Ground Water Quality Yearbook of Chhattisgarh State

2023-24

ABSTRACT

The report presents the current status of the groundwater quality of Chhattisgarh State through regular monitoring activity of CGWB, Raipur. The report summarizes the contamination level of different water quality parameters, their trend over the period, comparison with the previous year's data, remedial measures for selected parameters etc.

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Ground Water Quality Yearbook of Chhattisgarh State

Year 2023-24

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Forward

Sustainable development is one of the main guiding principles for modern societies. Water and sustainable development are closely linked since the provision of water in sufficient quantities and of high quality have important impacts on our environment, society and industry as well as the wellbeing of the next generations.

Nowadays, there are several emerging problems and risks that affect the sustainable management of water resources. Pollution trends and impacts of hazardous pollutants remain uncertain. Diffuse pollution from agricultural practices emerges as a major threat. Water resources and water demands remain unbalanced at various levels. Groundwater abstraction and over-exploitation have serious environmental impacts.

Water is a solvent and dissolves minerals from the rocks with which it comes in contact. Ground water may contain dissolved minerals and gases that give it the tangy taste enjoyed by many people. Without these minerals and gases, the water would taste flat. The most common dissolved mineral substances are sodium, calcium, magnesium, potassium, chloride, bicarbonate, and sulfate. In water chemistry, these substances are called common constituents. For the Nation as a whole, the chemical and biological character of ground water is acceptable for most uses. The quality of ground water in some parts of the country, particularly shallow ground water, is changing as a result of human activities.

In the present report, the analytical results of ground water samples collected from the Chhattisgarh State during the pre-monsoon and post-monsoon period of the year 2023 are compiled with detailed interpretation and discussion. Hope this report will best be utilized by the policy makers, water professionals, researchers, academicians etc. I express my sincere thanks to Chemical Laboratory team comprised with Dr. Rajni Kant Sharma, Scientist C & OIC (Chem) and Dr. Anita Bind, STA (Chem) for their sincere efforts made to bring the analytical results in the shape of “Ground Water Quality Year Book – 2023-24” for the region. I also express my sincere thanks to Sh. Rakesh Dewangan, the then OIC (Chem) for his guidance and supervision to the team of Chemical Laboratory.

Raipur, dated the October, 2024.

Dr. Prabir Kumar Naik
Regional Director

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Raipur, dated October, 2024.

Dr. Rajni Kant Sharma
Scientist C and Laboratory In charge

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Executive Summary

Chhattisgarh is the 10th largest state of India endowed with natural resources and thick forest cover. It is basically a backward, agrarian and tribal dominated state. It has been divided into 33 districts and 146 development blocks with 20306 numbers of villages and 168 towns. Demographically it is the 16th largest state of India with a total population of 2,55,40,196 comprising 50.22% male and 49.78% female population. Nearly 80 % of the total population lives in rural areas.

Physiographically, the state of Chhattisgarh can be divided into 3 distinct units namely; 1) Bastar plateau in southern part 2) Chhattisgarh Plain in central part and 3) Northern hills in northern part. These three units have their own distinctive characteristics and form part of three basins namely Ganga, Mahanadi and Godavari basins. About 66.1 % network stations fall in Mahanadi basin, 16.3 % fall in Ganga Basin, 14.7 % fall in Godavari basin. Central Ground Water Board, North Central Chhattisgarh Region, Raipur has set up a network of more than 1000 water quality monitoring wells.

During May 2023, total 971 numbers of ground water samples were collected from monitoring wells as a pre-monsoon study and 172 samples were collected during November 2023 as a post-monsoon study. All the collected samples were analysed for basic parameters using standard methods of chemical analysis. The results shows that ground water quality is suitable for drinking, domestic and agriculture uses in most of the locations whereas in few places instinct of contamination is observed. Problematic areas in terms water quality, are identified and presented in the maps for the selected parameters. To observe the changes in the ground water quality of the state over the years, trend analysis was carried out using the water quality data pertaining to the years from 2017 to 2023 depending upon the availability of data and suitability for plotting as trends. No significant trend in the water quality parameters is observed for the selected period.

1. Introduction

1.1. General

Chhattisgarh has an abundance of mineral and natural forest resources. About 44% of state area is covered with the forest. The State is known as rice bowel of the India. Agricultural practices are the main profession in the State.

The quality of ground water varies from place to place depending upon the geology, hydro-geological condition, land use, rain fall pattern etc. Central Ground Water Board monitors the groundwater quality of entire country through national hydro-graph stations on yearly basis. Special studies on water quality monitoring are also conducted in the identified areas. The ground water quality monitoring stations of CGWB, NCCR, Raipur is well distributed throughout the state. The samples are collected in pre-monsoon season following the standard methods of ground water sampling and transportation. The collected samples were analysed in the NABL accredited chemical laboratory of CGWB, NCCR, Raipur for various parameters i.e., pH, electrical conductivity, carbonate and bi-carbonate, chloride, nitrate, sulphate, fluoride, calcium, magnesium, total hardness, sodium, potassium, iron and arsenic. The obtained results provide the overall existing scenario of the ground water hydrochemistry. Analytical results are discussed for the suitability of ground water for drinking and agriculture purposes.

1.2. Area

Chhattisgarh is 10th largest State by area, located in central part of the India. The State is surrounded by seven neighboring States. In north State shares the boundary with Uttar Pradesh, Northwest side with Madhya Pradesh, South west with Maharashtra, Northwest with Jharkhand, east with Odisha and Southerner direction with Andhra Pradesh and Telangana. The State situated between North latitude 17°47’ to 24°06’ and East longitude 80°14’ to 84°24’. As per census 2011 the population of the state is 25,545,198 and covers an area of 137,898.36 Sq Km. The state is administratively divided into 33 districts and further 179 blocks. These districts are - Balod, Baloda Bazar, Balrampur, Bastar, Bemetara, Bijapur, Bilaspur, Chowki, Dantewada, Dhamtari, Durg, Gariaband, Gaurella-Pendra-Marwahi, Janjgir-Champa, Jashpur, Kabirdham, Kanker, Khairagarh-Chhuikhadan-Gandai, Kondagaon, Koriya, Mahasamund, Manendragarh-Chirmiri-Bharatpur, Mohla-Manpur, Mungeli, Narayanpur, Raigarh, Raipur, Rajnandgaon, Sakti, Sarangarh-Bilaigarh, Sukma, Surajpur and Surguja. Administrative Divisions of the Chhattisgarh State are presented in Fig. – 01.

Naya Raipur is the capital of Chhattisgarh State and is one of India's planned cities. Nearly 65.90% of the total area is covered by tribal and hence it is called “tribal dominated State”. Physio-graphically, the state of Chhattisgarh can be divided into 3 distinct units namely, Northern hills in northern part; Chhattisgarh Plain in central part and Bastar plateau in southern part.

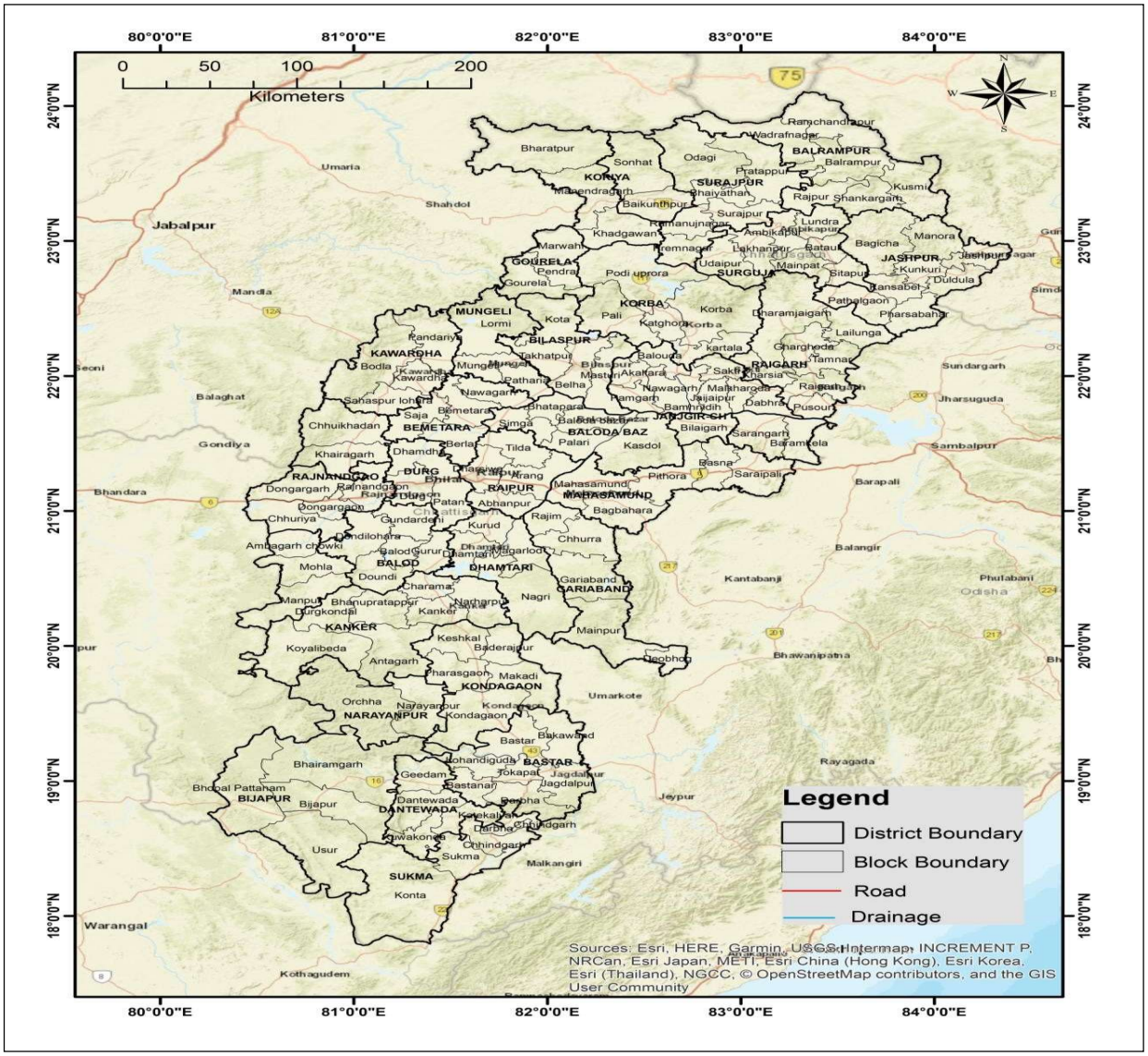

Figure 1 - Administrative divisions of Chhattisgarh state.

These three units have their own distinctive characteristics and form part of three basins namely Ganga, Mahanadi and Godavari basins.

a. **Northern Region:** The districts that are part of this region (Korea, Surguja, Jashpur, Raigarh, and Korba) have similar geographical, climatic, and cultural contexts and harbour dense forests, hills and water reservoirs. It is home to several indigenous tribal communities such as Paharikorba and Pando, etc. Governed largely by tribal customs, culture and traditions, in the rural areas of the region, people are dependent largely on agriculture and non-timber forest produce (NTFP). The level of migration from this region is comparatively limited. The urban centers are limited to Korba and Ambikapur. Korba is the largest town, and the limited industry is concentrated here. There are coalmines in Surguja and Korea districts.

b. **Central Plains Region:** Raipur, Bilaspur, Janjgir-Champa, Kabirdham, Rajnandgaon, Durg, Dhamtari, and Mahasamund are the districts that fall in the central plains.

Mahanadi is the primary source of water for irrigation and domestic use. Owing to the presence of large number of indigenous varieties of rice, the central plains of Chhattisgarh are known as the 'rice bowl' of Central India. Bhilai and Durg are well known urban areas, both with large steel plants. Rural craft is well developed in the region and well known (eg. the silk weavers of Janjgir-Champa). The region is densely populated with Raipur and Durg account for almost half the total urban population of Chhattisgarh.

c. **Bastar Plateau:** The districts in this region (Kanker, Kondagoav, Bastar, Sukuma, Bijapur and Dantewada) are known for its varied and rich forests, diverse tribal population, and unique culture. These districts are bordered by nearby States of Maharashtra, Andhra Pradesh, and Orissa. The people of the region are dependent on traditional agriculture and forests for their livelihood. The Bailadila mines in Dantewada district represent the limited industry in the region.

1.3. Climate

The climate of the state is tropical, with very hot summers and cold winters, because high intense monsoon rains and the state is located nearer to the Tropic of Cancer. The South-East monsoon is principal source of the rain starts from mid-June and ends in mid-October. Rainfall is the major source of ground water recharge in the area and receives maximum (85%) rainfall during the southwest monsoon season. The winter rainfall is meager (10 - 15%). The average annual rain fall is ≈ 1200 mm and humidity reaches up to 95% in rainy season. Normally, winter starts from mid-October to mid-February and during night hours, the temperatures reached < 5 °C in many parts of the State. The summer period, normally starts from mid-April to the end of June and the daytime temperature reaches > 40°C.

1.4. Drainage

Chhattisgarh is very rich in surface water resources. A large number of perennial rivers flow in the state. The state is drained by rivers of five basins namely, Mahanadi; Lower Ganges; Godavari; Narmada and Brahmani. Mahanadi basin covers maximum and Narmada basin covers minimum area in the state. The Mahanadi River and its tributaries viz. Seonath, Hasdeo, Mand and Arpa drain part of Raipur, Durg, Rajnandgaon, Bilaspur, Raigarh and Surguja districts. The Indravati River is a tributary to Godavari River and drains the districts of Kanker, Bastar and Dantewada. Most of the Rivers are perennial in nature. In general, the drainage patterns are dendritic, parallel, angular and radial types. Son is the tributary of Ganga River and drains part of Sarguja and Koriya districts.

1.5. Geology of the Area

Chhattisgarh is part of the Indian shield comprising of litho-units ranging in age from Archaean to Recent. Geologically, it has been further subdivided into southern Bastar province (Craton) and northern Satpura province along Central Indian Shear zone (CIS). The Bastar province (Craton) is constituted of Archaean –Proterozoic Supra crustal and platform sequence of Meso-

Neo Proterozoic “Purana Basin”. Satpura province consists of Archean – Proterozoic rocks, Gondwana rocks of Mahanadi Graben, Lametas and Deccan traps. Laterite and Alluvium of Recent age is sporadically developed over both these provinces. Nearly 58% of the State is covered by Crystalline and Metamorphic rocks, around 27% by rocks of Chhattisgarh Group of Basins, nearly 12% by semi consolidated Gondwana sediments and remaining 3% by Deccan traps, Lameta, Laterites and Alluvium. The varied variety and complexity in nature and composition of geological formations, geological structures and variety in geomorphological features and hydrogeological conditions have given rise to the widely varying occurrence of ground water in different parts of the state.

The geological framework of Chhattisgarh consists of both fracture and porous media. Based on the prevailing porosity type, the rocks of the state have been divided into two broad types, hard rocks and soft rocks.

A. Hard Rocks

Consolidated rocks (granite, granitic gneiss etc.) and semi-consolidated rocks (Sandstone, Shale) bearing secondary porosity are grouped under hard rock category. The rock types and their distribution along with their broad characteristics are given as under:

i. **Basement Crystalline -** The rocks of this group are dominated by basement gneiss, granulites and greenstones. Ground water in this area mainly occurs in phreatic (water table) condition along with occasional semi-confined conditions. The dug wells in the area have yield in the range of 0.23 to 2.30 lps. The bore wells have drill time discharge generally below 3 lps.

ii. **Plutonic - Volcanic and Meta Sedimentary -** The group constitutes of granites, acid and basic volcanics and Proterozoic meta-sedimentaries. Ground water in this province mainly occurs in phreatic to semi-confined condition. These aquifer groups have better potential than the basement crystalline. The bore wells in the province can yield up to 5 lps (432 m^3/day) with general discharge up to 3 lps.

iii. **Precambrian Sedimentary -** This province includes the rocks of Chhattisgarh Super Group, which are sedimentary rocks of marine origin. It consists of arenaceous-argillaceous- calcareous rocks and is dominated by limestone/dolomites and calcareous shale and ortho-quartzite. The limestone is more productive. The ortho-quartzites and shale are poor aquifers. The weathered zone is restricted to upper 30 m depth. The ground water in these formations occurs under water table, semi-confined and confined conditions. The weathered and cavernous part of the formation constitutes the good potential aquifers in the area.

iv. **Deccan Volcanics -** This consists of basaltic lava flows and each flow is separated from other flow by intertrappean beds or red boles. The vesicular top parts of various flows and inter flow red boles form the aquifer along with weathered and fractured zones. The area is being developed through construction of dug wells and shallow bore wells fitted with hand pumps and have limited discharge. The weathered part of trap in

general is converted to Laterites and can yield substantial water to the dug wells.

B. Soft Rocks

Rocks in which primary porosity dominate over secondary porosity are grouped under soft rock category. These are further classified as-

i. **Semi Consolidated Sedimentary-** The Gondwana Super Group and Lameta Group of rocks consist of sandstone, shale, clay, siltstone and coal. They possess both primary and secondary porosity, where primary porosity dominates over secondary porosity. Ground water occurs in both phreatic and semi confined to confined conditions. Shallow aquifer is phreatic to semi confined whereas deeper aquifers are generally confined, many time giving rise to flowing artesian wells. These rocks have good potential aquifer system (except the Talchir Formation), ground water development in this area is still moderate and exploitation is restricted to the upper aquifers (within 120m). Dug wells tapping the Lametas in Surguja district have yield up to 0.80 lps (70 m3/day).

ii. **Unconsolidated Sedimentary -** This formation consists of sand, silt, clay and pebbles. Ground water occurs in phreatic to semi-confined condition. Water level in this area varies between 2 to 20 m. Though isolated, shallow and small, these aquifers have good potential for ground water yield and development through dug wells, shallow bore wells and filter point wells. The dug wells in Bilaspur urban area can yield between 4.5 and 19 lps. and the safe yield for large diameter dug wells in alluvium is between 4 and 6 lps (345 and 518 m^3/day.). Laterites also occur in detached patches over various rock types. Ground water occurs in these rocks in phreatic condition, which is restricted up to the upper level of the lithomargic clays. The Ground water in this province is developed mainly through dug wells, where discharge is found up to 2 lps. The depth of dug wells in laterites in Surguja district ranges from 4 to 5 m and yield 0.46 to 0.70 lps (40-60 m^3/day)**.**

1.6. Hydrogeology

The hydrogeology of the area depends upon the local geology, drainage pattern and rainfall of the area. The ground water level varies from place to place along-with the season and use of ground water for specific activities. The depth wise variation in the ground water level is discussed as follows -

A. Pre-Monsoon

The depth to water level in the area ranges up to 10 mbgl in approximately 84.19% of the observation wells in the state. Deeper water levels ranging from 10 to 20 mbgl occur only in 15.22% of the observation wells and mostly in parts of Bilaspur, Durg, Janjgir-Champa, Korba, Koriya, Raipur and Surguja districts. The deepest water level of 25.01 m bgl was monitored in Sambalpur observation well (Shallow piezometer) of Durg district.

Only 5 wells (approximately 3.33% of the monitored wells) in the state are showing water

levels between 0-2 m bgl in Dhamtari, Durg, Koriya and Janjgir Champa districts. Water levels in the range of 2-5 m bgl are recorded in about 21.66 % of the observation wells monitored. The highest percentages of wells in this range are in Dhamtari (25%), Durg (33.33%), Koriya (25%) districts. Nearly 60.91% of observation wells are exhibiting water level in the range of 5-10 mbgl in all the districts of the state.

A. Post Monsoon

In general, the depth to water level ranges up to 10 mbgl in approximately 95.43% of the observation wells in the state. Deeper water levels ranging between 10 and 20 mbgl occur only in 3.88% of the observation wells and mostly in parts of Bilaspur, Durg, Kawardha and Surguja districts. The deepest water level of 21.02 m bgl was monitored in Saroda Dadar observation well (Shallow piezometer) of Kawardha district.

Only 106 wells (approximately 24.20% of the monitored wells) in the state have water levels between 0-2 m bgl in all the districts. Water levels in the range of 2-5 m bgl are recorded in about 55.25% of the observation wells monitored. The highest percentages of wells in this range are in Bastar (72.73%), Jashpur (69.23%), Kawardha (70.59%), Koriya (61.90%), Raipur (62.26%), and Rajnandgaon (62.50%) districts. Nearly 15.98% of observation wells are exhibiting water level in the range of 5-10 mbgl in all the districts of the state.

Water Level Fluctuation – In comparison to water level of the state in May 2021, nearly 16.31% of the observation wells across the state of Chhattisgarh shows rise in water level in May 2023. Rise of water level in the range of 0-2 m is observed in 13.21% of the wells distributed in all the districts. Rise of water level in the range of 2-4 m is observed in 2.44% of the wells distributed in almost all the districts except Dhamtari, Kanker, Koriya, Mahasamund, Raigarh and Surguja districts. Rise of water level by more than 4 m is also observed in 0.65% of the monitored wells in Janjgir - Champa and Korba districts. Fall of water level is recorded in nearly 81.40% of the monitored wells. Fall of water level in the range of 0-2 m, 2-4 m and more than 4 m are observed in 51.39%, 15.82% and 14.19% of the monitored wells, respectively in the state.

1.7. Minerals Resources of the State

Chhattisgarh is a mineral rich State and verities of mineral such as Diamond, Coal, Iron ore, Lime Stone, Dolomite, Bauxite and Tin ore are naturally available in different part of the State. Abundance of minerals is changing very fast from an agricultural civilization to an industrial civilization, so the demand for water has tremendously increased. The increasing dependence on ground water as a reliable source of water has resulted depleting quantity as well quality of the ground water. Physiography of the state, Drainage – Basin Map and Isohyets – Soil Maps of the state are presented in Figures-2, 3 and 4 respectively.

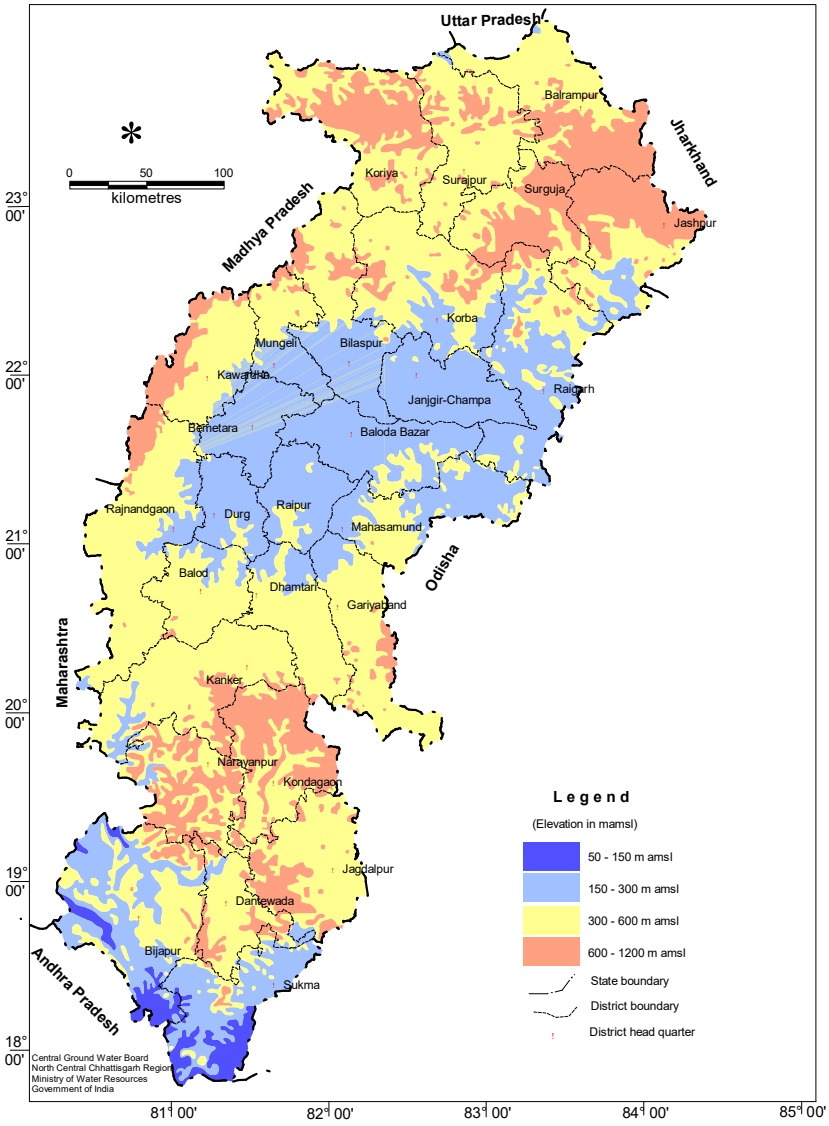

Figure 2 Physiography of Chhattisgarh State

1.8. Soil Type

The soils in the upper reaches of the drainage of the state are shallow, young and are eroding in nature. Changes in the soil properties indicate the drainage conditions, transport of eroded material and re-deposition of soil constituents. Down the slope, the soil depth, water holding capacity, ion exchange capacity, and preponderance of calcium and magnesium increases. The color changes from red to dark brown. The texture also changes from sandy loam to clayey, and sticky to very sticky.

1.9. Land use

Land use pattern is very important index of the human, social, cultural, and economic developments. According to the available statistics (Department of Statistics, Govt. of Chhattisgarh), 6352413 Ha. (46 %) of the total area in the State is covered by forests. The forests include protected forests, reserved forests, revenue forests and others.

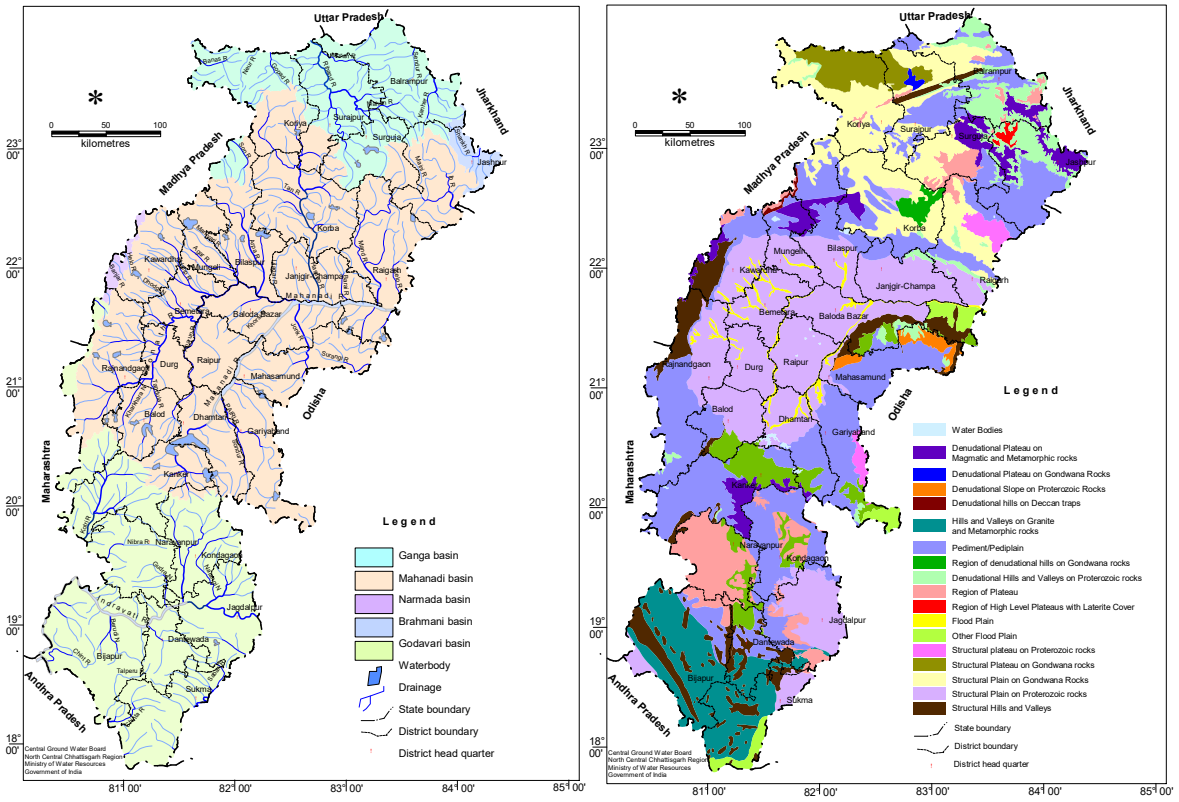

Figure 3 – Drainage - Basin map and Geomorphology map of Chhattisgarh State.

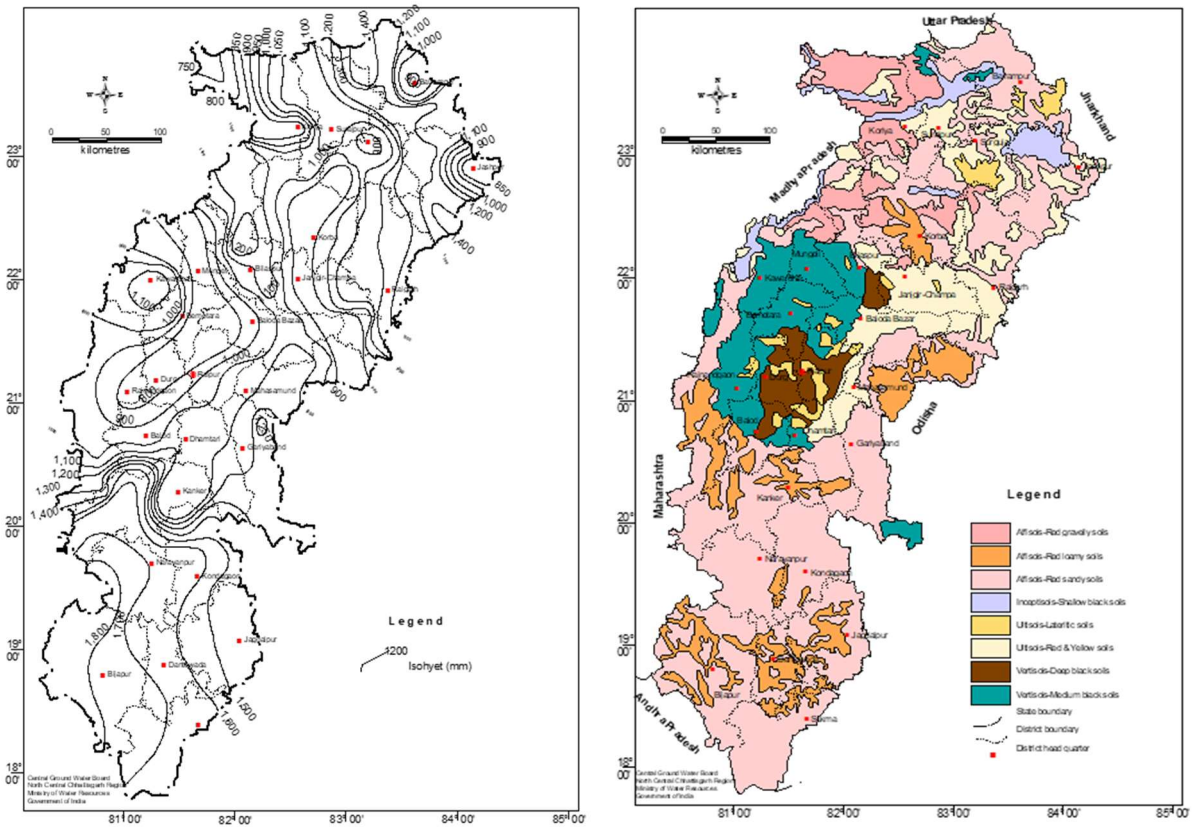

Figure 4 - Isohyets and Soil map of Chhattisgarh State

2. Hydrochemical quality evolution

As ground water moves along the flow paths in the saturated zone, it is enriched with total dissolved solids and with major ions. The shallow zone is characterized by active ground water flushing through relatively well-leached rocks has HCO_3^- as the dominant anion and is low in total dissolved solids. The intermediate zone has less active ground water circulation, andhigher total dissolved solids while sulphate is normally the dominant anion in this zone. The lower zone with very little ground water flushing has high Cl^- concentration and high total dissolved solids. The HCO_3^- content in ground water is normally derived from soil zone CO_2 and from dissolution of calcite and dolomite. There are several soluble sedimentary minerals that release SO_4^- or Cl^- upon dissolution. The process of evolution from stage to stage is controlled by the availability of minerals along the ground water flow paths. In some ground water flow system, the water does not evolve past the HCO_3^- stage or past the SO_4^-.

The notable in this regard is the increase in HCO_3^- and decrease in SO_4^- that can occur as a result of biochemical SO_4^- reduction. Large variations in major cations occur in ground water flow systems because of cation exchange process. The factors contributing to the ground water quality are the chemical composition of the rainwater, the soil types and the mineralogy of the rock formations. The geochemical processes in the soil zone and in the underlying unsaturated and saturated zones, temperature, pressure, duration of contact of the percolating water and the surrounding media, and other associated factors determine the chemical composition of the ground water. Pollution from near surface sources arising out of the human activities like industrial wastes disposal, use of fertilizers, pesticides also influence the ground water quality.

Climate and precipitation: The temperature and precipitation influence weathering, climate, vegetation, soil types and the composition of the water draining the area. The rainwater containing SiO_2, CO_2, O_2 picks up organic acids after reaching the earth's surface and reacts with the minerals, which get dissolved. In humid temperate climate the bicarbonates are predominant and are rather high in arid climate. The wet and dry climate promotes release of considerable soluble inorganic matter through weathering. Very cold climate inhibits weathering and restrict solute concentration in water.

Soil forming process: The geochemical reactions involved in the soil forming processes also dictate the chemical composition of the ground water. In soils dissolution of CO_2 and the H^+, HCO_3 CO_3^{2-} ions in percolation water control pH of water and thereby increasing its capacity to react with rocks and minerals.

Geological factors: The mineral constituents in rock influence the geochemical evolution of water passing through the rock. The mineralogical sources of major ions are listed in **Table-1.**

Table 1 -Mineralogical Sources of Major Chemical Constituents

Chemical constituents	Source Rock & Minerals
Silica	Feldspars, Feldspathoids, Amphiboles, Pyroxenes, Mica.
Iron	Pyroxenes, Amphiboles, Mica, Pyrites, Chalcopyrite, Magnetite and Haematite.
Mn	Common Mn. bearing minerals in metamorphic & sedimentary rocks as oxides, hydroxides, carbonates, silicates.
Ca	Plagioclase, Pyroxene, Amphibole, among igneous and metamorphic rocks. Limestone, dolomite, gypsum among sedimentary rocks.
Mg	Dunites, Pyrozenites, Amphibolites, Basalt, Talc, Tremolite Schists, Dolomite.
Na	Sodium salts in soils, sea water ingress, ground water, also due to base exchange reactions with clays.
K	Orthoclase, Microcline, Nephaline, Lucite, Biotite in igneous and metamorphic rocks, Evaporites in sedimentary rocks.
HCO3 & CO3	Dissolved CO2 in rains, water charged with CO2 dissolves carbonateminerals, in solid rocks to give bicarbonate.
SO4	Sulphides of heavy metals igneous and metamorphic rocks. Gypsum and hydrite in sedimentary rocks.
Cl	Atmospheric sources and sea water contamination.
F	Fluorite (CaF2). Some rocks such as fluorite, biotite, topaz, fluorapatite, cryolite hornblende, and muscovite
As	Arsenopyrite, As trisulfide Orpiment, Auripigment As_2S_3
U	Uraninite, pitchblende, Coffinite, Brannerite, Davidite, Thucholite, Saleeite, Gummite, Carnotite, Carnotite, Orbernite

Human activities*:* The untreated industrial effluents discharged through nearby streams and unlined drains may percolate underground and reaches the aquifers on the downstream side thereby affecting the quality of ground water. The migration of the pollutant to the saturated zone is considerable in sandy strata. The urban areas in India also generate substantial quantity of wastewater and find its way into the natural water courses causing contamination of surface and ground water. The solid waste dumped in low-lying areas becomes a potential source of ground water pollution.

Organic and inorganic fertilizers, pesticides, insecticides and other chemicals used in the agricultural fields are often leached to the ground water. Nitrate, potassium and phosphate are the common fertilizer used in agriculture land and are the potential pollutants in the ground water. The major contaminants associated with the waste disposal practices are summarized in **Table -2.**

Table 2 -Contaminants Associated with the Waste Disposal Practices.

Source	Possible contaminants
Landfills:	Wide variety of inorganic and organic constituents.
Municipal	Heavy metals, chlorides, sodium, calcium
Industrial	Wide variety of inorganic and organic constituents.
Hazardous waste disposal sites	Wide variety of inorganic (particularly heavy metals) and organic compounds (pesticides, priority pollutants, etc).
Liquid waste storage ponds (Lagoons, leaching ponds, compounds reaching basins)	Heavy metals, Solvents, Inorganic Compounds
Subsurface sewage disposalsystems	Organic compounds (degreasers, solvents), nitrogen compounds, sulphates, sodium, microbiological contaminants.
Deep-well waste injection.	Variety of inorganic and/or organic compounds.
Agricultural activities.	Fertilizers, herbicides, pesticides.
Land application (sludge, wastewater)	Heavy metals, inorganic compounds, organic compounds.
Urban runoff infiltration.	Inorganic compounds, heavy metals, petroleum products.
Decaying activities.	Chlorides, sodium, calcium radioactivity.
Radioactive wastes.	Radioactive wastes and radionuclides.

3. Ground Water Quality Monitoring

Monitoring is a long term process the International Standard Organization (ISO) has defined monitoring as, “The programmed process of samplings, measurements and subsequent recording or signaling or both, of various water characteristics, often with the aim of assessing, conformity to specified objectives”. A systematic plan for conducting water quality monitoring is called Monitoring Programme, which includes monitoring network design, preliminary survey, resource estimation, sampling, analysis, data management & reporting.

Monitoring of ground water quality is an effort to obtain information on chemical quality through representative sampling in different hydrogeological units. Ground Water is commonly tapped from phreatic aquifers through dugwells in a major part of the country and through springs and hand pumps in hilly areas. The main objective of ground water quality monitoring programme is to get information on the distribution of water quality on a regional scale as well as lattice is to create a background data bank of different chemical constituents in ground water.

One of the main objectives of the ground water quality monitoring is to assess the suitability of ground water for drinking purpose. The quality of drinking water is a powerful environmental determinant of the health of a community. The problem of the quality of water resources in general, and groundwater resources in particular, is becoming increasingly important in both industrialized and developing nation. In developing countries like India, the essential concerns as regards water resources are their quantity, availability, sustainability and suitability. Groundwater plays a leading role because it has a fundamental importance to all living beings.

Even though water is the most frequently occurring substance on earth, lack of safe drinking water is more prominent in the developing countries. Due to increasing world population, extraction of groundwater is also increasing for irrigations, industries, municipalities and urban and rural households' day by day. During dry season extensive withdrawal of groundwater for irrigation purpose is lowering the water table in the aquifer and also changing the chemical composition of water.

The physical and chemical quality of ground water is important in deciding its suitability for drinking purposes. Bureau of Indian Standards (BIS) formally known as Indian Standard Institute (ISI) vide its document IS: 10500:2012, Edition 3.2 (2012-15) has recommended the quality standards for drinking water. On this basis of classification, the natural ground water of India has been categorized as desirable, permissible and unfit for human consumption.

From the analytical results, it is seen that majority of water samples collected from observation / monitoring wells of CGWB in a major part of the Chhattisgarh state fall under desirable or permissible category and hence are suitable for drinking purposes. However, a small percentage of well waters are found to have concentrations of some constituents beyond the permissible limits. Such waters are not fit for human consumption and are likely to be harmful to health on continuous use.

The chemical quality of groundwater of the state is monitored by CGWB through national hydro-graph stations every year in the pre-monsoon season. Special water quality monitoring studies are also carried out in the quality sensitive area. To study the seasonal variation post-monsoon water samples were also collected from the quality sensitive area. The quality monitoring stations are well distributed throughout the state presented in Fig. 5. A total 971 numbers of ground water samples were collected during pre-monsoon and 172 samples were collected during post-monsoon of the year 2023-24. All the collected samples were analysed for basic parameters, uranium and heavy metals. pH, EC, Carbonate, Bicarbonate, Chloride, Total Hardness, Calcium, Magnesium, Sodium, Potassium, Sulphate, Nitrate, Fluoride, Phosphate and Silicate have been determined by the standard methods of analysis. Uranium by fluorimeter and heavy metals analysis were determined by AAS instrument.

The ground water samples were collected in good quality, pre-cleaned and well-washed polyethylene bottles of one liter capacity with necessary precautions. The water samples were divided in two portions. The 1st portion was used for measurement of physical parameters, cations and anions. The 2nd portion was acidified with few drops of ultra-pure acid for analysis of the iron and arsenic. The bottles were labeled with respect to collecting points, date and time in order to avoid any error between collection and analysis.

Table 3 - Details of Parameters name, method and instruments used.

Sr.	Parameter Name	Method Name	Instruments used
1.	Electrical Conductivity	Conductivity Cell Potentiometer	Conductivity Meter
2.	pH	Potentiometric	pH meter
3.	Solids, Total Dissolved	Gravimetric after filtration	TDS Conductivity Meter
4.	Hardness, Total	EDTA Titrimetric	-

Sr.	Parameter Name	Method Name	Instruments used
5.	Calcium	EDTA Titrimetric	-
6.	Magnesium	Calculation from Total Hardnes	-
7.	Potassium	Flame Emission Photometric	Flame Photometer
8.	Sodium	Flame Emission Photometric	Flame Photometer
9.	Alkalinity, total	Titrimetric to pH=4.5 (methyl	-
10.	Carbonate	Calculation from total and phe	-
11.	Bicarbonate	Calculation from pH and Alkali	-
12.	Chloride	Argentometric Titration	-
13.	Sulphate	BaCl2 spectrophotometric	UV-Visible Spectrophotometer
14.	Fluoride	SPADNS spectrophotometric	UV-Visible Spectrophotometer
15.	Nitrogen, Nitrate	UV Spectrophotometric	UV-Visible Spectrophotometer

The water quality monitoring stations/well used for the collection of pre- and post-monsoon ground water samples are presented in Fig. 5.

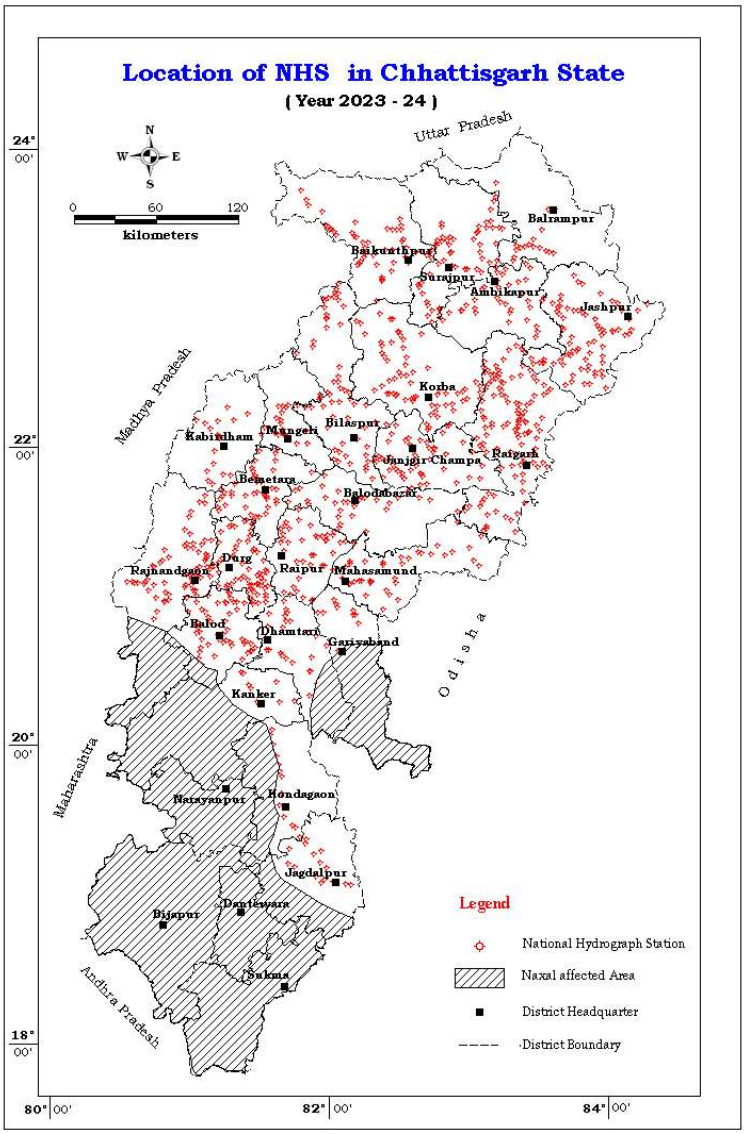

Figure 5 - Location of NHS monitoring stations of Chhattisgarh State during 2023-24.

4. Methodology

The collected water samples brought to NABL accredited laboratory of the CGWB, NCCR, Raipur for determination of physicochemical parameters by the standard methods given in APHA 24th edition, 2023. Purest form of chemicals (AR grade) was used for all the chemical analysis. Ultra-pure distilled water was used for the preparation of all the reagents and solutions. The pH measured by using digital pH meter with an accuracy of ± 0.01% and Electrical Conductivity measured by digital Conductivity meter with an accuracy of ± 0.01% respectively. Total hardness and calcium were measured by EDTA complexometric titration method. Magnesium was calculated by the difference of total hardness and calcium ion concentration (TH - Ca).

The sodium and potassium were determined by flame photometer. The carbonate and bicarbonate were measured by titration method and by the obtained concentration of carbonate and bicarbonate the total alkalinity was computed and reported in mg/l as CaCO3. Chloride was measured volumetrically by silver nitrate titrimetric method using potassium chromate as indicator. Sulphate was measured by spectrophotometer method using barium chloride as precipitating agent. The nitrate was determined by UV-Visible spectrophotometer at 220 nm. Fluoride was determined by ion selective electrode using TISAB solution. The iron was determined in the acidified water samples by Atomic Absorption Spectrophotometer. Arsenic was analysed by the combination of hydride generator and AAS.

Standard techniques and procedures are adopted for collection and analysis of ground water samples. The obtained chemical analysis results are compared with BIS drinking water standards for the drinking purposes. To know the suitability of water for irrigation purposes different indices are computed and discussed in this report.

4.1. Drinking water criteria

Drinking water is water intended for human consumption for drinking and cooking purposes from any source. Potable water is clear water, free from offensive smell or taste, free from chemicals that may have adverse effects on human health, free from elements that may cause corrosion of water supply system or stain clothes washed in it and free from disease causing organisms. Water quality standards were developed by health authorities and sanitary engineers when the relationship between water borne diseases and drinking water was established. In 1983 Who published a guideline for drinking water. Similarly, Bureau of Indian Standards (BIS) has published Indian standard drinking water specifications in 1983 by the with an objective to assess the quality of drinking water and to check the effectiveness of water treatment and supply. These standards are reviewed and modified periodically. In 2009, the BIS proposed the second revision of the drinking water standards (IS-10500-2009). The standard mentions the acceptable limit and indicates its background. It recommends implementing the 'acceptable limit'. Further it was updated in 2012 and revised in 2015, 2018 and 2021.

Table 4- Drinking water specification as per BIS-2012 (IS: 10500) with adverse effects.

Sr	Parameter	Desirable limit	Undesirable effect outside the desirable limit	Permissible limit
1	pH	6.5 – 8.5	Beyond this range water will affect mucous membrane and/or water supply system	No relaxation
Following Results are expressed in mg/l				
2	Dissolved solids	500	Encrustation in water supply structure and adverse effects on domestic use	200
3	Alkalinity	200	Beyond this limit taste becomes unpleasant	600
4	Total hardness as $CaCO_3$	300	Encrustation in water supply structure and adverse effects on domestic use	600
5	Calcium as Ca,	75	Encrustation in water supply structure and adverse effects on domestic use	200
6	Magnesium as Mg	30	--	100
7	Chlorides as Cl	250	Beyond this limit taste, corrosion and palatability are affected	1000
8	Sulphate as SO4	200	Beyond this causes gastro intentional irritation when magnesium or sodium are present	400
9	Nitrates as NO3	45	Beyond this methanemoglobinemia takes place	No relaxation
10	Fluoride	1.0	Fluoride may be kept as low as possible. High fluoride may cause fluorosis	1.5
11	Iron as Fe	0.3	Beyond this limit taste/ appearance are affected, has adverse effect on domestic uses and water supply structures, and promotes iron bacteria.	1.0
12	Arsenic as As	0.01	Beyond this, the water becomes toxic	No relaxation
13.	Uranium	0.03	Kidney disease, Carcinogenic	No relaxation

4.2. Data Validation / Data Quality Control

Groundwater quality data validation is an essential step in ensuring the reliability and accuracy of the data. Here are some of the main steps for groundwater quality data validation.

A. Checking of Data Consistency: Checking of the data for consistency by comparing the measurements of a particular parameter over time. This will help identify any changes in the groundwater quality due to measurement methodology or equipment

B. Checking the correlation between EC and TDS:

a. The relationship between the two parameters is often described by a constant (commonly between 0.55 and 0.95 for freshwaters).

b. Thus: TDS (mg/l) ~ (0.55 to 0.95) x EC (mS/cm).

c. The value of the constant varies according to the chemical composition of the water. For freshwaters, the normal range of TDS can be calculated from the following relationship:

d. 0.55 conductivity (mS/cm) < TDS (mg/l) < 0.95 conductivity (mS/cm).

C. Checking the cation-anion balance: When a water quality sample has been analysed for the major ionic species, one of the most important validation tests can be conducted: the cation-anion balance.

Sum of cations = sum of anions

Where:

Cations = positively charged species in solution (meq/l)

Anions = negatively charged species in solution (meq/l)

The Electronic charge balance is expressed as follows:

$$(\text{Electronic Charge Balance (ECB\%)} \quad = \frac{\sum \text{Cations} \ - \ \sum \text{Anions}}{\sum \text{Cations} \ + \ \sum \text{Anions}]} \text{x100}$$

All concentrations should be in epm. Error charge balance were computed for the analytical results and analysis showing more than 10% ECB has not been accepted as it indicates that there has been an error made in at least one of the major cation/anion analyses.

4.3. Hydro-chemical facies

The piper diagram proposed by Hill and Piper in (1944) to present the hydro-chemical facie on the basis of major ions cations (calcium, magnesium and the alkali metals- sodium and potassium) and anions (bicarbonate, chloride and sulfate) present in ground water. Each cation value is then plotted, as a percentage of the total concentration (meq/L) of all cations under consideration, in the lower left triangle of the diagram. Likewise, individual anion values are plotted, as percentages of the total concentration of all anions under consideration, in the lower right triangle. Sample values are then projected into the central diamond-shaped field. Fundamental interpretations of the chemical nature of a water sample are based on the location of the sample ion values within the central field.

4.4. Irrigation water quality indices

Suitability of ground water for irrigation can be assessed using the indices for salinity and sodacity. Apart from various indices such as Sodium soluble percentage (SSP), Residual sodium carbonate (RSC), Sodium adsorption ratio (SAR), Percentage sodium (%Na) and Kelly index (KI) besides concentration of certain soil tolerance elements. The quality criteria for irrigation water are evaluated on the basis of chemical characteristics indicative of their potential to create soil condition hazardous to crop growth and yields. The prevailing criteria of quality for irrigation are total concentration of soluble salts (Salinity), concentration of sodium relative to calcium and magnesium (sodacity), relative proportion of carbonates, bicarbonate to calcium, magnesium, and other elements that may be toxic to plant growth and yields. In 1954 The US Salinity Laboratory has developed a diagram to classifying to decide the suitability of ground water for irrigation purposes. It is a plot of SAR verses electrical conductivity in semi log scale. Conductivity (C) and Sodacity(S) are classification as C_1S_1, C_2S_2, S_2C_1, S_2C_2 etc. are extensively used and consists of 16 groups of irrigation waters suitability.

a. **Sodium soluble percentage (SSP):** Soluble Sodium Percentage (SSP) of the water is calculated by applying the equation given below in which the values are expressed in meq/l. The sodium in water replaces Ca in the soil by Base Exchange process decreasing the soil permeability. Water with less than or equal to 50 SSP value is of good quality

and more than 50 is not suitable for irrigation as permeability will be very low.

$$\mathbf{SSP} = \frac{\mathbf{Na}}{(\mathbf{Ca} + \mathbf{Mg} + \mathbf{Na})} * \mathbf{100}$$

b. Residual sodium carbonate (RSC): The concentration of carbonate and bicarbonate also plays a very vital role for classification of irrigation water. The relative abundance of sodium with respect to excess of carbonate and bicarbonate over alkaline earth also affects the suitability of water for irrigation purpose and this excess is denoted by residual sodium carbonate (RSC) and is determined by the formula as given, where all ions in meq/l. The RSC value of < 1.25 are considered good for irrigation, where as those with in 1.25 to 2.50 are marginally suitable and samples with > 2.50 of RSC value are not suitable for irrigation (Eaton 1950, Rechards 1954).

$$\mathbf{RSC} = (\mathbf{HCO3} + \mathbf{CO3}) - (\mathbf{Ca} + \mathbf{Mg})$$

c. Sodium adsorption ratio (SAR): The most common measure to assess sodicity in water and soil is called the Sodium Adsorption Ratio (SAR). The SAR defines sodicity in terms of the relative concentration of sodium (Na) compared to the sum of calcium (Ca) and magnesium (Mg) ions in a sample. The SAR assesses the potential for infiltration problems due to a sodium imbalance in irrigation water. The SAR value <10 makes the ground water quite suitable for irrigation SAR is >10 less suitable for irrigation as per Richards (1954) classification.

$$\mathbf{SAR} = \frac{\mathbf{Na}}{\sqrt{(\mathbf{Ca} + \mathbf{Mg})/\mathbf{2}}}$$

d. Percentage sodium (%Na): Percentage sodium (%Na) is an indication of the soluble sodium content of the groundwater and also used to evaluate Na hazard. In all natural waters, %Na is a common parameter to assess its suitability for irrigation purposes since sodium reacts with the soil to reduce permeability. As Percentage sodium value increases the category of water moves form excellent to good, good to doubtful, and unsuitable for irrigation.

$$\%\mathbf{Na} = \frac{(\mathbf{Na} + \mathbf{K})}{(\mathbf{Ca} + \mathbf{Mg} + \mathbf{Na} + \mathbf{K})} * \mathbf{100}$$

e. Kelly Index (KI): Kelly's ratio (KR) introduced by Kelly, is an important parameter used in the evaluation of water quality for irrigation. This parameter is based the Na, Ca and Mg levels in the groundwater. According to this classification, groundwater with a KR value greater than one (>1) is deemed unfit for irrigation.

$$\mathbf{KI} = \frac{\mathbf{Na}}{(\mathbf{Ca} + \mathbf{Mg})}$$

f. Magnesium Ratio: Magnesium Ratio (MR) is calculated applying following equation in which the ions are expressed in meq/l.

MR = (Mg*100) / (Ca+Mg)

MR value >50 is considered unsuitable for irrigation (Lloyd and Heathcote 1985).

Table 5 -Guidelines for evaluation of quality of irrigation water

Water class	Sodium (Na) %	Electrical Conductivity: mhos/cm at 25^{0}C	Alkalinity hazards	
			SAR	RSC (meq/l)
Excellent	< 20	< 250	< 10	< 1.25
Good	20 – 40	250 – 750	10 – 18	1.25 – 2.0
Medium	40 – 60	750 – 2250	18 – 26	2.0 – 2.5
Bad	60 – 80	2250 - 4000	> 26	2.5 – 3.0
Very bad	> 80	> 4000	> 26	> 3.0

Table 6 -Safe Limits for electrical conductivity for irrigation water (IS:11624-1986)

Sr.	Nature of soil	Crop Growth	Upper permissible safe limit of electrical conductivity in water µs/cm at 25°C
1	Deep black soil and alluvial soils having clay content more than 30%; soils that are fairly to moderately well Drained	Semi-tolerant	1500
		Tolerant	2000
2	Textured soils having clay contents of20-30%; soils that are well drained internally and have good surface Drainage system	Semi-tolerant	2000
		Tolerant	4000
3	Medium textured soils having clay 10-20%; internally very well drained and having good surface drainage system	Semi-tolerant	4000
		Tolerant	6000
4	Light textured soils having clay less than 10%; soils that have excellent Internal and surface drainage system.	Semi-tolerant	6000
		Tolerant	8000

In addition to problems caused by total amount of salts, some of the specific ions like sodium, boron and trace elements, if present in water in excess, also render it un-suitable for agricultural use.

5. Result and discussion

The majority of ground water samples were analyzed under NHNS category. N= 971 ground water samples were collected during pre-monsoon NHNS 2023-24 and N=172 numbers of samples were collected during post-monsoon NHNS Study. The samples were mainly analyzed for basic Parameters and the detailed results were presented in Table – 17 (Pre-monsoon results) and Table-18 (post-monsoon results). The obtained chemical analysis results are computed for statistical parameterslike minimum, maximum, average value separately for pre-monsoon & post-monsoon, and compared with BIS standard, the same is presented in Table - 6.

Table 7 -Statistical description of chemical quality of the water samples for 2023-24.

Parameter	Pre-Monsoon			Post-Monsoon			Acceptable Limit	Permissible Limit
	Min	Max	Avg	Min	Max	Avg		
pH	6.5	8.8	7.7	5.3	8.69	7.7	6.5 mg/l	8.5 mg/l
EC µs/cm	41.1	5120	633	84	2490	566		
CO3 mg/l	0	9.0	0.1	0	6	0.1	No Specified Limit	
HCO3 mg/l	6.1	827.4	230	6.1	555	189	No Specified Limit	
Cl mg/l	3.55	651.2	61.2	3.1	271	55	250 mg/l	1000 mg/l
F mg/l	0	4.3	0.5	0	2.45	0.4	1.0 mg/l	1.5 mg/l
SO4 mg/l	0	840.5	29.0	0	528	32	200 mg/l	400 mg/l
NO3 mg/l	0	187.5	16.9	0	68	18	45 mg/l	
PO4 mg/l	0	0.2	0.0	0	0.31	0.0	1 mg/l	1.5 mg/l
TH mg/l	10	1800	222	5	655	208	200 mg/l	600 mg/l
Ca mg/l	2	460.0	49.8	4	192	48	75 mg/l	200 mg/l
Mg mg/l	0	295.2	23.6	1.2	84	20.7	30 mg/l	100 mg/l
Na mg/l	1.15	361	40.6	0.4	163	34	No Specified Limit	
K mg/l	0.01	118.8	6.6	0.1	88.8	5.6	No Specified Limit	
Sio2 mg/l	0	67.3	11.5	1	45.1	12	No Specified Limit	
TDS mg/l	3.417	4952	425	54.6	1618	368	No Specified Limit	
U µg/l	0	114.9	1.4	0	110	2.8	30 µg/l	

5.1. Ground Water Quality in Phreatic Aquifers of Chhattisgarh State.

Ground water of unconfined aquifers zone is widely tapped for water supply across the country therefore; its quality is very important. The chemical parameters like Electrical conductance, Chloride, Fluoride, Nitrate, sulphate, Total hardness, Iron, Arsenic and Uranium etc are main constituents defining the quality of ground water in phreatic aquifers. Therefore, presence of these parameters in ground water beyond the permissible limit in the absence of alternate source has been considered as groundwater quality problem area is discussed as follows.

5.1.1. pH

pH is measure of intensity of acidity or alkalinity of water. pH is the negative logarithm of hydrogen ion concentration. The BIS recommended pH value ranges from 6.5 to 8.5 for drinking purpose. The pH value varies from 6.5 to 8.8 with average value of 7.7 (pre-monsoon) and from 5.3 to 8.7 with average 7.7 (post-monsoon) in ground water of Chhattisgarh. Mostly ground water of state is neutral to mild alkaline in nature. The abundance of the dissolution of weak acid anions carbonate and bicarbonate is more as compare to strong acid anions chloride and sulphate.

5.1.2. Electrical Conductivity

The assessment of Electrical conductance (EC) of groundwater is an essential and integral part of chemical quality study of the water. The EC of water clearly establishes the extent of mineralization of water. Electrical conductivity measures the ability of an aqueous solution to convey an electric current. This conductivity depends on the presence of ions their total concentration, mobility, valence and relative concentration and on the temperature of the liquid. More number of ions gives the high electrical conductivity whereas a smaller number

of ions gives low conductivity value.

Unit of EC is micromhos/cm or micro-seimens/cm and it changes with temperature, usually it is estimate/reported in standard temperature as 25°C (Karanth, 1987). EC of water increases with salt content (Todd, 1980). The EC of water is a measure of mineralization and could be used to predict the concentration of calcium, magnesium, sodium, alkalinity, sulphate and chloride. Thus, EC values could be used to estimate concentration of other constituents within desired precision. Changes in EC of a sample indicate changes in mineral composition of raw water, intrusion of saline water and pollution from industrial water. EC is converted to TDS by multiplying factor which varies from 0.55 to 0.95 depending upon the nature of soluble ionic components, their concentration and the temperature of water (Hem 1991). The TDS is normally analyzed in the laboratory by gravimetric dry residual method (evaporation, drying and weighing). TDS values are extensively used to assess the suitability of water for different purposes and to classify the water in to different categories and to classify the water in to different categories. The BIS has recommended a limit of 500 mg/L total dissolved solids for drinking water which is approximately equal to EC 750 μS/cm at 25^0C that can be extended to a TDS of 2000 mg/L approximately equal to EC 3000 μS/cm at 25^0C in case of no alternate source. Water having TDS more than 2000 mg/L is not suitable for drinking purpose.

The Electrical conductivity value varies from 41 to 5120 μS/cm with average value of 633 μS/cm (pre-monsoon) and from 84 to 2490 μS/cm with average 566 μS/cm at 25°C (post-monsoon) in ground water of Chhattisgarh. Around 69.7% of the samples (677 samples) the EC values were < 750 μS/cm and only 0.62% samples (6 samples) were more than 2250 μS/cm. Total 288 samples (29.66%) were found between 750-2250 μS/cm. In Fig 6, the EC values (in μS/cm at 25^0C) of ground water from monitoring wells have been used to show distribution patterns of electrical conductivity in different ranges of suitability for drinking purposes. It is apparent from the map that majority of the waters having EC values less than 750 μS/cm.

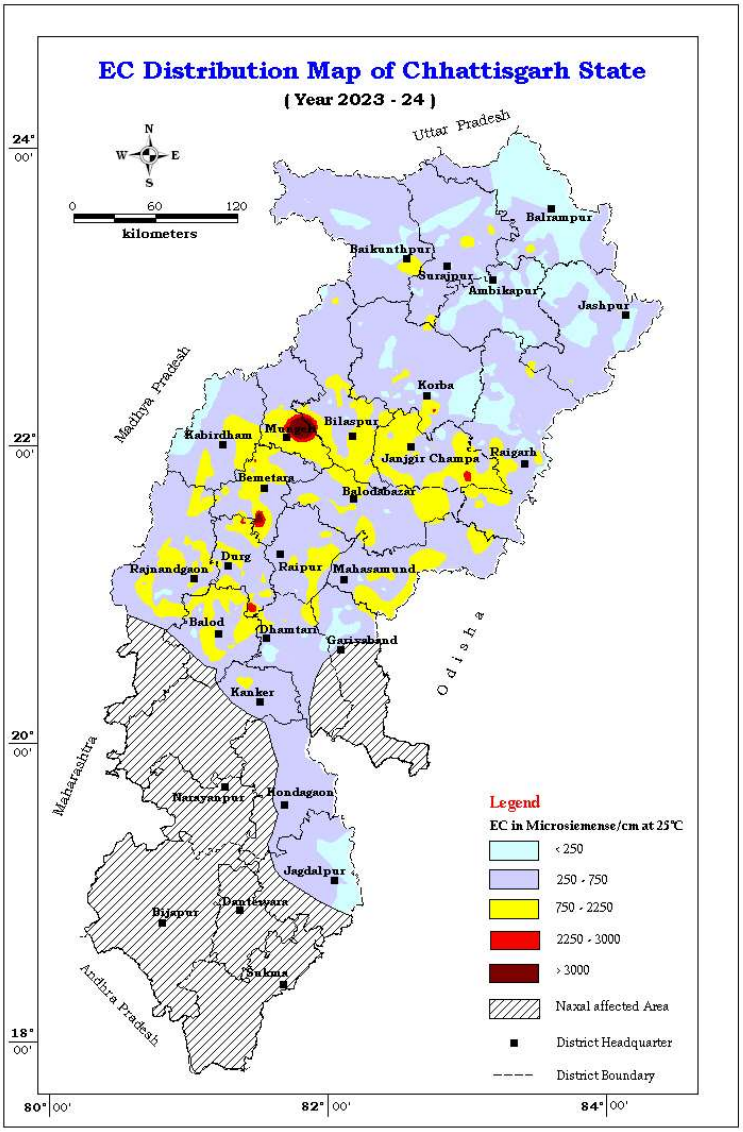

Figure 6 -EC distribution map of Chhattisgarh State.

Trend on Electrical Conductivity - The Trend Analysis is an important tool to determine whether the measured values of the water quality variables increase or decrease during the study period. The Electrical Conductivity (EC) of groundwater is contributed by all the ionic constituents dissolved into it. Therefore, EC is a measure of the total ionic content of the water. Therefore, EC parameter can be used to assess the source of inorganic pollution as most of the inorganic compounds are present as ions in the water. Hence, EC was taken to assess the trend of ground water quality in the State of Chhattisgarh. As compared to other years, the number of wells monitored during 2020 and 2021 is less due to COVID pandemic situation across the world. The percentage of wells with electrical conductivity more than 2250 µS/cm for the period of 2017 to 2023 were compared and presented in the Table -8 and Fig -7 and observed that the percentage of samples exceed the permissible limit of 2250 µS/cm were ranging between 0.1- 1.18 % and no significant trend was noticed.

Table 8 -Locations of wells having EC >2250 µS/cm during the period of 2017-2023

Year	No. of districts affected by EC	No. of locations affected by EC	Total Number of samples analysed	% age of locations affected by EC
2017	1	1	958	0.10%
2018	4	5	939	0.50%
2019	1	2	917	0.21%
2020	6	7	590	1.18%
2021	1	3	856	0.35%
2022	1	1	858	0.10%
2023	2	2	971	0.21%

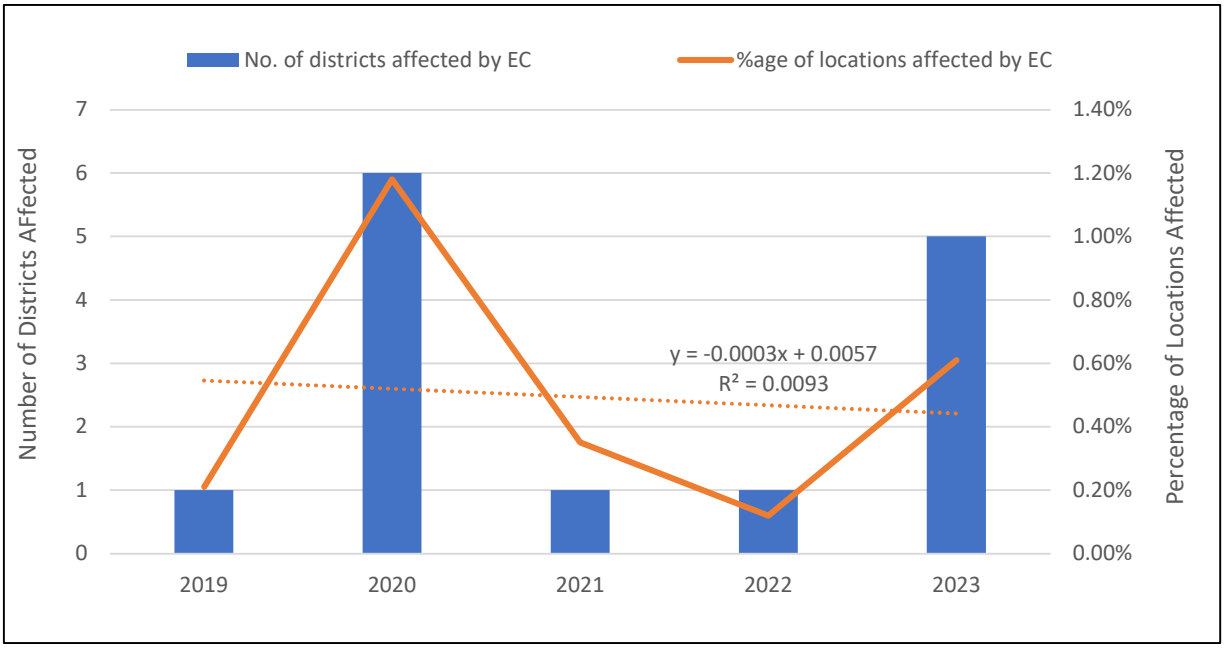

Figure 7 -Trend of Electrical Conductivity in the State during 2019-2023.

5.1.3. Alkalinity

Carbonate & Bicarbonate (CO_3^-& HCO_3^-) is a measure of the buffering capacity of water, that is how effective the water is at neutralizing acidity. Measuring alkalinity shows us the ability of water to resist changes in pH. Waters with low alkalinity are very susceptible to changes in pH (e.g. from acidic rainfall or pollution). Waters with high alkalinity are able to resist major shifts in pH. Alkalinity helps to regulate the pH of a water body, and also regulate the metal content. It is generally determined by titrating with acid down to a pH of about 4.5 and is equal to the concentrations of HCO_3 + 2× CO_3 (mmol/l) in most samples. The primary source of carbonate and bicarbonate ions in ground water is the dissolved carbon dioxide in rain and snow, which as enters the soil dissolves more carbon dioxide. An increase in temperature and decrease in pressure causes reduction in the solubility of carbon dioxide in water. Decay of organic matters also releases carbon dioxide for dissolution. The pH of water indicates the form in which carbon dioxide is present in water. Presence of carbonic acid is indicated when pH is less than 4.5, bicarbonate in pH between 4.5 to 8.3 and carbonate in pH over 8.2.

The carbonate concentration in the state of Chhattisgarh varies from 0.0 to 9.0 mg/l with an average concentration of 0.1 mg/l (pre-monsoon) and from 0 to 6.0 mg/l with average 0.1 mg/l (post-monsoon). The bicarbonate values vary from 6.1 to 827.4 mg/l with an average concentration of 230 mg/l (pre-monsoon) and from 6.1 to 555 mg/l with average 189 mg/l (post-monsoon). The carbonate alkalinity was observed only 0.31% ground water of the state. Higher bicarbonate concentration was observed at one location in three different districts viz Raipur, Rajnandgaon and Dhamtari.

5.1.4. Chloride (Cl^-)

Chloride (Cl^-) is one of the most common constituents of natural waters. It is n important entity in ground water, though its presence in crustal rocks is insignificant. However, processes like evaporation, repeated evaporation and dissolution of salts, contact with evaporitic bodies, presence of entrapped water during sedimentation and sea water intrusion are few processes responsible for the high content of chloride in ground water. Chloride salts are highly soluble and free from chemical reaction with minerals of the reservoir rock and remains in sodium chloride form. However, chloride concentration may exceed than that of sodium due to base-exchange processes. Calcium and magnesium chloride rich ground water are quite rare. Abnormal concentration may due to sewage and industrial wastes.

The chloride concentration in the state of Chhattisgarh varies from 3.55 to 651 mg/l with an average concentration of 61.2 mg/l (pre-monsoon) and from 3.1 to 271 mg/l with average 55 mg/l (post-monsoon).

As per BIS guidelines the acceptable and maximum permissible limits of chloride in drinking water from 250 to 1000 mg/l respectively. The chloride concentrations were observed below the acceptable limit in 97.63% of the ground water and remaining 2.36% of the water (23 samples) it was observed between the acceptable and permissible limit of drinking water. The chloride distribution in the ground water of Chhattisgarh State is presented in Fig. – 8.

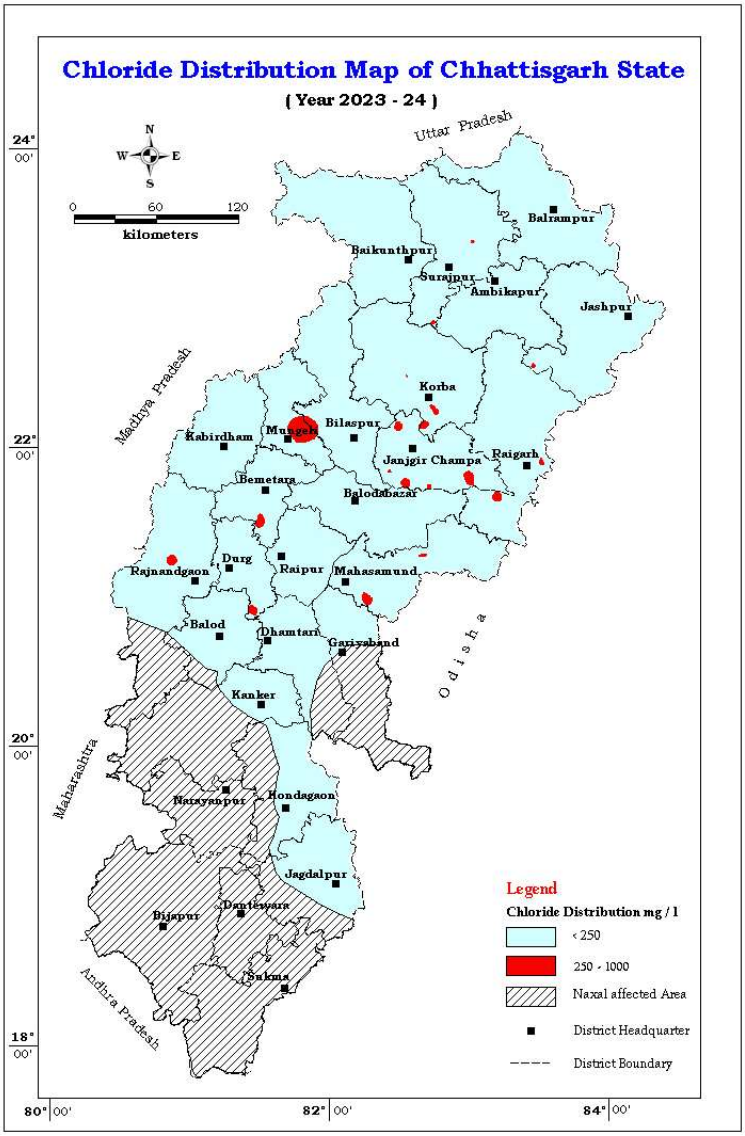

Figure 8 - Chloride distribution map of Chhattisgarh State.

5.1.5. Sulphate (SO_4^{2-})

Sulphate ions occur mostly in the evaporate sediments as anhydrite and as gypsum. The sulphur content in atmospheric precipitation is only about 2 ppm, but wide range in sulphate content is made possible in ground water through oxidation, precipitation, solution and concentration as water traverses through rocks. The primary source of sulphur is the sulphide minerals present in igneous and metamorphic rocks and gypsum & anhydrides present in sedimentary rocks. Apart from that application of fertilizer and soil conditioner also plays great role in its abundance in ground water. Reduction of sulphate by bacteria and precipitation of gypsum may also cause the removal of sulphate from ground water. Higher content of Sulphate (SO_4^{2-}) in drinking water causes gastrointestinal irritation.

The sulphate concentration in the State was recorded ranges from 0.0 mg/l and 840.5 mg/l with an average concentration of 29.0 mg/l. As per the BIS (2012) guidelines the acceptable and permissible limits for sulphate in drinking water are 200 mg/l and 400 mg/l, respectively.

In all the ground water of the state having sulphate concentration within the acceptable limits except Bemetara District (1 location), Mungeli District (4 locations) and Rajnandgaon (1 location) were ground water samples have sulphate concentration > 400 mg/l; above permissible limit. The distribution map of Sulphate parameter and trend during 2019-23 across the state is presented in Figure – 9 and Figure- 10 respectively.

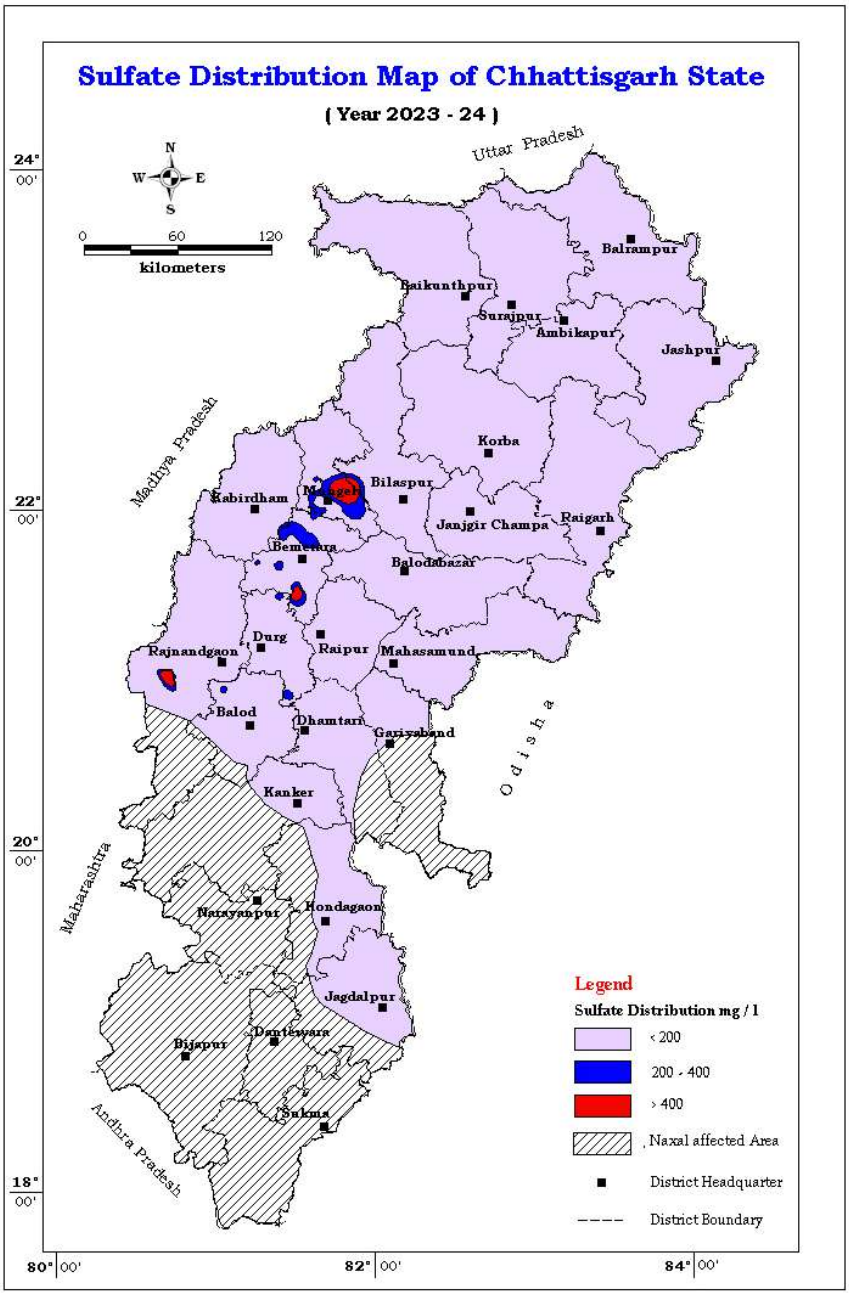

Figure 9 - Sulphate distribution map of Chhattisgarh State during 2023-24.

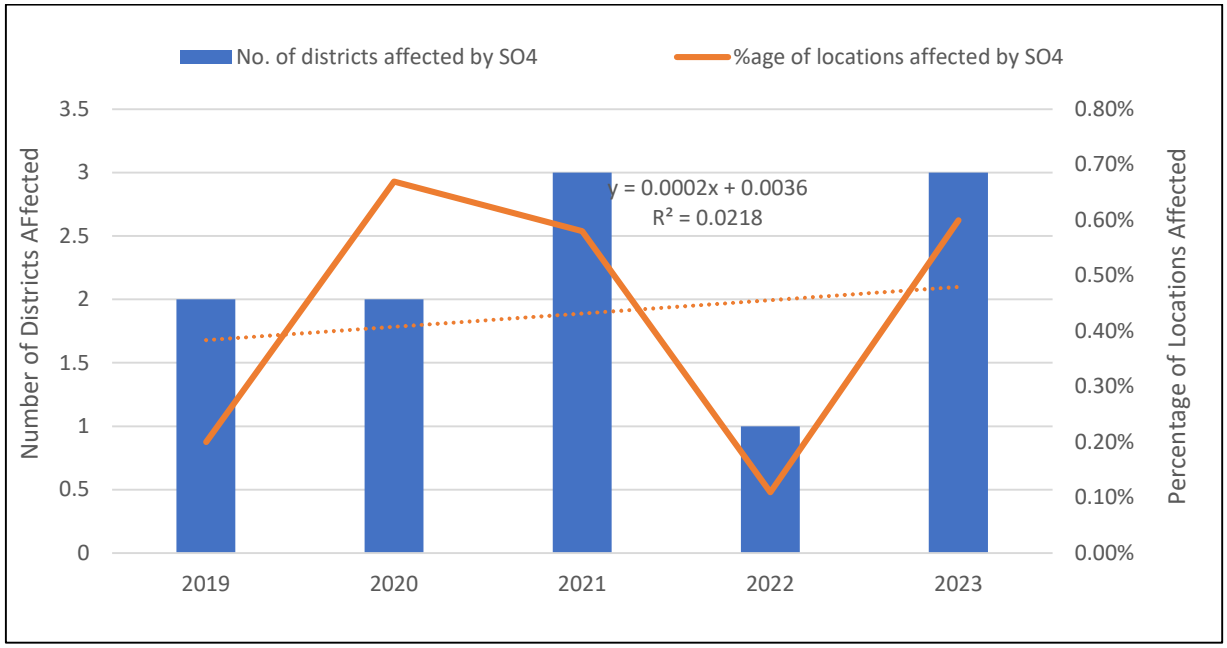

Figure 10 – Trend of the Sulphate parameter in the State during 2019 - 2023.

5.1.6. Nitrate (NO_3^-)

Atmospheric Electric discharge during lightning is the main process through which nitrate enters in to the ground water cycle. The main contribution of nitrate comes from decaying of organic matters, sewage wastes and the application of fertilizers. As such high concentration of nitrate is found in localized areas. The higher concentration of nitrate (NO_3^-) in ground water is due to the anthropogenic activities (waste disposal) and it causes methemoglobinemia (Blue babies' syndrome). When levels of Nitrate are high excess of nitrite is formed which is absorbed by hemoglobin and converted to methemoglobin that renders the hemoglobin molecule incapable of transporting oxygen. Infants when ingested with high Nitrate concentrations suffer from Cyanosis (Methemoglobinemia) or blue baby. The nitrate concentration in ground water of Chhattisgarh varies from 0.0 to 187 mg/l with an average concentration of 16.9 mg/l (pre-monsoon) and from 0 to 68 mg/l with average 18 mg/l (post-monsoon). There is no relaxation beyond the acceptable limit (45 mg/l) of nitrate for drinking water.

In around 11.94% of ground water (116 samples) in the state having nitrate concentration is above the permissible limit (>45 mg/l) presented in Fig. 10. Rest of the 88% ground water (855 samples) having nitrate concentration below the permissible limit (<45 mg/l).

Trend on Nitrate - Trend analysis determines whether the measured values of the water quality variables increase or decrease during a time period. Nitrate is one of the major indicators of anthropogenic sources of pollution. Nitrate is the ultimate oxidized product of all nitrogen containing matter and its occurrence in groundwater can be fairly attributed to infiltration of water through soil containing domestic waste, animal waste, fertilizer and industrial pollution. As the lithogenic sources of nitrogen are very rare, its presence in ground water is almost due to anthropogenic activity. Hence, nitrate was taken to assess the trend of

ground water quality in India due to anthropogenic activity. The distribution map of Nitrate in the groundwater of the state is presented in Fig – 11.

The percentage of well exceeds the permissible limit of 45 mg/L for the period of 2019 to 2023 were compared and presented in the Table -9 and the trend is presented in Fig- 12 and observed that the percentage of samples exceed the permissible limit of nitrate (> 45 mg/L) were ranging between 4 - 21 % and no significant trend was noticed. It is also observed that the type of waste generated is important in causing the nitrate pollution and also indicates that domestic waste leads to more nitrate problem. This could be due to the leaching of nitrate from the open sewerage lines.

Table 9- Locations of wells having Nitrate >45 mg/L during the period of 2019-2023

Year	No. of districts affected by NO3	No. of locations affected by NO3	Total Number of samples analysed	% age of locations affected by NO3
2019	16	39	917	4.30%
2020	15	128	590	21.70%
2021	23	141	856	16.47%
2022	19	120	858	13.98%
2023	19	116	971	11.94%

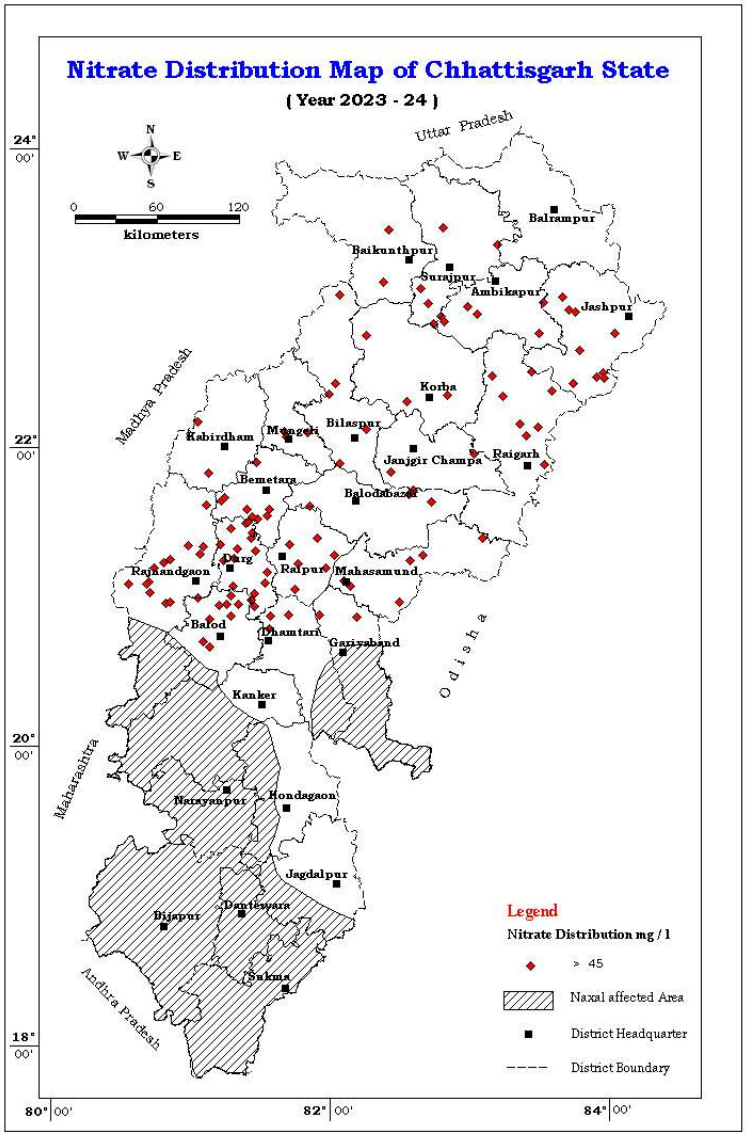

Figure 11 - Locations of well with > 45 mg/l Nitrate in the state during 2023-24.

Trend with respect to Nitrate parameter in the ground water of the state is presented in below figure-12.

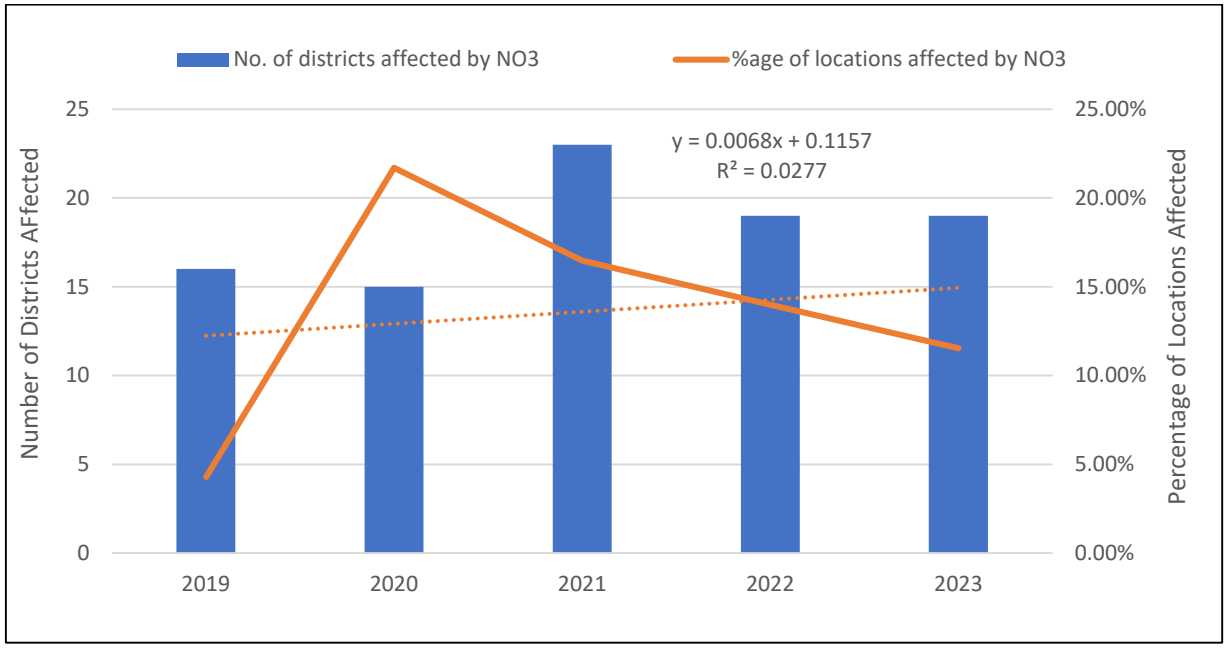

Figure 12 -Trend of Nitrate parameter in the State during 2019-2023.

Districts with the locations where Nitrate concentration in the ground water has been found above the maximum permissible limits (>45 mg/l) are presented in Table - 10.

Table 10 - Locations with Nitrate concentration (>45 mg/l) during 2023-24.

Sr.	Districts	Locations
1.	Balod	Danganiya, chichalgondi. Gujara
2.	Balodabazar	Bilaigarh, Haswa, Hathband, Udela
3.	Bemetara	Dadhi, Berla, Saroda, Sondh new, Barhapur, Suwartala
4.	Bilaspur	Dagauri, Belgahana, Jhingatpur, Marwahi, Matiyari
5.	Dhamtari	Bhatagaon. Gattasilli
6.	Durg	Kharra, Murmunda, Dargaon, Girola, Litia, Pendritarai, Ravelidih, Thengabhat, Baklitola, Janjgiri, Jeora-sirsa, Nagpura, Arjunda, Sikosa, Tabera, Bhansuli R, Khurdmudi, Marra, Motipur, Bortara, Parpoda
7.	Gariyabandh	Baronda, Kashi Bahara, Sursabandha
8.	JanjgirChampa	Adbhar, Seorinarayan, Dongakahrod
9.	Jashpur	Durgapara, Pandripani, Raoni, Binjapur, Amdiha, Tapkara, Bewartoli, Narayanbahali, Pagurabahar, Kotba
10.	Kawardha	Chilpi, Sahaspur lohara.1
11.	Korba	Dhegurdih manzipara, Hardibazar, Lenga
12.	Koriya	Khadgaon, Bhainswar
13.	Mahasamund	Suarmar, Jhalkhamhariya, Mahasamund.1, Kaudiya, Sankra, Badesara
14.	Mungeli	Daukapa, Deori, Mungeli
15.	Raigarh	Bakaruma, Durgapur, Gersa, Nawapara, Lailunga, Jamgaon(Basti), Amaghat, Gare
16.	Raipur	Abhanpur-d, Arang, Ranisagar, Mandhar, Mandirhasud, Math
17.	Rajnandgaon	Chitratola, Devkatta, Dongargaon.1, Kokpur I, Mathaldabri, Bharritola, Dhara, Ghortalab, Govindpur, Lal bhadurnagar, Badaitola, Bhatgaon, Patewa, Ranitarai.
18.	Surajpur	Odigi, Jagannathpur, Hanumangarh, Premnagar, Shivnagar, Tara
19.	Surguja	Sitapur-d, Choudeya, Parsa, Jajga

Remedial Measures for Nitrate - For removal of nitrate both non-treatment techniques like blending and treatment processes such as ion-exchange, reverse osmosis, biological denitrification and chemical reduction are useful. The most important thing is that neither of these methods is completely effective in removing all the nitrogen from the water.

a) Methods involving no treatment: In order to use any of these options the nitrate problem must be local-scale. Common methods are –

- Raw water source substitution
- Blending with low nitrate waters

This greatly reduces expenses and helps to provide safer drinking water to larger numbers of people.

b) Methods involving Treatment: They are as follows

- Adsorption/Ion Exchange
- Reverse Osmosis
- Electrodialysis
- Bio-chemical Denitrification **(**By using denitrifying bacteria and microbes)
- Catalytic Reduction/Denitrification (using hydrogen gas)

The mechanism of nitrate pollution in subsurface porous unconfined/confined aquifer is governed by complex biogeochemical processes. Apart from recharge conditions, groundwater chemistry may be impacted by the mineral kinetics of water-rock interactions. Consequently, suitable nitrate removal technologies should be selected. Nitrate is a very soluble ion with limited potential for co-precipitation or adsorption. This makes it difficult such as chemical coagulation, lime softening and filtration which are commonly used for removing most of the chemical pollutants such as fluoride, arsenic and heavy metals. According to King et al., 2012 nitrate treatment technologies can be classified in two categories i.e. nitrate reduction and nitrate removal options. Nitrate removal technologies involve physical processes that does not necessarily involve any alteration of the chemical state of nitrate ions. Bio-chemical reduction options aim to reduce nitrate ions to other states of nitrogen, e.g. ammonia, or a more innocuous form as nitrogen gas. In-situ bioremediation is also effectively used in used in nitrate treatment of contaminated groundwater. Reverse Osmosis, catalytic reduction and blending are effective methods for nitrate removal from groundwater. For nitrate removal, operating trans-membrane pressure of RO unit generally ranges from 20 to 100 bar, presented in Fig. 13.

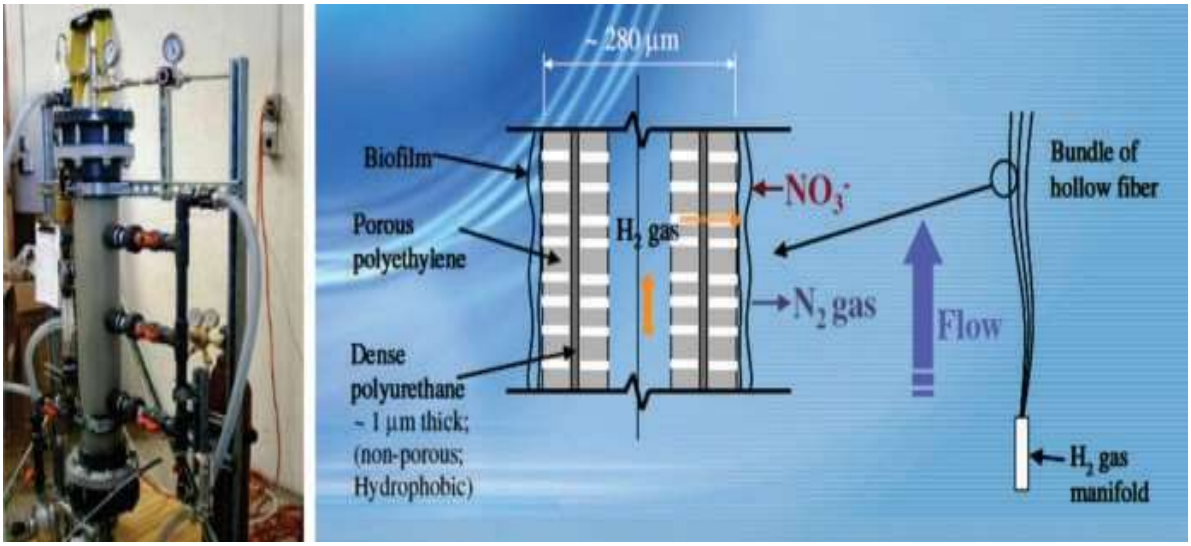

Figure 13 -Advanced Nitrate Reduction Hollow Fibre Membrane Reactor (Source: Hand Book for Drinking Water Treatment, JJM, Ministry of Jal Shakti, Gov. of India)

5.1.7. Fluoride (F^-)

Fluoride occurs as fluorspar (fluorite), rock phosphate, triphite, phosphorite crystals etc., in nature. The common accessory minerals like Hornblende, Biotite and Muscovite. Chemical weathering leads to the breakdown of these minerals and add fluoride to ground water. At low concentrations fluoride can reduce the risk of dental cavities. High values also cause dental carries and teeth decay. Very high value of fluoride in drinking water causes mottling of teeth and fluorosis.

The concentration of fluoride in the state was observed from 0 to 1.8 with an average concentration of 0.4 mg/l. As per the BIS guidelines the acceptable and permissible limits for fluoride in drinking water are 1.0 and 1.5 mg/l, respectively. 90.4% (878 samples) of ground water having fluoride concentration is below the acceptable limit. In 6.8% ground water (66 samples) it was observed between the acceptable and permissible range (1.0-1.5 mg/l) and only in 2.78% (27 samples) of ground water it is above the permissible limit (>1.5 mg/l). The Locations having Fluoride Concentration >1.5 mg/L in Chhattisgarh State is presented in Table-11 and Fig. 14.

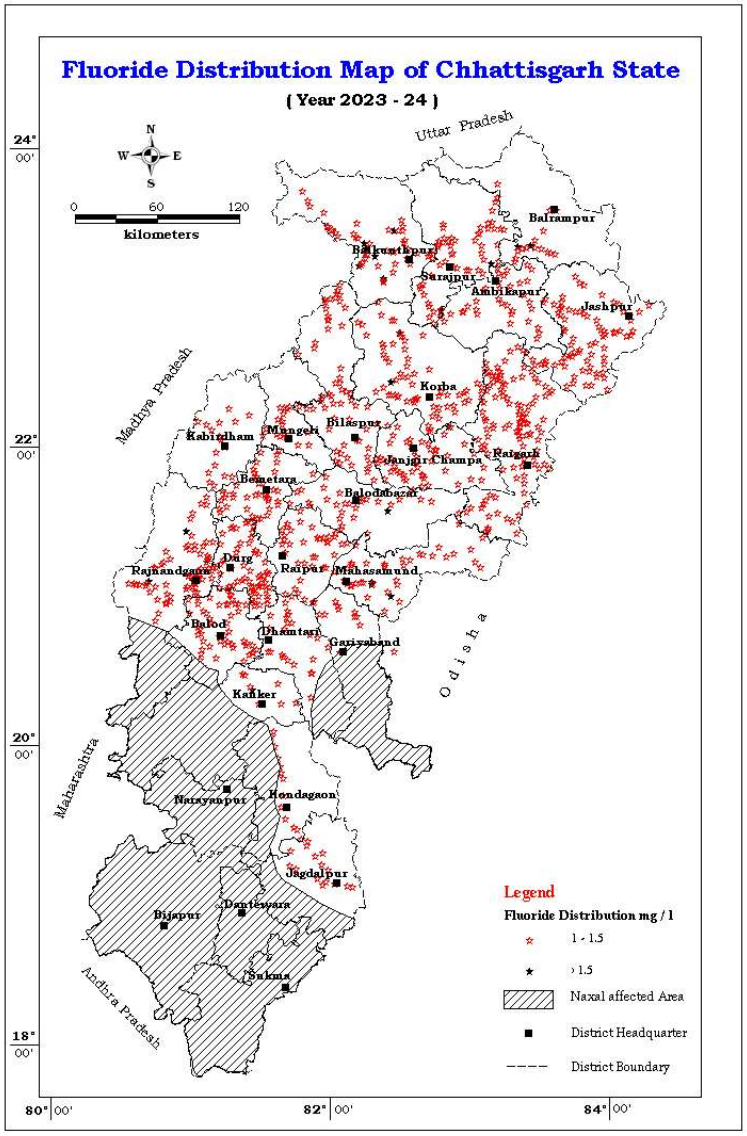

Figure 14 - Locations with Fluoride concentration > 1.0 mg/l in the state during 2023-24.

Table 11 - Locations having F content >1.5 mg/l during the period of 2023-24.

Sr.	District	Location
1	Balodabazar	Temri
2	Balrampur	Chilamkala, Jhingo
3	Dhamtari	Singhpur
4	Janjgir Champa	Saliabhata
5	Kanker	Telgara
6	Korba	Chaitama, Nawapara (Chotia), Tanakhar EW
7	Koriya	Khodri, Akhradand, Khadgaon, Biharpur, Manendragarh, Nagpur, Pendri
8	Mahasamund	Boirgaon, Khallari, Maulimuda
9	Rajnandgaon	Govindpur, Ranitalab, Uraidabritola, Khairagarh, Paneka, Reevagahan
10	Surajpur	Majeera
11	Surguja	Mudgaon

Trend on Fluoride - Fluorine is the thirteenth most common element in Earth's crust at 600–700 ppm (parts per million) by massThe occurrence of fluoride in groundwater is mainly due to weathering and leaching of fluoride bearing minerals from rocks and sediments. To assess the trend of ground water pollution due to geogenic contamination, the percentage of well exceeds the permissible limit of 1.5mg/L for the period of 2017 to 2023 were compared and presented in Table- 12 and observed that the percentage of samples exceed the permissible limit of fluoride 1.5 mg/L were between 1.35 and 2.78% and little raising trend was noticed by 0.9% locations. The number of wells monitored in the year 2020 and 2021 is comparatively less due to COVID pandemic situation. Trend on water quality for fluoride was prepared for last five years is presented in Fig. 15.

Table 12 -Locations having F >1.5 mg/l during the period of 2017-2023

Year	No. of districts affected by F	No. of locations affected by F	Total Number of samples analysed	% age of locations affected by F
2017	7	13	958	1.35%
2018	8	16	939	1.70%
2019	11	16	917	1.74%
2020	5	13	590	2.20%
2021	9	17	856	1.98%
2022	7	16	858	1.86%
2023	11	27	971	2.78%

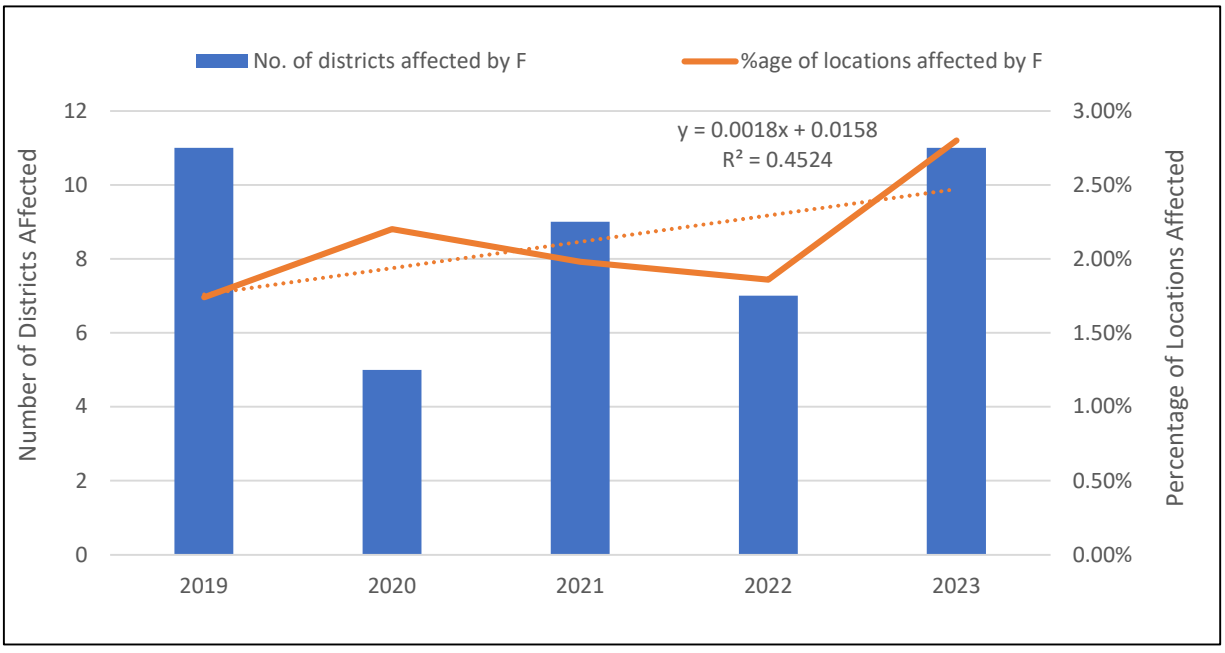

Figure 15 -Trend of Fluoride in ground water of the state during 2019-2023.

Remedial Measures for Fluoride - The analysis of these samples gives the status of Fluoride and removal technology is summarized in table 1. Basically, three technicians have been applied for de- fluoridation discussed as below. First one is installation of defluorination

column in the discharge head of the hand pump. The column is filled with activated alumina which adsorbed the fluoride.

The second technique of defluorination is Electro-de fluoridation technique. The basic principle of the process is the adsorption of fluoride with freshly precipitated aluminum hydroxide, which is generated by the anodic dissolution of aluminum or its alloys, in an electrochemical cell. The fluoride contaminated water is stored in a tank and by Electro-de fluoridation method fluoride is removed from water and it is supply for drinking purpose. In few locations reverse osmosis is also used as an effective technique for the removal of fluoride. The fluoride remedial measures broadly adopted are ex-situ techniques. They can be classified into three major categories.

A. **Adsorption and ion exchange** - This technique functions on the adsorption of fluoride ions onto the surface of an active agent such as activated alumina, red mud, bone char, brick pieces column, mud pot and natural adsorbents where fluoride is removed by ion exchange or surface chemical reaction with the solid bed matrix.

   i. **Activated alumina:** Activated alumina is a highly porous aluminium oxide exhibiting high surface area. Alumina has a high preference for fluoride compared to other anionic species, and hence is an attractive adsorbent. The crystal structure of alumina contains cation lattice discontinuities giving rise to localized areas of positive charge which makes it attract various anionic species. It also does not shrink, swell, soften nor disintegrate when immersed in water. The maximum absorption capacity of activated alumina for fluoride is found to be 3.6 mg F/g of alumina.

   ii. **Ion-Exchange resins:** Synthetic chemicals, namely, anion and cation exchange resins have been used for fluoride removal. Some of these are Polyanion (NCL), Tul-sion A - 27, Deacedite FF (IP), Amberllte IRA 400, LewatitMIH - 59, and AmberliteXE - 75. These resins have been used in chloride and hydroxy form. The fluoride exchange capacity of these resins depends upon the ratio of fluoride to total anions in water.

B. Coagulation-precipitation - Precipitation methods are based on the addition of chemicals (coagulants and coagulant aids) and the subsequent precipitation of a sparingly soluble fluoride salt as insoluble. Fluoride removal is accomplished with separation of solids from liquid. Aluminium salts (eg. Alum), lime, Poly Aluminium Chloride, Poly Aluminium Hydroxy sulphate and Brushite are some of the frequently used materials in defluorination by precipitation technique. The best example for this technique is the famous Nalgonda technique.

   i. Nalgonda Technique - Nalgonda technique involves addition of Aluminium salts, lime and bleaching powder followed by rapid mixing, flocculation, sedimentation, filtration and disinfection. It is opined that this technique is preferable at all levels because of the low price and ease of handling, is highly

versatile and can be used in various scales from household level to community scale water supply.

The Nalgonda technique can be used for raw water having fluoride concentration between 1.5 and 20 mg/L and the total dissolved solids should be <1500 mg/L, and total hardness < 600 mg/L. The alkalinity of the water to be treated must be sufficient to ensure complete hydrolysis of alum added to it and to retain a minimum residual alkalinity of 1 - 2 meq/L in the treated water to achieve a pH of 6.5 - 8.5 in treated water. Several researchers have attempted to improve the technique by increasing the removal efficiency of fluoride using Poly Aluminium Chloride (PAC) and Poly Aluminium Hydroxy Sulphate (PAHS).

C. **Membrane techniques -** Reverse osmosis, nanofiltration, dialysis and electro dialysis are physical methods that have been tested for defluoridation of water. Though they are effective in removing fluoride salts from water, however, there are certain procedural disadvantages that limit their usage on a large scale.

5.1.8. Total hardness

Hardness is caused by multivalent metallic cations. Such ions are capable of reacting with soap to form precipitates and with certain anions present in the water to form scale. The principal causing cations ar divalent cations, calcium, magensium, strontium, ferrous, and manganous ions. These cations plus the most important anions with which are associates, bicarbonate, sulphate and chloride in the order of their relative abudance in natural waters. The effect of hardness is Scale in utensils and hot water system in boilers etc. soap scum's Sources are Dissolved calcium and magnesium from soil and aquifer minerals containing limestone or dolomite.

The total hardness value in ground water of Chhattisgarh varies from 10 to 1800 mg/l with an average value of 222 mg/l (pre-monsoon) and from 5 to 655 mg/l with average concentration of 208 mg/l (post-monsoon). Only in 2.37% (23 samples) of the ground water having total hardness above the BIS maximum permissible limit (>600 mg/l) and around 51.08% (496 samples) of the ground water having total hardness is within the acceptable limit whereas in 46.54% (452 samples) of the ground water it is found between the acceptable and permissible limit which indicates that ground water of Chhattisgarh is moderately to hard in nature.

Trend on Total Hardness - Hardness in the water can result in abnormal cloudiness and scale formation. The hardness in water is derived largely from contact with the soil and rock formations. Total hardness is a measurement of the total mineral content in the water. Total hardness is predominantly caused by cations such as calcium and magnesium and anion such as bicarbonate and sulphate. Total hardness is expressed as $CaCO_3$ in mg/L. The percentage of wells with total hardness more than 600 mg/l for the period of 2017 to 2023 were compared and observed that the percentage of samples exceed the permissible limit of total hardness (> 600 mg/L) were ranging between 0.7 – 2.50 % and no significant trend was noticed, presented

in Table – 13 and Fig.-16.

Table 13 – Locations of wells having TH >600 mg/l during the period of 2017-2023.

Year	No. of districts affected by TH	No. of locations affected by TH	Total Number of samples analysed	% age of locations affected by TH
2017	3	7	958	0.70%
2018	7	23	939	2.40%
2019	7	17	917	1.85%
2020	7	14	590	2.37%
2021	10	21	856	2.50%
2022	8	14	858	1.63%
2023	13	23	971	2.37%

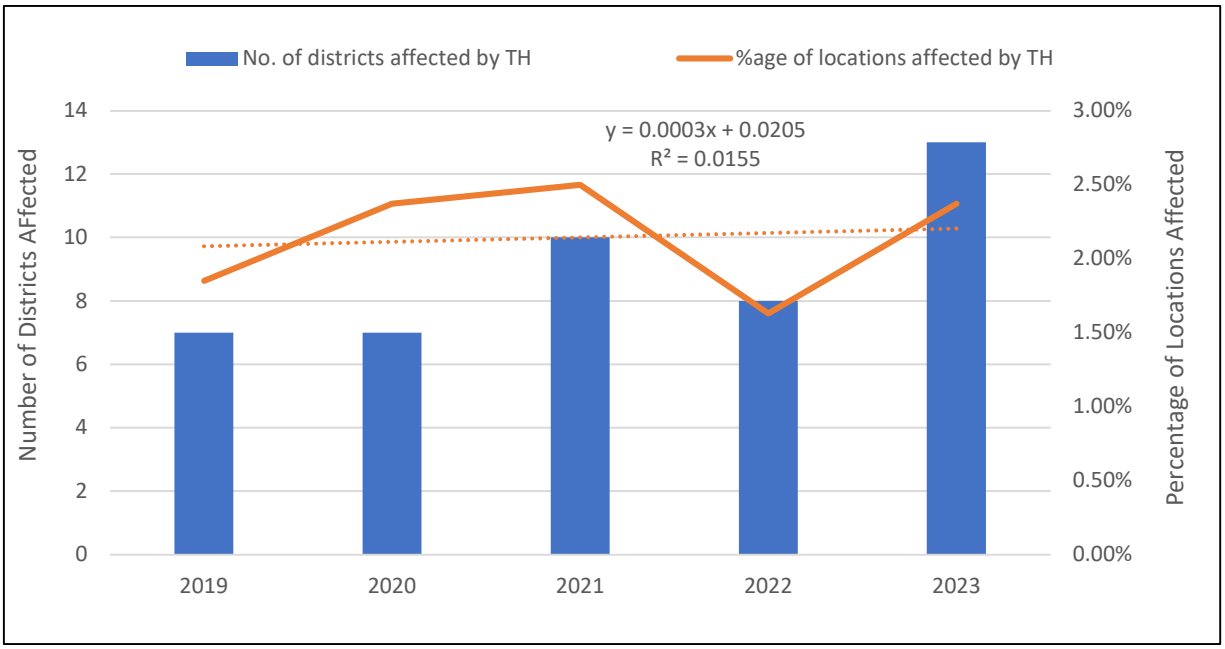

Figure 16 -Trend of Total Hardness in ground water of the state during 2019-2023.

Removal of Total hardness - Hardness in water is caused by calcium and magnesium ions resulting from water coming in contact with geological formations. The calcium and magnesium ions from solutions are removed when treated with lime (CaO) and soda ash (Na_2CO_3) by split treatment softening. This treatment consists of dividing the raw water into two portions for softening in a two-stage system. The larger portion is given excess lime treatment in the first stage by using a flocculator-clarifier, or in-line mixing and sedimentation basins. Soda ash is added to the second stage where the split flow is blended with the treated water. Excess lime used to force precipitation of magnesium in the first stage now reacts with the calcium hardness that was by passed around lime treatment. Thus, the excess lime is used in the softening process instead of being wasted at the expense of carbon dioxide neutralization. In addition, lime treatment has the bacterial action, removal of iron, and aid in clarification of turbid surface waters.

5.1.9. Calcium (Ca^{2+})

Calcium (Ca^{2+}) is the fifth most abundant natural element. It enters the freshwater system through the weathering of rocks, especially limestone (marble, calcite, dolomite, gypsum, fluorite gypsiferous shale, apatite also contributes) and from the soil through seepage, leaching and runoff. The calcium content may range from zero to several hundred milligrams per litre, depending on the source and treatment of the water. Calcium (Ca^{2+}) was the predominant ion in the ground water of the state. It is essential for nervous and muscular system, cardiac function and in coagulation of blood Excess of Calcium results in formation of stones in Kidney and urinary tract.

The concentration of calcium in the state ranges from 2.0 to 460 mg/l with an average concentration of 49.8 mg/l (pre-monsoon) and from 4 to 192 mg/l with average 48 mg/l (post-monsoon). In 83.3% samples (809 samples) the calcium concentration was within the acceptable limits (<75 mg/l) and 29.76% samples (289 samples) were found between the acceptable and permissible limits (75 – 200 mg/l). Calcium content of only 0.62% samples (6 sample) were above permissible limit of 200 mg/l.

5.1.10. Magnesium (Mg^{2+})

Magnesium is the 8th most abundant constituent. Ignesous rocks contain average of 1.76% magnesium. This is mainly confined to olivine, pyroxenes, amphiboles and dark coloured micas. In sedimentary rocks the highest percentage viz. 4.53% is the evaporates, while shales contain 1.64% and sandstones 0.81%. Mg-chlorites, dolomites and Mg-calcites are the most important in the geochemistry of magnesium.

The concentration of magnesium in the state ranges from 0 to 295.2 mg/l with an average concentration of 23.6 mg/l (pre-monsoon) and from 1.2 to 84 mg/l with average 20.7 mg/l (post-monsoon). Total 73.64% samples (715 samples) had magnesium concentrations within the acceptable limit (<30 mg/l) and only 13 samples (1.33%) had above the permissible limit of 100 mg/l, rest of the 243 samples (25%) were found to have calcium concentration between acceptable and permissible limits.

5.1.11. Sodium (Na^{+})

Sodium is the most abundant of the alkali elements in the cosmos and the earth in terms of both atomic abundance and weight percent. It is the sixth most abundant element on Earth and is widely distributed in soils, plants, water and foods. Most of the world has significant deposits of sodium-containing minerals, most notably sodium chloride (salt). Under the physical conditions prevailing in the earth's crust most of the sodium occurs in the feldspars, mica, amphiboles and pyroxene. The amounts of the sodium held in the evaporate sediments and in solution in the ocean form an important part of the total.

The sodium concentration in the state varies from 1.15 to 361 mg/l with an average value of 40.6 mg/l (pre-monsoon) and from 0.4 to 163 mg/l with average of 34 mg/l (post-monsoon). In water, sodium has no smell but it can be tasted by most people at concentrations of 200

milligrams per liter (mg/L) or more. The concentration of sodium affects the efficiency of the soil.

5.1.12. Potassium (K^+)

Potassium is an element commonly found in soils and rocks. In water, potassium has no smell or colour, but may give water a salty taste. Sources of potassium include weathering and erosion of potassium-bearing minerals, such as feldspar, leaching of fertilizer & sea water, in areas susceptible to saltwater intrusion is slightly less abundant than sodium in igneous rocks but in the sedimentary rocks it is far more abundant than sodium. Potassium concentration in the state varies from 0.01 to 118.8 mg/l with an average value of 6.6 mg/l (pre-monsoon) and from 0.1 to 88.8 mg/l with an average of 5.6 mg/l (post-monsoon)

5.1.13. Iron (Fe)

Iron is a common constituent in soil and ground water. It is present in water either as soluble ferrous iron or the insoluble ferric iron. Water containing ferrous iron is clear and colorless because the iron is completely dissolved. When exposed to air, the water turns cloudy due to oxidation of ferrous iron into reddish brown ferric oxide.

The concentration of iron in natural water is controlled by both physico-chemical and microbiological factors. It is contributed to groundwater mainly from weathering of ferruginous minerals of igneous rocks such as hematite, magnetite and sulphide ores of sedimentary and metamorphic rocks. The permissible Iron concentration in ground water is 1.0 mg/L as per the BIS Standard for drinking water. The occurrences of iron in ground water beyond permissible limit (> 1.0 mg /litre) have been shown on the maps as point sources presented in Fig 15. The concentration of iron in ground water of Chhattisgarh state was observed from <0.1 to 26.37 mg/l with an average of 1.82 mg/l. In 338 locations iron concentrations is above the permissible limit (> 1.0 mg/l) are summarized in **Table-14**. A very high concentration of iron was observed at Batati Junction (26.37 mg/l) of Korba district. Distribution of iron in the ground water of Chhattisgarh is indicates that in 35% (211 locations) of ground water having iron contents >1.0 mg/l whereas in 21% (127 locations) of the ground water it is recommended between 0.3 to 1.0 mg/l and rest of the locations it is below the BIS limit. The Iron distribution map in the groundwater of the state is presented in Fig. 17.

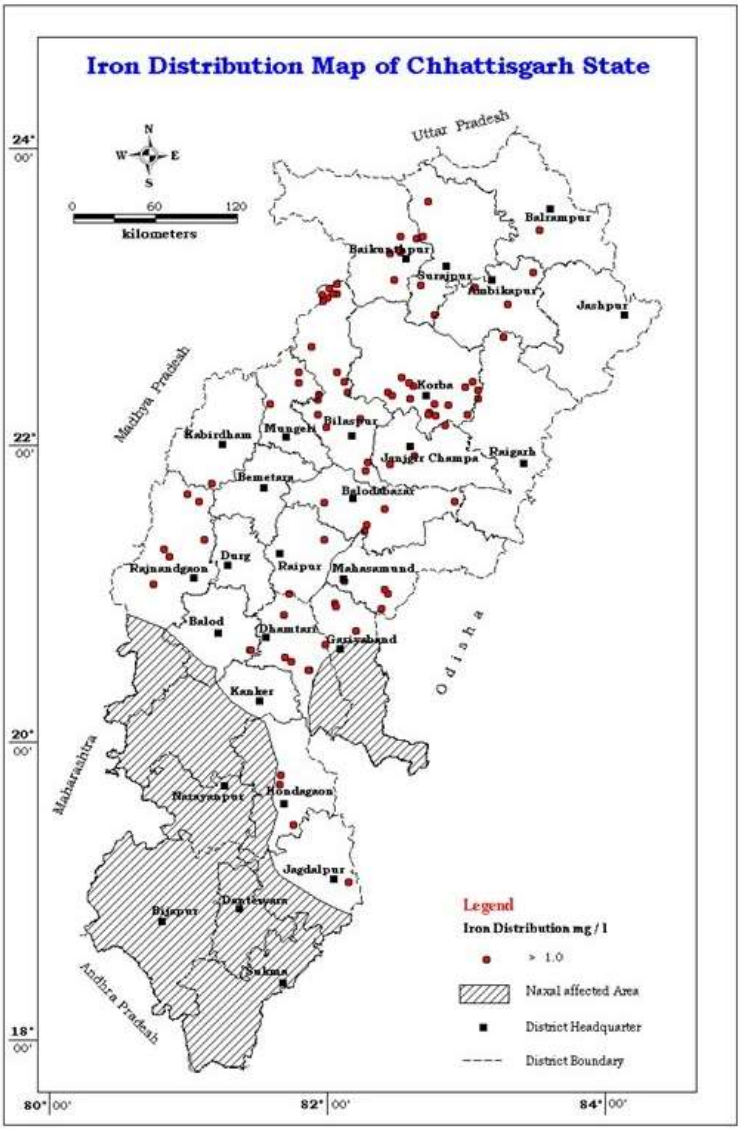

Figure 17 - Locations having Iron Concentration >1.0 mg/l in Chhattisgarh State.

Table 14 - Location of higher Iron content (>1.0 mg/l) in the State.

Sr.	District	Block	Location	Long	Lat	Source	Fe
1	Janjgir-Champa	Nawagarh	Dhurkot	82.62	21.9339	HP	1.0
2	Bilaspur	Gaurela (pendrarod) - 1	Piperkhuti	81.8833	22.6639	HP	1.0
3	Gariyabandh	Chhura	Amethi	82.0499	20.9361	HP	1.1
4	Rajnandgaon	Dongargaon	Chikohola	80.7428	21.0678	HP	1.1
5	Bilaspur	Takhatpur	Neora	81.93167	22.2125	HP	1.1
6	Janjgir-Champa	Shakti	Saliabhata	82.8477	22.1368	HP	01.1
7	Bilaspur	Masturi	Panchpedi	82.27	21.82806	DW	1.1
8	Mungeli	Lormi	Patera	81.93167	22.30944	HP	1.2
9	Bilaspur	Masturi	Malhar	82.2858	21.8914	HP	1.2
10	Gariyabandh	Gariyabandh	Malgaon	81.98072	20.66226	HP	1.2
11	Korba	Kartala	Nanbirra	82.86556	22.27083	HP	1.2
12	Janjgir-Champa	Pamgarh	vyasnagar	82.4509	21.8717	HP	1.3
13	Durg	Gurur	Jagtara	81.4425	20.62222	HP	1.3
14	Balodabazar	Simga	suhela	81.9739	21.6158	HP	1.4

Sr.	District	Block	Location	Long	Lat	Source	Fe
15	Balodabazar	Kasdol	Temri	82.4113	21.5758	HP	1.4
16	Surajpur	Surajpur	Narayanpur	82.6353	23.39573	HP	1.4
17	Balodabazar	Kasdol	Aouri	82.26667	21.42083	HP	1.4
18	Surajpur	Pratappur	Gonda	83.05833	23.0629	HP	1.5
19	Korba	Pali	Dhaurabhata	82.2334	22.1831	HP	1.6
20	Raipur	Arang	Ghivera	81.9752	21.3691	HP	1.6
21	Dhamtari	Kurud	Kondapar	81.725	21.0042	HP	1.6
22	Korba	Korba	Bhaisma (Anjoripali)	82.7668	22.2775	HP	1.6
23	Kondagaon	Pharasgaon	Kulhadhgaon	81.661	19.7817	HP	1.7
24	Balodabazar	Kasdol	Mudhipar	82.28333	21.46667	HP	1.7
25	Korba	Kartala	Sargundia	82.73	22.22694	HP	1.7
26	Ranandgaon	Chuikhadan	Pailimeta	80.9869	21.6716	HP	1.8
27	Balodabazar	Bilaigarh	Sarsiwa	82.9167	21.625	HP	1.8
28	Kawardha	Sahaspur lohara	BijaBairangi	81.16589	21.74189	HP	1.8
29	Koriya	Sonhat	kailashpur	82.47647	23.11608	HP	1.9
30	Korba	Katghora	Gajra	82.61848	22.40498	HP	1.9
31	Mahasamund	Mahasamund	Lavra Khurud	82.1169	21.0886	HP	1.9
32	Korba	Korba	Barpali (Junadhi)	82.7259	22.2063	HP	1.9
33	Korba	Korba	Mudiyanar	82.59049	22.31415	HP	2.0
34	Bilaspur	Takhatpur	Khamharia1	81.9875	22.1222	HP	2.0
35	Korba	Kartala	Jogipali	83.001	22.2057	HP	2.0
36	Bastar	Kondagaon	Joba	81.7552	19.4449	HP	2.1
37	Korba	Korba	Shuklakhar	82.5842	22.422	HP	2.2
38	Korba	Katghora	Lakhanpur	82.53267	22.45729	HP	2.2
39	Bilaspur	Belgahana	Konchua	81.5846	22.2839	HP	2.4
40	Rajnandgaon	Chhuikadhan	Narmada	81.07236	21.62162	HP	2.5
41	Korba	Pali	Nunera	82.43	22.3561	HP	2.5
42	Surajpur	Bhaiyathan	Samouli (Bhayathan)	82.76521	22.8815	HP	2.5
43	Bilaspur	Kota	Saraipalli	81.9361	22.3417	HP	2.5
44	Bilaspur	Kota	Khaira	82.1407	22.3624	DW	2.5
45	Rajnandgaon	Khairagarh	Talagaon	80.8199	21.3019	HP	2.6
46	Bilaspur	Kota	Saudhakhurd	82.0669	22.4972	HP	2.6
47	Bilaspur	Kota	Nawapara	82.12183	22.42917	BW	2.6
48	Bilaspur	Marwahi	Marwahi	82.0694	23.02	HP	2.9
49	Korba	Pali	Nonbirra	82.46167	22.33694	HP	2.9
50	Gariyabandh	Fingeswar	Sarkada	82.05941	20.9143	HP	2.9
51	Surguja	Sitapur	Pratapgarh	83.47639	23.1649	HP	2.9
52	Bilaspur	Marwahi	Chchgohana	82.0365	23.01962	HP	3.0
53	Bilaspur	Marwahi	Tikthi	82.0694	23.0844	HP	3.1
54	Bilaspur	Marwahi	Tendumuda	82.01222	23.05806	HP	3.1
55	Rajnandgaon	Dongargarh	Dhara	80.8594	21.255	HP	3.3
56	Bilaspur	Marwahi	Pandri (Dhanwari Posa)	81.99552	22.99228	HP	3.5
57	Rajnandgaon	Khairagarh	Rangkathera	81.1125	21.3672	HP	4.4
58	Surajpur	Premnagar	Fulkona	82.6672	23.08056	HP	4.6
59	Bilaspur	Marwahi	Seoni	81.9583	23.0125	HP	4.6
60	Gariyabandh	Chhura	Kaseru	82.12333	20.64861	HP	4.7
61	Dhamtari	Sihawa (Nagri)	Jabarra	81.9858	20.4956	HP	5.0
62	Dhamtari	Sihawa (Nagri)	Dugli	81.8708	20.4917	HP	5.0
63	Dhamtari	Nagri	Kouhabahara	81.8575	20.4916	HP	5.1
64	Bilaspur	Pendra road	Dharhar	81.9642	22.9761	HP	5.1
65	Surajpur	Ramanujnagar	Ramanuj nagar	82.725	23.64778	HP	5.7

Sr.	District	Block	Location	Long	Lat	Source	Fe
66	Dhamtari	Sihawa (Nagri)	Dorgardula	81.9111	20.4056	HP	6.0
67	Mahasamund	Bagbahara	Palsipani	82.3833	20.9042	HP	6.4
68	Dhamtari	Kurud	Aouri	81.687	20.857	HP	6.5
69	Dhamtari	Nagri	Farsiya	82.03526	20.32213	HP	6.5
70	Mungeli	Lormi	Tilaidabra	81.795	22.49611	HP	6.6
71	Mahasamund	Bagbahara	Maulimuda	82.4311	21.0055	HP	6.8
72	Mungeli	Lormi	Bindabal	81.795	22.42667	HP	6.9
73	Korba	Kartala	Barpali	82.7733	22.2	HP	6.9
74	Mahasamund	Bagbahara	Bagbahara	82.4083	21.0333	BW	7.4
75	Korba	Korba	Kolga	82.99268	22.39665	HP	7.4
76	Surguja	Ambikapur	Parsa	83.2675	22.73333	HP	7.5
77	Korba	Korba	Jilga	83.0843	22.3713	HP	7.5
78	Koriya	Khadgawan	Banjaridand	82.4497	23.29111	HP	8.1
79	Korba	Kartala	Kudmura	83.07935	22.31913	HP	8.2
80	Balrampur	Balrampur	Pasta	83.525	23.45	HP	8.3
81	Korba	Podi-Uproda	kurtha (new)	22.9283	82.5397	HP	8.8
82	Bastar	Pharasgaon	Lanjora	81.6542	19.7208	HP	9.7
83	Korba	Korba	Basin	83.0448	22.42937	HP	10.4
84	Surajpur	Bhaiyathan	Dalabahara (Bhaskar)	82.68618	23.40712	HP	11.5
85	Koriya	Baikunthpur	Ghugra	82.5237	23.30122	HP	12.6
86	Koriya	Baikunthpur	Khatgori	82.52639	23.4103	HP	12.9
87	Bastar	Jagdalpur	Markel	82.1472	19.0639	HP	13.6
88	Dhamtari	Dhamtari	Shankarda	81.4492	20.622	HP	17.8
89	Gariyabandh	Chhura	Kharkhara	82.20333	20.75583	HP	18.3
90	Dhamtari	Sihawa (Nagri)	Keregaon	81.7375	20.5486	HP	18.7
91	Surguja	Mainpat	Nagdand	83.29167	22.95222	HP	20.0
92	Dhamtari	Dhamtari	Khadadaha	81.6933	20.5733	HP	38.6
93	Koriya	Sonhat	Sonhat	82.51889	23.31389	HP	58.7

Remedial Measures for Iron –

A. **Oxidation and filtration-** Before iron and manganese can be filtered, they need to be oxidized to a state in which they can form insoluble complexes. Ferrous iron (Fe2+) is oxidized to ferric iron (Fe3+), which readily forms the insoluble iron hydroxide complex Fe (OH)3. Manganese (Mn2+) is oxidized to (Mn4+), which forms insoluble (MnO2). The common chemical oxidants in water treatment are chlorine, chlorine dioxide, potassium permanganate and ozone. The dose of potassium permanganate, however, must be carefully controlled. Too little permanganate will not oxidize all the iron and manganese, and too much will allow permanganate to enter the distribution system and cause a pink color.

   Ozone may be used for iron and manganese oxidation. Ozone may not be effective for oxidation in the presence of humic or fulvic materials. If not dosed carefully, ozone can oxidize reduced manganese to permanganate and result in pink water formation as well. Manganese dioxide particles, also formed by oxidation of reduced manganese, must be carefully coagulated to ensure their removal.

   A low-cost method of providing oxidation is to use the oxygen in air as the oxidizing

agent. Water is simply passed down a series of porous trays to provide contact between air and water. No chemical dosing is required. This method is not effective for water in which the iron is complexed with humic materials or other large organic molecules.

Oxidation and Filtration Method for Fe and Mn Removal from Ground Water In general, manganese oxidation is more difficult than iron because the reaction rate is slower. A longer detention time (10 to 30 minutes) following chemical addition is needed prior to filtration to allow the reaction to take place. Manganese greensand is by far the most common medium in use for removal of iron and manganese through pressure filtration. Greensand is a processed material consisting of nodular grains of the zeolite mineral glauconite. The material is coated with manganese oxide. The ion exchange properties of the glauconite facilitates the bonding of the coating. This treatment gives the media a catalytic effect in the chemical oxidation reduction reactions necessary for iron and manganese removal. This coating is maintained through either continuous or intermittent feed of potassium permanganate.

Anthra/sand (also iron-man sand) are other types of media available for removal of iron and manganese. They consist of select anthracite and sand with a chemically bonded manganese oxide coating.

Electromedia is a proprietary multi-media formulation which uses a naturally occurring zeolite and does not require potassium permanganate regeneration. Finally, macrolite, is a manufactured ceramic material with a spherical shape and a rough, textured surface. The principal removal mechanism is physical straining rather than contact oxidation or adsorption. Each medium has its advantages and disadvantages. Selection of a medium and oxidant should be based on pilot testing in which all necessary design criteria can be determined.

B. Ion Exchange- Ion exchange should be considered only for the removal of small quantities of iron and manganese because there is a risk of rapid clogging. Ion exchange involves the use of synthetic resins where a pre-saturate ion on the solid phase (the "adsorbent," usually sodium) is exchanged for the unwanted ions in water. One of the major difficulties in using this method for controlling iron and manganese is that if any oxidation occurs during the process, the resulting precipitate can coat and foul the media. Cleaning would then be required using acid or sodium bisulfate.

C. Combined Photo-Electrochemical (CPE) Method -Different processes, such as electrochemical (EC), photo (UV), and combined photo-electrochemical (CPE) methods are used. A cell containing aluminium electrode as anode, graphite electrode as cathode and UV lamp are used and filled with waste water enriched with iron and manganese as an electrolytic solution. A limited quantity of sodium chloride salt is added to enhance the electric conductivity through the solution. A comparison between different methods was undertaken to evaluate the applied conditions and the efficiency of Fe and Mn removal at different times and initial concentrations. The results revealed that CPE method was the best choice for the simultaneous removal of

both iron and manganese in a short time < 10 min.

D. **Sequestration-** Sequestration is the addition of chemicals to groundwater aimed at controlling problems caused by iron and manganese without removing them. These chemicals are added to groundwater at the well head or at the pump intake before the water has a chance to come in contact with air or chlorine. If the water contains less than 1.0 mg/L iron and less than 0.3 mg/L manganese, using polyphosphates followed by chlorination can be an effective and inexpensive method for mitigating iron and manganese problems. No sludge is generated in this method. Below these concentrations, the polyphosphates combine with the iron and manganese preventing them from being oxidized. Any of the three polyphosphates (pyrophosphate, tripolyphosphate, or metaphosphate) can be used. Applying sodium silicate and chlorine simultaneously has also been used to sequester iron and manganese. However, while this technique is reliable in the case of iron treatment, it has not been found to be effective in manganese control.

5.1.14. Arsenic (As)

Arsenic has been recognized as a toxic element and is considered a human health hazard. Arsenic is a naturally occurring trace element found in rocks, soils and the water in contact with them.

Arsenic is one of the water quality issues in Chhattisgarh. To demark the area of arsenic an intense study was taken up and 246 acidified ground water samples were collected in and around Ambagarh Choki block of Rajnandgaon. All the samples were analysed by the standard procedure (hydride generator combined with AAS) given in APHA. The chemical analysis results revel that at 11 wells of Ambagarh Chouki block of Rajnandgaon district have Arsenic contents beyond the permissible limit set by BIS (>0.01 mg/l) for the drinking purpose. Arsenic contamination confined to N-S trending Dongargarh-Kotri ancient rift zone exclusively in volcanic rocks from Rhyolite, Rhyolite-tuff, Tuffite, Gabbro, Amphibolite, Basalt, Andesite and Granite. Arsenic is associated with pyrite mineral under the oxidizing condition releases into the ground water. The geographical distribution of high arsenic ground water is sporadic in the area. A total of five villages are found severely are Kaudikasa > Joratarai > Sonsaytola > Muletitola > Jadutola respectively in order of abundance. Even in the worst affected village in Kaudikasa not all groundwater abstraction structures are found contaminated with high values of arsenic (> 0.01mg/l). The occurrence of Arsenic in ground water is mainly in the aquifers up to 100 m depth. The deeper aquifers are free from Arsenic contamination. The hot spots for Arsenic in ground water of Chhattisgarh state is presented in Fig. 18. The details of the locations where arsenic contamination exceed the limit of 0.01 mg/L (10 ppb) are given in the Table -15.

Table 15-Locations having Arsenic concentration >10 µg/l in the State.

District	Block	Location	Long	Lat	As in µg/l
Rajnandgaon	Ambagarh Chowki	Joratarai-3	80.734	20.8452	95
Rajnandgaon	Ambagarh Chowki	Kaudikasa-7	80.7377	20.7178	90
Rajnandgaon	Ambagarh Chowki	Kaudikasa	80.7347	20.7228	71
Rajnandgaon	Ambagarh Chowki	Kaudikasa	80.7342	20.7222	53
Rajnandgaon	Ambagarh Chowki	Sonsai Tola-6	80.6997	20.793	53
Rajnandgaon	Ambagarh Chowki	Sonsai Tola-4	80.6998	20.7944	50
Rajnandgaon	Ambagarh Chowki	Sonsai Tola-5	80.6994	20.7965	40
Rajnandgaon	Ambagarh Chowki	Kodu Tola-2	80.6918	20.8056	22
Rajnandgaon	Ambagarh Chowki	Meregaon-2	80.7499	20.7944	21
Rajnandgaon	Ambagarh Chowki	Jadu Tola-2	80.7129	20.8517	17
Rajnandgaon	Ambagarh Chowki	Bharri Tola-2	80.6971	20.7077	10

Remedial Measures for Arsenic -

A. **Precipitation processes-** includes coagulation/filtration, direct filtration, coagulation assisted microfiltration, enhanced coagulation, lime softening, and enhanced lime softening. Adsorption co-precipitation with hydrolysing metals such as Al^{3+} and Fe^{3+} is the most common treatment technique for removing arsenic from water. Sedimentation followed by rapid sand filtration or direct filtration or microfiltration is used to remove the precipitate. Coagulation with iron and aluminium salts and lime softening is the most effective treatment process. To improve efficiency of this method, a priory oxidation of As (III) to As (V) is advisable. Hypochlorite and permanganate are commonly used for the oxidation. Atmospheric oxygen can also be used, but the reaction is very slow. The major techniques based on this process include; Bucket treatment unit, Fill and draw treatment unit, Tubewell-attached arsenic treatment unit and Iron arsenic treatment unit.

B. **Adsorptive processes-** Adsorption on to activated alumina, activated carbon and iron/ manganese oxide based or coated filter media. Adsorptive processes involve the passage of water through a contact bed where arsenic is removed by surface chemical reactions. The activated alumina-based sorptive media are being used in Bangladesh and India. No chemicals are added during treatment and the process relies mainly on the active surface of the media for adsorption. Granular ferric hydroxide is a highly effective adsorbent used for the adsorptive removal of arsenate, arsenite, and phosphorous from natural water. In the Sono 3-Kolshi filter, used in Bangladesh and India zero valent iron fillings, sand, brick chips and wood coke are used as adsorbent to remove arsenic and other trace elements from groundwater.

C. **Ion-exchange processes-**This is similar to that of activated alumina, however, in this method the medium is synthetic resin of relatively well-defined ion exchange capacity. In these processes, ions held electrostatically on the surface of a solid phase are exchanged for ions of similar charge dissolved in water. Usually, a synthetic anion

exchange resin is used as a solid. Ion exchange removes only negatively charged As (V) species. If As (III) is present, it is necessary to oxidise it.

D. **Membrane processes-** This includes nano-filtration, ultrafiltration, reverse osmosis and electrodialysis in which synthetic membranes are used for removal of many contaminants including arsenic. They remove arsenic through filtration, electric repulsion, and adsorption of arsenic-bearing compounds.

E. **Arsenic safe alternate aquifers -** This technique advocates tapping of safe alternate aquifers right within the affected areas. In India except at Rajnandgaon in Chhattisgarh state, the vast affected areas in the Gangetic Plains covering Bihar and Uttar Pradesh as well as Deltaic Plains in West Bengal is marked by multi-aquifer system. The sedimentary sequence is made up Quaternary deposits, where the aquifers made up of unconsolidated sands which are separated by clay/sandy clay, making the deeper aquifer/aquifers semi-confined to confined. The contamination is confined in the upper slice of the sediments, within 80 m and affecting the shallow aquifer system. At places, like Maldah district of West Bengal single aquifer exists till the bed rock is encountered at 70-120 m bgl.

   Detailed CGWB exploration, isotope and hydrochemical modeling carried out by CGWB along with other agencies like BARC has indicated that the deep aquifers (>100 m bgl) underneath the contaminated shallow aquifer, have been normally found as arsenic free. Long duration pumping tests and isotopic studies in West Bengal and Bihar have indicated that there is limited hydraulic connection between the contaminated shallow and contamination free deep aquifers and the ground water belong to different age groups having different recharge mechanisms. The deep aquifers in West Bengal, Bihar and Uttar Pradesh have the potential to be used for community-based water supply.

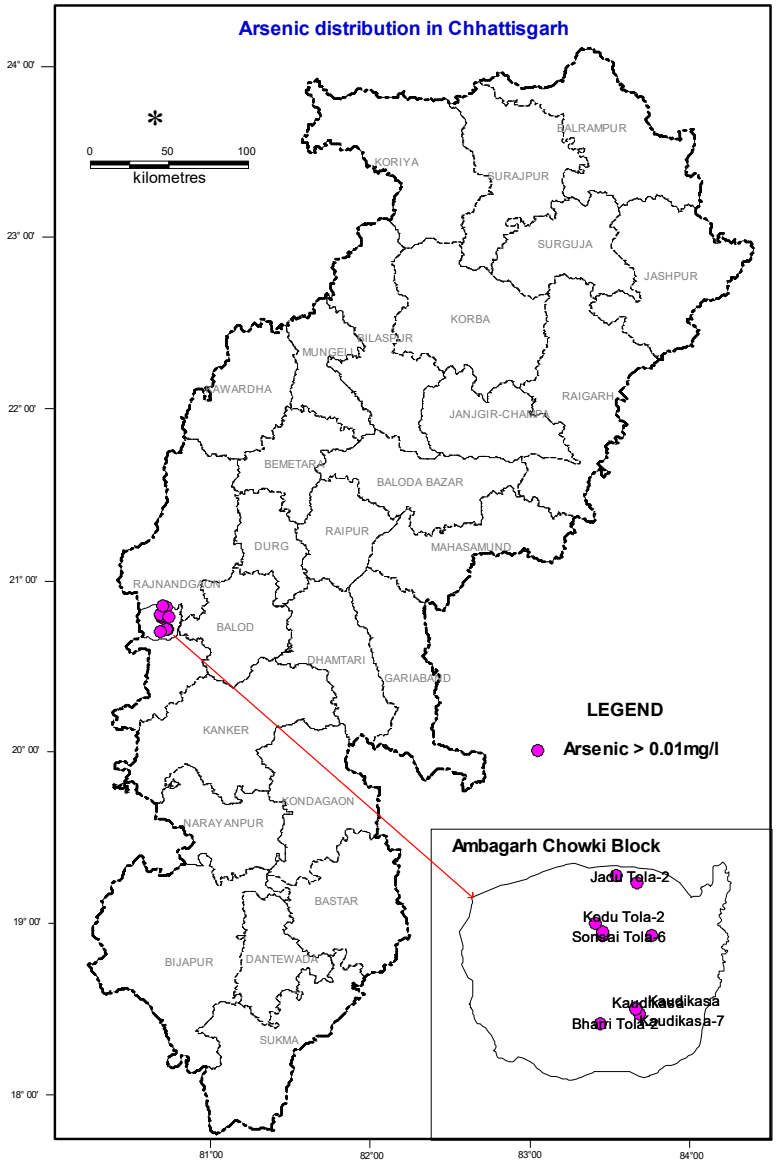

Figure 18 - Arsenic distribution map >0.01 mg/L in Chhattisgarh State.

5.1.15. Uranium

Uranium has been found in many rock types from volcanic to sedimentary. Uranium has both natural and anthropogenic source that could lead to the aquifer. Mainly due to oxidation reduction processes; it is leached from source rock containing high concentration of uranium, releases and precipitated in a host rock. In reducing condition, it may come into the water. The Hydrogeological characteristics as weathering, porosity of rocks, fault, fracture, permeability etc may control the uranium concentration in ground water. These are formed in the reducing conditions to cause the U to precipitate out of solution. Uranium is remobilized and precipitates adjacent to permeable fault and/or fracture zones. The uranium occurs with organic-rich marine-deposited phosphorites (within the apatitie) or in lignites, fly ash, the result of burning coal can increase the U concentration by burning of the carbon. Being a radioactive mineral, high uranium concentration can cause impact on water, soil and health

Uranium enters in human tissues mainly through drinking water, food, air and other occupational and accidental exposures. Intake of uranium through air and water is normally low, but in circumstances in which uranium is present in a drinking water source, the majority of intake can be through drinking water. Water with uranium concentration above the recommended maximum permissible concentration of 30 ppb (BIS, 10500:2012 revised in 2021) is not safe for drinking purposes as it can cause damage to internal organs, on continuous intake. Elevated uranium concentrations in drinking water have been associated with many epidemiological studies such as urinary track cancer as well as kidney toxicity. In ores, uranium is found as uranite (UO_2^{2+}) and pitchblende ($U_3O_8^{2+}$) or in the form of secondary minerals (complex oxides, silicates, phosphates, vanadates).

The chemical analysis result revels that in 05 locations uranium is recorded > 0.03 mg/l (30 ppb) i.e. above the recommended limit prescribed by the BIS for drinking purpose. These total five locations pertain to Korba, Koriya and Raigarh districts in Chhattisgarh State presented in Table -16. High uranium in ground water leads to renal problem finally converted in chronic kidney disease; affect the reproductivity, decline the bone growth as well as DNA and brain damage. The Uranium hot spots (>30 ppb) are presented in Fig. 19 and the trend of the parameter during 2019-2023 is presented in Figure-20.

Table 16-Locations having Uranium concentration > 0.03 mg/l in the State.

Sr.	District	Block	Location	Long	Lat	U in mg/l
1	Korba	korba	kothari naka	82.70137	22.14682	71.445
2	Korba	Korba	Salora	82.59674	22.49478	114.686
3	Koriya	Baikunthpur	Khodri	82.45474	23.45194	35.38
4	Koriya	Manendragarh	Manendragarh	82.2026	23.2187	37.32
5	Raigarh	Dharmajaigarh	Lipti	83.3797	22.6508	114.9

Remedial Measures - Finding a remedy for the uranium contaminated groundwater effectively and thoroughly, has become need of day. Remediation technologies can be classified into physical, chemical and biological methods. Bioremediation is divided into plant and microorganism methods. Each method consists of both advantages and disadvantages and the appropriate mitigation techniques should be need based.

Adsorption has a high removal efficiency, but costs are also higher. The coagulation process is simple and comparatively economical, but the standard effluent concentration is hard to reach, so there is a need for follow-up treatment. Combined with adsorption, coagulation can remove 99% of U. The extraction process can remove effluent U concentrations of less than 0.05 mg / L, but it will produce a lot of sludge. Reverse osmosis is referred as a best technology, but due to its high cost it cannot be used on community scale. The evaporation method is simple and effective, the removal rate is high, but there are high costs and sludge needs that must be dealt with.

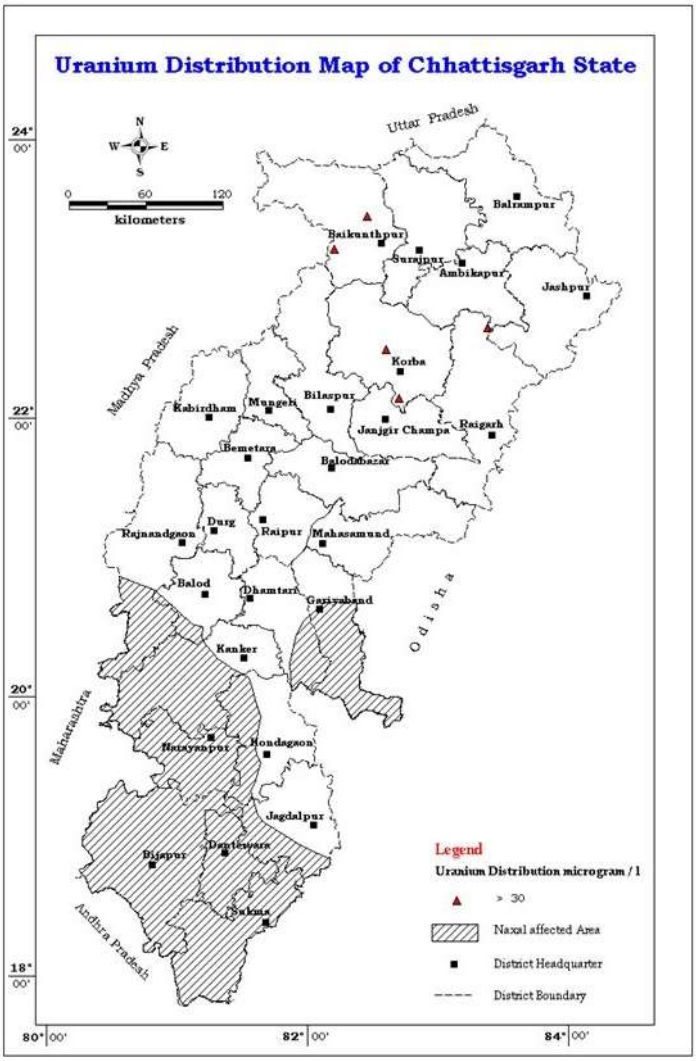

Figure 19 -Locations having Uranium (>0.03 mg/L) in Chhattisgarh State.

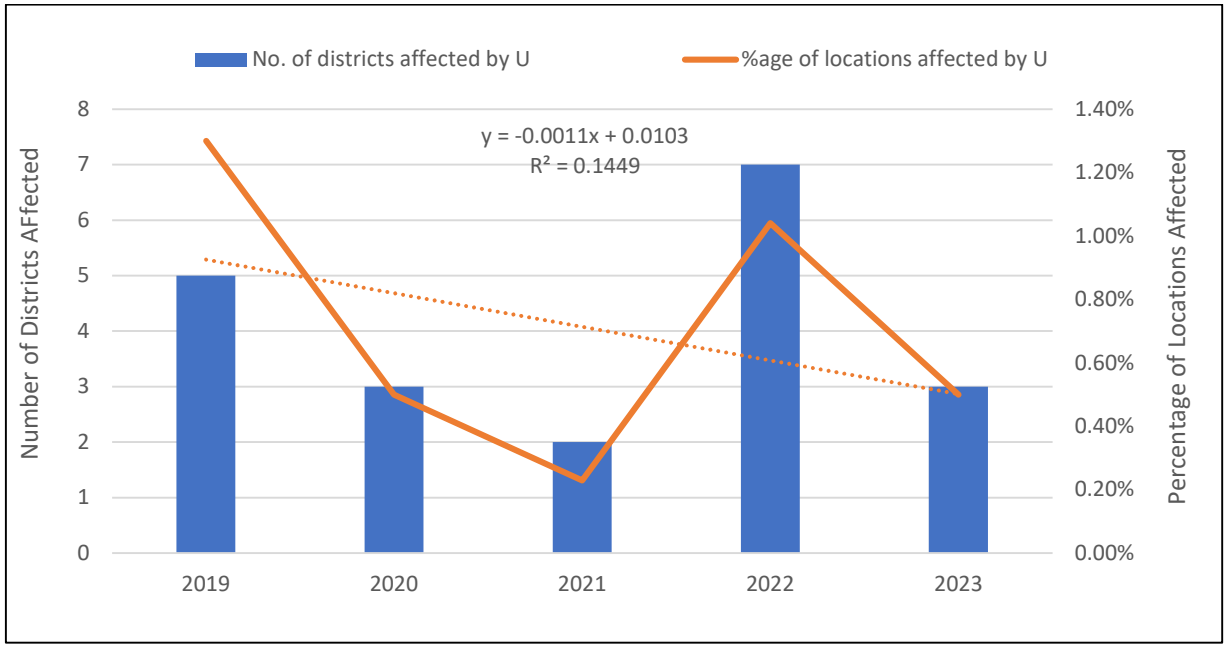

Figure 20- Trend of the Uranium parameter in Chhattisgarh state during 2019-2023.

5.2. Hydrochemical facies

The groundwater chemistry is affected by various geochemical processes, especially the interaction with meteoric water, subsurface rocks and the chemical ion exchange processes of aquifer minerals. Piper Diagram is a widely used graphical interpolation to characterize the hydro-chemical interaction, water genesis and groundwater contamination sources (Herojeet et al. 2013). The analytical result of water samples collected in pre and monsoon are plotted in Piper Diagram presented in Fig.-21.

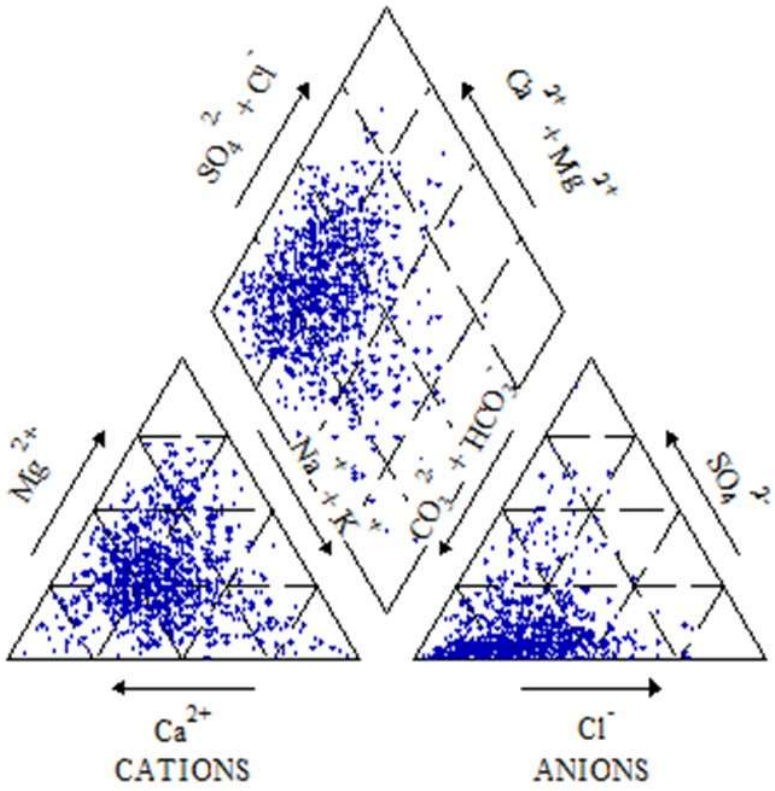

Figure 21 -The piper plot of groundwater samples collected from Chhattisgarh.

The piper plot of groundwater samples collected from Chhattisgarh exhibits majority of the groundwater is dominated by alkaline earths (Ca & Mg) over the alkalis (Na & K) and week acid anion (HCO_3^-) dominating over strong acid anions (Cl^- & SO_4^{--}). Few samples fall in the alkaline metal zone. Further the samples of the area are classified in three categories, i.e., majority in Ca^{2+} - HCO_3^- category. The second most populated zone belongs mix category zone and rest in Na^+ – HCO_3^- category.

Ca^{2+}- HCO_3^- category or water type indicates dissolution of carbonate minerals with water from surface runoff and precipitation in the subsurface aquifers. The second catogary shows mixing of recharge water and native ground water whereas Na^+–HCO_3^- category belongs to granitic train and indicating weathering process in the area. The majority of the samples belongs to mix dominating zone in cations triangle and the remaining samples belongs to Ca^{2+} and Na^+ dominating zone. In the anion's triangle, most of samples belong to HCO_3^- water type category, which indicates weathering of carbonates and silicates minerals and ion exchange processes in the groundwater. The conversion of water from Ca^{2+}- HCO_3^- to Ca^{2+}-Na^+-HCO_3^-

5.3. Suitability of water for irrigation purposes

Evolution of water from rain water to the ground water always contains some number of dissolved constituents; their presence affects the soil structure, permeability and aeration which ultimately affect the plant growth. The quality criteria for irrigation water are evaluated on the basis Sodium soluble percentage (SSP), Residual sodium carbonate (RSC), Sodium adsorption ratio (SAR), Percentage sodium (%Na) and Kelly index (KI) and Magnesium Ratio (MR). The maximum, minimum, average values of the above irrigation indices are compared

with the irrigation water quality guidelines are surmised in Table 17.

Table 17 -Irrigation and Industrial water quality indices in ground water of state 2023-24.

Sr.	N=971 samples	Min. Value	Max. Value	Avg. Value	Irrigation Quality Limit	No. of samples & % for the year
1.	Sodium soluble percentage (SSP)	0.7	86.8	29.1	<50 Good	845 (87%)
					>50 Un suitable	126 (13%)
2.	Sodium Adsorption Ratio (SAR)	0.0	3.2	0.9	<10 Suitable	970 (99.9%)
					10-26- Medium	1 (0.1%)
					>26 Un suitable	0 (0%)
3.	Residual Sodium Carbonate (RSC)	-24.7	7.8	-0.7	<1.25 Suitable,	900 (92.78%)
					1.25-2.5 Marginal suitable	45 (4.63%)
					>2.5 Unsuitable	26 (2.68%)
4.	Percentage Sodium (%Na)	3.8	81.6	26.2	< 20 Suitable	315 (32.44%)
					20-60 Medium	649 (66.84%)
					>60 Unsuitable	7 (0.72%)
5.	Kelly index (KI)	0.0	1.8	0.3	< 1 Suitable	965 (99.38%)
					>1 Unsuitable	6 (0.62%)
6.	Magnesium Ratio (MR)	0.0	92.8	39.3	<50 Good	752 (77.45%)
					>50 Unsuitable	219 (22.55%)

The irrigation indices table revels that around 87% of the samples are suitable in terms of SSP values and almost 100% samples are suitable for irrigation in terms of SAR values. 93% of the total samples are suitable for irrigation in terms of RSC values and 32.44% samples are suitable in terms of Percentage Sodium, while 67% samples are of medium category. Most of the irrigation indices indicates that the ground water of Chhattisgarh is suitable for the irrigation.

The US Salinity Diagram developed by the US Salinity Laboratory in 1954 is an important tool to classifying irrigation water. It is a plot of SAR verses electrical conductivity in semi log scale and used to decide the suitability of ground water for irrigation purposes. Conductivity (C) and Sodacity (S) are classification as C_1S_1, C_1S_2, C_1S_3, C_1S_4, C_2S_1, C_2S_2, C_2S_3, C_2S_4, C_3S_1, C_3S_2, C_3S_3, C_3S_4, C_4S_1, C_4S_2, C_4S_2, C_4S_3 and C_4S_3 are extensively used and consists of 16 categories of irrigation waters suitability. The US Salinity diagram of the ground water samples collected from the Chhattisgarh stat is presented in Fig. -22. The US Salinity diagram of Chhattisgarh State indicates most of the samples belongs to C_1S_1 and C_2S_1 category whereas few samples belong to C_3S_1 category. The C_1S_1 and C_2S_1 category are considered good for the irrigation while C_3S_1 category is consider marginal suitable for irrigation.

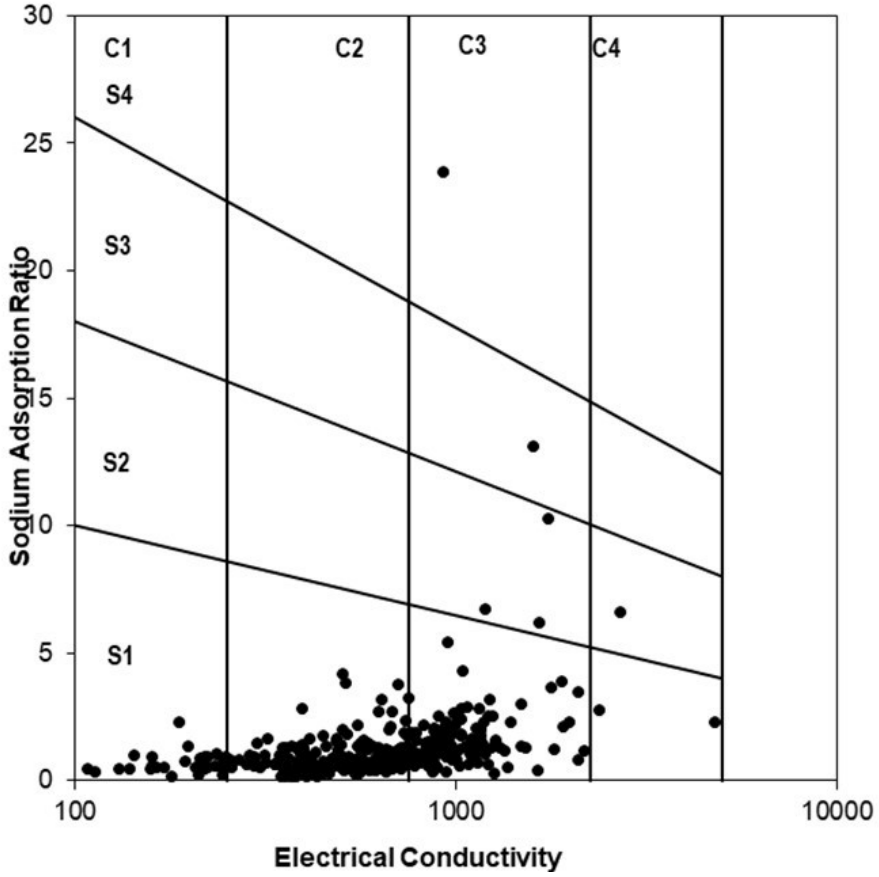

Figure 22 - US Salinity Diagram of ground water samples of the State.

6. Conclusion

Ground water quality of the shallow aquifers is assessed by the ground water samples collected from Hydrograph network stations fixed in the 33 districts of the state. Following are the key conclusions drawn from the analysis of data.

The ground water of the state is neutral to alkaline in nature. Ground water of the state mostly has calcium bicarbonate type and calcium magnesium chloride type whereas in few places sodium bicarbonate type and sodium chloride type of water are also recorded. Most of the basic parameters are within BIS acceptable limit except in few samples high nitrate and fluoride was observed in some local pockets. High nitrate contents have recorded in phriatic aquifers of 21 districts. Around 14% of ground water instate having nitrate concentration is above the permissible limit. High fluoride contents were recorded at 1.5% of ground water samples in the State mainly in isolated pockets of Jaspur, Koriya, Raighar, Surjuga, Bilaspur, Mahasamund, Gariyabandha, Kanker districts. Iron is a major contaminant in ground water of the state, recorded in almost in all the district, may be in traces. Very high iron contents were observed in ground water of Korba, Bilaspur, Jangjir-Champa, Mungeli, Raigarh, Jashpur and Surajpur districts. Arsenic was recorded above the permissible limits only at 11 locations of Ambagarh-Chouki block in Rajnandgaon district. High uranium content observed at 09 locations in ground water of the state mainly in Bilaspur, Jashpur, Surguja, Balod, Bemetra,

Kankar and Jangjir-Champa districts. Various irrigation indices are calculated and mostly it is within safe category. On the basis of parameters analysed and discussed above, it may be concluded that the ground water in the state is safe for drinking and irrigation purposes except at few places which are having some quality concerns.

Table 18 -Chemical Analysis Results of Ground Water Samples Collected during Pre-Monsoon NHNS 2023-24 from the Chhattisgarh State.

Sr.	District	Block	Location	pH	EC µs/cm	CO3 mg/l	HCO3 mg/l	Cl mg/l	F mg/l	SO4 mg/l	NO3 mg/l	PO4 mg/l	TH mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	SiO2 mg/l	TDS mg/l	U µg/l
1	Balod	Balod	Jagtara	7.7	450	0	189.1	24.9	0.92	33.09	16.0	0	130	34	10.8	45.2	11.2	5.7	301.5	0.01
2	Balod	Balod	Jatadah	7.88	948	0	433.1	67.5	0.29	28.87	15.1	0	280	40	43.2	86.3	0.6	14.5	635.2	0.01
3	Balod	Balod	Sankara	7.88	398	0	189.1	24.9	0.85	17.28	0.3	0	155	40	13.2	22.8	7.6	4.9	266.7	0.01
4	Balod	Balod	Talgaon	7.72	609	0	329.4	14.2	0.88	18.24	0.0	0	205	34	28.8	43.8	4.2	8.7	408.0	0.02
5	Balod	Dondi Lohara	Ghotia	7.9	921	0	347.7	67.5	0.86	46.38	23.2	0	335	40	56.4	44.5	27.1	10.3	617.1	0.00
6	Balod	Doundi	Armurkasa	7.61	768	0	329.4	46.2	0.1	24.35	11.5	0	285	36	46.8	32.7	2.7	16.7	514.6	0.00
7	Balod	Doundi lohara	Bhandara	7.34	160	0	36.6	10.7	0.31	16.34	21.5	0	55	14	4.8	9.5	3.1	11.5	107.2	0.02
8	Balod	Doundi Lohara	Doundi Lohara	7.43	499	0	128.1	56.8	0.09	21.95	24.6	0	180	62	6	20.0	16.0	10.3	334.3	0.01
9	Balod	Doundi Lohara	Mudhya	7.6	1158	0	372.1	131.4	0.24	37.63	16.0	0	340	34	61.2	11.8	2.2	8.5	775.9	0.02
10	Balod	Doundi lohara	Nahalda	7.62	1314	0	250.1	92.3	0.18	260	7.7	0	520	66	85.2	64.1	1.9	9.0	880.4	0.01
11	Balod	Doundi- lohara	Jeortala	7.62	475	0	256.2	24.9	0.99	6.65	2.9	0	190	48	16.8	27.5	0.6	7.8	318.3	0.00
12	Balod	Doundi- lohara	Mudkhusara	7.47	1250	0	341.6	138.5	0.74	43.25	0	0	445	54	74.4	60.5	16.3	12.1	837.5	0.02
13	Balod	Durg	Danganiya	7.56	1818	0	292.8	230.8	0.33	332.9	57.2	0	765	142	98.4	74.6	1.7	10.3	1218.1	0.03
14	Balod	Gundardei	Bharda kalan	7.67	1113	0	341.6	127.8	0.29	40.51	11.1	0	415	48	70.8	65.8	2.1	9.2	745.7	0.00
15	Balod	Gunderdehi	chichalgondi	7.52	1664	0	512.4	177.5	0.21	48.14	55.6	0	300	54	39.6	24.4	8.9	8.9	1114.9	0.00
16	Balod	Gunderdehi	Jhafra	7.56	735	0	384.3	42.6	0.1	21.39	5.4	0	235	32	37.2	64.9	1.7	9.4	492.5	0.00
17	Balod	Gunderdehi	Kalangpur	7.8	214	0	85.4	17.8	0.52	11.48	0.8	0	65	24	1.2	16.1	4.3	5.0	143.4	0.02
18	Balod	Gunderdehi	Machod	7.68	678	0	292.8	49.7	0.02	23.42	7.1	0	195	42	21.6	6.7	3.8	7.7	454.3	0.01
19	Balod	Gurur	Kanharpuri	6.5	114	0	36.6	10.7	0.88	9.29	0.4	0	40	12	2.4	4.4	6.4	8.8	76.4	0.00
20	Balod	Gurur	Tarri	7.56	1199	0	353.8	145.6	0.12	18.85	3.1	0	435	26	88.8	47.5	24.2	8.7	803.3	0.00
21	Balod	Sanjari Balod	Gujara	7.71	1154	0	384.3	113.6	0.48	54.41	54.1	0	470	50	82.8	58.3	2.1	13.2	773.2	0.00
22	Balodabazar	Balodabazar	Amera	7.77	964	0	384.3	88.8	0.54	11.64	8.4	0	320	78	30	75.7	3.2	11.9	645.9	0.00
23	Balodabazar	Balodabazar	Arjuni	7.73	660	0	305	42.6	0.3	12	13.2	0	280	86	15.6	33.2	0.8	10.3	442.2	0.00
24	Balodabazar	Balodabazar	Bhangaon	8.1	574	0	256.2	32.0	1.19	52.77	1.9	0	235	60	20.4	24.6	1.4	39.7	384.6	0.00
25	Balodabazar	Balodabazar	Bitkuli	7.46	1163	0	457.5	110.1	0.9	16	12.2	0	415	96	42	81.6	7.0	14.8	779.2	0.00
26	Balodabazar	Balodabazar	Chandi	8.07	862	0	341.6	63.9	0.3	20	18.1	0	345	96	25.2	31.6	1.6	9.9	577.5	0.01
27	Balodabazar	Balodabazar	Dhabadih	8.08	645	0	256.2	49.7	0.2	8.5	17.7	0	250	74	15.6	24.6	2.7	6.9	432.2	0.00
28	Balodabazar	Balodabazar	Lahoud	7.91	494	0	268.4	32.0	0.8	6	0.0	0	185	46	16.8	36.8	0.9	5.7	331.0	0.00

Sr.	District	Block	Location	pH	EC µs/cm	CO3 mg/l	HCO3 mg/l	Cl mg/l	F mg/l	SO4 mg/l	NO3 mg/l	PO4 mg/l	TH mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	SiO2 mg/l	TDS mg/l	U µg/l
29	Balodabazar	Balodabazar	Lawan	8.15	415	0	140.3	21.3	0.5	82	2.0	0	120	20	16.8	40.6	3.9	5.7	278.1	0.00
30	Balodabazar	Balodabazar	Rawan	7.81	1284	0	439.2	120.7	0.53	46.7	24.4	0	450	124	33.6	76.5	16.1	16.6	860.3	0.00
31	Balodabazar	Balodabazar	Risda	8.13	727	0	292.8	49.7	0.3	71	17.1	0.1	280	74	22.8	38.4	16.4	6.5	487.1	0.00
32	Balodabazar	Bhatapara	Kedar	7.6	632	0	433.1	14.2	0.8	53.31	3.4	0	230	82	6	9.4	1.9	67.3	423.4	0.00
33	Balodabazar	Bhattapara	Bhattapara-s	7.24	715	0	268.4	85.2	0.34	24.83	32.4	0	315	82	26.84	47.8	8.1	11.6	479.1	0.00
34	Balodabazar	Bilaigarh	Bilaigarh	7.08	1353	0	335.5	205.9	0.5	6.7	48.3	0	525	162	28.8	60.6	1.2	16.4	906.5	0.00
35	Balodabazar	Bilaigarh	Marban Gatadih	7.66	743	0	274.5	71.0	0.3	19	5.9	0	305	90	19.2	34.5	1.2	7.3	497.8	0.00
36	Balodabazar	Bilaigarh	Tundri	8.4	935	3	439.2	60.4	1.2	11.5	0.2	0	15	4	1.2	2.1	4.5	10.3	626.5	0.00
37	Balodabazar	Kasdol	Aouri	7.62	1035	0	427	88.8	0.8	10.7	18.5	0	330	84	28.8	98.7	1.3	12.6	693.5	0.00
38	Balodabazar	kasdol	Charched	7.93	899	0	359.9	74.6	0.43	67.79	14.3	0	345	122	9.6	62.0	5.2	16.6	602.3	0.00
39	Balodabazar	Kasdol	Haswa	7.92	1087	0	353.8	113.6	0.22	60.35	52.8	0	450	172	4.8	29.0	18.3	18.0	728.3	0.00
40	Balodabazar	Kasdol	Kasdol	7.8	672	0	256.2	85.2	0.3	8.5	7.2	0	185	66	4.8	60.8	1.1	6.1	450.2	0.00
41	Balodabazar	Kasdol	Sel	8.24	363	0	183	14.2	0.8	6.3	0.0	0	165	56	6	11.2	0.3	6.5	243.2	0.01
42	Balodabazar	Kasdol	Temri	7.64	236	0	109.8	17.8	1.77	5.11	12.3	0	75	28	1.2	20.3	1.6	37.8	158.1	0.01
43	Balodabazar	Palari	Devsundri	8.02	477	0	213.5	35.5	0.2	10.5	17.1	0	205	66	9.6	17.0	0.6	5.9	319.6	0.00
44	Balodabazar	Palari	Kodwa	8.01	733	0	274.5	60.4	0.4	69	17.2	0	305	90	19.2	29.9	1.4	8.1	491.1	0.00
45	Balodabazar	Palari	Sandi	7.57	958	0	311.1	103.0	0.4	29	2.6	0	255	88	8.4	69.3	5.2	7.8	641.9	0.00
46	Balodabazar	Simga	Damakheda	7.96	788	0	366	42.6	0.5	51	5.1	0	255	54	28.8	67.5	3.2	6.5	528.0	0.00
47	Balodabazar	Simga	Darchura	7.92	657	0	298.9	46.2	0.3	15.4	8.1	0	245	68	18	42.2	1.4	6.0	440.2	0.00
48	Balodabazar	Simga	Hathband	8.02	995	0	366	88.8	0.38	15.35	53.5	0	405	82	48	54.7	3.2	12.1	666.7	0.00
49	Balodabazar	Simga	Khapri	7.77	845	0	335.5	78.1	0.3	21	4.8	0	305	90	19.2	54.8	4.4	8.3	566.2	0.01
50	Balodabazar	Simga	Simga	8.11	834	0	317.2	35.5	0.4	107.5	4.8	0	325	64	39.6	59.9	2.6	6.5	558.8	0.00
51	Balodabazar	Simga	Udela	7.9	851	0	244	85.2	0.22	5.43	67.7	0.01	360	106	22.8	24.2	1.1	39.1	570.2	0.00
52	Balodabazar	Simgha	Hadabandh	8.05	996	0	488	67.5	0.82	56.12	11.0	0	305	84	22.8	10.4	2.2	16.1	667.3	0.01
53	Balrampur	Balrampur	Balrampur-s	7.9	164.6	0	85.4	7.1	0.9	0.4	0.3	0	60	16	4.8	9.0	1.9	9.0	110.3	0.00
54	Balrampur	Balrampur	Daldhowa	7.9	308	0	61	35.5	0.13	38.82	36.5	0	100	32	4.8	11.9	32.1	40.0	206.4	0.00
55	Balrampur	Balrampur	Pasta	7.86	200	0	18.3	17.8	0.89	47.23	21.0	0	45	16	1.2	20.0	9.2	31.1	134.0	0.00
56	Balrampur	Pratappur	Shantinagar	7.76	213	0	30.5	21.3	0.16	45.5	16.8	0	95	6	19.2	4.2	8.6	39.6	142.7	0.00
57	Balrampur	Rajpur	Alkadih	7.28	140.2	0	67.1	10.7	0.15	0.1	8.1	0	60	20	2.4	7.2	2.5	24.4	93.9	0.00

Sr.	District	Block	Location	pH	EC µs/cm	CO3 mg/l	HCO3 mg/l	Cl mg/l	F mg/l	SO4 mg/l	NO3 mg/l	PO4 mg/l	TH mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	SiO2 mg/l	TDS mg/l	U µg/l
58	Balrampur	Rajpur	Bario	7.78	108.3	0	24.4	3.6	0.89	19.76	16.5	0	30	10	1.2	5.6	12.0	39.6	72.6	0.00
59	Balrampur	Rajpur	Bhadar	7.81	516	0	140.3	56.8	0.11	47	41.0	0	215	52	20.4	14.3	5.3	27.1	345.7	0.00
60	Balrampur	Rajpur	Chilamkala	8.24	383	0	146.4	10.7	2.55	46.5	0.0	0	125	34	9.6	32.5	3.8	18.8	256.6	8.56
61	Balrampur	Rajpur	Jhingo	7.9	596	0	244	10.7	1.76	50.66	2.8	0	220	40	28.8	23.3	11.6	30.5	399.3	0.00
62	Balrampur	Rajpur	Karji	7.82	160.3	0	24.4	7.1	0.76	43.57	6.1	0	40	12	2.4	13.0	5.6	35.0	107.4	0.00
63	Balrampur	Rajpur	Parsagudi	7.92	256	0	73.2	10.7	0.13	46.5	20.0	0	80	24	4.8	15.8	11.9	33.8	171.5	0.00
64	Balrampur	Rajpur	Parsapani Katgahana	7.77	1232	0	494.1	149.1	0.5	0.2	0.0	0	305	50	43.2	1.3	37.8	37.3	825.4	0.00
65	Balrampur	Rajpur	Rajpur	7.95	643	0	359.9	32.0	0.58	3.02	1.9	0	150	52	4.8	8.9	0.8	10.3	430.8	0.00
66	Balrampur	Shankargarh	Bachwar	7.94	220	0	48.8	14.2	0.15	44.1	11.9	0	90	26	6	9.3	4.8	24.2	147.4	0.00
67	Balrampur	Shankargarh	Sargaoa	7.91	234	0	54.9	14.2	0.34	43.35	12.0	0	90	24	7.2	12.3	5.2	30.9	156.8	0.00
68	Balrampur	Shankargarh	Shankargarh	7.84	352	0	195.2	14.2	0.26	2.65	0.7	0	150	32	16.8	13.4	7.4	8.8	235.8	0.00
69	Balrampur	Wadraf Nagar	Wadraf Nagar	7.59	246	0	115.9	7.1	0.42	1.51	24.7	0	115	32	8.4	5.0	0.9	7.2	164.8	0.00
70	Bastar	Baderajpur	Pharasgaon	7.43	579	0	250.1	42.6	0.02	15.56	23.3	0	230	86	3.6	24.1	1.3	12.1	387.9	0.00
71	Bastar	Bastar	Bhanpuri	7.44	408	0	219.6	10.7	0	5.36	4.2	0	205	60	13.2	4.7	2.2	37.0	273.4	0.01
72	Bastar	Bastar	Chapra Bhanpuri	7.39	428	0	195.2	21.3	0	9.13	23.6	0	180	42	18	11.0	1.6	9.3	286.8	0.00
73	Bastar	Bastar	Ichhapur	7.25	220	0	97.6	17.8	0.02	7.36	5.5	0	75	12	10.8	17.6	5.7	17.1	147.4	0.00
74	Bastar	Bastar	Junawahi	7.57	360	0	195.2	10.7	0.35	2.88	3.4	0	175	62	4.8	4.1	0.8	7.1	241.2	0.00
75	Bastar	Bastar	Sonarpal	7.73	373	0	219.6	10.7	0.13	3.22	1.2	0	180	42	18	3.6	1.0	10.1	249.9	0.00
76	Bastar	Jagdalpur	Bastar	6.81	555	0	244	53.3	0.13	5.19	0.5	0	145	36	13.2	5.8	3.4	6.8	371.9	0.00
77	Bastar	Jagdalpur	Biranpal	7.66	350	0	189.1	10.7	0	3.94	17.0	0	175	50	12	3.8	2.2	6.7	234.5	0.00
78	Bastar	Jagdalpur	Dewargaon	7.55	513	0	280.6	14.2	0.24	11.4	0.9	0	230	44	28.8	13.1	4.0	6.8	343.7	0.02
79	Bastar	Jagdalpur	Jagdalpur	7.3	753	0	298.9	71.0	0.18	8.54	44.9	0	285	30	50.4	44.6	1.1	7.1	504.5	0.01
80	Bastar	Jagdalpur	Kopagudha	7.6	398	0	140.3	42.6	0	19.75	2.0	0	80	26	3.6	5.8	5.0	15.1	266.7	0.00
81	Bastar	Jagdalpur	Kudagaon	7.53	433	0	225.7	17.8	0.17	5.03	5.0	0	215	68	10.8	3.7	1.5	6.5	290.1	0.00
82	Bastar	Jagdalpur	Kumharwand	7.54	383	0	183	17.8	0	3.63	2.7	0	185	58	9.6	3.5	1.5	7.1	256.6	0.00
83	Bastar	Jagdalpur	Markel	7.31	180	0	103.7	3.6	0	3.03	7.7	0	85	30	2.4	2.5	3.9	6.5	120.6	0.02
84	Bastar	Keshkal	Batrali	7.39	374	0	189.1	17.8	0.02	4.36	3.0	0	195	70	4.8	3.8	1.4	8.0	250.6	0.00
85	Bastar	Keshkal	Keshkal	6.99	320	0	158.6	10.7	0	7.71	13.1	0	120	36	7.2	17.1	1.3	17.1	214.4	0.00

Sr.	District	Block	Location	pH	EC µs/cm	CO3 mg/l	HCO3 mg/l	Cl mg/l	F mg/l	SO4 mg/l	NO3 mg/l	PO4 mg/l	TH mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	SiO2 mg/l	TDS mg/l	U µg/l
86	Bastar	Keshkal	Murwand	7.41	451	0	231.8	24.9	0	4.25	1.0	0	220	60	16.8	9.0	0.9	8.7	302.2	0.00
87	Bastar	Kondagaon	Borgaon	6.82	398	0	91.5	56.8	0.29	11.59	0.6	0	100	24	9.6	31.2	2.9	29.3	266.7	0.00
88	Bastar	Kondagaon	Ghoragaon	7.88	409	0	207.4	17.8	0.24	5.68	10.2	0	175	30	24	7.0	0.9	8.6	274.0	0.02
89	Bastar	Kondagaon	Joba	7.4	395	0	170.8	28.4	0	11.79	1.2	0	135	36	10.8	26.7	8.5	14.8	264.7	0.00
90	Bastar	Kondagaon	Kondagaon	7.5	720	0	359.9	32.0	0.06	15.12	13.3	0	310	102	13.2	18.5	5.9	28.1	482.4	0.00
91	Bastar	Kondagaon	Massaukokada	7.66	430	0	189.1	32.0	0.21	6.34	12.9	0	205	42	24	9.0	1.1	7.1	288.1	0.00
92	Bastar	Kondagaon	Surkupal	7.48	509	0	207.4	46.2	0.15	18.08	1.7	0	135	46	4.8	52.9	18.0	25.1	341.0	0.00
93	Bastar	Londigura	Chitrakot	7.54	395	0	213.5	17.8	0.09	11.2	0.2	0	160	42	13.2	14.4	5.8	7.6	264.7	0.01
94	Bastar	Londigura	Usri bera	7.66	448	0	225.7	35.5	0	3.94	9.5	0	210	58	15.6	9.1	1.9	15.1	300.2	0.00
95	Bastar	Pharasgaon	Jaitpuri	6.68	296	0	103.7	32.0	0	7.36	14.7	0	100	32	4.8	20.2	6.3	32.7	198.3	0.02
96	Bastar	Pharasgaon	Pharasgaon	7.63	378	0	158.6	17.8	0	4.56	43.4	0	180	64	4.8	5.0	1.8	46.1	253.3	0.00
97	Bemetara	Bemetara	Amora	7.51	258	0	79.3	24.9	0.12	9.8	22.3	0	90	20	9.6	10.6	3.5	11.4	172.9	0.02
98	Bemetara	Bemetara	Baba Mohtara	7.92	450	0	195.2	28.4	0.1	12.89	22.8	0	170	50	10.8	21.8	5.9	6.0	301.5	0.02
99	Bemetara	Bemetara	Bahera	7.68	1127	0	317.2	74.6	0.1	156.4	13.8	0	510	60	86.4	36.4	2.3	10.3	755.1	0.00
100	Bemetara	Bemetara	Baiji	7.6	1028	0	298.9	92.3	0.35	156	8.1	0	440	74	61.2	26.1	2.3	9.4	688.8	5.14
101	Bemetara	Bemetara	Bhurki	7.86	756	0	378.2	24.9	0.1	40.66	7.0	0	285	24	54	39.8	2.0	7.0	506.5	0.00
102	Bemetara	Bemetara	Bijabhat	8.1	770	0	195.2	103.0	0.2	54.41	33.9	0	215	44	25.2	61.3	46.7	6.0	515.9	0.00
103	Bemetara	Bemetara	Birsinghi	7.65	1488	0	494.1	163.3	0.24	21.79	37.9	0	505	46	93.6	68.7	2.1	14.4	997.0	0.00
104	Bemetara	Bemetara	Dadhi	7.67	2110	0	494.1	127.8	0.09	358	52.2	0	565	62	98.4	18.7	2.6	12.0	1413.7	0.00
105	Bemetara	Bemetara	Dunra	7.68	948	0	347.7	95.9	0.21	104	7.4	0	365	64	49.2	86.2	2.4	7.8	635.2	0.00
106	Bemetara	Bemetara	Fari	7.92	580	0	298.9	21.3	0	19.44	3.8	0	255	30	43.2	27.1	1.6	8.0	388.6	0.00
107	Bemetara	Bemetara	Jewari	7.95	615	0	311.1	21.3	0	22.51	3.9	0	245	36	37.2	26.8	1.5	7.7	412.1	0.00
108	Bemetara	Bemetara	Khilora	7.77	1010	0	378.2	103.0	0.13	64.49	2.5	0	360	34	66	98.4	2.0	6.9	676.7	0.00
109	Bemetara	Bemetara	Pendri	7.92	657	0	274.5	28.4	0.1	41.27	22.9	0	285	58	33.6	12.3	1.5	9.2	440.2	0.01
110	Bemetara	Bemetara	Umaria	7.8	1000	0	274.5	42.6	0.21	272	18.9	0	465	132	32.4	46.7	7.2	7.4	670.0	0.01

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111	Bemetara	Berla	Berla	7.86	961	0	396.5	74.6	0.02	33.82	51.5	0	385	82	43.2	70.2	6.2	7.6	643.9	0.01
112	Bemetara	Berla	Parpoda	7.86	751	0	530.7	24.9	0.12	13.07	0.3	0	350	30	66	55.7	1.1	12.2	503.2	0.02
113	Bemetara	Berla	Rampur (Bhand)	7.23	4810	0	827.4	484.6	0.21	840.45	0.5	0	1745	460	142.8	214.6	8.2	6.3	3222.7	0.00
114	Bemetara	Berla	Saroda	7.91	854	0	317.2	46.2	0.88	54.1	49.8	0	360	70	44.4	27.9	9.7	8.8	572.2	0.02
115	Bemetara	Berla	Sondh new	7.66	488	0	164.7	49.7	0.11	24.04	47.5	0	165	44	13.2	28.2	17.8	6.9	327.0	0.00
116	Bemetara	Dhamdha	Barhapur	7.52	1030	0	311.1	95.9	0.17	28.87	58.3	0	375	48	61.2	52.2	2.3	8.8	690.1	0.00
117	Bemetara	Nawagarh	Gadhamor	7.96	999	0	195.2	39.1	0.42	255.65	18.6	0	420	96	43.2	45.9	7.2	7.4	669.3	0.00
118	Bemetara	Nawagarh	Jhal	7.84	994	0	256.2	42.6	0.1	220.5	18.6	0	425	102	40.8	45.0	7.2	7.5	666.0	0.00
119	Bemetara	Saja	Beeja	7.87	962	0	237.9	49.7	0.2	246.35	19.8	0	400	98	37.2	61.2	6.1	6.6	644.5	0.02
120	Bemetara	Saja	Garro Dabra Parra	8.13	516	0	274.5	42.6	0.21	9.98	1.7	0	95	26	7.2	8.5	1.8	8.6	345.7	0.00
121	Bemetara	Saja	Jata	7.85	650	0	323.3	24.9	0.02	42.95	6.4	0	235	30	38.4	40.3	2.0	6.9	435.5	0.02
122	Bemetara	Saja	Kanhera	8.16	506	0	207.4	63.9	0.29	10.94	1.9	0	90	32	2.4	9.1	1.8	8.7	339.0	0.00
123	Bemetara	Saja	Karhi Bhadar	7.9	671	0	323.3	28.4	0.21	33.97	6.4	0	250	44	33.6	40.9	2.0	6.1	449.6	0.01
124	Bemetara	saja	Mouha bhata	8.12	530	0	262.3	24.9	0.1	9.15	9.9	0	225	34	33.6	28.7	1.6	7.7	355.1	0.01
125	Bemetara	Saja	Ninwa	7.67	938	0	396.5	95.9	0.1	46.62	7.2	0	340	34	61.2	88.4	2.4	7.7	628.5	0.02
126	Bemetara	Saja	Piparia	7.58	687	0	335.5	42.6	0.1	13.28	1.6	0	160	40	14.4	7.7	1.6	9.4	460.3	0.02
127	Bemetara	Saja	Suwartala	7.82	784	0	372.1	21.3	0.05	14.45	50.0	0	345	34	62.4	22.6	1.8	7.0	525.3	0.00
128	Bilaspur	Bilaspur	Bhadrapara	8.03	606	0	341.6	28.4	0.48	23	2.6	0	260	32	43.2	23.4	3.4	0.1	406.0	1.56
129	Bilaspur	Bilaspur	Bilaspur (Lalkhadan)	7.86	903	0	384.3	53.3	1.41	50.62	17.5	0	255	60	25.2	9.1	1.3	0.0	605.0	9.00
130	Bilaspur	Bilha	Bartoli	7.7	1539	0	475.8	227.2	0.45	11.62	15.5	0	485	40	92.4	63.7	108.0	0.4	1031.1	3.32
131	Bilaspur	Bilha	Bilaspur (Hemunagar)	7.5	1990	0	451.4	209.5	1.41	264	0.1	0	655	178	50.4	131.5	7.7	0.4	1333.3	6.63
132	Bilaspur	Bilha	Bilha	8.05	749	0	292.8	53.3	0.76	54.62	10.5	0	235	42	31.2	60.3	21.6	0.7	501.8	1.69
133	Bilaspur	Bilha	Bitkuli	7.88	696	0	298.9	49.7	0.13	53.78	11.8	0	295	36	49.2	22.3	3.9	0.3	466.3	3.01

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134	Bilaspur	Bilha	Bohardi	7.75	1034	0	323.3	120.7	0.89	63	0.2	0	375	40	66	79.9	1.5	0.3	692.8	3.07
135	Bilaspur	Bilha	Chakarbhata	7.8	595	0	237.9	60.4	0.16	12.22	12.8	0	260	58	27.6	14.3	1.0	0.1	398.7	2.31
136	Bilaspur	Bilha	Dagauri	7.93	1646	0	366	152.7	0.13	132	187.5	0.12	705	166	69.6	22.9	6.0	0.1	1102.8	15.23
137	Bilaspur	Bilha	Hirri	7.64	986	0	439.2	63.9	0.13	28.15	0.2	0	395	50	64.8	36.7	5.6	0.1	660.6	7.62
138	Bilaspur	Gaurela (Pendraroad-1)	Adbhar	7.27	388	0	134.2	60.4	0.16	4.69	0.0	0	150	36	14.4	20.9	2.8	0.4	260.0	1.04
139	Bilaspur	Gaurela (pendrarod) - 1	Keonchi	8.01	565	0	305	24.9	0.34	2.91	2.4	0	190	20	33.6	46.0	1.3	0.0	378.6	1.41
140	Bilaspur	Gaurela (pendrarod) - 1	Piperkhuti	7.62	459	0	158.6	63.9	0.3	9.29	24.1	0	150	38	13.2	36.9	3.6	0.0	307.5	8.58
141	Bilaspur	Gaurela (pendrarod) - 1	Rupandand	7.68	712	0	280.6	74.6	0.78	14.49	4.9	0	140	24	19.2	10.2	1.5	0.3	477.0	28.17
142	Bilaspur	Kota	Banabel/ Amamuda	8.24	1612	0	634.4	198.8	0.13	7.55	2.7	0	130	40	7.2	34.2	1.1	0.1	1080.0	2.29
143	Bilaspur	Kota	Bansajhal	8.03	560	0	274.5	35.5	0.17	5.98	1.2	0	200	36	26.4	27.4	1.3	0.4	375.2	1.08
144	Bilaspur	Kota	Belgahana	7.48	944	0	256.2	131.4	0.56	40.06	49.5	0	425	96	44.4	15.4	2.8	0.4	632.5	1.83
145	Bilaspur	Kota	Chhatauna	8.13	1110	0	457.5	103.0	0.56	53.51	19.7	0	455	94	52.8	73.4	7.7	0.0	743.7	7.98
146	Bilaspur	Kota	Ghansipur (sainik camp)	7.62	283	0	128.1	21.3	0.55	4.98	1.8	0	110	32	7.2	14.1	2.2	0.0	189.6	0.23
147	Bilaspur	Kota	Jhingatpur	7.91	756	0	286.7	74.6	0.89	13.41	48.2	0	305	42	48	25.8	2.8	0.3	506.5	3.34
148	Bilaspur	Kota	Jogipur	7.46	943	0	372.1	95.9	0.16	23.27	34.3	0	365	40	63.6	60.1	1.8	0.3	631.8	9.49
149	Bilaspur	Kota	Kargi khurd	8.26	399	0	128.1	42.6	0.13	1.57	0.4	0	105	38	2.4	29.1	3.7	0.0	267.3	0.76
150	Bilaspur	Kota	Kenda	7.85	322	0	128.1	42.6	0.76	6.66	0.5	0	85	30	2.4	3.4	1.6	0.3	215.7	3.83
151	Bilaspur	Kota	Khaira	7.75	1074	0	414.8	110.1	0.62	71.4	1.2	0	290	44	43.2	11.1	1.8	0.3	719.6	8.25
152	Bilaspur	Kota	Kota(kargi)	7.77	188	0	97.6	7.1	1.38	3.86	1.4	0	30	8	2.4	2.8	2.7	0.3	126.0	0.25
153	Bilaspur	Kota	Nawapara	7.88	1052	0	546.6	17.8	0.31	101.1	1.8	0	225	62	16.8	14.7	5.4	0.3	704.8	17.68
154	Bilaspur	Kota	Ratanpur	7.49	1014	0	341.6	120.7	0.76	24.07	10.3	0	395	40	70.8	35.9	1.0	0.0	679.4	5.89
155	Bilaspur	Kota	Saraipalli	7.95	958	0	286.7	149.1	0.13	30.46	21.8	0	340	94	25.2	58.3	2.3	0.3	641.9	15.68
156	Bilaspur	Kota	Shivtarai	7.88	699	0	292.8	71.0	0.16	6.1	2.0	0	285	72	25.2	35.8	0.7	0.3	468.3	8.20
157	Bilaspur	Kota	Shripara	7.84	357	0	189.1	21.3	0.5	3.31	6.2	0	125	42	4.8	26.1	0.8	0.3	239.2	0.00
158	Bilaspur	Kota	Tenduwa	7.81	651	0	311.1	42.6	0.38	13.41	10.5	0	290	80	21.6	23.5	1.1	0.3	436.2	3.24
159	Bilaspur	Lormi	Pali(Lormi)	7.86	1178	0	469.7	103.0	0.39	27.35	41.7	0	395	36	73.2	66.2	1.2	0.0	789.3	7.22

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160	Bilaspur	Marwahi	Chalchali	7.66	144	0	67.1	7.1	1.2	2.34	7.7	0	40	12	2.4	13.9	2.9	0.0	96.5	0.00
161	Bilaspur	Marwahi	Chochgahana	8.04	358	0	152.5	28.4	1.1	3.48	12.3	0	130	40	7.2	18.3	4.9	0.2	239.9	0.00
162	Bilaspur	Marwahi	Dhanpur	7.64	574	0	195.2	71.0	0.34	19.14	10.1	0	190	54	13.2	48.6	1.0	0.3	384.6	9.10
163	Bilaspur	Marwahi	Kargi kala	8.1	387	0	170.8	35.5	0.88	4.23	0.7	0	150	46	8.4	15.3	2.6	0.0	259.3	0.00
164	Bilaspur	Marwahi	Khumharia	7.93	1253	0	359.9	198.8	0.35	21.55	4.3	0	385	122	19.2	113.3	7.6	0.0	839.5	11.42
165	Bilaspur	Marwahi	Kudwahi	7.57	839	0	335.5	92.3	0.64	10.45	10.3	0	320	76	31.2	36.0	1.9	0.1	562.1	9.32
166	Bilaspur	Marwahi	Marwahi	8.07	553	0	128.1	81.7	0.16	8.91	48.8	0	185	70	2.4	41.0	8.5	0.0	370.5	1.13
167	Bilaspur	Marwahi	Nimdha	7.72	290	0	128.1	21.3	0.92	3.29	11.6	0	90	26	6	20.4	0.9	0.3	194.3	1.29
168	Bilaspur	Marwahi	Pandri (Dhanwari Posa)	7.88	418	0	195.2	28.4	0.8	4.99	6.3	0	160	40	14.4	22.2	0.8	0.0	280.1	3.83
169	Bilaspur	Marwahi	Sewra	7.55	790	0	219.6	110.1	0.89	19.14	39.6	0	315	112	8.4	36.6	1.7	0.1	529.3	1.82
170	Bilaspur	Marwahi	Tendumuda	8.03	957	0	372.1	92.3	1.07	47.54	0.3	0	155	38	14.4	15.5	4.2	0.0	641.2	0.00
171	Bilaspur	Marwahi	Tikthi	7.74	365	0	128.1	35.5	0.29	0.41	17.6	0	120	32	9.6	20.6	1.7	0.0	244.6	0.00
172	Bilaspur	Masturi	Bakarkuda	7.3	1103	0	366	163.3	0.5	25.59	40.2	0	480	40	91.2	34.9	2.7	0.4	739.0	5.32
173	Bilaspur	Masturi	Binauri	7.99	861	0	231.8	117.2	0.78	58.95	8.3	0	290	48	40.8	32.1	47.2	0.7	576.9	2.10
174	Bilaspur	Masturi	Chilhati	7.82	743	0	305	78.1	0.5	4.62	35.6	0	290	64	31.2	36.2	1.7	0.0	497.8	2.76
175	Bilaspur	Masturi	Malhar	8.07	618	0	219.6	92.3	0.85	18.08	15.4	0	245	56	25.2	30.1	2.1	0.3	414.1	2.79
176	Bilaspur	Masturi	Panchpedi	8.12	1199	0	341.6	174.0	0.47	58.95	2.8	0	155	38	14.4	19.2	3.3	0.3	803.3	2.39
177	Bilaspur	Masturi	Tikari (Sadak Para)	7.78	1183	0	335.5	174.0	0.52	54.39	16.2	0	450	112	40.8	58.9	16.8	0.0	792.6	4.89
178	Bilaspur	Mungeli	Kanteli.1	7.94	620	0	256.2	53.3	0.5	11.99	33.1	0	275	34	45.6	13.8	9.0	0.3	415.4	2.41
179	Bilaspur	Mungeli	Matiyari	7.9	1218	0	433.1	88.8	0.65	41.73	51.0	0	535	92	73.2	33.0	8.0	0.3	816.1	17.41
180	Bilaspur	Mungeli	Setganga	7.9	757	0	372.1	53.3	0.26	17.42	6.3	0	180	56	9.6	9.9	2.4	0.0	507.2	6.96
181	Bilaspur	Mungeli	Surada	8.16	937	0	463.6	35.5	0.13	42.93	14.0	0	350	84	33.6	61.7	2.5	0.3	627.8	7.92
182	Bilaspur	Musturi	Musturi-2	7.27	1930	0	542.9	287.6	0.98	71.8	34.1	0	670	176	55.2	124.9	3.8	8.5	1293.1	6.20
183	Bilaspur	Pendra road	Dharhar	7.92	301	0	128.1	28.4	0.45	4.62	2.5	0	85	30	2.4	3.0	2.8	0.3	201.7	0.00
184	Bilaspur	Takhatpur	Chandrakhuri	7.7	1148	0	402.6	92.3	1.41	111.65	0.2	0	475	130	36	31.9	6.6	6.6	769.2	16.70
185	Bilaspur	Takhatpur	Ganiyari	7.87	713	0	329.4	49.7	0.98	8.72	8.1	0	300	58	37.2	22.7	1.6	6.8	477.7	5.00
186	Bilaspur	Takhatpur	Gatori	7.55	209	0	79.3	24.9	0.76	7.41	0.3	0	80	24	4.8	9.6	3.7	0.3	140.0	0.34
187	Bilaspur	Takhatpur	Khamharia1	7.8	924	0	402.6	74.6	0.76	15.98	10.3	0	300	62	34.8	68.5	2.4	0.3	619.1	5.65

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188	Bilaspur	Takhatpur	Kuli	8.12	1374	0	402.6	134.9	0.29	105.4	0.5	0	605	192	30	27.8	5.6	0.3	920.6	0.56
189	Bilaspur	Takhatpur	Takhatpur	8.1	1100	0	414.8	63.9	1.3	99.95	7.5	0	480	136	33.6	52.0	1.8	0.3	737.0	14.23
190	Bilaspur	Takhatpur	Udaypur	7.84	634	0	311.1	39.1	0.17	4.42	10.7	0	260	66	22.8	23.7	0.8	0.0	424.8	2.80
191	Dhamtari	Dhamtari	Chhati	8.4	591	6	268.4	42.6	0.5	61.5	0.1	0	220	56	19.2	48.9	2.0	7.1	396.0	0.01
192	Dhamtari	Dhamtari	Dhamtari	7.82	372	0	158.6	21.3	0.82	39.9	1.1	0	130	30	13.42	33.9	3.8	25.0	249.2	0.30
193	Dhamtari	Dhamtari	Gangrel	8.15	131	0	61	10.7	0.2	5.9	0.0	0	50	16	2.4	6.7	1.8	2.1	87.8	0.00
194	Dhamtari	Dhamtari	Khadadaha	8.05	358	0	164.7	7.1	0.5	67.1	0.0	0	120	36	7.2	31.4	6.8	14.0	239.9	0.00
195	Dhamtari	Dhamtari	Marradev	8.2	159	0	61	14.2	0.1	6.7	0.0	0	60	20	2.4	7.6	2.2	7.1	106.5	0.00
196	Dhamtari	Dhamtari	Rudri chowk	7.59	491	0	134.2	42.6	0.2	89.3	4.5	0	150	42	10.8	41.6	5.2	4.4	329.0	0.00
197	Dhamtari	Dhamtari	Shankarda	7.62	885	0	311.1	88.8	0.2	32.4	8.4	0	300	66	32.4	40.9	4.0	4.4	593.0	0.01
198	Dhamtari	Kurud	Aouri	7.57	815	0	280.6	71.0	0.2	80.1	37.1	0	350	88	31.2	28.8	4.4	4.4	546.1	0.00
199	Dhamtari	Kurud	Bhatagaon	7.72	466	0	128.1	14.2	0.3	62.5	57.3	0	215	70	9.6	9.4	0.2	7.1	312.2	0.00
200	Dhamtari	Kurud	Gadadih	8.15	940	0	286.7	106.5	0.3	96.9	30.3	0	355	96	27.6	44.8	15.8	9.0	629.8	0.00
201	Dhamtari	Kurud	Kondapar	7.84	498	0	311.1	53.3	0.4	73.1	1.4	0	260	72	19.2	29.7	0.7	5.6	333.7	0.00
202	Dhamtari	Kurud	Kurud	7.96	491	0	305	10.7	1	6.7	0.0	0	185	52	13.2	49.5	1.3	4.0	329.0	0.00
203	Dhamtari	Kurud	Marod	7.66	849	0	244	88.8	0.4	72.9	11.7	0	300	64	33.6	58.5	3.5	6.3	568.8	0.00
204	Dhamtari	Kurud	Darba	8.42	403	6	256.2	17.8	0.5	6.5	0.0	0	200	56	14.4	14.0	0.7	8.4	270.0	0.00
205	Dhamtari	Magarload	Banraud	8.2	297	0	122	14.2	0.2	62.5	0.0	0	135	42	7.2	14.0	3.4	7.8	199.0	0.00
206	Dhamtari	Magarload	Baspara (Kukrel)	7.99	244	0	122	14.2	0.3	5.9	0.0	0	100	30	6	11.8	3.1	10.0	163.5	0.00
207	Dhamtari	Magarload	Budaraon	7.79	631	0	250.1	42.6	0.3	72.7	19.4	0	235	60	20.4	44.5	1.5	7.1	422.8	0.01
208	Dhamtari	Magarload	Singhpur	7.95	521	0	286.7	21.3	1.5	9.7	0.0	0	145	44	8.4	49.4	5.8	15.8	349.1	0.00
209	Dhamtari	Magarlod	Magarlod D	8.54	224	9	85.4	24.9	0.64	12.56	3.4	0	75	24	3.66	17.9	0.8	9.6	150.1	0.00
210	Dhamtari	Nagri	Amali	7.06	354	0	183	17.8	0.4	7.4	8.4	0	110	26	10.8	29.6	2.7	38.1	237.2	0.00
211	Dhamtari	Nagri	Kouhabahara	7.39	403	0	152.5	35.5	0.4	7.2	16.2	0	150	50	6	28.2	1.5	18.2	270.0	0.00
212	Dhamtari	Sihawa (Nagri)	Birgudi	7.33	543	0	140.3	67.5	0.4	11.5	16.1	0	200	58	13.2	18.3	12.3	26.0	363.8	0.00
213	Dhamtari	Sihawa (Nagri)	Dorgardula	8.06	250	0	73.2	10.7	1.3	67	0.0	0	90	26	6	19.7	1.1	21.8	167.5	0.00
214	Dhamtari	Sihawa (Nagri)	Dugli	8.14	407	0	189.1	35.5	0.8	6.9	3.0	0	150	50	6	20.0	1.4	19.5	272.7	0.00
215	Dhamtari	Sihawa (Nagri)	Gattasilli	7.42	503	0	85.4	56.8	0.3	80.1	46.2	0	160	48	9.6	40.4	1.2	21.0	337.0	0.01
216	Dhamtari	Sihawa (Nagri)	Keregaon	7.64	245	0	128.1	14.2	0.2	7.1	0.0	0	80	24	4.8	17.0	5.9	5.3	164.2	0.00

Sr.	District	Block	Location	pH	EC µs/cm	CO3 mg/l	HCO3 mg/l	Cl mg/l	F mg/l	SO4 mg/l	NO3 mg/l	PO4 mg/l	TH mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	SiO2 mg/l	TDS mg/l	U µg/l
217	Dhamtari	Sihawa (Nagri)	Nagri	7.37	938	0	213.5	159.8	0.2	12	0.0	0	300	88	19.2	60.8	11.2	13.5	628.5	0.01
218	Dhamtari	Sihawa (Nagri)	Sihawa	7.62	429	0	158.6	28.4	0.5	75.4	10.4	0	165	40	15.6	31.1	9.6	8.1	287.4	0.00
219	Durg	Bemetara	Andhiyarkhor	7.88	1494	0	463.6	42.6	0.24	272	26.9	0	410	78	51.6	13.7	3.0	10.6	1001.0	0.02
221	Durg	Bemetara	Arasnara	8.13	475	0	250.1	32.0	0.18	3	18.5	0	195	56	13.2	24.5	0.8	9.2	318.3	0.01
222	Durg	Bemetara	Ashoga	8.15	474	0	207.4	39.1	0.2	3.19	18.4	0	180	54	10.8	24.8	0.8	9.2	317.6	0.02
223	Durg	Bemetara	Bemetara	7.66	2110	0	646.6	347.9	0.02	41.62	18.8	0	925	252	70.8	55.5	3.2	7.3	1413.7	0.00
224	Durg	Bemetara	Nawagarh.1	7.6	405	0	140.3	42.6	0.2	19.01	31.2	0	160	50	8.4	27.0	1.3	19.0	271.4	0.00
225	Durg	Bemetara	Nawagarh-d	7.64	1222	0	329.4	53.3	0.35	272.95	20.4	0	365	22	74.4	108.8	1.8	11.4	818.7	0.00
226	Durg	Bemetara	Sagona	7.74	2190	0	530.7	237.9	0.29	213.9	10.0	0	895	134	134.4	78.5	2.9	8.7	1467.3	0.01
227	Durg	Berla	Jeora	8.16	341	0	128.1	24.9	0.18	12.93	25.0	0	150	52	4.8	18.3	0.8	5.7	228.5	0.00
228	Durg	Berla	Kharra	7.64	1151	0	414.8	85.2	0.88	49.92	50.0	0	445	24	92.4	52.3	23.7	7.2	771.2	0.00
229	Durg	Berla	Ranka	7.86	562	0	225.7	24.9	0.17	45.04	22.9	0	265	62	26.4	9.9	1.2	9.9	376.5	0.00
230	Durg	dhamda	Dhaba	7.87	828	0	237.9	138.5	0.41	37	15.6	0	230	56	21.6	75.4	6.1	3.6	554.8	0.00
231	Durg	Dhamda	Dhamda	7.7	1111	0	378.2	138.5	0.41	43.38	18.3	0	415	86	48	76.5	10.0	7.8	744.4	0.01
232	Durg	Dhamda	Ghota	7.95	300	0	122	17.8	0.18	17.57	23.9	0	115	24	13.2	16.0	0.5	8.0	201.0	0.00
233	Durg	Dhamda	Murmunda	7.34	720	0	219.6	92.3	0.09	9.55	55.0	0	245	72	15.6	44.2	15.7	4.2	482.4	0.00
234	Durg	Dhamdha	Ahiwara	7.89	546	0	231.8	42.6	0.3	3.94	30.4	0	270	92	9.6	10.3	1.0	8.1	365.8	0.00
235	Durg	Dhamdha	Birjhapur	7.68	714	0	335.5	67.5	0.1	16.14	2.6	0	270	68	24	44.4	0.9	8.1	478.4	0.01
236	Durg	Dhamdha	Dargaon	7.69	2390	0	651.6	206.5	0.21	246.49	54.1	0	705	256	15.6	167.1	21.7	7.8	1601.3	0.02
237	Durg	Dhamdha	Girola	7.75	1264	0	341.6	149.1	0.1	7.51	65.9	0.01	550	56	98.4	12.5	3.3	8.3	846.9	0.00
238	Durg	Dhamdha	Karanja Bhilai	8.04	1000	0	262.3	163.3	0.02	37.19	26.1	0	310	46	46.8	87.2	2.3	6.6	670.0	0.00
239	Durg	Dhamdha	Kodiya	8.13	467	0	219.6	28.4	0.02	0.84	38.7	0	210	58	15.6	11.9	2.6	6.1	312.9	0.01
240	Durg	Dhamdha	Litia	7.6	898	0	213.5	131.4	0	17.78	53.3	0	380	72	48	20.8	2.3	7.5	601.7	0.02
241	Durg	Dhamdha	Mohrenga	7.88	1042	0	390.4	163.3	0.29	6.72	15.3	0	400	74	51.6	78.3	2.5	8.7	698.1	0.00
242	Durg	Dhamdha	Pendritarai	7.86	870	0	292.8	81.7	0.29	18.83	55.2	0	405	66	57.6	14.6	3.0	7.8	582.9	0.00
243	Durg	Dhamdha	Ravelidih	7.83	705	0	225.7	63.9	0	8.6	53.1	0	305	90	19.2	20.1	1.1	5.6	472.4	0.00
244	Durg	Dhamdha	Tarkori	7.77	752	0	262.3	63.9	0.1	42.6	26.0	0	345	48	54	25.1	2.2	9.4	503.8	0.00
245	Durg	Dhamdha	Thengabhat	7.89	972	0	176.9	63.9	0.2	237.4	48.6	0	355	68	44.4	59.6	30.0	5.8	651.2	0.00
246	Durg	Dondi Lohara	Batera	7.52	225	0	97.6	14.2	0.17	6.92	25.8	0	85	26	4.8	9.8	9.5	6.2	150.8	0.00

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247	Durg	Dondi Lohara	Bhalukonha	7.3	172	0	85.4	14.2	0	1.27	0.6	0	75	18	7.2	9.2	3.6	6.6	115.2	0.00
248	Durg	Dondi Lohara	Bharnabhat	7.6	986	0	335.5	152.7	0.29	25.04	22.3	0	365	24	73.2	77.2	1.7	8.0	660.6	0.00
249	Durg	Dondi Lohara	Koba(Pz-II)	7.72	851	0	414.8	53.3	0.02	51.23	10.8	0	340	72	38.4	47.5	3.8	11.6	570.2	0.00
250	Durg	Dondi Lohara	Sambalpur	7.77	412	0	207.4	17.8	0	2.04	13.3	0	195	62	9.6	5.8	0.6	7.4	276.0	0.02
251	Durg	Doundi	Baklitola	7.77	933	0	347.7	71.0	0.1	24.09	54.7	0	335	90	26.4	66.3	1.5	29.2	625.1	0.00
252	Durg	Doundi	Delli Rajhara	7.95	663	0	311.1	39.1	0.42	13.98	17.7	0	265	64	25.2	29.0	0.2	20.5	444.2	0.01
253	Durg	Doundi	Dondi	7.89	706	0	305	56.8	0.88	15.92	18.8	0	275	70	24	38.4	2.8	19.5	473.0	0.02
254	Durg	Doundi	Narratola	8.07	437	0	183	14.2	0.24	16.6	24.1	0	190	44	19.2	16.7	0.5	6.4	292.8	0.00
255	Durg	Durg	Anda	7.85	994	0	292.8	134.9	0.09	37.7	28.6	0	395	112	27.6	49.3	20.2	8.8	666.0	0.01
256	Durg	Durg	Bhilai	7.76	882	0	292.8	88.8	0.1	21.1	41.3	0	265	64	25.2	72.3	3.7	5.0	590.9	0.00
257	Durg	Durg	Binayakpur	7.75	886	0	359.9	63.9	0.09	36.08	2.5	0	275	72	22.8	62.9	38.0	11.6	593.6	0.00
258	Durg	Durg	Dumardih	8.05	946	0	378.2	67.5	0.31	15.55	21.6	0	365	44	61.2	40.0	20.6	11.1	633.8	0.00
259	Durg	Durg	Durg	7.87	767	0	311.1	56.8	0.1	24.63	5.0	0	285	26	52.8	42.3	5.7	14.6	513.9	0.02
260	Durg	Durg	Ganiyari	7.82	1138	0	420.9	120.7	0.1	29.83	9.6	0	395	76	49.2	91.2	9.5	7.1	762.5	0.02
261	Durg	Durg	Janjgiri	7.93	1784	0	573.4	227.2	0.2	48.35	60.5	0	525	128	49.2	19.0	8.9	17.8	1195.3	0.00
262	Durg	Durg	Jeora-sirsa	7.4	1118	0	311.1	120.7	0.1	47.17	49.3	0	360	86	34.8	53.6	19.1	7.7	749.1	0.00
263	Durg	Durg	Kachandur	7.74	1188	0	481.9	110.1	0.1	41.66	7.7	0	320	56	43.2	92.4	33.3	10.6	796.0	0.01
264	Durg	Durg	Nagpura	7.56	651	0	231.8	53.3	0.18	14.88	46.6	0	295	60	34.8	19.4	1.5	7.7	436.2	0.00
265	Durg	Durg	Powara	7.64	569	0	250.1	42.6	0.2	24.37	7.1	0	260	62	25.2	14.3	0.7	6.9	381.2	0.00
266	Durg	Durg	Selud	7.83	361	0	189.1	24.9	0.24	12.48	0.4	0	160	40	14.4	16.0	1.0	5.7	241.9	0.01
267	Durg	Durg	Utai (Adarsh Nagar)	7.85	563	0	189.1	56.8	0.02	34.25	16.7	0	215	58	16.8	32.2	0.8	7.0	377.2	1.51
268	Durg	Gunderdehi	Arjunda	7.87	769	0	256.2	103.0	0.31	20.41	47.4	0	235	76	10.8	43.1	48.5	4.7	515.2	0.02
269	Durg	Gunderdehi	Gunderdehi	8.12	342	0	140.3	24.9	0.09	14.6	25.3	0	150	10	30	17.6	0.7	6.3	229.1	0.01
270	Durg	Gunderdehi	Sankri	8.09	336	0	128.1	21.3	0.09	17.25	23.6	0	145	42	9.6	16.3	0.5	6.1	225.1	0.02
271	Durg	Gunderdehi	Sikosa	8.05	878	0	250.1	88.8	0.24	32.14	50.9	0	350	74	39.6	29.0	1.1	8.7	588.3	0.02
272	Durg	Gunderdehi	Tabera	7.55	1750	0	516.1	216.6	0	136.74	50.1	0	210	62	13.2	34.1	15.6	16.3	1172.5	0.00
273	Durg	Gurur	Balodgahan	7.6	575	0	176.9	85.2	0	10.82	10.2	0	230	68	14.4	25.3	5.9	35.4	385.3	0.00
274	Durg	Gurur	Gurur	7.74	373	0	134.2	42.6	0	6.34	17.3	0	175	68	1.2	10.5	1.9	31.4	249.9	0.00

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275	Durg	Gurur	Jagtara	7.87	499	0	195.2	35.5	0.11	22.09	17.3	0	180	54	10.8	31.7	5.9	11.1	334.3	0.00
276	Durg	Gurur	kuliya	7.5	270	0	109.8	24.9	0.05	7.88	20.5	0	100	32	4.8	18.2	0.5	21.1	180.9	0.03
277	Durg	Gurur	Markatola	7.53	396	0	189.1	14.2	0.21	25.7	1.1	0	130	40	7.2	28.6	4.9	17.1	265.3	0.00
278	Durg	Navagarh	Temri	8.27	337	0	146.4	17.8	0.35	18.02	24.1	0	155	44	10.8	16.6	0.5	6.4	225.8	0.00
279	Durg	Patan	Ameri	6.79	649	0	250.1	56.8	0.09	8.99	33.5	0	295	92	15.6	16.9	10.8	8.2	434.8	0.00
280	Durg	Patan	Bhansuli R	7.72	2720	0	597.8	344.4	0.7	266.2	55.6	0	575	122	64.8	36.1	21.0	19.5	1822.4	0.00
281	Durg	Patan	Bharar	8.21	562	0	298.9	28.4	0.24	3.31	3.9	0	225	26	38.4	27.2	0.7	11.1	376.5	0.00
282	Durg	Patan	Bhilai-3 Charoda	7.92	527	0	219.6	39.1	0.38	28.45	8.7	0	210	36	28.8	29.7	3.7	6.4	353.1	0.00
283	Durg	Patan	Bodal	8.09	504	0	189.1	46.2	0	15.27	23.5	0	235	58	21.6	17.4	0.5	8.0	337.7	0.00
284	Durg	Patan	Bohardih	7.56	713	0	372.1	56.8	0.3	8.76	4.8	0	325	48	49.2	32.3	0.6	9.2	477.7	0.00
285	Durg	Patan	Darbarmukhli	7.83	842	0	390.4	63.9	0.21	33.02	11.6	0	295	58	36	53.3	4.4	9.8	564.1	0.02
286	Durg	Patan	Dewada	7.85	626	0	231.8	85.2	0	16.83	16.1	0	275	82	16.8	23.1	3.1	6.5	419.4	0.02
287	Durg	Patan	Funda	7.68	554	0	195.2	63.9	0.02	18.75	30.8	0	230	22	42	23.7	0.7	5.7	371.2	0.01
288	Durg	Patan	Gabhara	7.71	798	0	201.3	88.8	0.47	45.04	29.1	0	265	38	40.8	39.0	14.3	9.5	534.7	0.00
289	Durg	Patan	Karela	7.95	426	0	207.4	24.9	0.51	14.1	3.0	0	170	52	9.6	15.5	9.0	6.9	285.4	0.00
290	Durg	Patan	kharra	7.61	725	0	390.4	24.9	0.35	11.88	16.4	0	295	48	42	35.6	0.8	7.7	485.8	0.02
291	Durg	Patan	Khurdmudi	7.67	1166	0	427	110.1	0.1	28.08	50.4	0	330	40	55.2	81.6	59.4	10.9	781.2	0.02
292	Durg	Patan	Kumhari	7.78	836	0	274.5	74.6	0.01	40.18	29.2	0	330	76	33.6	48.6	0.9	10.4	560.1	0.00
293	Durg	Patan	Kumhli	7.67	718	0	317.2	67.5	0.21	16.19	1.7	0	265	58	28.8	44.5	0.8	8.2	481.1	0.00
294	Durg	Patan	Manik Chauri	7.55	835	0	280.6	81.7	0	46.72	11.6	0	315	52	44.4	39.0	6.4	6.6	559.5	0.00
295	Durg	Patan	Marra	7.66	940	0	213.5	166.9	0.29	45.18	53.0	0	380	88	38.4	45.3	1.7	9.5	629.8	0.00
296	Durg	Patan	Matang	8.17	576	0	262.3	28.4	0.18	7.28	26.5	0	205	56	15.6	44.1	0.9	8.2	385.9	0.00
297	Durg	Patan	Motipur	7.48	790	0	219.6	99.4	0.1	27.01	50.7	0	260	68	21.6	56.5	5.6	6.6	529.3	0.00
298	Durg	Patan	Nikum	7.92	910	0	311.1	78.1	0.09	43.63	22.4	0	330	30	61.2	43.8	23.3	9.6	609.7	0.00
299	Durg	Patan	Patan	7.88	476	0	189.1	32.0	0.2	33.17	18.5	0	195	58	12	23.0	5.9	4.5	318.9	0.00
300	Durg	Patan	Sikola	8	689	0	231.8	71.0	0.18	20.59	43.7	0	295	58	36	22.2	1.4	7.7	461.6	0.00
301	Durg	Patan	Tarra	7.8	520	0	244	35.5	0.1	18.77	26.6	0	225	52	22.8	23.5	1.2	8.9	348.4	0.00
302	Durg	Patan	Teligundra	7.64	1405	0	402.6	184.6	0	42.31	36.9	0	460	54	78	111.6	2.5	8.8	941.4	0.00
303	Durg	Patan	Zhit	7.95	626	0	280.6	46.2	0	21.33	27.3	0	230	56	21.6	30.3	13.0	8.8	419.4	0.00

Sr.	District	Block	Location	pH	EC µs/cm	CO3 mg/l	HCO3 mg/l	Cl mg/l	F mg/l	SO4 mg/l	NO3 mg/l	PO4 mg/l	TH mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	SiO2 mg/l	TDS mg/l	U µg/l
304	Durg	Saja	Bortara	7.93	881	0	414.8	32.0	0.03	11.93	50.4	0	370	80	40.8	19.8	1.6	6.9	590.3	0.01
305	Durg	Saja	Gatapar	8.1	547	0	274.5	39.1	0.29	8.07	10.2	0	235	64	18	24.8	1.5	7.3	366.5	0.00
306	Durg	Saja	Jamgaon	7.56	894	0	280.6	81.7	0.24	38.42	41.6	0	345	56	49.2	44.6	4.4	7.8	599.0	0.00
307	Durg	Saja	Parpoda	7.84	683	0	420.9	21.3	0.88	15.21	45.1	0	355	30	67.2	18.3	1.3	6.9	457.6	1.00
308	Durg	Sanjari Balod	Balod	7.85	958	0	396.5	71.0	0.35	53.74	4.6	0	375	82	40.8	67.8	7.1	11.8	641.9	0.05
309	Durg	Sanjari Balod	Deurtarai	7.6	630	0	225.7	63.9	0	53.88	11.4	0	235	68	15.6	34.9	15.9	12.6	422.1	8.69
310	Durg	Sanjari Balod	Kanewada	7.81	878	0	414.8	42.6	0.35	24.89	10.4	0	345	98	24	47.4	3.6	10.6	588.3	0.00
311	Durg	Sanjari Balod	Khairwahi S	7.48	575	0	298.9	28.4	0.1	8.58	4.0	0	235	62	19.2	26.4	0.7	9.2	385.3	0.00
312	Durg	Sanjari Balod	Kusumkasa	7.58	675	0	292.8	56.8	0.21	5.61	9.5	0	300	72	28.8	25.3	1.1	10.6	452.3	0.00
313	Durg	Sanjari Balod	Umaradah	8.2	530	0	250.1	24.9	0.17	3.18	17.9	0	220	56	19.2	22.1	0.5	8.7	355.1	0.00
314	Gariyabandh	Chhura	Gariaband	7.09	317	0	91.5	39.1	0.3	6.2	20.2	0	100	20	12	21.6	2.1	48.8	212.4	0.00
315	Gariyabandh	Chhura	Sorid	6.87	216	0	79.3	7.1	0.1	51.7	0.0	0	85	26	4.8	14.2	1.7	24.1	144.7	0.00
316	Gariyabandh	Fingeshwar	Fingeshwar	7.7	459	0	183	21.3	0.1	57	20.1	0	200	30	30	14.6	1.9	6.7	307.5	0.01
317	Gariyabandh	Fingeswar	Baronda	7.24	1041	0	329.4	106.5	0.1	17.8	58.0	0	230	72	12	97.8	59.0	35.5	697.5	0.00
318	Gariyabandh	Fingeswar	Kirwai	7.46	883	0	414.8	81.7	0.4	7.3	1.6	0	285	90	14.4	78.8	1.7	33.6	591.6	0.01
319	Gariyabandh	Fingeswar	Sarkada	6.72	216	0	97.6	10.7	0.1	51.3	0.0	0	100	30	6	15.0	1.8	23.9	144.7	0.00
320	Gariyabandh	Gariyabandh	Malgaon	7.09	57	0	30.5	7.1	0.1	4.3	0.0	0	20	6	1.2	5.1	1.6	39.2	38.2	0.00
321	Gariyabandh	Rajim	Devri	7.34	347	0	195.2	14.2	0.2	5.5	12.9	0	135	32	13.2	25.4	0.9	36.6	232.5	0.00
322	Gariyabandh	Rajim	Kashi Bahara	7.04	567	0	115.9	53.3	0.6	63.7	56.4	0	190	66	6	39.5	1.2	23.6	379.9	0.01
323	Gariyabandh	Rajim	Mudagaon	7.2	195	0	61	10.7	0.5	45.14	8.8	0	75	26	2.4	14.2	1.0	24.6	130.7	0.00
324	Gariyabandh	Rajim	Parsada Khurd	7.66	592	0	268.4	39.1	0.7	6.2	10.3	0	225	80	6	41.8	1.6	42.0	396.6	0.00
325	Gariyabandh	Rajim	Rajim	7.68	1065	0	286.7	181.1	0.3	71.4	28.9	0	370	150	1.2	60.0	36.6	16.9	713.6	0.00
326	Gariyabandh	Rajim	Sursabandha	7.28	1903	0	579.5	188.2	0.4	129.2	62.9	0.01	560	80	86.4	20.9	2.1	36.0	1275.0	0.00
327	Gariyabandh		Amethi	7.27	663	0	219.6	53.3	0.5	59.8	43.9	0	250	78	13.2	37.1	1.9	19.7	444.2	0.00
328	Janjgir Champa	Akaltara	Akaltara	7.65	913	0	335.5	99.4	0.76	13.42	40.6	0	265	58	28.8	69.7	32.2	0.0	611.7	3.25
329	Janjgir Champa	Akaltara	Bamhani	7.88	704	0	286.7	74.6	0.13	7.14	2.6	0	260	68	21.6	42.1	0.8	0.0	471.7	11.84
330	Janjgir Champa	Akaltara	Konargarh	7.85	744	0	341.6	24.9	0.47	39.69	0.6	0	210	56	16.8	7.7	3.1	9.5	498.5	0.00
331	Janjgir Champa	Akaltara	Mulmula	7.32	1157	0	305	166.9	0.35	37.92	30.2	0	380	82	42	76.8	5.0	10.1	775.2	4.21
332	Janjgir Champa	Baloda	Baloda	7.75	1617	0	427	269.8	0.78	33.65	43.9	0	535	100	68.4	117.9	2.5	0.0	1083.4	23.36

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333	Janjgir Champa	Bamhnidih	Bamhanidihi	8.16	553	0	286.7	28.4	0.89	7.14	7.9	0	215	48	22.8	25.6	2.3	0.0	370.5	1.92
334	Janjgir Champa	Bamhnidih	Baradwar-d	8.06	504	0	189.1	53.3	0.98	5.38	11.9	0	205	50	19.2	17.9	4.0	6.6	337.7	0.00
335	Janjgir Champa	Bamhnidih	Champa	7.74	634	0	317.2	56.8	0.13	7.9	0.3	0	245	56	25.2	34.6	1.3	0.0	424.8	2.22
336	Janjgir Champa	Bamhnidih	Saragaon	7.55	1270	0	433.1	191.7	0.09	11.98	5.9	0	390	42	68.4	93.0	14.0	12.5	850.9	6.94
337	Janjgir Champa	Bamnidih	Afrid	7.49	123	0	42.7	7.1	0.34	2.06	20.5	0	45	14	2.4	6.2	4.1	0.2	82.4	0.52
338	Janjgir Champa	Champa	Pachori	8.13	452	0	231.8	21.3	0.11	2.06	6.6	0	170	44	14.4	30.9	1.6	0.0	302.8	0.94
339	Janjgir Champa	Dabhra	Dabra	7.84	961	0	311.1	145.6	1.23	7.9	35.1	0	400	68	55.2	37.9	6.4	0.0	643.9	4.27
340	Janjgir Champa	Jaijaipur	Darra Bhata	7.82	571	0	286.7	32.0	0.34	4.12	1.4	0	235	62	19.2	23.8	1.2	0.0	382.6	1.64
341	Janjgir Champa	Jaijaipur	Darra Bhata	8.12	520	0	219.6	49.7	0.62	1.81	19.4	0	235	56	22.8	10.0	0.9	0.0	348.4	1.68
342	Janjgir Champa	Jaijaipur	Hasaud	7.92	618	0	347.7	35.5	0.56	5.56	2.2	0	250	58	25.2	36.8	2.8	9.1	414.1	3.13
343	Janjgir Champa	Jaijaipur	Jaijaipur S	7.94	837	0	329.4	92.3	0.35	10.93	10.7	0	360	76	40.8	35.6	1.3	8.2	560.8	0.00
344	Janjgir Champa	Janjgir	Kanhaiband	7.89	1115	0	366	170.4	0.09	54.43	0.6	0	440	138	22.8	57.2	4.4	0.0	747.1	5.69
345	Janjgir Champa	Janjgir	Kosmanda	7.3	819	0	152.5	174.0	0.15	12.6	32.1	0	240	56	24	64.7	16.4	0.0	548.7	0.90
346	Janjgir Champa	Janjgir	Sarkhon	8.08	1091	0	341.6	142.0	0.48	47.36	12.1	0	345	56	49.2	101.5	3.0	0.2	731.0	5.64
347	Janjgir Champa	Janjgir	shukli	8	560	0	292.8	35.5	0.29	4.2	1.1	0	235	64	18	27.9	0.8	7.4	375.2	2.40
348	Janjgir Champa	Malkharoda	Adbhar	7.85	1254	0	408.7	124.3	0.89	67.15	48.1	0	355	108	20.4	13.6	3.8	0.0	840.2	7.73
349	Janjgir Champa	Malkharoda	Ghoghari	7.7	2230	0	597.8	301.8	0.85	160.7	4.4	0	475	110	48	31.6	7.0	6.8	1494.1	2.40
350	Janjgir Champa	Malkharoda	Sukda	8.25	419	0	237.9	14.2	0.17	3.18	1.3	0	165	42	14.4	20.9	0.5	15.5	280.7	1.38
351	Janjgir Champa	Nawagarh	Budena	7.77	498	0	237.9	24.9	0.5	1.81	5.3	0	200	48	19.2	20.5	2.8	0.0	333.7	1.13
352	Janjgir Champa	Nawagarh	Dhardei	7.25	1160	0	274.5	191.7	1.38	28.08	9.6	0	410	108	33.6	70.2	1.8	10.0	777.2	5.31
353	Janjgir Champa	Nawagarh	Dhurkot	7.52	1128	0	262.3	252.1	1.12	2.02	0.2	0	400	84	45.6	81.7	1.7	5.6	755.8	3.29
354	Janjgir Champa	Nawagarh	Janjgir	7.4	1342	0	329.4	237.9	0.65	32.74	36.1	0	405	88	44.4	91.8	2.6	10.5	899.1	4.62
355	Janjgir Champa	Nawagarh	Jhulanpakariya	7.48	940	0	341.6	113.6	0.31	14.82	40.2	0	395	56	61.2	44.6	7.9	0.3	629.8	2.21
356	Janjgir Champa	Nawagarh	Kera	7.3	1438	0	359.9	262.7	0.92	19.27	31.9	0	550	138	49.2	58.3	33.3	15.2	963.5	6.13
357	Janjgir Champa	Nawagarh	Khartal	8.07	451	0	207.4	32.0	0.39	3.78	7.2	0	165	42	14.4	33.2	2.7	6.4	302.2	0.00
358	Janjgir Champa	Nawagarh	Kireet	7.96	328	0	158.6	24.9	0.78	4.01	14.6	0	140	48	4.8	11.5	0.5	6.8	219.8	0.00
359	Janjgir Champa	Nawagarh	Loharsi	7.3	1897	0	390.4	390.5	0.3	53.71	44.9	0	760	182	73.2	81.5	2.4	9.7	1271.0	9.72
360	Janjgir Champa	Nawagarh	Negurdih	7.7	860	0	280.6	120.7	0.76	25.47	17.0	0	335	102	19.2	47.2	5.6	0.0	576.2	2.81
361	Janjgir Champa	Nawagarh	Salkhon	8.1	588	0	268.4	49.7	0.15	6.1	2.7	0	225	72	10.8	19.8	1.0	0.0	394.0	1.70

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362	Janjgir Champa	Nawagarh	Semra	7.96	542	0	268.4	39.1	0.38	7.53	7.2	0	240	88	4.8	19.5	1.0	6.8	363.1	1.29
363	Janjgir Champa	Nawagarh	Seorinarayan	7.55	1232	0	378.2	145.6	0.52	20.94	50.8	0	410	72	55.2	80.4	14.4	13.8	825.4	6.59
364	Janjgir Champa	Pamgarh	Bhaiso	8.09	828	0	286.7	103.0	0.16	10.99	14.1	0	355	54	52.8	30.3	8.4	0.0	554.8	3.81
365	Janjgir Champa	Pamgarh	Bilari	8.01	722	0	323.3	56.8	0.98	14.49	9.4	0	275	88	13.2	33.6	9.5	0.0	483.7	4.79
366	Janjgir Champa	Pamgarh	Dongakahrod	7.35	1556	0	341.6	280.5	0.29	45.86	47.2	0	515	168	22.8	101.9	25.4	12.5	1042.5	6.96
367	Janjgir Champa	Pamgarh	Kosa	7.62	1284	0	561.2	67.5	0.8	72.8	0.7	0	400	50	66	99.4	7.6	12.3	860.3	2.46
368	Janjgir Champa	Pamgarh	Mehandi	7.54	890	0	280.6	127.8	0.98	13.27	30.9	0	340	86	30	42.0	10.5	10.7	596.3	3.66
369	Janjgir Champa	Pamgarh	Meubhata	7.78	487	0	225.7	28.4	0.98	4.96	5.7	0	215	68	10.8	19.1	0.9	6.1	326.3	1.59
370	Janjgir Champa	Pamgarh	mudpar	7.6	499	0	134.2	92.3	0.98	2.78	2.2	0	200	52	16.8	21.7	1.3	11.4	334.3	1.87
371	Janjgir Champa	Pamgarh	Pamgarh	7.74	685	0	213.5	92.3	0.88	9.32	17.6	0	220	52	21.6	53.9	8.1	7.1	459.0	0.68
372	Janjgir Champa	Pamgarh	Sasaha	7.5	647	0	341.6	35.5	0.48	4.57	1.2	0	235	52	25.2	32.6	0.7	10.1	433.5	4.12
373	Janjgir Champa	Pamgarh	vyasnagar	8.01	677	0	335.5	35.5	0.45	7.13	9.4	0	275	54	33.6	22.7	4.4	6.8	453.6	1.45
374	Janjgir Champa	Shakti	Damau	8.05	459	0	274.5	14.2	0.76	1.81	0.2	0	215	50	21.6	9.0	3.5	0.0	307.5	1.25
375	Janjgir Champa	Shakti	Sakti	7.75	1185	0	390.4	177.5	0.26	18.74	3.9	0	395	84	44.4	96.5	6.6	10.9	794.0	5.01
376	Janjgir Champa	Shakti	Saliabhata	8.05	425	0	219.6	17.8	1.64	3.98	4.7	0	210	68	9.6	8.5	0.8	5.3	284.8	1.34
377	Jashpur	Bagicha	Bagicha	8.33	598	3	225.7	56.8	0.52	24.22	12.0	0	250	60	24	21.4	5.9	15.8	400.7	8.83
378	Jashpur	Bagicha	Bahora	7.85	229	0	109.8	10.7	0.97	5.05	0.0	0	80	26	3.6	10.6	1.7	4.5	146.6	0.00
379	Jashpur	Bagicha	Durgapara	7.28	613	0	176.9	88.8	0.89	0	53.6	0	250	70	18	25.4	3.0	17.3	410.7	8.09
380	Jashpur	Bagicha	Jhikki	7.45	116	0	54.9	10.7	0.89	2.52	0.6	0	40	10	3.6	9.2	1.2	16.4	77.7	0.00
381	Jashpur	Bagicha	Kanpoda	7.47	125.5	0	36.6	14.2	0.62	0.87	11.7	0	30	10	1.2	1.5	0.9	16.6	84.1	0.00
382	Jashpur	Bagicha	Kondapara	8.02	70	0	30.5	7.1	0.29	0	0.0	0	30	10	1.2	2.3	0.5	7.2	46.9	0.00
383	Jashpur	Bagicha	Maini	7.6	110	0	42.7	7.1	0.11	1.78	3.3	0	25	8	1.2	8.0	1.7	7.7	73.7	0.00
384	Jashpur	Bagicha	Pandripani	8.23	538	0	183	56.8	0.34	5.5	58.4	0	240	54	25.2	14.1	3.3	16.8	293.5	0.00
385	Jashpur	Bagicha	Peta	8	202	0	97.6	14.2	0.38	0.5	0.0	0	65	24	1.2	15.8	1.4	20.8	135.3	0.00
386	Jashpur	Bagicha	Raikera	7.65	236	0	54.9	28.4	0.16	1.59	35.3	0	75	14	9.6	19.5	0.9	21.5	122.6	0.00
387	Jashpur	Bagicha	Raoni	7.64	195	0	42.7	14.2	0.17	1.2	53.6	0	85	22	7.2	8.9	0.9	9.5	130.7	0.00
388	Jashpur	Bagicha	Sanna	7.68	343	0	158.6	28.4	0.16	0.83	10.0	0	125	26	14.4	23.8	2.0	8.8	162.8	0.00
389	Jashpur	Bagicha	Saraskombo	7.88	495	0	262.3	10.7	0.89	3.98	0.0	0	120	36	7.2	5.8	2.2	13.5	331.7	0.00
390	Jashpur	Bagicha	Sonquari	7.42	164	0	42.7	14.2	0.76	1.24	34.1	0	70	24	2.4	3.0	3.7	7.3	31.1	0.00

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391	Jashpur	Duldula	Binjapur	7.64	372	0	97.6	21.3	0.56	21.55	53.7	0	105	18	14.4	27.6	24.4	6.1	249.2	0.00
392	Jashpur	Duldula	Kersai	7.94	572	0	250.1	56.8	1.38	7.45	2.0	0	225	48	25.2	26.9	3.8	11.4	383.2	0.00
393	Jashpur	Duldula	Kunjara	7.62	412	0	115.9	56.8	0.65	4.08	35.8	0	165	44	13.2	17.2	1.4	19.0	276.0	0.00
394	Jashpur	Farsabahar	Amdiha	7.6	604	0	207.4	46.2	0.38	24.41	45.8	0	220	60	16.8	36.5	1.0	16.8	404.7	2.15
395	Jashpur	Farsabahar	Farsabahar	7.54	419	0	146.4	46.2	0.34	0	25.5	0	170	42	15.6	19.0	1.2	14.1	280.7	0.00
396	Jashpur	Farsabahar	Jharmunda	7.43	453	0	183	42.6	0.5	9.96	17.8	0	105	26	9.6	5.4	0.9	23.4	303.5	2.84
397	Jashpur	Farsabahar	Kandaibahar	7.68	357	0	134.2	49.7	0.76	2.73	0.2	0	145	34	14.4	18.1	0.8	10.4	239.2	0.00
398	Jashpur	Farsabahar	Khutsera	7.76	313	0	158.6	21.3	0.64	1.93	3.6	0	95	28	6	23.5	0.4	16.2	209.7	0.00
399	Jashpur	Farsabahar	Lavakera	7.6	459	0	170.8	56.8	0.39	6.03	21.8	0	145	38	12	38.6	1.1	19.8	307.5	3.30
400	Jashpur	Farsabahar	Singibahar	7.57	619	0	274.5	42.6	0.78	2.23	28.3	0	210	60	14.4	45.8	2.0	11.3	414.7	0.00
401	Jashpur	Farsabahar	Sirshringa	8.16	463	0	244	17.8	0.26	2.11	0.0	0	170	40	16.8	26.3	1.8	12.5	243.2	0.00
402	Jashpur	Farsabahar	Tapkara	7.28	876	0	195.2	163.3	0.98	9.05	48.5	0	340	86	30	40.8	1.2	15.0	586.9	2.22
403	Jashpur	Jashpur	Balachhappar	7.65	41.7	0	12.2	3.6	0.29	0.51	7.0	0	15	4	1.2	1.7	1.2	5.3	27.9	0.00
404	Jashpur	Jashpur	Chiraidand	7.04	303	0	61	56.8	0.35	0	25.1	0	75	16	8.4	3.1	0.9	20.0	203.0	0.00
405	Jashpur	Jashpur	Jakba	7.26	151	0	42.7	21.3	0.89	0	7.5	0	65	10	9.6	2.4	5.3	3.3	34.6	0.00
406	Jashpur	Jashpur	Jashpurnagar	7.44	110.6	0	48.8	7.1	0.16	4.93	0.0	0	40	10	3.6	5.7	1.7	4.7	74.1	0.00
407	Jashpur	Jashpur	Loro (Bagicha)	7.79	122.5	0	54.9	10.7	0.47	0.09	4.7	0	30	8	2.4	1.7	0.7	19.8	82.1	0.00
408	Jashpur	Jashpur	Patratoli	7.95	135	0	54.9	14.2	1.07	0.5	0.0	0	40	12	2.4	12.1	0.6	18.4	53.6	0.00
409	Jashpur	Jashpur	Rahmbandh	7.03	152.5	0	48.8	10.7	0.34	0	26.8	0	30	8	2.4	9.2	3.0	16.4	102.2	0.00
410	Jashpur	Jashpur	Rupsera	7.6	671	0	237.9	81.7	0.45	10.87	11.2	0	210	48	21.6	29.1	55.2	10.9	449.6	0.00
411	Jashpur	Kansabel	Budadand	7.48	726	0	268.4	78.1	0.15	11.79	26.0	0	300	68	31.2	27.3	3.9	13.9	486.4	9.42
412	Jashpur	Kansabel	Kuthera	7.87	427	0	164.7	39.1	0.15	6.56	24.7	0	125	46	2.4	39.2	0.8	19.2	286.1	0.00
413	Jashpur	Kansabel	Lamdund	7.72	204	0	91.5	17.8	0.92	1.01	1.6	0	60	18	3.6	15.0	1.9	15.3	136.7	2.61
414	Jashpur	Kansabel	Mahuadih	7.54	135.5	0	61	10.7	0.3	0.09	5.7	0	40	12	2.4	10.9	1.5	17.4	90.8	0.00
415	Jashpur	Kansabel	Saraitola	7.56	562	0	262.3	17.8	0.35	2.32	19.9	0	210	44	24	32.5	2.8	13.0	242.5	0.00
416	Jashpur	Kasavel	Bataikela	7.89	107.2	0	36.6	10.7	0.48	1.21	7.4	0	30	8	2.4	9.1	0.9	14.3	71.8	0.00
417	Jashpur	Kasavel	Bewartoli	7.72	392	0	97.6	35.5	1.41	16.97	51.8	0	165	46	12	12.6	11.1	13.7	262.6	0.00
418	Jashpur	Kasavel	Dokra	7.6	457	0	195.2	53.3	0.11	0	0.4	0	145	46	7.2	31.7	2.2	10.2	306.2	0.00
419	Jashpur	Kasavel	Garaibandh	7.75	467	0	256.2	24.9	0.55	0	0.0	0	190	50	15.6	20.7	1.3	12.3	312.9	0.00

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420	Jashpur	Kasavel	Kansabel	7.69	647	0	195.2	85.2	0.76	8.16	42.8	0	260	78	15.6	25.8	2.9	18.2	433.5	7.13
421	Jashpur	Kasavel	Muskuti	7.68	798	0	213.5	142.0	0.54	19.34	6.3	0	290	84	19.2	47.0	3.1	5.8	534.7	6.53
422	Jashpur	Kasavel	Narayanbahali	7.33	672	0	176.9	74.6	0.09	51.19	46.8	0	245	58	24	39.8	2.0	21.2	450.2	1.81
423	Jashpur	Kasavel	Phooldih	7.82	166	0	67.1	7.1	0.52	1.2	28.5	0	45	14	2.4	15.2	3.1	19.1	111.2	0.00
424	Jashpur	Kasavel	Sahidaur (Jam Dhora)	7.75	335	0	183	17.8	1.2	1.93	0.0	0	120	32	9.6	21.2	1.1	14.1	174.2	0.00
425	Jashpur	Kasavel	Saraipani	7.54	349	0	134.2	42.6	1.41	1.93	0.0	0	125	30	12	15.1	1.8	11.6	166.8	0.00
426	Jashpur	Kasavel	Shabdmunda	7.86	550	0	274.5	32.0	0.56	4.26	0.0	0	220	48	24	32.6	1.5	17.7	288.8	0.00
427	Jashpur	Kasavel	Tangargaon	7.4	663	0	225.7	78.1	0.48	15.75	29.4	0	195	58	12	60.6	2.1	19.5	444.2	2.39
428	Jashpur	Kasvel	Dandajor	7.47	425	0	152.5	56.8	0.15	0	8.1	0	170	46	13.2	19.7	3.8	18.7	284.8	2.47
429	Jashpur	Kunkuri	Bandarchuwa	7.68	111	0	30.5	10.7	0.17	1.91	15.3	0	20	6	1.2	1.7	0.6	20.0	74.4	0.00
430	Jashpur	Kunkuri	Bangaon 1	7.7	375	0	176.9	21.3	0.45	7.03	7.4	0	145	38	12	23.2	1.1	13.5	251.3	0.00
431	Jashpur	Kunkuri	Chhapartoli	7.24	237	0	91.5	21.3	0.43	0	23.2	0	100	32	4.8	13.0	2.1	16.2	158.8	0.00
432	Jashpur	Kunkuri	Chhapartoli	7.9	43	0	18.3	3.6	0.23	2.11	2.2	0	10	2	1.2	3.7	3.3	1.2	27.5	0.06
433	Jashpur	Kunkuri	Dhodidand	7.68	887	0	262.3	134.9	0.15	0	7.7	0	395	86	43.2	8.8	1.7	16.5	594.3	0.00
434	Jashpur	Kunkuri	Farsakanhi	7.6	296	0	146.4	21.3	0.76	0	0.1	0	95	28	6	23.4	1.4	21.0	198.3	0.00
435	Jashpur	Kunkuri	Ghatmunda	7.66	179.1	0	73.2	17.8	0.13	0	1.1	0	55	12	6	14.5	1.5	16.7	120.0	3.70
436	Jashpur	Kunkuri	Kandora	7.58	254	0	67.1	35.5	0.34	19.1	16.9	0	70	22	3.6	20.4	0.8	21.5	170.2	0.00
437	Jashpur	Kunkuri	Kunkuri1	7.81	274	0	73.2	49.7	0.31	5.32	9.3	0	80	20	7.2	26.1	0.9	18.8	183.6	1.57
438	Jashpur	Kunkuri	Matasi	7.51	235	0	103.7	7.1	0.37	19.16	8.0	0	80	22	6	16.8	1.5	16.6	157.5	0.61
439	Jashpur	Kunkuri	Narayanpur	7.44	409	0	158.6	49.7	0.16	5.52	2.7	0	140	36	12	24.3	5.7	13.5	274.0	2.40
440	Jashpur	Kunkuri	Pagurabahar	7.2	678	0	219.6	74.6	0.13	10.16	51.8	0	270	66	25.2	28.7	1.0	14.8	454.3	1.41
441	Jashpur	Kunkuri	Raikera (Kunkuri)	7.39	354	0	67.1	71.0	0.29	5.15	1.6	0	125	34	9.6	19.5	6.0	15.1	237.2	0.00
442	Jashpur	Manora	Fathepur	7.42	870	0	347.7	113.6	1.1	1.42	0.0	0	405	92	42	9.0	0.6	7.1	582.9	0.00
443	Jashpur	Manora	Kesra	7.38	370	0	158.6	35.5	0.76	2.15	0.0	0	135	40	8.4	22.3	2.9	15.0	201.0	0.00
444	Jashpur	Manora	Sarkardih	7.41	189.2	0	67.1	21.3	0.88	0	3.9	0	70	14	8.4	9.2	2.3	9.8	126.8	0.00
445	Jashpur	Pathalgaon	Amatolli	7.8	297	0	122	32.0	1.07	10.11	0.0	0	85	24	6	27.5	0.9	9.7	199.0	0.00
446	Jashpur	Pathalgaon	Bangaon	7.48	525	0	170.8	49.7	0.56	28.71	23.8	0	190	48	16.8	38.6	1.4	20.3	351.8	0.00
447	Jashpur	Pathalgaon	Chiknipani	8.2	271	0	122	24.9	0.5	1.59	0.1	0	90	32	2.4	25.0	0.3	10.9	181.6	0.00

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448	Jashpur	Pathalgaon	Kachhar	7.38	590	0	207.4	63.9	0.13	10.15	20.4	0	225	54	21.6	30.3	4.8	19.3	395.3	7.28
449	Jashpur	Pathalgaon	Kotba	7.84	959	0	274.5	127.8	0.85	7.45	51.2	0	310	96	16.8	79.5	1.5	18.8	642.5	3.30
450	Jashpur	Pathalgaon	Ludeg	7.63	404	0	164.7	39.1	0.8	1.93	9.4	0	185	50	14.4	10.5	0.6	12.5	270.7	0.00
451	Jashpur	Pathalgaon	Mudpar	7.71	362	0	140.3	42.6	0.13	3.07	3.1	0	105	36	3.6	34.5	2.3	24.6	242.5	0.00
452	Jashpur	Pathalgaon	Nawaguda	7.62	320	0	134.2	28.4	0.39	1.93	0.1	0	120	24	14.4	18.3	1.4	23.4	147.4	0.00
453	Jashpur	Pathalgaon	Palidih	8.33	463	3	189.1	39.1	0.67	1.96	29.4	0	145	42	9.6	34.8	3.8	16.8	310.2	0.00
454	Jashpur	Pathalgaon	Pathalgaon	7.84	1903	0	433.1	401.2	1.3	3.73	2.7	0	840	206	78	62.8	5.8	14.6	1275.0	2.72
455	Jashpur	Pathalgaon	Surangpani New	7.3	716	0	231.8	95.9	0.09	9.05	34.4	0	305	60	37.2	26.0	0.8	19.5	473.0	0.00
456	Kanker	Charama	Jhipatola	8.06	363	0	189.1	14.2	0	5.84	7.3	0	185	52	13.2	4.0	1.8	16.1	243.2	0.00
457	Kanker	Charama	Lakhanpuri	7.7	1475	0	475.8	195.3	0.53	31.98	3.9	0	435	102	43.2	10.6	5.7	14.1	988.3	0.00
458	Kanker	Charama	Narharpur	7.55	295	0	146.4	14.2	0.24	3.75	7.1	0	140	44	7.2	7.0	1.1	46.1	197.7	0.00
459	Kanker	Charama	Telgara	7.6	263	0	128.1	21.3	1.69	5.84	0.0	0	95	26	7.2	20.1	4.8	15.1	176.2	0.00
460	Kanker	Kanker	Govindpur	8.04	412	0	219.6	17.8	0.42	7.53	1.3	0	155	38	14.4	22.2	10.4	13.1	276.0	0.00
461	Kanker	Narharpur	Ratesara	7.34	366	0	158.6	28.4	0.29	9.89	1.7	0	90	24	7.2	4.8	1.3	15.0	245.2	0.00
462	Kanker	Sarana (Narharpur)	Dudhawa	7.74	466	0	231.8	24.9	0.21	6.21	19.2	0	235	56	22.8	13.0	1.7	15.1	312.2	0.00
463	Kanker	Sarana (Narharpur)	Murpar	7.49	672	0	292.8	60.4	0.18	12.57	6.3	0	235	62	19.2	51.4	9.0	41.1	450.2	0.00
464	Kawardha	Bodla	Banjari	7.9	584	0	341.6	10.7	0.02	0.88	0.0	0	240	46	30	19.1	1.2	20.2	391.3	0.00
465	Kawardha	Bodla	Bodla	7.58	675	0	366	28.4	0.29	2.32	11.5	0	250	78	13.2	43.7	0.8	9.8	452.3	0.00
466	Kawardha	Bodla	Rajnanwagaon	7.62	671	0	384.3	10.7	0	1.07	18.6	0	225	50	24	55.8	0.8	9.8	449.6	0.00
467	Kawardha	Bodla	Singhari-d	7.72	408	0	195.2	17.8	0.09	4.4	0.6	0	135	30	14.4	30.4	0.8	10.8	273.4	0.00
468	Kawardha	Bolda	Chilpi	6.65	188	0	42.7	14.2	0.24	0	45.3	0	65	18	4.8	13.1	1.2	2.5	126.0	0.01
469	Kawardha	Kawardha	Bharamdeo-d	8.02	497	0	250.1	17.8	0.3	12.34	0.0	0	185	40	20.4	19.5	1.4	22.1	333.0	0.00
470	Kawardha	Kawardha	Danganiya	7.6	615	0	341.6	14.2	0.21	7.48	19.5	0	265	62	26.4	30.4	1.4	8.9	412.1	0.02
471	Kawardha	Kawardha	Kawardha	7.52	651	0	329.4	24.9	0.18	2.45	17.7	0	290	40	45.6	18.1	1.1	8.9	436.2	0.02
472	Kawardha	Kawardha	Kharoda Kalan	7.35	1040	0	414.8	81.7	0	16.1	20.8	0	380	62	54	70.0	1.1	9.1	696.8	0.01
473	Kawardha	Kawardha	Rengakharkhurd	7.53	908	0	439.2	53.3	0	11.09	30.4	0	340	42	56.4	60.2	1.1	11.2	608.4	0.02
474	Kawardha	Pandaria	Pandaria	7.53	673	0	311.1	39.1	0.29	22.74	7.5	0	250	62	22.8	39.5	1.0	10.2	450.9	0.00
475	Kawardha	Sahaspur lohara	BijaBairangi	7.78	534	0	317.2	10.7	0	1.11	1.2	0	210	42	25.2	23.6	1.3	9.8	357.8	0.00

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476	Kawardha	Sahaspur lohara	Biroda	7.75	526	0	311.1	17.8	0.2	1.07	0.0	0	235	42	31.2	23.5	1.3	8.4	352.4	0.00
477	Kawardha	Sahaspur lohara	Chhuiha	7.44	772	0	390.4	28.4	0.09	4.12	14.1	0	220	46	25.2	69.1	0.7	13.1	517.2	0.00
478	Kawardha	Sahaspur lohara	Ragra	7.38	772	0	390.4	17.8	0.02	4.3	14.5	0	210	56	16.8	68.1	0.7	12.4	517.2	0.00
479	Kawardha	Sahaspur lohara	Sahaspur lohara.1	7.24	1368	0	439.2	156.2	0.35	54.43	54.3	0	415	68	58.8	114.9	1.7	12.0	916.6	0.00
480	Kawardha	Sahaspur lohara	Uriakhurd	7.79	652	0	378.2	17.8	0.17	4.3	6.7	0	220	52	21.6	50.8	0.9	10.1	436.8	0.00
481	Kawardha		Saroda dadar	7.98	387	0	207.4	14.2	0.1	2.39	0.0	0	150	46	8.4	13.1	2.0	24.1	259.3	0.00
482	Kondagaon	Keshkal	Garaka	7.95	388	0	195.2	14.2	1.37	5.08	0.5	0	25	6	2.4	7.0	5.1	17.1	260.0	0.00
483	Kondagaon	Makadi	Baniyagaon	7.29	494	0	140.3	60.4	0	22.35	12.1	0	170	52	9.6	32.4	1.7	15.1	331.0	0.00
484	Kondagaon	Pharasgaon	Kulhadhgaon	7.59	530	0	280.6	14.2	0	4.88	6.5	0	260	102	1.2	5.4	2.0	16.4	355.1	0.00
485	Korba	Kartala	Barpali	7.5	116	0	48.8	10.7	0.97	0.96	0.1	0	50	12	4.8	1.9	3.3	10.9	77.7	0.00
486	Korba	Kartala	Champa mode	7.35	56	0	12.2	3.6	0.26	1.21	9.5	0	15	4	1.2	2.1	4.9	13.7	37.5	0.00
487	Korba	Kartala	Kartala	7.17	230	0	73.2	21.3	1.31	4.99	14.7	0	80	14	10.8	7.5	12.4	11.2	154.1	0.00
488	Korba	Kartala	Kudmura	7.33	250	0	115.9	17.8	0.39	1.01	0.1	0	100	16	14.4	7.6	6.6	9.9	167.5	0.00
489	Korba	Kartala	Mahuwadih	7.96	538	0	280.6	28.4	0.98	11.55	4.6	0	185	48	15.6	40.9	1.3	9.3	360.5	2.25
490	Korba	Kartala	Ratija	7.94	286	0	128.1	24.9	0.67	1.21	1.3	0	120	36	7.2	5.2	3.7	8.8	191.6	0.00
491	Korba	Kartala	Sakdukala	7.1	150	0	73.2	10.7	0.78	1.41	4.1	0	60	22	1.2	2.3	6.8	16.0	100.5	0.00
492	Korba	Kartala	Salihabhata	7.41	398	0	128.1	35.5	0.09	7.34	26.8	0	125	34	9.6	13.6	20.2	7.6	266.7	0.00
493	Korba	Kartala	Sargundia	7.77	753	0	335.5	74.6	1.14	11.15	0.2	0	330	26	63.6	20.2	1.2	16.6	504.5	1.44
494	Korba	Kartala	Sendripali	7.16	208	0	42.7	35.5	0.34	3.02	18.5	0	70	16	7.2	7.6	11.5	15.2	139.4	0.00
495	Korba	Kartala	Sohagpur	7.78	673	0	298.9	56.8	0.35	17.15	5.8	0	275	84	15.6	30.4	1.4	9.5	450.9	2.62
496	Korba	Kartala	Tilkeja	7.54	2430	0	597.8	461.5	0.29	25.55	35.0	0	985	112	169.2	102.7	18.2	22.5	1628.1	18.65
497	Korba	Kartala	Tuman	7.66	323	0	128.1	21.3	0.65	2.42	30.7	0	125	34	9.6	15.5	0.6	16.6	216.4	6.56
498	Korba	katghora	Baira	7.52	160	0	73.2	14.2	0.47	2.82	1.7	0	50	12	4.8	14.2	1.2	13.2	107.2	0.00
499	Korba	Katghora	Chaitama	7.62	600	0	237.9	53.3	1.54	13.27	23.5	0	210	36	28.8	43.7	1.4	24.1	402.0	0.00
500	Korba	Katghora	Chindpur	7.11	192	0	54.9	32.0	0.09	4.79	0.4	0	60	6	10.8	11.8	5.9	11.8	128.6	0.00
501	Korba	Katghora	Dhawaipur	7.72	1156	0	189.1	276.9	0.26	32.98	0.1	0	285	72	25.2	12.7	2.4	6.6	774.5	0.00
502	Korba	katghora	kotmi sakola	7.41	675	0	152.5	106.5	0.39	4.6	38.0	0	240	52	26.4	40.8	2.7	20.9	452.3	1.11
503	Korba	Katghora	Naraibodh	6.75	255	0	67.1	32.0	0.76	2.18	38.5	0	75	12	10.8	20.6	13.1	11.8	170.9	0.00

Sr.	District	Block	Location	pH	EC µs/cm	CO3 mg/l	HCO3 mg/l	Cl mg/l	F mg/l	SO4 mg/l	NO3 mg/l	PO4 mg/l	TH mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	SiO2 mg/l	TDS mg/l	U µg/l
504	Korba	Katghora	Rajkamma	7.09	882	0	250.1	127.8	0.35	19.75	42.7	0	325	48	49.2	46.1	4.4	22.4	590.9	0.00
505	Korba	Katghora	Sindhiya	7.72	222	0	24.4	49.7	1.38	1.41	23.1	0	65	12	8.4	20.6	7.0	11.6	148.7	2.59
506	Korba	Katghora	Suttara	7.97	1004	0	408.7	95.9	0.98	18.94	2.0	0	255	22	48	11.3	9.6	8.7	672.7	0.00
507	Korba	Korba	Ajgarbahar	7.98	642	0	323.3	42.6	0.78	19.75	0.1	0	200	64	9.6	6.7	0.6	12.8	430.1	0.00
508	Korba	Korba	Basin	7.24	129	0	42.7	10.7	0.16	1.21	11.3	0	50	14	3.6	3.3	3.0	11.8	86.4	0.00
509	Korba	Korba	Batati Junction	7.2	120	0	42.7	10.7	0.46	2.42	12.1	0	35	10	2.4	8.5	6.2	9.7	80.4	0.00
510	Korba	Korba	Bhaisma (Anjoripali)	7.67	1392	0	390.4	213.0	0.35	39.96	44.7	0	645	152	63.6	9.9	8.7	28.2	932.6	7.00
511	Korba	Korba	Dhegurdih manzipara	7.11	469	0	140.3	56.8	0.98	3.18	48.2	0	130	36	9.6	19.6	43.8	10.3	314.2	0.00
512	Korba	Korba	Jalke	7.62	521	0	292.8	17.8	0.39	3.91	0.1	0	250	46	32.4	6.0	0.8	2.9	349.1	0.00
513	Korba	Korba	Jilga	7.01	126	0	42.7	17.8	0.3	0.19	7.4	0	50	8	7.2	3.5	2.9	11.6	84.4	0.00
514	Korba	korba	kothari naka	7.24	1994	0	549	298.2	0.15	29.88	30.0	0	740	98	118.8	105.0	1.2	10.8	1336.0	71.45
515	Korba	Korba	Madanpur	7.45	80	0	18.3	14.2	0.8	0.19	7.0	0	35	8	3.6	1.2	3.3	10.3	53.6	0.00
516	Korba	Korba	Naktikhar	7.3	140	0	54.9	14.2	0.34	0.6	0.0	0	50	16	2.4	3.4	5.9	11.8	93.8	0.00
517	Korba	Korba	Pachra	6.98	70.7	0	18.3	7.1	0.06	0	12.1	0	15	4	1.2	5.1	6.7	14.1	47.4	0.00
518	Korba	Korba	Pasarkhet	6.81	98.5	0	36.6	7.1	0.98	0.55	13.5	0	35	10	2.4	4.3	7.2	10.5	66.0	0.00
519	Korba	Korba	Rishdi	7.57	368	0	189.1	14.2	0.26	3.41	3.1	0	175	42	16.8	8.7	0.4	13.2	246.6	0.00
520	Korba	Korba	Salora	7.76	786	0	268.4	92.3	0.48	15.02	5.5	0	275	64	27.6	55.6	1.5	20.2	526.6	114.69
521	Korba	Korba	Shuklakhar	7.06	219	0	36.6	35.5	1.3	0.6	36.6	0	70	12	9.6	9.5	11.8	10.6	146.7	0.00
522	Korba	Korba	Urga.1	7.65	1680	0	457.5	276.9	0.31	42.39	30.5	0	485	134	36	158.6	4.5	16.4	1125.6	8.03
523	Korba	Malkhoroda	Bhathora	7.26	170	0	48.8	17.8	0.98	0.19	29.5	0	65	16	6	6.7	5.1	11.6	113.9	0.00
524	Korba	Pali	Banbandha	7.55	363	0	152.5	21.3	1.34	1.57	0.1	0	145	30	16.8	9.9	2.4	20.2	243.2	0.00
525	Korba	Pali	Bandhakhar	7.58	209	0	73.2	21.3	1.41	2.82	10.8	0	65	18	4.8	10.7	9.5	8.0	140.0	0.00
526	Korba	Pali	Hardibazar	7.3	325	0	109.8	14.2	0.09	3.41	45.3	0	75	24	3.6	33.1	11.7	13.5	217.8	0.00
527	Korba	Pali	Nunera	6.92	218	0	73.2	14.2	1.41	1.21	38.8	0	65	14	7.2	11.5	10.2	14.7	146.1	0.00
528	Korba	Pali	Pali	7.22	252	0	146.4	10.7	0.13	1.21	1.7	0	100	30	6	7.4	7.3	9.1	168.8	0.00
529	Korba	Pali	Rainpur	7.83	987	0	189.1	202.4	0.88	42.01	0.2	0	115	44	1.2	17.2	1.7	6.6	661.3	0.00
530	Korba	Pali	Ramtarai-I	7.35	96	0	42.7	7.1	0.88	1.46	1.8	0	35	8	3.6	3.6	4.0	12.6	64.3	0.00
531	Korba	Podi	Gurasia	7.99	487	0	207.4	21.3	0.34	46.07	0.0	0	175	40	18	35.7	4.1	39.5	326.3	0.00

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532	Korba	Podi	Korbi	7.91	466	0	189.1	28.4	0.62	36.83	19.1	0	150	42	10.8	36.5	3.2	40.1	312.2	0.00
533	Korba	Podi	Morga	7.79	657	0	292.8	42.6	1.38	53.87	38.7	0	245	44	32.4	46.3	3.1	39.2	440.2	1.44
534	Korba	Podi	Nawapara (Chotia)	8.01	336	0	103.7	17.8	2.05	48.95	13.5	0	120	12	21.6	25.3	3.8	20.2	225.1	1.11
535	Korba	Podi	Podi-Uproda	8.04	263	0	61	17.8	0.29	48.17	16.7	0	95	32	3.6	14.2	1.2	17.5	176.2	0.00
536	Korba	Podi Uproda	Fulsar	8.07	533	0	213.5	49.7	0.65	11.21	1.8	0	170	40	16.8	48.1	1.7	13.7	357.1	0.00
537	Korba	Podi Uprora	Kodgar EW	8.04	497	0	250.1	35.5	0.49	0	19.0	0	190	32	26.4	21.7	17.6	5.6	333.0	0.00
538	Korba	Podi Uprora	Tanakhar EW	7.79	769	0	237.9	74.6	1.5	51.21	0.1	0	150	32	16.8	10.7	0.9	9.4	515.2	0.00
539	Korba	Podi-Uproda	Lamne	7.95	340	0	176.9	14.2	0.76	48.26	0.0	0	80	26	3.6	5.2	3.0	40.0	227.8	0.00
540	Korba	Podi-uproda	Madai	8.04	587	0	286.7	32.0	0.85	6.36	6.9	0	170	48	12	6.4	3.1	11.2	393.3	0.00
541	Korba	Pondi	Jatga	7.6	510	0	219.6	28.4	0.48	4.57	32.4	0	210	62	13.2	21.5	0.9	17.5	3.4	0.00
542	Korba	Pondi	Khodri	7.2	134	0	36.6	17.8	0.15	9.12	0.8	0	35	10	2.4	1.4	3.0	18.6	89.8	0.00
543	Korba	Pondi	Lenga	7.36	666	0	189.1	99.4	0.11	15.02	47.2	0	240	52	26.4	38.7	1.6	21.2	446.2	3.16
544	Korba	Pondi	Nagai	7.53	544	0	268.4	35.5	0.89	8.52	1.1	0	195	42	21.6	30.9	2.2	7.8	364.5	0.00
545	Korba	Pondi	Parla	8.33	514	3	158.6	56.8	0.31	32.33	13.9	0	230	50	25.2	16.5	1.9	24.7	344.4	0.00
546	Korba	Pondi	Pasan	7.28	494	0	164.7	53.3	0.98	3.78	36.2	0	180	46	15.6	30.7	1.2	24.1	331.0	0.00
547	Korba	Pondi	Rawa	7.55	339	0	158.6	17.8	0.88	3.41	10.0	0	110	34	6	29.8	1.5	19.3	227.1	0.00
548	Korba	Pondi	Tuman	8.19	195	0	85.4	17.8	0.85	2.42	2.1	0	65	18	4.8	12.5	2.8	11.2	130.7	0.00
549	Korba		Umedibhathan	7.7	759	0	451.4	7.1	0.37	2.95	5.8	0	315	64	37.2	30.7	7.0	6.8	508.5	0.00
550	Koriya	Baikunthpur	Baikunthpur-s	7.13	157.7	0	30.5	24.9	0.09	0.61	21.0	0	55	14	4.8	6.2	7.3	8.8	105.7	0.00
551	Koriya	Baikunthpur	Chharcha Basti	7.62	46.1	0	12.2	3.6	0.16	0.53	9.7	0	15	4	1.2	2.1	2.7	7.1	30.9	0.00
552	Koriya	Baikunthpur	Dumaria	8.23	474	0	280.6	7.1	1.3	1.68	1.5	0	135	34	12	50.2	3.2	12.4	317.6	0.00
553	Koriya	Baikunthpur	Girjapur	8.15	293	0	164.7	14.2	0.38	1.31	2.5	0	130	36	9.6	14.3	3.7	12.5	196.3	0.00
554	Koriya	Baikunthpur	Jamgahana	7.94	625	0	225.7	74.6	0.52	10.61	12.3	0	250	72	16.8	21.0	6.5	24.5	418.8	0.00
555	Koriya	Baikunthpur	Kachardand	7.26	260	0	67.1	3.6	0.36	33.47	42.3	0	105	30	7.2	15.4	5.0	11.1	174.2	0.00
556	Koriya	Baikunthpur	Khatgori	7.44	250	0	73.2	10.7	1.41	51.42	0.0	0	65	22	2.4	21.7	14.2	12.4	167.5	2.78
557	Koriya	Baikunthpur	Khodri	7.53	435	0	176.9	24.9	2.9	42.12	0.0	0	135	34	12	20.2	27.5	14.8	291.5	35.38
558	Koriya	Baikunthpur	Mansukha	7.45	172.1	0	24.4	7.1	0.35	51.86	7.1	0	60	20	2.4	9.2	5.5	23.3	115.3	0.00
559	Koriya	Baikunthpur	Nagar (Station)	7.47	220	0	73.2	7.1	0.88	49.01	4.7	0	95	28	6	9.0	3.1	17.2	147.4	0.00

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560	Koriya	Baikunthpur	Nagar (Tilwandar)	7.54	239	0	73.2	14.2	0.26	49.01	14.9	0	130	28	14.4	6.4	3.9	30.5	160.1	0.00
561	Koriya	Baikunthpur	Patan	7.3	101.9	0	12.2	14.2	0.09	10.224	21.4	0	30	10	1.2	5.0	12.8	7.8	68.3	0.00
562	Koriya	Baikunthpur	Patrapali	7.53	1580	0	518.5	145.6	0.48	85.01	0.0	0	670	146	73.2	25.1	1.3	6.9	1058.6	0.00
563	Koriya	Baikunthpur	Ranai	7.9	440	0	140.3	17.8	1.38	48.45	7.9	0	170	48	12	9.6	13.6	8.4	294.8	0.00
564	Koriya	Baikunthpur	Tengni	7.41	639	0	122	95.9	0.11	53.27	14.9	0	240	58	22.8	32.2	10.3	4.6	428.1	0.00
565	Koriya	Bharatpur	Seri	7.58	186.6	0	36.6	14.2	0.31	51.73	10.4	0	80	22	6	10.0	5.3	10.6	125.0	0.00
566	Koriya	Bharatpur (Janakpur)	Baharsi.1	7.98	408	0	189.1	28.4	0.39	2.9	10.8	0	140	36	12	32.0	4.3	11.6	273.4	0.00
567	Koriya	Bharatpur (Janakpur)	Chutki	8.28	346	0	231.8	7.1	0.67	0.71	3.3	0	195	42	21.6	2.1	4.8	40.0	231.8	0.00
568	Koriya	Bharatpur (Janakpur)	Janakpur	7.8	295	0	85.4	35.5	0.29	1.73	18.5	0	115	34	7.2	10.3	6.2	16.5	197.7	0.00
569	Koriya	Khadgaon	Khadgaon	7.3	312	0	97.6	24.9	0.11	4.35	54.0	0	125	32	10.8	5.1	13.9	10.3	209.0	0.00
570	Koriya	Khadgaowan	Akhradand	8.5	754	6	207.4	138.5	1.92	9.04	0.0	0	25	6	2.4	1.6	4.5	7.1	505.2	0.00
571	Koriya	Khadgawan	Banjaridand	8.25	587	0	250.1	67.5	0.47	3.87	1.8	0	140	32	14.4	6.6	11.4	11.6	393.3	0.00
572	Koriya	Khadgawan	Chirmiri	7.72	350	0	183	14.2	0.39	0.68	3.4	0	145	36	13.2	8.5	10.9	11.0	234.5	0.00
573	Koriya	Khadgawan	Khadgaon	7.5	344	0	115.9	21.3	2.48	52.16	0.0	0	100	32	4.8	27.1	4.1	24.8	230.5	6.32
574	Koriya	Khadgawan	Khadgawan	7.78	146.5	0	24.4	3.6	0.56	52.93	0.0	0	50	12	4.8	5.8	7.8	6.1	98.2	0.00
575	Koriya	Manendragarh	Belbehra	7.93	594	0	311.1	28.4	0.8	1.53	2.9	0	105	28	8.4	9.2	3.8	12.1	398.0	0.00
576	Koriya	Manendragarh	Biharpur	8.18	676	0	286.7	49.7	3.59	7.69	17.1	0	115	30	9.6	10.4	5.0	38.3	452.9	0.00
577	Koriya	Manendragarh	Chainpur	7.96	76.2	0	30.5	7.1	0.09	1.87	0.0	0	10	2	1.2	2.6	17.9	10.8	51.1	3.03
578	Koriya	Manendragarh	Charwahi	7.85	679	0	341.6	7.1	0.47	42.07	0.0	0	185	58	9.6	58.0	1.5	5.6	454.9	0.00
579	Koriya	Manendragarh	Dodki	7.98	184.6	0	97.6	10.7	0.34	0.71	0.7	0	70	16	7.2	12.8	3.2	22.3	123.7	0.00
580	Koriya	Manendragarh	Garundol	8.44	547	3	250.1	32.0	1.07	2.45	28.0	0	200	34	27.6	38.0	8.5	17.5	366.5	0.00
581	Koriya	Manendragarh	Kachaud	7.83	736	0	189.1	74.6	0.41	53.68	44.8	0	180	52	12	8.1	11.5	5.9	493.1	0.00
582	Koriya	Manendragarh	Karaunda	7.62	790	0	390.4	14.2	0.82	53.68	5.1	0	270	62	27.6	55.8	4.3	9.8	529.3	0.00
583	Koriya	Manendragarh	Kelhari	7.56	353	0	109.8	28.4	0.45	52.93	13.1	0	155	40	13.2	10.6	8.1	20.9	236.5	0.00
584	Koriya	Manendragarh	Manendragarh	7.7	679	0	207.4	110.1	4.3	0.56	18.9	0	200	52	16.8	61.6	5.7	19.3	454.9	37.32
585	Koriya	Manendragarh	Nagpur	7.4	186.8	0	36.6	17.8	2.76	30.76	12.1	0	35	12	1.2	18.1	10.1	15.2	125.2	0.00
586	Koriya	Manendragarh	Pendri	7.83	502	0	237.9	28.4	1.67	3.15	18.4	0	205	58	14.4	18.8	2.6	9.7	336.3	9.42

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587	Koriya	Manendragarh	Piparia	7.65	423	0	91.5	49.7	0.21	41.31	20.5	0	155	44	10.8	18.4	14.5	11.5	283.4	0.00
588	Koriya	Manendragarh	Rojhi	7.8	160.6	0	36.6	7.1	0.45	50.41	0.0	0	55	20	1.2	15.7	1.9	3.0	107.6	0.00
589	Koriya	Manendragarh	Shankargarh	7.55	420	0	109.8	39.1	0.08	39.47	29.4	0.01	40	14	1.2	28.3	90.4	5.9	281.4	0.00
590	Koriya	Manendragarh	Shripur	7.61	652	0	305	21.3	0.79	53.61	19.7	0	305	70	31.2	19.8	5.2	20.1	436.8	0.00
591	Koriya	Manendragarh	Tarabahara	7.54	213	0	36.6	3.6	0.34	52.16	23.9	0	70	2	15.6	8.7	13.4	6.4	142.7	0.00
592	Koriya	Manendragarh	Tilokhan	7.91	524	0	225.7	14.2	0.72	54.01	0.0	0	235	20	44.4	8.3	13.7	3.7	351.1	0.01
593	Koriya	Manendragarh	Ujiyarpur	7.67	126.5	0	18.3	7.1	0.31	37.872	10.0	0	40	12	2.4	10.1	2.5	10.9	84.8	0.00
594	Koriya	Sonhat	Bhainswar	8.04	833	0	311.1	78.1	0.3	8.45	49.2	0	235	42	31.2	71.6	7.1	11.8	558.1	0.00
595	Koriya	Sonhat	Bikrampur	7.85	700	0	329.4	53.3	0.37	1.87	7.6	0	235	26	40.8	53.3	5.3	39.6	469.0	0.00
596	Koriya	Sonhat	kailashpur	7.81	143.8	0	54.9	10.7	0.17	14.976	7.5	0	50	14	3.6	5.5	9.8	4.9	96.3	0.00
597	Koriya	Sonhat	Mendrakala	8.04	440	0	207.4	14.2	0.44	28.42	31.7	0	210	52	19.2	13.5	5.1	20.1	294.8	0.00
598	Koriya	Sonhat	Sonhat	7.45	228	0	67.1	10.7	0.49	51.29	4.5	0	95	28	6	8.9	3.5	7.9	152.8	0.00
599	Mahasamund	Bagbahara	Awaradabri	6.7	202	0	48.8	28.4	0.2	1.57	27.5	0	85	24	6.1	4.6	3.2	23.9	135.3	0.00
600	Mahasamund	Bagbahara	Bagbahara	6.93	221	0	73.2	24.9	0.4	6.5	13.9	0	65	18	4.88	18.6	1.9	43.4	148.1	0.00
601	Mahasamund	Bagbahara	Boirgaon	7.93	1166	0	246.4	230.8	2.65	34.71	0.0	0	200	58	13.42	18.8	3.3	12.8	781.2	0.00
602	Mahasamund	Bagbahara	Hadabundh	7.88	221	0	67.1	21.3	0.41	4.5	14.3	0	65	20	3.6	18.0	1.9	20.6	148.1	0.00
603	Mahasamund	Bagbahara	Khallari	7.92	601	0	298.9	35.5	2.3	6.87	4.1	0	200	34	27.6	60.4	0.6	15.3	402.7	0.54
604	Mahasamund	Bagbahara	Maulimuda	8.05	423	0	244	10.7	1.8	5.69	14.4	0	175	42	16.8	25.7	1.3	19.3	283.4	0.43
605	Mahasamund	Bagbahara	Palsipani	7.78	1144	0	390.4	113.6	0.89	20.3	36.6	0	375	78	43.2	91.5	0.4	18.0	766.5	0.00
606	Mahasamund	Bagbahara	Samhar	7.34	473	0	146.4	28.4	0.66	54.79	9.6	0	180	60	7.32	25.4	0.9	43.7	316.9	0.00
607	Mahasamund	Bagbahara	Suarmar	7.85	900	0	390.4	46.2	0.65	18.33	57.0	0	385	108	27.6	29.6	1.3	23.5	603.0	0.11
608	Mahasamund	Bagbahara	Tendukonda	7.5	975	0	244	134.9	0.39	10.41	28.0	0	320	84	26.4	66.4	1.7	21.0	653.3	0.00
609	Mahasamund	Basna	Barbaspun	7.36	576	0	219.6	39.1	0.3	11.9	30.1	0	230	24	40.8	26.9	1.1	49.6	385.9	0.00
610	Mahasamund	Basna	Basna	7.45	870	0	219.6	106.5	0.4	65	34.5	0	310	72	31.2	57.8	0.8	48.3	582.9	0.00
611	Mahasamund	Basna	Mandalpur	7.73	669	0	445.3	17.8	0.37	6.83	0.0	0	260	44	36	54.7	4.0	8.1	448.2	0.00
612	Mahasamund	Basna	Saraipali	7.93	581	0	341.6	28.4	0.46	4.55	0.0	0	290	52	38.4	16.3	1.6	3.8	389.3	0.00
613	Mahasamund	Mahasamund	Amlor	7.79	673	0	225.7	53.3	0.1	59.4	40.8	0	260	20	50.4	28.2	2.8	7.2	450.9	0.00
614	Mahasamund	Mahasamund	Baldidih	7.36	625	0	262.3	42.6	0.3	58.8	12.4	0	245	74	14.4	32.7	3.5	23.4	418.8	0.01
615	Mahasamund	Mahasamund	Belsunda	8.16	437	0	207.4	32.0	0.1	4.55	0.0	0	195	56	13.2	11.0	4.1	3.4	292.8	0.00

Sr.	District	Block	Location	pH	EC µs/cm	CO3 mg/l	HCO3 mg/l	Cl mg/l	F mg/l	SO4 mg/l	NO3 mg/l	PO4 mg/l	TH mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	SiO2 mg/l	TDS mg/l	U µg/l
616	Mahasamund	Mahasamund	Boriyajhar	7.22	336	0	146.4	28.4	0.36	6.42	6.2	0	135	40	8.54	15.5	0.5	23.3	225.1	0.00
617	Mahasamund	Mahasamund	Jamli Nawadih	8.05	464	0	213.5	21.3	0.4	52.93	0.0	0	60	20	2.44	8.6	2.6	30.3	310.9	0.00
618	Mahasamund	Mahasamund	Jhalap	7.69	463	0	164.7	46.2	0.31	8.07	9.4	0	190	46	18	19.4	1.0	19.4	310.2	0.00
619	Mahasamund	Mahasamund	Jhalkhamhariya	7.44	436	0	73.2	53.3	0.25	6.03	53.4	0	135	40	8.4	28.8	1.7	29.6	292.1	0.01
620	Mahasamund	Mahasamund	Jogidipa	7.82	394	0	244	7.1	0.71	5.83	0.6	0	170	46	13.2	19.2	0.8	23.5	264.0	0.32
621	Mahasamund	Mahasamund	Kowajhar	7.26	192.7	0	97.6	10.7	0.15	3.51	0.0	0	75	18	7.2	8.6	3.6	6.5	129.1	0.00
622	Mahasamund	Mahasamund	Lakhanpur (Bhatripara)	7.6	850	0	335.5	67.5	0.19	17.34	37.2	0	340	80	33.6	27.1	0.4	6.9	569.5	0.00
623	Mahasamund	Mahasamund	Lavra Khurud	7.5	820	0	317.2	60.4	0.21	16.9	37.2	0	340	34	61.2	27.1	0.4	6.9	549.4	0.00
624	Mahasamund	Mahasamund	Mahasamund.1	7.93	687	0	207.4	63.9	0.14	71.31	58.4	0	305	66	33.6	12.7	1.3	6.9	460.3	0.00
625	Mahasamund	Mahasamund	Marod	7.45	237	0	54.9	28.4	0.15	4.71	37.8	0	80	26	3.6	12.5	1.6	26.9	158.8	0.00
626	Mahasamund	Mahasamund	Pirda	7.75	399	0	225.7	17.8	0.36	14.87	2.4	0	185	48	15.86	18.7	5.5	11.6	267.3	0.00
627	Mahasamund	Mahasamund	Pithora	7.21	402	0	109.8	57.4	0.79	23.32	31.3	0	140	40	9.76	26.7	1.6	8.1	269.3	0.00
628	Mahasamund	Mahasamund	Sirpur	7.81	605	0	317.2	57.5	0.88	17.45	13.2	0	215	84	1.22	56.8	5.5	6.8	405.4	0.00
629	Mahasamund	Mahasamund	Tumgaon	7.26	354	0	109.8	42.6	0.1	5.02	22.5	0	115	28	10.8	27.5	3.8	5.1	237.2	0.00
630	Mahasamund	Pithora	Jagdishpur	7.88	600	0	213.5	63.9	0.8	13.61	24.6	0	240	48	28.8	39.9	1.1	20.6	402.0	0.00
631	Mahasamund	Pithora	Kaudiya	7.02	792	0	207.4	81.7	0.59	38.36	58.0	0	330	54	47.58	35.2	1.7	25.2	530.6	0.00
632	Mahasamund	Pithora	Khuteri	7.18	377	0	97.6	39.1	0.5	18.37	25.7	0	135	38	9.76	25.5	1.9	28.8	252.6	0.00
633	Mahasamund	Pithora	Sankra	7.25	2008	0	439.2	445.5	0.44	54.42	62.1	0.01	815	150	107.36	79.1	2.8	15.2	1345.4	0.00
634	Mahasamund	Saraipali	Badesara	7.87	2000	0	646.9	242.7	1.23	14.04	52.0	0	645	136	74.4	100.0	0.0	13.9	1340.0	4.41
635	Mahasamund	Saraipalli	Balouda	8.06	462	0	274.5	21.3	0.57	8.77	0.0	0	60	20	2.44	9.5	3.1	7.4	309.5	0.00
636	Mahasamund	Saraipalli	Deori	7.73	1172	0	524.6	113.6	0.91	22.94	17.3	0	450	90	54	65.6	2.8	17.2	785.2	0.00
637	Mahasamund	Saraipalli	Kisdi	8.11	541	0	335.5	28.4	0.37	8.77	0.0	0	95	22	9.76	10.1	7.3	7.4	362.5	0.00
638	Manendragarh	Manendragarh	Chainpur 3	8.5	392	3	207.4	10.7	0.55	1.44	10.7	0	145	56	1.2	18.1	1.3	12.3	262.6	2.61
639	Mungeli	Bilha	Amerikapa (Tala)	7.54	1396	0	439.2	227.2	1.07	51.65	1.9	0	435	128	27.6	115.0	4.6	7.6	935.3	6.15
640	Mungeli	Lormi	Chandli	7.57	902	0	323.3	110.1	0.17	4.79	43.3	0	415	128	22.8	24.2	1.5	13.5	604.3	6.34
641	Mungeli	Lormi	Devpaheri waterfall	7.45	120	0	36.6	17.8	1.12	2.62	6.1	0	50	12	4.8	1.4	6.6	6.6	80.4	0.00
642	Mungeli	Lormi	Godkhami	7.64	768	0	378.2	53.3	1.12	4.4	0.5	0	230	76	9.6	73.9	1.5	12.8	514.6	1.94
643	Mungeli	Lormi	Jhaphal	7.83	667	0	372.1	24.9	0.26	4.2	0.2	0	255	68	20.4	37.3	1.1	6.8	446.9	0.00

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644	Mungeli	Lormi	Jhaphal	7.94	675	0	280.6	60.4	1.38	13.68	2.9	0	245	56	25.2	38.6	10.1	10.1	452.3	11.22
645	Mungeli	Lormi	Lormi-d	7.28	750	0	317.2	81.7	0.26	4.62	0.6	0	245	64	20.4	66.9	1.1	11.6	502.5	4.02
646	Mungeli	Lormi	Patera	7.2	463	0	146.4	71.0	1.41	8.03	20.9	0	135	32	13.2	37.0	17.4	5.8	310.2	0.17
647	Mungeli	Lormi	Rajpur	7.97	1817	0	635.7	145.6	0.98	229.23	13.9	0	515	56	90	18.0	1.4	13.0	1217.4	7.46
648	Mungeli	Lormi	Ramnagar	7.3	131.4	0	67.1	24.9	0.48	5.97	3.5	0	70	16	7.2	7.2	4.9	13.9	88.0	0.00
649	Mungeli	Lormi	Sardha school para	7.4	968	0	359.9	117.2	0.78	10.32	18.8	0	390	88	40.8	47.0	1.3	12.3	648.6	6.69
650	Mungeli	Lormi	Seoni (new)	7.72	115	0	36.6	7.1	0.09	1.82	18.7	0	30	10	1.2	1.3	0.3	17.9	77.1	0.00
651	Mungeli	Mungeli	Chatarkhar	7.59	815	0	341.6	67.5	0.45	3.61	42.5	0	345	118	12	26.0	1.3	7.3	546.1	4.25
652	Mungeli	Mungeli	Chorbhati	7.53	2090	0	317.2	127.8	0.21	541.2	1.3	0	900	336	14.4	67.1	10.3	10.3	1400.3	26.60
653	Mungeli	Mungeli	Daukapa	7.35	5120	0	669.9	651.2	0.38	765.85	47.1	0	1800	228	295.2	30.6	3.3	12.5	3430.4	18.25
654	Mungeli	Mungeli	Deori	7.76	1964	0	505.2	213.0	0.52	347.15	46.7	0	550	148	43.2	21.0	1.2	17.0	1315.9	13.40
655	Mungeli	Mungeli	Fulwari	7.76	1600	0	657.2	110.1	0.98	223.36	0.7	0	315	84	25.2	23.0	1.4	11.9	1072.0	3.96
656	Mungeli	Mungeli	Mungeli	7.58	2320	0	508.1	191.1	0.35	466.5	45.2	0	590	106	78	24.0	2.4	14.4	1554.4	12.94
657	Mungeli	Mungeli	Mungeli-d	7.39	1397	0	457.5	110.1	0.78	111.65	15.9	0	440	144	19.2	95.6	2.8	11.6	936.0	13.62
658	Mungeli	Mungeli	Sitalkunda	7.73	1617	0	140.5	149.1	0.88	502.4	9.3	0	475	126	38.4	14.4	2.1	8.2	1083.4	8.23
659	Mungeli	Patharia	Chandargarhi	7.51	1860	0	475.8	216.6	0.56	171.8	42.3	0.01	575	168	37.2	88.1	108.9	13.2	1246.2	13.85
660	Mungeli	Patharya	Patharia (chorbhatti)	7.75	1628	0	542.9	198.8	0.29	77.85	44.9	0.01	530	44	100.8	64.7	94.5	21.7	1090.8	6.37
661	Raigarh	Daranjaigarh	Choranga	7.93	948	0	262.3	156.2	0.29	31.2	28.4	0	430	108	38.4	24.1	2.8	17.0	635.2	2.02
662	Raigarh	Dharamjaigarh	Dharamjaigarh	8.02	556	0	164.7	60.4	0.65	34.4	0.1	0	115	38	4.8	7.1	3.8	5.5	329.6	0.00
663	Raigarh	Dharamjaigarh	Katangdih	7.75	185	0	48.8	24.9	0.85	1.38	17.8	0	70	22	3.6	5.2	9.7	4.6	64.6	0.00
664	Raigarh	Dharamjaigarh	Pordahi	7.39	149	0	54.9	14.2	0.98	3.85	4.1	0	55	14	4.8	5.1	3.4	8.2	66.3	0.00
665	Raigarh	Dharmajaigarh	Amapali	7.22	166	0	73.2	14.2	0.62	0	0.0	0	65	22	2.4	2.5	3.7	10.2	51.8	0.00
666	Raigarh	Dharmajaigarh	Amgaon	7.32	97.7	0	36.6	14.2	0.34	0.09	1.1	0	40	12	2.4	2.0	3.9	10.2	65.5	0.00
667	Raigarh	Dharmajaigarh	Auranar	7.45	70	0	24.4	7.1	1.38	1.22	4.1	0	30	6	3.6	1.2	0.4	11.1	13.3	0.00
668	Raigarh	Dharmajaigarh	Bakaruma	7.3	958	0	280.6	134.9	0.85	8.51	56.1	0	410	70	56.4	27.5	6.3	14.9	641.9	3.50
669	Raigarh	Dharmajaigarh	Barpali	7.62	182.4	0	73.2	17.8	0.47	4.26	5.4	0	60	18	3.6	9.4	6.7	7.6	122.2	0.00
670	Raigarh	Dharmajaigarh	Bartapali	7.29	275	0	91.5	32.0	0.3	3.46	21.1	0	90	18	10.8	12.3	24.6	10.4	184.3	0.00
671	Raigarh	Dharmajaigarh	Bayasi	7.54	256	0	67.1	39.1	0.37	1.26	20.2	0	85	22	7.2	19.3	8.6	9.3	171.5	0.00

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672	Raigarh	Dharmajaigarh	Bojia	7.84	824	0	451.4	32.0	0.39	6.88	2.7	0	270	8	60	66.9	21.6	6.8	481.7	0.00
673	Raigarh	Dharmajaigarh	Boro	8.11	558	0	176.9	56.8	0.67	5.06	44.9	0.1	120	6	25.2	22.1	87.6	5.0	373.9	0.00
674	Raigarh	Dharmajaigarh	Charkhapara	7.5	515	0	183	67.5	0.34	9.05	11.5	0	170	44	14.4	38.7	0.9	21.5	345.1	0.00
675	Raigarh	Dharmajaigarh	Chhal	7.95	323	0	109.8	39.1	1.3	5.63	12.1	0	85	20	8.4	22.4	25.4	8.2	216.4	0.00
676	Raigarh	Dharmajaigarh	Derpani	7.55	320	0	164.7	7.1	0.56	9.6	6.2	0	110	28	9.6	25.1	1.1	19.1	214.4	0.00
677	Raigarh	Dharmajaigarh	Dharmajaigarh	7.4	592	0	158.6	78.1	1.41	25.65	34.4	0	130	40	7.2	56.2	26.2	6.2	396.6	0.00
678	Raigarh	Dharmajaigarh	Duliamuda	6.95	272	0	18.3	49.7	0.46	9.05	42.6	0	80	20	7.2	14.4	20.7	7.7	182.2	0.00
679	Raigarh	Dharmajaigarh	Durgapur	6.74	252	0	24.4	49.7	0.88	0	50.8	0	70	18	6	11.2	22.4	7.2	168.8	0.00
680	Raigarh	Dharmajaigarh	Edu	6.86	331	0	67.1	42.6	0.26	9.6	33.6	0	50	16	2.4	4.3	16.6	8.1	221.8	0.00
681	Raigarh	Dharmajaigarh	Gersa	7.63	749	0	207.4	85.2	0.15	36.99	51.7	0.2	190	44	19.2	40.8	82.5	3.8	501.8	0.00
682	Raigarh	Dharmajaigarh	Golabuda	7.46	279	0	103.7	14.2	0.76	5.11	31.3	0	90	30	3.6	20.3	3.8	17.4	186.9	0.00
683	Raigarh	Dharmajaigarh	Hati	8.05	98	0	36.6	7.1	0.31	2.04	15.7	0	25	8	1.2	6.8	10.4	8.3	65.7	0.00
684	Raigarh	Dharmajaigarh	Jabga	7.52	105	0	42.7	3.6	0.89	5.48	10.3	0	15	4	1.2	5.7	18.4	5.3	70.4	0.00
685	Raigarh	Dharmajaigarh	Kandadand	7.37	127	0	36.6	10.7	0.76	3.16	18.0	0	40	12	2.4	6.3	9.8	7.8	85.1	0.00
686	Raigarh	Dharmajaigarh	Kapu	7.39	250	0	73.2	28.4	1.38	0.23	29.1	0	90	20	9.6	12.5	3.5	13.2	124.0	0.00
687	Raigarh	Dharmajaigarh	KarraMara	8.14	397	0	183	17.8	0.29	1.18	0.3	0	130	16	21.6	25.0	1.6	13.1	199.0	0.00
688	Raigarh	Dharmajaigarh	Khadgaon	7.35	446	0	195.2	42.6	1.14	9.59	1.5	0	130	28	14.4	20.1	44.9	3.8	298.8	0.00
689	Raigarh	Dharmajaigarh	Khanhar	7.86	422	0	54.9	85.2	0.39	29.41	0.0	0	45	10	4.8	7.7	0.9	3.8	282.7	0.00
690	Raigarh	Dharmajaigarh	Kurekela	7.65	111	0	36.6	7.1	0.97	8.69	1.3	0	40	10	3.6	3.7	2.2	12.8	74.4	0.00
691	Raigarh	Dharmajaigarh	Lakshmipur	8.03	579	0	262.3	42.6	0.39	10.69	3.4	0	180	42	18	52.4	3.2	13.4	387.9	2.81
692	Raigarh	Dharmajaigarh	Lipti	7.75	221	0	79.3	17.8	0.67	13.73	2.9	0	60	14	6	2.3	1.4	16.7	148.1	114.90
693	Raigarh	Dharmajaigarh	Munund	7.6	160	0	61	17.8	1.07	1.22	4.4	0	70	16	7.2	2.5	4.9	6.9	57.6	0.00
694	Raigarh	Dharmajaigarh	Ongana New	7.19	342	0	85.4	42.6	0.52	11.98	40.6	0	110	24	12	11.9	20.3	5.9	229.1	0.00
695	Raigarh	Dharmajaigarh	Shahpur	7.65	150	0	48.8	7.1	0.35	3.01	23.1	0	60	16	4.8	4.0	6.9	5.2	60.9	0.00
696	Raigarh	Dharmajaigarh	Sirsinga	7.95	515	0	195.2	56.8	0.88	18.39	6.7	0	150	48	7.2	44.7	4.8	3.6	345.1	0.00
697	Raigarh	Dharmajaigarh	Tendumar New	7.45	166	0	48.8	21.3	0.48	1.89	15.5	0	65	16	6	3.7	5.6	7.6	51.5	0.00
698	Raigarh	Dharmajaigarh	Terekela	7.62	204	0	79.3	21.3	0.3	5.29	1.5	0	50	16	2.4	12.2	17.2	6.9	136.7	0.00
699	Raigarh	Dharmajaigarh	Ududa	7.76	252	0	73.2	32.0	1.38	23.83	6.3	0	75	24	3.6	11.0	17.4	5.8	168.8	0.00
700	Raigarh	Gharghoda	Amlidih	7.52	499	0	146.4	71.0	0.76	4.37	43.7	0	155	36	15.6	36.2	16.1	5.8	334.3	0.00

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701	Raigarh	Gharghoda	Baroud	7.55	218	0	85.4	21.3	0.37	13.91	0.0	0	80	24	4.8	5.8	11.7	5.8	146.1	0.00
702	Raigarh	Gharghoda	Bhalumar	7.43	843	0	329.4	92.3	0.09	3.28	20.4	0.01	185	44	18	50.4	105.0	7.1	564.8	0.00
703	Raigarh	Gharghoda	Bhangari	7.75	151.3	0	18.3	24.9	0.16	0.3	33.9	0	42	6	6	15.2	8.1	5.8	101.4	0.00
704	Raigarh	Gharghoda	Chimtapani	7.69	435	0	183	46.2	0.38	9.42	1.3	0	130	28	14.4	29.9	19.6	5.3	291.5	0.00
705	Raigarh	Gharghoda	Chuhkimar	7.84	179.4	0	42.7	24.9	0.17	1.3	26.8	0	50	18	1.2	13.8	8.1	11.0	120.2	0.00
706	Raigarh	Gharghoda	Dumarpali	7.1	96	0	36.6	7.1	0.35	2.22	4.5	0	15	4	1.2	1.1	5.0	7.5	49.4	0.00
707	Raigarh	Gharghoda	Gharghoda	7.92	378	0	207.4	7.1	0.11	0.34	0.3	0	120	28	12	15.0	31.4	4.2	253.3	0.00
708	Raigarh	Gharghoda	Kotrimal	7.85	343	0	158.6	21.3	0.09	11.24	4.5	0	140	26	18	10.4	13.4	4.5	229.8	0.00
709	Raigarh	Gharghoda	Kurmibhuna	7.3	579	0	189.1	74.6	0.39	23.83	12.9	0	170	44	14.4	39.5	22.9	7.1	387.9	0.00
710	Raigarh	Gharghoda	Rumkera	7.57	412	0	146.4	35.5	0.97	23.83	11.0	0	135	42	7.2	26.0	14.1	4.5	276.0	0.00
711	Raigarh	Gharghoda	Samarumi	7.9	42	0	6.1	3.6	0.65	2.83	13.6	0	15	4	1.2	2.1	1.2	3.0	26.9	0.51
712	Raigarh	Gharghoda	Samdama	7.4	928	0	329.4	99.4	0.65	53.41	34.4	0	275	54	33.6	74.8	2.5	11.7	593.9	3.61
713	Raigarh	Gharghoda	Teram (New)	7.7	379	0	183	17.8	0.98	9.27	1.0	0	150	32	16.8	13.7	11.7	6.2	186.9	0.00
714	Raigarh	Kharsia	Chaple	7.45	1230	0	463.6	127.8	1.1	0	31.2	0	605	92	90	14.4	5.7	7.8	787.2	2.81
715	Raigarh	Kharsia	Farkanara	7.02	129.8	0	42.7	17.8	0.98	0.93	4.9	0	50	16	2.4	3.9	7.3	10.1	87.0	0.00
716	Raigarh	Kharsia	Gidha	7.75	477	0	256.2	10.7	0.89	4.95	5.2	0	200	44	21.6	15.6	1.2	9.0	319.6	1.71
717	Raigarh	Kharsia	Kharsia	7.5	878	0	256.2	131.4	0.47	27	0.3	0	240	68	16.8	19.1	1.0	3.7	588.3	0.00
718	Raigarh	Kharsia	Ulda	7.81	512	0	231.8	42.6	0.45	11.64	0.3	0	195	40	22.8	22.6	4.9	4.2	343.0	0.00
719	Raigarh	Kharsiya	Domnara	7.98	131.5	0	48.8	7.1	0.97	18.8	0.4	0	40	14	1.2	8.0	4.5	4.9	88.1	0.00
720	Raigarh	Kunkuri	Nawapara	7.2	569	0	115.9	92.3	0.09	23.35	55.6	0	95	22	9.6	55.9	42.6	5.2	381.2	0.00
721	Raigarh	Lailunga	Futahamuda	7.55	542	0	256.2	28.4	0.09	25.96	0.1	0	195	46	19.2	37.2	2.2	7.7	363.1	0.00
722	Raigarh	Lailunga	Gosaidih	7.69	364	0	134.2	32.0	0.48	13.38	16.1	0	25	6	2.4	6.4	1.1	21.9	243.9	0.00
723	Raigarh	Lailunga	Jegarpur	7.45	727	0	219.6	103.0	0.13	28.99	28.6	0	280	56	33.6	36.4	2.8	19.3	487.1	0.00
724	Raigarh	Lailunga	Lailunga	7.37	761	0	170.8	106.5	0.16	48.34	52.5	0	235	62	19.2	60.4	2.4	11.9	509.9	0.00
725	Raigarh	Lailunga	Laripani	8.1	512	0	146.4	60.4	0.47	44.77	0.0	0	90	28	4.8	7.7	3.8	7.7	343.0	0.00
726	Raigarh	Lailunga	Rajpur	8.07	415	0	140.3	49.7	0.56	13.82	12.9	0	130	38	8.4	35.7	2.0	14.6	278.1	0.00
727	Raigarh	Lailunga	Salkhiya	7.75	705	0	244	81.7	1.41	36.54	14.7	0	300	68	31.2	20.8	1.1	7.9	472.4	0.00
728	Raigarh	Pusaur	Aurda	7.46	583	0	305	21.3	1.12	10.16	1.3	0	220	40	28.8	38.0	1.7	11.1	390.6	2.96
729	Raigarh	Pusaur	Koshmanda	7.8	666	0	256.2	42.6	0.3	48.85	0.0	0	270	64	26.4	33.8	1.6	9.9	446.2	2.03

Sr.	District	Block	Location	pH	EC µs/cm	CO3 mg/l	HCO3 mg/l	Cl mg/l	F mg/l	SO4 mg/l	NO3 mg/l	PO4 mg/l	TH mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	SiO2 mg/l	TDS mg/l	U µg/l
730	Raigarh	Pusaur	Nawrangpur	7.55	1190	0	518.5	99.4	0.38	0	3.0	0	470	112	45.6	43.8	1.9	5.3	797.3	9.24
731	Raigarh	Pusaur	Surajgarh	7.99	623	0	244	99.4	0.26	0	0.0	0	260	50	32.4	23.1	0.8	5.3	417.4	3.11
732	Raigarh	Pusaur	Tetla	7.72	640	0	323.3	17.8	0.21	38.94	1.5	0	230	50	25.2	39.9	1.8	8.3	428.8	4.63
733	Raigarh	Raigarh	Bangrusian	7.39	120.4	0	36.6	17.8	0.65	5.43	0.8	0	50	16	2.4	5.5	0.4	2.4	30.4	0.00
734	Raigarh	Raigarh	Bansjer	7.65	651	0	286.7	49.7	0.31	12.37	13.2	0	215	32	32.4	49.9	2.2	16.2	369.2	0.00
735	Raigarh	Raigarh	Chiraipani	8.19	371	0	164.7	35.5	0.52	4.25	2.7	0	80	20	7.2	31.9	32.5	4.2	248.6	0.00
736	Raigarh	Raigarh	Chiraipani1	7.6	105	0	36.6	14.2	0.31	4.3	0.8	0	45	10	4.8	2.1	1.0	2.7	33.9	0.00
737	Raigarh	Raigarh	Gerwani	7.15	194.4	0	42.7	24.9	0.15	4.39	30.8	0	55	14	4.8	15.5	7.8	2.8	130.2	0.00
738	Raigarh	raigarh	Jamga Railway station	7.85	114	0	24.4	14.2	0.5	4.03	7.3	0	35	8	3.6	6.6	2.9	3.4	47.8	0.00
739	Raigarh	Raigarh	Jamgaon (Basti)	7.78	1871	0	427	344.4	0.16	54.63	51.5	0	670	56	127.2	99.1	2.4	8.7	1253.6	13.02
740	Raigarh	Raigarh	Jorapali	7.68	773	0	329.4	85.2	0.34	0	0.1	0	280	70	25.2	43.5	2.7	8.3	517.9	1.26
741	Raigarh	Raigarh	Kerajhar	7.86	389	0	158.6	32.0	0.31	6.92	6.4	0	150	26	20.4	13.6	1.9	3.9	299.5	0.00
742	Raigarh	Raigarh	Kotarliya	7.66	581	0	158.6	88.8	0.98	39.23	1.3	0	180	48	14.4	48.3	1.9	15.2	389.3	0.00
743	Raigarh	Raigarh	Kotra	7.58	1383	0	481.9	205.9	0.37	0	0.0	0	550	134	51.6	64.2	2.0	7.4	926.6	8.60
744	Raigarh	Raigarh	Mahapalli New	7.82	259	0	109.8	24.9	0.8	8.33	0.0	0	75	22	4.8	23.9	2.8	15.2	173.5	0.00
745	Raigarh	Raigarh	Raigarh	7.86	853	0	280.6	103.0	0.45	44.19	7.5	0	385	92	37.2	18.8	2.8	6.2	571.5	2.76
746	Raigarh	Raigarh	Sambalpuri	7.95	442	0	201.3	39.1	0.98	2.29	4.8	0	155	38	14.4	19.2	18.3	6.1	229.1	0.00
747	Raigarh	Raigarh	Sariya	7.5	655	0	231.8	74.6	0.98	0	42.6	0	220	64	14.4	42.4	16.4	3.6	438.9	0.00
748	Raigarh	Sarai Lengha Baram	Baramkela	7.92	541	0	292.8	10.7	0.92	9.05	6.5	0	225	68	13.2	20.1	2.1	6.8	362.5	0.00
749	Raigarh	Sarai Lengha Baram	Barpali	7.76	629	0	323.3	21.3	0.8	8.34	1.8	0	275	68	25.2	9.4	19.0	7.4	421.4	0.00
750	Raigarh	Sarai Lengha Baram	Jhikipali	7.77	395	0	158.6	24.9	0.89	13.17	0.9	0	100	22	10.8	36.3	2.8	18.1	264.7	18.87
751	Raigarh	Sarai Lengha Baram	Lendhara	7.6	410	0	176.9	32.0	0.16	16.42	6.4	0	155	42	12	24.8	0.7	3.8	274.7	0.00
752	Raigarh	Sarai Lengha Baram	Malda (B)	7.63	285	0	115.9	21.3	0.34	7.96	6.3	0	125	30	12	7.3	0.9	5.6	301.5	6.31
753	Raigarh	Sarangarh	Bataupali	7.52	579	0	292.8	39.1	0.98	3.46	1.6	0	230	50	25.2	28.4	1.2	9.3	387.9	0.00
754	Raigarh	Sarangarh	Chhind	7.37	680	0	195.2	110.1	1.07	20.46	12.6	0	265	74	19.2	32.2	2.0	6.4	4.8	0.00
755	Raigarh	Sarangarh	Damdarha	7.74	563	0	250.1	24.9	0.45	52.94	1.7	0	210	44	24	30.5	5.9	4.9	377.2	2.15

Sr.	District	Block	Location	pH	EC µs/cm	CO3 mg/l	HCO3 mg/l	Cl mg/l	F mg/l	SO4 mg/l	NO3 mg/l	PO4 mg/l	TH mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	SiO2 mg/l	TDS mg/l	U µg/l
756	Raigarh	Sarangarh	Godam	7.53	1320	0	298.9	276.9	0.34	52.85	14.6	0	435	86	52.8	110.3	2.3	6.2	4952.6	8.02
757	Raigarh	Sarangarh	Hirri	7.64	530	0	280.6	14.2	0.13	19.04	10.0	0	205	62	12	27.4	0.9	5.2	355.1	0.00
758	Raigarh	Sarangarh	Kanakbira	7.62	670	0	195.2	92.3	0.62	27.14	4.3	0	215	50	21.6	49.9	4.1	10.6	448.9	20.31
759	Raigarh	Sarangarh	Kargipali (Kargidipa)	7.35	622	0	231.8	56.8	0.98	17.31	16.1	0	125	22	16.8	8.4	1.8	6.2	450.2	0.00
760	Raigarh	Sarangarh	Kedar	7.38	713	0	176.9	110.1	0.65	26.69	33.0	0	220	64	14.4	45.2	31.2	4.5	477.7	0.00
761	Raigarh	Sarangarh	Kushal Nagar (Sarangarh)	8.2	890	0	311.1	127.8	0.29	10.52	0.5	0	115	26	12	14.4	7.2	4.5	508.5	0.00
762	Raigarh	Sarangarh	Pindri	7.81	1178	0	274.5	205.9	0.17	50.77	6.1	0	185	34	24	15.4	9.4	6.1	789.3	6.14
763	Raigarh	Sarangarh	Reda	7.7	1123	0	323.3	181.1	1.12	38.77	23.3	0	400	98	37.2	59.5	3.2	6.1	752.4	0.00
764	Raigarh	Tamnar	Amaghat	7.25	254	0	42.7	32.0	1.38	9.69	54.2	0	85	16	10.8	11.2	14.8	6.1	170.2	0.00
765	Raigarh	Tamnar	Auraimura	7.28	150	0	42.7	21.3	0.29	1.82	10.1	0	55	12	6	5.9	5.5	11.1	72.8	0.00
766	Raigarh	Tamnar	Devgarh	7.36	475	0	109.8	92.3	1.34	12.02	3.7	0	130	28	14.4	44.6	6.2	5.3	318.3	0.00
767	Raigarh	Tamnar	Gare	7.28	636	0	146.4	92.3	1.31	19.77	57.9	0	225	42	28.8	23.6	46.1	5.6	426.1	0.00
768	Raigarh	tamnar	Gohri	8.1	415	0	213.5	21.3	1.41	1.12	0.4	0	155	30	19.2	6.4	28.6	3.6	235.2	0.00
769	Raigarh	Tamnar	Koknara	7.64	298	0	134.2	17.8	0.8	6.5	1.6	0	120	20	16.8	4.4	5.2	8.6	132.7	0.00
770	Raigarh	Tamnar	Libra	8.29	231	0	97.6	17.8	0.85	17.17	4.0	0	85	26	4.8	12.9	5.1	4.3	154.8	0.00
771	Raigarh	Tamnar	Milupara	7.2	396	0	103.7	60.4	1.3	15.07	12.4	0	135	32	13.2	19.6	6.6	7.0	198.3	0.00
772	Raigarh	Tamnar	Padigaon	8.01	374	0	189.1	21.3	0.29	3.22	2.1	0	130	28	14.4	11.1	33.1	4.3	250.6	0.00
773	Raigarh	Tamnar	Tamnar	7.6	290	0	85.4	39.1	0.78	9.98	4.2	0	105	24	10.8	17.3	4.7	8.8	194.3	0.00
774	Raigarh	Tamnar	Taraimal.1	7.55	423	0	115.9	42.6	0.09	21.43	41.9	0	130	44	4.8	21.9	32.6	1.6	250.6	0.00
775	Raigarh	Tmanar	Barkaspali	7.97	550	0	250.1	49.7	0.39	1.01	0.0	0	175	46	14.4	31.0	26.4	5.9	368.5	0.00
776	Raipur	Abhanpur	Abhanpur-d	7.95	632	0	170.8	103.0	0.17	39.27	52.4	0	190	52	14.64	65.7	4.6	5.0	423.4	0.00
777	Raipur	Abhanpur	Bajrangpur	7.91	640	0	292.8	17.8	0.4	49.59	0.0	0	160	48	9.76	7.4	1.5	32.2	428.8	0.10
778	Raipur	Abhanpur	Gatapaar Village	7.67	170	0	30.5	17.8	0.42	60.63	0.0	0	75	26	2.44	13.4	1.8	12.4	113.9	0.00
779	Raipur	Abhanpur	Gotiadih	7.86	674	0	323.3	46.2	0.54	8.25	16.9	0	205	56	15.86	61.9	0.9	7.8	451.6	0.00
780	Raipur	Abhanpur	Kurra	7.7	628	0	311.1	24.9	0.52	95.34	0.0	0	255	42	36.6	44.1	3.1	9.9	420.8	0.00
781	Raipur	Abhanpur	Kurru	7.7	889	0	274.5	103.0	0.31	86.27	44.4	0	370	68	48.8	41.1	1.7	9.8	595.6	0.02
782	Raipur	Arang	Arang	7.58	1341	0	420.9	134.9	0.28	102.3	45.8	0	505	72	91.5	78.9	7.7	7.9	898.5	0.00
783	Raipur	Arang	Baihar	8.58	945	9	378.2	138.5	0.96	15.4	0.5	0	45	10	4.88	21.3	3.8	13.4	633.2	0.01

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784	Raipur	Arang	Bhaisa	7.65	832	0	329.4	67.5	0.47	19.49	8.6	0	255	80	13.42	51.7	2.2	7.7	557.4	0.10
785	Raipur	Arang	Bhatia	7.53	716	0	238.4	56.8	0.35	59.68	17.4	0	275	76	20.74	24.2	1.2	32.5	479.7	0.00
786	Raipur	Arang	Ghivera	7.83	410	0	152.5	17.8	0.22	57.25	1.1	0	145	46	7.32	18.1	5.2	29.8	274.7	0.00
787	Raipur	Arang	Ghodari (Ghorari)	7.3	786	0	274.5	67.5	0.28	57.45	15.1	0	330	114	10.98	25.9	0.8	32.1	526.6	0.00
788	Raipur	Arang	Kanki	7.65	1093	0	341.6	117.2	0.32	80.79	22.6		355	110	19.52	63.3	2.0	33.1	732.3	0.00
789	Raipur	Arang	Kasrangi	7.73	1046	0	378.2	124.3	0.49	74.76	26.6	0	195	62	9.76	16.1	2.7	5.6	700.8	0.00
790	Raipur	Arang	Narra	7.62	1213	0	274.5	230.8	0.65	86.59	21.9	0	430	104	41.48	87.2	2.9	11.2	812.7	0.01
791	Raipur	Arang	Nawagaon	7.77	494	0	262.3	10.7	0.22	50.82	5.9	0	220	66	13.42	21.3	1.1	32.7	331.0	0.26
792	Raipur	Arang	Nawagaon	7.05	167	0	61	17.8	0.66	3.51	0.0	0	55	18	2.44	11.3	1.6	32.5	111.9	0.15
793	Raipur	Arang	Piparhatta	7.68	500	0	134.2	78.1	0.55	36.87	6.3	0	185	54	12.2	40.2	7.9	3.9	335.0	0.01
794	Raipur	Arang	Ranisagar	7.52	1191	0	353.8	149.1	0.18	90.39	60.6	0	455	92	54.9	37.5	43.2	6.1	798.0	0.00
795	Raipur	Arang	Umaria station	7.29	1235	0	372.1	134.9	0.15	22.5	44.4	0	370	128	12.2	89.1	7.2	9.3	827.5	0.00
796	Raipur	Aurang	Godhi	7.78	507	0	286.7	10.7	0.29	6.06	2.4	0	245	76	13.42	10.7	0.7	8.3	339.7	0.13
797	Raipur	Darsinwa	Devri	7.63	698	0	176.9	81.7	0.2	56.33	34.3	0	255	82	12.2	30.4	2.8	29.8	467.7	0.00
798	Raipur	Dharsinwa	Chrauda	7.75	584	0	237.9	17.8	0.2	9.32	9.9	0	200	60	12.2	21.6	1.9	5.9	391.3	0.00
799	Raipur	Dharsinwa	Dharsinwa	7.62	613	0	244	56.8	0.29	10.63	3.0	0	250	58	25.62	25.4	1.3	6.9	410.7	0.00
800	Raipur	Dharsinwa	Mandhar	7.67	737	0	262.3	60.4	0.23	24.5	51.7	0	300	76	26.84	29.0	4.6	6.7	493.8	0.00
801	Raipur	Dharsinwa	Mandirhasud	7.37	980	0	341.6	120.7	0.33	67.62	56.1	0	420	110	35.38	43.1	0.5	6.7	656.6	0.02
802	Raipur	Dharsiwa	RGNGWTRI, CGWB	7.96	518	0	366	21.3	0.33	5.78	0.2	0	230	36	34.16	35.2	1.1	7.3	347.1	0.25
803	Raipur	Dharsiwa	Sakara	7.65	481	0	256.2	17.8	0.43	13.53	6.9	0	195	54	14.64	16.0	0.5	7.5	322.3	0.00
804	Raipur	Kharora	Kanki	7.86	911	0	353.8	78.1	0.27	23.1	13.6	0	290	70	28.06	59.5	4.6	9.0	610.4	0.00
805	Raipur	Palari	Palari	7.6	675	0	262.3	71.0	0.22	17.69	36.3	0	310	74	30.5	25.2	9.7	7.8	452.3	0.02
806	Raipur	Tilda	Biladi	7.63	699	0	388.1	24.9	0.31	6.03	0.0	0	285	64	30.5	38.4	1.5	6.0	468.3	0.15
807	Raipur	Tilda	Chicholi	7.98	407	0	122	49.7	0.25	53.27	1.2	0	165	48	10.98	17.4	5.0	30.3	272.7	0.00
808	Raipur	Tilda	Kharora	7.49	464	0	201.3	32.0	0.29	8.44	15.0	0	200	74	3.66	8.5	0.8	7.4	310.9	0.00
809	Raipur	Tilda	Math	7.74	702	0	237.9	88.8	0.18	18.48	47.6	0	315	86	24.4	25.1	2.5	8.9	470.3	0.02
810	Raipur	Tilda	Pandan Bhata	7.7	500	0	140.3	47.6	0.56	86.27	6.3	0	175	52	10.98	41.3	7.9	6.1	335.0	0.03
811	Raipur	Tilda	Raita (Satnami para)	7.58	715	0	213.5	88.8	0.47	97.6	5.6	0	285	72	25.62	37.9	1.2	6.8	479.1	0.00

Sr.	District	Block	Location	pH	EC µs/cm	CO3 mg/l	HCO3 mg/l	Cl mg/l	F mg/l	SO4 mg/l	NO3 mg/l	PO4 mg/l	TH mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	SiO2 mg/l	TDS mg/l	U µg/l
812	Raipur	Tilda	Saragaon	7.49	697	0	335.5	49.7	0.55	77.23	16.0	0	300	82	23.18	46.4	1.2	8.0	467.0	0.00
813	Raipur	Tilda	Tarpongi	7.68	536	0	225.7	46.2	0.27	25.18	14.2	0	265	82	14.64	17.4	0.8	10.4	359.1	0.01
814	Raipur	Tilda	Kendri (Pz-IV)	7.7	560	0	396.5	14.2	0.27	0.81	3.2	0	275	34	46.36	19.1	0.5	9.7	375.2	0.10
815	Raipur	Tilda	Panderbhata	7.8	455	0	237.9	46.2	0.33	10.52	12.3	0	235	44	30.5	10.1	2.2	6.4	304.9	0.00
816	Rajnandgaon	Ambagarh Chowki	Bandhabazar	7.69	642	0	268.4	49.7	0.5	4.32	13.2	0	255	72	18	16.6	11.5	11.0	430.1	0.00
817	Rajnandgaon	Chhuikadhan	Bhorampur	7.7	867	0	402.6	46.2	0.02	21.6	10.8	0	395	62	57.6	16.6	1.7	10.4	580.9	0.01
818	Rajnandgaon	Chhuikadhan	Gandai	7.72	825	0	439.2	39.1	0.21	13.12	1.1	0	295	72	27.6	62.8	0.9	10.9	552.8	0.00
819	Rajnandgaon	Chhuikadhan	Narmada	7.93	842	0	427	46.2	0.3	23.05	10.8	0	320	30	58.8	43.4	3.8	7.1	564.1	0.00
820	Rajnandgaon	Chhuikhadan	Jangalpur	7.9	597	0	274.5	24.9	0.1	12	0.4	0	205	30	31.2	31.9	0.5	8.4	400.0	0.03
821	Rajnandgaon	Chhuriya	Ambagarh chowki	7.85	740	0	353.8	35.5	0.1	16.48	11.3	0	295	28	54	35.9	1.1	16.5	495.8	0.00
822	Rajnandgaon	Chhuriya	Chichola	7.93	618	0	292.8	35.5	0.58	15.31	3.5	0	235	26	40.8	34.7	4.0	14.6	414.1	0.00
823	Rajnandgaon	Chhuriya	Chirchari	7.67	148	0	67.1	14.2	0	1.46	0.5	0	60	16	4.8	5.1	0.5	10.2	99.2	0.01
824	Rajnandgaon	Chhuriya	Chitratola	7.26	1749	0	85.4	14.2	0.38	772.9	49.6	0	520	84	74.4	166.1	0.8	23.2	1171.8	0.01
825	Rajnandgaon	Chhuriya	Rampur	7.57	349	0	176.9	24.9	0.3	3.01	8.6	0	125	32	10.8	32.1	0.9	4.6	233.8	0.00
826	Rajnandgaon	Chhuriya	SadakBanjari	7.87	392	0	189.1	24.9	0.49	6.92	25.8	0	175	34	21.6	14.4	1.7	11.2	262.6	0.00
827	Rajnandgaon	Chuikhadan	Chuikhadan	7.75	836	0	384.3	42.6	0.13	20.24	10.5	0	365	86	36	16.6	1.7	7.0	560.1	0.02
828	Rajnandgaon	Dongargaon	Bija Bhata	7.05	181	0	42.7	14.2	0.68	19.776	21.4	0	75	24	3.6	7.7	2.5	12.7	121.3	0.02
829	Rajnandgaon	Dongargaon	Chikohola	7.81	772	0	292.8	60.4	0.29	68.4672	0.1	0	310	56	40.8	24.9	1.2	19.1	517.2	0.02
830	Rajnandgaon	Dongargaon	Devkatta	7.78	1485	0	561.2	134.9	0.2	54.32	51.3	0	595	72	99.6	66.3	0.7	15.1	995.0	0.00
831	Rajnandgaon	Dongargaon	Dongargaon.1	7.7	790	0	353.8	28.4	0.14	11.88	50.6	0	305	30	55.2	27.5	21.2	7.5	529.3	0.00
832	Rajnandgaon	Dongargaon	Jantar	7.12	119	0	48.8	10.7	0.01	8.03	1.9	0	60	20	2.4	2.6	0.9	8.3	79.7	0.00
833	Rajnandgaon	Dongargaon	Kokpur I	7.3	1750	0	597.8	174.0	0.74	54.51	52.8	0	445	36	85.2	15.3	1.8	12.7	1172.5	0.01
834	Rajnandgaon	Dongargaon	Konhari	7.08	160	0	24.4	10.7	0.58	30.7776	21.4	0	55	14	4.8	7.9	3.5	12.7	107.2	0.01
835	Rajnandgaon	Dongargaon	Kumarda.1	7.7	1040	0	359.9	110.1	0.58	11.65	41.0	0	335	42	55.2	89.7	1.1	15.3	696.8	0.02
836	Rajnandgaon	Dongargaon	Mathaldabri	7.65	1075	0	396.5	110.1	0.02	41.19	53.4	0	380	54	58.8	70.6	1.0	27.5	720.3	0.00
837	Rajnandgaon	Dongargaon	Mohar/ Mohad	8.13	1033	0	359.9	110.1	0.09	12.26	41.0	0	325	38	55.2	88.9	1.2	15.0	692.1	0.00
838	Rajnandgaon	Dongargarh	Bharritola	7.59	787	0	292.8	60.4	0.17	8.98	45.8	0	295	78	24	20.5	9.2	11.9	527.3	0.00
839	Rajnandgaon	Dongargarh	Dhara	7.79	1851	0	481.9	316.0	0.51	47.42	53.9	0	840	92	146.4	49.0	9.1	16.9	1240.2	0.00

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840	Rajnandgaon	Dongargarh	Dongargarh	8.15	744	0	219.6	74.6	0.18	28.29	37.7	0	305	82	24	24.5	0.2	11.1	498.5	0.00
841	Rajnandgaon	Dongargarh	Ghortalab	7.5	786	0	219.6	103.0	0.6	5.05	52.3	0	310	80	26.4	16.2	5.4	11.1	526.6	0.00
842	Rajnandgaon	Dongargarh	Govindpur	7.3	1678	0	463.6	202.4	1.6	17.72	52.3	0	540	28	112.8	99.9	1.2	11.6	1124.3	0.03
843	Rajnandgaon	Dongargarh	kalkosa	7.87	386	0	164.7	28.4	0.19	2.61	23.0	0	150	38	13.2	19.0	0.7	12.7	258.6	0.01
844	Rajnandgaon	Dongargarh	Lal bhadurnagar	7.53	555	0	176.9	56.8	0.26	7.85	45.8	0	195	34	26.4	35.1	5.4	10.1	371.9	0.00
845	Rajnandgaon	Dongargarh	Ranitalab	7.96	1671	0	524.6	216.6	1.5	101.9	1.5	0	570	122	63.6	134.7	4.8	8.9	1119.6	0.00
846	Rajnandgaon	Dongargarh	Sahaspur Dalli	7.64	498	0	250.1	24.9	0.07	5.25	15.4	0	215	32	32.4	12.8	1.2	5.2	333.7	0.00
847	Rajnandgaon	Dongargarh	Tappa	7.61	411	0	207.4	28.4	0.24	4.7	14.4	0	180	26	27.6	11.0	0.9	8.0	275.4	0.00
848	Rajnandgaon	Dongargarh	Uraidabritola	7.76	1231	0	555.1	99.4	1.62	51.8	36.5	0	420	64	62.4	93.4	2.8	9.9	824.8	0.00
849	Rajnandgaon	Khairagarh	Badaitola	7.83	1281	0	323.3	145.6	0.09	32.14	52.2	0	355	46	57.6	71.0	49.4	5.6	858.3	0.01
850	Rajnandgaon	Khairagarh	Dhaneli	7.48	754	0	378.2	46.2	0.24	8.79	14.8	0	325	64	39.6	19.8	1.8	7.2	505.2	0.00
851	Rajnandgaon	Khairagarh	Jalbanda	7.74	337	0	97.6	32.0	0.25	2.23	41.3	0	120	30	10.8	19.4	3.6	3.1	225.8	0.00
852	Rajnandgaon	Khairagarh	Khairagarh	7.95	642	0	335.5	21.3	2.48	1.84	8.9	0	250	36	38.4	30.2	1.3	7.3	430.1	0.02
853	Rajnandgaon	Khairagarh	Khursipar	7.68	534	0	219.6	35.5	0.07	1.84	39.3	0	225	48	25.2	12.5	1.0	6.1	357.8	0.02
854	Rajnandgaon	Khairagarh	Rangkathera	7.47	759	0	329.4	67.5	0.08	3.2	38.1	0	355	72	42	32.1	1.1	5.8	508.5	0.00
855	Rajnandgaon	Khairagarh	Talagaon	7.65	858	0	311.1	95.9	0.08	10.5	20.9	0	280	48	38.4	65.2	1.6	6.2	574.9	0.00
856	Rajnandgaon	Rajnandgaon	Anjora	7.54	790	0	280.6	67.5	0	14.77	13.7	0	295	66	31.2	36.8	4.7	8.6	529.3	0.00
857	Rajnandgaon	Rajnandgaon	Baghera	7.9	1322	0	494.1	127.8	0	13.5	29.6	0	255	54	28.8	18.4	6.1	6.3	885.7	0.00
858	Rajnandgaon	Rajnandgaon	Bagtarai	7.88	532	0	250.1	24.9	0.39	35.54	2.3	0	135	24	18	6.9	1.1	8.6	356.4	0.00
859	Rajnandgaon	Rajnandgaon	Bargahi 2	7.76	852	0	341.6	56.8	0.24	50.17	11.1	0	310	52	43.2	46.1	3.8	11.6	570.8	0.00
860	Rajnandgaon	Rajnandgaon	Bhaistara (Bhatapara)	7.4	883	0	341.6	81.7	0.21	16.78	10.9	0	395	86	43.2	13.5	0.7	8.2	591.6	0.00
861	Rajnandgaon	Rajnandgaon	Bhatgaon	7.49	825	0	274.5	81.7	1.11	33.36	50.5	0	345	44	56.4	25.2	1.5	8.7	552.8	0.00
862	Rajnandgaon	Rajnandgaon	Borgahi 1	7.72	854	0	140.3	56.8	0.18	227.15	10.8	0	325	54	45.6	46.8	3.8	9.5	572.2	0.00
863	Rajnandgaon	Rajnandgaon	Bori	7.83	855	0	335.5	71.0	0	15.87	16.5	0	395	110	28.8	15.4	1.0	9.6	572.9	0.02
864	Rajnandgaon	Rajnandgaon	Burhanpur	7.62	720	0	372.1	21.3	0.49	33.2	2.1	0	215	22	38.4	6.9	1.1	10.5	482.4	0.00
865	Rajnandgaon	Rajnandgaon	Dewada	7.81	632	0	311.1	35.5	0.22	4.12	20.6	0	300	76	26.4	9.0	0.4	7.0	423.4	0.00
866	Rajnandgaon	Rajnandgaon	Dharampur	7.93	850	0	420.9	56.8	0.06	12.77	10.9	0	315	22	62.4	47.9	4.0	8.9	569.5	0.00
867	Rajnandgaon	Rajnandgaon	Gathula	7.88	960	0	414.8	78.1	0.07	34.64	32.7	0	345	28	66	76.4	3.1	10.8	643.2	0.00

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868	Rajnandgaon	Rajnandgaon	Gidhwah	7.78	861	0	280.6	110.1	0.45	24.57	10.8	0	375	100	30	17.8	1.8	6.9	576.9	0.00
869	Rajnandgaon	Rajnandgaon	Joratarai	7.92	626	0	298.9	35.5	0.4	5.05	20.9	0	285	28	51.6	22.5	1.2	6.5	419.4	0.00
870	Rajnandgaon	Rajnandgaon	Maladabri	7.73	851	0	366	53.3	0.9	27.43	10.8	0	320	38	54	44.0	3.7	7.0	570.2	0.00
871	Rajnandgaon	Rajnandgaon	Mudmar	7.74	852	0	347.7	60.4	0.08	50.17	10.8	0	345	52	51.6	46.3	3.8	11.6	570.8	0.00
872	Rajnandgaon	Rajnandgaon	Murhipar	7.67	1328	0	341.6	205.9	0.11	27.08	25.0	0	515	60	87.6	64.1	1.2	5.3	889.8	0.00
873	Rajnandgaon	Rajnandgaon	Nawagaon	8	1293	0	494.1	124.3	0.8	12.66	29.7	0	255	36	39.6	14.7	6.3	5.0	866.3	0.00
874	Rajnandgaon	Rajnandgaon	Paneka	8.17	1316	0	414.8	177.5	1.5	43.04	7.5	0	130	24	16.8	23.3	6.0	9.2	881.7	0.02
875	Rajnandgaon	Rajnandgaon	Patewa	7.54	1255	0	414.8	145.6	0.27	29.61	47.4	0	475	22	100.8	70.0	10.2	4.9	840.9	0.00
876	Rajnandgaon	Rajnandgaon	Patharathola	8.01	299	0	158.6	10.7	0.38	1.88	0.0	0	120	36	7.2	10.0	0.8	4.3	200.3	1.03
877	Rajnandgaon	Rajnandgaon	Rajnandgaon	7.98	963	0	457.5	60.4	0.47	15.61	3.0	0	255	42	36	76.0	27.5	8.2	645.2	0.00
878	Rajnandgaon	Rajnandgaon	Ranitarai	7.51	1585	0	420.9	181.1	0.51	41.51	54.9	0	555	20	121.2	62.5	11.0	5.2	1062.0	0.00
879	Rajnandgaon	Rajnandgaon	Reevagahan	7.6	624	0	298.9	21.3	1.71	33.42	2.2	0	155	16	27.6	7.0	1.1	9.5	418.1	0.00
880	Rajnandgaon	Rajnandgaon	Singhola	7.84	253	0	109.8	14.2	0.39	30.29	1.4	0	95	26	7.2	15.2	2.6	3.2	169.5	0.00
881	Rajnandgaon	Rajnandgaon	Somni	8.84	246	9	67.1	7.1	0.06	54.62	0.4	0	80	22	6	19.5	3.3	1.5	164.8	0.00
882	Rajnandgaon	Rajnandgaon	Sundara	7.82	562	0	280.6	28.4	0.18	4.51	6.6	0	230	28	38.4	26.6	1.5	6.4	376.5	0.01
883	Rajnandgaon	Rajnandgaon	Surgi	7.81	792	0	323.3	56.8	0.43	48.94	11.0	0	280	38	44.4	46.1	3.8	12.8	530.6	0.02
884	Rajnandgaon	Rajnandgaon	Talai	7.44	1053	0	390.4	110.1	0.07	18.39	5.2	0	335	30	62.4	57.9	1.2	6.4	705.5	0.00
885	Surajpur	Bhaiyathan	Bhaiyathan	7.08	144.5	0	61	10.7	0.3	4.35	1.1	0	45	12	3.6	9.6	7.0	11.5	96.8	0.00
886	Surajpur	Bhaiyathan	Chainpur	7.63	719	0	341.6	39.1	0.8	14.34	6.6	0	200	64	9.6	69.3	11.2	9.8	481.7	0.00
887	Surajpur	Bhaiyathan	Dalabahara (Bhaskar)	8.24	250	0	134.2	10.7	0.23	2.69	0.0	0	95	24	8.4	6.8	13.4	11.1	167.5	0.00
888	Surajpur	Bhaiyathan	Khandapara	7.46	275	0	103.7	32.0	0.19	2.83	3.0	0	90	24	7.2	20.1	11.3	5.0	184.3	0.00
889	Surajpur	Bhaiyathan	Odigi	7.75	865	0	237.9	113.6	0.39	26.57	51.3	0	335	44	54	42.9	5.9	10.6	579.6	0.00
890	Surajpur	Bhaiyathan	Samouli (Bhayathan)	7.47	298	0	134.2	28.4	0.3	0.57	5.9	0	125	30	12	5.4	7.7	11.4	199.7	0.00
891	Surajpur	Bhaiyathan	Satipara (Bhaingamunda)	7.78	495	0	256.2	21.3	0.53	7.7	0.0	0	150	32	16.8	38.4	3.2	3.8	331.7	0.00
892	Surajpur	Pratappur	Banshipur	7.72	232	0	115.9	14.2	0.45	3.3	1.1	0	60	20	2.4	2.4	5.8	7.8	155.4	0.00
893	Surajpur	Pratappur	Bhediya	7.28	175.7	0	54.9	21.3	0.27	1.18	2.7	0	45	12	3.6	8.1	11.4	8.6	117.7	0.00
894	Surajpur	Pratappur	Chanchidand	7.45	433	0	158.6	53.3	0.19	4.86	7.1	0	155	34	16.8	24.2	21.1	6.5	290.1	1.44

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895	Surajpur	Pratappur	Chandora	7.78	325	0	134.2	21.3	0.24	3.28	23.1	0	120	32	9.6	11.1	19.8	7.0	217.8	0.00
896	Surajpur	Pratappur	Darhora	7.73	522	0	146.4	99.4	0.26	10.68	8.5	0	205	42	24	23.8	10.5	9.9	349.7	0.00
897	Surajpur	Pratappur	Dawankera	7.73	447	0	225.7	21.3	0.41	8.43	4.8	0	150	44	9.6	14.9	20.0	7.7	299.5	0.00
898	Surajpur	Pratappur	Dharampur	7.71	386	0	207.4	17.8	1.1	1.7	0.3	0	115	26	12	30.5	26.6	5.1	258.6	1.11
899	Surajpur	Pratappur	Dhondha	7.62	136.3	0	79.3	7.1	0.19	0.42	0.0	0	50	16	2.4	5.1	5.5	8.7	91.3	0.00
900	Surajpur	Pratappur	Durti	7.97	1091	0	115.9	266.3	1.45	53.46	0.0	0	410	82	49.2	33.5	1.8	13.5	731.0	0.00
901	Surajpur	Pratappur	Gonda	7.35	112.7	0	36.6	14.2	0.08	0.2	9.5	0	20	6	1.2	4.8	23.6	10.2	75.5	0.00
902	Surajpur	Pratappur	Jagannathpur	7.84	721	0	219.6	92.3	0.35	21.14	59.9	0	240	54	25.2	55.5	12.0	21.7	483.1	0.00
903	Surajpur	Pratappur	Karajwar	7.67	1296	0	335.5	166.9	0.47	25.98	18.6	0	340	74	37.2	108.8	4.3	10.3	868.3	0.00
904	Surajpur	Pratappur	Podi	7.49	328	0	176.9	10.7	0.78	2.09	0.0	0	130	36	9.6	9.0	18.7	8.5	219.8	0.00
905	Surajpur	Pratappur	Reonti	7.58	385	0	183	28.4	0.59	3.6	0.5	0	135	32	13.2	18.4	5.0	22.8	258.0	0.00
906	Surajpur	Pratappur	Songara	7.68	529	0	183	74.6	0.3	5.35	0.7	0	180	44	16.8	30.4	24.1	9.6	354.4	0.00
907	Surajpur	Prathppur	Batauli	8	833	0	378.2	71.0	0.27	0	1.1	0	170	22	27.6	10.7	4.5	13.1	558.1	0.00
908	Surajpur	Prem nagar	Katarouli (Harrapara)	7.4	755	0	305	49.7	0.28	21.29	31.4	0.01	220	48	24	39.1	68.4	17.1	505.9	0.00
909	Surajpur	Premnagar	Abhaypur	7.84	754	0	384.3	32.0	1	13.33	4.8	0	290	66	30	45.1	11.7	18.2	505.2	3.47
910	Surajpur	Premnagar	Fulkona	6.93	41.1	0	12.2	3.6	0.05	5.9	0.0	0	10	2	1.2	2.9	2.6	8.2	27.5	0.00
911	Surajpur	Premnagar	Hanumangarh	7.29	578	0	158.6	67.5	0.15	13.68	55.2	0.02	95	22	9.6	26.7	118.8	6.1	387.3	0.01
912	Surajpur	Premnagar	Premnagar	7.46	898	0	256.2	120.7	0.38	8.72	58.5	0	360	82	37.2	33.7	1.5	23.3	601.7	0.00
913	Surajpur	Premnagar	Salka	8.1	407	0	274.5	17.8	1.07	1.85	0.0	0	55	20	1.2	8.9	2.7	9.3	272.7	0.00
914	Surajpur	Premnagar	Shivnagar	7.12	274	0	73.2	24.9	0.05	2.83	51.1	0	65	22	2.4	11.5	39.3	6.8	183.6	0.00
915	Surajpur	Premnagar	Tara	7.42	45.1	0	18.3	3.6	0	0.95	0.0	0	10	2	1.2	1.1	1.6	12.5	30.2	0.00
916	Surajpur	Premnagar	Tara	7.38	2040	0	506.3	291.1	0.8	54.56	59.8	0	860	144	120	75.0	0.6	29.8	1366.8	0.00
917	Surajpur	Ramanujnagar	Ganeshpur	7.29	237	0	115.9	14.2	0.38	4.04	0.0	0	75	24	3.6	8.6	17.3	5.3	158.8	0.00
918	Surajpur	Ramanujnagar	Jagatpur Podipara	7.57	595	0	256.2	46.2	0.54	5.93	14.3	0	190	48	16.8	44.7	3.2	9.9	398.7	0.00
919	Surajpur	Ramanujnagar	Ramanuj nagar	7.79	823	0	298.9	103.0	1.27	13.5	28.4	0	235	56	22.8	8.2	4.0	23.9	551.4	0.03
920	Surajpur	Surajpur	Badsara	7.21	157	0	36.6	17.8	0.07	1.94	29.1	0	40	10	3.6	4.2	29.8	9.0	105.2	0.00
921	Surajpur	Surajpur	Bishrampur	7.71	586	0	256.2	42.6	1.21	7.99	17.6	0	220	44	26.4	31.5	15.1	12.0	392.6	0.00
922	Surajpur	Surajpur	Kerwa	7.33	120.9	0	24.4	17.8	0.07	0.04	20.4	0	35	8	3.6	9.9	9.2	12.5	81.0	0.00

Sr.	District	Block	Location	pH	EC µs/cm	CO3 mg/l	HCO3 mg/l	Cl mg/l	F mg/l	SO4 mg/l	NO3 mg/l	PO4 mg/l	TH mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	SiO2 mg/l	TDS mg/l	U µg/l
923	Surajpur	Surajpur	Darripara	7.68	100.2	0	36.6	10.7	0.01	0	5.0	0	30	6	3.6	4.7	8.5	6.0	67.1	0.00
924	Surajpur	Surajpur	Deonagar	7.81	319	0	189.1	7.1	0.76	1.48	0.0	0	125	28	13.2	11.4	4.5	16.8	213.7	0.00
925	Surajpur	Surajpur	Jaynagar	7.78	191	0	85.4	17.8	0.27	2.56	0.0	0	70	16	7.2	9.8	12.6	9.1	128.0	0.00
926	Surajpur	Surajpur	Kaliyanpur	7.27	253	0	85.4	21.3	0.12	2.56	38.2	0	50	12	4.8	7.9	42.9	2.1	169.5	0.00
927	Surajpur	Surajpur	Kanakpur	7.48	205	0	91.5	14.2	0.22	10.07	2.0	0	55	18	2.4	9.9	17.6	15.4	137.4	0.00
928	Surajpur	Surajpur	Krishnapur (kalwa)	7.9	857	0	366	56.8	1.05	13.84	23.4	0	175	40	18	11.7	20.9	7.3	574.2	0.00
929	Surajpur	Surajpur	Madanpur	7.38	230	0	128.1	3.6	0.26	0.6	0.0	0	90	26	6	4.4	13.7	6.8	154.1	0.00
930	Surajpur	Surajpur	Majeera	7.93	428	0	213.5	21.3	2.89	8.14	3.0	0	140	40	9.6	32.5	4.4	10.7	286.8	0.00
931	Surajpur	Surajpur	Newara	7.65	873	0	408.7	53.3	0.31	12.38	5.0	0	175	22	28.8	11.9	7.1	8.9	584.9	0.00
932	Surajpur	Surajpur	Pachira	8.01	363	0	183	24.9	0.46	2.41	3.0	0	120	32	9.6	33.9	3.3	12.9	243.2	0.00
933	Surajpur	Surajpur	Pal Danauli	6.94	150.2	0	54.9	14.2	0.18	2.4	6.7	0	55	16	3.6	5.7	4.5	4.3	100.6	0.00
934	Surajpur	Surajpur	Sirsi	7.86	323	0	158.6	14.2	0.37	5.35	0.0	0	130	34	10.8	18.0	1.5	9.4	216.4	0.00
935	Surajpur	Surajpur	Surajpur	7.66	119.5	0	30.5	21.3	0.07	0.87	6.0	0	15	2	2.4	12.6	11.4	5.9	80.1	0.03
936	Surajpur	Surajpur	Tulsi	7.89	405	0	207.4	17.8	0.06	1.85	0.0	0	145	36	13.2	16.5	20.0	8.7	271.4	0.00
937	Surajpur	Surajpur	Uchdih	7.65	190.4	0	67.1	24.9	0	1.85	0.7	0	55	18	2.4	12.9	13.1	6.0	127.6	0.02
938	Surguja	Ambikapur	Ambikapur-D	7.5	237	0	91.5	21.3	0.47	2.42	8.2	0	70	22	3.6	16.8	2.1	11.0	158.8	0.00
939	Surguja	Ambikapur	Baghima	7.76	289	0	122	24.9	0.17	2.46	9.4	0	100	36	2.4	22.7	4.4	9.6	193.6	0.00
940	Surguja	Ambikapur	Chatakpur	7.04	136.2	0	48.8	14.2	0.09	0.53	5.9	0	50	12	4.8	7.0	3.0	0.0	91.3	0.00
941	Surguja	Ambikapur	Darima	7.23	221	0	115.9	7.1	0.55	4.55	7.0	0	85	18	9.6	14.2	1.7	11.3	148.1	0.00
942	Surguja	Ambikapur	Katkalo	7.18	138	0	30.5	10.7	0.29	0.96	28.0	0	35	8	3.6	13.1	1.4	24.4	92.5	0.00
943	Surguja	Ambikapur	Nawapara	7.46	269	0	134.2	17.8	0.51	1.82	10.0	0	80	28	2.4	27.9	1.3	25.2	180.2	0.00
944	Surguja	Ambikapur	Parsa	7.34	390	0	115.9	32.0	0.14	1.82	42.8	0	135	42	7.2	20.3	1.9	21.1	261.3	0.00
945	Surguja	Ambikapur	Rajpurikhurd	6.92	43.4	0	18.3	3.6	0.9	0	5.0	0	10	4	0	2.3	6.5	11.8	29.1	0.00
946	Surguja	Ambikapur	Sargawan (Babupara)	7.72	395	0	158.6	17.8	0.8	43.48	0.0	0	100	24	9.6	31.8	22.0	4.9	264.7	0.00
947	Surguja	Batauli	Bandana	7.46	277	0	115.9	24.9	0.22	1.93	4.4	0	100	30	6	15.2	3.2	10.4	185.6	0.00
948	Surguja	Batauli	Belkota	6.75	88	0	18.3	10.7	0.07	0.1	18.1	0	25	6	2.4	3.5	6.8	13.5	59.0	0.00
949	Surguja	Batauli	Chendra	7.7	616	0	268.4	39.1	0.07	7.04	26.3	0	240	52	26.4	32.1	2.1	15.1	412.7	0.00
950	Surguja	Batauli	Sedam	7.7	390	0	176.9	32.0	0.45	2.85	11.7	0	135	38	9.6	23.1	1.2	12.7	261.3	0.00

Sr.	District	Block	Location	pH	EC µs/cm	CO3 mg/l	HCO3 mg/l	Cl mg/l	F mg/l	SO4 mg/l	NO3 mg/l	PO4 mg/l	TH mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	SiO2 mg/l	TDS mg/l	U µg/l
951	Surguja	Lakhanpur	Lakhanpur	6.59	55.5	0	24.4	3.6	0.13	0.79	5.0	0	20	6	1.2	3.3	1.5	11.2	37.2	0.00
952	Surguja	Lakhanpur	Mendrakalan	6.99	52.1	0	18.3	3.6	0.74	0	11.5	0	15	4	1.2	3.3	4.4	10.3	34.9	0.00
953	Surguja	Lakhanpur	Rajakatel	7.6	393	0	170.8	32.0	0.19	3.36	20.1	0	125	26	14.4	30.6	7.3	10.7	263.3	0.00
954	Surguja	Lakhanpur	singhitana	7.05	311	0	97.6	24.9	0.1	6.04	33.9	0	100	26	8.4	20.4	12.0	11.3	208.4	0.00
955	Surguja	Lundra	Amdih	7.8	632	0	341.6	24.9	0.16	5.45	0.0	0	220	46	25.2	30.1	30.8	7.4	423.4	0.00
956	Surguja	Lundra	Bulga	6.98	56.4	0	18.3	7.1	0.08	0.1	5.7	0	20	6	1.2	2.5	3.0	13.4	37.8	0.00
957	Surguja	Lundra	Dhaurpur	7.56	138.8	0	36.6	10.7	0.24	1.58	27.5	0	50	14	3.6	9.7	0.9	17.3	93.0	0.00
958	Surguja	Lundra	Lundra	7.27	324	0	97.6	28.4	0.22	4.7	33.6	0	110	34	6	25.8	1.3	27.0	217.1	0.00
959	Surguja	Mainpat	Amgaon	7.9	369	0	158.6	28.4	0.09	2.46	0.6	0	125	28	13.2	17.4	14.4	6.4	247.2	0.00
960	Surguja	Mainpat	Kamleswarpur	7.34	216	0	79.3	14.2	0.44	2.51	26.0	0	75	20	6	10.8	1.8	20.8	144.7	0.00
961	Surguja	Mainpat	Nagdand	7.29	356	0	134.2	24.9	0.24	0	30.8	0	150	34	15.6	14.0	1.7	20.5	238.5	0.00
962	Surguja	Sitapur	Pratapgarh	7.4	200	0	73.2	28.4	0.18	1.99	2.5	0	65	14	7.2	13.8	5.2	5.7	134.0	0.00
963	Surguja	Sitapur	Sitapur-d	7.44	476	0	158.6	42.6	0.3	8.72	48.9	0	175	50	12	30.3	1.0	23.6	318.9	0.00
964	Surguja	Sitapur	Sontarai (Sitapur)	7.39	327.8	0	158.6	10.7	0.25	6.04	1.1	0	140	54	1.2	11.3	1.6	16.3	219.6	0.00
965	Surguja	Surajpur	Choudeya	7.38	686	0	268.4	42.6	0.24	10.63	52.3	0	265	64	25.2	37.6	1.4	19.5	459.6	0.00
966	Surguja	Surajpur	Parsa	6.77	184.9	0	36.6	14.2	0.07	0.35	52.4	0	60	14	6	7.1	13.2	11.3	123.9	0.00
967	Surguja	Udaipur	Mudgaon	8.15	664	0	366	24.9	2.48	8.72	0.3	0	105	34	4.8	10.7	1.4	10.0	444.9	0.00
968	Surguja	Udaypur	Jajga	7.15	239	0	48.8	24.9	0.1	0.8	46.1	0	90	20	9.6	9.5	5.9	13.7	160.1	0.00
969	Surguja	Udeypur	Dandgaon	7.16	119	0	48.8	10.7	0.09	1.58	10.2	0	40	10	3.6	7.8	4.3	7.9	79.7	0.00
970	Surguja	Udeypur	Udaipur	7.6	420	0	201.3	21.3	0.4	3.36	19.2	0	170	36	19.2	24.2	1.4	17.8	281.4	1.51
971	Surguja	Udeypur	Udaipur-d	7.29	105.5	0	24.4	7.1	0.08	8.72	20.0	0	30	10	1.2	6.6	6.2	11.5	70.7	0.00

Table 19 - Chemical Analysis Results of Ground Water Samples Collected during Post-Monsoon NHNS 2023-24 from the Chhattisgarh State.

Sr.	District	Block	Location	pH	EC µs/cm	CO3 mg/l	HCO3 mg/l	Cl mg/l	F mg/l	SO4 mg/l	NO3 mg/l	PO4 mg/l	TH mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	SiO2 mg/l	TDS mg/l	U µg/l
1	Balod	Doundi Lohara	Doundi Lohara	7.46	345	0	121	39.1	0.75	13.5	22.5	0	125.0	32.0	10.8	23.4	11.0	11.5	224.3	0.01
2	Balod	Durg	Danganiya	7.46	1023	0	208	165.1	0.22	201.5	21.9	0	590.0	134.0	61.2	45.0	1.2	9.7	665.0	0.02
3	Balod	Gurur	Tarri	7.34	569	0	251	99.2	0.1	11.4	6.3		275.0	20.0	54.0	22.3	23.2	5.4	369.9	0.02
4	Balodabazar	Balodabazar	Rawan	7.43	873	0	308	85.1	0.43	36	27.3	0	310.0	100.0	14.4	54.3	6.5	14.3	567.5	0.01
5	Balodabazar	Bhattapara	Bhattapara-s	7.04	705	0	256	87.2	0.35	29.1	34.6	0	325.0	70.0	36.0	39.1	3.3	14.7	458.3	0.02
6	Balodabazar	Bilaigarh	Bilaigarh	7.01	1114	0	299	151.2	0.33	4.1	34.2		390.0	110.0	27.6	56.3	1.9	15.4	724.1	0
7	Balodabazar	Kasdol	Kasdol	7.14	399	0	184	55.4	0.21	5.2	3.4	0	160.0	52.0	7.2	39.2	3.2	9.6	259.4	0
8	Balodabazar	Simga	Simga	8.27	1066	0	275	39.5	0.29	196.1	56	0	410.0	132.0	19.2	69.0	2.6	10.4	692.9	0
9	Balrampur	Balrampur	Balrampur-s	7.49	229	0	89	11.3	0.66	21.5	18.7	0	75.0	18.0	7.2	12.8	3.4	14.3	148.9	0
10	Balrampur	Rajpur	Rajpur	7.65	458	0	274	28.5	0.41	2.1	0	0.1	120.0	40.0	4.8	84.0	0.7	13.4	297.7	0
11	Balrampur	Shankargarh	Shankargarh	7.44	198	0	141	7.1	0.2	2.1	3.5	0	70.0	14.0	8.4	24.0	6.5	14.2	128.7	0.01
12	Balrampur	Wadraf Nagar	Wadraf Nagar-d	7.27	357	0	165	11.3	0.44	1	29.9	0.1	120.0	28.0	12.0	21.4	1.9	12.3	232.1	0.02
13	Bastar	Jagdalpur	Jagdalpur	7.25	545	0	225	48.3	0.19	5.1	41.3	0.21	225.0	26.0	38.4	21.0	1.0	6.2	354.3	0.02
14	Bastar	Keshkal	Keshkal	6.84	202	0	132	7.1	0.1	3.1	16.4	0	100.0	28.0	7.2	20.7	1.0	14.2	131.3	0.01
15	Bastar	Kondagaon	Kondagaon	7.67	508	0	249	21.7	0.1	6.7	2.1	0	190.0	50.0	15.6	25.0	6.3	19.5	330.2	0.02
16	Bastar	Pharasgaon	Pharasgaon	7.77	339	0	121	14.2	0.1	3.4	63	0	160.0	50.0	8.4	3.1	2.1	32.6	220.4	0
17	Bemetara	Bemetara	Umaria	7.45	990	0	289	35.5	0.23	198.2	25.3	0	400.0	100.0	36.0	54.0	5.4	7.4	643.5	0
18	Bemetara	Berla	Berla	7.57	775	0	304	35.5	0.2	24.6	41.3	0	250.0	62.0	22.8	61.0	7.7	14.2	503.8	0
19	Bemetara	Nawagarh	Jhal	7.89	479	0	182	35.4	0.1	11.53	10	0	160.0	56.0	4.8	31.0	2.9	6.7	311.4	0.01
20	Bemetara	Saja	Piparia	8.16	610	0	221	28.4	0.64	90	0	0.13	210.0	66.0	10.8	35.2	3.7	11.5	396.5	0.02
21	Bilaspur	Bilaspur	Bilaspur (Lalkhadan)	8.24	635	0	274	36.0	0.99	1	6.4	0	150.0	24.0	21.6	65.4	1.3	1.9	412.8	0.02
22	Bilaspur	Bilha	Bilha	8.14	621	0	210	36.0	0.54	76.5	5	0	225.0	62.0	16.8	21.8	14.7	4.5	403.7	0.01
23	Bilaspur	Gaurela (pendrarod) - 1	Keonchi	8.05	349	0	218	36.0	0.31	2.1	1.2	0.1	120.0	22.0	15.6	54.0	2.3	2.0	226.9	0.02
24	Bilaspur	Kota	Kota(kargi)	7.34	284	0	98	7.1	0.98	12.4	56	0	70.0	16.0	7.2	27.4	6.1	6.7	184.6	0
25	Bilaspur	Lormi	Pali(Lormi)	7.47	789	0	330	71.3	0.31	12.3	3.4	0	320.0	28.0	60.0	28.7	2.1	1.0	512.9	0.01

Sr.	District	Block	Location	pH	EC µs/cm	CO3 mg/l	HCO3 mg/l	Cl mg/l	F mg/l	SO4 mg/l	NO3 mg/l	PO4 mg/l	TH mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	SiO2 mg/l	TDS mg/l	U µg/l
26	Bilaspur	Marwahi	Marwahi	8.17	402	0	123	56.5	0.2	8	11.3	0	120.0	36.0	7.2	38.4	4.8	1.0	261.3	0.02
27	Bilaspur	Musturi	Musturi-2	7.11	1568	0	385	201.3	0.8	96	41	0	510.0	158.0	27.6	105.6	2.4	6.9	1019.2	0.02
28	Bilaspur	Takhatpur	Takhatpur	8.11	798	0	288	56.0	0.94	61.5	34.5	0	300.0	72.0	28.8	53.4	3.4	4.1	518.7	0.01
29	Dhamtari	Dhamtari	Dhamtari	7.82	321	0	149	14.0	0.82	23.5	0	0	110.0	24.0	12.0	25.9	2.1	22.1	208.7	0.02
30	Dhamtari	Kurud	Kurud	8	412	0	225	7.1	0.54	4.1	0		160.0	40.0	14.4	26.0	1.2	3.2	267.8	0
31	Dhamtari	Sihawa (Nagri)	Sihawa	7.47	604	0	246	35.5	0.41	32.8	4	0	170.0	32.0	21.6	32.1	9.2	7.8	392.6	0
32	Durg	Bemetara	Bemetara	7.52	1501	0	448	233.0	0.01	24.6	7	0.1	645.0	192.0	39.6	56.7	2.3	9.4	975.7	0
33	Durg	Dhamda	Dhamda	7.88	877	0	294	98.1	0.21	32.3	38.7	0.1	350.0	70.0	42.0	51.2	8.4	2.4	570.1	0
34	Durg	Doundi	Dondi	7.29	481	0	224	38.0	0.45	5.7	21	0	200.0	56.0	14.4	21.2	3.6	16.5	312.7	0
35	Durg	Durg	Durg	7.57	537	0	237	38.0	0.32	5.6	1.2	0	200.0	20.0	36.0	22.2	5.5	15.4	349.1	0
36	Durg	Gunderdehi	Gunderdehi	8.12	208	0	80	14.0	0.1	10.9	3.4	0	100.0	20.0	12.0	3.1	1.8	3.9	135.2	0.01
37	Durg	Gurur	Gurur	7.74	244	0	96	28.0	0.1	3.4	5.3	0	100.0	24.0	9.6	12.1	2.1	24.5	158.6	0.02
38	Durg	Patan	Patan	7.55	337	0	141	21.7	0.14	23.5	3	0.1	160.0	44.0	12.0	5.4	3.4	3.2	219.1	0.02
39	Durg	Sanjari Balod	Balod	7.57	678	0	287	39.5	0.31	21.9	16.9	0	250.0	64.0	21.6	35.4	8.4	4.8	440.7	0.01
40	Gariyabandh	Fingeshwar	Fingeshwar	7.7	348	0	138	14.0	0.1	25.7	35.7	0	160.0	24.0	24.0	9.4	1.0	6.4	226.2	0.02
41	Gariyabandh	Rajim	Rajim	7.68	779	0	190	121.0	0.24	54.3	21.3	0.1	300.0	120.0	1.2	33.7	23.4	15.2	506.4	0
42	Janjgir Champa	Akaltara	Akaltara	7.65	1182	0	302	67.0	0.61	109	42.1	0	440.0	130.0	27.6	23.4	21.5	1.0	768.3	0
43	Janjgir Champa	Bamhnidih	Bamhanidihi	8.16	479	0	241	21.0	0.55	6.4	11.4	0	155.0	38.0	14.4	45.1	1.2	1.0	311.4	0
44	Janjgir Champa	Dabhra	Dabra	7.84	778	0	226	99.0	0.87	2.6	39.7	0	320.0	54.0	44.4	24.1	5.4	3.2	505.7	0.01
45	Janjgir Champa	Jaijaipur	Jaijaipur S	7.94	578	0	236	63.0	0.31	3.9	1	0.1	230.0	60.0	19.2	28.0	6.4	2.2	375.7	0.02
46	Janjgir Champa	Pamgarh	Pamgarh	7.74	497	0	156	63.0	0.24	8.1	24.3	0	180.0	40.0	19.2	21.0	5.4	9.4	323.1	0.02
47	Janjgir Champa	Shakti	Sakti	7.75	861	0	280	121.0	0.64	11.6	21.4	0	300.0	66.0	32.4	84.5	8.2	11.6	559.7	0.01
48	Jashpur	Bagicha	Bagicha	8.23	461	0	167	35.0	0.5	21.5	19.7	0.3	200.0	48.0	19.2	2.0	3.8	14.3	299.7	0.02
49	Jashpur	Farsabahar	Farsabahar	7.77	302	0	120	31.4	0.12	12	35.7	0	100.0	32.0	4.8	32.0	2.4	12.6	196.3	0
50	Jashpur	Jashpur	Jashpurnagar	7.25	84	0	41	3.1	0.11	3.17	0.03	0	5.0	4.0	6.6	6.0	3.4	6.5	54.6	0
51	Jashpur	Kasavel	Kansabel	7.88	441	0	123	56.0	0.64	6.5	58.2	0.1	175.0	52.0	10.8	29.3	1.9	14.8	286.7	0
52	Jashpur	Kunkuri	Kunkuri1	7.57	203	0	62	31.2	0.31	5.1	9.32	0	75.0	16.0	8.4	23.2	1.8	14.9	132.0	0.01

Sr.	District	Block	Location	pH	EC µs/cm	CO3 mg/l	HCO3 mg/l	Cl mg/l	F mg/l	SO4 mg/l	NO3 mg/l	PO4 mg/l	TH mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	SiO2 mg/l	TDS mg/l	U µg/l
53	Jashpur	Pathalgaon	Pathalgaon	7.48	1364	0	312	271.0	0.97	1	2.7	0	560.0	164.0	36.0	54.0	6.4	15.3	886.6	0.02
54	Kawardha	Bodla	Bodla	7.44	402	0	209	19.5	0.21	1	11.54	0	200.0	62.0	10.8	2.0	1.0	10.4	261.3	0.02
55	Kawardha	Kawardha	Kawardha	7.42	503	0	242	28.2	0.21	1	17.71	0	240.0	32.0	38.4	12.0	3.4	9.6	327.0	0.01
56	Kawardha	Sahaspur lohara	Sahaspur lohara.1	7.04	998	0	323	107.0	0.28	36	54.33	0	360.0	56.0	52.8	81.2	2.1	14.3	648.7	0.02
57	Korba	Kartala	Kartala	7.44	167	0	65	14.2	0.98	2	14.66	0	80.0	12.0	12.0	2.3	3.8	15.2	108.6	0
58	Korba	Pali	Pali	7.38	192	0	111	7.1	0.1	0	1.68	0.1	80.0	24.0	4.8	9.4	6.4	8.8	124.8	0
59	Korba	Podi	Podi-Uproda	8.22	190	0	47	14.2	0.21	23.5	16.73	0	80.0	26.0	3.6	4.0	2.4	14.6	123.5	0
60	Koriya	Baikunthpur	Baikunthpur-s	7.04	122	0	35	14.2	0.1	0	21.01	0	40.0	12.0	2.4	16.5	9.4	9.8	79.3	0
61	Koriya	Khadgaon	Khadgaon	7.18	262	0	71	14.2	0.1	3.5	54.03	0	100.0	26.0	8.4	14.0	6.9	11.5	170.3	0
62	Koriya	Manendragarh	Manendragarh	7.57	489	0	156	74.5	2.45	0	18.93	0	160.0	40.0	14.4	34.0	5.4	16.7	317.9	0.01
63	Koriya	Sonhat	Sonhat	7.45	363	0	55	65.5	0.6	65	4.49	0	145.0	22.0	21.6	19.5	2.4	6.4	236.0	0.02
64	Mahasamund	Bagbahara	Bagbahara	6.59	183	0	57	14.2	0.31	21	13.9	0	60.0	14.0	6.0	12.3	3.8	28.7	119.0	0.02
65	Mahasamund	Basna	Basna	7.33	756	0	268	71.2	0.21	23	34.5	0	240.0	60.0	21.6	66.6	1.9	36.5	491.4	0.01
66	Mahasamund	Mahasamund	Mahasamund.1	7.98	536	0	155	42.3	0.1	51.4	58.39	0	240.0	52.0	26.4	13.5	2.1	8.5	348.4	0.02
67	Mungeli	Lormi	Lormi-d	7.56	525	0	238	56.4	0.1	3.5	0.58	0.1	200.0	50.0	18.0	45.0	1.0	14.6	341.3	0
68	Mungeli	Mungeli	Mungeli	7.67	1608	0	362	129.9	0.21	264.3	45.19	0	480.0	90.0	61.2	129.0	3.4	9.4	1045.2	0
69	Mungeli	Mungeli	Mungeli-d	7.54	973	0	299	74.8	0.42	65.9	35.88	0	335.0	98.0	21.6	54.7	9.7	9.3	632.5	0
70	Mungeli	Patharya	Patharia (chorbhatti)	7.88	1156	0	345	135.2	0.16	54.5	44.85	0	440.0	36.0	84.0	25.4	88.8	16.5	751.4	0
71	Raigarh	Dharamjaigarh	Dharamjaigarh	8.21	395	0	125	42.8	0.45	22.3	0.12	0	80.0	22.0	6.0	39.6	9.4	7.5	256.8	0
72	Raigarh	Dharmajaigarh	Dharmajaigarh-s	7.45	431	0	129	56.1	0.98	16.4	34.39	0	120.0	32.0	9.6	22.5	35.4	6.9	280.2	0
73	Raigarh	Gharghoda	Gharghoda	7.89	273	0	156	3.5	0.1	0	0.29	0	100.0	22.0	10.8	0.4	21.4	5.4	177.5	0
74	Raigarh	Kharsia	Kharsia	7.65	554	0	156	89.3	0.33	19.3	0.31	0	175.0	54.0	9.6	51.0	2.7	6.4	360.1	0.4
75	Raigarh	Lailunga	Lailunga	7.55	539	0	140	71.1	0.12	29.6	11	0	200.0	50.0	18.0	21.4	3.4	14.2	350.4	0.01
76	Raigarh	Raigarh	Raigarh	7.67	579	0	210	71.1	0.31	31.3	7.53	0	320.0	78.0	30.0	32.4	6.4	6.9	376.4	0.02
77	Raigarh	Tamnar	Tamnar	7.77	210	0	62	28.2	0.87	6.4	4.18		80.0	20.0	7.2	24.3	5.4	9.6	136.5	0.02
78	Raipur	Abhanpur	Abhanpur-d	7.88	444	0	134	71.2	0.21	31.2	52.4	0	160.0	40.0	14.4	41.0	5.1	16.0	288.6	0.01
79	Raipur	Arang	Arang	7.56	952	0	320	93.5	0.31	63.5	45.79	0.1	400.0	58.0	61.2	29.7	8.4	9.5	618.8	0.02

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80	Raipur	Dharsinwa	Dharsinwa	7.67	438	0	184	38.6	0.2	6.6	2.96	0.1	150.0	46.0	8.4	35.4	3.4	6.4	284.7	0
81	Raipur	Palari	Palari	7.57	579	0	210	48.3	0.21	12.3	36.28	0	200.0	48.0	19.2	34.0	6.4	9.4	376.4	0
82	Rajnandgaon	Chuikhadan	Chuikhadan	7.58	621	0	278	35.5	0.2	12.5	23.1	0	280.0	70.0	25.2	21.2	3.2	8.2	403.7	0
83	Rajnandgaon	Dongargaon	Dongargaon.1	7.55	612	0	255	35.5	0.1	9.6	50.55	0	225.0	24.0	39.6	31.3	26.4	9.4	397.8	0
84	Rajnandgaon	Khairagarh	Khairagarh	7.68	368	0	204	14.2	1.5	0	8.92	0	150.0	28.0	19.2	16.4	2.5	6.8	239.2	0
85	Rajnandgaon	Rajnandgaon	Rajnandgaon	7.8	669	0	333	39.3	0.45	9.6	2.96	0.1	200.0	34.0	27.6	51.4	34.5	9.8	434.9	0
86	Surajpur	Bhaiyathan	Bhaiyathan	6.89	108	0	46	7.1	0.21	2.1	1.12	0	30.0	8.0	2.4	9.5	3.2	12.4	70.2	0
87	Surajpur	Premnagar	Premnagar	7.56	689	0	190	81.9	0.31	9.8	58.45	0	270.0	64.0	26.4	35.4	2.9	18.9	447.9	0
88	Surajpur	Surajpur	Surajpur	7.88	101	0	32	14.2	0.01	0	5.97	0.1	30.0	6.0	3.6	4.6	6.5	7.8	65.7	0
89	Surguja	Ambikapur	Ambikapur-D	7.78	176	0	71	14.2	0.32	3.7	8.19	0	50.0	10.0	6.0	21.4	1.2	6.4	114.4	0.6
90	Surguja	Lakhanpur	Lakhanpur	6.87	86	0	34	3.1	0.08	6.7	5.04	0	25.0	4.0	3.6	6.1	1.5	12.4	55.9	0.01
91	Surguja	Lundra	Lundra	7.57	238	0	73	18.5	0.15	2.9	33.56	0	85.0	26.0	4.8	12.2	1.3	18.5	154.7	0.02
92	Surguja	Sitapur	Sitapur-d	7.55	388	0	98	29.0	0.21	5.9	48.91	0.1	130.0	40.0	7.2	21.0	1.0	16.4	252.2	0
93	Surguja	Udeypur	Udaipur	7.56	327	0	138	14.2	0.31	7.7	19.21	0	140.0	30.0	15.6	12.5	1.4	14.2	212.6	0.01
94	Dhamtari	Magarlod	Magarlod D	8.59	145	6	51	11.3	0.51	5.4	12.2	0	60.0	20.0	2.4	2.1	0.8	9.4	94.3	0.02
95	Dhamtari	Sihawa (Nagri)	Nagri	7.55	657	0	199	109.8	0.32	9.4	0	0.3	240.0	70.0	15.6	41.3	10.2	14.2	427.1	0
96	Durg	Bemetara	Nawagarh.1	7.47	350	0	110	28.9	0.18	11.5	54.2	0	125.0	36.0	8.4	18.6	2.2	15.4	227.5	0
97	Durg	Saja	Gatapar	8.23	438	0	211	25.0	0.21	3.1	2.8	0	180.0	51.2	12.5	14.0	6.4	9.4	284.7	0
98	Janjgir Champa	Dabhra	Dabra	7.58	778	0	235	99.0	0.85	2.1	21.6	0.1	320.0	54.4	44.2	21.4	2.9	6.1	505.7	0
99	Janjgir Champa	Nawagarh	Seorinarayan	7.44	957	0	359	99.0	0.54	15.4	40.2	0	330.0	57.6	44.6	58.4	11.2	4.5	622.1	4
100	Jashpur	Manora	Fathepur	7.22	653	0	255	76.6	0.58	0	3.8	0	325.0	73.6	33.8	2.1	1.1	5.5	424.5	0.1
101	Kanker	Charama	Telgara	7.76	201	0	92	21.3	1.1	3	8.3	0	75.0	20.8	5.5	24.9	3.2	14.7	130.7	0
102	Korba	Katghora	Chaitama	7.44	518	0	238	35.6	1.1	9.4	2.4	0	160.0	24.0	24.0	54.7	4.2	21.2	336.7	0
103	Koriya	Bharatpur (Janakpur)	Janakpur	7.55	222	0	61	24.1	0.2	0	24.6	0	90.0	27.2	5.3	11.2	1.2	16.2	144.3	0.6
104	Koriya	Khadgawan	Khadgawan	7.89	121	0	25	3.1	0.42	33.5	5.5	0	40.0	9.6	3.8	6.4	1.2	8.4	78.7	0.01
105	Mahasamund	Basna	Basna	7.75	563	0	190	49.9	0.31	42.1	2.4	0.1	200.0	58.0	13.2	40.2	1.1	18.4	366.0	0.02
106	Mahasamund	Pithora	Pithora	7.29	298	0	78	39.0	0.61	15.6	11.9	0	110.0	32.0	7.2	20.1	1.4	9.4	193.7	0.02

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107	Mahasamund	Saraipalli	Kisdi	8.26	451	0	221	18.6	0.34	8.4	6.4	0	125.0	20.0	18.0	39.7	6.2	8.6	293.2	0
108	Raigarh	Pusaur	Tetla	7.87	440	0	238	14.1	0.21	23.5	0	0	150.0	40.0	12.0	41.5	2.1	8.9	286.0	0.02
109	Raigarh	Sarai Lengha Baram	Baramkela	8.14	379	0	208	7.1	0.64	6.4	0	0	165.0	56.0	6.0	13.4	2.8	6.4	246.4	0
110	Raipur	Tilda	Kendri(Pz-IV)	8.04	500	0	280	9.3	0.28	5.5	5.1	0	220.0	28.0	36.0	22.1	0.4	11.2	325.0	0
111	Rajnandgaon	Ambagarh Chowki	Bandhabazar	8	469	0	201	39.5	0.64	3.1	2	0	200.0	60.0	12.0	15.4	5.8	14.5	304.9	0
112	Surajpur	Pratappur	Dharampur	8.04	288	0	155	14.2	0.54	4.8	0.1	0	90.0	20.0	9.6	12.4	16.5	9.4	187.2	0
113	Surajpur	Ramanujnagar	Ramanuj nagar	7.84	597	0	190	71.2	0.94	6.4	14	0	190.0	44.0	19.2	45.9	2.4	15.7	388.1	0.01
114	Surguja	Batauli	Sedam	7.97	250	0	153	21.3	0.33	3.2	21.4	0	105.0	30.0	7.2	33.3	1.6	10.2	162.5	0.02
115	Surguja	Mainpat	Kamleswarpur	7.38	163	0	64	10.1	0.34	8.1	27.3	0	60.0	16.0	4.8	11.9	2.8	15.8	106.0	0.2
116	Bastar	Baderajpur	Pharasgaon	7.08	458	0	184	35.5	0.1	6.7	25.4	0	195.0	66.0	7.2	24.5	3.4	10.0	297.7	0.2
117	Bastar	Kondagaon	Joba	7.5	288	0	125	18.3	0.15	3.9	0	0.1	75.0	22.0	4.8	14.4	8.1	12.4	187.2	0.3
118	Bastar	Jagdalpur	Bastar	6.98	301	0	124	31.3	0.1	3.4	5	0	115.0	28.0	10.8	5.8	4.2	9.4	195.7	0
119	Bastar	Londigura	Chitrakot	7.87	298	0	156	14.2	0.2	9.4	0	0	110.0	34.0	6.0	19.2	9.4	7.8	193.7	0
120	Durg	Dondi Lohara	Koba(Pz-II)	7.78	794	0	361	36.2	0.3	31.3	17.5	0	295.0	60.0	34.8	36.4	2.1	12.3	516.1	0
121	Janjgir Champa	Malkharoda	Ghoghari	7.55	1555	0	425	206.3	0.7	105.4	15.7	0	400.0	88.0	43.2	151.0	3.9	9.4	1010.8	0
122	Jashpur	Duldula	Kersai	8.02	420	0	183	39.9	0.49	2	0	0	150.0	38.0	13.2	34.5	2.9	10.2	273.0	0.1
123	Jashpur	Kansabel	Mahuadih	7.78	106	0	51	7.1	0.31	0	5.66	0	35.0	10.0	2.4	15.4	1.2	15.3	68.9	0.5
124	Jashpur	Kansabel	Kuthera	8.07	321	0	124	21.6	0.1	6.4	34.7	0	100.0	38.0	1.2	26.9	0.1	18.1	208.7	0
125	Kanker	Sarana (Narharpur)	Dudhawa	8.16	489	0	206	35.5	0.31	7.6	16.4	0	190.0	44.0	19.2	28.1	1.7	15.2	317.9	0
126	Kawardha	Pandaria	Pandaria	7.34	540	0	226	35.5	0.24	14.2	21	0	200.0	50.0	18.0	34.5	1.0	8.8	351.0	0
127	Raigarh	Sarangarh	Kushal Nagar(Sarangarh)	8.26	690	0	236	89.9	0.25	9.4	25	0	90.0	20.0	9.6	121.0	5.4	7.1	448.5	0
128	Rajnandgaon	Chhuriya	Chichola	8.08	467	0	234	24.1	0.54	5.7	7.5	0	190.0	20.0	33.6	22.1	3.0	9.8	303.6	0
129	Korba	Katghora	Naraibodh	5.3	278		6	60.4	0	0	43.03	0	45	16	1.22	27.0	15.0	7.1	180.7	0
130	Korba	Pali	Pali	5.77	424		25	46.5	0.1	11.9	56.98	0	100	30	6	14.0	16.0	8.0	275.6	0
131	Korba	Korba	Salora	6.98	359	0	63	39.6	0.68	39.5	2.85	0	110	38	3.66	23.8	2.2	15.0	233.4	
132	Mahasamund	Bagbahara	Samhar	7.07	332	0	98	42.0	1.4	11.61	9.01	0	135	30	14.4	9.2	0.4	32.6	215.8	0

Sr.	District	Block	Location	pH	EC µs/cm	CO3 mg/l	HCO3 mg/l	Cl mg/l	F mg/l	SO4 mg/l	NO3 mg/l	PO4 mg/l	TH mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	SiO2 mg/l	TDS mg/l	U µg/l
133	Dhamtari	Dhamtari	Gangrel	7.36	421	0	220	17.8	0.45	0.13	0.01		140	36	12.2	31.9	3.9	15.0	273.7	28.2
134	Raipur	Dharsinwa	Mandhar	7.42	1585	0	323	255.6	0.36	124.1	37.04	0	495	112	51.6	110.2	11.1	18.7	1030.3	11.67
135	Mahasamund	Bagbahara	Bagbahara	7.46	348	0	140	17.5	0.03	21.26	0	0	140	48	4.8	7.4	1.3	7.7	226.2	0
136	Mahasamund	Bagbahara	Tendukonda	7.46	941	0	281	115.5	0.32	42.44	22.87	0	430	126	27.6	16.3	1.3	25.1	611.7	0
137	Baikunthpur	Baikunthpur	Sattipara	7.51	435	0	195	14.0	0	15		0.31	160	44	12	22.0	6.2		282.8	9
138	Raipur	Dharsiwa	Sakara	7.52	883	0	214	110.1	0	48.73	44.65	0	280	62	30	63.8	21.0	11.3	574.0	11.8
139	Balod	Gurur	Tarri	7.54	586	0	116	103.0	0.01	26.61		0.13	195	46	19.2	29.2	3.2		380.9	
140	Baikunthpur	Baikunthpur	Baikunthpur4E	7.62	904	0	244	113.0	0	55		0.21	290	68	29	76.0	0.9		587.6	13
141	Dhamtari	Dhamtari	Marradev	7.62	362	0	128	53.3	0.21	0.13	0		180	46	15.86	6.9	2.8	5.0	235.3	24.2
142	Mahasamund	Mahasamund	Pirda	7.66	853	0	238	110.1	0	49.13	1.25	0	260	42	37.2	77.0	17.0	7.7	554.5	8.28
143	Dhamtari	Dhamtari	Shankarda	7.7	508	0	204	51.8	0.11	36.92	0		180	48	14.64	31.4	4.1	9.1	330.2	34
144	Mahasamund	Mahasamund	Mahasamund.1	7.72	191	0	49	10.5	0.08	17.62	37.78	0	85	28	3.6	6.5	0.9	27.7	124.2	0
145	Raipur	Arang	Nawagaon	7.73	461	0	159	49.7	0	1.64	8.26	0	160	40	14.4	27.9	1.3		299.7	11.67
146	Durg		Binayakpur	7.75	2490	0	555	223.7	0	183.7	49.29		655	136	76.86	163.8	21.0	16.7	1618.5	0.46
147	Balod	Balod	Jagtara	7.76	364	0	189	21.3	0.02	9.12		0.24	130	32	12	28.0	3.0		236.6	10.71
148	Raipur	Tilda	Kendri(Pz-IV)	7.76	1022	0	293	127.8	0	48.55	16.88	0	360	44	60	84.0	6.5	7.4	664.3	8.28
149	Raipur	Dharsinwa	Mandirhasud	7.78	854	0	220	110.1	0	48.55	49.34	0	325	58	43.2	58.6	11.6	9.5	555.1	6.51
150	Durg		Ganiyari	7.79	1146	0	360	159.8	0.16	27.35	2.81		470	124	39.04	58.9	0.4	8.2	744.9	3.85
151	Raipur	Arang	Ghodari (Ghorari)	7.79	1165	0	262	88.8	0.55	203	0	0	375	66	50.4	102.3	10.2	10.7	757.3	7.42
152	Mahasamund	Bagbahara	Khallari	7.82	325	0	159	21.0	2.2	20.57	2.08	0	155	56	3.6	8.5	0.7	31.3	211.3	0
153	Raipur	Dharsinwa	Chrauda	7.82	582	0	232	46.2	1.22	22.64	12.02	0	255	64	22.8	24.8	1.1	7.9	378.3	2.88
154	Mahasamund	Bagbahara	Suarmar	7.86	927	0	354	52.5	0.81	42.14	68.35	0	420	136	19.2	9.8	0.7	30.6	602.6	0
155	Raipur	Tilda	Math	7.87	972	0	153	78.1	0	275	9.71	0	315	58	40.8	81.3	15.6	11.1	631.8	4.03
156	Raipur	Dharsiwa	RGNGWTRI, CGWB	7.88	668	0	220	74.6	0	25.58	19.03	0	285	62	31.2	34.3	0.9	9.2	434.2	1.29
157	Dhamtari	Dhamtari	Dahi	7.92	702	0	250	99.4	0.22	1.42	1.85		210	48	21.96	62.3	0.9	6.8	456.3	4.4
158	Mahasamund	Bagbahara	Palsipani	8.01	497	0	122	70.0	1	22.78	17.1	0	210	60	14.4	9.3	0.7	29.1	323.1	0
159	Durg		Nikum	8.06	986	0	256	127.8	0	54.16	18.54		375	44	64.66	51.7	1.6	11.0	640.9	16.36

Sr.	District	Block	Location	pH	EC µs/cm	CO3 mg/l	HCO3 mg/l	Cl mg/l	F mg/l	SO4 mg/l	NO3 mg/l	PO4 mg/l	TH mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	SiO2 mg/l	TDS mg/l	U µg/l
160	Mahasamund	Bagbahara	Awaradabri	8.19	347	0	159	45.5	0.92	12.48	0.24	0	190	52	14.4	3.6	0.2	35.1	225.6	0
161	Mahasamund	Bagbahara	Maulimuda	8.21	420	0	116	35.0	0.22	15.05	65.5	0	190	44	19.2	6.8	0.4	37.1	273.0	0
162	Mahasamund	Bagbahara	Hadabundh	8.23	203	0	67	35.0	0.25	7.16	9.97	0	105	24	10.8	4.6	0.6	45.1	132.0	0
163	Durg		Jeora-sirsa	8.69	499	6	207	46.2	0.06	14.77	13.53		140	32	14.64	62.8	2.4	7.2	324.4	2.76
164	Bemetara	Bemetara	Bera	7.84	1198	0	128	39.1	1.32	528	3.03	0	530	92	73.2	54.2	0.7	8.0	802.7	19.1
165	Bemetara	Bemetara	Dadhi	7.66	968	0	177	78.1	1.04	210	31.95	0	440	92	51.24	43.4	1.2	8.8	648.6	6.6
166	Bemetara	Bemetara	Dadhi	7.66	968	0	177	78.1	1.04	210	31.95	0	440	92	51.24	43.4	1.2	8.8	648.6	6.6
167	Bilaspur	Pendra	Adbhar	8.38	283	3	140	28.4	0.38	7.8	0	0	130	30	13.42	16.5	2.1	12.2	184.0	2.58
168	Bilaspur	Marwahi	Bartola	7.75	665	0	250	81.7	0.38	3.8	0.5	0	155	34	17.08	83.6	2.0	11.0	432.3	3.8
169	Bilaspur	Marwahi	Tendumuda	7.41	927	0	250	120.7	0.37	28.1	39.95	0	285	46	41.48	75.2	1.9	14.0	602.6	11.12
170	Bilaspur	Gaurela	Gaurela	7.92	514	0	140	81.7	0.44	12.6	5.52	0	180	42	18.3	38.9	2.4	12.9	334.1	2.64
171	Jashpur	Bagicha	Maini	8.11	377	0	61	39.1	0.41	10.26	15.26	0	90	14	13.42	14.4	12.8	12.3	252.6	110.2
172	Jashpur	Kunkuri	Raikera	8.1	274	0	73	24.9	2.28	2.95	13.5	0	75	22	4.88	20.6	0.5	17.4	183.6	78.2

Table 20 - Comparative Chemical Analysis Results of Ground Water Samples Collected during Pre – and Post-Monsoon NHNS 2023-24 from Chhattisgarh State.

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
1	Surajpur	Surajpur	Kerwa	120.9		0.07		20.38		0	0	0	
2	Balod	Balod	Jagtara	450	364	0.92	0.02	16.04	10	0	0	0.01	0.01
3	Balod	Balod	Jatadah	948		0.29		15.14		0	0	0.01	
4	Balod	Balod	Sankara	398		0.85		0.29		0	0	0.01	
5	Balod	Balod	Talgaon	609		0.88		0		0	0	0.02	
6	Balod	Dondi Lohara	Ghotia	921		0.86		23.2		0	0	0	
7	Balod	Doundi	Armurkasa	768		0.1		11.48		0	0	0	
8	Balod	Doundi lohara	Bhandara	160		0.31		21.48		0	0	0.02	
9	Balod	Doundi Lohara	Doundi Lohara	499	345	0.09	0.75	24.55	22.5	0	0	0.01	0.01
10	Balod	Doundi Lohara	Mudhya	1158		0.24		15.97		0	0	0.02	
11	Balod	Doundi lohara	Nahalda	1314		0.18		7.72		0	0	0.01	
12	Balod	Doundi-lohara	Jeortala	475		0.99		2.9		0	0	0	
13	Balod	Doundi-lohara	Mudkhusara	1250		0.74				0	0	0.02	
14	Balod	Durg	Danganiya	1818	1023	0.33	0.22	57.17	21.9	0	0	0.03	0.02
15	Balod	Gundardei	Bharda kalan	1113		0.29		11.11		0	0	0	
16	Balod	Gunderdehi	chichalgondi	1664		0.21		55.55		0	0	0	
17	Balod	Gunderdehi	Jhafra	735		0.1		5.42		0	0	0	
18	Balod	Gunderdehi	Kalangpur	214		0.52		0.84		0	0	0.02	
19	Balod	Gunderdehi	Machod	678		0.02		7.1		0	0	0.01	
20	Balod	Gurur	Kanharpuri	114		0.88		0.36		0	0	0	
21	Balod	Gurur	Tarri	1199	569	0.12	0.1	3.11	6.3	0	0	0	0.02
22	Balod	Sanjari Balod	Gujara	1154		0.48		54.07		0	0	0	
23	Balodabazar	Balodabazar	Amera	964		0.54		8.37		0	0	0	
24	Balodabazar	Balodabazar	Arjuni	660		0.3		13.2		0	0	0	
25	Balodabazar	Balodabazar	Bhangaon	574		1.19		1.87		0	0	0	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
26	Balodabazar	Balodabazar	Bitkuli	1163		0.9		12.2		0	0	0	
27	Balodabazar	Balodabazar	Chandi	862		0.3		18.1		0	0	0.01	
28	Balodabazar	Balodabazar	Dhabadih	645		0.2		17.7		0	0	0	
29	Balodabazar	Balodabazar	Lahoud	494		0.8		0		0	0	0	
30	Balodabazar	Balodabazar	Lawan	415		0.5		2		0	0	0	
31	Balodabazar	Balodabazar	Rawan	1284	873	0.53	0.43	24.43	27.3	0	0	0	0.01
32	Balodabazar	Balodabazar	Risda	727		0.3		17.1		0	0	0	
33	Balodabazar	Bhatapara	Kedar	632		0.8		3.36		0	0	0	
34	Balodabazar	Bhattapara	Bhattapara-s	715	705	0.34	0.35	32.36	34.6	0	0	0	0.02
35	Balodabazar	Bilaigarh	Bilaigarh	1353	1114	0.5	0.33	48.3	34.2	0	0	0	0
36	Balodabazar	Bilaigarh	Marban Gatadih	743		0.3		5.9		0	0	0	
37	Balodabazar	Bilaigarh	Tundri	935		1.2		0.2		0	0	0	
38	Balodabazar	Kasdol	Aouri	1035		0.8		18.5		0	0	0	
39	Balodabazar	kasdol	Charched	899		0.43		14.31		0	0	0	
40	Balodabazar	Kasdol	Haswa	1087		0.22		52.79		0	0	0	
41	Balodabazar	Kasdol	Kasdol	672	399	0.3	0.21	7.2	3.4	0	0	0	0
42	Balodabazar	Kasdol	Sel	363		0.8		0		0	0	0.01	
43	Balodabazar	Kasdol	Temri	236		1.77		12.34		0	0	0.01	
44	Balodabazar	Palari	Devsundri	477		0.2		17.1		0	0	0	
45	Balodabazar	Palari	Kodwa	733		0.4		17.2		0	0	0	
46	Balodabazar	Palari	Sandi	958		0.4		2.6		0	0	0	
47	Balodabazar	Simga	Damakheda	788		0.5		5.1		0	0	0	
48	Balodabazar	Simga	Darchura	657		0.3		8.1		0	0	0	
49	Balodabazar	Simga	Hathband	995		0.38		53.51		0	0	0	
50	Balodabazar	Simga	Khapri	845		0.3		4.8		0	0	0.01	
51	Balodabazar	Simga	Simga	834	1066	0.4	0.29	4.8	56	0	0	0	0
52	Balodabazar	Simga	Udela	851		0.22		67.74		0	0	0	
53	Balodabazar	Simgha	Hadabandh	996		0.82		11.02		0	0	0.01	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
54	Balrampur	Balrampur	Balrampur-s	164.6	229	0.9	0.66	0.26	18.7	0	0	0	0
55	Balrampur	Balrampur	Daldhowa	308		0.13		36.48		0	0	0	
56	Balrampur	Balrampur	Pasta	200		0.89		21.01		0	0	0	
57	Balrampur	Pratappur	Shantinagar	213		0.16		16.81		0	0	0	
58	Balrampur	Rajpur	Alkadih	140.2		0.15		8.11		0	0	0	
59	Balrampur	Rajpur	Bario	108.3		0.89		16.47		0	0	0	
60	Balrampur	Rajpur	Bhadar	516		0.11		41		0	0	0	
61	Balrampur	Rajpur	Chilamkala	383		2.55		0		0	0	8.56	
62	Balrampur	Rajpur	Jhingo	596		1.76		2.8		0	0	0	
63	Balrampur	Rajpur	Karji	160.3		0.76		6.08		0	0	0	
64	Balrampur	Rajpur	Parsagudi	256		0.13		20.02		0	0	0	
65	Balrampur	Rajpur	Parsapani Katgahana	1232		0.5		0		0	0	0	
66	Balrampur	Rajpur	Rajpur	643	458	0.58	0.41	1.86	0	0	0	0	0
67	Balrampur	Shankargarh	Bachwar	220		0.15		11.85		0	0	0	
68	Balrampur	Shankargarh	Sargaoa	234		0.34		11.98		0	0	0	
69	Balrampur	Shankargarh	Shankargarh	352	198	0.26	0.2	0.71	0.2	0	0	0	0.01
70	Balrampur	Wadraf Nagar	Wadraf Nagar-d	246	357	0.42	0.44	24.65	29.9	0	0	0	0.02
71	Bastar	Baderajpur	Pharasgaon	579	458	0.02	0.1	23.25	25.4	0	0	0	0.2
72	Bastar	Bastar	Bhanpuri	408		0		4.23		0	0	0.01	
73	Bastar	Bastar	Chapra Bhanpuri	428		0		23.56		0	0	0	
74	Bastar	Bastar	Ichhapur	220		0.02		5.49		0	0	0	
75	Bastar	Bastar	Junawahi	360		0.35		3.41		0	0	0	
76	Bastar	Bastar	Sonarpal	373		0.13		1.18		0	0	0	
77	Bastar	Jagdalpur	Bastar	555	301	0.13	0.1	0.46	5	0	0	0	0
78	Bastar	Jagdalpur	Biranpal	350		0		16.98		0	0	0	
79	Bastar	Jagdalpur	Dewargaon	513		0.24		0.9		0	0	0.02	
80	Bastar	Jagdalpur	Jagdalpur	753	545	0.18	0.19	44.91	41.3	0	0	0.01	0.02

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
81	Bastar	Jagdalpur	Kopagudha	398		0		2.04		0	0	0	
82	Bastar	Jagdalpur	Kudagaon	433		0.17		4.99		0	0	0	
83	Bastar	Jagdalpur	Kumharwand	383		0		2.69		0	0	0	
84	Bastar	Jagdalpur	Markel	180		0		7.65		0	0	0.02	
85	Bastar	Keshkal	Batrali	374		0.02		2.98		0	0	0	
86	Bastar	Keshkal	Keshkal	320	202	0	0.1	13.13	16.4	0	0	0	0.01
87	Bastar	Keshkal	Murwand	451		0		1.04		0	0	0	
88	Bastar	Kondagaon	Borgaon	398		0.29		0.56		0	0	0	
89	Bastar	Kondagaon	Ghoragaon	409		0.24		10.2		0	0	0.02	
90	Bastar	Kondagaon	Joba	395	288	0	0.15	1.15	0	0	0	0	0.3
91	Bastar	Kondagaon	Kondagaon	720	508	0.06	0.1	13.28	2.1	0	0	0	0.02
92	Bastar	Kondagaon	Massaukokada	430		0.21		12.9		0	0	0	
93	Bastar	Kondagaon	Surkupal	509		0.15		1.66		0	0	0	
94	Bastar	Londigura	Chitrakot	395	298	0.09	0.2	0.2	0	0	0	0.01	0
95	Bastar	Londigura	Usri bera	448		0		9.54		0	0	0	
96	Bastar	Pharasgaon	Jaitpuri	296		0		14.7		0	0	0.02	
97	Bastar	Pharasgaon	Pharasgaon	378	339	0	0.1	43.37	63	0	0	0	0
98	Bemetara	Bemetara	Amora	258		0.12		22.27		0	0	0.02	
99	Bemetara	Bemetara	Baba Mohtara	450		0.1		22.83		0	0	0.02	
100	Bemetara	Bemetara	Bahera	1127		0.1		13.79		0	0	0	
101	Bemetara	Bemetara	Baiji	1028		0.35		8.09		0	0	5.14	
102	Bemetara	Bemetara	Bhurki	756		0.1		6.98		0	0	0	
103	Bemetara	Bemetara	Bijabhat	770		0.2		33.94		0	0	0	
104	Bemetara	Bemetara	Birsinghi	1488		0.24		37.85		0	0	0	
105	Bemetara	Bemetara	Dadhi	2110	968	0.09	1.04	52.19	31.95	0	0	0	6.6
106	Bemetara	Bemetara	Dunra	948		0.21		7.44		0	0	0	
107	Bemetara	Bemetara	Fari	580		0		3.83		0	0	0	
108	Bemetara	Bemetara	Jewari	615		0		3.93		0	0	0	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
109	Bemetara	Bemetara	Khilora	1010		0.13		2.53		0	0	0	
110	Bemetara	Bemetara	Pendri	657		0.1		22.92		0	0	0.01	
111	Bemetara	Bemetara	Umaria	1000	990	0.21	0.23	18.85	25.3	0	0	0.01	0
112	Bemetara	Berla	Berla	961	775	0.02	0.2	51.52	41.3	0	0	0.01	0
113	Bemetara	Berla	Parpoda	751		0.12		0.33		0	0	0.02	
114	Bemetara	Berla	Rampur (Bhand)	4810		0.21		0.51		0	0	0	
115	Bemetara	Berla	Saroda	854		0.88		49.81		0	0	0.02	
116	Bemetara	Berla	Sondh new	488		0.11		47.48		0	0	0	
117	Bemetara	Dhamdha	Barhapur	1030		0.17		58.31		0	0	0	
118	Bemetara	Nawagarh	Gadhamor	999		0.42		18.58		0	0	0	
119	Bemetara	Nawagarh	Jhal	994	479	0.1	0.1	18.58	10	0	0	0	0.01
120	Bemetara	Saja	Beeja	962		0.2		19.84		0	0	0.02	
121	Bemetara	Saja	Garro Dabra Parra	516		0.21		1.73		0	0	0	
122	Bemetara	Saja	Jata	650		0.02		6.39		0	0	0.02	
123	Bemetara	Saja	Kanhera	506		0.29		1.86		0	0	0	
124	Bemetara	Saja	Karhi Bhadar	671		0.21		6.35		0	0	0.01	
125	Bemetara	saja	Mouha bhata	530		0.1		9.86		0	0	0.01	
126	Bemetara	Saja	Ninwa	938		0.1		7.17		0	0	0.02	
127	Bemetara	Saja	Piparia	687	610	0.1	0.64	1.57	0	0	0	0.02	0.02
128	Bemetara	Saja	Suwartala	784		0.05		49.98		0	0	0	
129	Bilaspur	Bilaspur	Bhadrapara	606		0.48		2.59		0	0	1.556	
130	Bilaspur	Bilaspur	Bilaspur (Lalkhadan)	903	635	1.41	0.99	17.456	6.4	0	0	9.001	0.02
131	Bilaspur	Bilha	Bartoli	1539		0.45		15.5		0	0	3.322	
132	Bilaspur	Bilha	Bilaspur (Hemunagar)	1990		1.41		0.14		0	0	6.63	
133	Bilaspur	Bilha	Bilha	749	621	0.76	0.54	10.49	5	0	0	1.692	0.01
134	Bilaspur	Bilha	Bitkuli	696		0.13		11.75		0	0	3.013	
135	Bilaspur	Bilha	Bohardi	1034		0.89		0.19		0	0	3.065	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
136	Bilaspur	Bilha	Chakarbhata	595		0.16		12.84		0	0	2.312	
137	Bilaspur	Bilha	Dagauri	1646		0.13		187.52		0	0	15.23	
138	Bilaspur	Bilha	Hirri	986		0.13		0.24		0	0	7.615	
139	Bilaspur	Gaurela (Pendraroad-1)	Adbhar	388	283	0.16	0.38	0.04	0	0	0	1.041	2.58
140	Bilaspur	Gaurela (pendrarod) - 1	Keonchi	565	349	0.34	0.31	2.36	1.2	0	0	1.413	0.02
141	Bilaspur	Gaurela (pendrarod) - 1	Piperkhuti	459		0.3		24.08		0	0	8.584	
142	Bilaspur	Gaurela (pendrarod) - 1	Rupandand	712		0.78		4.89		0	0	28.166	
143	Bilaspur	Kota	Banabel/Amamuda	1612		0.13		2.72		0	0	2.287	
144	Bilaspur	Kota	Bansajhal	560		0.17		1.19		0	0	1.083	
145	Bilaspur	Kota	Belgahana	944		0.56		49.5		0	0	1.828	
146	Bilaspur	Kota	Chhatauna	1110		0.56		19.69		0	0	7.976	
147	Bilaspur	Kota	Ghansipur (sainik camp)	283		0.55		1.83		0	0	0.227	
148	Bilaspur	Kota	Jhingatpur	756		0.89		48.2		0	0	3.339	
149	Bilaspur	Kota	Jogipur	943		0.16		34.34		0	0	9.49	
150	Bilaspur	Kota	Kargi khurd	399		0.13		0.36		0	0	0.764	
151	Bilaspur	Kota	Kenda	322		0.76		0.48		0	0	3.833	
152	Bilaspur	Kota	Khaira	1074		0.62		1.16		0	0	8.248	
153	Bilaspur	Kota	Kota(kargi)	188	284	1.38	0.98	1.39	56	0	0	0.248	0
154	Bilaspur	Kota	Nawapara	1052		0.31		1.77		0	0	17.68	
155	Bilaspur	Kota	Ratanpur	1014		0.76		10.32		0	0	5.891	
156	Bilaspur	Kota	Saraipalli	958		0.13		21.82		0	0	15.68	
157	Bilaspur	Kota	Shivtarai	699		0.16		2.01		0	0	8.202	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
158	Bilaspur	Kota	Shripara	357		0.5		6.22		0	0	0	
159	Bilaspur	Kota	Tenduwa	651		0.38		10.52		0	0	3.236	
160	Bilaspur	Lormi	Pali(Lormi)	1178	789	0.39	0.31	41.72	3.4	0	0	7.222	0.01
161	Bilaspur	Marwahi	Chalchali	144		1.2		7.69		0	0	0	
162	Bilaspur	Marwahi	Chochgahana	358		1.1		12.28		0	0	0	
163	Bilaspur	Marwahi	Dhanpur	574		0.34		10.07		0	0	9.101	
164	Bilaspur	Marwahi	Kargi kala	387		0.88		0.71		0	0	0	
165	Bilaspur	Marwahi	Khumharia	1253		0.35		4.32		0	0	11.416	
166	Bilaspur	Marwahi	Kudwahi	839		0.64		10.31		0	0	9.315	
167	Bilaspur	Marwahi	Marwahi	553	402	0.16	0.2	48.81	11.3	0	0	1.128	0.02
168	Bilaspur	Marwahi	Nimdha	290		0.92		11.64		0	0	1.292	
169	Bilaspur	Marwahi	Pandri (Dhanwari Posa)	418		0.8		6.33		0	0	3.833	
170	Bilaspur	Marwahi	Sewra	790		0.89		39.58		0	0	1.817	
171	Bilaspur	Marwahi	Tendumuda	957	927	1.07	0.37	0.27	39	0	0	0	11.12
172	Bilaspur	Marwahi	Tikthi	365		0.29		17.55		0	0	0	
173	Bilaspur	Masturi	Bakarkuda	1103		0.5		40.17		0	0	5.318	
174	Bilaspur	Masturi	Binauri	861		0.78		8.29		0	0	2.098	
175	Bilaspur	Masturi	Chilhati	743		0.5		35.63		0	0	2.76	
176	Bilaspur	Masturi	Malhar	618		0.85		15.37		0	0	2.786	
177	Bilaspur	Masturi	Panchpedi	1199		0.47		2.79		0	0	2.389	
178	Bilaspur	Masturi	Tikari (Sadak Para)	1183		0.52		16.2		0	0	4.889	
179	Bilaspur	Mungeli	Kanteli.1	620		0.5		33.05		0	0	2.414	
180	Bilaspur	Mungeli	Matiyari	1218		0.65		50.99		0	0	17.41	
181	Bilaspur	Mungeli	Setganga	757		0.26		6.33		0	0	6.96	
182	Bilaspur	Mungeli	Surada	937		0.13		13.96		0	0	7.92	
183	Bilaspur	Musturi	Musturi-2	1930	1568	0.98	0.8	34.08	41	0	0	6.199	0.02
184	Bilaspur	Pendra road	Dharhar	301		0.45		2.52		0	0	0	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
185	Bilaspur	Takhatpur	Chandrakhuri	1148		1.41		0.21		0	0	16.697	
186	Bilaspur	Takhatpur	Ganiyari	713		0.98		8.11		0	0	5.004	
187	Bilaspur	Takhatpur	Gatori	209		0.76		0.31		0	0	0.341	
188	Bilaspur	Takhatpur	Khamharia1	924		0.76		10.32		0	0	5.654	
189	Bilaspur	Takhatpur	Kuli	1374		0.29		0.51		0	0	0.559	
190	Bilaspur	Takhatpur	Takhatpur	1100	798	1.3	0.94	7.51	34.5	0	0	14.23	0.01
191	Bilaspur	Takhatpur	Udaypur	634		0.17		10.65		0	0	2.801	
192	Dhamtari	Dhamtari	Chhati	591		0.5		0.1		0	0	0.01	
193	Dhamtari	Dhamtari	Dhamtari	372	321	0.82	0.82	1.11	0	0	0	0.3	0.02
194	Dhamtari	Dhamtari	Gangrel	131	421	0.2	0.45	0	0.21	0	0	0	28.2
195	Dhamtari	Dhamtari	Kondapar	358		0.5		0		0	0	0	
196	Dhamtari	Dhamtari	Marradev	159	362	0.1	0.21	0	0	0	0	0	24.2
197	Dhamtari	Dhamtari	Rudri chowk	491		0.2		4.5		0	0	0	
198	Dhamtari	Dhamtari	Shankarda	885	508	0.2	0.11	8.4	0.1	0	0	0.01	34
199	Dhamtari	Kurud	Aouri	815		0.2		37.1		0	0	0	
200	Dhamtari	Kurud	Bhatagaon	466		0.3		57.3		0	0	0	
201	Dhamtari	Kurud	Gadadih	940		0.3		30.3		0	0	0	
202	Dhamtari	Kurud	Kondapar	498		0.4		1.4		0	0	0	
203	Dhamtari	Kurud	Kurud	491	412	1	0.54	0	0	0	0	0	0
204	Dhamtari	Kurud	Marod	849		0.4		11.7		0	0	0	
205	Dhamtari	Kurud	Darba	403		0.5		0		0	0	0	
206	Dhamtari	Magarload	Banraud	297		0.2		0		0	0	0	
207	Dhamtari	Magarload	Baspara(Kukrel)	244		0.3		0		0	0	0	
208	Dhamtari	Magarload	Budaraon	631		0.3		19.4		0	0	0.01	
209	Dhamtari	Magarload	Singhpur	521		1.5		0		0	0	0	
210	Dhamtari	Magarlod	Magarlod D	224	145	0.64	0.51	3.36	12.2	0	0	0	0.02
211	Dhamtari	Nagri	Amali	354		0.4		8.4		0	0	0	
212	Dhamtari	Nagri	Kouhabahara	403		0.4		16.2		0	0	0	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
213	Dhamtari	Sihawa (Nagri)	Birgudi	543		0.4		16.1		0	0	0	
214	Dhamtari	Sihawa (Nagri)	Dorgardula	250		1.3		0		0	0	0	
215	Dhamtari	Sihawa (Nagri)	Dugli	407		0.8		2.97		0	0	0	
216	Dhamtari	Sihawa (Nagri)	Gattasilli	503		0.3		46.2		0	0	0.01	
217	Dhamtari	Sihawa (Nagri)	Keregaon	245		0.2		0		0	0	0	
218	Dhamtari	Sihawa (Nagri)	Nagri	938	657	0.2	0.32	0	0	0	0	0.01	0
219	Dhamtari	Sihawa (Nagri)	Sihawa	429	604	0.5	0.41	10.4	4	0	0	0	0
220	Durg	Bemetara	Andhiyarkhor	1494		0.24		26.85		0	0	0.02	
221	Durg	Bemetara	Arasnara	475		0.18		18.54		0	0	0.01	
222	Durg	Bemetara	Ashoga	474		0.2		18.43		0	0	0.02	
223	Durg	Bemetara	Bemetara	2110	1501	0.02	0.01	18.8	7	0	0	0	0
224	Durg	Bemetara	Nawagarh.1	405	350	0.2	0.18	31.2	54.2	0	0	0	0
225	Durg	Bemetara	Nawagarh-d	1222		0.35		20.39		0	0	0	
226	Durg	Bemetara	Sagona	2190		0.29		10.04		0	0	0.01	
227	Durg	Berla	Jeora	341		0.18		25.03		0	0	0	
228	Durg	Berla	Kharra	1151		0.88		50.03		0	0	0	
229	Durg	Berla	Ranka	562		0.17		22.89		0	0	0	
230	Durg	dhamda	Dhaba	828		0.41		15.62		0	0	0	
231	Durg	Dhamda	Dhamda	1111	877	0.41	0.21	18.25	38.7	0	0	0.01	0
232	Durg	Dhamda	Ghota	300		0.18		23.91		0	0	0	
233	Durg	Dhamda	Murmunda	720		0.09		55.01		0	0	0	
234	Durg	Dhamdha	Ahiwara	546		0.3		30.39		0	0	0	
235	Durg	Dhamdha	Birjhapur	714		0.1		2.59		0	0	0.01	
236	Durg	Dhamdha	Dargaon	2390		0.21		54.05		0	0	0.02	
237	Durg	Dhamdha	Girola	1264		0.1		65.93		0	0	0	
238	Durg	Dhamdha	Karanja Bhilai	1000		0.02		26.14		0	0	0	
239	Durg	Dhamdha	Kodiya	467		0.02		38.7		0	0	0.01	
240	Durg	Dhamdha	Litia	898		0		53.25		0	0	0.02	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
241	Durg	Dhamdha	Mohrenga	1042		0.29		15.31		0	0	0	
242	Durg	Dhamdha	Pendritarai	870		0.29		55.18		0	0	0	
243	Durg	Dhamdha	Ravelidih	705		0		53.1		0	0	0	
244	Durg	Dhamdha	Tarkori	752		0.1		26.02		0	0	0	
245	Durg	Dhamdha	Thengabhat	972		0.2		48.59		0	0	0	
246	Durg	Dondi Lohara	Batera	225		0.17		25.76		0	0	0	
247	Durg	Dondi Lohara	Bhalukonha	172		0		0.63		0	0	0	
248	Durg	Dondi Lohara	Bharnabhat	986		0.29		22.34		0	0	0	
249	Durg	Dondi Lohara	Koba(Pz-II)	851	794	0.02	0.3	10.83	17.5	0	0	0	0
250	Durg	Dondi Lohara	Sambalpur	412		0		13.32		0	0	0.02	
251	Durg	Doundi	Baklitola	933		0.1		54.73		0	0	0	
252	Durg	Doundi	Delli Rajhara	663		0.42		17.67		0	0	0.01	
253	Durg	Doundi	Dondi	706	481	0.88	0.45	18.84	21	0	0	0.02	0
254	Durg	Doundi	Narratola	437		0.24		24.13		0	0	0	
255	Durg	Durg	Anda	994		0.09		28.6		0	0	0.01	
256	Durg	Durg	Bhilai	882		0.1		41.3		0	0	0	
257	Durg	Durg	Binayakpur	886	2490	0.09	0	2.49	49.29	0	0	0	0.46
258	Durg	Durg	Dumardih	946		0.31		21.63		0	0	0	
259	Durg	Durg	Durg	767	537	0.1	0.32	5.04	1.2	0	0	0.02	0
260	Durg	Durg	Ganiyari	1138	1146	0.1	0.16	9.57	2.81	0	0	0.02	3.85
261	Durg	Durg	Janjgiri	1784		0.2		60.51		0	0	0	
262	Durg	Durg	Jeora-sirsa	1118	499	0.1	0.06	49.29	13.53	0	0	0	2.76
263	Durg	Durg	Kachandur	1188		0.1		7.71		0	0	0.01	
264	Durg	Durg	Nagpura	651		0.18		46.6		0	0	0	
265	Durg	Durg	Powara	569		0.2		7.11		0	0	0	
266	Durg	Durg	Selud	361		0.24		0.35		0	0	0.01	
267	Durg	Durg	Utai (Adarshnagar)	563		0.02		16.73		0	0	1.51	
268	Durg	Gunderdehi	Arjunda	769		0.31		47.4		0	0	0.02	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
269	Durg	Gunderdehi	Gunderdehi	342	208	0.09	0.1	25.33	3.4	0	0	0.01	0.01
270	Durg	Gunderdehi	Sankri	336		0.09		23.62		0	0	0.02	
271	Durg	Gunderdehi	Sikosa	878		0.24		50.94		0	0	0.02	
272	Durg	Gunderdehi	Tabera	1750		0		50.09		0	0	0	
273	Durg	Gurur	Balodgahan	575		0		10.19		0	0	0	
274	Durg	Gurur	Gurur	373	244	0	0.1	17.33	5.3	0	0	0	0.02
275	Durg	Gurur	Jagtara	499		0.11		17.33		0	0	0	
276	Durg	Gurur	kuliya	270		0.05		20.47		0	0	0.03	
277	Durg	Gurur	Markatola	396		0.21		1.06		0	0	0	
278	Durg	Navagarh	Temri	337		0.35		24.05		0	0	0	
279	Durg	Patan	Ameri	649		0.09		33.53		0	0	0	
280	Durg	Patan	Bhansuli R	2720		0.7		55.55		0	0	0	
281	Durg	Patan	Bharar	562		0.24		3.93		0	0	0	
282	Durg	Patan	Bhilai-3 Charoda	527		0.38		8.73		0	0	0	
283	Durg	Patan	Bodal	504		0		23.53		0	0	0	
284	Durg	Patan	Bohardih	713		0.3		4.75		0	0	0	
285	Durg	Patan	Darbarmukhli	842		0.21		11.58		0	0	0.02	
286	Durg	Patan	Dewada	626		0		16.08		0	0	0.02	
287	Durg	Patan	Funda	554		0.02		30.79		0	0	0.01	
288	Durg	Patan	Gabhara	798		0.47		29.13		0	0	0	
289	Durg	Patan	Karela	426		0.51		3		0	0	0	
290	Durg	Patan	kharra	725		0.35		16.42		0	0	0.02	
291	Durg	Patan	Khurdmudi	1166		0.1		50.35		0	0	0.02	
292	Durg	Patan	Kumhari	836		0.01		29.24		0	0	0	
293	Durg	Patan	Kumhli	718		0.21		1.73		0	0	0	
294	Durg	Patan	Manik Chauri	835		0		11.57		0	0	0	
295	Durg	Patan	Marra	940		0.29		52.99		0	0	0	
296	Durg	Patan	Matang	576		0.18		26.54		0	0	0	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
297	Durg	Patan	Motipur	790		0.1		50.73		0	0	0	
298	Durg	Patan	Nikum	910	986	0.09	0	22.43	18.54	0	0	0	16.36
299	Durg	Patan	Patan	476	337	0.2	0.14	18.5	3	0	0	0	0.02
300	Durg	Patan	Sikola	689		0.18		43.65		0	0	0	
301	Durg	Patan	Tarra	520		0.1		26.57		0	0	0	
302	Durg	Patan	Teligundra	1405		0		36.92		0	0	0	
303	Durg	Patan	Zhit	626		0		27.31		0	0	0	
304	Durg	Saja	Bortara	881		0.03		50.44		0	0	0.01	
305	Durg	Saja	Gatapar	547	438	0.29	0.21	10.16	2.8	0	0	0	0
306	Durg	Saja	Jamgaon	894		0.24		41.64		0	0	0	
307	Durg	Saja	Parpoda	683		0.88		45.08		0	0	1	
308	Durg	Sanjari Balod	Balod	958	678	0.35	0.31	4.58	16.9	0	0	0.05	0.01
309	Durg	Sanjari Balod	Deurtarai	630		0		11.42		0	0	8.69	
310	Durg	Sanjari Balod	Kanewada	878		0.35		10.42		0	0	0	
311	Durg	Sanjari Balod	Khairwahi S	575		0.1		3.97		0	0	0	
312	Durg	Sanjari Balod	Kusumkasa	675		0.21		9.53		0	0	0	
313	Durg	Sanjari Balod	Umaradah	530		0.17		17.91		0	0	0	
314	Gariyabandh	Chhura	Gariaband	317		0.3		20.2		0	0	0	
315	Gariyabandh	Chhura	Sorid	216		0.1		0		0	0	0	
316	Gariyabandh	Fingeshwar	Fingeshwar	459	348	0.1	0.1	20.1	35.7	0	0	0.01	0.02
317	Gariyabandh	Fingeswar	Baronda	1041		0.1		58		0	0	0	
318	Gariyabandh	Fingeswar	Kirwai	883		0.4		1.6		0	0	0.01	
319	Gariyabandh	Fingeswar	Sarkada	216		0.1		0		0	0	0	
320	Gariyabandh	Gariyabandh	Malgaon	57		0.1		0		0	0	0	
321	Gariyabandh	Rajim	Devri	347		0.2		12.9		0	0	0	
322	Gariyabandh	Rajim	Kashi Bahara	567		0.6		56.4		0	0	0.01	
323	Gariyabandh	Rajim	Mudagaon	195		0.5		8.8		0	0	0	
324	Gariyabandh	Rajim	Parsada Khurd	592		0.7		10.3		0	0	0	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
325	Gariyabandh	Rajim	Rajim	1065	779	0.3	0.24	28.9	21.3	0	0	0	0
326	Gariyabandh	Rajim	Sursabandha	1903		0.4		62.9		0	0	0	
327	Gariyabandh		Amethi	663		0.5		43.9		0	0	0	
328	Janjgir Champa	Akaltara	Akaltara	913	1182	0.76	0.61	40.59	42.1	0	0	3.25	0
329	Janjgir Champa	Akaltara	Bamhani	704		0.13		2.61		0	0	11.839	
330	Janjgir Champa	Akaltara	Konargarh	744		0.47		0.57		0	0	0	
331	Janjgir Champa	Akaltara	Mulmula	1157		0.35		30.19		0	0	4.207	
332	Janjgir Champa	Baloda	Baloda	1617		0.78		43.94		0	0	23.362	
333	Janjgir Champa	Bamhnidih	Bamhanidihi	553	479	0.89	0.55	7.89	11.4	0	0	1.919	0
334	Janjgir Champa	Bamhnidih	Baradwar-d	504		0.98		11.85		0	0	0	
335	Janjgir Champa	Bamhnidih	Champa	634		0.13		0.27		0	0	2.223	
336	Janjgir Champa	Bamhnidih	Saragaon	1270		0.09		5.94		0	0	6.939	
337	Janjgir Champa	Bamnidih	Afrid	123		0.34		20.47		0	0	0.521	
338	Janjgir Champa	Champa	Pachori	452		0.11		6.63		0	0	0.942	
339	Janjgir Champa	Dabhra	Dabra	961	778	1.23	0.87	35.06	21.6	0	0	4.272	0.01
340	Janjgir Champa	Jaijaipur	Darra Bhata	571		0.34		1.38		0	0	1.641	
341	Janjgir Champa	Jaijaipur	Darra Bhata	520		0.62		19.42		0	0	1.677	
342	Janjgir Champa	Jaijaipur	Hasaud	618		0.56		2.16		0	0	3.13	
343	Janjgir Champa	Jaijaipur	Jaijaipur S	837	578	0.35	0.31	10.7	1	0	0	0	0.02
344	Janjgir Champa	Janjgir	Kanhaiband	1115		0.09		0.63		0	0	5.687	
345	Janjgir Champa	Janjgir	Kosmanda	819		0.15		32.11		0	0	0.9	
346	Janjgir Champa	Janjgir	Sarkhon	1091		0.48		12.1		0	0	5.639	
347	Janjgir Champa	Janjgir	shukli	560		0.29		1.08		0	0	2.396	
348	Janjgir Champa	Malkharoda	Adbhar	1254		0.89		48.06		0	0	7.726	
349	Janjgir Champa	Malkharoda	Ghoghari	2230	1555	0.85	0.7	4.38	15.7	0	0	2.396	0
350	Janjgir Champa	Malkharoda	Sukda	419		0.17		1.25		0	0	1.379	
351	Janjgir Champa	Nawagarh	Budena	498		0.5		5.31		0	0	1.134	
352	Janjgir Champa	Nawagarh	Dhardei	1160		1.38		9.58		0	0	5.311	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
353	Janjgir Champa	Nawagarh	Dhurkot	1128		1.12		0.17		0	0	3.29	
354	Janjgir Champa	Nawagarh	Janjgir	1342		0.65		36.11		0	0	4.615	
355	Janjgir Champa	Nawagarh	Jhulanpakariya	940		0.31		40.21		0	0	2.207	
356	Janjgir Champa	Nawagarh	Kera	1438		0.92		31.92		0	0	6.125	
357	Janjgir Champa	Nawagarh	Khartal	451		0.39		7.21		0	0	0	
358	Janjgir Champa	Nawagarh	Kireet	328		0.78		14.63		0	0	0	
359	Janjgir Champa	Nawagarh	Loharsi	1897		0.3		44.86		0	0	9.724	
360	Janjgir Champa	Nawagarh	Negurdih	860		0.76		16.95		0	0	2.811	
361	Janjgir Champa	Nawagarh	Salkhon	588		0.15		2.66		0	0	1.704	
362	Janjgir Champa	Nawagarh	Semra	542		0.38		7.16		0	0	1.286	
363	Janjgir Champa	Nawagarh	Seorinarayan	1232	957	0.52	0.54	50.82	40.2	0	0	6.589	4
364	Janjgir Champa	Pamgarh	Bhaiso	828		0.16		14.05		0	0	3.805	
365	Janjgir Champa	Pamgarh	Bilari	722		0.98		9.37		0	0	4.792	
366	Janjgir Champa	Pamgarh	Dongakahrod	1556		0.29		47.22		0	0	6.96	
367	Janjgir Champa	Pamgarh	Kosa	1284		0.8		0.67		0	0	2.459	
368	Janjgir Champa	Pamgarh	Mehandi	890		0.98		30.88		0	0	3.657	
369	Janjgir Champa	Pamgarh	Meubhata	487		0.98		5.68		0	0	1.589	
370	Janjgir Champa	Pamgarh	mudpar	499		0.98		2.24		0	0	1.865	
371	Janjgir Champa	Pamgarh	Pamgarh	685	497	0.88	0.24	17.56	24.3	0	0	0.677	0.02
372	Janjgir Champa	Pamgarh	Sasaha	647		0.48		1.15		0	0	4.12	
373	Janjgir Champa	Pamgarh	vyasnagar	677		0.45		9.4		0	0	1.454	
374	Janjgir Champa	Shakti	Damau	459		0.76		0.22		0	0	1.254	
375	Janjgir Champa	Shakti	Sakti	1185	861	0.26	0.64	3.91	21.4	0	0	5.007	0.01
376	Janjgir Champa	Shakti	Saliabhata	425		1.64		4.73		0	0	1.337	
377	Jashpur	Bagicha	Bagicha	598	461	0.52	0.5	12	19.7	0	0	8.832	0.02
378	Jashpur	Bagicha	Bahora	229		0.97		0		0	0	0	
379	Jashpur	Bagicha	Durgapara	613		0.89		53.59		0	0	8.091	
380	Jashpur	Bagicha	Jhikki	116		0.89		0.59		0	0	0	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
381	Jashpur	Bagicha	Kanpoda	125.5		0.62		11.67		0	0	0	
382	Jashpur	Bagicha	Kondapara	70		0.29		0.02		0	0	0	
383	Jashpur	Bagicha	Maini	110	377	0.11	0.41	3.31	15.26	0	0	0	110.2
384	Jashpur	Bagicha	Pandripani	538		0.34		58.41		0	0	0	
385	Jashpur	Bagicha	Peta	202		0.38		0.01		0	0	0	
386	Jashpur	Bagicha	Raikera	236		0.16		35.31		0	0	0	
387	Jashpur	Bagicha	Raoni	195		0.17		53.6		0	0	0	
388	Jashpur	Bagicha	Sanna	343		0.16		10.04		0	0	0	
389	Jashpur	Bagicha	Saraskombo	495		0.89		0.02		0	0	0	
390	Jashpur	Bagicha	Sonquari	164		0.76		34.09		0	0	0	
391	Jashpur	Duldula	Binjapur	372		0.56		53.71		0	0	0	
392	Jashpur	Duldula	Kersai	572	420	1.38	0.49	1.97	0	0	0	0	0.1
393	Jashpur	Duldula	Kunjara	412		0.65		35.78		0	0	0	
394	Jashpur	Farsabahar	Amdiha	604		0.38		45.75		0	0	2.146	
395	Jashpur	Farsabahar	Farsabahar	419	302	0.34	0.12	25.51	35.7	0	0	0	0
396	Jashpur	Farsabahar	Jharmunda	453		0.5		17.75		0	0	2.836	
397	Jashpur	Farsabahar	Kandaibahar	357		0.76		0.15		0	0	0	
398	Jashpur	Farsabahar	Khutsera	313		0.64		3.6		0	0	0	
399	Jashpur	Farsabahar	Lavakera	459		0.39		21.82		0	0	3.295	
400	Jashpur	Farsabahar	Singibahar	619		0.78		28.3		0	0	0	
401	Jashpur	Farsabahar	Sirshringa	463		0.26		0.01		0	0	0	
402	Jashpur	Farsabahar	Tapkara	876		0.98		48.45		0	0	2.22	
403	Jashpur	Jashpur	Balachhappar	41.7		0.29		6.95		0	0	0	
404	Jashpur	Jashpur	Chiraidand	303		0.35		25.11		0	0	0	
405	Jashpur	Jashpur	Jakba	151		0.89		7.51		0	0	0	
406	Jashpur	Jashpur	Jashpurnagar	110.6	84	0.16	0.11	0.03	0.03	0	0	0	0
407	Jashpur	Jashpur	Loro (Bagicha)	122.5		0.47		4.66		0	0	0	
408	Jashpur	Jashpur	Patratoli	135		1.07		0.03		0	0	0	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
409	Jashpur	Jashpur	Rahmbandh	152.5		0.34		26.77		0	0	0	
410	Jashpur	Jashpur	Rupsera	671		0.45		11.22		0	0	0	
411	Jashpur	Kansabel	Budadand	726		0.15		25.95		0	0	9.42	
412	Jashpur	Kansabel	Kuthera	427	321	0.15	0.1	24.68	34.7	0	0	0	0
413	Jashpur	Kansabel	Lamdund	204		0.92		1.6		0	0	2.606	0.5
414	Jashpur	Kansabel	Mahuadih	135.5	106	0.3	0.31	5.66	5.1	0	0	0	
415	Jashpur	Kansabel	Saraitola	562		0.35		19.92		0	0	0	
416	Jashpur	Kasavel	Bataikela	107.2		0.48		7.36		0	0	0	
417	Jashpur	Kasavel	Bewartoli	392		1.41		51.75		0	0	0	
418	Jashpur	Kasavel	Dokra	457		0.11		0.38		0	0	0	
419	Jashpur	Kasavel	Garaibandh	467		0.55		0.01		0	0	0	
420	Jashpur	Kasavel	Kansabel	647	441	0.76	0.64	42.78	58.2	0	0	7.13	0
421	Jashpur	Kasavel	Muskuti	798		0.54		6.26		0	0	6.532	
422	Jashpur	Kasavel	Narayanbahali	672		0.09		46.8		0	0	1.809	
423	Jashpur	Kasavel	Phooldih	166		0.52		28.53		0	0	0	
424	Jashpur	Kasavel	Sahidaur (Jam Dhora)	335		1.2		0.01		0	0	0	
425	Jashpur	Kasavel	Saraipani	349		1.41		0.02		0	0	0	
426	Jashpur	Kasavel	Shabdmunda	550		0.56		0.02		0	0	0	
427	Jashpur	Kasavel	Tangargaon	663		0.48		29.44		0	0	2.39	
428	Jashpur	Kasvel	Dandajor	425		0.15		8.05		0	0	2.474	
429	Jashpur	Kunkuri	Bandarchuwa	111		0.17		15.29		0	0	0	
430	Jashpur	Kunkuri	Bangaon 1	375		0.45		7.42		0	0	0	
431	Jashpur	Kunkuri	Chhapartoli	237		0.43		23.23		0	0	0	
432	Jashpur	Kunkuri	Chhapartoli	43		0.23		2.21		0	0	0.06	
433	Jashpur	Kunkuri	Dhodidand	887		0.15		7.7		0	0	0	
434	Jashpur	Kunkuri	Farsakanhi	296		0.76		0.07		0	0	0	
435	Jashpur	Kunkuri	Ghatmunda	179.1		0.13		1.11		0	0	3.704	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
436	Jashpur	Kunkuri	Kandora	254		0.34		16.87		0	0	0	
437	Jashpur	Kunkuri	Kunkuri1	274	203	0.31	0.31	9.32	9.31	0	0	1.568	0.01
438	Jashpur	Kunkuri	Matasi	235		0.37		7.96		0	0	0.614	
439	Jashpur	Kunkuri	Narayanpur	409		0.16		2.72		0	0	2.4	
440	Jashpur	Kunkuri	Pagurabahar	678		0.13		51.82		0	0	1.41	
441	Jashpur	Kunkuri	Raikera (Kunkuri)	354	274	0.29	2.28	1.55	13.5	0	0	0	78.2
442	Jashpur	Manora	Fathepur	870	653	1.1	0.58	0.01	3.8	0	0	0	0.1
443	Jashpur	Manora	Kesra	370		0.76		0.03		0	0	0	
444	Jashpur	Manora	Sarkardih	189.2		0.88		3.86		0	0	0	
445	Jashpur	Pathalgaon	Amatolli	297		1.07		0.01		0	0	0	
446	Jashpur	Pathalgaon	Bangaon	525		0.56		23.79		0	0	0	
447	Jashpur	Pathalgaon	Chiknipani	271		0.5		0.1		0	0	0	
448	Jashpur	Pathalgaon	Kachhar	590		0.13		20.36		0	0	7.28	
449	Jashpur	Pathalgaon	Kotba	959		0.85		51.16		0	0	3.3	
450	Jashpur	Pathalgaon	Ludeg	404		0.8		9.43		0	0	0	
451	Jashpur	Pathalgaon	Mudpar	362		0.13		3.08		0	0	0	
452	Jashpur	Pathalgaon	Nawaguda	320		0.39		0.05		0	0	0	
453	Jashpur	Pathalgaon	Palidih	463		0.67		29.38		0	0	0	
454	Jashpur	Pathalgaon	Pathalgaon	1903	1364	1.3	0.97	2.7	2.7	0	0	2.72	0.02
455	Jashpur	Pathalgaon	Surangpani New	716		0.09		34.37		0	0	0	
456	Kanker	Charama	Jhipatola	363		0		7.28		0	0	0	
457	Kanker	Charama	Lakhanpuri	1475		0.53		3.86		0	0	0	
458	Kanker	Charama	Narharpur	295		0.24		7.06		0	0	0	
459	Kanker	Charama	Telgara	263	201	1.69	1.1	0	8.3	0	0	0	0
460	Kanker	Kanker	Govindpur	412		0.42		1.3		0	0	0	
461	Kanker	Narharpur	Ratesara	366		0.29		1.7		0	0	0	
462	Kanker	Sarana (Narharpur)	Dudhawa	466	489	0.21	0.31	19.16	16.4	0	0	0	0

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
463	Kanker	Sarana (Narharpur)	Murpar	672		0.18		6.31		0	0	0	
464	Kawardha	Bodla	Banjari	584		0.02		0		0	0	0	
465	Kawardha	Bodla	Bodla	675	402	0.29	0.21	11.54	11.54	0	0	0	0.02
466	Kawardha	Bodla	Rajnanwagaon	671		0		18.63		0	0	0	
467	Kawardha	Bodla	Singhari-d	408		0.09		0.62		0	0	0	
468	Kawardha	Bolda	Chilpi	188		0.24		45.32		0	0	0.01	
469	Kawardha	Kawardha	Bharamdeo-d	497		0.3		0		0	0	0	
470	Kawardha	Kawardha	Danganiya	615		0.21		19.51		0	0	0.02	
471	Kawardha	Kawardha	Kawardha	651	503	0.18	0.21	17.71	14.2	0	0	0.02	0.01
472	Kawardha	Kawardha	Kharoda Kalan	1040		0		20.81		0	0	0.01	
473	Kawardha	Kawardha	Rengakharkhurd	908		0		30.38		0	0	0.02	
474	Kawardha	Pandaria	Pandaria	673	540	0.29	0.24	7.51	21	0	0	0	0
475	Kawardha	Sahaspur lohara	BijaBairangi	534		0		1.22		0	0	0	
476	Kawardha	Sahaspur lohara	Biroda	526		0.2		0		0	0	0	
477	Kawardha	Sahaspur lohara	Chhuiha	772		0.09		14.11		0	0	0	
478	Kawardha	Sahaspur lohara	Ragra	772		0.02		14.51		0	0	0	
479	Kawardha	Sahaspur lohara	Sahaspur lohara.1	1368	998	0.35	0.28	54.33	51.1	0	0	0	0.02
480	Kawardha	Sahaspur lohara	Uriakhurd	652		0.17		6.72		0	0	0	
481	Kawardha	KAWARDHA	Saroda dadar	387		0.1		0		0	0	0	
482	Kondagaon	Keshkal	Garaka	388		1.37		0.46		0	0	0	
483	Kondagaon	Makadi	Baniyagaon	494		0		12.1		0	0	0	
484	Kondagaon	Pharasgaon	Kulhadhgaon	530		0		6.47		0	0	0	
485	Korba	Kartala	Barpali	116		0.97		0.08		0	0	0	
486	Korba	Kartala	Champa mode	56		0.26		9.49		0	0	0	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
487	Korba	Kartala	Kartala	230	167	1.31	0.98	14.66	12.6	0	0	0	0
488	Korba	Kartala	Kudmura	250		0.39		0.11		0	0	0	
489	Korba	Kartala	Mahuwadih	538		0.98		4.59		0	0	2.248	
490	Korba	Kartala	Ratija	286		0.67		1.31		0	0	0	
491	Korba	Kartala	Sakdukala	150		0.78		4.1		0	0	0	
492	Korba	Kartala	Salihabhata	398		0.09		26.84		0	0	0	
493	Korba	Kartala	Sargundia	753		1.14		0.17		0	0	1.435	
494	Korba	Kartala	Sendripali	208		0.34		18.45		0	0	0	
495	Korba	Kartala	Sohagpur	673		0.35		5.76		0	0	2.621	
496	Korba	Kartala	Tilkeja	2430		0.29		34.99		0	0	18.65	
497	Korba	Kartala	Tuman	323		0.65		30.67		0	0	6.56	
498	Korba	katghora	Baira	160		0.47		1.72		0	0	0	
499	Korba	Katghora	Chaitama	600	518	1.54	1.1	23.5	2.4	0	0	0	0
500	Korba	Katghora	Chindpur	192		0.09		0.44		0	0	0	
501	Korba	Katghora	Dhawaipur	1156		0.26		0.07		0	0	0	
502	Korba	katghora	kotmi sakola	675		0.39		37.98		0	0	1.109	
503	Korba	Katghora	Naraibodh	255	278	0.76	0	38.54	43.03	0	0	0	0
504	Korba	Katghora	Rajkamma	882		0.35		42.67		0	0	0	
505	Korba	Katghora	Sindhiya	222		1.38		23.06		0	0	2.592	
506	Korba	Katghora	Suttara	1004		0.98		1.95		0	0	0	
507	Korba	Korba	Ajgarbahar	642		0.78		0.09		0	0	0	
508	Korba	Korba	Basin	129		0.16		11.32		0	0	0	
509	Korba	Korba	Batati Junction	120		0.46		12.1		0	0	0	
510	Korba	Korba	Bhaisma (Anjoripali)	1392		0.35		44.7		0	0	6.997	
511	Korba	Korba	Dhegurdih manzipara	469		0.98		48.15		0	0	0	
512	Korba	Korba	Jalke	521		0.39		0.07		0	0	0	
513	Korba	Korba	Jilga	126		0.3		7.4		0	0	0	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
514	Korba	korba	kothari naka	1994		0.15		30.04		0	0	71.44	
515	Korba	Korba	Madanpur	80		0.8		6.96		0	0	0	
516	Korba	Korba	Naktikhar	140		0.34		0.01		0	0	0	
517	Korba	Korba	Pachra	70.7		0.06		12.09		0	0	0	
518	Korba	Korba	Pasarkhet	98.5		0.98		13.47		0	0	0	
519	Korba	Korba	Rishdi	368		0.26		3.05		0	0	0	
520	Korba	Korba	Salora	786	359	0.48	0.68	5.47	2.85	0	0	114.68	54.1
521	Korba	Korba	Shuklakhar	219		1.3		36.6		0	0	0	
522	Korba	Korba	Urga.1	1680		0.31		30.48		0	0	8.025	
523	Korba	Malkhoroda	Bhathora	170		0.98		29.54		0	0	0	
524	Korba	Pali	Banbandha	363		1.34		0.12		0	0	0	
525	Korba	Pali	Bandhakhar	209		1.41		10.84		0	0	0	
526	Korba	Pali	Hardibazar	325		0.09		45.27		0	0	0	
527	Korba	Pali	Nunera	218		1.41		38.8		0	0	0	
528	Korba	Pali	Pali	252	192	0.13	0.1	1.68	1.9	0	0	0	0
529	Korba	Pali	Rainpur	987		0.88		0.2		0	0	0	
530	Korba	Pali	Ramtarai-I	96		0.88		1.79		0	0	0	
531	Korba	Podi	Gurasia	487		0.34		0		0	0	0	
532	Korba	Podi	Korbi	466		0.62		19.14		0	0	0	
533	Korba	Podi	Morga	657		1.38		38.68		0	0	1.435	
534	Korba	Podi	Nawapara (Chotia)	336		2.05		13.46		0	0	1.109	
535	Korba	Podi	Podi-Uproda	263	190	0.29	0.21	16.73	15.3	0	0	0	0
536	Korba	Podi Uproda	Fulsar	533		0.65		1.84		0	0	0	
537	Korba	Podi Uprora	Kodgar EW	497		0.49		18.97		0	0	0	
538	Korba	Podi Uprora	Tanakhar EW	769		1.5		0.08		0	0	0	
539	Korba	Podi-Uproda	Lamne	340		0.76		0		0	0	0	
540	Korba	Podi-uproda	Madai	587		0.85		6.93		0	0	0	
541	Korba	Pondi	Jatga	510		0.48		32.37		0	0	0	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
542	Korba	Pondi	Khodri	134		0.15		0.8		0	0	0	
543	Korba	Pondi	Lenga	666		0.11		47.2		0	0	3.161	
544	Korba	Pondi	Nagai	544		0.89		1.1		0	0	0	
545	Korba	Pondi	Parla	514		0.31		13.94		0	0	0	
546	Korba	Pondi	Pasan	494		0.98		36.16		0	0	0	
547	Korba	Pondi	Rawa	339		0.88		9.96		0	0	0	
548	Korba	Pondi	Tuman	195		0.85		2.14		0	0	0	
549	Korba	Pondi	Umedibhathan	759		0.37		5.82		0	0	0	
550	Koriya	Baikunthpur	Baikunthpur-s	157.7	122	0.09	0.1	21.01	17	0	0	0	0
551	Koriya	Baikunthpur	Chharcha Basti	46.1		0.16		9.66		0	0	0	
552	Koriya	Baikunthpur	Dumaria	474		1.3		1.49		0	0	0	
553	Koriya	Baikunthpur	Girjapur	293		0.38		2.45		0	0	0	
554	Koriya	Baikunthpur	Jamgahana	625		0.52		12.31		0	0	0	
555	Koriya	Baikunthpur	Kachardand	260		0.36		42.33		0	0	0	
556	Koriya	Baikunthpur	Khatgori	250		1.41		0		0	0	2.782	
557	Koriya	Baikunthpur	Khodri	435		2.9		0		0	0	35.38	
558	Koriya	Baikunthpur	Mansukha	172.1		0.35		7.11		0	0	0	
559	Koriya	Baikunthpur	Nagar (Station)	220		0.88		4.67		0	0	0	
560	Koriya	Baikunthpur	Nagar (Tilwandar)	239		0.26		14.87		0	0	0	
561	Koriya	Baikunthpur	Patan	101.9		0.09		21.38		0	0	0	
562	Koriya	Baikunthpur	Patrapali	1580		0.48		0		0	0	0	
563	Koriya	Baikunthpur	Ranai	440		1.38		7.9		0	0	0	
564	Koriya	Baikunthpur	Tengni	639		0.11		14.85		0	0	0	
565	Koriya	Bharatpur	Seri	186.6		0.31		10.35		0	0	0	
566	Koriya	Bharatpur (Janakpur)	Baharsi.1	408		0.39		10.8		0	0	0	
567	Koriya	Bharatpur (Janakpur)	Chutki	346		0.67		3.34		0	0	0	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
568	Koriya	Bharatpur (Janakpur)	Janakpur	295	222	0.29	0.2	18.52	24.6	0	0	0	0.6
569	Koriya	Khadgaon	Khadgaon	312		0.11		54.03		0	0	0	
570	Koriya	Khadgaowan	Akhradand	754		1.92		0		0	0	0	
571	Koriya	Khadgawan	Banjaridand	587		0.47		1.81		0	0	0	
572	Koriya	Khadgawan	Chirmiri	350		0.39		3.41		0	0	0	
573	Koriya	Khadgawan	Khadgaon	344		2.48		0		0	0	6.32	
574	Koriya	Khadgawan	Khadgawan	146.5	121	0.56	0.42	0	5.5	0	0	0	0.01
575	Koriya	Manendragarh	Belbehra	594		0.8		2.85		0	0	0	
576	Koriya	Manendragarh	Biharpur	676		3.59		17.12		0	0	0	
577	Koriya	Manendragarh	Chainpur	76.2		0.09		0		0	0	3.03	
578	Koriya	Manendragarh	Charwahi	679		0.47		0		0	0	0	
579	Koriya	Manendragarh	Dodki	184.6		0.34		0.72		0	0	0	
580	Koriya	Manendragarh	Garundol	547		1.07		27.95		0	0	0	
581	Koriya	Manendragarh	Kachaud	736		0.41		44.82		0	0	0	
582	Koriya	Manendragarh	Karaunda	790		0.82		5.14		0	0	0	
583	Koriya	Manendragarh	Kelhari	353		0.45		13.09		0	0	0	
584	Koriya	Manendragarh	Manendragarh	679	489	4.3	2.45	18.93	17.9	0	0	37.32	0.01
585	Koriya	Manendragarh	Nagpur	186.8		2.76		12.1		0	0	0	
586	Koriya	Manendragarh	Pendri	502		1.67		18.38		0	0	9.42	
587	Koriya	Manendragarh	Piparia	423		0.21		20.47		0	0	0	
588	Koriya	Manendragarh	Rojhi	160.6		0.45		0		0	0	0	
589	Koriya	Manendragarh	Shankargarh	420		0.08		29.43		0	0	0	
590	Koriya	Manendragarh	Shripur	652		0.79		19.74		0	0	0	
591	Koriya	Manendragarh	Tarabahara	213		0.34		23.87		0	0	0	
592	Koriya	Manendragarh	Tilokhan	524		0.72		0		0	0	0.01	
593	Koriya	Manendragarh	Ujiyarpur	126.5		0.31		9.95		0	0	0	
594	Koriya	Sonhat	Bhainswar	833		0.3		49.23		0	0	0	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
595	Koriya	Sonhat	Bikrampur	700		0.37		7.64		0	0	0	
596	Koriya	Sonhat	kailashpur	143.8		0.17		7.5		0	0	0	
597	Koriya	Sonhat	Mendrakala	440		0.44		31.74		0	0	0	
598	Koriya	Sonhat	Sonhat	228	363	0.49	0.6	4.49	3.39	0	0	0	0.02
599	Mahasamund	Bagbahara	Awaradabri	202	347	0.2	0.92	27.45	0.24	0	0	0	0
600	Mahasamund	Bagbahara	Bagbahara	221	348	0.4	0.03	13.9	0	0	0	0	0
601	Mahasamund	Bagbahara	Boirgaon	1166		2.65		0		0	0	0	
602	Mahasamund	Bagbahara	Hadabundh	221	203	0.41	0.25	14.3	9.97	0	0	0	0
603	Mahasamund	Bagbahara	Khallari	601	325	2.3	2.2	4.14	2.08	0	0	0.54	0
604	Mahasamund	Bagbahara	Maulimuda	423	420	1.8	0.22	14.37	65.5	0	0	0.43	0
605	Mahasamund	Bagbahara	Palsipani	1144	497	0.89	1	36.61	17.1	0	0	0	0
606	Mahasamund	Bagbahara	Samhar	473	332	0.66	1.4	9.62	9.01	0	0	0	0
607	Mahasamund	Bagbahara	Suarmar	900	927	0.65	0.81	57.04	68.35	0	0	0.11	0
608	Mahasamund	Bagbahara	Tendukonda	975	941	0.39	0.31	28.04	22	0	0	0	0
609	Mahasamund	Basna	Barbaspun	576		0.3		30.1	87	0	0	0	
610	Mahasamund	Basna	Basna	870	563	0.4	0.31	34.5	2.4	0	0	0	0.01
611	Mahasamund	Basna	Mandalpur	669		0.37		0		0	0	0	
612	Mahasamund	Basna	Saraipali	581		0.46		0		0	0	0	
613	Mahasamund	Mahasamund	Amlor	673		0.1		40.8		0	0	0	
614	Mahasamund	Mahasamund	Baldidih	625		0.3		12.4		0	0	0.01	
615	Mahasamund	Mahasamund	Belsunda	437		0.1		0		0	0	0	
616	Mahasamund	Mahasamund	Boriyajhar	336		0.36		6.21		0	0	0	
617	Mahasamund	Mahasamund	Jamli Nawadih	464		0.4		0		0	0	0	
618	Mahasamund	Mahasamund	Jhalap	463		0.31		9.4		0	0	0	
619	Mahasamund	Mahasamund	Jhalkhamhariya	436		0.25		53.4		0	0	0.01	
620	Mahasamund	Mahasamund	Jogidipa	394		0.71		0.6		0	0	0.32	
621	Mahasamund	Mahasamund	Kowajhar	192.7		0.15		0		0	0	0	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
622	Mahasamund	Mahasamund	Lakhanpur (Bhatripara)	850		0.19		37.18		0	0	0	
623	Mahasamund	Mahasamund	Lavra Khurud	820		0.21		37.22		0	0	0	
624	Mahasamund	Mahasamund	Mahasamund.1	687	536	0.14	0.1	58.39	56.31	0	0	0	0.01
625	Mahasamund	Mahasamund	Marod	237		0.15		37.83		0	0	0	
626	Mahasamund	Mahasamund	Pirda	399	853	0.36	0	2.4	1.25	0	0	0	0
627	Mahasamund	Mahasamund	Pithora	402		0.79		31.28		0	0	0	
628	Mahasamund	Mahasamund	Sirpur	605		0.88		13.18		0	0	0	
629	Mahasamund	Mahasamund	Tumgaon	354		0.1		22.49		0	0	0	
630	Mahasamund	Pithora	Jagdishpur	600		0.8		24.58		0	0	0	
631	Mahasamund	Pithora	Kaudiya	792		0.59		58.01		0	0	0	
632	Mahasamund	Pithora	Khuteri	377		0.5		25.7		0	0	0	
633	Mahasamund	Pithora	Sankra	2008		0.44		62.07		0	0	0	
634	Mahasamund	Saraipali	Badesara	2000		1.23		52.02		0	0	4.41	
635	Mahasamund	Saraipalli	Balouda	462		0.57		0		0	0	0	
636	Mahasamund	Saraipalli	Deori	1172		0.91		17.26		0	0	0	
637	Mahasamund	Saraipalli	Kisdi	541	451	0.37	0.34	0	6.4	0	0	0	0
638	Manendragarh	Manendragarh	Chainpur 3	392		0.55		10.66		0	0	2.607	
639	Mungeli	Bilha	Amerikapa (Tala)	1396		1.07		1.87		0	0	6.147	
640	Mungeli	Lormi	Chandli	902		0.17		43.31		0	0	6.339	
641	Mungeli	Lormi	Devpaheriwaterfall	120		1.12		6.07		0	0	0	
642	Mungeli	Lormi	Godkhami	768		1.12		0.48		0	0	1.94	
643	Mungeli	Lormi	Jhaphal	667		0.26		0.23		0	0	0	
644	Mungeli	Lormi	Jhaphal	675		1.38		2.85		0	0	11.224	
645	Mungeli	Lormi	Lormi-d	750	525	0.26	0.21	0.58	0.48	0	0	4.015	0
646	Mungeli	Lormi	Patera	463		1.41		20.86		0	0	0.169	
647	Mungeli	Lormi	Rajpur	1817		0.98		13.89		0	0	7.461	
648	Mungeli	Lormi	Ramnagar	131.4		0.48		3.53		0	0	0	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
649	Mungeli	Lormi	Sardha school para	968		0.78		18.76		0	0	6.693	
650	Mungeli	Lormi	Seoni (new)	115		0.09		18.74		0	0	0	
651	Mungeli	Mungeli	Chatarkhar	815		0.45		42.46		0	0	4.247	
652	Mungeli	Mungeli	Chorbhati	2090		0.21		1.31		0	0	26.6	
653	Mungeli	Mungeli	Daukapa	5120		0.38		47.06		0	0	18.249	
654	Mungeli	Mungeli	Deori	1964		0.52		46.67		0	0	13.403	
655	Mungeli	Mungeli	Fulwari	1600		0.98		0.65		0	0	3.959	
656	Mungeli	Mungeli	Mungeli	2320	1608	0.35	0.21	45.19	46.98	0	0	12.935	0.01
657	Mungeli	Mungeli	Mungeli-d	1397	973	0.78	0.42	15.88	35.88	0	0	13.62	0.01
658	Mungeli	Mungeli	Sitalkunda	1617		0.88		9.34		0	0	8.228	
659	Mungeli	Patharia	Chandargarhi	1860		0.56		42.3		0	0	13.847	
660	Mungeli	Patharya	Patharia (chorbhatti)	1628	1156	0.29	0.16	44.85	40.01	0	0	6.37	0
661	Raigarh	Daranjaigarh	Choranga	948		0.29		28.38		0	0	2.023	
662	Raigarh	Dharamjaigarh	Dharamjaigarh	556	395	0.65	0.45	0.12	0.12	0	0	0	0
663	Raigarh	Dharamjaigarh	Katangdih	185		0.85		17.75		0	0	0	
664	Raigarh	Dharamjaigarh	Pordahi	149		0.98		4.06		0	0	0	
665	Raigarh	Dharmajaigarh	Amapali	166		0.62		0.02		0	0	0	
666	Raigarh	Dharmajaigarh	Amgaon	97.7		0.34		1.08		0	0	0	
667	Raigarh	Dharmajaigarh	Auranar	70		1.38		4.14		0	0	0	
668	Raigarh	Dharmajaigarh	Bakaruma	958		0.85		56.08		0	0	3.5	
669	Raigarh	Dharmajaigarh	Barpali	182.4		0.47		5.42		0	0	0	
670	Raigarh	Dharmajaigarh	Bartapali	275		0.3		21.12		0	0	0	
671	Raigarh	Dharmajaigarh	Bayasi	256		0.37		20.16		0	0	0	
672	Raigarh	Dharmajaigarh	Bojia	824		0.39		2.74		0	0	0	
673	Raigarh	Dharmajaigarh	Boro	558		0.67		44.89		0	0	0	
674	Raigarh	Dharmajaigarh	Charkhapara	515		0.34		11.47		0	0	0	
675	Raigarh	Dharmajaigarh	Chhal	323		1.3		12.11		0	0	0	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
676	Raigarh	Dharmajaigarh	Derpani	320		0.56		6.15		0	0	0	
677	Raigarh	Dharmajaigarh	Dharmajaigarh	592	431	1.41	0.98	34.39	31.6	0	0	0	0
678	Raigarh	Dharmajaigarh	Duliamuda	272		0.46		42.59		0	0	0	
679	Raigarh	Dharmajaigarh	Durgapur	252		0.88		50.84		0	0	0	
680	Raigarh	Dharmajaigarh	Edu	331		0.26		33.63		0	0	0	
681	Raigarh	Dharmajaigarh	Gersa	749		0.15		51.67		0	0	0	
682	Raigarh	Dharmajaigarh	Golabuda	279		0.76		31.31		0	0	0	
683	Raigarh	Dharmajaigarh	Hati	98		0.31		15.73		0	0	0	
684	Raigarh	Dharmajaigarh	Jabga	105		0.89		10.33		0	0	0	
685	Raigarh	Dharmajaigarh	Kandadand	127		0.76		18.03		0	0	0	
686	Raigarh	Dharmajaigarh	Kapu	250		1.38		29.1		0	0	0	
687	Raigarh	Dharmajaigarh	KarraMara	397		0.29		0.27		0	0	0	
688	Raigarh	Dharmajaigarh	Khadgaon	446		1.14		1.5		0	0	0	
689	Raigarh	Dharmajaigarh	Khanhar	422		0.39		0.01		0	0	0	
690	Raigarh	Dharmajaigarh	Kurekela	111		0.97		1.3		0	0	0	
691	Raigarh	Dharmajaigarh	Lakshmipur	579		0.39		3.41		0	0	2.814	
692	Raigarh	Dharmajaigarh	Lipti	221		0.67		2.87		0	0	114.9	
693	Raigarh	Dharmajaigarh	Munund	160		1.07		4.44		0	0	0	
694	Raigarh	Dharmajaigarh	Ongana New	342		0.52		40.63		0	0	0	
695	Raigarh	Dharmajaigarh	Shahpur	150		0.35		23.06		0	0	0	
696	Raigarh	Dharmajaigarh	Sirsinga	515		0.88		6.74		0	0	0	
697	Raigarh	Dharmajaigarh	Tendumar New	166		0.48		15.49		0	0	0	
698	Raigarh	Dharmajaigarh	Terekela	204		0.3		1.49		0	0	0	
699	Raigarh	Dharmajaigarh	Ududa	252		1.38		6.3		0	0	0	
700	Raigarh	Gharghoda	Amlidih	499		0.76		43.73		0	0	0	
701	Raigarh	Gharghoda	Baroud	218		0.37		0.01		0	0	0	
702	Raigarh	Gharghoda	Bhalumar	843		0.09		20.36		0	0	0	
703	Raigarh	Gharghoda	Bhangari	151.3		0.16		33.9		0	0	0	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
704	Raigarh	Gharghoda	Chimtapani	435		0.38		1.34		0	0	0	
705	Raigarh	Gharghoda	Chuhkimar	179.4		0.17		26.83		0	0	0	
706	Raigarh	Gharghoda	Dumarpali	96		0.35		4.5		0	0	0	
707	Raigarh	Gharghoda	Gharghoda	378	273	0.11	0.1	0.29	0.31	0	0	0	0
708	Raigarh	Gharghoda	Kotrimal	343		0.09		4.51		0	0	0	
709	Raigarh	Gharghoda	Kurmibhuna	579		0.39		12.87		0	0	0	
710	Raigarh	Gharghoda	Rumkera	412		0.97		11.03		0	0	0	
711	Raigarh	Gharghoda	Samarumi	42		0.65		13.59		0	0	0.51	
712	Raigarh	Gharghoda	Samdama	928		0.65		34.38		0	0	3.61	
713	Raigarh	Gharghoda	Teram (New)	379		0.98		1.01		0	0	0	
714	Raigarh	Kharsia	Chaple	1230		1.1		31.18		0	0	2.81	
715	Raigarh	Kharsia	Farkanara	129.8		0.98		4.89		0	0	0	
716	Raigarh	Kharsia	Gidha	477		0.89		5.16		0	0	1.71	
717	Raigarh	Kharsia	Kharsia	878	554	0.47	0.33	0.31	0.36	0	0	0	0.04
718	Raigarh	Kharsia	Ulda	512		0.45		0.3		0	0	0	
719	Raigarh	Kharsiya	Domnara	131.5		0.97		0.38		0	0	0	
720	Raigarh	Kunkuri	Nawapara	569		0.09		55.59		0	0	0	
721	Raigarh	Lailunga	Futahamuda	542		0.09		0.11		0	0	0	
722	Raigarh	Lailunga	Gosaidih	364		0.48		16.13		0	0	0	
723	Raigarh	Lailunga	Jegarpur	727		0.13		28.58		0	0	0	
724	Raigarh	Lailunga	Lailunga	761	539	0.16	0.12	52.5	11	0	0	0	0.01
725	Raigarh	Lailunga	Laripani	512		0.47		0.01		0	0	0	
726	Raigarh	Lailunga	Rajpur	415		0.56		12.94		0	0	0	
727	Raigarh	Lailunga	Salkhiya	705		1.41		14.74		0	0	0	
728	Raigarh	Pusaur	Aurda	583		1.12		1.32		0	0	2.955	
729	Raigarh	Pusaur	Koshmanda	666		0.3		0.04		0	0	2.03	
730	Raigarh	Pusaur	Nawrangpur	1190		0.38		2.96		0	0	9.24	
731	Raigarh	Pusaur	Surajgarh	623		0.26		0.01		0	0	3.11	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
732	Raigarh	Pusaur	Tetla	640	440	0.21	0.21	1.54	0	0	0	4.631	0.02
733	Raigarh	Raigarh	Bangrusian	120.4		0.65		0.78		0	0	0	
734	Raigarh	Raigarh	Bansjer	651		0.31		13.15		0	0	0	
735	Raigarh	Raigarh	Chiraipani	371		0.52		2.71		0	0	0	
736	Raigarh	Raigarh	Chiraipani1	105		0.31		0.83		0	0	0	
737	Raigarh	Raigarh	Gerwani	194.4		0.15		30.75		0	0	0	
738	Raigarh	raigarh	Jamga Railway station	114		0.5		7.25		0	0	0	
739	Raigarh	Raigarh	jamgaon(Basti)	1871		0.16		51.48		0	0	13.02	
740	Raigarh	Raigarh	Jorapali	773		0.34		0.1		0	0	1.26	
741	Raigarh	Raigarh	Kerajhar	389		0.31		6.37		0	0	0	
742	Raigarh	Raigarh	Kotarliya	581		0.98		1.34		0	0	0	
743	Raigarh	Raigarh	Kotra	1383		0.37		0.02		0	0	8.602	
744	Raigarh	Raigarh	Mahapalli New	259		0.8		0.03		0	0	0	
745	Raigarh	Raigarh	Raigarh	853	579	0.45	0.31	7.53	7.45	0	0	2.76	0.02
746	Raigarh	Raigarh	Sambalpuri	442		0.98		4.83		0	0	0	
747	Raigarh	Raigarh	Sariya	655		0.98		42.64		0	0	0	
748	Raigarh	Sarai Lengha Baram	Baramkela	541	379	0.92	0.64	6.46	0	0	0	0	0
749	Raigarh	Sarai Lengha Baram	Barpali	629		0.8		1.81		0	0	0	
750	Raigarh	Sarai Lengha Baram	Jhikipali	395		0.89		0.94		0	0	18.87	
751	Raigarh	Sarai Lengha Baram	Lendhara	410		0.16		6.36		0	0	0	
752	Raigarh	Sarai Lengha Baram	Malda (B)	285		0.34		6.27		0	0	6.31	
753	Raigarh	Sarangarh	Bataupali	579		0.98		1.63		0	0	0	
754	Raigarh	Sarangarh	Chhind	680		1.07		12.6		0	0	0	
755	Raigarh	Sarangarh	Damdarha	563		0.45		1.65		0	0	2.147	
756	Raigarh	Sarangarh	Godam	1320		0.34		14.57		0	0	8.021	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
757	Raigarh	Sarangarh	Hirri	530		0.13		9.97		0	0	0	
758	Raigarh	Sarangarh	Kanakbira	670		0.62		4.25		0	0	20.31	
759	Raigarh	Sarangarh	Kargipali (Kargidipa)	622		0.98		16.07		0	0	0	
760	Raigarh	Sarangarh	Kedar	713		0.65		33.02		0	0	0	
761	Raigarh	Sarangarh	Kushal Nagar(Sarangarh)	890	690	0.29	0.25	0.47	25	0	0	0	0
762	Raigarh	Sarangarh	Pindri	1178		0.17		6.07		0	0	6.142	
763	Raigarh	Sarangarh	Reda	1123		1.12		23.34		0	0	0	
764	Raigarh	Tamnar	Amaghat	254		1.38		54.19		0	0	0	
765	Raigarh	Tamnar	Auraimura	150		0.29		10.06		0	0	0	
766	Raigarh	Tamnar	Devgarh	475		1.34		3.69		0	0	0	
767	Raigarh	Tamnar	Gare	636		1.31		57.85		0	0	0	
768	Raigarh	tamnar	Gohri	415		1.41		0.41		0	0	0	
769	Raigarh	Tamnar	Koknara	298		0.8		1.6		0	0	0	
770	Raigarh	Tamnar	Libra	231		0.85		4		0	0	0	
771	Raigarh	Tamnar	Milupara	396		1.3		12.42		0	0	0	
772	Raigarh	Tamnar	Padigaon	374		0.29		2.1		0	0	0	
773	Raigarh	Tamnar	Tamnar	290	210	0.78	0.87	4.18	2.21	0	0	0	0.02
774	Raigarh	Tamnar	Taraimal.1	423		0.09		41.9		0	0	0	
775	Raigarh	Tmanar	Barkaspali	550		0.39		0.01		0	0	0	
776	Raipur	Abhanpur	Abhanpur-d	632	444	0.17	0.21	52.4	48.4	0	0	0	0.01
777	Raipur	Abhanpur	Bajrangpur	640		0.4		0		0	0	0.1	
778	Raipur	Abhanpur	Gatapaar Village	170		0.42		0		0	0	0	
779	Raipur	Abhanpur	Gotiadih	674		0.54		16.89		0	0	0	
780	Raipur	Abhanpur	Kurra	628		0.52		0		0	0	0	
781	Raipur	Abhanpur	Kurru	889		0.31		44.37		0	0	0.02	
782	Raipur	Arang	Arang	1341	952	0.28	0.31	45.79	35.78	0	0	0	0.02
783	Raipur	Arang	Baihar	945		0.96		0.46		0	0	0.01	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
784	Raipur	Arang	Bhaisa	832		0.47		8.6		0	0	0.1	
785	Raipur	Arang	Bhatia	716		0.35		17.39		0	0	0	
786	Raipur	Arang	Ghivera	410		0.22		1.12		0	0	0	
787	Raipur	Arang	Ghodari (Ghorari)	786	1165	0.28	0.55	15.06	0	0	0	0	7.42
788	Raipur	Arang	Kanki	1093		0.32		22.55		0	0	0	
789	Raipur	Arang	Kasrangi	1046		0.49		26.63		0	0	0	
790	Raipur	Arang	Narra	1213		0.65		21.91		0	0	0.01	
791	Raipur	Arang	Nawagaon	494	461	0.22	0	5.94	8.26	0	0	0.26	11.67
792	Raipur	Arang	Nawagaon	167		0.66		0		0	0	0.15	
793	Raipur	Arang	Piparhatta	500		0.55		6.28		0	0	0.01	
794	Raipur	Arang	Ranisagar	1191		0.18		60.6		0	0	0	
795	Raipur	Arang	Umaria station	1235		0.15		44.36		0	0	0	
796	Raipur	Aurang	Godhi	507		0.29		2.43		0	0	0.13	
797	Raipur	Darsinwa	Devri	698		0.2		34.3		0	0	0	
798	Raipur	Dharsinwa	Chrauda	584	582	0.2	1.22	9.93	12.02	0	0	0	2.888
799	Raipur	Dharsinwa	Dharsinwa	613	438	0.29	0.2	2.96	2.81	0	0	0	0.02
800	Raipur	Dharsinwa	Mandhar	737	1585	0.23	0.36	51.68	37.04	0	0	0	11.67
801	Raipur	Dharsinwa	Mandirhasud	980	854	0.33	0	56.12	49.34	0	0	0.02	6.51
802	Raipur	Dharsiwa	RGNGWTRI, CGWB	518	668	0.33	0	0.18	19.03	0	0	0.25	1.29
803	Raipur	Dharsiwa	Sakara	481	883	0.43	0	6.92	44.65	0	0	0	11.807
804	Raipur	Kharora	Kanki	911		0.27		13.56		0	0	0	
805	Raipur	Palari	Palari	675	579	0.22	0.21	36.28	30.28	0	0	0.02	0.01
806	Raipur	Tilda	Biladi	699		0.31		0.02		0	0	0.15	
807	Raipur	Tilda	Chicholi	407		0.25		1.19		0	0	0	
808	Raipur	Tilda	Kharora	464		0.29		14.98		0	0	0	
809	Raipur	Tilda	Math	702	972	0.18	0	47.62	9.71	0	0	0.02	4.031
810	Raipur	Tilda	Pandan Bhata	500		0.56		6.32		0	0	0.03	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
811	Raipur	Tilda	Raita (Satna ni para)	715		0.47		5.59		0	0	0	
812	Raipur	Tilda	Saragaon	697		0.55		15.98		0	0	0	
813	Raipur	Tilda	Tarpongi	536		0.27		14.24		0	0	0.01	
814	Raipur	Tilda	Kendri(Pz-IV)	560	500	0.27	0.28	3.18	5.1	0	0	0.1	0
815	Raipur	Tilda	Panderbhata	455		0.33		12.34		0	0	0	
816	Rajnandgaon	Ambagarh Chowki	Bandhabazar	642	469	0.5	0.64	13.18	2	0	0	0	0
817	Rajnandgaon	Chhuikadhan	Bhorampur	867		0.02		10.8		0	0	0.01	
818	Rajnandgaon	Chhuikadhan	Gandai	825		0.21		1.13		0	0	0	
819	Rajnandgaon	Chhuikadhan	Narmada	842		0.3		10.8		0	0	0	
820	Rajnandgaon	Chhuikhadan	Jangalpur	597		0.1		0.43		0	0	0.03	
821	Rajnandgaon	Chhuriya	Ambagarh chowki	740		0.1		11.29		0	0	0	
822	Rajnandgaon	Chhuriya	Chichola	618	467	0.58	0.54	3.53	7.5	0	0	0	0
823	Rajnandgaon	Chhuriya	Chirchari	148		0		0.46		0	0	0.01	
824	Rajnandgaon	Chhuriya	Chitratola	1749		0.38		49.61		0	0	0.01	
825	Rajnandgaon	Chhuriya	Rampur	349		0.3		8.6		0	0	0	
826	Rajnandgaon	Chhuriya	SadakBanjari	392		0.49		25.78		0	0	0	
827	Rajnandgaon	Chuikhadan	Chuikhadan	836	621	0.13	0.2	10.49	23	0	0	0.02	0.1
828	Rajnandgaon	Dongargaon	Bija Bhata	181		0.68		21.42		0	0	0.02	
829	Rajnandgaon	Dongargaon	Chikohola	772		0.29		0.09		0	0	0.02	
830	Rajnandgaon	Dongargaon	Devkatta	1485		0.2		51.31		0	0	0	
831	Rajnandgaon	Dongargaon	Dongargaon.1	790	612	0.14	0.1	50.55	52.1	0	0	0	0
832	Rajnandgaon	Dongargaon	Jantar	119		0.01		1.89		0	0	0	
833	Rajnandgaon	Dongargaon	Kokpur I	1750		0.74		52.79		0	0	0.01	
834	Rajnandgaon	Dongargaon	Konhari	160		0.58		21.42		0	0	0.01	
835	Rajnandgaon	Dongargaon	Kumarda.1	1040		0.58		41.03		0	0	0.02	
836	Rajnandgaon	Dongargaon	Mathaldabri	1075		0.02		53.41		0	0	0	
837	Rajnandgaon	Dongargaon	Mohar/Mohad	1033		0.09		40.95		0	0	0	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
838	Rajnandgaon	Dongargarh	Bharritola	787		0.17		45.8		0	0	0	
839	Rajnandgaon	Dongargarh	Dhara	1851		0.51		53.86		0	0	0	
840	Rajnandgaon	Dongargarh	Dongargarh	744		0.18		37.65		0	0	0	
841	Rajnandgaon	Dongargarh	Ghortalab	786		0.6		52.3		0	0	0	
842	Rajnandgaon	Dongargarh	Govindpur	1678		1.6		52.34		0	0	0.03	
843	Rajnandgaon	Dongargarh	kalkosa	386		0.19		23.02		0	0	0.01	
844	Rajnandgaon	Dongargarh	Lal bhadurnagar	555		0.26		45.77		0	0	0	
845	Rajnandgaon	Dongargarh	Ranitalab	1671		1.5		1.54		0	0	0	
846	Rajnandgaon	Dongargarh	Sahaspur Dalli	498		0.07		15.4		0	0	0	
847	Rajnandgaon	Dongargarh	Tappa	411		0.24		14.37		0	0	0	
848	Rajnandgaon	Dongargarh	Uraidabritola	1231		1.62		36.54		0	0	0	
849	Rajnandgaon	Khairagarh	Badaitola	1281		0.09		52.2		0	0	0.01	
850	Rajnandgaon	Khairagarh	Dhaneli	754		0.24		14.76		0	0	0	
851	Rajnandgaon	Khairagarh	Jalbanda	337		0.25		41.29		0	0	0	
852	Rajnandgaon	Khairagarh	Khairagarh	642	368	2.48	1.5	8.92	8.4	0	0	0.02	0
853	Rajnandgaon	Khairagarh	Khursipar	534		0.07		39.31		0	0	0.02	
854	Rajnandgaon	Khairagarh	Rangkathera	759		0.08		38.06		0	0	0	
855	Rajnandgaon	Khairagarh	Talagaon	858		0.08		20.92		0	0	0	
856	Rajnandgaon	Rajnandgaon	Anjora	790		0		13.72		0	0	0	
857	Rajnandgaon	Rajnandgaon	Baghera	1322		0		29.6		0	0	0	
858	Rajnandgaon	Rajnandgaon	Bagtarai	532		0.39		2.28		0	0	0	
859	Rajnandgaon	Rajnandgaon	Bargahi 2	852		0.24		11.12		0	0	0	
860	Rajnandgaon	Rajnandgaon	Bhaistara (Bhatapara)	883		0.21		10.94		0	0	0	
861	Rajnandgaon	Rajnandgaon	Bhatgaon	825		1.11		50.54		0	0	0	
862	Rajnandgaon	Rajnandgaon	Borgahi 1	854		0.18		10.8		0	0	0	
863	Rajnandgaon	Rajnandgaon	Bori	855		0		16.5		0	0	0.02	
864	Rajnandgaon	Rajnandgaon	Burhanpur	720		0.49		2.1		0	0	0	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
865	Rajnandgaon	Rajnandgaon	Dewada	632		0.22		20.59		0	0	0	
866	Rajnandgaon	Rajnandgaon	Dharampur	850		0.06		10.91		0	0	0	
867	Rajnandgaon	Rajnandgaon	Gathula	960		0.07		32.7		0	0	0	
868	Rajnandgaon	Rajnandgaon	Gidhwah	861		0.45		10.76		0	0	0	
869	Rajnandgaon	Rajnandgaon	Joratarai	626		0.4		20.93		46	23	0	
870	Rajnandgaon	Rajnandgaon	Maladabri	851		0.9		10.81		0	0	0	
871	Rajnandgaon	Rajnandgaon	Mudmar	852		0.08		10.79		0	0	0	
872	Rajnandgaon	Rajnandgaon	Murhipar	1328		0.11		25		0	0	0	
873	Rajnandgaon	Rajnandgaon	Nawagaon	1293		0.8		29.73		0	0	0	
874	Rajnandgaon	Rajnandgaon	Paneka	1316		1.5		7.49		0	0	0.02	
875	Rajnandgaon	Rajnandgaon	Patewa	1255		0.27		47.41		0	0	0	
876	Rajnandgaon	Rajnandgaon	Patharathola	299		0.38		0.02		0	0	1.03	
877	Rajnandgaon	Rajnandgaon	Rajnandgaon	963	669	0.47	0.45	2.96	3.1	0	0	0	0
878	Rajnandgaon	Rajnandgaon	Ranitarai	1585		0.51		54.88		0	0	0	
879	Rajnandgaon	Rajnandgaon	Reevagahan	624		1.71		2.22		0	0	0	
880	Rajnandgaon	Rajnandgaon	Singhola	253		0.39		1.42		0	0	0	
881	Rajnandgaon	Rajnandgaon	Somni	246		0.06		0.35		0	0	0	
882	Rajnandgaon	Rajnandgaon	Sundara	562		0.18		6.57		0	0	0.01	
883	Rajnandgaon	Rajnandgaon	Surgi	792		0.43		10.99		0	0	0.02	
884	Rajnandgaon	Rajnandgaon	Talai	1053		0.07		5.19		0	0	0	
885	Surajpur	Bhaiyathan	Bhaiyathan	144.5	108	0.3	0.21	1.12	1	0	0	0	0
886	Surajpur	Bhaiyathan	Chainpur	719		0.8		6.56		0	0	0	
887	Surajpur	Bhaiyathan	Dalabahara (Bhaskar)	250		0.23		0		0	0	0	
888	Surajpur	Bhaiyathan	Khandapara	275		0.19		3.04		0	0	0	
889	Surajpur	Bhaiyathan	Odigi	865		0.39		51.25		0	0	0	
890	Surajpur	Bhaiyathan	Samouli (Bhayathan)	298		0.3		5.91		0	0	0	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
891	Surajpur	Bhaiyathan	Satipara (Bhaingamunda)	495		0.53		0		0	0	0	
892	Surajpur	Pratappur	Banshipur	232		0.45		1.09		0	0	0	
893	Surajpur	Pratappur	Bhediya	175.7		0.27		2.73		0	0	0	
894	Surajpur	Pratappur	Chanchidand	433		0.19		7.09		0	0	1.435	
895	Surajpur	Pratappur	Chandora	325		0.24		23.09		0	0	0	
896	Surajpur	Pratappur	Darhora	522		0.26		8.47		0	0	0	
897	Surajpur	Pratappur	Dawankera	447		0.41		4.77		0	0	0	
898	Surajpur	Pratappur	Dharampur	386	288	1.1	0.54	0.3	0.1	0	0	1.109	0
899	Surajpur	Pratappur	Dhondha	136.3		0.19		0		0	0	0	
900	Surajpur	Pratappur	Durti	1091		1.45		0		0	0	0	
901	Surajpur	Pratappur	Gonda	112.7		0.08		9.54		0	0	0	
902	Surajpur	Pratappur	Jagannathpur	721		0.35		59.9		0	0	0	
903	Surajpur	Pratappur	Karajwar	1296		0.47		18.64		0	0	0	
904	Surajpur	Pratappur	Podi	328		0.78		0		0	0	0	
905	Surajpur	Pratappur	Reonti	385		0.59		0.49		0	0	0	
906	Surajpur	Pratappur	Songara	529		0.3		0.72		0	0	0	
907	Surajpur	Prathppur	Batauli	833		0.27		1.1		0	0	0	
908	Surajpur	Prem nagar	Katarouli (Harrapara)	755		0.28		31.41		0	0	0	
909	Surajpur	Premnagar	Abhaypur	754		1		4.78		0	0	3.47	
910	Surajpur	Premnagar	Fulkona	41.1		0.05		0		0	0	0	
911	Surajpur	Premnagar	Hanumangarh	578		0.15		55.18		0	0	0.01	
912	Surajpur	Premnagar	Premnagar	898	689	0.38	0.31	58.45	60	0	0	0	0
913	Surajpur	Premnagar	Salka	407		1.07		0		0	0	0	
914	Surajpur	Premnagar	Shivnagar	274		0.05		51.05		0	0	0	
915	Surajpur	Premnagar	Tara	45.1		0		0		0	0	0	
916	Surajpur	Premnagar	Tara	2040		0.8		59.76		0	0	0	
917	Surajpur	Ramanujnagar	Ganeshpur	237		0.38		0		0	0	0	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
918	Surajpur	Ramanujnagar	Jagatpur Podipara	595		0.54		14.26		0	0	0	
919	Surajpur	Ramanujnagar	Ramanuj nagar	823	597	1.27	0.97	28.37	14	0	0	0.03	0.1
920	Surajpur	Surajpur	Badsara	157		0.07		29.06		0	0	0	
921	Surajpur	Surajpur	Bishrampur	586		1.21		17.63		0	0	0	
922	Surajpur	Surajpur	Darripara	100.2		0.01		5.03		0	0	0	
923	Surajpur	Surajpur	Deonagar	319		0.76		0		0	0	0	
924	Surajpur	Surajpur	Jaynagar	191		0.27		0		0	0	0	
925	Surajpur	Surajpur	Kaliyanpur	253		0.12		38.17		0	0	0	
926	Surajpur	Surajpur	Kanakpur	205		0.22		2.03		0	0	0	
927	Surajpur	Surajpur	Krishnapur (kalwa)	857		1.05		23.38		0	0	0	
928	Surajpur	Surajpur	Madanpur	230		0.26		0		0	0	0	
929	Surajpur	Surajpur	Majeera	428		2.89		3.02		0	0	0	
930	Surajpur	Surajpur	Newara	873		0.31		4.96		0	0	0	
931	Surajpur	Surajpur	Pachira	363		0.46		2.98		0	0	0	
932	Surajpur	Surajpur	Pal Danauli	150.2		0.18		6.67		0	0	0	
933	Surajpur	Surajpur	Sirsi	323		0.37		0		0	0	0	
934	Surajpur	Surajpur	Surajpur	119.5	101	0.07	0.01	5.97	5.46	0	0	0.03	0
935	Surajpur	Surajpur	Tulsi	405		0.06		0		0	0	0	
936	Surajpur	Surajpur	Uchdih	190.4		0		0.67		0	0	0.02	
937	Surguja	Ambikapur	Ambikapur-D	237	176	0.47	0.32	8.19	7.46	0	0	0	0.6
938	Surguja	Ambikapur	Baghima	289		0.17		9.43		0	0	0	
939	Surguja	Ambikapur	Chatakpur	136.2		0.09		5.93		0	0	0	
940	Surguja	Ambikapur	Darima	221		0.55		6.98		0	0	0	
941	Surguja	Ambikapur	Katkalo	138		0.29		28.03		0	0	0	
942	Surguja	Ambikapur	Nawapara	269		0.51		10.01		0	0	0	
943	Surguja	Ambikapur	Parsa	390		0.14		42.77		0	0	0	
944	Surguja	Ambikapur	Rajpurikhurd	43.4		0.9		5.03		0	0	0	

Sr.	District	Block	Location	EC (µS/cm at 25 C)		F (ppm)		NO3 (ppm)		As (ppb)		U (ppb)	
				Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M	Pre-M	Post-M
945	Surguja	Ambikapur	Sargawan (Babupara)	395		0.8		0		0	0	0	
946	Surguja	Batauli	Bandana	277		0.22		4.35		0	0	0	
947	Surguja	Batauli	Belkota	88		0.07		18.09		0	0	0	
948	Surguja	Batauli	Chendra	616		0.07		26.29		0	0	0	
949	Surguja	Batauli	Sedam	390	250	0.45	0.33	11.69	21.4	0	0	0	0.02
950	Surguja	Lakhanpur	Lakhanpur	55.5	86	0.13	0.08	5.04	5.4	0	0	0	0.01
951	Surguja	Lakhanpur	Mendrakalan	52.1		0.74		11.48		0	0	0	
952	Surguja	Lakhanpur	Rajakatel	393		0.19		20.13		0	0	0	
953	Surguja	Lakhanpur	singhitana	311		0.1		33.88		0	0	0	
954	Surguja	Lundra	Amdih	632		0.16		0		0	0	0	
955	Surguja	Lundra	Bulga	56.4		0.08		5.65		0	0	0	
956	Surguja	Lundra	Dhaurpur	138.8		0.24		27.45		0	0	0	
957	Surguja	Lundra	Lundra	324	238	0.22	0.15	33.56	34.1	0	0	0	0.02
958	Surguja	Mainpat	Amgaon	369		0.09		0.6		0	0	0	
959	Surguja	Mainpat	Kamleswarpur	216	163	0.44	0.34	25.95	27.3	0	0	0	0.2
960	Surguja	Mainpat	Nagdand	356		0.24		30.84		0	0	0	
961	Surguja	Sitapur	Pratapgarh	200		0.18		2.48		0	0	0	
962	Surguja	Sitapur	Sitapur-d	476	388	0.3	0.21	48.91	46.1	0	0	0	0
963	Surguja	Sitapur	Sontarai (Sitapur)	327.8		0.25		1.08		0	0	0	
964	Surguja	Surajpur	Choudeya	686		0.24		52.32		0	0	0	
965	Surguja	Surajpur	Parsa	184.9		0.07		52.37		0	0	0	
966	Surguja	Udaipur	Mudgaon	664		2.48		0.31		0	0	0	
967	Surguja	Udaypur	Jajga	239		0.1		46.12		0	0	0	
968	Surguja	Udeypur	Dandgaon	119		0.09		10.2		0	0	0	
969	Surguja	Udeypur	Udaipur	420	327	0.4	0.31	19.21	21.9	0	0	1.506	0.01
970	Surguja	Udeypur	Udaipur-d	105.5		0.08		19.99		0	0	0	

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