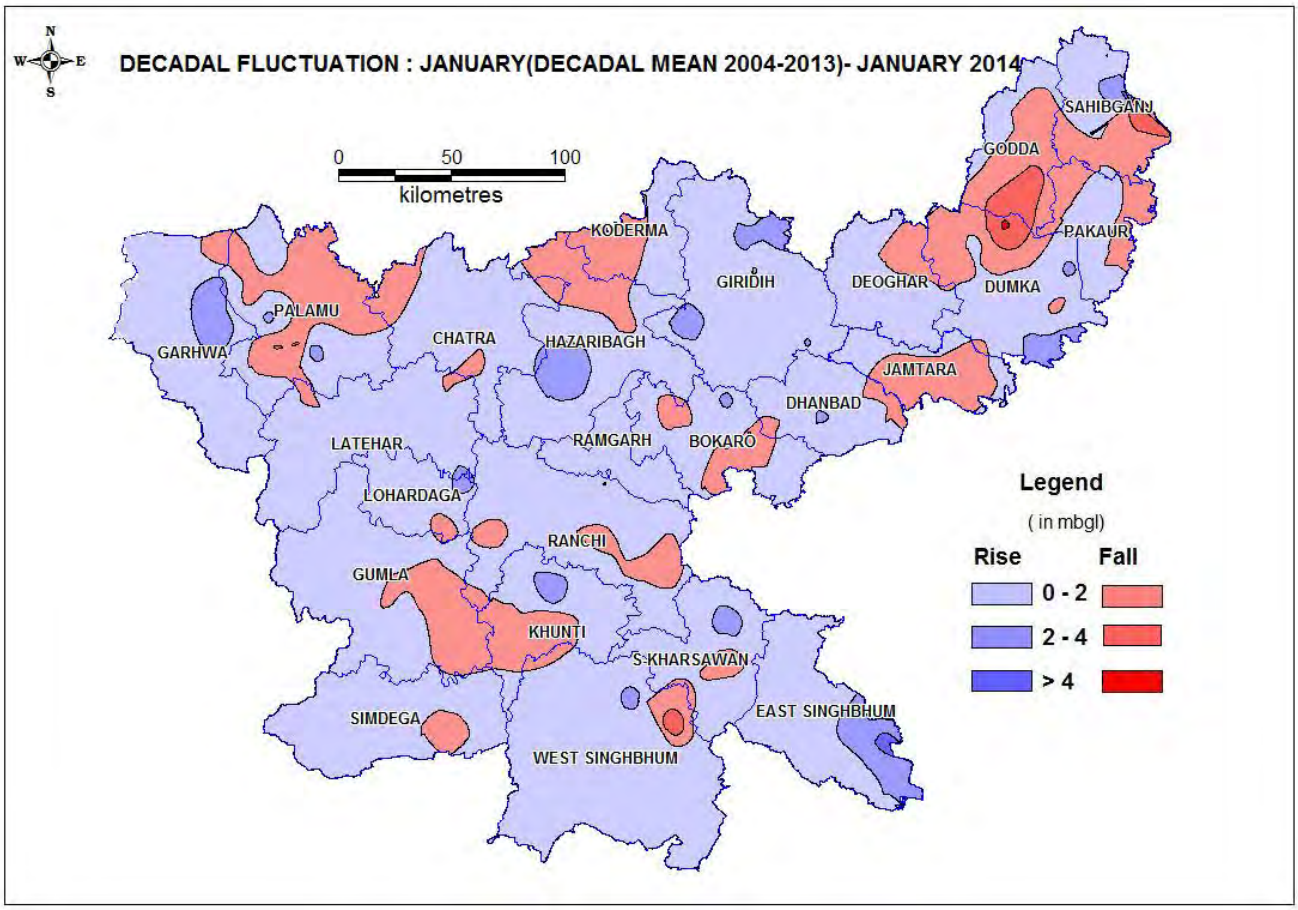


PLATE XX

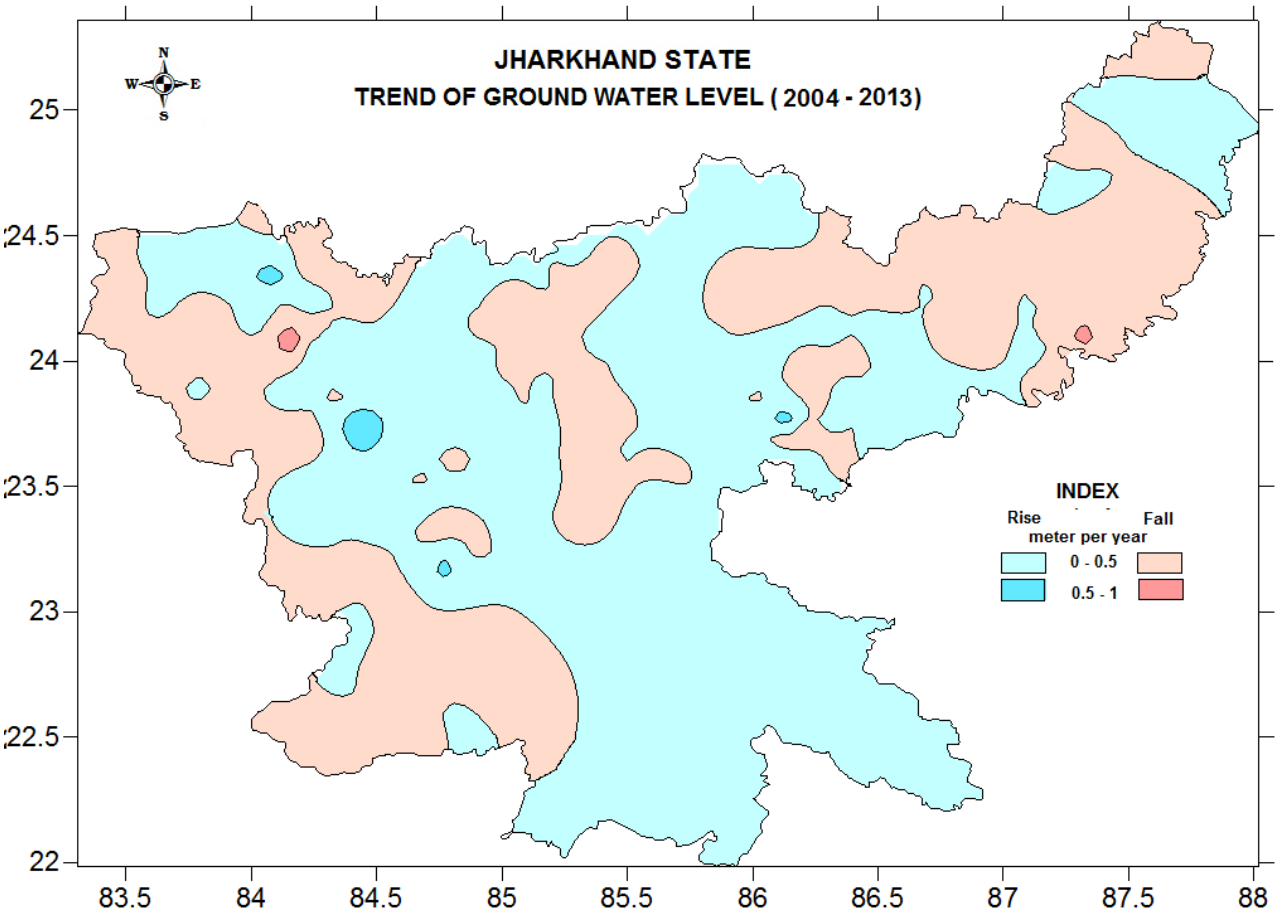
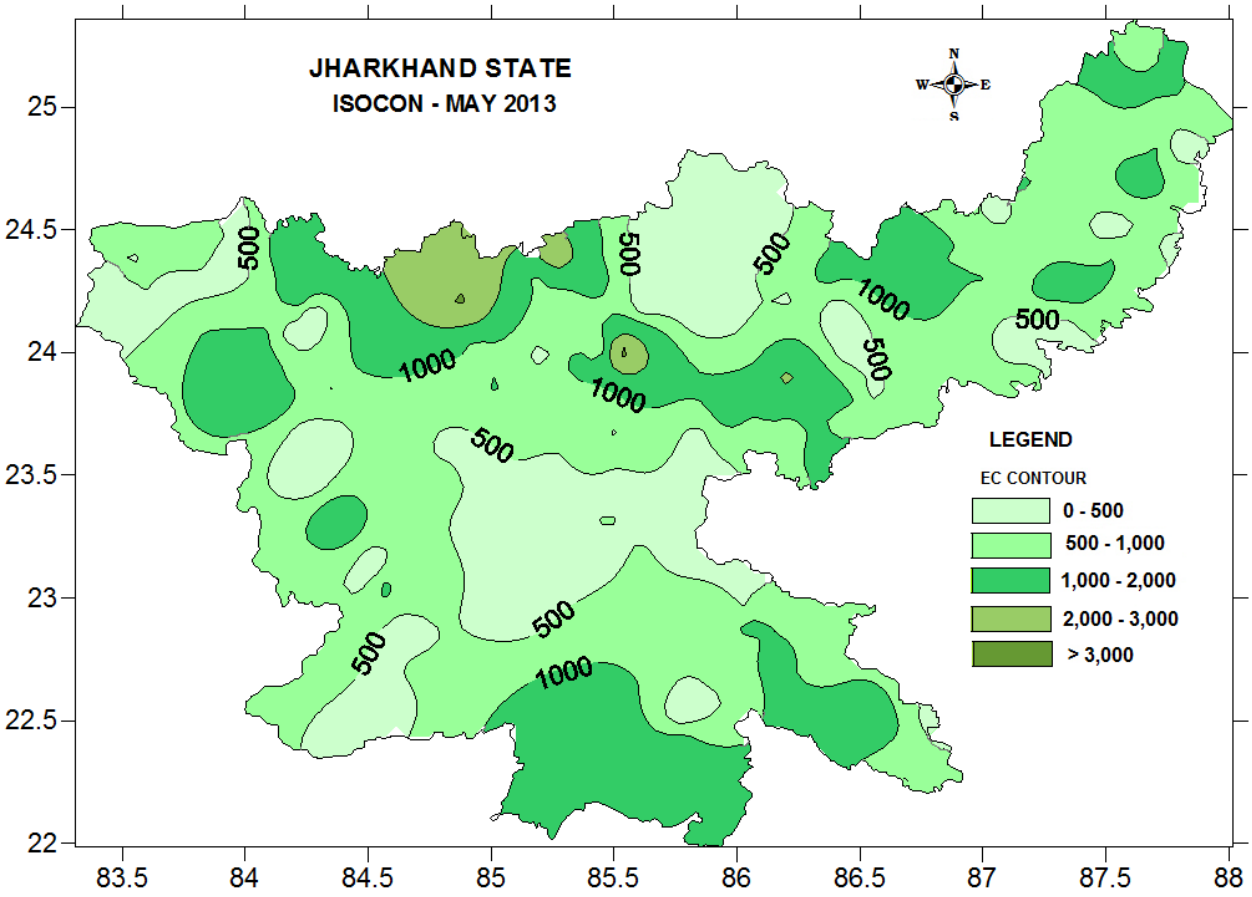


PLATE XXI



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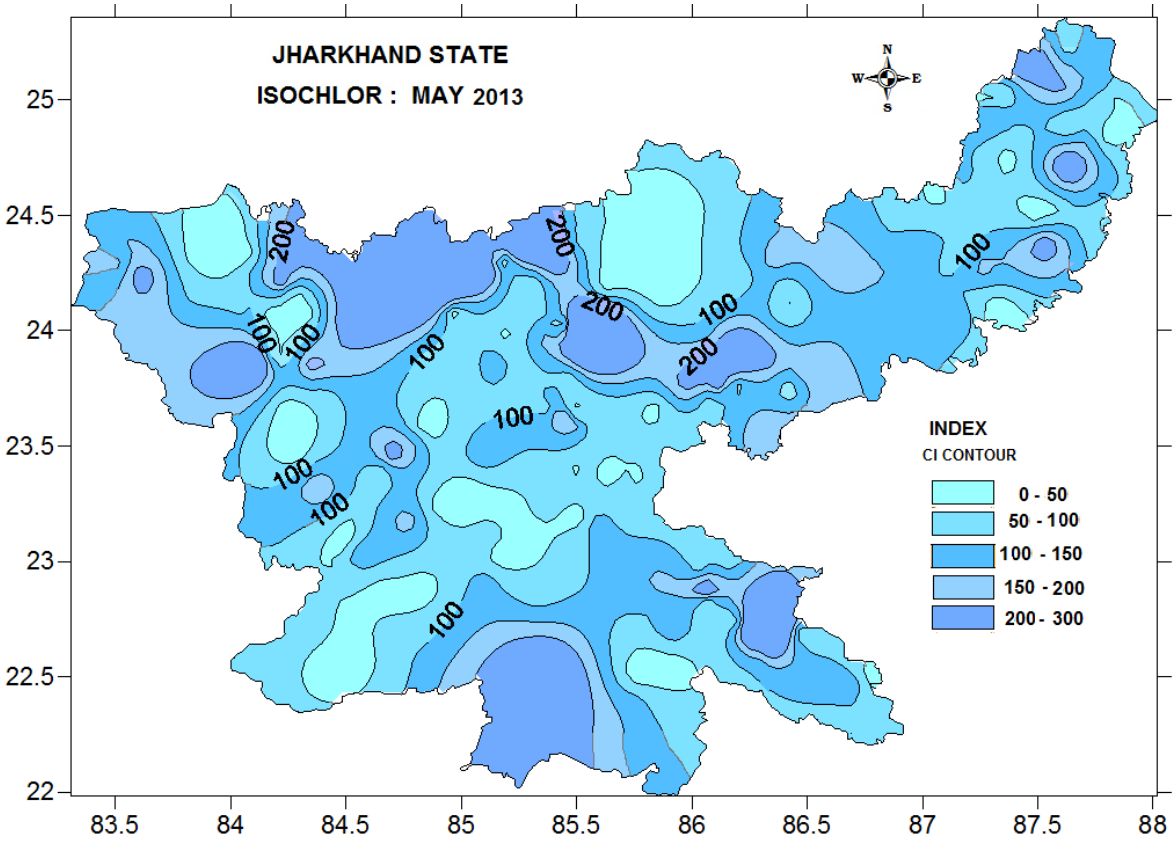

Table - 1

DISTRICT-WISE STATUS OF NHNS FOR THE STATE OF JHARKHAND FOR 2013 – 2014

Sl. No.	District	No. of GWMW as on March 31.03.2013			No. of GWMW abandoned during the year			No. of GWMW established during the year			No. of GWMW as on 31.03. 2014		
		DW	PZ	Total	DW	PZ	Total	DW	P Z	Total	DW	PZ	Total
1	Bokaro	11		11			-	0		0	11		11
2	Chatra	8		8			-	0		0	8		8
3	Deoghar	9		9	1		1	0		0	8		8
4	Dhanbad	11		11			-	15		15	26		26
5	Dumka	16		16			-	0		0	16		16
6	Garhwa	8		8			-	0		0	8		8
7	Giridih	16		16			-	0		0	16		16
8	Godda	10		10			-	0		0	10		10
9	Gumla	15		15			-	0		0	15		15
10	Hazaribag	11		11			-	12		12	23		23
11	Jamtara	5		5			-	0		0	5		5
12	Khunti	7	1	8			-	0		0	7	1	8
13	Kodarma	2		2			-	1		1	3		3
14	Latehar	7		7			-	0		0	7		7
15	Lohardaga	7		7			-	0		0	7		7
16	Pakaur	7		7			-	0		0	7		7
17	Palamu	23		23			-	0		0	23		23
18	Paschimi Singhbhum	10		10			-	6		6	16		16
19	Purbi Singbhum	17		17			-	15		15	32		32
20	Ramgarh	13		13			-	1		1	14		14
21	Ranchi	38	16	54			-	0		0	38	16	54
22	Sahebganj	11		11			-	0		0	11		11
23	Saraikela-Kharswan	7		7	1		1	0		0	6		6
24	Simdega	8	3	11		2	2	0		0	8	1	9
		277	20	297	2	2	4	50		50	**325**	**18**	343

Through Outsourcing (Monitoring monthly):

Jamshedpur Urban Area- 15 dug wells

Hazaribagh Urban Area- 12 dug wells

Dhanbad Urban Area- 15 dug wells

Table – 2

DISTRICT-WISE NUMBER OF GWMW MONITORED FOR THE STATE OF JHARKHAND FOR 2013-2014

Sl. No.	Name of the district	No. of GWMW monitored during May 2013			No. of GWMW monitored during August 2013			No. of GWMW monitored during November 2013			No. of GWMW monitored during January 2014		
		DW	PZ	Total	DW	PZ	Total	DW	P Z	Total	DW	PZ	Total
1.	Bokaro	11		11	10		10	10		10	11		11
2.	Chatra	8		8	8		8	8		8	8		8
3.	Deoghar	7		7	7		7	7		7	7		7
4.	Dhanbad	10		10	10		10	11		11	26		26
5.	Dumka	12		12	12		12	13		13	13		13
6.	Garhwa	6		6	7		7	6		6	6		6
7.	Giridih	17		17	17		17	16		16	16		16
8.	Godda	4		4	7		7	8		8	10		10
9.	Gumla	15		15	15		15	15		15	12		12
10.	Hazaribag	11		11	11		11	9		9	23		23
11.	Jamtara	4		4	4		4	4		4	5		5
12.	Khunti	7	1	8	7	1	8	7	1	8	6	1	7
13.	Kodarma	2		2	2		2	2		2	3		3
14.	Latehar	7		7	6		6	5		5	6		6
15.	Lohardaga	6		6	7		7	7		7	7		7
16.	Pakaur	5		5	7		7	7		7	6		6
17.	Palamu	18		18	20		20	17		17	15		15
18.	Paschimi Singhbhum	9		9	9		9	9		9	15		15
19.	Purbi Singbhum	14		14	15		15	15		15	30		30
20.	Ramgarh	13		13	13		13	11		11	13		13
21.	Ranchi	32	14	46	35	15	50	35	16	51	34	16	50
22.	Sahebganj	9		9	10		10	7		7	10		10
23.	Saraikela-Kharswan	7		7	7		7	7		7	6		6
24.	Simdega	7	2	9	6	1	7	8	1	9	8	1	9
	TOTAL	**241**	17	**258**	**252**	17	**269**	**244**	18	**262**	296	18	314

*Some wells were not monitored due to law and order problem, road blockage and non approachability due to unavoidable circumstances.

Table-3

Districtwise Well Frequency for Different Ranges of Depth to Water Level

Month / Year : May-2013

District	No. of Wells analysed	Depth to Water level (mbgl)		No. / Percentage of Wells Showing Depth to Water Table (mbgl) in the Range of									
		Min	Max	0-2	%	2-5	%	5-10	%	10-20	%	20-40	%
Bokaro	11	2.25	12.65	0	0	2	18.2	5	45.5	4	36.4	0	0
Chatra	8	7.16	13.8	0	0	0	0	6	75	2	25	0	0
Devghar	7	6.6	12.05	0	0	0	0	6	85.7	1	14.3	0	0
Dhanbad	10	0.5	14.6	2	20	1	10	5	50	2	20	0	0
Dumka	12	2.48	10.1	0	0	3	25	8	66.7	1	8.3	0	0
Garhwa	6	4.3	11.5	0	0	1	16.7	4	66.7	1	16.7	0	0
Giridih	17	3.15	11.65	0	0	3	17.6	11	64.7	3	17.6	0	0
Godda	4	5.91	13.3	0	0	0	0	3	75	1	25	0	0
Gumla	15	1.05	10.15	2	13.3	1	6.7	11	73.3	1	6.7	0	0
Hazaribag	11	6.15	12.1	0	0	0	0	6	54.5	5	45.5	0	0
Jamtara	4	6.29	9.27	0	0	0	0	4	100	0	0	0	0
Khunti	7	3.85	9.87	0	0	1	14.3	6	85.7	0	0	0	0
Koderma	2	6.75	8.2	0	0	0	0	2	100	0	0	0	0
Latehar	7	4.76	12.05	0	0	1	14.3	4	57.1	2	28.6	0	0
Lohardaga	6	7.2	8.33	0	0	0	0	6	100	0	0	0	0
Pakur	5	6.15	10.52	0	0	0	0	4	80	1	20	0	0
Palamau	18	2.01	12.9	0	0	4	22.2	12	66.7	2	11.1	0	0
Paschim Singbhum	9	3.65	12.8	0	0	1	11.1	7	77.8	1	11.1	0	0
Purba Singbhum	14	3.53	18.73	0	0	1	7.1	8	57.1	5	35.7	0	0
Ramgarh	13	2.2	11.3	0	0	2	15.4	9	69.2	2	15.4	0	0
Ranchi	32	2.1	12.08	0	0	6	18.8	20	62.5	6	18.8	0	0
Sahebganj	9	4.77	10.09	0	0	1	11.1	7	77.8	1	11.1	0	0
Saraikela-Kharswan	7	4.68	12.2	0	0	1	14.3	5	71.4	1	14.3	0	0
Simdega	7	2.08	8.24	0	0	2	28.6	5	71.4	0	0	0	0
Total	**241**			**4**	**1.7**	**31**	**12.9**	**164**	**68**	**42**	**17.4**	**0**	**0**

Table-4

Districtwise Well Frequency for Different Ranges of Depth to Water Level

Month / Year : Aug - 2013

District	No. of Wells analysed	Depth to Water level (mbgl)		No. / Percentage of Wells Showing Depth to Water Table (mbgl) in the Range of									
		Min	Max	0.0-2.0	%	2.0-5.0	%	5.0-10.0	%	10.0-20.0	%	20.0-40.0	%
Bokaro	9	1.32	7.96	2	22.2	4	44.4	3	33.3	0	0	0	0
Chatra	7	4.15	11.2	0	0	3	42.9	3	42.9	1	14.3	0	0
Devghar	8	4.55	13.9	0	0	1	12.5	6	75	1	12.5	0	0
Dhanbad	8	0.75	11.37	2	25	4	50	1	12.5	1	12.5	0	0
Dumka	18	2	8.75	1	5.6	8	44.4	9	50	0	0	0	0
Garhwa	6	1.35	5.05	1	16.7	4	66.7	1	16.7	0	0	0	0
Giridih	13	1.55	9.88	1	7.7	4	30.8	8	61.5	0	0	0	0
Godda	8	3.2	12.2	0	0	2	25	4	50	2	25	0	0
Gumla	11	1.09	4.91	3	27.3	8	72.7	0	0	0	0	0	0
Hazaribag	10	1.1	9	1	10	2	20	7	70	0	0	0	0
Jamtara	2	2.9	3.65	0	0	2	100	0	0	0	0	0	0
Khunti	7	1.01	5.68	2	33.3	3	50	1	16.7	0	0	0	0
Koderma	1	5.55	5.55	0	0	0	0	1	100	0	0	0	0
Latehar	7	0.42	8.4	2	28.6	3	42.9	2	28.6	0	0	0	0
Lohardaga	6	2.6	6.85	0	0	3	50	3	50	0	0	0	0
Pakur	7	1.8	7.7	1	14.3	2	28.6	4	57.1	0	0	0	0
Palamau	18	0.72	8.75	6	33.3	6	33.3	6	33.3	0	0	0	0
Paschim	9	0.45	7.25	5	55.6	3	33.3	1	11.1	0	0	0	0
Purba Singbhum	13	0.8	5.9	7	53.8	5	38.5	1	7.7	0	0	0	0
Ramgarh	6	1	5.1	3	50	2	33.3	1	16.7	0	0	0	0
Ranchi	24	0.33	6.57	17	68	5	20	3	12	0	0	0	0
Sahebganj	8	1.6	8.52	1	12.5	3	37.5	4	50	0	0	0	0
Saraikela-	7	0.2	4.3	6	85.7	1	14.3	0	0	0	0	0	0
Simdega	7	0.56	2.35	6	85.7	1	14.3	0	0	0	0	0	0
Total	**220**			**67**	**30.5**	**79**	**35.9**	**69**	**31.4**	**5**	**2.3**	**0**	**0**

Table-5

Districtwise Well Frequency for Different Ranges of Depth to Water Level

Month / Year : November - 2013

District	No. of Wells analysed	Depth to Water level (mbgl)		No. / Percentage of Wells Showing Depth to Water Table (mbgl) in the Range of									
		Min	Max	0.0-2.0	%	2.0-5.0	%	5.0-10.0	%	10.0-20.0	%	20.0-40.0	%
Bokaro	10	1.05	7.23	4	40	5	50	1	10	0	0	0	0
Chatra	8	0.95	10.80	1	12.5	1	12.5	5	62.5	1	12.5	0	0
Devghar	7	2.31	5.05	0	0	6	85.71	1	14.29	0	0	0	0
Dhanbad	11	0.90	8.27	4	36.36	5	45.45	2	18.18	0	0	0	0
Dumka	13	1.67	8.32	1	7.692	9	69.23	3	23.08	0	0	0	0
Garhwa	6	1.26	7.11	1	16.67	3	50	2	33.33	0	0	0	0
Giridih	16	1.25	5.19	7	43.75	8	50	1	6.25	0	0	0	0
Godda	8	1.56	8.98	1	12.5	4	50	3	37.5	0	0	0	0
Gumla	15	0.90	6.10	1	6.667	12	80	2	13.33	0	0	0	0
Hazaribag	9	1.75	8.86	2	22.22	3	33.33	4	44.44	0	0	0	0
Jamtara	4	1.88	3.68	1	25	3	75	0	0	0	0	0	0
Khunti	7	0.80	4.30	3	50	4	50	0	0	0	0	0	0
Koderma	2	4.03	4.35	0	0	2	100	0	0	0	0	0	0
Latehar	5	1.66	6.80	1	20	3	60	1	20	0	0	0	0
Lohardaga	7	2.38	4.87	0	0	7	100	0	0	0	0	0	0
Pakur	7	0.39	6.94	3	42.86	2	28.57	2	28.57	0	0	0	0
Palamau	17	2.07	12.28	0	0	8	47.06	7	41.18	2	11.76	0	0
Paschim Singbhum	9	0.72	4.37	5	55.56	4	44.44	0	0	0	0	0	0
Purba Singbhum	15	0.80	3.42	12	80	3	20	0	0	0	0	0	0
Ramgarh	11	1.62	7.22	1	9.091	8	72.73	2	18.18	0	0	0	0
Ranchi	35	0.67	7.75	13	35.29	19	55.88	3	8.824	0	0	0	0
Sahebganj	7	2.48	5.74	0	0	5	71.43	2	28.57	0	0	0	0
Saraikela-Kharswan	7	0.46	2.05	6	85.71	1	14.29	0	0	0	0	0	0
Simdega	8	1.21	4.65	2	25	6	75	0	0	0	0	0	0
Total	**244**			**69**	**28.3**	**131**	**53.7**	**41**	**16.8**	**3**	**1.2**	**0**	**0**

Table-6

Districtwise Well Frequency for Different Ranges of Depth to Water Level
Month / Year : January-2014

District	No. of Wells analysed	Depth to Water level (mbgl)		No. / Percentage of Wells Showing Depth to Water Table (mbgl) in the Range of									
		Min	Max	0.0-2.0	%	2.0-5.0	%	5.0-10.0	%	10.0-20.0	%	20.0-40.0	%
Bokaro	11	1.75	10.02	2	18.2	5	45.5	3	27.3	1	9.1	0	0
Chatra	8	5.32	11.4	0	0.0	0	0.0	7	87.5	1	12.5	0	0
Devghar	7	3.91	8.39	0	0.0	3	42.9	4	57.1	0	0.0	0	0
Dhanbad	26	0.58	10.32	2	7.7	21	80.8	1	3.8	2	7.7	0	0
Dumka	13	1.29	8.26	2	15.4	4	30.8	7	53.8	0	0.0	0	0
Garhwa	6	2.28	8.29	0	0.0	4	66.7	2	33.3	0	0.0	0	0
Giridih	16	1.89	7.28	1	6.3	12	75.0	3	18.8	0	0.0	0	0
Godda	10	2.85	10.49	0	0.0	6	60.0	3	30.0	1	10.0	0	0
Gumla	12	3.72	7	0	0.0	5	41.7	7	58.3	0	0.0	0	0
Hazaribag	23	2.9	10.5	0	0.0	17	73.9	5	21.7	1	4.3	0	0
Jamtara	5	4.41	7.12	0	0.0	3	60.0	2	40.0	0	0.0	0	0
Khunti	6	3.8	5.75	0	0.0	4	66.7	2	33.3	0	0.0	0	0
Koderma	3	4.4	5	0	0.0	3	100.0	0	0.0	0	0.0	0	0
Latehar	6	2.57	8.95	0	0.0	4	66.7	2	33.3	0	0.0	0	0
Lohardaga	7	1.95	8.15	1	14.3	2	28.6	4	57.1	0	0.0	0	0
Pakur	6	2.19	7.63	0	0.0	3	50.0	3	50.0	0	0.0	0	0
Palamau	15	3.1	9.09	0	0.0	8	53.3	7	46.7	0	0.0	0	0
Paschim Singbhum	15	3.35	8.3	0	0.0	11	73.3	4	26.7	0	0.0	0	0
Purba Singbhum	30	2.3	11.75	0	0.0	25	83.3	3	10.0	2	6.7	0	0
Ramgarh	13	1.75	7.95	1	7.7	8	61.5	4	30.8	0	0.0	0	0
Ranchi	34	0.97	8.5	2	5.9	23	67.6	9	26.5	0	0.0	0	0
Sahebganj	10	2.3	8.36	0	0.0	5	50.0	5	50.0	0	0.0	0	0
Saraikela-Kharswan	6	1.8	7	1	16.7	3	50.0	2	33.3	0	0.0	0	0
Simdega	8	1.39	5.9	1	12.5	6	75.0	1	12.5	0	0.0	0	0
Total	**296**	**0.58**	**11.75**	**13**	**4.4**	**185**	**62.5**	**90**	**30.4**	**8**	**2.7**	**0**	**0**

Table-7

District Wise - Fluctuation and Frequency Distribution From Different Ranges from One Period to Other
From Year:2012/May-To Year:2013/May

District	No. of Wells	No. of Wells/Percentage Showing Fluctuation												Total No. of Wells	
		Fall						Rise						Fall	Rise
		0 -2	%	2 - 4	%	>4	%	0 - 2	%	2 - 4	%	>4	%		
Bokaro	10	2	20	1	10	1	10	4	40	0	0	2	20	4	6
Chatra	5	3	60	0	0	0	0	2	40	0	0	0	0	3	2
Devghar	6	0	0	0	0	0	0	5	83.3	1	16.7	0	0	0	6
Dhanbad	8	2	25	0	0	0	0	6	75	0	0	0	0	2	6
Dumka	11	2	18.2	0	0	0	0	5	45.5	4	36.4	0	0	2	9
Garhwa	3	1	33.3	0	0	1	33.3	1	33.3	0	0	0	0	2	1
Giridih	13	3	23.1	2	15.4	0	0	7	53.8	1	7.7	0	0	5	8
Godda	4	3	75	0	0	0	0	1	25	0	0	0	0	3	1
Gumla	12	6	50	0	0	0	0	5	41.7	1	8.3	0	0	6	6
Hazaribag	11	5	45.5	0	0	0	0	6	54.5	0	0	0	0	5	6
Jamtara	3	1	33.3	0	0	0	0	2	66.7	0	0	0	0	1	2
Khunti	7	1	14.3	0	0	0	0	4	57.1	2	28.6	0	0	1	6
Koderma	1	1	100	0	0	0	0	0	0	0	0	0	0	1	0
Latehar	6	5	83.3	0	0	0	0	1	16.7	0	0	0	0	5	1
Lohardaga	6	1	16.7	2	33.3	0	0	3	50	0	0	0	0	3	3
Pakur	3	0	0	0	0	0	0	1	33.3	2	66.7	0	0	0	3
Palamau	12	4	33.3	1	8.3	0	0	2	16.7	1	8.3	4	33.3	5	7
Paschim Singbhum	9	5	55.6	1	11.1	0	0	2	22.2	1	11.1	0	0	6	3
Purba Singbhum	11	1	9.1	1	9.1	0	0	8	72.7	1	9.1	0	0	2	9
Ramgarh	7	4	57.1	0	0	0	0	3	42.9	0	0	0	0	4	3
Ranchi	22	6	27.3	1	4.5	0	0	11	50	4	18.2	0	0	7	15
Sahebganj	7	1	14.3	1	14.3	0	0	3	42.9	1	14.3	1	14.3	2	5
Saraikela-Kharswan	7	1	14.3	0	0	0	0	5	71.4	1	14.3	0	0	1	6
Simdega	5	1	20	0	0	0	0	3	60	1	20	0	0	1	4
Total	**189**	**59**	**31.2**	**10**	**5.3**	**2**	**1.1**	**90**	**47.6**	**21**	**11.1**	**7**	**3.7**	**71**	**118**

Table-8

District Wise - Fluctuation and Frequency Distribution From Different Ranges from One Period to Other
From Year:2012/August To Year:2013/August

District	No. of Wells	No. of Wells/Percentage Showing Fluctuation												Total No. of Wells	
		Fall						Rise						Fall	Rise
		0 -2	%	2 - 4	%	>4	%	0 - 2	%	2 - 4	%	>4	%		
Bokaro	8	4	50	1	12.5	1	12.5	2	25	0	0	0	0	6	2
Chatra	4	3	75	1	25	0	0	0	0	0	0	0	0	4	0
Devghar	6	0	0	0	0	0	0	2	33.3	4	66.7	0	0	0	6
Dhanbad	9	4	44.4	1	11.1	0	0	3	33.3	1	11.1	0	0	5	4
Dumka	12	2	16.7	1	8.3	0	0	7	58.3	2	16.7	0	0	3	9
Garhwa	6	2	33.3	2	33.3	2	33.3	0	0	0	0	0	0	6	0
Giridih	12	1	8.3	1	8.3	0	0	5	41.7	3	25	2	16.7	2	10
Godda	7	4	57.1	0	0	0	0	1	14.3	2	28.6	0	0	4	3
Gumla	11	7	63.6	3	27.3	0	0	1	9.1	0	0	0	0	10	1
Hazaribag	10	3	30	2	20	0	0	3	30	1	10	1	10	5	5
Jamtara	3	2	66.7	0	0	0	0	0	0	1	33.3	0	0	2	1
Khunti	7	2	28.6	1	14.3	0	0	4	57.1	0	0	0	0	3	4
Koderma	1	0	0	0	0	0	0	1	100	0	0	0	0	0	1
Latehar	6	3	50	2	33.3	0	0	1	16.7	0	0	0	0	5	1
Lohardaga	6	2	33.3	0	0	0	0	2	33.3	2	33.3	0	0	2	4
Pakur	7	0	0	1	14.3	0	0	4	57.1	1	14.3	1	14.3	1	6
Palamau	19	3	15.8	7	36.8	7	36.8	1	5.3	1	5.3	0	0	17	2
Paschim Singbhum	9	3	33.3	0	0	0	0	6	66.7	0	0	0	0	3	6
Purba Singbhum	12	1	8.3	0	0	0	0	10	83.3	1	8.3	0	0	1	11
Ramgarh	6	4	66.7	2	33.3	0	0	0	0	0	0	0	0	6	0
Ranchi	24	15	62.5	2	8.3	1	4.2	6	25	0	0	0	0	18	6
Sahebganj	7	0	0	0	0	0	0	5	71.4	1	14.3	1	14.3	0	7
Saraikela-Kharswan	7	2	28.6	0	0	0	0	5	71.4	0	0	0	0	2	5
Simdega	6	1	16.7	2	33.3	0	0	3	50	0	0	0	0	3	3
Total	**205**	**68**	**33.2**	**29**	**14.1**	**11**	**5.4**	**72**	**35.1**	**20**	**9.8**	**5**	**2.4**	**108**	**97**

Table-9

District Wise - Fluctuation and Frequency Distribution From Different Ranges from One Period to Other
From Year : 2012/November To Year:2013/November

District	No. of Wells	No. of Wells/Percentage Showing Fluctuation												Total No. of Wells	
		Fall						Rise						Fall	Rise
		0 -2	%	2 - 4	%	>4	%	0 - 2	%	2 - 4	%	>4	%		
Bokaro	9	1	11.1	0	0	0	0	8	88.9	0	0	0	0	1	8
Chatra	7	1	14.3	1	14.3	0	0	4	57.1	1	14.3	0	0	2	5
Devghar	6	0	0	0	0	0	0	4	66.7	1	16.7	1	16.7	0	6
Dhanbad	8	1	12.5	0	0	0	0	5	62.5	2	25	0	0	1	7
Dumka	12	4	33.3	0	0	1	8.3	6	50	1	8.3	0	0	5	7
Garhwa	4	2	50	0	0	0	0	2	50	0	0	0	0	2	2
Giridih	11	1	9.1	0	0	0	0	4	36.4	4	36.4	2	18.2	1	10
Godda	5	1	20	0	0	0	0	2	40	2	40	0	0	1	4
Gumla	14	2	14.3	1	7.1	0	0	10	71.4	0	0	1	7.1	3	11
Hazaribag	8	2	25	0	0	0	0	5	62.5	1	12.5	0	0	2	6
Jamtara	3	0	0	0	0	0	0	3	100	0	0	0	0	0	3
Khunti	7	0	0	0	0	0	0	5	71.4	1	14.3	1	14.3	0	7
Koderma	1	0	0	0	0	0	0	1	100	0	0	0	0	0	1
Latehar	5	1	20	0	0	0	0	2	40	2	40	0	0	1	4
Lohardaga	6	0	0	0	0	0	0	4	66.7	2	33.3	0	0	0	6
Pakur	7	0	0	0	0	0	0	6	85.7	1	14.3	0	0	0	7
Palamau	17	5	29.4	3	17.6	1	5.9	5	29.4	2	11.8	1	5.9	9	8
Paschim Singbhum	9	0	0	0	0	0	0	5	55.6	4	44.4	0	0	0	9
Purba Singbhum	13	1	7.7	0	0	0	0	7	53.8	4	30.8	1	7.7	1	12
Ramgarh	4	1	25	0	0	0	0	3	75	0	0	0	0	1	3
Ranchi	24	2	8.3	0	0	0	0	19	79.2	3	12.5	0	0	2	22
Sahebganj	5	3	60	0	0	0	0	1	20	1	20	0	0	3	2
Saraikela-Kharswan	7	1	14.3	0	0	0	0	3	42.9	2	28.6	1	14.3	1	6
Simdega	8	6	75	0	0	0	0	2	25	0	0	0	0	6	2
Total	**200**	**35**	**17.5**	**5**	**2.5**	**2**	**1**	**116**	**58**	**34**	**17**	**8**	**4**	**42**	**158**

Table-10

District Wise - Fluctuation and Frequency Distribution From Different Ranges from One Period to Other
From Year : 2013/January To Year:2014/January

District	No. of Wells	No. of Wells/Percentage Showing Fluctuation												Total No. of Wells	
		Fall						Rise						Fall	Rise
		0 -2	%	2 - 4	%	>4	%	0 - 2	%	2 - 4	%	>4	%		
Bokaro	10	0	0	1	10	0	0	7	70	2	20	0	0	1	9
Chatra	7	0	0	0	0	0	0	5	71.4	2	28.6	0	0	0	7
Devghar	7	1	14.3	0	0	0	0	5	71.4	1	14.3	0	0	1	6
Dhanbad	11	0	0	0	0	0	0	8	72.7	2	18.2	1	9.1	0	11
Dumka	12	1	8.3	0	0	0	0	11	91.7	0	0	0	0	1	11
Garhwa	6	1	16.7	0	0	0	0	4	66.7	0	0	1	16.7	1	5
Giridih	15	0	0	0	0	0	0	8	53.3	4	26.7	3	20	0	15
Godda	7	1	14.3	0	0	0	0	4	57.1	2	28.6	0	0	1	6
Gumla	12	1	8.3	0	0	0	0	11	91.7	0	0	0	0	1	11
Hazaribag	11	3	27.3	0	0	0	0	5	45.5	3	27.3	0	0	3	8
Jamtara	4	3	75	0	0	0	0	1	25	0	0	0	0	3	1
Khunti	5	1	20	0	0	0	0	4	80	0	0	0	0	1	4
Koderma	1	0	0	0	0	0	0	1	100	0	0	0	0	0	1
Latehar	5	0	0	0	0	0	0	5	100	0	0	0	0	0	5
Lohardaga	6	1	16.7	0	0	0	0	3	50	1	16.7	1	16.7	1	5
Pakur	6	3	50	0	0	0	0	3	50	0	0	0	0	3	3
Palamau	7	4	57.1	0	0	0	0	2	28.6	1	14.3	0	0	4	3
Paschim Singbhum	9	3	33.3	0	0	0	0	5	55.6	1	11.1	0	0	3	6
Purba Singbhum	15	1	6.7	1	6.7	0	0	8	53.3	4	26.7	1	6.7	2	13
Ramgarh	6	1	16.7	0	0	0	0	5	83.3	0	0	0	0	1	5
Ranchi	21	5	23.8	0	0	0	0	15	71.4	1	4.8	0	0	5	16
Sahebganj	6	2	33.3	0	0	0	0	3	50	1	16.7	0	0	2	4
Saraikela-Kharswan	6	1	16.7	0	0	0	0	4	66.7	1	16.7	0	0	1	5
Simdega	8	0	0	0	0	0	0	8	100	0	0	0	0	0	8
Total	**203**	**33**	**16.3**	**2**	**1**	**0**	**0**	**135**	**66.5**	**26**	**12.8**	**7**	**3.4**	**35**	**168**

Table-11

District Wise - Fluctuation and Frequency Distribution From Different Ranges from One Period to Other
From Year : 2013/May To Year:2013/August

District	No. of Wells	No. of Wells/Percentage Showing Fluctuation												Total No. of Wells	
		Fall						Rise						Fall	Rise
		0 -2	%	2 - 4	%	>4	%	0 - 2	%	2 - 4	%	>4	%		
Bokaro	10	0	0	1	10	0	0	3	30	3	30	3	30	1	9
Chatra	8	0	0	0	0	0	0	4	50	4	50	0	0	0	8
Devghar	7	0	0	0	0	0	0	1	14.3	6	85.7	0	0	0	7
Dhanbad	10	2	20	0	0	1	10	1	10	4	40	2	20	3	7
Dumka	11	0	0	0	0	0	0	7	63.6	4	36.4	0	0	0	11
Garhwa	6	0	0	1	16.7	0	0	3	50	2	33.3	0	0	1	5
Giridih	16	0	0	0	0	0	0	2	12.5	7	43.8	7	43.8	0	16
Godda	4	0	0	0	0	0	0	3	75	1	25	0	0	0	4
Gumla	15	0	0	0	0	0	0	4	26.7	6	40	5	33.3	0	15
Hazaribag	11	0	0	0	0	0	0	4	36.4	1	9.1	6	54.5	0	11
Jamtara	3	0	0	0	0	0	0	0	0	2	66.7	1	33.3	0	3
Khunti	7	0	0	0	0	0	0	2	28.6	3	42.9	2	28.6	0	7
Koderma	2	0	0	0	0	0	0	0	0	1	50	1	50	0	2
Latehar	6	0	0	0	0	0	0	0	0	3	50	3	50	0	6
Lohardaga	6	0	0	0	0	0	0	2	33.3	1	16.7	3	50	0	6
Pakur	5	0	0	0	0	0	0	0	0	2	40	3	60	0	5
Palamau	18	2	11.1	4	22.2	2	11.1	2	11.1	6	33.3	2	11.1	8	10
Paschim Singbhum	9	0	0	0	0	0	0	0	0	2	22.2	7	77.8	0	9
Purba Singbhum	14	0	0	0	0	0	0	0	0	1	7.1	13	92.9	0	14
Ramgarh	13	0	0	0	0	0	0	3	23.1	6	46.2	4	30.8	0	13
Ranchi	32	0	0	0	0	0	0	7	21.9	10	31.3	15	46.9	0	32
Sahebganj	8	0	0	0	0	0	0	2	25	3	37.5	3	37.5	0	8
Saraikela-Kharswan	7	0	0	0	0	0	0	0	0	1	14.3	6	85.7	0	7
Simdega	6	0	0	0	0	0	0	2	33.3	0	0	4	66.7	0	6
Total	**234**	**4**	**1.7**	**6**	**2.6**	**3**	**1.3**	**52**	**22.2**	**79**	**33.8**	**90**	**38.5**	**13**	**221**

Table-12

District Wise - Fluctuation and Frequency Distribution From Different Ranges from One Period to Other
From Year : 2013/May To Year:2013/November

District	No. of Wells	No. of Wells/Percentage Showing Fluctuation												Total No. of Wells	
		Fall						Rise						Fall	Rise
		0 -2	%	2 - 4	%	>4	%	0 - 2	%	2 - 4	%	>4	%		
Bokaro	10	0	0	0	0	0	0	1	10	1	10	8	80	0	10
Chatra	8	0	0	0	0	0	0	2	25	3	37.5	3	37.5	0	8
Devghar	7	0	0	0	0	0	0	0	0	4	57.1	3	42.9	0	7
Dhanbad	11	1	9.1	0	0	0	0	3	27.3	2	18.2	5	45.5	1	10
Dumka	10	1	10	0	0	0	0	3	30	4	40	2	20	1	9
Garhwa	6	0	0	0	0	0	0	1	16.7	3	50	2	33.3	0	6
Giridih	16	0	0	0	0	0	0	1	6.3	3	18.8	12	75	0	16
Godda	3	0	0	0	0	0	0	0	0	1	33.3	2	66.7	0	3
Gumla	15	1	6.7	0	0	0	0	4	26.7	6	40	4	26.7	1	14
Hazaribag	9	0	0	0	0	0	0	0	0	5	55.6	4	44.4	0	9
Jamtara	3	0	0	0	0	0	0	0	0	0	0	3	100	0	3
Khunti	7	0	0	0	0	0	0	1	14.3	2	28.6	4	57.1	0	7
Koderma	2	0	0	0	0	0	0	0	0	1	50	1	50	0	2
Latehar	5	0	0	0	0	0	0	0	0	0	0	5	100	0	5
Lohardaga	6	0	0	0	0	0	0	0	0	3	50	3	50	0	6
Pakur	5	0	0	0	0	0	0	1	20	1	20	3	60	0	5
Palamau	15	3	20	1	6.7	2	13.3	2	13.3	4	26.7	3	20	6	9
Paschim Singbhum	9	0	0	0	0	0	0	0	0	2	22.2	7	77.8	0	9
Purba Singbhum	14	0	0	0	0	0	0	1	7.1	1	7.1	12	85.7	0	14
Ramgarh	11	0	0	0	0	0	0	2	18.2	7	63.6	2	18.2	0	11
Ranchi	32	0	0	0	0	0	0	6	18.8	10	31.3	16	50	0	32
Sahebganj	6	1	16.7	0	0	0	0	0	0	3	50	2	33.3	1	5
Saraikela-Kharswan	7	0	0	0	0	0	0	0	0	0	0	7	100	0	7
Simdega	7	0	0	0	0	0	0	2	28.6	2	28.6	3	42.9	0	7
Total	**224**	**7**	**3.1**	**1**	**0.4**	**2**	**0.9**	**30**	**13.4**	**68**	**30.4**	**116**	**51.8**	**10**	**214**

Table-13

District Wise - Fluctuation and Frequency Distribution From Different Ranges from One Period to Other
From Year : 2013/May To Year:2014/January

District	No. of Wells	No. of Wells/Percentage Showing Fluctuation												Total No. of Wells	
		Fall						Rise						Fall	Rise
		0 -2	%	2 - 4	%	>4	%	0 - 2	%	2 - 4	%	>4	%		
Bokaro	11	0	0.0	0	0	0	0	2	18.2	6	54.5	3	27.3	0	11
Chatra	7	1	14.3	0	0	0	0	2	28.6	3	42.9	1	14.3	1	6
Devghar	7	0	0.0	0	0	0	0	1	14.3	6	85.7	0	0	0	7
Dhanbad	11	3	27.3	0	0	0	0	2	18.2	3	27.3	3	27.3	3	8
Dumka	11	0	0.0	0	0	0	0	7	63.6	4	36.4	0	0	0	11
Garhwa	6	0	0.0	0	0	0	0	1	16.7	5	83.3	0	0	0	6
Giridih	16	0	0.0	0	0	0	0	3	18.8	6	37.5	7	43.8	0	16
Godda	4	0	0.0	0	0	0	0	1	25.0	3	75.0	0	0	0	4
Gumla	12	0	0.0	0	0	0	0	3	25.0	7	58.3	2	16.7	0	12
Hazaribag	11	0	0.0	0	0	0	0	3	27.3	4	36.4	4	36.4	0	11
Jamtara	4	0	0.0	0	0	0	0	1	25.0	3	75.0	0	0	0	4
Khunti	5	0	0.0	0	0	0	0	1	20.0	3	60.0	1	20	0	5
Koderma	2	0	0.0	0	0	0	0	0	0.0	2	100.0	0	0	0	2
Latehar	6	0	0.0	0	0	0	0	0	0.0	4	66.7	2	33.3	0	6
Lohardaga	6	0	0.0	0	0	0	0	2	33.3	2	33.3	2	33.3	0	6
Pakur	4	1	25.0	0	0	0	0	1	25.0	1	25.0	1	25	1	3
Palamau	8	0	0.0	0	0	2	25	3	37.5	1	12.5	2	25	2	6
Paschim Singbhum	9	1	11.1	0	0	0	0	1	11.1	5	55.6	2	22.2	1	8
Purba Singbhum	15	0	0.0	0	0	0	0	4	26.7	3	20.0	8	53.3	0	15
Ramgarh	12	0	0.0	0	0	0	0	5	41.7	4	33.3	3	25	0	12
Ranchi	22	2	9.1	0	0	0	0	4	18.2	7	31.8	9	40.9	2	20
Sahebganj	7	0	0.0	0	0	0	0	1	14.3	4	57.1	2	28.6	0	7
Saraikela-Kharswan	6	1	16.7	0	0	0	0	0	0.0	4	66.7	1	16.7	1	5
Simdega	7	0	0.0	0	0	0	0	3	42.9	3	42.9	1	14.3	0	7
Total	**209**	**9**	**4.3**	**0**	**0**	**2**	**25**	**51**	**24.4**	**93**	**44.5**	**54**	**25.8**	**11**	**198**

Table-14

District Wise - Fluctuation and Frequency Distribution From Different Ranges from One Period to Other
10 Years Mean (2003 May - 2012May) - 2013/May

District	No. of Wells	Range of Fluctuation (m)				No. of Wells/Percentage Showing Fluctuation												Total No. of Wells	
		Rise		Fall		Rise						Fall						Rise	Fall
		Min	Max	Min	Max	0 -2	%	2 - 4	%	> 4	%	0 - 2	%	2 - 4	%	>4	%		
Bokaro	6	0.85	4.41	0.31	2.41	2	33.3	0	0	1	16.7	2	33.3	1	16.7	0	0	3	3
Chatra	2			1.57	2.15	0	0	0	0	0	0	1	50	1	50	0	0	0	2
Devghar	6	0.32	1.47	0.36	1.58	4	66.7	0	0	0	0	2	33.3	0	0	0	0	4	2
Dhanbad	5	0.39	2.8	0.43	0.43	3	60	1	20	0	0	1	20	0	0	0	0	4	1
Dumka	10	0.18	3.99	0.52	1.08	4	40	2	20	0	0	4	40	0	0	0	0	6	4
Garhwa	2	1.4	1.4	0.47	0.47	1	50	0	0	0	0	1	50	0	0	0	0	1	1
Giridih	10	0.21	2.94	0.38	2.09	2	20	2	20	0	0	5	50	1	10	0	0	4	6
Godda	4			0.77	2.2	0	0	0	0	0	0	3	75	1	25	0	0	0	4
Gumla	11	0.5	1.38	0.07	1.68	7	63.6	0	0	0	0	4	36.4	0	0	0	0	7	4
Hazaribag	3			1.02	1.59	0	0	0	0	0	0	3	100	0	0	0	0	0	3
Jamtara	3			0.3	1.89	0	0	0	0	0	0	3	100	0	0	0	0	0	3
Khunti	4	1.07	2.94	0.87	0.87	1	25	2	50	0	0	1	25	0	0	0	0	3	1
Koderma	1			0.97	0.97	0	0	0	0	0	0	1	100	0	0	0	0	0	1
Latehar	6	1.5	1.5	0.1	1.3	1	16.7	0	0	0	0	5	83.3	0	0	0	0	1	5
Lohardaga	5	0.19	0.69	0.87	2.8	3	60	0	0	0	0	1	20	1	20	0	0	3	2
Pakur	5	0.05	1.12	2.58	2.58	4	80	0	0	0	0	0	0	1	20	0	0	4	1
Palamau	9	0.49	6.8	0.38	0.82	4	44.4	0	0	3	33.3	2	22.2	0	0	0	0	7	2
Paschim Singbhum	9	0.32	1.76	0.15	7.43	6	66.7	0	0	0	0	2	22.2	0	0	1	11.1	6	2
Purba Singbhum	11	0.04	1.09	0.23	2.97	4	36.4	0	0	0	0	6	54.5	1	9.1	0	0	4	7
Ramgarh	3	0.6	1.2	0.26	0.26	2	66.7	0	0	0	0	1	33.3	0	0	0	0	2	1
Ranchi	11	0.3	1.58	0.15	1.05	6	54.5	0	0	0	0	5	45.5	0	0	0	0	6	5
Sahebganj	6	0.76	1.73	0.68	2.08	2	33.3	0	0	0	0	3	50	1	16.7	0	0	2	4
Saraikela-Kharswan	5	2.2	2.37	0.64	1.06	0	0	2	40	0	0	3	60	0	0	0	0	2	3
Simdega	5	0.07	1.42	0.25	0.25	4	80	0	0	0	0	1	20	0	0	0	0	4	1
Total	**142**					**60**	**42.3**	**9**	**6.3**	**4**	**2.8**	**60**	**42.3**	**8**	**5.6**	**1**	**0.7**	**73**	**68**

Table-15

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

10 Years Mean (2002 Aug – 2012 Aug) - 2013/Aug

District	No. of Wells	Range of Fluctuation (m)				No. of Wells/Percentage Showing Fluctuation												Total No. of Wells	
		Rise		Fall		Rise						Fall						Rise	Fall
		Min	Max	Min	Max	0 -2	%	2 - 4	%	>4	%	0 - 2	%	2 - 4	%	>4	%		
Bokaro	6	0.33	0.42	1.37	4.05	2	33.3	0	0	0	0	2	33.3	1	16.7	1	16.7	2	4
Chatra	2			2.58	3.29	0	0	0	0	0	0	0	0	2	100	0	0	0	2
Devghar	6	0.8	1.06	0.09	2.69	2	33.3	0	0	0	0	3	50	1	16.7	0	0	2	4
Dhanbad	6			0.16	3.73	0	0	0	0	0	0	5	83.3	1	16.7	0	0	0	6
Dumka	12	0.07	1.09	0.03	3.12	6	50	0	0	0	0	2	16.7	4	33.3	0	0	6	6
Garhwa	1	0.28	0.28			1	100	0	0	0	0	0	0	0	0	0	0	1	0
Giridih	9	0.03	4.28	0.42	1.95	5	55.6	1	11.1	1	11.1	2	22.2	0	0	0	0	7	2
Godda	7	0.33	0.33	1.19	5.49	1	14.3	0	0	0	0	1	14.3	3	42.9	2	28.6	1	6
Gumla	11	0.03	19.6	0.12	2.77	3	27.3	0	0	1	9.1	6	54.5	1	9.1	0	0	4	7
Hazaribag	3	2.08	3.38	3.39	3.39	0	0	2	66.7	0	0	0	0	1	33.3	0	0	2	1
Jamtara	2			1.29	2	0	0	0	0	0	0	2	100	0	0	0	0	0	2
Khunti	4	0.39	1.36	1.28	1.85	2	50	0	0	0	0	2	50	0	0	0	0	2	2
Koderma	1			0.05	0.05	0	0	0	0	0	0	1	100	0	0	0	0	0	1
Latehar	5	0.18	0.8	0.39	1.96	3	60	0	0	0	0	2	40	0	0	0	0	3	2
Lohardaga	6	0.23	1.56	2.54	2.77	4	66.7	0	0	0	0	0	0	2	33.3	0	0	4	2
Pakur	7	0.23	1.72	0.01	1.36	4	57.1	0	0	0	0	3	42.9	0	0	0	0	4	3
Palamau	11	0.07	0.96	0.09	4.87	3	27.3	0	0	0	0	5	45.5	2	18.2	1	9.1	3	8
Paschim Singbhum	9	0.05	2.7	1.32	5.87	5	55.6	2	22.2	0	0	1	11.1	0	0	1	11.1	7	2
Purba Singbhum	11	0.5	8.77	0.48	0.48	5	45.5	4	36.4	1	9.1	1	9.1	0	0	0	0	10	1
Ramgarh	3			0.12	1.95	0	0	0	0	0	0	3	100	0	0	0	0	0	3
Ranchi	11	0.06	2.18	0	1.91	6	54.5	1	9.1	0	0	4	36.4	0	0	0	0	7	4
Sahebganj	6	0.15	0.23	0.36	1.69	2	33.3	0	0	0	0	4	66.7	0	0	0	0	2	4
Saraikela-Kharswan	5	0.68	3.62	0.46	0.46	3	60	1	20	0	0	1	20	0	0	0	0	4	1
Simdega	5	0.55	0.95	0.24	2.07	2	40	0	0	0	0	2	40	1	20	0	0	2	3
Total	**149**					**59**	**39.6**	**11**	**7.4**	**3**	**2**	**52**	**34.9**	**19**	**12.8**	**5**	**3.4**	**73**	**76**

Table-16

District Wise - Fluctuation and Frequency Distribution From Different Ranges from One Period to Other
10 Years Mean (2002 November - 2012 November) - 2013/ November

District	No. of Wells	Range of Fluctuation (m)				No. of Wells/Percentage Showing Fluctuation												Total No. of Wells	
		Rise		Fall		Fall						Rise						Fall	Rise
		Min	Max	Min	Max	0 -2	%	2 - 4	%	>4	%	0 - 2	%	2 - 4	%	>4	%		
Bokaro	6	0.47	2.08	0.32	0.32	4	66.7	1	16.7	0	0	1	16.7	0	0	0	0	5	1
Chatra	2	0.47	0.47	0.19	0.19	1	50	0	0	0	0	1	50	0	0	0	0	1	1
Devghar	6	0.25	3.74			5	83.3	1	16.7	0	0	0	0	0	0	0	0	6	0
Dhanbad	7	0.31	5.84			5	71.4	1	14.3	1	14.3	0	0	0	0	0	0	7	0
Dumka	12	0.17	1.96	0.08	0.54	9	75	0	0	0	0	3	25	0	0	0	0	9	3
Garhwa	1	0.89	0.89			1	100	0	0	0	0	0	0	0	0	0	0	1	0
Giridih	9	0.3	4.75			6	66.7	2	22.2	1	11.1	0	0	0	0	0	0	9	0
Godda	6	0.21	0.69	1.05	2.27	4	66.7	0	0	0	0	1	16.7	1	16.7	0	0	4	2
Gumla	11	0.06	0.76	0.24	1.27	6	54.5	0	0	0	0	5	45.5	0	0	0	0	6	5
Hazaribag	1	2.75	2.75			0	0	1	100	0	0	0	0	0	0	0	0	1	0
Jamtara	2	0.72	0.94			2	100	0	0	0	0	0	0	0	0	0	0	2	0
Khunti	4	1.42	5.31	1.41	1.41	2	50	0	0	1	25	1	25	0	0	0	0	3	1
Koderma	1	0.49	0.49			1	100	0	0	0	0	0	0	0	0	0	0	1	0
Latehar	5	0.57	1.81			5	100	0	0	0	0	0	0	0	0	0	0	5	0
Lohardaga	6	0.35	1.77	0.51	0.51	5	83.3	0	0	0	0	1	16.7	0	0	0	0	5	1
Pakur	7	0.84	2.61	1.09	1.09	5	71.4	1	14.3	0	0	1	14.3	0	0	0	0	6	1
Palamau	13	0.19	3.22	0.08	2.64	2	15.4	2	15.4	0	0	5	38.5	4	30.8	0	0	4	9
Paschim Singbhum	9	1.06	3.81	0.37	0.37	4	44.4	4	44.4	0	0	1	11.1	0	0	0	0	8	1
Purba Singbhum	11	0.85	9.79	1.27	1.27	3	27.3	4	36.4	3	27.3	1	9.1	0	0	0	0	10	1
Ramgarh	2	0.15	1.05			2	100	0	0	0	0	0	0	0	0	0	0	2	0
Ranchi	11	0.02	4.13	0.49	1.05	7	63.6	1	9.1	1	9.1	2	18.2	0	0	0	0	9	2
Sahebganj	4	0.35	0.46	0.77	0.8	2	50	0	0	0	0	2	50	0	0	0	0	2	2
Saraikela-Kharswan	5	1.28	3.67			2	40	3	60	0	0	0	0	0	0	0	0	5	0
Simdega	6	0.23	1.05	0.01	0.01	5	83.3	0	0	0	0	1	16.7	0	0	0	0	5	1
Total	**147**					**88**	**59.9**	**21**	**14.3**	**7**	**4.8**	**26**	**17.7**	**5**	**3.4**	**0**	**0**	**116**	**31**

Table-17

District Wise - Fluctuation and Frequency Distribution From Different Ranges from One Period to Other
10 Years Mean (2003 January - 2013 January) - 2014/ January

District	No. of Wells	Range of Fluctuation (m)				No. of Wells/Percentage Showing Fluctuation												Total No. of Wells	
		Rise		Fall		Rise						Fall						Rise	Fall
		Min	Max	Min	Max	0 -2	%	2 - 4	%	>4	%	0 - 2	%	2 - 4	%	>4	%		
Bokaro	6	0.55	1.45	0.45	0.48	4	66.7	0	0	0	0	2	33.3	0	0	0	0	4	2
Chatra	2	1.59	1.59	0.4	0.4	1	50	0	0	0	0	1	50	0	0	0	0	1	1
Devghar	6	1.16	1.61	0.12	1.07	3	50	0	0	0	0	3	50	0	0	0	0	3	3
Dhanbad	6	0.26	2.23			5	83.3	1	16.7	0	0	0	0	0	0	0	0	6	0
Dumka	12	0.17	1.9	0.24	0.64	9	75	0	0	0	0	3	25	0	0	0	0	9	3
Garhwa	2	0.76	0.76	1.45	1.45	1	50	0	0	0	0	1	50	0	0	0	0	1	1
Giridih	10	0.49	3.46	0.11	0.11	6	60	3	30	0	0	1	10	0	0	0	0	9	1
Godda	7	0.02	1	0.23	2.37	2	28.6	0	0	0	0	4	57.1	1	14.3	0	0	2	5
Gumla	10	0.08	1.29	0.09	1.69	7	70	0	0	0	0	3	30	0	0	0	0	7	3
Hazaribag	3	3.12	3.12	0.07	0.68	0	0	1	33.3	0	0	2	66.7	0	0	0	0	1	2
Jamtara	3			0.2	0.41	0	0	0	0	0	0	3	100	0	0	0	0	0	3
Khunti	2	1.08	1.08	1.9	1.9	1	50	0	0	0	0	1	50	0	0	0	0	1	1
Koderma	1	0.62	0.62			1	100	0	0	0	0	0	0	0	0	0	0	1	0
Latehar	5	0.79	1.68	0.1	0.1	4	80	0	0	0	0	1	20	0	0	0	0	4	1
Lohardaga	6	0.69	2.6	0.52	0.52	4	66.7	1	16.7	0	0	1	16.7	0	0	0	0	5	1
Pakur	5	0.28	0.89	0.05	1.26	2	40	0	0	0	0	3	60	0	0	0	0	2	3
Palamau	6	1.05	2.35	0.39	2.12	1	16.7	1	16.7	0	0	3	50	1	16.7	0	0	2	4
Paschim Singbhum	9	0.03	2.41	0.16	3.31	4	44.4	2	22.2	0	0	2	22.2	1	11.1	0	0	6	3
Purba Singbhum	11	0.67	3.59			8	72.7	3	27.3	0	0	0	0	0	0	0	0	11	0
Ramgarh	3	0.63	0.96			3	100	0	0	0	0	0	0	0	0	0	0	3	0
Ranchi	10	0.22	1.99	0.38	0.82	8	80	0	0	0	0	2	20	0	0	0	0	8	2
Sahebganj	4	0.61	4.37	1.05	1.85	1	25	0	0	1	25	2	50	0	0	0	0	2	2
Saraikela-Kharswan	5	0.16	2.28	0.17	0.17	3	60	1	20	0	0	1	20	0	0	0	0	4	1
Simdega	6	0.7	1.01	0.44	0.44	5	83.3	0	0	0	0	1	16.7	0	0	0	0	5	1
Total	**140**					**83**	**59.3**	**13**	**9.3**	**1**	**0.7**	**40**	**28.6**	**3**	**2.1**	**0**	**0**	**97**	**43**