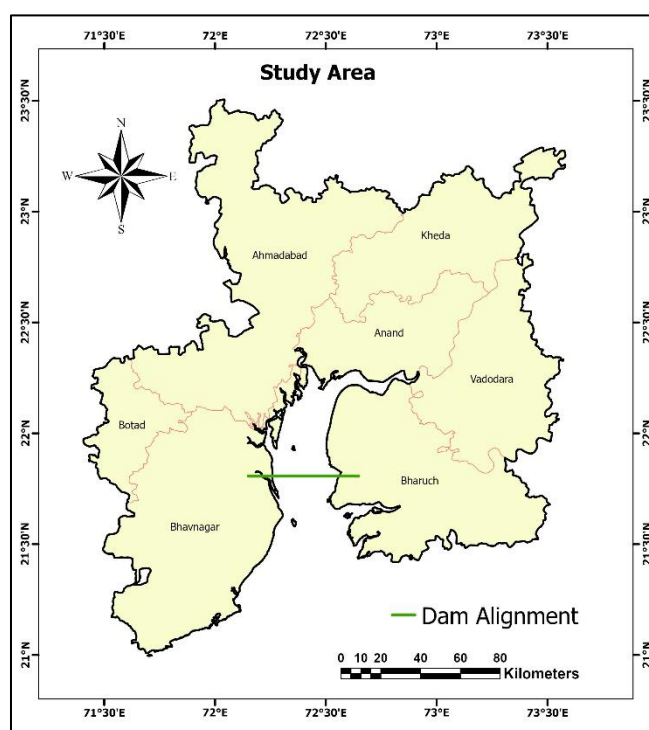


Report on Ground water modelling for the Kalpasar Dam Project, Gulf of Khambhat, Gujarat

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ANNEXURE

AnnexureI: Groundwater Monitoring and Quality Data of CGWB and GWRDC for Anand-Kheda Model Area

AnnexureII: Groundwater Monitoring and Quality Data of CGWB and GWRDC for Ahmedabad-Bhavnagar Model Area

AnnexureIII: Groundwater Monitoring and Quality Data of CGWB and GWRDC for Bharuch Model Area

EXECUTIVE SUMMARY

- The demand for fresh water is increasing rapidly due to population growth and reliance on ground water.
- Parts of Gujarat specially Saurashtra Region and North Gujarat and Kachchh Regions has been experiencing severe droughts during past few decades due to arid and semi-arid climatic conditions, scanty and erratic rainfall, reduction in groundwater table, and scarcity of freshwater resources.
- To improve water availability in this water stressed region of State the Government of Gujarat proposes the multipurpose Kalpasar Dam Project which envisages a large freshwater reservoir by storing the run-off of 10,000 million cubic meter of water from west-flowing rivers by construction of a dam across Gulf of Khambhat (Cambay Bay) between Kardej village, Bhavnagar and Paniyadra village, Bharuch. The dam will also provide a much shorter road connectivity between Bhavnagar and Bharuch/Surat which are important towns of Gujarat situated on opposite side of Gulf of Khambhat. Irrigation benefits in Saurashtra Region in addition to rejuvenation of rivers and augmentation of groundwater in this region.
- The Gulf of Khambhat is a tidal regime in the Arabian Sea bordering the state of Gujarat it shares its border with five districts of the Gujarat state namely Bhavnagar, Ahmedabad, Vadodara Bharuch and Surat.
- Number of studies have been made by various organization in this region for viability of Kalpasar Project in this Region.
- Since groundwater is an important source of water for irrigation, Industrial and Domestic Use, the impact of Kalpasar Dam Project on its surrounding is critical for groundwater management in this region.
- The present study aims to generate baseline information and status of the ground water condition in the area for studying short-term and long-term changes in the project. The purpose of the study is to map the fresh water-sea water interface, groundwater level, and predictive simulation of seawater intrusion.

- Initial phase involved surveying secondary literature on the research area including review of various study reports, including Geology, Hydrogeology, and Geophysical studies. Examination of groundwater status, water levels, and quality problems. Gathering of secondary data from government agencies, especially along the Khambhat Gulf and Coast. Analysis of hydrogeological data from 2012 to 2022 from CGWB and GWRDC. Preparation of thematic maps and identification of zones for further study and ground truthing and data collection visits to the area for future work.
- Geologically, Gujarat has a wide range of rock types, with the Aravallis in the NE dating back to 2500 million years, and unconsolidated alluvium and beach material of recent time.
- The study area is located in Central Gujarat and surrounds the Gulf of Khambhat. Four districts namely Bhavnagar, Ahmedabad, Anand and Bharuch are situated around the gulf, due to vicinity and hydrogeological constraints parts of Vadodara, Nadiad, Botad, Rajkot and Amreli districts are also included in the study area. The region is represented by various rock formations, from the Igneous and Metamorphic rocks in eastern part of Kheda District to recent age loose fluvial/marine originated sediments. The oldest rock formation in the study area is the Aravalli formations outcropping in parts of Kheda District, Deccan trap, dating back to the late Cretaceous-Eocene age with basalt as its predominant rock type also outcrops in large area. The tertiary formations are represented by Gaj and Dwarka formations in the Saurashtra coast and in Bharuch District. The mainland Quaternary deposits are result of Quaternary fluvial system of Narmada, Mahi, and Sabarmati. The Holocene coastal deposits are represented by raised mudflats and coastal ridges of Flandrian transgression (6000 years BP).
- The coastal region is characterized by various geomorphic units and landforms developed through factors like rock types, tectonics, topography, landcover, climate, and fluvial, marine, and aeolian actions. These features include deltas, rocky cliffs, marine deposits, islands, gulfs, lagoons, tidal creeks, beach ridges, etc.

- The western shore of Gulf of Khambhat is extending from Narmada River in south to Estuary of Mahi River in north and the eastern shore of Gulf of Khambhat covers coastal part of Bhavnagar extending upto Ahmedabad.
- The Gulf's shoreline is varied, with estuaries, streams, islands, mudflats, and salt marshes. The shoreline has notable estuaries created by the Sabarmati River, Mahi River and Narmada River.
- Landsat data shows notable geomorphological changes in the past 20 years due to erosion and depositional processes caused by tidal pressures, human activities, and industrialization.
- Changes on the shoreline of the Narmada and Mahi estuaries are notable, with depositional activities predominating in the Narmada Estuary and erosion processes more common in the Mahi Estuary.
- The "Bhal" area is a paleo-mudflat that stretches over a large salty low land stretch from Bhavnagar to Khambhat.
- Land use patterns in the area are influenced by factors like topography, climate, soil fertility, and human activity. The All-India Soil & Land Use Survey Organization categorizes Gujarat State's soils into primary soil groups: Goradu sandy loam, Medium black soil, Deep black soil, coastal alluvium (saline) soils, desert soils, and Mud.
- The study area includes Ahmedabad, Anand, Bhavnagar, Botad, , Bharuch, and parts of Kheda Vadodara, Botad, Rajkot and Amreli districts.
- The area lies in the Cambay basin, between Saurashtra Crater and Aravali Swell and Deccan Shield.
- The areas surrounding Gulf of Khambhat covered by Bhavnagar Ahmedabad District, Anand District, Vadodara District and Bharuch District are largely occupied by an alluvial tract, the largest and most potential groundwater reservoir. The aquifers are extensive, thick, hydraulically connected, and high to moderate yielding. The alluvium form multiaquifer system in the area and aquifers down to 300 m bgl are being exploited in feasible area.

- The high relief areas in the eastern and western parts are occupied by the Deccan Traps and the Achaean, providing little groundwater recharge and the groundwater potential in this terrain is limited.
- Bhavnagar, Botad Kheda, and Vadodara districts are occupied by hard and fissured formations, including basalt, consolidated sedimentary formations, and semi-consolidated sediments.
- The quality of groundwater in both hard rock and alluvial terrain is generally suitable except in coastal areas and estuarine tracts where the degree of mineralization in groundwater is high and salinity is common.
- The different conditions of groundwater occurrence in the area have led to divergent groundwater situations in the areas occupied by different geological formations.
- In Anand & Kheda District is largely covered by Alluvium deposited by Sabarmati and Mahi Rivers and its tributaries. Alluvium forms a multilayer aquifer system underlain by Tertiary and Mesozoic formations. Ground water occurs under phreatic and confined conditions in arenaceous horizons. Ground water is extensively developed by dug, dug-cum-bored, and tube wells. Depth to ground water varies from 5 m to 38 mbgl. Ground water quality is generally suitable for irrigation. In Kheda District Quaternary alluvium largely covers the area and Post Miocene formations are present in the western part. Eastern part predominantly occupied by formations varying in age from Achaean to Tertiary age. Formations comprise multi-layered sequence of gravel, sand, clay, and kankars intermixed at places. Alluvium thickness increases from north and Northwest towards south and southwest direction. Alluvium is underlain by Deccan traps in general with intervening blue clays at some places.
- The Ahmedabad district is largely covered by Alluvium formations of North Gujarat which have been extensively studied by UNDP and by subsequent exploration by CGWB. Unconfined Aquifers are found in upper horizons down to 60-75 m bgl. It is composed of medium to fine grained sand, silt, and local lenses of sandy clay and clay. Medium to fine grained sands found in north-eastern part of the district. Fine grained sands with silt found further south and south-west at Dholka and Sanand taluka.

Aquifers between 30 and 75 mbgl with thickness varying between 20 and 45 m are considered as aquifer “A”. Ground Water occurs under phreatic conditions in northeastern part of the district. Semi-confined conditions in south and southwestern directions of Sanand, Dholka, Dhandhuka, and Dholera taluka. Groundwater quality in northeastern part of the district and eastern part are good. The aquifers are being development by dug, dug-cum-bored wells, and tube wells. Phreatic aquifers are underlain by Contained Aquifers which are separated by persistent clay formations of considerable thickness. Aquifers Grouped as B, C & D within post Miocene alluvial sediments and G and F aquifers in Miocene sediments within the drilled depth of 565 m in the district. Distribution of confined aquifers varies considerably in the district. Confined aquifers with potable water occur down to 300 to 350 m in the area towards north and northeast of the low lying “Bhal” land in the district. Deccan trap formation occurring in Dholka region forms the only hard rock aquifers in the district and are not potential groundwater reservoirs.

- The Deccan trap and Quaternary formations form the aquifer within Bhavnagar, Rajkot, Botad and Amreli Districts, with groundwater occurring under water table and semi-confined conditions. Dug and dug cum bore wells are common structures used for groundwater extraction. The quaternary formation, which is shallow to moderately thick and overlying the Deccan trap, constitutes about 5% of the total area covered and consists of clays, marl, chert, and sand gravel. Groundwater in these formations occurs under unconfined conditions, controlled by primary and secondary porosity. The yield of dug wells ranges from 170 m³/day to 800 m³/day. Deccan trap basalt occupies a major part of the district and forms the most extensive aquifer system. It generally forms a poor aquifer due to compactness and poor primary porosity, but upper weathered parts form good aquifers. Secondary porosity developed due to tectonic activities, such as joints, fractures, and shear zones, form reservoirs of groundwater at many places. Amygdaloidal horizons within basalt also form potential aquifers at places. The groundwater in basalt occurs under phreatic to confined conditions and is tapped through dug wells varying in depth from 5 to 30 m. Dug-cum-bored wells in

basalt generally range from 100 to 500 m³/day. Vesicular & amygdaloidal horizons within basalt may have yields of up to 1000 m³/day.

- Geology of Bharuch district is complex, with semi-consolidated Cretaceous, Tertiary formations, and unconsolidated alluvial deposits forming multi-aquifer systems. Alluvium form aquifer in central, south-central and western half of district, aquifers are less potential and are affected by inherent/coastal salinity, Yield of this Aquifer varies from 3 to 20 lps. Tertiary formations are inherently saline and contain poor quality groundwater. Groundwater occurs under unconfined conditions in limestone and sandstone aquifers of Bagh beds, with movement restricted to fractures and joints in Limestones and Sandstones. The Deccan Trap has led to multi-layered stratified aquifers, with each flow comprising two distinct units: upper vesicular Basalt and lower massive Basalt. The movement of groundwater is controlled by secondary porosity developed by fractures and joints. The district's dug wells in Deccan traps sustain pumping from 1/2 hour to 10 hours with discharge varying from 200 to 1200 liter per minute (LPM) for a drawdown of 4 to 7 meters. Sandstone is the main aquifer in Tertiary formations, but limestone also yields significant quantities of groundwater. Deep tube wells tapping Tertiary formations can yield 300 to 3000 LPM of water for a meager drawdown.
- In major parts of Vadodara District multilayered alluvium deposits form the aquifer system, in the Northeastern part of Mahi-Narmada Doab has Tertiary formations at shallow depths of 13 to 45 mbgl. In the western part of Narmada-Mahi Daob, the Tertiaries are overlain by alluvium. The thickness of alluvium increases towards the west in the Daob, while in the Northeastern sector, it reduces to 13 to 45 m. The depth of tertiary increases in the western part of the district. The weathered basalts, granite, gneiss etc., covered by soil / murrum and the valley fill & piedmont deposits forms potential aquifer in the vicinity of rivers and on vast undulating plains adjacent to hilly terrain, but their regional continuity and extent are limited due to heterogeneous nature of deposits. Yield of alluvium Aquifer is about 3 to 20 lps. In hard rock terrain exploratory wells constructed between 50 to 450 mbgl, yield having 0.23 to 11 lps.

- Monitoring groundwater levels and fluctuations due to monsoon rainfall and other recharge factors is crucial for sustainable water management. Understanding these dynamics is essential for mitigating difficulties like depletion and contamination, ensuring water security, and maintaining ecological balance. Analysis of water level and water quality data from GWRDC and CGWB shows a pattern of shallow water levels near the coast, but as one moves out from coast, water levels are significantly deep. The groundwater quality in the area adjoining the Gulf of Khambhat is generally inferior due to presence inherently saline aquifers and effect of coastal salinity. The groundwater quality is likely to improve with storage and inflows of fresh water from the Kalpasar Reservoir.
- The Groundwater Model developed for area adjoining Gulf of Khambhat for Kalpasar project aims to assess the potential impacts on the groundwater system from the proposed Kalpasar project. The study will follow staged approach outlined by the Government of India, Ministry of Jal Shakti, Department of Water Resources, RD & GR, Central Ground Water Board. This includes data collection, conceptualization of the groundwater system, model design, calibration, and predictive scenario modelling for reservoir construction impacts.
- Groundwater models are valuable tools for managing groundwater resources, with mathematical models commonly used to study groundwater systems. Numerical techniques like finite difference and finite element methods are used to solve differential equations that describe groundwater flow. The finite difference method is preferred for its simplicity and lower memory requirement, while the finite element method offers flexibility in mesh formation. The finite difference method has been applied in the present study due to ease of implementation.
- MODFLOW is a widely used numerical model developed by the U.S. Geological Survey to simulate groundwater flow in a three-dimensional medium using finite difference method. In complex hydrogeological conditions, the vertical discretization in the model can cause cells to contain material from different stratigraphic units.

- For convenience of study in the vast area, which spans a vast 200km in length, is too extensive to be processed as a single model for hydrogeological and computational constraints. The area is divided into three parts, Anand and parts of -Kheda district is modelled as Model – I, Parts of Bhavnagar- Ahmedabad adjoining Gulf of Khambhat is modelled as Model – II and parts of Bharuch covering Jambusar and Vaghra Taluka and small parts of Amod, Bharuch District and Padra, Vadodara district is modelled as Model - III.
- All the three model were developed in three steps as per guidelines of CGWB. Based on existing data on hydrogeology the model was conceptualized and boundary conditions were identified. Physical boundaries like River, water shed boundary, seacoast were identified and digitized for including in the numerical model. Aquifer parameters like conductivity and storage coefficient were taken from hydrogeological studies done by CGWB under its NAQUIM project and earlier studies by CGWB and GWRDC including existing literature and scientific papers.
- Later conceptual model was converted into Numerical Model. The Numerical Model was tested and calibrated for single Stress Period of one day. The Model was validated for six-year period from 2017 to 2022 by imposing various stress like recharge, drainage, evapotranspiration and groundwater extraction. The Net recharge computed as residual of gross recharge and ground water draft was identified and imposed as recharge.
- Validated model was tested for two strategies 1) simulation and prediction of groundwater scenario with continuation of present condition as scenario I and 2) simulation and prediction of groundwater scenario after construction of Kalpsar Dam as Scenario II. Maps, tables and chart like Water Table configuration, total volumetric groundwater budget for each year for different scenario were studied. Groundwater budget for each taluka or part of taluka falling in the model area was computed and tabulated and charts were prepared. Hydrographs at select location were also studied and profile of water table across and along coast for different scenario was also compared and studied.

- Model I: covers Parts of area adjoining Gulf of Khambhat in Tarapur, Khambhat, Ankav, Anand, Umreth, & Sojitra Taluka, Anand District, Matar, Nadiad, Vaso & Thasra Taluka, Kheda District. The mathematical model of the area has been prepared considering Two Aquifer system available down to 150 mbgl as per local hydrogeology. The aquifers are separated by a aquitard. Boundary conditions considered for the model are constant Head, drain, recharge and Evapotranspiration. The RMS value for Calibrated model is 1.81 m. The model was validated for six-year period from 2017 to 2022 and historical water level data for observation station of CGWB and GWRDC were matched with computed water levels data. The hydrographs show a satisfactory match. For simulation of future scenario and prediction of futuristic water level the model was run for 10 years for prediction of future scenario considering existing following two scenarios A) Scenario I: Groundwater regime without construction of Kalpasar Project, B) Scenario II: Groundwater condition with construction of Kalpasar Project. Overall, the simulated water levels by the groundwater model show rise in water levels along the coast after construction of Kalpasar dam in comparison to the water level without construction of Kalpasar. Storage of fresh water would also push saline water presently occurring in parts of the area specially Bhal area.
- Model II: It covers parts of Ahmedabad and Bhavnagar District Gujarat, however some parts of Botad, Rajkot and Amreli Districts are also covered. The area is overlain by North Gujarat Alluvium in east and is composed of alternating horizons of sand and clay layer, western part is occupied by Deccan trap basalts. The mathematical model of the area was prepared considering two aquifer system available down to 150 mbgl. Boundary conditions considered for the model are no flow boundary, constant head boundary, drainage boundary and net Recharge applied to the topmost layer. The RMS value for calibrated model is 6.68 m. The model was validated for six years period from 2017 to 2023, The hydrographs generated for existing monitoring wells show a general match between observed and predicted water levels. The model was run for 10 years for prediction for future scenario considering existing inputs for various stress considering two scenarios A) Scenario I: Groundwater regime without construction of

Kalpasar Project, B) Scenario II: Groundwater condition with construction of Kalpasar Project. The simulation made reveals that construction of Kalpasar Project will cause rise in water levels in vicinity of the reservoir area which will also flush the saline ground water.

- Model III: covers parts of Jambusar, Vaghra and Amod Taluka of Bharuch District and parts of Padra taluka in Vadodara District in central part of Gujarat. The area is overlain by Gujarat Alluvium and is composed of alternating horizons of sand and clay layer. The mathematical model of the area has been prepared considering two aquifer system available down to 150 mbgl. The aquifers are separated by a aquitard. Boundary conditions considered for the model are constant head, drain, gross recharge and draft. For the calibrated model the RMS value for steady state is 4.53 m. The model was run for 10 years for prediction for future scenario considering existing inputs for various stress considering two scenarios. A) Scenario I: Groundwater regime without construction of Kalpasar Project, B) Scenario II: Groundwater condition with construction of Kalpasar Project. The simulation made reveals that construction of Kalpasar Project will cause rise in water levels in vicinity of the reservoir area which will also flush the saline ground water.
- The simplifying assumptions embedded in the mathematical equations and many uncertainties in the values of data required by the model makes the model as an approximation and not an exact duplication of field conditions. The model has been simplified as per availability of data and consisted of a two-layer/three-layer aquifer of depth down to data availability. Large part of the area has salinity and observation wells are not sufficient to represent the water table/piezometric head and saline/freshwater interface. In large part of the area phreatic aquifer has quality constraints and is not being developed for Domestic/Irrigation, hence details are limited. The regional hydrogeological framework of project area has been defined by a model grid of 1000x1000 m which is large and locally condition may vary. In the present scenario, specified flow and no flow boundary condition was taken using zero start and end flux, however same may vary during stress condition in the area.

1. Introduction

Water is one of the fundamental elements for humankind and in the modern era with the growth of the population the demand for fresh water is increasing rapidly due to the use of water for drinking as well as irrigation usage. As an increasing demand for water, the population is relying highly on ground water. High ground water excavation leads to decreasing groundwater levels. Especially in the coastal area, where the sea water flows into freshwater aquifers is known as saltwater intrusion, and it can lead to groundwater quality contamination, including drinking water. This kind of problem needs new & innovative solutions.

The Saurashtra region of Gujarat has been experiencing severe droughts for few decades due to arid and semi-arid climatic condition, scanty rainfall, reduction in the groundwater table and scarcity of freshwater resources. To mitigate and improve freshwater resources for drinking, irrigation and other purposes, the Government of Gujarat (GoG) proposes an ambitious project, called Kalpasar Dam Project, which involves constructing a ~30 km long dam across the Gulf of Khambhat to create a large freshwater reservoir by storing the run-off of 10,000 million cubic meter of water from west-flowing rivers, namely; Sabarmati, Mahi, Dhadhar and Narmada on the upstream of the dam.

The Government of Gujarat has requested the Ministry of Earth Sciences (MoES), Government of India (GoI), to prepare the Detailed Project Report (DPR) for the Kalpasar Dam Project considering the expertise available with the (Ministry of Earth Sciences (MoES). To prepare this DPR, MoES has identified National Centre for Coastal Research (NCCR). Towards the preparation of the DPR, the urgent tasks are to compile the reports of the studies conducted in the Kalpasar project areas, identify the gap areas, and prepare a Detailed Project Report (DPR) for obtaining the necessary clearances and statutory approvals for the construction of the Dam.

The Gulf of Khambhat is a tidal regime in the Arabian Sea bordering the state of Gujarat, formed at the mouth of major rivers such as; Tapti, Narmada, Mahi, Sabarmati and Dhadhar that form estuaries along the western coast. The Gulf of Khambhat is about 200 km long, 20 km wide along the north, and up to 70 km wide in the southern part of the project area. The coastal area of Gulf

of Khambhat shares its area with four districts of the Gujarat state namely; Bhavnagar, Ahmedabad, Anand and Bharuch.

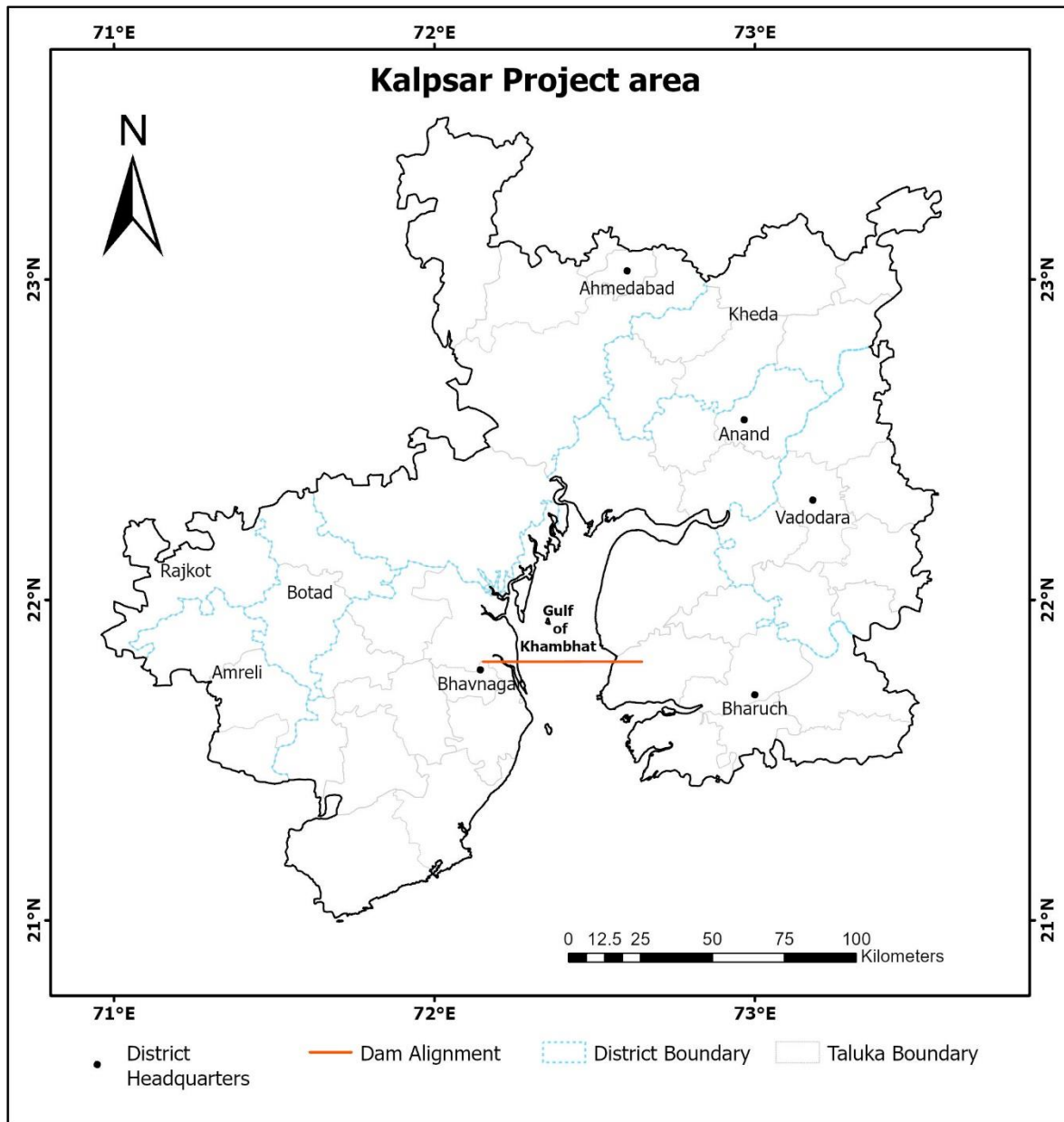


Figure 1-1: Kalpasar Project Area in the Gulf of Khambhat region of Gujarat, India

Insights from the above concept, the ambitious project to create freshwater reservoir to meet the demand of fresh water was conceived. The change in the water quality in the project area may change the interface between fresh water and sea water and change the quality of the

ground water. Thus, the study was proposed to generate baseline status of the water quality of the area and can be used to assess the long-term effect due to reservoir.

NCCR has requested Institute of Seismological Research, Ministry of Earth Sciences, Government of Gujarat (ISR) to compile baseline information and status of the ground water condition in the area for studying short term and long-term changes in the ground water quality in the upstream region of the Kalpasar project.

1.1 Scope of Works

- Mapping fresh water-sea water interface in the project area.
- Generation of base-line data of the fresh water-sea water interface.
- Mapping of groundwater level from existing wells around the project area.
- Predictive simulation of Seawater intrusion.

1.2 The purpose of this study:

Understanding the existing state of the research region and preparing baseline data for comparison in subsequent findings are the study's primary goals. Predictive modelling is created using the gathered historical data, baseline data from the field, and public domain to show prospective outcomes in various scenarios.

2. Study approach and methodology:

In the current work, baseline data for subsurface resistivity structure is employed as a basis for comparison with future scenarios, and ground water modelling technique is applied for predictive modelling.

2.1 Preliminary Survey

To build a conceptual grasp of the topic, the first phase of planning started with a survey of secondary literature pertinent to the research and study area. Various study reports, published, and unpublished documents were reviewed as part of this, including reports pertaining to Geology, Hydrogeology, Geophysical studies etc. This included the status of the groundwater in the area, information about water levels and water quality problems, as well as the efforts of various government and non-government organizations in the area to alleviate the problems. Along with an examination of the literature, secondary data was gathered from various government agencies, particularly pertaining to the region along the Khambhat Gulf and Coast surrounding the Kalpasar Dam Project. The static and dynamic hydrogeological data for the area from 2012 to 2022 was obtained from the Central Ground Water Board (CGWB) and Gujarat Water Resource Corporation (GWRDC) for the analysis. After study and analysis of the secondary data, various thematic maps were prepared, and zones were identified for taking up further study. For ground truthing and further data collection visit to area was made to conceptualize the study area for the forthcoming work.

2.2 Geology and Geomorphology of the Study area

The state of Gujarat comprises an area of approximately 1,96,000 sq. km and is enclosed within the North Latitude of 20°10' to 24° 50' and East Longitude of 68° 40' to 74° 40'. Geologically, Gujarat provides a wide spectrum of rock types of different ages. Whereas the Aravallis in the NE are as old as 2500 million years, the unconsolidated alluvium and beach material in its Central and Western parts date back to a few thousand years only. All the important lithological types Igneous, Sedimentary and Metamorphic occur within the State of Gujarat. The study area located in Central Gujarat part of the state and surrounds Gulf of Khambhat. It is represented by various

rock formations ranging from the volcanic rock of Deccan Trap to Recent age loose fluvial/marine originated sediments deposited by co-actions of the river and marine environment. The oldest rock formation in the study area is the Deccan trap of the late Cretaceous-Eocene age with dominant rock types of basalt. The trap in coastal regions is overlain by a full Tertiary succession. The Eocene formations are well developed, followed by regressive Oligocene and transgressive Miocene formations followed by younger beds. Figure 2-1 is a geological map of study area.

Formations deposited during the Cenozoic Era can further be classified into two periods i.e., Tertiary and Quaternary. Cenozoic rocks are exposed all along the coastal areas in the western strip i.e., Diu to Bhavnagar region in Saurashtra. Tertiary formation of Mainland Gujarat form only small, exposed portion of the Cambay Basin sediments, as the large part of the basin lies subsurface on the east and north of the Gulf of Khambhat. In the Saurashtra coast, rock formations of the Tertiary Periods are represented by Gaj and Dwarka formations. In Bhavnagar near Ghogha, the exposed thickness of Gaj Formation has been reported to be around 600 m and decreases towards Jafrabad. While the clay bed Gaj formation are rich in microfossils, large shells of *Ostrea* fossil reported from Gaj beds near Bhavnagar area characterizes lower Miocene age. Along the Gulf of Khambhat, rocks of Piram beds overlie Gaj formation in the Ghogha area and Piram Island. These formations are equivalent to Dwarka Formation mainly consists of sequence of conglomerate, sandstone and clay. The lowermost band is of boulder conglomerate is rich in mammalian fossils. Overall characteristics of Piram beds indicate its fluvio-littoral origin.

The mainland Quaternary deposits, exposed in North and eastern coast is considered to owe its origin to a powerful Quaternary fluvial system of Narmada, Mahi and Sabarmati. The Holocene coastal deposits are represented by raised mudflats and coastal ridges are of Flandrian transgression (6000 years BP). The raised mudflats are well exposed between Mahi and Narmada River. South of Narmada, up to Tapi sandy ridges dominates.

The geology of the region includes a variety of rock formations, from the volcanic rock of the Deccan Trap to recent age loose fluvial derived sediments deposited by co-actions of the river and marine water.

The Deccan trap, which dates back to the late Cretaceous and has basalt as its predominant rock type. Achaean represented by Granite-gneisses, Phyllite and Schists are the oldest geological

formation in the study region. A full Tertiary succession covers the trap in coastal areas. Figure 2 shows the geological map of the study area.

The powerful Quaternary fluvial system of the Narmada, Mahi, and Sabarmati is thought to be the source of the mainland Quaternary sediments that are exposed on the north and eastern shore. Raised mudflats are representative of the Holocene coastal deposits, while the coastal ridges date to the Flandrian incursion. Between Mahi and the Narmada River, the raised mudflats are clearly visible.

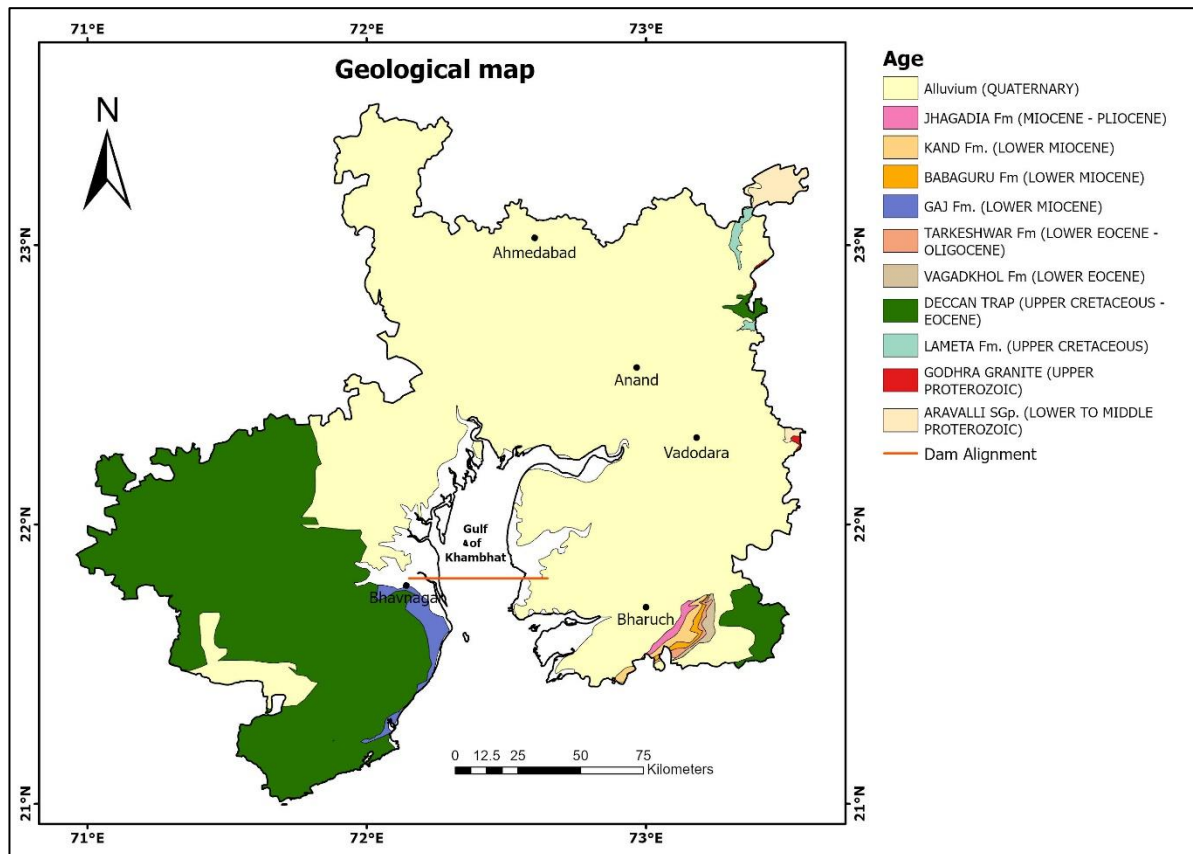


Figure 2-1: Geological Map of the study area

2.3 Geomorphology

The coastal region of India presents a variety of Geomorphic units and landforms developed through several factors like rock types, tectonics, topography, landcover, climate and the fluvial, marine and aeolian actions. These processes also evolved the coastline and left their imprints as major geomorphic features. Various geomorphological units such as deltas, rocky cliffs, marine

deposits, islands, gulfs, lagoons, tidal creeks, beach ridges etc. are encountered along the east and west coasts of the country.

Saurashtra's eastern shore reaches Bhavnagar, after which it merges with the Gulf of Khambhat. The Gulf's shoreline is geomorphologically varied, with a variety of estuaries, streams, islands, mudflats, and salt marshes. The "Bhal" area is a paleo-mudflat that stretches over a large salty low land stretch from Bhavnagar to Khambhat (Patel, 1996). The shoreline has considerable mudflat and mud bank growth from Gopnath to Ghogha, and it is rocky with short, narrow, non-calcareous sandy beaches from Ghogha to the mouth of the Sabarmati River (Fig. 3). At Sultanpur, there is a notable estuary delta created by the Shetrunji River, which empties into the Gulf close to Gopnath. The alluvial stretch extending from Khambhat to Bharuch is distinguished by sharply inclined river mouths that rise sharply to a height of up to 30 meters above the tidal flats.

According to studies using Landsat data, there have been notable geomorphological changes during the previous 20 years in land types such shorelines, estuaries, mudflats, islands, mangroves, cliffs, dunes, floodplains, etc (Naik and Baldev, 1985; Shaikh et al., 1989). These alterations resulted from erosion and depositional processes caused by powerful tidal pressures as well as developmental activities including building dams, destroying mangroves owing to human involvement, and quickly industrializing the area. Changes on the shoreline of the Narmada and Mahi estuaries are noteworthy. In the Narmada Estuary, depositional activities predominate, whereas erosion processes are more common in the Mahi Estuary. Since the deposition at the mouth of the Narmada Estuary is at its highest, Aliya Bet Island gradually expanded into the mudflat area, connecting it to the mainland.

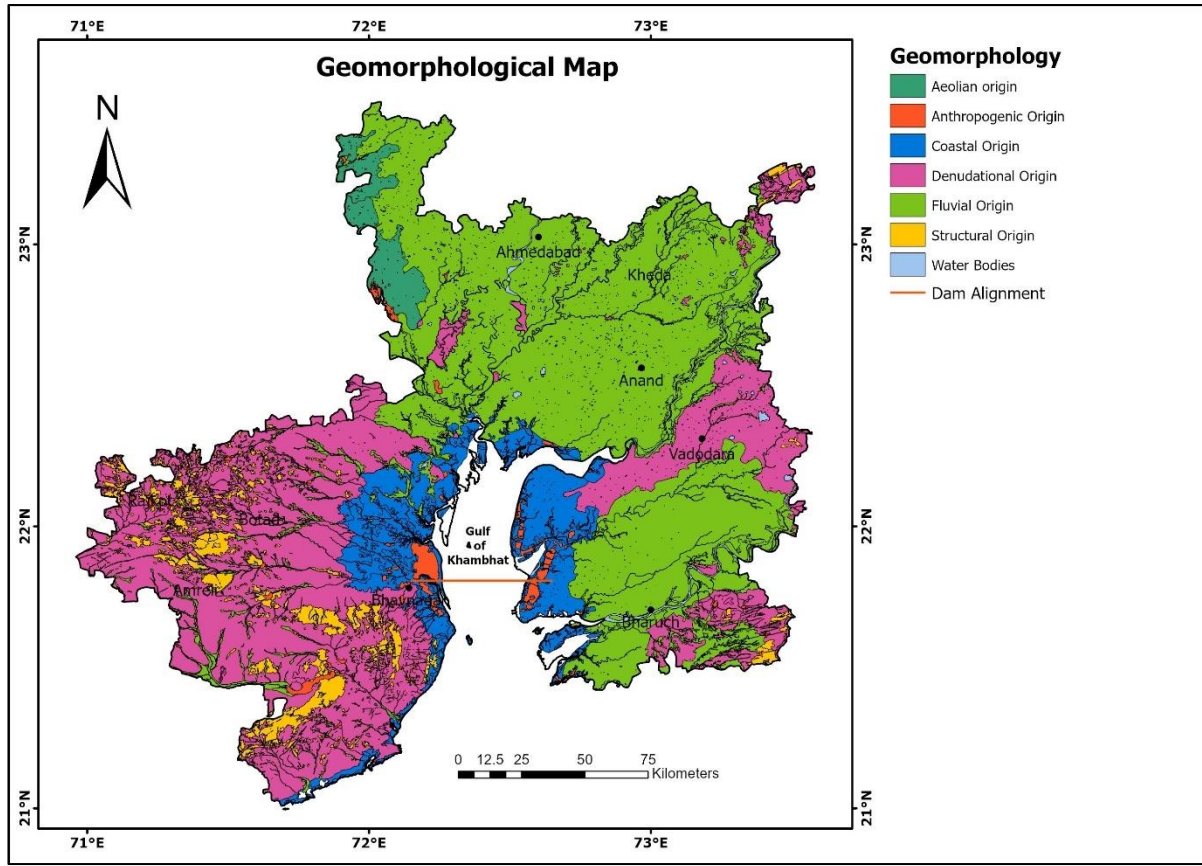


Figure 2-2: Geomorphological Map of the study area

2.4 Land use Pattern

Numerous variables, including topography, climate, soil fertility, and human activity, affect the land-use pattern, in the area. During the south-west monsoon, 600–800 mm of rainfall occurs the Gulf of Khambhat region. Irrigated land makes up an estimated 26% of all cultivable land in the coastal area. The fact that groundwater irrigation accounts for only 46% of all irrigation does not indicate any concerning circumstances. The forest cover surrounding the Gulf makes up a pitiful 0.02% of the entire research area. In total, 53.95 km² of mangroves were home to just three species. On the island of Aliya Bet in the mouth of Narada, there is a sizable area of grassland.

2.5 Soils

Gujarat State's soils have been categorized by the All-India Soil & Land Use Survey Organization. Thus, the primary soil groups are listed below.

a) Goradu sandy loam;

- b) Medium black soil;
- c) Deep black soil;
- d) Coastal alluvium (saline) soils;
- e) Desert soils;
- f) Mud;

Goradu Soils: Found in some part of Ahmedabad, Bharuch and Kheda districts. Goradu soils range in fertility from fertile brown to sandy loam. The majority of this soil is fertile, and it takes fertilizer and irrigation quite well. On this soil, almost any type of crop can be grown.

Medium Black soil: In practically every part of Gujarat, medium-black soils may be found. They have higher productivity and are deficient in phosphorus, nitrogen, and organic matter but abundant in lime, magnesia, and alumina. They are highly suited for agriculture and have a significant moisture retention capacity. Amreli Taluka, which is nearly entirely covered in medium-black soils, has the best land along the north and south banks of the Shetrunji River. However, some sections of the taluka, known as Kharapat, are not suitable for farming. The Ahmedabad district's Viramgam, Sanand, and Dholka talukas have medium black soil, which is good for growing Cotton, Jowar, and Bajri.

Deep black soil: Nearly all of Gujarat is covered in deep black soil, where cotton is grown in the early monsoon. With more than 20% clay and about 40% sand, it has a comparatively low clay content. Lime nodule horizons are constantly present in the subsurface. Rabi wheat is the main crop produced on this sort of soil since it grows pretty well there. If there are sufficient rains, rabi Jowar and Grams are sown in the late monsoon.

Coastal alluvium (saline) soils: The coastal areas of the Amreli district's Kodinar, Jafrabad, and Rajula Talukas contain coastal alluvial soils. Although the soils of the Kodinar taluka are rich, the saline soils in the Rajula and Jafrabad talukas are less so. Parts of Gariyadhar and Palitana taluka in the district of Bhavnagar are covered with alluvial soils, which are located along the Shetrunji River. Because of their salinity, the soils in this region are less productive. The rich alluvial silt that the rivers of the Bharuch district have deposited is known as "Bhatha soil." The banks of the Narmada, Dhadhar, Mahi, and Karjan rivers are home to this soil.

Mud soil: Fine and fine loamy soils in Tarapur and Khambhat, along with muddy soil in the southern part near the Gulf of Khambhat, describe the western part of the Anand district.

Kyari soil: It is the most fertile soil with very good moisture and retentive capacity. Well known varieties of paddy such as Pankali, Kamod, Jirasar, Sukhvel, Sutarsal and Basmati are grown on this soil.

Rocky soils: It is suitable for early maturing crops like Cotton, Bajri, Jowar, and Mat because it is shallow and light in texture.

2.6 Gulf of Khambhat

The study area is situated around Gulf of Khambhat and it is a semi-arid region and experiences rainfall from June to September due to the southwest monsoon. Every year, the region receives 700 mm of rain, with east Khambhat receiving 800 mm more than west Khambhat (600 mm) (Ramanathan et al., 2002). With a relative humidity of 65-86%, the region is now classified as having a sub-humid climate. From the lowest temperature of 8°C in January to the maximum temperature of 43°C in May, there is a significant variation in temperature.

The range of water depths in coastal environments is 18 to 27 meters. But the majority of the time, the depth is up to 20 meters. The funnel-shaped feature that gives rise to the greatest tidal amplitude in the country makes the gulf special (Sengupta & Deshmukhe 2000). Here on the Indian coast, the tides are higher than elsewhere because of its special location close to the tropic of cancer. The average tide height in the area varies along its length, measuring around 4.5 meters at Mahuva port and 10 meters at Bhavnagar port. At its peak (12.5 m) in spring, the tidal level is the second highest in the world, according to reports.

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2.7 Hydrogeology

The study area around proposed Kalpasar project at Gulf of Khambhat covers Ahmedabad, Anand, Bhavnagar, Botad, Kheda, Bharuch and Vadodara district. The area lies in the Cambay basin situated between Saurashtra Crater and Aravalli Swell and Deccan Shield in the east. The basin comprises both marine and non-marine formations. The area is largely occupied by alluvial tract extending from Ahmedabad district in the north covering entire Anand District, major part of Ahmedabad District, parts of Kheda District, parts of Vadodara District and extends up to Bharuch and Bhavnagar districts. This formation constitutes the largest and most potential groundwater reservoir in the area. In this vast alluvial tract the aquifers are extensive, thick, hydraulically connected and are high to moderate yielding. To the west of this alluvial tract, especially around the discharge areas, characteristic artesian free flow conditions are observed. The high relief areas in the eastern and western parts of the study area around is occupied by the Deccan Traps and the Achaeans respectively have moderate to steep topographic gradients resulting in high run-off, and therefore, provide little scope for groundwater recharge. The groundwater potential in this terrain is limited. Large part of Bhavnagar, Botad Kheda and Vadodara districts are occupied by a variety of hard and fissured formations which include basalt and consolidated sedimentary formations and semi-consolidated sediments, semi-consolidated sediments are also found along the low-lying coastal areas. The compact and fissured nature of rocks gives rise to discontinuous aquifers with moderate yield potential. The friable semi-consolidated sandstone forms the aquifer with moderate yield potential. The quality of groundwater in both hard rock and alluvial terrain is, by and large suitable except, in the coastal areas and estuarine tract where the degree of mineralization in groundwater is rather high and salinity is common. The different conditions of groundwater occurrence in the area have led to divergent groundwater situations in the areas occupied by different geological formations. The formation-wise hydrogeological characteristics in the study area around Kalpasar has been broadly summarized in Table 1.

Table 1 Distribution of hydrogeological formations in the study area around Kalpasar Project

Age	Rock formation	Distribution	Hydrogeological Characteristics
Porous Formation			
Quaternary to Upper Tertiary	Impure limestones, limestones, sandstones, Conglomerates pebble beds, silt stones, sands, pebbles, gravels etc. Sabarkantha, Vadodara and Valsad districts	Ahmedabad, Amreli, Bhavnagar, Bharuch, Anand and Kheda	Unconfined shallow aquifer and leaky confined/ confined deeper aquifer. Large to moderate yield prospects-10 to 40 lps , storativity 1.6×10^{-4} to 7.3×10^{-4} , hydraulic Conductivity 5 to 20 m/day, Transmissivity 50 to 2000 m ² /day
Mesozoic	Sandstones, shales, limestones & grits.	Kheda, Vadodara, districts	Discontinuous aquifers with limited thickness 50 to 300m. Limited yield prospects less than 15 lps. Hydraulic Conductivity 2 to 10 m/day, Transmissivity 50 to 1000m ² /day,
Fissured Formation			
Mesozoic to Palaeozoic	Basalt with inter-trappean clays	Uplands of Botad, Bhavnagar districts, and Bharuch Vadodara districts	Ground water occurrence restricted to weathered and fractured zones, limited to 200 m. Moderate yield prospects 5 to 15 lps.
Acheaeans and Precambrian	Granites, gneisses, marbles, schists, phyllites and slates.	Vadodara and Kheda districts.	Ground water occurrence restricted to weathered and fractured zones having secondary porosity Limited yield prospects 2 to 5 lps.

2.7.1 Achaean and Proterozoic Formation

Rocks of Achaean and Proterozoic age occupy the north-eastern and eastern parts of the area and cover extensive areas in parts of Vadodara and Kheda districts. These rocks, which include gneiss, schist, phyllite, quartzite and metamorphosed igneous intrusive do not form good aquifers due to their poor porosity and permeability. Dug wells, dug-cum-bore wells and bore wells are feasible only in favourable sites where sufficient weathered mantle and/or fractures and joints occur. The wells tapping these aquifers have maximum depth of 30 to 40 mbgl beyond which groundwater occurrence is not common. The yield of wells in these rocks varies from a few cubic meters to 100 cubic meters per day at minimal drawdown.

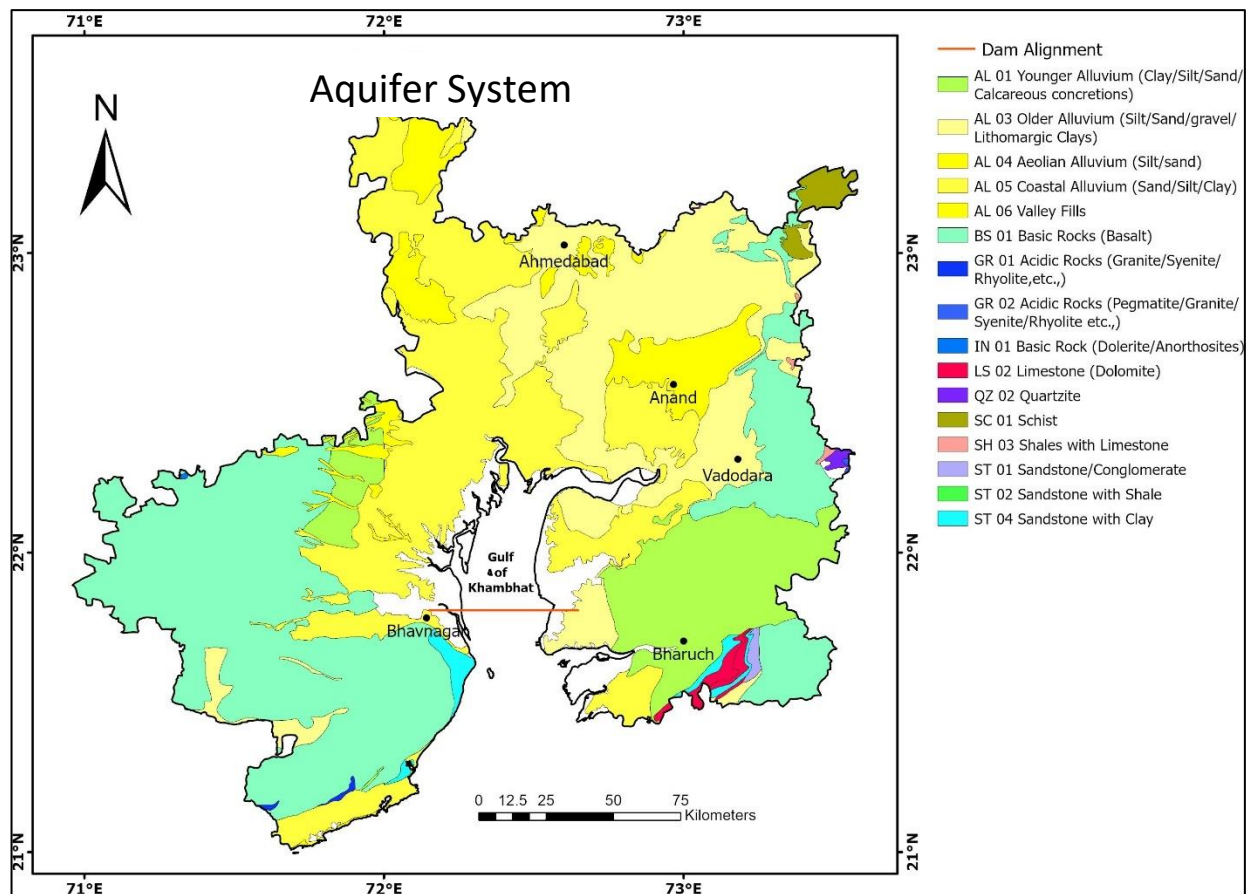


Figure 2-3: Aquifer distribution map of the study area

2.7.2 Mesozoic Formation

Patches of Himmatnagar sandstones are observed at places near Kapadvanj in Kheda District. These sandstones, when saturated to moderate depths, form potential aquifers. Tubewells tapping these aquifers yield up to 50 m³/hour.

2.7.3 Deccan Trap

These are essentially basaltic lava flows with a general horizontal to near horizontal disposition over a very wide area. From groundwater potential point of view, these rocks constitute moderately promising aquifers. The jointed and fractured basalts hold and transmit water in moderate quantities. They are observed in large parts of Bhavnagar, eastern part of Bharuch, entire Botad and in some parts in Kheda.

The yields in dug wells tapping the basalts vary from insignificant quantities to 30 m³/day. Higher yields have been observed at hydrogeologically favourable locations. The yield of the dug wells can be enhanced considerably by lateral and/or vertical borings. The discharge of tube wells is reported to decline at places due to presence of unsaturated porous zones at depth. The quality of groundwater in traps is generally potable.

2.7.4 Tertiary Formation

These rocks occur in the coastal tracts of Bhavnagar District and beneath thick alluvium pile in Ahmedabad, Anand, Kheda and Bharuch districts.

Gaj beds belonging to Miocene occur all along the Bhavnagar coast. These consist of limestone, clay and grit mostly gypsiferous with thin sand layers and yield meagre quantities of saline groundwater. Tertiary rocks do not form good aquifer due to inherent poor quality of groundwater in the aquifers in general.

2.7.5 Quaternary Formation

The Quaternary formations include Milliolite limestone, alluvium and aeolian deposits. The Milliolite limestone is of limited thickness and its occurrence is confined to the coastal tract of Bhavnagar. The alluvial and aeolian deposits extend as one continuous plain, from north to south and also as valley-fills in the hard rock terrain.

Quaternary sediments occupy a large area and are generally referred to as Central Gujarat Alluvial plains, they cover large part of Ahmedabad, parts of Kheda, Vadodara, Bhavnagar district and entirely cover Anand District. Their thickness in the Cambay Basin is estimated to be of the order of 500 m. In the study area the alluvium mostly overlies the basalts and the tertiary sediments. Quaternary sediments vary in character and composition. In the Cambay basin, these are predominantly composed of clay, silt and sand with “kankar”. The proportion of gravels, pebbles and boulders, etc., increases towards the hilly tracts.

Groundwater in the alluvium occurs under unconfined conditions at shallow depths. In deeper horizons, it occurs under semi-confined to confined and artesian conditions. Detailed study in Kheda, Anand, Ahmedabad, Bhavnagar, Bharuch and Vadodara districts has revealed that multiple aquifers exist in major part of the alluvial plains of Gujarat up to a depth of 500 m.

The entire alluvial sequence has been divided into five major aquifers viz., A (up to 96 mbgl) or phreatic aquifer and B, C, D and E (between 125 and 600 m depth) or confined aquifers. Further, the individual aquifers from the younger alluvium have been classified as A1 (phreatic), A2 (first confined) and A3 (second confined) aquifers of 10 to 35, 20 to 40 and 20 to 35 m, thickness respectively. They consist of 5 to 10 m thick pebble/gravel bed at the bottom.

Table 2: Aquifer Classification in Gujarat Alluvial Plain (After UNDP/CGWB)

Sr.No	Aquifer Nomenclature	Lithological Characteristics	Depth range (mbgl)	Thickness (m)	Nature of aquifer
1	Aquifer A	Coarse sand, gravel, pebbles, medium and fine sand & Clay	0.96.32	96.32	Phreatic & semi confined.
2	Aquitard I	Clay interbedded with sand and sandy clay	96.32-123.14	26.82	
3	Aquifer B	Medium to coarse sand and gravel interbedded with sandy clay	123.14-151.48	28.34	Confined
4	Aquitard II	Clay interbedded with sand and sandy clay	151.48-181.96	30.48	
5	Aquifer C	Fine to medium sand interbedded with clay, sandy clay	181.96-200.56	18.6	Confined
6	Aquitard III	Clay interbedded with sand and sandy clay.	200.56-232.86	32.3	
7	Aquifer D	Medium sand interbedded with sandy clay	232.86-278.89	46.03	Confined
8	Aquitard IV	Clay interbedded with sandy clay.	278.59-301.14	22.25	
9	Aquifer E	Fine to medium sand with sandy clay	301.14-317.60	16.46	Confined
10	Aquiclude V	Grey clay and clay stone.	317.60-465.73	148.13	

11	Aquifer F	Fine to medium sand, sandstone interbedded with silt stone	465.73-521.81	56.08	Confined
12	Aquiclude VI	Clay & Clay stone	521.81-546.2	24.39	
13	Aquifer G	Fine to medium sand interbedded with siltstone	546.2-572.41	26.21	Confined

Due to over-exploitation, the water levels in the phreatic aquifer (A1) have declined alarmingly rendering them almost dry. Presently, aquifers A2 and A3 are the most exploited. The yield of tube wells tapping aquifers A2 and A3 vary from 20 to 40 lps for 10 to 20 m drawdown.

2.7.6 Aquifer Disposition

District wise details of Aquifers present and their disposition is discussed here under.

➤ *Anand & Kheda District*

Anand and Kheda District are covered in Major part by Alluvium deposited by Sabarmati and Mahi Rivers and its tributaries. It forms multilayer aquifer system. The alluvium is underlain by Tertiary and Mesozoic formations a district-wise details is presented below.

➤ *Anand District*

A major part of the district is underlain by alluvium which in turn is underlain by Tertiary sedimentary formations within The Cambay Sedimentary Basin. The alluvium mainly consists of fine to coarse grained sand, gravel, silt, clay and Kankar. The thickness of alluvium gradually increases from piedmont zone in the northeast towards west and southwest. The maximum thickness of alluvium in the district is estimated to be about 250-300 m in the south, central part. Ground water occurs both under phreatic and confined conditions in arenaceous horizons that form a multi-layered aquifer system. The occurrence and movement of ground water is mainly controlled by inter-granular pore spaces. Two major aquifers can be identified within the explored depth of 300mbgl. Ground water in the upper unit occurs under phreatic conditions, which at places becomes semi-confined to confined. The lower unit, comprising a few hundred meters of alternating sandy and clayey horizons, forms a multiple confined aquifer system. Towards east and northeast, in the piedmont plain, the nature of sediments is more uniform and only phreatic aquifer is present. This belt forms the principal recharge zone for the deeper aquifers. The argillaceous beds in the central and western parts, mainly act as confining layers.

Ground water is extensively developed by dug, dug-cum-bored and tube wells in areas underlain by alluvium. Depth of dug and dug-cum-bored wells varies from 5 m to 38 mbgl. The depth to ground water in the vicinity of the Mahi River in the east is deepest and gradually becomes shallower towards west. The general depth to ground water is between 5 and 10 mbgl. The quality of ground water is generally suitable for irrigation (except in coastal bhal region), and the hydrogeological conditions are conducive to ground water development through dug wells, dug-cum-bored wells and tube wells. A subsurface disposition of aquifers (CGWB) between Golana in east and Anklay in west is presented below:

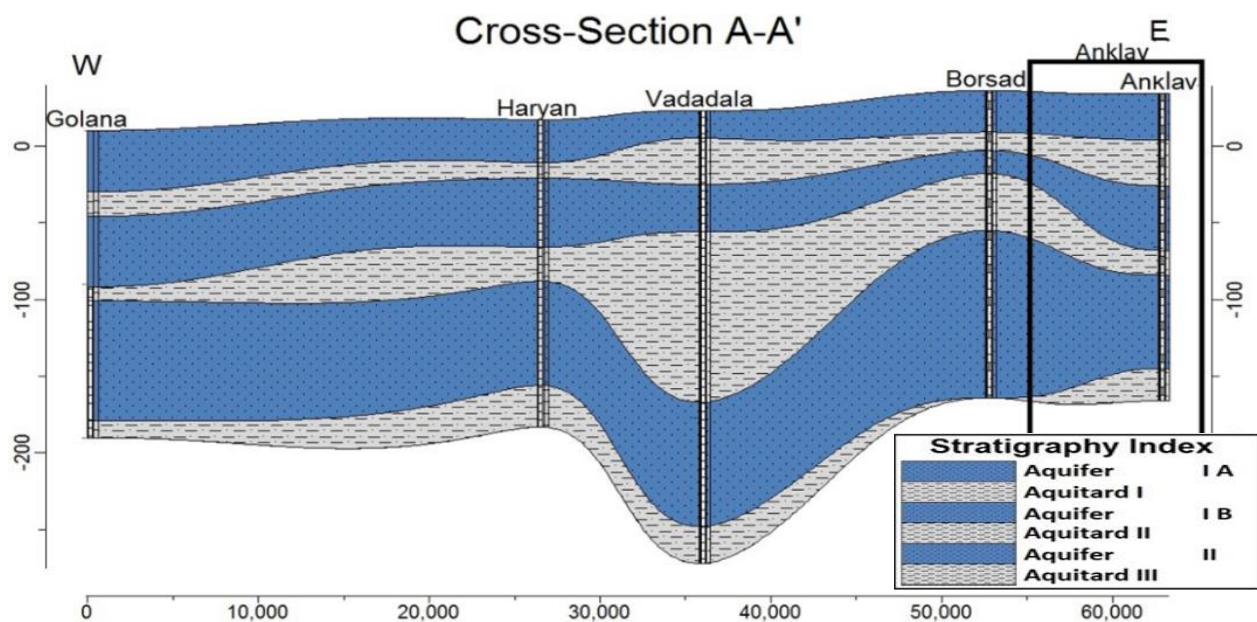


Figure 2-4: Hydrogeological cross Section between Golana to Anklay

➤ KHEDA DISTRICT

Quaternary and Post Miocene formations in the area are present in the western part whereas, the eastern part is predominantly occupied by formations varying in age from Achaean to Tertiary age. In the western part the formations comprise multi-layered sequence of gravel, sand, clay and kankars intermixed at places. The clay and sand horizons form alternate layers having pinching and swelling nature. The kankars pebbles and the gravels form lenses. The thickness of alluvium increases from north and Northwest towards south and southwest direction.

Alluvium is underlain by Deccan traps in general with intervening blue clays at some places. The Deccan trap is also exposed in the eastern area near Dakor. Balasinor area is occupied by limestone formation of Mesozoic age which is famous for occurrence of Dinosaur fossils. Aravalli formations exposed in Virpur area; they are intruded by post Aravalli Granites.

The alluvium mainly consists of fine to coarse grained sand, gravel, silt, clay and Kankar. The thickness of alluvium gradually increases from piedmonts zone in the northeast towards west and southwest. The maximum thickness of alluvium in the district is estimated to be about 250-300 m in the south-western part. In the western and south-western part ground water occurs both under phreatic and confined conditions in arenaceous horizons that form a multi-layered aquifer system. The occurrence and movement of groundwater is mainly controlled by inter-granular pore spaces. In Alluvium two major aquifers can be identified within the explored depth. Groundwater in the upper unit occurs under phreatic conditions, which at places becomes semi-confined to confined. The lower unit, comprising a few hundred meters of alternating sandy and clayey horizons, forms a multiple confined aquifer system.

In the piedmont plain in central part of district, the nature of sediments is more uniform and only phreatic aquifer is present. This belt forms the principal recharge zone for the deeper aquifers. The argillaceous beds in the central and western parts, mainly act as confining layers. In the north-eastern part covered by hard rock formation groundwater occurs in top weathered and fractured formation.

Groundwater is extensively developed by dug, dug-cum-bored and tube wells in areas underlain by alluvium. Depth of dug and dug-cum-bored wells varies 5 m to 38 mbgl whereas depth to water level, in general, varies from 5 to 15 mbgl. The groundwater in the district occurs under unconfined to confined condition. The ranges of water level occur between 2m to about 40m under unconfined condition. A subsurface disposition of aquifers (CGWB) between Vyas Vasna in North-east and Limbasi in south-west is presented below:

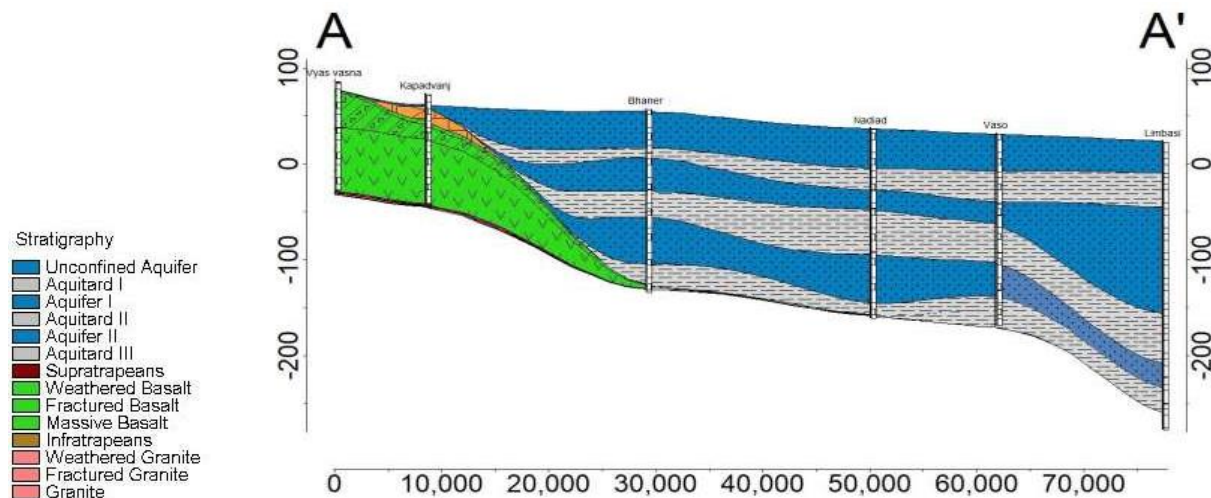


Figure 2-5: Hydrogeological Cross Section from Vyas Vasna to Limbasi - in NE-SW direction, Kheda

2.7.6.1 Ahmedabad

As per UNDP study (CGWB) the unconfined aquifer occurs in the upper horizons down to a maximum depth of 60-75 mbgl consisting of medium to fine grained sand, silt with local lenses of sandy clay and clay. Medium to fine grained sands are found in the north-eastern part of the district. In this area where only phreatic aquifer is present, base of the alluvium is marked by gravel. Fine grained sands with silt are found further south and south-west at Dholka and Sanand taluka. Aquifers between 30 and 75 mbgl with thickness of aquifer varying between 20 and 45 m is considered as aquifer "A". Ground water occurs under phreatic conditions in the north-eastern part of the district. However, the intercalations of silt, at places, induce semi-confined conditions in the south and south-western directions of Sanand, Dholka, Dhandhuka and Dholera taluka. It bears potable and good quality water in the north-eastern part of the district and eastern part of Dascroi taluka (east of Khari River). It is being developed by dug, dug-cum-bored wells and tube wells. The depth of the dug wells and dug-cum-bored wells usually varies between 10 and 60 mbgl. The tube wells range between 42 and 167 mbgl. In the rest part of the area it bears brackish to saline ground water. Hence ground water development is meagre and dug wells are constructed in or vicinity of ponds to meet the local demands. Tube wells tapping this aquifer invariably tap one or more aquifers occurring underneath. Yields of such tube wells vary between

225 and 3032 m³/day. Specific capacity of tube wells varies between 0.12 and 38.48 lpm/m, permeability varies between 0.49 and 105 m/day and transmissivity varies between 10.58 and 3867.29 m²/day.

The upper unconfined aquifer is underlain by persistent clay formations of considerable thickness in the entire area of porous sedimentary formations. This separates the lower unit consisting of a few hundred meters of alternating sandy and argillaceous beds forming the confined aquifer system. The arenaceous horizons of the confined aquifer, consists of medium to coarse-grained sand and gravel interstratified locally with silty or clayey sand and clay lenses. The confined aquifers are grouped and designated as B, C & D within the post Miocene alluvial sediments and G and F aquifers in Miocene sediments within the drilled depth of 565 m in the district. The distribution of the confined aquifers varies considerably in the district. The sand content of the aquifer decreases considerably both in depth and space. It resulted in the pinching out of certain aquifers occurring below 150 mbgl in the south and south-western directions, as seen, in Kalyangarh and Bagodra bore holes. The development of these aquifers hence depends upon the aquifer geometry, yield characters of the individual aquifers and / or salinity of formation waters.

Confined aquifers with potable water occur down to 300 to 350 m in the area towards north and northeast of the low lying “Bhal” land in the district. The aquifers that are developed include B & C and to some extent the upper part of the D aquifers of the post Miocene alluvial aquifer and can be termed as user confined aquifers (UCA).

The Deccan trap and the limestone formations occupying the western part of the Dandhuka taluka forms the only hard rock aquifers in the district. It occupies the south-western extremity of the district and can be termed as fissured formation. Occurrence and movement of ground water is governed by the extent and thickness of weathered zone, presence and interconnections of joint and fracture systems, which provides secondary porosity. The thickness of the weathered zone of the basalt ranges from less than one meter to more than 6 m and the joints and fracture system is prevalent down to a maximum depth of 80 to 90 mbgl in the basaltic terrain. The occurrence of vesicles and amygdales in the flows of the trap rocks and solution cavities in the

limestone formations and the geological contact between limestone and basalt are other factors favourable for ground water storage and movement. Groundwater occurs in the weathered and fissured zones mainly under water table conditions. It occasionally occurs under semi-confined conditions in the event of comparatively deeper fracture system in these formations. These fissured formations do not form good repository of groundwater, compared to porous unconsolidated sedimentary formations. Groundwater is being developed in these formations by means of dug and dug-cum-bored wells. Depth of dug wells ranges between 5 and 38.5 mbgl whereas, depth of dug-cum-bored wells varies between 15 and 78 mbgl in the case of fissured basaltic formations. The depth of dug wells in the limestone formations varies between 12 and 38 mbgl. Deeper wells are constructed in the western part in these formations. Depth to water levels in basaltic formation varies between 4 and 25 mbgl. In the limestone formation it varies between 12 and 33 mbgl. The deeper water levels are recorded towards western part of the area. The average yield of the wells in the trap formations varies between 50 and 1000 cu.m/day and of the wells in the limestone varies between 50 and 200 cu.m/day. A subsurface disposition of aquifers (CGWB) between Ughroj in north and Angolain south is presented below:

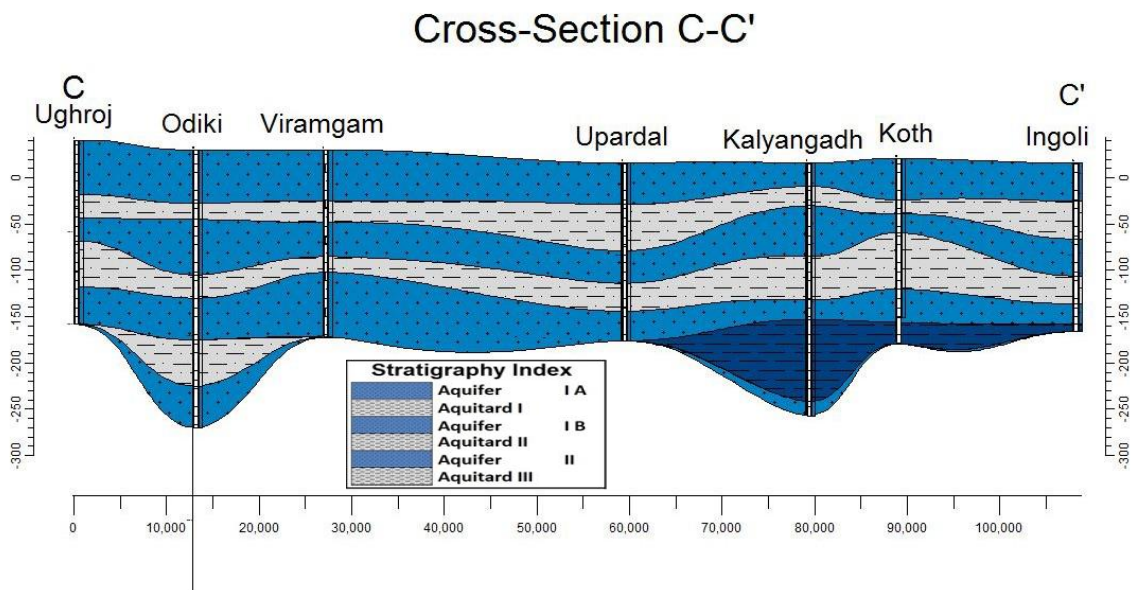


Figure 2-6: Hydrogeological cross Section between Ughroj in north to Ingoli in south

2.7.6.2 Bhavnagar, Botad Districts and adjoining area of Amreli and Rajkot Districts

The Deccan trap and Quaternary formations form the aquifer within these districts. Groundwater occurs under water table and semi-confined conditions. Dug and dug cum bore well are common structures used for groundwater extraction.

➤ Quaternary formation

The area around Panvi in the east has shallow to moderately thick quaternary formation (Post – Miocene) overlying thick Deccan trap. It constitutes about 5 % of the total area covered and consists of clays, marl, chert and sand gravel. Groundwater in these formations occurs under unconfined conditions. The occurrence and movement of groundwater is controlled by primary as well as secondary porosity. The yield of the dug wells ranges from 170 m³/day to 800 m³/day. Lateral bores are also drilled in the dug wells to enhance the yield.

➤ Deccan Trap

Deccan trap basalt occupies a major part of the district and forms the most extensive aquifer system. It generally forms a poor aquifer due to compactness and poor primary porosity. However, the upper weathered parts, which at places are up to 20 m thick, form good aquifer in the district. At deeper levels, the secondary porosity developed as a result of tectonic activities, in the form of joints, fractures, shear zones, form repository of groundwater at many places. Amygdaloidal horizons within basalt also form potential aquifers at places. The dykes present in Deccan Trap generally do not form the aquifer, unless highly fractured and thus mostly act as groundwater barrier. The associated fracture zone and the basaltic formation adjacent to dykes have comparatively higher porosity.

The groundwater in basalt occurs under phreatic to confined conditions. The groundwater is generally tapped through dug wells varying in depth from 5 to 30 m. At places, dug-cum-bored wells are also constructed by drilling bores below the bottom of dug wells. The yield of dug wells and dug-cum-bored wells in basalt generally range from 100 to 500 m³/day. During Rabi (post monsoon) season these wells sustain intermittent pumping of 15 minutes to 12 hours, however, during summer, the yield of these wells is considerably low. The vesicular & amygdaloidal horizons within basalt at places may have yields of up to 1000 m³/day. The dykes occurring in the

district form aquifers at places wherever they are highly fractured. The wells in such dykes range in depth between 5 to 25 m and the yield of wells range between 15 and 600 m³/day. A subsurface disposition of aquifers (CGWB) between Velavadar and Thavi is presented below:

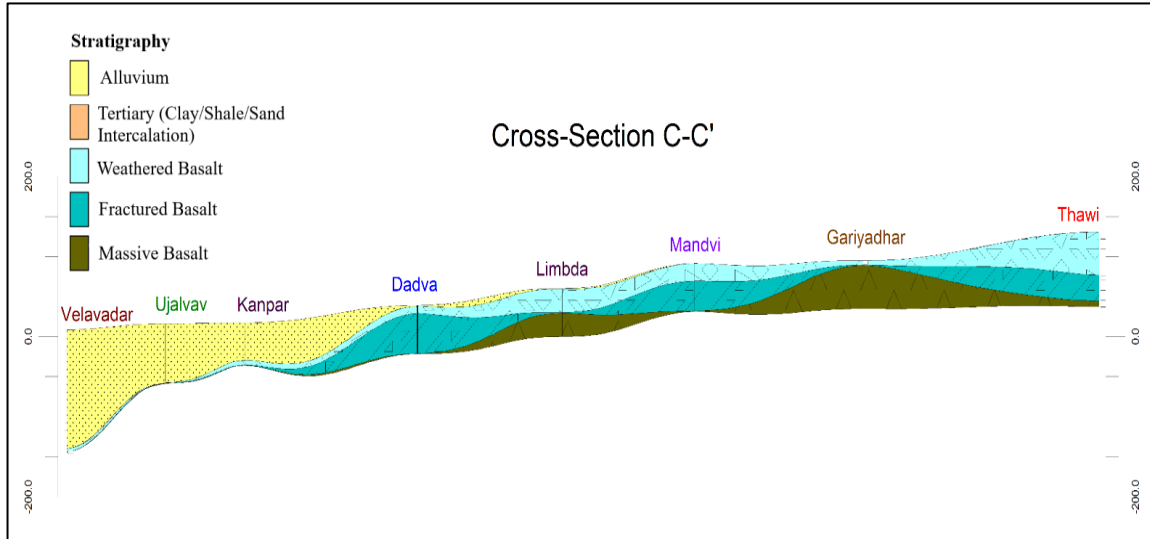


Figure 2-7: Hydrogeological cross section (C-C') between Velavadar and Thavi

2.7.6.3 Bharuch and Vadodara Districts

➤ BHARUCH DISTRICT

The geology of the district with vast area affected by inherent/coastal salinity, presents a complex hydrogeological pattern. The hard rocks, the semi-consolidated Cretaceous, and Tertiary formations and unconsolidated alluvial deposits, all comprise multi – aquifer systems thereby presenting unconfined as well as confined groundwater conditions in the entire district. Tertiary formations are inherently saline and contain poor quality groundwater. Groundwater occurs under unconfined conditions in the limestone and sandstone aquifers of Bagh beds. Occurrence and movement of groundwater is restricted mainly to the fractures and joints in the Limestones and Sandstones. The discharge in dug wells varies from 30 to 50 m³/day. The Bagh beds, where overlain by Deccan Trap are likely to yield groundwater under confined conditions.

The Deccan Trap has given rise to multi-layered stratified aquifers. Each individual flow comprises two distinct units, namely the upper vesicular Basalt and the lower massive Basalt. The massive basalt is hard and compact with primary porosity but the vesicular Basalts exhibit porosity. The

movement of groundwater is therefore controlled by the secondary porosity developed by the presence of fractures and joints. The paleo-weathering which is invariably observed at depth near the top of every flow, has given rise to good aquifers at depth. The yield of the dug wells in Deccan traps, which range in depth from 5 to 25mbgl, sustain pumping from 1/2 hour to 10 hour with discharge varying from 200 to 1200 litre per minute (LPM) for drawdown of 4 to 7 m. Bore well tapping deeper zones down to 150m below ground level(bgl), have yielded 100 to 600 LPM for a drawdown of 6 to 15m.

The sandstone is the main aquifers in the Tertiary formations but the limestone also yield significant quantities of groundwater wherever karstic development have taken place. Deep tube well tapping the Tertiary formations are capable of yielding 300 to 3000 LPM of water for meagre drawdown of 1 to 7m. The alluvium formations in the western most part of the area do not constitute potential aquifers on account of inferior quality of water. A subsurface disposition of aquifers (CGWB) between Eksal in south-west and Bambusar in north-east is presented below:

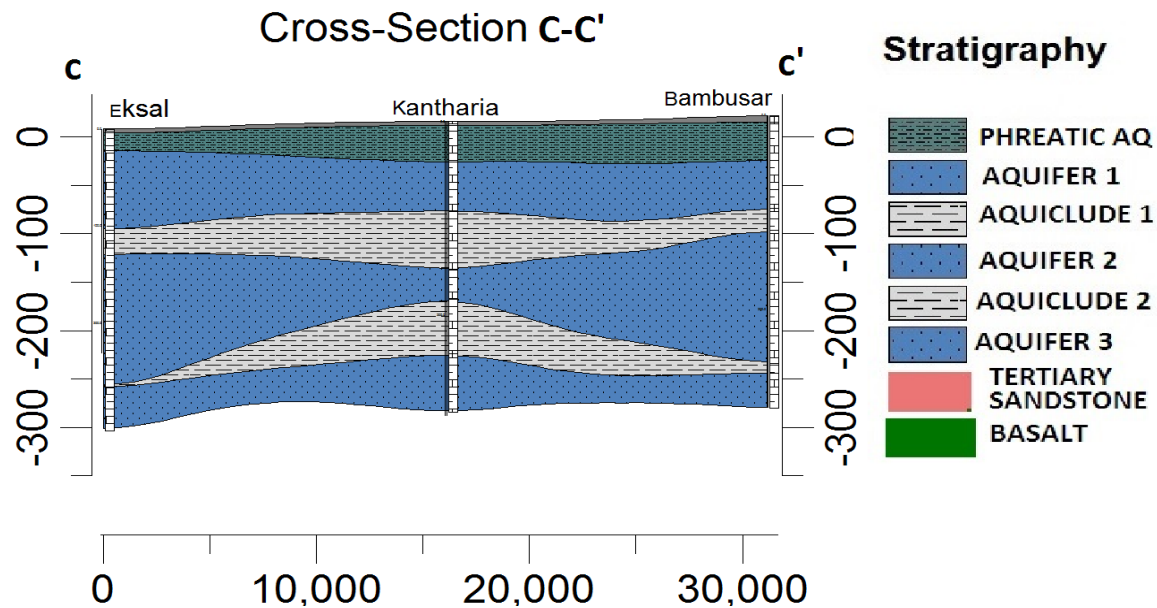


Figure 2-8: Hydrogeological Section (C-C') along Eksal-Bambusar, Bharuch District, Gujarat

➤ *VADODARA DISTRICT*

In Vadodara district area, groundwater occurs both as unconfined and confined conditions. Saturated zones of unconsolidated shallow alluvium and weathered zones forms unconfined aquifers, whereas multilayered aquifer below impervious clay horizons in alluvium formation and interflow zones of basalts, inter-trappean beds, deep seated fracture zones, shear zones in basalts give rise to semi confined to confined conditions.

In major parts of the district, multilayered alluvium deposits form the aquifer system in the central, south-central and western half of the district. The weathered basalts, granite, gneiss etc., covered by soil / *murram* and the valley fill & piedmont deposits forms potential aquifer in the vicinity of rivers and on vast undulating plains adjacent to hilly terrain, but their regional continuity and extent are limited due to heterogeneous nature of deposits with limited thickness and as such rarely exceed a few square kilometres. Yield of this Aquifer ranges between 3 and 20 lps. In hard rock basaltic terrain exploratory wells depth ranges between 50 to 450 mbgl and yield range from 0.23 to 11 lps.

As per CGWB NAQUIM report North-eastern part of Mahi-Narmada Doab the Tertiary formations encountered at shallow depth range between 13 to 45 mbgl, whereas, in the western part of Narmada-Mahi Daob the Tertiaries are overlain by Jambusar formation of Pleistocene age. While the thickness of alluvium increases towards west in the Daob. It further reduces in Northeastern sector to 13 to 45 m near Almgir, Atkot, Chatral and Palaswada. In the western part of the district the depth of tertiary increases to 70 m at Tentalo, 85 m at Padre and 150 at Vagra (Bharuch). A subsurface disposition of aquifers (CGWB) between Vejpur in North-east and Jantran in south-west is presented below:

Cross-Section A-A'

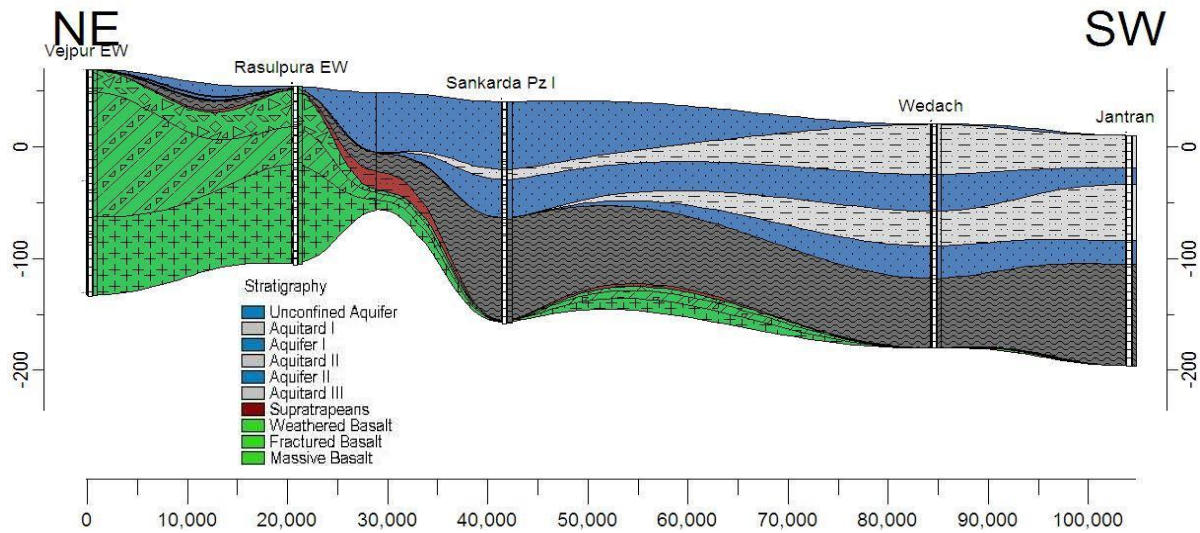


Figure 2-9: Hydrogeological Section Vejpur to Jantran (Bharuch) through Rasulpura, Sankarda and Wedach (Bharuch). - NE-SW

2.7.7 Depth to Groundwater and Water Level Fluctuation

Monitoring groundwater levels and fluctuations due to monsoon rainfall and other supplementary recharge factors and groundwater utilisation is necessary for sustainable water management in our study area. Understanding these dynamics is essential to mitigating difficulties like depletion and contamination, guaranteeing water security, and maintaining ecological balance. These dynamics are influenced by factors including rainfall and aquifer recharge.

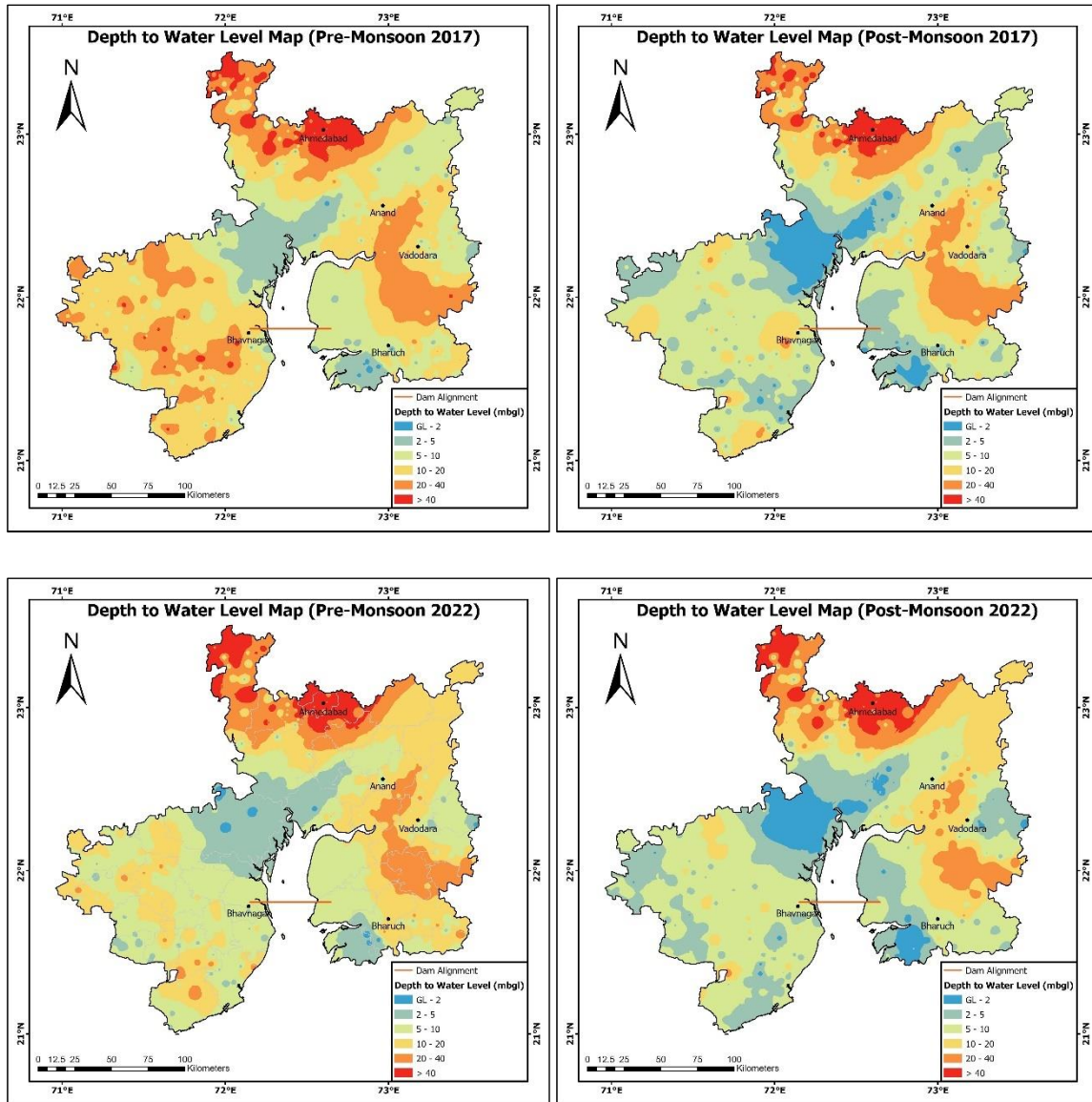


Figure 2-10:Depth to water level map of (a) Pre-monsoon 2017, (b) Post-monsoon 2017, (c) Pre-monsoon 2021 and (d) Post-monsoon 2021

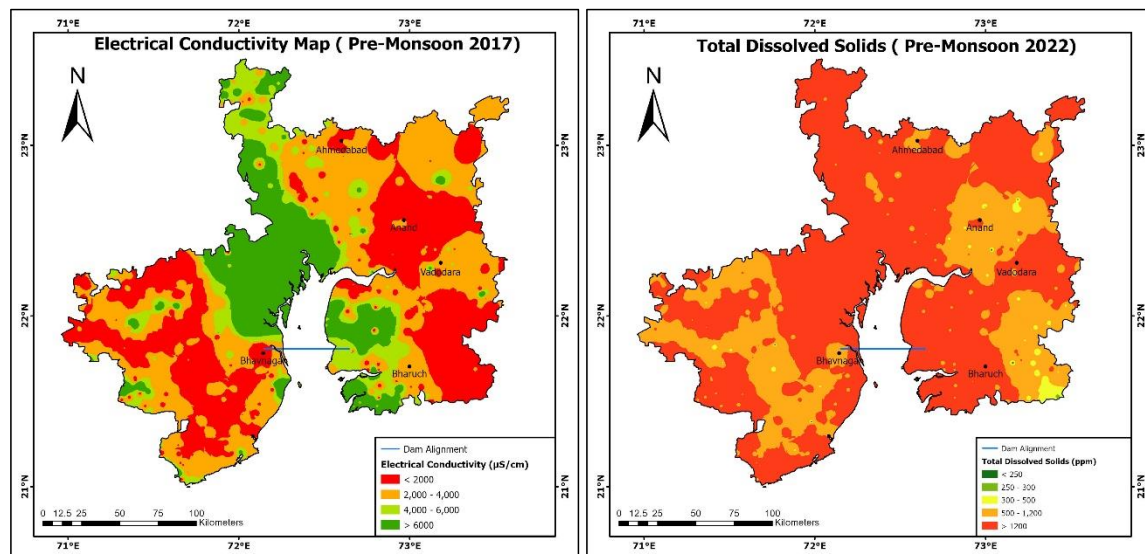
The groundwater levels across our study area exhibit significant variation, both spatially and temporally, over the span of five years from 2017 to 2022. The northern part, encompassing much of the Ahmedabad area, consistently displays deeper water levels, exceeding 40 meters below ground level (mbgl). In 2017, certain areas of Bhavnagar, Amreli, and Botad also mirrored this trend, with most areas ranging between 20 and 40 mbgl, and some areas surpassing 40 mbgl. However, by 2022, these areas experienced a decline, with water levels reaching GL-20 mbgl.

Contrastingly, Ahmedabad's northern and southwestern regions exhibit higher water levels above 40 mbgl, with post-monsoon levels dropping to GL-2 and pre-monsoon levels ranging between 2 and 5 mbgl. In the northeastern Kheda district, water levels increased from 10 to 20 mbgl. Meanwhile, in southeastern districts such as Vadodara and Anand, there's a consistent post-monsoon increase in water levels, with a significant surge observed in Vadodara's eastern part in 2022. Bharuch also experienced an overall rise in water levels, notably evident post-monsoon, reaching GL-20 mbgl.

The comprehensive map depicts a clear increase in water levels in the southern regions post-monsoon, contrasting with fluctuations in the northern areas. This pattern suggests a strong correlation between rainfall intensity from 2017 to 2022 and groundwater level variations. Moreover, the dependence on the southern area is accentuated by interactions between river and sea waters, influencing groundwater levels.

In conclusion, the observed trends underscore the dynamic nature of groundwater systems and highlight the significance of rainfall patterns and hydrological interactions in shaping groundwater dynamics. This understanding is crucial for effective water resource management and underscores the need for sustainable practices to ensure continued access to groundwater in the face of changing environmental conditions.

2.7.8 Groundwater Quality



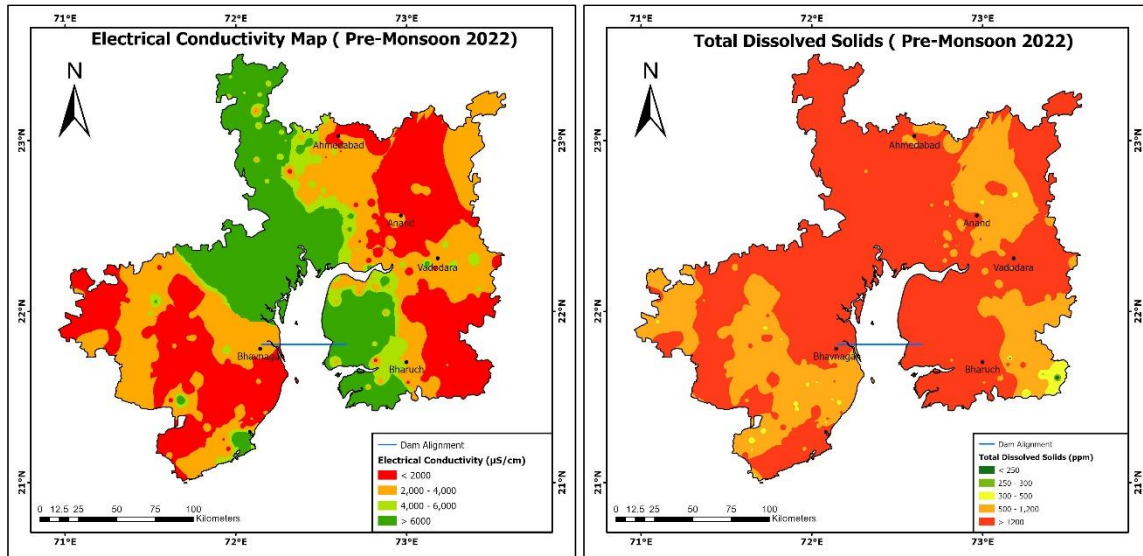


Figure 2-11: (a) Electrical Conductivity 2017, (b) Total Dissolved Solids 2017, (c) Electrical Conductivity 2022 and (d) Total Dissolved Solids 2022

Electrical conductivity map and TDS map for 2017 and 2022 has also been prepared to get the generalized idea of the quality of the water in the area. As per the data received from GWRDC and CGWB the map shows a large part of area in central part and in coastal part has very high EC of more than 6000 micro siemens/cm and TDS value over 1200 ppm, on the periphery the EC and TDS gradually reduce to less 2000 and 500 respectively. There ground water quality is almost similar between 2017 and 2022 and no remarkable changes are observed. The ground water quality in the area adjoining the Gulf of Khambhat is likely to gradually improve with storage and influx of fresh water from the Kalpasar Reservoir.

3. Geophysical Investigation

3.1 TDEM field survey and data processing

We carried out the fixed in-loop TDEM soundings at 25 sites in the eastern part of the Bay of Khambhat (figure 3-1) for mapping shallow-subsurface structure and distinct lateral and vertical geological contacts in terms of electrical resistivity. We used Zonge (USA) made data acquisition system comprises the GDP-32 receiver, transmitter (ZT-30), transmitter controller (XMT) and a receiver antenna. During the TDEM survey, a primary electromagnetic field is generated by a 100 m sided transmitter loop (single turn) laid on the ground, through which alternating current of 9.2 amp is passed with equal periods of time-on and time-off, at various frequencies ranging from 1 to 32 Hz (Nabighian and Macnae 1991; McNeill 1994). A receiver located near the centre of the transmitter loop recorded the secondary vertical magnetic fields (Hz) in terms of the induced voltage (in nanovolts/m²) during the time-off period at 31 discrete time intervals ranging from a few μ s to a few ms. The window lengths for the different transmitter frequencies are listed in Table-3.

Table 3: The windows lengths for the different transmitter frequencies.

Sl. no.	Frequency	50% Duty cycle	
		First (μ s)	Last (ms)
1	32	30.5	6.07
2	16	30.5	12.1
3	8	30.5	24.2
4	4	30.5	48.4
5	2	61.0	96.7
6	1	121.1	193.5

Several transient decay measurements are made, and the measurements are stacked to improve signal to noise ratio. To reduce the influence of EM noise, the recorded transients are stacked over a number of cycles (512, 256 and 128 cycles) (Mills et al. 1988; Goldman et al. 1991; McNeill 1994). We recorded data at 32, 16 and 8 Hz (high frequencies) currents for shallow depths and low frequencies (4, 2 and 1 Hz) for deep probing. Apparent resistivity is computed from the recorded voltage (magnetic field) in the receiver coil and the current injected into the transmitter loop

(equation). Apparent resistivity at late times can be calculated using the formula (Nabighian and Macnae 1991)

$$\rho_a = \left(\frac{I A_T A_R}{V} \right)^{2/3} \left(\frac{1}{t} \right)^{5/3} * 6.3219E - 3 \Omega m.$$

A_T and A_R are the transmitter and receiver moments in square meters, I is the transmitter current, V is the voltage in microvolts, t is time in milliseconds and ρ_a is the apparent resistivity in Ωm . In general, early time windows may have been saturated (same or similar magnitudes for the first few windows). We removed the early-time saturated windows as well as late-time noise windows (Civico et al. 2017).

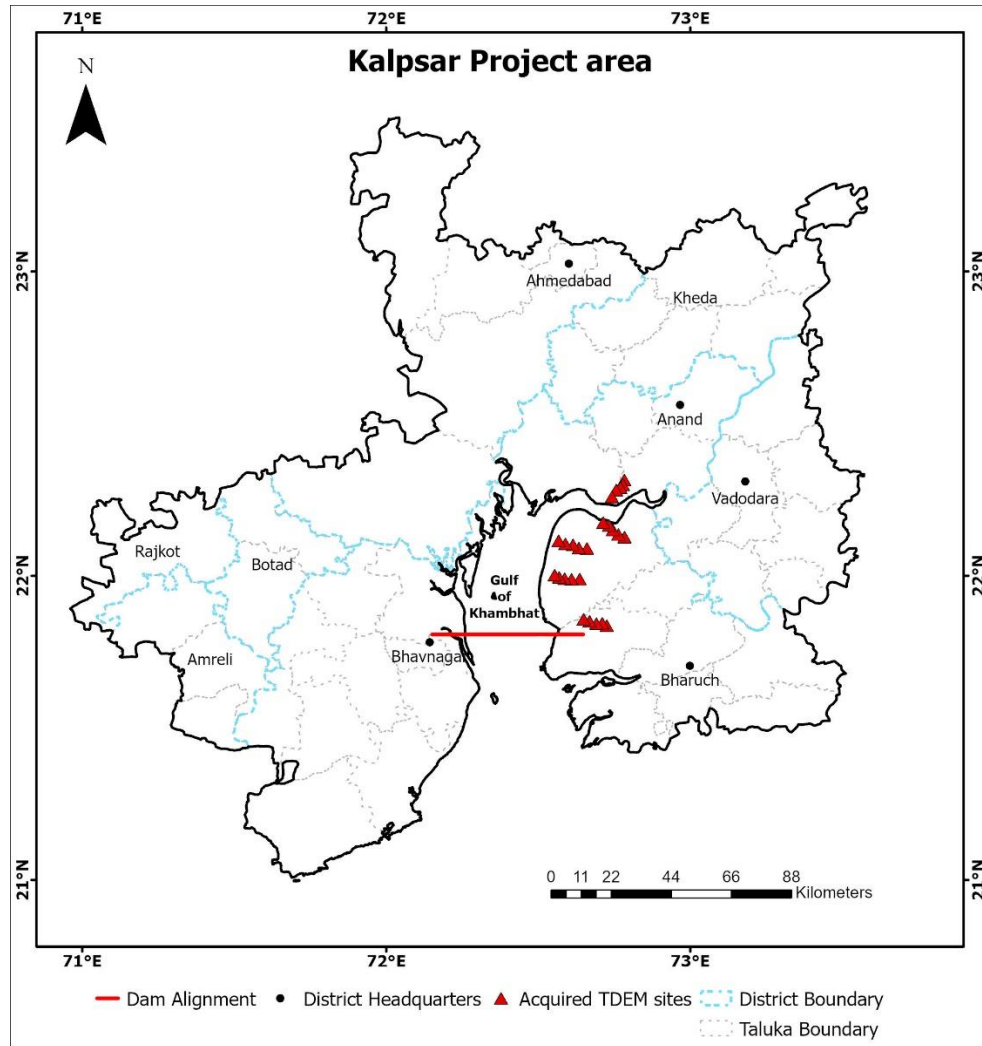


Figure 3-1: Acquired TDEM sites over study area

3.2 One dimensional (1-D) inversion

The measured transient decay and estimated apparent resistivities are used to model the depth and subsurface resistivity of the underlying structure. We choose the processed data at 4 Hz transmitter frequencies as the data are less erroneous at late times (>10 ms). The good quality late time data can give deeper information and for too low frequencies, the late time data are many times noisy due to energy dissipation. To maintain the tradeoff between deeper information and quality of the data we have chosen the data at 4 Hz transmitter frequency with time interval of 62.5 msec to accurately measure the late time transient amplitudes. One dimensional inverse modelling is performed considering the horizontally layered earth model with homogeneous and isotropic layers (Mills et al. 1988). Topographic variations across the profile are incorporated during the inversion routine. To have a slight better near surface resolution for the central loop soundings, we used intermediate to late time gates and omitted first biased gates from the offset measurements due to sign reversal or the anomalous decay of the secondary magnetic field (Villani et al. 2015).

For the present study, we used STEMINV (Zonge, USA) program to estimate layered-earth resistivity models. The algorithm uses an iterating best-fit algorithm to minimize the RMS residuals between the observed and calculated rate of magnetic field reflected as the induced voltage for each station to determine the parameters of a layered earth model. After generating the initial model, data points that are either anomalous or could not fit to any earth model due to large error bars are selectively discarded from the voltage vs. time decay curve. After removing the anomalous points, the inversion is re-executed to create the best possible model. Total RMS error is calculated using the formula (MacInnes and Raymond 2001).

3.3 Results and discussion

One dimensional inversion model of all 21 sites are used to create color-filled resistivity sections (figure 3-2) across all the profiles. All the profiles from profiles P6 in the north to P2 in the south shows Decrement in the resistivity from 100 ohm-m to less than 1 ohm-m. Profile P6 has higher resistivity values of 100 ohm-m from 50m and conductive part with less than 1 ohm-m only in the coastal area due to costal sediments. As we are proceeding towards the south the resistivity values keep decreasing from 10 ohm-m to 50 ohm-m in profile P5 and other three profiles show very less resistivity values less than 5 ohm-m.

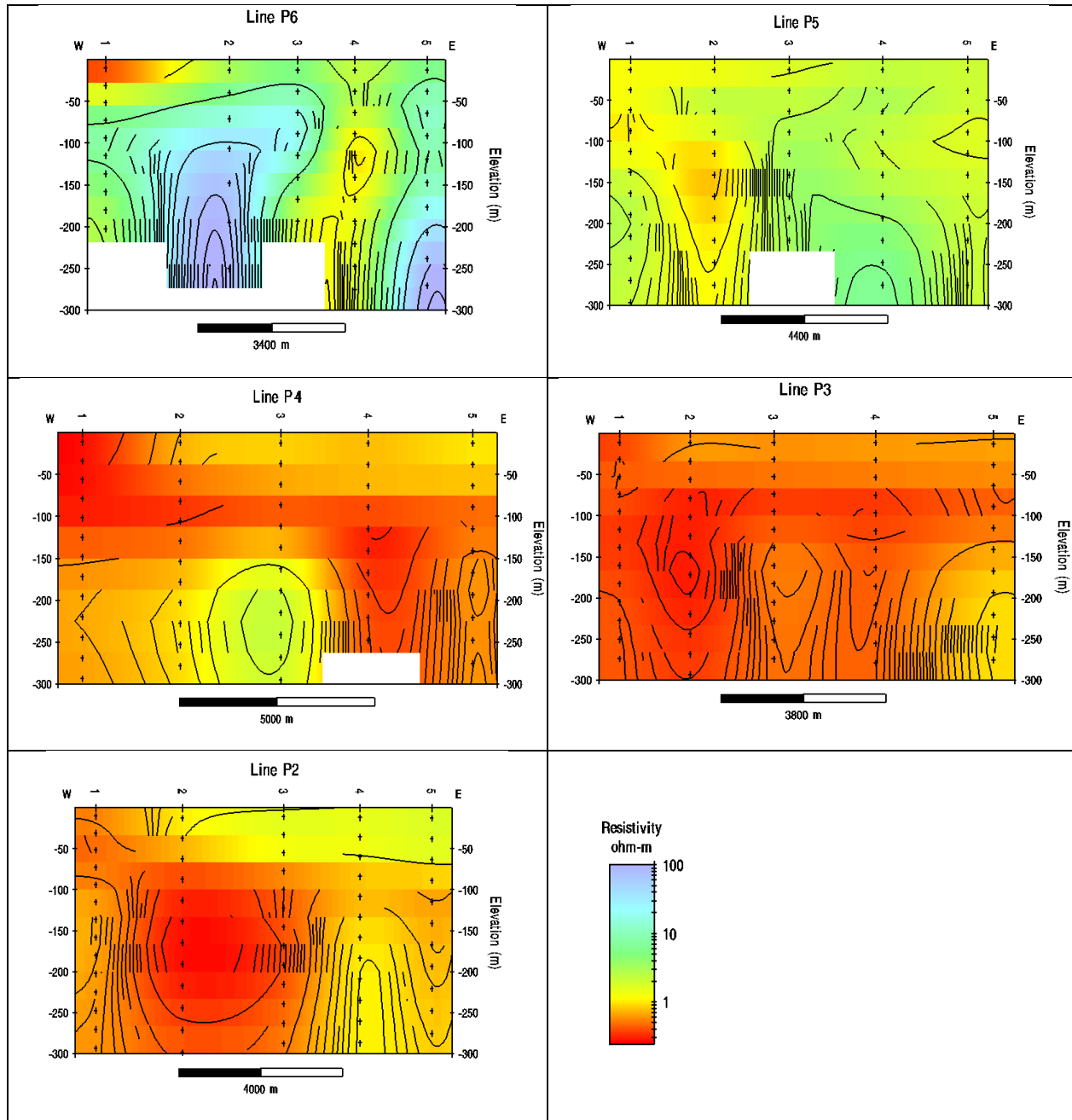


Figure 3-2: Near surface resistivity section across all 5 profiles

3.4 Conclusions

The Resistivity sections obtained after combining one dimensional model of the 25 sites acquired across 5 profiles in the eastern costal part of the bay of Khambhat high resistive block in the northern part of the bay and as we approach towards the southern part the resistivity decreases indicate increment in the salinity in the subsurface due to tidal sedimentation.

4. Ground Water Modelling

4.1 Modelling objectives

The objective of the Kalpasar Groundwater Model is to identify potential impacts to the groundwater system resulting from the development of the proposed Kalpasar by construction of a Dam & Road across Gulf of Khambhat.

4.2 Modelling study scope of works and modelling process

The modelling study will be completed as a staged approach in accordance with the “GROUNDWATER MODELING FRAMEWORK” Government of India, Ministry of Jal Shakti Department of Water Resources, RD & GR, Central Ground Water Board. A flow diagram of the modelling process is presented in Figure 4-1.

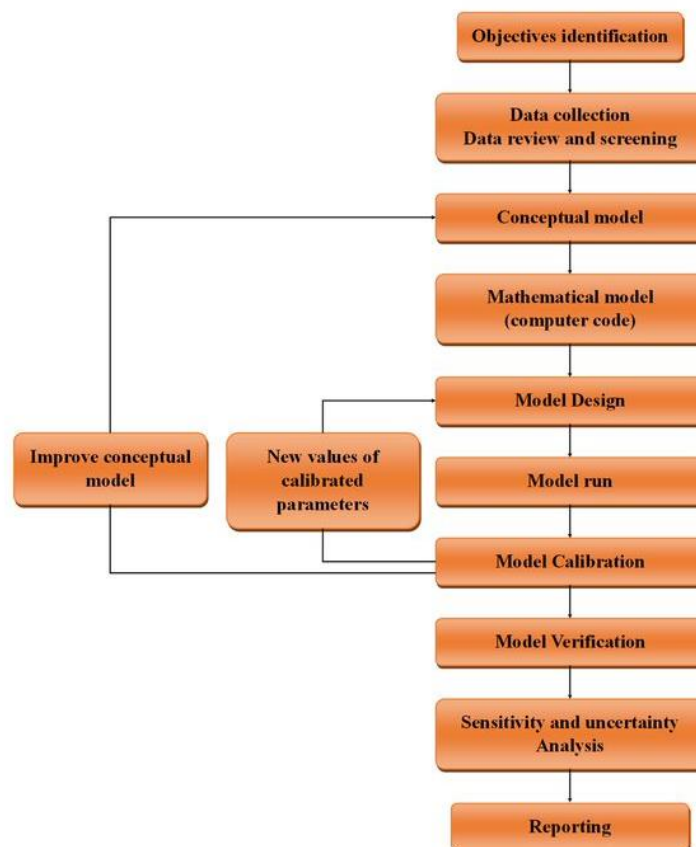


Figure 4-1: Stepwise methodology of groundwater modelling

A model has to be constructed according to the design and documented as built. It is reasonable and sometimes essential for the design and construction to change as more is learned about the system and the way it can be represented.

The scope of the groundwater modelling study will include the following major components in accordance with the “GROUNDWATER MODELING FRAMEWORK” Government of India, Ministry of Jal Shakti Department of Water Resources, RD & GR, Central Ground Water Board.:

- Collation of available data for study area;
- Data review and conceptualization of the groundwater system;
- Groundwater model design and configuration;
- Transient model development and calibration;
- Predictive scenario modelling for impact from the Construction of the reservoir;

4.3 Description of Numerical Model

It is considered that a model is a tool designed to represent a simplified version of reality, and properly constructed ground water models, as they are also representations of reality, can be valuable predictive tools for groundwater resources management of groundwater models, a mathematical model is commonly used to study groundwater system.

A mathematical model consists of a set of differential equations that describe groundwater flow. Since the assumptions to solve analytically a mathematical model are fairly restrictive, numerical techniques are generally required to solve the mathematical model approximately under realistic situations.

There are many numerical techniques to solve differential equations. Among them, finite difference and finite element methods are representative (Figure 4-2) The finite difference method is superior in less computer memory requirement and simplicity of data manipulation. The finite element method has excellence in flexibility of mesh formation. In practical aspect of groundwater flow simulation, there is little distinction between both methods. The finite difference method is applied for the proposed groundwater management plan of the study area, in consideration of data availability and accuracy of aquifer parameters.

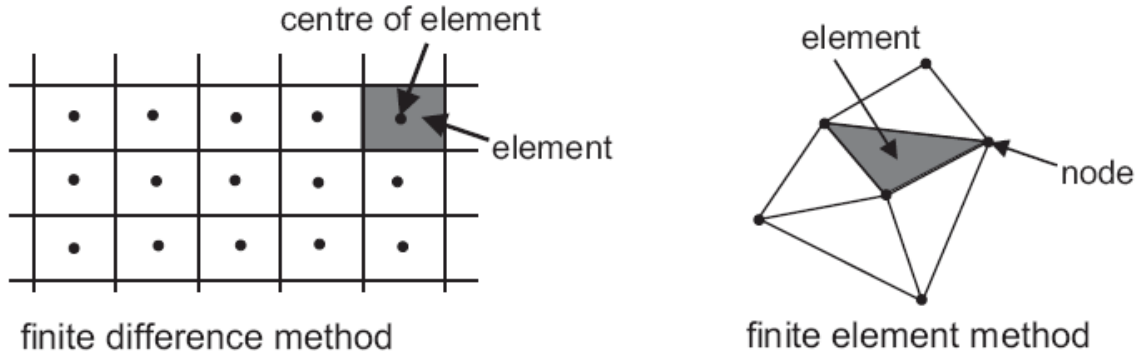


Figure 4-2: Finite Element and Finite Difference Grid

4.4 Ground water Flow Model

4.4.1 Basic Equation of Groundwater Flow

The unsteady-state, three-dimensional movement of groundwater through heterogeneous and anisotropic porous media is described by the following partial-differential equation.

$$\frac{\partial}{\partial x} \left(K_{xx} \frac{\partial h}{\partial x} \right) + \frac{\partial}{\partial y} \left(K_{yy} \frac{\partial h}{\partial y} \right) + \frac{\partial}{\partial z} \left(K_{zz} \frac{\partial h}{\partial z} \right) - W = S_s \frac{\partial h}{\partial t} \text{Equation 1}$$

Where, K_{xx} , K_{yy} and K_{zz} : values of hydraulic conductivity along the x, y and z coordinate axes, h: the potentiometric head, W: a volumetric flux per unit volume and represents source and/or sink of water, S_s : the specific storage of the porous media, t: time.

Equation (1), together with specified flow and/or head conditions at the boundaries of an aquifer system and specified initial-head conditions, constitutes a mathematical representation of a groundwater flow system. Numerical method, such as the finite difference method, is usually applied to solve equation (1).

4.4.2 Derivation of the Finite Difference Equation

An aquifer system is discretized with a mesh of blocks called “cells” as illustrated in Figure 4-3, the location of which are referenced with a row(i), column(j) and layer(k) coordinate system parallel to the x, y and z directions, respectively. The width of cells in the row direction, at a given

column j , is defined Δr_j ; the width of cells in the column direction at a given row i , is defined Δc_i ; and the thickness of cells in a given layer k , is defined Δv_k . At centre of each cell, there is a point called a “node” at which head is to be calculated (McDonald and Harbaugh,1988).

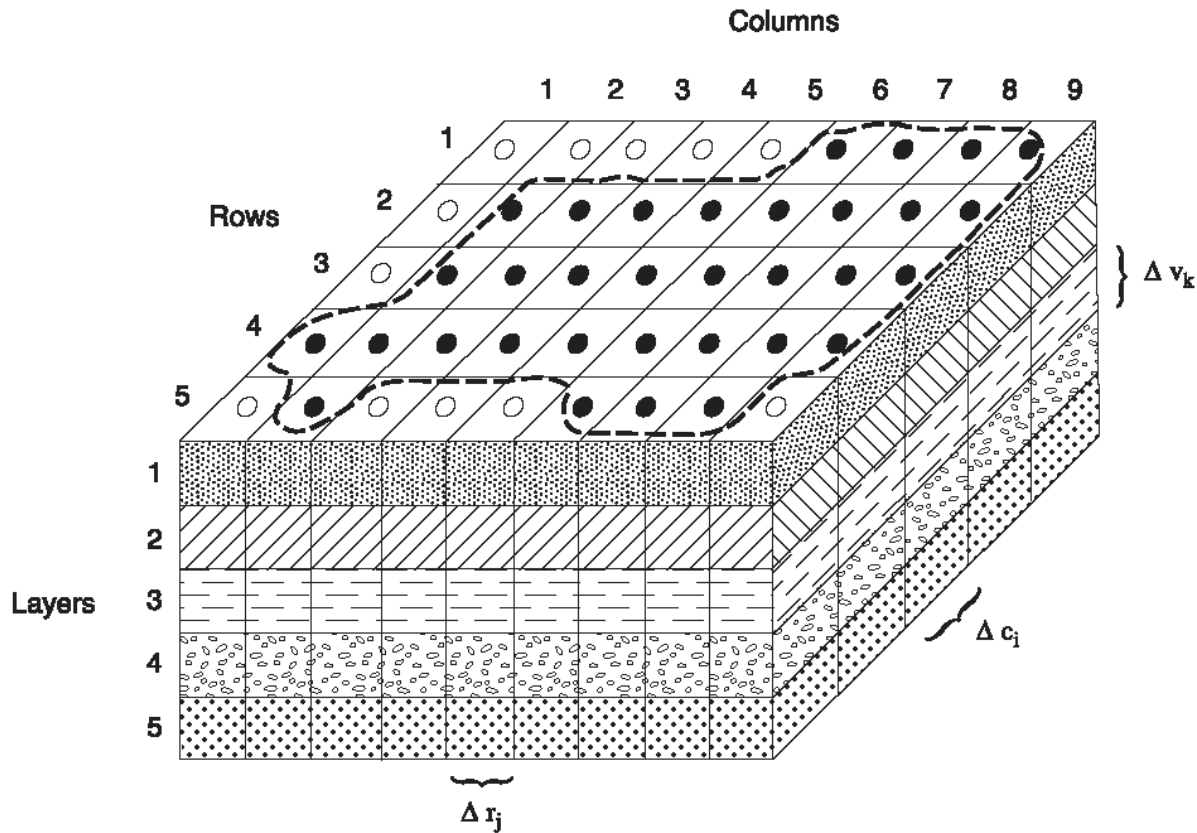


Figure 4-3: Discretisation of Aquifer

From the application of the continuity condition, the sum of all flows in to and out of the cell is equal to the rate of change in storage within the cell, expressing as follows.

$$\sum Q_i = \Delta S \text{ Equation 2}$$

Where, Q_i : flow rate into the cell, ΔS : storage change within the cell over a time interval Δt . For convenience flow entering cell is defined positive and outflow is defined negative.

A cell i,j,k and adjacent cells are illustrated in Figure 4-4. Applying finite difference method, groundwater flow is approximated by the node-to-node flow. Flow in to cell i,j,k in the row direction from cell $i,j-1,k$ is given by Darcy's law as

$$Q_{i,j-\frac{1}{2},k} = KR_{i,j-\frac{1}{2},k} \Delta c_i \Delta v_k \frac{h_{i,j-1,k} - h_{i,j,k}}{\Delta r_{j-\frac{1}{2}}} \text{Equation 3}$$

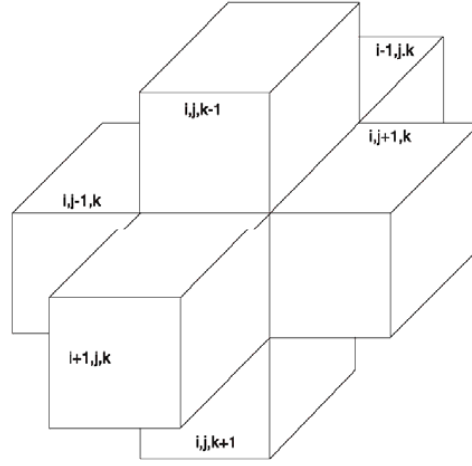


Figure 4-4: Adjacent cells for Finite Difference method

Where, $Q_{i,j-1/2,k}$: volumetric fluid discharge through the face between cells i,j,k and $i,j-1,k$, $h_{i,j,k}$: head at node i,j,k , $h_{i,j-1,k}$: head at node $i,j-1,k$, $KR_{i,j-1/2,k}$: hydraulic conductivity along the row between nodes i,j,k and $i,j-1,k$, $\Delta c_i \Delta v_k$: area of the cell faces normal to the row direction, $\Delta r_{j-1/2}$: distance between nodes i,j,k and $i,j-1,k$. The hydraulic conductivity between the nodes is normally calculated as a harmonic mean.

$$KR_{i,j-\frac{1}{2},k} = \frac{2KR_{i,j-1,k} KR_{i,j,k}}{KR_{i,j-1,k} + KR_{i,j,k}} \text{Equation 4}$$

Similar expressions can be written approximating the flow into the cell through the remaining five faces. Flow in row direction through the face between cells i,j,k and $i,j+1,k$ is expressed as

$$Q_{i,j+\frac{1}{2},k} = KR_{i,j+\frac{1}{2},k} \Delta c_i \Delta v_k \frac{h_{i,j+1,k} - h_{i,j,k}}{\Delta r_{j+\frac{1}{2}}} \text{Equation 5}$$

While for the column direction, flow into the cell through the forward face is

$$Q_{i+\frac{1}{2},j,k} = KR_{i+\frac{1}{2},j,k} \Delta r_j \Delta v_k \frac{h_{i+1,j,k} - h_{i,j,k}}{\Delta c_{i+\frac{1}{2}}} \text{Equation 6}$$

And flow into the cell through the rear face is

$$Q_{i-\frac{1}{2},j,k} = KC_{i-\frac{1}{2},j,k} \Delta r_j \Delta v_k \frac{h_{i-1,j,k} - h_{i,j,k}}{\Delta c_{i-\frac{1}{2}}} \text{Equation 7}$$

For the vertical direction, in flow through the bottom face is

$$Q_{i,j,k-\frac{1}{2}} = KV_{i,j,k-\frac{1}{2}} \Delta r_j \Delta c_i \frac{h_{i,j,k+1} - h_{i,j,k}}{\Delta v_{k+\frac{1}{2}}} \text{ Equation 8}$$

While in flow through the upper face is given by

$$Q_{i,j,k-\frac{1}{2}} = KV_{i,j,k-\frac{1}{2}} \Delta r_j \Delta c_i \frac{h_{i,j,k-1} - h_{i,j,k}}{\Delta v_{k-\frac{1}{2}}} \text{ Equation 9}$$

The notation can be simplified by combining grid dimensions and hydraulic conductivity into a single constant (“hydraulic conductance”). Hydraulic conductance between nodes $i,j-1,k$ and i,j,k can be written as

$$CR_{i,j-\frac{1}{2},k} = KR_{i,j-\frac{1}{2},k} \frac{\Delta r_j \Delta c_i}{\Delta r_{j-\frac{1}{2}}} \text{ Equation 10}$$

Storage change within the cell overall time interval Δt is expressed as follows.

$$\Delta S = Ss_{i,j,k} \frac{\Delta h_{i,j,k}}{\Delta t} \Delta r_j \Delta c_i \Delta v_k \text{ Equation 11}$$

Where, $Ss_{i,j,k}$: specific storage of cell i,j,k , $\Delta h_{i,j,k}$: head change over a time interval Δt , $\Delta r_j \Delta c_i \Delta v_k$: volume of cell i,j,k . Assuming $\Delta t = t_m - t_{m-1}$, an approximation to the time derivative of head at time t_m can be written as

$$\left(\frac{\Delta h_{i,j,k}}{\Delta t} \right)_m = \frac{h_{i,j,k}^{m-1} - h_{i,j,k}^m}{t_m - t_{m-1}} \text{ Equation 12}$$

Where, $h_{i,j,k}^m$: head of cell i,j,k at time t_m , $h_{i,j,k}^{m-1}$: head of cell i,j,k at time t_{m-1} which precedes t_m .

Substituting equation (3), equations (5) through (9), and equations (11) and (12) into equation (2), and applying relationship in equation (10), finite difference approximation for cell i,j,k can be obtained as

$$\begin{aligned} & CR_{i,j-\frac{1}{2},k} (h_{i,j-1,k}^m - h_{i,j,k}^m) + CR_{i,j+\frac{1}{2},k} (h_{i,j+1,k}^m - h_{i,j,k}^m) + Cc_{i,j-\frac{1}{2},k} (h_{i,j-1,k}^m - h_{i,j,k}^m) + \\ & Cc_{i,j+\frac{1}{2},k} (h_{i,j+1,k}^m - h_{i,j,k}^m) + CR_{i,j-\frac{1}{2},k} (h_{i,j-1,k}^m - h_{i,j,k}^m) + CR_{i,j+\frac{1}{2},k} (h_{i,j+1,k}^m - h_{i,j,k}^m) = \\ & Ss_{i,j,k} (\Delta r_j \Delta c_i \Delta v_k) \frac{h_{i,j,k}^m - h_{i,j,k}^{m-1}}{t_m - t_{m-1}} \text{ Equation 13} \end{aligned}$$

Where, $QS_{i,j,k}$: source or sink term of cell i,j,k .

An equation of this form is written for every cell in the calculation domain, and the system of equations is solved simultaneously for the heads at time t_m . Solving techniques of simultaneous equations are classified into direct and iterative methods. Finite difference approximation of three-dimensional groundwater flow produces a large system of simultaneous equations. Iterative method is superior to direct method in requirement of computer memory and is usually used to solve such large system. Strongly Implicit Procedure method (SIP), Slice Successive Over relaxation method (SSOR), and Preconditioned Conjugate Gradient method (PCG) are typical of iterative method. Precise explanation of solving techniques should be referred to McDonald and Harbaugh (1988), and Hill (1990).

4.4.3 MODFLOW

MODFLOW (Modular Finite-Difference Ground-Water Flow Model) developed by U.S. Geological Survey (McDonald and Harbaugh, 1988; Harbaugh and McDonald, 1996), is widely used numerical model which can simulate groundwater flow in a three-dimensional heterogeneous and anisotropic medium.

In a three-dimensional finite difference model, vertical discretization can be seen as a sequence of horizontal layers. In-complicated hydrogeological condition, this grid system causes a cell contain material from different stratigraphic units (Figure 4-5). In MODFLOW, vertical discretization can be viewed as an effort to represent individual aquifers or permeable zones by individual layers of the model (Figure 4-5). This distortion can be generated by giving the elevation of the top and bottom of the layer. It allows flexibility in discretizing, however, introduces small error into the finite difference approximation.

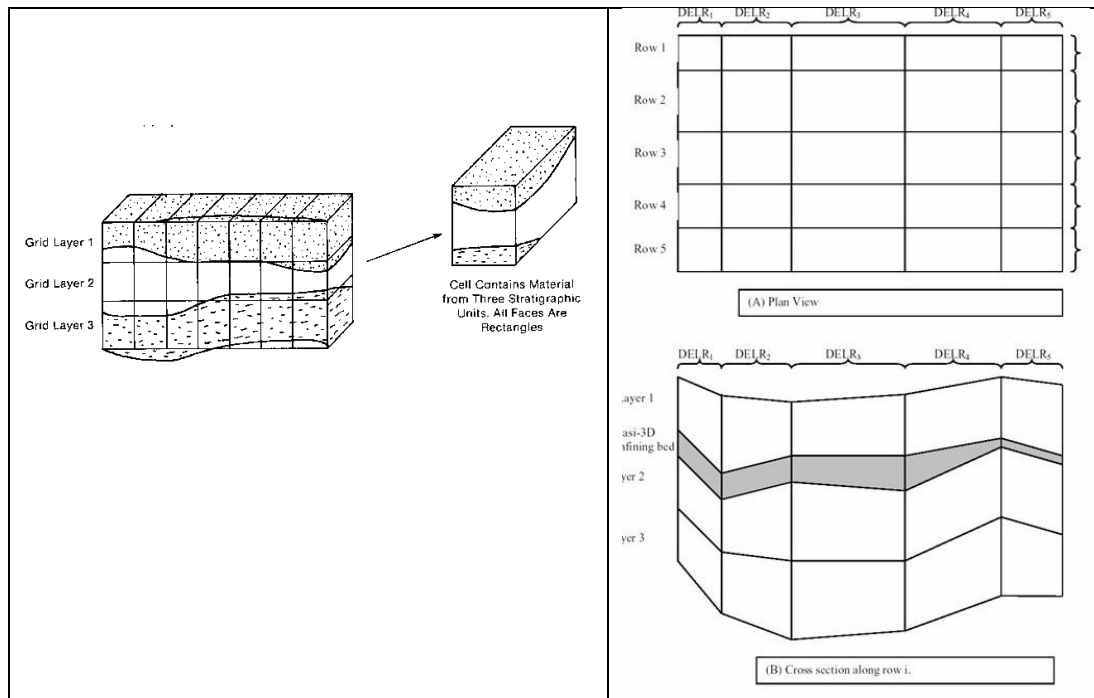


Figure 4-5: a) Material from Different Stratigraphy and b) Individual layers with different properties

5. Ground Water Model for Kalpasar Dam area

Our main objective for this process is to prepare a predictive model for Kalpasar effected area. The study area, which spans a vast 200km in length, is too extensive to be processed as a single model. As a more feasible approach, the area is divided into three parts, as illustrated in Figure 5-1. Model - I, identified as the Anand-Kheda model, similarly Model - II, identified as the Bhavnagar model and Model - III, identified as the Bharuch model.

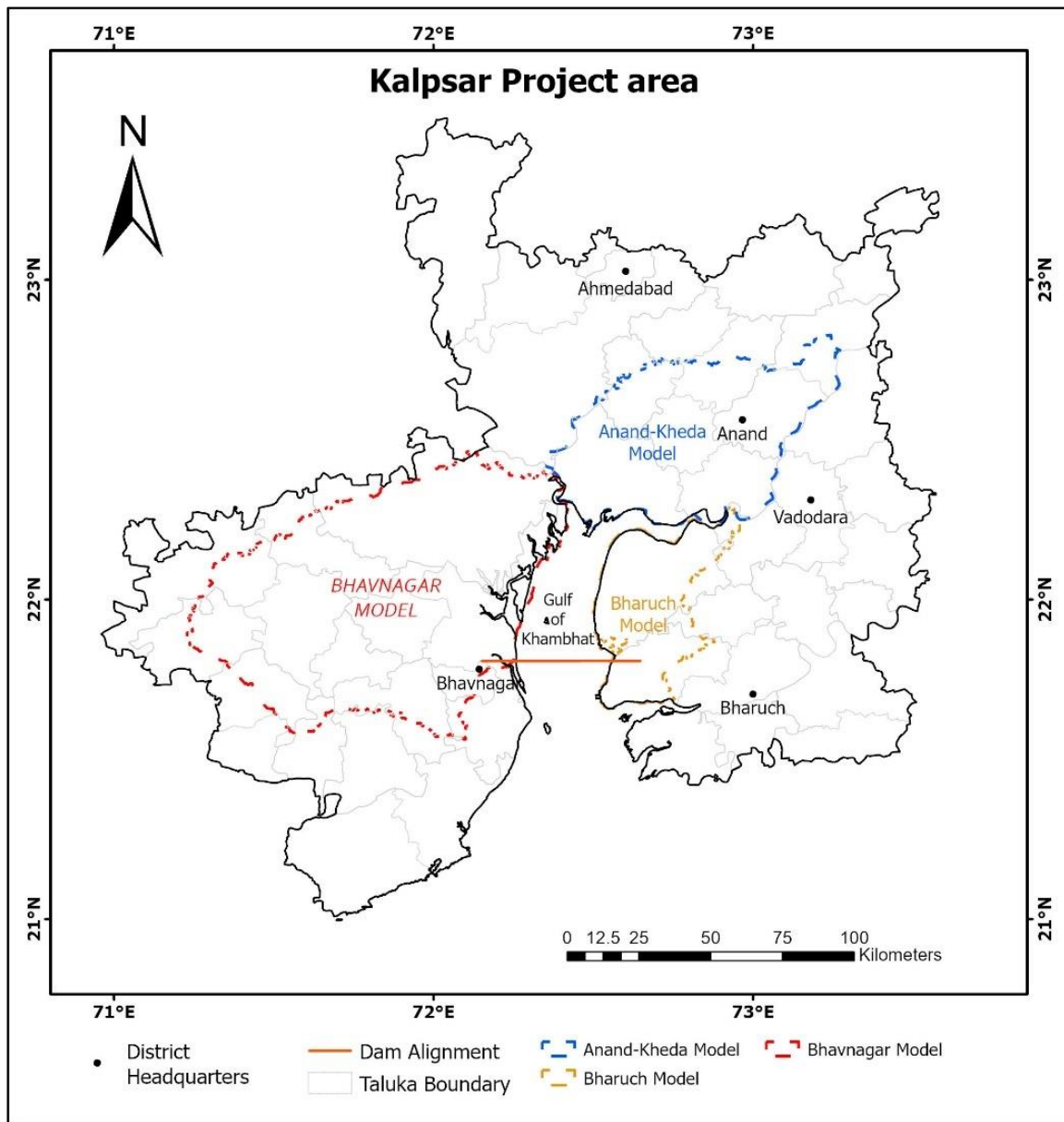


Figure 5-1: model boundary of the study area

6. Model – I (Anand-Kheda Model)

6.1 Introduction

The groundwater modelling work for area surrounding Kalpasar Project located between Sabarmati River and Mahi River was taken up as part of Groundwater modelling work for area surrounding Kalpasar reservoir on northern side of Kalpasar project study area lies in Central Gujarat, located between Latitude 22.18 N and Longitude 72.31 E and Latitude 22.90 N, Longitude 73.33 E covering Anand, Ankav, Borsad, Khambhat, Petlad, Sojitra, Tarapur & Umreth Taluka, Anand District, Parts of Matar, Nadiad, & Thasra Taluka, Nadiad District, the area forms doab between Mahi and Sabarmati & Vatrak Rivers and upper limit is marked by Shedhi River. The topography of the study area is almost plain over entire area with master slope towards south-west. On eastern side along Mahi River ravines are observed. The minimum elevation that is found within the study area is mean sea level on southern side, where the area is bound by Khambhat Bay and the highest elevation is 72 meters AMSL in north-western side. Ground Water Exploration work, in various parts of area have indicate that the basement is formed by Basalt observed sub surface rocks and also observed in riverbed. The study reveals that two significant aquifers are present in the area within Alluvium within the depth of 300 mbgl, however the deeper aquifers are mostly saline in southwestern part in the area known as Bhal area as this was supposedly remnant part of Sea. As discussed above the Deccan Trap Basalts form basement on north-eastern side of the area which are in turn overlain by Tertiary formation at deeper levels.

The study of lithologs of area reveals that the subsurface formations can be grouped into three broad layers, in the top unit is represented by sand, silt, gravel etc., groundwater in this layer is under phreatic condition, this layer is followed by a clay dominant layer forming aquitard and forms second layer. The third layer is largely consisting of sand, kankar, gravel intercalated with silt and clay lenses and forms confined aquifer. Inter-granular pore spaces play a major role in controlling the occurrence and movement of groundwater.

6.2 Conceptualization of Ground Water Model

As discussed above the modelled area is overlain by extensive alluvium formation with intercalated layers of sand, gravel, kankar, silt and clay. Three main types of aquifer/aquitard system have been identified in the area distributed area wise and depth wise. Phreatic aquifer comprises intermingled sand with kankars, silt occasionally with gravels and clay. The second layer represented by mostly Clay forms less permeable formation and acts as aquitard. Deeper aquifers are confined in nature with kankar and sand/gravels in alluvial formation occasionally with silty/clayey formations. Main recharge component in the area is Rainwater and recharge by surface water irrigation by a network of perennial canal Network of Mahi-Kadana Canal System, and infiltration from canal linings. The recharge infiltrates through soil into flow system through pores in the underlying layers.

As per study of lithology of wells constructed by CGWB and GWRDC and also by the geophysical studies conducted by ISR the model has been conceptualized to be of three layer with top layer representing Phreatic aquifer down to about 50 mbgl with average thickness of about 33 m, followed by a layer with poor low permeability with average thickness of 20 m available between 25 to 97 mbgl, which is in turn followed by dominant granular layer which is about 97 m thick on an average and is available down to 200 mbgl, the confining layer and confined aquifer tapers towards east and merge with phreatic aquifer in north eastern part.

Ground Water Model

Anand-Kheda District
Kalpsar Reservoir Area, Gujarat

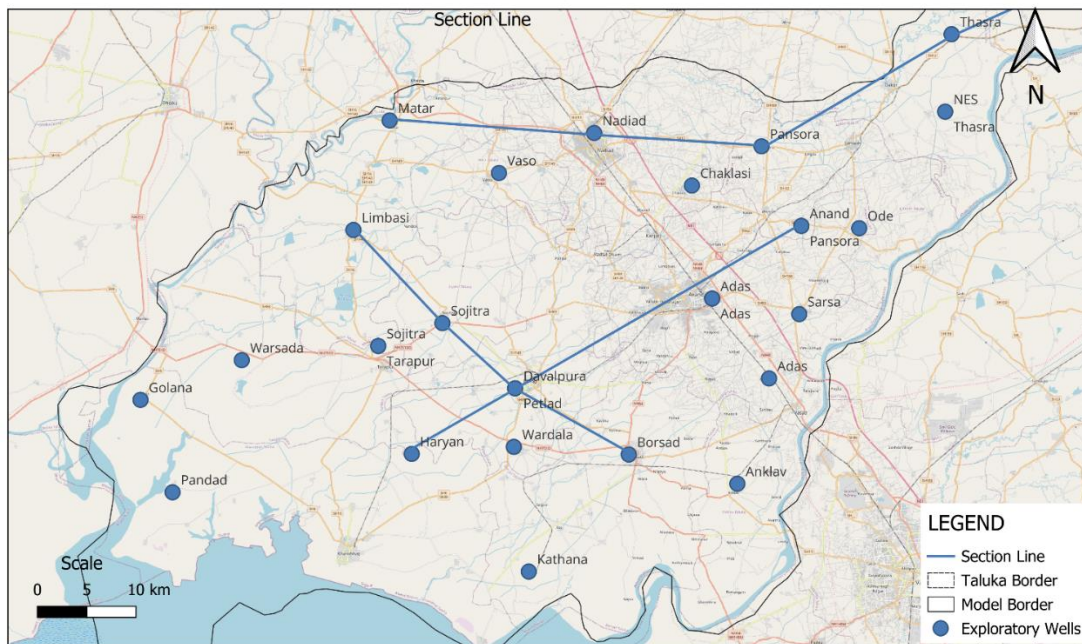


Figure 6-1: Map showing Section Line Anand-Kheda Area

Cross-Section A-A'

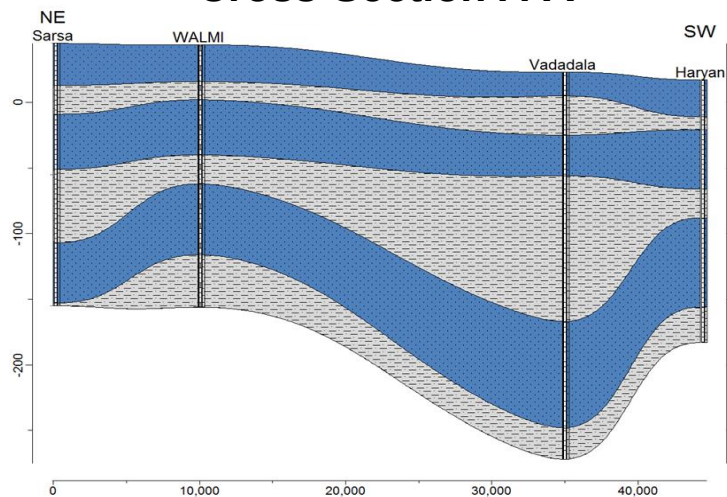


Figure 6-2: Hydrogeological section along A-A' (Haryan to Sarsa)

Section A-A' (Figure 6-2) drawn West to East direction to a distance about 63 km from Haryan to Sarsa and passing through locations Vadala and Anand (WALMI). The topmost aquifer is unconfined Aquifer I, which is followed by a consistent confining layer below which confined aquifers are present forming multi-layer aquifer system.

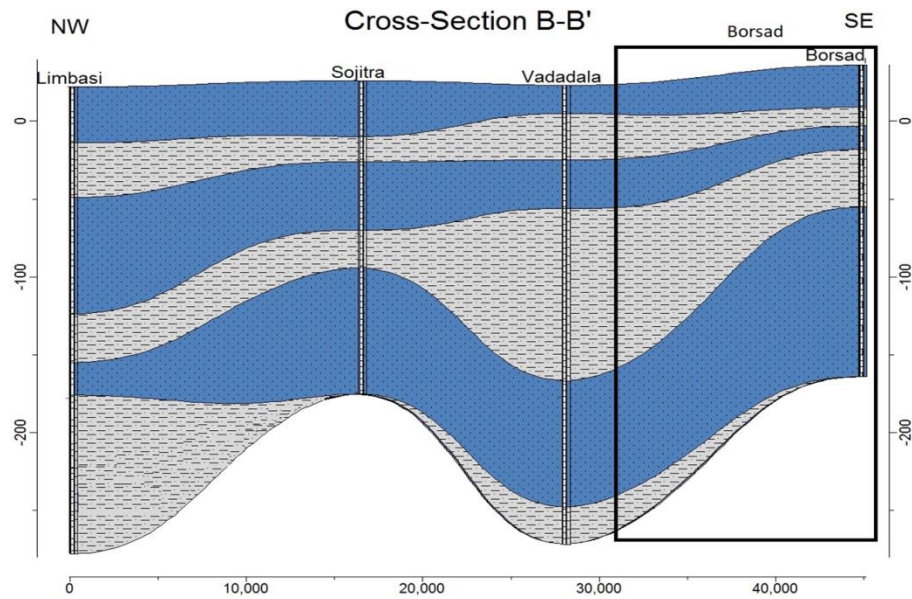


Figure 6-3: Hydrogeological section along B- B' (Limbasi to Borsad)

Section B-B' (Figure 6-3) drawn North-West to South-East direction to a distance about 45 km from Limbasi to Borsad and passing through Sojitra & Vadadala. The topmost aquifer is unconfined Aquifer, which is followed by a consistent confining layer below which confined aquifers are present forming multi-layer aquifer system.

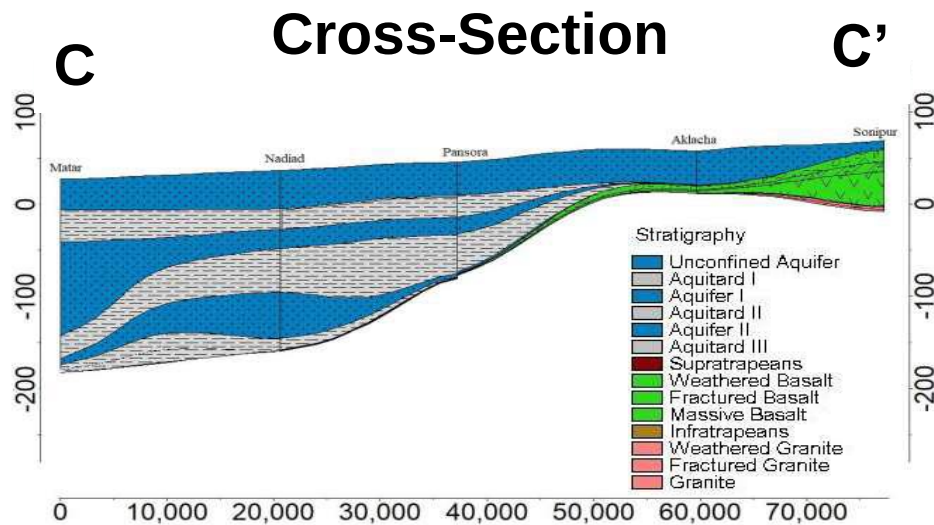


Figure 6-4: Hydrogeological section along C- C' (Matar to Sonipur)

Hydrogeological cross section between Matar and Sonipur, Kheda District, Section C-C' (Figure 6-4) – this section is drawn to a distance of 67 km roughly in SW- NE direction from Matar in

southwest to Sonipur in northeast and passing through the locations of Nadiad, Pansora and Aklacha. In the area phreatic aquifer consisting of sand, gravel is present all over the area. The phreatic aquifer is followed by a persistent confining layer below which confined aquifer consisting of sand, gravel, kankar are present which are interlaced by intermittent clay layers forming multi aquifer system, however on eastern part phreatic aquifer is followed by Basalt formation which is weathered and fractured at top and massive basalt is encountered at depth.

6.3 Domain and Discretization

Area for groundwater model was considered based on natural boundaries as Khambhat Bay on southern side and Mahi River which is a perennial river forms western boundary, northern boundary is formed by Shedhi river except for a small part in north-eastern side which is considered as no flow zone. On the western side Sabarmati and Vatrak Rivers are present which form natural boundary. An area of 4059 sq km situated between three natural boundaries was considered for preparation of Groundwater model for the area. The model was discretized into 1000mx1000m grid considering a 3-layer model represented by four horizons. Top of phreatic(unconfined) aquifer taken as surface elevation from SRTM data (<https://www.earthdata.nasa.gov>), elevations for horizon2 (Bottom of Phreatic Aquifer), horizon 3 (bottom of confining layer) and horizon 4 (bottom of confined Aquifer)is based on groundwater exploration details which is extrapolated over the area. Based on above data three zones were formed the top zone representing Phreatic aquifer, the second one representing aquitard and the bottom layer representing deep aquifer. A 3D model considered for the area is presented below:

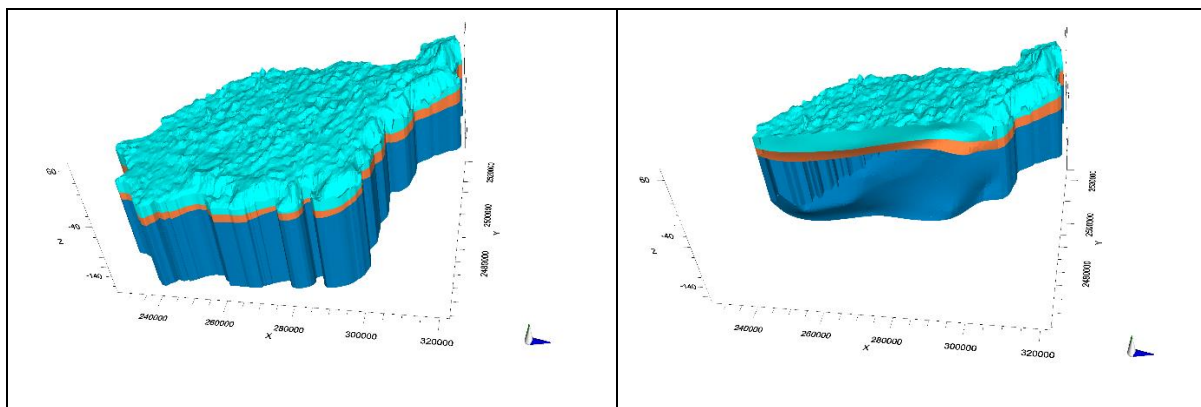


Figure 6-5: Three-Dimensional representation of Aquifers in Anand-Kheda area

The model grid considered for the area is 1000m x 1000m covering entire area, there are total 67 rows and 98 columns, there are 3937 active nodes out of total 6566 nodes covering the area. Distribution of grids over the entire area is presented below:

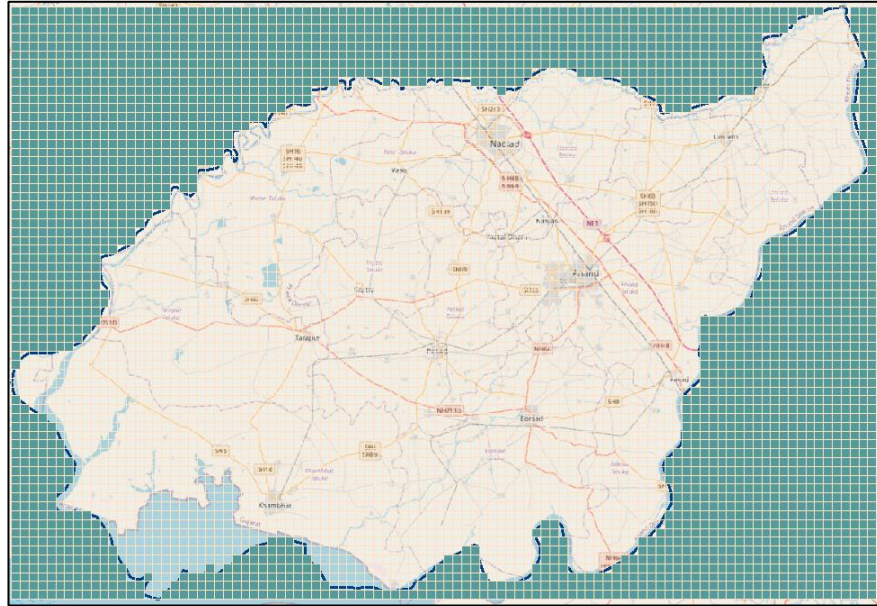


Figure 6-6: Model Grid

6.4 Model Input

Input for the model were considered based on CGWB and GWRDC data, The depth to water level data, lithologs of exploratory wells constructed in the area, pumping test analysis data for the exploratory wells in the area were analyzed for the model area. The recharge was considered as per GWEC report 2016-17, 2019-20, and 2021-22 (<https://ingres.iith.ac.in/gecdataonline/gis/>).

6.4.1 Permeability and Storage

Based on data available for pumping test analysis by CGWB the permeability for phreatic aquifer was taken as 10-55 m/day for phreatic and 2.5-25 for confined aquifer for k_x and k_y and k_z is taken as $k_x/10$ and for confining layer the permeability was considered as 0.002 m/day. Specific yield for phreatic aquifer is taken as 15% and for confined aquifers the storage is taken as $1e-05$.

Table 4: Aquifer characterization and disposition of Bhavnagar district

Aquifer Group	Formation	Base of Aquifer (m)	Generalized Thickness (m)	Yield (LPM)	Quality/EC ($\mu\text{S/cm}$)	Water Level/ Piezometric head (mbgl)	Transmissivity (m^2/Day)	Aquifer Type
I A	Dominated by Sandy formation	18-68	16-40	150-1200	350-20570	1.5-28.6	2.6-451	Unconfined
I B	Dominated by Sandy formation	54-185	15-75	200-900	330-7820	3.1-28.18	24-3125	Semi Confined
II	Dominated by Sandy formation	160-271	21-50	120-1700	700-5100	6.49-23.8	40-1212	Confined

(Ref: CGWB, Aquifer Mapping and Management of Ground Water Resources, Anand & Kheda Districts, Gujarat)

6.4.2 Recharge and Groundwater abstraction

Recharge has been considered as annual recharge as per GWRE estimates (<https://ingres.iith.ac.in/gecdataonline/gis/>), for the year 2016-17, 2019-20 and 2021-22 and as recharge estimations have not been done for 2017-18, 2018-19, and 2020-213 were adopted as computed for preceding year. The average recharge between 2017 to 2022 was continued for subsequent periods for projecting future scenario. The recharge was converted into unit recharge for unit area in m/day and fed into the model. Net annual recharge after deducing the groundwater draft was taken as recharge to the model.

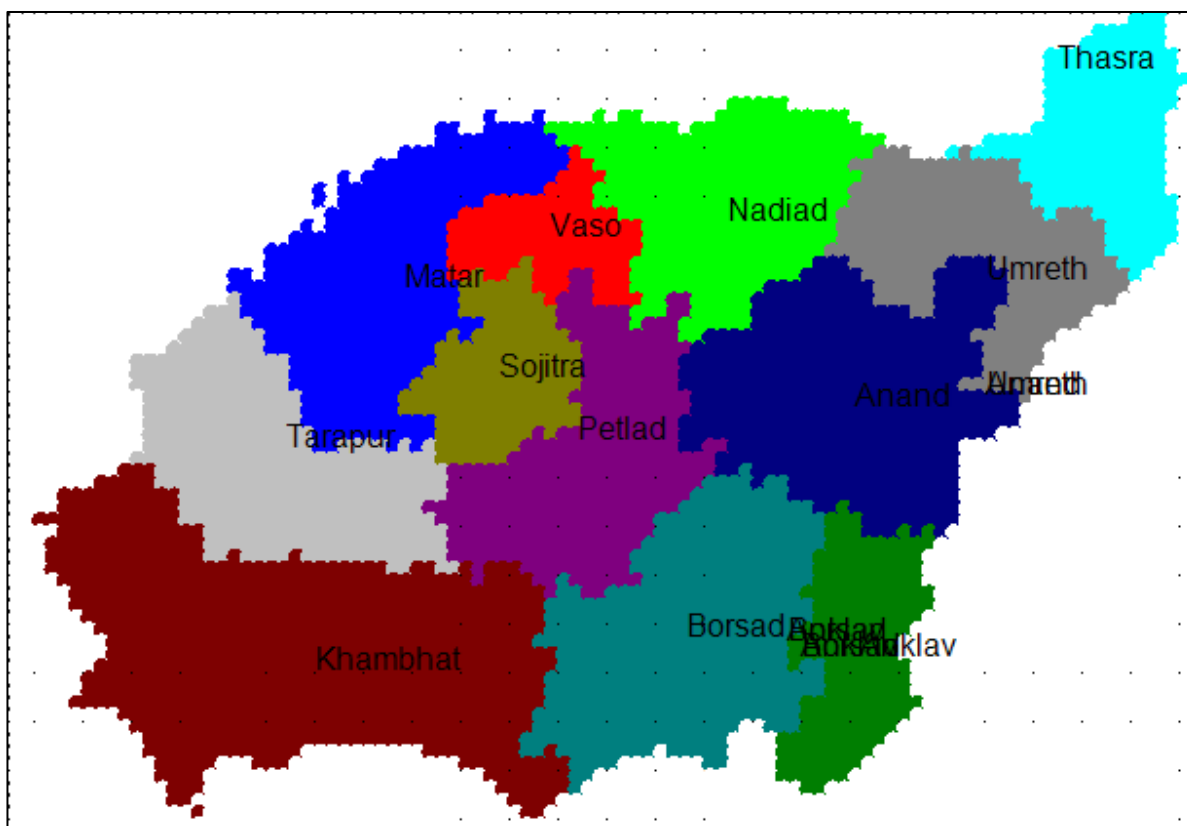


Figure 6-7: Recharge Zones

Table 5: Net Annual Groundwater Recharge considered for the model

Sr No	District	Taluka	Years					
	Groundwater Recharge in Ham		2016-17	2017-18*	2018-19*	2019-20	2020-21-*	2021-22
1	ANAND	ANAND	6573.13	6573.13	6573.13	11147.11	11147.11	4063.50
2	ANAND	ANKLAV	2270.70	2270.70	2270.70	10052.61	10052.61	4037.79
3	ANAND	BORSAD	5846.57	5846.57	5846.57	5996.24	5996.24	7006.10
4	ANAND	KHAMBHAT	4277.79	4277.79	4277.79	15862.62	15862.62	11894.21
5	ANAND	PETLAD	5999.71	5999.71	5999.71	10354.80	10354.80	6662.09
6	ANAND	SOJITRA	4296.66	4296.66	4296.66	12623.01	12623.01	4622.70
7	ANAND	TARAPUR	4473.07	4473.07	4473.07	15529.61	15529.61	11019.73
8	ANAND	UMRETH	5981.50	5981.50	5981.50	8926.82	8926.82	5309.75
9	KHEDA	MATAR	3218.92	3218.92	3218.92	11712.34	11712.34	8271.90
10	KHEDA	NADIAD	4262.90	4262.90	4262.90	11236.99	11236.99	9875.75
11	KHEDA	THASRA	6369.32	6369.32	6369.32	7676.62	7676.62	5077.79
12	KHEDA	VASO	3763.41	3763.41	3763.41	4961.13	4961.13	4876.86
			Note: *-Groundwater Recharge available for preceding years considered					
			Source:(https://ingres.iith.ac.in/gecdataonline/gis/)					

	Ground Water Recharge in m/day		2016-17	2017-18*	2018-19*	2019-20	2020-21*	2021-22
1	ANAND	ANAND	0.00042	0.00042	0.00042	0.00071	0.00071	0.00026
2	ANAND	ANKLAV	0.00034	0.00034	0.00034	0.00151	0.00151	0.00061
3	ANAND	BORSAD	0.00037	0.00037	0.00037	0.00038	0.00038	0.00044
4	ANAND	KHAMBHAT	0.00012	0.00012	0.00012	0.00044	0.00044	0.00033
5	ANAND	PETLAD	0.00055	0.00055	0.00055	0.00095	0.00095	0.00061
6	ANAND	SOJITRA	0.00079	0.00079	0.00079	0.00232	0.00232	0.00085
7	ANAND	TARAPUR	0.00037	0.00037	0.00037	0.00129	0.00129	0.00091
8	ANAND	UMRETH	0.00069	0.00069	0.00069	0.00103	0.00103	0.00061
9	KHEDA	MATAR	0.00025	0.00025	0.00025	0.00091	0.00091	0.00064
10	KHEDA	NADIAD	0.00035	0.00035	0.00035	0.00093	0.00093	0.00082
11	KHEDA	THASRA	0.00039	0.00039	0.00039	0.00047	0.00047	0.00031
12	KHEDA	VASO	0.00080	0.00080	0.00080	0.00106	0.00106	0.00104

➤ Groundwater draft

Annual Groundwater draft is considered as per GWRE estimates (<https://ingres.iith.ac.in/gecdataonline/gis/>), for the year 2016-17, 2020-21, 2022-23, for the years for which groundwater draft is not available, the draft for previous year has been considered. Taluka-wise draft for different years is presented in the table below:

Table 6: Groundwater draft for different years

Sr No	District	Taluka	Years					
	Groundwater Draft in Ham		2016-17	2017-18*	2018-19*	2019-20	2020-21*	2021-22
1	ANAND	ANAND	6358.71	6358.71	6358.71	5638.31	5638.31	6168.59
2	ANAND	ANKLAV	2766.62	2766.62	2766.62	2789.90	2789.90	3260.77
3	ANAND	BORSAD	5963.47	5963.47	5963.47	4921.14	4921.14	5355.45
4	ANAND	KHAMBHAT	3914.20	3914.20	3914.20	3996.08	3996.08	4214.51
5	ANAND	PETLAD	3807.60	3807.60	3807.60	4007.38	4007.38	3175.97
6	ANAND	SOJITRA	1652.99	1652.99	1652.99	3130.92	3130.92	2881.77
7	ANAND	TARAPUR	360.60	360.60	360.60	598.66	598.66	783.67
8	ANAND	UMRETH	3232.41	3232.41	3232.41	2981.53	2981.53	783.67
9	KHEDA	MATAR	2630.50	2630.50	2630.50	7390.77	7390.77	2757.48
10	KHEDA	NADIAD	5452.12	5452.12	5452.12	4570.83	4570.83	6938.83
11	KHEDA	THASRA	3166.04	3166.04	3166.04	13408.56	13408.56	3348.28
12	KHEDA	VASO	1450.53	1450.53	1450.53	3736.65	3736.65	1280.99
			Note: *-Groundwater draft available for preceding years considered					
			Source:(https://ingres.iith.ac.in/gecdataonline/gis/)					

6.4.3 Boundary Conditions

The study area is bounded on south by Gulf of Khambhat, on east by Mahi River and on west by Sabarmati and Vatrak Rivers. Gulf of Khambhat was considered as constant head boundary. The Mahi, Sabarmati, Vatrak and Shedi Rivers gain water from the surrounding aquifers and hence they were considered as Drain boundaries. Local natural and manmade drainage were considered as drain for the model area. Evapotranspiration (EVT) is considered for whole area as water levels are shallow, for EVT value IMD data of Ahmedabad Observatory has been adopted.

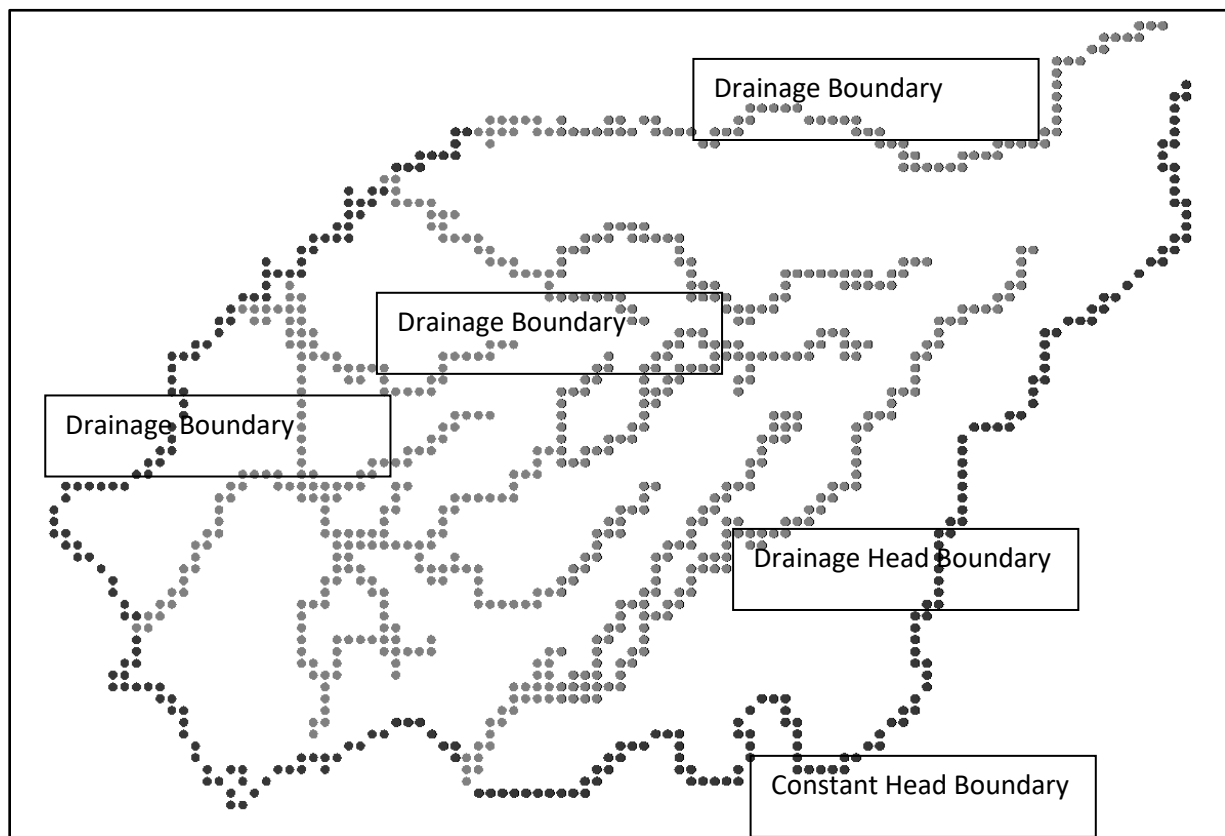


Figure 6-8: Boundary Condition

6.4.3.1 Constant Head Boundary

The coastline along Gulf of Khambhat was identified and taken as constant head boundary for the model. The water table elevation was fixed at mean sea level along the boundary.

6.4.3.2 Drainage Boundary

There are number of natural and manmade drainage in the area. The drainages were identified

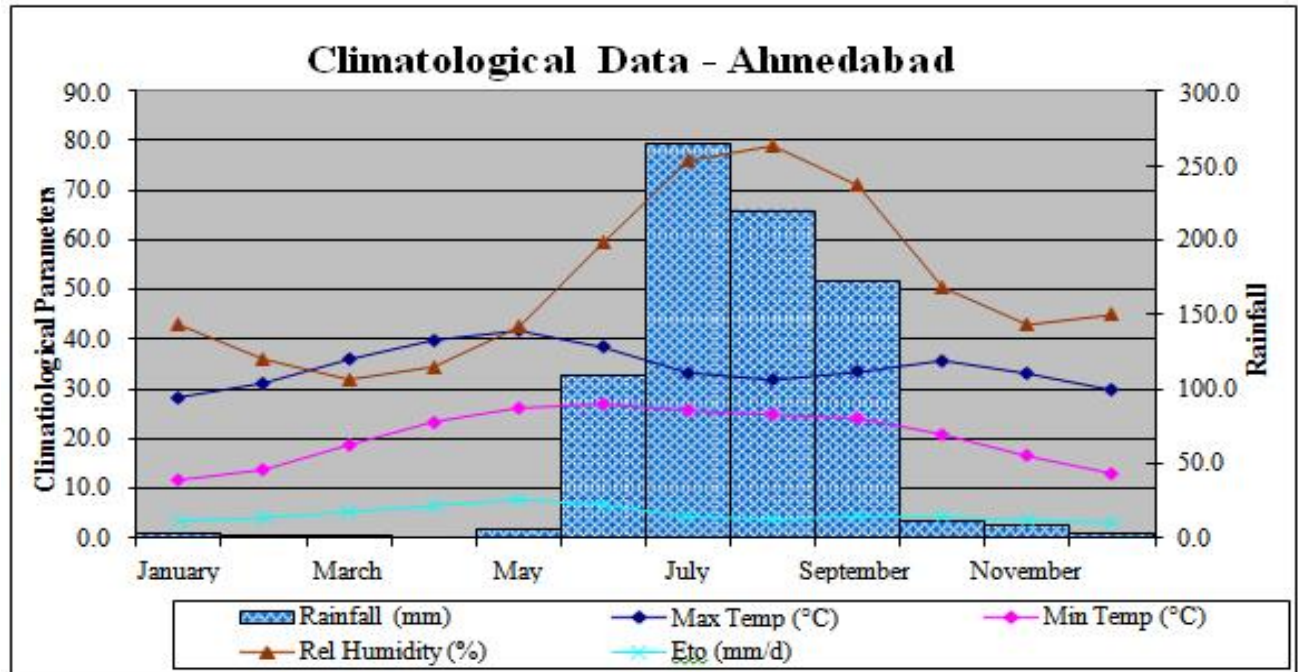
and mapped and taken as drainage boundary as shallow ground water conditions prevail in part of the area and significant amount of groundwater also gets discharged by drains. The identified drainages were fed into the model as drainage boundary.

6.4.3.3 Evapotranspiration

Climatological data for the area is being monitored by Indian Meteorological Department (IMD) which has an observatory at Ahmedabad and Evapotranspiration data (Eto) for the same station was considered for the study area. The evapotranspiration was taken as 4.8 mm per day for the model.

Table 7: Climatological data of Ahmedabad IMD station 1951-1980

Climatological Data								
Station:	Ahmedabad				District	Ahmedabad		
Altitude:	55 m	AMSL			HA	13	0.72	
Latitude:	23°04'	N			Longitude:	72°38'	E	
Month	Max Temp(°C)	Mini Temp (°C)	Humidity (%)	Wind Spd. Kmpd	Sunshine (Hours)	Solar Rad. (MJ/m2/d)	Eto (mm/d)	Rainfall (mm)
January	28.4	11.7	43.0	100.1	9.6	17.5	3.4	2.6
February	31.3	13.8	36.0	101.8	10.2	20.5	4.2	1.1
March	36.0	18.8	32.0	108.7	9.3	21.7	5.3	1.0
April	39.9	23.4	34.5	120.8	10.0	24.5	6.6	0.9
May	41.8	26.2	42.5	158.7	10.6	25.9	7.8	6.0
June	38.4	27.0	59.5	174.2	8.8	23.2	6.7	108.7
July	33.3	25.7	76.0	150.1	4.6	16.8	4.4	265.3
August	31.9	24.8	79.0	124.2	4.3	16.0	3.9	219.8
September	33.4	24.1	71.0	103.5	6.7	18.5	4.4	171.9
October	35.8	20.9	50.5	74.2	9.5	20.3	4.4	10.8
November	33.2	16.5	43.0	79.4	9.7	18.1	3.6	8.9
December	29.8	13.0	45.0	91.4	9.5	16.7	3.2	2.6
Total	-	-	-	-	-	-	-	799.6
Average	34.4	20.5	51.0	115.6	8.6	20.0	4.8	-



6.4.4 Head Observation Well

Initial head in the are required to start with simulation for the model. Observation wells of National Ground Water Monitoring Stations of CGWB and Ground Water Observation wells of GWRDC were filtered for the area of study and were adopted as Head Observation wells for appropriate layer. Head Observation wells are also required for history matching and calibration of the model. Details of Head Observation wells are given in Annexure I.

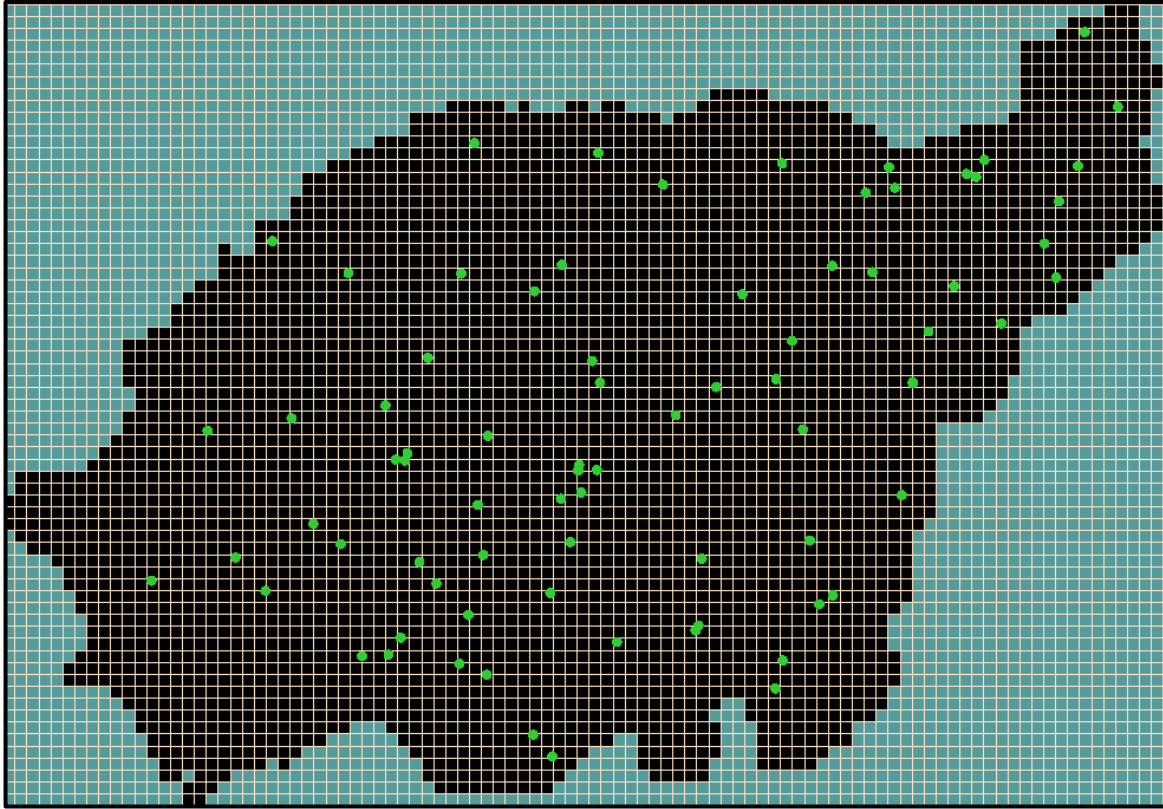


Figure 6-9: Observation Well Location

6.5 Stress Period and Time Steps

The time discretization for the model was decided on annual base. The first stress period was considered for one day of single time step and model was run in steady state. Subsequent time periods were considered for whole year consisting one time step. Following Stress Periods were considered for the model.

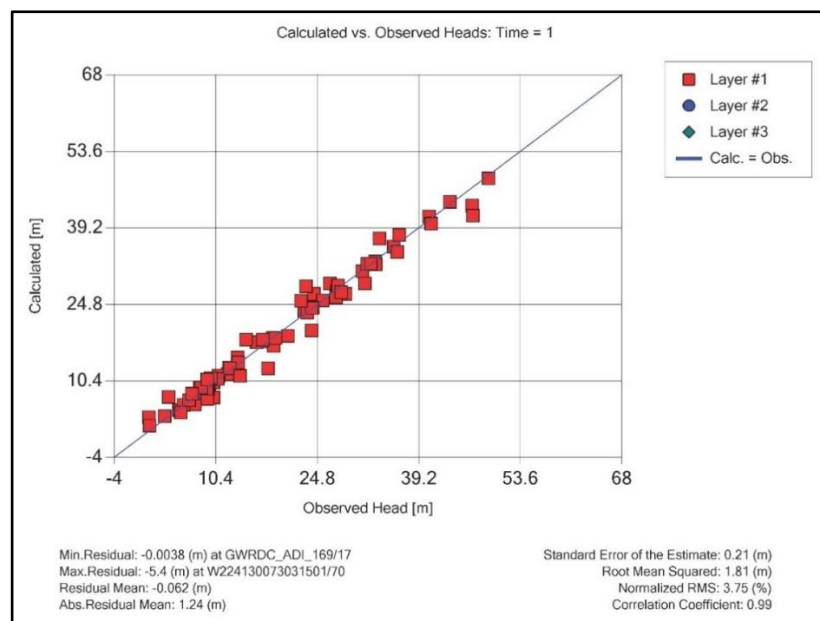
No of Days	Time Step	Multiplication factor	Steady State/Transient
Calibration			
1	1	1	SS
Validation			
365	1	1	TR
365	1	1	TR
366	1	1	TR
365	1	1	TR
365	1	1	TR

365	1	1	TR
Projection			
366	1	1	TR
365	1	1	TR
365	1	1	TR
365	1	1	TR
366	1	1	TR
365	1	1	TR
365	1	1	TR
365	1	1	TR
366	1	1	TR
365	1	1	TR

Based on above details following parameters were considered for the model

6.6 Model Simulation

To begin with the model steady state simulation was run to check stability of model and calibration of model with allowable changes in the parameters as per field condition. The model parameters were varied with $\pm 10\%$ to study sensitivity of different parameters for the model. During steady state stress conditions are imposed such as recharge, boundary condition etc., The model was allowed to run for 1 stress period which was taken as one day. During Steady State run no changes in storage is allowed, i.e., water is not allowed to enter storage or come out from storage.



The Standard estimate of error was found to be 0.21 m. and RMS was 1.81 m

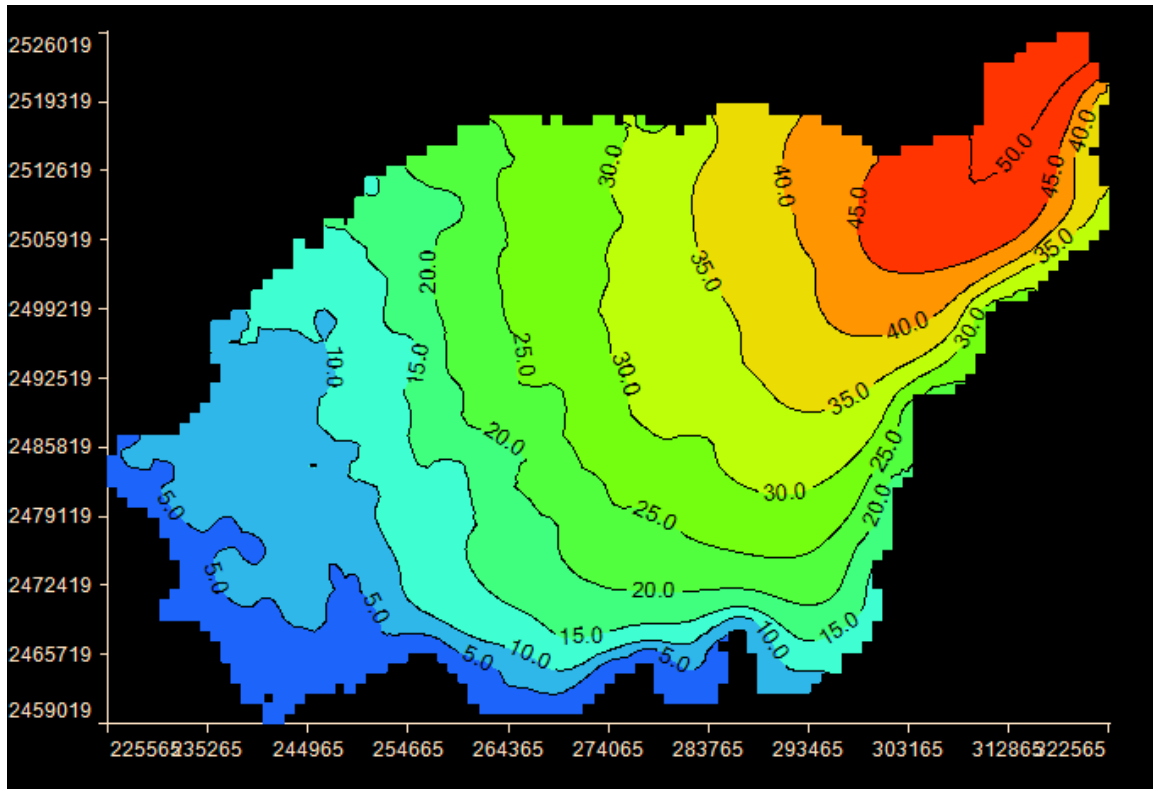


Figure 6-10: Water table at the end of Steady State Simulation (Time 1 day)

6.7 Sensitivity Analysis and Model Calibration

The model was simulated and later calibrated with sensitivity analysis. The hydraulic conductivity was taken as 10-60 m/day for phreatic aquifer and 2-25 m/day for confined aquifer depending upon formation of the area, and model was calibrated and sensitivity analysis was performed, the RMS for different value of Permeability (K) and Specific yield (Sy) were studied. The conductivity was varied within $\pm 10\%$ and specific yield was varied as $\pm 5\%$ and model was run for each parameter separately and observations were made. The standard estimate of error is 0.21 m, whereas RMS value is 1.81 m. The sensitivity of model for specific yield was also tested, the standard error of estimates was not found to vary with changes in parameter for both conductivity and specific yield. It was observed that the model is not sensitive to conductivity and specific yield. Looking at the hydrogeology and studies made in the area specific yield of 15% was adopted. The conductivity for phreatic aquifer was kept between 10-60 m/day for different area similarly for confined aquifer conductivity was adopted as 2-25 m/day. A table showing values of

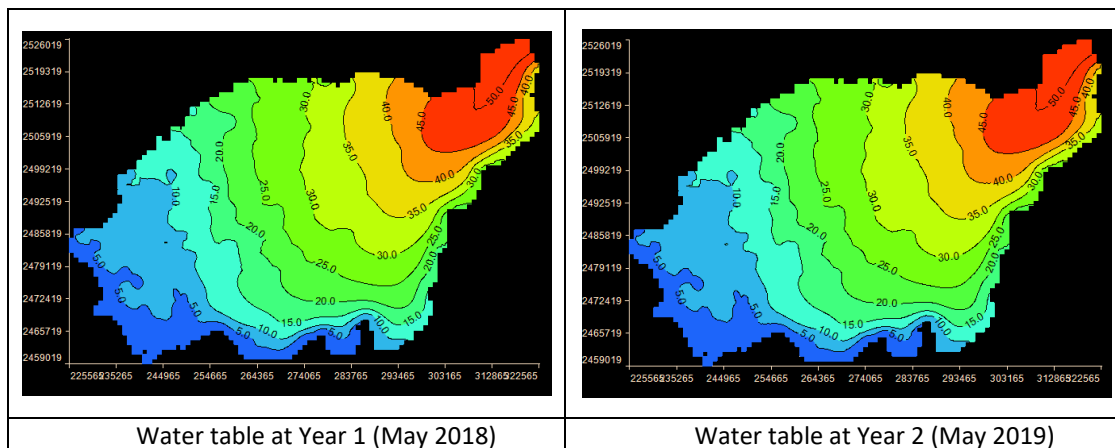
Standard estimates of error and Root Mean Squared Deviation (RMS) are depicted in the table below. Values, conductivity value was retained as to 10-60 m/day for different formation.

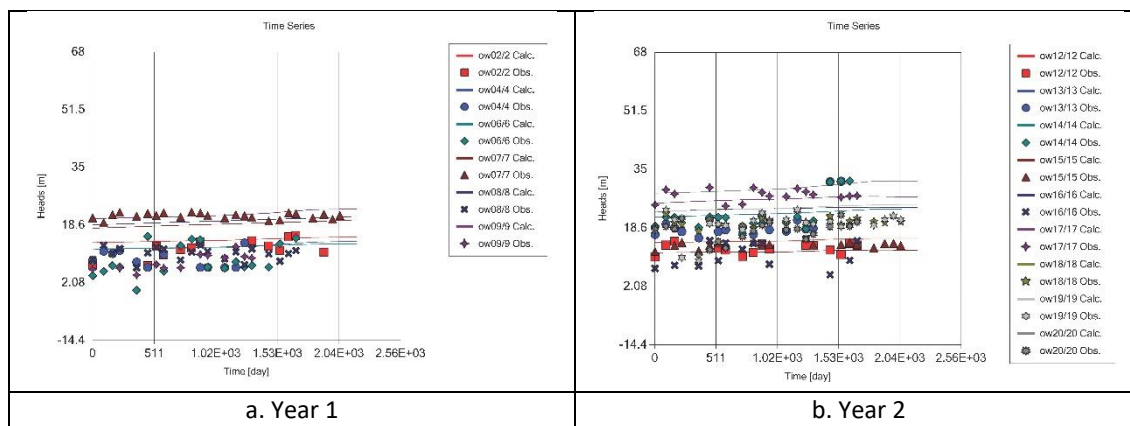
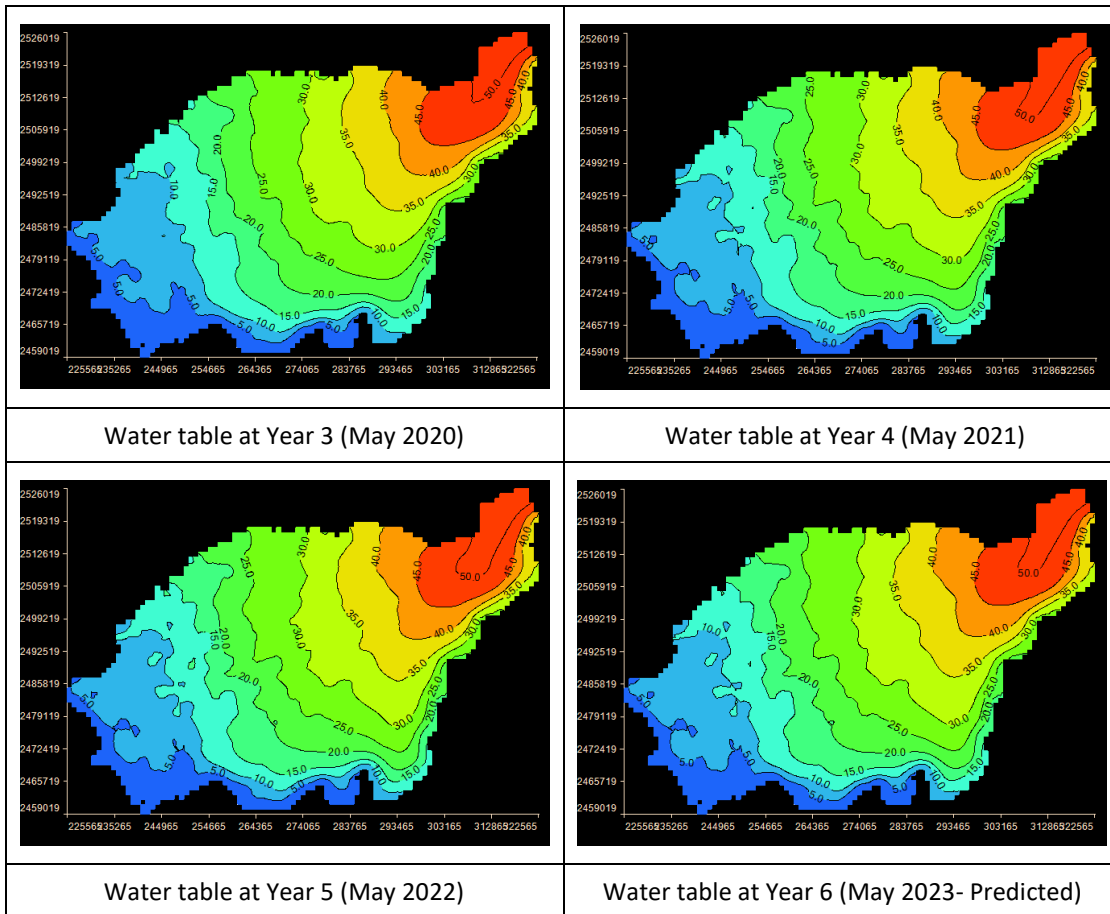
Table 8: Parameter Sensitivity Analysis of Parameter (Specific Yields and Conductivity) for different Iterations

Sr No	Parameter	Value	Standard Estimate of Error	RMS
1	Conductivity (m/day)	09-53	0.21	1.81
		10-60	0.21	1.81
		11-66	0.21	1.81
2	Specific Yield (%)	10	0.21	1.81
		15	0.21	1.81
		20	0.21	1.81

6.8 Validation

Validation of model is required for fine tuning of parameters like storage, The model result is compared with historical water levels and adjustments are made within allowable limits to have representative outcome. An output at the end of different years of model run for validation period of 2017-18 to 2022-23 is presented below.





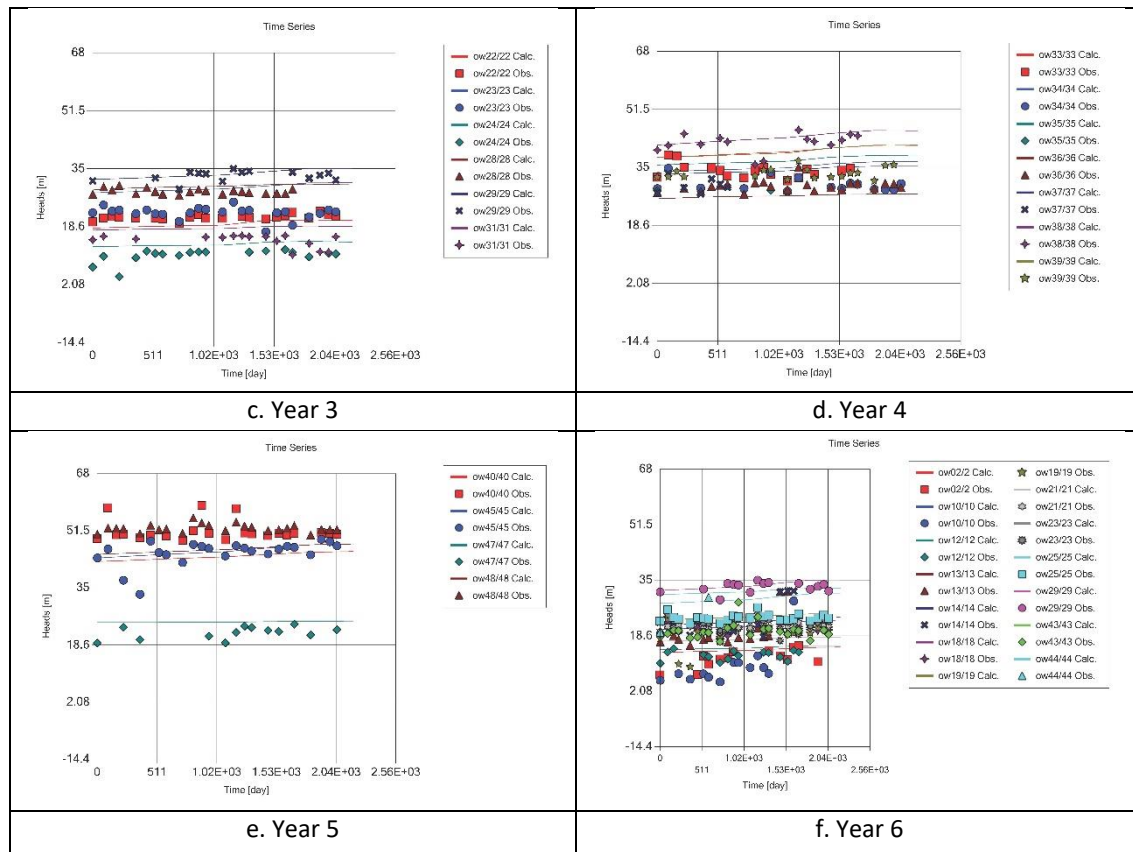


Figure 6-11: Calculated vs. Observed Heads for year 1 to Year 6 (a. to e. Phreatic Aquifer, f. Confined Aquifer)

6.9 Groundwater Budget

Groundwater budget for the stress period 1 (day 1) is presented below, the analysis of data shows that total inflow in the system is 1490810 m³/day and outflow from the system is 149810 m³/day, there is a recharge of 1490810 m³/day to the system. The drains are discharging 826403 m³/day from the system, 536945 m³/day is lost as evapotranspiration from shallow water level areas, there is also outflow of 127461 m³/day through constant head boundary.

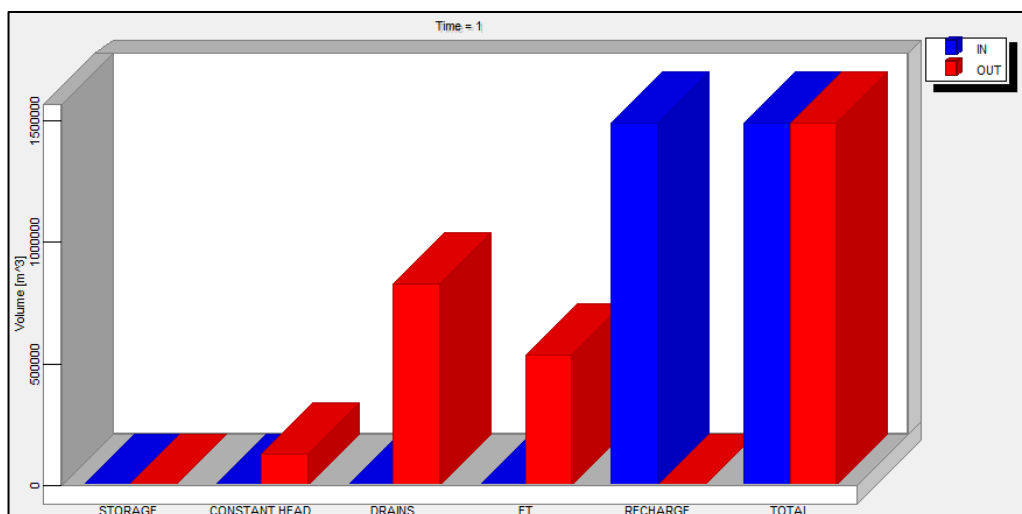


Figure 6-12: Mass Balance after Stress Perion 1 (Steady State)

Table 9: Mass Balance after Stress period 1 (Steady State)

VOLUMETRIC BUDGET FOR ENTIRE MODEL AT END OF TIME STEP1, STRESS PERIOD 1		
	IN	OUT
STORAGE	0	0
CONSTANT HEAD	0	127461
DRAINS	0	826403
ET	0	536945
RECHARGE	1490810	0
TOTAL In	1490810	1490810
IN - OUT	0	0
PERCENT DISCREPANCY		0

During transient condition in the stress period 2 (Year 1) total inflow in the system is 1490810 m³/day and out flow from the system is 1490810 m³/day, there is a net recharge of 1017257 m³/day to the system and there is an inflow of 30607 m³/day through constant head boundaries. The Drains are discharging about 826403 m³/day, through constant head 127461 m³/day is flowing out of system through constant head boundary, in shallow water level area drains are discharging 826403 m³/day and 536945 m³/day is lost as Evapotranspiration from the system. negligible water is entering into storage or leaving the storage.

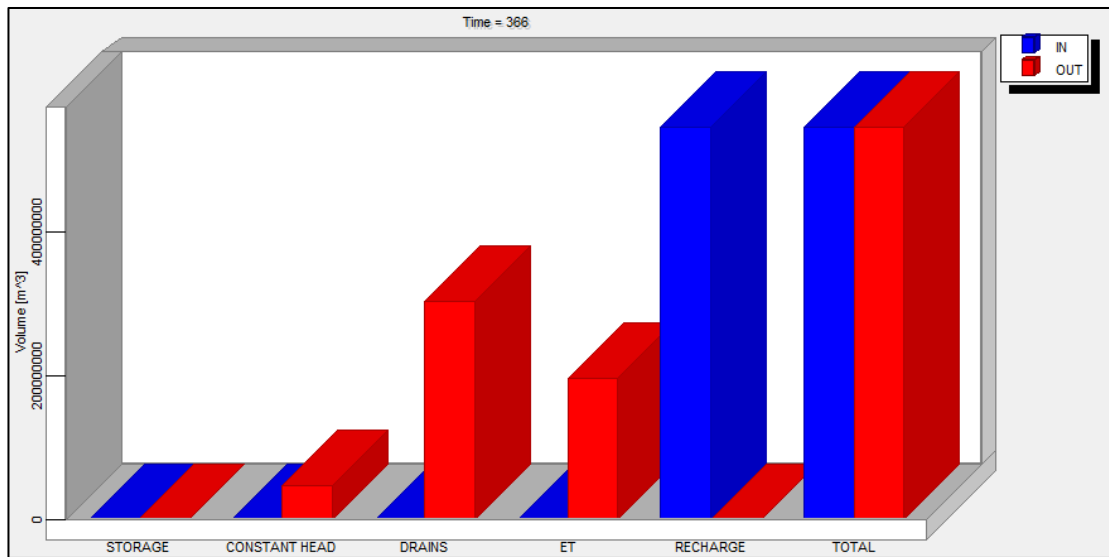


Figure 6-13: Mass Balance after Stress period 2

Table 10: Mass Balance after Stress period 2

VOLUMETRIC BUDGET FOR ENTIRE MODEL AT END OF TIME STEP 1, STRESS PERIOD 2		
	IN	OUT
STORAGE	1.6981E-02	6.6531E-03
CONSTANT HEAD	0	127461
DRAINS	0	826403
ET	0	536945
RECHARGE	1490810	0
TOTAL In	1490810	1490810
IN - OUT	0	0
PERCENT DISCREPANCY		0

During transient condition in the stress period 7 (Year 6) total inflow in the system is 2394536 m³/day and out flow from the system is 2394536 m³/day, the net recharge is 2146190 m³/day. Outflow through Constant Head boundary is 149142 m³/day. The drains are discharging about 1146865 m³/day of water, Evapotranspiration loss is 1061143 m³/day, System is providing 2394536 m³/day of water to storage., whereas 37384 m³/day is coming out of storage.

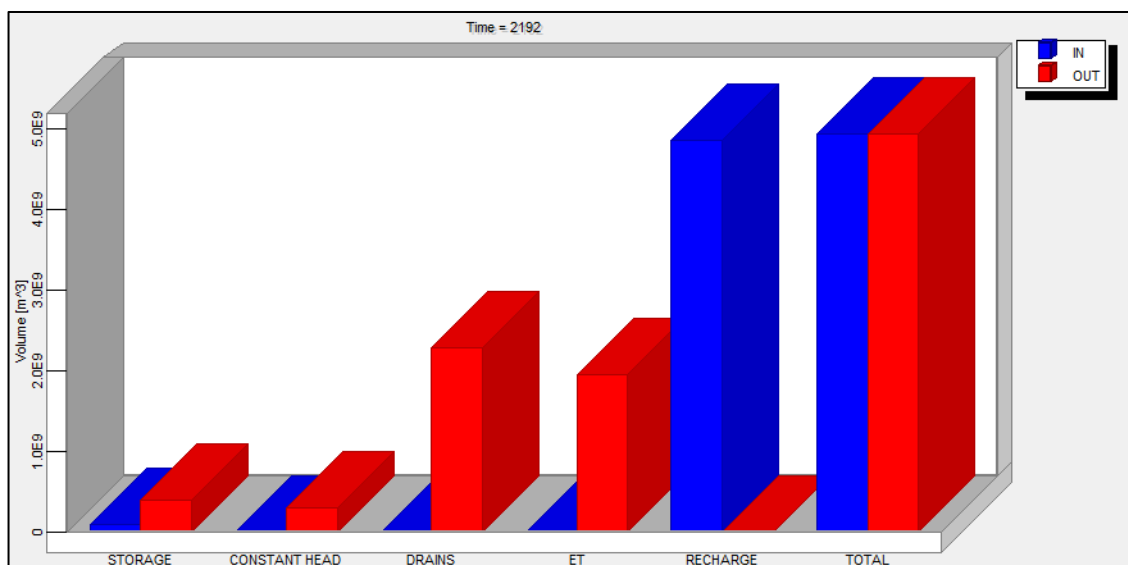


Figure 6-14: Mass Balance After Stress Period 7

Table 11: Mass Balance After Stress Period 7

VOLUMETRIC BUDGET FOR ENTIRE MODEL AT END OF TIME STEP 1, STRESS PERIOD 7		
	IN	OUT
STORAGE	248346	37384
CONSTANT HEAD	0	149142
DRAINS	0	1146865
ET	0	1061143
RECHARGE	2146190	0
TOTAL In	2394536	2394536
IN - OUT	0	0
PERCENT DISCREPANCY		0

6.10 Zone Wise Groundwater Budget

For the convenience of budget estimates for different zones in the model the zones were identified which are concurrent with the taluka of Anand and Kheda Districts. A table of different budget zones is given in the table below:

S.No	DISTRICT	TALUKA	ZONE
1	ANAND	ANAND	Zone 1
2	ANAND	ANKLAV	Zone 2
3	ANAND	BORSAD	Zone 3
4	ANAND	KHAMBHAT	Zone 4
5	ANAND	PETLAD	Zone 5
6	ANAND	SOJITRA	Zone 6
7	ANAND	TARAPUR	Zone 7
8	ANAND	UMRETH	Zone 8
9	KHEDA	MATAR	Zone 9
10	KHEDA	NADIAD	Zone 10
11	KHEDA	THASRA	Zone 11
12	KHEDA	VASO	Zone 12

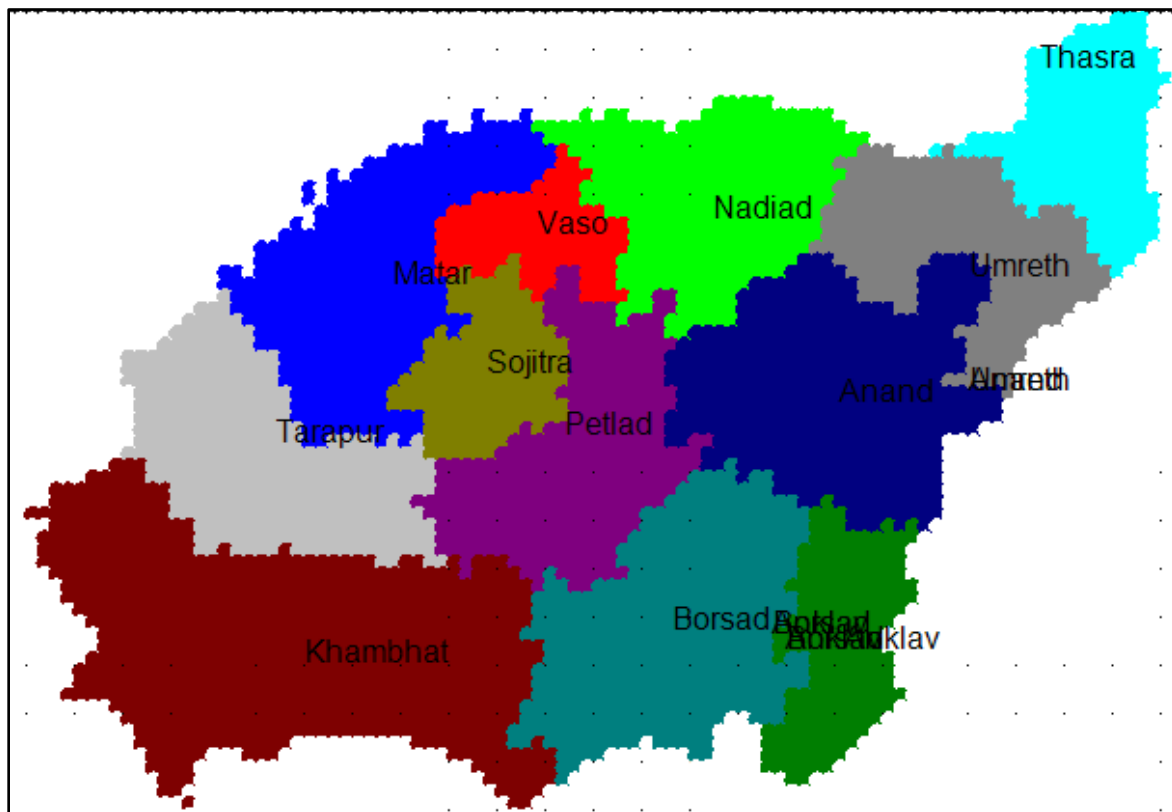
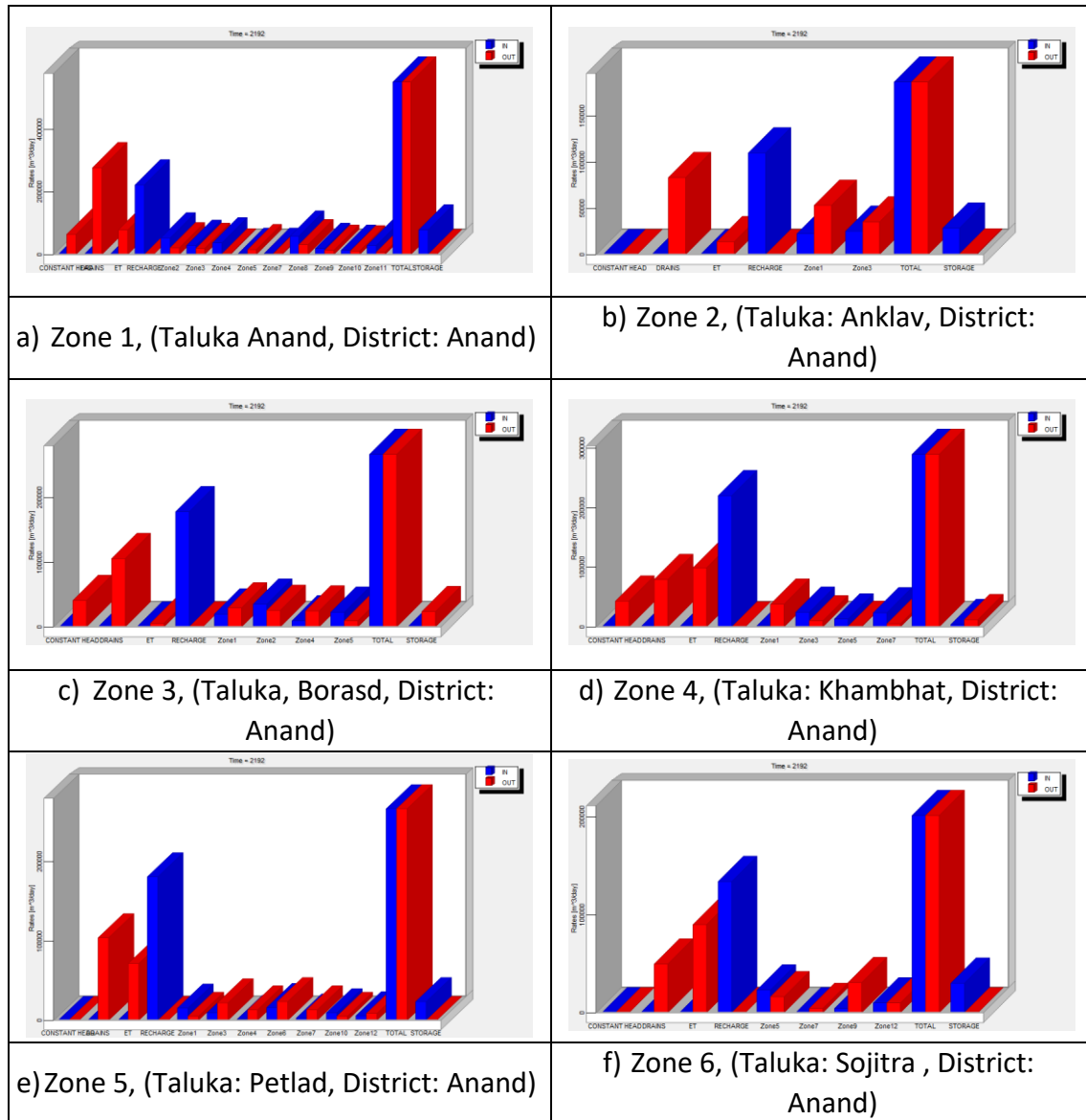


Figure 6-15: Figure showing zones for Mass Balance in Anand and Kheda Districts

Flow Budget has been computed by the model for different zones as marked in the figure above, which is depicted below in the graph for the end of validation period for year 6 (Stress Period 7). A perusal of graph shows that recharge is the main stress in the area which goes out of system

by transfer of water from one zone to adjoining zone and through constant head, evapotranspiration and drains. Discharge from constant head is prominent in coastal talukas, evapotranspiration is prominent where water levels are shallow. Change in storage is prominent in some talukas like Ankлав, Anand, Petlad, Sojitra of Anand Taluka and Umreth and Thasra of Nadiad Taluka

Ground Water Budget for Model Area, after Stress Period 7- Year 6, Steady State



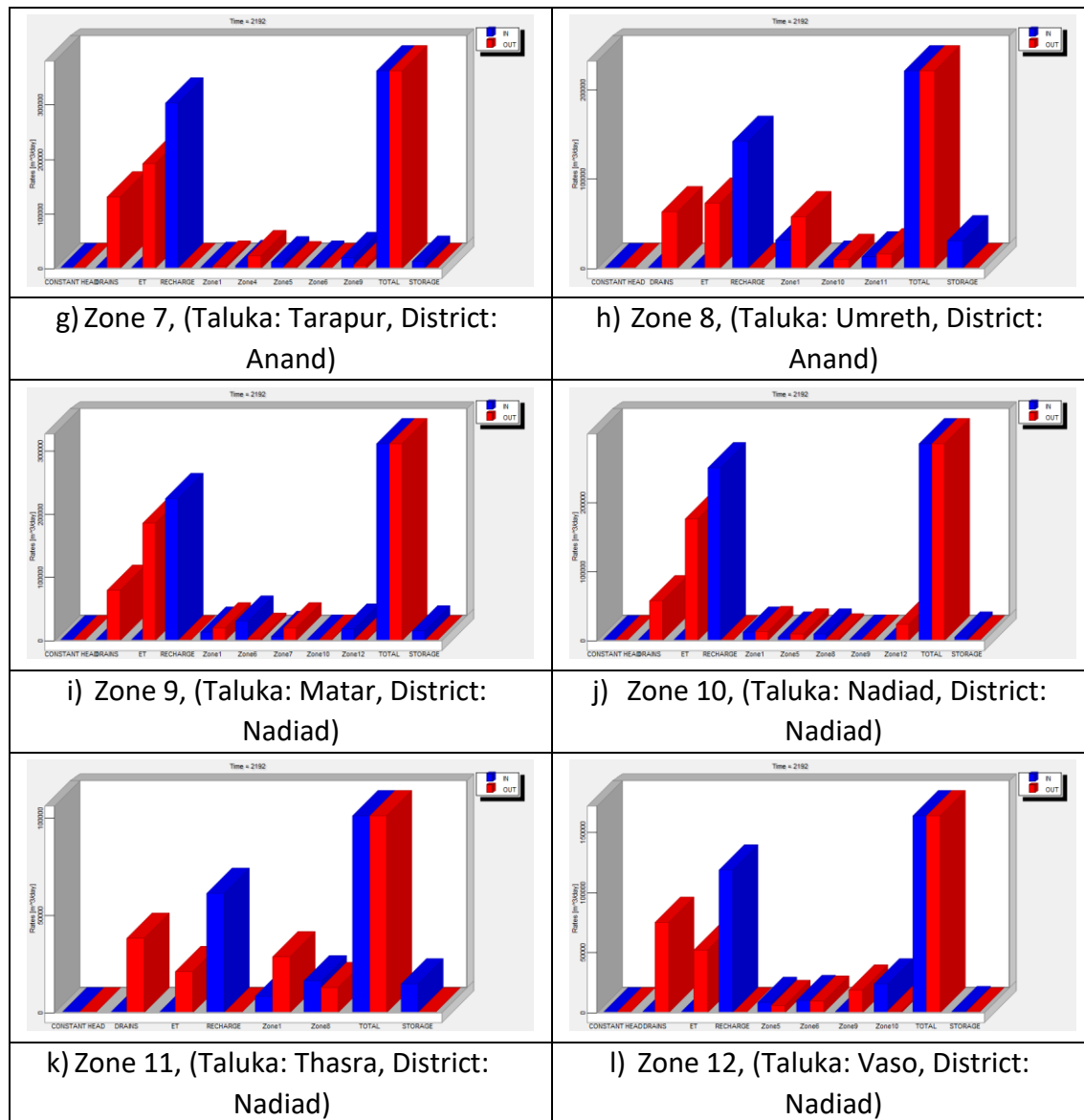


Figure 6-16: Ground Water Budget for Model-I(Anand-Kheda Model), after Stress Period 7 (Year 6)

6.11 Impact of Kalpasar Project on Groundwater Regime

To study the impact of Kalpasar Dam Project the model was configured in two steps in first step (Scenario I) the Constant head boundary was considered as sea level with constant water level of Mean Sea Level (0 amsl). Average recharge of five year was considered for the model area for subsequent projection period. The model was run and water budget and groundwater heads were tabulated. In the second step (Scenario II) Water Head after filling of Kalpasar taken as 3 m amsl and was taken as constant head for year six onward and model was simulated. Details of each simulation along with water budget is presented below:

6.11.1 Scenario I: Without Kalpasar Project

Continuation of present condition was considered by running the model with recharge component considered as average net recharge for the previous years (2017-2022) and other stress condition kept as same for stress period 7(year 6). The simulation shows that in the stress period 8 (Year 7) total inflow in the system is 2273846 m³/day and out flow from the system is 2273846 m³/day, the recharge to the system is 2213460 m³/day. The drains in the area are discharging about 1127764 m³/day of water, through constant head boundary 147431 m³/day out flow is observed, 968173 m³/day is lost as evapotranspiration. System is adding 30476 m³/day of water to storage., whereas 60386 m³/day is coming out of storage.

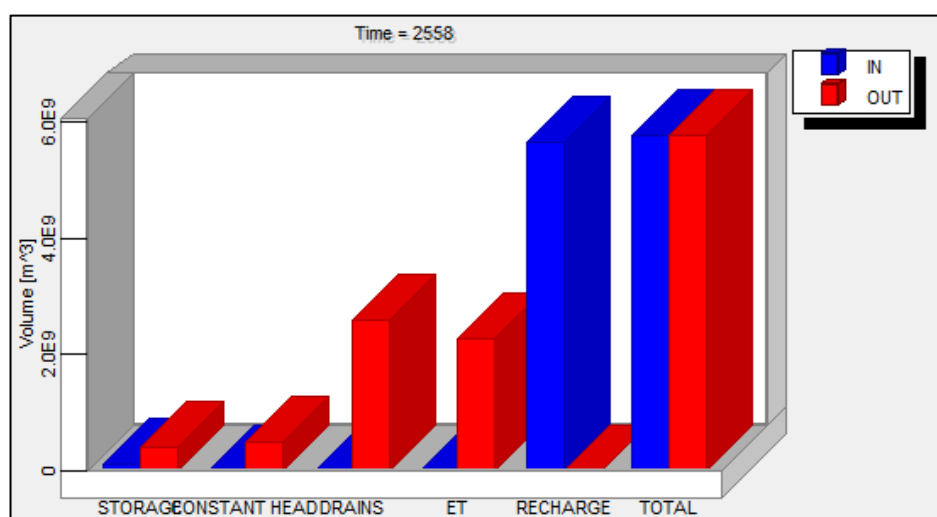


Figure 6-17: Mass Balance after stress period 8

Table 12: Mass Balance after stress period 8

VOLUMETRIC BUDGET FOR ENTIRE MODEL AT END OF TIME STEP 1, STRESS PERIOD 8		
	IN	OUT
STORAGE	60386	30476
CONSTANT HEAD	0	147431
DRAINS	0	1127764
ET	0	968173
RECHARGE	2213460	0
TOTAL In	2273846	2273846
IN - OUT	0	0
PERCENT DISCREPANCY		0

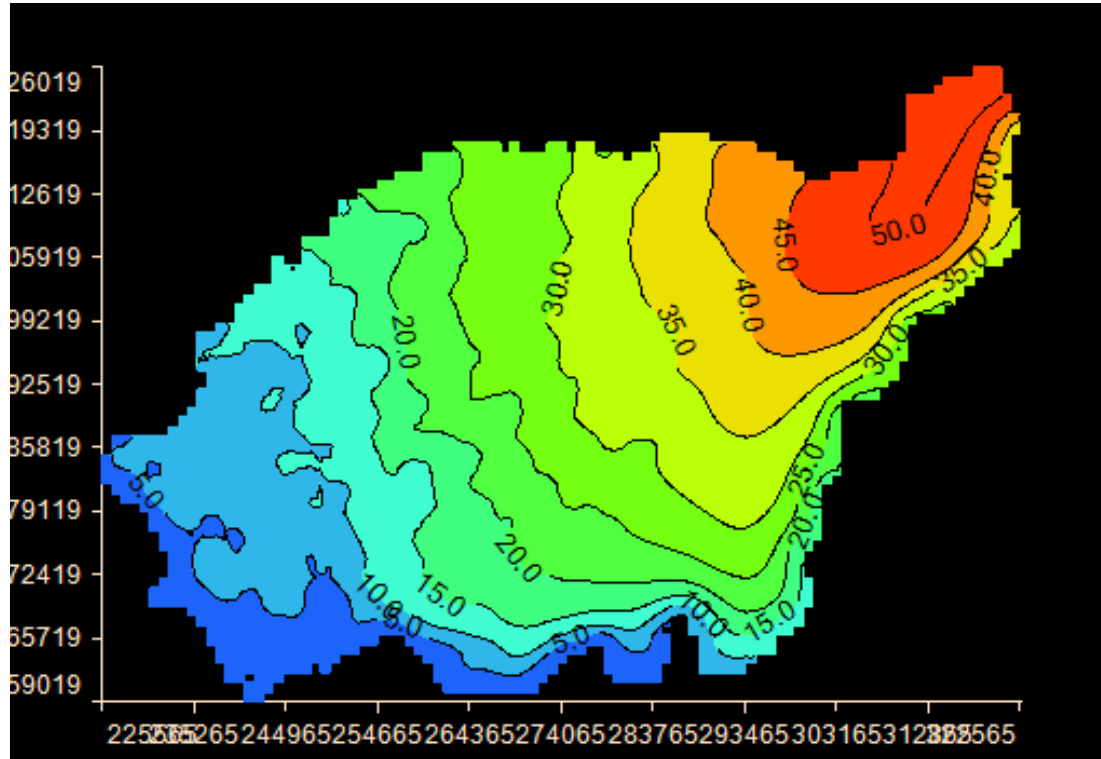


Figure 6-18: Water Table at year 8 without implementation of Kalpasar Project

During transient condition in the stress period 17 (Year 16) at the end of simulation considering the scenario without construction of Kalpasar Dam, the total inflow in the system is 2213514 m³/day and out flow from the system is 2213514 m³/day, the net recharge is 2213460 m³/day. The drains are discharging about 1127662 m³/day of water, through constant head boundary 146572 m³/day out flow is observed, loss through evapotranspiration from the system is 936746 m³/day. System is getting 54 m³/day of water from storage., whereas only 2532 m³/day is doing into storage.

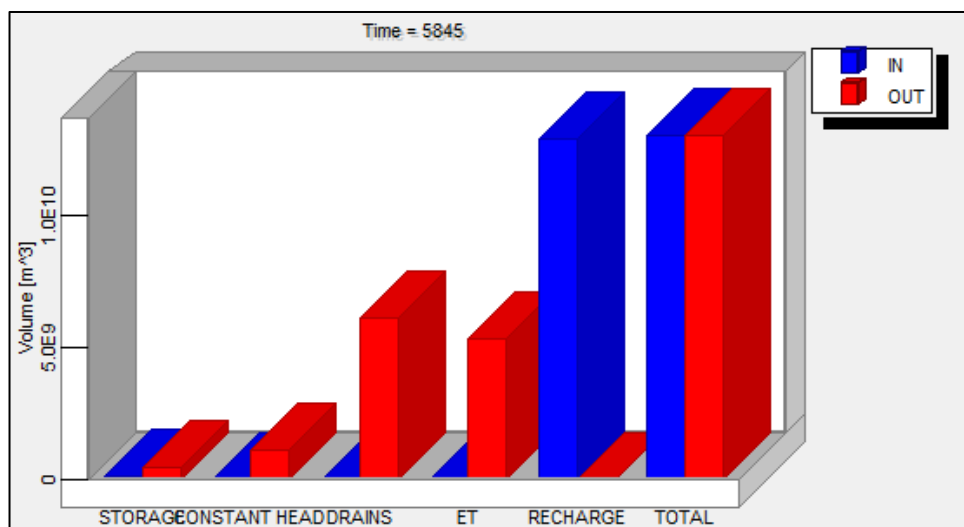


Figure 6-19: Mass Balance after Stress Period 17

Table 13: Mass Balance after Stress Period 17

VOLUMETRIC BUDGET FOR ENTIRE MODEL AT END OF TIME STEP 1, STRESS PERIOD 17		
	IN	OUT
STORAGE	54	2532
CONSTANT HEAD	0	146572
DRAINS	0	1127662
ET	0	936746
RECHARGE	2213460	0
TOTAL In	2213514	2213514
IN - OUT	0	0
PERCENT DISCREPANCY		0

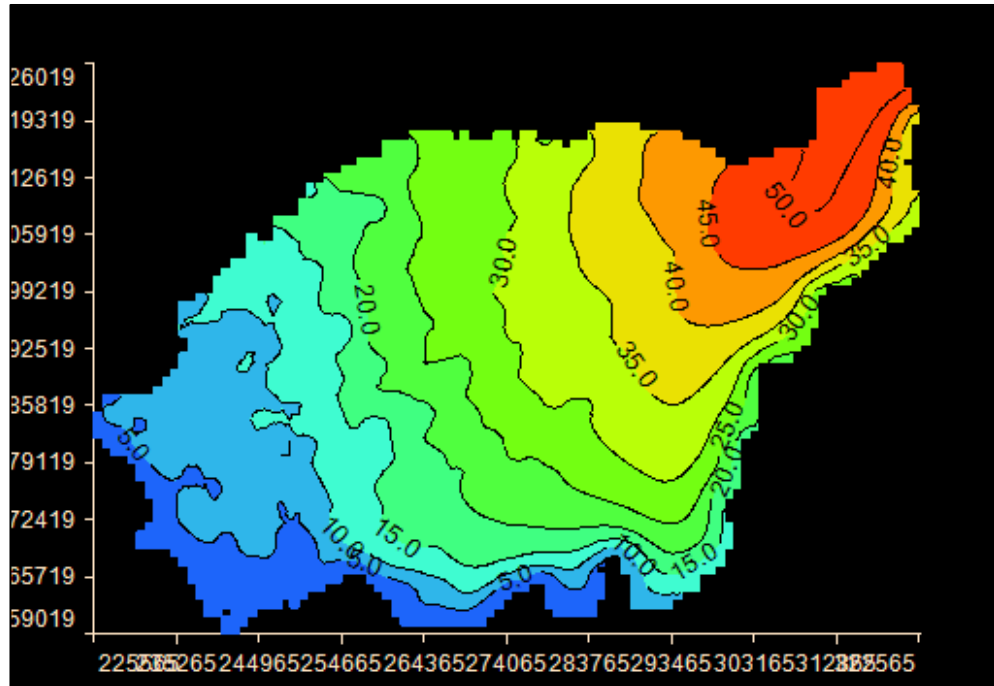


Figure 6-20: Water Table at year 17 without implementation of Kalpasar Project

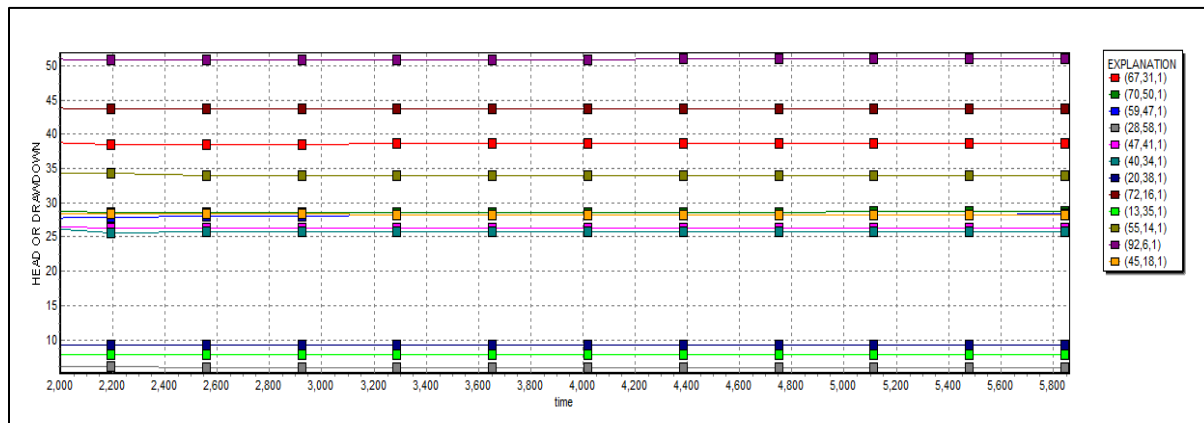


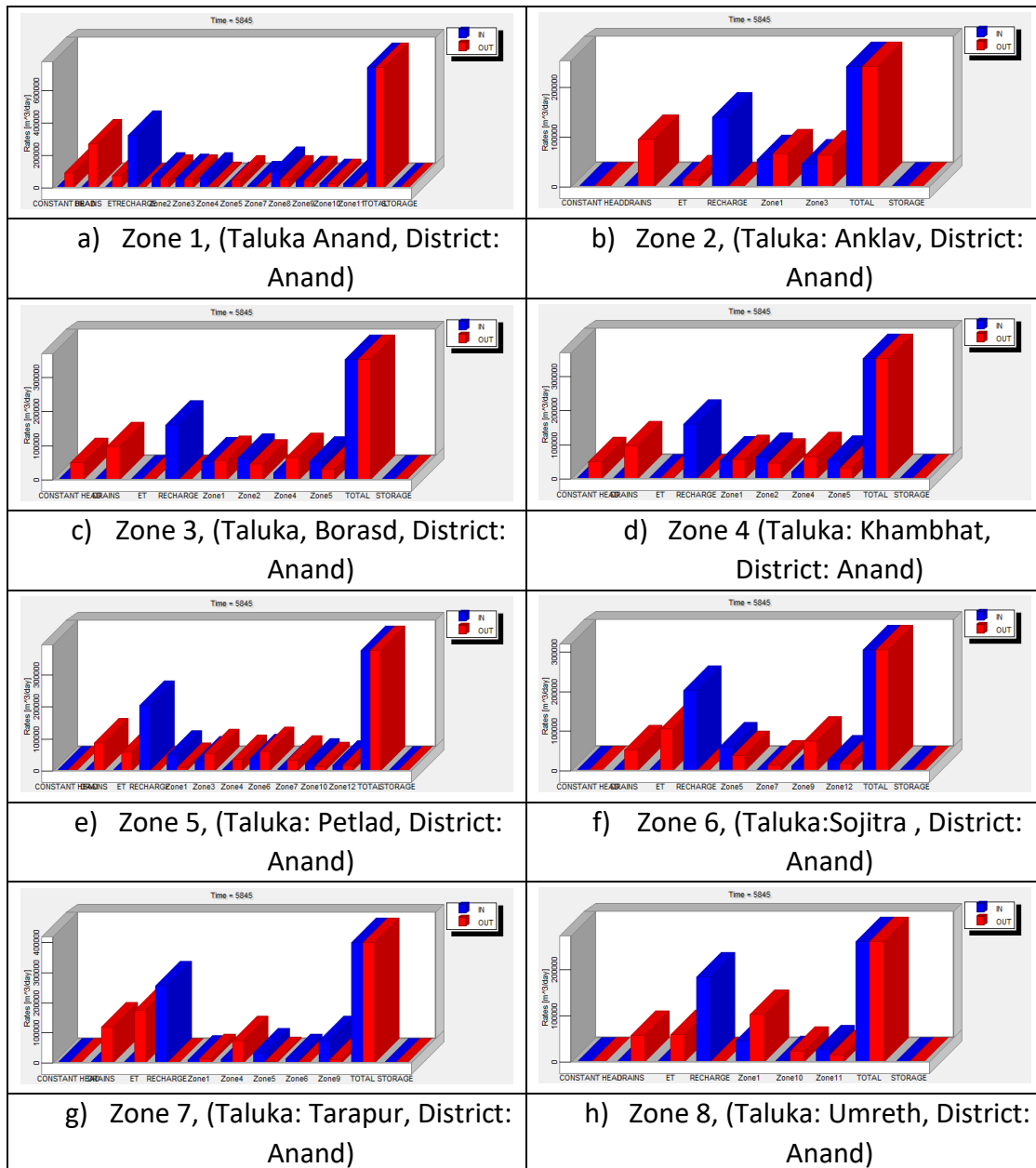
Figure 6-21: Projected Hydrograph at select Nodes Without Kalpasar Project

6.11.1.1 Zone-wise Ground Water Budget for Simulated period (Without Kalpasar)

Ground Water Budget for Model Area, Time period 17 Day 5845

Taluka wise water budget at the end of simulation is presented below. A perusal of graph shows that recharge is the main stress in the area which goes out of system by transfer of water from

one zone to adjoining zone and through constant head, evapotranspiration and drains. Discharge from constant head is prominent in coastal talukas, evapotranspiration is prominent where water levels are shallow. Change in storage is not prominent in any talukas, the evapotranspiration from shallow water level area is higher in Anand, Petlad, Sojitra, Tarapur & Umreth of Anand District and Matar, Nadiad, Vaso and Thasra Taluka of Nadiad District Loss through drains is also prominent in all the talukas which is due to surface water irrigation by Mahi-Kadana canal in the area.



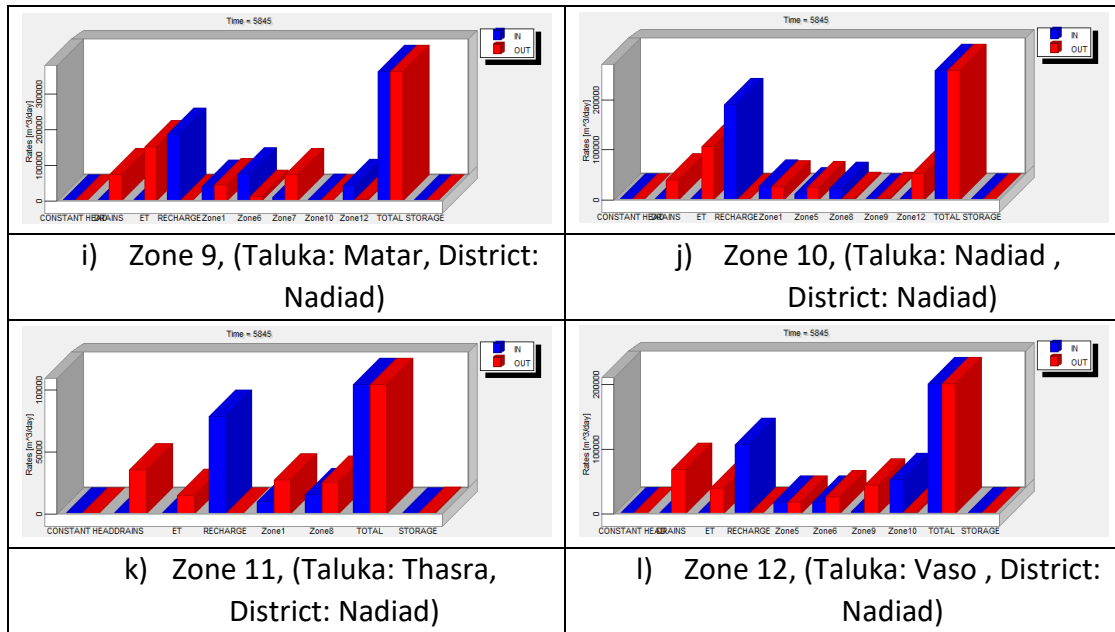


Figure 6-22: Ground Water Budget for Model-I (Anand-Kheda Model) at the end of simulation, Time Period 17- Day 5845

6.11.2 Scenario II: With Implementation of Kalpasar Dam

As per prefeasibility report (NCCR, 2022), after construction of dam the surface water level in the area adjoining Kalpasar dam would rise to Full Reservoir Level (+3m amsl). The model was simulated considering the Kalpasar constructed in the year 6. The constant head in the area was set to 3m amsl for the inundated area and model was run for 10 years (stress period 8 to 17). Groundwater recharge during the simulation period was taken as average net recharge for previous five-year period (2017-2022). Other stress conditions were kept as same as per validated model. It is observed that in the stress period 8 (Year 7) total inflow in the system is 2255042 m³/day and out flow from the system is 2255042 m³/day, the recharge is 2209120 m³/day, there is also an inflow of 3354 m³/day through constant head boundaries. There is a loss of 850704 m³/day through evapotranspiration from the system. The drains are discharging about 802487 m³/day of water, through constant head boundary outflow of 58954 m³/day is observed System is adding 542895 m³/day of water to storage., whereas 42567 m³/day is coming out of storage.

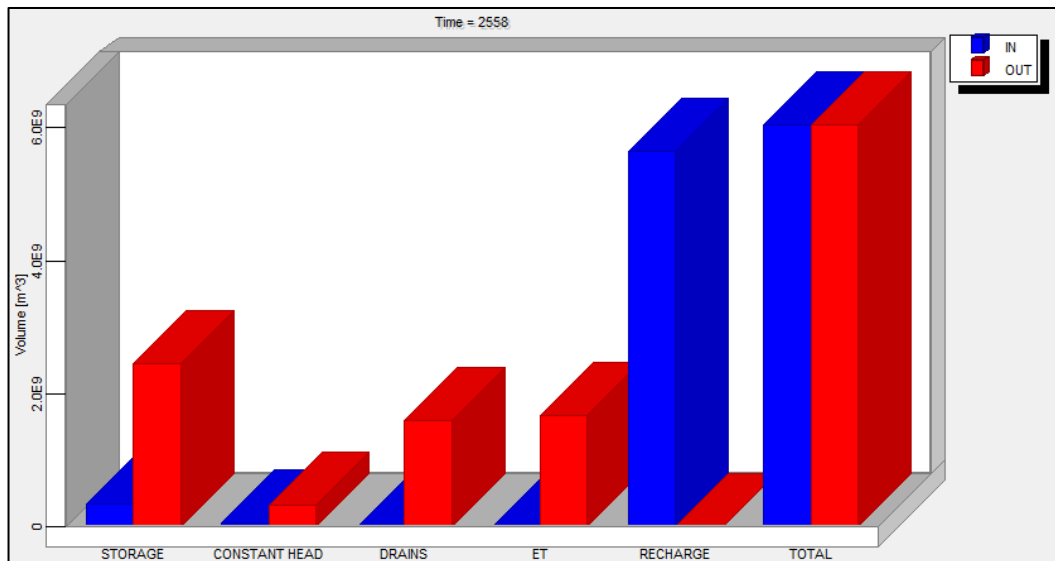


Figure 6-23: Mass Balance after stress period 8

Table 14: Mass Balance after stress period 8

VOLUMETRIC BUDGET FOR ENTIRE MODEL AT END OF TIME STEP 1, STRESS PERIOD 8		
	IN	OUT
STORAGE	42567	542895
CONSTANT HEAD	3354	58954
DRAINS	0	802487
ET	0	850704
RECHARGE	2209120	0
TOTAL IN/OUT	2255042	2255042
IN - OUT	0	0
PERCENT DISCREPANCY		0

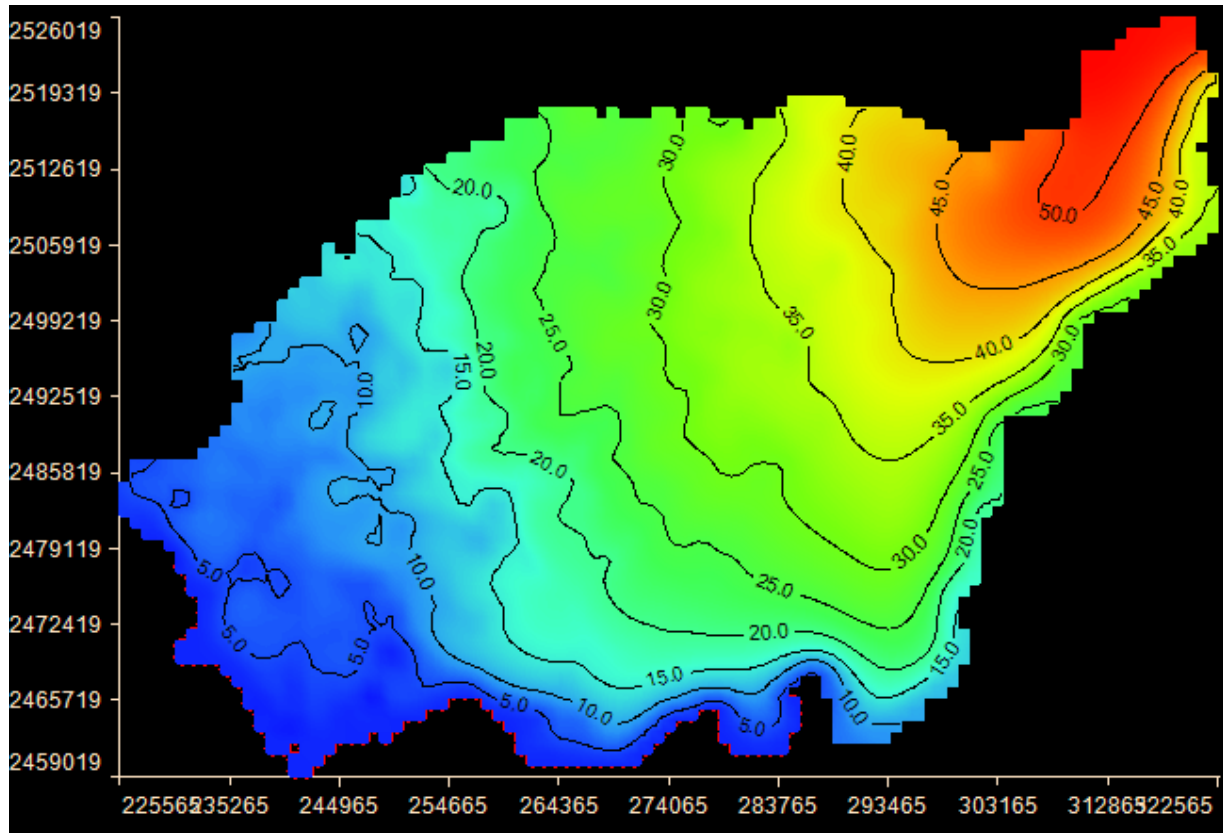


Figure 6-24: Groundwater table at the end of simulation considering Kalpasar Dam after stress period 8.

At end of simulation in the stress period 17 (Year 16) while considering the scenario after construction of Kalpasar Dam, the total inflow in the system is 2211586 m³/day and out flow from the system is 2211586 m³/day, the recharge is 2209120 m³/day, there is also an inflow of 2450 m³/day through constant head boundaries. There is a loss of 951648 m³/day through evapotranspiration. The drains in the area are discharging about 1068920 m³/day of water, through constant head boundary 93317 m³/day out flow is observed System is adding 97699 m³/day of water to the storage., whereas only 15 m³/yr is coming out of storage.

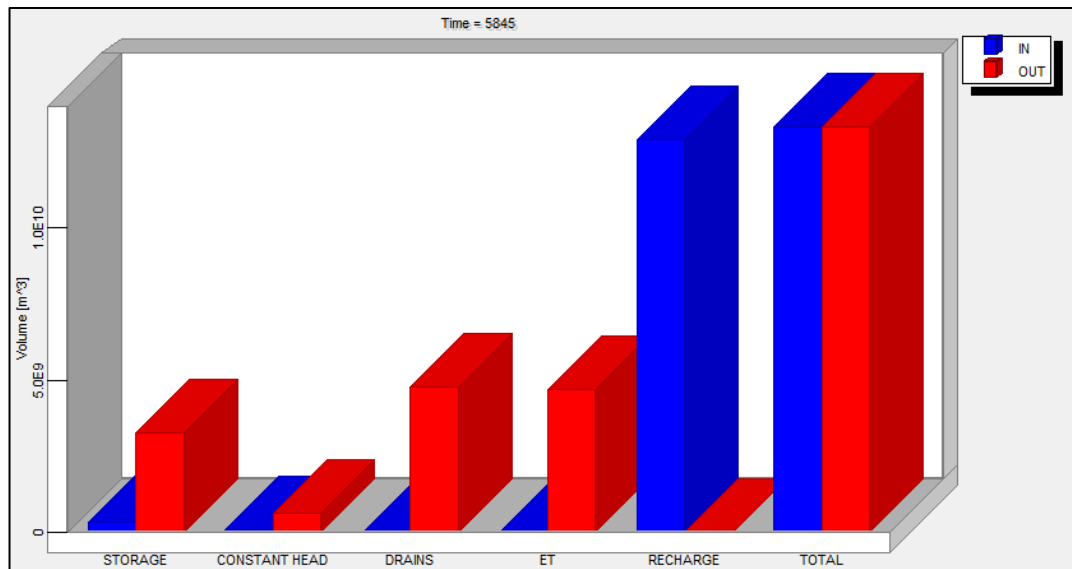


Figure 6-25: Mass Balance after Stress Period 17

Table 15: Mass Balance after Stress Period 17

VOLUMETRIC BUDGET FOR ENTIRE MODEL AT END OF TIME STEP 1, STRESS PERIOD 17		
	IN	OUT
STORAGE	15	97699
CONSTANT HEAD	2450	93317
DRAINS	0	1068920
ET	0	951648
RECHARGE	2209120	0
TOTAL IN/OUT	2211586	2211586
IN - OUT	0	0
PERCENT DISCREPANCY		0

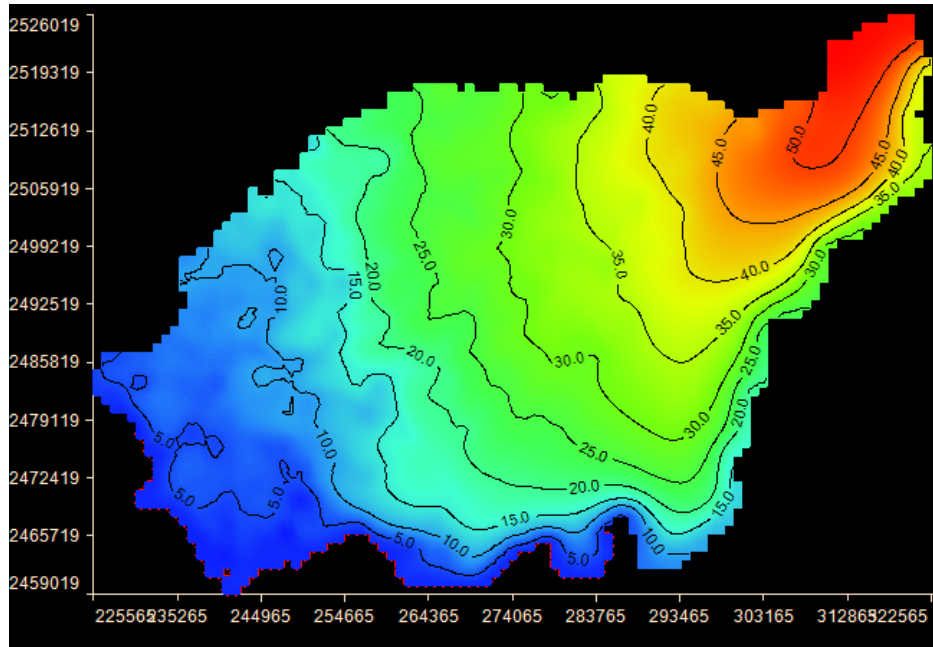


Figure 6-26: Groundwater table at the end of simulation considering Kalpasar Dam after stress period 17.

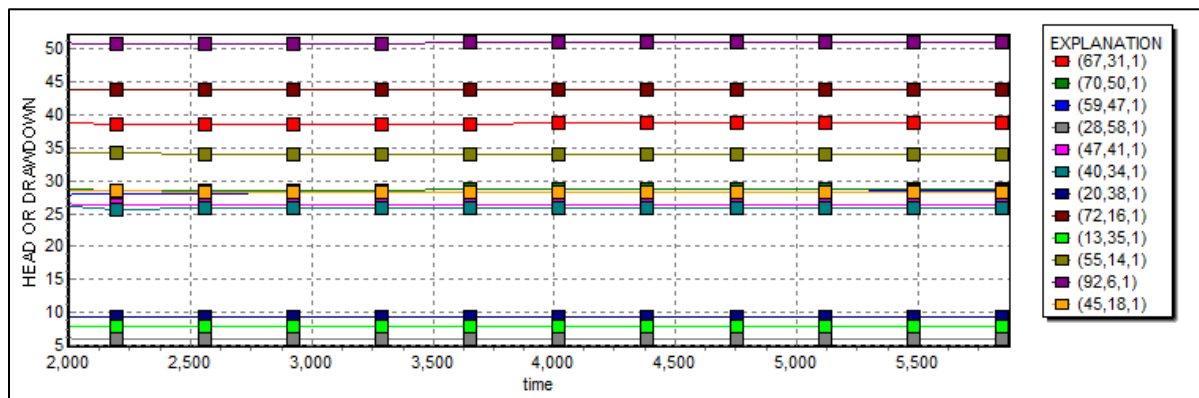
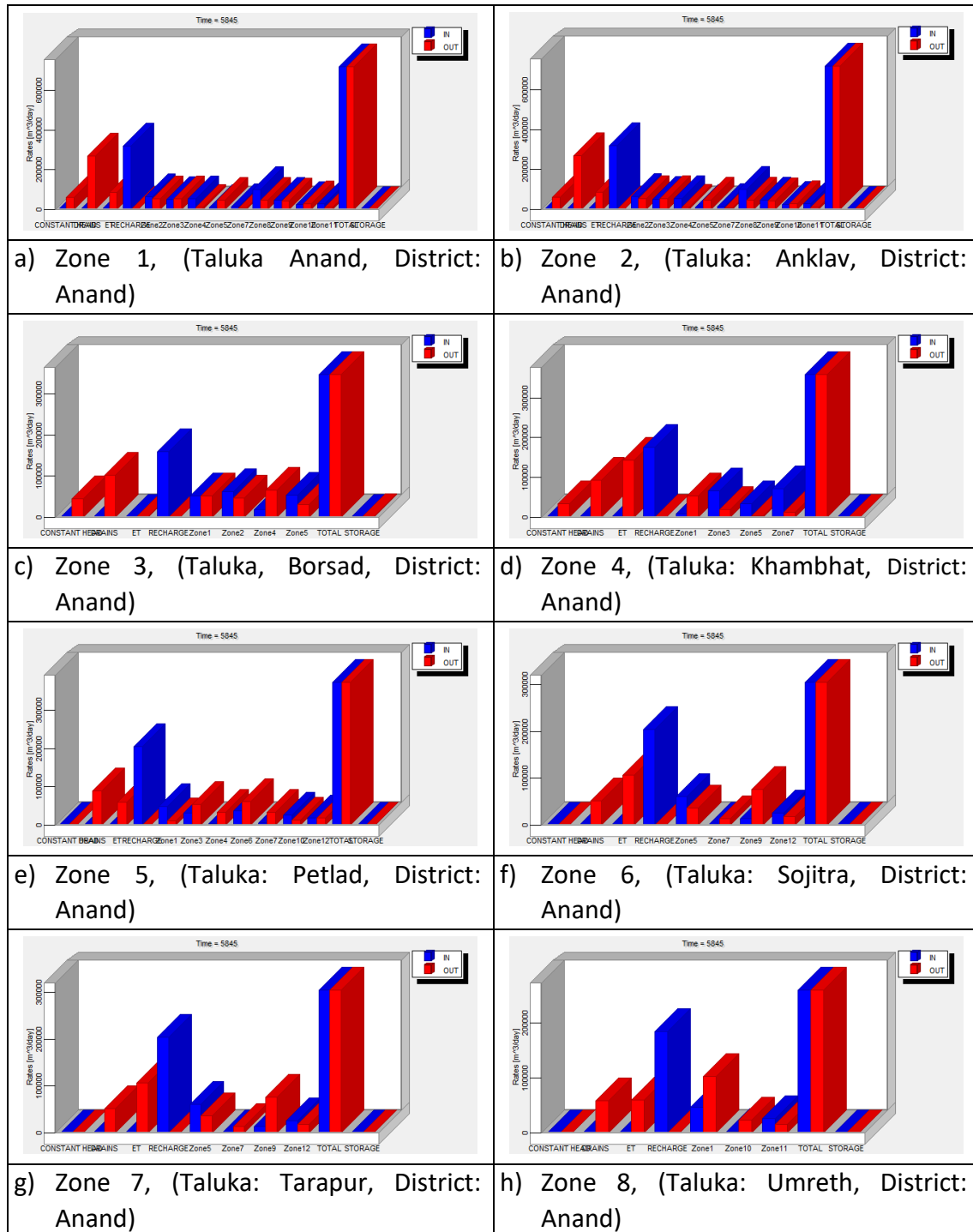


Figure 6-27: Projected Hydrograph at select Nodes with Implementation of Kalpasar

6.11.2.1 Zone-wise Ground Water Budget for Simulated period (After Construction of Kalpasar Dam)

To study groundwater availability and changes in groundwater regime after implementation of Kalpasar Project Taluka-wise groundwater budget was computed and same is presented below. A perusal of graph shows that recharge is the main stress in the area which goes out of system by transfer of water from one zone to adjoining zone and through constant head, evapotranspiration and drains. Discharge from constant head is prominent in coastal talukas, evapotranspiration is prominent where water levels are shallow. Change in storage is not prominent in any talukas, the evapotranspiration from shallow water level area is higher in

Anand, Ankлав, Petlad, Sojitra, Tarapur and Umreth of Anand District and Matar, Nadiad, Vaso and Thasra Taluka of Nadiad District. Loss through drains is also prominent in all the talukas which is due to surface water irrigation by Mahi-Kadana canal in the area.:



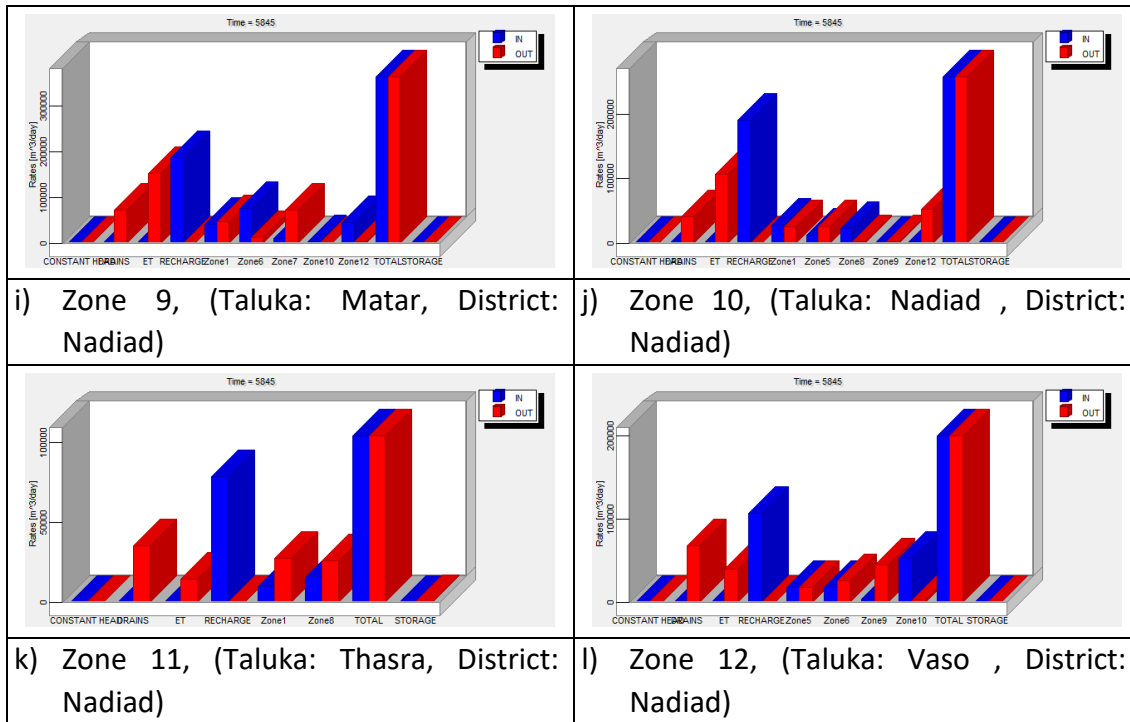


Figure 6-28: Ground Water Budget for Model Area at the end of simulation, Stress Period 17 (Day 5845)

6.11.3 Impact of Kalpasar Dam

A critical study of reveals that a general rise in water level along the coastal part is observed due to impounding of water in the Kalpasar Dam. A cross section of profile across column 20, 40, 60 and 80 and row 60 (along the coastline) is presented in the following graphs.

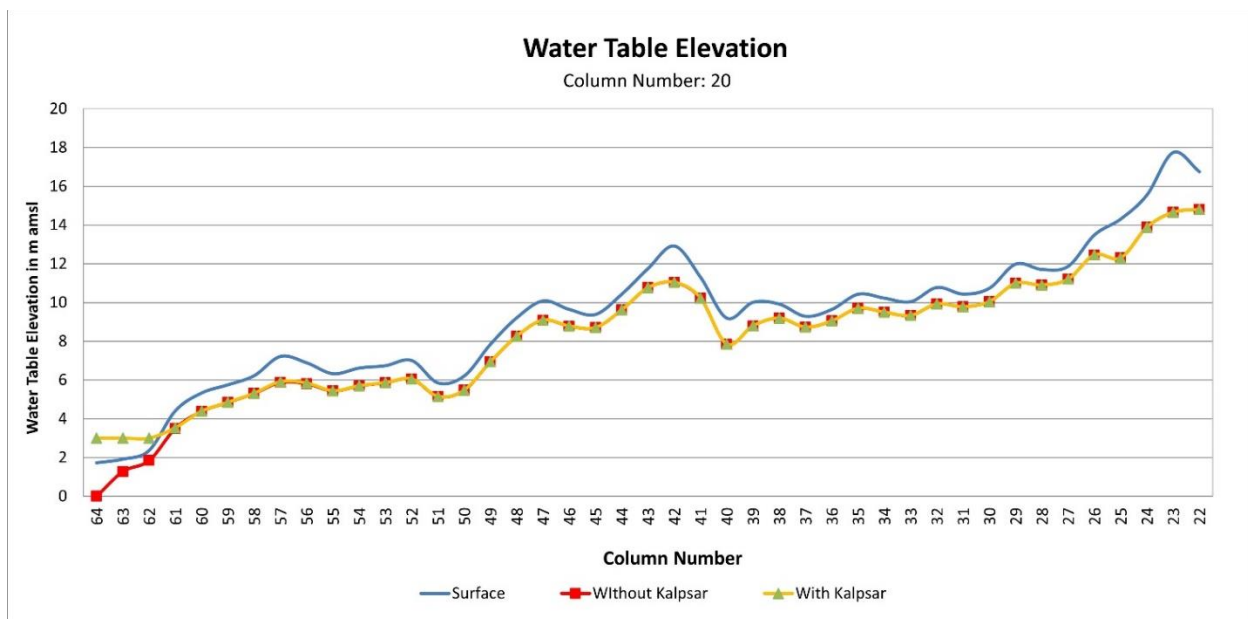


Figure 6-29: Cross-section of water table elevation in the model area for Column 20

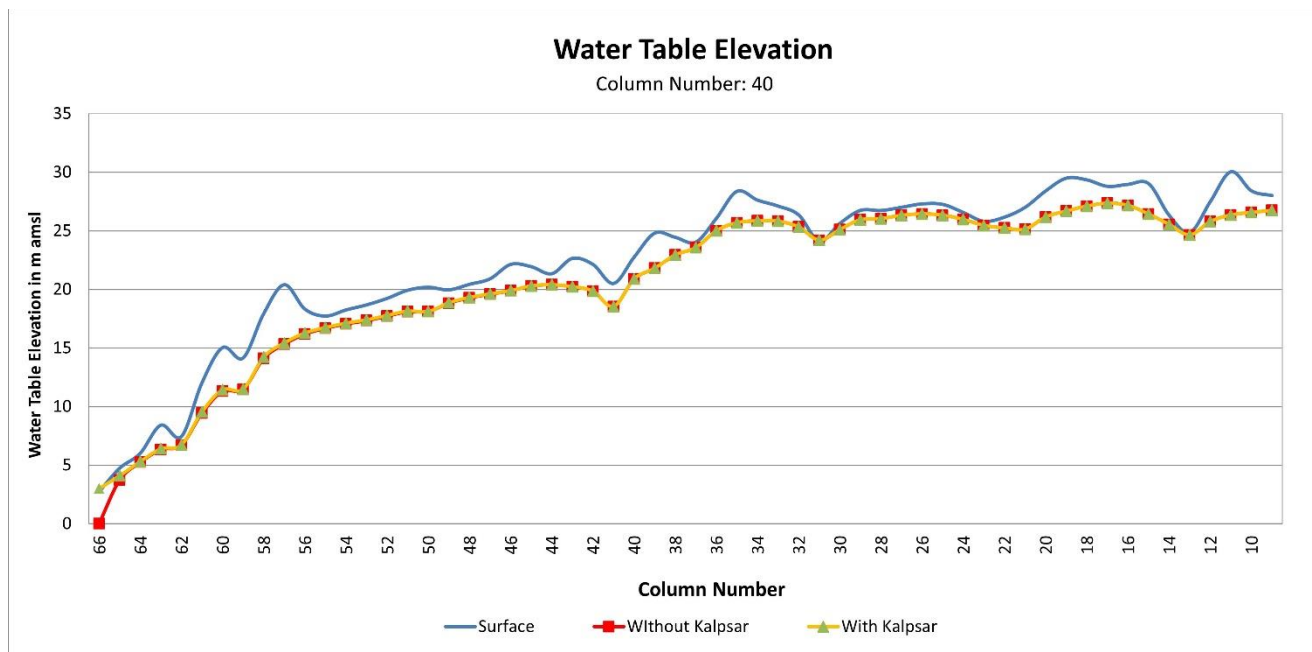


Figure 6-30: Cross-section of water table elevation in the model area for Column 40

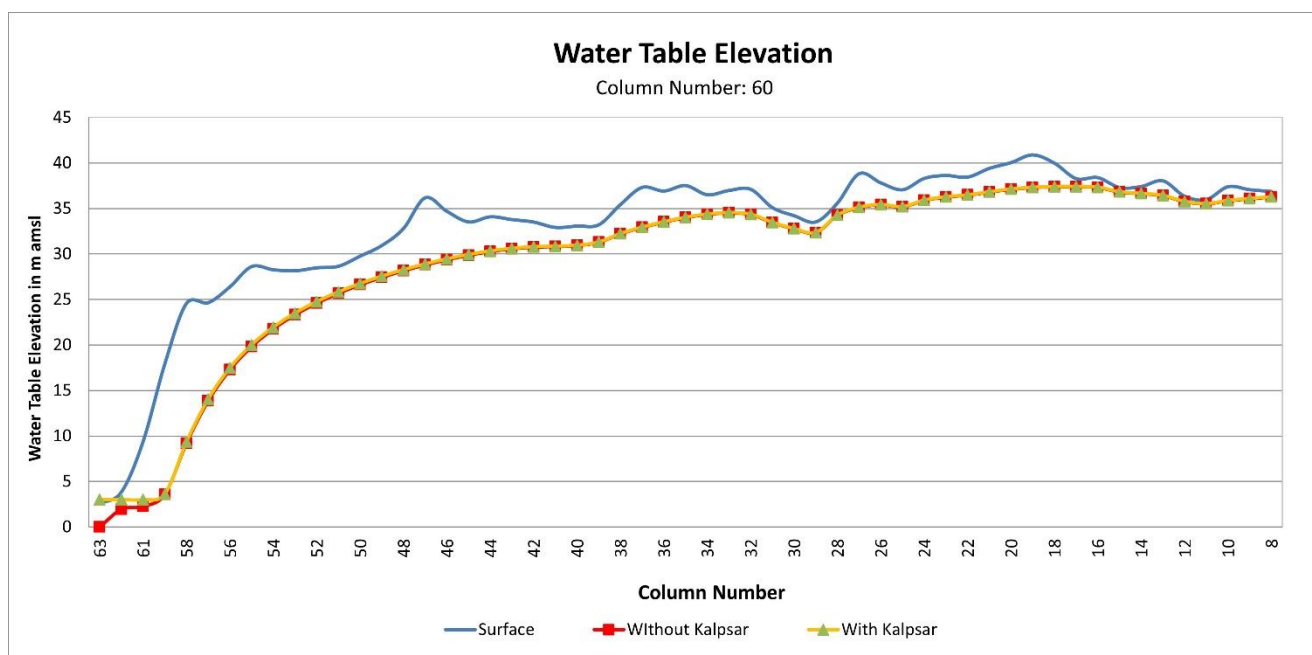


Figure 6-31: Cross-section of water table elevation in the model area for Column 60

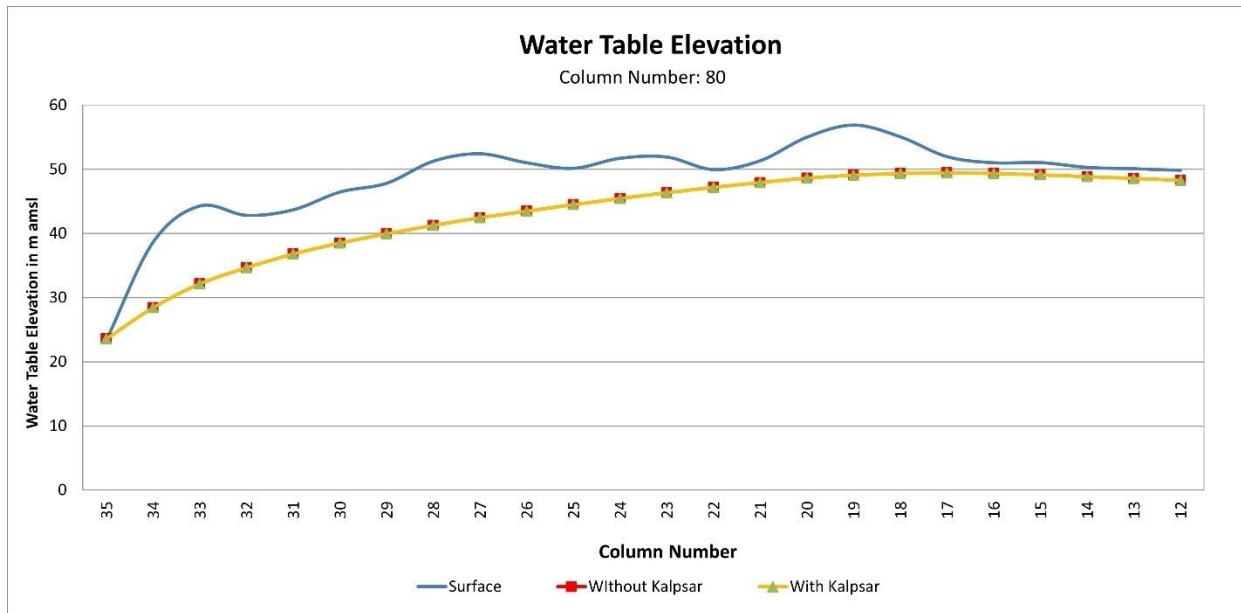


Figure 6-32: Cross-section of water table elevation in the model area for Column 80

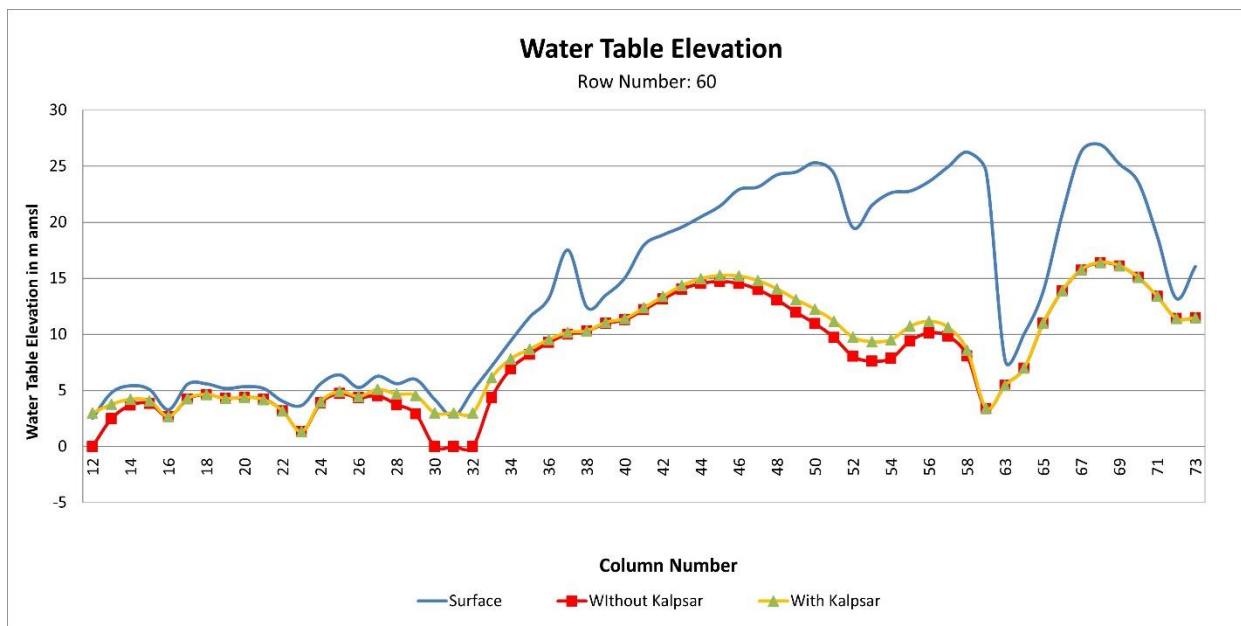


Figure 6-33: Cross-section of water table elevation in the model area for Row 60

Above sections show that they will be rise in water table along the coast in adjoining area due to construction of Kalpsar Dam, however in higher reached minor rise is observed. A cross-section along Row 60 which is almost along the coast rise in water level in different parts can be observed.

6.12 Model Limitation

The simplifying assumptions embedded in the mathematical equations and many uncertainties in the values of data required by the model lead makes the model as an approximation and not an exact duplication of field conditions. The model has been simplified as per availability of data and consisted of a three-layer aquifer of depth down to 150 mbgl. The layer type was specified as unconfined (Phreatic-confined) aquifer followed by a confining layer, which is again followed by granular horizon forming the confined aquifer which is being exploited in the area. Observation wells are not sufficient to represent the water table/piezometric head in the area properly. The hydraulic conductivity of the layer was interpolated over the area as per data throughout the simulations, however such conditions seldom observed in field conditions. Moreover, in most of the study area, upper most unconfined aquifer is tapped for ground water extraction hence observation wells in unconfined aquifer are considered for modelling purpose. The regional hydrogeological framework of project area has been defined by a model grid. In the present scenario, Mahi River, Sabarmati River, Vatrak River and Shedhi River has been simulated as drainage boundary as specific data are not available for river stage, which may provide better simulation.

6.13 Conclusion

- The model covers area adjoining Gulf of Khambhat in Tarapur, Khambhat, Ankla, Anand, Umreth, & Sojitra Taluka, Anand District, Matar, Nadida, Vaso & Thasra Taluka, Kheda District.
- The area is bounded by natural boundaries formed by Gulf of Khambhat and Sabarmati, Vatrak, Shedhi and Mahi Rivers
- The area is overlain by North Gujarat Alluvium and is composed of alternating horizons of sand and clay layer.
- The mathematical model of the area has been prepared considering Two Aquifer system available down to 150 mbgl. The aquifers are separated by an aquitard.
- Boundary conditions considered for the model are Constant Head, Drain, Recharge and Evapotranspiration.

- The model was calibrated for one day in steady state and validated for six years data in transient state run, the RMS value for steady state is 1.81 m.
- The model was validated for six-year period from 2017 to 2022 and historical water level data for observation station of CGWB, WCR, Ahmedabad and GWRDC were matched with computed water levels data.
- The model was run for 10 years for prediction for future scenario considering existing inputs for various stress and following scenarios were studied.
 - Scenario I: Groundwater regime without construction of Kalpasar Project
 - Scenario II: Groundwater condition with construction of Kalpasar Project
- Overall, the simulated water levels by the groundwater model show rise in water levels along the coast after construction of Kalpasar dam in comparison to the water level without construction of Kalpasar.
- Storage of fresh water would also push saline water presently occurring in parts of the area specially the Bhal area.

7. Model – II (Bhavnagar Model)

7.1 Introduction

The groundwater modelling work for area surrounding Kalpasar Project located between Sabarmati River and Kalubhar River was taken up as part of Groundwater modelling work for area surrounding Kalpasar Reservoir on western side of Kalpasar Project. The study area lies in Central Gujarat and Saurashtra, located between Latitude 21.50 N and Longitude 71.23 E and Latitude 22.48 N, Longitude 72.46 E covering parts Dholera, Dhandhuka, Ranpur & Barwala Taluka of Ahmedabad District, Bhavnagar, Vallbhipur, Umralla, Sihor, Palitana & Gariadhar Taluka of Bhavnagar District, Lathi & Liliya Taluka of Amreli District, Botad & Gadhda Taluka of Botad District. The area covers parts of watersheds of Sabarmati, Bhogava, SukhBhadar, Ghello and Kalubhar Rivers. The topography of the study area is undulating on eastern side and southern side to almost plain as moving towards western side near coastal plains. Hills with altitude up to 290m amsl are located on eastern side as Gariadhar Range and hillocks with elevation up to 248 are located near Ghogha in south side. The minimum elevation that is found within the study area is mean sea level on eastern side, where the area is bound by Khambhat Bay and the highest elevation is 290 meters AMSL in western side. Ground Water Exploration work, in various parts of area have indicate that the sub surface geological formation in the study area comprises of layered sequences of sand, silt, clay, gravel and Kankar up to explored depth of 300m in alluvial area on eastern side and Basalt flows on western side. The study reveals that two significant aquifers are present in the area within Alluvium within the depth of 300 mbgl, the depth of exploration is up to 300 mbgl, however the deeper aquifers are mostly saline due to excess salinity problem these aquifers are also not developed in the area. Basalts form aquifer on western side of area mostly in weathered horizon limited to 60 m depth which is followed by Massive or fractured basalt and form poor aquifer in general.

The study of lithologs of area reveals that the subsurface formations can be grouped into two broad layers, in the top unit groundwater is formed under phreatic condition, which is followed by a clay dominant layer/fractured/massive basalt layer which is poor yielding and forms second

layer. Inter-granular pore spaces play a major role in controlling the occurrence and movement of groundwater.

7.2 Conceptualization of Ground Water Model

As discussed above the modelled area has two main types of aquifer system distributed area wise and depth wise. Phreatic aquifer comprises Intermingled sand and clay occasionally with kankars and gravels in the western part whereas weathered and fractured Basalt in eastern part. Deeper aquifers are confined in nature with silty/clayey formations occasionally with Kankar and sand/gravels in alluvial formation and fractured Basalt in eastern part. Main recharge component in the area is Rainwater that infiltrates through soil into flow system through pores/fractures in the underlying geologic material.

As per study of lithologs of wells constructed by CGWB and GWRDC and by the geophysical studies conducted by ISR the model has been conceptualized to be of two layers with top layer representing Phreatic aquifer down to about 60 mbgl with average thickness of about 41 m, followed by a layer with poor yield with variable thickness available between 71 to 200 mbgl which is about 97 m thick on an average. In alluvial area deep aquifers are not utilized as they are poor yielding, inferior in quality and are saline. hence same were not considered for the study.

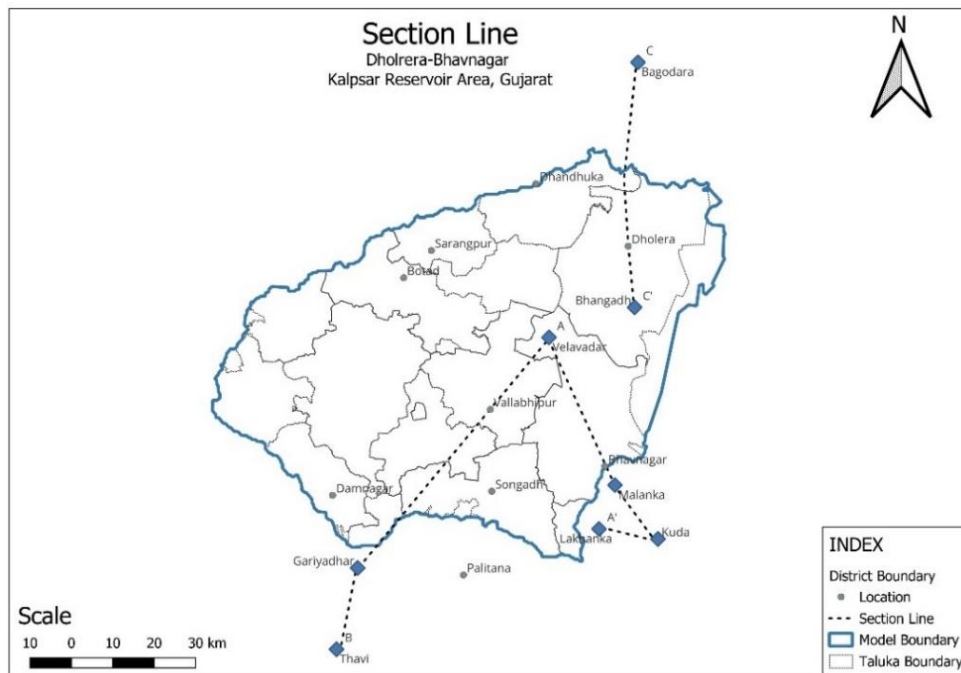


Figure 7-1: Map showing Section Line Ahmedabad-Bhavnagar Area

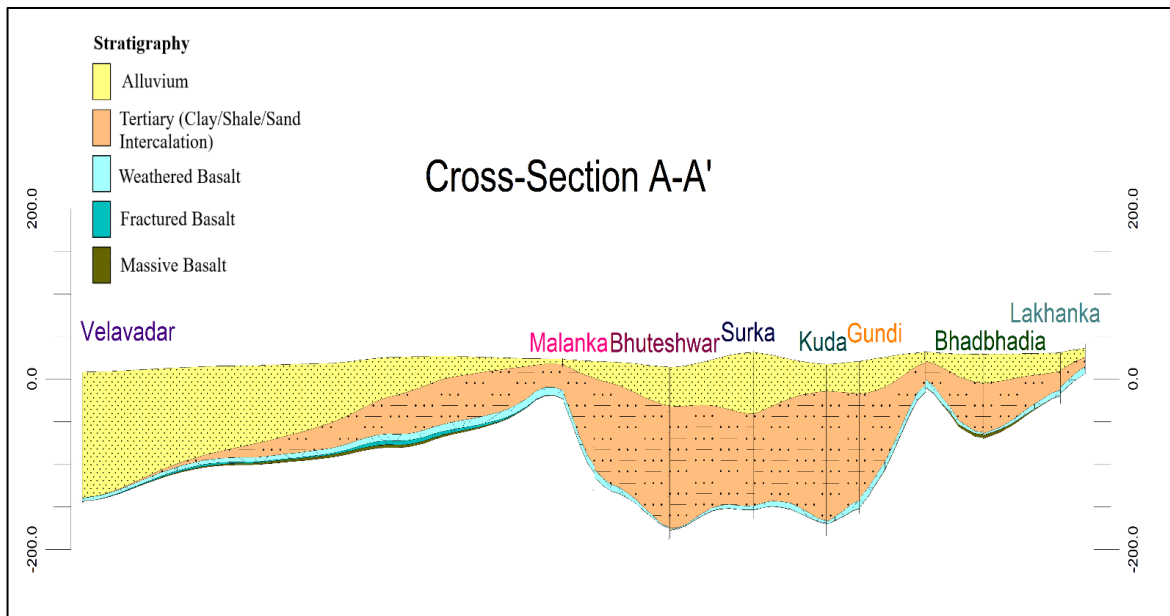


Figure 7-2: Hydrogeological section along A- A' (Velavadar to Lakhanka, Bhavnagar District)

Section A-A' (Figure 7-2) is drawn roughly NW-SE direction and in between Velavadar and Lakhanka passing through Malanka, Bhuteshwar, Surka, Kuda, Gundi, and Bhadbhadia. The section shows disposition of formation. It is observed that soft rock formation forms the major aquifer system in the area and the hard rock (fractured/weathered) forms the basement. The Alluvial formation is underlain by Tertiary formations which contains inferior quality of groundwater.

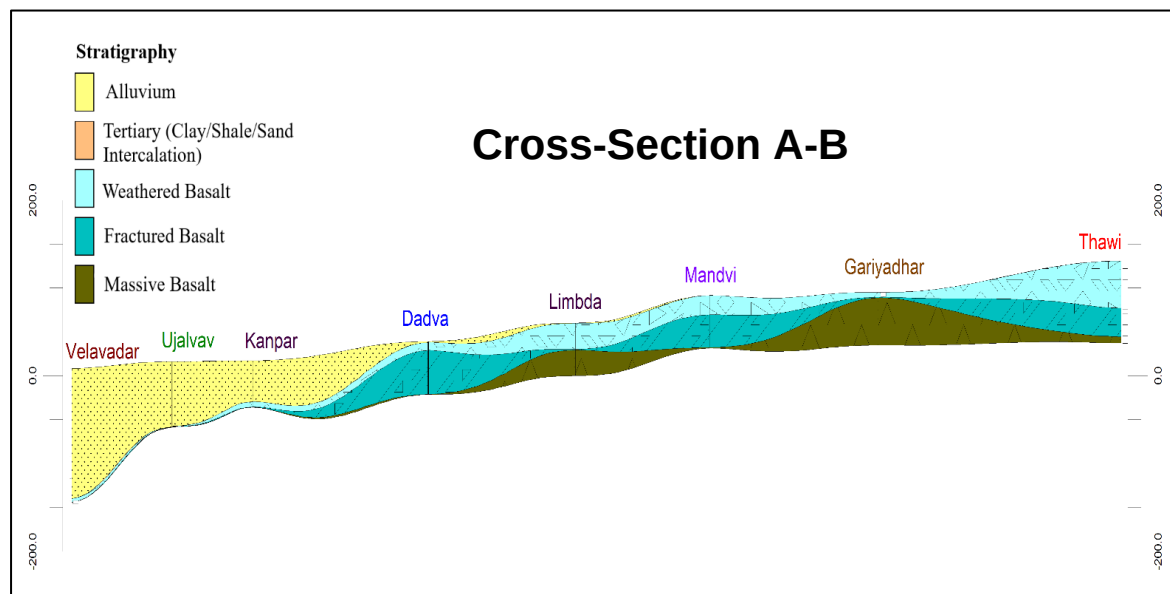


Figure 7-3: Hydrogeological cross section between Velavadar and Thawi (A-B)

The Section A-B (Figure 7-3) is drawn roughly NE-SW direction and in between Velavadar and Thawi, passing through Ujalvav, Kanpar, Dadva, Limbda, Mandvi, and Gariyadhar. Showing disposition of alluvium and basalt at depth. The section reveals that Alluvium forms aquifers in Velavadar, Ujalvav, and Kanpar village of Bhavnagar district and Hard rock formation (weathered & fractured) forms the major aquifer system in rest of the areas along the drawn section line. The alluvium and hard rock (weathered/ fractured) rest on hard rock (weathered/fractured) along drawn section line.

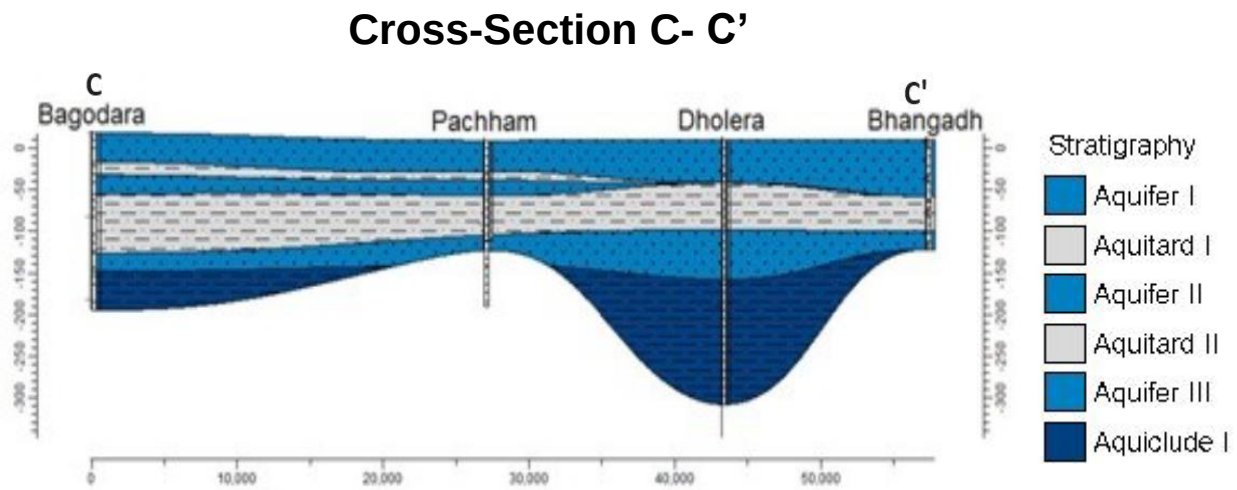


Figure 7-4: Hydrogeological cross section between Bagodara- Bhangadh (C-C')

The Section C-C' (Figure 7-4) is drawn roughly N-S direction between Bagodara in North and Bhangadh in South passing through Pachchham and Dholera. The section shows disposition of Alluvium aquifers down to depth of 300m.

7.3 Domain and Discretization

Area for groundwater model was considered based on natural boundaries as Khambhat Bay on eastern side and watershed boundaries of Kalubhar, Ghelo, Sukh-Bhadar rivers on southern, western and northern, and side, north-western boundary is formed by Sabarmati River Estuary. An area of 7569 sq km was considered for preparation of Groundwater model for the area. The model was discretized into 1000mx1000m grid considering a 2-layer model represented by three horizons. Top of phreatic(unconfined) aquifer taken as surface elevation from SRTM data

(<https://www.earthdata.nasa.gov>), elevations for horizon2 (Bottom of Phreatic Aquifer), horizon 3 (bottom of deep aquifer) is based on groundwater exploration details which is extrapolated over the area. Based on above data two zones were formed the top zone representing Phreatic aquifer, the second on representing deep aquifer. A 3D model considered for the area is presented below:

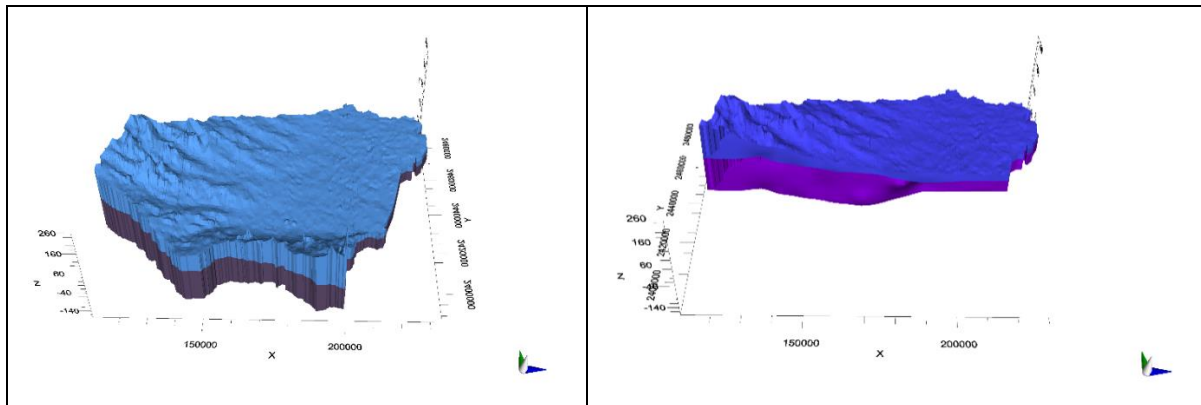


Figure 7-5: Three-Dimensional representation of Aquifers in Bhavnagar-Ahmedabad

The model grid considered for the area is 1000mx1000m covering entire area, there are total 100 rows and 124 columns, there are 10127 active nodes out of total 12400 nodes covering the area. Distribution of grids over the entire area is presented below:

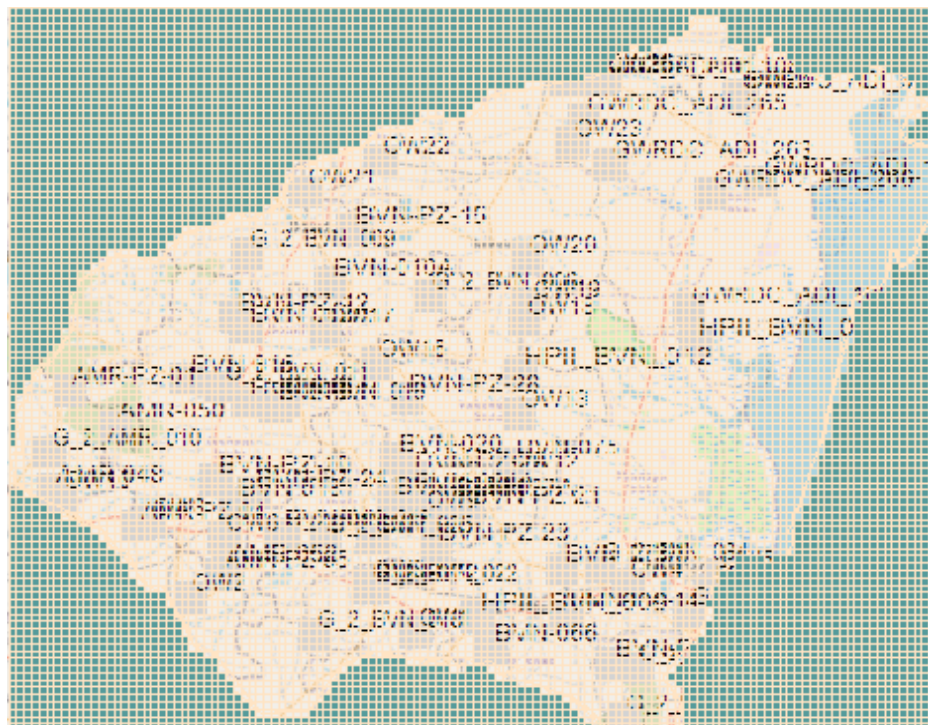


Figure 7-6: Model Grid

7.4 Model Input

Input for the model were considered based on CGWB and GWRDC data, like depth to water level data, lithologs of exploratory wells constructed in the area, pumping test analysis data for the exploratory wells in the area. The recharge was considered as per GWEC report 2016-17, 2019-20 and 2021-22 (<https://ingres.iith.ac.in/gecdataonline/gis/>), groundwater draft subtracted from recharge and net recharge was fed into the model.

7.4.1 Permeability and Storage

Based on data available for pumping test analysis by CGWB the permeability for phreatic aquifer was taken as 1-10 m/day for phreatic and deep aquifer for k_x and k_y and k_z is taken as $k_x/10$. Specific yield for phreatic aquifer is taken as 10% and for deep aquifers the storage is taken as $1e^{-05}$. Details of groundwater exploration in the area is given in the table below:

Table 16: Aquifer characterization and disposition of Ahmedabad district

Aquifer Characterisation and Disposition (Ahmedabad)										
Stratigraphy	Aquifer Nomenclature	Lithological Characteristics	Depth of occurrence Aquifer	Thickness	Water Level	Quality/ TDS	Discharge	Transmissivity	Nature of Aquifer	Remarks
			(mbgl)	(m)	(mbgl)	(ppm)	lpm	(m ² /day)		
Quaternary Alluvium	Unconfined Aquifer	Unconsolidated sand and clays along with the carbonate nodules (kankar).	0 to 78	24 to 78	0. to 42.22	560 to 63999	0.4 -780	1.78- 687	Phreatic	
	Confined Aquifer I	Unconsolidated sand and clays along with the carbonate nodules (kankar).	43 to 136	18-72	12.72- 100.85	783- 4400	0.80-900	56.87-861	Confined	
	Aquifer Group II (Confined III& IV)	Unconsolidated sand and clays along with the carbonate nodules (kankar).	78 to 350	15-101	8.3- 125.1	780- 39200	1.32-696	11 to 86	Confined	

(Ref: CGWB, Aquifer Mapping and Management of Ground Water Resources, Ahmedabad District, Gujarat)

Table 17: Aquifer characterization and disposition of Bhavnagar district

Aquifer Characterisation and Disposition (Bhavnagar)										
Stratigraphy	Aquifer Nomenclature	Lithological Characteristics	Depth of occurrence Aquifer	Thickness	Water Level (mbgl)	Quality EC	Discharge	Transmissivity	Nature of Aquifer	Remarks
			(mbgl)	(m)	(mbgl)	μS/cm	lps	m ² /day		
Quaternary	Alluvium	Unconsolidated sand and clays along with the carbonate nodules (kankar).	0 to 148	3 to 62	3.5 to 77.11	940 to 4106	2 to 7		Phreatic to confined	Good to brackish quality
Tertiary	Clay/Shale/Sand Intercalation	Thick bed of clay and shale intercalated with the lenses of sand	40 to 200	13 to 34	7.0 to 23.53	2531 to 41178	1.1 to 3.93	22.19 to 84.67	Phreatic to confined	Good to Saline quality
	Weathered Basalt	Basalts, both massive and amygdoidal or vesicular type, dolerite	0 to 200	4 to 34	3.25 to 13.3	1400 to 4106	2 to 12		Phreatic to confined	Good to brackish quality
	Fractured Basalt	flows, ash beds, basaltic and dolerite dykes.	5 to 86	14 to 52	4.29 to 37.72	680 to 2960	0.3 to 6	7.41 to 39.88	Semiconfined	Good quality

(Ref: CGWB, Aquifer Mapping and Management of Ground Water Resources, Bhavnagar District, Gujarat)

7.4.2 Recharge and Groundwater abstraction

Recharge has been considered as annual recharge as per GWRE estimates (<https://ingres.iith.ac.in/gecdataonline/gis/>), for the year 2016-17, 2019-20 and 2021-22 and as recharge estimations have not been done for 2017-18, 2018-19 and 2020-21 were adopted as computed for preceding year. The average recharge between 2017-18 to 2021-22 was continued for subsequent periods for projecting future scenario. The recharge was converted into unit recharge for unit area in m/day and fed into the model. Net annual recharge after deducing the groundwater draft was taken as recharge to the model.

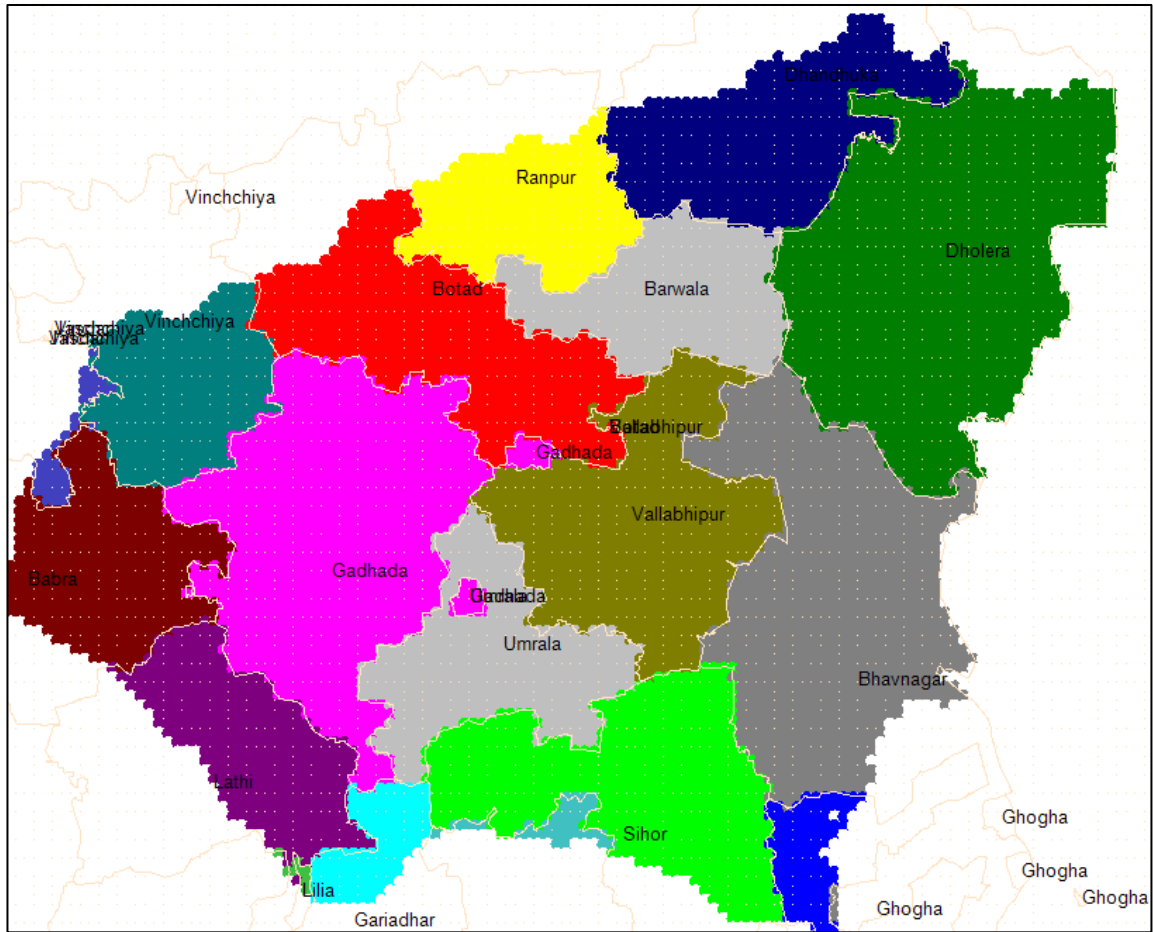


Figure 7-7: Recharge Zones

Table 18: Groundwater Recharge in m /day

Sr No	District	Taluka	Years					
			2016-17	2017-18*	2018-19*	2019-20	2020-21*	2021-22
	Groundwater Recharge in Ham							
1	AHMEDABAD	DHANDHUKA	NA	NA	12979.3	12979.3	12687.19	12018.45
2	AHMEDABAD	DHOLERA	NA	NA	13222.1	13222.1	13154.83	12148.19
3	AMRELI	BABRA	16184.49	16184.49	18712.68	18712.68	17352.19	18647.77
4	AMRELI	LATHI	8738.353	8738.353	17546.72	17546.72	16498.55	15268.72
5	AMRELI	LILIA	5038.89	5038.89	6318.88	6318.88	5462.75	5404.43
6	BHAVNAGAR	BHAVNAGAR	5941.044	5941.044	15770.02	15770.02	18216.32	20058.52
7	BHAVNAGAR	GARIADHAR	6562.709	6562.709	6949.51	6949.51	7576.42	6713.14
8	BHAVNAGAR	GHOGHA	4895.204	4895.204	6793.36	6793.36	6758.58	6185.92
9	BHAVNAGAR	PALITANA	10426.08	10426.08	15392.28	15392.28	17782.81	5404.43
10	BHAVNAGAR	SIHOR	11896.38	11896.38	18470.32	18470.32	19144.02	15259.36
11	BHAVNAGAR	UMRALA	6519.269	6519.269	6153.4	6153.4	5752.93	6247.04
12	BHAVNAGAR	VALLABHIPUR	3686.964	3686.964	5702.4	5702.4	5464.42	5103.05
13	BOTAD	BARWALA	2094.253	2094.253	5630.86	5630.86	3923.95	3655.84
14	BOTAD	BOTAD	15202.75	15202.75	15755.68	15755.68	16848.11	17464.24
15	BOTAD	GADHADA	13778.48	13778.48	14332.07	14332.07	13865.73	15618.64
16	BOTAD	RANPUR	6395.259	6395.259	17955.53	17955.53	15004.88	14581.54
17	RAJKOT	JASDAN	13712.51	13712.51	16747.86	16747.86	17033.61	15990.06
18.	RAJKOT	VINCHCHIYA	7197.626	7197.626	8451.28	8451.28	9730.71	8892.99
	Ground Water Recharge in m/day							
1	AHMEDABAD	DHANDHUKA	0.00046	0.00046	0.00046	0.00046	0.00046	0.00049
2	AHMEDABAD	DHOLERA	0.00008	0.00008	0.00034	0.00034	0.00031	0.00030
3	AMRELI	BABRA	0.00023	0.00023	0.00028	0.00028	0.00023	0.00030
4	AMRELI	LATHI	0.00014	0.00014	0.00047	0.00047	0.00042	0.00040
5	AMRELI	LILIA	0.00015	0.00015	0.00023	0.00023	0.00017	0.00019
6	BHAVNAGAR	BHAVNAGAR	0.00007	0.00007	0.00031	0.00031	0.00026	0.00031
7	BHAVNAGAR	GARIADHAR	0.00019	0.00019	0.00021	0.00021	0.00023	0.00020
8	BHAVNAGAR	GHOGHA	0.00013	0.00013	0.00022	0.00022	0.00020	0.00018
9	BHAVNAGAR	PALITANA	0.00019	0.00019	0.00043	0.00043	0.00048	0.00046
10	BHAVNAGAR	SIHOR	0.00019	0.00019	0.00047	0.00047	0.00049	0.00038
11	BHAVNAGAR	UMRALA	0.00020	0.00020	0.00017	0.00017	0.00014	0.00020
12	BHAVNAGAR	VALLABHIPUR	0.00010	0.00010	0.00018	0.00018	0.00016	0.00015
13	BOTAD	BARWALA	0.00005	0.00005	0.00022	0.00022	0.00016	0.00015
14	BOTAD	BOTAD	0.00025	0.00025	0.00027	0.00027	0.00029	0.00034
15	BOTAD	GADHADA	0.00015	0.00015	0.00015	0.00015	0.00011	0.00018
16	BOTAD	RANPUR	0.00016	0.00016	0.00086	0.00086	0.00059	0.00061
17	RAJKOT	JASDAN	0.00016	0.00016	0.00022	0.00022	0.00005	0.00004
18	RAJKOT	VINCHCHIYA	0.00015	0.00015	0.00012	0.00012	0.00009	0.00008

Groundwater Draft

Annual Groundwater draft is considered as per GWRE estimates (<https://ingres.iith.ac.in/gecdataonline/gis/>), for the year 2016-17, 2020-21, 2022-23, for the years for which groundwater draft is not available, the draft for previous year has been considered. Taluka-wise draft for different years is presented in the table below:

Sr No	District	Taluka	Years					
			2016-17	2017-18*	2018-19*	2019-20	2020-21*	2021-22
	Groundwater Draft in Ham							
1	AHMEDABAD	DHANDHUKA	719.41	719.41	719.41	719.41	1041.29	1042.97
2	AHMEDABAD	DHOLERA	57.33	57.33	57.33	57.33	240.46	240.66
3	AMRELI	BABRA	9442.48	9442.48	10481.1	10481.1	10756.2	10756.21
4	AMRELI	LATHI	5597.32	5597.32	6588.3	6588.3	6666.1	6666.1
5	AMRELI	LILIA	2888.01	2888.01	2963.6	2963.6	2990.8	6815.48
6	BHAVNAGAR	BHAVNAGAR	3201.91	3201.91	2675.8	2675.8	3909.08	3925.66
7	BHAVNAGAR	GARIADHAR	3468.48	3468.48	3414	3414	3676.1	3677.66
8	BHAVNAGAR	GHOCHA	2756.58	2756.58	3238.7	3238.7	3526.41	3529.26
9	BHAVNAGAR	PALITANA	6111.93	6111.93	5661.8	5661.8	6811.93	2990.8
10	BHAVNAGAR	SIHOR	6958.3	6958.3	6069.1	6069.1	6152.1	6152.1
11	BHAVNAGAR	UMRALA	3594.25	3594.25	3557	3557	3655.9	3655.9
12	BHAVNAGAR	VALLABHIPUR	1505.21	1505.21	1756.9	1756.9	1932.64	1934.41
13	BOTAD	BARWALA	1276.19	1276.19	1713.4	1713.4	1875.46	1877.29
14	BOTAD	BOTAD	8470.74	8470.74	8396.3	8396.3	8866.37	8869.51
15	BOTAD	GADHADA	8764.68	8764.68	9439.7	9439.7	10424.9	10430.92
16	BOTAD	RANPUR	3868.81	3868.81	4420.1	4420.1	4685.13	4688.02
17	RAJKOT	JASDAN	8793.17	8793.17	9991.33	9991.33	15551	15562.67
18	RAJKOT	VINCHCHIYA	4313.9	4313.9	6250.6	6250.6	7612.22	7613.32
			Note: *-Groundwater draft available for succeeding years considered					

7.4.3 Boundary Conditions

The study area is bounded on west by Gulf of Khambhat, on north, east and south by No flow boundaries marked by Basin/watershed boundaries. Local drainage is considered as drain boundary to allow flow of water from shallow water table areas. Evapotranspiration (EVT) is considered for whole area as water levels are shallow, for EVT value IMD data of Bhavnagar Observatory has been adopted. These were the physical boundary conditions considered for the area.

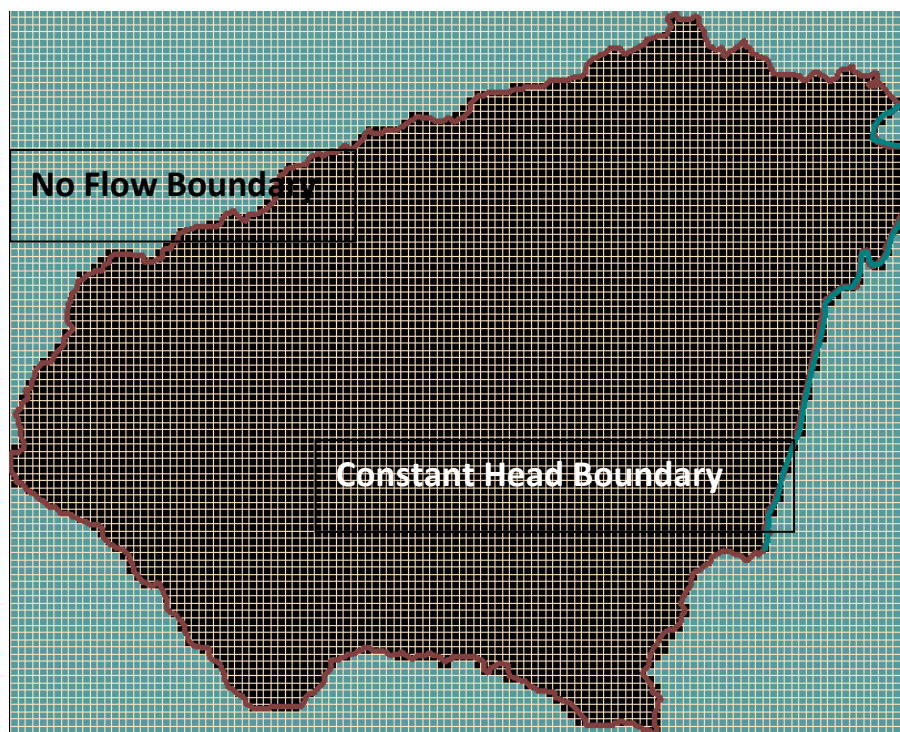


Figure 7-8: Boundary Conditions

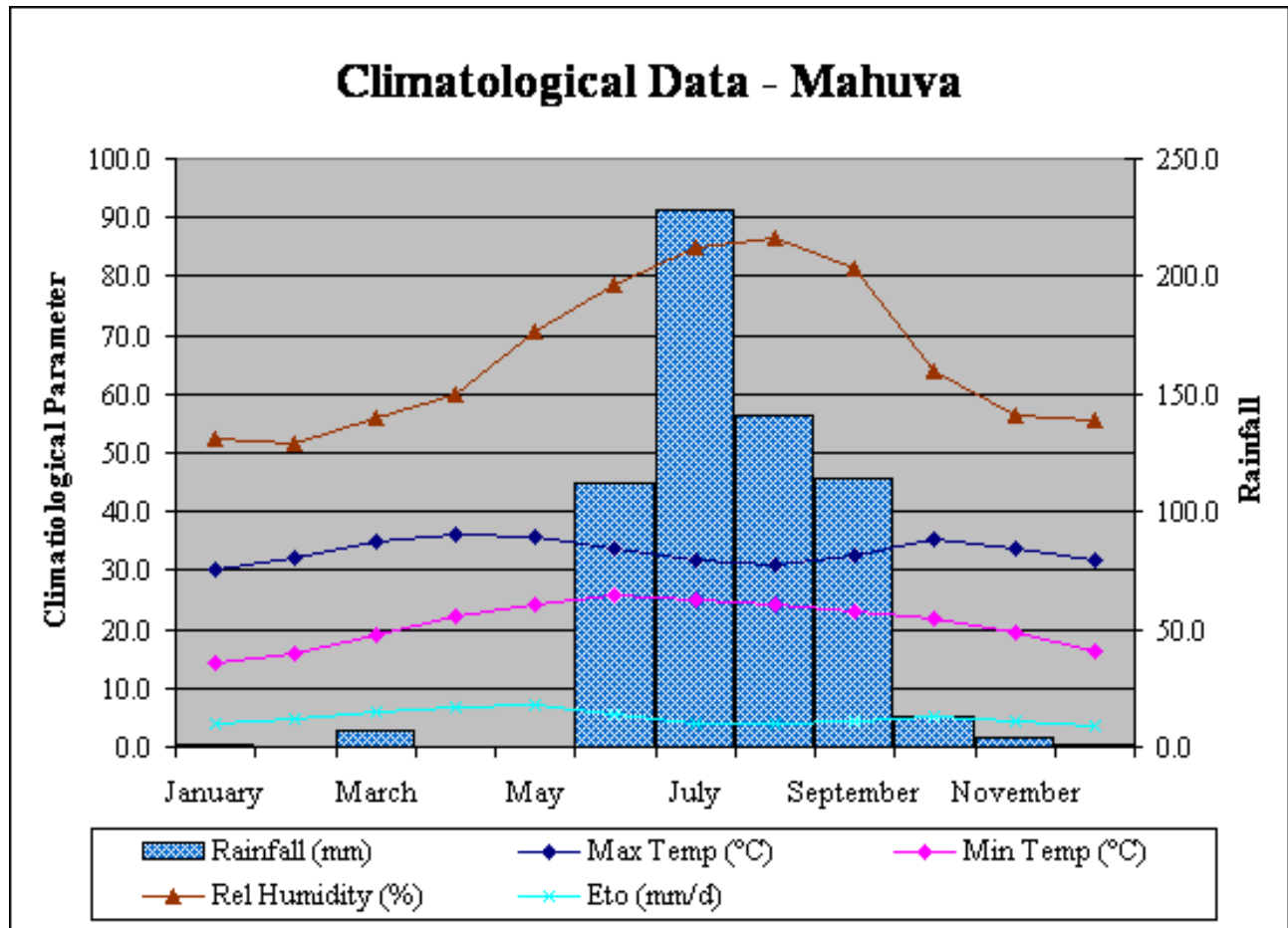
7.4.3.1 Evapotranspiration

Climatological data for the area is being monitored by Indian Meteorological Department (IMD) which has an observatory at Mahuva, Bhavnagar and Evapotranspiration data (Eto) for the same station was considered for the study area. The evapotranspiration was taken as 4.9 mm per day for the model.

Table 19: Climatological data of Bhavnagar IMD station 1951-1980

Station: Mhauva Altitude: 9 mAMSL Latitude: 21° 05' N					District: Bhavnagar HA 10 0.7479511 Longitude: 71°47' E			
Month	Max Temp (°C)	Mini Temp (°C)	Humidity (%)	Wind Spd. Kmpd	Sunshine (Hours)	Solar Rad. (MJ/m2/d)	Eto (mm/d)	Rainfall (mm)
Average	33.63	21.14	53.25	292.92	8.04	19.53	6.35	-
January	30.3	14.1	52.5	129.2	9.70	18.3	4.0	0.7
February	32.2	15.8	51.5	145.4	10.30	21.2	4.9	0.2
March	34.9	19.1	56.0	168.7	9.90	22.9	5.9	6.6
April	36.2	22.2	60.0	204.6	10.50	25.4	6.9	0.1
May	35.6	24.1	70.5	296.2	10.30	25.5	7.0	0.3
June	33.9	25.8	78.5	346.5	7.40	21.0	5.7	112.1
July	31.7	25.0	85.0	312.3	4.00	15.9	4.1	228.4

August	31.0	24.3	86.5	244.1	4.30	16.0	3.8	141.0
September	32.4	23.2	81.5	166.9	6.20	18.0	4.2	114.5
October	35.2	22.0	64.0	131.0	9.40	20.6	5.0	12.7
November	33.8	19.5	56.5	113.1	9.70	18.7	4.2	4.2
December	31.6	16.2	55.5	114.9	9.50	17.3	3.7	1.2
Total	-	-	-	-	-	-	-	622.0
Average	33.2	20.9	66.5	197.7	8.4	20.1	4.9	51.8



7.4.3.2 Drainage Boundary

Drainage in the area were identified and mapped and taken as drainage boundary as shallow ground water conditions prevail in part of the area and significant amount of groundwater also gets discharged by drains hence same was fed into the model as drainage boundary.

7.4.4 Head Observation Well

Initial head in the are required to start with simulation for the model. Observation wells of National Ground Water Monitoring Stations of CGWB and Ground Water Observation wells of GWRDC were filtered for the area of study and were adopted as Head Observation wells for appropriate layer. Head Observation wells are also required for history matching and calibration of the model. Details of Head Observation wells are given in Annexure II.

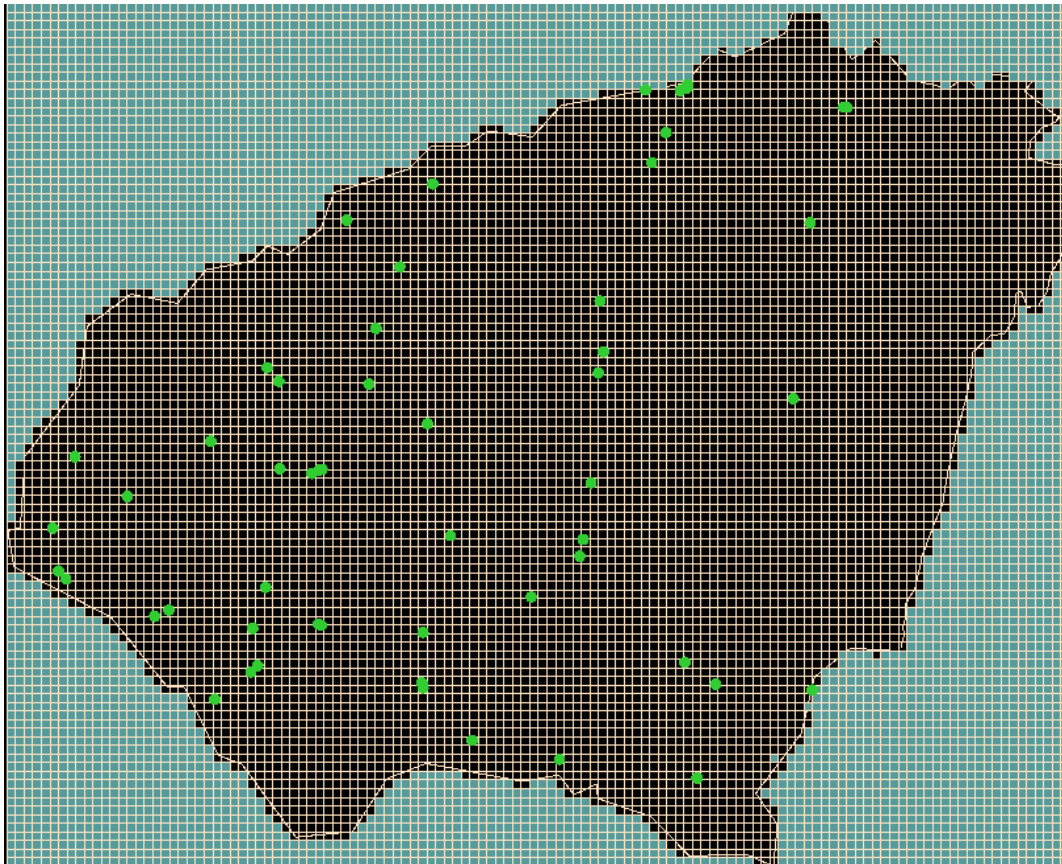


Figure 7-9: Observation Well Location

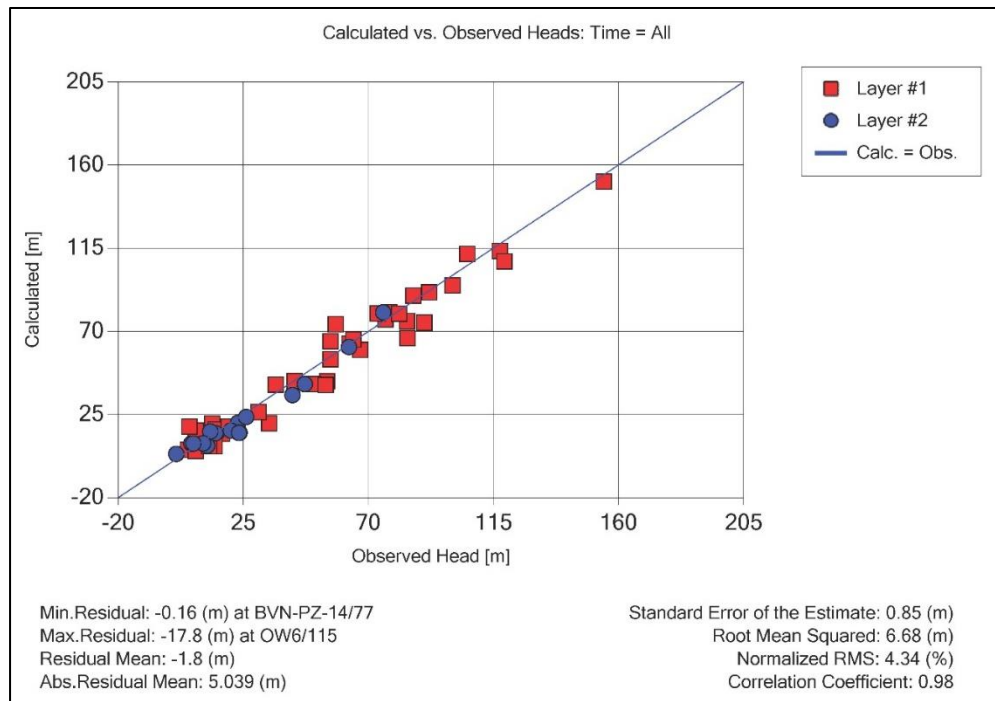
7.5 Stress Period and Time Steps

The time discretization for the model was decided on annual base. The first stress period was considered for one day of single time step and model was run in steady state. Subsequent time periods were considered for whole year consisting of one-time step. Following time steps were considered for the model.

No of Days	Time Step	Multiplication factor	Steady State/Transient
Calibration			
1	1	1	SS
Validation			
365	1	1	TR
365	1	1	TR
366	1	1	TR
365	1	1	TR
365	1	1	TR
365	1	1	TR
Projection			
366	1	1	TR
365	1	1	TR
365	1	1	TR
365	1	1	TR
366	1	1	TR
365	1	1	TR
365	1	1	TR
365	1	1	TR
365	1	1	TR
365	1	1	TR
365	1	1	TR

7.6 Model Simulation

To begin with the model steady state simulation was run to check stability of model and calibration of model to perform as per field condition. The model parameters were varied within allowable limit to study sensitivity of different parameters for the model. During steady state stress conditions are imposed such as recharge, boundary condition etc., The model was allowed to run for 1 stress period which was taken as one day. During Steady State run no changes in storage is allowed, i.e., water is not allowed to enter storage or come out from storage.



The Standard estimate of error was found to be 0.85 m. and RMS was 6.68 m

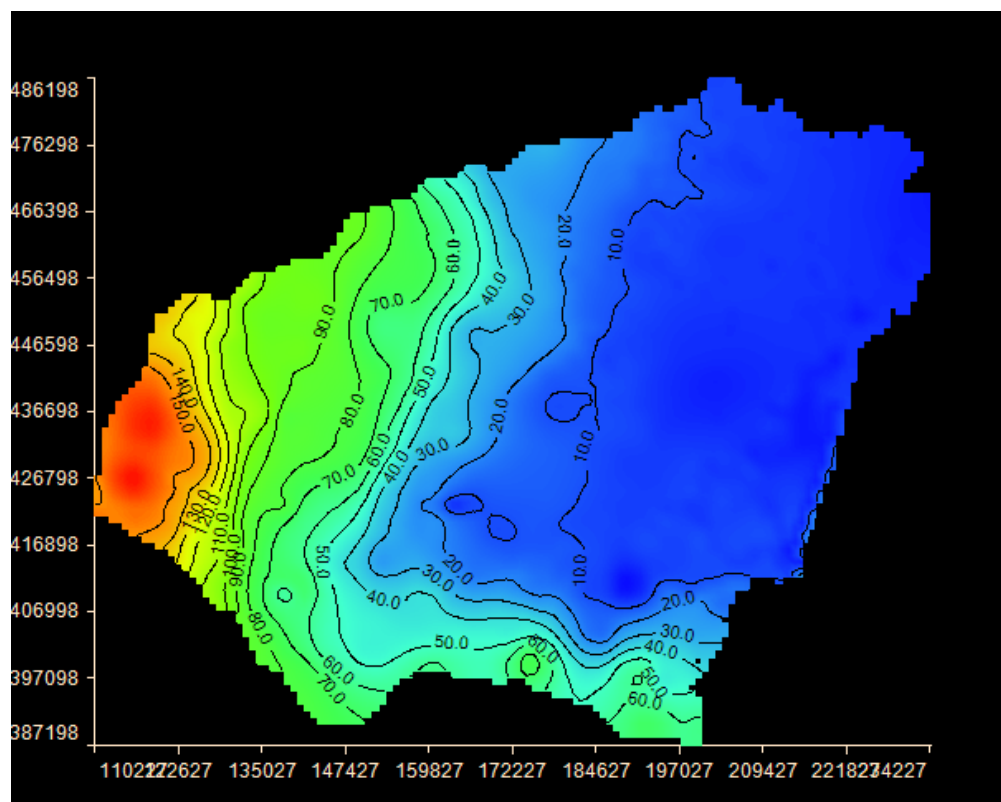


Figure 7-10: Simulated Water Table at Steady State

7.7 Sensitivity Analysis and Model Calibration

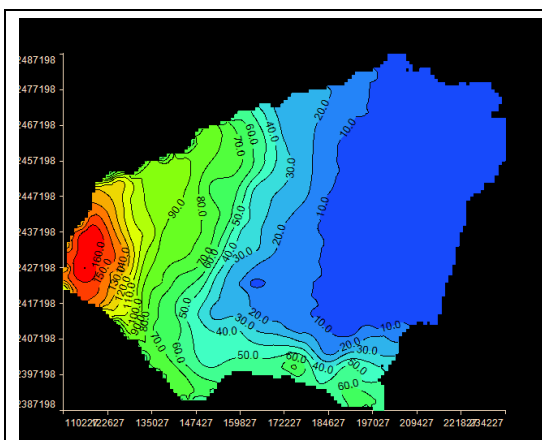
The model was simulated and later calibrated with sensitivity analysis. The hydraulic conductivity was taken as 1-10 m/day depending upon formation of the area, and model was calibrated and sensitivity analysis was performed, the RMS for different value of Permeability (K) and Specific yield (Sy) were studied. The conductivity and specific yields were varied up to $\pm 10\%$. It is observed that the standard estimate of error does not show any variation a constant error of 0.85 was observed. A table showing values of Standard estimates of error and Root Mean Squared Deviation (RMS) are depicted in the table below. Values, conductivity value was retained as to 1-10 m/day for different formation. The sensitivity of model for specific yield was also tested, the standard error of estimates is 0.85 and does not show any variation after changing SY. This shows that model is not sensitive to changes in specific yield. Looking at the hydrogeology of area a specific yield of 1-10% was adopted.

Table 20: Parameter Sensitivity Analysis of Parameter (Specific Yields and Conductivity) for different Iterations

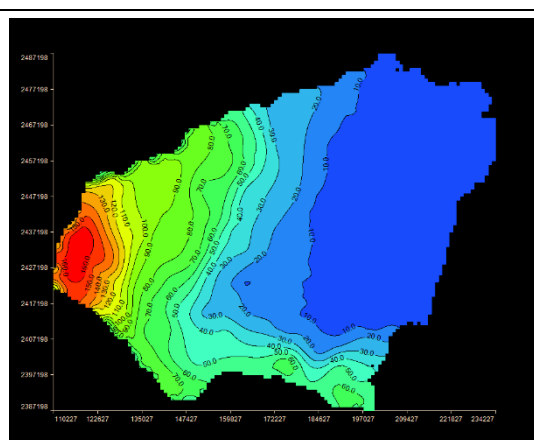
Sr No	Parameter	Value	Standard Estimate of Error	RMS
1	Conductivity (m/day)	0.9-9	0.85	6.68
		01-10	0.85	6.68
		1.1-11	0.85	6.68
2	Specific Yield (%)	0.9-9	0.85	6.8
		1-10	0.85	6.8
		1.1-11	0.85	6.8

7.8 Validation

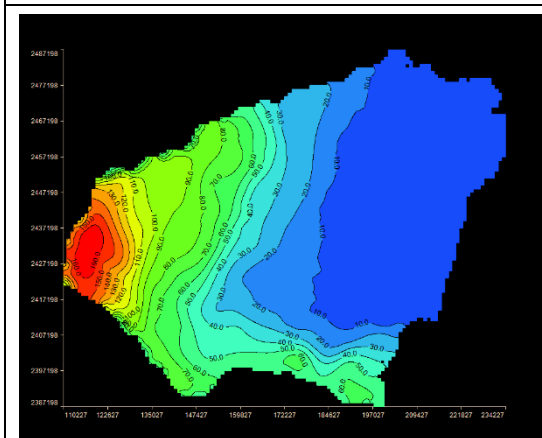
Validation of model is required for fine tuning of parameters like storage, The model result is compared with historical water levels and adjustments are made within allowable limits to have representative outcome. An output for different years of model run for validation period of 2017 to 2022 is presented below:



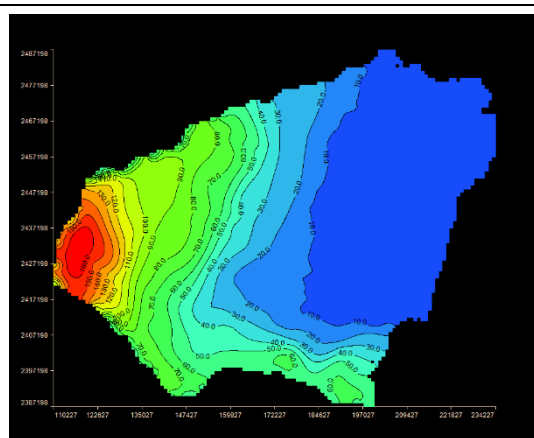
Water table at Year 1 (May 2018)



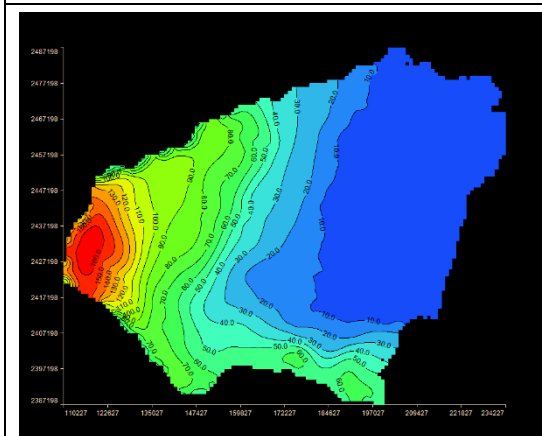
Water table at Year 2 (May 2019)



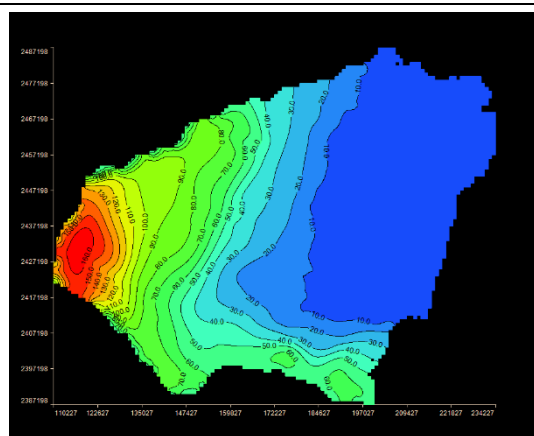
Water table at Year 3 (May 2020)



Water table at Year 4 (May 2021)



Water table at Year 5 (May 2022)



Water table at Year 6 (May 2023- Predicted)

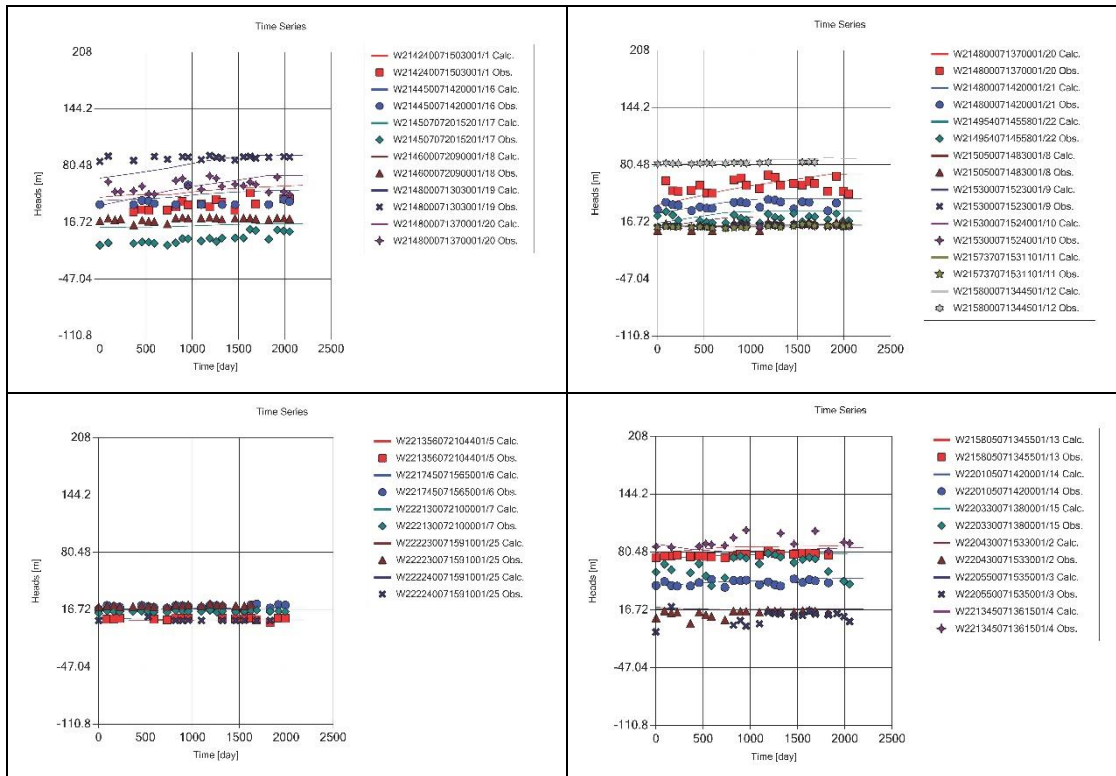


Figure 7-11: Calculated vs. Observed Heads year 1 to Year 6

7.9 Groundwater Budget

Groundwater budget for the stress period 1 (day 1) is presented below, the analysis of data shows that total inflow in the system is 1047865 m³/day and out flow from the system is 1047865, there is a recharge of 1017257 m³/day to the system and there is also an inflow of 30607 m³/day through boundaries. The drains are discharging 151347 m³/day from the system, 882011 m³/day is lost as evapotranspiration from shallow water level areas, there is also outflow of 14507 m³/day trough constant head boundary.

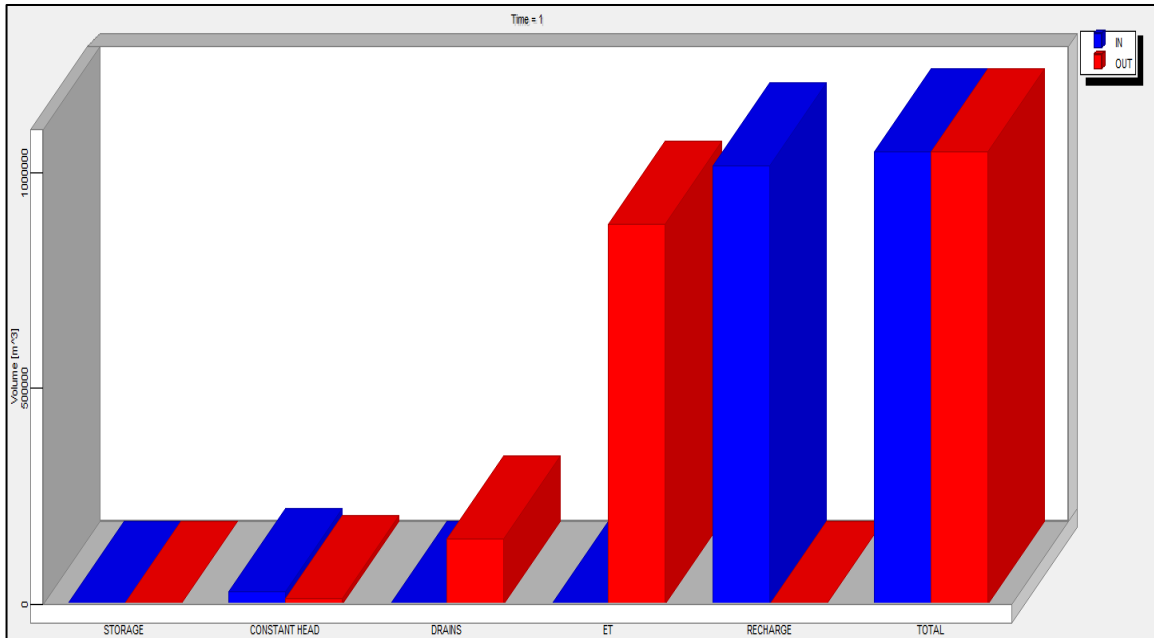


Figure 7-12: Mass Balance after Stress Perion 1 (Steady State)

Table 21: Mass Balance after Stress period 1 (Steady State)

VOLUMETRIC BUDGET FOR ENTIRE MODEL AT END OF TIME STEP 1, STRESS PERIOD 1		
	IN	OUT
STORAGE	0	0
CONSTANT HEAD	30607	14507
DRAINS	0	151347
ET	0	882011
RECHARGE	1017257	0
TOTAL IN/OUT	1047865	1047865
IN - OUT	0	-0.1875
PERCENT DISCREPANCY		0

During transient condition in the stress period 2 (Year 1) total inflow in the system is 2283733 m³/day and out flow from the system is 2283733 m³/day, there is a net recharge of 1020975 m³/day to the system and there is an inflow of 39166 m³/day through constant head boundaries. The outflow through constant head is 53355 m³/day, in shallow water level area drains are discharging 5136 m³/day and 1451949 m³/day is lost as Evapotranspiration from the system. System is providing 773292 m³/day of water to storage., whereas 1223591 m³/day is coming out of storage.

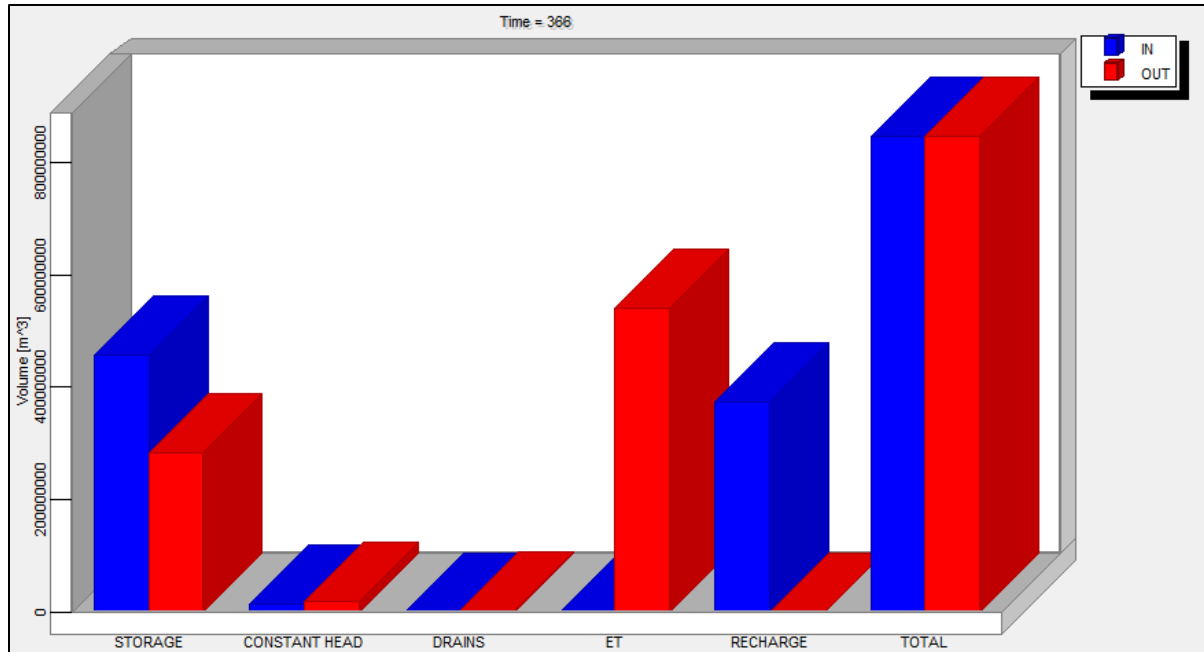


Figure 7-13: Mass Balance after Stress period 2

Table 22: Mass Balance after Stress period 2

VOLUMETRIC BUDGET FOR ENTIRE MODEL AT END OF TIME STEP 1, STRESS PERIOD 2		
	IN	OUT
STORAGE	1223591	773292
CONSTANT HEAD	39166	53355
DRAINS	0	5136
ET	0	1451949
RECHARGE	1020975	0
TOTAL IN/OUT	2283733	2283733
IN - OUT	0	0
PERCENT DISCREPANCY		0

During transient condition in the stress period 7 (Year 6) total inflow in the system is 2287668 m³/day and out flow from the system is 2287668 m³/day, the recharge is 2080790 m³/day, there is also an inflow of 36229 m³/day through constant head boundaries. Outflow through Constant Head boundary is 29946 m³/day. The drains are discharging about 6481 m³/day of water, Evapotranspiration loss is 1466775 m³/day, System is providing 784465 m³/day of water to storage., whereas 170648 m³/day is coming out of storage.

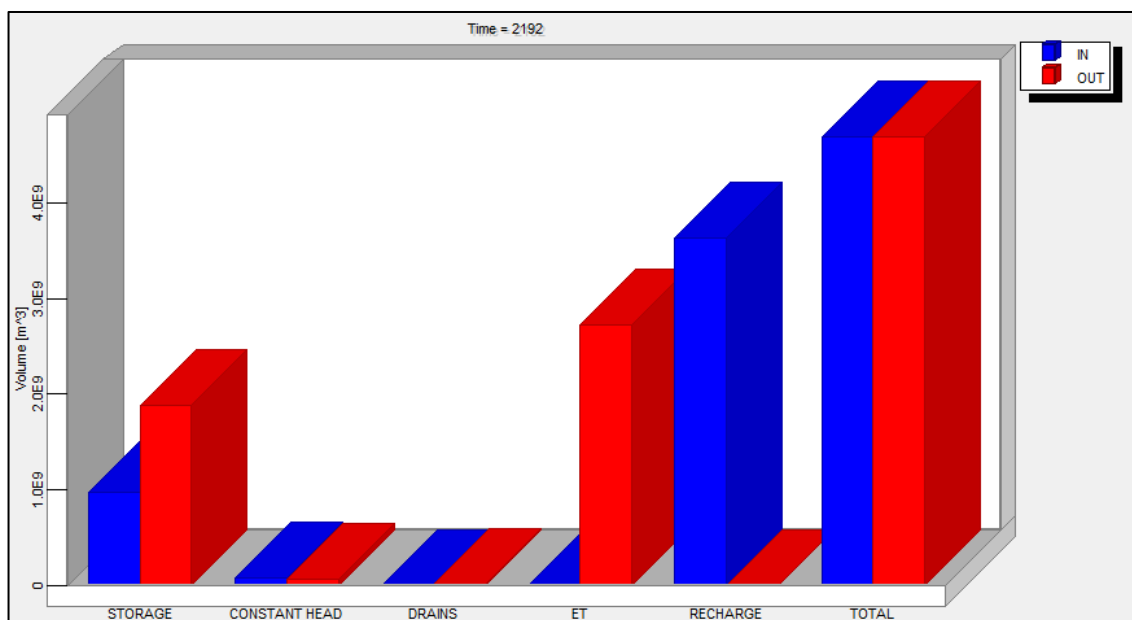


Figure 7-14: Mass Balance After Stress Period 7

Table 23: Mass Balance After Stress Period 7

VOLUMETRIC BUDGET FOR ENTIRE MODEL AT END OF TIME STEP 1, STRESS PERIOD 7		
	IN	OUT
STORAGE	170648	784465
CONSTANT HEAD	36229	29946
DRAINS	0	6481
ET	0	1466775
RECHARGE	2080790	0
TOTAL In	2287668	2287668
IN - OUT	0	0
PERCENT DISCREPANCY		0

7.10 Zone Wise Water Budget

For the convenience of budget estimates for different zones in the model the zones were identified which are concurrent with the taluka of Bharuch and Vadodara Districts. A table of different budget zones is given in the table below:

S.No	DISTRICT	TALUKA	ZONE
1	AHMEDABAD	DHANDHUKA	Zone 2
2	AHMEDABAD	DHOLERA	Zone 3
3	AMRELI	BABRA	Zone 5
4	AMRELI	LATHI	Zone 6
5	AMRELI	LILIA	Zone 18
6	BHAVNAGAR	BHAVNAGAR	Zone 9
7	BHAVNAGAR	GARIADHAR	Zone 12
8	BHAVNAGAR	GHOOGHA	Zone 10
9	BHAVNAGAR	PALITANA	Zone 19
10	BHAVNAGAR	SIHOR	Zone 11
11	BHAVNAGAR	UMRALA	Zone 8
12	BHAVNAGAR	VALLABHIPUR	Zone 7
13	BOTAD	BARWALA	Zone 16
14	BOTAD	BOTAD	Zone 13
15	BOTAD	GADHADA	Zone 14
16	BOTAD	RANPUR	Zone 15
17	RAJKOT	JASDAN	Zone 17
18	RAJKOT	VINCHCHIYA	Zone 4

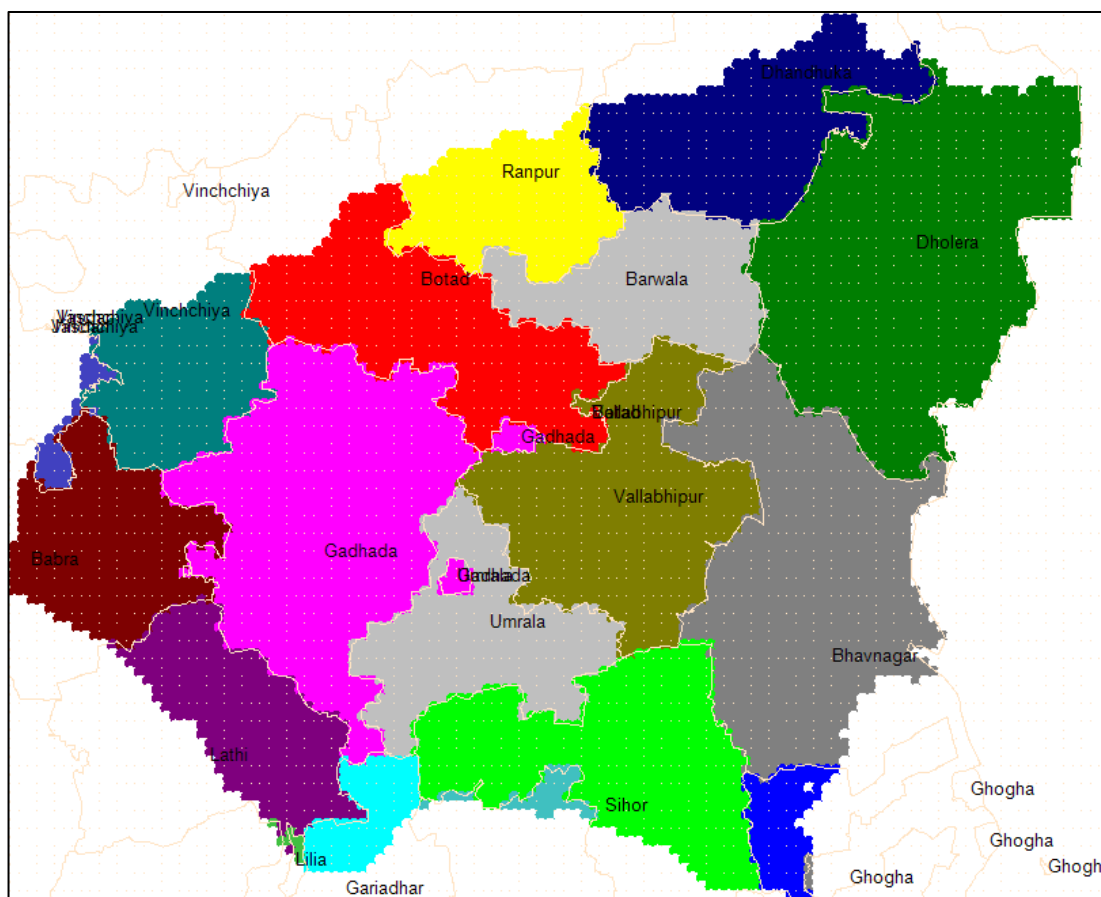
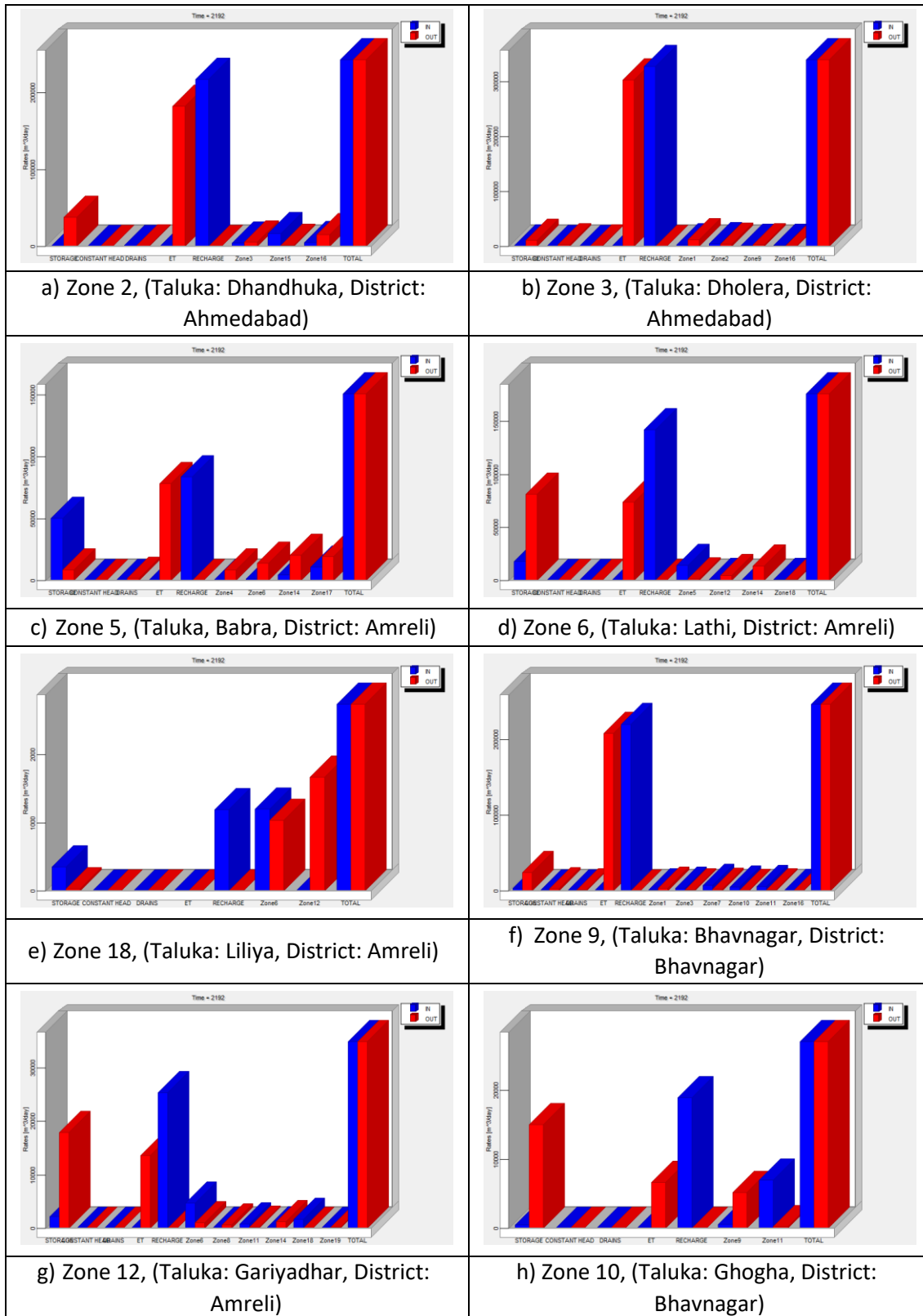
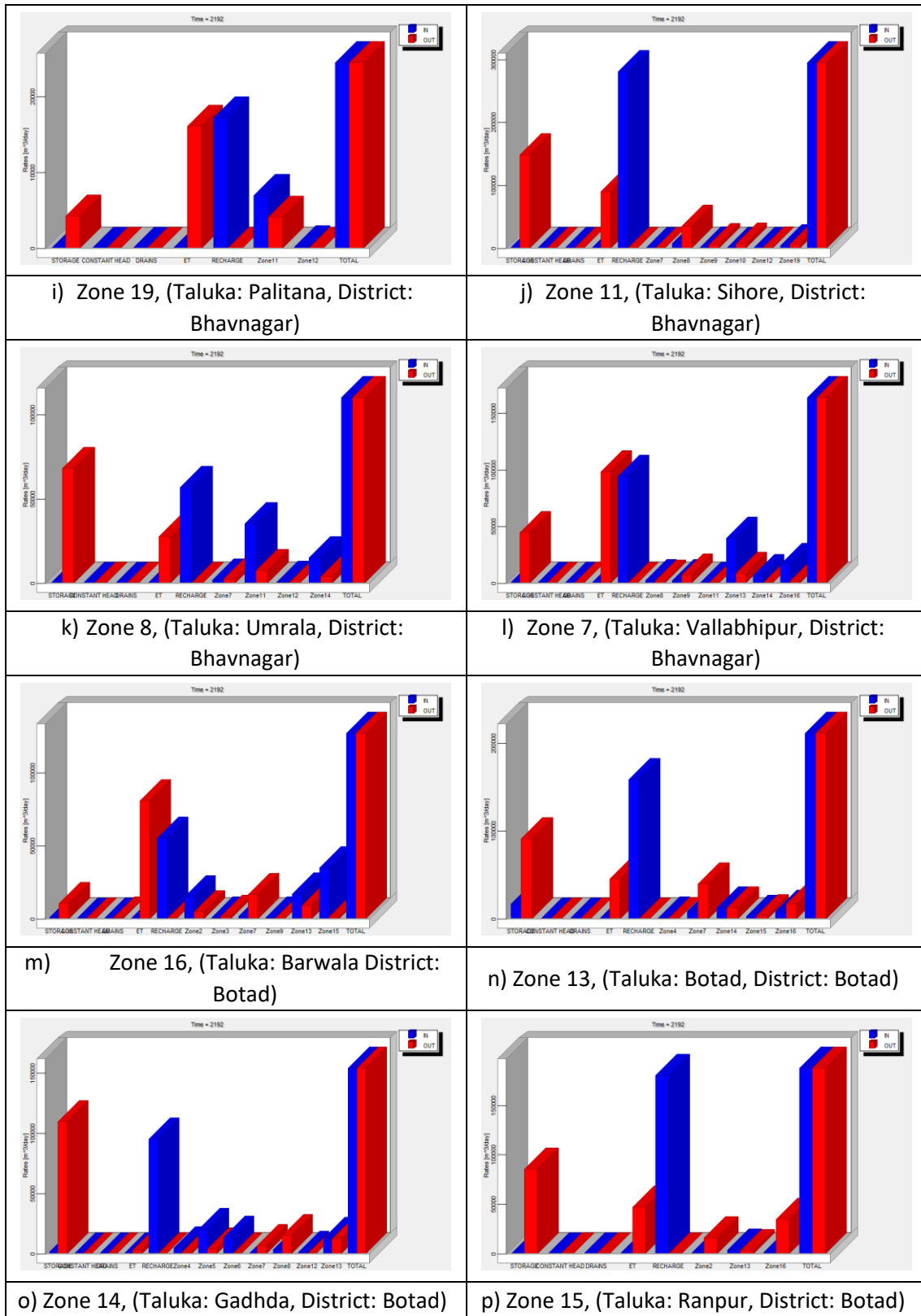


Figure 7-15: Figure showing zones for Mass Balance in Ahmedabad-Bhavnagar area

Flow Budget has been computed by the model for different zones which is depicted below in the graph for the end of validation period for Stress Period 7 (year 6) as figure 7-16(a-r). Result of model shows that net recharge is the main inflow in the model which is going out of the system through outflows at constant head, evapotranspiration, change in storage etc., The Evapotranspiration is much prominent in Dhandhuka, Dholera of Ahmedabad District and Bhavnagar Taluka of Bhavnagar District, whereas, loss through drains is not much prominent, The change in storage is positive in Dhandhuka Lathi, Gariyadhar, Ghogha, Sihore, Umralla, Vallabhipur, Botad and Ranpur talukas and negative in Babra, Liliya, Jasdan and Vinchhiya Talukas. Different zones are contributing to adjoining zones or are getting water depending upon hydrological conditions.





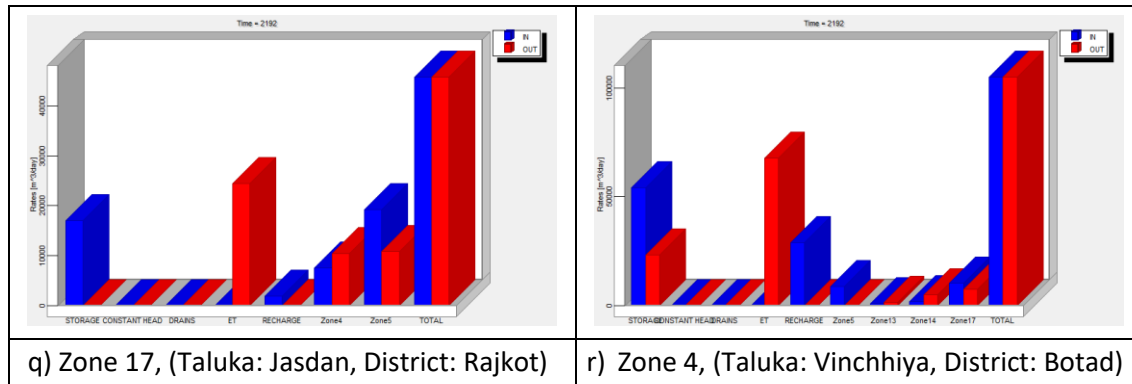


Figure 7-16: Water Budget for different zones for Model – II (Bhavnagar Model) after stress period 7 (6 years)

7.11 Impact of Kalpasar Project on Groundwater Regime

To study the impact of Kalpasar Dam Project the model was configured in two steps in first step the (Scenario I) Constant head boundary was considered as sea level with constant water level of Mean Sea Level (0 amsl). Average recharge of five year was considered for the model area for subsequent projection period. The model was run and water budget and groundwater heads were tabulated. In the second step (Scenario II) Water Head after filling of Kalpasar Dam was taken as constant head for year six onward and model was simulated remaining stress were same as for scenario I.

7.11.1 Scenario I: Without Kalpasar Project

Continuation of present condition was considered by running the model for 10 years projection period with average recharge for previous five-year period (2017-2022). With continuation of the present stress condition in the stress period 8 (Year 7) total inflow in the system is 1911358 m³/day and out flow from the system is 1911358 m³/day, the recharge is 1663404 m³/day, there is also an inflow of 37131 m³/day through constant head boundaries. The drains in the area are discharging about 5985 m³/day of water, through constant head boundary 27048 m³/day out flow is observed. System is adding 603673 m³/day of water to storage., whereas 210822 m³/day is coming out of storage.

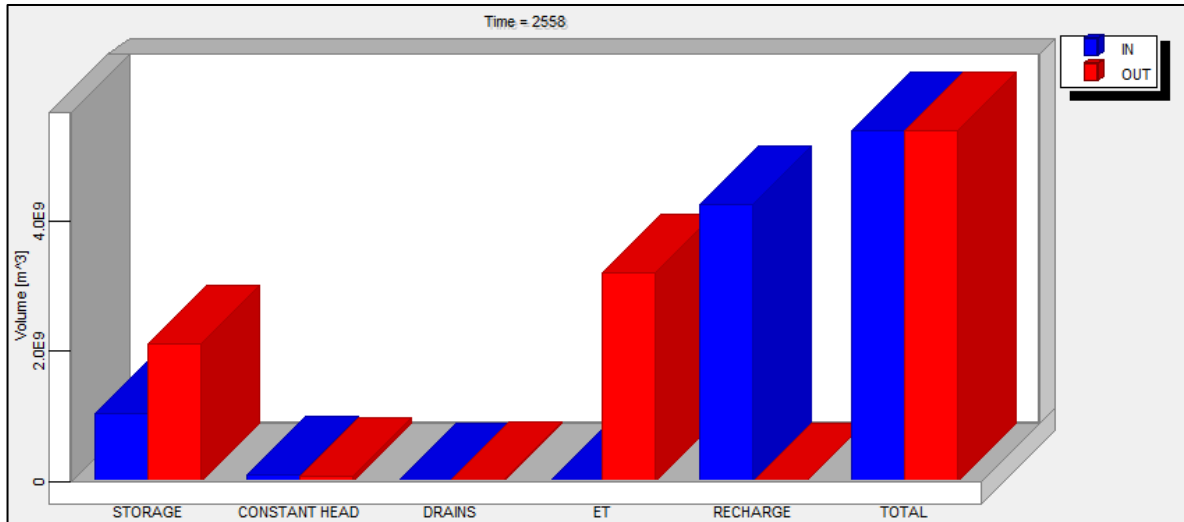


Figure 7-17: Mass Balance after stress period 8

Table 24: Mass Balance after stress period 8

VOLUMETRIC BUDGET FOR ENTIRE MODEL AT END OF TIME STEP 1, STRESS PERIOD 8		
	IN	OUT
STORAGE	210822	603673
CONSTANT HEAD	37131	27048
DRAINS	0	5985
ET	0	1274651
RECHARGE	1663404	0
TOTAL IN/OUT	1911358	1911358
IN - OUT	0	0
PERCENT DISCREPANCY		0

During transient condition in the stress period 17 (Year 16) at the end of simulation considering the scenario without construction of Kalpasar Dam, the total inflow in the system is 1780051 m³/day and out flow from the system is 1780051 m³/day, the recharge is 1663404 m³/day, there is also an inflow of 79264 m³/day through constant head boundaries. The drains are discharging about 7500 m³/day of water, through constant head boundary 25850 m³/day out flow is observed System is getting 79264 m³/day of water from storage., whereas 424806 m³/day is doing into storage.

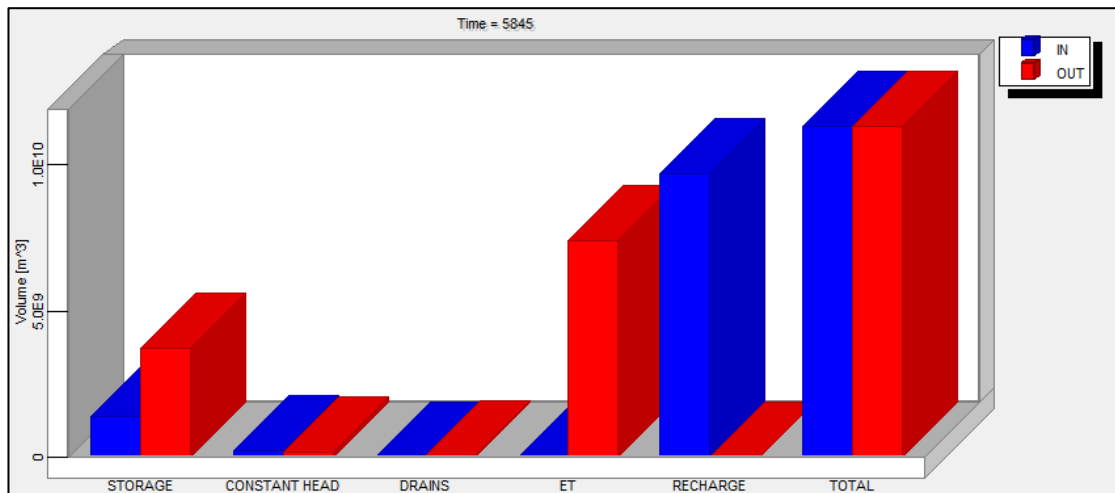


Figure 7-18: Mass Balance after Stress Period 17

Table 25: Mass Balance after Stress Period 17

VOLUMETRIC BUDGET FOR ENTIRE MODEL AT END OF TIME STEP 1, STRESS PERIOD 17		
	IN	OUT
STORAGE	79264	424806
CONSTANT HEAD	37382	25850
DRAINS	0	7500
ET	0	1321893
RECHARGE	1663404	0
TOTAL IN/OUT	1780051	1780051
IN - OUT	0	0
PERCENT DISCREPANCY		0

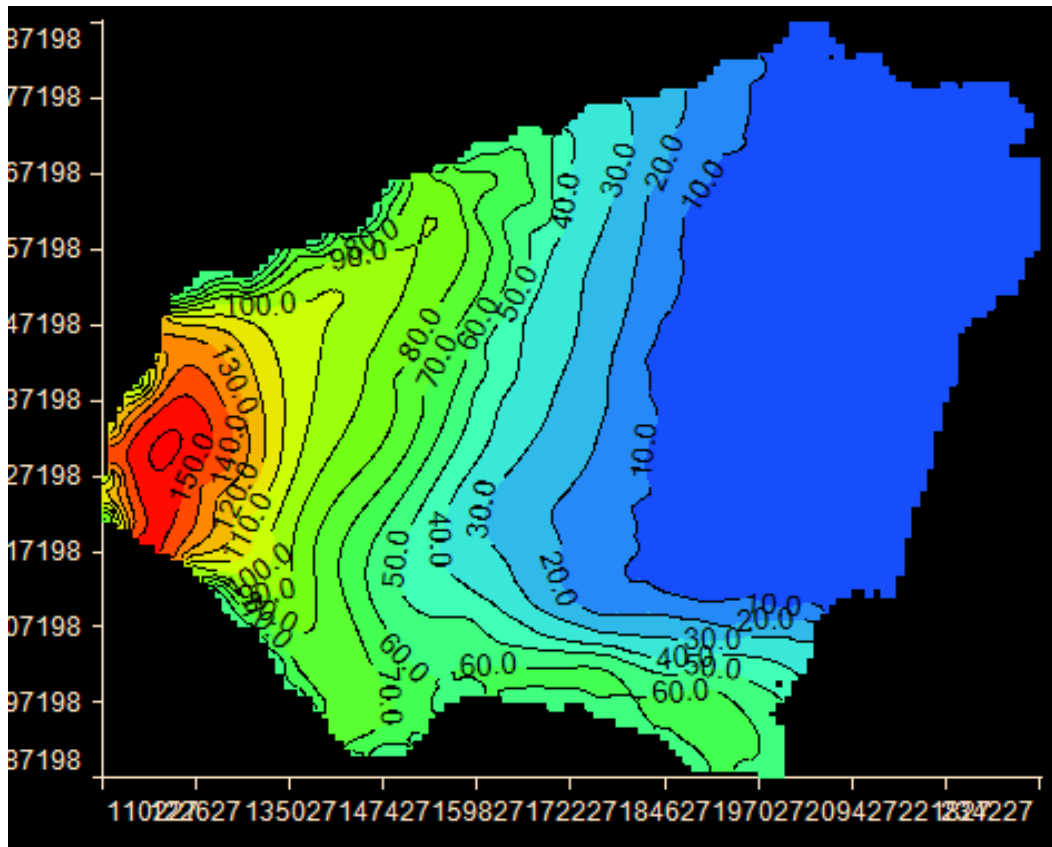


Figure 7-19: Water Table at year 17 without implementation of Kalpasar Project

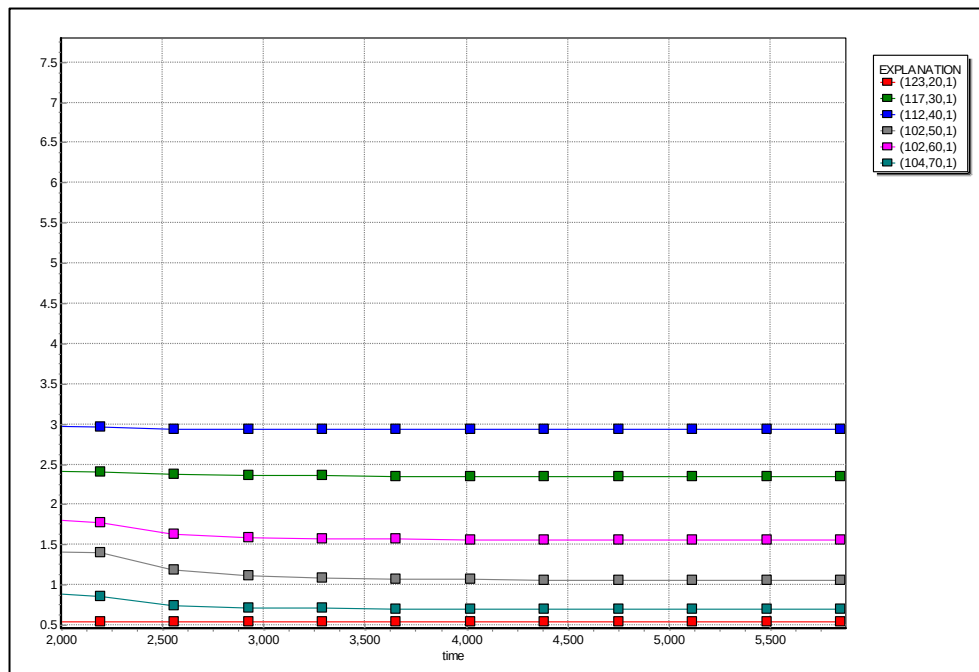
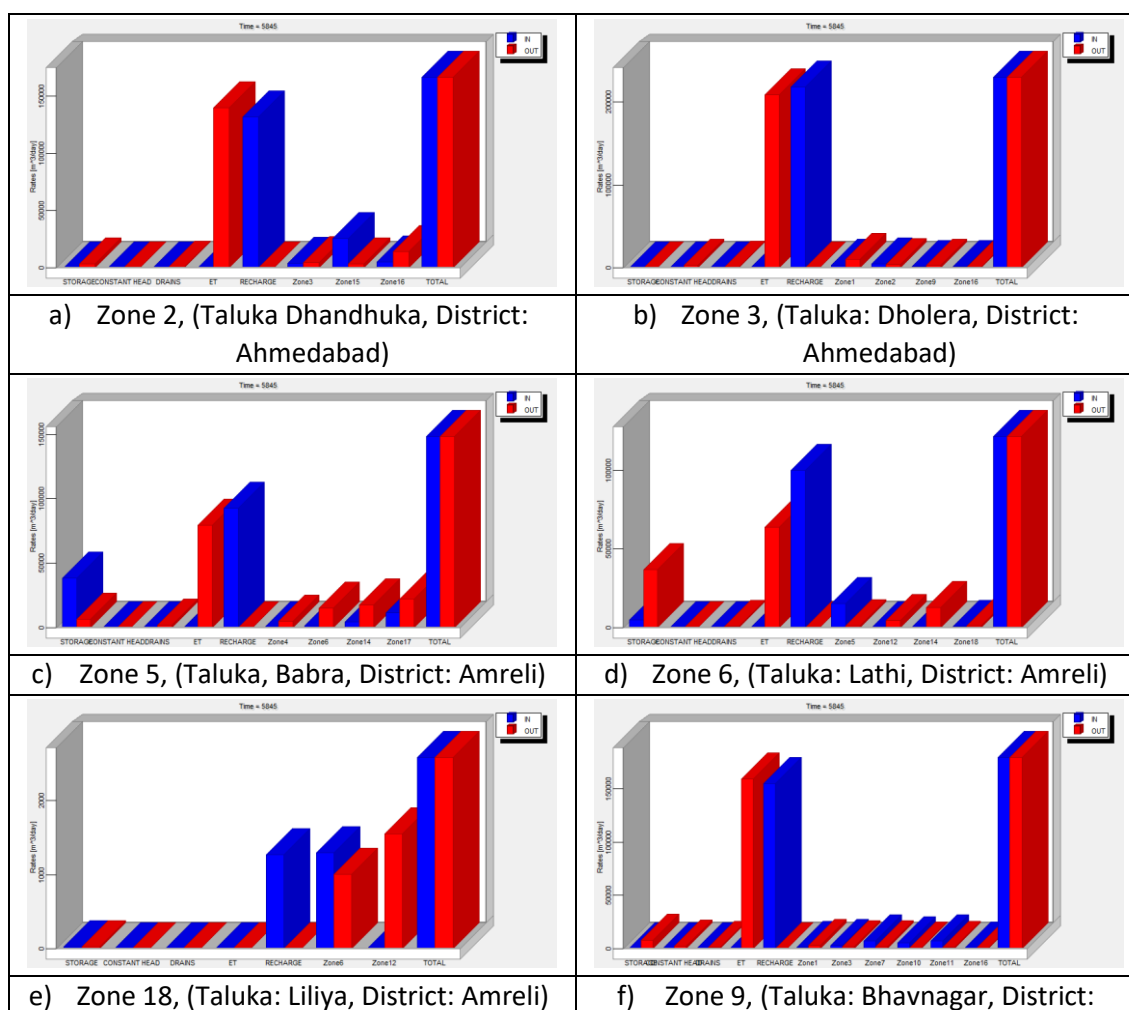
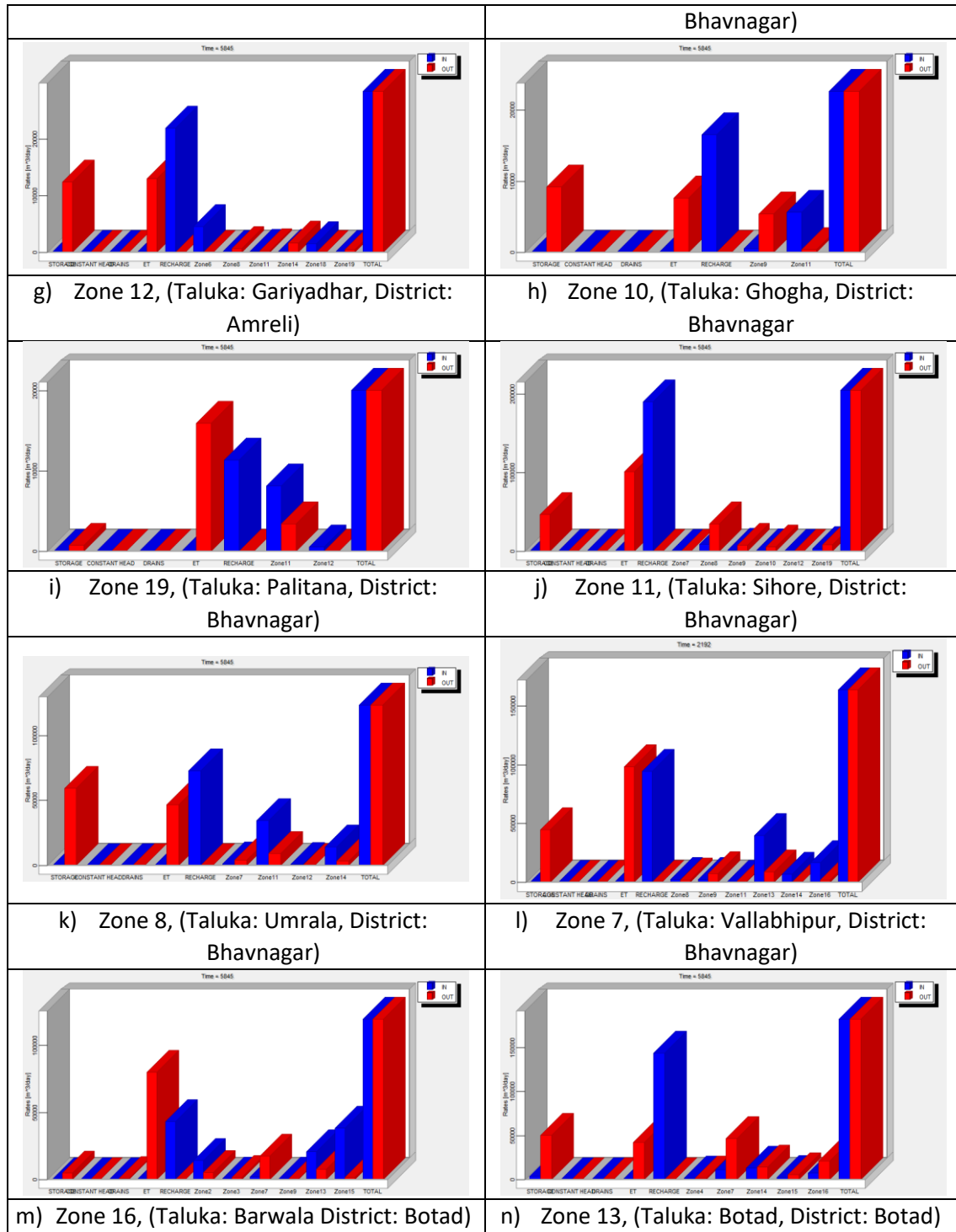


Figure 7-20: Projected Hydrograph at select Nodes Without Kalpasar Project

7.11.1.1 Zone-wise Ground Water Budget for Simulated period (Without Kalpasar)

Ground Water Budget for Model Area, Time period 17 (Year 16: Day 5845) have been computed and Taluka wise water budget at the end of simulation is presented below. Result of model shows that net recharge is the main inflow in the model which is going out of the system through outflows at constant head, evapotranspiration, change in storage etc., The evapotranspiration is much prominent in Dhandhuka, Dholera of Ahmedabad District and Bhavnagar Taluka of Bhavnagar District, whereas, loss through drains is not much prominent, The change in storage is positive in Babra, Jasdan and Vinchhiya Talukas and negative in Lathi, Gariyadhar, Ghogha, Sihore, Umralla, Vallabhipur, Gadhdha, Vinchhiya Talukas and Botad talukas. Different zones are contributing to adjoining zones or are getting water depending upon hydrological conditions.





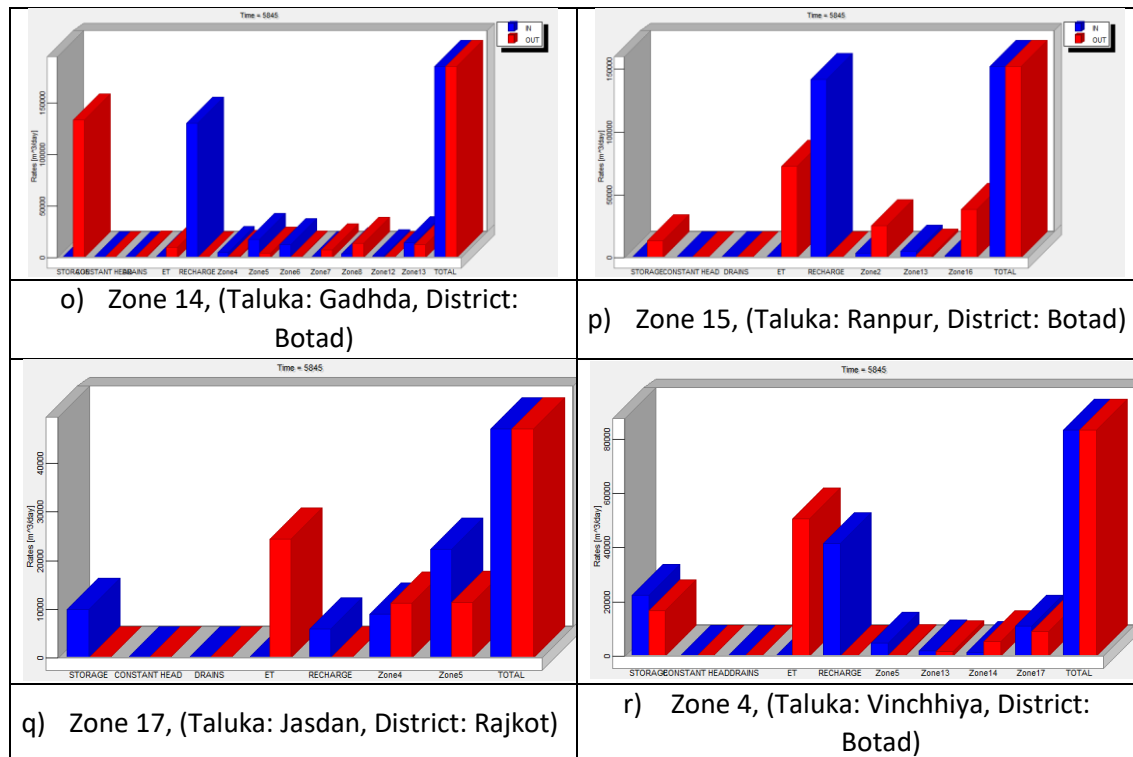


Figure 7-21: Ground Water Budget for Model – II (Bhavnagar Model) at the end of simulation, Time Period 17- Day 5845

7.11.2 Scenario II: With Implementation of Kalpasar Dam

As per prefeasibility report (NCCR, 2022), after construction of dam the surface water level in the area adjoining Kalpasar dam would rise to Full Reservoir Level (+3m amsl). The model was simulated considering the Kalpasar Dam is constructed in the year 6. The constant head in the area was set to 3mamsl for the inundated area and model was run for 10 years (stress period 8 to 17). Groundwater recharge during the simulation period was taken as average net recharge for previous five-year period (2017-2022). Other stress conditions were kept as same as per validated model. It is observed that in the stress period 8 (Year 7) total inflow in the system is 1833819 m³/day and out flow from the system is 1833819 m³/day, the recharge is 1615071 m³/day, there is also an inflow of 15947 m³/day through constant head boundaries. The drains are discharging about 5618 m³/day of water, through constant head boundary outflow of 15271 m³/day is observed System is adding 629681 m³/day of water to storage., whereas 202799 m³/yr is coming out of storage.

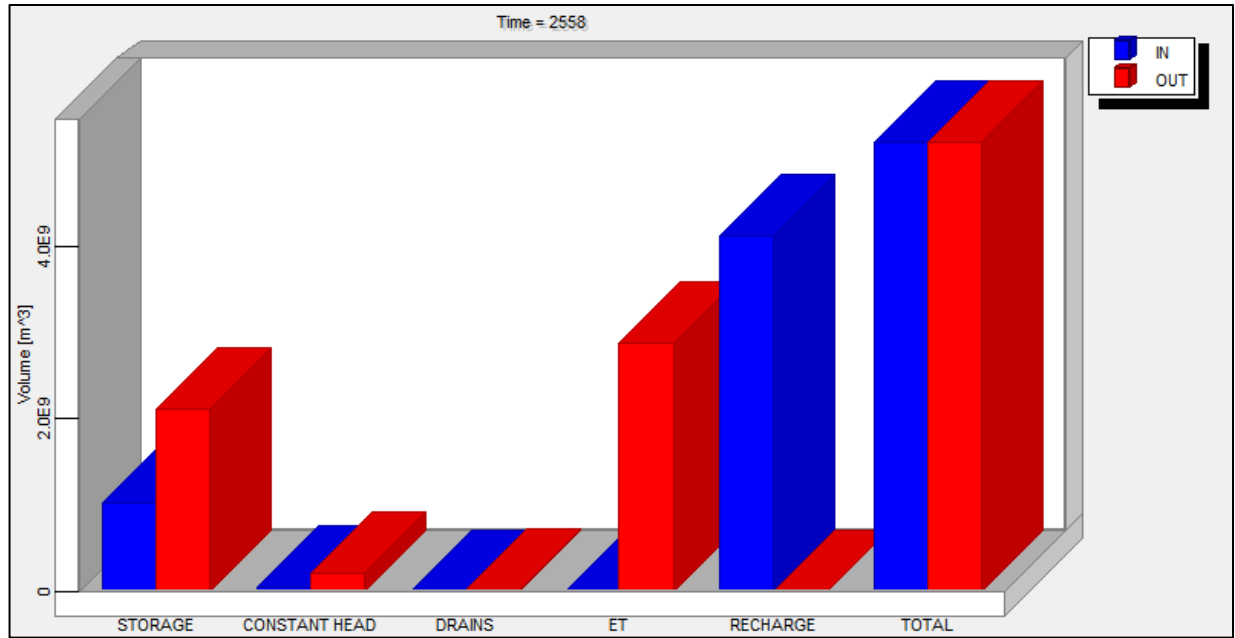


Figure 7-22: Mass Balance after stress period 8

Table 26: Mass Balance after stress period 8

VOLUMETRIC BUDGET FOR ENTIRE MODEL AT END OF TIME STEP 1, STRESS PERIOD 8		
	IN	OUT
STORAGE	202799	629681
CONSTANT HEAD	15947	15271
DRAINS	0	5618
ET	0	1183248
RECHARGE	1615071	0
TOTAL IN/OUT	1833819	1833819
IN - OUT	0	0
PERCENT DISCREPANCY		0

During end of simulation in the stress period 17 (Year 16) at the end of simulation while considering the scenario after construction of Kalpasar Dam, the total inflow in the system is 1780051 m³/day and out flow from the system is 1780051 m³/day, the recharge is 1663404 m³/day, there is also an inflow of 37382 m³/day through constant head boundaries. The drains are discharging about 7500 m³/day of water, through constant head boundary 25850 m³/day

out flow is observed System is getting 424806 m³/day of water from storage., whereas 79264 m³/yr is coming out of storage.

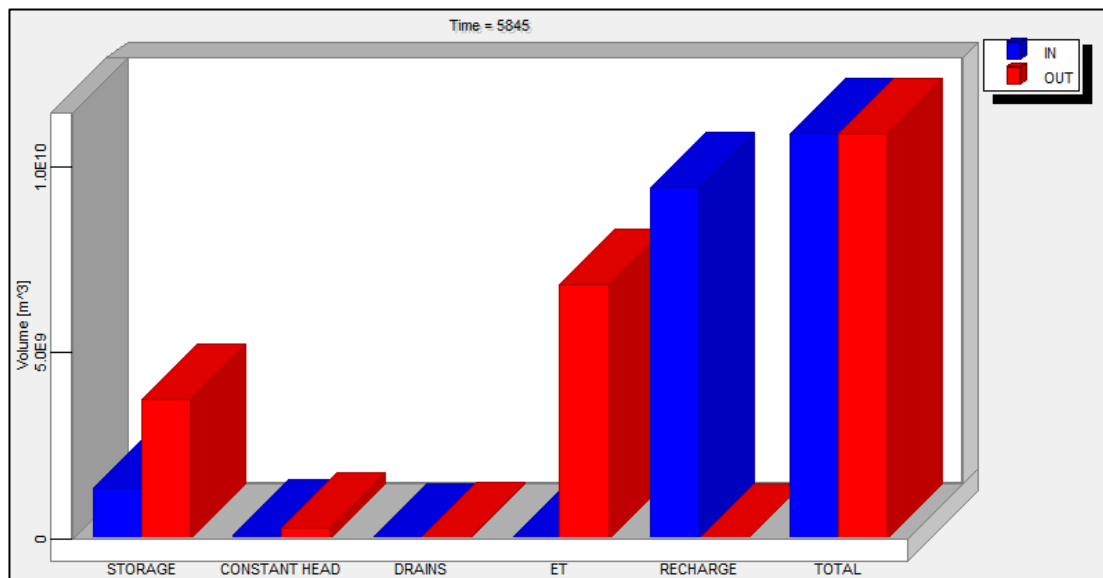


Figure 7-23: Mass Balance after Stress Period 17

Table 27: Mass Balance after Stress Period 17

VOLUMETRIC BUDGET FOR ENTIRE MODEL AT END OF TIME STEP 1, STRESS PERIOD 17		
	IN	OUT
STORAGE	79255	424814
CONSTANT HEAD	11125	21910
DRAINS	0	7135
ET	0	1251592
RECHARGE	1615071	0
TOTAL IN/OUT	1705452	1705452
IN - OUT	0	0
PERCENT DISCREPANCY		0

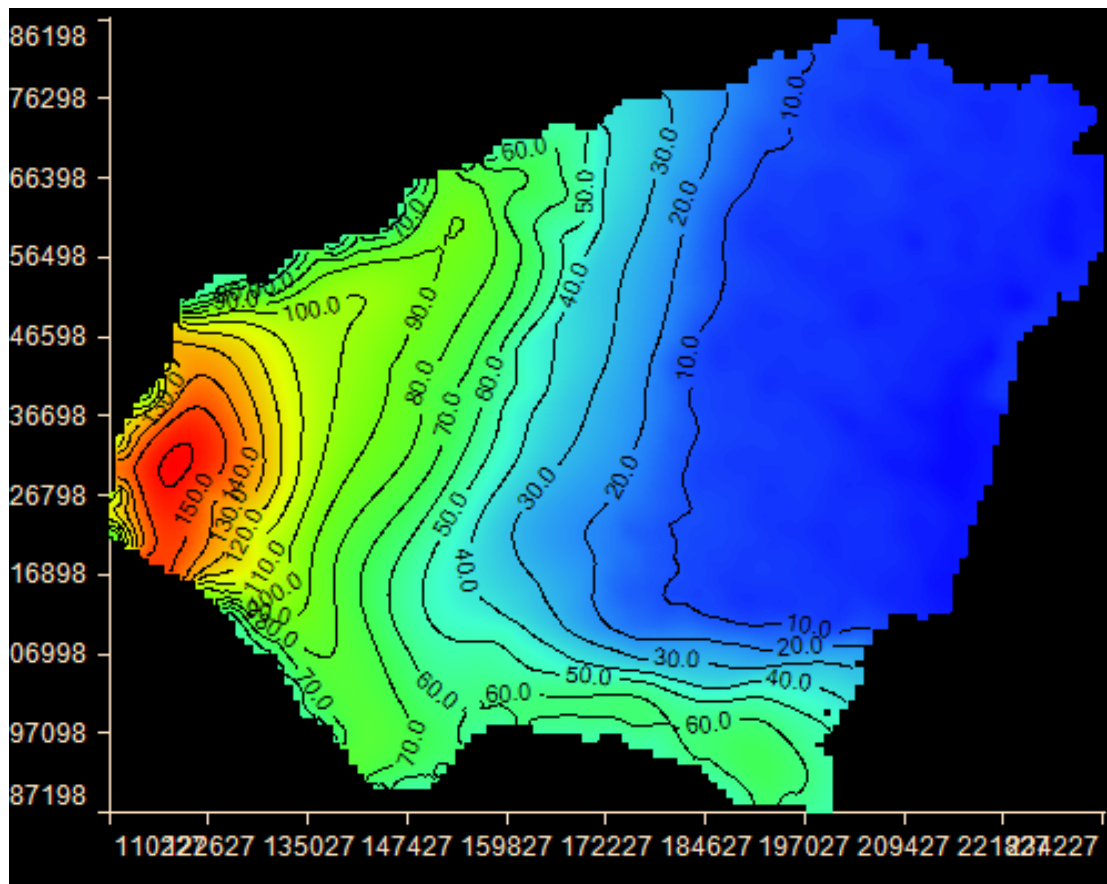


Figure 7-24: Groundwater table at the end of simulation considering Kalpasar Dam after stress period 17.

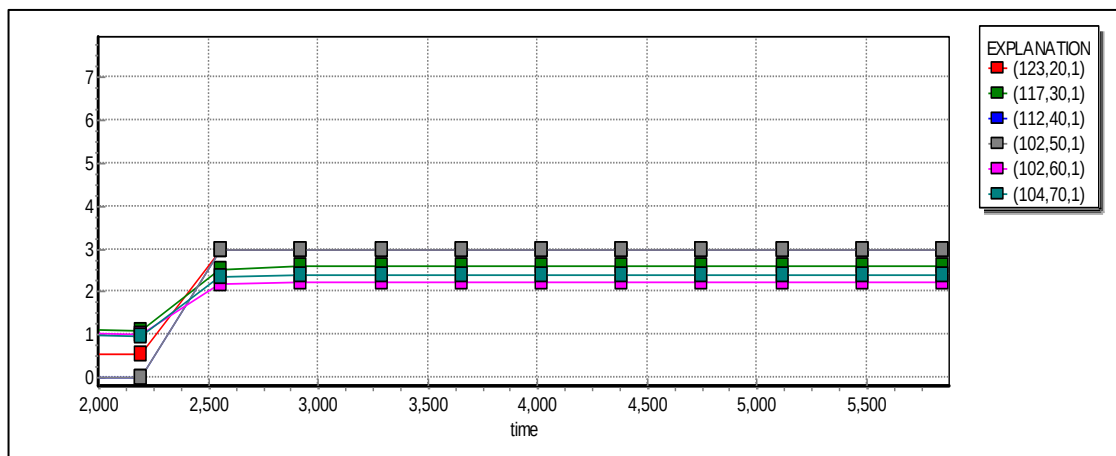
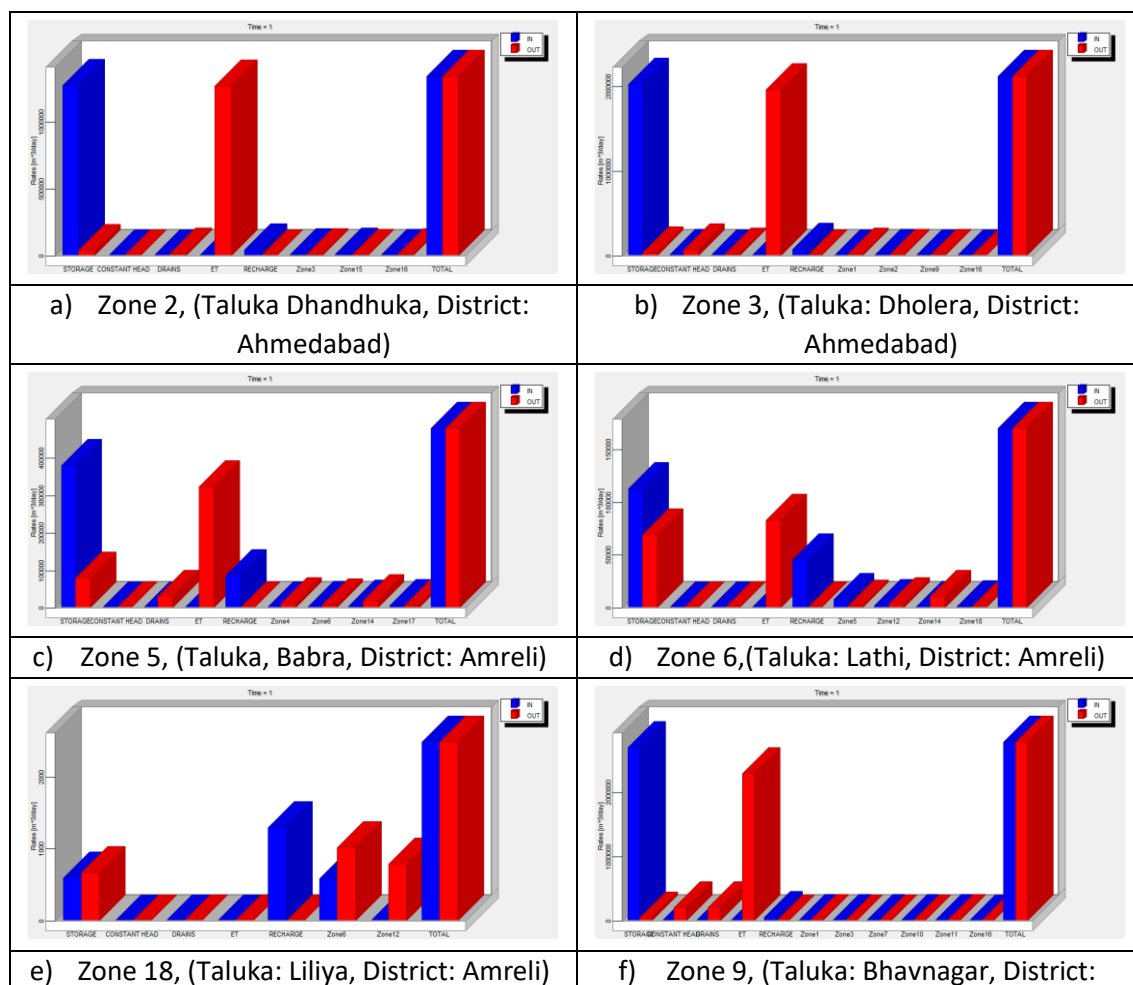


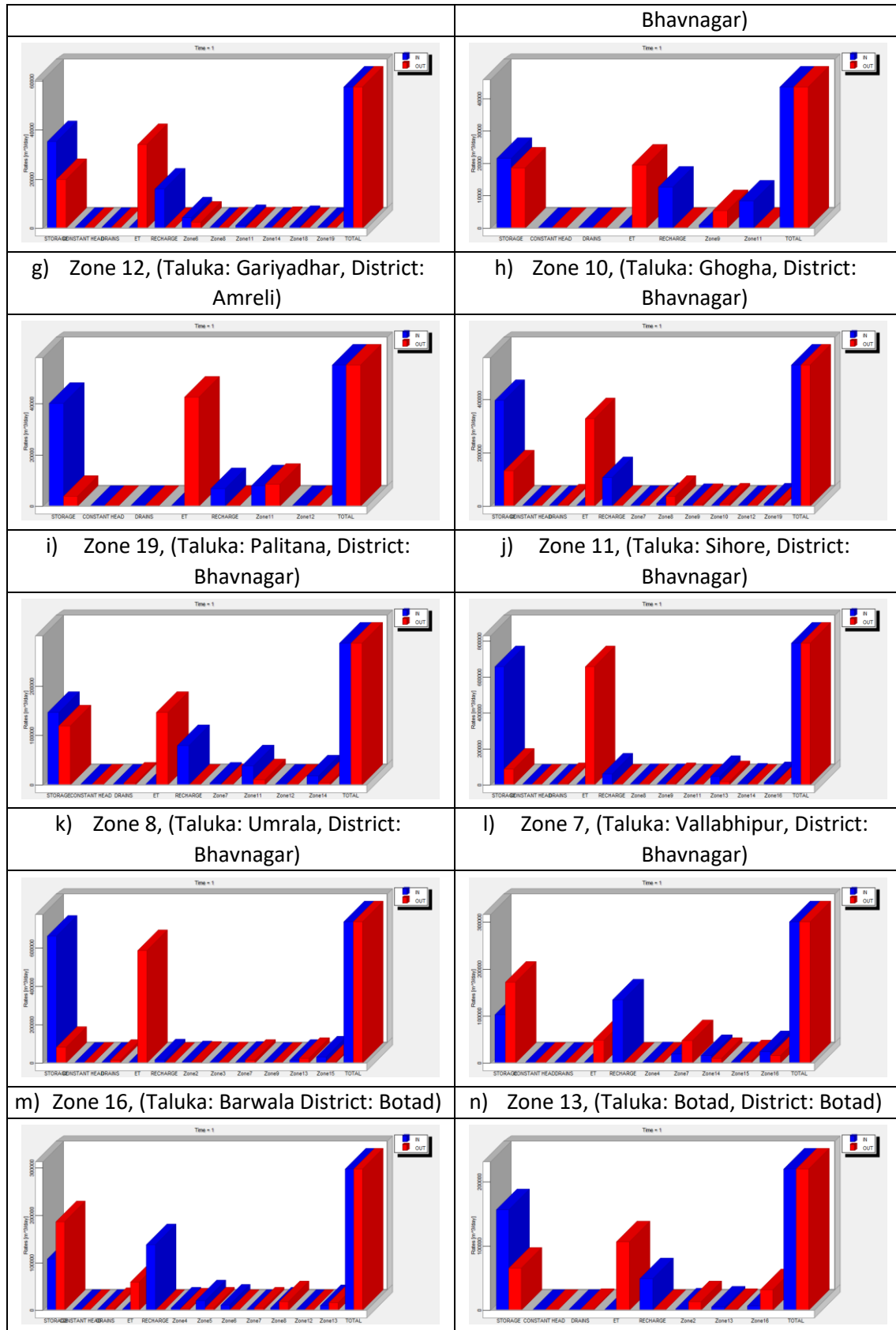
Figure 7-25: Projected Hydrograph at select Nodes With Implementation of Kalpasar Project.

7.11.2.1 Zone-wise Ground Water Budget for Simulated period (After Construction of Kalpasar Dam)

To study groundwater availability and changes in groundwater regime after implementation of

Kalpazar Project Taluka-wise groundwater budget was computed and same is presented below: The histograms show groundwater budget for different talukas, identified as zones, at the end of Time period 17 (Year 16: Day 5845). Result of model shows that net recharge is the main inflow in the model which is going out of the system through outflows at constant head, evapotranspiration, change in storage etc., The Evapotranspiration is much prominent in Dhandhuka, Dholera of Ahmedabad District and Bhavnagar Taluka of Bhavnagar District, Babbra Taluka of Amreli District whereas, loss through drains prominent in Dholera Taluka of Ahmedabad District, Bhavnagar Taluka of Bhavnagar District. The change in storage is positive in Dhandhuka, Dholera, Babra, lathi, Bhavnagar, Gariyadhar, Ghogha, Sihore, Vallabhipur, Jasdan and Vinchhiya Talukas and negative in Lathi, Liliya, Ghogha, Umralla, Botad, Gadhda and Vinchhiya Talukas. Different zones are contributing to adjoining zones or are getting water depending upon hydrological conditions.





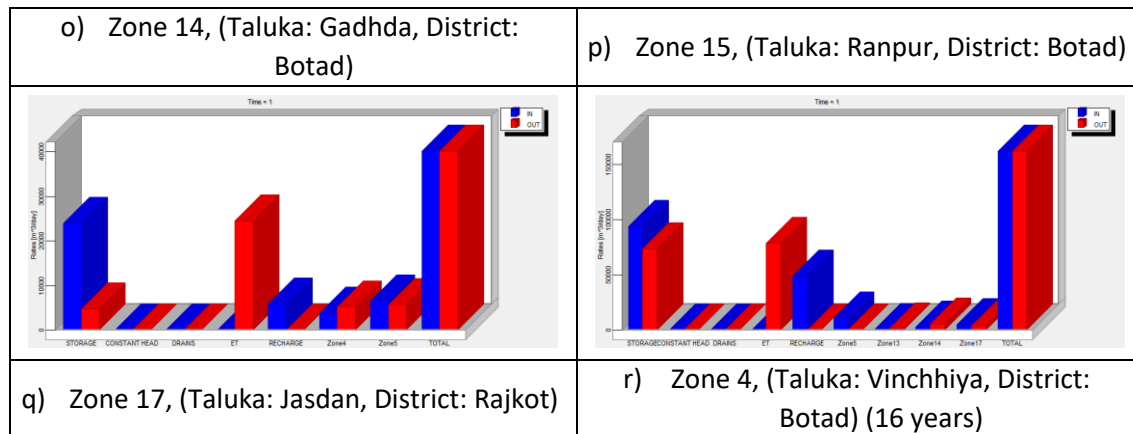


Figure 7-26: Ground Water Budget for Model -II (Bhavnagar Model) at the end of simulation, Stress Period 17 (Day 5845)

7.11.3 Impact of Kalpasar Dam

A comparison of water table profile was made along different section after 10 years of implementation of Kalpasar Project and same is presented in the figures 7-27 to 6-31 given below. A critical study of reveals that a general rise in water level along the coastal part is observed due to impounding of water in the Kalpasar Dam. The water level changes along column 20, 40, 60 (Figure 7-27,28,29) is depicted in the following figures. All the show rise after implementation of Kalpasar Project the rise along the coast is comparatively higher. A section along the coast (Figure 7-31) along column 116 also shows rise in water table in comparison to the implementation of Kalpasar Project.

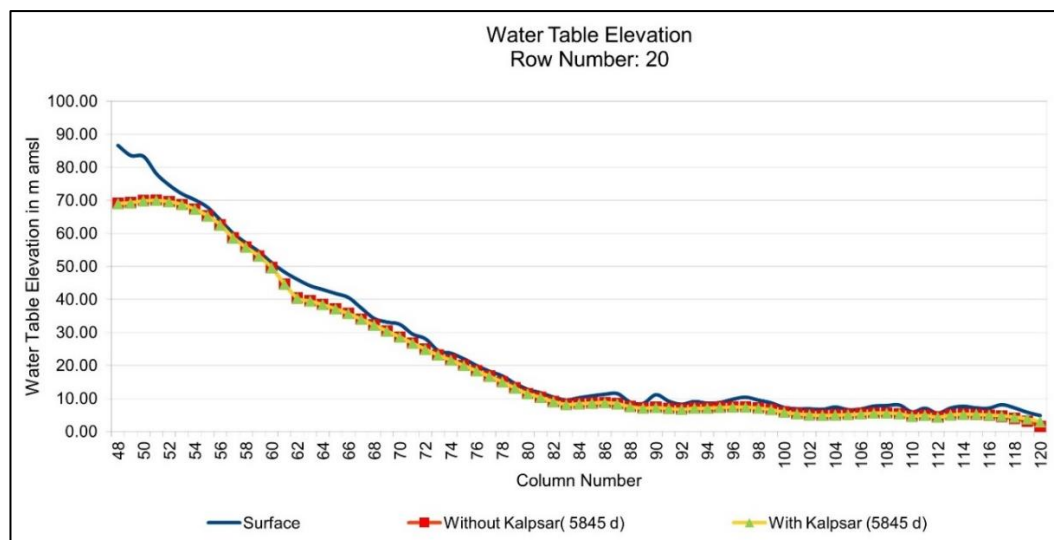


Figure 7-27: Comparison of Water Table at year 10 along Row 20 before and after implementation of Kalpasar Project

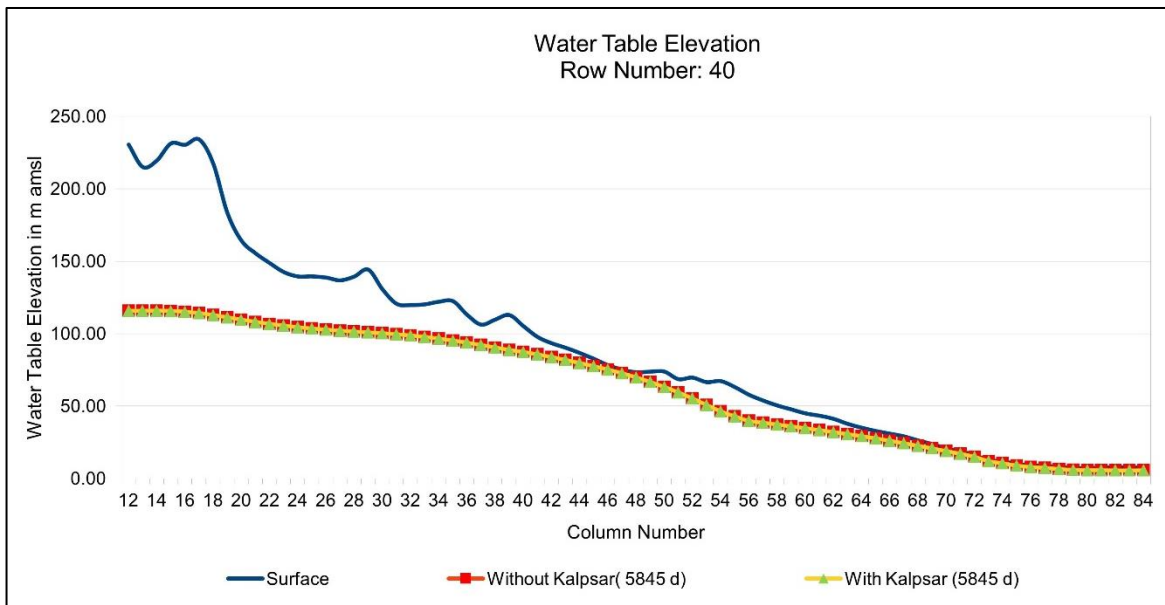


Figure 7-28: Comparison of Water Table at year 10 along Row 40 before and after implementation of Kalpsar Project

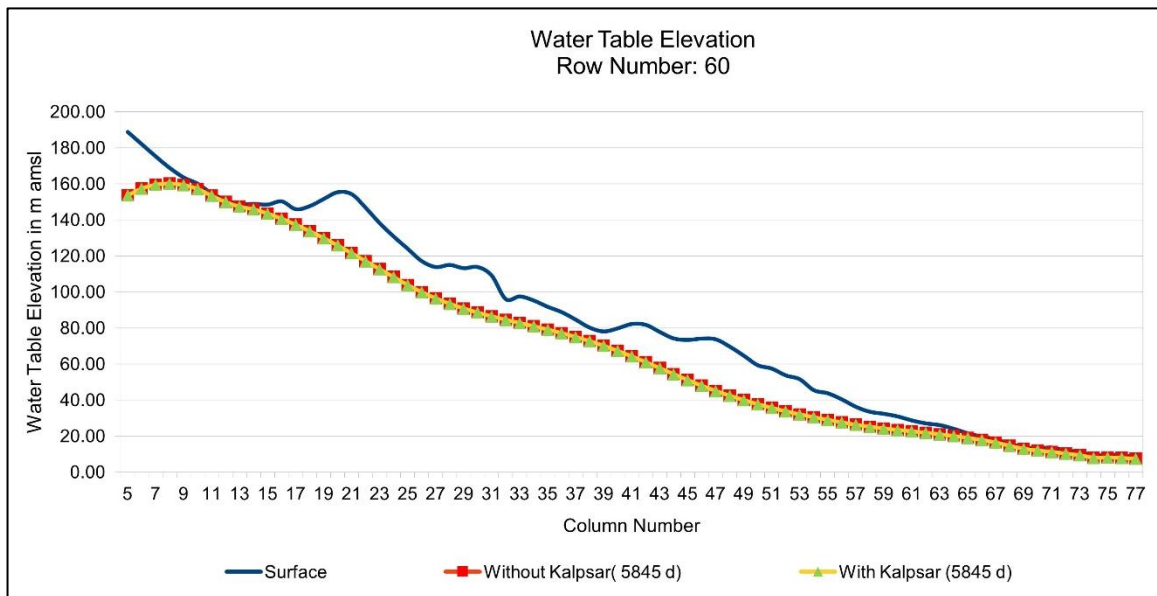


Figure 7-29: Comparison of Water Table at year 10 along Row 60 before and after implementation of Kalpsar Project

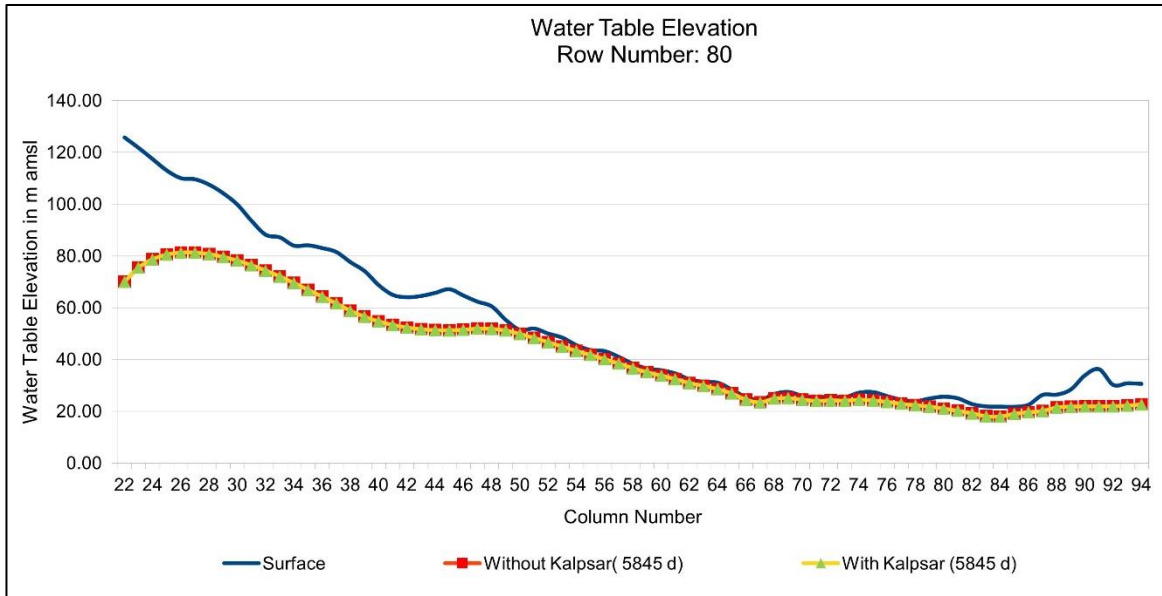


Figure 7-30: Comparison of Water Table at year 10 along Row 70 before and after implementation of Kalpsar Project

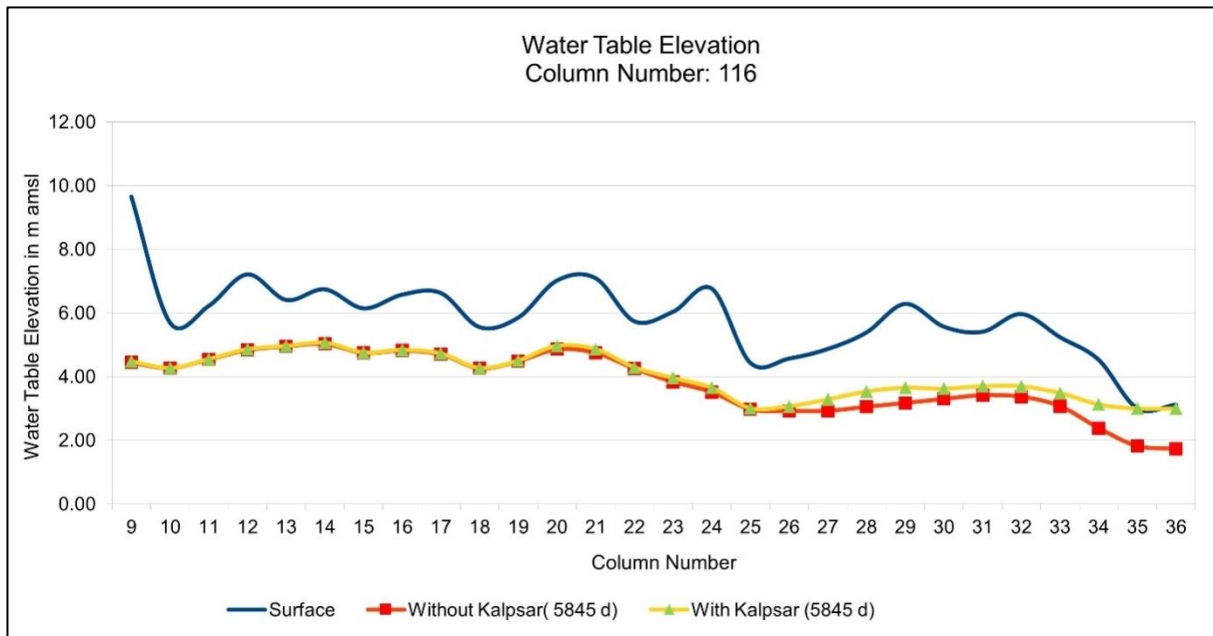


Figure 7-31: Comparison of Water Table at year 10 along Column 116 before and after implementation of Kalpsar Project

7.12 Model Limitation

The simplifying assumptions embedded in the mathematical equations and many uncertainties in the values of data required by the model lead makes the model as an approximation and not an exact duplication of field conditions. The model has been simplified as per availability of data and consisted of a two-layer aquifer of depth down to 150 mbgl. The lower aquifer is represented by Fractured and massive basalt intercalated with paleo weathered layers/amygdaloidal basalt layers in hard rock area and clay dominant horizons with sand intercalations in soft rock area. Large part of the area has salinity and Observation wells are not sufficient to represent the water table/piezometric head in the area properly. The hydraulic conductivity of the layer was held constant throughout the simulations which was evaluated and retained during calibration process to 1-10 m/d, however such homogeneity is seldom observed in field conditions. Moreover, in most of the study area, upper most unconfined aquifer is tapped for ground water extraction hence observation wells in unconfined aquifer are considered for modelling purpose. The regional hydrogeological framework of project area has been defined by a model grid. In the present scenario, specified flow and no flow boundary condition was taken using zero start and end flux, however same may vary during stress condition in the area.

7.13 Conclusion

- The Study area is located in parts of Ahmedabad and Bhavnagar District of Gujarat, however some parts of Botad, Rajkot and Amreli Districts are also covered.
- The area is bounded by natural boundaries formed by Gulf of Khambhat, Sabarmati River, Kalubar River and watershed boundary.
- The area is overlain by North Gujarat Alluvium and is composed of alternating horizons of sand and clay layer, western part is occupied by Deccan trap basalts.
- The mathematical model of the area has been prepared considering two aquifer system available down to 150 mbgl.
- Boundary conditions considered for the model are No flow boundary, Constant head boundary, Drainage boundary and Recharge applied to the topmost layer.
- The model was calibrated for one day in steady state and validated for six years data in transient state run, the RMS value for steady state is 6.68 m.

- The model was validated for six years period from 2017 to 2023.
- The model was run for 10 years for prediction for future scenario considering existing inputs for various stress considering two scenarios.
 - Scenario I: Groundwater regime without construction of Kalpasar Project
 - Scenario II: Groundwater condition with construction of Kalpasar Project.
- The simulation made reveals that construction of Kalpasar Project will cause rise in water levels in vicinity of the reservoir area
- Accumulation of fresh water in the reservoir would also push down the saline front and flush the saline ground water.

8. Model – III (Bharuch Model)

8.1 Introduction

The present study for area surrounding Kalpasar Project located between Mahi River and Narmada River was taken up as part of Groundwater modelling work for study of impact of Dam construction on the area around Kalpasar Reservoir. The study area lies in Central part of Gujarat, located between Latitude 21.6474N and Longitude 72.5001E and Latitude 22.2961N, Longitude 72.9624E covering parts of Jambusar, Vaghra and Amod Talukas in Bharuch and parts of Padra Taluka in Vadodara Districts. The topography of the project site and the study area are almost plain. There are no hills or hillocks in the study area. The minimum elevation that is found within the study area is mean sea level on western side, where the area is bound by Khambhat Bay and the highest elevation is 32 meters AMSL in north-eastern side. Ground Water Exploration work, in various parts of area have indicate that the sub surface geological formation in the study area comprises of layered sequences of sand, silt, clay, gravel and Kankar occasionally upto explored depth of 612m. The study reveals that two significant aquifers are present in the area within Alluvium within the depth of 300 mbgl, however the deeper aquifers are mostly saline due to excess salinity problem these aquifers are also not developed in the area.

The study of geophysical data and lithologs of area reveals that the subsurface formations can be grouped into three broad layers, in the top unit groundwater is formed under phreatic condition, which is followed by a clay dominant layer which acts as aquitard and forms second layer, it also acts as confining layer for the underlying aquifer. The lower granular unit consists of a number of limited aquifer systems with its few hundred meters of alternating sandy and clayey layers. Inter-granular pore spaces play a major role in controlling the occurrence and movement of groundwater.

8.2 Conceptualization of Ground Water Model

The area has three main types of aquifer system distributed area wise and depth wise. Phreatic aquifer comprises intermingled sand and clay occasionally with kankars and gravels. Shallow and deep Aquifer is unconfined and confined aquifers respectively. The aquifers consist of sandy formations occasionally with Kankar and gravels separated by aquitard layers comprising clayey formations.

As per study of lithologs of wells constructed by CGWB and GWRDC and also by the geophysical studies conducted by ISR the model has been conceptualized to be of three layer with top layer representing Phreatic aquifer down to about 58 mbgl with average thickness of about 43 m, followed by a persistent clay layer with variable thickness available between 40 to 75 mbgl which is about 25 m thick on an average and is again followed by a granular horizon with clay intercalations up to a depth of about 150 mbgl. Forming the deeper aquifer of about 81 m thickness. Deep aquifers are not utilized as they are inferior in quality and are saline; hence same were not considered for the study.

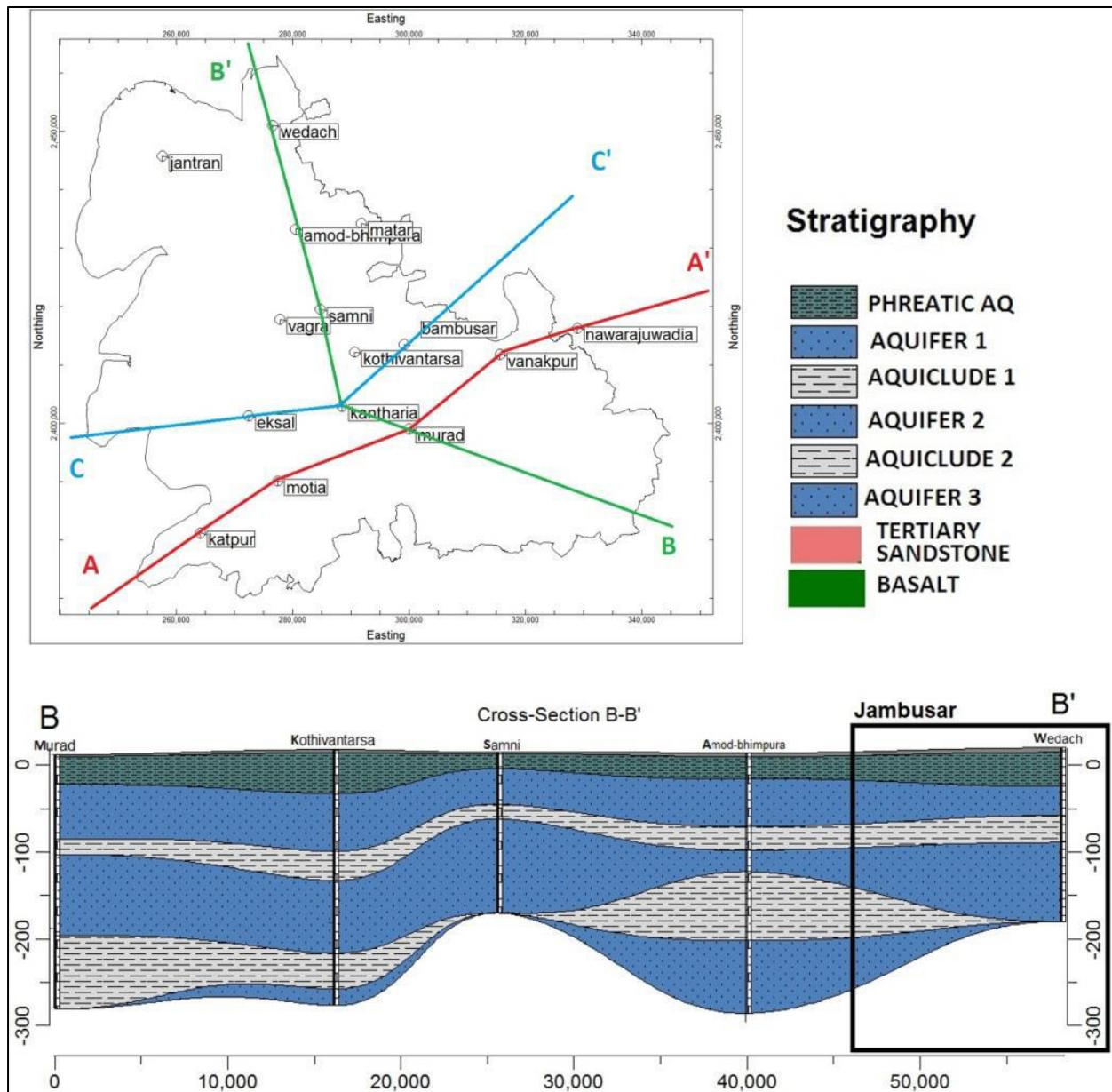


Figure 8-1: Hydro-geological section along B - B' (Murad to Wedach, Bharuch District)

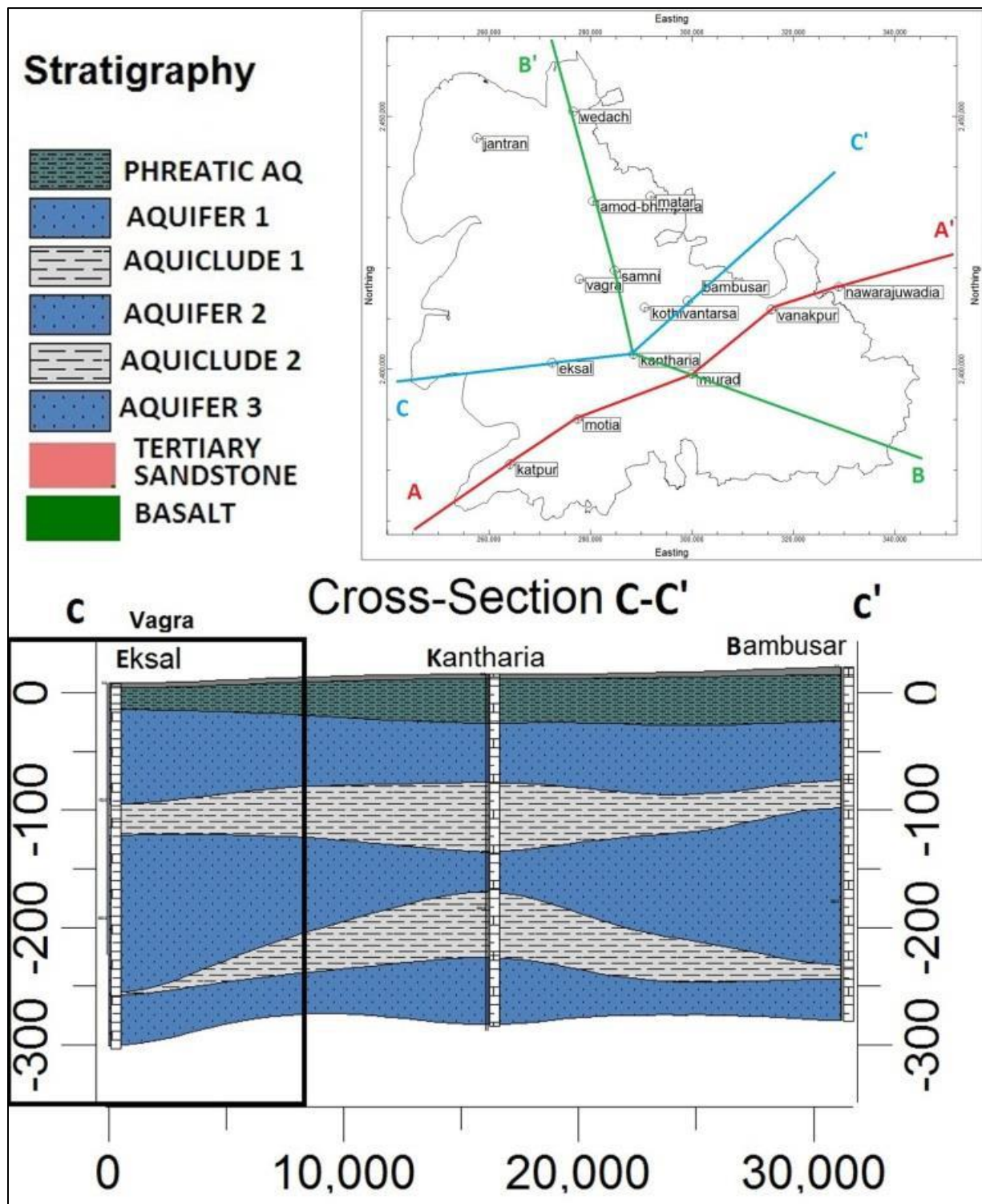


Figure 8-2: Hydro-geological section along C - C' (Eksal to Bambusar, Bharuch District)

8.3 Domain and Discretization

Area for groundwater model was considered based on natural boundaries as Khambhat Bay on western side and estuary of Mahi and Narmada Rivers on north and southern side respectively, the eastern boundary was considered as water shed boundary considering no flow across the boundary. An area of 1778 sq km was considered for preparation of Groundwater model for the area. The model was discretized into 1000m x 1000m grid considering a 3-layer model represented by four horizons. Top of phreatic (unconfined) aquifer taken as surface elevation from SRTM data (<https://www.earthdata.nasa.gov>), elevations for horizon 2 (Bottom of Phreatic Aquifer), horizon 3 (bottom of confining layer) , horizon4 (Bottom of confined aquifer) are computed as per layer disposition in the area. Based on above three zones were formed the top zone representing Phreatic aquifer, the middle on representing aquitard and the lower zone representing deep aquifer.

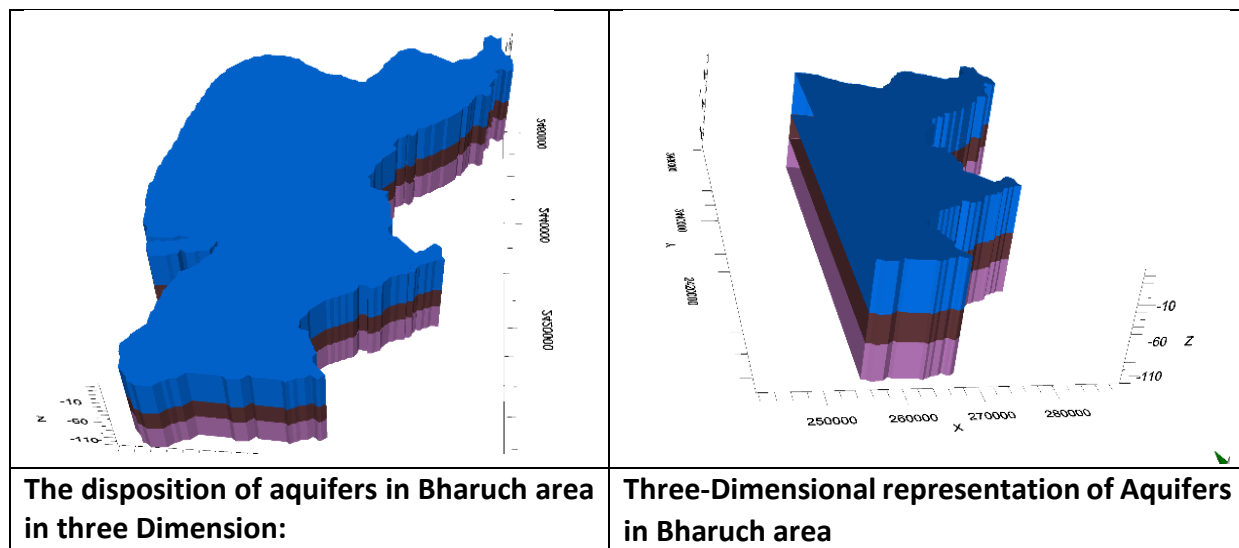


Figure 8-3: Three-Dimensional Representation of Aquifer Disposition)

The Grid Consists of 48 columns and 70 rows, there are total 3360 of nodes out of which 1815 are active node. A distribution of grids over the area is presented in the figure below:

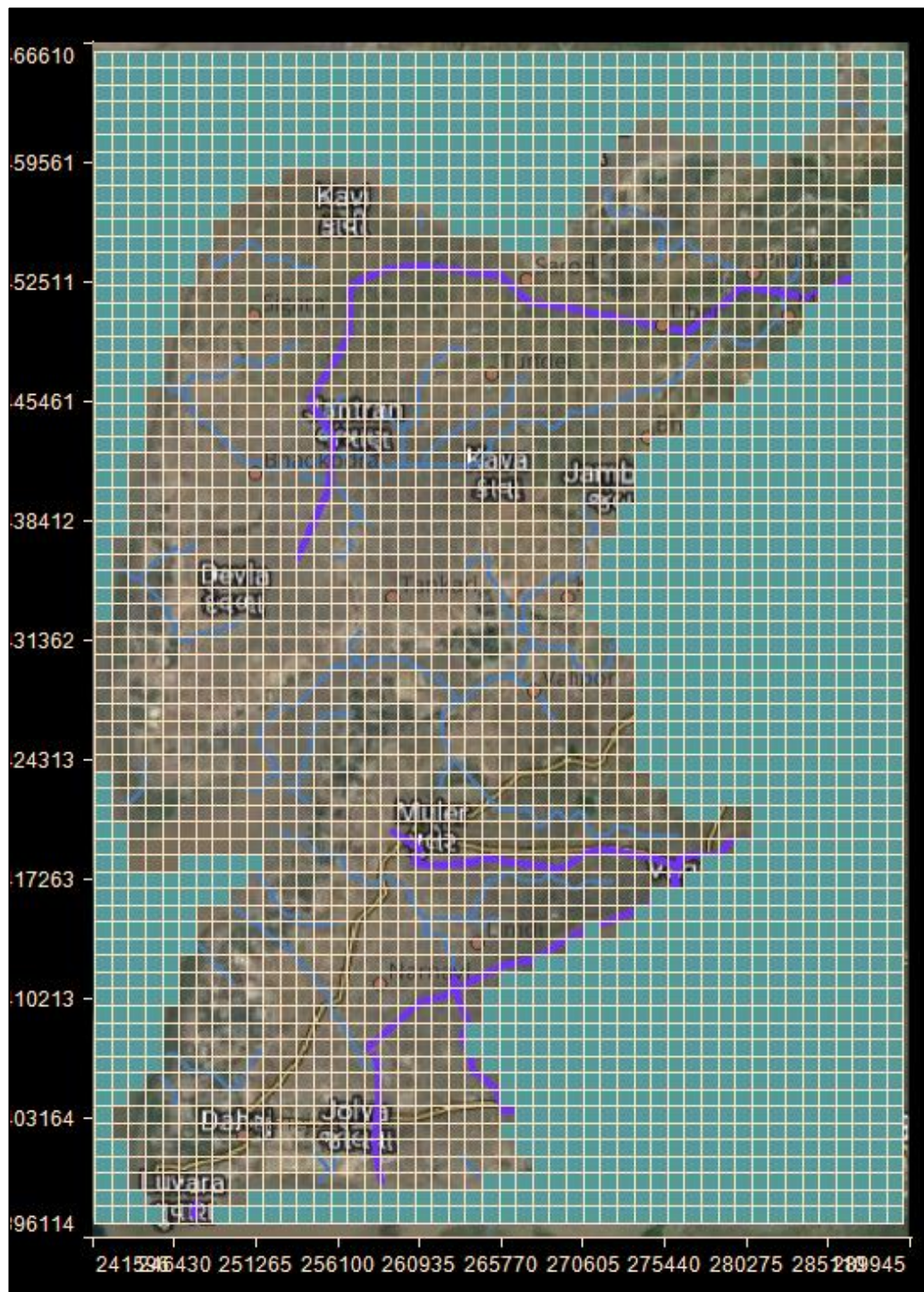


Figure 8-4: Model Grid superimposed on Google Map

8.4 Model Input

Input for the model were considered based on CGWB and GWRDC data, like depth to water level data, lithologs of exploratory wells constructed in the area, pumping test analysis data for the exploratory wells in the area. The recharge was considered as per GWEC report 2016-17, 2020-21, and 2022-23 (<https://ingres.iith.ac.in/gecdataonline/gis/>), groundwater draft subtracted from recharge and net recharge was fed into the model.

8.4.1 Permeability and Storage

Based on data available for pumping test analysis by CGWB the permeability for phreatic aquifer was taken as 5 m/day for phreatic and confined aquifer for **k_x** and **k_y** and **k_z** is taken as **k_x/10** and for confining layer the permeability was considered as 0.002 m/day. Specific yield for phreatic aquifer is taken as 10% and for confined aquifers the storage is taken as 1e -05.

Table 28: Aquifer Characterisation and Disposition

Stratigraphy	Aquifer Nomenclature	Lithological Characteristics	Depth of occurrence (mbgl)	Thickness Range (m)	Water Level Range (mbgl)	Quality (TDS in mg/lit) Range	Discharge (lps)	Transmissivity Range m ² /day	Nature of Aquifer	Remarks
Quaternary	Phreatic Aquifer	Intermingled Sand & Clay Occasionally with kankars and Gravels and Weathered Basalts in the Southeast.	2.0-51.0	8.5-47.0	0-27.15	44.8-7407.36	0.16-12.86	6.2-47.1	Phreatic	Occasionally Brackish to Saline Water
	Aquifer 1	sand fine to medium rounded to subangular occasionally with gravel	16-149.5	24.5-48.0	3.12-22.22	278.4-1024	0.17-48	18.76-241	Confined	Occasionally Brackish
	Aquifer 2	sand medium to coarse rounded to subangular	76.7-230.75	24.75-149	3.12-31.30	204.8-5337.6	0.5-13	2.12-60	Confined	Occasionally Brackish

		Occasionally with kankar & clay								
	Aquifer 3	sand fine to coarse rounded to subangular Occasionally with clay	185.2-311.6	19.4-84	3.98-19.17	204.8-5337.7	0.5-49	-	Confined	Occasionally Brackish

(Ref: CGWB, Aquifer Mapping and Management of Ground Water Resources, Bharuch District, Gujarat)

8.4.2 Recharge and Groundwater abstraction

Recharge has been considered as annual recharge as per GWRE estimates (<https://ingres.iith.ac.in/gecdataonline/gis/>), for the year 2016-17, 2019-20 and 2021-22 and as recharge estimations have not been done for 2017-18, 2018-19 and 2020-21 were adopted as computed for preceding year. The average recharge between 2017 to 2022 was continued for subsequent periods for projecting future scenario. The recharge was converted into unit recharge for unit area in m/day and fed into the model. Net annual recharge after deducing the groundwater draft was taken as recharge to the model.

Table 29: Groundwater Recharge in m/day

Sr No	District	Taluka	Years					
			2016-17	2017-18*	2018-19*	2019-20	2020-21*	2021-22
	Groundwater Recharge in Ham							
1	BHARUCH	JAMBUSAR	2,225.37	2,225.37	2,225.37	21,583.13	21,583.13	12,673.24
2	BHARUCH	AMOD	6,103.30	6,103.30	6,103.30	8,304.98	8,304.98	2,749.43
3	BHARUCH	VAGRA	2,528.96	2,528.96	2,528.96	20,723.07	20,723.07	14,195.73
4	VADODARA	PADRA	16,225.32	16,225.32	16,225.32	12,905.82	12,905.82	11,617.53
	Ground Water Recharge in m/day							
1	BHARUCH	JAMBUSAR	0.000298	0.0002759	0.0004727	0.0004006	0.0003240	0.0003870
2	BHARUCH	AMOD	0.000270	0.0002292	0.0005584	0.0004675	0.0002688	0.0003259
3	BHARUCH	VAGRA	0.000650	0.0004376	0.0008149	0.0006655	0.0004915	0.0006441
4	VADODARA	PADRA	0.000254	0.0001889	0.0003941	0.0007123	0.0005525	0.0005746

Groundwater Draft

Annual Groundwater draft is considered as per GWRE estimates (<https://ingres.iith.ac.in/gecdataonline/gis/>), for the year 2016-17, 2019-20, 2021-22, for the years for which groundwater draft is not available, the draft for previous year has been considered. Taluka-wise draft for different years is presented in the table below:

Table 30: Groundwater Draft in Ham

Sr No	District	Taluka	Years					
			2016-17	2017-18*	2018-19*	2019-20	2020-21*	2021-22
	Ground Water Draft							
1	VADODARA	PADRA	8870.56	8870.56	10040.05	10040.05	11,617.53	11,617.53
2	BHARUCH	JAMBUSAR	198.60	198.60	226.47	226.47	12,673.24	12,673.24
3	BHARUCH	AMOD	3094.24	3094.24	430.52	430.52	2,749.43	2,749.43
4	BHARUCH	VAGRA	217.40	217.40	99.50	99.50	14,195.73	14,195.73

8.4.3 Boundary Conditions

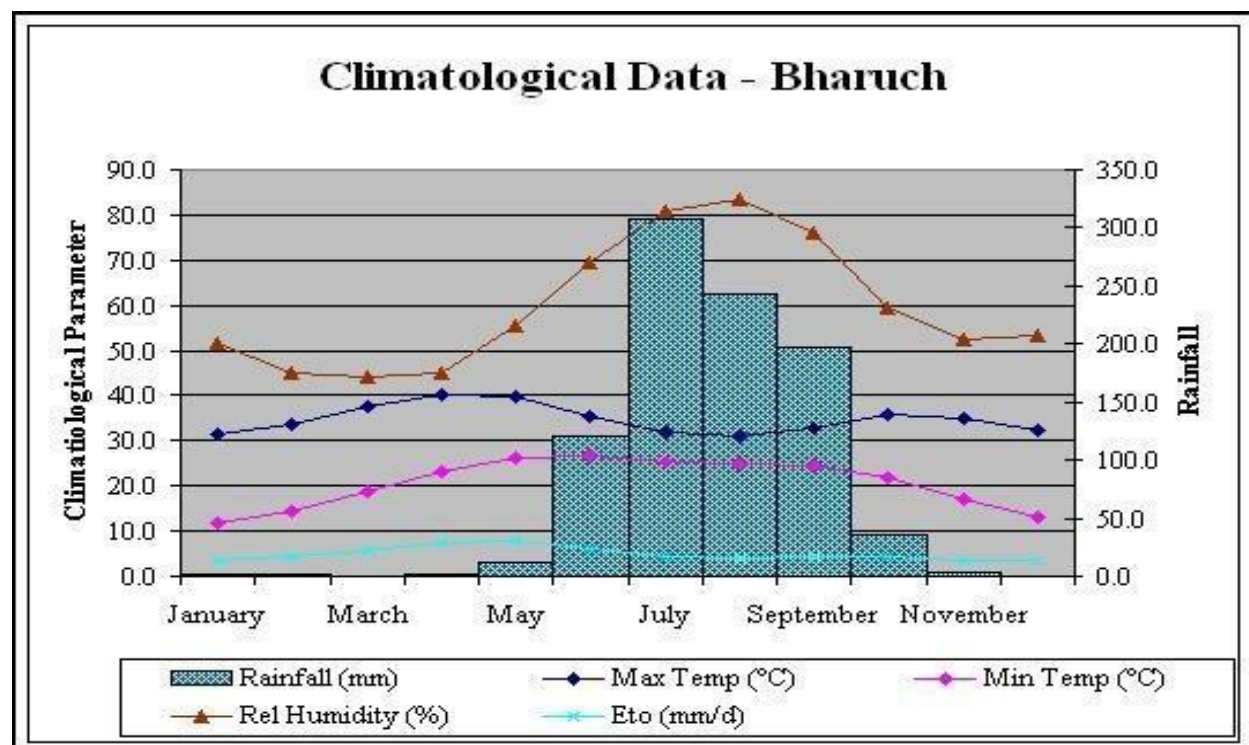
The study area is bounded on east by Gulf of Khambhat, on north by estuary of Mahi River and on south side by estuary of Narmada River was considered as fixed head boundary. The sub basin boundary on east side was considered as no flow boundary for the system. These were the physical boundary conditions considered for the area.

8.4.3.1 Evapotranspiration

Climatological data for the area is being monitored by Indian Meteorological Department (IMD) which has an observatory at Bharuch and evapotranspiration data (Eto) for the same station was considered for the study area. The evapotranspiration was taken as 5.0 mm per day for the model.

Table 31: Climatological data of Bharuch IMD station 1951-1980

Month	Max Temp (Deg.C)	Mini Temp (Deg.C)	Humi dity (%)	Wind Spd. Kmpd	Sunshine (Hours)	Solar Rad. (MJ/m2/d)	Eto (mm /d)	Rainfal l (mm)	Wind Spd. Kmph
January	31.3	11.9	51.5	105.9	9.0	17.3	3.7	1.2	5.9
February	33.8	14.4	45.0	111.3	9.2	19.6	4.5	1.0	6.2
March	37.6	19.0	44.0	125.7	9.8	22.7	5.8	0.8	7
April	40.0	23.3	45.0	158.0	10.4	25.2	7.2	1.0	8.8
May	39.6	26.2	55.5	222.6	10.8	26.2	8.0	12.5	12.4
June	35.6	26.5	69.5	263.9	7.6	21.3	6.3	121.0	14.7
July	32.0	25.5	81.0	237.0	4.4	16.5	4.3	307.6	13.2
August	31.2	25.0	83.5	206.4	4.2	15.9	3.9	243.1	11.5
September	32.6	24.4	76.0	154.4	6.3	18.1	4.4	197.6	8.6
October	35.9	22.0	59.5	102.3	7.9	18.5	4.5	35.2	5.7
November	34.8	16.9	52.5	84.4	8.0	16.5	3.7	3.7	4.7
December	32.2	13.2	53.5	93.3	8.9	16.5	3.4	0.1	5.2
Total	-	-	-	-	-	-	-	924.8	
Average	34.7	20.7	59.7	155.4	8.0	19.5	5.0	-	



8.5 Stress Period and Time Steps

The time discretization for the model was decided on annual base. The first stress period was considered for one day of single time step and model was run in steady state. Subsequent time periods were considered for whole year consisting of one time step. Following Stress Periods were considered for the model.

No of Days	Time Step	Multiplication factor	Steady State/Transient
Calibration			
1	1	1	SS
Validation			
365	1	1	TR
365	1	1	TR
366	1	1	TR
365	1	1	TR
365	1	1	TR
365	1	1	TR
Projection			
366	1	1	TR
365	1	1	TR
365	1	1	TR
365	1	1	TR
366	1	1	TR
365	1	1	TR
365	1	1	TR
365	1	1	TR
366	1	1	TR
365	1	1	TR

8.6 Sensitivity Analysis and Model Calibration

To begin with the model steady state simulation was run to check stability of model and calibration of model to perform as per field condition. The model parameters were varied within allowable limit to study sensitivity of different parameters for the model. During steady state stress conditions are imposed such as recharge, boundary condition etc., and the model was allowed to run for 1 stress period which was taken as one day. During Steady State run no changes

in storage are allowed, i.e., water is not allowed to enter storage or come out from storage.

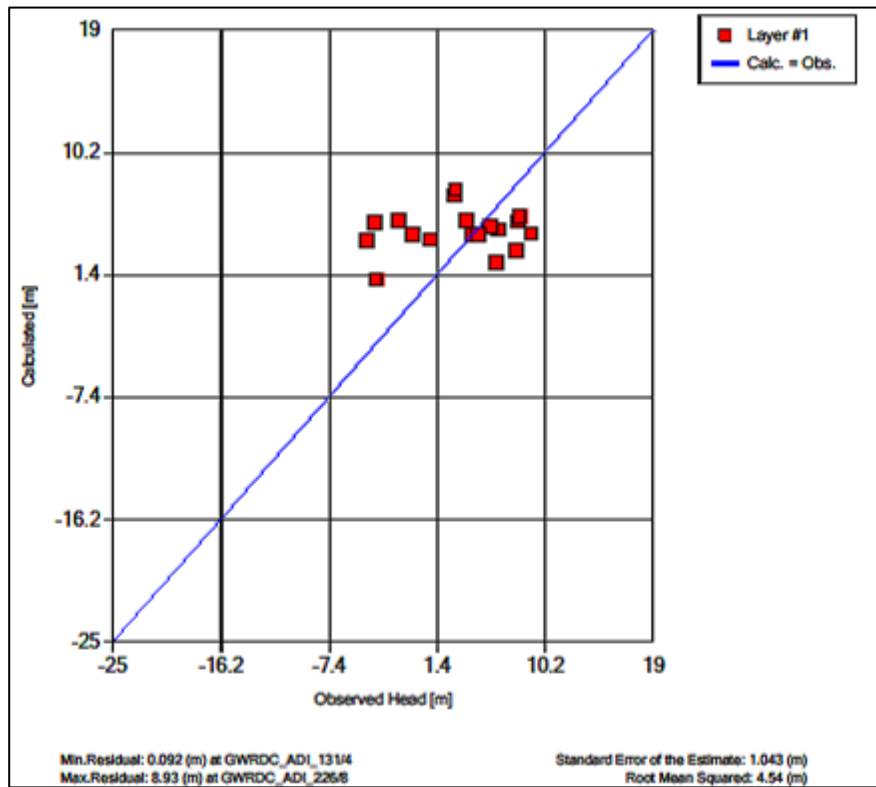


Figure 8-6: Observed and simulated heads steady state

The Standard estimate of error was found to be 1.04 m. and RMS was 4.54 m

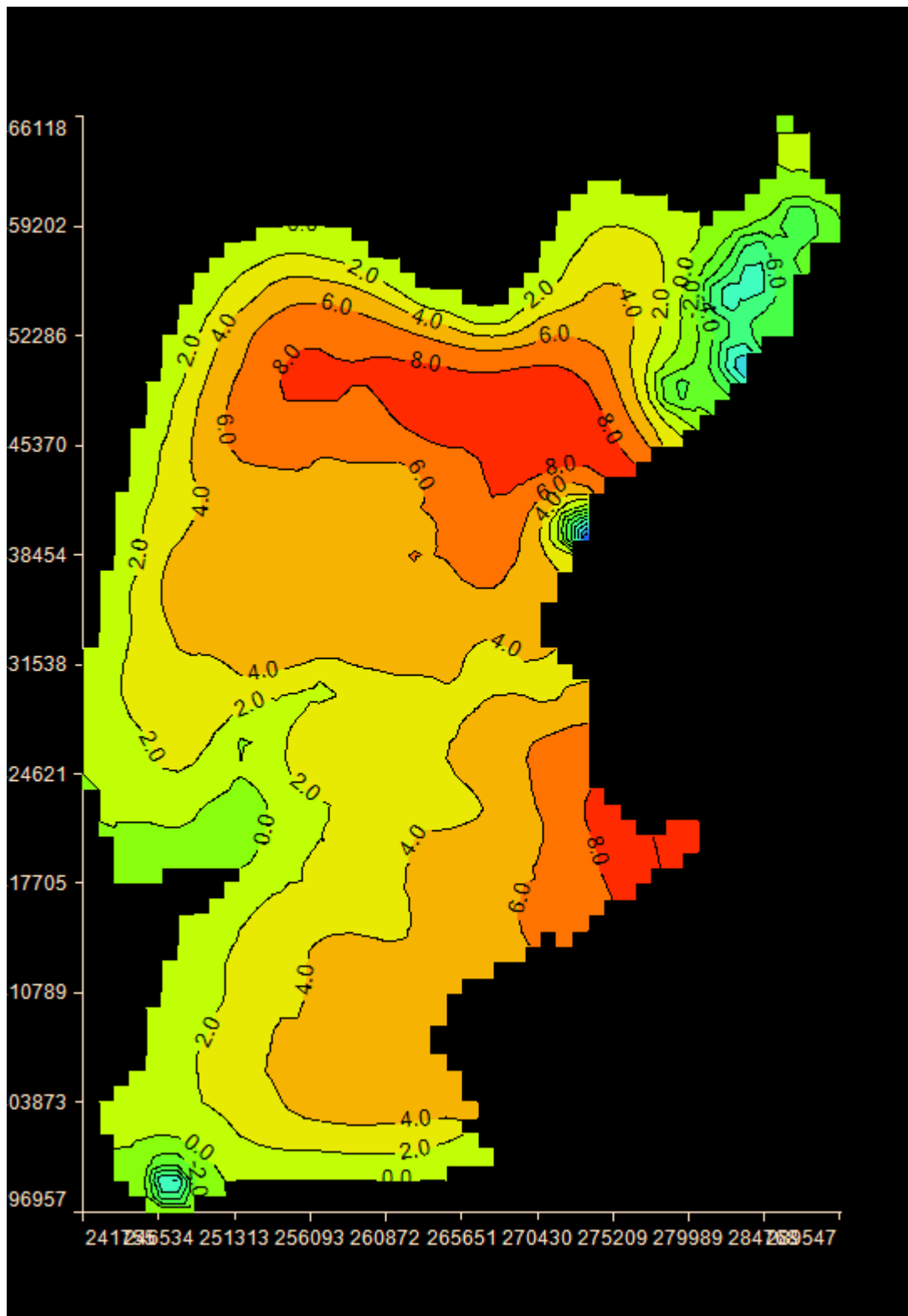


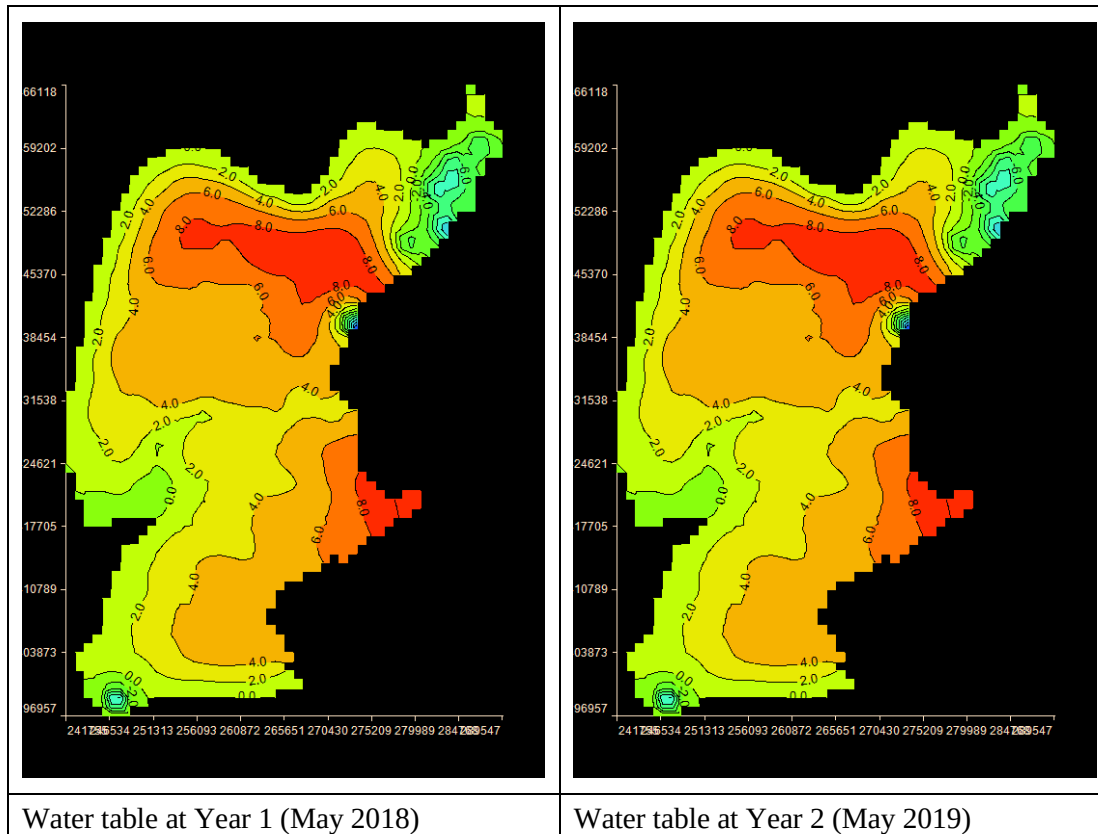
Figure 8-7: Simulated Water Table at Steady State

The model was simulated and later calibrated with sensitivity analysis. The hydraulic conductivity was taken as 5 m/d and specific yield was varied between 1 and 15 m/day and sensitivity analysis was performed, the RMS for different value of Permeability (K) and Specific yield (Sy) were studied. Based on different iterations during sensitivity analysis it is observed that conductivity value was of 5 m/d has least error and RMS hence finally the hydraulic conductivity of 5 m/day was adopted for the model. Changes in Sy did not show any variation in RMS hence as per field conditions a specific yield value of 10% was adopted.

Table 32: Parameter Sensitivity Analysis of Parameter (Specific Yields and Conductivity) for different Iterations

Sr No	Parameter	Value	Standard Estimate of Error	RMS
1	Conductivity(m/day)	1	1.027	4.52
		5	1.042	4.53
		15	1.38	4.11
2	Specific Yield (%)	5	1.043	4.54
		10	1.043	4.54
		15	1.043	4.54

Model was validated for changes in water level.



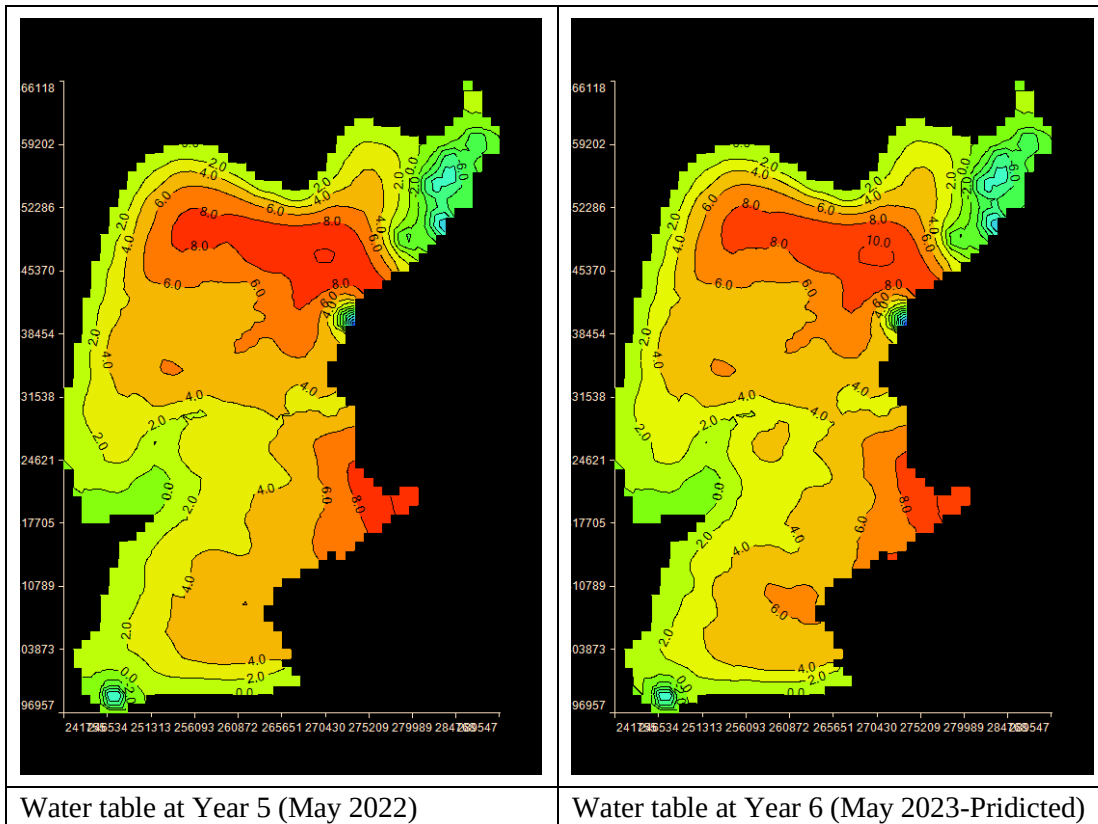


Figure 8-8: Water Table map from 1 to Year 6

Plot of water table observed and predicted water head is presented in the figures below, it shows that observed head are almost similar to calibrated heads.

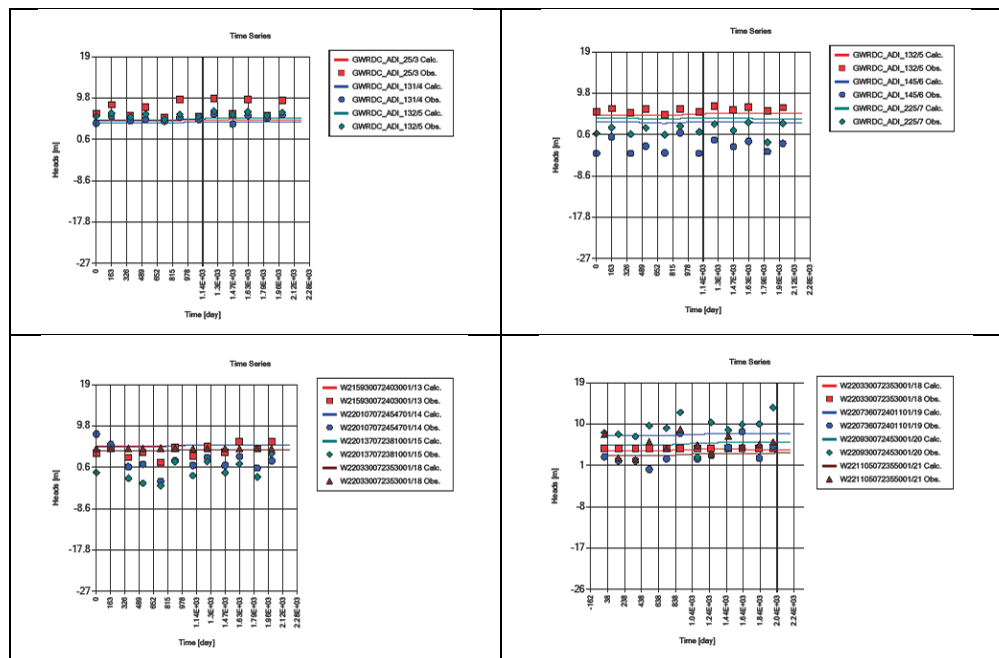


Figure 8-9: Calculated vs. Observed Heads year 1 to Year 6

8.7 Groundwater Budget

Groundwater budget for the stress period 1 (steady state) is presented below, the analysis of data shows that total inflow in the system is 541210 m³/day and out flow from the system is 541210, there is no change in storage due to steady state condition, there is a recharge of 491331 m³/day to the system and there is an inflow of 49878 m³/day through boundaries. The drains are discharging 10249 m³/day from the system. The well in the area discharge about 183442 m³.day, there is also outflow of 108771 m³/day trough constant head boundary.

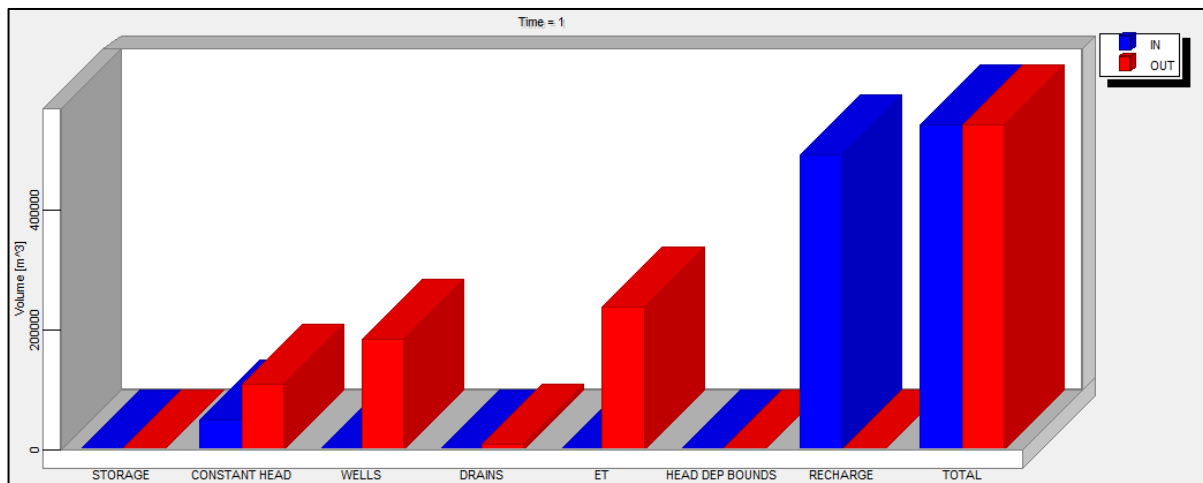


Figure 8-10: Mass Balance after Stress Period 1 (Steady State)

Table 33: Mass Balance after Stress Period 1 (Steady State)

VOLUMETRIC BUDGET FOR ENTIRE MODEL AT END OF TIME STEP 1, STRESS PERIOD 1		
	IN	OUT
STORAGE	0	0
CONSTANT HEAD	49878	108771
WELLS	0	183442
DRAINS	0	10249
ET	0	238747
HEAD DEP BOUNDS	0	0
RECHARGE	491331	0
TOTAL IN/OUT	541210	541210
IN - OUT	0	0
PERCENT DISCREPANCY		0

During transient condition in the stress period 2 (Year 1) total inflow in the system is 541210 m³/day and out flow from the system is 541210 m³/day, there is a recharge of 491331 m³/day to the system and there is an inflow of 49878 m³/day through constant head boundaries. The Drains are discharging about 10249 m³/day The well in the area discharge about 183442 m³/day and outflow through constant head boundary is 108771 m³/day, Insignificant amount of water is entering or leaving storage.

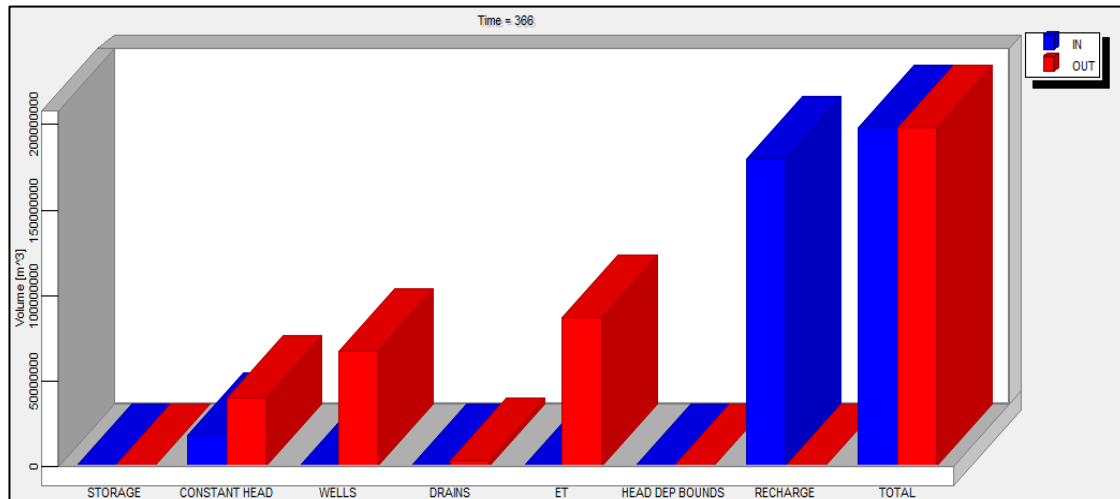


Figure 8-11: Mass Balance after Stress period 2

Table 34: Mass Balance after Stress period 2

VOLUMETRIC BUDGET FOR ENTIRE MODEL AT END OF TIME STEP 1, STRESS PERIOD2		
	IN	OUT
STORAGE	1.9276E-02	5.1591E-03
CONSTANT HEAD	49878	108771
WELLS	0	183442
DRAINS	0	10249
ET	0	238747
HEAD DEP BOUNDS	0	0
RECHARGE	491331	0
TOTAL IN/OUT	541210	541210
IN - OUT		0
PERCENT DISCREPANCY		0

During transient condition in the stress period 7 (Year 5) total inflow in the system is 802593

m³/day and out flow from the system is 802593 m³/day, the recharge is 755277 m³/day, there is also an inflow of 47091 m³/day through constant head boundaries. The well in the area discharge about 185082 m³/day through groundwater structures. The drains are discharging about 13682 m³/day of water, through constant head boundary, an outflow of 136697 m³/day is observed through constant head, System is providing 36460 m³/day of water to storage., whereas 225 m³/day is coming out of storage.

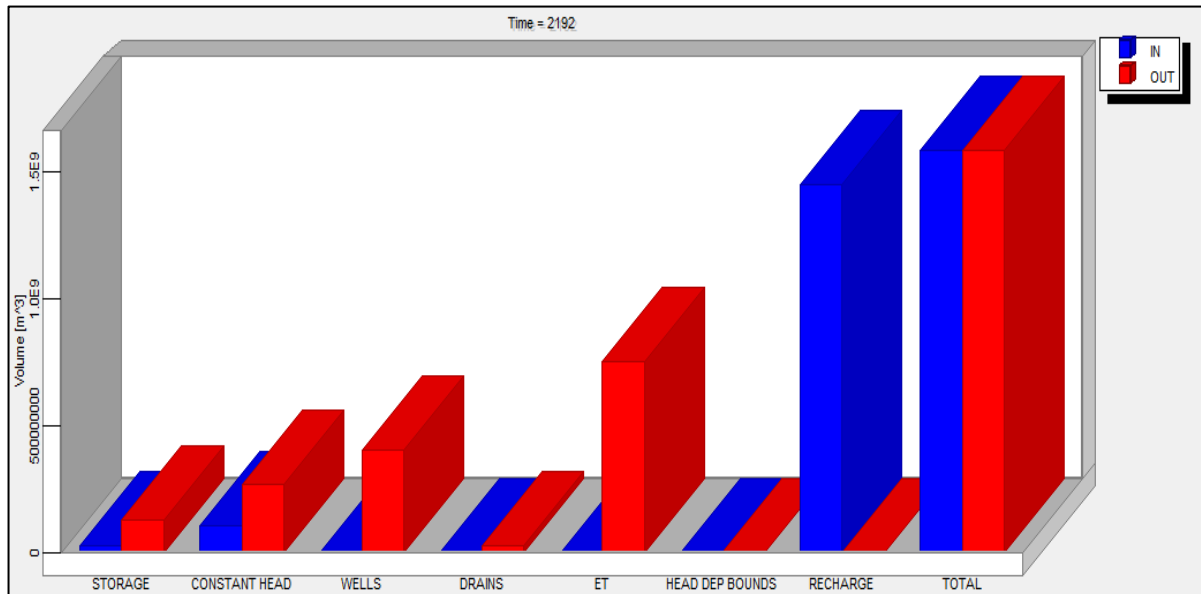


Figure 8-12: Mass Balance After Stress Period 7

Table 35: Mass Balance After Stress Period 7

VOLUMETRIC BUDGET FOR ENTIRE MODEL AT END OF TIME STEP 1, STRESS PERIOD 7		
	IN	OUT
STORAGE	225	36460
CONSTANT HEAD	47091	136697
WELLS	0	185082
DRAINS	0	13682
ET	0	430670
HEAD DEP BOUNDS	0	0
RECHARGE	755277	0
TOTAL IN/OUT	802593	802593
IN - OUT	0	0
PERCENT DISCREPANCY		-0.00

8.8 Zone Wise Water Budget

For the convenience of budget estimates for different zones in the model the zones were identified which are concurrent with the taluka of Bharuch and Vadodara Districts. A table of different budget zones is given in the table below:

Sr no	District	Taluka	Zone
1	Bharuch	Jambusar	Zone 4
2	Bharuch	Vaghra	Zone 6
3	Bharuch	Amod	Zone 5
4	Vadodara	Padra	Zone 2

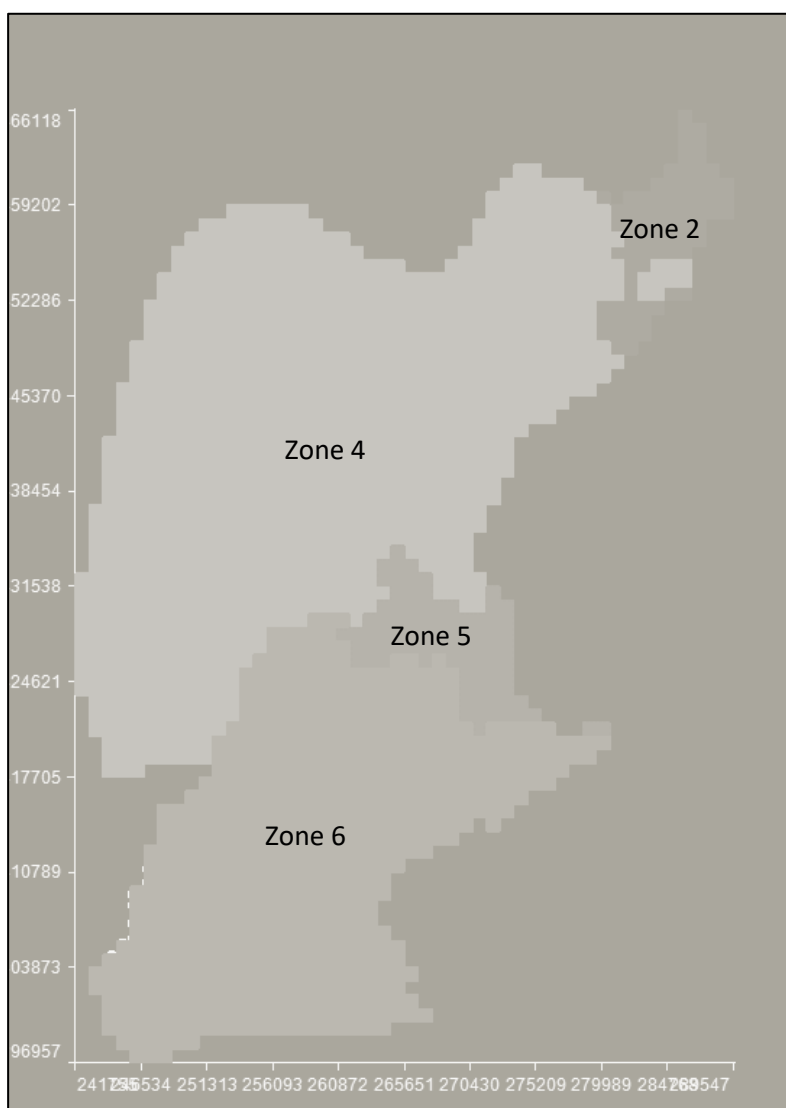


Figure 8-13: Figure showing zones for Mass Balance in Bharuch

8.8.1 Ground Water Budget

Ground Water Budget for Model Area, Stress Period 1- Day 1, Steady State is presented in the graphs below. A perusal of graphs shows that recharge is the main inflow in the system. Out flow from the system is constituted by out flow from constant head, groundwater extraction by wells, outflow from drains and contribution to adjoining zones. The Discharge from constant head is prominent for Jambusar and Vagra Taluka Bharuch District and Padra Taluka Vadodara District. Evapotranspiration is prominent for Jambusar Taluka, Amod Taluka and Vagra Taluka. Groundwater extraction is prominent for Padra taluka. Outflow through drains is prominent in Amod taluka.

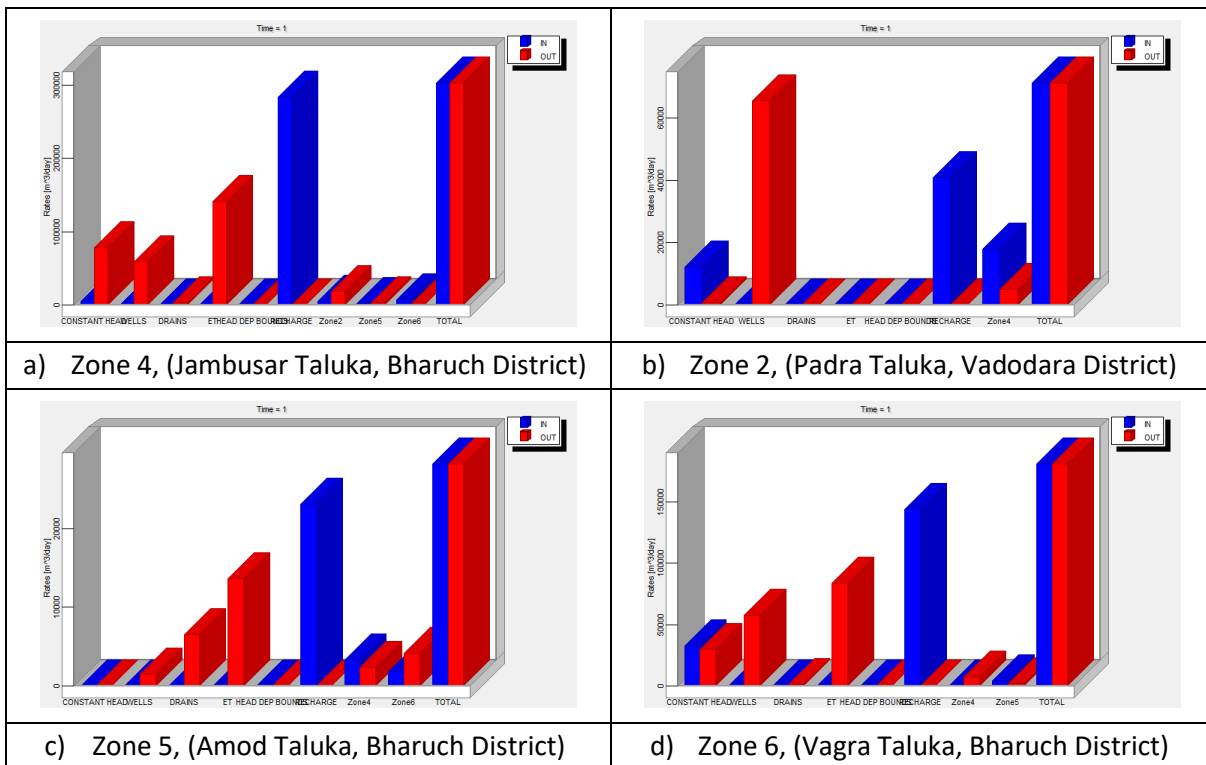


Figure 8-14: Ground Water Budget for Model – III (Bharuch Model), Stress Period 1- Day 1

Groundwater budget for stress period 7 (year 6) is presented in graphical form below. A perusal of graphs shows that recharge is the main inflow in the system. Out flow from the system is constituted by out flow from constant head, groundwater extraction by wells, outflow from drains and contribution to adjoining zones. The outflow from constant head is prominent for Jambusar Taluka, Bharuch District. Evapotranspiration is prominent for Jambusar Taluka, Amod

Taluka and Vagra Taluka. Groundwater extraction is prominent for Padra taluka. Outflow through drains is prominent in Amod and Vaghra Talukas. Minor storage change is observed in Padra Taluka, Vadodara District and Vaghra Taluka, Bharuch District.

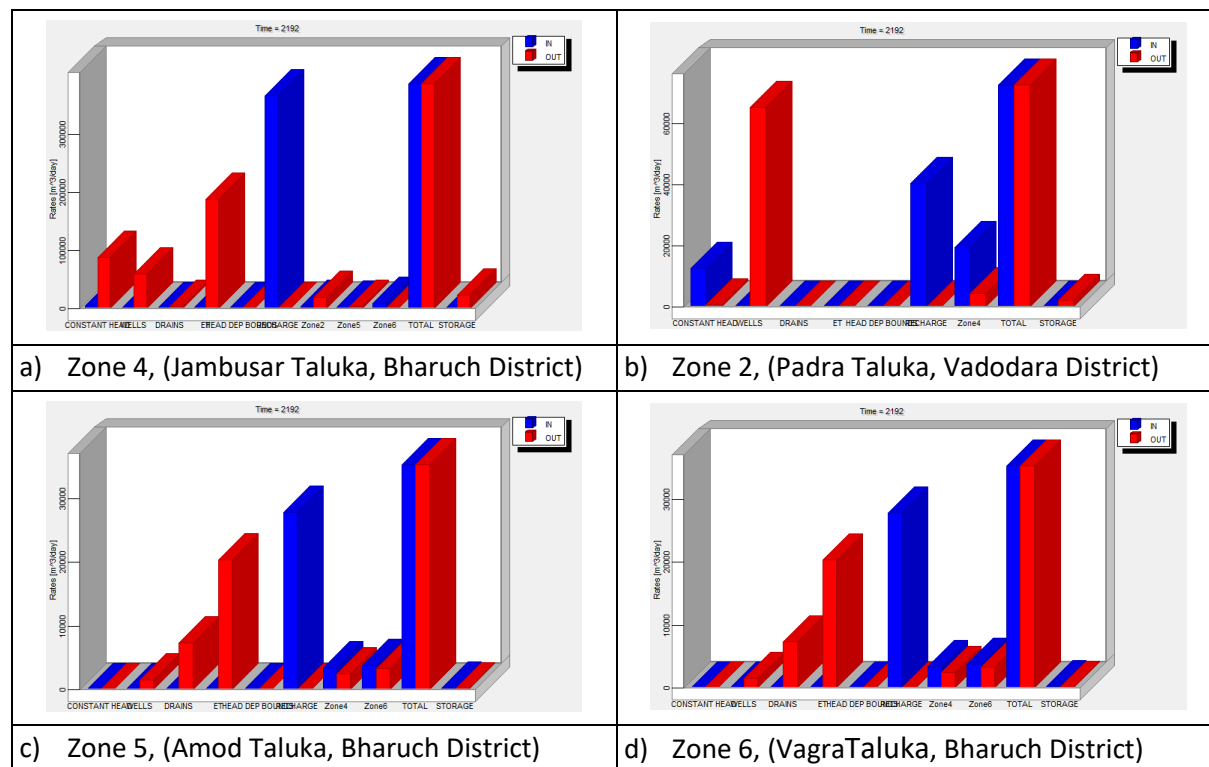


Figure 8-15: Ground Water Budget for Model Area, Stress Period 7- Day 2192

8.9 Impact of Kalpasar Project on Groundwater Regime

To study the impact of Kalpasar Dam Project the model was configured in two steps in first step (Scenario I) the Constant head boundary was considered as sea level with constant water level of 0 amsl. Average recharge of five year was considered for the model area. The model was run and water budget and groundwater heads were tabulated. In the second step (Scenario II) Water Head after filling of Kalpasar Dam was taken as constant head for year six onward and model was simulated

8.9.1 Scenario I: Without Kalpasar Project

Continuation of present condition was considered by running the model with average rainfall for five-year period (2017-2022) and present ground water withdrawal. With continuation with the present stress condition in the stress period 7 (Year 6 onward) the model was run for further 10

years. Simulation of present condition shows at the end of simulation period i.e., at year 6 (stress period 8, 2558 d), that total inflow in the system is 630191 m³/day and out flow from the system is 630191 m³/day, the recharge is 575123 m³/day, there is also an inflow of 3152 m³/day through constant head boundaries. The well in the area discharge about 83785 m³/day through different groundwater structures. The drains are discharging about 8249 m³/day of water, through constant head boundary 135095 m³/day out flow is observed. System is adding Nil m³/day of water to storage., whereas 51915 m³/day is coming out of storage.

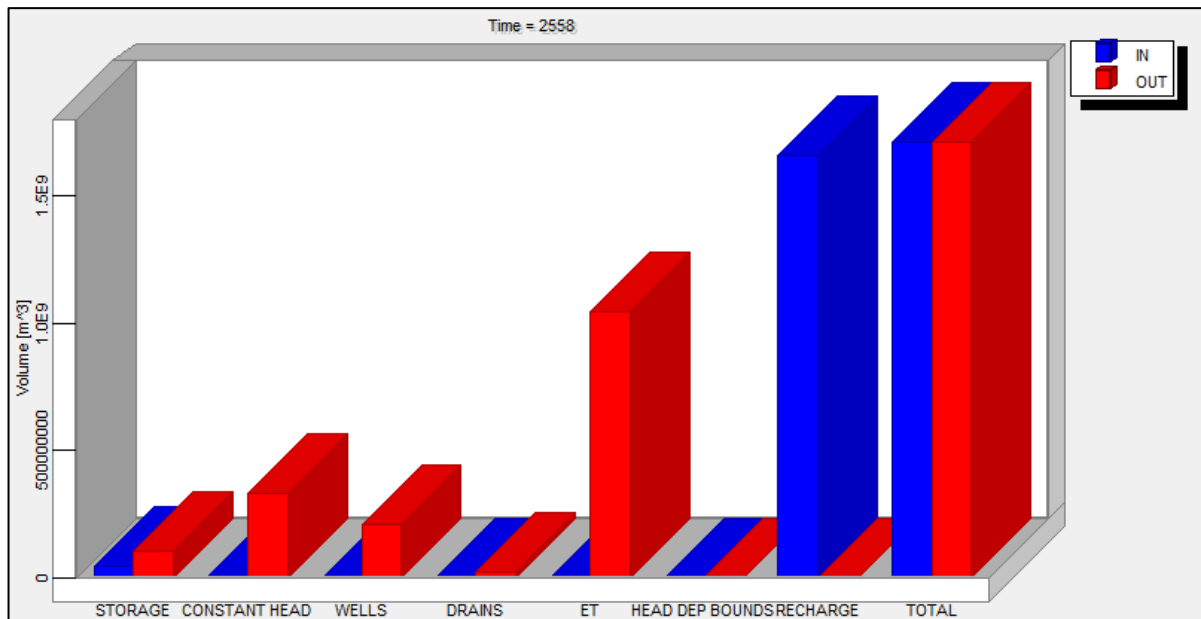


Figure 8-16: Mass Balance after stress period 8

Table 36: Mass Balance after stress period 8

VOLUMETRIC BUDGET FOR ENTIRE MODEL AT END OF TIME STEP 1, STRESS PERIOD 8		
	IN	OUT
STORAGE	51915	0
CONSTANT HEAD	3152	135095
WELLS	0	83785
DRAINS	0	8249
ET	0	403060
HEAD DEP BOUNDS	0	0
RECHARGE	575123	0
TOTAL IN/OUT	630191	630191
IN - OUT	0	0
PERCENT DISCREPANCY		-0.00

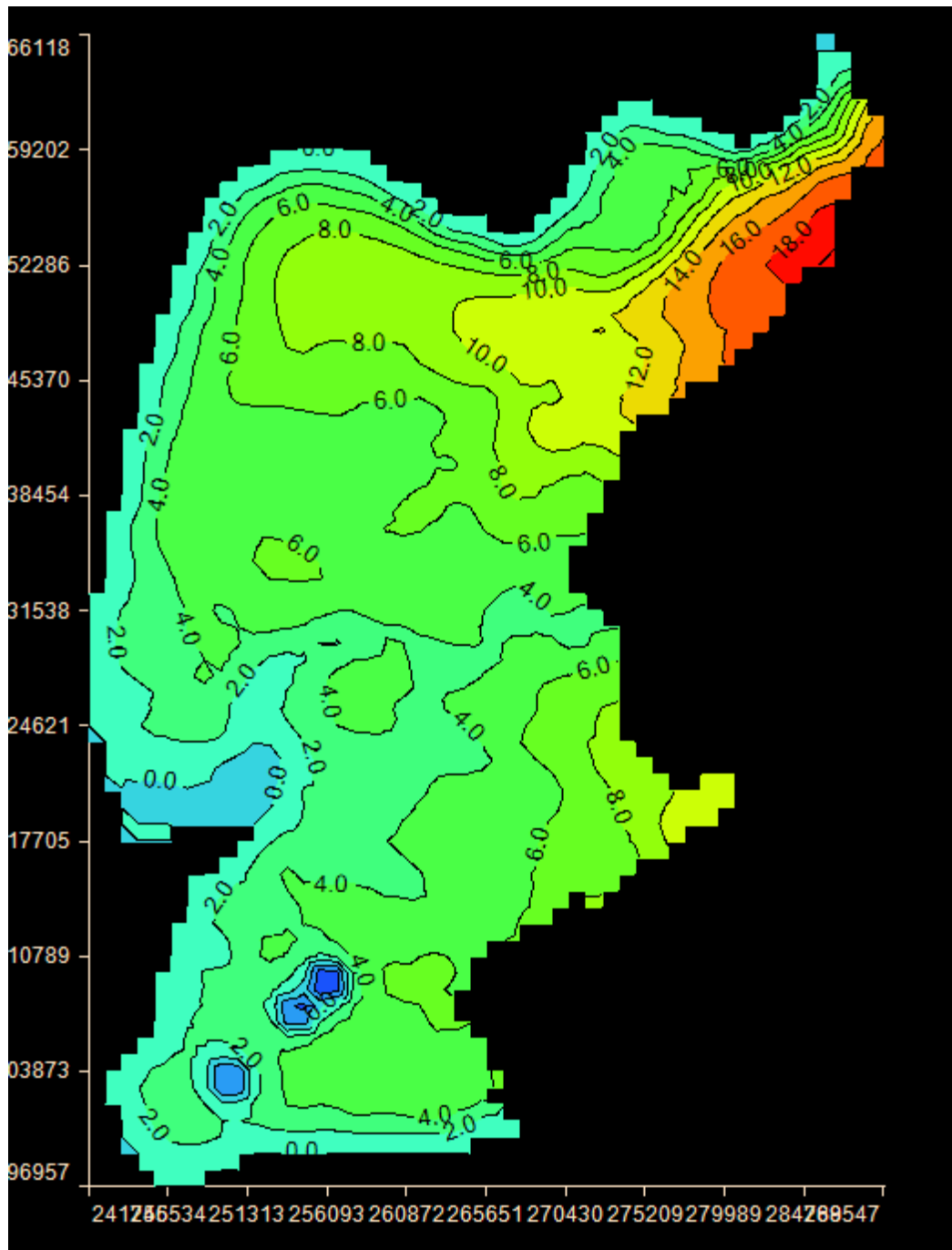


Figure 8-17: Water Table Map at beginning of simulation for Projection (Year 6 Time 2558 days)

At the end of simulation i.e., in the stress period 17 (Year 16), considering the scenario without construction of Kalpasar Dam, the total inflow in the system is 581691 m³/day and out flow from the system is 581691 m³/day, the recharge is 575123 m³/day, there is an inflow of 3226 m³/day

through constant head boundaries. The well in the area discharge about 82504 m³/day through various groundwater structures. The drains are discharging about 7786 m³/day of water, through constant head boundary 125245 m³/day out flow is observed System is adding NIL amount of water to storage., whereas 3341 m³/yr is coming out of storage.

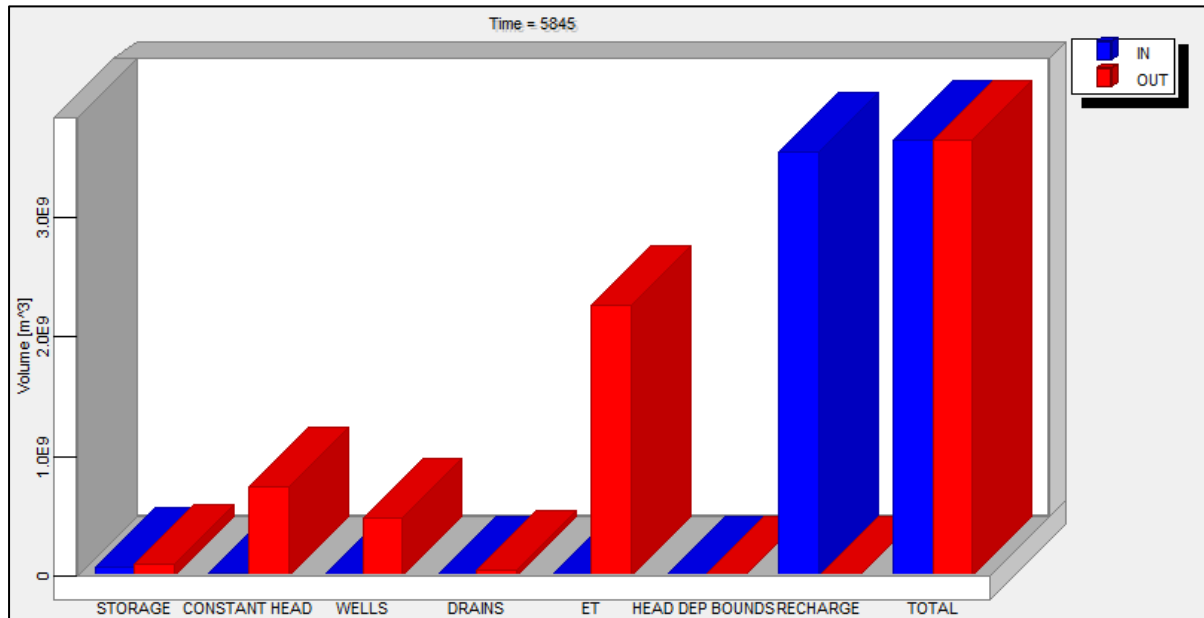


Figure 8-18: Mass Balance after Stress Period 17

Table 37: Mass Balance after Stress Period 17

VOLUMETRIC BUDGET FOR ENTIRE MODEL AT END OF TIME STEP 1, STRESS PERIOD17		
	IN	OUT
STORAGE	3341	0
CONSTANT HEAD	3226	125245
WELLS	0	82504
DRAINS	0	7786
ET	0	366155
HEAD DEP BOUNDS	0	0
RECHARGE	575123	0
TOTAL In	581691	581691
IN - OUT	0	0
PERCENT DISCREPANCY		-0.00

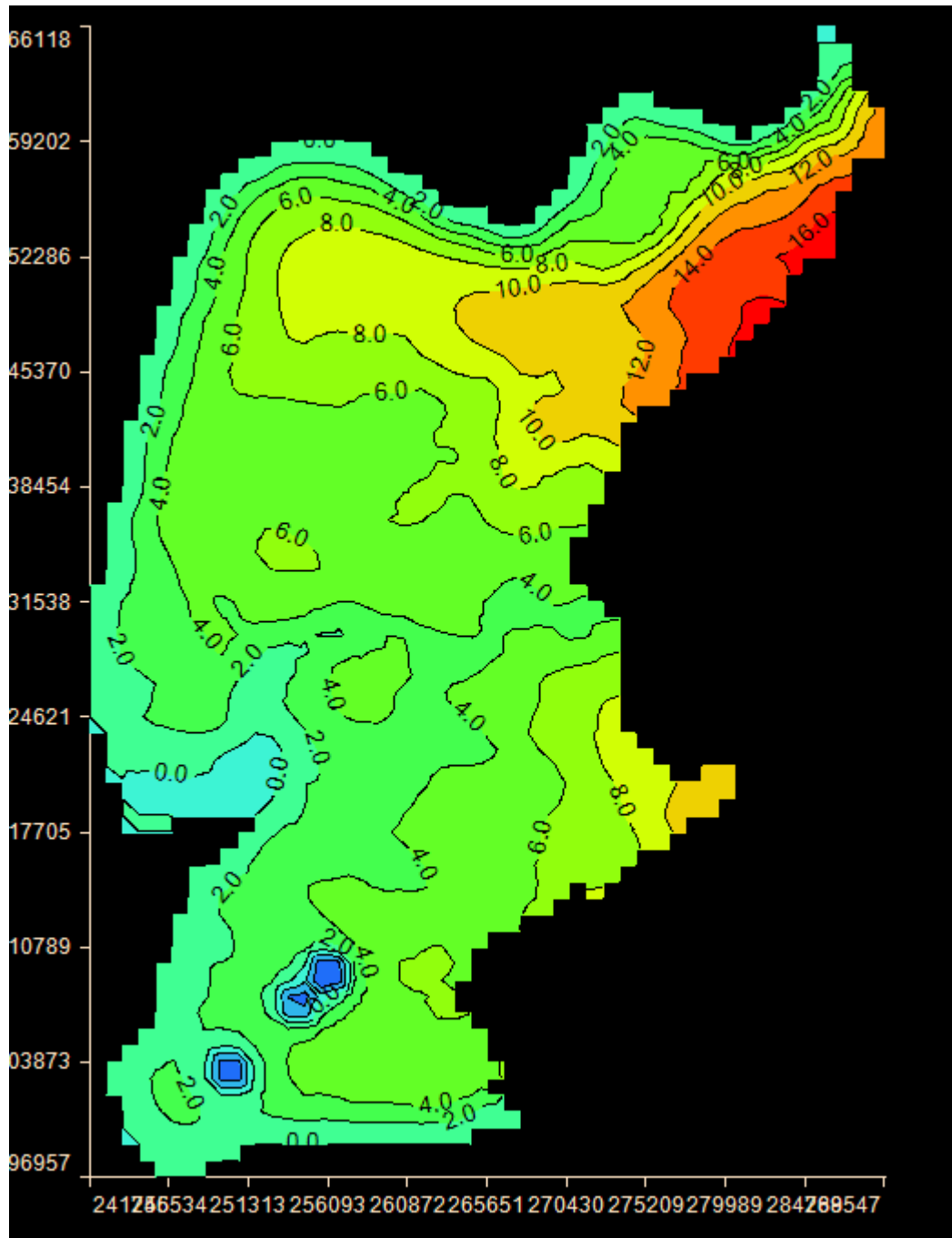


Figure 8-19: Water Table Map at beginning of simulation for Projection (Year 17 Time5845 days)

To study long term behaviour of water table hydrograph of selected nodes were plotted and same is presented in the figure below, a perusal of figure 8-20 shows that excepting for changes due to rainfall the hydrographs do not show any appreciable changes.

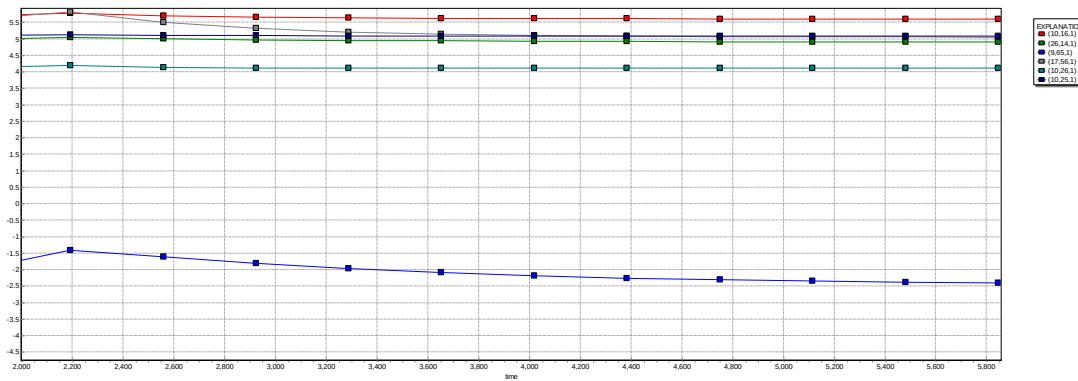
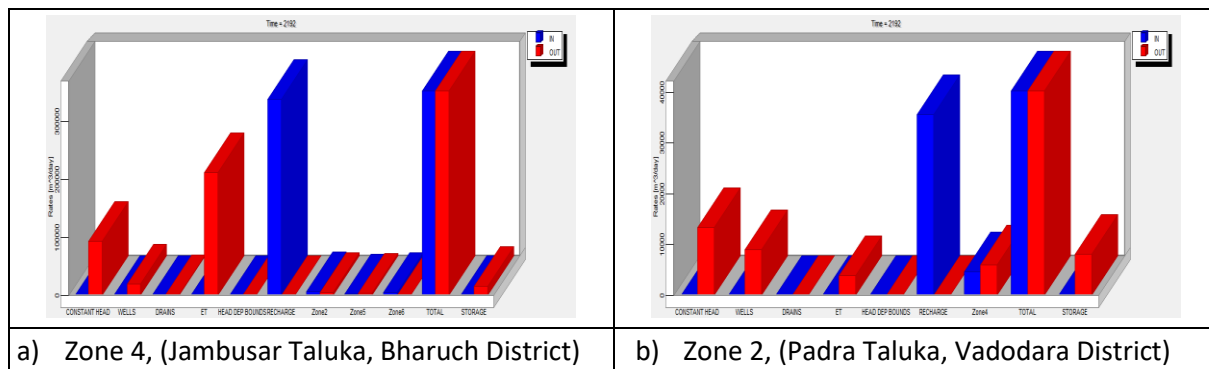


Figure 8-20: Projected Hydrograph at select Nodes Without Kalpasar Project

8.9.1.1 Ground Water Budget for Simulated period (Without Kalpasar)

Ground Water Budget for Model Area, Stress Period 8 Day 2192, Steady State is presented below in graphical form. A perusal of graphs shows that recharge is the main inflow in the system. Out flow from the system is constituted by out flow from constant head, groundwater extraction by wells, outflow from drains and contribution to adjoining zones. The outflow from constant head is prominent for Jambusar Taluka, Bharuch District and Padra Taluka, Vadodara District. Evapotranspiration is prominent for Jambusar Taluka, Amod Taluka and Vagra Taluka. Groundwater extraction is prominent for Jambusar Taluka, Amod Taluka and Vaghra taluka. Outflow through drains is prominent in Amod Talukas. Loss from storage is observed in Jambusar Taluka and Vaghra Taluka Bharuch District, Padra Taluka, Vadodara District and Vaghra Taluka, Bharuch District.



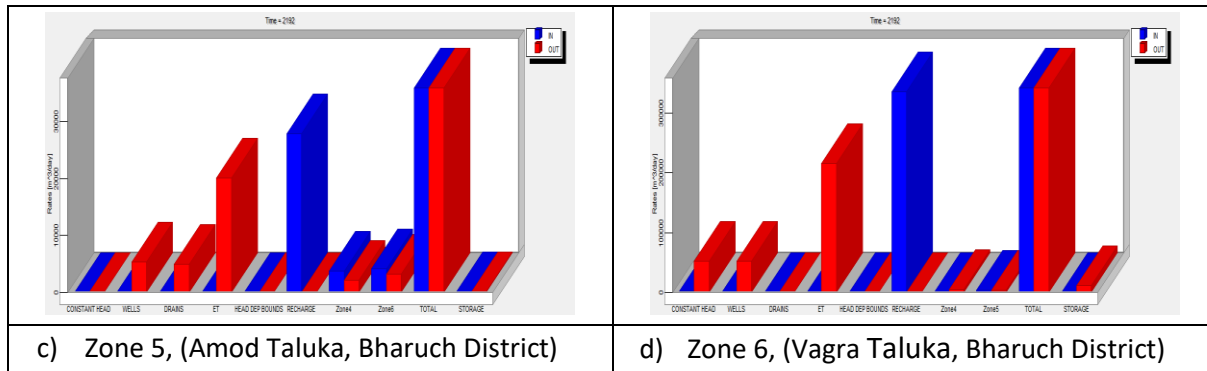


Figure 8-21: Ground Water Budget for Model – III, (Bharuch Model) at the end of simulation, Stress Period 8 - Day 2192

8.9.2 Scenario II: With Implementation of Kalpasar Dam

Continuation of present condition was considered by running the model for 10 years projection period with average rainfall for previous five-year period (2017-2022) and present ground water withdrawal. With continuation with the present stress condition in the stress period 8 (Year 6) total inflow in the system is 581055 m³/day and out flow from the system is 581055 m³/day, the recharge is 622623 m³/day, there is also an inflow of 8969 m³/day through constant head boundaries. The well in the area discharge about 83661 m³/day through different groundwater structures. The drains are discharging about 6548 m³/day of water, through constant head boundary 10527 m³/day out flow is observed System is adding 43857 m³/day of water to storage. whereas 32073 m³/yr is coming out of storage.

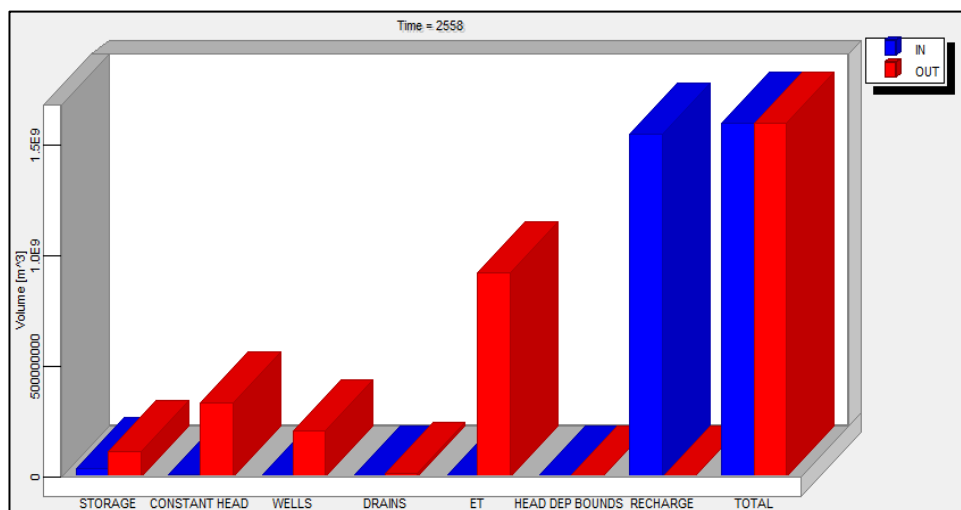


Figure 8-22: Mass Balance after stress period 8

Table 38: Mass Balance after stress period 8

VOLUMETRIC BUDGET FOR ENTIRE MODEL AT END OF TIME STEP 1, STRESS PERIOD 20		
	IN	OUT
STORAGE	32073	43857
CONSTANT HEAD	10527	61425
WELLS	0	83661
DRAINS	0	6548
ET	0	385561
HEAD DEP BOUNDS	0	0
RECHARGE	538453	0
TOTAL IN/OUT	581054	581055
IN - OUT	0	0
PERCENT DISCREPANCY		-0.00

During transient condition in the stress period 17 (Year 16) at the end of simulation considering the scenario without construction of Kalpasar Dam, the total inflow in the system is 548683 m³/day and out flow from the system is 548683 m³/day, the recharge is 538453 m³/day, there is also an inflow of 7880 m³/day through constant head boundaries. The well in the area discharge about 82715 m³/day through various groundwater structures. The drains are discharging about 6470 m³/day of water, through constant head boundary 80951 m³/day out flow is observed System is getting 250 m³/day of water from storage., whereas 2348 m³/day of water is coming out of storage.

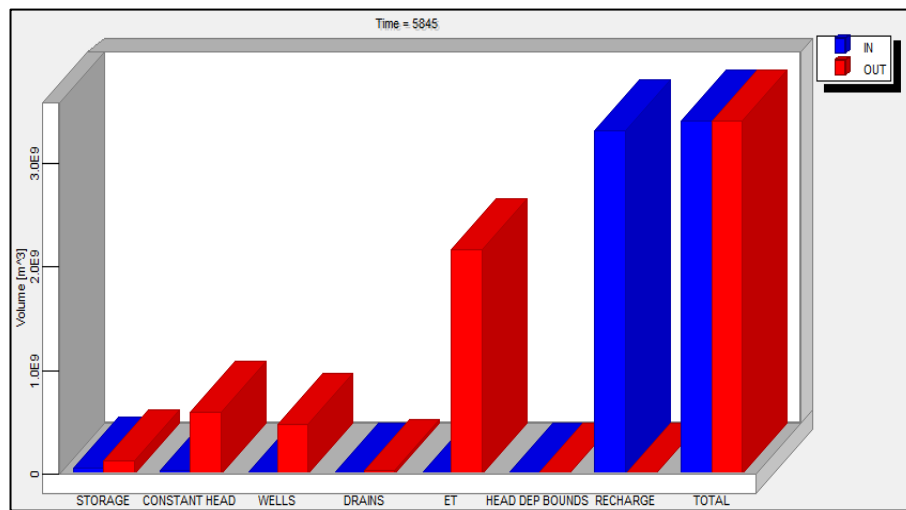


Figure 8-23: Mass Balance after Stress Period 20

Table 39: Mass Balance after Stress Period 17

VOLUMETRIC BUDGET FOR ENTIRE MODEL AT END OF TIME STEP 1, STRESS PERIOD 17		
	IN	OUT
STORAGE	2348	250
CONSTANT HEAD	7880	80951
WELLS	0	82715
DRAINS	0	6470
ET	0	378295
HEAD DEP BOUNDS	0	0
RECHARGE	538453	0
TOTAL In	548683	548683
IN - OUT	0	0
PERCENT DISCREPANCY		-0.00

Ground Water Budget for Simulated period (After Construction of Kalpasar Dam)

8.9.2.1 Zone-wiser Ground Water Budget

Groundwater budget for different zones was prepared for the model area at the end of simulation for the stress period 17 (Time 5845) and is presented in graphical form. A perusal of graph shows that recharge is the main stress in the area which goes out of system by transfer of water from one zone to adjoin zone and through constant head, extraction by wells, evapotranspiration and drains. Discharge from constant head is prominent in Jambusar & Amod talukas, Bharuch District and Padra Taluka Vadodara District, evapotranspiration is prominent in area where water levels are shallow i.e., Jambusar and Vaghra Talukas of Bharuch District. Extraction from wells is prominent in Amod Taluka, Bharuch District and Padra Taluka, Vadodara District. Loss through drains is not very prominent in the area. Positive storage change is occurring in Padra Taluka, Vadodara District and Amod Taluka of Bharuch District.

8.9.3 Impact of Kalpasar Dam

A critical study of model simulation reveals that a general rise in water level along the coastal part is observed due to impounding of water in the Kalpasar Dam. The accumulation of fresh water would cause dilution of saline water presently encountered subsurface. To study changes in water table in comparison to the continuation of present condition and implementation of Kalpasar Dam the behavior of water table across several rows and a column along the coast was plotted. A cross-section of profile across Row 10, 20, 30 & 40 and row 4 is presented in the following graphs.

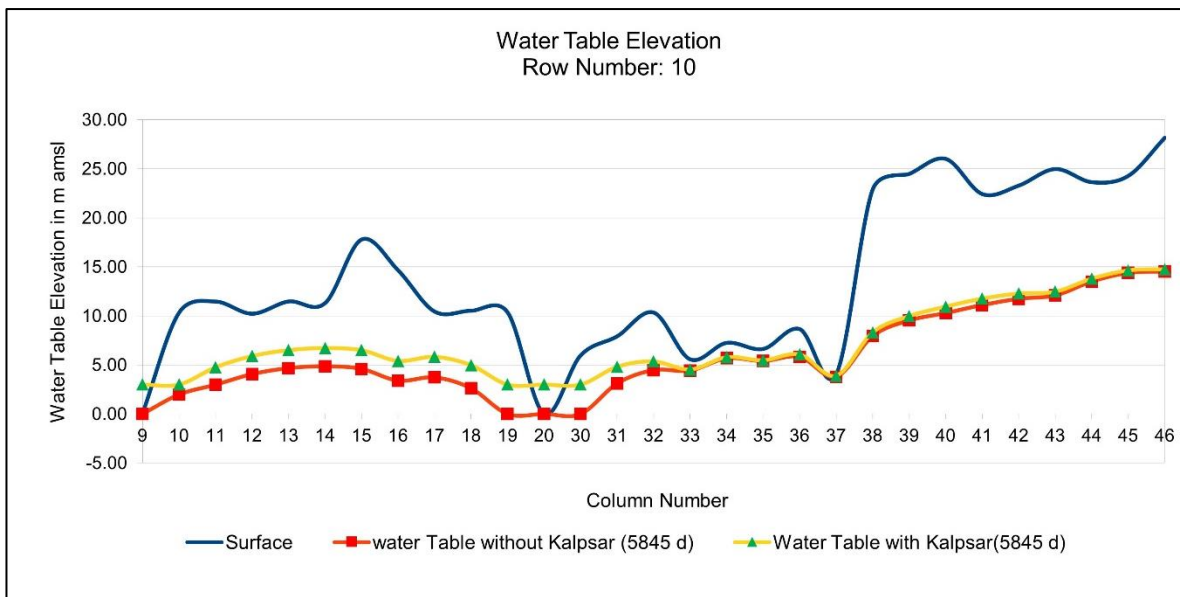


Figure 8-26: Comparison of Water Table at year 10 along Row 10 before and after implementation of Kalpasar Project

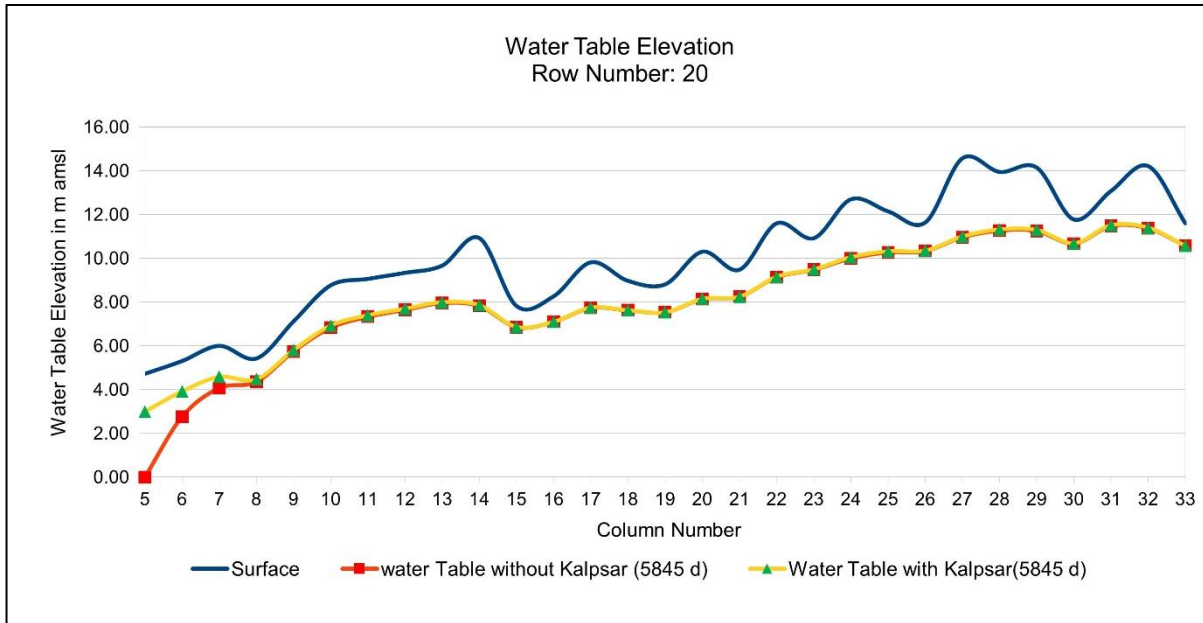


Figure 8-27: Comparison of Water Table at year 10 along Row 20 before and after implementation of Kalpsar Project

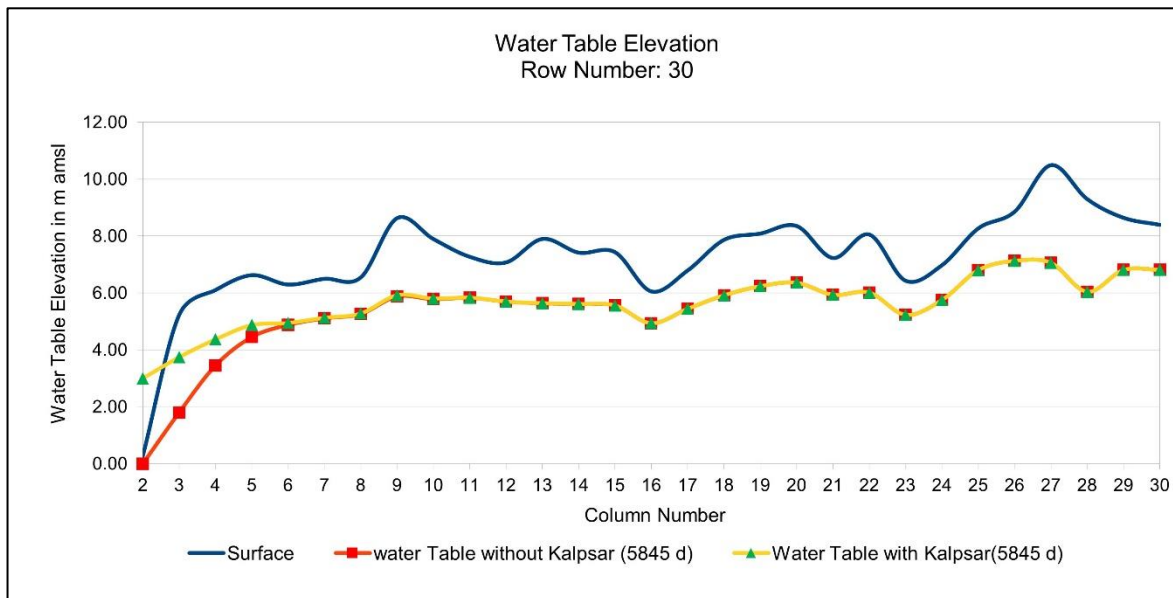


Figure 8-28: Comparison of Water Table at year 10 along Row 30 before and after implementation of Kalpsar Project

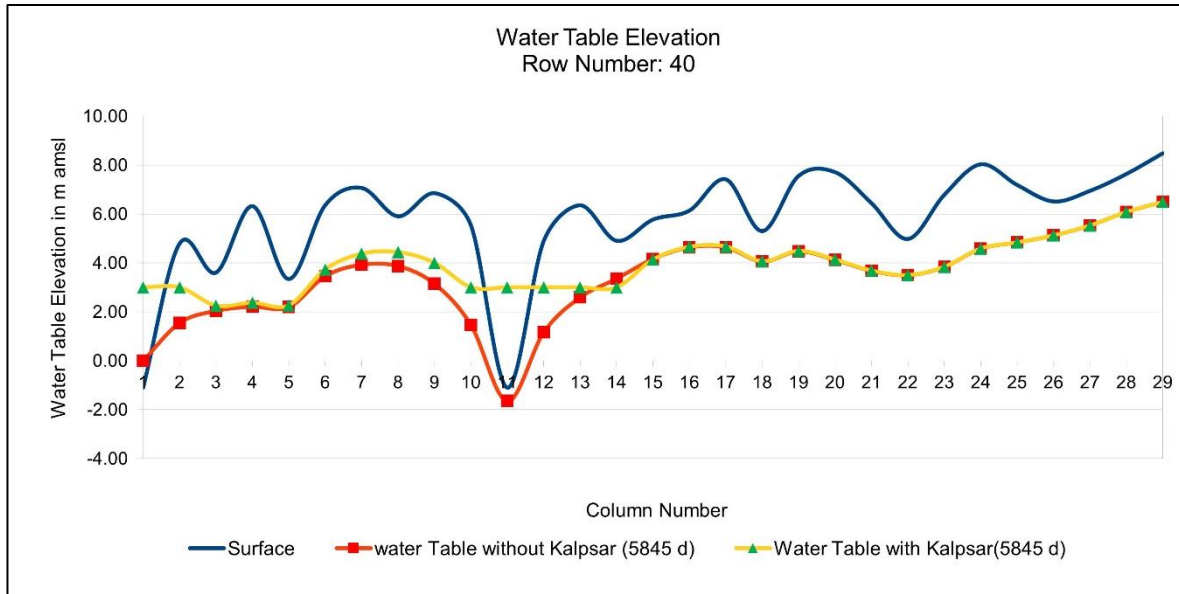


Figure 8-29: Comparison of Water Table at year 10 along Row 40 before and after implementation of Kalpasar Project

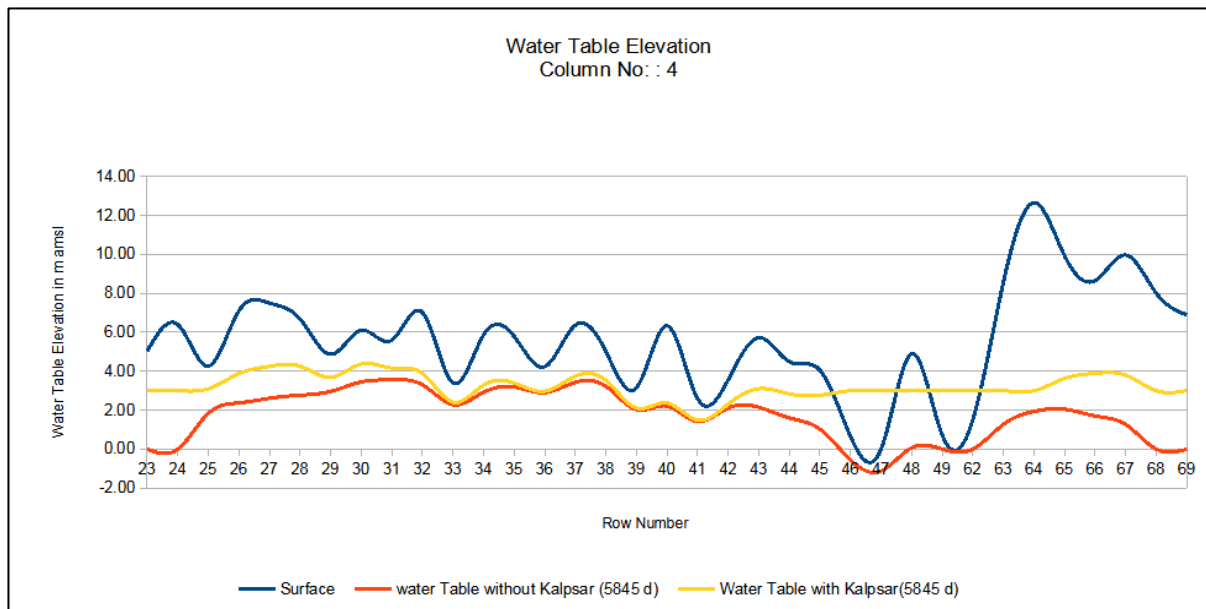


Figure 8-30: Comparison of Water Table at year 10 along Row 10 before and after implementation of Kalpasar Project

Above sections show that there will be rise in water table along the coast in adjoining area due to construction of Kalpasar Dam, however in higher reaches the water table is not much effected. A cross-section along column 4 which is almost along the coast rise in water level in different parts can be observed.

8.10 Model Limitation

The simplifying assumptions embedded in the mathematical equations and many uncertainties in the values of data required by the model lead makes the model as an approximation and not an exact duplication of field conditions. The model has been simplified as per availability of data and consisted of a three-layer aquifer of depth down to 150 mbgl. The layer type was specified as unconfined (Phreatic-confined) aquifer followed by a confining layer, which is again followed by granular horizon forming the confined aquifer which is not being extensively developed in the area due to quality constraints. Observation wells are not sufficient to represent the water table/piezometric head in the area properly. The hydraulic conductivity of the layer was held constant throughout the simulations which was evaluated and retained during calibration process to 5 m/d, however such homogeneity is seldom observed in field conditions. Moreover, in most of the study area, upper most unconfined aquifer is tapped for ground water extraction hence observation wells in unconfined aquifer are considered for modelling purpose. The regional hydro-geological framework of project area has been defined by a model grid. In the present scenario, specified flow and no flow boundary condition was taken using zero start and end flux, however same may vary during stress condition in the area. Mahi River and Narmada River has been simulated as constant head boundary as specific data of river stage are not available for same.

8.11 Conclusion

- The Study area is located in parts of Jambusar, Vaghra and Amod Taluka of Bharuch District and parts of Padra taluka in Vadodara Districting central part of Gujarat.
- The area is bounded by natural boundaries formed by Gulf of Khambhat, Mahi River, Narmada River and watershed boundary.
- The area is overlain by Gujarat Alluvium and is composed of alternating horizons of sand and clay layer.
- The mathematical model of the area has been prepared considering two aquifer system available down to 150 mbgl. The aquifers are separated by an aquitard.
- Boundary conditions considered for the model are River, Specified Flux, Recharge and Wells.

- The model was calibrated for one day in steady state and validated for six years data in transient state run, the RMS value for steady state is 0.94 m.
- The model was run for 10 years for prediction for future scenario considering existing inputs for various stresses.
- The model was run for 10 years for prediction for future scenario considering existing inputs for various stress considering two scenarios.
 - Scenario I: Groundwater regime without construction of Kalpasar Project
 - Scenario II: Groundwater condition with construction of Kalpasar Project.
- The simulation made reveals that construction of Kalpasar Project will cause rise in water levels in vicinity of the reservoir area
- Accumulation of fresh water in the Kalpasar reservoir will also flush the saline ground water and push down the saline groundwater.

9. SUMMARY AND CONCLUSION

- Groundwater is major source of water supply for Domestic, Industries as well as Agriculture in Gujarat.
- During past few decades this precious resource has been exploited beyond its replenishment in several regions of Gujarat.
- Parts of Gujarat specially Saurashtra, North Gujarat and Kachchh Regions has been experiencing severe droughts during past few decades due to arid and semi-arid climatic conditions, scanty and erratic rainfall, reduction in groundwater table, and scarcity of freshwater resources.
- Saurashtra Region of Gujarat which also has a long coastline and has problem related to proximity of Sea Shore like saline groundwater and saltwater intrusion at some places
- Gujarat proposes the multipurpose Kalpasar Dam Project which envisages a large freshwater reservoir by storing the run-off of 10,000 million cubic meter of water from west-flowing rivers by construction of a dam across Gulf of Khambhat (Cambay Bay) between Kardej village, Bhavnagar and Paniyadra village, Bharuch with a purpose to improve water availability in this water stressed region of State the Government. The dam will also provide a much shorter road connectivity between Bhavnagar and Bharuch/Surat which are important towns of Gujarat situated on opposite side of Gulf of Khambhat. Irrigation benefits in Saurashtra Region in addition to rejuvenation of rivers and augmentation of groundwater in this region.
- The Gulf of Khambhat is a tidal regime in the Arabian Sea bordering the state of Gujarat it shares its border with five districts of the Gujarat state namely Bhavnagar, Ahmedabad, Vadodara Bharuch and Surat.
- The present study aims to generate baseline information and status of the ground water condition in the area for studying short-term and long-term changes in the project. The study took up studies to map the fresh water-sea water interface, groundwater level, and predictive simulation of seawater intrusion.

- The area surrounding the proposed Kalpasar Dam is located in Central Gujarat along the coast of four districts namely Bhavnagar, Ahmedabad, Anand and Bharuch, due to vicinity and hydrogeological constraints parts of Vadodara, Nadiad, Botad, Rajkot and Amreli districts are also included in the study area.
- The area lies in the Cambay basin, between Saurashtra Crater and Aravali Swell and Deccan Shield.
- Initially the technical literature was collected and studies including review of various secondary literature available on Geology, Hydrogeology, and Geophysical of the area. Collection of secondary data from government agencies, especially along the Khambhat Gulf and Coast. Analysis of hydrogeological data from 2012 to 2022 from Central Ground Water Board (CGWB) and Gujarat Water Resources Development Corporation Ltd.(GWRDC). Preparation of thematic maps and identification of zones for further study and ground truthing by visits to the area and further data collection.
- The region is represented by various rock formations, from the Igneous and Metamorphic rocks in eastern part of Kheda District to recent age loose fluvial/marine originated sediments occurring near the coast and valley fills. The oldest rock formation in the study area is the Aravalli formations outcropping in parts of Kheda District. Deccan trap represented by Basalt and Dolerite dykes, dating back to the late Cretaceous-Eocene age with basalt as its predominant rock type also outcrops in large area. Basalts are overlain by tertiary formations, represented by Gaj and Dwarka formations occurring along Saurashtra coast and in Bharuch District. The Tertiary formations are overlain by Alluvial formations of fluvio-marine origin which are at places are covered with sand/silt of Aeolian origin. The Quaternary deposits are result of fluvial system of Narmada, Mahi, and Sabarmati and form prolific aquifer system of North Gujarat. The Holocene coastal deposits are represented by raised mudflats and coastal ridges of Flandrian transgression (6000 years BP).
- The coastal region is characterized by various geomorphic units and landforms developed through factors like rock types, tectonics, topography, landcover, climate, and fluvial,

marine, and aeolian actions. These features include deltas, rocky cliffs, marine deposits, islands, gulfs, lagoons, tidal creeks, beach ridges, etc.

- The Gulf's shoreline is varied, with estuaries, streams, islands, mudflats, and salt marshes. The shoreline has notable estuaries created by the Sabarmati River, Mahi River and Narmada River.
- The "Bhal" area is a paleo-mudflat that stretches over a large salty low land stretch from Bhavnagar to Khambhat.
- Land use patterns in the area are influenced by factors like topography, climate, soil fertility, and human activity. The All-India Soil & Land Use Survey Organization categorizes Gujarat State's soils into primary soil groups: Goradu sandy loam, Medium black soil, Deep black soil, coastal alluvium (saline) soils, desert soils, and Mud.
- The areas surrounding Gulf of Khambhat covered by Bhavnagar Ahmedabad District, Anand District and Bharuch District are largely occupied by an alluvial tract, the largest and most potential groundwater reservoir. The aquifers are extensive, thick, hydraulically connected, and high to moderate yielding. The alluvium form multiaquifer system in the area and aquifers down to 300 m bgl are being exploited in feasible area.
- The high relief areas in the eastern and western parts are occupied by the Deccan Traps and the Achaeans, providing little groundwater recharge and the groundwater potential in this terrain is limited.
- Bhavnagar, Botad Kheda, and Vadodara districts are occupied by hard and fissured formations, including basalt, Granit-Gneisses, consolidated sedimentary formations, and semi-consolidated sediments.
- The different conditions of groundwater occurrence in the area have led to divergent groundwater situations in the areas occupied by different geological formations.
- There are multiple aquifer system in the area formed by alternating horizons of sand or clay dominant formations or weathered and fractures/massive rock formation.
- The quality of groundwater in both hard rock and alluvial terrain is generally suitable except in coastal areas and estuarine tracts where the degree of mineralization in groundwater is high and salinity is common.

- The Anand & Kheda District is largely covered by Alluvium deposited by Sabarmati and Mahi Rivers and its tributaries. Alluvium forms a multilayer aquifer system underlain by Tertiary and Mesozoic formations. Ground water occurs under phreatic and confined conditions in arenaceous horizons. In Kheda District Quaternary alluvium largely covers the area however, Eastern part predominantly occupied by formations varying in age from Archaean to Tertiary age. Alluvium thickness increases from north and Northwest towards south and southwest direction. Alluvium is underlain by Tertiary Formation and in turn by Deccan traps in general with intervening blue clays at some places. Ground water is extensively developed by dug, dug-cum-bored, and tube wells. Depth to ground water varies from 5 m to 38 mbgl. Ground water quality is generally suitable for irrigation.
- The Ahmedabad district is largely covered by Alluvium formations of North Gujarat which have been extensively studied by UNDP and by subsequent exploration by CGWB. Unconfined Aquifers are found in upper horizons down to 60-75 m bgl. It is composed of medium to fine grained sand, silt, and local lenses of sandy clay and clay. Medium to fine grained sands found in north-eastern part of the district. Fine grained sands with silt found further south and south-west at Dholka and Sanand taluka. Aquifers between 30 and 75 mbgl with thickness varying between 20 and 45 m are considered as aquifer "A". Ground Water occurs under phreatic conditions in northeastern part of the district. Semi-confined conditions in south and southwestern directions of Sanand, Dholka, Dhandhuka, and Dholera taluka. Groundwater quality in northeastern part of the district and eastern part are good. The aquifers are being developed by dug, dug-cum-bored wells, and tube wells. Phreatic aquifers are underlain by Confined Aquifers which are separated by persistent clay formations of considerable thickness. Aquifers Grouped as B, C & D within post Miocene alluvial sediments and G and F aquifers in Miocene sediments within the drilled depth of 565 m in the district. Distribution of confined aquifers varies considerably in the district. Confined aquifers with potable water occur down to 300 to 350 m in the area towards north and northeast of the low lying "Bhal" land in the district. Deccan trap formation occurring in Dholka region forms the only hard rock aquifers in the district and are not potential groundwater reservoirs.

- The Deccan trap and Quaternary formations form the aquifer within Bhavnagar, Rajkot, Botad and Amreli Districts, with groundwater occurring under water table and semi-confined conditions. Dug and dug cum bore wells are common structures used for groundwater extraction. The quaternary formation, which is shallow to moderately thick and overlying the Deccan trap, constitutes about 5% of the total area covered and consists of clays, marl, silt and sand-gravel. Groundwater in these formations occurs under unconfined conditions, controlled by primary and secondary porosity. The yield of dug wells ranges from 170 m³/day to 800 m³/day. Deccan trap basalt occupies a major part of the districts and forms the most extensive aquifer system. It generally forms a poor aquifer due to compactness and poor primary porosity, but upper weathered parts form good aquifers. Secondary porosity developed due to tectonic activities, such as joints, fractures, and shear zones, form reservoirs of groundwater at many places. Amygdaloidal horizons within basalt also form potential aquifers at places. The groundwater in basalt occurs under phreatic to confined conditions and is tapped through dug wells varying in depth from 5 to 30 m. Dug-cum-bored wells in basalt generally range from 100 to 500 m³/day. Vesicular & amygdaloidal horizons within basalt may have yields of up to 1000 m³/day.
- Geology of Bharuch district is complex, with semi-consolidated Cretaceous, Tertiary formations, and unconsolidated alluvial deposits forming multi-aquifer systems. Alluvium form aquifer in central, south-central and western half of district, aquifers are less potential and are affected by inherent/coastal salinity, Yield of this Aquifer varies from 3 to 20 lps. Tertiary formations are inherently saline and contain poor quality groundwater.
- In major parts of Vadodara District multilayered alluvium deposits form the aquifer system, in the Northeastern part of Mahi-Narmada Doab has Tertiary formations at shallow depths of 13 to 45 mbgl. In the western part of Narmada-Mahi Daob, the Tertiaries are overlain by alluvium. The thickness of alluvium increases towards the west in the Daob, while in the Northeastern sector, it reduces to 13 to 45 m. Yield of alluvium Aquifer is about 3 to 20 lps. In hard rock terrain exploratory wells constructed between 50 to 450 mbgl, yield having 0.23 to 11 lps.

- Monitoring groundwater levels and fluctuations due to monsoon rainfall and other recharge factors is crucial for sustainable water management. Understanding these dynamics is essential for mitigating difficulties like depletion and contamination, ensuring water security, and maintaining ecological balance. Analysis of water level and water quality data from CGWB and GWRDC shows a pattern of shallow water levels near the coast, but as one move out from coast, water levels are significantly deep. The groundwater quality in the area adjoining the Gulf of Khambhat is generally inferior due to presence inherently saline aquifers and effect of coastal salinity. The groundwater quality is likely to improve with storage and inflows of fresh water from the Kalpasar Reservoir.
- The Groundwater Model developed for area adjoining Gulf of Khambhat for Kalpasar project aims to assess the potential impacts on the groundwater system from the proposed Kalpasar project. The study followed staged approach outlined by the Government of India, Ministry of Jal Shakti, Department of Water Resources, RD & GR, Central Ground Water Board. This includes data collection, conceptualization of the groundwater system, model design, calibration, and predictive scenario modelling for reservoir construction impacts.
- Groundwater models are valuable tools for managing groundwater resources, with mathematical models commonly used to study groundwater systems. Numerical techniques like finite difference and finite element methods are used to solve differential equations that describe groundwater flow. The finite difference method is preferred for its simplicity and lower memory requirement, while the finite element method offers flexibility in mesh formation. The finite difference method has been applied in the present study due to ease of implementation.
- In the present study MODFLOW computer programme has been used, MODFLOW is a widely used numerical model developed by the U.S. Geological Survey to simulate groundwater flow in a three-dimensional medium using finite difference method. In complex hydrogeological conditions, the vertical discretization in the model can cause cells to contain material from different stratigraphic units.

- For convenience of study in the vast area, which spans a vast 200km in length, is too extensive to be processed as a single model for hydrogeological and computational constraints. The area is divided into three parts, Anand and parts of -Kheda district is modelled as Model – I, Parts of Bhavnagar- Ahmedabad adjoining Gulf of Khambhat is modelled as Model – II and parts of Bharuch covering Jambusar and Vaghra Taluka and small parts of Amod, Bharuch District and Padra, Vadodara district is modelled as Model - III.
- All the three model were developed in three steps as per guidelines of CGWB. Based on existing data on hydrogeology the model was conceptualized, and boundary conditions were identified. Physical boundaries like River, water shed boundary, seacoast was identified and digitized for including in the numerical model. Aquifer parameters like conductivity and storage coefficient were taken from hydrogeological studies done by CGWB under its NAQUIM project and earlier studies by CGWB and GWRDC including existing literature and scientific papers.
- The conceptual model was converted into Numerical Model. The Numerical Model was tested and calibrated for single Stress Period of one day and the model was subjected to various stress like net recharge, constant head boundaries, evapotranspiration, drainage boundary, river boundary, etc., the model parameters were adjusted within allowable limit for calibration.
- The Model was validated for six-year period from 2017 to 2022 by imposing various stress like recharge, drainage, evapotranspiration and groundwater extraction. The Net recharge computed as residual of gross recharge and ground water draft was identified and imposed as recharge.
- Validated model was tested for two strategies 1) simulation and prediction of groundwater scenario with continuation of present condition as **Scenario I** and 2) simulation and prediction of groundwater scenario after construction of Kalpsar Dam as **Scenario II**. Maps, tables and chart like Water Table configuration, total volumetric groundwater budget for each year for different scenario were studied. Groundwater budget for each taluka or part of taluka falling in the model area was computed and

tabulated and charts were prepared. Hydrographs at select location were also studied and profile of water table across and along coast for different scenario was also compared and studied.

- **Model I** prepared for the area adjoining Gulf of Khambhat in northern part covering Tarapur, Khambhat, Ankla, Anand, Umreth, & Sojitra Taluka, Anand District, Matar, Nadiad, Vaso & Thasra Taluka, Kheda District.
 - The conceptual model was developed considering two Aquifer system available down to 150 mbgl as per local hydrogeology. The aquifers are separated by a aquitard. Boundary conditions considered for the model are constant Head, drain, recharge and Evapotranspiration.
 - The model was run in steady state and calibrated for parameters. The RMS value for Calibrated model is 1.81 m. The model was validated for six-year period from 2017 to 2022 and historical water level data for observation station of CGWB and GWRDC were matched with computed water levels data. The hydrographs show a satisfactory match.
 - For simulation of future scenario and prediction of futuristic water level the model was run for 10 years for prediction of future scenario considering existing stress conditions for generation of following two scenarios A) Scenario I: Groundwater regime without construction of Kalpasar Project, B) Scenario II: Groundwater condition with construction of Kalpasar Project.
 - The comparison of simulated groundwater scenario for the area shows that after construction of Kalpasar dam, the groundwater water levels along the coast would rise specially along the modified coastline due to inundation by fresh water stored in the Kalpasar Dam in comparison to the water level without construction of Kalpasar. The effect of shallowing will not be appreciable upstream at distance. Storage of fresh water would also push saline water presently occurring in parts of the area especially low lying Bhal area.
- **The Model II** covers parts of Ahmedabad and Bhavnagar District Gujarat, however some parts of Botad, Rajkot and Amreli Districts are also covered due to hydrological

constraints. The area is overlain by North Gujarat Alluvium in east and is composed of alternating horizons of sand and clay layer, western part is occupied by Deccan trap basalts.

- The conceptual model of the considered two aquifer system available down to 150 mbgl. In hard rock area the aquifer system is represented by weathered basalt at top and fractured basalt forming second layer. The Boundary conditions considered for the model are no flow boundary, constant head boundary, drainage boundary and net Recharge applied to the topmost layer.
- The model was calibrated by running the model in steady state condition and imposing various stress like net recharge, constant head, evapotranspiration, drainage.
- The RMS value for calibrated model is 6.68 m. The model was validated for six years period from 2017 to 2023, The hydrographs generated for existing monitoring wells show a general match between observed and predicted water levels.
- The validated model was run for 10 years for prediction for future scenario considering existing inputs for various stress considering two scenarios A) Scenario I: Groundwater regime without construction of Kalpasar Project, B) Scenario II: Groundwater condition with construction of Kalpasar Project.
- The comparison of simulated groundwater scenario for the area shows that construction of Kalpasar dam and creation of freshwater storage in the dam would cause shallowing of water table along the modified coast however the shallowing effect would gradually diminish upstream. the groundwater water levels along the coast would rise specially among the modified coastline due to inundation by fresh water stored in the Kalpasar Dam in comparison to the water level without construction of Kalpasar. Storage of fresh water would also push saline water presently occurring in parts of the area especially low lying Bhal area.

- The area east of Kalpasar reservoir was modelled as **Model III** which covers parts of Jambusar, Vaghra and Amod Taluka of Bharuch District and parts of Padra taluka in Vadodara District in central part of Gujarat.
 - The area is overlain by Gujarat Alluvium and is composed of alternating horizons of sand and clay layer.
 - The conceptual model of the area has been prepared considering two aquifer system available down to 150 mbgl formed by alternating layers of sand and clay. The aquifers are separated by a layer of very less permeable layer formed dominantly by clay forming aquitard. Boundary conditions considered for the model are constant head, drain, gross recharge and draft.
 - The model was converted into numerical model and the model was run in steady state for one stress period of one day and calibrated.
 - For calibrated model the RMS value for steady state is 4.53 m.
 - The model was run for 10 years for prediction for future scenario considering existing inputs for various stress considering two scenarios. A) Scenario I: Groundwater regime without construction of Kalpasar Project, B) Scenario II: Groundwater condition with construction of Kalpasar Project.
 - The simulation made reveals that construction of Kalpasar Project will cause swallowing of water levels in vicinity of the reservoir along the modified shoreline. Due to storage of freshwater the groundwater would rise by 3 m which would diminish moving away from the reservoir. The flow of fresh water will also flush the saline ground water and push down the saline front.
- The simplifying assumptions embedded in the mathematical equations and many uncertainties in the values of data required by the model makes the model as an approximation and not an exact duplication of field conditions.
- The model has been simplified as per availability of data and consisted of a two-layer/three-layer aquifer of depth down to data availability.
- Large part of the area has salinity and observation wells are not sufficient to represent the water table/piezometric head and saline/freshwater interface. In large part of the

area phreatic aquifer has quality constraints and is not being developed for Domestic/Irrigation, hence details are limited.

- The regional hydrogeological framework of project area has been defined by a model grid of 1000x1000 m which is large and locally condition may vary.

10. REFERENCES

- Antonellini, M.; Mollema, P.; Giambastiani, B.; Bishop, K.; Caruso, L.; Minchio, A.; Pellegrini, L.; Sabia, M.; Ulazzi, E.; Gabbianelli, G. Saltwater intrusion in the coastal aquifer of the southern Po Plain, Italy. *Hydrogeol. J.* 2008, 16, 1541–1556.
- USGS, 2022, MODFLOW-NWT: A Newton Formulation for MODFLOW-2005 Waterloo Hydrogeologic, 2022, Visual MODFLOW Flex 8.0
- Harbaugh, A.W., 2005, MODFLOW-2005, the U.S. Geological Survey modular ground-water model -- the Ground-Water Flow Process: U.S. Geological Survey Techniques and Methods 6-A16.
- Harbaugh, A.W., Langevin, C.D., Hughes, J.D., Niswonger, R.N., and Konikow, L. F., 2017, MODFLOW-2005 version 1.12.00, the U.S. Geological Survey modular groundwater model: U.S. Geological Survey Software Release, 03 February 2017, <http://dx.doi.org/10.5066/F7RF5S7G>
- Morway, E.D., Gates, T.K., Niswonger, R.G., 2013, [Appraising options to reduce shallow groundwater tables and enhance flow conditions over regional scales in an irrigated alluvial aquifer system](#): *Journal of Hydrology*, v. 495, pp. 216-237.
- Niswonger, R.G., Panday, Sorab, and Ibaraki, Motomu, 2011, MODFLOW-NWT, A Newton formulation for MODFLOW-2005: U.S. Geological Survey Techniques and Methods 6-A37, 44 p., <https://doi.org/10.3133/tm6A37>
- Michael G. McDonald and Arlen W. Harbaugh, 1988, A modular three-dimensional finite-difference ground-water flow model *Techniques of Water-Resources Investigations* 06-A1, USGS, <https://doi.org/10.3133/twri06A1>
- Harbaugh A.W. and McDonald M.G., User's documentation for MODFLOW-96, an update to the U.S. Geological Survey modular finite-difference ground-water flow model, Open-File Report 96-485, USGS, <https://doi.org/10.3133/ofr96485>
- Anderson, M.P., and Woessner, W.W., 1992, *Applied groundwater modeling: Simulation of Flow and Advective Transport*: Academic Press, San Diego, California, 381 p.
- Cooper, H.H. and C.E. Jacob, 1946. A generalized graphical method for evaluating formation constants and summarizing well field history, *Am. Geophys. Union Trans.*, vol. 27, pp. 526-534. Doherty, J., 2015. Calibration

- and Uncertainty Analysis for Complex Environmental Models. Watermark Numerical Computing, Brisbane, Australia. ISBN: 978-0-9943786-0-6.
- Freeze, R.A., and J.A. Cherry, 1979, Groundwater, Prentice-Hall, Inc. Publishers, New Jersey, 604p.
- Hantush, M.S., 1960. Modification of the theory of leaky aquifers, Jour. of Geophys. Res., vol. 65, no. 11, pp. 3713-3725.
- Harbaugh, A.W., Banta, E.R., Hill, M.C., and McDonald, M.G., 2000, MODFLOW-2000, the U.S. Geological Survey modular ground-water model -- User guide to modularization concepts and the Ground-Water Flow Process: U.S. Geological Survey Open-File Report 00-92, 121 p.
- Hoffman, J., Leake, S., Galloway, D., and Wilson, A., 2003, MODFLOW-2000 Ground-Water Model User Guide to the Subsidence and Aquifer-System Compaction (SUB) Package; USGS Ground- Water Resources Program, Open-File Report 03-233.
- Leake, S.A., and Prudic, D.E., 1991, Documentation of a computer program to simulate aquifer-system compaction using the modular finite-difference groundwater flow model, USGS Techniques of Water Resources Investigations Report, Book 6, Chapter A2.
- Theis, C.V., 1935. The relation between the lowering of the piezometric surface and the rate and duration of discharge of a well using groundwater storage, Am. Geophys. Union Trans., vol. 16, pp. 519-524.
- Zheng, C., and Wang, P.P., 1999, MT3DMS, A modular three-dimensional multi-species transport model for simulation of advection, dispersion and chemical reactions of contaminants in groundwater systems; documentation and user's guide, Vicksburg, Miss., U.S. Army Engineer Research and Development Center Contract Report SERDP-99-1, 202 p.
- Sharma, S. C. 2008, Report on Groundwater Conditions in Kalpasar Command Area in Saurashtra Region
- Karant, K. R. DR, 1993, Groundwater Assessment, Development and Management, Tata Mg Graw Hill Publication
- Todd, David K. 1959, Ground Water Hydrology, Jhon Willy & Sons, Publication
- Mendherkar S.M., Pandey, A. R. 1974, CGWB Report, Hydrogeology of coastal tracts of Junagah and Amreli Districts, Gujarat with special reference to groundwater quality in Mangro-Chorwad area, CGWB, WR, Jaipur Report,
- Brückner, H. (1989). Late Quaternary Shorelines in India. In: Scott, D.B., Pirazzoli, P.A., Honig, C.A. (eds) Late Quaternary Sea-Level Correlation and

- Applications. NATO ASI Series, vol 256. Springer, Dordrecht.
https://doi.org/10.1007/978-94-009-0873-4_9
- Post, V.E.A. Fresh and saline groundwater interaction in coastal aquifers: Is our technology ready for the problems ahead? *Hydrogeol. J.* 2005, 13, 120–123. [CrossRef]
- Ferguson, G.; Gleeson, T. Vulnerability of coastal aquifers to groundwater use and climate change. *Nat. Clim. Chang.* 2012, 2, 342–345.
- Moore, W. Large groundwater inputs to coastal waters revealed by $\delta^{226}\text{Ra}$ enrichments. *Nature* 1996, 380, 612–614. *Water* 2022, 14, 611 16 of 17
- Trenberth, K.; Smith, L.; Qian, T.; Dai, A.; Fasullo, J. Estimates of the Global Water Budget and Its Annual Cycle Using Observational and Model Data. *J. Hydrometeorol.* 2007, 8, 758–769.
- Schwartz, F.; Ibaraki, M. Groundwater: A Resource in Decline. *Elements* 2011, 7, 175–179.
- Jelgersma, S.; Zijp, V.M.; Brinkman, R. Sea level rise and the coastal lowlands in the developing world. *J. Coast. Res.* 1993, 9, 958–972.
- Senthilkumar, M.; Elango, L. Three-dimensional mathematical model to simulate groundwater flow in the lower Palar River basin, southern India. *Hydrogeol. J.* 2004, 12, 197–208.
- Damming David, 2002, Introduction to Hydrogeology, McGraw Hill Publication
- CGWB, 2016, 2019, 2021, 2022 Estimation of Ground Water Resources, Gujarat & UT of Daman & Diu
<https://ingres.iith.ac.in/gecdataonline/misview>
- Padtare, P.N. CGWB, WCR 1988, Report of Geohydrology of Gujarat, Report
- Paul Prabhakar, CGWB, WCR, 2011, Report of Geohydrology of Gujarat, Report
- CGWB, GROUNDWATER MODELING FRAMEWORK
- CGWB, WCR, 1995, Studies on Conjunctive Use of Surface Water and Ground Water Resources in Mahi-Kadana Irrigation Project, Gujarat.
- CGWB, WCR, 2011, Hydrogeological Conditions, Ground Water Resources & Development Potential of Vadodara District, Gujarat,
- CGWB, WCR, 2021, Aquifer Mapping and Management of Ground Water Resources Ahmedabad District Gujarat,
- CGWB, WCR, 2022, Aquifer Mapping and Management of Ground Water Resources Anand District Gujarat

CGWB, WCR, 2022, Aquifer Mapping and Management of Ground Water Resources Bharuch District Gujarat, 2021

CGWB, WCR, 2022, Aquifer Mapping and Management of Ground Water Resources Bhavnagar District Gujarat

CGWB, WCR, 2022, Aquifer Mapping and Management of Ground Water Resources of Kheda District, Gujarat State, 2022

CGWB, WCR, 2022, Aquifer Mapping and Management of Ground Water Resources, Vadodara District, Gujarat State, 2022

CGWB, WCR, 2022, Aquifer Mapping and Management of Ground Water Resources Bharuch District Gujarat, 2021

CGWB, WCR, 2019, Ground Water Year Book 2017 -18 Gujarat State

CGWB, WCR, 2020, Ground Water Year Book 2018 -19 Gujarat State

CGWB, WCR, 2021, Ground Water Year Book 2019 -20 Gujarat State

CGWB, WCR, 2022, Ground Water Year Book 2020 -21 Gujarat State

CGWB, WCR, 2023, Ground Water Year Book 2021 -22 Gujarat State

ANNEXURE I:

Groundwater Monitoring and Quality Data of CGWB and GWRDC for Anand-Kheda Model Area

a) Groundwater Level Monitoring Data, CGWB

SITE ID	SITE NAME	LONG	LAT	May-16	Aug-16	Nov-16	Jan-17	May-17	Aug-17	Nov-17	Jan-18	May-18	Aug-18	Nov-18	Jan-19	May-19	Aug-19	Nov-19	Jan-20	May-20	Aug-20	Nov-20	Jan-21	May-21	Aug-21	Nov-21	Jan-22
W221630072460001	Dali	72.767	22.275	4.69	3.93	3.3	3.6	4.28		2.5		4.77		3.09	3.19	5.26			2.47			2.42		3.72		2.02	1.51
W221740072472501	Kathana_Pz_I	72.79	22.294	17.55				18.1					18	12.52	15	13.42	13.08	11.18					10.92	12.42	13.67	9.83	9.42
W221845072574501	Navapura	72.963	22.313	26.56	24.92	26.56	26.56	26.56	23.92	24.61	23.71	27.02	28.56		24.82			28.56	28.56	28.56	28.56	21.56					
W222030072390001	Kansari1	72.65	22.342	13.9	13.52			13.89	12.7	11.07	11.4	18.06	2.66		12.6	5.36	3.46	3.63	11.54	11.8	9.94	11.4	11	11.5	4.8		3.23
W222045072500001	Ras	72.833	22.346	2.33	4.77	2.1	1.5	2.37	3.77	1.49	0.77	1.87	1.14	1.71	0.94	2.1	0.74	0.88	1.78	2.4	1.55	1.77	2.32	3.27	3.07	0.95	1.21
W222120072535001	Bhadran	72.897	22.356	17.65	15.2	15.64	16.62	18.29	14.2	16.68	15.2	20.6	16.38	14.77	15.33	18.45	16.16	14.2	15.95	18.1	16.1	19.8	15.25	16.7	18.75	16.6	15.74
W222235072595001	Anklav_Pz_I	72.997	22.376	24.31		25.53	21.85	27.09			26.79	28.73		25.74	26.73	26.66		22.84	23.09	23.79	20.61	23.44	23.89				
W222235072595002	Anklav_Pz_II	72.997	22.376	24.45		24.97	25.88	27.7			25.75	27.4		25.8	26.77	28.18		22.37	22.43	23.95	20.41	23.9	25.65			4.15	
W222300073003001	Anklav2	73.008	22.383	26.94		27.48	25.93	27.88	24.43		22.38	31.85	27.66	24.71	27.48	28.6	24.35	23.18	22.72	23.78	24.98	31.18	29.38	24.78	27.88	23.82	22.79
W222415072402001	Hariyan_Pz	72.672	22.404	4.52	1.85	4.63		6.65	3.3	2.26				4.18	4.74	6.49	5.41	3.04	4.33			3.4	3.5	4.74	6	2.8	3.32
W222435072540501	Borsad I	72.901	22.41	17.75	17.05	17.04	17.45	19.31	16.35	17.4	18.55	20.29	14.88	18.53	17.97	17.2	19.27	14.05	17.99	18.36	15.18	17.8	17.55	4.45	4.33		
W222435072540502	Borsad_Pz_II	72.901	22.41	14.22	14.76	14.8	15.46	16.93	14.35	14.52	16	17.33	14.39	14.48	14.52	19.14	16.16	16.07		15.94	14.29	17.76	15.45	4.5	4.2	4.25	
W222500072363001	Laxmipura	72.608	22.417	2.97		0.98	1.35	3.15		1.38	0.55	2.95	1.41	0.76	1.18		0.38	1.48	1.18				1.25		1.15	0.55	1.15
W222515072474001	Dharmaj	72.794	22.421	14.2	13.35	13.38	15.06	14.85		13.97		14.21	7.05	12.68	7.68	9.42	7.85	7.78	13.65			6.5		16.65		12.59	7.1
W222730072481001	Davalpura_Pz	72.803	22.458	1.08	0.82	1.49		4.99	0.68	1.87			0.05		5.26	4.82	0.1	1.46	2.46	2.65	0.33	1.25	2.05		2.75	2.45	2.4
W222830072480001	Petlad_Pz_I	72.8	22.475	11.8	4.63	13.08	13.1	14.44	10.4	13	13.4	15.3	12.07	13.34	13.48	13.87	14.5	11.58	12.5	12.73	9.39	12.7	13.3	11.1	13.5	12.61	11.74
W222830072480002	Petlad_Pz_II	72.8	22.475	10.27	3.54	12.58	13.8	15.19	9.41	12.16	22.86	23.7	13.24	13.34	13.68	14.98	12.41	10.18	12.28	12.1	9.33	12.96	13.36	12.72	14.06	13.69	12.65
W222843073014901	Adas_DW	73.03	22.479		4.42		22.28		22.05	22.65	19.7	30.02	28.62	26.27	28.17	24.89	23.3	21.71	20.75	23	22.7	25.6	24.2	22.1	18.77	22	20.77
W222910072394001	Tarapur Pz-I	72.661	22.486	3.32	2.77	2.6	3.15	4.03	2.65	3.1	2.35	2.68		2.75	2.97	4.57	3.72	1.98	3.05	3.15		2.85	3.05	3.36	2.75	1.9	1.56
W222910072394002	Tarapur Pz-II	72.661	22.486	3.05	1.81	2.23	3.15	4.14	3	2.57	2.75	2.96		2.93	3.27	4.53	2.77	2.05	3.07	3.09		2.45	2.85	3.21	2.7	2.15	1.4
W223030072585601	Walmi_II	72.982	22.508	19.69	9.46	20.85	21.34	22.52	20.32	22.02	21.72	22.72	21.75	22.82	22.93	24.97	22.53	21.23	21.52	22.22	19.46	22.02	21.82	27.92	22.48	22.22	26.04
W223039072340001	Tol	72.567	22.511	1.18	0.4	8.74	9.26	4.98	1.9		7.7	2.3	0.44	1.08	1.31	1.65	0.8	0.62	0.67				0.7	0.4	-0.15	0.01	0.74
W223040072585501	Walmi_I	72.982	22.511	19.65	13.93	21.15	21.42	23.13	19.74	22	22.5	23.78	22.09	22.24	22.51	23.8	22.8	21.52	21.91	22.19	19.08	21.7	21.4	22.85	22.78	22.45	20.98
W223230072490001	Bandhani	72.817	22.542	5.69	5.35	5.19	5.48	6.25	4.15	5.09	3.75	6.15	4.38	5.41	6.17	6.59	5.55	4.88	5.23	6.18	5.18	5.43	5.77	6.05	5.95	6.05	4.78
W223240073041501	Sarsa_Pz_I	73.071	22.544	16.5		15.74	21.32	19.47						18.64		21.79	17	17.3	17.45	19.59	16.03	17	16.7				16.95
W223430072582001	Anand	72.972	22.575	10.53	10.18	10.04	10.92	15.79	9.63		8.44	28.13	9.47	11.13	18.17		10.52		29.29	29.29	10.29	28.19	11.44		15.59	14.64	
W223756073001501	Boriyani	73.004	22.632	8.14	2.6	5.16	5.75	8.85	2.5	2.85	6		6.15	6.91	8.41	9.01	6.87	6	8.03	9.8	8.9	6.5	8		6.9	6.3	
W224130073031501	Ghora	73.054	22.692	7.41	3.41	3.81	3.89	7.11	5.81		2.46	5.5		3.74	4.78		11.21	10.3			1.4	4.01	4.66	5.66	4.26	2.6	3.01
W224249073073601	Parvata	73.127	22.714	7.88	3.7	8.13	17.95	7.38	4.8		13.8	17.87	2.55	5.83	6.43	8.71	3.5	3.99	4.65	6.8	3.85	4.54	5.4	6.2	4.85	3.99	4.28

b) Groundwater Quality Monitoring Data, CGWB

SITE_ID	SITE_NAME	lat	long	SAMPLING_TIME	TDS	EC	BICARBONATE	CA	CARBONATE	CHLORIDE	FLUORIDE	K	MG	NA	NITRATE	PH	SULPHATE
W221630072460001	Dali	22.275	72.76667	May-12	2259	3371	1086	80	0	511	2	11.5	92	517	18	8.19	61
				May-13	2328	3475	1046	72	0	525	1.54	16.2	73	586	18	8	120
				May-15	2382	4227	1061	96	0	674	0.9	16.3	80.35	690	24	8.12	207
				May-16	2475	3694	1232	160	0	746	1.4	17.9	97.45	620	32	8.22	41
				Jun-21		3276	622	180	66	589	1.18	23	48.85	541	16	8.52	161
W221845072574501	Navapura	22.3125	72.96731	May-14	938	1400	622	68	0	106	0.48	5.5	72	110	40	8.06	14
				May-15	1012	1510	732	72	0	121	0.3	5.9	73.03	150	29	8.04	9
W222030072390001	Kansari1	22.34166667	72.65	May-12	2928	4370	866	80	0	937	1.13	13.3	78	810	28	7.95	199
				May-13	2915	4351	1000	104	0	909	0.62	43.6	63	792	110	7.6	32
				May-14	2866	4278	586	100	0	993	0.6	4	96	700	24	8.1	242
				May-15	2878	4295	805	260	0	922	0.57	8.8	36.79	600	46	7.8	85
				May-17	2589	3864	622	140	0	815	0.83	1.2	121.74	580	32	8.18	392
				May-18	3296	4919	378	56	0	1156	0.62	7.2	104.61	865	42	8	465
				May-19		3524	610	52	0	794	0.42	21	21.95	650	6.8	7.94	49
				May-20		4565	744	88.2	0	1035	1.6	10	89.94	784	46	8.19	262
				Jun-21		5090	488	100	168	1099	0.82	3.47	109.53	846	23	8.54	233
W222045072500001	Ras	22.34583333	72.83333	May-13	1270	1895	830	20	0	178	2.5	9.6	17	398	17	8.1	29
				May-14	1168	1743	842	32	0	227	2	5.7	19	400	20	7.5	5
				May-15	1397	2085	842	48	0	227	1	7.3	9.78	400	26	8.21	2
				May-15	1397	2085	842	48	0	227	1	7.3	9.78	400	26	8.21	2
				May-16	1028	1535	647	16	72	156	3.75	3.5	17.04	375	15	8.49	29
				May-17	996	1487	220	32	200	135	2.74	4.9	17.06	296	22	8.47	53
				May-19		1446	573	12	60	128	3	1.4	17.03	323	13	8.54	32
				May-20		1442	659	28.1	0	149	4.5	8.5	21.86	284	16	8.09	25
W222120072535001	Bhadran	22.35555556	72.90256	May-12	1802	2690	744	56	0	369	0.72	14.1	156	293	220	8.15	97
				May-13	479	715	403	84	0	43	0.13	3.2	29	35	4	8.23	10
				May-15	655	977	354	72	0	92	0	3	56.01	21	2	7.5	31
				May-16	455	679	464	80	0	43	0.1	2	31.7	67	1	7.84	32
				May-17	401	598	281	76	0	43	0.2	1.5	36	21	5	7.88	86
				Jun-19	888	1325	622	32	0	99	0.79	1.3	90	128	32	8.2	49
				May-20		635	342	64.1	0	35	0.28	1.3	26.76	32	0.33	7.93	20
				Jun-21		686	177	52	60	57	0.42	1.31	41.4	19	5	8.27	8
W222300073003001	Anklav2	22.38333333	73.01154	May-12	807	1205	610	32	0	78	0.5	1.7	80	123	42	8.07	30
				May-13	896	1338	622	28	0	99	0.6	3.1	92	118	39	8.26	21
				May-14	737	1100	512	28	0	78	0.9	1.8	53	132	36	8.12	14
				May-15	798	1191	500	32	0	99	0.1	1.8	63.25	119	44	7.97	11
				May-16	860	1283	561	60	0	142	0.5	4.5	73.01	120	44	7.72	11
				May-17	1122	1675	744	64	0	106	0.8	1.5	121.64	112	50	8.15	96
				May-18	797	1190	415	52	0	135	0.66	1.8	58.41	102	50	7.85	25
				May-19		1174	561	20	0	92	0.43	1.7	68.1	148	37	8.13	33
				May-20		1476	683	36.1	0	121	0.73	2	123.98	97	37	8.19	53
				Jun-21		1895	604	20	60	213	0.72	2.61	143.47	140	40	8.39	32

W222500072363001	Laxmipura	22.4166667	72.61154	May-12	2911	4345	659	80	0	1022	0.71	8.3	53	865	15	8.27	275
				May-13	2174	3245	866	40	0	596	1.36	3.2	24	669	10	8.1	78
				May-14	2256	3367	793	100	0	709	1.1	2.1	48	600	30	8	62
				May-15	2894	4319	866	120	0	815	0.9	3.2	60.93	720	9	8.17	222
				May-16	2787	4159	817	20	84	923	2.4	4.6	109.43	810	6	8.48	117
				May-17	3069	4580	598	100	156	780	2.2	3.4	97.37	780	10	8.4	449
W222515072474001	Dharmaj	22.42083333	72.79872	May-12	1400	2090	878	51	0	199	1.1	1.4	44	380	70	8.17	70
				May-13	1856	2770	988	40	0	312	1.1	1.7	68	491	140	8.26	73
				May-14	1642	2450	964	32	0	276	0.22	1	50	445	48	7.76	32
				May-15	1235	1844	708	40	0	184	0.48	2.1	31.66	330	65	8.29	49
				May-16	1919	2864	891	40	96	390	1.05	2.2	109.46	467	47	8.45	74
				May-18	1581	2360	708	60	0	284	1.38	0.6	51.13	375	100	7.76	110
				Jun-21		2796	738	32	126	269	1.39	2.48	55.96	492	106	8.62	108
W222843073014901	Adas_DW	22.47861111	73.03551	May-15	851	1270		44				1	92.44	73		7.54	
				May-15	851	1270	525	44	0	92	0.3	1	92.44	73	90	7.54	13
				May-17	931	1389	539	68	0	99	0.43	1.3	109.49	68	88	7.93	108
				May-18	700	1045	366	60	0	106	1.06	1.9	58.42	60	86	6.72	5
				May-19		1354	561	24	0	99	0.46	1.2	133.75	64	80	8.25	70
				May-20		1216	512	36.1	0	92	0.52	1.2	102.1	75	91	8.06	39
				Jun-21		1760	464	44	60	213	0.55	3.17	125.27	95	86	8.33	25
W223039072340001	Tol	22.51083333	72.56667	May-15	427	637	232	48	0	64	0.4	5.1	21.94	59	6	8.28	49
				May-17	447	667	354	56	0	42	0.68	5.5	24.38	58	7	8.12	8
				May-18	684	1021	281	60	0	177	1.08	13.8	31.68	98	19	8.03	20
				May-19		679	305	36	0	57	0.77	10	34.08	57	5	8.11	37
				Jun-21		700	207	48	0	78	0.65	7.01	36.53	32	62	6.91	20
W223230072490001	Bandhani	22.54166667	72.81667	May-12	529	790	293	60	0	99	1	14.5	12	95	23	7.6	4
				May-13	483	721	291	64	0	107	1	18.3	7	109	21	8.24	14
				May-15	505	754	256	68	0	92	0.5	11.6	12.24	68	16	7.88	12
				May-16	498	743	342	64	0	92	0.85	13.8	17.1	92	14	8.04	5
				May-17	969	1447	512	112	0	177	0.9	29	24.45	153	42	8.19	4
				May-20		1834	903	8.02	36	106	2.3	0.56	26.74	408	28	8.52	38
				Jun-21		2246	397	132	60	454	1.05	33	94.98	162	69	8.27	21
W223430072373001	Shekhupura	22.575	72.62821	May-12	4342	6480	805	32	66	1335	2.8	0.5	63	1350	5	8.77	563
				May-13	2803	4183	451	56	0	923	0	435	117	415	8	8.1	350
				May-15	1506	2248	549	64	0	398	0.8	54.4	87.61	252	105	8.26	30
				May-17	2403	3587	598	120	144	603	0.15	260	48.77	492	11	8.87	270
				May-18	609	909	390	44	0	71	1.02	14	63.27	43	2	8.2	37
				May-20		3728	1025	24	36	518	0.4	355	55.95	550	1.4	8.98	258
				Jun-21		3315	598	28	180	440	0.26	275	65.68	470	0	8.76	269
W223430072582001	Anand	22.575	72.97436	May-12	712	1062	378	28	0	99	0.58	1.4	71	100	43	8.26	86
				May-13	620	925	390	32	0	107	0.5	1.6	66	91	39	8.27	41
				May-14	840	1253	598	28	0	99	0.3	2.5	70	140	18	7.6	17
				May-15	1086	1621	549	84	0	177	0.22	2.8	75.47	114	44	7.76	28
				May-18	1132	1690	537	92	0	170	0.82	6.2	77.91	130	30	7.68	135

				Jun-19	1049	1567	720	84	0	128	0.65	4.4	56.02	185	21	7.83	76
W223756073001501	Boriyani	22.63222222	73.00577	May-15	923	1377	561	88	0	156	0	28	43.87	120	8	8	5
				May-16	1284	1916	390	124	0	362	0.15	12.8	109.56	106	46	7.82	111
				May-17	966	1442	647	72	0	135	0.1	25	50	172	18	8.09	25
W223808072543301	Boriyavi	22.63555556	72.91269	May-14	804	1200	378	56	0	156	0.1	1.2	48.69	139	6	7.4	100
				May-15	576	859	366	32	72	57	0.077	1	85.13	43	0	8.58	19
				May-16	844	1260	512	44	0	106	0.6	17	72.99	140	30	8.28	113
				May-17	901	1345	622	96	0	135	0.06	25	26.86	174	12	8.03	15
				May-19		1095	488	20	0	107	0.52	16.5	55.94	142	27	8.15	38
				May-20		1132	525	36	0	99	0.58	17	41.38	145	23	7.76	24
				Jun-21		1080	488	52	0	99	0.5	19	36.53	135	24	7.98	26
W224100072530001	Nadiad2	22.68333333	72.88333	May-12	2689	4014	138	264	0	923	0.53	9.2	277	163	225	7.91	518
				May-13	551	822	476	36	0	36	0.56	0.3	75	28	2	8.26	16
				May-14	716	1068	572	44	0	50	0.46	15	80.29	62	1	7.61	30
				May-15	2819	4207	451	24	132	852	0.2	446	111.87	440	14	8.7	200
				May-16	871	1300	622	52	0	92	0.8	0.5	128.92	30	1	8.29	78
				May-17	864	1290	644	72	0	64	0.57	0.7	77.89	60	2	8.17	8
				May-18	426	636	24	52	108	21	0.71	0.4	19.51	50	9	8.41	77
W224130073031501	Ghora	22.69166667	73.05577	May-12	1186	1770	561	164	0	227	0.23	9.7	73	127	21	8.27	177
				May-13	998	1490	598	156	0	170	0.35	10.6	32	118	21	8.24	25
				May-14	1193	1780	537	84	0	241	0.67	13	41	238	115	7.92	18
				May-15	1305	1948	549	172	0	248	0.02	2.1	31.82	154	80	7.75	25
				May-17	1145	1709	525	188	0	220	0.44	15	22.11	150	36	7.83	107
				Jun-21		2395	354	264	6	518	0.57	20	7.61	207	42	8.33	112
W224203072583601	Alindra	22.70083333	72.98051	May-14	529	789	390	48	0	28	0.6	1.7	41.39	58	10	7.66	45
				May-15	889	1327	549	84	0	149	0.1	28.3	41.43	139	8	8.28	12
				May-17	565	843	439	48	0	35	0.96	0.8	43.82	63	8	8.29	17
				May-18	1690	2523	268	200	0	567	0.64	9.3	48.87	287	130	7.95	180
				May-19		690	366	32	0	21	0.66	10	41.37	56	6	8.24	24
				May-20		625	348	32	0	28	0.67	3	38.94	45	1.4	7.48	17
				Jun-21		920	488	32	0	43	0.92	0.9	21.92	150	17	7.9	32
W224249073073601	Parvata	22.71361111	73.13051	May-15	893	1333	525	52	0	113	0.66	1	46.26	150	30	8.05	27
				May-16	703	1049	512	36	48	78	1.1	1.4	63.26	143	20	8.45	30
				May-17	781	1165	573	56	0	78	1.09	0.8	46.26	153	30	8.05	52
				Jun-19	699	1043	500	32	0	71	0.99	0.7	51.1	130	19	7.45	46
				May-20		1148	476	40.1	36	71	0.93	1.9	77.79	96	6.9	8.33	76
				Jun-21		1368	287	72	90	170	1.03	2.55	68.16	97	6.9	8.28	65
W224315073113001	Kalesar	22.72083333	73.19487	May-12	677	1010	488	68	0	71	0.8	3	61	65	33	8.24	30
				May-13	791	1180	659	32	0	50	1.2	0.4	46	174	9	8.26	25
				May-14	797	1190	622	32	0	64	0.92	0.4	55.96	144	7	8	13
				May-15	1179	1759	610	52	156	149	0.95	13.8	53.55	305	22	8.5	19
				May-16	782	1167	403	44	96	57	1.28	0.7	53.54	167	11	8.55	105
				May-17	931	1390	720	36	0	71	1.32	0.8	57.18	189	13	8.73	29
				May-18	900	1344	464	40	0	78	1.13	0.8	72.99	145	13	8.21	202

				May-19		1224	500	28	72	64	1.3	0.66	53.52	179	13	8.42	44
				May-20		1198	647	28	0	64	1.5	0.68	53.52	178	9.3	7.83	41
				Jun-21		1295	671	32	0	64	1.29	6.8	53.53	188	11	8	54
W224415072421501	Kheda	22.7375	72.70577	May-12	1173	1750	293	72	0	270	0.2	3.7	78	156	180	8.12	65
				May-13	3199	4775	647	224	0	1193	0.4	28.7	161	520	31	8	86
				May-17	4240	6328	1244	380	0	1418	1	38	219.28	635	70	7.52	121
				May-18	2529	3775	305	160	168	603	0.3	260	60.98	415	18	8.63	451
				May-20		7648	390	417	0	2070	0.58	5	187.35	911	1.9	7.31	639
				Jun-21		5330	390	300	0	1448	0.5	32	221.61	480	10	7.51	368
W224545073101001	Dakor	22.7625	73.17051	May-13	965	1440	744	68	0	71	1.26	21.1	34	208	50	8.2	7
				May-14	1254	1872	830	32	0	156	0.72	12.2	77.84	240	21	7.92	8
				May-15	853	1273	476	40	120	128	1.1	1.1	58.4	218	28	8.5	15
				May-16	1394	2080	939	88	0	170	1.04	19.2	56.03	281	21	8.29	28
				May-17	1456	2173	1000	76	0	191	1.2	14.8	53.58	329	19	8.09	14
				May-20		1505	561	44	0	177	1.2	8.3	53.54	182	5.1	7.54	36
				Jun-21		2362	817	80	0	383	0.89	34	77.9	330	14	7.6	48
W224659073103601	Muliyad	22.78305556	73.18051	May-14	4653	6945	171	260	0	2304	0.5	0.4	231.29	950	4	7.98	220
				May-15	713	1064	512	32	72	64	1.3	0.8	43.8	180	13	8.5	6
				May-16	6619	9879	342	400	0	2836	0.7	17.4	316.56	1200	2	7.68	551
				May-17	7357	10980	305	40	0	3545	0.8	21	656.5	1430	6	7.32	564
				May-18	1689	2521	659	160	0	390	1.55	21	73.13	280	24	8.1	180
				May-19		11160	232	260	0	3621	0.48	37	547.36	1500	28	7.43	420
				May-20		6780	305	297	0	1773	0.56	7.6	119.13	855	24	7.32	440
				Jun-21		6728	415	284	0	1732	0.54	75	168.11	830	0	7.68	440
W224700072563001	Mahudha	22.78333333	72.94487	May-12	1059	1580	403	24	48	184	0.5	8	7	305	85	8.75	10
				May-13	1567	2330	573	72		398	0.85	56.1	92	282	115	8.2	38
				May-14	1280	1911	671	44	0	284	0.68	5	75.42	261	38	7.6	2
				May-15	1060	1582	573	20	60	192	1.3	2.2	17.04	360	31	8.6	29
				May-16	1666	2486	659	220	0	425	0.96	52	24.58	260	75	8.29	5
				May-17	1528	2280	830	64	0	305	1	31	73.02	320	36	7.98	8
				May-19		2366	586	20	0	419	0.67	31	114.3	300	9	8.27	100
				May-20		2580	683	60	0	411	0.75	34	90.03	341	18	7.73	123
				Jun-21		2450	817	60	0	391	0.71	43	97.33	320	3.1	7.7	140
W224830073033001	Alina	22.80833333	73.06154	May-12	2446	3650	171	256	0	895	0.3	3.7	112	313	26	8.1	326
				May-13	429	640	159	48	0	923	0.5	18.1	122	497	145	7.9	128
				May-14	1623	2423	464	52	0	496	0.7	8.2	107.04	296	115	7.87	29
				May-15	5400	8060	293	216	0	2286	0.6	20.7	170.45	1290	4	7.41	512
				May-16	1749	2611	464	132	0	503	0.97	11	92.55	310	140	7.92	163
				May-17	1887	2817	512	160	0	567	1	7.5	85.29	338	140	7.87	134
				May-18	8348	12460	134	540	0	4325	1.55	33.5	341.04	1730	8	7.59	203
				May-19		3150	476	24	0	561	0.78	8.3	184.81	363	170	7.88	272
				May-20		3129	525	112	0	510	0.9	7	114.65	359	141	7.48	225
				Jun-21		2838	476	84	0	511	0.87	6.5	131.39	300	134	7.37	231
W225430073071501	Ladvel	22.90833333	73.12244	May-13	759	1133	464	48	0	142	1.26	24.5	27	191	34	8.27	30

				May-14	657	980	366	28	0	121	0.82	39	21.92	145	5	7.92	30
				May-15	1759	2625	427	96	0	497	0.9	9.5	97.37	305	175	8.05	96
				May-16	1532	2287	573	80	0	461	3.2	15	97.35	270	43	8.24	15
				May-17	1332	1988	659	76	0	298	0.95	8.7	58.44	260	20	8.04	10
				May-18	1138	1699	378	84	0	312	0.77	11.7	58.45	180	11	8.29	72
				May-20		1975	439	96	0	411	0.58	13	53.61	215	2	7.45	33
				Jun-21		3670	366	188	0	937	0.41	18	112.07	370	4.5	7.64	50
W225700073193001	Balasinor1	22.95	73.32821	May-12	657	980	403	32	0	107	0.7	0	32	144	26	8.24	16
				May-13	429	640	207	68	0	78	0.53	0	15	47	37	7.9	19
				May-14	444	663	171	68	0	99	0.35	0.7	31.69	36	26	7.55	72
				May-15	478	714	183	8	0	107	0.56	0.5	53.5	48	24	8.24	20
				May-16	531	793	232	64	0	121	0.6	2.1	31.68	56	20	8.13	30
				May-17	454	678	207	72	0	106	0.7	0.6	24.4	52	32	7.86	43
				May-18	430	642	98	56	0	106	0.92	1.6	26.81	40	24	8.23	80
				Jun-19	446	665	220	64	0	85	0.24	0.3	19.53	46	12	7.08	38
				May-20		953	342	104	0	113	0.52	0.6	24.44	55	14	7.12	34
				Jun-21		727	244	92	0	99	0.5	7.7	4.97	56	6.2	7.65	35
W230015073053001	Kapadvanj	23.00416667	73.09487	May-15	2537	3787	464	88	0	838	2.5	16.8	19.56	710	39	8.1	219
				May-20		1794	805	44	0	142	2.5	14	21.94	336	37	7.18	30
				Jun-21		1820	915	48	0	142	1.28	12	21.94	340	19	7.52	27
W230500073214501	Juna vasadra	23.08333333	73.36731	May-12	2001	2986	1000	32	78	355	2.3	1.9	34	600	9	8.79	52
				May-13	1813	2706	805	224	0	497	0.75	21.1	119	168	26	7.9	22
				May-14	2687	4010	586	200	0	922	0.35	22	243.37	271	32	8.05	254
				May-15	612	913	378	72	0	71	0.66	2.1	36.56	61	42	8.27	15
				May-16	2928	4370	1025	300	0	815	0.77	33	134.09	440	30	8.27	217
				May-17	908	1355	549	148	0	149	0.67	2.5	53.67	54	46	7.94	5
				May-19		1469	207	116	0	291	0.62	1.3	77.94	67	65	7.62	101
				Jun-21		789	317	64	36	50	0.41	1.4	29.25	72	3.2	8.33	35
W231005073244001	Bar	23.16805556	73.41538	May-13	2048	3057	817	176	0	554	0.75	162	92	237	42	8.1	30
				May-15	1954	2916	854	248	0	426	0.9	280	14.89	205	21	8.27	120
				May-16	389	580	268	56	0	43	0.84	4	17.09	40	4	8.2	10
				May-17	2372	3540	1257	240	0	496	1	190	158.33	180	42	8.24	80
				May-18	2181	3255	842	160	0	603	1.5	400	133.92	108	40	8.29	89
				May-20		677	305	32	0	50	0.73	23	29.21	55	2.4	7.38	21
				Jun-21		711	195	56	0	92	0.56	5.3	24.38	61	35	8.01	45

c) Groundwater Level Monitoring Data, Anand and Kheda Districts, GWRDC

Dug Well	District	Tahsil / Taluk	Village	Geology	Latitude	Longitude	Total Depth (m)	RL (m)	2017_May	2017_Oct	2018_May	2018_Oct	2019_May	2019_Oct	2020_May	2020_Oct	2021_May	2021_Oct	2022_May	2022_Oct
Dug Well	Anand	Umreth	Umreth	Alluvium	22°42'02"	73°07'13"	8.60	7.10	9.00	7.90	10.00	7.50	10.50	4.70	7.60	4.70	7.50	4.90	9.30	4.60
Dug Well	Anand	Umreth	Dhuleta	Alluvium	22°39'03"	73°10'35"	22.00	17.10	22.40	22.00	22.30	22.20	22.50	19.60	24.40	17.30	25.00	18.10	20.50	18.20
Dug Well	Anand	Umreth	Shili	Alluvium	22°35'25"	73°08'32"	23.70	21.40	24.20	23.90	24.80	23.70		23.80		23.20		21.70	23.90	21.40
Dug Well	Anand	Anand	Khambholaj	Alluvium	22°35'01"	73°04'59"	16.30	13.20	18.50	14.60	18.60	16.30	20.10	16.20	18.30	16.90	18.80	16.60	18.60	16.40
Dug Well	Anand	Anand	Sarsa	Alluvium	22°32'42"	73°04'15"	19.15	17.60	21.20	20.30	23.50	20.60	25.10	20.90	20.00	18.60	24.10	20.20	23.60	20.40
Dug Well	Anand	Umreth	Ghora	Alluvium	22°42'25"	73°02'57"	7.60	4.10	7.20	3.30	6.80	5.40	7.40	2.90	5.60	2.90	5.60	3.10	5.60	2.90
Dug Well	Anand	Anand	Anand	Alluvium	22°32'45"	72°57'35"	5.75	5.70	6.10	5.90	7.50	5.80	7.40	4.40	6.00	4.50	6.40	5.60	5.90	5.80
Dug Well	Anand	Anand	Boriavi	Alluvium	22°36'35"	72°55'53"	7.20	7.00	8.30	7.20	8.90	6.70	9.40	6.80	8.70	6.80	9.00	7.80	9.90	8.00
Dug Well	Anand	Borsad	Bhadran	Alluvium	22°21'33"	72°53'58"	18.80	15.80	20.60	20.20	21.20	20.40	21.40	20.60	20.70	19.50	21.00	20.40	21.40	20.70
Dug Well	Anand	Khambhat	Kanisha	Alluvium	22°23'17"	72°41'11"	6.80	6.50	7.80	6.30	7.90	6.50	8.10	5.40	7.00	4.60	6.50	3.90	5.80	4.00
Dug Well	Anand	Khambhat	Bhuval	Alluvium	22°19'40"	72°42'21"	10.90	8.80	13.10	11.70	12.20	11.60	12.30	9.50	13.50	8.00	8.20	7.80	8.20	8.00
Dug Well	Anand	Khambhat	Haripura	Alluvium	22°15'32"	72°46'57"	12.15	11.20	15.90	12.00	14.10	12.30	13.00	7.30	10.40	6.80	8.90	7.60	9.60	7.80
Dug Well	Anand	Khambhat	Kansari	Alluvium	22°20'01"	72°38'54"	5.20	4.50	7.00	4.00	5.70	4.30	5.50	3.70	5.40	4.20	4.50	3.50	4.00	3.90
Dug Well	Anand	Tarapur	Zalapur	Alluvium	22°28'51"	72°39'06"	5.00	2.90	4.90	2.40	4.30	1.80	4.50	1.60	4.30	3.80	3.90	2.00	3.50	2.50
Dug Well	Anand	Sojitra	Sojitra	Alluvium	22°32'20"	72°43'40"	7.20	3.70	7.10	2.10	6.40	1.40	6.60	1.60	6.10	2.80	5.90	1.50	5.10	1.70
Dug Well	Anand	Petlad	Petlad	Alluvium	22°28'32"	72°48'55"	7.75	6.10	8.65	6.75	9.40	6.25	8.55	5.35	8.05	5.75	7.45	5.95	7.85	6.25
Tube Well	Anand	Anand	Kasor-I	Alluvium	22°38'25"	72°00'20"	9.40	7.70	10.00	5.00	8.75	8.60	11.00	4.90	9.70	7.10	9.30	7.00	9.90	8.20
Tube Well	Anand	Anand	Kasor-II	Alluvium	22°38'21"	72°59'42"	9.90	7.50	10.20	4.80	9.70	8.20	11.10	4.70	10.10	7.50	9.80	7.40	10.40	8.50
Tube Well	Anand	Anand	Kasor-III	Alluvium	22°38'21"	73°00'05"	9.55	6.75	9.90	4.70	8.85	7.90	10.80	4.60	9.20	7.20	9.20	7.10	10.10	8.60
Tube Well	Anand	Anklav	Gambhira	Alluvium	22°16'32"	72°58'39"	17.20	17.10	19.40	16.00	19.20	17.40	19.70	15.30	16.20	16.10	18.30	13.80	17.40	14.30
Tube Well	Anand	Khambhat	Chhatardi	Alluvium	22°20'48"	72°39'29"	11.84	11.00	15.54	13.94	14.34	12.94	14.34	13.64	12.54	8.64	13.24	10.04	11.54	8.84
Tube Well	Anand	Khambhat	Pandad	Alluvium	22°23'12"	72°27'18"	2.55	1.40	2.40	1.10	1.90	1.85	2.50	0.90	2.30	0.40	2.00	0.60	3.10	1.00
Tube Well	Anand	Tarapur	Varsada	Alluvium	22°30'02"	72°29'55"	4.55	3.30	4.30	2.10	4.00	3.80	4.20	1.80	3.90	2.40	3.70	2.50	4.40	3.00
Tube Well	Anand	Petlad	Mahelav	Alluvium	22°33'28"	72°48'36"	13.05	11.90	13.60	11.30	13.70	11.20	14.40	11.10	13.00	10.70	12.70	11.30	13.20	10.60
Tube Well	Anand	Khambhat	Khambhat	Alluvium	22°19'56"	72°37'37"	13.90	12.80	16.15	14.65	15.45	13.85	15.15	13.45	13.85	12.85	13.25	12.95	13.65	11.85
Tube Well	Anand	Borsad	Borsad	Alluvium	22°24'18"	72°54'21"	14.10	13.50	16.40	14.80	16.20	14.80	16.80	14.50	16.30	13.70	16.20	14.50	17.00	13.60
Tube Well	Anand	Anand	Sandesar	Alluvium	22°31'04"	72°52'43"	8.05	6.60	9.10	8.40	8.90	8.40	9.40	8.00	9.00	7.90	9.10	8.90	9.60	
Tube Well	Anand	Umreth	Umreth	Alluvium	22°42'10"	73°06'45"	11.05	9.35	11.35	8.55	11.85	9.85	12.45	7.25	10.15	7.55	10.35	8.55	11.75	11.75
Tube Well	Anand	Anand	Karamsad	Alluvium	22°32'22"	72°54'40"	11.15	10.60	12.80	11.80	13.10	11.90	13.70	11.40	12.90	10.80	12.40	12.10	13.70	13.10
Tube Well	Anand	Anand	Karamsad	Alluvium	22°32'22"	72°54'40"	7.50	4.90	8.30	5.80	7.50	5.00	8.10	1.60	6.50	3.60	6.40	5.70	6.90	5.00
Tube Well	Anand	Anklav	Ambali	Alluvium	22°23'15"	73°02'05"	21.35	21.30	21.90	21.10	22.00	21.30	21.90	16.70	18.80	17.20	20.40	18.50	21.50	19.20
Tube Well	Anand	Anklav	Khadol(haldari)	Alluvium	22°27'03"	72°59'53"	14.90	13.50	18.50	17.40	20.00	19.40	21.80	16.90	18.30	17.10	19.10	16.20	18.00	16.30
Tube Well	Anand	Anklav	Umeta	Alluvium	22°19'47"	73°02'35"	19.35	18.60	20.10	18.00	20.10	18.90	20.50	17.00	19.20	18.00	19.10	17.10	18.70	17.80
Tube Well	Anand	Borsad	Ras	Alluvium	22°20'18"	72°49'43"	9.15	8.90	11.40	8.60	11.10	9.20	10.20	7.30	9.40	6.70	9.20	6.50	9.50	6.10
Tube Well	Anand	Borsad	Kathana	Alluvium	22°17'41"	72°46'41"	15.95	14.50	19.40	14.90	18.60	18.00	19.40	15.50	19.80	13.30	18.30	14.00	18.80	13.80
Tube Well	Anand	Khambhat	Jalundh	Alluvium	22°21'53"	72°42'46"	11.30	10.70	11.70	9.90	11.00	10.80	11.50	10.10	12.00	8.60	9.70	8.20	9.60	8.10
Tube Well	Anand	Khambhat	Jalsan	Alluvium	22°24'37"	72°43'26"	10.50	9.40	11.90	7.70	10.80	9.90	11.20	8.10	11.80	6.20	9.80	6.10	11.80	
Tube Well	Anand	Khambhat	Vatra	Alluvium	22°19'11"	72°43'42"	18.10	16.80	20.00	18.90	20.10	19.80	18.70	16.20	19.50	14.90	17.10	14.80	18.10	14.30
Tube Well	Anand	Petlad	Manej	Alluvium	22°26'52"	72°43'08"	11.15	9.70	13.20	7.50	12.10	8.40	12.20	7.70	12.40	7.20	10.90	8.70	11.60	7.40
Tube Well	Anand	Petlad	Jogan	Alluvium	22°27'12"	72°47'11"	12.25	11.30	13.40	10.10	13.40	9.10	13.40	10.00	13.10	9.80	11.80	9.40	13.40	8.90

Tube Well	Anand	Petlad	Ramol	Alluvium	22°37'48"	72°47'03"	7.55	5.50	7.40	5.50	7.20	6.90	7.90	5.60	7.10	3.90	6.40	4.60	7.00	4.90
Tube Well	Anand	Sojitra	Bhadkad	Alluvium	22°37'20"	72°42'09"	3.90	1.60	3.80	1.00	3.40	2.80	3.20	1.10	2.30	0.80	2.10	0.90	3.20	1.60
Tube Well	Anand	Sojitra	Khansol	Alluvium	22°30'00"	72°43'35"	5.90	1.80	4.50	0.90	2.90	1.80	3.10	0.30	2.60	0.90				
Tube Well	Anand	Sojitra	Meghalpur	Alluvium	22°33'30"	72°40'36"	4.75	1.80	4.60	2.40	4.50	2.80	4.60	2.20	5.50	1.30	5.20	0.90	2.40	1.00
Tube Well	Anand	Sojitra	Petli	Alluvium	22°36'35"	72°45'44"	5.90	1.90	5.00	1.80	5.20	2.70	5.70	1.70	3.80	1.90	4.20	1.10	3.30	2.50
Tube Well	Anand	Tarapur	Budhej	Alluvium	22°25'54"	72°35'08"	3.55	2.00	3.60	1.10	3.20	1.00	3.40	1.30	3.40	1.00	2.90	1.10	2.60	1.90
Tube Well	Anand	Umreth	Bhalej	Alluvium	22°37'40"	73°02'13"	6.60	6.10	7.05	6.80	7.00	6.70	8.40	2.50	7.60	5.40	7.10	2.00	5.30	1.80
Tube Well	Anand	Umreth	Pansora	Alluvium	22°41'15"	73°01'50"	9.25	5.10	8.60	4.90	9.20	5.70	9.40	3.30	4.90	4.10	6.80	4.40	6.70	4.50
Tube Well	Anand	Umreth	Khakhanpur	Alluvium	22°40'59"	73°11'17"	6.35	4.80	6.90	3.30	6.60	5.90	7.20	4.30	7.40	6.30	8.30	4.80	9.40	8.50
Tube Well	Anand	Umreth	Sundalpura	Alluvium	22°37'31"	73°11'11"	21.00	20.00	21.10	20.80	23.80	22.70	23.80	21.30	23.40	17.90	23.10	18.00	22.70	22.70
Tube Well	Anand	Khambhat	Gudel	Alluvium	22°24'19"	72°31'23"	2.00	1.25	3.85	0.95	2.85	1.55	1.95	0.85	2.75	0.95	2.45	0.95	2.55	1.75
Bore Well	Anand	Anand	Ode	Alluvium	22°37'05"	73°06'12"	15.40	15.10	16.60	14.00	17.50	15.40	17.90	15.00	16.80	15.10	16.90	15.20	17.00	15.40
Bore Well	Anand	Anand	Vasad	Alluvium	22°27'35"	73°03'47"	19.10	17.00	20.20	19.00	21.00	20.10	21.00	18.90	19.50	18.70	19.60	18.70	19.00	18.70
Bore Well	Anand	Anklav	Asodar	Alluvium	22°25'28"	72°59'20"	20.80	21.90	23.90	23.60	24.70	24.60	25.10	22.80	23.60	21.90	26.40	22.00	23.20	21.80
Bore Well	Anand	Borsad	Kinkhlod	Alluvium	22°20'01"	72°58'06"	23.75	24.50	26.00	24.60	25.60	25.40	26.60	22.10	24.40	22.70	25.10	22.10	23.50	21.50
Bore Well	Anand	Borsad	Virsad	Alluvium	22°22'56"	72°46'44"	8.75	10.20	11.90	10.70	11.70	11.60	11.80	10.50	11.40	9.80	10.90	10.40	11.90	10.60
Bore Well	Anand	Petlad	Petlad	Alluvium	22°28'45"	72°48'02"	7.55	7.40	8.60	6.90	8.75	6.20	8.60	6.70	7.20	5.60	7.40	6.00	8.70	6.40
Bore Well	Anand	Sojitra	Sojitra	Alluvium	22°31'57"	72°43'29"	5.60	4.00	4.65	2.30	5.20	3.80	5.40	2.00	4.90	3.50	5.00	4.80	5.70	3.20
Bore Well	Anand	Tarapur	Tarapur	Alluvium	22°28'50"	72°39'33"	3.45	2.00	3.40	0.50	3.30	1.00	3.60	1.10	3.10	1.60	2.90	0.60	2.50	0.10
Bore Well	Anand	Khambhat	Dehda	Alluvium	22°22'49"	72°32'52"	1.60	0.45	1.50	0.40	1.30	0.10	1.50	0.10	1.10	0.60			1.00	0.50
Dug Well	Kheda	Kheda	Nayka	Alluvium	22°45'01"	72°34'34"	10.85	26.85	3.00	2.60	3.00	2.00	3.05	2.04	2.72	2.20	4.9	2.92	2.4	2.45
Dug Well	Kheda	Kheda	Kajipura	Alluvium	22°47'12"	72°38'42"	45.00	27.40	7.00	2.70	7.30	3.70	9.39	5.15	7.93	3.90	7.78	4.95	7	3.6
Dug Well	Kheda	Thasra	Dakor	Alluvium	22°45'12"	73°08'51"	21.30	53.20	4.95	0.95	8.25	2.15	9.10	6.88	7.37	1.15	2.1	1.5	2.5	2.45
Dug Well	Kheda	Thasra	Nes	Alluvium	22°42'36"	73°12'11"	23.90	57.05	12.40	11.10	12.90	11.80	16.52	10.89	11.60	9.85	12.2	12	13.1	14.5
Dug Well	Kheda	Thasra	Thasra	Alluvium	22°48'40"	73°12'26"	20.55	69.69	7.10	4.50	6.60	5.20	7.47	5.80	6.24	2.72	5	4.8		6
Dug Well	Kheda	Thasra	Muliad	Alluvium	22°47'25"	73°09'06"	21.30	55.30	2.85	0.75	2.35	1.15	2.37	0.95	1.64	0.81	1.37	0.65	2.25	1.05
Tube Well	Kheda	Vaso	Palana	Alluvium	22°40'58.3"	72°45'23.4"	15.00												5.6	7.05
Tube Well	Kheda	Matar	Limbasi	Alluvium	22°37'16"	72°36'39"	30.00	31.50	1.75	0.75	1.65	0.65	1.92	0.35	2.35	1.97	2.4		0.45	69.35
Bore Well	Kheda	Thasra	Thasra	Basalt	22°47'47"	73°13'28"	35.35	69.69	5.20	1.40	5.40	1.50	5.15	2.41	4.22	0.78	4.2	1.3	4.05	2.3
Bore Well	Kheda	Thasra	Khadgodhra	Basalt	22°57'20"	73°15'10"	60.00	75.25	28.00	10.90	24.40	13.70	28.14	18.22	22.33	9.50	24.65	21.86	28.6	14.8
Tube Well	Kheda	Kheda	Kajipura	Alluvium	22°46'43"	72°38'47"	59.00	23.00	11.20	8.70	12.00	8.00	13.70	8.54	9.07	7.25	9.07	9.8	11.65	7.5
Tube Well	Kheda	Kheda	Kheda	Alluvium	22°45'35"	72°41'55"	60.00	25.00	19.40	15.50	18.80	14.20	19.58	12.95	14.88	12.00	13.35	10.15	16.3	10.4
Tube Well	Kheda	Kheda	Navagam	Alluvium	22°48'15"	72°35'12"	60.00	25.00	20.70	16.70	20.20	19.00	22.52	17.48	19.23	18.70	19.23	11.18	19.5	14.8
Tube Well	Kheda	Kheda	Nayka	Alluvium	22°45'18"	72°34'55"	60.00	26.00	19.10	17.20	18.60	17.80	19.30	13.38	13.50	13.27				
Tube Well	Kheda	Kheda	Kanera	Alluvium	22°49'12"	72°37'31"	60.00	28.00	2.90	1.60	3.40	1.70	3.44	1.37	3.13	1.40	4.13	2.85	1.5	1.55
Tube Well	Kheda	Matar	Palla	Alluvium	22°38'40"	72°32'55"	45.00	20.00	9.30	7.00	9.30	7.70	10.76	5.22	9.18	6.05	9.05	6.6	8.15	5.6
Tube Well	Kheda	Matar	Vansar	Alluvium	22°43'15"	72°42'42"	45.00	26.00	14.60	10.50	13.90	9.80	13.72	7.90	11.30	8.68	11.57	8.58	12.5	9.95
Tube Well	Kheda	Nadiad	Dabhan	Alluvium	22°42'54"	72°48'45"	60.00	36.00	13.50	10.10	12.70	10.30	13.55	8.13	12.17	8.30	11.36	9.25	10.25	8.4
Tube Well	Kheda	Nadiad	Alindra	Alluvium	22°42'32"	72°57'44"	60.00	45.00	11.40	6.90	11.40	8.20	12.80	8.00	14.10	10.20	13.98	10.28	8.5	8.95
Tube Well	Kheda	Nadiad	Nadiad	Alluvium	22°41'30"	72°51'56"	60.00	39.00	15.80	13.50	15.60	12.30	16.54	12.00	14.50	12.20	14.6	12.68	15.7	14.3
Tube Well	Kheda	Thasra	Gumadiya	Alluvium	22°45'18"	73°14'05"	45.00	71.00	24.20	22.40	24.70	23.10	25.68	22.10	23.05	21.90	23.37	22.05	24.3	23.6
Bore Well	Kheda	Thasra	Bordi (raipura)	Alluvium	22°47'07"	73°04'51"	40.00	54.00	17.80	17.00	17.90	17.50	18.15	17.00	17.10	16.92	16.82	16.2	17.7	17.5
Bore Well	Kheda	Matar	Singivada	Alluvium	22°31'19"	72°38'34"	60.00	22.00	5.80	3.40	6.00	3.40		3.78	5.88	3.90	4.65	3.05	3.9	2.95

d) Groundwater Quality Monitoring Data, Anand and Kheda Districts, GWRDC

Water Quality data of Ahmedabad, Anand & Kheda Districts

District	Taluka	Village	pH	EC	Total Hardness	Total Dissolved Solids	CO3	HCO3	Cl	SO4	NO3	Ca	Mg	Na	K	F	pH	EC	Total Hardness	Total Dissolved Solids	CO3	HCO3	Cl	SO4	NO3	Ca	Mg	Na	K	F
			2012_May														2012_Oct													
Anand	Anand	Ode															8.7	800	296.8	530	36	268	80			20	60	18	43.27	
Anand	Anand	Vasad															8.7	790	271.9	510	36	268	80			10	60	52	2.37	
Anand	Anklav	Asodar															8.9	1120	123.6	800	36	427	104			5	27	197	2.29	
Anand	Borsad	Kinkhlod															8.8	1270	210.2	950	36	610	56			10	45	192	1.93	
Anand	Borsad	Virsad															8.9	1360	123.7	950	24	427	200			10	24	253	4.28	
Anand	Petlad	Petlad															8.9	1190	111.4	810	24	293	160	83		10	21	217	5.96	
Anand	Sojitra	Sojitra															9.1	1810	98.9	1300	36	622	200	49		5	21	367	3.22	
Anand	Tarapur	Tarapur															8.9	6870	321.3	4420	48	1037	1640	183		10	72	1426	4.64	
Anand	Khambhat	Dehda															8.4	16440	605.9	9680	12	159	5440	390		35	126	3473	43.16	
Anand	Anand	Boriavi	8.3	740	235.5	570	12	232	104	59		35	36	74	14.4		8.5	650	185.7	450	12	244	72			20	33	49	21.4	
Anand	Borsad	Bhadran	8.5	1990	469.7	1490	36	512	304	211		20	102	300	1		8.9	2050	457.3	1320	60	500	296	90		20	99	255	2.35	
Anand	Khambhat	Kanisha	8.5	1910	272.4	1430	36	390	368	177		30	48	362	15.9		8.7	1950	210.4	1260	12	305	416	113		20	39	337	22.89	
Anand	Khambhat	Bhuval	8.5	1360	198.2	1040	24	342	264	77		25	33	246	29		8.7	1380	161.1	940	24	342	224	49		20	27	221	34.44	
Anand	Khambhat	Haripura	7.5	5270	1635	3200		342	2740	2669		200	276	2431	9.1		7.8	4200	1251	2000		342	2360	1043		160	207	1570	11.77	
Anand	Khambhat	Kansari	8.3	2110	247.9	1510	12	171	520	293		35	39	424	20.2		8.6	1900	161.1	1200	12	183	448	142		20	27	349	20.72	
Anand	Tarapur	Zalapur	8.2	119	235.5	890		268	240	110		35	36	197	5.1		8.7	1020	148.7	680	12	244	176	37		20	24	159	7.63	
Anand	Sojitra	Sojitra	8.5	1270	123.7	1080	48	537	80	101		10	24	281	1.5		8.7	1440	111.4	1080	36	647	88			10	21	276	3.25	
Anand	Petlad	Petlad	8.8	1480	296.6	1140	72	500	216	22		10	66	256	1		8.8	1830	259.7	1270	48	573	192	86		15	54	296	2.67	
Anand	Anand	Kasor-I	8	500	185.7	430		244	40	40	185.7	20	33	48	3.1		8.6	510	173.4	350	12	195	48			20	30	32	5.3	
Anand	Anand	Kasor-II	8.4	560	86.84	480	36	244	56		86.84	15	12	116	1.8		8.6	510	62.15	360	12	183	56			15	6	84	5.92	
Anand	Anand	Kasor-III	8.2	500	86.7	450		244	40	44	86.7	10	15	96	5.4		8.7	560	74.49	400	12	207	64			15	9	92	2.63	
Anand	Anklav	Gambhira	8.6	2010	235	1670	72	610	248	229	235	15	48	441	9.2		8.8	2130	210.2	1460	48	622	312	32		10	45	385	10.97	
Anand	Khambhat	Chhatardi	8.4	2310	173.4	1890	48	464	352	419		20	30	558	3.7		9	1600	99.18	1120	48	512	216			15	15	319	3.61	
Anand	Khambhat	Pandad	8.5	18740	765.8	14340	72	561	4840	3745		15	177	4719	206.5		8.6	20340	679.3	12330	48	598	6160	885		10	159	4209	258.4	
Anand	Tarapur	Varsada	8	10110	779.3	7640		232	2640	2102		55	156	2424	32.2		8.3	10710	692.2	6350	24	281	3320	391		30	150	2118	37.52	
Anand	Petlad	Mahelav	8.4	1820	198.1	1550	48	647	224	160		20	36	408	4.2		8.8	1960	210.2	1330	48	525	264	91		10	45	350	2.23	
Anand	Khambhat	Khambhat	8.7	3970	210.1	3150	72	573	800	649		10	45	1000	4.4		8.9	3730	185.5	2400	36	573	880	91		10	39	768	5.51	
Anand	Borsad	Borsad	8.2	700	173.5	600		256	48	134		25	27	108	5.2		8.8	640	210.3	440	12	268	56			15	42	44	7.39	
Anand	Anand	Sandesar	8.3	910	247.5	760	36	366	72	83		20	48	136	1.5		8.8	820	271.9	530	36	268	88			10	60	60	2.24	
Anand	Umreth	Umreth	8.2	1040	284.6	790		134	224	194		25	54	156	1.4		8.4	1220	333.9	720	12	134	296	59		20	69	124	2.05	
Anand	Anand	Karamsad	8.5	2170	136.4	1740	24	293	408	435		20	21	535	4.6		8.5	2270	173.1	1460	12	342	536	76		10	36	437	6.55	
Anand	Anand	Karamsad	8.1	270	124.2	230		146	32			25	15	17	0.7		8.5	330	86.84	220	12	110	40			15	12	34	2.49	
			2013_May														2013_Oct													
Anand	Anand	Ode	8.5	710	222.5	490	24	268	64			10	48	34	40.49	0.3	8.8	850	222.8	620	24	366	64	0	1.26	20	42	68	41.15	0.26
Anand	Anand	Vasad	8.3	660	197.9	420	12	159	112	19		15	39	58	1.53	0.35	8.6	780	197.8	490	24	195	136	0	1.9	10	42	85	2.21	0.72
Anand	Anklav	Asodar	8.4	1120	99.04	840	12	464	80	36		10	18	206	1.8	1.35	8.9	960	61.87	710	24	403	80	0	1.52	5	12	191	1.67	0.98
Anand	Borsad	Kinkhlod	8.1	1270	272.4	970		610	40	73		30	48	163	1.6	0.55	9	1030	185.5	760	36	488	32	0	1.54	10	39	148	1.42	0.72

Anand	Borsad	Virsad	8.8	1380	210.2	920	24	329	200	91		10	45	216	3.78	0.32	8.9	1320	74.35	910	36	378	208	0	2.2	10	12	266	3.77	0.79
Anand	Petlad	Petlad	8.5	1420	259.2	990	24	439	160	81		25	48	203	4.61	1.3	8.8	1280	173.3	910	24	476	144	0	2.2	15	33	209	5.8	0.6
Anand	Sojitra	Sojitra	8.8	1620	123.9	1170	36	525	136	123		15	21	314	158	0.26	9.1	1540	49.52	1110	48	512	144	60	1.6	5	9	328	2.19	1.44
Anand	Tarapur	Tarapur	9	7050	74.35	4510	84	683	1640	491		10	12	1583	3.48	0.65	8.8	7830	259.7	4870	24	500	2080	513	2.11	15	54	1678	3.57	1.47
Anand	Khambhat	Dehda	7.7	15150	1324	8730		73	5120	288		100	261	2844	39.56	0.3	8.3	16230	334.6	9660	12	98	5200	661	1.96	45	54	3552	41.98	0.23
Anand	Anklav	Ambali	7.8	620	235.3	420		183	32	106		25	42	31	0.45	0.8	8.4	410	173.5	270	13	159	24	16	8.2	25	27	11	1.01	0.54
Anand	Anklav	Khadol(haldari)	8.4	690	173	470	24	232	48	43		5	39	72	7.93	0.75	8.6	690	185.5	500	12	329	40	0	1.25	10	39	69	3.78	0.1
Anand	Anklav	Umeta	8.4	1750	321.3	1140	48	427	280	46		10	72	250	2.74	0.47	8.7	1390	123.7	980	24	439	168	55	1.26	10	24	260	2.94	0.48
Anand	Borsad	Ras	8.6	1540	86.56	1110	48	476	104	146		5	18	312	2.36	1.41	8.8	1250	61.87	940	24	549	88	0	1.47	5	12	256	2.3	0.99
Anand	Borsad	Kathana	7.9	1120	271.7	770		293	112	156		5	63	115	27.92	0.45	8.7	1230	272	810	24	342	192	21	0.28	15	57	145	16.43	0.17
Anand	Khambhat	Jalundh	8	2750	74.49	1710		122	712	258		15	9	594	3.76	1.2	8.3	2820	99.46	1720	24	110	792	155	3.82	25	9	598	4.84	0.1
Anand	Khambhat	Jalsan	9.3	1420	24.83	1000	48	354	160	110		5	3	314	1.53	1.11	8.7	1120	37.18	750	24	256	208	13	2.84	5	6	238	1.87	0.54
Anand	Khambhat	Vatra	8.3	2380	271.7	1500	48	305	480	172		5	63	406	21.97	0.39	8.7	2360	308.7	1540	24	488	464	80	0.9	5	72	388	16.4	0.7
Anand	Petlad	Manej	8.8	2700	111.3	1730	36	281	568	249		5	24	567	3.62	0.52	8.7	2740	284.2	1760	36	415	560	173	1.96	10	63	495	3.95	0.42
Anand	Petlad	Jogan	8.3	690	111.4	490	12	207	48	81		10	21	103	4.95	0.37	8.6	580	136.1	400	12	220	64	0	2.66	10	27	66	5.33	0.45
Anand	Petlad	Ramol	8.6	1470	160.6	1030	36	366	112	206		5	36	251	18.38	0.83	8.8	1340	173	940	36	464	160	0	1.49	5	39	213	21.61	0.69
Anand	Sojitra	Bhadkad	8.4	1870	210	1250	24	439	320	78		5	48	325	9.24	0.88	8.9	1700	148.3	1210	24	537	184	104	1.13	5	33	315	9.78	1.13
Anand	Sojitra	Khansol	9.2	4130	74.35	2620	36	268	952	422		10	12	905	14.14	0.8	8.6	4190	136.1	2660	24	329	984	381	3.49	10	27	892	13.01	0.58
Anand	Sojitra	Meghalpur	8.9	5530	222.5	3440	48	293	1360	507		10	48	1159	14.36	1.14	8.5	5560	259.5	3460	24	268	1400	525	5.01	10	57	1136	36.69	0.91
Anand	Sojitra	Petli	8.5	2540	74.35	1650	24	439	424	130	6.1	10	45	426	4.86	0.4	8.9	2370	247	1580	36	561	408	84	6.1	5	57	425	6.04	1.46
Anand	Tarapur	Budhej	8.8	2040	61.87	1370	48	366	312	191		5	12	438	2.93	0.61	8.9	1560	61.87	1090	24	415	208	99	1.16	5	12	327	1.98	1.06
Anand	Umreth	Bhalej	8.3	890	210.2	600	24	293	88	36		10	45	105	1.27	0.97														
Anand	Umreth	Pansora	7.9	1420	297	920		268	264	113		25	57	187	2.35	0.1	8.9	1730	185.5	1230	24	561	192	90	4.91	10	39	308	5.06	0.2
Anand	Umreth	Khakhanpur	8.1	400	136.4	270		122	48	28		20	21	26	2.46	0.41	8.6	390	136.2	270	12	171	24	0	1.18	15	24	25	2.26	0.54
Anand	Umreth	Sundalpura	8.4	540	173.1	360	24	195	32	21		10	36	41	2.26	0.37	8.6	570	173	400	12	256	40	0	2.62	5	39	48	2.27	0.17
Anand	Khambhat	Gudel	8.6	13150	543.5	8020	60	537	3640	870	3.8	10	126	2766	8.34	1.43	8.9	13300	444.6	8210	36	659	3560	992	0.71	5	105	2846	8.28	0.72
Anand	Umreth	Umreth	8.2	1910	469.7	1200		317	368	169		20	102	219	2.13	0.96	8.5	2250	395.7	1410	24	305	432	214	20.6	25	81	330	3.2	1.42
Anand	Umreth	Dhuleta	8.2	720	284.8	480		232	64	73		30	51	30	2.5	0.22	8.5	740	272.2	500	12	293	72	0	6.36	20	54	41	3.08	1
Anand	Umreth	Shili	8.2	1330	532.5	900		403	112	169		60	93	54	6.19	0.29	8.6	1380	457.3	920	24	439	128	102	20.7	20	99	97	10.55	1.33
Anand	Anand	Khambholaj	8.2	170	62.15	120		73	16			15	6	9	0.27	0.08	8.3	650	124	350	12	122	32	0	3.94	20	18	20	3.02	0.88
Anand	Anand	Sarsa	8.3	880	309.2	570	24	220	80	103		20	63	58	1.67	0.4	8.5	920	284.4	610	24	293	88	52	32	15	60	77	2.16	0.83
Anand	Umreth	Ghora	8.2	1270	372.3	850		281	160	171		70	48	114	8.14	0.58	8.3	1150	260.9	770	12	256	192	72	3.4	60	27	138	9.15	0.93
Anand	Anand	Anand															8.3	3050	346.8	1960	24	183	488	621	36.3	40	60	538	3.07	1.35
Anand	Anand	Boriavi	8.6	950	285.9	660	24	305	104	36		70	27	71	24.86	0.48	8.6	700	211.1	500	12	281	72	0	3.39	45	24	51	19.29	0.89
Anand	Borsad	Bhadran	8.6	2050	444.8	1320	36	427	304	176		15	99	262	1.23	0.35	8.7	2230	457.1	1480	36	561	272	199	7.42	10	105	297	1.5	1.4
Anand	Khambhat	Kanisha	8.1	1920	284.9	1230		256	408	167		35	48	293	27.24	0.81	8.5	1220	210.4	780	24	207	224	78	1.91	20	39	171	18.12	0.71
Anand	Khambhat	Bhuval	8.1	1490	198.4	1040		366	224	123		30	30	232	31.38	0.72	8.6	1350	123.9	920	24	354	240	0	2.96	15	21	231	33.24	0.88
Anand	Khambhat	Haripura	7.9	6650	866.1	3900		220	2000	313		70	168	1121	9.44	1.12	8.9	4050	148.4	2710	48	622	736	380	5.01	10	30	831	51.39	1.29
Anand	Khambhat	Kansari	8	2690	285.3	1700		207	608	303		50	39	469	26.79	0.37	8.5	1780	123.9	1170	24	268	328	159	3.58	15	21	340	18.26	0.88
Anand	Tarapur	Zalapur	8	990	173.5	650		183	176	89		25	27	142	5.85	0.17	8.5	1050	284.5	660	24	220	176	52	1.58	20	57	101	11.8	1.26
Anand	Sojitra	Sojitra	9	2440	123.7	1760	36	476	88	620		10	24	503	1.36	0.89	8.4	690	112	520	12	329	32	0	3.23	30	9	103	2.37	0.81
Anand	Petlad	Petlad	8.5	3050	321.4	2100	36	451	208	768		15	69	550	1.7	0.96	8.5	1980	333.6	1340	24	525	264	141	8.08	10	75	299	1.58	1.04
Anand	Anand	Kasor-I															8.4	570	62.01	400	12	195	72	0	1.35	10	9	100	3.18	0.46
Anand	Anand	Kasor-II															8.3	480	173.3	320	12	183	48	0	1.87	15	33	28	3.53	0.55
Anand	Anand	Kasor-III															8.4	480	49.66	350	12	171	56	0	0.7	10	6	83	7.88	0.93

Anand	Anklav	Gambhira															8.8	1210	185.6	820	24	329	160	63	1.01	15	36	184	9.99	0.66	
Anand	Khambhat	Chhatardi															9	1890	111.3	1320	36	537	248	88	1.54	5	24	379	2.89	0.65	
Anand	Khambhat	Pandad	8.4	34630	704	22490	48	464	6040	8011		10	165	7475	273.2	1.36	8.8	24580	666.8	15200	48	622	6600	2305	3.83	5	159	5176	280.9	1.26	
Anand	Tarapur	Varsada	8.1	12050	618	7830		159	3320	4225		25	135	3927	36.04	1.34	8.4	10370	568.7	6110	24	220	3360	221	5.86	30	120	2097	38.95	0.85	
Anand	Petlad	Mahelav															9.1	1670	185.3	1160	36	488	184	109	5.62	5	42	296	0.99	1.22	
Anand	Khambhat	Khambhat															8.9	3860	148.4	2510	36	512	824	275	1.43	10	30	814	6.11	0.76	
Anand	Borsad	Borsad															8.6	380	124.4	260	12	122	48	0	3.46	35	9	19	15	0.37	
Anand	Anand	Sandesar															8.4	860	247.2	580	24	317	88	0	0.91	10	54	81	2.06	0.62	
Anand	Umreth	Umreth															8.1	1330	334.6	790	0	134	344	63	3.98	45	54	147	3.08	0.53	
Anand	Anand	Karamsad															7.8	2250	99.04	1440	0	268	560	111	2.58	10	18	468	5.75	1.01	
Anand	Anand	Karamsad	8.1	530	99.32	370		98	40	120		20	12	73	1.93	0.6	8.1	400	136.5	290	0	183	32	0	1.77	25	18	26	2.46	0.59	
			2014_May														2014_Oct														
Anand	Anand	Ode	8.4	670	185.5	470	12	244	80		3.92	10	39	43	39.36	0.18	8.8	730	247.2	480	36	244	72	0	0.82	10	54	28	39.39	0.41	
Anand	Anand	Vasad	8.4	760	256.8	460	12	159	160		0.93	20	51	51	2.37	0.06	8.4	640	197.8	390	12	146	128	0	0.59	10	42	53	2.33	0	
Anand	Anklav	Asodar	8.6	930	74.21	670	24	354	80	17	0.28	5	15	176	2.12	0.26	8.7	920	86.7	660	24	354	88	0	0.31	10	15	168	2.1	0.45	
Anand	Borsad	Kinkhlod	8.6	1020	173.4	760	24	488	48		0.27	20	30	153	1.88	0.22	8.7	1150	247.2	820	36	488	56	32	1.56	10	54	147	1.51	0.12	
Anand	Borsad	Virsad	8.6	1330	123.9	880	24	317	256		0.66	15	21	244	3.62	0.18	8.6	1370	148.6	890	36	281	256	31	0.73	15	27	243	3.55	0.26	
Anand	Petlad	Petlad	8.7	1340	185.7	920	36	403	184	19	0.12	20	33	219	4.79	0.75	8.6	1170	185.6	800	24	378	168	0	1.22	15	36	180	3.55	0.19	
Anand	Sojitra	Sojitra	8.8	1580	49.66	1150	36	549	184	20	0.36	10	6	339	2.13	1.48	8.9	1490	62.15	1000	60	329	232	43	1.45	15	6	311	1.98	1.1	
Anand	Tarapur	Tarapur	8.8	8160	74.35	5170	48	854	2160	246	1.69	10	12	1839	3.39	1.53	8.9	6890	544	4480	60	415	2040	524	2.16	10	72	1426	3.1	1.61	
Anand	Khambhat	Dehda	4.8	14540	1237	9060		12	2960	2966	0.46	100	240	2746	37.81	0.98	8.5	14910	445.5	8760	24	110	5000	268	1.85	40	84	3196	42.16	0.04	
Anand	Anklav	Ambali	7.9	310	136.5	210		122	40		1.4	25	18	7	0.98	0.45	7.5	250	99.46	180	0	85	24	17	3.8	25	9	3	12.44	0.18	
Anand	Anklav	Khadol(haldari)	8	620	148.7	470		305	40		0.45	20	24	71	2.91	0.43	8.2	680	247.3	480	0	305	48	19	1.66	15	51	38	2.74	0.15	
Anand	Anklav	Umeta	8.4	1430	210.2	980	24	403	184	81	0.81	10	45	229	3.39	1.44	8.6	1420	259.4	930	48	366	200	45	0.37	5	60	204	3.09	0.35	
Anand	Borsad	Ras	8.5	1220	74.35	900	24	500	112		0.92	10	12	243	2.25	0.31	8.9	1350	111.4	950	48	439	136	38	0.3	10	21	256	1.98	1.38	
Anand	Borsad	Kathana	8.4	710	123.7	500	12	268	80		0.91	10	24	103	4.42		8.4	860	235	590	12	305	80	44	1.63	15	48	85	4.61	0.38	
Anand	Khambhat	Jalundh	8.2	2540	62.29	1530		85	792	77	2.98	20	3	551	4.9		8.4	2690	173.5	1610	12	110	824	71	3.89	25	27	535	4.93	0.24	
Anand	Khambhat	Jalsan	8.6	1050	37.32	710	24	244	200		1.3	10	3	222	2.2		8.5	990	74.49	670	12	232	184	23	1.84	15	9	191	2.17	0.45	
Anand	Khambhat	Vatra	8.4	1650	74.35	1070	24	244	360	71	3.52	10	12	339	6.65	0.05	8.4	1450	185.7	950	12	317	288	33	2.23	20	33	238	11.88	0.69	
Anand	Petlad	Manej	8.6	2560	272	1610	36	378	608	51	1.4	15	57	459	4.05		8.6	2760	345.9	1730	36	390	608	135	1.23	10	78	470	4.93	0.55	
Anand	Petlad	Jogan	8.4	570	74.35	400	12	195	72		0.99	10	12	92	5.56		8.3	590	136.1	410	12	195	64	23	1.98	10	27	69	5.57	0.8	
Anand	Petlad	Ramol	8.5	1280	148.6	890	24	390	184	18	0.62	15	27	213	19.78	0.96	8.8	1290	222.8	870	36	354	184	34	0.29	20	42	180	21.19	0.88	
Anand	Sojitra	Bhadkad	8.7	1610	161.1	1130	36	488	208	48	1.33	20	27	289	9.3	0.42	9	1690	210.2	1150	60	427	200	108	0.85	10	45	282	13.55	0.91	
Anand	Sojitra	Khansol	8.7	5700	234.8	3550	36	525	1520	206	1.45	10	51	1195	8.53	0.54	8.9	6040	272	3750	36	476	1600	300	0.79	15	57	1256	8.86	0.66	
Anand	Sojitra	Meghalpur	8.6	5220	86.98	3260	24	183	1360	484	3.78	20	9	1136	41.41		8.7	5170	136.2	3210	12	207	1400	406	4.17	15	24	1099	45.21	0.76	
Anand	Sojitra	Petli	8.6	2270	197.7	1500	24	439	424	130	0.1	5	45	426	4.86	0.44	8.8	2240	259.8	1460	36	476	448	36	0.55	20	51	391	5.43	0.85	
Anand	Tarapur	Budhej	8.7	1380	49.8	970	36	366	152	109	0.25	15	3	292	1.78	0.12	8.8	1280	111.5	890	24	354	176	59	0.29	15	18	241	2.4	0.75	
Anand	Umreth	Bhalej	8.4	420	111.5	270	12	98	72		0.79	15	18	29	7.54		8.3	600	236.3	370	12	134	104	22	3.81	25	42	21	11.91	0.44	
Anand	Umreth	Pansora	8.3	1070	211.8	710	12	220	200	48	0.59	70	9	145	2.5		8.8	1530	185.6	1090	36	512	144	77	2.59	15	36	263	2.59	0.42	
Anand	Umreth	Khakhanpur	8.2	330	111.8	240		134	24	18	0.27	25	12	21	3.44	0.23	8.2	390	148.8	260	0	146	48	0	0.91	25	21	18	1.92	0.78	
Anand	Umreth	Sundalpura	8.4	580	247.3	390	12	232	40	20	7.91	15	51	16	1.55	0.43															
Anand	Khambhat	Gudel	8.8	10950	420.2	6580	60	525	3360	203	1.68	15	93	2317	8.37	1.17	9	12440	346.8	7650	60	573	3440	772	1.64	40	60	2694	9.13	0.74	
Anand	Umreth	Umreth	7.6	2490	284.9	1580		293	560	204	16.1	35	48	437	3.51	0.96	8.5	2670	432.8	1670	24	281	520	317	8.91	25					

Anand	Umreth	Shili	8.1	1190	482.4	810		476	128	20	8.22	35	96	39	15.04	0.48	8.4	660	272.2	440	12	256	48	30	8.43	20	54	24	1.27	0.41	
Anand	Anand	Khambholaj	8	790	272.3	550		305	88	20	8.77	25	51	50	8.77	0.74	8.5	870	284.4	580	24	281	88	38	8.72	15	60	60	12.91	0.52	
Anand	Anand	Sarsa	8.2	960	321.8	680		427	80			40	33	101	2.9		8.4	890	333.7	580	24	268	72	79	8.91	15	72	48	1.63	0.81	
Anand	Umreth	Ghora	7.8	1340	372.2	870		305	240	74	7.72	65	51	126	13.01	1.29	8.3	1170	297.4	750	24	232	192	77	4.93	40	48	123	9.74	0.55	
Anand	Anand	Anand	7.7	2440	408.8	1580		390	448	254	22.1	50	69	364	8.56	1.13	8.3	4410	716.7	2730	24	134	760	945	8.51	25	159	677	6.69	0.37	
Anand	Anand	Boriavi	7.9	1020	272.6	690		293	168	30	2.7	35	45	90	29.72	1.39	8.4	740	235.1	490	12	232	96	19	4.47	20	45	46	22.54	0.54	
Anand	Borsad	Bhadran	8.3	1820	433.1	1180	24	427	280	116	37.6	35	84	214	2.44	0.81	8.7	2450	605.3	1570	48	464	304	320	8.17	15	138	279	2.25	1.18	
Anand	Khambhat	Kanisha	8.3	1820	247.9	1120	24	171	472	62	1.55	35	39	287	27.18	0.76	8.4	1130	260.4	700	12	183	272	0	1.68	40	39	123	22.59	0.21	
Anand	Khambhat	Bhuval	8.4	1320	161.1	880	12	256	248	74	2.69	20	27	207	34.88	1.13	8.6	2450	420.2	1540	36	378	496	147	8.77	15	93	363	5.85	0.82	
Anand	Khambhat	Haripura	8	5280	791.5	3150		281	1440	365	40.1	50	162	840	9.19	0.69	8.7	3170	210.3	2090	36	439	640	248	8.51	15	42	583	77.81	0.51	
Anand	Khambhat	Kansari	8.2	2080	173.7	1320		268	536	59	8.32	30	24	385	19.49	1.54	8.5	2610	185.9	1630	24	207	648	171	4.12	25	30	499	21.4	0.52	
Anand	Tarapur	Zalapur	8.2	1170	186	730		146	280	65	1.58	30	27	178	7	0.56	8.4	1010	173.4	670	12	207	176	62	0.69	20	30	146	8.23	0.55	
Anand	Sojitra	Sojitra	8.6	1210	124.2	890	36	476	80	40	8.49	25	15	219	2.02	0.6	8.4	890	161.3	650	12	354	56	50	5.84	30	21	127	1.87	0.43	
Anand	Petlad	Petlad	8.6	1710	321.7	1140	36	488	256	31	8.12	25	63	242	1.92	0.47	8.7	1880	346.5	1260	36	512	264	81	6.98	30	66	269	1.83	0.69	
Anand	Anand	Kasor-I	7.9	540	37.32	400		220	64		0.21	10	3	105	2.94	0.67	7.8	540	99.04	380	0	207	64	0	4.76	10	18	75	3.44	0.31	
Anand	Anand	Kasor-II	8.1	440	49.66	320		171	56		0.45	10	6	75	5.32	0.9	7.7	420	62.01	300	0	134	64	0	0.85	10	9	65	5.2	0.47	
Anand	Anand	Kasor-III	7.9	440	173.3	290		171	56		0.51	15	33	17	2.94	0.23	7.8	460	185.7	310	0	183	56	0	0.53	20	33	16	2.95	0.39	
Anand	Anklav	Gambhira	8.2	1030	160.6	710		317	160	27	1.09	5	36	156	10.24	0.02	8	1170	234.8	800	0	390	184	0	0.39	10	51	151	10.74	0	
Anand	Khambhat	Chhatardi	8.5	2240		1480	36	439	448	65	1.17	15	27	444	3.5	0.5	8.4	2440	222.6	1600	48	464	440	131	1.06	15	45	454	3.32	0.29	
Anand	Khambhat	Pandad	8.5	17180	654.4	10370	48	403	5200	818	8.32	15	156	3507	234.3	0.64	8.5	19240	4640	10680	36	403	6400	204	1.12	375	900	2133	228.9	0.69	
Anand	Tarapur	Varsada	8.4	9390	556.5	5590	36	281	2880	332	7.87	35	114	1876	39.52	0.1	8.4	10560	747.7	6350	12	183	3200	575	8.28	250	30	2057	42	0.07	
Anand	Petlad	Mahelav	8.7	1470	160.6	1010	48	415	144	105	7.97	15	36	261	0.94	0.36	8.3	1100	185.7	750	24	354	152	0	8.84	20	33	165	1.12	0.4	
Anand	Khambhat	Khambhat	8.7	3430	123.6	2180	24	427	864	100	1.31	5	27	726	5.64	0.42	8.6	3640	185.6	2290	24	427	944	92	1.58	15	36	745	5.83	1.01	
Anand	Borsad	Borsad	8.6	390	111.7	250	24	85	56		3.11	20	15	30	12.71	0.08	8.2	400	173.3	260	0	146	56	0	2.2	15	33	7	7.42	0	
Anand	Anand	Sandesar	8.5	760	222.5	510	12	256	80	36	0.46	10	48	70	2.02	0.03	8.2	850	148.7	610	0	342	96	0	0.51	20	24	124	2.22	0	
Anand	Umreth	Umreth	8.1	1170	272.4	670		61	368	16	2.13	30	48	141	2.18	0.15	8.1	1380	396	780	0	61	384	92	1.27	35	75	130	2.29	0	
Anand	Anand	Karamsad	8.4	2060		1270	12.16	88	0.33	560	111.4	10	21	419	5.64	0.97	8.3	2160	496.6	1290	12	183	584	83	2.8	100	60	262	6.57	0.45	
Anand	Anand	Karamsad	8.1	260	99.18	180		122	16		0.27	15	15	11	2.1	0.09	8.1	310	74.77	220	0	110	40	0	1.27	25	3	33	2.73	1.08	
			2015_May																2015_Oct												
Anand	Anand	Ode	9.2	750	200	500	12	207	128	0	0.46	10	42	57	39.21	0.82	8.2	830	250	610		378	72		1.56	20	48	52	40.31	0.04	
Anand	Anand	Vasad	8.7	750	263	450	12	159	160	0	0.63	20	51	51	1.77	0.43	8.2	1070	325	650		207	184	71	8.63	20	66	96	1.15	0.43	
Anand	Anklav	Asodar	9.3	950	88	700	24	390	80	0	0.25	5	18	177	1.88	1.47	8.4	1000	88	730	12	366	96	35	1.61	10	15	188	2.61	1.09	
Anand	Borsad	Kinkhlod	9.3	1120	213	820	24	512	56	12	1.94	10	45	159	1.01	0.72	8.7	1090	250	730	36	342	120	30	1.15	10	54	134	2.25	0.42	
Anand	Borsad	Virsad	9.1	1340	125	890	24	305	264	0	0.54	10	24	249	3.39	0.23	8.5	1350	100	890	24	268	272	25	1.48	15	15	263	3.1	0.62	
Anand	Petlad	Petlad	9.1	1090	100	750	24	329	160	0	0.33	10	18	203	3.32	1.26	8.5	1100	100	730	24	244	192	32	1.48	10	18	205	3.53	0.54	
Anand	Sojitra	Sojitra	9.3	1530	63	1140	24	610	144	15	0.99	10	9	322	1.74	1.4	8.8	1730	63	1270	24	610	160	82	2.84	10	9	367	3.12	1.59	
Anand	Tarapur	Tarapur	9.3	9210	75	6010	48	1318	2200	332	1.03	10	12	2082	2.96	0.79	8.7	8750	450	5560	36	976	2120	501	2.39	10	102	1802	6.17	1.19	
Anand	Khambhat	Dehda	8.5	14970	163	9210	48	134	4000	1600	0.25	15	30	3344	41	0.83	8.4	17000	338	10260	12	98	5080	1202	0.83	35	60	3728	44.68	0.38	
Anand	Anklav	Ambali	8.2	230	75	160	0	73	32	0	2.74	20	6	12	10.8	0.05	8.2	330	88	200		61	56	12	6.25	10	15	30	9.83	0.47	
Anand	Anklav	Khadol(haldari)	9.2	670	188	460	24	244	40	31	1.47</																				

Anand	Khambhat	Jalsan	9.1	1060	50	760	24	342	120	31	2.45	5	9	220	2.08	0.13	8.6	1090	63	730	36	244	184	20	0.97	10	9	221	2.16	0.91
Anand	Khambhat	Vatra	9.1	1540	50	1030	24	305	320	24	1.22	10	6	326	9.6	0.35	8.4	2080	275	1350	12	403	448	43	3.25	15	57	334	30.94	1.28
Anand	Petlad	Manej	9.3	2750	263	1840	36	610	472	139	1.54	10	57	509	3.84	0.53	8.6	2810	238	1820	24	476	608	107	1.96	10	51	534	4.51	0.65
Anand	Petlad	Jogan	9.1	480	113	340	12	183	48	0	0.81	10	21	56	5.24	0.26	8.6	570	125	380	24	183	64		0.5	5	27	71	4.9	0.78
Anand	Petlad	Ramol	9.3	1300	163	920	24	415	160	39	0.87	10	33	212	20.88	0.57	8.6	1390	125	980	24	427	200	18	1.1	15	21	249	21.98	0.48
Anand	Sojitra	Bhadkad	9.4	1700	150	1230	24	610	192	31	1.38	10	30	316	10.83	0.99	8.6	1800	150	1300	24	634	200	52	1.28	10	30	337	13.79	0.18
Anand	Sojitra	Khansol	9.4	6990	263	4410	48	781	1800	228	1.25	10	57	1484	5.31	0.63	8.7	7370	238	4680	36	683	1800	504	1.96	10	51	1582	6.59	0.61
Anand	Sojitra	Meghalpur	9.2	5500	225	3460	36	476	1400	299	5.14	10	48	1130	53.9	0.53	8.9	5370	100	3420	36	451	1320	367	4.08	5	21	1154	59.74	0.64
Anand	Sojitra	Petli	9.2	2280	200	1560	36	610	368	57	0.33	10	42	430	4.66	0.61	8.8	2390	163	1630	36	586	400	85	0.58	10	33	472	5.25	0.65
Anand	Tarapur	Budhej	9.3	1100	75	790	24	366	104	57	0.91	10	12	218	1.5	0.45	8.6	1130	63	810	36	403	120		0.77	10	9	230	2.72	0.78
Anand	Umreth	Bhalej	9	590	188	390	12	183	80	0	1.49	20	33	43	11.64	0.1	8.3	620	163	420	12	207	80		1.63	20	27	61	11.23	0.48
Anand	Umreth	Pansora	9	1130	225	720	24	244	184	43	5.84	15	45	155	2.05	0.3	8.2	1300	263	870		354	224	41	0.4	20	51	177	2.66	0.18
Anand	Umreth	Khakhanpur	8.9	420	150	280	12	146	48	0	1.94	20	24	26	2.47	0.25	8.3	450	125	310	12	171	40		1.14	20	18	44	3.54	0.61
Anand	Umreth	Sundalpura	8.8	560	250	360	12	220	40	0	7.55	15	51	12	2.41	0.35	8.3	610	200	410	12	244	40		80	20	36	47	2.66	0.64
Anand	Khambhat	Gudel	9.2	12240	113	7740	60	756	3000	1126	1.1	10	21	2759	7.9	1.5	8.7	14000	300	8850	36	671	3256	1726	2.75	10	66	3076	9.79	1.35
Anand	Umreth	Umreth	8.4	2450	413	1530	24	354	472	189	8.95	30	81	372	2.58	0.94	8.5	2250	213	1530	24	586	416	13	0.67	15	42	407	21.34	1.56
Anand	Umreth	Dhuleta	8.5	690	250	440	12	220	80	0	7.9	25	45	42	2.81	0.64	8.3	750	250	480	12	256	80		8.13	20	48	55	3.46	0.83
Anand	Umreth	Shili	8.4	730	250	480	12	256	64	12	8.83	25	45	51	3.03	0.52	8	1650	513	1140		610	200	14	7.94	75	78	134	15.81	0.39
Anand	Anand	Khambholaj	9.1	970	375	650	24	366	64	24	8.12	40	66	47	6.11	0.41	8.4	920	163	650	12	317	80	33	8.95	40	15	130	11.38	0.59
Anand	Anand	Sarsa	8.9	830	325	520	24	281	80	0	8.95	15	69	41	1.5	0.52														
Anand	Umreth	Ghora	8.7	1370	313	860	24	256	240	66	7.8	40	51	164	12.77	0.34	8.2	1330	325	850		268	240	72	8.77	40	54	150	11.58	0.62
Anand	Anand	Anand	7.6	3310	570	2110		305	584	558		65	99	496			7.9	5200	813	3110		183	1360	490	7.36	115	126	820	4.03	0.45
Anand	Anand	Boriavi	8.8	940	313	620	24	366	72	0	7.88	15	66	71	2.6	0.85	8.3	970	225	640	12	281	144		9.35	25	39	104	26	0.78
Anand	Borsad	Bhadran	9.2	1930	425	1250	36	537	280	25	12.2	10	96	248	1.3	0.55	8.6	2100	438	1360	24	512	320	105	8.04	10	99	281	1.86	0.69
Anand	Khambhat	Kanisha	8.6	2210	325	1390	24	232	448	230	1.47	25	63	342	29.09	0.22	8.1	2430	350	1500		268	616	95	8.11	35	63	382	27.66	0.17
Anand	Khambhat	Bhuval	9	2810	575	1720	36	476	600	74	8.95	10	132	379	4.3	0.73	8.6	1320	113	900	24	317	240	16	1.51	15	18	233	32.25	0.12
Anand	Khambhat	Haripura	8.5	6740	800	4090	24	305	1560	797	15.2	35	171	1176	10.34	0.54	7.8	7320	963	4410		403	2000	492	1.27	100	171	1236	8.93	0.04
Anand	Khambhat	Kansari	8.7	2870	163	1770	36	244	752	95	4.98	20	27	573	21.37	0.19	8.2	3620	200	2210		244	1040	108	9.15	20	36	724	27.71	0.74
Anand	Tarapur	Zalapur	9.1	1120	138	760	36	317	168	0	0.63	10	27	190	7.88	0.42	8.3	1040	238	650	12	220	192	27	5.83	15	48	126	7.44	0.37
Anand	Sojitra	Sojitra	9.3	1250	113	900	36	488	80	19	8.11	15	18	235	1.11	1.3														
Anand	Petlad	Petlad	9.2	1610	250	1090	36	512	200	12	7.93	5	57	254	1.54	1.08	8.6	1720	225	1170	36	500	240	33	4.49	10	48	291	1.73	0.82
Anand	Anand	Kasor-I	9.1	570	63	410	24	232	40	0	0.32	5	12	101	3.09	0.72	8.3	600	63	430	12	232	64		0.99	10	9	107	3.85	0.54
Anand	Anand	Kasor-II	8.9	450	75	300	12	122	72	0	1.13	10	12	66	4.97	1.12	8.2	520	75	380		183	56	24	1.05	15	9	82	5.59	0.99
Anand	Anand	Kasor-III	8.3	420	150	280	12	146	48	0	0.43	15	27	26	2.801	0.65	8.2	450	50	340		207	32		1.92	10	6	78	3.76	0.44
Anand	Anklav	Gambhira	9.2	1180	200	780	24	305	192	23	1.4	10	42	173	11.22	0.24	8.5	1320	213	920	12	427	168	37	4.37	10	45	198	13.94	0.04
Anand	Khambhat	Chhatardi	9.3	2380	188	1590	36	525	424	93	1.61	10	39	459	3.58	0.62	8.6	2670	188	1790	36	537	464	167	1.62	15	36	525	4.05	0.91
Anand	Khambhat	Pandad	9.1	19250	113	12210	60	610	4600	2421	8.84	15	18	4234	239.7	1.19	8.2	24000	700	14400		342	7600	958	8.98	40	144	5047	255.4	0.96
Anand	Tarapur	Varsada	8.9	10400	113	6340	48	293	3000	605	8.52	10	21	2315	42.23	0.27	8.3	12000	625	7250	24	293	3400	870	8.76	35	129	2448	41.44	0.28
Anand	Petlad	Mahelav	9.3	1100	163	760	24	378	136	0	6.06	5	36	178	0.92	0.95	8.7	1350	213	950	36	464	120	56	1.98	20	39	212	1.36	0.27
Anand	Khambhat	Khambhat	9.3	3620	150	2350	12	598	896	35	0.65	5	33	761	5.13	0.61	8.7	3900	150	2500	36	500	920	165	3.6	10	30	825	5.88	0.67
Anand	Borsad	Borsad	8.7	510	175	320	12	134	80	0	3.24	25	27	34	4.87	0.34	7.4	540	150	350		159	88		3.67	15	27	52	4.97	1.12
Anand	Anand	Sandesar	9	840	263	560	12	281	96	26	2.09	10	57	71	2.96	0.34	8.4	830	213	580	12	329	80		2.59	10	45	90	4.9	0.52
Anand	Umreth	Umreth	8.5	1440	388	830	24	122	360	62	2.47	35	72	152	2.3	0.08	8.1	1500	300	890		98	400	91	3.55	40	48	205	2.84	0.01
Anand	Anand	Karamsad	8.9	2260	125	1420	36	256	560	61	2.02	10	24	459	6.43	0.59	8.2	2440	163	1510		207	640	117	7.37	20	27	482	7.1	0.58
Anand	Anand	Karamsad	8.6	250	75	160	12	61	32	0	0.92	15	9	22	2.06	0.17	8.2	330	100	230		122	40		0.94	15	15	29	2.25	0.17

			2016_May														2016_Oct													
Anand	Anand	Ode	8.3	680	200	480	12	256	72	0	0.56	10	42	41	40.12	0.85	8.4	640	175	450	12	232	72	0	1.65	20	30	43	40.65	0.08
Anand	Anand	Vasad	8.4	700	200	450	24	183	104	0	0.78	15	39	68	1.88	0.47	8.3	1040	313	650	12	281	168	0	8.75	25	60	95	1.22	0.46
Anand	Anklav	Asodar	8.7	930	75	620	24	244	160	0	0.32	5	15	178	1.98	1.52	8.4	1220	225	850	12	439	160	0	1.72	20	42	175	2.72	1.07
Anand	Borsad	Kinkhlod	8.7	930	163	610	24	244	152	0	2.2	15	30	138	1.12	0.78	8.5	1000	388	690	12	451	72	0	1.05	10	87	50	2.23	0.45
Anand	Borsad	Virsad	8.6	1260	113	820	24	256	272	0	0.61	10	21	236	3.45	0.28	8.6	1100	275	690	24	244	216	0	1.35	15	57	125	3.12	0.65
Anand	Petlad	Petlad	8.5	1330	188	910	12	378	208	36	0.43	10	39	217	3.65	1.32	8.5	1370	238	890	12	342	272	0	1.44	15	48	204	3.62	0.51
Anand	Sojitra	Sojitra	8.8	1560	188	1080	36	488	224	0	1.02	25	30	272	1.78	1.42	8.8	1500	163	990	36	366	264	0	3.01	15	30	268	3.25	1.54
Anand	Tarapur	Tarapur	8.8	7560	450	4680	36	732	2080	181	1.06	10	102	1530	3.12	0.85	8.6	6400	213	4180	24	1098	1520	106	2.45	5	48	1371	6.29	1.17
Anand	Khambhat	Dehda	8.6	14710	813	8620	24	73	4800	481	0.55	50	165	2986	40.45	0.86	8.3	16500	813	9700	12	183	5600	193	0.79	200	75	3395	45.03	0.39
Anand	Anklav	Ambali	7	240	88	170	0	110	16	0	2.88	20	9	9	10.45	0.06	9.1	500	150	290	48	73	48	18	6.32	30	18	40	10.03	0.49
Anand	Anklav	Khadol(haldari)	7.6	670	75	480	0	244	96	0	1.78	10	12	118	2.55	0.38	8.7	620	250	410	24	244	48	0	0.72	15	51	26	2.99	0.69
Anand	Anklav	Umeta	8.2	1200	313	790	0	366	208	0	0.91	10	69	130	3.22	0.29	8.3	1630	338	1020	12	329	368	0	2.51	10	75	218	3.61	0.78
Anand	Borsad	Ras	8.7	1200	75	810	36	305	192	0	1.78	10	12	241	1.68	1.56	8.5	1200	175	780	36	305	200	0	2.55	10	36	194	2.45	1.29
Anand	Borsad	Kathana	8.3	700	125	470	12	244	80	0	6.56	10	24	102	2.55	0.38	8.4	630	225	410	12	220	80	0	0.81	15	45	40	1.82	0.75
Anand	Khambhat	Jalundh	8.2	2710	163	1650	0	183	800	65	3.22	25	24	546	4.22	0.18	8.2	2440	338	1590	0	342	400	348	3.72	25	66	403	5.83	0.66
Anand	Khambhat	Jalsan	8.5	1090	88	710	24	220	224	0	2.78	10	15	209	2.18	0.15	8.6	1060	288	640	36	207	208	0	0.95	5	66	110	2.31	0.93
Anand	Khambhat	Vatra	8.3	1680	100	1070	24	244	416	0	1.25	10	18	335	9.65	0.42	8.3	1790	250	1120	12	281	448	0	3.21	20	48	278	31.03	1.31
Anand	Petlad	Manej	8.6	2620	225	1640	24	366	656	39	1.62	5	51	497	3.95	0.58	8.6	2700	200	1680	24	329	720	18	2.08	10	42	526	4.62	0.69
Anand	Petlad	Jogan	8.6	450	100	290	24	122	64	0	0.85	10	18	54	5.45	0.32	9	500	163	300	48	122	48	0	0.55	10	33	37	5.02	0.81
Anand	Petlad	Ramol	8.6	1200	138	840	24	366	160	29	0.91	10	27	200	22.45	0.62	8.8	1070	163	700	63	244	192	0	1.16	10	33	158	22.13	0.51
Anand	Sojitra	Bhadkad	8.8	1600	50	1100	36	415	288	0	1.45	10	6	339	10.55	1.02	8.8	1330	163	880	36	317	240	0	1.32	10	33	223	14	0.21
Anand	Sojitra	Khansol	8.7	6840	213	4260	36	659	1920	108	1.55	10	45	1472	5.46	0.66	8.2	6500	300	3930	0	366	2000	124	1.85	15	63	1353	6.78	0.63
Anand	Sojitra	Meghalpur	8.7	4850	300	3010	24	439	1320	143	5.25	15	63	946	53.22	0.5	8.9	5000	138	3140	36	488	1360	107	4.12	10	27	1051	60.21	0.67
Anand	Sojitra	Petli	8.8	2210	175	1470	24	476	440	51	0.38	10	36	425	5.02	0.59	8.9	1960	200	1270	36	403	416	0	0.65	15	39	356	5.35	0.68
Anand	Tarapur	Budhej	8.8	1100	63	760	24	305	184	0	0.98	10	9	223	1.62	0.45	8.9	1030	163	670	36	244	176	0	0.85	10	33	161	2.65	0.81
Anand	Umreth	Bhalej	8.2	580	188	420	0	244	48	16	1.56	35	24	40	11.45	0.15	8.3	630	188	420	12	207	80	0	1.58	20	33	52	11.02	0.44
Anand	Umreth	Pansora	8.4	950	250	570	12	183	200	0	5.85	10	54	102	2.15	0.32	7.7	1290	288	870	0	415	216	0	0.35	20	57	163	2.54	0.16
Anand	Umreth	Khakhanpur	8.4	380	113	260	12	134	40	0	1.82	20	15	34	2.22	0.28	7.8	300	100	210	0	122	32	3	1.19	10	18	21	3.45	0.59
Anand	Umreth	Sundalpura	7	490	125	330	0	183	48	0	7.78	15	21	54	2.41	0.39	7.8	570	188	380	0	220	56	0	8.05	20	33	43	2.72	0.61
Anand	Khambhat	Gudel	8.5	12000	438	7270	24	476	3600	479	1.22	50	75	2554	8.22	1.49	8.9	11400	563	6940	36	805	3400	178	2.85	25	120	2357	10.02	1.33
Anand	Umreth	Umreth	8.4	1820	413	1100	12	305	400	40	9.45	15	90	228	2.22	0.95	8	2190	563	1380	0	537	440	0	8.89	20	123	244	2.43	0.72
Anand	Umreth	Dhuleta	8.4	620	213	390	12	195	72	0	8.12	10	45	43	2.75	0.65	8.1	610	188	400	0	195	80	0	8.21	25	30	52	3.52	0.85
Anand	Umreth	Shili	8.3	930	300	590	12	281	136	0	8.88	30	54	74	3.23	0.55	8	1530	550	1060	0	610	168	0	8.07	90	78	90	15.92	0.41
Anand	Anand	Khambholaj	8.5	850	263	540	24	256	96	0	8.25	10	57	71	6.45	0.45	8.3	730	250	470	12	244	80	0	9.06	20	48	46	11.45	0.55
Anand	Anand	Sarsa	8.3	810	275	520	12	281	80	0	9.12	15	57	59	1.56	0.68	8.2	760	250	500	0	256	96	0	8.45	30	42	58	2.4	0.61
Anand	Umreth	Ghora	8.2	1200	313	750	0	220	256	29	7.98	55	42	125	3.12	0.35	8.1	1250	400	840	0	390	160	46	8.66	85	45	97	11.63	0.59
Anand	Anand	Anand	8.2	2200	175	1490	0	561	400	43	8.89	30	24	424	2.56	0.56	7.8	3370	850	2170	0	781	720	0	7.42	170	102	382	4.13	0.43
Anand	Anand	Boriavi	8.1	1080	238	730	0	354	160	0	8.12	30	39	138	2.45	0.9	8.1	850	225	550	0	232	144	0	9.45	35	33	76	26.95	0.81
Anand	Borsad	Bhadran	8.6	1730	438	1080	36	427	264	36	12.42	10	99	196	1.36	0.66	8	1720	425	1090	0	366	320	76	8.25	50	72	199	1.93	0.71
Anand	Khambhat	Kanisha	8.4	2080	225	1280	24	244	560	0	1.58	15	45	358	29.18	0.28	8	2190	288	1290	0	134	680	0	8.23	50	39	355	28.12	0.13
Anand	Khambhat	Bhuval	8.6	1280	150	830	24	305	224	0	9.42	20	24	223	4.35	0.78	8.2	1140	250	740	0	268	248	0	1.45	25	45	128	32.56	0.09
Anand	Khambhat	Haripura	7.9	6000	888	3600	0	500	1640	218	15.46	85	162	996	10.45	0.55	8	5720	1000	3350	0	415	1720	93	1.32	60	204	850	9.02	0.06
Anand	Khambhat	Kansari	8.4	2840	175	1760	24	268	760	69	5.15	20	30	560	21.56	0.22	8.1	3370	275	2000	0	159	1080	0	9.21	55	33	632	27.45	0.77

Anand	Tarapur	Zalapur	8.2	1080	238	670	0	171	272	13	0.77	30	39	134	7.95	0.48	8.1	930	250	600	0	244	168	0	8.75	45	33	95	7.35	0.39
Anand	Sojitra	Sojitra	8.7	1250	250	820	36	366	160	0	8.45	25	45	172	1.42	1.31	8.1	880	313	620	0	390	72	0	3.72	30	57	57	2.45	1.05
Anand	Petlad	Petlad	8	1560	338	1040	0	512	240	0	8.12	15	72	203	1.62	1.18	8.2	1260	325	820	0	378	216	0	4.51	15	69	139	1.65	0.83
Anand	Anand	Kasor-I	7.7	550	75	390	0	195	80	0	0.38	10	12	90	3.22	0.78	8.2	470	125	310	0	146	80	0	1.02	15	21	48	4.01	0.58
Anand	Anand	Kasor-II	7.9	420	75	280	0	110	80	0	1.35	10	12	59	5.25	1.13	8.2	390	125	260	0	134	56	0	1.12	10	24	29	5.75	1.01
Anand	Anand	Kasor-III	8.4	420	113	270	24	110	56	0	0.46	10	21	43	2.82	0.68	8	330	113	220	0	122	40	0	2.02	15	18	22	3.86	0.48
Anand	Anklav	Gambhira	8.5	1150	188	780	24	366	168	0	1.56	10	39	171	11.88	0.28	8.1	1140	250	750	0	305	200	22	4.45	10	54	139	14.01	0.08
Anand	Khambhat	Chhatardi	8.5	2200	125	1480	24	488	440	32	1.65	25	15	446	3.48	0.72	8	3700	363	2430	0	732	800	112	1.66	35	66	682	4.2	0.96
Anand	Khambhat	Pandad	8	19000	875	11390	0	439	6000	641	8.88	75	165	3838	220.3	1.16	8	20600	1125	12280	0	464	6600	580	9.08	75	225	4070	255.9	0.99
Anand	Tarapur	Varsada	8.2	10400	563	6140	0	305	3400	132	8.66	25	120	2106	45.5	0.22	8.2	11000	813	6600	0	415	3200	602	8.85	25	180	2131	42.01	0.31
Anand	Petlad	Mahelav	8.7	1100	150	750	36	354	144	0	0.99	10	30	183	0.88	0.32	8.7	1310	238	830	36	293	248	0	2.09	15	48	191	1.42	0.24
Anand	Khambhat	Khambhat	8.8	3510	150	2220	36	451	920	26	0.67	15	27	735	5.24	0.58	8.7	3460	213	2240	24	598	800	58	3.55	10	45	694	6.02	0.63
Anand	Borsad	Borsad	8.2	530	150	340	0	146	96	0	3.56	20	24	50	5.32	0.3	8.9	700	213	410	36	134	120	0	3.7	20	39	60	5.14	1.1
Anand	Anand	Sandesar	8.4	630	175	410	12	183	96	0	2.45	15	33	63	3.18	0.28	8.6	670	200	420	24	183	96	0	2.65	10	42	59	5.32	0.49
Anand	Umreth	Umreth	8.1	1380	225	800	0	85	440	0	2.65	35	33	213	2.35	0.03	8.2	1400	250	840	0	134	408	0	3.65	50	30	205	3.02	0.03
Anand	Anand	Karamsad	8.5	2170	125	1310	24	122	624	55	2.32	15	21	438	6.75	0.55	8.5	2200	263	1290	12	146	640	31	7.45	10	57	381	7.66	0.61
Anand	Anand	Karamsad	8.2	250	100	180	0	122	16	0	0.98	20	12	10	2.16	0.18	8.3	360	125	240	12	122	40	0	0.99	30	12	24	2.32	0.15
			2017_May														2017_Oct													
Anand	Anand	Ode	8.5	760	100	540	24	183	136		0.12	15	15	74	93.57	0.2	8.1	790	150	540	0	109.8	144	97	0.13	25	21	75	63.66	22
Anand	Anand	Vasad	8.5	870	113	540	36	134	192		0.1	15	18	144	6.79	0.26	8.2	900	175	570	0	97.6	192	93	0.21	30	24	124	4.73	0.71
Anand	Anklav	Asodar	8.9	960	188	590	48	183	176		1.36	15	36	132	4.72	0.67	8.5	910	138	570	24	109.8	192	52	0.1	35	12	145	1.4	0.32
Anand	Borsad	Kinkhlod	9	1330	200	870	12	317	272		0.37	15	39	209	8.74	0.59	8.5	1180	288	740	24	122	184	181	0.19	40	45	139	0.6	0.61
Anand	Borsad	Virsad	8.7	1370	188	970	24	232	296	35	0.39	15	36	225	5.89	0.21	8.6	1340	188	820	36	109.8	288	107	0.09	35	24	222	0.71	1.33
Anand	Petlad	Petlad	8.6	1480	313	930	36	281	280	52	0.45	25	60	192	7.34	0.22	8.7	1310	163	810	36	146.4	304	44	0.03	30	21	226	0.96	0.78
Anand	Sojitra	Sojitra	8.9	2990	625	1960	24	647	520	185	0.08	75	105	398	4.09	0.26	8.8	1710	150	1080	24	170.8	408	92	0.59	35	15	309	26.56	1.12
Anand	Tarapur	Tarapur	9	7040	875	4350	36	769	1760	335	1.1	50	180	1211	9.8	0.95	8.9	9780	288	5920	36	183	2816	689	0.25	30	51	2117	0.95	0.71
Anand	Khambhat	Dehda	8.4	15550	563	9330	24	134	4800	836	0.65	125	60	3270	80.32	0.8	8.8	15520	550	9610	24	1037	4424	620	0.25	85	81	3281	60.33	0.87
Anand	Anklav	Ambali	8.5	330	75	190	36	37	48		3.14	20	6	33	14.3	0.1	8.7	420	100	260	24	48.8	72	21	0.98	25	9	39	20.23	1.35
Anand	Anklav	Khadol(haldari)	8.7	760	250	500	24	268	80		2.2	15	51	57	4.65	0.44	8.6	690	263	420	36	97.6	64	108	0.21	20	51	38	0.2	0.67
Anand	Anklav	Umeta	8.9	1670	325	1060	24	305	312	98	1.02	10	72	228	10.42	0.33	9.3	1600	275	990	24	146.4	312	191	0.37	30	48	239	3.55	0.43
Anand	Borsad	Ras	9.1	1490	225	930	36	244	312	34	1.99	15	45	236	5.29	1.54	8.8	1490	125	910	36	109.8	392	40	0.3	35	9	283	3.39	0.25
Anand	Borsad	Kathana	8.6	780	175	470	12	146	160	0	6.89	15	33	96	4.35	0.41	8.5	760	238	480	12	97.6	96	137	0.21	25	42	63	4.5	0.7
Anand	Khambhat	Jalundh	8.7	3030	88	1840	24	134	88	109	3.68	15	12	650	10.81	0.22	7.6	3030	225	1830	36	134.2	800	196	4.15	30	36	590	5.6	0.3
Anand	Khambhat	Jalsan	8.9	1260	138	750	12	49	320	104	3.12	5	30	224	5.01	0.21	8.1	1120	163	710	24	146.4	232	61	2.9	40	15	181	3.8	0.14
Anand	Khambhat	Vatra	8.5	2510	263	1520	35	49	640	235	2.44	10	57	412	75.19	0.45	7.8	2430	350	1510	36	183	512	244	8.15	40	60	364	57.75	0.7
Anand	Petlad	Manej	8.7	2760	563	1690	24	244	640	223	1.72	100	75	367	14.5	0.62	8.6	2240	150	1370	36	158.6	600	74	1.93	20	24	437	16.4	0.99
Anand	Petlad	Jogan	8.6	640	163	390	36	122	112		0.95	15	30	67	9.02	0.41	8.7	560	113	350	24	85.4	128	0	0.5	15	18	76	2.08	0.4
Anand	Petlad	Ramol	8.8	1430	188	940	12	293	304	21	1.02	10	39	219	40	0.65	8.6	1290	125	820	24	134.2	304	49	4.2	40	6	213	44.31	0.75
Anand	Sojitra	Bhadkad	8.9	1780	188	1160	36	317	360	53	1.65	25	30	305	30.02	1.1														
Anand	Sojitra	Khansol	9	7810	563	4860	24	683	2000	465	1.85	30	117	1531	11.82	0.71	9.1	7190	238	4350	36	73.2	2040	570	2.89	55</				

Anand	Umreth	Pansora	8.4	1310	250	830	24	268	248	23	6.02	25	45	183	5.99	0.41	8.6	1410	163	850	24	109.8	336	67	8.25	40	15	246	5.8	1.22
Anand	Umreth	Khakhanpur	8.5	420	75	260	12	73	88		2.13	15	9	60	4.36	0.32	8.8	350	113	220	12	73.2	48	15	2.9	30	9	26	3.83	0.44
Anand	Umreth	Sundalpura	8.4	580	188	350	24	134	80		7.99	15	36	44	5.45	0.43	8.6	570	150	370	12	85.4	80	71	2.15	35	15	59	5.73	0.52
Anand	Khambhat	Gudel	8.7	12590	1750	7430	12	646.6	3800	377	1.22	175	315	2079	19.23	1.49	9.2	12010	263	8090	36	1928	3400	0	0.51	40	39	2633	13.86	1.51
Anand	Umreth	Umreth	8.9	2520	400	1550	36	378	560	63	9.65	30	78	393	4.73	0.85	9	2180	438	1330	36	170.8	424	277	0.85	30	87	297	5.36	0.79
Anand	Umreth	Dhuleta	8.8	630	88	370	24	73	136	0	8.25	15	12	100	7.38	0.75	8.9	690	200	440	24	134.2	88	65	0.6	15	39	62	8.46	0.72
Anand	Umreth	Shili															8.7	1230	238	790	24	170.8	232	101	0.16	45	30	155	32.39	0.99
Anand	Anand	Khambholaj	8.7	920	125	570	24	134	200	0	8.33	15	21	139	25.05	0.55	8.8	1120	225	690	36	109.8	208	108	0.65	30	36	148	9.73	1.21
Anand	Anand	Sarsa	8.2	910	188	590	0	244	160	0	8.99	20	33	120	4.76	0.71	8.8	920	263	570	24	97.6	128	149	0.7	35	42	88	4.56	1.03
Anand	Umreth	Ghora	8.1	1540	313	990	0	256	304	100	7.65	50	45	193	29.93	0.32	8.9	1360	363	850	36	85.4	176	284	0.83	55	54	131	26.35	1.6
Anand	Anand	Anand	8.4	2660	363	1630	24	207	600	234	8.75	45	60	441	7.51	0.52	9	2890	438	1830	36	414.8	624	157	0.64	60	69	459	7.24	0.75
Anand	Anand	Boriavi	8.6	1120	100	730	12	170	240	30	8.32	30	6	180	53.97	0.75	9.1	960	225	620	24	97.6	136	159	0.38	15	45	87	50.55	0.5
Anand	Borsad	Bhadran	8.8	2490	513	1550	24	414	440	192	12.56	15	114	334	5.65	0.55	9.2	2250	425	1400	36	195.2	424	291	0.75	55	69	318	5.97	1.19
Anand	Khambhat	Kanisha	8.7	2960	263	1810	36	183	800	133	1.62	25	48	527	56.03	0.33	9.1	2360	225	1490	24	292.8	616	30	0.38	30	36	408	52.36	0.62
Anand	Khambhat	Bhuval	9	1670	250	1060	36	268	336	44	9.77	30	42	234	59.75	0.8	9.2	1520	238	970	24	109.8	272	234	0.47	20	45	208	54.74	0.74
Anand	Khambhat	Haripura	8.6	6440	488	3930	24	268	1600	635	13.25	30	99	1247	17.56	0.61	8	5780	588	3630	0	670	1440	297	1.45	30	123	1049	16.56	0.1
Anand	Khambhat	Kansari	8.7	4170	138	2530	24	219	1280	44	3.33	30	15	872	40.74	0.2	8.2	3810	250	2420	0	512.4	1000	41	9.4	35	39	730	52.78	0.8
Anand	Tarapur	Zalapur	8.8	810	138	530	12	195	160	0	0.85	20	21	116	12.33	0.55	8.4	940	163	570	24	109.8	184	47	8.8	20	27	130	19.28	0.45
Anand	Sojitra	Sojitra	8.9	1380	250	830	36	183	280	50	8.65	15	51	200	4.68	1.35	8.5	600	213	370	24	97.6	64	74	2.98	30	33	37	6.14	0.7
Anand	Petlad	Petlad	9	1880	313	1160	24	305	400	52	8.33	20	63	286	4.6	1.2	8.9	1600	375	960	36	146.4	280	201	3.8	10	84	192	5.14	1.1
Anand	Anand	Kasor-I	8.6	570	138	360	36	122	88		0.14	35	12	64	6.25	1.09	7.2	540	100	340	0	73.2	120	36	0.18	15	15	78	0.8	1.16
Anand	Anand	Kasor-II	8.5	450	125	270	48	73.2	64		0.08	15	21	40	9.9	0.07	7.3	390	88	260	0	85.4	72	21	0.07	10	15	48	3.15	0.68
Anand	Anand	Kasor-III	8.2	420	100	280		122	80		0.11	20	12	47	6.45	0.95	7.6	420	113	280	0	97.6	64	35	0.17	25	12	45	0.11	1.06
Anand	Anklav	Gambhira	8.8	1360	213	860	24	232	280	45	2.63	10	45	203	20.48	0.18	7.4	1330	213	850	0	146.4	256	173	0.25	15	42	191	29.19	1.5
Anand	Khambhat	Chhatardi	8.9	2910	375	1880	12	586	640	38	4.05	25	75	492	8.75	0.43	8.3	2800	188	1760	0	268.4	736	137	0.08	25	30	556	2.81	0.59
Anand	Khambhat	Pandad	8.4	19820	2500	11740	36	342	6000	1054	8.78	325	405	3186	378.1	1.18	8.6	17320	538	10690	0	1159	5216	354	1.07	30	111	3625	189.4	1.09
Anand	Tarapur	Varsada	8.3	10850	1875	6320	12	293	3200	609	8.39	200	330	1582	87.13	0.17	8.7	11230	675	7100	24	1281	2920	395	0.96	45	135	2235	64.15	1.38
Anand	Petlad	Mahelav	8.7	1380	188	880	24	220	320	16	0.58	50	15	229	2.82	0.39	8.9	1330	113	820	24	109.8	360	24	0.06	20	15	237	28.84	1.4
Anand	Khambhat	Khambhat	8.9	4210	188	2660	12	464	1120	122	0.65	25	30	869	21.37	0.22	9	3730	163	2320	24	256.2	1000	196	0.15	40	15	776	11.76	1.51
Anand	Borsad	Borsad	8.6	700	100	430	36	98	144	0	2.9	20	12	108	11.2	0.37	8.6	450	138	290	36	97.6	48	15	0.54	35	12	26	24.75	0.01
Anand	Anand	Sandesar	8.7	720	113	450	24	122	160	0	0.5	25	12	110	6.95	0.4	8.3	1210	138	760	24	146.4	280	47	0.02	20	21	206	14.88	1.02
Anand	Umreth	Umreth	8.4	1680	250	990	24	37	456	116	2.08	45	33	268	6.12	0.06	8.2	1200	163	770	12	195.2	280	21	0.33	30	21	197	8	1.25
Anand	Anand	Karamsad	8.6	2440	138	1480	36	73	640	189	0.73	20	21	490	13.81	0.23	8.4	2300	125	1410	12	97.6	656	120	0.09	40	6	466	8.64	0.92
Anand	Anand	Karamsad	8.7	320	75	200	12	61	64		0.65	15	9	37	3.73	0.24	8.3	290	75	190	24	61	48	0	0.11	10	12	27	9.32	1.28

Anand	Anklav	Ambali	8.4	390	88	250	12	85.4	56	0	10.06	20	9	38	19.58	0.34	8.8	200	38	150	24	24.4	32	0	26.8	10	3	22	10.75	0.14
Anand	Anklav	Khadol(haldari)	8.8	650	150	410	24	97.6	104	53	0.73	25	21	78	3.99	0.26	8.8	700	263	460	24	256.2	56	0	6.73	20	51	39	2.26	0.36
Anand	Anklav	Umeta	8.9	1580	163	1210	24	390.4	416	0	41.07	15	30	284	7.99	0.25	8.9	1550	475	960	36	244	192	161	21.27	125	39	136	3.38	0.37
Anand	Borsad	Ras	8.9	1970	188	1260	0.3	146.4	696	223	4.7	30	27	532	4.7	0.47	8.7	3060	938	1950	24	488	480	381	4.65	175	120	272	1.59	0.7
Anand	Borsad	Kathana	8.7	800	188	490	24	109.8	136	71	0.94	11.5	38.1	96	3.8	0.42	8.8	750	200	480	24	195.2	120	0	2.85	20	36	80	1.4	0.31
Anand	Khambhat	Jalundh	8.5	3020	213	1740	12	109.8	880	38	34.02	25	36	592	9	0.5	8.5	2890	525	1850	12	549	560	117	18.38	105	63	421	4.47	0.18
Anand	Khambhat	Jalsan	8.7	1090	138	690	36	97.6	208	92	4.51	15	24	154	57.33	0.22	9.1	960	225	610	36	183	200	0	6.57	30	36	116	1.89	0.08
Anand	Khambhat	Vatra	8.7	2490	288	1520	24	158.6	552	251	10.39	20	57	427	22.11	0.17	8.7	2280	563	1410	24	390.4	336	133	47	150	45	239	44.65	0.51
Anand	Petlad	Manej	8.8	2420	238	1480	24	280.6	576	61	18.27	30	39	444	5.56	0.58	8.8	2410	438	1510	24	268.4	528	174	5.92	125	30	351	2.78	0.02
Anand	Petlad	Jogan	8.6	500	113	380	12	183	80	0	4.26	15	18	58	9.2	0.05	8.5	530	163	350	12	158.6	64	13	3.14	40	15	45	4.1	0.08
Anand	Petlad	Ramol	8.8	1300	138	830	36	170.8	280	39	4.3	30	15	212	40.11	0.03	8.7	1350	275	880	24	305	240	29	4.76	50	36	172	19.51	0.28
Anand	Sojitra	Bhadkad	9.1	1690	125	1240	36	390.4	416	0	9.15	40	6	314	29.22	0.25	8.9	1620	388	1040	36	402.6	256	28	7.84	45	66	187	13.19	0.91
Anand	Sojitra	Khansol	9	7460	275	4690	36	793	2160	0	10.89	45	39	1559	50.58	0.17	8.7	7760	200	4700	24	488	2400	31	51.94	15	39	1690	5.56	0.66
Anand	Sojitra	Meghalpur	8.9	4980	213	3170	24	341.6	1280	240	33.41	30	33	845	343	0.06	8.9	5240	338	3340	36	427	1520	36	8.86	15	72	806	413.5	1.13
Anand	Sojitra	Petli	8.9	2280	163	1430	12	219.6	552	116	11.85	35	18	422	47.72	0.03	3.7	2490	263	1550	36	378.2	592	11	8.58	20	51	449	4.94	0.33
Anand	Tarapur	Budhej	8.7	1570	150	960	24	134.2	384	43	14.16	25	21	263	50.16	0.04	8.7	2040	138	1250	24	195.2	560	14	4.29	15	24	402	6.15	1.04
Anand	Umreth	Bhalej	8.5	950	138	590	12	122	176	49	15.79	30	15	131	41.92	0.05	8.6	710	200	450	24	170.8	112	0	13.83	20	36	65	11.09	1.08
Anand	Umreth	Pansora	8.5	1180	275	730	12	231.8	176	40	25.31	40	42	121	41.25	0.06	8.4	1350	288	830	12	195.2	240	110	11.7	30	51	174	7.7	0.25
Anand	Umreth	Khakhanpur	8.4	340	63	250	24	73.2	64	0	7.19	10	9	36	22.73	0.12	8.5	410	138	260	12	109.8	56	0	6.18	30	15	30	2.37	0.49
Anand	Umreth	Sundalpura	8.3	610	138	410	12	146.4	88	0	28.35	30	15	59	29.86	0.07	8.5	390	113	260	12	109.8	56	0	6.47	20	15	35	4.49	0.01
Anand	Khambhat	Gudel	8.8	12050	388	7712	24	390.4	3376	810	19.8	65	54	2583	16.69	1.22	8.6	11250	3125	7210	24	1098	1600	2256	22.65	750	300	1146	7.61	1.45
Anand	Umreth	Umreth	7.7	2430	563	1500	0	195.2	440	399	5.33	55	102	297	5.71	0.63	8.4	1440	488	840	12	268.4	160	41	59.31	175	12	105	2.51	0.23
Anand	Umreth	Dhuleta	8.3	720	150	440	12	97.6	128	55	6.33	20	24	92	8.14	0.17	8.3	690	275	370	12	122	56	0	41.56	90	12	30	4.05	0.31
Anand	Umreth	Shili															8.4	1350	363	870	12	341.6	200	27	17.73	100	27	138	10.04	0.7
Anand	Anand	Khambholaj	8.5	910	213	500	12	85.4	136	47	34.81	25	36	93	31.44	0.17	8.5	890	250	500	12	122	136	0	51.87	50	30	83	12.13	0.64
Anand	Anand	Sarsa	8.5	970	238	610	12	122	144	141	4.39	30	39	112	3.7	0.08	8.5	840	363	500	12	231.8	40	0	62.48	100	27	26	1.6	1.16
Anand	Umreth	Ghora	8.2	1640	213	950	0	85.4	360	109	36.4	45	24	267	20.45	0.27	8.4	1270	450	750	12	305	112	5	56.6	150	18	79	10.35	0.23
Anand	Anand	Anand	8.2	2110	238	1230	0	109.8	496	142	33.07	40	33	373	5.72	0.52	8.5	2880	488	1700	12	341.6	632	20	64.1	175	12	436	3.46	0.58
Anand	Anand	Boriavi	8.4	1010	188	580	12	85.4	168	56	33.68	25	30	116	15.32	0.14	8.6	1120	363	700	24	268.4	144	10	24.05	100	27	78	22.28	0.54
Anand	Borsad	Bhadran	8.3	2420	350	1410	12	158.6	520	187	37.06	30	66	393	3.84	0.43	8.5	2410	613	1480	12	500.2	376	17	63.69	225	12	271	1.79	0.39
Anand	Khambhat	Kanisha	8.1	2660	325	1590	0	170.8	640	177	29.43	35	57	433	50.36	0.01	8.4	2340	263	1450	12	305	560	24	24.07	75	18	403	24.52	0.78
Anand	Khambhat	Bhuval	8.6	1630	188	920	24	97.6	336	58	45.19	15	36	258	52.42	0.07	8.6	1740	438	1000	24	183	296	66	54.27	150	15	177	36.46	0.38
Anand	Khambhat	Haripura	8.4	5430	438	3340	12	610	1360	149	35.29	25	90	1038	16.74	0.32	8.2	6160	688	3620	0	488	1600	191	64.17	25	150	1097	6.28	0.71
Anand	Khambhat	Kansari	8	3620	238	2210	0	158.6	920	292	22.61	35	36	698	42.67	0.45	8.5	3020	125	1910	12	366	720	103	18.82	35	9	627	17.36	1
Anand	Tarapur	Zalapur	8.3	920	125	540	12	85.4	200	32	15.37	20	18	146	13.23	0.25	8.6	920	250	500	24	146.4	128	0	30.43	20	48	92	7.48	0.78
Anand	Sojitra	Sojitra	8.9	1530	188	850	36	97.6	360	0	36.07	15	36	263	4.83	0.66	8.7	750	275	410	24	158.6	64	0	29.21	40	42	45	2.38	0.87
Anand	Petlad	Petlad	8.8	1820	300	1040	24	122	360	135	34.08	25	57	278	4.15	0.4	8.6	1720	575	1000	24	341.6	208	44	54.23	150	48	130	1.49	2.9
Anand	Anand	Kasor-I	8.6	600	113	360	12	85.4	104	26	9.99	15	18	77	15.42	0.19	8.7	560	163	330	24	97.6	80	0	10.93	45	12	52	3.31	0.74
Anand	Anand	Kasor-II	8.5	420	75	280	24	73.2	88	0	4.04	10	12	56	10.38	0.1	8.6	390	125	230	24	73.2	48	0	6.42	30	12	30	3.18	0.56
Anand	Anand	Kasor-III	8.4	360	113	230	12	73.2	40	24	5.24	25	12	27	6.95	0.07	8.5	380	100	250	12	85.4	72	0	10.74	15	15	40	2.95	0.05
Anand	Anklav	Gambhira	8.8	1350	200	810	36	109.8	264	104	12.53	15	39	201	29.5	0.33	8.7	1310	213	840	12	280.6	264	5	8.03	35	30	201	3.8	0.05
Anand	Khambhat	Chhatardi	9	3040	213	1830	36	85.4	784	257	5.37	20	39	595	10.95	0.09	8.6	3110	488	1940	24	488	688	101	11.7	50	87	489	3.85	0.23
Anand	Khambhat	Pandad	8.5	21300	2938	12850	24	549	5240	2547	38.26	375	480	3482	112	0.44	8.1	18920	750	11360	0	915	6000	35	65.57	50	150	3813	328.5	0.85
Anand	Tarapur	Varsada	8.7	11480	1813	6700	24	292.8	3240	760	31.34	210	309	1772	59.17	0.03														
Anand	Petlad	Mahelav	8.8	1150	150	690	36	109.8	280	18	3.17	25	21	194	2.59	0.44	8.7	1110	375	670	24	256.2	152	32	15.64	45	63	82	1.91	0.96

Anand	Khambhat	Khambhat	8.8	3740	225	2290	24	146.4	976	303	5.95	35	33	748	14.6	0.35	9.1	3530	300	2160	36	244	0.49	880	16.81	75	27	670	7.3	14.73		
Anand	Borsad	Borsad	8.2	380	100	230	0	85.4	48	3	15.27	15	15	26	26.26	0.53	8.5	530	163	320	24	122	64	0	13.61	30	21	45	4.36	0.37		
Anand	Anand	Sandesar	8.5	630	138	380	24	73.2	120	40	0.7	15	24	76	9.64	0.6	8.6	640	163	400	24	146.4	96	0	11.57	20	27	69	5.58	0.25		
Anand	Umreth	Umreth	8.1	1430	263	810	0	85.4	360	35	28.27	60	27	205	4.61	0.52	8.3	1220	413	770	12	366	152	19	15.65	30	81	89	2.88	0.2		
Anand	Anand	Karamsad	8	2310	138	1360	0	97.6	688	34	20	25	18	460	12.93	0.39	8.1	2450	250	1480	0	122	720	77	8.73	100	0	445	5.79	0.41		
Anand	Anand	Karamsad	8.2	300	63	210	0	73.2	72	0	0.6	10	9	38	3.81	0.42	8.5	310	88	200	12	85.4	40	0	2.25	25	6	30	1.58	0.18		
			2019_May															2019_Oct														
Anand	Anand	Ode	8.7	860	188	600	24	244	128	0	6.56	50	15	85	45	0.85	8.7	870	238	590	24	281	120		0.16	40	33	85	10.2	0.39		
Anand	Anand	Vasad	8	910	238	570	0	231.8	136	0	22.52	60	21	96	6.56	0.65	8.6	770	225	520	24	232	112		0.9	45	27	70	6.24	0.35		
Anand	Anklav	Asodar	8.6	1030	188	650	24	146.4	208	50	2.65	50	15	149	3.25	0.25	9.1	920	225	630	24	256	152		0.23	80	6	107	2.07	0.23		
Anand	Borsad	Kinkhlod	8.6	1260	313	820	24	268.4	232	38	0.85	80	27	144	2.65	0.46	8.8	1180	325	770	24	281	184	58	0.25	55	45	121	1.2	0.07		
Anand	Borsad	Virsad	8.7	1360	325	870	24	219.6	280	117	0.65	75	33	184	12	0.6	9.1	1450	363	950	36	317	240	62	0.09	95	30	166	2.08	0.94		
Anand	Petlad	Petlad	8.5	1330	300	820	12	183	256	85	12.52	65	33	163	9	0.58	9.1	1290	313	840	36	281	224	37	0.17	75	30	151	3.3	0.43		
Anand	Sojitra	Sojitra	8.9	3500	750	2210	36	683.2	640	102	33.56	175	75	458	3.74	1.41	9.3	2180	500	1400	36	427	360	163	0.13	60	84	271	1.49	1.49		
Anand	Tarapur	Tarapur	8.2	7280	1500	4630	0	976	1440	718	18.52	325	165	980	8.25	0.52	9.2	5540	988	3540	36	830	1248	259	0.73	260	81	818	2.95	1.06		
Anand	Khambhat	Dehda	8.4	15550	563	9830	24	134	4800	836	0.65	125	60	3270	80.32	0.8	8.5	16580	3175	10650	12	3050	3680	566	1.22	525	447	2324	48.54	0.48		
Anand	Anklav	Ambali	8.2	330	63	220	0	48.8	56	0	13.54	10	9	35	73	0.45	8.4	220	50	140	12	37	40		2.06	10	6	23	8.21	0.49		
Anand	Anklav	Khadol(haldari)	8.6	780	175	490	24	170.8	128	0	1.74	45	15	89	17.13	0.1	8.8	740	188	480	24	171	136		0.13	40	21	82	4.14	0.85		
Anand	Anklav	Umeta	8.8	1630	325	1040	24	305	304	82	3.17	55	45	224	2.49	0.12	8.7	1620	375	1060	24	342	288	71	2.79	100	30	198	3.43	0.49		
Anand	Borsad	Ras	9.1	2060	850	1320	36	475.8	424	293	1.7	160	108	234	0.56	0.92	8.6	2490	613	1600	24	427	424	238	1.81	115	78	290	0.82	1.49		
Anand	Borsad	Kathana	8.9	800	100	500	24	109.8	192	0	0.29	25	9	137	1.23	0.15	8.5	930	238	630	12	281	152		0.76	50	27	104	1.6	0.08		
Anand	Khambhat	Jalundh	8.6	2770	775	1780	24	488	480	251	1.84	175	81	279	3.55	0.66	8.3	3090	638	1990	12	390	560	392	2.33	155	60	415	4.5	0.28		
Anand	Khambhat	Jalsan	8.8	1100	238	700	24	183	200	73	0.64	45	30	143	1.47	0.15	9.5	1060	263	660	48	183	184	37	0.51	60	27	122	1.94	0.14		
Anand	Khambhat	Vatra	8.7	2490	625	1580	24	390.4	496	161	5.51	155	57	279	10.33	0.19	8.6	1770	438	1140	24	220	256	289	0.89	75	60	187	32.48	0.41		
Anand	Petlad	Manej	8.7	2560	650	1670	24	561.2	432	161	0.63	100	96	289	1.87	1.13	8.8	2620	488	1670	24	390	504	227	0.77	75	72	377	2.99	0.69		
Anand	Petlad	Jogan	8.8	620	738	400	24	610	424	132	0.17	115	108	245	3.12	0.33	8.7	540	100	330	24	61	128		0.17	20	12	76	3.97	0.37		
Anand	Petlad	Ramol	9	1310	363	840	36	292.8	208	54	1.24	60	51	131	6.34	0.78	8.7	1310	313	830	24	244	256	35	4.3	75	30	150	13.46	1.07		
Anand	Sojitra	Bhadkad	8.7	2000	1250	1280	24	976	1680	672	1.64	300	120	1221	5.13	0.7	9.1	1680	288	1100	36	281	312	103	0.74	80	21	239	25.39	0.43		
Anand	Sojitra	Khansol	8.5	7820	450	5000	12	390.4	312	95	1.69	75	63	188	20.35	0.5	9	7350	1200	4800	36	915	1600	682	1.08	215	159	1181	6.16	0.46		
Anand	Sojitra	Meghalpur	8.8	5390	1063	3430	24	732	1120	454	1.83	210	129	745	9.65	0.29	9	5220	875	3400	36	793	1040	415	1.22	215	81	757	52.3	0.48		
Anand	Sojitra	Petli	9.3	2320	638	1490	36	488	400	130	0.11	105	90	238	4.25	0.63	9	2160	438	1350	36	366	480	39	0.56	75	60	292	5.62	0.73		
Anand	Tarapur	Budhej	3.8	2550	725	1680	0	597.8	408	199	0.31	110	108	250	5.21	1.06	8.2	2860	613	1820		354	544	352	1.92	100	87	372	6.22	0.64		
Anand	Umreth	Bhalej	8.4	780	138	500	12	158.6	160	0	1.89	25	18	111	9.48	0.1																
Anand	Umreth	Pansora	8.7	1190	275	750	24	244	208	30	8.52	50	36	146	2.64	0.28	8.1	1660	288	1070		293	344	93	2.66	55	36	247	4.33	0.04		
Anand	Umreth	Khakhanpur	8.5	350	88	220	12	85.4	48	0	0.53	20	9	34	9.94	0.44	8.2	470	125	310	12	134	72		0.99	25	15	50	1.31	0.35		
Anand	Umreth	Sundalpura	8.6	420	125	280	24	97.2	72	0	1.85	30	12	38	2.02	0.45	8.4	360	75	230	12	61	80		0.68	10	12	47	2.44	0.2		
Anand	Khambhat	Gudel	8.2	13220	3125	8460	0	1708	2320	1790	22.36	650	360	1596	12.56	1.2	9	12520	1438	8060	36	1830	3000	449	2.75	445	78	2214	6.92	1.42		
Anand	Umreth	Umreth	8.9	2250	650	1420	36	463.6	400	103	3.77	100	96	216	4.84	0.58	8.4	2400	813	1600	12	647	240	262	10.51	140	111	177	1.6	0.95		
Anand	Umreth	Dhuleta	8.3	710	188	460	12	183	112	0	10.54	30	27	72	7.98	0.63	8.6	770	188	490	24	183	120	0	7.4	45	18	89	3.21	0.43		
Anand	Umreth	Shili															8.3	1280														

Anand	Anand	Boriavi	8.6	940	200	610	24	183	160	0	31.79	60	12	107	29.87	0.156	8.4	960	238	640	12	268	160	0	5.63	45	30	99	20.57	0.84
Anand	Borsad	Bhadran	8.6	2090	663	1310	24	488	280	61	40.63	195	42	175	1.89	0.99	8.8	2340	488	1480	24	427	480	63	10.6	105	54	313	1.84	0.62
Anand	Khambhat	Kanisha	8.6	2110	500	1350	24	414.8	320	112	30.18	150	30	228	45.78	0.18	8.3	2230	450	1460	12	390	424	163	2.33	100	48	293	22.47	0.37
Anand	Khambhat	Bhuval	8.5	1470	275	980	12	244	256	139	2.19	60	30	182	50.56	0.98	8.7	1530	313	990	24	244	304	86	1.96	80	27	187	35.75	0.44
Anand	Khambhat	Haripura	8.5	5310	538	3290	12	488	1400	220	9.34	125	54	964	16.74	1.48	8.7	3020	663	1970	24	647	544	138	8.35	130	81	383	11.12	0.37
Anand	Khambhat	Kansari	8.7	3460	700	2260	24	610	640	266	3.45	150	78	449	42.67	0.1	8.6	3510	813	2300	24	708	600	265	3.84	145	108	421	20.76	0.5
Anand	Tarapur	Zalapur	8.4	850	163	580	12	219.6	160	0	0.61	55	6	113	13.23	0.3	8.7	1110	363	730	24	305	128	70	2.61	65	48	85	5.18	0.97
Anand	Sojitra	Sojitra	8.7	1430	325	890	24	231.8	256	85	9.38	60	42	177	4.83	1.32	8.7	540	113	350	24	110	104	0	0.48	25	12	71	2.42	0.53
Anand	Petlad	Petlad	8.8	1840	375	1170	24	305	336	122	7.62	75	45	248	4.15	1.29	8.7	1810	350	1140	24	305	360	69	9.98	75	39	254	1.81	0.41
Anand	Anand	Kasor-I	8.7	640	150	390	24	122	104	0	12	30	18	70	13.24	0.36	8.8	580	125	360	24	98	120		0.43	25	15	74	2.51	0.79
Anand	Anand	Kasor-II	8.5	410	100	260	12	85.4	72	0	6	25	9	41	11.83	0.55	8.6	400	100	250	24	73	72		1.32	20	12	45	2.28	0.11
Anand	Anand	Kasor-III	8.5	430	125	290	12	122	64	0	5.26	30	12	38	5.65	0.12	8.5	360	75	230	12	61	80		1.4	15	9	46	4.25	0.42
Anand	Anklav	Gambhira	8.9	1370	288	860	36	195.2	224	100	12.53	65	30	166	28	0.25	8.8	1390	363	920	24	342	208	74	1.14	60	51	146	2.52	0.62
Anand	Khambhat	Chhatardi	8.2	3230	625	2060	0	427	640	324	6.75	130	72	448	12.32	0.12														
Anand	Khambhat	Pandad	7.6	20570	2500	13160	0	3050	4800	844	43.25	500	300	3528	90.56	0.65	8.6	19730	3250	12780	24	3660	4400	561	14.11	575	435	2939	175.4	0.93
Anand	Tarapur	Varsada	7.9	11700	1875	7450	0	1830	2560	597	35.65	325	255	1796	55.25	0.2	8.8	11340	2063	7290	24	1830	2400	685	11.36	410	249	1629	52.4	0.44
Anand	Petlad	Mahelav	9	1110	250	680	36	146.4	208	59	5.5	55	27	139	1.95	0.56	8.4	1190	400	750	12	110	128	291	0.13	65	57	89	0.88	0.67
Anand	Khambhat	Khambhat	9	4280	688	2720	36	732	960	102	6.25	110	99	660	13.25	0.36	9.1	3600	813	2310	36	476	608	465	2.43	175	90	451	5.7	0.69
Anand	Borsad	Borsad	8.7	600	138	360	24	85.4	104	0	13.25	30	15	61	22.5	0.32	8.6	610	163	400	24	346	104		0.94	40	15	62	6.28	0.78
Anand	Anand	Sandesar	8.7	650	150	410	24	122	128	0	0.92	50	6	77	5.65	0.8	8.8	690	150	450	24	146	128		1.57	45	9	86	5.87	0.26
Anand	Umreth	Umreth	8.3	1380	350	820	12	195.2	240	77	25.25	65	45	154	3.25	0.92	8.4	740	150	480	12	134	168		2.11	50	6	100	2.65	0.21
Anand	Anand	Karamsad	8.3	2270	438	1420	12	390.4	440	86	23.65	100	45	315	9.56	0.65	9.3	2420	725	1580	12	512	384	217	0.5	140	90	220	4.63	0.79
Anand	Anand	Karamsad	8.4	460	138	310	12	146.4	64	0	0.89	35	12	41	2.2	0.95	8.7	360	88	220	24	61	64		0.21	15	12	42	1.48	0.41
			2020_May																2020_Oct											
Anand	Anand	Ode	8.5	950	113	610	12	146.4	240	0	1.02	20	15	153	23	0.27	8.6	710	163	480	24	73.2	80	133	0.42	35	18	54	59.35	0.9
Anand	Anand	Vasad	8.3	870	125	580	12	195.2	184	0	0.51	20	18	140	4.96	0.39	8.2	610	150	400		122	104	50	1.54	30	18	68	4.77	0.51
Anand	Anklav	Asodar	8.5	1210	275	780	12	231.8	208	95	0.69	45	39	150	2.24	0.6	8.7	870	175	540	24	158.6	176		2.78	40	18	118	2.64	1.19
Anand	Borsad	Kinkhlod	8.9	1320	288	830	36	193	256	84	0.44	65	30	170	1.53	0.4	8.9	920		580	36	183	144	38	1.47	50	30	96	0.8	0.86
Anand	Borsad	Virsad	8.8	1800	400	1160	36	280.6	312	160	0.37	100	36	229	2.11	1.29	9.1	1280	288	820	36	244	208	81	0.4	50	39	160	3.05	0.53
Anand	Petlad	Petlad	8.8	1840	488	1170	36	317.2	288	184	0.84	75	72	197	3.38	0.27	8.8	1250	300	810	24	244	208	83	0.92	65	33	147	3.92	1.2
Anand	Sojitra	Sojitra	8.9	3890	775	2500	36	683.2	712	292	4.4	125	111	537	1.37	1.29	9.4	2670	625	1700	36	366	432	336	3.65	125	75	324	4.45	1.57
Anand	Tarapur	Tarapur	8.9	7550	1075	4830	36	1037	1720	421	1.86	280	90	1241	2	0.33	9	6250	500	4000	36	329.4	368	241	2.12	100	60	279	3.13	1.5
Anand	Khambhat	Dehda	8.5	20000	3250	12860	12	3660	4720	326	0.64	615	411	3093	20	0.26	8.1	13060	438	8360		244	256	213	4.42	75	60	163	5.86	0.86
Anand	Anklav	Ambali	7.9	270	50	180	0	61	56	0	1.47	10	6	35	6.57	0.29	8.3	240	75	130	12	36.6	24		7	20	6	15	9.97	0.62
Anand	Anklav	Khadol(haldari)	8.6	850	200	570	24	144	136	0	0.45	35	27	103	1.68	0.15	8.2	700	175	440	24	146.4	120		0.74	50	12	80	1.62	1.5
Anand	Anklav	Umeta	8.7	2000	400	1260	24	317.2	400	120	3.31	65	57	275	2.12	0.19	8.8	1500	350	960	24	244	240	144	5.38	70	42	182	3.39	1.38
Anand	Borsad	Ras	8.9	2680	575	1720	36	597.8	600	84	1.75	95	81	420	0.71	1	9.1	1940	438	1250	36	366	336	117	3.32	90	51	244	1.12	1.58
Anand	Borsad	Kathana	8.6	1040	300	670	24	244	168	40	0.32	55	39	101	0.87	0.22	8.6	740	188	470	24	146.4	112	47	0.49	35	24	83	1.26	0.67
Anand	Khambhat	Jalundh	8.4	3380	663	2150	36	475.8	632	332	0.96	105	96	471	2.24	0.59														
Anand	Khambhat	Jalsan	8.6	1360	325	880	24	195.2	232	144	1.04	100	18	163	1.06	0.13	8.6	940	175	600	24	183	184	15	0.87	40	18	135	1.86	0.83
Anand	Khambhat	Vatra	8.5	3520	738	2250	12	402.6	600	508	10.06	115	108	430	68.51	0.25	8.7	2280	525	1460	24	366	368	231	10.89	110	60	278	8.03	1.01
Anand	Petlad	Manej	8.1	2970	863	1900	0	475.8	632	573	0.48	140	123	467	1.58	0.99	7.9	2630	625	1680		280.6	440	438	1.76	125	75	316	1.98	1.33
Anand	Petlad	Jogan	8.5	690	188	460	0.12	207.4	112	0	0.32	30	27	71	2.07	0.52	8.9	520	125	320	36	97.6	80		0.4	25	15	60	3.33	1.34
Anand	Petlad	Ramol	8.7	1660	375	1080	24	317.2	280	126	0.76	75	45	207	3.68	0.89	8.8	1160	288	750	24	183	175	133	0.64	60	33	132	4.17	0.8

Anand	Sojitra	Bhadkad	8.9	2150	475	1380	36	305	360	245	0.64	90	60	268	13.34	0.6	9	1530	388	980	36	231.8	240	166	0.94	80	45	161	21.58	0.37
Anand	Sojitra	Khansol	8.8	9890	1363	6330	24	1403	2240	574	1.52	280	159	1646	2.61	0.49	8.1	8200	100	5250		109.8	64		3	15	15	41	4.02	0.65
Anand	Sojitra	Meghalpur	8.8	5880	1000	3760	24	793	1680	464	0.96	175	135	989	303.6	0.4	8.9	4330	1125	2770	36	524.6	640	731	2.95	215	141	476	3.3	1.3
Anand	Sojitra	Petli	8.8	2730	750	1750	24	597.8	768	323	0.58	115	111	550	2.88	0.51	8.9	1970	438	1250	36	256.2	336	221	2.34	90	51	249	4.94	1.44
Anand	Tarapur	Budhej	2	3890	1400	2490	0	0	1200	1283	2.26	280	168	749	4.45	1.13	8.3	3230	750	2060	12	488	640	272	2.7	155	87	395	5.01	0.7
Anand	Umreth	Bhalej	8.3	870	188	580	12	231.8	160	0	0.78	45	18	111	4.05	0.23	8.5	640	125	410	12	122	136		2.27	30	12	86	5.8	0.73
Anand	Umreth	Pansora	8.4	1370	350	850	12	195.2	264	114	3.87	55	51	153	1.87	0.35	7.4	1540	313	990		170.8	280	222	0.8	70	33	209	2.44	1.01
Anand	Umreth	Khakhanpur	8	470	113	320	0	146.4	80	0	2.77	25	12	56	1.44	0.29	8.6	350	75	210	24	48.8	64		0.37	15	9	45	0.95	0.6
Anand	Umreth	Sundalpura	8.1	1170	225	790	0	244	240	38	1.81	55	21	129	62.8	0.39	8.9	560	163	330	36	146.4	72	37	10.1	25	24	54	0.67	0.1
Anand	Khambhat	Gudel	8.7	16380	2363	10460	24	2501	3920	557	1.34	510	261	2677	5.43	1	11	11530		7380	48	573.4	800	431	875	190	96	573	12.03	0.23
Anand	Umreth	Umreth	8.4	3290	375	2050	12	390.4	800	130	11.57	65	51	583	2.18	1.09	8.7	2180		1390	24	366	0.26	182	525	125	51	255	9.03	11.84
Anand	Umreth	Dhuleta	8.4	740	175	480	12	183	128	0	7.17	45	15	90	0.1	0.38	8.5	600	125	370	12	122	104		8.41	30	12	80	0.35	0.09
Anand	Anand	Khambholaj	8.2	870	238	610	0	305	128	0	2.7	40	33	84	11.94	0.36	8.7	660	150	410	24	122	120		5.03	30	18	73	16.47	0.38
Anand	Anand	Sarsa	8.1	1000	213	640	0	219.6	184	21	10.83	45	24	131	1.55	0.36	8.5	820	150	500	12	146.4	160		12.83	40	12	118	208	0.17
Anand	Umreth	Ghora	7.6	2220	350	1390	0	305	520	84	11.3	75	39	343	11.96	0.33	8.2	1730	375	1110		280.6	320	143	10.02	90	36	217	14.59	0.04
Anand	Anand	Anand	8.3	3830	663	2410	12	427	760	410	13.55	115	90	574	3.94	0.49	8.3	3140	688	2000	12	427	560	361	10.12	150	75	40	2.17	0.31
Anand	Anand	Boriavi	8.3	1040	225	690	12	256.2	176	29	3.05	35	33	127	14.6	0.48	8.6	810	163	510	24	146.4	152		8.3	40	15	98	22.23	0.22
Anand	Borsad	Bhadran	8.3	2350	488	1510	12	524.6	424	58	18.62	90	63	315	2.22	0.55	7.5	2540	575	1620		2806	424	403	6.42	120	66	318	2.78	0.51
Anand	Khambhat	Kanisha	8.3	2470	613	1620	12	549	416	161	2.98	100	87	284	4.08	0.55	8.8	1340	288	850	24	183	224	143	4.39	60	33	165	18.12	0.19
Anand	Khambhat	Bhuval	8.4	1850	313	1210	12	280.6	352	162	2.76	75	30	262	32.7	0.42	10	1480	325	940	36	244	288	62	2.89	65	39	170	35.86	0.14
Anand	Khambhat	Haripura	8.1	5550	738	3590	0	1037	1256	108	12.42	140	93	933	6.49	0.74	8.7	2750	650	1760	24	402.6	504	249	10.12	135	75	302	53.69	0.2
Anand	Khambhat	Kansari	8.6	4820	700	3130	24	793	1040	238	2.18	160	72	774	21.13	0.74	8	3650	875	2330		427	560	634	7.42	115	141	422	25.94	0.1
Anand	Tarapur	Zalapur	8	1150	250	730	0	183	256	52	2.53	55	27	147	4.1	0.49	8.8	780	200	480	24	134.2	160		2.16	40	24	84	6.43	0.67
Anand	Sojitra	Sojitra	8.5	1640	438	1050	12	341.6	256	115	10.7	90	51	175	1.71	0.7	7.7	910	225	580		158.6	144	87	8.64	45	27	104	2.7	0.32
Anand	Petlad	Petlad	8.5	2120	450	1370	12	427	392	102	8.28	105	45	280	1.16	1.04	8.7	1720	400	1100	24	305	304	105	9.02	100	36	210	2.65	0.26
Anand	Anand	Kasor-I	8.4	750	200	490	12	183	144	0	0.55	45	21	79	2.43	0.26	8.4	510	125	330	12	134.2	80		1.42	30	12	58	2.64	1.11
Anand	Anand	Kasor-II	8.2	500	113	350	0	158.6	88	0	1	25	12	62	2.64	0.54	8.4	510	125	330	12	122	96		1.28	25	15	58	2.45	1.16
Anand	Anand	Kasor-III	8.1	450	100	310	0	134.2	80	0	0.6	25	9	56	3.33	0.22	8.4	510	125	330	12	134.2	80		1.37	25	15	58	2.35	0.92
Anand	Anklav	Gambhira	8.7	1760	375	1120	24	219.6	296	220	3.98	75	45	222	17.16	0.29	8.2	1400	313	910		219.6	256	141	2.96	70	33	170	13.61	1.04
Anand	Khambhat	Chhatardi	8.9	3800	850	2460	36	732	720	214	0.86	175	99	482	2.38	0.48	8.9	2690	625	1700	36	292.8	440	395	3.39	125	75	330	2.7	1.14
Anand	Khambhat	Pandad	8.4	23680	3500	15130	12	3782	5600	781	8.11	615	471	3800	61.1	1.08	8.7	20970	350	13420	24	134.2	176	272	10.15	55	51	117	89.46	1.08
Anand	Tarapur	Varsada	8.5	14260	3025	9110	12	2440	3200	559	7.37	700	306	1887	1.57	0.33	8.5	9990	2500	6380	12	1098	1600	1732	5.09	400	360	1113	58.31	0.88
Anand	Petlad	Mahelav	8.7	1500	375	970	24	280.6	232	146	0.23	60	54	171	3.26	0.47	8.8	1090	250	700	24	207.4	184	70	0.43	50	30	135	1.5	0.86
Anand	Khambhat	Khambhat	8.9	4450	1013	2890	36	915	800	275	0.61	160	147	554	6.15	0.52	8.9	3270	813	2090	36	427	520	465	1.76	160	99	375	5.35	1.09
Anand	Borsad	Borsad	8.3	740	188	490	12	195.2	136	0	1.5	40	21	82	3.58	0.35	8.9	570	113	340	36	73.2	112		0.83	25	12	77	4.29	0.81
Anand	Anand	Sandesar	8.4	830	163	550	12	183	176	0	0.66	45	12	113	5.19	0.25	8.6	610	175	400	24	146.4	80	27	0.54	30	24	57	5.36	1.01
Anand	Umreth	Umreth	8.1	1260	325	820	0	231.8	200	143	2.31	50	48	139	2.54	0.54	8.2	1100	250	700		183	200	87	7.59	50	30	137	1.71	0.46
Anand	Anand	Karamsad	8	2730	400	1740	0	280.6	640	215	2.9	140	12	441	4.75	0.26	8.1	2130	500	1360		268.4	360	296	8.09	105	57	258	3.81	0.71
Anand	Anand	Karamsad	8	460	125	320	0	158.6	72	0	0.38	25	15	47	1.69	0.29	8.6	410	0.46	260	24	85.4			0.69	20	12	48	0.65	64
			2021_May															2021_Oct												
Anand	Anand	Ode	8.3	890	313	570	12	183	344	177	3.22	70	33	245	3.56	0.15	8.3	840	163	550	12	198.9	168	0	0.32	30	21	117	2.34	0.82
Anand	Anand	Vasad	8.2	1050	450	670	0	305	312	153	7.4	100	48	194	1.73	0.18	8.8	610	125	380	24	109.8	120	0	1	25	15	81	2.76	0.99
Anand	Anklav	Asodar	8.4	1150	600	740	12	427	480	223	1.31	100	84	314	1.98	1.24	7.2	1000	325	650	0	146.4	112	206	1.39	55	45	79	3.25	1.23
Anand	Borsad	Kinkhlod	8.1	1280	600	820	0	524.6	640	88	0.42	90	81	397	0.41	0.55	7.6	1240	288	790	0	183	224	144	1	45	42	152	1.29	0.56

Anand	Borsad	Virsad	8.1	1700	1875	1090	0	2074	3600	575	0.74	350	240	2523	3.24	0.22	8.3	1380	325	880	12	219.6	256	121	0.69	50	48	167	2.22	0.41
Anand	Petlad	Petlad	8.6	1360	175	870	24	158.6	136	0	3.17	30	24	90	3.04	0.79	8.6	1280	313	820	24	244	224	76	0.82	55	42	148	3.69	1.29
Anand	Sojitra	Sojitra	8.6	2330	125	1490	24	97.6	192	0	4.5	30	12	129	2.88	1.6	8.7	2120	500	1340	24	292.8	368	238	2.52	85	69	255	4.11	2.3
Anand	Tarapur	Tarapur	8.5	5150	325	3300	12	366	464	28	2.93	70	36	314	5.38	1.15	8	500	88	330	0	122	104	0	1.63	20	9	74	1	1.11
Anand	Anklav	Ambali	7.9	420	150	270	0	183	176	0	0.79	25	21	108	7.3	0.19	8	250	38	160	0	48.8	56	0	1.34	10	3	40	1	0.99
Anand	Anklav	Khadol(haldari)	8	820	125	520	0	134.2	208	0	1.46	25	15	130	2.48	0.87	8.3	760	88	480	12	109.8	184	0	2.67	25	6	133	2.09	0.65
Anand	Anklav	Umeta	8.7	2050	350	1320	0	390.4	472	28	2.96	65	45	308	4.99	0.57	7.9	1700	375	1090	0	268.4	304	184	2.22	60	54	218	0.64	1.22
Anand	Borsad	Ras	7.9	2690	625	1730	0	390.4	480	330	0.61	110	84	330	1.8	1.53	8.1	1990	350	1280	0	366	448	55	1.34	65	45	295	2.26	1.1
Anand	Borsad	Kathana	7.8	1000	250	650	0	195.2	184	76	0.11	50	30	114	2.32	0.63	7.7	880	150	590	0	219.6	184	0	0.99	25	21	131	3.57	0.55
Anand	Khambhat	Jalundh	8.2	3510	625	2250	0	488	720	321	2.31	115	81	517	4.12	0.14	7.7	2830	625	1820	0	427	520	311	2.66	100	90	359	8.03	0.27
Anand	Khambhat	Jalsan	8.6	1630	400	1050	24	341.6	320	39	1.1	90	42	189	3.13	0.08	9	1030	250	650	36	195.2	168	44	3.2	50	30	120	3.65	0.62
Anand	Khambhat	Vatra	8.3	3030	500	1930	12	427	680	155	6.79	100	60	436	52.18	1.05	8.4	2080	275	1330	12	403	448	43	3.25	15	57	334	30.94	1.28
Anand	Petlad	Manej	8	3200	788	2050	0	488	560	389	1.49	120	117	372	3.07	0.67	7.7	2850	650	1830	0	488	544	242	1.39	100	96	355	3.29	1.11
Anand	Petlad	Jogan	8.3	660	150	430	12	158.6	128	0	0.34	30	18	80	4.51	0.25	8	350	50	230	0	73.2	80	0	0.23	15	3	57	0.52	0.89
Anand	Petlad	Ramol	8.3	1450	200	900	12	158.6	360	61	0.38	40	24	238	6.06	1.47	8.1	1230	263	810	0	305	240	22	0.64	50	33	161	2.06	0.93
Anand	Sojitra	Bhadkad	8.7	1520	188	970	24	170.8	144	38	0.45	35	24	100	16.07	0.35	8.6	1610	263	1020	24	244	360	55	0.22	50	33	247	4.26	0.43
Anand	Sojitra	Meghalpur	8.4	5820	1125	3730	12	854	1200	479	0.39	210	144	808	23	0.74	8	5020	1000	3230	0	732	960	530	1.21	165	141	692	5.22	1.24
Anand	Sojitra	Petli	8.2	2520	625	1610	0	390.4	472	261	0.49	100	90	290	3.66	1.08	8.1	2180	400	1400	0	341.6	480	119	1.99	100	36	315	4.12	1.3
Anand	Tarapur	Budhej	3.2	3340	788	2110	0	427	544	530	0.5	145	102	403	4.44	0.43	3.2	4340	913	2780	0	732	880	306	3.21	155	126	575	6.3	0.99
Anand	Umreth	Bhalej	7	950	163	630	0	231.8	200	0	0.96	30	21	142	2.99	1.25														
Anand	Umreth	Pansora	8.7	1300	150	830	0	195.2	320	36	0.25	25	21	226	7.39	0.72	8.1	1230	250	800	0	256.2	256	39	0.44	40	36	167	1.99	1.24
Anand	Umreth	Khakhanpur	8.9	480	100	290	24	73.2	96	0	0.73	20	12	63	1.62	0.98	7.5	520	88	330	0	97.6	120	0	2.65	25	6	79	1.12	0.93
Anand	Umreth	Sundalpura	8.1	500	88	330	0	109.8	104	4	2.2	15	12	72	5.23	0.81	7.9	330	50	200	0	48.8	80	0	3.19	15	3	53	0.51	0.24
Anand	Khambhat	Gudel	7.8	14420	2375	9220	0	2440	3360	458	1.02	400	330	2220	7.42	1.51	7.8	9375	625	6000	0	732	920	66	4.59	100	90	621	4.19	0.35
Anand	Umreth	Umreth	8.1	2810	663	1800	0	488	480	282	9.27	100	99	340	2.44	1.32	7.7	2210	363	1400	0	256.2	480	194	4.22	80	39	341	1.2	1.26
Anand	Umreth	Dhuleta	8.1	930	188	590	0	158.2	184	46	7.5	40	21	125	4.36	0.65	8.3	670	175	430	12	183	104	0	5.46	30	24	72	2	1.12
Anand	Umreth	Shili															7	1420	288	910	0	244	232	89	1.39	50	39	153	3.3	0.69
Anand	Anand	Khambholaj	8.3	820	150	530	12	158.6	168	16	1.19	30	18	117	3.7	0.93	8.1	950	200	620	0	231.8	192	0	4.16	35	27	126	1.62	0.58
Anand	Anand	Sarsa	8.2	1030	125	630	0	134.2	264	0	8.93	20	18	178	1.87	1.6	8	990	163	640	0	207.4	224	0	2.69	30	21	152	1.82	0.19
Anand	Umreth	Ghora	7.7	2420	500	1560	0	390.4	448	225	6.53	80	72	315	19.23	0.7	8.1	2120	375	1340	0	305	480	121	1.68	65	51	313	2.99	0.13
Anand	Anand	Anand	6.5	3320	400	2110	0	549	800	45	9.89	80	48	577	4.9	1.06	7.7	2950	538	1850	0	305	640	303	2.31	90	75	429	4	1
Anand	Anand	Boriavi	8.3	900	163	600	12	207.4	176	0	3.77	35	18	114	31.6	0.39	8.4	1050	250	670	12	219.6	184	46	4.59	50	30	125	2.57	0.33
Anand	Borsad	Bhadran	8.6	2320	575	1500	24	549	384	90	9.27	90	84	269	0.07	1.1	8.6	2080	438	1300	24	280.6	424	158	2.22	80	57	275	3.22	0.66
Anand	Khambhat	Kanisha	8.1	2580	538	1680	0	463.6	504	181	2.38	100	69	330	27.1	1.61	8.2	1970	250	1250	0	305	480	44	4	50	30	337	2.33	0.29
Anand	Khambhat	Bhuval	7.8	1880	225	1210	0	280.6	424	103	1.49	40	30	324	8	0.47	6.8	1000	213	660	0	256.2	184	21	2.49	35	30	131	1.69	0.13
Anand	Khambhat	Haripura	7.5	5550	2000	3550	0	1708	1600	612	9.5	325	285	1056	23.5	1.18	8.2	3220	750	2070	0	488	560	396	2.65	125	105	395	1	0.29
Anand	Khambhat	Kansari	7.9	5010	813	3220	0	854	1120	199	5.12	130	117	761	28.99	1.54	7.2	3260	775	2090	0	463.6	544	449	4.4	125	111	391	3.64	0.39
Anand	Tarapur	Zalapur	8.2	1190	150	760	0	195.2	288	25	0.88	30	18	201	6.36	0.24	7.6	1510	375	970	0	244	256	180	1.69	65	51	173	2.6	0.51
Anand	Sojitra	Sojitra	8.4	1480	250	940	12	280.6	320	13	6.62	50	30	224	2.78	1.2	8.9	460	125	290	24	97.6	72	0	3.21	25	15	47	1.99	0.62
Anand	Petlad	Petlad	8.4	2060	375	1300	12	353.8	448	57	7.48	65	51	300	2.39	1.55	8.4	1780	288	1120	12	244	400	86	4.26	55	36	276	2.02	0.33
Anand	Anand	Kasor-I	6	740	150	500	0	195.2	152	0	0.9	40	12	98	5.09	0.33	8.6	660	150	430	24	158.6	112	0	1.24	30	18	81	3.23	0.99
Anand	Anand	Kasor-II	7.8	380	63	260	0	97.6	80	0	0.48	15	6	57	2.68	0.2	8.3	280	50	180	12	48.8	56	0	1.11	10	6	41	1.33	1
Anand	Anand	Kasor-III	7.7	440	50	280	0	73.2	112	0	0.67	10	6	76	4.22	0.21	7.9	290	63	190	0	73.2	56	0	1.6	10	9	37	1.22	0.87
Anand	Anklav	Gambhira	8.4	1670	300	1070	12	256.2	360	91	1	50	42	235	19.66	0.09	8	1510	363	970	0	280.6	288	109	1.36	60	51	180	1.66	0.66
Anand	Khambhat	Chhatardi	8.6	3480	750	2280	24	671	680	181	0.61	115	111	454	1.78	1.23	8.4	3200	738	2020	12	317.2	552	511	2.36	125	102	394	4.58	1.24

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Anand	Anand	Ode	8.1	1390	300	870	0	219.6	288	72	9.15	60	36	179	5.06	0.97

Anand	Anand	Vasad	8	970	125	630	0	158.6	256	0	3.45	25	15	165	1.72	0.47
Anand	Anklav	Asodar	8.9	1930	400	1240	24	341.6	384	96	0.81	80	48	259	1.1	0.99
Anand	Borsad	Kinkhlod	7.6	1320	300	840	0	219.6	280	73	2.61	60	36	165	1.41	0.49
Anand	Borsad	Virsad	8.6	1720	375	1090	24	317.2	360	40	2.51	75	45	222	2.34	1.07
Anand	Petlad	Petlad	9.1	1770	375	1120	36	305	352	73	0.43	75	45	233	2.89	1.02
Anand	Sojitra	Sojitra	8.8	2680	575	1710	24	390.4	496	254	4.03	115	69	351	2.17	1.45
Anand	Tarapur	Tarapur	8.9	9400	2050	6010	24	1440	1904	764	1.57	410	246	1216	5.68	0.55
Anand	Khambhat	Dehda	9.4	17410	3800	11130	48	2733	3616	1238	1.91	760	456	2228	48.6	1.17
Anand	Anklav	Ambali	8.3	1010	200	640	12	195.2	224	4	0.85	40	24	139	2.35	0.87
Anand	Anklav	Khado(haldari)	8.7	910	175	590	24	183	192	0	0.54	35	21	128	1.82	0.99
Anand	Anklav	Umeta	8.4	2200	750	1410	1	597.8	792	238	3.23	150	90	519	5.9	0.69
Anand	Borsad	Ras	8.9	1470	50	940	24	24.4	40	0	2.26	10	6	27	0.76	1.48
Anand	Borsad	Kathana	8.7	1030	200	650	24	195.2	216	5	1.18	40	24	144	1.63	0.86
Anand	Khambhat	Jalundh	8.6	4550	1075	2910	24	890.6	960	134	3.5	215	129	550	3.04	1.13
Anand	Khambhat	Jalsan	9	1780	575	1140	36	463.6	520	104	0.83	115	69	325	2.12	0.87
Anand	Khambhat	Vatra	8.6	2510	600	1600	24	427	472	176	4.66	120	72	297	7.7	0.59
Anand	Petlad	Manej	8.4	3520	3800	2250	12	2257	3120	1826	4.89	760	456	2013	2.64	1.27
Anand	Petlad	Jogan	8.9	1160	225	730	24	195.2	240	33	1.28	45	27	162	1.5	1.43
Anand	Petlad	Ramol	9	1570	325	990	36	280.6	320	31	2.66	65	39	211	1.45	1.4
Anand	Sojitra	Bhadrkad	8.6	1700	375	1080	24	317.2	352.2	47	0.68	75	45	217	2.34	1.42
Anand	Sojitra	Meghalpur	9	6960	1500	4450	36	951.6	1400	639	0.77	300	180	869	71	1.1
Anand	Sojitra	Petli	9	2890	625	1850	36	463.6	544	225	0.84	125	75	376	2.63	0.82
Anand	Tarapur	Budhej	8.3	7680	1700	4920	12	1318	1616	443	92	340	204	982	3.6	1.07
Anand	Umreth	Bhalej	8.6	1800	375	1140	24	280.6	368	99	1.79	75	45	236	8.68	1.17
Anand	Umreth	Pansora	8.3	1440	325	920	12	292.8	256	70	7.34	60	42	181	1.7	0.5
Anand	Umreth	Khakhanpur	8.4	560	125	360	12	134.2	104	0	1.43	25	15	70	1.93	0.2
Anand	Umreth	Sundalpura	8.4	800	125	490	12	122	176	0	8.82	45	3	126	0.89	0.56
Anand	Khambhat	Gudel	8.6	14220	3375	9100	24	2220	2816	1230	1.22	675	405	1711	11.6	1.49
Anand	Umreth	Umreth	8.6	2530	563	1620	24	463.6	448	171	9.69	100	75	322	1.68	0.93
Anand	Umreth	Dhuleta	8.2	860	175	560	0	219.6	160	0	7.57	35	21	116	2.87	0.43
Anand	Anand	Khambholaj	8.3	920	225	590	12	231.8	160	0	7.45	40	30	106	3.32	0.47
Anand	Anand	Sarsa	8.3	1160	263	730	12	195.2	208	71	9.22	60	27	145	2.03	0.36
Anand	Umreth	Ghora	8.4	2890	725	1850	12	390.4	480	394	5.07	125	99	319	21.2	0.67

Anand	Anand	Anand	8.3	2860	788	1820	12	366	424	458	9.79	150	99	294	2.48	0.58
Anand	Anand	Boriavi	8.7	1210	263	780	24	280.6	216	6	6.68	45	36	143	24.2	0.41
Anand	Khambhat	Kanisha	8.6	2540	475	1630	24	427	520	138	1.15	80	66	352	23.7	0.42
Anand	Khambhat	Bhuval	8	2540	450	1650	0	414.8	528	155	6.7	80	60	344	56	0.91
Anand	Khambhat	Haripura	8.1	7350	938	4690	0	1049	1760	293	9.18	200	105	1245	24.9	0.67
Anand	Khambhat	Kansari	9	5010	813	3210	36	915	1120	98	4.65	150	105	775	6.46	0.57
Anand	Tarapur	Zalapur	8.6	1570	363	1000	24	244	280	142	0.61	65	48	193	1.98	0.55
Anand	Sojitra	Sojitra	8.7	1570	375	990	24	244	264	142	6.76	80	42	188	1.45	0.74
Anand	Petlad	Petlad	8.8	2140	438	1370	24	402.6	424	83	4.1	90	51	289	3.69	1.09
Anand	Anand	Kasor-I	8.4	990	225	650	12	219.6	216	0	0.42	45	27	124	0.23	0.84
Anand	Anand	Kasor-II	8.5	670	125	440	12	134.2	152	0	0.23	25	15	96	0.83	0.75
Anand	Anand	Kasor-III	8.6	660	150	420	24	134.2	128	0	0.13	30	18	82	0.79	0.11
Anand	Anklav	Gambhira	8.6	4820	1000	3090	24	683.2	984	397	2.46	200	120	614	59.2	1.42
Anand	Khambhat	Chhatardi	8.8	4530	950	2890	24	732	960	259	0.41	190	114	603	3.03	1.34
Anand	Khambhat	Pandad	7.2	25260	4563	16200	0	3526	5352	2093	8.39	780	627	3573	234.5	1.4
Anand	Tarapur	Varsada	7.8	21770	5000	13950	0	3416	4128	2157	8.89	825	705	2697	16.93	0.62
Anand	Petlad	Mahelav	8.5	1860	375	1190	12	268.4	368	161	1.03	75	45	254	1.59	0.33
Anand	Khambhat	Khambhat	8.5	4840	1050	3090	12	756.4	1000	353	0.66	210	126	628	4.11	1.32
Anand	Borsad	Borsad	8.2	2370	550	1520	0	366	464	219	0.33	110	66	291	1.8	1.3
Anand	Anand	Sandesar	8.6	1330	300	840	24	268.4	240	36	7.54	60	36	165	4.91	1.23
Anand	Umreth	Umreth	7.9	2020	450	1290	0	305	400	179	2.49	90	54	256	1.87	0.62
Anand	Anand	Karamsad	8.3	3040	625	1940	12	414.8	600	293	2.42	125	75	406	8.9	1.1
Anand	Anand	Karamsad	8.1	1410	300	910	0	207.4	256	161	1.27	60	36	185	1.58	1.15

District	Tahsil / Taluk	Village	Geology	2012_May														2012_Oct													
Kheda	Matar	Singivada	Alluvium	8.4	6500	531.3	4800	36	378	1760	963		15	120	1522	4.2		10.1	6290	49.66	3890	84	293	1680	382		10	6	1413	17.55	
Kheda	Kheda	Nayka	Alluvium	8.7	2940	333.7	2190	48	342	656	411		15	72	608	42		8.1	3460	371.9	2300		537	672	326		55	57	580	70.12	
Kheda	Kheda	Kajipura	Alluvium	8.7	3110	210.4	2430	72	671	568	324		20	39	733	1.5		8.9	3420	173.4	2310	72	708	552	219		20	30	702	3.17	
Kheda	Thasra	Dakor	Alluvium	8.4	1090	235.3	900	24	415	136	59		25	42	155	45.4		8.6	1050	198.4	750	24	366	128			30	30	116	55.8	
Kheda	Thasra	Nes	Alluvium	8.5	1650	605.5	1180	36	293	280	253		20	135	156	5.4		8.7	1760	532.1	1130	24	366	240	194		45	102	153	7.13	
Kheda	Thasra	Thasra	Alluvium	8.3	1220	333.7	930	24	366	216	61		15	72	162	14		8	3140	1076	1870		464	720	167		70	219	208	22.57	
Kheda	Thasra	Muliad	Alluvium	7.7	9780	1844	6600		354	3480	486		175	342	1762	2.9		7.8	10200	1671	5930		354	3080	451		170	303	1565	6.39	
Kheda	Matar	Limbasi	Alluvium	8.6	1580	86.7	1330	48	464	192	208		10	15	395	0.5		9.1	1620	74.35	1140	48	476	192	66		10	12	337	1.22	
Kheda	Thasra	Thasra	Basalt	8.4	1030	54.06	850	48	403	96	69		20	1	162	2.1		8.9	1090	197.8	730	48	305	120	43		10	42	157	2.64	
Kheda	Thasra	Khadgodhra	Basalt	8.6	1820	358.6	1170	24	390	328	84		20	75	251	0.8		8.7	1480	296.7	970	48	403	200	42	3.78	15	63	199	2.39	1.33
				2013_May														2013_Oct													
Kheda	Kheda	Kajipura	Alluvium	9.1	1660	74.21	1140	48	354	200	169		5	15	345	1.2	0.93	8.6	1690	24.83	1200	24	476	224	91	1.31	5	3	374	1.47	1.37
Kheda	Kheda	Kheda	Alluvium	8.4	6350	308.9	3930	24	232	1560	716		10	69	1313	5.02	1.35	8.2	6370	62.15	3990	0	232	1640	655	4.59	15	6	1431	7.1	1.29
Kheda	Kheda	Navagam	Alluvium	8.6	4310	247.2	2720	36	281	944	514		10	54	873	5.31	0.36	8.3	2550	235.4	1630	12	281	536	255	2.6	30	39	471	6.47	0.99
Kheda	Kheda	Nayka	Alluvium	8.6	6250	543.5	3880	48	329	1360	824		10	126	1180	6.42	1.54	8.3	3930	222.8	2530	24	305	816	504	3.79	20	42	775	42.71	1.03
Kheda	Kheda	Kanera	Alluvium	8.6	3880	62.01	2480	36	256	856	445		10	9	860	5.47	0.69	8.4	4580	346.4	2830	24	134	1064	615	2.73	25	69	890	4.58	0.66
Kheda	Matar	Palla	Alluvium	7.9	6130	544.4	3820		366	1440	708		45	105	1155	3.32	1.54	8.5	6120	61.87	3760	24	281	1440	708	1.84	5	12	227	6.45	0.24
Kheda	Matar	Vansar	Alluvium	8.8	1370	370.5	870	36	342	216	38		5	87	139	4.72	0.39	8.4	1440	210.2	880	24	305	210	38	1.6	10	45	1040	2.98	1.14
Kheda	Nadiad	Dabhan	Alluvium	8.2	2590	234.8	1740	30	512	472	201		10	51	474	19.5	1.1	8.8	2700	210.2	1890	36	805	408	51	1.69	10	45	507	26.23	0.1
Kheda	Nadiad	Alindra	Alluvium	8.6	1840	234.8	1180	36	293	384	73		10	51	289	39.59	0.1	8.6	880	135.9	600	12	268	112	39	1.44	5	30	137	1.7	1.19

Kheda	Nadiad	Nadiad	Alluvium	8.8	5030	148.3	3090	48	329	1400	184		5	33	1086	2.27	0.8	8.7	5400	197.8	3390	36	476	1368	308	2.93	10	42	1147	2.91	1.23
Kheda	Thasra	Gumadiya	Alluvium	8.6	710	185.3	490	24	268	48	23		5	42	75	1.77	0.6	8.4	770	197.9	550	12	293	48	53	2.48	15	39	83	2.75	0.87
Kheda	Thasra	Bordi (raipura)	Alluvium	8.1	3840	186	2480		256	776	590		30	27	792	6.7	1.25	8.6	2510	74.49	1530	12	329	112	80	1.8	15	9	123	1.23	0.82
Kheda	Matar	Singivada	Alluvium	8.5	6020	370.6	3600	24	293	1840	130	1.62	10	84	1201	16.96	0.69	8.3	6780	86.98	4190	24	146	1800	663	0.84	20	9	1507	17.22	0.31
Kheda	Kheda	Nayka	Alluvium	8.3	6260	223.2	4230	24	366	760	1650		35	33	1297	66.4	0.6	8.1	3530	321.7	2330	0	488	696	369	2.71	25	63	623	66.97	0.65
Kheda	Kheda	Kajipura	Alluvium	8.4	5580	185.6	3850	36	610	520	1436		15	36	1195	1.36	1.42	8.6	2260	123.7	1610	36	732	448	58	6.98	10	24	460	1.44	1.4
Kheda	Thasra	Dakor	Alluvium	8.3	1900	235.7	1350	12	305	128	480		40	33	299	49.01	1.17	8.1	1270	273	950	0	525	144	0	3.92	50	36	112	88.07	0.77
Kheda	Thasra	Nes	Alluvium	8.1	3380	618.5	2260		378	272	955		45	123	486	4.903	0.83	8.4	1780	544.6	1170	24	488	224	128	35.2	50	102	152	7.24	1.22
Kheda	Thasra	Thasra	Alluvium	7.7	2510	1187	1600		366	800	1355		60	252	742	19.87	1.34	8.3	2440	544.2	1520	24	354	472	212	27.4	35	111	296	17.21	0.83
Kheda	Thasra	Muliad	Alluvium	7.6	12480	1969	7340		427	3560	837		205	354	1951	5.31	1.02	7.9	12030	1830	6890	0	207	3760	523	24.1	90	390	1910	4.97	1.28
Kheda	Matar	Limbasi	Alluvium	8.7	4760	173.3	3200	24	378	600	1137		15	33	1014	1.03	0.8														
Kheda	Thasra	Thasra	Basalt	8.2	1440	222.5	990		317	144	244		10	48	225	2.14	0.4	8.2	950	197.9	650	0	329	144	0	0.87	15	39	124	2.39	0.87
Kheda	Thasra	Khadgodhra	Basalt	8.6	1900	420.3	1200	24	354	360	108		20	90	241	0.86		8.6	1510	334.1	1010	48	488	176	22	25.5	20	69	190	1.44	1.51
				2014_May														2014_Oct													
Kheda	Kheda	Kajipura	Alluvium	8.5	1700	37.32	1190	24	415	232	135	0.45	10	3	372	1.62	1.33	8.8	1900	99.04	1300	36	464	288	96	0.96	10	18	388	1.75	1.49
Kheda	Kheda	Kheda	Alluvium	8.4	5840	37.18	3600	12	171	1600	483	2.07	5	6	1321	6.64	0.08	9.5	5730	37.32	3560	36	244	1520	446	1.1	10	3	1296	7.88	1.22
Kheda	Kheda	Navagam	Alluvium	8.3	2730	235.5	1720	12	220	624	273	6.07	35	36	513	9.28	1.04	8.6	2510	186	1620	12	244	1400	729	1.58	30	27	1267	7.67	0.39
Kheda	Kheda	Nayka	Alluvium	8.5	5670	432.6	3550	24	378	1280	652	3.54	20	93	1097	7.4	1.24	8.5	3800	622.4	2440	24	403	760	441	3.69	185	39	585	2.82	1.48
Kheda	Kheda	Kanera	Alluvium	8.4	3750	99.18	2280	12	110	1080	230	0.88	15	15	813	3.43	0.8	8.5	4030	99.18	2580	12	134	800	726	1.49	15	15	878	3.59	0.48
Kheda	Matar	Palla	Alluvium	8.8	4250	173	2630	48	195	1040	403	7.49	5	39	895	3.49	1.31	8.8	4820	247.3	3000	24	317	1200	400	0.85	15	51	990	3.52	1.11
Kheda	Matar	Vansar	Alluvium	8.7	1250	86.7	830	48	281	224		1.59	10	15	244	6	0.64	8.6	1290	136.1	870	12	293	224	66	0.54	10	27	230	5.64	0.41
Kheda	Nadiad	Dabhan	Alluvium	8.6	2860	321.1	1810	30	451	640	91	0.77	5	75	499	12.81	0.14	8.2	1980	87.12	1210	30	110	408	51	0.53	25	6	14	15.51	0.07
Kheda	Nadiad	Alindra	Alluvium	8.6	720	111.4	500	36	268	56		0.1	10	21	112	2	0.9	8.5	720	160.8	480	24	232	80	15	1.07	10	33	89	1.48	0.79
Kheda	Nadiad	Nadiad	Alluvium	8.6	4970	259.4	3010	36	329	1440	118	1.97	5	60	1018	3.47	0.67	8.8	5320	296.8	3270	24	317	1400	368	2.28	20	60	1082	2.65	0.7
Kheda	Thasra	Gumadiya	Alluvium	8.6	620	197.9	400	36	207	56		1.72	15	39	49	1.09	0.35	8	1110	297.4	820	0	464	56	90	2.64	40	48	108	14.29	0.55
Kheda	Thasra	Bordi (raipura)	Alluvium	8.6	2800	49.66	1720	24	281	112	78	1.11	10	6	209	3.23	1.29	8.6	3420	124	2200	12	159	648	618	2.09	20	18	725	3.65	1.17
Kheda	Matar	Singivada	Alluvium	8.7	5730	235	3540	48	281	1480	451	0.6	15	48	1199	16.78	1.39														
Kheda	Kheda	Nayka	Alluvium	8.6	3270	334.2	2050	48	281	768	233	6.43	30	63	556	69.13	0.31	8.3	3670	384	2350	12	293	760	483	2.81	45	66	629	61.75	1.5
Kheda	Kheda	Kajipura	Alluvium	8.7	5050	271.9	3230	60	561	1080	422	2.65	10	60	1032	1.9	2.26	8.6	3610	235.4	2390	48	586	640	327	4.77	30	39	719	1.73	1.1
Kheda	Thasra	Dakor	Alluvium	8.4	1060	210.4	760	24	342	144		5.91	20	39	78	112.3	0.45	8.4	930	235.8	640	12	244	128	59	6.18	45	30	74	49.99	0.4
Kheda	Thasra	Nes	Alluvium	8.1	1730	618.7	1080		305	272	220	20.25	50	120	105	6.32	1.14	8.3	1790	581.6	1140	24	329	232	247	6.18	50	111	137	6.59	1.48
Kheda	Thasra	Thasra	Alluvium	8.4	2020	531.5	1180	24	207	504	83	36.8	25	114	204	19.9	0.19	8.1	2430	606.7	1510	0	329	504	223	18.15	65	108	264	20.93	0.64
Kheda	Thasra	Muliad	Alluvium	7.8	9020	831.3	5410		220	2600	638	25.7	150	111	1685	4.61	1.06	7.9	11260	1884	6530	0	329	3480	440	12.2	270	294	1711	7.49	0.9
Kheda	Thasra	Thasra	Basalt	8.4	1260	210	780	12	183	288	52	1.11	5	48	190	2.55	0.3	8.4	1000	210.2	660	12	207	120	131	0.48	10	45	129	2.7	0.5
				2015_May														2015_Oct													
Kheda	Kheda	Kajipura	Alluvium	9.3	2000	100	1380	36	549	320	31	1.15	5	21	413	1.87	1.55	8.9	1900	50	1290	48	451	320	41	1.11	5	9	413	1.88	1.41
Kheda	Kheda	Kheda	Alluvium	9.1	6070	38	3730	48	317	1720	248	4.04	10	3	1375	6.77	1.33	9.9	6000	25	3680	99	220	1560	404	1.11	5	3	1363	8.63	57
Kheda	Kheda	Navagam	Alluvium	9.2	2610	138	1700	36	378	568	113	4.46	10	3	578	8.31	1.09	8.7	2580	235	1670	24	195	96	0	3.38	15	6	125	7.97	0.73
Kheda	Kheda	Nayka	Alluvium	9	3440	250	2220	36	342	632	455	3.77	25	45	675	2.65	1.4	9.3	2680	138	1670	96	268	544	171	3.46	5	30	551	3.79	1.57
Kheda	Kheda	Kanera	Alluvium	8.9	3950	63	2470	36	342	1064	125	1.63	15	6	878	3.5	1.18	8.9	3900	38	2360	36	183	1200	42	1.31	10	3	877	3.98	1.36
Kheda	Matar	Vansar	Alluvium	9.2	1100	63	740	24	256	184	33	1.18	5	12	221	5.71	1.09														
Kheda	Nadiad	Dabhan	Alluvium	8.6	1920	88	1250	12	85	72	0	0.42	20	9	43	10.77	0.98	8.6	2370	100	1540	12	512	408	65	0.53	10	45	507	13.35	0.17
Kheda	Nadiad	Alindra	Alluvium	9.1	660	113	450	12	207	96	0	0.6	10	21	99	1.27	1.23	8.7	720	138	490	24	244	80	0	0.69	15	24	101	1.51	1.18
Kheda	Nadiad	Nadiad	Alluvium	9.1	5200	175	3250	48	403	1320	311	1.93	15	33	1114	2.53	1.15	8.9	4970	138	3050	48	342	1400	146	0.82	5	30	1078	2.96	0.6

Kheda	Thasra	Gumadiya	Alluvium	8.8	720	175	500	24	281	56	0	2.65	15	33	83	4.38	1.2	7.6	900	250	660	0	415	56	18	2.74	30	42	88	7.1	0.95
Kheda	Thasra	Bordi (raipura)	Alluvium	8.9	4030	88	2570	36	195	840	582	1.07	20	9	884	4.41	1.38	8.3	4240	100	2700	12	146	920	6.53	0.66	25	9	926	4.75	1.55
Kheda	Matar	Singivada	Alluvium	9.2	6490	150	4090	24	464	1640	490	1.28	10	30	1414	16.3	1.36	9.4	6180	25	3760	60	305	1880	88	0.64	5	3	1399	18.57	0.75
Kheda	Kheda	Nayka	Alluvium	8.6	4110	813	2490	24	366	1000	288	1.73	30	177	524	81.1	0.9	8.2	4320	488	2790	0	500	960	371	2.83	55	84	708	104.1	1.37
Kheda	Kheda	Kajipura	Alluvium	9.1	4010	138	2660	36	476	256	18	4.16	20	21	324	1.72	0.62	8.3	5540	288	3620	12	891	1200	286	8.76	50	39	1141	2.08	1.31
Kheda	Thasra	Dakor	Alluvium	8.9	1250	200	900	24	390	160	20	5.01	25	33	128	114.2	0.43	8.1	1140	288	830	0	366	120	75	6.34	95	12	98	53.75	0.3
Kheda	Thasra	Nes	Alluvium	8	2510	538	1560	0	342	464	279	8.74	15	120	325	7.91	0.09	8	1930	625	1240	0	525	248	124	15.2	55	117	152	7.32	0.94
Kheda	Thasra	Thasra	Alluvium	8.9	2860	275	2050	60	586	464	157	8.94	25	51	299	394	0.58	7.8	1760	450	1180	0	525	288	12	8.2	95	51	190	14.05	1.32
Kheda	Thasra	Muliad	Alluvium	8.2	11400	1388	6560	0	342	3776	73	8.79	95	676	1980	6.93	0.86	7.4	10500	1188	6270	0	415	3280	255	8.03	375	60	1864	8.45	1.09
Kheda	Matar	Limbasi	Alluvium	9.4	2410	100	1680	24	647	400	64	0.71	15	15	508	1.18	1.44	9.3	1920	38	1300	60	464	320	22	0.92	5	6	424	0.66	1.44
Kheda	Thasra	Thasra	Basalt	8.3	1160	250	780	24	366	168	0	1.44	30	42	151	2.14	1.17	8.7	990	113	650	24	220	192	0	0.27	10	21	174	2.54	0.36
				2016_May														2016_Oct													
Kheda	Kheda	Kajipura	Alluvium	8.7	2000	50	1360	36	464	368	31	1.65	10	6	436	1.92	1.48	8.1	1500	88	980	0	281	360	0	1.15	10	15	304	1.95	1.4
Kheda	Kheda	Kheda	Alluvium	8.2	8120	742	4870		256	2000	988		45	153	1519	3.76		7.9	7000	1088	4000	0	159	2240	206	1.16	40	237	1105	8.56	0.56
Kheda	Kheda	Navagam	Alluvium	7.8	3100	300	1950	0	415	800	67	3.45	25	57	570	8.35	1.12	8.2	2920	275	1890	0	244	360	255	3.65	20	54	200	7.88	0.77
Kheda	Kheda	Nayka	Alluvium	8.6	2900	163	1880	24	366	600	243	2.77	25	24	591	2.75	1.42	7.9	2000	250	1240	0	268	520	31	3.4	25	45	343	3.88	1.55
Kheda	Kheda	Kanera	Alluvium	8.2	4000	138	2420	12	195	1200	114	2.88	15	24	855	3.55	1.22	7.9	4180	238	2680	0	122	800	151	1.3	30	39	528	3.95	1.32
Kheda	Matar	Palla	Alluvium	8.7	4900	250	3100	36	427	1120	432	3.45	15	51	1010	3.28	1.18	8.3	4350	275	2810	12	317	880	170	0.54	10	60	654	3.02	1.4
Kheda	Matar	Vansar	Alluvium	8.5	1540	213	990	24	366	336	79	1.88	20	39	315	5.78	1.13	8.2	1030	138	660	0	195	64	0	0.97	15	24	53	4.98	1.22
Kheda	Nadiad	Dabhan	Alluvium	8.4	1130	163	720	12	183	240	51	0.66	15	30	179	0.88	0.88	8	1280	213	780	0	159	360	0	0.5	20	39	189	13.45	0.2
Kheda	Nadiad	Alindra	Alluvium	8.4	800	138	570	12	293	96	0	0.88	25	18	120	1.38	1.18	8.1	560	175	370	0	171	96	0	0.7	20	30	47	1.56	1.15
Kheda	Nadiad	Nadiad	Alluvium	8.1	4500	163	2820	0	488	1280	38	2.15	15	30	959	2.66	1.11	8.1	4200	188	2600	0	342	640	72	0.8	10	39	492	2.99	0.65
Kheda	Thasra	Gumadiya	Alluvium	8.1	700	150	500	0	281	272	0	3.42	15	27	89	4.88	1.12	7.5	940	250	650	0	354	120	0	2.75	30	42	97	7.25	0.98
Kheda	Thasra	Bordi (raipura)	Alluvium	8.3	4500	175	2840	12	171	1000	648	1.45	20	30	952	4.51	1.31	8.3	2890	100	1750	12	159	880	49	0.7	15	15	616	4.88	1.52
Kheda	Matar	Singivada	Alluvium	8.8	6200	88	3750	48	256	1920	97	1.45	20	9	1376	16.85	1.31	8.5	4320	100	2650	24	268	1280	92	0.65	10	18	937	18.65	0.77
Kheda	Kheda	Nayka	Alluvium	7.7	4400	475	2760	0	378	1080	348	1.89	20	102	745	82.25	0.92	7.5	3070	500	1950	0	427	800	45	2.8	80	72	414	105.5	1.35
Kheda	Kheda	Kajipura	Alluvium	7.7	5800	300	3790	0	952	1320	240	3.25	10	66	1195	1.78	0.66	7.7	3890	275	2460	0	48	960	154	8.72	20	54	767	2.18	1.3
Kheda	Thasra	Dakor	Alluvium	8.2	870	150	650	0	317	112	0	5.15	10	30	63	115.2	0.48	7.8	830	188	570	0	244	136	0	6.5	25	30	73	53.05	0.35
Kheda	Thasra	Nes	Alluvium	7.9	1700	463	1080	0	390	280	99	9.12	15	102	174	8.02	0.12	8.1	1150	188	750	0	281	208	0	15.25	45	18	174	7.35	0.96
Kheda	Thasra	Thasra	Alluvium	7.8	1060	125	840	0	403	120	0	8.43	25	15	71	196	0.59	8	1030	188	660	0	232	208	0	8.5	35	24	142	14.15	1.3
Kheda	Thasra	Muliad	Alluvium	7.6	9200	1375	5280	0	183	2800	459	8.88	30	312	1479	7.02	0.91	8.4	8160	1014	4710	36	293	2560	165		20	234	1400	6.3	
Kheda	Matar	Limbasi	Alluvium	8.3	2000	100	1350	24	403	360	110	2.02	10	18	409	8.88	0.78	9.1	1350	125	1820	48	134	344	0	0.99	25	15	253	0.7	1.4
Kheda	Thasra	Thasra	Basalt	8.7	1150	63	750	36	183	200	72	1.47	15	6	234	2.26	1.22	8.2	700	200	450	24	195	104	0	0.31	5	45	67	2.56	0.4
				2017_May														2017_Oct													
Kheda	Kheda	Kajipura	Alluvium	9.2	2750	375	1730	12	427	640	91	2.08	15	81	457	4.31	1.22	7.3	2170	100	1300	0	85.4	680	54	0.29	10	18	450	5.37	0.49
Kheda	Kheda	Kheda	Alluvium	8.7	11500	688	6760	24	134	3800	230	4.02	175	60	2324	8.3	1	7.1	10000	663	6310	0	1049	2584	484	0.18	75	114	1989	10.15	0.61
Kheda	Kheda	Navagam	Alluvium	8.8	3990	200	2440	36	146	1056	300	4.48	35	27	816	17.11	0.62	7.4	3460	288	2200	0	366	840	236	0.49	40	45	646	30.25	0.35
Kheda	Kheda	Nayka	Alluvium	8.9	3830	213	2340	48	256	1032	155	2.72	20	39	780	5.4	0.97	7.5	3190	275	2000	0	280.6	792	236	0.44	20	54	603	7.55	1.49
Kheda	Kheda	Kanera	Alluvium	8.6	5610	413	3430	36	98	1432	618	1.59	95	42	1097	6.38	0.52	7.3	4760	400	2980	0	366	1224	341	0.18	95	39	906	8.13	0.95
Kheda	Matar	Palla	Alluvium	8.9	6450	363	3930	12	85	1688	714	4.05	35	66	1314	5.4	1.2	7.3	6400	250	3950	0	207.4	352	85	0.15	20	48	227	9.36	0.5
Kheda	Matar	Vansar	Alluvium	9	1780	175	1060	24	85	480	91	2.03	10	36	325	6.9	1.22	7.2	1220	138	760	0	146.4	304	56	0.05	5	30	211	10.43	1.38
Kheda	Nadiad	Dabhan	Alluvium	8.8	980	213	630	36	195	416	24	0.78	30	33	274	20.14	0.99	7.4	400	100	300	0	146.4	40	19	0.09	25	9	27	31.69	1.42
Kheda	Nadiad	Alindra	Alluvium	8.9	900	138	540	48	98	200	0	0.99	20	21	142	3.39	1.15	7.1	760	175	500	0	146.4	120	84	0.08	15	33	92	4.65	1.23
Kheda	Nadiad	Nadiad	Alluvium	9.1	4840	750	3080	24	732	1040	293	2.56	100	120	766	3.56	1.2	7.4	3350	163	2030	0	158.6	1000	130	0.07	20	27	693	5.15	1.17

Kheda	Thasra	Gumadiya	Alluvium	9	860	300	580	12	305	72	40	4.01	30	54	54	9.7	1.22	7.6	830	163	540	0	109.8	176	71	0.22	30	21	102	24.76	0.88
Kheda	Thasra	Bordi (raipura)	Alluvium	8.9	6670	88	4010	36	73	2016	356	1.65	25	6	1486	13.58	1.35	7.1	5130	138	3160	0	292.8	1512	188	0.16	20	21	1109	12.56	0.82
Kheda	Matar	Singivada	Alluvium	8.5	8410	1375	5030	24	244	2400	558	1.53	400	90	1285	28.17	1.36	6.9	6370	100	3900	0	97.6	1824	514	0.62	20	12	1396	39.22	0.76
Kheda	Kheda	Nayka	Alluvium	8.6	5640	600	3340	36	134.2	1680	260	4.26	40	120	956	111.1	0.36	7.1	5150	250	3210	0	280.6	1400	349	2.69	35	39	1026	73.36	1.31
Kheda	Kheda	Kajipura	Alluvium	8.8	7730	438	4790	48	732	2080	218	8.35	40	81	1574	3.74	1.12	7.6	5820	200	3610	0	475.8	1640	173	8.58	30	30	1241	9.88	1.27
Kheda	Thasra	Dakor	Alluvium	8.9	1010	150	670	36	219.6	160		8.95	20	24	114	84.01	0.15	7.8	1150	238	760	0	158.6	168	177	6.47	30	39	117	64.36	0.32
Kheda	Thasra	Nes	Alluvium	8.7	1900	250	1170	36	292.8	440		8.74	20	48	314	13.08	0.49	7.9	1620	625	970	0	97.6	128	473	15.21	35	129	76	15.51	0.94
Kheda	Thasra	Thasra	Alluvium	9	1120	213	670	36	158.6	240		8.75	25	36	156	6.43	0.59	7.6	1890	350	1280	0	390.4	312	147	8.42	90	30	229	74.95	1.29
Kheda	Thasra	Muliad	Alluvium	8.5	9330	1125	5500	36	305	2960	156	7.93	325	75	1622	11.03	0.69	6.7	4210	550	2600	0	219.6	1000	467	8.14	95	75	682	56.83	1.12
Kheda	Matar	Limbasi	Alluvium	9.3	2470	275	1520	48	244	600	100	0.77	50	36	440	2.032	1.55	7.4	1900	88	1180	0	109.8	520	119	0.92	15	12	395	2.99	0.42
Kheda	Thasra	Thasra	Basalt	8.9	1170	238	710	24	183	280	0	0.74	10	51	157	5.17	0.76	7.9	800	88	500	0	97.6	208	24	0.42	15	12	140	5.76	0.44
Kheda	Thasra	Khadgodhra	Basalt	8.8	1990	400	1190	36	244	440	82	7.98	20	84	273	1.91	0.79	7.7	1820	263	1120	0	109.8	392	247	2.71	15	54	296	2.84	0.8
				2018_May														2018_Oct													
Kheda	Kheda	Kajipura	Alluvium	8.9	2570	200	1580	36	280.6	664	25	9.78	15	39	482	29.47	0.14	8.6	2680	625	1710	24	427	480	244	4.86	130	72	328	2.05	1.49
Kheda	Kheda	Kheda	Alluvium	8.3	9620	363	5970	12	646.6	2632	507	8.47	25	72	2022	40.32	0.01	8.5	8580	1063	5450	12	963.8	2064	517	9.76	350	45	1482	4.29	1.42
Kheda	Kheda	Navagam	Alluvium	8.45	4390	575	2740	24	610	1000	137	29.76	70	96	712	56.43	0.1	8	3480	525	2200	0	488	760	231	8.1	50	96	555	6.28	0.68
Kheda	Kheda	Nayka	Alluvium	8.6	3600	288	2200	24	280.6	1008	91	3.85	30	51	676	33.34	1.32	8.3	2940	500	1820	12	280.6	624	260	18.96	150	30	445	2.26	1.68
Kheda	Kheda	Kanera	Alluvium	7.7	5260	400	3230	0	317.2	1480	236	11.66	130	18	1005	35.3	0.36	8	4380	750	2800	0	488	960	401	5.88	240	36	661	3.04	0.34
Kheda	Matar	Palla	Alluvium	8.8	5820	238	3490	24	195.2	1800	146	6.27	40	33	1211	30.95	1.45	8.8	5150	875	3270	24	610	1120	414	7.4	250	60	780	2.95	1.03
Kheda	Matar	Vansar	Alluvium	8.8	1230	175	770	36	122	256	73	4.97	35	21	182	34.82	0.35	8.9	1090	313	680	36	207.4	152	88	2.57	15	66	105	3.45	0.24
Kheda	Nadiad	Dabhan	Alluvium	8.2	680	150	450	0	85.4	104	106	3.6	20	24	68	33.67	0.35	8.2	760	138	480	0	134.2	176	0	4.87	30	15	105	10.97	0.13
Kheda	Nadiad	Alindra	Alluvium	8.8	800	188	500	24	122	128	57	4.85	25	30	88	16.49	1.06	8.7	770	250	480	24	231.8	96	0	3.19	15	51	61	1.54	0.63
Kheda	Nadiad	Nadiad	Alluvium	9.1	3930	313	2420	36	280.6	1000	230	6.99	45	48	750	17.53	1.62	9	3360	875	2140	36	622.2	560	296	3.3	100	150	369	1.89	0.78
Kheda	Thasra	Gumadiya	Alluvium	8.6	750	188	500	12	158.6	72	90	7.86	25	30	54	53.92	0.77	7.7	900	300	550	0	293	104	0	15.91	25	57	59	17.16	0.64
Kheda	Thasra	Bordi (raipura)	Alluvium	8.4	5470	288	3460	24	683.2	1488	0	38.24	30	51	1096	50.28	1.22	8	5240	875	3330	0	707.6	1112	422	9.53	150	120	800	5.29	1.18
Kheda	Matar	Singivada	Alluvium	8.8	7280	113	4760	36	841.8	2200	0	6.43	15	18	1587	60.11	0.62	8.7	6420	775	4090	24	671	1520	441	6.09	280	18	1111	15.5	0.42
Kheda	Kheda	Nayka	Alluvium	8.2	5640	375	3750	0	671	1000	788	12	70	48	1069	94.79	0.03	8.2	5270	1000	3350	0	610	1200	345	24.2	350	30	701	85.98	0.56
Kheda	Kheda	Kajipura	Alluvium	8.6	7050	375	4230	24	390.4	2024	200	30.72	50	60	1440	15.3	0.2	8.7	3650	222.8	2430	60	683	624	271		15	45	734		
Kheda	Thasra	Dakor	Alluvium	8.3	1160	175	710	12	158.6	192	47	30.87	15	33	139	80.73	0.29	8.4	1180	313	720	12	231.8	144	29	41.13	80	27	95	55.9	0.07
Kheda	Thasra	Nes	Alluvium	8.3	1750	513	1040	0	122	200	366	2.62	20	111	137	51.28	0.11	8.4	1760	663	1100	12	427	184	60	52.29	250	9	96	6.97	0.69
Kheda	Thasra	Thasra	Alluvium	8.1	2150	313	1320	12	183	416	202	30.63	35	54	297	91.54	0.26	8.3	1700	500	1070	12	366	224	55	44.14	150	30	119	70.67	0.17
Kheda	Thasra	Muliad	Alluvium	8.1	10150	1063	6230	24	793	2520	709	28.75	85	204	1814	54.09	0.14	8.3	5180	863	3240	12	610	1088	341	51.31	300	27	768	45.68	0.63
Kheda	Matar	Limbasi	Alluvium	8.8	3640	288	2270	36	475.8	920	45	7	20	57	700	8.67	1.49	8.8	3380	625	2150	36	488	712	210	1.73	150	60	488	3.27	1.55
Kheda	Thasra	Thasra	Basalt	8.2	1160	275	760	0	219.6	168	142	3.81	21	51	122	30.36	0.67	8.6	710	163	430	24	122	128	0	7.55	45	12	86	3.53	0.12
Kheda	Thasra	Khadgodhra	Basalt	8.6	2430	575	1490	24	475.8	384	133	29.28	25	123	289	9.77	0.66	7.6	1670	525	1050	0	464	304	0	5.85	10	120	140	4.18	1.37
				2019_May														2019_Oct													
Kheda	Kheda	Kajipura	Alluvium	9.3	3030	663	1940	36	561.2	560	188	2.33	100	99	392	0.45	1.41	8.7	2230	363	1430	24	390	472	83	1.02	60	51	345	1.49	0.27
Kheda	Kheda	Kheda	Alluvium	8.8	9570	663	6100	24	1220	2000	886	2.33	250	210	1511	0.75	1.46	8.1	7770	775	4940	0	952	1912	398	0.37	145	99	1428	3.9	0.25
Kheda	Kheda	Navagam	Alluvium	8.9	3490	188	2270	36	402.6	1040	0	2.29	55	12	716	1.01	0.56	8.3	3560	638	2290	12	561	712	279	2.29	100	93	518	12.9	0.17
Kheda	Kheda	Nayka	Alluvium	8.4	3520	300	2330	12	439	600	502	3.31	30	54	669	3.65	0.7	8.6	3210	613	2060	24	476	608	306	0.17	95	90	453	6.19	0.18
Kheda	Kheda	Kanera	Alluvium	8.6	4990	350	3200	36	171	1520	147	0.09	105	21	975	20.6	1.45	8.2	3990	788	2540	0	525	824	388	0.48	130	111	553	4.26	0.24
Kheda	Matar	Palla	Alluvium	9.1	5600	1500	3490	36	719.8	1096	578	0.9	250	210	597	2.09	1.44	8.6	4740	813	3060	24	854	1000	211	0.98	140	111	715	2.43	0.2
Kheda	Matar	Vansar	Alluvium	9	1260	313	810	36	244	200	81	0.86	60	39	146	0.07	0.31	8.4	1030	188	660	12	207	224	0	4.21	40	21	149	2.67	0.15
Kheda	Nadiad	Dabhan	Alluvium	8	1210	250	770	0	183	288	46	0.63	65	21	162	1.85	0.02	7.9	250	50	170	0	73	40	0	3.29	15	3	30	8.15	0.1

Kheda	Nadiad	Alindra	Alluvium	9.1	910	225	590	36	207.4	160	0	4.07	45	27	106	0.38	0.54																
Kheda	Nadiad	Nadiad	Alluvium	9	3890	750	2480	36	683.2	800	187	0.66	115	111	550	0.29	1.28	8.8	2950	450	1860	24	464	712	43	2.31	95	51	470	1.86	0.21		
Kheda	Thasra	Gumadiya	Alluvium	8.9	810	250	510	24	207.4	128	0	2.22	50	30	71	0.39	0.88	8.4	680	125	450	12	159	128	0	4.65	30	12	96	5.66	0.19		
Kheda	Thasra	Bordi (raipura)	Alluvium	8.5	6080	750	3890	12	854	1440	274	1.78	115	111	1015	65.42	1.42	8.3	5180	700	3260	12	525	1248	366	0.97	160	72	867	4.69	0.25		
Kheda	Matar	Singivada	Alluvium	8.9	6860	738	4250	24	732	1840	190	0.81	115	108	1237	2.06	0.66	9.1	5670	863	3620	36	756	1216	419	1.66	185	96	905	3.31	0.95		
Kheda	Kheda	Nayka	Alluvium	8.7	5920	1125	3850	24	1098	1200	305	3.54	180	162	797	80	0.77	8.6	4370	725	2740	24	427	984	385	2.55	115	105	629	71.92	0.33		
Kheda	Kheda	Kajipura	Alluvium	9.2	7250	1250	4630	36	1037	1440	628	8.98	200	180	1081	20	1.4	8.8	6393	563	4030	24	830	1600	180	10.62	100	75	1210	2.8	0.35		
Kheda	Thasra	Dakor	Alluvium	9.1	1400	375	900	36	280.6	208	95	5.13	75	45	137	21	0.17	9.2	1082	150	800	36	207	104	137	5.77	45	9	66	192.4	0.13		
Kheda	Thasra	Nes	Alluvium	8.9	1980	450	1280	24	366	384	72	9.54	90	54	202	78.57	0.23	8.7	1500	313	930	24	281	280	34	14.07	50	45	198	5.83	0.26		
Kheda	Thasra	Thasra	Alluvium	8.7	1960	313	1250	24	317.2	416	60	8.75	75	30	288	32	0.63	8.3	1700	313	1100	12	281	336	83	11.3	50	45	199	82.18	0.13		
Kheda	Thasra	Muliad	Alluvium	8.4	9930	1875	6360	12	1464	2000	870	6.76	325	255	1410	19.2	0.78	7.8	9020	831.3	5120		220	2600	638	25.7	150	111	1685	4.61	1.06		
Kheda	Matar	Limbasi	Alluvium	8.8	3640	288	2470	36	475.8	920	45	7	20	57	700	8.67	1.49																
Kheda	Thasra	Thasra	Basalt	9.1	940	238	610	36	219.6	160	0	2.61	45	30	92	24.67	1.13	8.4	580	163	380	12	159	96	0	1.2	45	12	58	1.69	0.2		
Kheda	Thasra	Khadgodhra	Basalt	8.9	2450	525	1570	24	390.4	456	208	1.15	90	72	316	10.15	0.99	8.7	1490	400	960	24	305	248	98	0.89	65	57	158	0.83	0.2		
				2020_May														2020_Oct															
Kheda	Kheda	Kajipura	Alluvium	9.1	2460	575	1560	36	341.6	400	309	0.61	90	84	300	1.72	1.46	8.7	2700	563	1730	36	463.6	504	187	0.91	100	75	361	1.5	1.3		
Kheda	Kheda	Kheda	Alluvium	8.3	9380	2025	6010	12	1171	1760	1176	1.81	430	228	1223	4.34	1.37	8.1	9490	1750	6050	0	1464	2080	589	1.01	280	252	1376	3.18	1.23		
Kheda	Kheda	Navagam	Alluvium	8	4390	875	2800	0	610	920	350	9.05	210	84	596	18.51	1.49	7.4	4450	675	2820	0	488	960	431	6.61	105	99	694	33.06	0.99		
Kheda	Kheda	Nayka	Alluvium	8.5	3800	622.4	2440	24	403	760	441	3.69	185	39	585	2.82	1.48	7.7	5320	1000	3420	0	976	1200	158	1.35	200	120	762	3.48	0.99		
Kheda	Kheda	Kanera	Alluvium	8.4	5140	1050	3290	12	915	1120	209	1.34	200	132	698	2.55	1.11	7	5220	1050	3330	0	768.6	1080	437	0.77	185	141	716	2.96	1.13		
Kheda	Matar	Palla	Alluvium	8.9	5960	1063	3830	36	1098	1280	204	1.16	180	147	881	2.33	1.35	8.2	5460	875	3460	0	610	1200	516	1.13	160	114	845	13.99	0.35		
Kheda	Matar	Vansar	Alluvium	8.6	1190	288	760	24	219.6	200	88	0.48	50	39	140	2.41	0.14	8.4	1160	213	760	12	244	232	31	0.18	45	24	167	2.65	0.43		
Kheda	Nadiad	Dabhan	Alluvium	8	280	38	180	0	48.8	72	0	0.26	10	3	45	3.2	0.12	7.8	340	50	230	0	85.4	72	0	0.07	10	6	49	10.1	0.17		
Kheda	Nadiad	Alindra	Alluvium	8.5	920	213	600	12	195.2	192	0	2.92	65	12	112	3.24	0.88	8.2	910	213	590	0	219.6	184	0	4.37	50	21	111	0.86	0.87		
Kheda	Nadiad	Nadiad	Alluvium	9	3360	875	2220	36	622.2	560	296	3.3	100	150	369	1.89	0.78	8.9	3550	813	2280	36	622.2	640	290	0.2	135	114	442	1.16	0.9		
Kheda	Thasra	Gumadiya	Alluvium	7.7	710	163	470	0	183	144	0	0.92	35	18	86	3.87	0.86	8.4	1030	250	670	12	231.8	184	35	2.47	55	27	120	3.88	0.5		
Kheda	Thasra	Bordi (raipura)	Alluvium	8.6	6280	1075	4050	24	1220	1400	123	0.25	190	144	947	4.14	1.04	7.5	6050	750	3880	0	915	1400	287	1.26	115	111	1044	4.65	0.95		
Kheda	Matar	Singivada	Alluvium	8.7	7450	1113	4750	24	1220	1760	199	0.41	175	162	1193	14.12	0.28	8.8	7120	1250	4550	24	1159	1600	305	0.69	200	180	1033	50.23	0.08		
Kheda	Kheda	Nayka	Alluvium	8.2	5790	1000	3670	0	683.2	1248	525	8.8	160	144	827	76.22	0.75	8	5570	813	3620	0	854	1200	374	2.07	140	111	863	74.64	0.17		
Kheda	Kheda	Kajipura	Alluvium	8.8	6970	813	4360	24	854	1840	115	9.98	225	60	1229	1.26	0.78	8.3	6590	1400	4230	12	1098	1280	526	6.42	250	186	871	1.02	1.61		
Kheda	Thasra	Dakor	Alluvium	8.7	1680	250	1090	24	256.2	360	39	10.91	55	27	201	118.9	1.47	8.3	1460	288	990	12	244	200	190	8.35	45	42	137	112.9	0.2		
Kheda	Thasra	Nes	Alluvium	8.3	2100	500	1340	12	317.2	344	241	9.6	90	66	248	7.67	0.43	7.9	1820	388	1160	0	244	320	217	8.81	85	42	235	8.76	0.78		
Kheda	Thasra	Thasra	Alluvium	8	2640	575	1700	0	390.4	488	275	7.46	125	63	330	22.33	0.42	7.5	2630	625	1690	0	329.4	424	405	7.09	105	87	300	30.13	0.48		
Kheda	Thasra	Muliad	Alluvium	8.4	6480	1075	4010	12	549	1600	469	8.31	250	108	972	40.62	0.52	7.6	3140	625	2000	0	244	560	534	6.66	105	87	400	59.6	1.03		
Kheda	Thasra	Thasra	Basalt	8.1	980	175	660	0	244	208	0	0.48	45	15	144	2.12	0.21	8.3	850	125	540	12	158.6	192	0	1.74	25	15	137	2.31	0.27		
Kheda	Thasra	Khadgodhra	Basalt	7.4	3230	538	2040	0	488	712	170	9.91	90	75	495	0.83	0.37	7.6	2760	700	1750	0	353.8	472	384	6.85	120	96	312	0.8	0.61		

Kheda	Nadiad	Alindra	Alluvium	8.5	830	150	530	12	158.6	192	0	0.2	30	18	122	0.07	1.16															
Kheda	Nadiad	Nadiad	Alluvium	8.8	3740	625	2390	24	610	816	164	2.24	120	78	572	0.53	1.56	8.8	3300	750	2110	24	561.2	640	230	2.09	150	90	413	1.16	1.05	
Kheda	Thasra	Gumadiya	Alluvium	8.4	790	150	490	12	134.2	184	0	1.47	30	18	112	1.23	1.09	8.3	700	150	450	12	146.4	144	0	2.64	30	18	91	1.8	0.96	
Kheda	Thasra	Bordi (raipura)	Alluvium	8.2	6560	850	4190	0	915	1536	348	1.02	160	108	1115	4.2	1.51	6.4	6100	1000	3910	0	1037	1360	239	10.18	200	120	940	5.56	1.01	
Kheda	Matar	Singivada	Alluvium	9	7250	1063	4640	36	1098	1616	373	0.63	200	135	1169	16.49	0.75	10.2	6800	1375	4340	36	1098	1440	396	0.66	250	180	928	6.31	0.13	
Kheda	Kheda	Nayka	Alluvium	7.9	6040	750	3860	0	756.4	1440	345	3.84	150	90	1004	68.82	0.56	8.4	5320	1163	3470	12	976	960	448	5.61	180	171	645	74.64	1.24	
Kheda	Kheda	Kajipura	Alluvium	8.7	6150	950	3940	24	1025	1352	250	8.17	175	123	975	4.2	1.6	9	5760	938	3670	36	976	1240	231	9.05	150	135	893	1.02	1.28	
Kheda	Thasra	Dakor	Alluvium	8.2	1440	225	920	0	146.4	304	137	8.3	45	27	197	52.2	0.03	7.8	1380	263	890	0	292.8	288	28	3.69	45	36	194	4.26	1.15	
Kheda	Thasra	Nes	Alluvium	8.3	1940	438	1240	12	341.6	336	154	10.11	75	60	240	9.2	0.52	7.3	1890	450	1210	0	305	320	203	8.56	90	54	223	8.76	1.04	
Kheda	Thasra	Thasra	Alluvium	8.2	2420	375	1550	0	353.8	520	145	9.88	75	45	368	27.66	0.74	8.3	2400	375	1540	12	427	512	73	8.8	65	51	362	30.13	0.93	
Kheda	Thasra	Muliad	Alluvium	7.9	9490	1500	6080	0	1440	2120	528	8.38	310	174	1481	20.2	1.58	7.4	7240	888	4640	0	1037	1680	362	8.14	150	123	1222	59.6	0.69	
Kheda	Thasra	Thasra	Basalt	8.6	1170	250	750	24	219.6	224	43	0.74	50	30	152	4.05	1.05	8.5	750	163	490	12	183	144	0	0.64	30	21	96	2.31	0.14	
Kheda	Thasra	Khadgodhra	Basalt	7.4	5910	1250	2780	0	976	1200	411	10.09	250	150	783	2.62	1.15	7.8	3980	825	2530	0	488	760	468	9.12	175	93	535	1.8	0.61	
				2022_May														2022_Oct														
Kheda	Kheda	Kajipura	Alluvium	8.8	3070	750	1970	24	463.6	520	358	1.94	150	90	360	1.79	1.4	8.8	1130	412	723.2	36	144	455.8	232.2	0.26	80	51.52	304.6	5.23	0.87	
Kheda	Kheda	Kheda	Alluvium	8.5	11850	2550	7580	12	1732	2400	1058	5.08	510	306	1550	4.29	1.32	8.2	10000	912	6400	0	72	3376	398.3	0.68	195.2	103	1937	5.06	1.23	
Kheda	Kheda	Navagam	Alluvium	8.3	5480	1125	3510	12	829.6	1104	447	5.08	225	135	738	8.98	1.27	8.6	4930	452	3155	20	66	1603	292.3	1.08	89.6	55.4	1028	14.15	1.03	
Kheda	Kheda	Kanera	Alluvium	8.6	5750	1300	3680	24	780.8	1024	704	5.38	260	156	721	5.29	0.79	8.6	4900	288	3136	24	74	795.6	325.7	1.22	80	21.38	594.2	6.16	0.47	
Kheda	Matar	Palla	Alluvium	8.8	6320	1300	4050	24	829.6	1200	717	0.96	260	156	854	2.81	1.02	9.6	5860	572	3750	84	90	1909	348.3	0.12	96	80.68	1250	3.74	1.24	
Kheda	Matar	Vansar	Alluvium	8.9	1790	325	1150	36	341.6	368	32	0.84	65	39	261	1.61	0.64	8.9	1520	460	972.8	44	148	443.8	269.3	0.2	99.2	51.52	297.5	1.86	0.68	
Kheda	Nadiad	Dabhan	Alluvium	8.9	3760	700	2410	36	610	760	237	0.62	140	84	541	3.16	0.67	8.3	380	112	243.2	8	40	91.95	48.92	1.04	24	12.64	49.01	10.77	0.4	
Kheda	Nadiad	Alindra	Alluvium	8.7	990	200	620	24	195.2	200	0	4.02	40	24	135	1.23	0.74	8.8	880	380	563.2	44	128	269.9	203.6	4.53	89.6	37.91	179.7	0.97	0.91	
Kheda	Nadiad	Nadiad	Alluvium	8.9	5270	1150	3370	36	902.8	1080	297	1.18	230	138	682	1.44	1	9.1	3870	1000	2477	80	166	999.5	452.2	0.25	195.2	124.4	557.4	1.92	0.9	
Kheda	Thasra	Gumadiya	Alluvium	8.7	780	150	490	24	146.4	160	0	1.88	30	18	109	2.29	0.7	6.7	1590	528	1018	0	308	183.9	325.6	10.23	112	60.26	134.3	39.72	0.65	
Kheda	Thasra	Bordi (raipura)	Alluvium	8.3	6790	1500	4350	12	915	1280	786	0.85	300	180	869	4.25	1.15	8.3	5970	240	3820	8	60	1905	245.3	1.82	48	29.16	1295	5.87	1	
Kheda	Matar	Singivada	Alluvium	9	10600	2375	6780	36	2074	2320	237	7.71	475	285	1343	4.13	1.3	9.4	9280	688	5939	92	258	2423	653.2	0.1	128	89.42	1773	7.47	0.5	
Kheda	Kheda	Nayka	Alluvium	8	6650	1550	4260	0	915	1264	752	3.08	310	186	795	36.3	1.03	8.6	5340	340	3418	48	100	839.6	295.6	3.1	64	43.74	587.5	49.92	0.78	
Kheda	Kheda	Kajipura	Alluvium	8.8	7120	1625	4560	24	1000	1280	830	8.91	325	195	889	1.48	1.34	9.2	6150	812	3936	92	280	1719	583.2	9.92	163.2	98.17	1272	1.86	1.34	
Kheda	Thasra	Dakor	Alluvium	8.6	1400	300	900	24	305	280	0	4.56	60	36	179	8.64	0.58	8.4	1360	792	870.4	24	148	251.9	523.3	6.2	153.6	99.14	178.4	95.36	0.77	
Kheda	Thasra	Nes	Alluvium	7.6	2080	450	1330	0	317.2	384	196	9.37	90	54	263	14.76	0.94	8.5	1820	384	1165	0	184	311.8	265.3	9.94	88	39.85	218.3	5.31	0.7	
Kheda	Thasra	Muliad	Alluvium	8.3	1780	375	1140	12	317.2	336	111	5.57	75	45	233	7.25	0.62	8.4	5580	1320	3571	16	172	1043	695.8	9.88	227.2	182.7	595.1	55.2	0.22	
Kheda	Vaso	Palana	Alluvium	8.4	1800	400	1150	12	366	360	42	7.32	80	48	229	1.24	1.41	9.6	1570	664	1005	80	150	503.8	364.6	2.08	128	83.59	330.4	0.21	1.13	
Kheda	Matar	Limbasi	Alluvium	9	2890	625	1850	36	451.4	544	234	0.79	125	75	377	0.95	1.36	8.9	2610	676	1670	72	214	649.7	458.2	2.35	160	67.07	466.4	1.51	1.23	
Kheda	Thasra	Thasra	Basalt	8.4	1100	200	710	12	219.6	240	8	0.56	40	24	160	1.78	0.74	8.9	1810	360	1158	48	112	431.8	270.3	1.99	89.6	33.05	315.7	5.32	0.62	
Kheda	Thasra	Khadgodhra	Basalt	7.4	2860	625	1830	0	585.6	608	60	8.34	125	75	370	0.98	0.92	8.6	3760	280	2406	24	58	511.7	252.2	10.78	72	24.3	376.6	1.3	0.41	

ANNEXURE II:

Groundwater Monitoring and Quality Data of CGWB and GWRDC Bhavnagar Model Area

a) Groundwater Monitoring Data, CGWB – Bhavnagar - Ahmedabad District

SITE ID	SITE NAME	LONG	LAT	Jan-17	May-17	Aug-17	Nov-17	Jan-18	May-18	Aug-18	Nov-18	Jan-19	May-19	Aug-19	Nov-19	Jan-20	May-20	Aug-20	Nov-20	Jan-21	May-21	Aug-21	Nov-21	Jan-22
W210545071460001	Mahuva1	71.767	21.096	17.56	20.26				21.56			16.46	17.86	16.42	10.48	10.56				6.96	9.31			8.84
W210815071393001	Dudhala	71.658	21.138	6.35	14.03		9.37		17.84	9.04	9.82	13.86	14.96	14.2		5.8				5.25	7.8			4.88
W210938071543001	Malvav_Pz	71.908	21.161							18.85	24.57	28.33	29.7	27	20.88	23.2	21.72	13.24	14.09	18.69				
W211128071554401	Bora	71.929	21.191	30	30.12	27.76	27.52	2.55		27.36	28.88	29.82	30.78	28.33	24.1	25.1	24.57	16.82	12.44	18.4	20.94	13.96	9.44	11.45
W211150071330001	Motivadal	71.55	21.197	3.15	4.99	2.97		3.39		2.66	3.22	5.19	6.92	2.99	2.46	2.87	3.72	2.25	2.61	3.27	2.29	1.44	1.8	4.02
W211250071530001	Longadi	71.883	21.214	3.34	4.05	1.5		2.7	5.95	1.72	3.23	3.27	5.6	2.04	1.46	3.3	2.35	1.56	2.37	3.2	1.84	0.2	1.05	2.2
W211315071570001	Datha	71.95	21.221	7.32	5.19	1.09	4.17	4.49	5.89	1.82	5.04	6.71	8.24	4.62	2.93	4.34	1.71	0.82	2.19	5.38	1.03	0.76	2.74	5.84
W211445071390001	Shantinagar	71.65	21.246	7.5	12.7	11.62	7.27	8.8	14.04	4.15	6.5	11.74		7.49	0.87	4.2	11.5	0	0.78	4.65	12.72	3.06	0.7	2
W211730071580001	Pasvi	71.967	21.292	9.65	16.46				16.46	5.16	8	13.34		7.13	5.64	10	11.82	2.56	3.76	7.89	14			
W212200072010001	Talaja2	72.017	21.367	9.53	12.26	7.55	7.4	8.28	16.26	5.31	6.65	10.52	16.01	5.29	2.93	4.43	8.73	1.98	1.96	3.58	4.4	2.25	1.68	2.75
W212246071585001	Kundheli	71.981	21.379	28.93	23.53	15.96		13.8	21.2	8.48	11.85	20.14	18.86	3.34	2.59	7.8		1.27	3.28	11.6	21.65	4.09	1.48	3.28
W212530071544501	Sajnasar	71.913	21.425	10.05	12.5	2.07	2.48	2.25	13.12	0.9	1.35	3.14	11.16	1.97	1.21	1.72	2.5	1.47	1.94	3.4	2.23	1.88	1.55	2.4
W212530072054501	Trapaj	72.096	21.425	7.4	15.92	8.97	6.43		18.44		7.34	8.13		2.98	3.24	6.3	13.46	2.24	4.92	7.7	9.91	5.52	5.2	7.17
W212545071455001	Chowk Pz	71.764	21.429		25.71	29.56			22.75	18.93	21.7	25.14	26.67	26.68	25.19	25.15		22.5		16.6				
W212630071501501	Satanes	71.838	21.442	16.57	16.57		2.84	3.21	16.57	0.21	2.56	11.64	9.62	10.73	6.73	10.06	10.57	1.34	0.43	7.37	6.55	7.05	9.73	10.27
W212837071482201	Vadal	71.806	21.477	5.65	13.5	1.7	3.48	3.59	13.5	1.97	3.7	7.7	7.99	1.2	3.36	5.5		0.76	2.25	5.55	3.14	3.47	4	2.74
W213030072073001	Tansa	72.125	21.508	9.48	16.65	4.76	6.82	7.2	22.04	5.75	8.3	23		2.9	3.3	5.6	8.1							12.74
W213120071502001	Palitana2	71.839	21.522	7.52	15.55	2.37	5.61	6.85	20.14	4.12	7.54	10.54		4.19	3.97	6.85	7.85	3	5.03	7.48		2.67	3.2	4.62
W213130071492501	Palitana1	71.824	21.525		9.63	1.8	5.04	5.16	6.62	4.75	6.78	8.78	10.47	4.62	3.98	5.6	7.4	2.55	3.94	5.63	6.48	2.42	2.25	3.93
W213235071335501	Gariyadhar	71.565	21.543	9.12	23.62	9.31	11.92	12.85	24.6	24	23.52	24.45		12.13	7.02	9.3	14.52	1	2.2	6.85	12.84	3.29	5.2	8.27
W213300071431501	Panchpipla	71.721	21.55	1.91	5.28	0.55		1.62	7.32	0.65	2.57	5.52	15.1	1.45	1.27	1.4	1.84	0.15	0.7	2.52	0.01	-0.35	-0.35	1.21
W213405072115301	Vavdi	72.198	21.568		7.75	0.62	1.69	1.7		1.1	1.24	6.1	12.85	0.74	0.88	1.5		1.62		2.15	12.13	2.48	0.9	2.54
W213811071550801	Piparla	71.919	21.636			2.67	2.57	3.15	8.3	6.13	7.08	8.3		2.04	1.73	2.16	4.4	1.26	1.73	4.4	1.72	1.1	-0.2	0.47

W213815071420001	Khijadiya	71.7	21.638	12.05	14.45	9.62	11.49	11.7	13.59	10.79	11.5	12.58	15.85		7.89	9.5	9.21	3.51	4.82	5.63	8.29	4.6	2.82	4.46
W214046072143901	Bhumbhali	72.244	21.679	2.75	3.43	2.68	2.84	3.38	3.14	2.25	2.51	3.42	3.65	2.08	2.19	2.38	2.55	1.9	2.52	2.6	3.41	2.45	0.9	1.43
W214053072163701	Ghogha	72.277	21.681				3.68																	
W214100072164501	Ghogha1	72.279	21.683	2	3.92			2.5	4.06	1.04	1.65		4	0.06	1.32	1.69	1.52	1.24	1.51	2.12	0.74	1.2	0.6	1.73
W214115071453001	Sandhida	71.758	21.688	2.93	5.53	2.22	3.64	4.03	9.6	6.5	6.1	9.6		1.34	0.67	1.08	9.6	1.15	0.66	1.1	1.83	0.48	0.3	0.56
W214130072093001	Bhudel	72.158	21.692	1.56	0.75	0.9		1.75	4.82	1.55	2.7	3.58		1.34	0.62	1.85		1.01	1.3	3.05	3.82	0.95	0.5	1.32
W214240071503001	Ambala	71.842	21.711						23.4	21.25	22		21.67	18.08	12.07	15.68	14.58	18.06	9.48	12.8	21.96		2.35	15.03
W214450071420001	Bhutia	71.7	21.747	22.3	22.3				22.3	17.75	18.48	21.14		22.3		0.28	22.3			22.3	22.3			
W214450071432001	Gadhula	71.722	21.747																					
W214507072015201	Kardej	72.031	21.752		29.02	26.5			27.02	25.55	25.52	26.8	29.1	26.28	21.65	21.92	24.26	21.45	24.78	20.95	20.79	20.85	11.25	12.5
W214600072090001	Bhavnagar1	72.15	21.767		6.52	3.75	5.63	4.65	11.4	5.85	7.12	7.4	10	3.53	3	4.05	3.55	2.8	3.51	4.89	3.92	3.7	3.4	4.32
W214639071560001	Wadia Pz	71.933	21.778						72.8				68											
W214800071303001	Dhasa	71.508	21.8	3.94	6.91	1.05			5.94			1.32	4.59		1.74	2.21	4.94	0.29	2.21	3.33	5.71	1.8	1.45	3.29
W214800071370001	Jalia	71.617	21.8	20.85		7.67	18.83	18.95	17.98	12.8	21.25	21.71		6.5	4.38	12.9	16.25	1.31	3.93	12.9	10.59	12.24	8.07	10.71
W214800071420001	Porbada	71.7	21.8		13.53	5.52	8.32	8.63	14.83	10.77	12.11	12.37		5.61	5.23	6.38	10.93	2.39	3.03	5.23	12.98	5.1	5.53	
W214954071455801	Timbi2	71.766	21.832	4.07	5.6	0.85	4.82	10.71		11.04	12.73	13.49	13.48	4.54	8.36	10	13.63	3.63	7.4	8.6	2.88	12.12	6.4	6.64
W215050071483001	Umrالا	71.808	21.847		14.02	6.52			14.02	8		14.02		6.08	5.73	6.58	14.02	5.14	5.7	5.6	6.12	6.5	4.6	5.8
W215300071523001	Vallbhipur	71.875	21.883	4.18	5.22	4.28	4.04	4.28	5.4	4.86	4.7	6.35	6.3	3.84	2.65	3.4	4.05	2.42	3.23	3.9	2.44	3.13	2.2	3.72
W215300071524001	Vallabhipur1	71.878	21.883							4.53	4.95	5.45	5.95	3.84	3.88	4.1	4.8	3.11	3.79	4.45	3.08	3.18	3.18	4.46
W215737071531101	Ayodhayapuram	71.886	21.96	8	8.32	7.76	7.93	8.3	8.47	8.2	8.4	9.25	9.63	9.07	8.4	8.9		7.3	6.6	8.45	7.16	4.92	4.37	6.68
W215800071344501	Gadhada2	71.579	21.967	4.5	4.91	3.84	4.27	4.36	4.77	4.1	3.88	4.39	4.35	3.59	3.76	4.25	3.73	3.03			2.92	2.5	2.98	
W215805071345501	Gadhada1	71.582	21.968		9.6	8.2	8.21	7.25	8.67	8.32	8.5	9.39	10.21	8.32	6.23	6.4	7.33	2.9	4.91	6.25	6.04	5.04	4.77	5.27
W220105071420001	Ningala	71.7	22.018	3.63	11.49	7.06	11.62	12.07	11.9	8.31		4.93	13.38	6.05	6.14	5.45	10.45	7.37	10.71	12.1	4.4	8.02	4.99	6.31
W220330071380001	Tatam	71.633	22.058	35.8	20.67	12.02	18.14		21.47	11.57	25.02	35.8	26.84	4.64	3.29	5.49	11.74	0	1.47	4.31	10.3	6.98	4.82	6.2
W220430071533001	Panvi1	71.892	22.075	3.95	10.1	2.5	4.74	3.87	16.5	3.96	7	8.56	12.3	2.68	3.05	3.14	3.87	1.89	2.6	3.15	3.94	2.28	1.65	2.52
W220550071535001	Lonjdhara	71.897	22.097	30.8	30.8		2.79							23.1	18.1	24.21	21.62	9.29	10.47	10.87	13.22	12.27	7.76	10.98
W220900071533001	Barvala	71.892	22.15	12.4	14.21	11.4	10.48	11.14		9.72	10.48	8.23	13	9.32	6.89	6.7	7.3	3.15	2.95	3.82	4.39	2.93	1.64	3.03
W220930071461501	Salangpor	71.771	22.158	14.45				13.8		6.12	8.47	8.8		4.33	3.85	6.2	7	2.15		7.5		5.65	5.23	5.25
W221345071361501	Tardhera	71.604	22.229		24.75		25.64			24.52	21.48	22.58	23.47	14.87		6.55				10.1	21.86			7.5
W221356072104401	Pachcham_Pz	72.179	22.232	2.08		2.25	1.39	1.36				2.2	2.76	0.55	0.74	1.05				1.04	1.63	1.43	0.85	2.35

W221520071335002	Paliyad2	71.564	22.256		23.61				23.61	4.43												0.66	0.3	1.81
W221610071420001	Kundali	71.7	22.269	14.05	15.42	4.65	4.82	11.7	18.1	10.78	10.9	11.29	10.4	4.6	3.39	2.8	4.07	1.1	1.4	2.3	9.97	9.18		1.86
W221745071565001	Tagadi1	71.947	22.296	4.37	5.87	1.61	3.13	3.41		1.61	2.95	3.95	4.5	1.65	1.81	2.64	3.91	1.42	2.07	2.97	7.42	8.03	1.06	0.27
W221830071413001	Rajpada	71.692	22.308	16.7	17.18	12.65	15.29	15.9	23.7	15.53	16.05	17.26	17.15	8.88	17.72	17.4	12	1.78	6.01	11.3	15.09	14.03	10.05	10.47
W222130072100001	Gamph	72.167	22.358	2.45	3.25	0.8	1.43	1.72	1.6	1.18	1.49	2.06	2.25	0.53	0.64	1.2	1.52	0	2.18	1.3	1.55	0.9	0.62	-0.3
W222137071520501	Vagad(Repl)_Pz	71.868	22.36	4.9	6.9	5.1	5.22	4.7		3.96	4.74	4.9	5.61	4.37	4.43	4.1	4.22	3.28	3.82	3.42	4.02	4.25	3.81	3.75
W222230071591001	Dhandhuka1	71.986	22.375	3.46	4.3	3.05	2.71	4.2	3.75	2.99	3.39	3.87	4.37	2.14	2.64	1.95	2.95	1	1.94	1.85	2.9	3.1	1.65	
W222240071591001	Devalia	71.986	22.378	20.4	20.4						16.28			20.4	20.4	20.4	20.4			20.4	20.4	20.4		20.4
W222744072093001	Fedra	72.158	22.462	2.29	2.89	0.39	1.06	1.24		1.14														
W222750072174802	Koth III	72.297	22.464																					
W223555072291501	Ingoli_Pz	72.488	22.599																					
W223750072174801	Koth I	72.297	22.631						9.95															
W223830072125001	Bagodara_Pz_I	72.214	22.642	8.3	7.6			8.3			8.72	9.89	10.13		5.25	6.08	9.55		7.37	9.28	9.47	9.3	8.82	10.05
W223830072125002	Bagodara_Pz_II	72.214	22.642	8.75	7.45			6.75		6.8	7.29	7.62	7.56		5.43	6.3	7			6.39	6.02	5.73	4.52	4.95
W225100072084501	Upardhal1	72.146	22.85	11.9	8.95				11.9		11.9		11.9	9.51		11.9	11.9				11.9	11.9	11.9	
W225400072010001	Kumarkhan	72.017	22.9	3.12	4.9		3.15	2.61	3.8	4.48		4.23	27.55	4.31	1	2.45	3.74	2.2	2.35	2	2.55	27.55	2	2.6
W225405072132501	Kundal	72.224	22.901	11.8		2.76	6.6			5.48	8.32		8.37	6.01	5.6	11.8	7.28	5.41			11.8	11.8	11.8	7.7
W225712072365801	Vatwa Pz-II	72.616	22.953	45.75	52.62			45.61		29.79	47.34	47.85		47.27			44.36							
W225713072365901	Vatwa Pz-III	72.616	22.954	32.04	36.05			28.21	30.85	22.19	27.21	28.48	32.24	27.12		31.35	27.06	24.82	24.74	25.9	28.68	26.85	26.11	26.64
W225915072121501	Jholapur_Pz_I	72.204	22.988					111.5	79.3	68.3		98.05	83.4	73.43	78.9	87.1	67.55	72.13	66.5	92.51	73.59	84.89	79.96	
W225915072121503	Jholapur_Pz_III	72.204	22.988			6.9																		
W230012072222501	Sanand I	72.374	23.003	67.4	70.3	15.58		119.58	76		80.01	69.7												
W230012072222502	Sanand II	72.374	23.003	17.8	23.66			17.78	18.22	15.7	18.52	19.55				17		16.08	15.2	16.13	16.55	16.13	15.34	15.38
W230200072264501	Ghuma	72.446	23.033	3.15	3.25			2.5	4.21	3.4			4.71	2.72	2.7						3.9	2.7	3.3	2.45
W230202072265901	Ghuma_Pz_I	72.45	23.034																					
W230202072265902	Ghuma_Pz_II	72.45	23.034		3.37																			
W230218072314702	Vastrapur(lake)_Pz_I	72.53	23.038	100.94				92.82	97.7		85.51	90.63	97.94	87.7		101.85	89.78							
W230219072272801	Bopal_Pz_I	72.458	23.039					27.55	36.37	21.98	29.77		36.37		28.25	27	32.29	25.5	27.55	34.63	34.18	34.35	33.5	28.76
W230219072272802	Bopal_Pz_II	72.458	23.039					29.75	33.11			28.25	32.31											
W230219072272803	Bopal_Pz_III	72.458	23.039					3.2	3.8			3.4	2.76		1.2	1.8	2.9	1.57	2.2	2.78	3.7	3.2	2.89	2.8

[illegible]

b) Groundwater Quality Monitoring Data, CGWB – Bhavnagar - Ahmedabad District

SITE_ID	SITE_NAME	lat	long	SAMPLING TIME	TDS	EC	BICARBONATE	CA	CARBONATE	CHLORIDE	FLUORIDE	K	MG	NA	NITRATE	PH	SULPHATE
W210500071453001	Mahuva	21.08333333	71.76154	May-12	1597	2383	525	128	0	414	0.2	31.4	88	225	18	8.05	127
				May-13	2137	3190	891	40	0	496	1.25	1.6	12	708	70	8.26	183
				May-17	2003	2990	854	40	0	540	1.23	1.4	15	620	37	8.28	3
				May-19	(blank)	3872	903	24	0	724	1.2	1.9	29.2	836	66	8.26	171
				May-20	(blank)	4600	830	24	0	1014	0.87	1.9	36.5	1007	68	8.22	190
				May-21	(blank)	5070	451	24	132	1115	0.94	2.16	38.93	1025	72	8.52	310
W210545071460001	Mahuva1	21.09583333	71.76667	May-14	2307	3444	1025	40	0	483	1.15	1.8	19.5	725	70	7.9	160
				May-15	1806	2696	122	80	200	532	1.22	2.3	48.72	431	49	8.58	90
				May-18	2244	3349	683	40	0	568	1.36	1.5	24.36	667	60	8.28	218
W210815071393001	Dudhala	21.1375	71.66154	May-12	1304	1947	708	24	66	163	0.65	6.3	53	351	17	8.68	100
				May-13	1589	2372	647	166	0	440	0.38	26	35	290	31	7.72	5
				May-14	1492	2227	281	144	0	440	0.6	32.6	82.84	173	130	7.6	106
				May-15	1079	1610	427	80	0	177	0.55	5	63.31	154	34	8.22	157
				May-16	1250	1865	281	124	0	425	0.64	3.2	51.21	207	68	8.03	73
				May-17	1138	1699	403	56	0	270	0.75	2.8	77.87	175	120	8.01	25
W211128071554401	Bora	21.19111111	71.93359	May-13	1079	1610	805	20	0	106	1.4	1.6	10	378	90	7.92	23
				May-14	1123	1676	517	20	0	121	1.1	1.5	9.75	377	65	8.1	247
				May-15	1106	1650	793	28	0	99	1.47	3.5	21.92	330	57	7.77	35
				May-16	1136	1696	695	28	60	92	1.5	2.3	21.92	336	70	8.45	28
				May-17	960	1433	671	12	0	85	2.2	1.8	7	320	40	8.28	35
				May-19	(blank)	1607	549	16	108	107	1.69	2.6	19.47	360	68	8.46	81
				May-20	(blank)	1566	647	16	72	78	2	1.7	7.31	364	55	8.56	54
				May-21	(blank)	1470	488	12	120	78	2.75	1.88	12.17	325	55	8.64	50
W211150071330001	Motivadal	21.19722222	71.55	May-12	482	720	293	40	0	71	0.22	0.3	32	67	24	8	14
				May-13	772	1152	427	100	0	121	0.35	5.4	41	75	49	7.98	19
				May-14	776	1158	549	72	0	128	0.35	10.2	58.44	110	12	8	15
				May-15	665	992	390	64	0	85	0.35	7.7	38.98	87	78	8.27	4

				May-16	827	1234	451	132	0	156	0.23	5.9	34.2	88	43	8.11	32
				May-17	785	1171	329	48	0	149	0.28	6.2	68.14	97	95	7.99	49
				May-19	(blank)	1320	439	40	0	199	0.33	9	90.01	106	19	8.07	70
				May-20	(blank)	1273	476	92	0	170	0.29	9.2	68.19	110	28	8.2	81
				Apr-21	(blank)	1230	403	64	0	185	0.35	6.86	68.15	99	25	8.26	65
W211250071530001	Longadi	21.21388889	71.88333	May-12	1802	2690	842	24	0	398	1.4	2	34	523	16	8.25	59
				May-13	657	980	354	64	0	121	0.7	21	10	138	27	7.65	13
				May-14	545	814	342	44	0	57	0.53	26	21.94	110	2	8.1	71
				May-15	683	1020	98	52	84	64	0.6	30	21.95	97	43	8.34	80
				May-16	479	715	415	56	0	57	0.67	21	29.24	86	3	8.21	20
				May-17	447	667	281	16	0	64	0.54	22.2	17.04	100	4	8.12	1
				May-18	476	711	256	36	0	64	0.99	21.1	2.48	92	3	7.65	16
				May-19	(blank)	705	354	36	0	43	0.88	25	21.93	80	4.9	8.17	26
				May-20	(blank)	668	293	36	0	64	0.57	27	14.63	85	4.5	8.05	31
				May-21	(blank)	760	293	40	0	78	0.6	28.7	9.77	96	6.38	8.2	40
W211315071570001	Datha	21.22083333	71.95	May-13	1738	2594	634	40	0	496	1.5	3.2	29	477	7	7.78	18
				May-14	1786	2665	573	40	0	554	0.7	2.6	29.22	520	2	8	82
				May-15	1987	2966	390	100	84	674	1.47	4.5	170.31	300	5	8.78	165
				May-17	2820	4209	293	48	0	1221	1.08	4.8	88	756	4	7.96	128
				May-19	(blank)	1214	464	40	0	178	1.21	4.9	29.22	204	7.5	8.11	15
				May-20	(blank)	1228	366	28	0	213	1.3	6.7	14.62	238	7.8	8.08	51
				May-21	(blank)	1435	122	44	84	312	1.09	9.25	26.8	224	7.53	8.45	50
W211445071390001	Shantinagar	21.24583333	71.65	May-12	1108	1654	561	20	85	142	2.7	1	36	308	41	8.83	24
				May-14	1360	2030	512	168	0	369	0	5.9	87.73	146	12	7.9	135
				May-15	1643	2452	427	220	0	496	0.25	6.6	133.99	126	135	8.02	198
				May-16	973	1452	305	96	0	191	0.27	1.4	90.08	80	225	7.91	76
				May-17	1580	2358	610	184	0	355	0.31	10.9	116.93	135	38	8.13	187
				May-18	971	1449	171	80	0	263	0.6	2.8	31.7	175	120	7.94	92
W211730071580001	Pasvi	21.29166667	71.96667	May-15	633	945	329	78	0	64	0.65	20.6	42.64	52	60	8.16	69
				May-20	(blank)	805	342	60.1	0	64	0.3	5.9	43.78	50	31	7.75	46

W212200072010001	Talaja2	21.36666667	72.01667	May-12	2251	3360	830	24	48	511	1.4	1.5	29	690	75	8.7	120
				May-13	1021	1524	451	8	0	156	0.4	0.2	10	362	80	8.15	181
				May-14	1280	1910	500	40	0	284	0.35	0.2	9.77	376	100	8.1	58
				May-15	1055	1575	427	120	0	305	0.35	0.7	75.52	114	75	7.91	10
				May-16	1198	1788	342	88	0	369	0.97	0.3	107.08	121	72	6.8	53
				May-17	880	1314	281	32	0	249	0.38	0.5	99.72	105	66	8.02	75
				May-18	722	1078	171	36	0	185	0.75	0.3	63.26	99	100	8.29	75
				May-19	(blank)	1986	195	76	0	497	0.64	0.8	124.09	156	70	7.87	106
				May-20	(blank)	1240	415	92	0	142	0.051	0.56	63.33	89	94	8.06	61
				May-21	(blank)	2000	232	84	0	476	0.37	0.86	141.12	113	86	8.08	128
W212246071585001	Kundheli	21.37944444	71.9859	May-14	1233	1841	305	100	0	362	0.4	0.2	90.08	144	85	7.9	92
				May-16	509	760	281	72	0	92	0.3	1.3	41.42	42	26	7.89	55
				May-17	198	296	146	24	0	21	0.35	2.3	14.62	23	3	8.28	16
				May-18	285	425	159	28	0	36	0.93	2.8	19.48	25	8	8.22	13
				May-19	(blank)	292	159	24	0	21	0.28	2.2	21.91	8	0.6	7.96	7
				May-20	(blank)	1203	244	80	0	241	0.34	0.9	48.72	105	32	7.85	83
W212530071544501	Sajnasar	21.425	71.91731	May-12	1167	1742	207	72	0	312	0.45	33	56	173	105	8.24	81
				May-13	871	1300	512	96	0	135	0.34	5.6	58	96	72	8.09	17
				May-14	969	1446	305	100	0	227	0.35	1.1	53.61	115	38	8	34
				May-15	730	1089	4.2	116	0	113	0.55	5.7	26.89	78	84	8.1	9
				May-16	765	1142	500	124	0	85	0.45	8.4	53.64	50	27	8.07	81
				May-17	767	1145	476	136	0	114	0.75	10.8	26.91	77	30	8.11	37
				May-18	659	983	268	80	0	163	0.89	5.3	21.98	97	12	8.1	35
				May-19	(blank)	784	378	68	0	71	0.8	6	24.4	76	10	7.95	17
				May-20	(blank)	895	378	76	0	78	0.42	3.1	34.13	65	27	7.77	49
				May-21	(blank)	790	244	44	0	92	0.49	3.14	34.09	78	35	8.18	52
W212530072054501	Trapaj	21.425	72.10064	May-14	1099	1641	342	124	0	170	0.6	0.7	92.54	83	280	7.9	115
				May-16	959	1432	573	152	0	156	0.2	11.6	63.4	60	35	8.2	47
				May-17	1004	1498	610	16	0	170	0.2	25	148.33	67	31	8.16	26
				May-20	(blank)	1518	317	176	0	163	0.31	0.47	56.38	57	185	7.02	160

				May-21	(blank)	1475	281	132	0	163	0.34	1.11	82.83	58	175	7.19	160
W212630071501501	Satanes	21.44166667	71.8391	May-14	972	1451	659	128	0	121	3.4	7.8	39.06	122	22	7.8	13
W212837071482201	Vadal	21.47694444	71.80846	May-14	618	922	293	56	0	99	0.26	0	46.26	71	76	8	39
				May-15	645	963	342	76	0	121	0.35	0.8	63.31	51	81	7.9	40
				May-19	(blank)	1067	342	44	0	128	0.36	0.5	72.99	53	18	7.71	50
				May-20	(blank)	1055	305	72	0	142	0.32	0.48	56.01	80	100	7.84	52
				May-21	(blank)	990	281	60	0	107	0.45	0.81	51.13	75	85	8.02	56
W213030072073001	Tansa	21.50833333	72.12821	May-16	900	1343	525	128	0	156	0.46	4.1	70.66	54	64	8.23	21
W213120071502001	Palitana2	21.52222222	71.84103	May-12	5320	7940	268	24	54	1690	0.95	86	131	1491	500	8.9	683
				May-13	1366	2039	439	204	0	354	0.13	5.7	70	71	70	7.9	31
				May-15	895	1336	366	124	0	206	0.35	0.9	29.33	110	63	7.97	22
				May-18	1146	1710	85	112	0	412	0.64	1.3	53.63	152	48	7.95	127
				May-20	(blank)	950	366	92	0	113	0.26	6.22	34.15	57	10	7.21	51
W213235071335501	Gariyadhar	21.54305556	71.57115	May-12	1083	1616	403	16	42	192	4	12.3	12	333	9	8.6	117
				May-13	1773	2647	305	188	0	510	0.5	7.3	90	233	75	7.41	295
				May-14	1782	2660	317	200	0	525	0.42	0.2	116.95	174	190	7.7	186
				May-15	1597	2383	390	220	0	567	0.14	12.5	109.68	130	84	7.76	81
				May-17	1331	1987	232	96	0	405	0.55	3.4	87.64	180	70	7.95	158
				May-18	139	207	207	108	0	419	0.98	5.1	80.36	170	30	7.93	168
				May-20	(blank)	1523	207	60	0	319	0.45	0.46	68.15	190	94	8.15	142
				May-21	(blank)	2595	244	88	0	525	0.65	0.87	145.99	231	153	7.83	284
W213300071431501	Panchpipla	21.55	71.72244	May-12	2425	3619	634	312	0	760	0.8	22	168	179	41	7.98	210
				May-13	844	1260	415	32	0	120	0.67	0.2	41	193	45	7.87	115
				May-14	771	1150	415	48	0	135	0.8	0	26.8	156	20	8	17
				May-15	1043	1557	378	80	0	276	0.8	0.2	48.72	166	57	8.12	8
				May-16	816	1218	500	40	0	135	0.83	0.5	43.81	170	28	8.24	21
				May-17	617	921	366	32	0	78	0.65	0.1	27	124	36	7.96	17
				May-18	972	1451	220	32	30	249	1.05	1.6	65.68	169	4	8.45	120
				May-19	(blank)	1296	451	32	0	170	0.79	1	43.8	188	19	8.12	46
				May-20	(blank)	1156	366	40	0	170	0.55	0.2	48.67	157	26	8.14	73

				May-21	(blank)	1535	403	40	0	284	0.64	0.56	60.83	210	36	8.16	65
W213405072115301	Vavdi	21.56805556	72.20372	May-13	429	640	317	64	0	57	0.2	1.3	34	42	37	7.81	19
				May-14	784	1170	403	52	0	107	0.35	0.1	82.73	83	130	8	59
				May-15	882	1317	158	92	72	121	0.8	0.6	82.78	60	114	8.42	177
				May-17	507	756	281	20	0	78	0.54	0.8	51.08	62	33	8.28	24
				May-19	(blank)	773	366	36	0	71	0.41	0.9	48.67	71	30	8.1	21
				May-20	(blank)	1010	342	52	0	78	0.36	0.99	65.71	65	70	7.43	110
W213811071550801	Piparla	21.63638889	71.91974	May-13	1474	2200	500	212	0	390	0.3	8.6	82	72	12	7.62	47
				May-14	460	686	281	56	0	71	0.15	0.4	36.54	44	27	8.2	30
				May-16	704	1050	427	88	0	99	0.1	0.9	63.32	35	48	7.99	25
				May-20	(blank)	888	317	84	0	92	0.26	0.77	34.14	48	34	7.66	52
				May-21	(blank)	720	256	48	0	78	0.33	0.88	36.53	52	29	8.05	40
W213815071420001	Khijadiya	21.6375	71.7	May-12	6122	9137	327	320	0	2166	0.55	26.8	340	1246	41	8.05	1459
				May-14	955	1425	720	28	0	121	0.8	12.8	14.62	326	55	7.8	28
				May-15	292	436	24	28	48	35	0.3	4.6	12.19	48	23	8.59	53
				May-16	1387	2070	1086	112	0	85	0.67	2.4	39.04	283	28	8.26	19
				May-17	801	1195	122	12	120	142	1.2	0.3	10	242	7	8.7	81
				May-18	752	1123	281	16	0	128	1.26	2.6	14.61	210	31	8.12	110
				May-20	(blank)	2267	512	40	0	432	1.28	0.16	43.81	390	23	8.18	108
W214046072143901	Bhumbhali	21.67944444	72.24833	May-12	943	1408	342	100	0	107	0.32	1.2	68	83	175	8.25	130
				May-13	4603	6870	467	180	0	1773	0.45	20	216	887	32	8.08	418
				May-14	4935	7366	415	360	0	1882	0.55	27.7	158.47	971	8	7.82	599
				May-15	2046	3054	281	140	0	851	0.7	22.6	189.81	203	18	8.06	105
				May-16	3652	5451	659	140	0	1312	0.87	20	206.83	730	6	8.12	351
				May-17	3659	5461	390	120	0	1385	0.56	19.8	218.96	687	12	8.01	369
				May-18	2123	3169	500	40	0	497	1.18	13.1	63.26	547	4	8.23	406
				May-20	(blank)	4605	696	80	0	858	0.63	17	87.62	820	7.7	8.09	637
W214053072163701	Ghogha	21.68138889	72.2809	May-12	1039	1550	98	96	0	312	0.25	1.5	10	238	3	8.26	258
				May-13	4208	6280	537	120	0	1312	0.52	92	97	1100	300	7.8	512
				May-14	4529	6760	537	100	0	1669	0.6	98.1	109.53	1176	380	7.7	119

				May-15	2265	3380	500	140	0	567	0.03	50	158.21	290	84	8.22	329
				May-16	4358	6504	683	140	0	1524	0.9	65.1	182.52	980	220	8.11	301
				May-18	3834	5722	207	80	30	1420	1.08	58.9	218.92	765	320	8.61	244
				May-19	(blank)	6158	695	140	0	1420	0.71	10.8	73.11	1124	320	8.08	298
				May-20	(blank)	3279	488	96	72	546	0.28	53	41.45	500	181	8.36	194
				Jan-21	(blank)	2780	403	92	120	391	0.29	63	46.31	420	182	8.42	199
W214115071453001	Sandhida	21.6875	71.76154	May-13	409	610	305	72	0	35	0.38	2.4	17	38	20	8	15
				May-14	499	745	305	64	0	92	0.35	2.1	31.68	48	2	8	10
				May-15	482	720	354	84	0	64	0.34	2.7	36.57	33	16	8.24	35
				May-16	472	704	329	68	0	35	0.44	2.1	43.85	31	6	8.2	88
				May-17	372	555	268	28	0	43	0.35	2.4	36.5	36	15	8.13	4
				May-21	(blank)	890	342	56	0	99	0.39	3.35	48.69	68	10	7.97	48
W214130072093001	Bhudel	21.69166667	72.16154	May-13	2199	3282	732	80	0	674	0.67	5.8	133	402	30	7.87	34
				May-14	2809	4193	610	64	0	881	0.5	15.8	180	553	270	8	120
				May-15	1721	2568	805	56	0	369	0.85	12.7	92.46	354	87	8.18	29
				May-16	1554	2320	500	120	108	354	0.87	8.2	85.24	260	76	8.4	54
W214240071503001	Ambala	21.71111111	71.84487	May-12	1737	2593	110	240	0	497	0.38	0.7	54	233	370	7.89	218
				May-13	2129	3178	293	180	0	745	0.64	23	109.63	322	17	8.13	269
				May-19	(blank)	697	280	32	0	78	0.79	2.8	48.67	56	13	8.13	45
				May-20	(blank)	411	195	28	0	28	0.45	1.8	14.62	40	1.9	8.03	16
W214450071420001	Bhutia	21.74722222	71.7	May-13	1345	2007	171	84	0	525	0.4	0.6	87	183	23	7.7	56
				May-14	1310	1955	317	152	0	412	0.3	0.6	63.4	157	95	7.9	53
				May-15	1243	1855	268	160	0	397	0.44	1	51.25	157	108	8.04	73
				May-16	1268	1892	244	152	0	475	0.67	1.5	53.67	164	13	7.88	63
W214600072090001	Bhavnagar1	21.76666667	72.15	May-12	1133	1691	427	28	0	213	1.16	2.4	41	283	170	8.15	58
				May-13	880	1314	378	48	0	219	0.46	0.6	19	220	10	7.66	44
				May-14	972	1451	427	40	0	227	0.35	0.3	36.52	226	38	8.2	34
				May-15	700	1045	244	60	48	160	0.5	1.7	29.25	144	8	8.3	64
				May-16	713	1064	488	40	0	106	0.64	0.7	36.52	153	2	8.24	27
				May-17	604	902	317	16	0	142	0.47	0.3	34.06	155	14	8.28	40

				May-18	699	1044	281	28	0	170	0.83	0.3	14.62	178	5	8.01	36
				May-19	(blank)	1154	415	40	0	142	0.41	0.5	41.38	164	32	7.92	57
				May-20	(blank)	1268	403	60	0	184	0.38	0.77	24.39	208	38	7.82	74
				Jan-21	(blank)	1315	305	80	0	241	0.49	3.71	39	150	30	7.18	65
W214800071303001	Dhasa	21.8	71.51154	May-12	1251	1867	598	28	0	227	0.8	16	51.09	308	41	8.22	96
				May-13	856	1278	366	68	0	149	0.4	4.2	32	118	18	7.8	27
				May-14	1307	1950	525	108	0	305	0.26	6.2	68.21	194	35	7.8	98
				May-15	460	686	37	56	72	106	0.2	11.5	46.26	30	12	8.34	80
				May-16	536	800	342	72	0	78	0.2	9.5	36.56	42	12	8.29	19
				May-17	344	514	244	52	0	36	0	12.3	24.38	18	18	8.07	3
				May-18	1633	2438	403	112	0	305	0.57	0.4	60.92	321	98	7.84	355
				May-19	(blank)	1342	598	76	0	142	0.63	4.9	41.42	188	28	8.02	45
				May-20	(blank)	861	305	68	0	92	0.33	0.32	24.4	94	39	8.19	48
W214800071370001	Jalia	21.8	71.61667	May-12	870	1298	390	36	0	177	0.4	0.6	29.22	213	8	8.24	99
				May-14	2727	4070	427	304	0	1093	0.5	6.1	224.05	187	70	7.7	113
				May-18	2398	3579	37	392	0	1022	0.49	2.8	15.06	326	24	7.95	228
				May-20	(blank)	2464	427	216	0	553	0.4	3.8	112.35	148	27	7.38	170
				May-21	(blank)	2910	293	224	0	689	0.5	1.7	119.41	226	83	7.3	210
W214800071420001	Porbada	21.8	71.7	May-14	596	890	378	72	0	99	0.75	3.7	24.4	99	15	8.2	29
				May-16	1071	1598	244	96	0	241	0.6	1.1	58.47	161	225	7.98	99
W214954071455801	Timbi2	21.83166667	71.77231	May-13	258	385	171	28	0	35	2.26	1.7	14	36	4	7.72	9
				May-14	271	404	195	32	0	43	0.1	1.4	14.63	46	8	8.2	12
				May-15	240	358	171	32	0	28	0.22	4.2	26.78	17	10	8.07	37
				May-16	335	500	244	52	0	21	0.6	1.9	29.24	18	3	8.29	53
				May-17	196	293	122	28	0	28	0.33	4	7.33	23	7	8.21	3
				May-18	277	413	134	32	0	50	0.81	2.7	17.06	31	5	8.06	29
				May-20	(blank)	388	183	32	0	28	0.45	1.7	9.76	40	0.61	7.23	21
				May-21	(blank)	2660	244	32	96	462	0.88	7.94	75.41	412	224	8.39	146
W215300071523001	Vallbhipur	21.88333333	71.87821	May-12	1085	1620	354	32	0	349	0.7	1	24	309	50	8.22	20
				May-13	4796	7158	964	80	0	1773	0.12	1.3	60	1600	3	8.2	578

				May-14	4277	6384	1013	40	0	1562	2.4	1.1	72.99	1287	9	7.9	118
				May-15	4084	6096	232	60	180	1382	2.96	0.8	291.83	772	7	8.47	528
				May-17	365	545	159	24	0	78	0.57	2.2	9.75	80	6	8.18	25
				May-18	4773	7124	549	160	0	2237	2.9	1.2	109.6	1404	12	8.28	230
				May-20	(blank)	4290	451	84	0	1021	0.79	9.3	58.45	767	12	8.2	380
				May-21	(blank)	4835	342	20	108	959	0.52	5.65	58.38	1030	58	8.88	557
W215737071531101	Ayodhayapuram	21.96027778	71.88756	May-13	3109	4640	1623	40	0	603	5.2	0.3	24	1000	38	7.68	132
				May-14	3049	4550	1671	16	0	611	4.4	0.2	19.47	1066	32	8.2	151
				May-15	2659	3968	1220	60	180	815	4.35	1.3	85.17	916	13	8.56	5
				May-16	3835	5724	1037	120	0	1312	3	1	121.71	1000	11	8.29	224
				May-17	3250	4850	1464	56	0	866	4.4	1	19.52	1061	11	8.28	66
				May-18	2125	3172	769	24	0	483	2.9	8.8	19.48	663	37	8.27	215
				May-20	(blank)	1351	561	28	0	156	1.9	7.6	9.76	278	33	8.02	37
W215800071344501	Gadhada2	21.96666667	71.58397	May-12	892	1332	354	64	0	85	0.25	0.1	66	112	210	8.23	88
				May-13	623	930	342	72	0	121	0.05	0.7	34	79	33	7.48	11
				May-14	754	1125	378	100	0	114	0.15	0.4	26.87	94	34	7.9	61
				May-15	956	1427	342	116	0	234	0.25	1.1	68.22	97	69	7.87	106
				May-16	670	1000	378	72	0	99	0.34	0.9	56.01	67	6	8.18	95
				May-17	498	744	329	96	0	57	0.28	1.6	2.55	68	20	8.17	29
				May-18	1326	1979	586	108	0	170	0.39	1.2	43.89	242	10	7.59	235
				May-19	(blank)	1145	488	68	0	128	0.27	2.2	48.71	110	5.2	7.77	15
				May-20	(blank)	814	366	80	0	78	0.31	7.97	21.98	69	10	8.11	32
W220105071420001	Ningala	22.01805556	71.7	May-12	1518	2265	183	120	0	426	0.52	1	97	184	140	8.07	218
				May-13	525	784	281	40	0	91	0.3	1.9	19	116	27	7.61	47
				May-14	669	998	390	36	0	114	0.5	1.5	17.06	161	15	7.8	13
				May-15	651	972	193	36	84	99	1.75	1.3	21.93	143	27	8.41	24
				May-16	839	1252	354	44	48	156	0.74	1.6	36.52	187	19	8.48	54
				May-17	771	1150	476	24	0	114	0.74	1.7	12.19	225	20	8.27	27
				May-18	1245	1858	390	52.6	60	135	1.32	1.6	16.72	340	10	8.44	301
				May-19	(blank)	918	390	16	0	71	0.76	1	19.47	163	14	8.19	39

				May-20	(blank)	598	256	16	0	57	0.45	0.67	12.18	105	8.4	8.09	32
				Mar-21	(blank)	710	159	20	48	78	0.57	1.39	14.61	115	11	8.48	40
W220330071380001	Tatam	22.05833333	71.63333	May-15	504	752	268	44	0	106	0.6	5.1	38.95	64	19	7.94	20
				May-17	7323	10930	195	540	0	3089	0.97	59.8	754.36	450	575	7.33	374
				May-18	9179	13700	1720	496	0	3057	1	75	754.31	1175	145	7.62	1108
				May-20	(blank)	5062	317	289	0	1283	0.48	1.53	316.3	322	365	8.08	288
				Mar-21	(blank)	4775	329	176	0	1207	0.56	2.66	347.89	300	180	8.09	300
W220430071533001	Panvi1	22.075	71.89487	May-12	742	1108	439	72	0	99	1.7	16.4	10	169	110	8.23	5
				May-13	2229	3327	1000	60	0	461	1.5	2	24	680	12	8.28	227
				May-14	2876	2800	1095	24	0	341	2	13.3	24.34	599	19	8.2	55
				May-16	1856	2770	988	120	96	284	2.6	10.2	109.56	300	24	8.69	15
				May-17	1426	2129	976	24	0	199	2.72	9.6	14.62	465	12	8.28	29
				May-18	417	622	622	24	0	497	2.92	4.5	34.07	561	13	8.27	174
				May-20	(blank)	1798	940	16	0	106	3.9	4.6	14.61	408	2.9	8.22	52
W220550071535001	Lonjdhara	22.09722222	71.90256	May-12	1010	1508	390	60	0	192	0.2	1.5	73	155	46	8.23	149
				May-14	896	1338	634	24	0	99	2.2	0.6	24.34	256	25	8.2	28
				May-15	757	1130	317	28	96	92	1.49	1.2	36.5	172	19	8.56	22
				May-21	(blank)	1445	317	32	72	213	1.72	0.69	48.67	238	77	8.48	28
W220715071534501	Rampara	22.12083333	71.90064	May-19	(blank)	679	244	28	0	64	0.65	0.5	26.78	70	23	7.98	25
W220900071533001	Barvala	22.15	71.89487	May-12	3364	5021	1000	16	60	710	4.7	0	48.65	998	38	8.55	415
				May-13	3152	4705	1159	32	0	724	4.6	0.3	39	999	22	8.2	382
				May-14	3203	4781	1342	40	0	782	3.25	0.4	48	1020	17	7.69	270
				May-15	3645	5440	1281	80	0	815	4.5	2	145.98	863	32	7.84	407
				May-16	3645	5440	1281	80	0	815	4.5	2	145.98	863	32	7.84	407
				May-17	3410	5090	891	80	0	959	2.8	0.3	60.88	937	24	8.25	346
				May-19	(blank)	5749	830	40	168	767	1.81	0.3	68.13	1198	19	8.52	860
				May-20	(blank)	7338	1293	32	0	1198	3.8	0.27	72.98	1550	33	8.19	1002
W221345071361501	Tardhera	22.22916667	71.60577	May-12	663	990	415	56	0	107	0.22	4	53	85	18	8.24	35
				May-13	1347	2010	195	120	0	376	0.2	3.5	51	215	170	7.65	137
				May-14	1396	2083	854	100	0	213	1.1	17.5	119.26	165	80	7.1	26

				May-15	5668	8460	1159	800	0	2056	1.5	42	487.24	144	38	7.42	376
				May-16	2329	3476	464	240	0	815	0.5	4.8	219.11	130	80	8.05	170
				May-18	4403	6571	769	212	0	950	0.87	15	318.76	659	86	7.22	1200
W221520071335002	Paliyad2	22.25555556	71.56923	May-13	278	415	98	28	0	64	0.25	30	5	44	34	7.35	12
W221610071420001	Kundali	22.26944444	71.7	May-12	541	808	342	36	0	71	0.5	0.3	44	74	13	8.2	36
				May-13	633	945	354	40	0	135	0.5	0	54	97	38	8.2	15
				May-14	586	875	378	36	0	85	0.45	0.4	36	100	24	7.4	5
				May-16	685	1022	354	52	0	142	0.28	0.6	65.71	90	95	8.28	24
				Aug-16	688	1027	378	40	0	120	0.61	0.4	58.4	97	42	8.19	33
				May-17	871	1300	305	64	0	85	0.5	3.7	29.25	210	230	8.03	171
				May-18	549	820	281	52	0	99	0.83	0.6	19.51	98	48	7.74	10
				May-20	(blank)	735	403	44	0	35	0.37	0.26	48.68	45	11	8.19	17
				Mar-21	(blank)	1017	183	40	48	170	1.05	0.63	53.54	92	18	8.34	18
W221730071573001	Tagadi	22.29166667	71.96154	May-19	(blank)	3430	500	144	0	515	0.73	30	107.15	380	85	8.12	394
W221745071565001	Tagadi1	22.29583333	71.95256	May-13	1749	2610	525	48	0	533	4.52	3.3	44	506	45	8.21	398
				May-14	1000	1492	439	32	0	191	1.75	5.2	31.65	210	17	7.8	15
				May-15	809	1207	390	52	0	135	1.92	7.8	26.81	180	3	8.21	107
				May-17	2636	3934	488	48	0	994	2.8	22.8	121.62	620	115	8.26	46
				May-20	(blank)	2960	427	132	0	269	0.8	24	53.65	437	43	8.1	798
				Jun-21	(blank)	1642	415	64	0	241	1.92	4.8	38.98	248	21	7.65	185
W221830071413001	Rajpada	22.30833333	71.69487	May-12	1521	2270	232	152	0	412	0.45	1.9	131	116	60	8.24	330
				May-13	1138	1699	415	152	0	270	0.68	2.9	29	180	160	8	33
				May-14	1932	2884	537	200	0	567	0.43	4.5	168	160	250	8.2	91
				May-15	712	1063	342	68	0	120	0.82	1.6	43.85	86	31	8.1	56
				May-16	998	1490	622	120	0	142	0.89	11.4	53.63	112	41	8.23	15
				May-17	733	1094	610	104	0	256	0.89	12.8	94.95	147	100	8.11	20
				May-18	536	800	134	60	0	113	0.94	3.6	17.09	86	19	7.63	115
				May-20	(blank)	708	293	40	0	57	0.73	0.31	34.09	70	37	8.08	30
W222130072100001	Gamph	22.35833333	72.16667	May-13	1436	2143	744	56	0	369	0.4	34.4	44	384	18	8.18	35
				May-14	1709	2550	781	28	0	461	0.25	37	72	416	16	7.9	10

				May-15	2804	4185	500	80	0	1028	0.96	47	145.98	543	15	7.99	84
				May-16	2078	3102	1013	160	0	496	0.47	40	73.13	380	15	8.28	28
				May-18	1928	2877	1013	156	0	319	0.71	75	22.07	386	68	7.34	65
				Jun-21	(blank)	430	195	28	0	36	0.67	3.2	17.05	42	0.7	7.87	16
W222137071520501	Vagad(Repl)_Pz	22.36027778	71.86859	Jun-21	(blank)	7736	891	248	0	1562	2	31	204.53	1110	1.7	7.3	1075
W222230071591001	Dhandhuka1	22.375	71.98718	May-14	529	790	354	24	0	43	2.2	17.2	10	140	12	7.56	36
				May-15	258	385	171	36	0	14	0.35	1.9	19.49	14	2	8.28	36
				May-16	7357	10980	1403	240	0	2340	6	24	340.68	1800	38	8.27	1319
				May-17	9521	14210	1013	180	0	3373	6.64	9.9	206.88	3220	1600	8.23	1290
				May-19	(blank)	14330	1232	120	0	3124	5	20.3	304.06	3025	1058	8.19	906
				May-20	(blank)	7328	1135	72	0	1546	5	44	121.9	1384	220	8.2	494
				Jun-21	(blank)	12310	537	96	192	3195	5	28	257.84	2140	46	8.37	755
W222240071591001	Devalia	22.37777778	71.98718	May-12	1092	1630	329	24	36	241	0.95	1.5	22	299	65	8.8	68
				Jul-12	(blank)	(blank)	(blank)	(blank)	(blank)	(blank)	(blank)	(blank)	(blank)	(blank)	(blank)	(blank)	(blank)
				May-16	760	1135	342	40	48	135	1.44	1.9	34.09	200	13	8.42	103
				May-19	(blank)	2618	524	24	0	412	0.88	1.4	24.34	525	43	8.23	236
W225400072010001	Kumarkhan	22.9	72.01667	May-12	8007	11950	671	220	0	2769	6.25	21.4	122	2246	7	8.25	1300
				May-13	4255	6350	1427	140	0	1315	4	28.2	73	1274	9	8	339
				May-14	6593	9840	1000	120	0	2730	2.4	25	216	1940	46	8.1	628
				May-17	7142	10660	988	140	0	2485	11.2	7.2	109.58	1875	32	8.19	443
				May-18	4134	6170	1501	300	0	667	1.18	37.3	109.77	820	68	7.55	560
				May-20	(blank)	6118	1403	148	0	1120	3.5	63	60.96	1100	21	7.34	397
				Jun-21	(blank)	9154	695	100	0	2485	2.1	42	124.12	1720	14	7.51	410
W225405072132501	Kundal	22.90138889	72.22628	May-13	430	642	329	32	0	57	1.15	1.7	12	113	3	8.26	18
				May-19	1307	1951	427	36	0	298	1.53	1.48	24.36	363	2	7.96	188
				May-20	(blank)	1243	354	44	0	184	0.73	1.7	24.37	178	2.2	7.7	64
W230200072264501	Ghuma	23.03333333	72.45064	May-12	2255	3366	451	48	0	596	0.7	193	199	230	60	8.23	340
				May-12	2255	3366	451	48	0	596	0.7	193	199	230	60	8.23	340
				May-13	1940	2895	366	64	0	653	0.6	118	83	410	24	8	182
				May-15	2543	3796	598	140	0	815	0.61	320	121.74	318	21	8.18	270

				May-19	2844	4245	817	108	0	717	0.75	200	116.83	474	43	7.57	342
				Jun-21	(blank)	4252	781	92	0	888	0.67	225	126.54	485	0.5	7.34	280
W230830072020001	Viramgam2	23.14166667	72.03333	May-12	2319	3461	622	24	0	611	1.9	5	34	710	6	8.11	337
				May-13	3971	5927	403	120	0	1846	0.74	8.1	61	1118	5	7.8	7
				May-14	3384	5050	512	120	0	1383	0.8	9.5	84	900	4	7.59	198
				May-15	3302	4928	281	32	48	1250	1.32	10.7	63.25	980	6	8.69	351
				May-17	1778	2654	288	80	0	582	0.7	6.9	39	445	3	8.18	425
				May-20	(blank)	2810	329	16	0	596	0.32	4.4	19.47	541	4.9	8.08	230
				May-21	(blank)	6724	575	44	0	1773	1.3	11	63.27	1432	2.8	8.16	389
				Jun-21	(blank)	6681	781	44	0	1775	1.21	9.3	72.99	1400	1.7	8.13	370
W231620072033001	Endla	23.27222222	72.06154	May-12	3365	5023	366	208	0	1250	0.45	14	92	750	26	8.24	406
				May-12	3365	5023	366	208	0	1250	0.45	14	93	750	26	8.24	406
				May-13	450	672	293	44	0	78	0.3	14.4	24	62	2	8.2	10
				May-14	468	698	317	28	0	35	0.5	9.5	38	56	2	7.92	37
				May-15	413	616	159	28	18	149	0.8	10.7	31.64	81	0	8.52	1
				May-16	1969	2939	256	120	0	682	0.8	5.1	14.73	510	9	8.28	264
				May-17	459	685	305	52	0	50	0.44	13.9	21.95	49	2	8.17	2
				May-18	386	576	256	56	0	43	0.67	10.1	12.22	41	10	7.14	11
				May-19	506	755	354	52	0	50	0.52	10	34.1	45	16	8.03	16
				May-20	(blank)	715	354	56	0	50	0.46	11	34.11	47	0.23	7.35	18
				Jun-21	(blank)	713	342	52	0	43	0.54	10	31.67	50	5	7.67	42
W231630071550001	Mandal2	23.275	71.91667	May-12	3552	5302	512	88	0	1150	0.65	7.8	54	1017	19	8.1	548
				May-13	2797	4175	622	40	0	1022	0.53	5.2	54	805	4	7.9	92
				May-14	2399	3581	573	140	0	922	0.54	6.9	96	490	10	8.06	18
				May-15	2341	3494	268	80	(blank)	951	0.45	5.5	107.08	516	3	8.22	173
				May-16	616	920	366	60	0	107	0.22	12.8	14.66	110	3	8.2	5
				May-17	2829	4222	549	64	0	1008	0.56	6.1	73.02	772	3	8.18	235
				May-18	1938	2892	390	104	0	787	0.72	3.4	41.46	460	4	7.84	5
				Jun-21	(blank)	3827	195	36	60	973	1.65	3.1	21.93	750	1.2	8.71	226
				Jun-21	8616	12860	(blank)	136	(blank)	(blank)	(blank)	(blank)	231.14	(blank)	(blank)	7.9	(blank)

W232200071580001	Dalod	23.36666667	71.96667	May-12	8435	12590	1074	180	0	3302	4	29.3	207	2203	35	8.16	435
				May-12	8435	12590	1074	180	0	3303	4	29.3	207	2203	35	8.16	435
				May-13	11223	16750	1403	180	0	5006	3.8	34.2	255.51	3280	60	8	260
				May-14	9728	14520	1232	180	0	4361	3.1	33	216	2940	45	7.73	439
				May-15	10345	15440	342	240	0	4402	2.8	43	255.58	2760	50	8.03	992
				May-16	1898	2833	171	88	24	682	0.9	5.1	24.42	505	8	8.51	244
				Jun-19	14057	20980	1025	200	200	6000	3.5	63	1276.68	2016	78	8.5	557
				May-20	(blank)	16640	1257	152	0	5176	1	45	260.58	3535	26	8.2	822
				Jun-21	(blank)	12860	1220	136	0	3834	4.2	55	231.14	2400	5.6	7.9	625
W232200072060001	Ughraj1	23.36666667	72.1	May-17	1761	2628	390	248	0	625	0.45	41.4	68.38	184	68	8.13	30
				Jun-21	(blank)	610	256	36	0	57	1.2	1.6	21.93	70	0.3	7.65	45

c) Groundwater Level Monitoring Data, GWRDC – Bhavnagar - Ahmedabad District

May 2012 to October 2018

Well Type	District	Taluka	Village	Geology	Latitude	Longitude	Total Depth	RL	2012_May	2012_Oct	2013_May	2013_Oct	2014_May	2014_Oct	2015_May	2015_Oct	2016_May	2016_Oct	2017_May	2017_Oct	2018_May	2018_Oct
Dug Well	Ahmedabad	Dhandhuka	Kotda	Alluvium	22°22'20"	71°56'19"	13.00	31.36	7.00	6.55	6.80	5.20	5.90	4.10	7.20	6.50	8.50	6.10	8.20	6.60	7.90	7.75
Tube Well	Ahmedabad	Dholka	Chaloda	Alluvium	22°48'04"	72°26'57"	54.00	24.04	19.00	16.30	18.30	14.00	16.50	14.50	18.80	15.80	18.40	17.00	17.75	15.70	16.90	15.30
Tube Well	Ahmedabad	Dhandhuka	Fedra	Alluvium	22°26'58"	72°09'15"	35.00	9.00	2.05	1.05	2.55	1.30	4.00	1.55	4.05	1.15	2.35	1.65	2.05	0.65	1.95	1.35
Tube Well	Ahmedabad	Dhandhuka	Bajarda	Alluvium	22°29'19"	71°58'24"	35.00	29.41	2.30	1.60	2.80	1.40	3.45	2.00	4.80	2.10	2.80	2.10	2.80	1.20	3.30	1.20
Tube Well	Ahmedabad	Dhandhuka	Dhandhuka	Alluvium	22°22'19"	71°58'42"	34.00	21.61	4.00	3.70	4.50	3.00	4.15	2.60	5.10	2.70	4.20	3.20	4.10	1.60	3.90	3.10
Tube Well	Ahmedabad	Dholera	Dholera	Alluvium	22°15'09"	72°11'34"	34.00	7.46	2.30	0.10	1.20	0.90	3.60	1.10	4.00	0.40	2.70	1.10	2.30	0.70	2.70	0.60
Tube Well	Ahmedabad	Dholera	Bavaliyari	Alluvium	22°05'37"	72°06'09"	34.00	4.83	2.90	1.70	3.30	2.10	4.25	1.80	3.80	1.20	3.30	1.90	4.00	2.30	4.40	2.30
Tube Well	Ahmedabad	Dholka	Maflipur (Dholka)	Alluvium	22°44'37"	72°26'57"	100.00	20.89	30.00	23.90	26.30	20.60	21.70	19.40	22.00	19.90	21.80	19.60	22.90	19.70	22.10	20.40
Tube Well	Ahmedabad	Dhandhuka	Zanzarka	Alluvium	22°26'48"	71°57'25"	30.00	14.00	1.91	1.21	1.71	1.50	2.70	1.21	3.41	1.01	2.11	1.01	1.61	0.90	1.61	0.91
Tube Well	Ahmedabad	Dhandhuka	Akru	Alluvium	22°16'09"	71°59'54"	30.00	13.00	3.00	1.90	3.40	1.60	2.90	1.40	3.90	2.00	2.60	1.40	2.50	0.60	2.20	1.10
Tube Well	Ahmedabad	Dhandhuka	Galsana	Alluvium	22°22'29"	71°52'11"	30.00	38.00	5.85	5.45	7.25	6.90	7.10	5.15	8.10	4.85	6.25	3.85	6.45	5.75	6.75	5.15

Tube Well	Ahmedabad	Dhandhuka	Jaska	Alluvium	22°19'40"	71°57'46"	30.00	26.00	3.70	1.00	3.80	1.80	6.40	1.30	5.90	2.60	4.10	0.70	4.00	0.50	3.90	2.60
Tube Well	Ahmedabad	Dholera	Otaria	Alluvium	22°14'11"	72°07'40"	30.00	12.00	2.60	1.40	3.20	1.50	3.75	1.50	4.20	1.60	3.80	3.30	4.10	1.50	3.10	1.50
Tube Well	Ahmedabad	Dholka	Ambaliyara - III (70.50)	Alluvium	22°46'16"	72°31'19"	70.50	27.00	29.00	28.00	36.00	30.10	32.10	29.00	33.60	31.40	31.60	29.30	30.60	29.20	31.30	30.10
Tube Well	Ahmedabad	Dholka	Ambaliyara- II (120)	Alluvium	22°46'16"	72°31'20"	120.00	27.00	29.50	29.10	37.10	25.20	25.80	23.30	31.10	29.40	29.50	29.00	33.30	30.80	31.00	28.70
Tube Well	Ahmedabad	Dholka	Ambaliyara- I (180)	Alluvium	22°46'15"	72°31'18"	180.00	27.00	31.90	31.30	37.60	24.40	24.90	22.30	28.20	26.10	32.10	29.30	34.00	27.00	29.00	25.80
Tube Well	Ahmedabad	Dholka	Ambareli	Alluvium	22°39'05"	72°24'52"	60.00	20.00	21.70	21.10	22.70	18.30	19.40	18.10	19.10	18.50	18.70	18.50	19.00	15.10	15.90	15.20
Tube Well	Ahmedabad	Dholka	Bhetavada	Alluvium	22°40'41"	72°26'47"	60.00	21.00	21.00	20.60	24.30	15.80	20.70	17.90	22.10	17.90	20.50	18.20	19.90	17.40	19.30	17.70
Tube Well	Ahmedabad	Dholka	Bhumali	Alluvium	22°33'01"	72°20'37"	45.00	14.00	5.15	3.90	5.80	3.90	6.10	3.90	7.00	5.00	5.90	4.80	6.20	4.80	6.00	4.90
Tube Well	Ahmedabad	Dholka	Bhurakhi	Alluvium	22°34'15"	72°13'55"	60.00	13.00	4.00	3.95	5.25	3.30	7.00	3.35	6.05	4.05	4.85	4.00	4.75	3.25	4.45	4.25
Tube Well	Ahmedabad	Dholka	Loliya	Alluvium	22°30'36"	72°10'05"	30.00	9.00	2.70	1.80	2.60	1.60	3.70	0.90	4.00	1.10	2.90	1.70	2.50	0.20	2.00	0.90
Tube Well	Ahmedabad	Dholka	Nani Boru	Alluvium	22°27'58"	72°18'46"	60.00	9.00	3.70	3.00	4.30	2.20	4.15	2.70	5.30	3.10	4.80	3.80	4.50	3.00	4.10	3.30
Tube Well	Ahmedabad	Dholka	Sahij	Alluvium	22°42'54"	72°30'50"	45.00	18.00	6.70	5.60	7.30	3.15	4.30	2.90	8.70	2.20	6.10	2.70	4.80	2.50	5.20	3.40
Tube Well	Ahmedabad	Dholka	Sarandi	Alluvium	22°41'14"	72°22'10"	60.00	16.00	18.00	17.90	20.40	15.20	16.90	14.30	17.20	15.20	16.00	14.20	16.80	11.10	14.00	13.50
Tube Well	Ahmedabad	Dholka	Saroda	Alluvium	22°49'35"	72°29'14"	60.00	31.00	9.20	8.70	10.30	6.90	9.10	7.20	9.20	7.10	7.50	5.10	8.00	7.20	7.90	7.40
Tube Well	Ahmedabad	Dholera	Gamph	Alluvium	22°21'29"	72°09'48"	30.00	17.00	2.65	1.10	2.40	1.20	3.00	0.90	2.90	0.90	2.20	1.50	2.30	0.40	2.00	0.80
Tube Well	Ahmedabad	Dhandhuka	Raika	Alluvium	22°24'44"	72°00'51"	30.00	18.00	3.02	2.37	3.12	2.60	3.00	2.02	4.42	1.82	2.92	2.22	2.62	1.32	2.62	2.22
Tube Well	Ahmedabad	Dholka	Ganesar	Alluvium	22°35'44"	72°25'37"	30.00	13.00	9.45	8.85	12.55	8.50	12.20	8.95	12.85	7.85	9.05	7.25	7.35	5.25	7.15	6.95

May 2012 to October 2018

Well Type	District	Taluka	Village	Geology	Latitude	Longitude	Total Depth	RL	2019_May	2019_Oct	2020_May	2020_Oct	2021_May	2021_Oct	2022_May	2022_Oct
Dug Well	Ahmedabad	Dhandhuka	Kotda	Alluvium	22°22'20"	71°56'19"	13.00	31.36	8.96	6.53	7.04	6.00	5.95	4.10	6.60	6.05
Tube Well	Ahmedabad	Dholka	Chaloda	Alluvium	22°48'04"	72°26'57"	54.00	24.04	19.48	14.90	16.92	13.60	14.99	12.70	15.45	13.20
Tube Well	Ahmedabad	Dhandhuka	Fedra	Alluvium	22°26'58"	72°09'15"	35.00	9.00	2.15	0.90						
Tube Well	Ahmedabad	Dhandhuka	Bajarda	Alluvium	22°29'19"	71°58'24"	35.00	29.41	2.20	0.40	2.25	1.90	1.76	1.30	1.25	0.90
Tube Well	Ahmedabad	Dhandhuka	Dhandhuka	Alluvium	22°22'19"	71°58'42"	34.00	21.61	3.87	1.00	2.54	1.50	2.45	0.68	2.85	1.00
Tube Well	Ahmedabad	Dholera	Dholera	Alluvium	22°15'09"	72°11'34"	34.00	7.46	2.10	1.00	1.50	1.50	0.65	0.30	2.40	NA

Tube Well	Ahmedabad	Dholera	Bavaliyari	Alluvium	22°05'37"	72°06'09"	34.00	4.83	3.34	1.00	3.07	2.18	1.92	1.05		
Tube Well	Ahmedabad	Dholka	Maflipur (Dholka)	Alluvium	22°44'37"	72°26'57"	100.00	20.89	22.64	17.70	16.30	15.47	14.88	12.90	15.10	10.80
Tube Well	Ahmedabad	Dhandhuka	Zanzarka	Alluvium	22°26'48"	71°57'25"	30.00	14.00	1.67	0.56	1.66	0.76	1.23	1.16	1.41	1.21
Tube Well	Ahmedabad	Dhandhuka	Akru	Alluvium	22°16'09"	71°59'54"	30.00	13.00	2.31	0.03	2.82	0.97	1.95	1.52	1.40	0.25
Tube Well	Ahmedabad	Dhandhuka	Galsana	Alluvium	22°22'29"	71°52'11"	30.00	38.00	5.44	4.05	4.78	3.25	5.35	3.75	2.95	2.15
Tube Well	Ahmedabad	Dhandhuka	Jaska	Alluvium	22°19'40"	71°57'46"	30.00	26.00	3.70	0.08	1.33	0.10	2.28	2.18	2.30	1.40
Tube Well	Ahmedabad	Dholera	Otaria	Alluvium	22°14'11"	72°07'40"	30.00	12.00	3.98	0.20	5.38	0.80	2.35	2.60	2.50	0.55
Tube Well	Ahmedabad	Dholka	Ambaliyara - III (70.50)	Alluvium	22°46'16"	72°31'19"	70.50	27.00	30.60	28.60	28.05	25.58	26.52	25.08	24.60	22.50
Tube Well	Ahmedabad	Dholka	Ambaliyara- II (120)	Alluvium	22°46'16"	72°31'20"	120.00	27.00	31.85	25.10	23.45	22.70	24.88	21.60	24.50	23.20
Tube Well	Ahmedabad	Dholka	Ambaliyara- I (180)	Alluvium	22°46'15"	72°31'18"	180.00	27.00	35.50	29.60	29.00	21.80	24.09	20.65	28.00	25.30
Tube Well	Ahmedabad	Dholka	Ambareli	Alluvium	22°39'05"	72°24'52"	60.00	20.00	19.06	14.10	12.75	10.30	10.28	9.11	11.00	7.55
Tube Well	Ahmedabad	Dholka	Bhetavada	Alluvium	22°40'41"	72°26'47"	60.00	21.00	22.23	13.90	17.50	12.15	12.08	13.80	13.50	7.75
Tube Well	Ahmedabad	Dholka	Bhumali	Alluvium	22°33'01"	72°20'37"	45.00	14.00	6.20	2.50	4.61	1.70	3.78	2.35	4.00	2.10
Tube Well	Ahmedabad	Dholka	Bhurakhi	Alluvium	22°34'15"	72°13'55"	60.00	13.00	5.17	2.35	2.77	2.45	3.80	3.10	3.05	2.95
Tube Well	Ahmedabad	Dholka	Loliya	Alluvium	22°30'36"	72°10'05"	30.00	9.00	2.30	0.10	0.05	0.20	3.08	1.20	2.50	0.10
Tube Well	Ahmedabad	Dholka	Nani Boru	Alluvium	22°27'58"	72°18'46"	60.00	9.00	4.18	0.40	3.63					
Tube Well	Ahmedabad	Dholka	Sahij	Alluvium	22°42'54"	72°30'50"	45.00	18.00	6.11	2.31	5.08	4.42	4.32	2.70	4.40	1.95
Tube Well	Ahmedabad	Dholka	Sarandi	Alluvium	22°41'14"	72°22'10"	60.00	16.00	14.07	10.70	10.61	9.16	7.27	7.10	9.30	5.70
Tube Well	Ahmedabad	Dholka	Saroda	Alluvium	22°49'35"	72°29'14"	60.00	31.00	11.06	5.50	9.24	6.45				
Tube Well	Ahmedabad	Dholera	Gamph	Alluvium	22°21'29"	72°09'48"	30.00	17.00	2.40	0.40	1.33	0.36	1.15	1.18	1.80	0.90
Tube Well	Ahmedabad	Dhandhuka	Raika	Alluvium	22°24'44"	72°00'51"	30.00	18.00	2.67	0.24	1.02	0.97	2.05	0.52	2.52	1.02
Tube Well	Ahmedabad	Dholka	Ganesar	Alluvium	22°35'44"	72°25'37"	30.00	13.00	9.15	4.15	4.48	4.15	5.45	3.30	5.85	2.45

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Well No	District	Taluka	Village	Geology	Latitude	Longitude	MP	RL	TD	May_12	Oct_12	May_13	Oct_13	May_14	Oct_14	May_15	Oct_15	May_16	Oct_16	May_17	Oct_17
BVN-007	Botad	Botad	Paliyad	BAS	22°15'10"	71°34'35"	0.00	121.00		18.1	14	16.05	3.1	16	4	19.4	16.8	22.6	15.3	20	13.4
BVN-008	Botad	Botad	Botad	BAS	22°09'25"	71°41'15"	0.50	78.80													
BVN-008A	Botad		Botad	BAS	22°09'25"	71°41'15"	0.00	78.80		17.9	8	15.1									
BVN-009	Botad	Botad	Nagalpar	BAS	22°07'04"	71°38'30"	0.20	88.00													
BVN-009A	Botad		Nagalpar	BAS	22°07'14"	71°38'28"	0.00	88.00		31	29.1	30									
BVN-010	Botad	Botad	Jotingada	BAS	22°06'23"	71°39'23"	0.25	81.00													
BVN-010A	Botad		Jotingada	BAS	22°07'00"	71°38'22"	0.00	81.00		24.8	22.8	24.5	8.2	24.7	18.1	21.2	19.9	24	20.1	24.6	10.1
BVN-011	Botad	Botad	Keriya No.1	BAS	22°01'39"	71°43'36"	0.60	53.60													
BVN-011A	Botad	Botad	Keriya No.1	BAS	22°01'37"	71°43'35"	0.50	53.60													
BVN-011B	Botad	Botad	Keriya No.1	BAS	22°01'38"	71°43'36"	1.50	53.60													
BVN-012	Botad	Gadhada	Goradka	BAS	22°01'04"	71°36'37"	0.40	80.00		16.6	15.6	19.05									
BVN-013	Botad	Gadhada	Sakhpar Mota	BAS	22°01'18"	71°38'34"	1.00	107.00													
BVN-013A	Botad	Gadhada	Sakhpar Mota	BAS	22°03'32"	71°31'52"	0.75	107.00		13.1	9.35	9.75	4.15	6.05	4.05	11.3	9.8	13.4	10.6	15.1	11.25
BVN-014	Botad	Gadhada	Gadhada	BAS	21°57'48"	71°34'15"	0.80	86.00		10.8	7.3	11.1	3.3	6.7	2.9	7	5.8	8.9	6.1	8.4	1.5
BVN-015	Botad	Gadhada	Mandavdhar	BAS	21°58'04"	71°32'04"	0.30	96.00		9.1	7.7	11.2	4.3	4.7	4.4	7.3	5.1	10.3	8.9	11.2	5.8
BVN-016	Botad	Gadhada	Limballi	BAS	21°59'41"	71°27'21"	0.00	130.00		12.3	11	12.1	6	9.5	4.2	10.3	8.9	12.9	10.1	11.1	7.7
BVN-017	Botad	Gadhada	Chabhadiya	BAS	21°52'34"	71°42'38"	0.30	65.00													
BVN-017A	Botad	Gadhada	Chabhadiya	BAS	21°54'01"	71°42'22"	0.40	65.00		20.1	17.65	18.7	12.5	17.6	8.5	12	10.8				
BVN-018	Botad	Gadhada	Junavadar	BAS	21°50'36"	71°31'17"	2.35	79.00		14.2	12.65	17.75	3.35	8.65	2.55	13.4	6.1	16.9	15.3	15.8	7.55
BVN-019	Botad	Gadhada	Mandva	BAS	21°48'22"	71°34'56"	0.30	75.00		20.1			5.1	18.1	5.6	20.7	16	14.2	11.8	19.9	5.5
BVN-030	Bhavnagar	Gariadhar	Moti Vavdi	BAS	21°36'34"	71°39'01"	0.00	105.00													
BVN-030A	Bhavnagar	Gariadhar	Moti Vavdi	BAS	21°35'54"	71°39'18"	0.00	105.00		17.25	15	17.9									
BVN-031	Bhavnagar	Gariadhar	Mota Charodiya	BAS	21°31'04"	71°31'04"	0.20	97.90													
BVN-032	Bhavnagar	Gariadhar	Bhandariya	BAS	21°28'51"	71°37'22"	0.00	75.00		14	11	12.1	2.5	6.85	2.75	8.5	2.9	11.1	8.8	13.5	2.7
BVN-074	Bhavnagar	Vallabhipur	Juni Rajasthali	ALV	21°51'57"	71°47'07"	0.90	25.10													
BVN-074A	Bhavnagar	Vallabhipur	Juni Rajasthali	BAS	21°51'10"	71°47'39"	0.20	25.10		16.4	15	18	9.2	19.3	7.7	13.5	10.1				
BVN-075	Bhavnagar	Vallabhipur	Vallabhipur	ALV	21°54'02"	71°52'42"	0.60	17.00		6.3	4.7	6.8	4.3	4.9	3.7	5.7	4	6.1	4.4	5.5	9.6
BVN-076	Bhavnagar	Vallabhipur	Hadmatiya	ALV	21°56'53"	71°48'08"	1.10	39.00													
BVN-076A	Bhavnagar	Vallabhipur	Hadmatiya	BAS	21°56'57"	71°48'14"	0.00	39.00		16.8											
BVN-077	Bhavnagar	Vallabhipur	Panvi	ALV	22°04'12"	71°53'31"	0.50	17.00		10.8	6.9	14.5									
BVN-078	Bhavnagar	Bhavnagar	Bhavnagar	BAS	21°42'52"	72°09'22"	0.55	33.10		8.4	6.85	9.55	2.85	5.25	4.35	7.2	6	7.8	6.3	7.4	2.65
BVN-079	Bhavnagar	Bhavnagar	Vartej	ALV	21°44'11"	72°03'16"	1.00	22.00													
BVN-079A	Bhavnagar	Bhavnagar	Vartej	ALV	21°44'53"	72°03'32"	0.50	22.00		41.1	30	31.35									
BVN-080	Bhavnagar	Bhavnagar	Sidsar	BAS	21°43'10"	72°05'54"	1.00	40.00													
BVN-080A	Bhavnagar	Bhavnagar	Sidsar	BAS	21°44'52"	72°08'24"	0.60	40.00		28.05	25.5	27	5.2	10.4	9.9	25.2	11.8	24.8	17.6	22.6	16.1
BVN-081	Bhavnagar	Bhavnagar	Thordi	BAS	21°38'57"	72°11'38"	0.20	38.00		22.25	8.8	16	4.4	7.8	5.05	15.1	5.4	13.3	6.4	13	9.1
BVN-082	Bhavnagar	Bhavnagar	Kobdi	BAS	21°38'13"	72°08'06"	1.00	63.00													

BVN-082A	Bhavnagar	Bhavnagar	Kobdi	BAS	21°38'37"	72°08'41"	0.00	63.00		18.9	16.5	18.5	3.4	8	7	14.9	7.9	11.3	7.2	12	3.2
BVN-083	Bhavnagar	Bhavnagar	Thalsar	ALV	21°32'06"	72°14'35"	0.60	28.60		3.8	2.7	6.3									
BVN-PZ-01	Bhavnagar	Bhavnagar	Bhandariya	BAS	21°35'27"	72°07'59"	0.79	95.50		21.35	20.01	22.31	6.41	12.31	8.06	20.8	8.31	21.9	9.9	20.3	9.51
BVN-PZ-09	Bhavnagar	Gariadhar	Gariadhar	BAS	21°32'28"	71°34'26"	0.64	98.00		16.26	15.66	19.36	1.11	7.26	3.56	20.3	9.46	24.2	2.9	20.1	2.26
BVN-PZ-10	Botad	Gadhada	Pipardi	BAS	21°52'14"	71°29'45"	0.74	94.00		8.56	6.36	8.96	3.16	7.56	2.66	9.4	5.56	9.3	6.4	8.3	2.86
BVN-PZ-11	Botad	Gadhada	Khopala	BAS	21°54'58"	71°40'08"	0.69	72.00		13.71	10.76	18.11	5.91	9.01	6.01	9.2	7.81	10	9.3	14.25	5.61
BVN-PZ-12	Botad	Gadhada	Derala	BAS	22°04'22"	71°31'03"	0.69	112.60		11.51	9.51	11.21	7.41	7.91	7.51	11.35	9.71	14.1	11.5	12.3	9.21
BVN-PZ-15	Botad	Botad	Botad	BAS	22°10'53"	71°39'53"	0.74	100.00		15.46	12.26	16.26	3.66	8.86	5.46	16.5	10.66	17.6	13.1	16.1	7.06
BVN-PZ-16	Bhavnagar	Bhavnagar	Alapar	ALV	21°35'13"	72°14'17"	0.57	46.40		11.43	10.93	11.93	11.03	11.43	10.43	12	11.03	11.2	9.9	11.9	10.23
BVN-PZ-20	Bhavnagar	Vallabhipur	Panvi	ALV	22°04'10"	71°53'31"	0.60	14.00		8.9	3.6	9.35	1.3	5.9	2.6	7	3.1	7.1	2.4		2.7
BVN-PZ-24	Botad	Gadhada	Malpara	BAS	21°51'18"	71°32'46"	0.65	79.30		12.1	10.55	14.9	3.85	5.9	3.85	10	7.75	17.4	11.1	16.3	5.45
BVN-PZ-25	Botad	Gadhada	Goradka	BAS	22°01'32"	71°36'29"	0.70	76.00		25.3	13.1	27	5.1	9.8	5	23.05	18.7	34.5	10.2	32.7	5.5
BVN-PZ-26	Botad	Botad	Nagalpar	BAS	22°07'15"	71°38'15"	0.70	93.00		33.3	23.8	24.6	8.3	23.1	17.9	25.9	23.3	25.8	18.9	23.7	5.1
BVN-PZ-27	Bhavnagar	Vallabhipur	Mul Dharai	LSC	22°00'32"	71°53'05"	0.66	21.00													
BVN-PZ-28	Bhavnagar	Vallabhipur	Dared	BAS	21°58'30"	71°44'26"	0.74	53.00		9.81	9.46	10.26	7.26	9.51	7.96	10.3	9.06	10.9	6.4	10.3	5.36
BVN-PZ-32	Bhavnagar	Gariadhar	Bela	BAS	21°28'41"	71°33'12"	0.70	71.00		9.5	5.7	14.3	0.9	5.1	1.4	10.7	4.9	12.8	2	10.6	2.5
BVN-PZ-33	Bhavnagar	Gariadhar	Saringpur	BAS	21°29'02"	71°40'30"	0.70	73.00		6.2	2.9	5.75	0.8	3.2	1.2	5.3	2.4	7.9	2.2	6.3	1.3
BVN-PZ-39	Bhavnagar	Bhavnagar	Fariyadka	BAS	21°43'05"	72°04'29"	0.78	37.90			50.22	51.32	6.72	14.67	17.82	50.7	26.32	51.7	51.1	54.3	45.32
G_2_BVN_001	Bhavnagar	Bhavnagar	Sidsar	BAS	21°43'08"	72°06'41"	1.00	44.00				8.6	0.68	4.2	3.2	9.6	4.5	10.8	6.1	11.2	5
G_2_BVN_002	Bhavnagar	Bhavnagar	Gundi	ALV	21°36'56"	72°15'32"	1.00	11.00				21.2	16	17.3	14.6	20.5	17.7	21.6	16		
G_2_BVN_003	Bhavnagar	Bhavnagar	Thordi	BAS	21°38'50"	72°11'30"	0.80	37.20				13.8	5	10.5	7.6	13.95	8.3	13.9	9.1	12.2	8.5
G_2_BVN_004	Bhavnagar	Bhavnagar	Undavi	ALV	21°46'27"	71°59'46"	0.90	54.50				14.45	13.4	13.8	12.5	14	12.8	14.7	13.9	13.9	11.9
G_2_BVN_005	Botad	Botad	Lakheni	BAS	22°02'38"	71°48'07"	0.85	119.00				23.85	4.7	13.2	5.6	20.8	19.4	24.5	19.2		
G_2_BVN_006	Botad	Botad	Lathidad	BAS	22°06'15"	71°46'03"	0.85	135.10				24.9	1.2	14.75	6.9	26.4	12.3	27	3.9	26.3	2.5
G_2_BVN_007	Botad	Botad	Paliyad	BAS	22°15'20"	71°33'28"	0.90	135.00				24.25	4.55	10.25	4.95	13.9	11.15	21.1	9.3	20.1	4.35
G_2_BVN_008	Botad	Botad	Sarva	BAS	22°13'24"	71°29'07"	0.85	81.00				23.25	5.15	15.25	4.05	27	9.95				
G_2_BVN_009	Botad	Botad	Turkha	BAS	22°09'00"	71°31'54"	0.90	107.00				22	3.1	7.9	4.3	22.4	17.6	33.1	20.4	31.8	4.5
G_2_BVN_010	Botad	Gadhada	Gadhada	BAS	21°57'43"	71°34'23"	0.90	81.00				5.35	0.7	2.15	1.05	5.4	3.85	6	4.9	5.7	1.25
G_2_BVN_011	Botad	Gadhada	Kerala	BAS	21°59'11"	71°30'08"	0.80	89.90				27	1.8	8.1	2	27.5	17	33.1	26.3	33.6	7.4
G_2_BVN_012	Botad	Gadhada	Mandva	BAS	21°48'18"	71°35'07"	0.85	113.00				40.3	2.1	15.4	2.3	43.2	8.8	43.3	8.4	58.4	3.7
G_2_BVN_013	Bhavnagar	Gariadhar	Mandvi	BAS	21°40'56"	71°37'41"	0.80	57.00				49	4.3	8.5	5.8	50.6	5.4	49.6	9.1	46.8	4
G_2_BVN_014	Bhavnagar	Gariadhar	Paravdi	BAS	21°34'23"	71°37'42"	0.85	85.30				44	6.35	19.4	13.95	28.2	25.25	44.3	14.4	41.8	8.85
G_2_BVN_020	Bhavnagar	Palitana	Sonpari	BAS	21°30'22"	71°51'10"	0.85	58.60				27	15	15.4	6.6	22.9	12.8	25.8	10.8	26.9	9
G_2_BVN_021	Bhavnagar	Palitana	Panderiya	BAS	21°26'14"	71°49'47"	0.90	122.00				25.9	3.4	19.85	7.9	24.3	8.4	25.1	9.2	24.1	3.7
HP11_BVN_001	Bhavnagar	Bhavnagar	Adhelai	ALV	22°03'07"	72°06'45"	0.80	25.00		3.4	1.9	3.35	0.7	2.25	1.3	4	1.6	3.7	3.3	4.2	1.2
HP11_BVN_012	Bhavnagar	Vallabhipur	Mul Dharai	LSC	22°00'41"	71°53'15"	1.00	122.88		9.2	8.4	15	9.4	11.4	9.2	11.6	9.9	11.4	10.3	13.3	9.1

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Well No	District	Taluka	Village	Geology	Latitude	Longitude	MP	RL	TD	May_12	Oct_12	May_13	Oct_13	May_14	Oct_14	May_15	Oct_15	May_16	Oct_16	May_17	Oct_17
BVN-007	Botad	Botad	Paliyad	BAS	22°15'10"	71°34'35"	0.00	121.00		18.1	14	16.05	3.1	16	4	19.4	16.8	22.6	15.3	20	13.4
BVN-008	Botad	Botad	Botad	BAS	22°09'25"	71°41'15"	0.50	78.80													
BVN-008A	Botad		Botad	BAS	22°09'25"	71°41'15"	0.00	78.80		17.9	8	15.1									
BVN-009	Botad	Botad	Nagalpar	BAS	22°07'04"	71°38'30"	0.20	88.00													
BVN-009A	Botad		Nagalpar	BAS	22°07'14"	71°38'28"	0.00	88.00		31	29.1	30									
BVN-010	Botad	Botad	Jotingada	BAS	22°06'23"	71°39'23"	0.25	81.00													
BVN-010A	Botad		Jotingada	BAS	22°07'00"	71°38'22"	0.00	81.00		24.8	22.8	24.5	8.2	24.7	18.1	21.2	19.9	24	20.1	24.6	10.1
BVN-011	Botad	Botad	Keriya No.1	BAS	22°01'39"	71°43'36"	0.60	53.60													
BVN-011A	Botad	Botad	Keriya No.1	BAS	22°01'37"	71°43'35"	0.50	53.60													
BVN-011B	Botad	Botad	Keriya No.1	BAS	22°01'38"	71°43'36"	1.50	53.60													
BVN-012	Botad	Gadhada	Goradka	BAS	22°01'04"	71°36'37"	0.40	80.00		16.6	15.6	19.05									
BVN-013	Botad	Gadhada	Sakhpar Mota	BAS	22°01'18"	71°38'34"	1.00	107.00													
BVN-013A	Botad	Gadhada	Sakhpar Mota	BAS	22°03'32"	71°31'52"	0.75	107.00		13.1	9.35	9.75	4.15	6.05	4.05	11.3	9.8	13.4	10.6	15.1	11.25
BVN-014	Botad	Gadhada	Gadhada	BAS	21°57'48"	71°34'15"	0.80	86.00		10.8	7.3	11.1	3.3	6.7	2.9	7	5.8	8.9	6.1	8.4	1.5
BVN-015	Botad	Gadhada	Mandavdhar	BAS	21°58'04"	71°32'04"	0.30	96.00		9.1	7.7	11.2	4.3	4.7	4.4	7.3	5.1	10.3	8.9	11.2	5.8
BVN-016	Botad	Gadhada	Limbali	BAS	21°59'41"	71°27'21"	0.00	130.00		12.3	11	12.1	6	9.5	4.2	10.3	8.9	12.9	10.1	11.1	7.7
BVN-017	Botad	Gadhada	Chabhadiya	BAS	21°52'34"	71°42'38"	0.30	65.00													
BVN-017A	Botad	Gadhada	Chabhadiya	BAS	21°54'01"	71°42'22"	0.40	65.00		20.1	17.65	18.7	12.5	17.6	8.5	12	10.8				
BVN-018	Botad	Gadhada	Junavadar	BAS	21°50'36"	71°31'17"	2.35	79.00		14.2	12.65	17.75	3.35	8.65	2.55	13.4	6.1	16.9	15.3	15.8	7.55
BVN-019	Botad	Gadhada	Mandva	BAS	21°48'22"	71°34'56"	0.30	75.00		20.1			5.1	18.1	5.6	20.7	16	14.2	11.8	19.9	5.5
BVN-030	Bhavnagar	Gariadhar	Moti Vavdi	BAS	21°36'34"	71°39'01"	0.00	105.00													
BVN-030A	Bhavnagar	Gariadhar	Moti Vavdi	BAS	21°35'54"	71°39'18"	0.00	105.00		17.25	15	17.9									
BVN-031	Bhavnagar	Gariadhar	Mota Charodiya	BAS	21°31'04"	71°31'04"	0.20	97.90													
BVN-032	Bhavnagar	Gariadhar	Bhandariya	BAS	21°28'51"	71°37'22"	0.00	75.00		14	11	12.1	2.5	6.85	2.75	8.5	2.9	11.1	8.8	13.5	2.7
BVN-074	Bhavnagar	Vallabhipur	Juni Rajasthali	ALV	21°51'57"	71°47'07"	0.90	25.10													
BVN-074A	Bhavnagar	Vallabhipur	Juni Rajasthali	BAS	21°51'10"	71°47'39"	0.20	25.10		16.4	15	18	9.2	19.3	7.7	13.5	10.1				
BVN-075	Bhavnagar	Vallabhipur	Vallabhipur	ALV	21°54'02"	71°52'42"	0.60	17.00		6.3	4.7	6.8	4.3	4.9	3.7	5.7	4	6.1	4.4	5.5	9.6
BVN-076	Bhavnagar	Vallabhipur	Hadmatiya	ALV	21°56'53"	71°48'08"	1.10	39.00													
BVN-076A	Bhavnagar	Vallabhipur	Hadmatiya	BAS	21°56'57"	71°48'14"	0.00	39.00		16.8											
BVN-077	Bhavnagar	Vallabhipur	Panvi	ALV	22°04'12"	71°53'31"	0.50	17.00		10.8	6.9	14.5									
BVN-078	Bhavnagar	Bhavnagar	Bhavnagar	BAS	21°42'52"	72°09'22"	0.55	33.10		8.4	6.85	9.55	2.85	5.25	4.35	7.2	6	7.8	6.3	7.4	2.65
BVN-079	Bhavnagar	Bhavnagar	Vartej	ALV	21°44'11"	72°03'16"	1.00	22.00													
BVN-079A	Bhavnagar	Bhavnagar	Vartej	ALV	21°44'53"	72°03'32"	0.50	22.00		41.1	30	31.35									
BVN-080	Bhavnagar	Bhavnagar	Sidsar	BAS	21°43'10"	72°05'54"	1.00	40.00													
BVN-080A	Bhavnagar	Bhavnagar	Sidsar	BAS	21°44'52"	72°08'24"	0.60	40.00		28.05	25.5	27	5.2	10.4	9.9	25.2	11.8	24.8	17.6	22.6	16.1
BVN-081	Bhavnagar	Bhavnagar	Thordi	BAS	21°38'57"	72°11'38"	0.20	38.00		22.25	8.8	16	4.4	7.8	5.05	15.1	5.4	13.3	6.4	13	9.1
BVN-082	Bhavnagar	Bhavnagar	Kobdi	BAS	21°38'13"	72°08'06"	1.00	63.00													

BVN-082A	Bhavnagar	Bhavnagar	Kobdi	BAS	21°38'37"	72°08'41"	0.00	63.00		18.9	16.5	18.5	3.4	8	7	14.9	7.9	11.3	7.2	12	3.2
BVN-083	Bhavnagar	Bhavnagar	Thalsar	ALV	21°32'06"	72°14'35"	0.60	28.60		3.8	2.7	6.3									
BVN-PZ-01	Bhavnagar	Bhavnagar	Bhandariya	BAS	21°35'27"	72°07'59"	0.79	95.50		21.35	20.01	22.31	6.41	12.31	8.06	20.8	8.31	21.9	9.9	20.3	9.51
BVN-PZ-09	Bhavnagar	Gariadhar	Gariadhar	BAS	21°32'28"	71°34'26"	0.64	98.00		16.26	15.66	19.36	1.11	7.26	3.56	20.3	9.46	24.2	2.9	20.1	2.26
BVN-PZ-10	Botad	Gadhada	Pipardi	BAS	21°52'14"	71°29'45"	0.74	94.00		8.56	6.36	8.96	3.16	7.56	2.66	9.4	5.56	9.3	6.4	8.3	2.86
BVN-PZ-11	Botad	Gadhada	Khopala	BAS	21°54'58"	71°40'08"	0.69	72.00		13.71	10.76	18.11	5.91	9.01	6.01	9.2	7.81	10	9.3	14.25	5.61
BVN-PZ-12	Botad	Gadhada	Derala	BAS	22°04'22"	71°31'03"	0.69	112.60		11.51	9.51	11.21	7.41	7.91	7.51	11.35	9.71	14.1	11.5	12.3	9.21
BVN-PZ-15	Botad	Botad	Botad	BAS	22°10'53"	71°39'53"	0.74	100.00		15.46	12.26	16.26	3.66	8.86	5.46	16.5	10.66	17.6	13.1	16.1	7.06
BVN-PZ-16	Bhavnagar	Bhavnagar	Alapar	ALV	21°35'13"	72°14'17"	0.57	46.40		11.43	10.93	11.93	11.03	11.43	10.43	12	11.03	11.2	9.9	11.9	10.23
BVN-PZ-20	Bhavnagar	Vallabhipur	Panvi	ALV	22°04'10"	71°53'31"	0.60	14.00		8.9	3.6	9.35	1.3	5.9	2.6	7	3.1	7.1	2.4		2.7
BVN-PZ-24	Botad	Gadhada	Malpara	BAS	21°51'18"	71°32'46"	0.65	79.30		12.1	10.55	14.9	3.85	5.9	3.85	10	7.75	17.4	11.1	16.3	5.45
BVN-PZ-25	Botad	Gadhada	Goradka	BAS	22°01'32"	71°36'29"	0.70	76.00		25.3	13.1	27	5.1	9.8	5	23.05	18.7	34.5	10.2	32.7	5.5
BVN-PZ-26	Botad	Botad	Nagalpar	BAS	22°07'15"	71°38'15"	0.70	93.00		33.3	23.8	24.6	8.3	23.1	17.9	25.9	23.3	25.8	18.9	23.7	5.1
BVN-PZ-27	Bhavnagar	Vallabhipur	Mul Dharai	LSC	22°00'32"	71°53'05"	0.66	21.00													
BVN-PZ-28	Bhavnagar	Vallabhipur	Dared	BAS	21°58'30"	71°44'26"	0.74	53.00		9.81	9.46	10.26	7.26	9.51	7.96	10.3	9.06	10.9	6.4	10.3	5.36
BVN-PZ-32	Bhavnagar	Gariadhar	Bela	BAS	21°28'41"	71°33'12"	0.70	71.00		9.5	5.7	14.3	0.9	5.1	1.4	10.7	4.9	12.8	2	10.6	2.5
BVN-PZ-33	Bhavnagar	Gariadhar	Saringpur	BAS	21°29'02"	71°40'30"	0.70	73.00		6.2	2.9	5.75	0.8	3.2	1.2	5.3	2.4	7.9	2.2	6.3	1.3
BVN-PZ-39	Bhavnagar	Bhavnagar	Fariyadka	BAS	21°43'05"	72°04'29"	0.78	37.90			50.22	51.32	6.72	14.67	17.82	50.7	26.32	51.7	51.1	54.3	45.32
G_2_BVN_001	Bhavnagar	Bhavnagar	Sidsar	BAS	21°43'08"	72°06'41"	1.00	44.00				8.6	0.68	4.2	3.2	9.6	4.5	10.8	6.1	11.2	5
G_2_BVN_002	Bhavnagar	Bhavnagar	Gundi	ALV	21°36'56"	72°15'32"	1.00	11.00				21.2	16	17.3	14.6	20.5	17.7	21.6	16		
G_2_BVN_003	Bhavnagar	Bhavnagar	Thordi	BAS	21°38'50"	72°11'30"	0.80	37.20				13.8	5	10.5	7.6	13.95	8.3	13.9	9.1	12.2	8.5
G_2_BVN_004	Bhavnagar	Bhavnagar	Undavi	ALV	21°46'27"	71°59'46"	0.90	54.50				14.45	13.4	13.8	12.5	14	12.8	14.7	13.9	13.9	11.9
G_2_BVN_005	Botad	Botad	Lakheni	BAS	22°02'38"	71°48'07"	0.85	119.00				23.85	4.7	13.2	5.6	20.8	19.4	24.5	19.2		
G_2_BVN_006	Botad	Botad	Lathidad	BAS	22°06'15"	71°46'03"	0.85	135.10				24.9	1.2	14.75	6.9	26.4	12.3	27	3.9	26.3	2.5
G_2_BVN_007	Botad	Botad	Paliyad	BAS	22°15'20"	71°33'28"	0.90	135.00				24.25	4.55	10.25	4.95	13.9	11.15	21.1	9.3	20.1	4.35
G_2_BVN_008	Botad	Botad	Sarva	BAS	22°13'24"	71°29'07"	0.85	81.00				23.25	5.15	15.25	4.05	27	9.95				
G_2_BVN_009	Botad	Botad	Turkha	BAS	22°09'00"	71°31'54"	0.90	107.00				22	3.1	7.9	4.3	22.4	17.6	33.1	20.4	31.8	4.5
G_2_BVN_010	Botad	Gadhada	Gadhada	BAS	21°57'43"	71°34'23"	0.90	81.00				5.35	0.7	2.15	1.05	5.4	3.85	6	4.9	5.7	1.25
G_2_BVN_011	Botad	Gadhada	Kerala	BAS	21°59'11"	71°30'08"	0.80	89.90				27	1.8	8.1	2	27.5	17	33.1	26.3	33.6	7.4
G_2_BVN_012	Botad	Gadhada	Mandva	BAS	21°48'18"	71°35'07"	0.85	113.00				40.3	2.1	15.4	2.3	43.2	8.8	43.3	8.4	58.4	3.7
G_2_BVN_013	Bhavnagar	Gariadhar	Mandvi	BAS	21°40'56"	71°37'41"	0.80	57.00				49	4.3	8.5	5.8	50.6	5.4	49.6	9.1	46.8	4
G_2_BVN_014	Bhavnagar	Gariadhar	Paravdi	BAS	21°34'23"	71°37'42"	0.85	85.30				44	6.35	19.4	13.95	28.2	25.25	44.3	14.4	41.8	8.85
G_2_BVN_020	Bhavnagar	Palitana	Sonpari	BAS	21°30'22"	71°51'10"	0.85	58.60				27	15	15.4	6.6	22.9	12.8	25.8	10.8	26.9	9
G_2_BVN_021	Bhavnagar	Palitana	Panderiya	BAS	21°26'14"	71°49'47"	0.90	122.00				25.9	3.4	19.85	7.9	24.3	8.4	25.1	9.2	24.1	3.7
HP11_BVN_001	Bhavnagar	Bhavnagar	Adhelai	ALV	22°03'07"	72°06'45"	0.80	25.00		3.4	1.9	3.35	0.7	2.25	1.3	4	1.6	3.7	3.3	4.2	1.2
HP11_BVN_012	Bhavnagar	Vallabhipur	Mul Dharai	LSC	22°00'41"	71°53'15"	1.00	122.88		9.2	8.4	15	9.4	11.4	9.2	11.6	9.9	11.4	10.3	13.3	9.1

May 2018 to October 2022

Well No	District	Taluka	Village	Geology	Latitude	Longitude	MP	RL	TD	May_18	Oct_18	May_19	Oct_19	May_20	Oct_20	May_21	Oct_21	May_22	Oct_22
BVN-007	Botad	Botad	Paliyad	BAS	22°15'10"	71°34'35"	0.00	121.00		19.2	17.4	15.80	1.80	11.90	1.90	8.50	1.30		18.1
BVN-008	Botad	Botad	Botad	BAS	22°09'25"	71°41'15"	0.50	78.80						Abondened					
BVN-008A	Botad		Botad	BAS	22°09'25"	71°41'15"	0.00	78.80						Abondened					

BVN-009	Botad	Botad	Nagalpar	BAS	22°07'04"	71°38'30"	0.20	88.00						Abd					
BVN-009A	Botad		Nagalpar	BAS	22°07'14"	71°38'28"	0.00	88.00						Abd					
BVN-010	Botad	Botad	Jotingada	BAS	22°06'23"	71°39'23"	0.25	81.00						Abd				18.00	
BVN-010A	Botad		Jotingada	BAS	22°07'00"	71°38'22"	0.00	81.00		23.4	23.4	25.20	1.80	22.30	2.90	15.90	5.20		18
BVN-011	Botad	Botad	Keriya No.1	BAS	22°01'39"	71°43'36"	0.60	53.60						Abd					
BVN-011A	Botad	Botad	Keriya No.1	BAS	22°01'37"	71°43'35"	0.50	53.60						Abd					
BVN-011B	Botad	Botad	Keriya No.1	BAS	22°01'38"	71°43'36"	1.50	53.60											
BVN-012	Botad	Gadhada	Goradka	BAS	22°01'04"	71°36'37"	0.40	80.00											
BVN-013	Botad	Gadhada	Sakhpar Mota	BAS	22°01'18"	71°38'34"	1.00	107.00										8.00	
BVN-013A	Botad	Gadhada	Sakhpar Mota	BAS	22°03'32"	71°31'52"	0.75	107.00		13.35	9.25	11.60	3.95	7.55	3.75	6.65	1.55	8.50	8
BVN-014	Botad	Gadhada	Gadhada	BAS	21°57'48"	71°34'15"	0.80	86.00		10.3	8.7	9.10	1.20	3.40	1.80	4.80	1.40	6.90	8.5
BVN-015	Botad	Gadhada	Mandavdhar	BAS	21°58'04"	71°32'04"	0.30	96.00		8.1	6.8	10.30	4.90	5.90	5.50	5.80	3.50	12.20	6.9
BVN-016	Botad	Gadhada	Limbali	BAS	21°59'41"	71°27'21"	0.00	130.00		11	13	12.10	5.50	10.90	7.60	8.70	4.50		12.2
BVN-017	Botad	Gadhada	Chabhadiya	BAS	21°52'34"	71°42'38"	0.30	65.00											
BVN-017A	Botad	Gadhada	Chabhadiya	BAS	21°54'01"	71°42'22"	0.40	65.00										8.10	
BVN-018	Botad	Gadhada	Junavadar	BAS	21°50'36"	71°31'17"	2.35	79.00		12.85	12.45	18.20	2.15	10.45	2.95	6.95	2.55	16.00	8.1
BVN-019	Botad	Gadhada	Mandva	BAS	21°48'22"	71°34'56"	0.30	75.00		19.7	17.7	21.30	2.80	19.20	2.60	11.00	4.10	8.70	16
BVN-030	Bhavnagar	Gariadhar	Moti Vavdi	BAS	21°36'34"	71°39'01"	0.00	105.00											
BVN-030A	Bhavnagar	Gariadhar	Moti Vavdi	BAS	21°35'54"	71°39'18"	0.00	105.00											
BVN-031	Bhavnagar	Gariadhar	Mota Charodiya	BAS	21°31'04"	71°31'04"	0.20	97.90										6.70	
BVN-032	Bhavnagar	Gariadhar	Bhandariya	BAS	21°28'51"	71°37'22"	0.00	75.00		9.8	7	10.60	2.50	8.80	2.90	8.10	3.90		6.7
BVN-074	Bhavnagar	Vallabhipur	Juni Rajasthali	ALV	21°51'57"	71°47'07"	0.90	25.10											
BVN-074A	Bhavnagar	Vallabhipur	Juni Rajasthali	BAS	21°51'10"	71°47'39"	0.20	25.10										4.50	
BVN-075	Bhavnagar	Vallabhipur	Vallabhipur	ALV	21°54'02"	71°52'42"	0.60	17.00		9.6	5	7.30	2.80	3.80	3.00	3.50	2.80		4.5
BVN-076	Bhavnagar	Vallabhipur	Hadmatiya	ALV	21°56'53"	71°48'08"	1.10	39.00											
BVN-076A	Bhavnagar	Vallabhipur	Hadmatiya	BAS	21°56'57"	71°48'14"	0.00	39.00											
BVN-077	Bhavnagar	Vallabhipur	Panvi	ALV	22°04'12"	71°53'31"	0.50	17.00										2.10	
BVN-078	Bhavnagar	Bhavnagar	Bhavnagar	BAS	21°42'52"	72°09'22"	0.55	33.10		5.95	4.95	4.80	2.55	3.85	1.75		1.95		2.1
BVN-079	Bhavnagar	Bhavnagar	Vartej	ALV	21°44'11"	72°03'16"	1.00	22.00											
BVN-079A	Bhavnagar	Bhavnagar	Vartej	ALV	21°44'53"	72°03'32"	0.50	22.00											
BVN-080	Bhavnagar	Bhavnagar	Sidsar	BAS	21°43'10"	72°05'54"	1.00	40.00						Abd				7.30	
BVN-080A	Bhavnagar	Bhavnagar	Sidsar	BAS	21°44'52"	72°08'24"	0.60	40.00		21.4	20.5	21.90	5.50	19.60	4.30	13.30	3.50	4.10	7.3
BVN-081	Bhavnagar	Bhavnagar	Thordi	BAS	21°38'57"	72°11'38"	0.20	38.00		12.8	8.5	15.30	3.90	10.40	3.70	9.40	3.00		
BVN-082	Bhavnagar	Bhavnagar	Kobdi	BAS	21°38'13"	72°08'06"	1.00	63.00										10.80	
BVN-082A	Bhavnagar	Bhavnagar	Kobdi	BAS	21°38'37"	72°08'41"	0.00	63.00		11.8	9.3	16.60	3.60	15.50	3.20	11.30	3.10	3.60	10.8
BVN-083	Bhavnagar	Bhavnagar	Thalsar	ALV	21°32'06"	72°14'35"	0.60	28.60											
BVN-PZ-01	Bhavnagar	Bhavnagar	Bhandariya	BAS	21°35'27"	72°07'59"	0.79	95.50		18.91	7.41	21.10	5.61	12.41	5.51	11.51	4.31	7.21	8.8
BVN-PZ-09	Bhavnagar	Gariadhar	Gariadhar	BAS	21°32'28"	71°34'26"	0.64	98.00		19.16	12.56	22.40	1.86	16.06	5.16	6.76	3.66	7.66	3
BVN-PZ-10	Botad	Gadhada	Pipardi	BAS	21°52'14"	71°29'45"	0.74	94.00		13.16	6.36	9.10	2.86	5.86	4.06	9.36	2.86	8.51	3.5
BVN-PZ-11	Botad	Gadhada	Khopala	BAS	21°54'58"	71°40'08"	0.69	72.00		11.71	9.11	9.10	4.41	6.61	5.21	6.01	3.91	7.71	9.3

BVN-PZ-12	Botad	Gadhada	Derala	BAS	22°04'22"	71°31'03"	0.69	112.60		11.31	11	dry	8.51	13.01	8.71	8.11	6.71	9.26	8
BVN-PZ-15	Botad	Botad	Botad	BAS	22°10'53"	71°39'53"	0.74	100.00		13.66	13.36	17.30	2.96	11.96	8.36	9.56	4.26	11.13	8.9
BVN-PZ-16	Bhavnagar	Bhavnagar	Alapar	ALV	21°35'13"	72°14'17"	0.57	46.40		11.53	11.63	12.50	11.53	11.93	10.83	15.33	11.73	3.50	9.8
BVN-PZ-20	Bhavnagar	Vallabhipur	Panvi	ALV	22°04'10"	71°53'31"	0.60	14.00					2.20	8.20	1.80	7.30	1.70	4.65	3.1
BVN-PZ-24	Botad	Gadhada	Malpara	BAS	21°51'18"	71°32'46"	0.65	79.30		14.15	9.15	21.00	3.75	12.85	6.25	9.85	4.65	8.70	5.6
BVN-PZ-25	Botad	Gadhada	Goradka	BAS	22°01'32"	71°36'29"	0.70	76.00		25.7	9.9	21.20	3.50	9.10	4.20	7.00	5.20	23.50	4
BVN-PZ-26	Botad	Botad	Nagalpar	BAS	22°07'15"	71°38'15"	0.70	93.00		27.4	19.9	28.50	2.40	13.80	6.10	11.10	6.00		9.8
BVN-PZ-27	Bhavnagar	Vallabhipur	Mul Dharai	LSC	22°00'32"	71°53'05"	0.66	21.00						Abondoned	Abondoned		Abondoned	8.66	
BVN-PZ-28	Bhavnagar	Vallabhipur	Dared	BAS	21°58'30"	71°44'26"	0.74	53.00		11.26	9.36	9.50	5.46	9.06	7.06	8.46	6.36	5.31	7.8
BVN-PZ-32	Bhavnagar	Gariadhar	Bela	BAS	21°28'41"	71°33'12"	0.70	71.00		11.9	6.7	13.50	1.40	13.30	3.90	10.70	1.20	3.90	2.7
BVN-PZ-33	Bhavnagar	Gariadhar	Saringpur	BAS	21°29'02"	71°40'30"	0.70	73.00		5.2	2.4	7.90	1.30	7.00	1.80	6.60	1.30	7.99	2.5
BVN-PZ-39	Bhavnagar	Bhavnagar	Fariyadka	BAS	21°43'05"	72°04'29"	0.78	37.90		57.52	54.82	57.80	21.32	49.82	21.02	43.82	3.42	7.95	6.7
G_2_BVN_001	Bhavnagar	Bhavnagar	Sidsar	BAS	21°43'08"	72°06'41"	1.00	44.00		10.3	6	11.30	3.60	7.90	3.00	5.90	2.20	5.70	4
G_2_BVN_002	Bhavnagar	Bhavnagar	Gundi	ALV	21°36'56"	72°15'32"	1.00	11.00				Not Measurable	5.50	Not Measurable				Note Measurable Due to Honey comb	nm
G_2_BVN_003	Bhavnagar	Bhavnagar	Thordi	BAS	21°38'50"	72°11'30"	0.80	37.20		12.8	7.7	13.60	11.80	11.90	6.90	10.40	5.90	11.50	7.1
G_2_BVN_004	Bhavnagar	Bhavnagar	Undavi	ALV	21°46'27"	71°59'46"	0.90	54.50		13	13.1	14.10	1.40	13.60	12.90	11.40	10.20	9.50	9.6
G_2_BVN_005	Botad	Botad	Lakheni	BAS	22°02'38"	71°48'07"	0.85	119.00				root problem/filled up		Filled Up				filled up	FILLED UP
G_2_BVN_006	Botad	Botad	Lathidad	BAS	22°06'15"	71°46'03"	0.85	135.10		15.3	12.5	17.80		9.80	4.00	6.40	4.10	6.40	8.1
G_2_BVN_007	Botad	Botad	Paliyad	BAS	22°15'20"	71°33'28"	0.90	135.00		18.35	15.05	20.60	3.55	17.55	5.95	12.75	3.75	10.25	6
G_2_BVN_008	Botad	Botad	Sarva	BAS	22°13'24"	71°29'07"	0.85	81.00						Filled Up					
G_2_BVN_009	Botad	Botad	Turkha	BAS	22°09'00"	71°31'54"	0.90	107.00		24.1	19.1	28.30	2.70	12.60	4.70	8.80	3.80	8.80	5.7
G_2_BVN_010	Botad	Gadhada	Gadhada	BAS	21°57'43"	71°34'23"	0.90	81.00		4.05	3.55	5.60	2.55	4.05	2.25	4.45	1.85	3.95	2.5
G_2_BVN_011	Botad	Gadhada	Kerala	BAS	21°59'11"	71°30'08"	0.80	89.90		27.1	21.7	35.50	1.40	23.20	2.00	14.00	1.30	20.90	3.6
G_2_BVN_012	Botad	Gadhada	Mandva	BAS	21°48'18"	71°35'07"	0.85	113.00		27.4	16.6	29.30	2.50	25.70	1.70	17.80	3.20	17.90	14.2
G_2_BVN_013	Bhavnagar	Gariadhar	Mandvi	BAS	21°40'56"	71°37'41"	0.80	57.00		26.4	9	48.70	4.60	45.10	4.60	27.00	4.50	10.50	5.6
G_2_BVN_014	Bhavnagar	Gariadhar	Paravdi	BAS	21°34'23"	71°37'42"	0.85	85.30		27.15	21.95	46.70	9.95	44.75	10.75	26.05	10.55	22.15	17
G_2_BVN_020	Bhavnagar	Palitana	Sonpari	BAS	21°30'22"	71°51'10"	0.85	58.60		25.1	12.8	27.60	2.20	20.80	2.60	14.70	5.30	12.60	9
G_2_BVN_021	Bhavnagar	Palitana	Panderiya	BAS	21°26'14"	71°49'47"	0.90	122.00		20.3	8.8	23.20	3.50	20.20	4.80	13.00	3.20	23.90	8.9
HP11_BVN_001	Bhavnagar	Bhavnagar	Adhelai	ALV	22°03'07"	72°06'45"	0.80	25.00		2.7	1.8	4.10	1.10	2.50	0.90	2.40	0.75	2.00	2.50
HP11_BVN_012	Bhavnagar	Vallabhipur	Mul Dharai	LSC	22°00'41"	71°53'15"	1.00	122.88		13.3	12.3	15.50	8.90	11.70	8.40	10.30	7.90	5.90	6.60

d) Groundwater Quality Monitoring Data, GWRDC – Bhavnagar- Ahmedabad District

District: Bhavnagar, Amreli & Botad

District	Taluka	Village	pH	EC	Total Hard-ness	Total Dis-solved Solids	CO 3	HCO3	Cl	SO4	NO 3	Ca	Mg	Na	K	F	pH	EC	Total Hard-ness	Total Dis-solved Solids	CO 3	HCO 3	Cl	SO4	NO 3	Ca	Mg	Na	K	F
Ahmed-abad	Dhand-huka	Kotda	7.3	16540	5032.23	10180		390	2320	4495		720	786	1468	2.2		7.6	18050	4733.29	10070		415	5760	547		625	771	1951		
Ahmed-abad	Dhand-huka	Zanzark a	8	14210	2341.75	8210		73	4240	1030		305	384	2179	3.6		8.4	13090	1112.73	7900	12	305	3480	1317		60	234	2488		
Ahmed-abad	Dhand-huka	Akru	7.3	25800	3733.07	15390		98	6760	3163		615	534	4179	38.2		6.7	20830	3571.74	11900		49	6720	873		585	513	3103		
Ahmed-abad	Dhand-huka	Galsana	8.8	7530	272.15	4640	12	85	1880	982		20	54	1601	3.9		7.8	8770	965.29	5260		110	2280	1037		85	183	1562		
Ahmed-abad	Dhand-huka	Jaska	8.5	8940	531.82	5410	24	268	2480	686		35	108	1804	7		9.6	11010	111.67	6710	24	49	3080	1041		20	15	2472		
Ahmed-abad	Dholera	Otaria	7.5	98340	9953.13	56260		61	33200	2263		550	1000	9999	284.5		7.2	79400	5665.21	46890		159	24200	5263		400	1000	9999		
Ahmed-abad	Dholera	Gamph	7.3	6380	10000	4150		366	2080	222		30	123	1224	212.75		7.9	9830	938.78	6120		744	2680	509		20	216	1628		
Ahmed-abad	Dhand-huka	Raika	8	14890	1235.76	8850		268	4320	1093		45	273	2846	4.2		9.8	12380	345.94	7770	72	256	3640	919		10	78	2785		
Ahmed-abad	Dhand-huka	Fedra	8.8	69970	2877.08	41720	48	110	21000	5024		25	684	9999	186.6		8.8	74990	2444.73	44550	99	268	23400	3951		15	585	9999		
Ahmed-abad	Dhand-huka	Bajarda	8.4	39810	2741	24400	60	134	12000	3547		50	636	9999	168		8.9	40310	2444.73	24800	96	305	13400	4113		15	585	9999		
Ahmed-abad	Dhand-huka	Dhand-huka	8.5	8720	209.32	5320	24	415	2640	46		25	60	714	6.2		8.7	8000	136.22	4850	24	512	2880	56		15	24	737		
Ahmed-abad	Dholera	Dholera	4.4	51310	2538.42	30030			17000	1640		275	450	9999	108.4		7.9	50070	2161.22	29550		488	16200	1744		30	507	9999		
Ahmed-abad	Dholera	Bava-liyari	7.7	99999	7229.38	80600		12	44000	6341		270	1000	9999	374		9	99999	4074.41	78280	72	159	42600	5655		20	978	9999		
	2013_May																		2013_Oct											
Ahmed-abad	Dhand-huka	Kotda	6.8	18030	4298.84	10110		549	5880	269		540	71	2147	5.98		8.2	8700	1225.52	5140		207	2440	713	22.7	120	225	1430	2.83	1.07
Ahmed-abad	Dhand-huka	Zanzark a	8.3	14860	1225.38	8790	12	98	4400	1087		115	228	2845	5.15		8	20000	2980	12000		134	5760	1800		390	480	3260	6.8	
Ahmed-abad	Dhand-huka	Akru	7.5	21550	2550.05	12650		73	6800	1091		690	201	3743	57.46		6.7	21200	3570	12300		49	6720	880		600	520	3100	52.1	
Ahmed-abad	Dhand-huka	Galsana	7.7	11800	730.6	7160		207	3200	1171		80	129	2370	4.72		8.1	8600	780.2	5400		130	2100	1080		100	120	1600	6.4	
Ahmed-abad	Dhand-huka	Jaska	8.2	11700	606.17	7100		476	3400	645		45	120	2402	12.67		8.3	12090	346.08	7200	24	232	3800	442	6.17	15	75	2613	10.01	1.45

Ahmed-abad	Dholera	Otaria	7.4	64190	4888.04	37170		98	21600	1528		420	933	9999	248.25		7.7	74880	1669.8	44480		171	24200	3084	2.9	115	336	9999	309.3	1.32
Ahmed-abad	Dholera	Gamph	8.6	7050	581.06	4290	36	366	2080	222		30	123	1224	212.75		8.4	4020	148.42	2580	36	366	976	261	2.93	10	30	782	121.6	0.52
Ahmed-abad	Dhand-huka	Raika	8.5	16020	926.58	9670	36	293	4400	1452		25	210	3249	7.91		7.9	13670	680.1	8120		146	4200	764	2.1	40	141	2822	6.95	1.49
Ahmed-abad	Dhand-huka	Fedra	8.6	70270	2654.88	41150	84	159	23400	1830		25	630	9999	235.95		8.1	74200	2209.9	43310		476	25800	355		5	534	9999	265.4	1.36
Ahmed-abad	Dhand-huka	Bajarda	8.8	40270	2038.33	27080	60	98	12000	1105		50	465	9999	229		9	38900	2580.8	24820		476	12900	1040		10	519	9999	147	
Ahmed-abad	Dhand-huka	Dhand-huka	8	8390	150.57	4830		683	2220	54		25	36	903	14.41		8.5	8200	111.53	5200	24	464	2450	56		10	24	1040	18.96	
Ahmed-abad	Dholera	Dholera	7.3	50050	3029.43	29130		232	16800	1124		175	630	9999	166.75		6.9	48500	3100	28900		120	15000	2150		175	650	9400	160	
Ahmed-abad	Dholera	Bava-liyari	8	99999	4506.63	70930		220	40000	3715		25	1000	9999	522.2		8.3	99999	5162.87	82310		134	42200	9810		95	1000	9999	390	
			2014_May																2014_Oct											
Ahmed-abad	Dhand-huka	Kotda	7.9	2280	458.45	1360		146	592	178	5.25	60	75	309	3.87	0.26	8.1	840	211.13	550	0	146	144	89	5.42	45	24	90	2.27	1.04
Ahmed-abad	Dhand-huka	Zanzark a	8.1	8200	469.39	5280		183	2360	1949	1.77	10	108	1661	7.13	0.55	9.8	3150	37.32	2030	99	232	512	444	0.98	10	3	704	5.32	0.39
Ahmed-abad	Dhand-huka	Akru															8.1	25940	2919.28	15530	0	110	7200	2625	6.9	650	315	4584	48.47	1.05
Ahmed-abad	Dhand-huka	Galsana	7.6	9900	679.68	6150		183	2200	1063	5.87	25	150	1955	6.24	0.66	10	7440	62.01	4540	99	305	2000	392	2.02	10	9	1675	8.42	1.32
Ahmed-abad	Dhand-huka	Jaska	7.2	14370	2420.58	8310		244	4000	1188	3.84	475	300	3066	41.25	0.7	8.6	12200	49.66	7390	36	110	3600	844	3.81	10	6	2776	10.85	1.5
Ahmed-abad	Dholera	Otaria	7.2	44580	5375.68	25930		49	13400	3242	5.6	200	1000	7610	240.4	0.72	8.2	78310	803.83	47600	0	85	22600	5960	2.21	50	165	9999	244.5	1.29
Ahmed-abad	Dholera	Gamph	7.6	7220	679.68	4630		342	1520	1141	6.12	25	150	1189	263	0.95	8.8	6070	358.29	3890	36	476	1440	533	1.89	10	81	1107	206.2	1.22
Ahmed-abad	Dhand-huka	Raika	7.8	14470	778.58	9070		85	3500	821	1.35	30	171	2961	6.52	0.98	8.4	15000	864.85	8990	12	49	4200	1461	2.46	25	195	3042	7.33	0.22
Ahmed-abad	Dhand-huka	Fedra	7.8	74570	1987.69	44060		451	24800	1905		5	480	9999	480.6	0.68	8.3	79040	2100.06	48080	24	317	22000	7902	2.76	50	480	9999	268.7	0.8
Ahmed-abad	Dhand-huka	Bajarda	7.8	41590	1444.79	25580		268	11000	1563	4.17	15	342	9999	489	0.31	8.4	42000	2161.08	27500	24	366	12000	5812	2.45	25	300	9999	491.2	1.54
Ahmed-abad	Dhand-huka	Dhand-huka	8.3	6620	148.42	4110	12	476	1560	194	5.1	10	30	1212	18.25	0.61	8.7	4650	210.29	2950	48	464	1080	328	4.21	15	42	965	9.79	1.53
Ahmed-abad	Dholera	Dholera	2.9	60900	4851.84	40940			16400	1040	19.7	450	906	9999	212.3	0.34	8.5	59520	2284.53	35040	48	305	19400	2021	3.32	25	540	9999	193.2	0.47
Ahmed-abad	Dholera	Bava-liyari	8.6	99999	4569	74010		110	42400	3159		60	1000	9999	515	1.13	9.3	99999	864.85	81470	99	1061	44800	3537	8.99	25	195	9999	692.3	1.44
			2015_May																2015_Oct											
Ahmed-abad	Dhand-huka	Kotda	8.4	3700	650	2230	24	232	800	449	5.07	25	141	550	2.73	0.86	8.5	1750	338	1060	12	183	432	77	4.43	65	42	246	2.7	0.54

Ahmed-abad	Dhand-huka	Zanzark a	9	8290	213	5120	24	98	2080	1052	1.03	10	45	1805	6.15	0.3	10.1	4680	38	3050	99	756	880	150	1.13	5	6	1055	7.49	0.77
Ahmed-abad	Dhand-huka	Akru	7.6	25000	2875	14650	0	49	7600	1685	4.11	425	435	4400	47.07	0.97	8.4	23000	2000	13660	12	37	7000	1536	1.35	500	180	4336	57.94	0.36
Ahmed-abad	Dhand-huka	Galsana	8.3	12000	588	7300	12	37	3200	1384	1.46	70	99	2488	3.62	1.34	8.3	10000	613	5860	12	73	3280	287	1.3	105	84	2015	4.72	1.59
Ahmed-abad	Dhand-huka	Jaska	8.2	15000	500	9420	0	171	3400	2459	3.98	100	60	3214	9.8	1.15	8.5	13000	350	7850	24	220	3840	826	4.37	30	66	2822	11.77	1.58
Ahmed-abad	Dholera	Otaria	8.1	73000	4750	42230	0	159	25200	884	2.59	325	945	9999	256	0.8	8.1	68000	1213	40060	0	37	23400	1011	2.08	280	123	9999	312.2	1.36
Ahmed-abad	Dholera	Gamph	8.8	6950	113	4620	48	354	1240	1299	2.1	10	21	1408	235.9	0.08	9.2	6560	275	4160	36	512	1760	301	2.73	10	60	1239	242.75	0.57
Ahmed-abad	Dhand-huka	Raika	9.2	18000	688	10830	36	98	5200	1474	3.46	75	120	3820	6.85	0.06	8.5	18500	438	11490	12	171	4600	2511	1.19	75	60	4048	9.07	0.69
Ahmed-abad	Dhand-huka	Fedra	9.3	65000	1875	38180	48	146	22000	1297	2.45	75	405	9999	274.4	1	9.6	74000	688	44700	99	512	22400	4673	2.4	25	150	9999	276.35	1.41
Ahmed-abad	Dhand-huka	Bajarda	9.3	64000	1813	37740	48	159	21200	1889	2.06	75	390	9999	230.8	0.73	9.4	72000	600	42750	84	512	24000	1610	2.85	5	141	9999	261.8	1.18
Ahmed-abad	Dhand-huka	Dhand-huka	8.3	4740	188	2970	12	390	1208	298	5.18	15	36	998	9.42	0.71	9.1	5000	125	3260	36	561	1280	150	6.02	10	24	1086	10.77	0.79
Ahmed-abad	Dholera	Dholera	3	52000	4250	30250	0	0	17000	1989	5.84	375	795	9896	184.7	0.31	8.2	55000	2563	32140	0	268	18600	1065	3.92	75	570	9999	203	0.03
Ahmed-abad	Dholera	Bava-liyari	6.9	99999	10000	65220	0	427	37000	4501	8.93	950	1000	9999	384	1.43	9.1	99999	1125	65590	99	976	36000	3016	8.25	50	240	9999	676	1.42

			2016_May														2016_Oct													
District	Taluka	Village	pH	EC	Total Hard-ness	Total Dis-solved Solids	CO 3	HCO3	Cl	SO4	NO 3	Ca	Mg	Na	K	F	pH	EC	Total Hard-ness	Total Dis-solved Solids	CO 3	HCO 3	Cl	SO4	NO 3	Ca	Mg	Na	K	F
Ahmed-abad	Dhand-huka	Kotda	7.2	1260	125	820	0	244	216	94	7.27	35	33	185	2.45	0.89	7.2	710	188	450	0	159	152	0	2.73	0	27	76	2.19	0.11
Ahmed-abad	Dhand-huka	Zanzark a	9.4	10200	338	6360	24	110	2360	1580	1.33	20	69	2187	6.18	0.33	10	4550	88	2950	96	671	1000	146	1.18	5	18	1002	7.55	0.8
Ahmed-abad	Dhand-huka	Akru	8.6	25500	2875	14960	12	37	7800	1645	4.15	525	375	4514	48.05	1.02	8.6	19000	2125	10960	36	49	6600	109	1.3	600	150	3358	58.7	0.4
Ahmed-abad	Dhand-huka	Galsana	8.8	12700	625	7770	12	73	3280	1583	1.48	80	102	2631	3.55	1.35	8.2	9900	850	5830	0	171	3200	289	1.32	180	96	1883	4.75	1.58
Ahmed-abad	Dhand-huka	Jaska	9.1	12200	288	7310	24	122	3720	683	4.05	15	60	2668	9.92	1.18	8.5	10000	1313	5740	24	183	3200	278	4.55	75	270	1689	11.85	1.57
Ahmed-abad	Dholera	Otaria	8.3	75000	5250	43390	12	305	25800	900	2.55	425	1000	9999	258.32	0.88	7.6	60000	2875	35040	0	24	20800	690	2.18	555	357	9999	311.1	1.35
Ahmed-abad	Dholera	Gamph	7.9	10000	413	6390	0	451	2320	1305	2.15	10	93	1973	233.5	0.1	7	7320	625	4380	0	244	2400	72	2.45	50	120	1254	240.4	0.59
Ahmed-abad	Dhand-huka	Raika	8	19250	625	11760	0	134	5200	2102	3.5	75	105	4136	6.75	0.07	7.6	16500	750	9660	0	220	56	181	1.25	50	150	3445	9.15	0.65
Ahmed-	Dhand-	Fedra	8.2	725	2250	43370	0	171	222	4683	2.9	50	51	9999	276.	1.0	7.9	650	1688	38630	0	476	2120	2196	2.1	50	375	9999	369.	0.8

abad	huka			00					00		5		0		8	2		00				0		7				6	1	
Ahmed-abad	Dhand-huka	Bajarda	9.2	66000	1938	39380	48	85	20400	3986	2.18	25	450	9999	232.3	0.81	8.8	40270	2038.33	27080	60	98	12000	1105		50	465	9999	229	
Ahmed-abad	Dhand-huka	Dhand-huka	9.2	6500	175	4170	24	439	1360	879	5.45	15	33	1408	10.2	0.78	8.2	4420	175	2770	0	488	1240	44	4.98	10	36	929	12.87	0.93
Ahmed-abad	Dholera	Dholera	4.2	58000	750	34520	0	0	18800	2438	6.15	65	141	9999	185.32	0.38	2.6	54000	7063	30650	0	0	18400	10.62	4.02	500	1000	9000	289.9	1.49
Ahmed-abad	Dholera	Bava-liyari	9.3	99999	2375	93160	60	256	43000	10000	8.54	50	540	9999	385.02	1.48	8.5	92000	1125	54430	24	390	31600	1135	4.88	25	255	9999	857.8	1.02
			2017_May																2017_Oct											
Ahmed-abad	Dhand-huka	Kotda	8.4	930	188	570	36	146	168	19	7.32	40	21	119	14.66	0.91	8.6	1160	163	710	24	109.8	288	39	0.36	35	18	189	5.54	1.35
Ahmed-abad	Dhand-huka	Zanzark a	8.6	6140	288	3990	36	256	920	53	1.35	40	45	586	50.38	0.36	9.3	3320	175	2010	48	97.6	920	193	0.4	45	15	671	20.58	1.13
Ahmed-abad	Dhand-huka	Akru	8.2	25000	1563	14650	0	49	7600	1685	4.11	425	435	4400	47.07	0.97	8.2	20550	1913	12670	0	646.6	5224	2298	0.31	415	210	3809	64.34	1.13
Ahmed-abad	Dhand-huka	Galsana	8.3	11500	1875	6850	24	146	3200	1038	1.51	500	150	1767	25.95	1.32	8.3	11000	1575	6700	36	280.6	2496	1630	0.22	175	273	1799	10.3	1.11
Ahmed-abad	Dhand-huka	Jaska	8.1	14600	938	8930	0	61	3720	1921	4.15	125	150	2894	54.85	1.2	9	13040	1125	7970	48	390.4	3384	1301	0.43	195	153	2466	27.24	1.13
Ahmed-abad	Dholera	Otaria	7.3	59400	6875	34870	0	207	18000	4038	2.58	725	1000	9999	455.1	0.91	8	62000	5663	38030	0	231.8	15240	9001	0.25	126.5	600	1160.3	89.18	1.18
Ahmed-abad	Dholera	Gamph	7.1	9700	1438	6090	0	561	2000	1506	2.35	175	240	1521	81.83	0.15	8.5	10780	1625	6630	24	1058.8	2824	465	0.25	175	285	1682	84.61	1.51
Ahmed-abad	Dhand-huka	Raika	8.1	16900	2500	9930	0	293	4800	1388	3.75	225	465	2709	47.43	0.12	8.7	6420	363	4010	24	646.6	1784	123	0.26	60	51	1298	19.32	0.68
Ahmed-abad	Dhand-huka	Fedra	7.9	56800	1050	33980	0	427	18400	2075	2.99	100	192	9999	481.85	1.08	9.1	67860	450	44110	36	390.4	1624	570	2.19	80	60	1228	115.41	0.83
Ahmed-abad	Dhand-huka	Bajarda	8	31600	1250	18730	0	134	10200	1283	2.16	220	168	6659	58.49	0.88	9.3	19350	1150	11140	36	109.8	6824	0	2.5	100	216	3903	31.76	1.02
Ahmed-abad	Dhand-huka	Dhand-huka	8.7	6290	275	3910	12	610	1840	15	5.55	45	39	1288	54.69	0.81	9.5	7080	350	4330	36	390.4	2000	314	4.91	50	54	1450	29.59	0.91
Ahmed-abad	Dholera	Dholera	2.3	51700	2250	30870	0	49	16000	3155	6.2	225	405	9999	412.25	0.41	8.7	22010	1063	13380	24	256.2	6024	2175	4.07	65	216	4513	102.96	1.32
Ahmed-abad	Dholera	Bava-liyari	7.8	99999	927.21	71020		561	42000	1494	1.71	25	210	9999	570	2.57	8.3	99999	5337.58	62940	48	427	52000	5047	1.17	25	1000	9999	609	1
			2018_May																2018_Oct											
Ahmed-abad	Dhand-huka	Kotda																												
Ahmed-abad	Dhand-huka	Zanzark a	8.6	14380	1250	9080	24	1939.8	3640	397	7.13	55	267	2701	52.5	0.88	9.4	8210	1125	5270	36	1342	1840	330	3.6	195	153	1367	6.66	0.38
Ahmed-abad	Dhand-huka	Akru	8.3	20360	1363	12620	12	1085.8	5224	1840	1.38	115	258	4009	79.04	0.64	7.4	22000	3125	13630	0	1830	5520	1660	1.72	555	417	3596	44.62	0.89
Ahmed-abad	Dhand-huka	Galsana	8	10250	775	6370	24	610	2600	884	1.21	105	123	1977	40.87	1.34	7.6	10740	1625	6880	0	1220	2400	944	2.39	500	90	1721	3.36	1.17
Ahmed-	Dhand-	Jaska	8.5	133	288	8180	12	768.6	396	376	19.	45	42	2911	50.6	0.5	8.4	145	2375	9390	24	2196	3200	882	2.9	650	180	2246	9.03	0.3

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Ahmed-abad	Dholera	Otaria	3.2	62200	863	38410	0	2232.6	17640	4209	21.5	100	147	1368	376.04	0.91	8.3	63490	1875	40680	12	7320	8400	1334	2.25	260	294	5853	210.75	1.18
Ahmed-abad	Dholera	Gamph	8.7	9710	238	6230	24	1159	2680	0	40.39	15	48	1922	341.8	1.44	8.9	12800	1625	8190	36	1830	3200	320	1.22	350	120	2281	51.86	0.17
Ahmed-abad	Dhand-huka	Raika	9	16170	563	10070	36	1525	4520	353	13.21	15	126	3429	52.49	1.39	8.6	18580	1625	11910	24	2806	4640	403	1.22	290	216	3522	7.26	0.22
Ahmed-abad	Dhand-huka	Fedra	8.7	58640	1413	36020	24	3599	17720	1317	10.3	65	300	1263	348.52	1.1	8.8	55000	6250	34400	36	5002	13200	4576	2.56	1000	900	9452	235.75	0.59
Ahmed-abad	Dhand-huka	Bajarda	8.6	38600	2875	23610	12	2745	11384	939	11.27	615	321	7523	54.36	1.14	8.9	42860	3950	27220	0	6100	11200	639	3.09	700	528	8034	12.09	1.25
Ahmed-abad	Dhand-huka	Dhand-huka	9	6840	338	4260	36	732	1840	85	22.79	60	45	1385	55.22	1.05	8.9	7600	1250	4910	36	1586	1600	164	5.12	100	240	1167	10.39	0.14
Ahmed-abad	Dholera	Dholera	3.4	50530	1600	30560	0	0	14840	4124	27.55	425	129	1070	309.84	0.89	8.7	50410	4000	32180	24	6710	12800	1574	6.94	650	570	9620	228.1	0.11
Ahmed-abad	Dholera	Bava-liyari	9.5	49570	1488	29910	36	1525	15640	1325	27.45	325	162	1050	357.72	0.95	9.8	65030	1.125	40420	36	8540	16000	2805	9	900	216	9512	458.24	0.29
			2019_May																	2019_Oct										
Ahmed-abad	Dhand-huka	Kotda															8.5	2190	475	1410	12	378	408	163	5.29	105	51	284	1.99	0.91
Ahmed-abad	Dhand-huka	Zanzark a	8.5	15600	1188	9760	12	1464	4240	579	3.48	315	96	3038	6.87	0.83	9	8290	213	4760	24	98	2080	1052	1.03	10	45	1805	6.15	0.3
Ahmed-abad	Dhand-huka	Akru	6.7	21680	4375	13800	0	3050	4800	1519	1.97	950	480	2941	56.5	0.21	8.6	19000	2125	10660	36	49	6600	109	1.3	600	150	3358	58.7	0.4
Ahmed-abad	Dhand-huka	Galsana	3.3	10660	1500	6560	0	0	2400	1872	0.66	400	120	1760	3.57	1.1	8.3	11500	1875	6800	24	146	3200	1038	1.51	500	150	1767	25.95	1.32
Ahmed-abad	Dhand-huka	Jaska	8.6	14640	1500	9260	24	1586	3680	768	1.27	400	120	2670	11.8	0.36	9	13040	1125	7770	48	390.4	3384	1301	0.43	195	153	2466	27.24	1.13
Ahmed-abad	Dholera	Otaria	2.7	67530	5625	42950	0	6100	16000	6002	3.1	950	780	1269.7	420	0.89	7.9	63590	3550	39550	0	793	17640	6077	2.33	370	630	12.922	120	0.03
Ahmed-abad	Dholera	Gamph	9.1	13590	1625	8760	0	2318	3200	361	4.77	265	231	2375	6.23	0.74	9.8	12090	1513	7720	0	1647	3200	179	1.97	315	174	1914	290.5	0.75
Ahmed-abad	Dhand-huka	Raika	8.4	18740	1750	11980	12	2806	4720	389	1.08	300	240	3501	6.9	1.13	8.4	18720	1750	11920	12	2440	4800	562	0.51	450	150	3500	0.87	0.93
Ahmed-abad	Dhand-huka	Fedra	8.2	64960	6250	40270	0	6588	18400	1150	1.3	950	930	1179.9	452.8	1.04	9.2	62950	1187.5	40270	36	7320	12800	7111	2.22	250	135	8821	330.7	0.11
Ahmed-abad	Dhand-huka	Bajarda	9.1	44000	3800	28050	36	6100	11200	1132	1.88	675	507	8341	52.67	1.4	9.1	1200	250	750	36	183	240	47	0.25	50	30	158	4.29	1.03
Ahmed-abad	Dhand-huka	Dhand-huka	9.2	7000	875	4490	36	1098	1680	157	3.97	180	102	1172	59.7	0.03	8.6	6160	1500	3970	24	976	1040	737	8.08	250	210	719	12.7	0.48
Ahmed-abad	Dholera	Dholera	2.3	52210	2500	31230	0	0	16000	3425	9.44	600	240	1071.3	245.77	1.27														
Ahmed-abad	Dholera	Bava-liyari	9.8	78190	5375	50080	36	1098	20000	1819	4.02	900	750	1639.2	202.05	0.19	10.2	81920	1500	52610	0	8845	16000	107.19	11.59	326.5	164.1	1168.2	440.5	1.1
			2020_May															2020_Oct												
Ahmed-	Dhand-	Kotda	7.5	153	2113	9740	0	2440	376	346	1.5	32	31	2547	4.41	0.4	7.9	130	2500	8360	0	2562	2880	304	9.2	400	360	1831	16	0.2

abad	huka			10					0		8	5	2			8		00						3					9	
Ahmed-abad	Dhand-huka	Zanzark a	8.2	3160	750	2030	0	427	560	418	0.95	150	90	380	3.13	1.23	8.5	880	150	570	12	183	184	0	2.18	40	12	132	2.3	1.32
Ahmed-abad	Dhand-huka	Akru	7.2	24820	6000	15890	0	3050	4480	3444	5.45	125	690	2921	46.17	1.1	7.6	22890	3750	14790	0	4392	5200	505	0.89	600	540	3528	20	1.06
Ahmed-abad	Dhand-huka	Galsana	7.5	12030	2375	7680	0	2196	2720	367	1.29	360	354	1672	3.77	0.99	3.8	10380	1500	6650	0	1830	2560	79	1.27	300	180	1694	5.92	1.1
Ahmed-abad	Dhand-huka	Jaska	8.4	16580	1500	10250	12	1586	4640	421	1.61	250	210	3118	9.82	0.15	8.3	14670	2250	9370	12	2440	3600	233	2.2	500	240	2332	11.88	0.72
Ahmed-abad	Dholera	Otaria	7.1	72920	8250	46860	0	1220	18400	554	1.71	155	105	127.98	302.45	0.68	7.6	64210	5625	40970	0	9760	16800	455	1.1	875	825		182.2	0.87
Ahmed-abad	Dholera	Gamph	9.3	14580	2375	9310	36	2196	3640	288	2.76	400	330	2034	384.5	0.51	9.6	13060	2500	8380	36	2196	2800	685	4.82	500	300	1851	4.41	0.55
Ahmed-abad	Dhand-huka	Raika	9.5	22020	5000	14050	36	4270	4800	667	0.91	780	732	2761	6.57	0.59	8.7	19870	3500	12730	24	3660	4560	459	1.16	550	510	2954	9.59	0.08
Ahmed-abad	Dhand-huka	Fedra	9.5	69010	6250	44800	36	122	16800	778	2.06	950	930	128.48	253.26	0.98														
Ahmed-abad	Dhand-huka	Bajarda	8.13071	47780	8750	30710	0	7320	10400	3111	6.05	200	900	6959	9.28	1.24	7.5	43670	5625	27630	0	6710	11200	547	2.9	900	810	7447	15.6	1.65
Ahmed-abad	Dhand-huka	Dhand-huka	7.7	7170	1213	4580	0	1220	1680	209	0.98	210	165	1086	8.85	0.54	8.6	6320	1375	4140	24	1464	1200	192	8.53	225	195	810	19.03	0.8
Ahmed-abad	Dholera	Dholera																												
Ahmed-abad	Dholera	Bava-liyari	9.8	88780	2062.5	56790	48	9760	14800	1484.4	9.34	325	300	107.23	353.7	0.5	9.6	73680	5625	45030	36	6100	22000	774	9.43	950	780	9999	56	0.85
			2021_May													2021_Oct														
Ahmed-abad	Dhand-huka	Kotda	7.6	15380	2500	9840	0	2684	3600	380	8.35	450	330	2387	0.8	0.813	7.8	11000	2375	7070	0	2013	2240	639	9	400	330	1432	9.12	0.99
Ahmed-abad	Dhand-huka	Zanzark a	8.6	1120	275	710	24	195.2	192	73	3.66	50	36	129	3.6	0.23	8.5	1080	138	690	12	193	256	0	2.44	25	18	179	9.85	1.1
Ahmed-abad	Dhand-huka	Akru	7.7	25630	4750	16420	0	3330.6	5120	2765	0.61	825	645	3679	51.88	0.87	7.3	23000	4125	14750	0	4270	5280	538	4.03	650	600	3363	49.69	0.22
Ahmed-abad	Dhand-huka	Galsana	4.4	11830	1375	7580	0	1952	2920	193	1.52	230	192	2086	3.76	0.98	7.4	10870	1313	6920	0	1342	2600	639	3.23	300	135	1887	15.55	0.63
Ahmed-abad	Dhand-huka	Jaska	8.5	17350	2000	11110	12	2806	4320	261	1.93	375	255	3063	13.13	0.6	8.4	15110	2500	9560	12	2196	3600	631	4.15	450	330	2312	22.23	0.27
Ahmed-abad	Dholera	Otaria	3.3	72000	1250	51310	0	1830	400	3257.2	2.15	435	39	1591.4	120.4	0.36	7.3	65090	6500	41550	0	9150	16000	2432	2.97	1000	960	1194.1	67.18	0.59
Ahmed-abad	Dholera	Gamph	9.2	15920	2500	10150	36	2562	3680	586	3.68	400	360	2494	30	0.59	9	13960	2875	8950	36	2745	3040	360	4.76	450	420	1880	13.6	1
Ahmed-abad	Dhand-huka	Raika	8.3	22810	5000	14600	12	4392	4960	770	2.24	800	720	2942	6.5	0.13	9	19460	3238	12700	36	3489.2	4472	581	0.97	510	471	3024	6.68	0.94
Ahmed-abad	Dhand-huka	Fedra																												
Ahmed-abad	Dhand-huka	Bajarda	8.6	46280	1027.5	29620	24	7600.6	9216	3746	1.57	161	150	5909	15.8	1.05	8.7	41390	5000	26480	24	6710	10240	709	3.79	900	600	7207	20.98	1.16

Ahmed-abad	Dhand-huka	Dhand-huka	8.5	720 0	1163	4600	12	1049. 2	154 4	505	6.2 2	18 0	17 1	1112	15.8 7	0.1	8.8	624 0	1000	4000	24	1098	1440	124	6.8 2	200	120	962	21.9 6	0.6 4		
Ahmed-abad	Dholera	Dholera	8	149 50	2900	9560	0	2806	345 6	280	6.2 1	44 5	42 9	2061	72.9 6	0.4 2	8.3	132 90	2500	8510	12	2257	2960	568	5.5 6	475	315	1889	30.2	0.5 5		
Ahmed-abad	Dholera	Bava-liyari	9.6	826 10	10000	32890	36	1220	250	2961	9.2 8	16 0	14 4	1433 .5	110. 2	0.8 8	9.6	832 20	1500	53180	0	1586	2000 0	449	4.6 9	250	210	1220. 3	63	0.3 3		
			2022_May															2022_Oct														
Ahmed-abad	Dhand-huka	Kotda	8	164 80	3125	10780	0	2647. 4	366 4	1022	8.1 1	62 5	37 5	2434	2.12	1.4 3	8.6	923 0	700	5907.2	28	48	1729. 14	346. 52	8.2 9	128	92.34	986.5 4	7.47	1.4 2		
Ahmed-abad	Dhand-huka	Zanzark-a	6.4	561 80	6250	34960	0	3843	136 00	5560	6.4 3	10 00	90 0	100. 41	9.5	0.1	8.9	307 0	500	1906.3 1	72	136	645.6 8	372	5.5	99.2	61.23 6	473.8 5	4.13	0.7 2		
Ahmed-abad	Dhand-huka	Akru	8.9	318 30	3188	20370	24	4880	800 0	581	4.3 9	62 5	39 0	5849	15.1 1	1.3 8	4.6	288 90	8940	18184. 68	0	800	3298. 35	8761	9.4 9	160	120.0 42	2491. 5	22.4 9	1.4 3		
Ahmed-abad	Dhand-huka	Galsana	7	144 00	4000	9220	0	2257	256 0	1658	5.8 6	75 0	51 0	1470	4.13	0.7 6	8.2	110 00	2212	6877.0 5	0	340	2208. 9	2018	0.6 7	644. 8	145.8	1514. 25	3.54	1.0 9		
Ahmed-abad	Dhand-huka	Jaska	8	248 80	5000	15920	0	3294	496 0	2639	3.5 8	10 00	60 0	3420	4.72	1.4 2	8	225 20	4888	13739. 66	0	446	4609. 69	4210	4.2 1	112. 8	502.5 24	2829	8.75	1.4 8		
Ahmed-abad	Dholera	Otaria	8.9	673 60	8750	43110	24	107.9 7	168 00	1108	2.1 2	17 5	10 5	113. 06	274. 9	1.3 5	8.6	573 80	1680	36171. 49	60	308	6996. 5	1772 .6	2.6	384. 96	174.3 7	5152. 5	301. 15	1.3 7		
Ahmed-abad	Dholera	Gamph	6.1	982 90	2000	65140	0	1464	240 0	3224	9.2 9	35 0	27 0	1683 .8	227. 2	1.2 6	7	820 00	3120	51431. 12	0	406	7196. 4	2928 .6	9.9 8	560	417.9 6	4500	251. 95	1.1 9		
Ahmed-abad	Dhand-huka	Raika	7.4	263 90	5500	16890	0	3416	497 6	3255	1.7 8	95 0	75 0	3536	5.56	0.2 8	8.6	225 70	2400	13547. 85	12	246	6396. 8	1956	2.1 9	404. 8	337.2 84	4174. 5	11.3 5	0.9 3		
Ahmed-abad	Dhand-huka	Fedra																														
Ahmed-abad	Dhand-huka	Bajarda	7.7	406 70	5000	26030	0	6588	100. 8	718	2.5 8	95 0	63 0	7050	7.46	1.1 3	8.2	367 00	5800	22481. 15	0	330	7796. 1	6795	3.2 3	128	631.8	5622. 5	21.4 1	1.1 1		
Ahmed-abad	Dhand-huka	Dhand-huka	8.5	150 30	3250	9620	12	1732. 4	272 0	2147	2.7 5	65 0	39 0	1958	6.67	1.3 4	8.7	138 80	2320	8771.4	8	242	3398. 3	1854	1.8 7	488	267.3	2500	7.08	0.8 5		
Ahmed-abad	Dholera	Dholera	7.7	100 00	6250	64000	0	1466. 44	264. 8	688	6.9 2	10 00	90 0	199. 36	320	0.5 1																

State	District	Taluka	Village	Type of well	Well ID	Latitude	Longitude	Aquifer type/format ion	Geology	MP	RL	TD	Year	Season (pre/P ost)	pH	EC	TD S	Total Hardness	Calcium	Magnesium	Sodium	Potassium	Carbonate	Bicarbonate	Sulphate	Chloride	Fluoride	Nitrate
Gujarat	Amreli	Dhari	Kagdadi	Dug Well	AMR-017A	21°24'14"	70°57'37"	unconfined	BAS	0.50	200		May-01-2012	Pre-monsoon	7.80	1800	1190	650	95	99	110	6.80	0	525	90	264	0.35	0
Gujarat	Amreli	Dhari	Dalkhania	Dug Well	AMR-018	21°14'28"	70°55'29"	unconfined	BAS	0.15	308	75	May-01-2012	Pre-monsoon	7.20	1670	1120	688	85	114	62	8	0	610	33	208	1.32	0
Gujarat	Amreli	Dhari	Dhari	Dug Well	AMR-019	21°19'52"	71°02'08"	unconfined	BAS	0.30	205		May-01-2012	Pre-monsoon	7.60	1860	1150	663	50	129	121	0.30	0	415	100	336	0.51	0
Gujarat	Amreli	Dhari	Halariya	Dug Well	AMR-020	21°25'51"	71°04'02"	unconfined	ALV	0.85	162		May-01-2012	Pre-monsoon	7.70	2800	1700	613	65	108	358	0.90	0	403	90	672	0.35	0
Gujarat	Amreli	Dhari	Chalala	Dug Well	AMR-021	21°25'32"	71°09'52"	unconfined	ALV	0	134	30.25	May-01-2012	Pre-monsoon	8.20	2400	1610	288	45	42	416	0.20	12	598	67	432	0.67	0
Gujarat	Amreli	Dhari	Samadhiyal (nana)	Dug Well	AMR-022	21°22'37"	71°14'19"	unconfined	ALV	0	143	57	May-01-2012	Pre-monsoon	8	970	670	300	30	54	84	0.10	0	378	24	104	0.03	0
Gujarat	Amreli	Dhari	Morjhar	Dug Well	AMR-023	21°22'28"	71°06'43"	unconfined	ALV	0	147.01	63.1	May-01-2012	Pre-monsoon	8.40	1620	1150	250	50	30	255	0.20	24	586	33	176	0.67	0
Gujarat	Amreli	Dhari	Dhargani	Dug Well	AMR-024	21°19'44"	71°11'52"	unconfined	ALV	0	148		May-01-2012	Pre-monsoon	7.90	1440	970	375	30	72	157	0.30	0	476	38	200	0.35	0

Guja rat	Amreli	Dhari	Devda	Du g We ll	AM R- 02 5	21°17' 01"	71°06' 05"	unconf ined	BAS	0. 10	243	90	Ma y- 01- 20 12	Pre- mons oon	7.6 0	152 0	110 0	438	85	54	147	0.50	0	634	43	136	0.35	0
Guja rat	Amreli	Dhari	Virpur	Du g We ll	AM R- 02 6	21°15' 00"	71°08' 37"	unconf ined	BAS	1	206. 33	90	Ma y- 01- 20 12	Pre- mons oon	8	220 0	140 0	475	30	96	282	0.20	0	512	52	424	0.84	0
Guja rat	Amreli	Dhari	Jira	Du g We ll	AM R- 02 7	21°14' 00"	71°05' 00"	unconf ined	BAS	1. 10	235. 90	60	Ma y- 01- 20 12	Pre- mons oon	7.5 0	118 0	820	463	70	69	56	2.40	0	464	57	104	0.35	0
Guja rat	Amreli	Dhari	Dudhala	Du g We ll	AM R- 02 8	21°09' 33"	71°03' 22"	unconf ined	BAS	0. 60	245	90	Ma y- 01- 20 12	Pre- mons oon	8	850	600	313	30	57	51	0.20	0	390	19	56	0.19	0
Guja rat	Botad	Botad	Paliyad	Du g We ll	BV N- 00 7	22°15' 10"	71°34' 35"	unconf ined	BAS	0	121		Ma y- 01- 20 12	Pre- mons oon	7.6 0	290 0	179 0	938	110	159	230	9.10	0	586	67	632	1.16	
Guja rat	Botad		Botad	Du g We ll	BV N- 00 8A	22°09' 25"	71°41' 15"	unconf ined	BAS	0	78.8 0		Ma y- 01- 20 12	Pre- mons oon	8.2 0	290 0	177 0	875	55	177	255	4.70	12	586	124	560	0.84	
Guja rat	Botad		Nagalpar	Du g We ll	BV N- 00 9A	22°07' 14"	71°38' 28"	unconf ined	BAS	0	88		Ma y- 01- 20 12	Pre- mons oon	7.7 0	153 0	108 0	438	45	78	146	5.40	0	598	52	152	0.84	
Guja rat	Botad		Jotingada	Du g We ll	BV N- 01 0A	22°07' 00"	71°38' 22"	unconf ined	BAS	0	81		Ma y- 01- 20 12	Pre- mons oon	7.9 0	950	690	275	25	51	91	0.60	0	439	19	64	1	
Guja rat	Botad	Gadha da	Goradka	Du g We ll	BV N- 01 2	22°01' 04"	71°36' 37"	unconf ined	BAS	0. 40	80		Ma y- 01- 20 12	Pre- mons oon	7.7 0	260 0	160 0	663	95	102	288	0.60	0	427	90	592	1.16	0

Guja rat	Botad	Gadha da	Sakhpar Mota	Du g We ll	BV N- 01 3A	22°03' 32"	71°31' 52"	unconf ined	BAS	0. 75	107		Ma y- 01- 20 12	Pre- mons oon	8.5 0	530 0	321 0	588	90	87	940	6	24	439	143	1480	1.48	
Guja rat	Botad	Gadha da	Gadhada	Du g We ll	BV N- 01 4	21°57' 48"	71°34' 15"	unconf ined	BAS	0. 80	86		Ma y- 01- 20 12	Pre- mons oon	8	169 0	113 0	263	25	48	265	0.30	0	427	86	280	1.32	
Guja rat	Botad	Gadha da	Mandavdha r	Du g We ll	BV N- 01 5	21°58' 04"	71°32' 04"	unconf ined	BAS	0. 30	96		Ma y- 01- 20 12	Pre- mons oon	8.2 0	175 0	117 0	350	50	54	240	0.90	12	476	67	272	1	
Guja rat	Botad	Gadha da	Limbali	Du g We ll	BV N- 01 6	21°59' 41"	71°27' 21"	unconf ined	BAS	0	130		Ma y- 01- 20 12	Pre- mons oon	7.4 0	480 0	272 0	1625	270	228	346	6	0	305	200	1360	1	
Guja rat	Botad	Gadha da	Chabhadiya	Du g We ll	BV N- 01 7A	21°54' 01"	71°42' 22"	unconf ined	BAS	0. 40	65		Ma y- 01- 20 12	Pre- mons oon	7.7 0	166 0	100 0	375	100	30	208	1.80	0	146	88	424	0.39	24.8 0
Guja rat	Botad	Gadha da	Junavadar	Du g We ll	BV N- 01 8	21°50' 36"	71°31' 17"	unconf ined	BAS	2. 35	79		Ma y- 01- 20 12	Pre- mons oon	7.5 0	340 0	200 0	925	175	117	355	2	0	281	105	960	0.84	
Guja rat	Botad	Gadha da	Mandva	Du g We ll	BV N- 01 9	21°48' 22"	71°34' 56"	unconf ined	BAS	0. 30	75		Ma y- 01- 20 12	Pre- mons oon	7.6 0	126 0	840	475	55	81	67	4.70	0	451	33	152	0.84	
Guja rat	Bhavn agar	Umrالا	Ujalvav	Du g We ll	BV N- 02 0	21°54' 06"	71°43' 43"	unconf ined	BAS	0. 50	56		Ma y- 01- 20 12	Pre- mons oon	8.2 0	120 0	790	350	25	69	113	0.60	12	366	43	160	1.16	
Guja rat	Bhavn agar	Umrالا	Dadva (Randalna)	Du g We ll	BV N- 02 1A	21°51' 41"	71°45' 03"	unconf ined	BAS	0. 60	35		Ma y- 01- 20 12	Pre- mons oon	7.7 0	300 0	178 0	738	60	141	345	0	0	390	86	760	1	0

Guja rat	Bhav n a g a r	Umr a l a	Sam a d h i y a l	Du g W e l l	BV N- 02 2	21°51' 26"	71°41' 22"	unconf ined	BAS	0. 40	40.5 0		Ma y- 01- 20 12	Pre- mons oon	8.2 0	162 0	103 0	338	30	63	214	1.80	12	305	100	304	1	
Guja rat	Bhav n a g a r	Umr a l a	Bho j a v a d a r	Du g W e l l	BV N- 02 3	21°50' 37"	71°42' 57"	unconf ined	ALV	1. 50	36		Ma y- 01- 20 12	Pre- mons oon	8	970	650	250	45	33	106	1.90	0	281	50	128	0.53	15.5 0
Guja rat	Bhav n a g a r	Umr a l a	Had m a t a l a	Du g W e l l	BV N- 02 4A	21°51' 14"	71°45' 02"	unconf ined	BAS	0	39		Ma y- 01- 20 12	Pre- mons oon	7.6 0	320 0	197 0	750	50	150	387	5	0	525	133	720	1.16	0
Guja rat	Bhav n a g a r	Umr a l a	Rat a n p a r	Du g W e l l	BV N- 02 5A	21°50' 26"	71°49' 11"	unconf ined	BAS	0	22		Ma y- 01- 20 12	Pre- mons oon	7.9 0	400 0	251 0	450	50	78	707	2	0	573	138	960	1.32	
Guja rat	Bhav n a g a r	Umr a l a	Cho g a t h (Thap nath)	Du g W e l l	BV N- 02 6	21°50' 02"	71°51' 27"	unconf ined	ALV	0. 60	16		Ma y- 01- 20 12	Pre- mons oon	7.9 0	240 0	158 0	288	50	39	416	0.80	0	439	157	472	1.48	
Guja rat	Bhav n a g a r	Umr a l a	Umr a l a	Du g W e l l	BV N- 02 7A	21°50' 50"	71°48' 05"	unconf ined	ALV	0. 30	22.3 0		Ma y- 01- 20 12	Pre- mons oon	8.2 0	147 0	990	238	40	33	227	0.50	12	390	48	240	1.16	
Guja rat	Bhav n a g a r	Umr a l a	Pip a r a l i	Du g W e l l	BV N- 02 8A	21°47' 43"	71°46' 56"	unconf ined	BAS	0. 30	25		Ma y- 01- 20 12	Pre- mons oon	8.2 0	370 0	236 0	375	50	60	661	21	12	610	105	840	1.16	
Guja rat	Bhav n a g a r	Umr a l a	Ran g h o l a	Du g W e l l	BV N- 02 9	21°46' 40"	71°39' 45"	unconf ined	BAS	0. 30	54		Ma y- 01- 20 12	Pre- mons oon	7.6 0	260 0	142 0	1000	155	147	130	2.30	0	159	71	760	0.84	
Guja rat	Bhav n a g a r	Gari a d h a r	Mot i V a v d i	Du g W e l l	BV N- 03 0A	21°35' 54"	71°39' 18"	unconf ined	BAS	0	105		Ma y- 01- 20 12	Pre- mons oon	8.2 0	240 0	159 0	463	45	84	328	3.60	12	683	90	344	1.16	

Guja rat	Bhav n a g a r	Gari a d h a r	Bhandariya	Du g W e l l	BV N- 03 2	21°28' 51"	71°37' 22"	unconf ined	BAS	0	75		Ma y- 01- 20 12	Pre- mons oon	7.7 0	230 0	142 0	550	55	99	266	1.30	0	415	90	488	1	0
Guja rat	Bhav n a g a r	Palita n a	Thadach	Du g W e l l	BV N- 05 5A	21°23' 59"	71°56' 12"	unconf ined	BAS	0	47		Ma y- 01- 20 12	Pre- mons oon	7.7 0	123 0	790	438	40	81	79	0.80	0	354	43	192	1	
Guja rat	Bhav n a g a r	Palita n a	Anida(Lakha vad)	Du g W e l l	BV N- 05 7	21°30' 19"	71°54' 47"	unconf ined	BAS	0. 45	50.3 0		Ma y- 01- 20 12	Pre- mons oon	7.7 0	210 0	126 0	688	75	120	157	10.40	0	366	81	448	1	
Guja rat	Bhav n a g a r	Palita n a	Gandhol	Du g W e l l	BV N- 05 8	21°27' 34"	71°46' 06"	unconf ined	BAS	0. 50	81.5 1		Ma y- 01- 20 12	Pre- mons oon	7.5 0	106 0	740	388	50	63	63	1.40	0	439	24	96	1.32	
Guja rat	Bhav n a g a r	Palita n a	Chonda	Du g W e l l	BV N- 05 9A	21°32' 37"	71°42' 59"	unconf ined	BAS	0. 60	87.6 0		Ma y- 01- 20 12	Pre- mons oon	7.8 0	114 0	800	313	65	36	98	30.90	0	390	35	136	0.25	19.9 3
Guja rat	Bhav n a g a r	Palita n a	Palitana	Du g W e l l	BV N- 06 0A	21°33' 22"	71°49' 56"	unconf ined	BAS	0	73		Ma y- 01- 20 12	Pre- mons oon	7.2 0	220 0	150 0	713	80	123	170	7.90	0	793	48	272	1.65	
Guja rat	Bhav n a g a r	Palita n a	Lakhavad	Du g W e l l	BV N- 06 1	21°29' 01"	71°55' 33"	unconf ined	BAS	1	44.5 0		Ma y- 01- 20 12	Pre- mons oon	7.3 0	490 0	279 0	1538	145	282	413	8	0	439	100	1400	1.16	
Guja rat	Bhav n a g a r	Palita n a	Mokhadaka	Du g W e l l	BV N- 06 2	21°35' 01"	71°50' 54"	unconf ined	BAS	0. 70	74		Ma y- 01- 20 12	Pre- mons oon	8	320 0	190 0	625	45	123	446	1	0	305	100	880	1	
Guja rat	Bhav n a g a r	Palita n a	Nonghanva dar	Du g W e l l	BV N- 06 4A	21°38' 18"	71°42' 57"	unconf ined	BAS	0	93		Ma y- 01- 20 12	Pre- mons oon	8	115 0	820	188	20	33	177	0.60	0	439	33	120	1.48	

Guja rat	Bhavn agar	Vallabh ipur	Juni Rajasthali	Du g We ll	BV N- 07 4A	21°51' 10"	71°47' 39"	unconf ined	BAS	0. 20	25.1 0		Ma y- 01- 20 12	Pre- mons oon	7.9 0	490 0	292 0	938	65	186	683	2	0	451	290	1240	1	
Guja rat	Bhavn agar	Vallabh ipur	Vallabhipur	Du g We ll	BV N- 07 5	21°54' 02"	71°52' 42"	unconf ined	ALV	0. 60	17		Ma y- 01- 20 12	Pre- mons oon	8.2 0	760 0	504 0	363	35	66	1572	1	0	1427	330	1600	8.40	
Guja rat	Bhavn agar	Vallabh ipur	Hadmatiya	Du g We ll	BV N- 07 6A	21°56' 57"	71°48' 14"	unconf ined	BAS	0	39		Ma y- 01- 20 12	Pre- mons oon	8.5 0	113 0	830	250	40	36	141	4.60	0	525	14	72	1	
Guja rat	Bhavn agar	Vallabh ipur	Panvi	Du g We ll	BV N- 07 7	22°04' 12"	71°53' 31"	unconf ined	ALV	0. 50	17		Ma y- 01- 20 12	Pre- mons oon	8.2 0	340 0	244 0	363	50	57	604	2	0	1257	67	400	6.70	
Guja rat	Bhavn agar	Bhavna gar	Bhavnagar	Du g We ll	BV N- 07 8	21°42' 52"	72°09' 22"	unconf ined	BAS	0. 55	33.1 0		Ma y- 01- 20 12	Pre- mons oon	7.9 0	530 0	316 0	1238	70	255	649	0	0	573	290	1320	6.70	
Guja rat	Bhavn agar	Bhavna gar	Vartej	Du g We ll	BV N- 07 9A	21°44' 53"	72°03' 32"	unconf ined	ALV	0. 50	22		Ma y- 01- 20 12	Pre- mons oon	8	119 0	790	388	30	75	93	2.30	0	390	29	168	1	
Guja rat	Bhavn agar	Bhavna gar	Sidsar	Du g We ll	BV N- 08 0A	21°44' 52"	72°08' 24"	unconf ined	BAS	0. 60	40		Ma y- 01- 20 12	Pre- mons oon	8	156 0	105 0	250	35	39	241	3.40	0	403	52	272	1	
Guja rat	Bhavn agar	Bhavna gar	Thordi	Du g We ll	BV N- 08 1	21°38' 57"	72°11' 38"	unconf ined	BAS	0. 20	38		Ma y- 01- 20 12	Pre- mons oon	7.7 0	143 0	960	388	35	72	148	2.20	0	451	43	208	1.16	
Guja rat	Bhavn agar	Bhavna gar	Kobdi	Du g We ll	BV N- 08 2A	21°38' 37"	72°08' 41"	unconf ined	BAS	0	63		Ma y- 01- 20 12	Pre- mons oon	7.8 0	190 0	115 0	700	40	144	114	1.40	0	390	95	368	1.16	

Guja rat	Bhavna gar	Bhavna gar	Thalsar	Du g We ll	BV N- 08 3	21°32' 06"	72°14' 35"	unconf ined	ALV	0. 60	28.6 0		Ma y- 01- 20 12	Pre- mons oon	7.5 0	300 0	200 0	475	75	69	466	0	0	573	380	440	1.16	
Guja rat	Amreli	Dhari	Kagdadi	Du g We ll	AM R- 01 7A	21°24' 14"	70°57' 37"	unconf ined	BAS	0. 50	200		Oct - 01- 20 12	Post- mons oon	8.3 0	186 0	109 0	650	75	111	122	11.20	12	281	101	360	0.04	78.3 9
Guja rat	Amreli	Dhari	Dalkhania	Du g We ll	AM R- 01 8	21°14' 28"	70°55' 29"	unconf ined	BAS	0. 15	308	75	Oct - 01- 20 12	Post- mons oon	7.9 0	117 0	770	488	75	72	43	1.30	0	415	44	112	0.15	43.8 4
Guja rat	Amreli	Dhari	Dhari	Du g We ll	AM R- 01 9	21°19' 52"	71°02' 08"	unconf ined	BAS	0. 30	205		Oct - 01- 20 12	Post- mons oon	8	185 0	108 0	738	140	93	85	1.40	0	329	98	304	0.29	148. 80
Guja rat	Amreli	Dhari	Halariya	Du g We ll	AM R- 02 0	21°25' 51"	71°04' 02"	unconf ined	ALV	0. 85	162		Oct - 01- 20 12	Post- mons oon	7.8 0	181 0	113 0	388	55	60	236	1.20	0	329	86	344	0.19	66.8 7
Guja rat	Amreli	Dhari	Chalala	Du g We ll	AM R- 02 1	21°25' 32"	71°09' 52"	unconf ined	ALV	0	134	30. 25	Oct - 01- 20 12	Post- mons oon	8.9 0	240 0	158 0	238	20	45	431	0.70	36	598	66	368	0.33	46.5 0
Guja rat	Amreli	Dhari	Samadhiyal a(nana)	Du g We ll	AM R- 02 2	21°22' 37"	71°14' 19"	unconf ined	ALV	0	143	57	Oct - 01- 20 12	Post- mons oon	8.1 0	760	460	313	35	54	30	0.90	13.90	186	25	104	0.06	36.7 6
Guja rat	Amreli	Dhari	Morjhar	Du g We ll	AM R- 02 3	21°22' 28"	71°06' 43"	unconf ined	ALV	0	147. 01	63. 1	Oct - 01- 20 12	Post- mons oon	8.5 0	160 0	108 0	338	20	69	211	0.80	24	512	36	200	0.52	18.6 0
Guja rat	Amreli	Dhari	Dhargani	Du g We ll	AM R- 02 4	21°19' 44"	71°11' 52"	unconf ined	ALV	0	148		Oct - 01- 20 12	Post- mons oon	7.6 0	172 0	980	613	115	78	112	0.80	0	244	56	344	0.26	138. 61

Guja rat	Amreli	Dhari	Devda	Du g We ll	AM R- 02 5	21°17' 01"	71°06' 05"	unconf ined	BAS	0. 10	243	90	Oct - 01- 20 12	Post- mons oon	7.7 0	109 0	600	475	75	69	31	1	0	195	60	128	0.11	167. 40
Guja rat	Amreli	Dhari	Virpur	Du g We ll	AM R- 02 6	21°15' 00"	71°08' 37"	unconf ined	BAS	1	206. 33	90	Oct - 01- 20 12	Post- mons oon	7.6 0	660	430	275	55	33	23	1.80	4.60	195	30	80	0.24	14.1 7
Guja rat	Amreli	Dhari	Dudhala	Du g We ll	AM R- 02 8	21°09' 33"	71°03' 22"	unconf ined	BAS	0. 60	245	90	Oct - 01- 20 12	Post- mons oon	8.5 0	780	500	225	20	42	74	0.60	1.20	249	27	72	0.04	60.6 7
Guja rat	Botad	Botad	Paliyad	Du g We ll	BV N- 00 7	22°15' 10"	71°34' 35"	unconf ined	BAS	0	121		Oct - 01- 20 12	Post- mons oon	8.4 0	230 0	128 0	725	85	123	188	2.10	12	268	72	496	0.39	143. 93
Guja rat	Botad		Botad	Du g We ll	BV N- 00 8A	22°09' 25"	71°41' 15"	unconf ined	BAS	0	78.8 0		Oct - 01- 20 12	Post- mons oon	8.4 0	240 0	153 0	600	55	111	273	4.40	12	586	79	392	0.46	72.6 3
Guja rat	Botad		Nagalpar	Du g We ll	BV N- 00 9A	22°07' 14"	71°38' 28"	unconf ined	BAS	0	88		Oct - 01- 20 12	Post- mons oon	8.5 0	119 0	800	400	30	78	88	1	12	451	35	88	0.63	49.6 0
Guja rat	Botad		Jotingada	Du g We ll	BV N- 01 0A	22°07' 00"	71°38' 22"	unconf ined	BAS	0	81		Oct - 01- 20 12	Post- mons oon	8.7 0	970	640	313	25	60	78	0.90	36	329	16	88	0.68	10.6 3
Guja rat	Botad	Gadha da	Goradka	Du g We ll	BV N- 01 2	22°01' 04"	71°36' 37"	unconf ined	BAS	0. 40	80		Oct - 01- 20 12	Post- mons oon	8	187 0	112 0	550	130	54	175	1.60	0	329	66	328	0.69	162. 09
Guja rat	Botad	Gadha da	Sakhpar Mota	Du g We ll	BV N- 01 3A	22°03' 32"	71°31' 52"	unconf ined	BAS	0. 75	107		Oct - 01- 20 12	Post- mons oon	7.6 0	440 0	259 0	913	175	114	584	1.80	0	427	138	1120	0.84	140. 39

Guja rat	Botad	Gadha da	Gadhada	Du g We ll	BV N- 01 4	21°57' 48"	71°34' 15"	unconf ined	BAS	0. 80	86		Oct - 01- 20 12	Post- mons oon	8.6 0	110 0	750	213	35	30	153	1.20	24	329	51	120	0.73	14.1 7
Guja rat	Botad	Gadha da	Mandavdha r	Du g We ll	BV N- 01 5	21°58' 04"	71°32' 04"	unconf ined	BAS	0. 30	96		Oct - 01- 20 12	Post- mons oon	8.5 0	154 0	106 0	250	30	42	236	1.40	24	500	61	160	0.84	28.7 9
Guja rat	Botad	Gadha da	Limbali	Du g We ll	BV N- 01 6	21°59' 41"	71°27' 21"	unconf ined	BAS	0	130		Oct - 01- 20 12	Post- mons oon	7.9 0	220 0	140 0	375	55	57	328	1.30	0	512	88	320	0.49	150. 57
Guja rat	Botad	Gadha da	Chabhadiya	Du g We ll	BV N- 01 7A	21°54' 01"	71°42' 22"	unconf ined	BAS	0. 40	65		Oct - 01- 20 12	Post- mons oon	7.7 0	128 0	800	450	40	84	86	0.40	0	293	52	240	1	
Guja rat	Botad	Gadha da	Junavadar	Du g We ll	BV N- 01 8	21°50' 36"	71°31' 17"	unconf ined	BAS	2. 35	79		Oct - 01- 20 12	Post- mons oon	7.6 0	330 0	186 0	850	165	105	363	1.60	0	244	102	840	0.47	157. 66
Guja rat	Bhavn agar	Umrالا	Ujalvav	Du g We ll	BV N- 02 0	21°54' 06"	71°43' 43"	unconf ined	BAS	0. 50	56		Oct - 01- 20 12	Post- mons oon	8.4 0	122 0	680	350	40	60	117	0.70	12	146	67	200	0.70	138. 17
Guja rat	Bhavn agar	Umrالا	Dadva (Randalna)	Du g We ll	BV N- 02 1A	21°51' 41"	71°45' 03"	unconf ined	BAS	0. 60	35		Oct - 01- 20 12	Post- mons oon	7.8 0	280 0	168 0	638	105	90	343	1.90	0	354	89	680	0.77	51.8 1
Guja rat	Bhavn agar	Umrالا	Samadhiyal a	Du g We ll	BV N- 02 2	21°51' 26"	71°41' 22"	unconf ined	BAS	0. 40	40.5 0		Oct - 01- 20 12	Post- mons oon	8.3 0	139 0	890	250	45	33	202	2.30	12	232	110	248	0.51	19.4 9
Guja rat	Bhavn agar	Umrالا	Bhojavadar	Du g We ll	BV N- 02 3	21°50' 37"	71°42' 57"	unconf ined	ALV	1. 50	36		Oct - 01- 20 12	Post- mons oon	7.7 0	530	350	175	30	24	38	3.90	2.50	167	24	64	0.84	

Guja rat	Bhav n agar	Umr ala	Had mata la	Du g We ll	BV N- 02 4A	21°51' 14"	71°45' 02"	unconf ined	BAS	0	39		Oct - 01- 20 12	Post- mons oon	7.7 0	280 0	170 0	600	105	81	360	3.60	0	488	105	520	0.77	159. 43
Guja rat	Bhav n agar	Umr ala	Ratan par	Du g We ll	BV N- 02 5A	21°50' 26"	71°49' 11"	unconf ined	BAS	0	22		Oct - 01- 20 12	Post- mons oon	7.8 0	410 0	259 0	500	70	78	707	4	0	659	136	920	1.33	52.2 6
Guja rat	Bhav n agar	Umr ala	Chogath (Thap nath)	Du g We ll	BV N- 02 6	21°50' 02"	71°51' 27"	unconf ined	ALV	0. 60	16		Oct - 01- 20 12	Post- mons oon	7.3 0	550 0	332 0	1375	170	228	626	4.50	0	708	228	1360	0.59	0
Guja rat	Bhav n agar	Umr ala	Umr ala	Du g We ll	BV N- 02 7A	21°50' 50"	71°48' 05"	unconf ined	ALV	0. 30	22.3 0		Oct - 01- 20 12	Post- mons oon	8.5 0	147 0	100 0	213	40	27	239	0.90	24	403	49	208	0.51	19.4 9
Guja rat	Bhav n agar	Umr ala	Pipar ali	Du g We ll	BV N- 02 8A	21°47' 43"	71°46' 56"	unconf ined	BAS	0. 30	25		Oct - 01- 20 12	Post- mons oon	8.1 0	119 0	810	250	45	33	155	2.10	0	342	59	168	0.85	9.30
Guja rat	Bhav n agar	Umr ala	Rang hola	Du g We ll	BV N- 02 9	21°46' 40"	71°39' 45"	unconf ined	BAS	0. 30	54		Oct - 01- 20 12	Post- mons oon	7.8 0	230 0	130 0	888	200	93	118	1.30	0	195	72	608	0.67	44.7 3
Guja rat	Bhav n agar	Gari ad har	Moti Vavdi	Du g We ll	BV N- 03 0A	21°35' 54"	71°39' 18"	unconf ined	BAS	0	105		Oct - 01- 20 12	Post- mons oon	7.9 0	157 0	112 0	350	70	42	196	6	0	598	42	160	0.79	21.7 0
Guja rat	Bhav n agar	Gari ad har	Bhand ariya	Du g We ll	BV N- 03 2	21°28' 51"	71°37' 22"	unconf ined	BAS	0	75		Oct - 01- 20 12	Post- mons oon	7.7 0	230 0	142 0	550	55	99	266	1.30	0	415	90	488	1	
Guja rat	Bhav n agar	Palit an a	Thada ch	Du g We ll	BV N- 05 5A	21°23' 59"	71°56' 12"	unconf ined	BAS	0	47		Oct - 01- 20 12	Post- mons oon	9.2 0	181 0	126 0	213	35	30	316	2.50	84	634	44	96	1.42	68.6 4

Guja rat	Bhav n agar	Palita n a	Nani Rajasthali	Du g We ll	BV N- 05 6	21°27' 51"	71°54' 32"	unconf ined	BAS	3	49		Oct - 01- 20 12	Post- mons oon	8	127 0	810	500	95	63	60	1.60	0	354	43	176	0.59	54.0 3
Guja rat	Bhav n agar	Palita n a	Anida(Lakha vad)	Du g We ll	BV N- 05 7	21°30' 19"	71°54' 47"	unconf ined	BAS	0. 45	50.3 0		Oct - 01- 20 12	Post- mons oon	7.7 0	210 0	116 0	750	150	90	127	5.60	0	183	100	472	0.42	134. 19
Guja rat	Bhav n agar	Palita n a	Chonda	Du g We ll	BV N- 05 9A	21°32' 37"	71°42' 59"	unconf ined	BAS	0. 60	87.6 0		Oct - 01- 20 12	Post- mons oon	7.6 0	850	590	225	45	27	88	5.40	0	305	24	96	1.16	
Guja rat	Bhav n agar	Palita n a	Palitana	Du g We ll	BV N- 06 0A	21°33' 22"	71°49' 56"	unconf ined	BAS	0	73		Oct - 01- 20 12	Post- mons oon	7.4 0	157 0	100 0	500	100	60	117	23.70	0	366	38	280	0.25	54.0 3
Guja rat	Bhav n agar	Palita n a	Lakhavad	Du g We ll	BV N- 06 1	21°29' 01"	71°55' 33"	unconf ined	BAS	1	44.5 0		Oct - 01- 20 12	Post- mons oon	7.7 0	154 0	900	600	115	75	76	1.50	0	244	59	312	0.19	80.1 6
Guja rat	Bhav n agar	Palita n a	Mokhadaka	Du g We ll	BV N- 06 2	21°35' 01"	71°50' 54"	unconf ined	BAS	0. 70	74		Oct - 01- 20 12	Post- mons oon	8.2 0	240 0	140 0	675	100	102	234	4.80	12	268	77	600	0.41	17.7 1
Guja rat	Bhav n agar	Palita n a	Nonghanva dar	Du g We ll	BV N- 06 4A	21°38' 18"	71°42' 57"	unconf ined	BAS	0	93		Oct - 01- 20 12	Post- mons oon	8	920	800	175	35	21	130	1.50	0	549	23	40	1.23	1.77
Guja rat	Bhav n agar	Vallabh ipur	Juni Rajasthali	Du g We ll	BV N- 07 4A	21°51' 10"	71°47' 39"	unconf ined	BAS	0. 20	25.1 0		Oct - 01- 20 12	Post- mons oon	8.2 0	136 0	880	175	35	21	229	2.10	12	281	66	232	0.44	29.6 7
Guja rat	Bhav n agar	Vallabh ipur	Vallabhipur	Du g We ll	BV N- 07 5	21°54' 02"	71°52' 42"	unconf ined	ALV	0. 60	17		Oct - 01- 20 12	Post- mons oon	7.9 0	720 0	455 0	450	45	81	1445	2.80	0	830	300	1840	1.38	1.77

Guja rat	Bhav nagar	Vallab hipur	Panvi	Du g We ll	BV N- 07 7	22°04' 12"	71°53' 31"	unconf ined	ALV	0. 50	17		Oct - 01- 20 12	Post- mons oon	8.8 0	310 0	226 0	188	45	18	615	8.50	72	1147	81	272	1.58	4.43
Guja rat	Bhav nagar	Bhavna gar	Bhavnagar	Du g We ll	BV N- 07 8	21°42' 52"	72°09' 22"	unconf ined	BAS	0. 55	33.1 0		Oct - 01- 20 12	Post- mons oon	8.3 0	350 0	208 0	725	75	129	467	2.40	12	403	96	880	1.41	59.3 4
Guja rat	Bhav nagar	Bhavna gar	Vartej	Du g We ll	BV N- 07 9A	21°44' 53"	72°03' 32"	unconf ined	ALV	0. 50	22		Oct - 01- 20 12	Post- mons oon	7.6 0	280 0	164 0	888	145	126	231	1.30	0	366	38	720	0.37	35.4 3
Guja rat	Bhav nagar	Bhavna gar	Sidsar	Du g We ll	BV N- 08 0A	21°44' 52"	72°08' 24"	unconf ined	BAS	0. 60	40		Oct - 01- 20 12	Post- mons oon	8.2 0	760	510	275	40	42	46	1.60	0.80	279	0	96	0.74	6.64
Guja rat	Bhav nagar	Bhavna gar	Thordi	Du g We ll	BV N- 08 1	21°38' 57"	72°11' 38"	unconf ined	BAS	0. 20	38		Oct - 01- 20 12	Post- mons oon	8.1 0	128 0	750	500	40	96	62	2.40	0	268	10	256	0	58.0 1
Guja rat	Bhav nagar	Bhavna gar	Kobdi	Du g We ll	BV N- 08 2A	21°38' 37"	72°08' 41"	unconf ined	BAS	0	63		Oct - 01- 20 12	Post- mons oon	8.3 0	107 0	640	313	40	51	101	1	12	220	50	152	0.48	73.9 6
Guja rat	Bhav nagar	Bhavna gar	Thalsar	Du g We ll	BV N- 08 3	21°32' 06"	72°14' 35"	unconf ined	ALV	0. 60	28.6 0		Oct - 01- 20 12	Post- mons oon	8.2 0	188 0	114 0	425	85	51	229	11.40	12	220	109	408	0.49	52.7 0
Guja rat	Amreli	Dhari	Kagdadi	Du g We ll	AM R- 01 7A	21°24' 14"	70°57' 37"	unconf ined	BAS	0. 50	200		Ma y- 01- 20 13	Pre- mons oon	8.2 0	193 0	112 0	750	125	105	90	11.80	12	244	110	408	0.29	62
Guja rat	Amreli	Dhari	Dalkhania	Du g We ll	AM R- 01 8	21°14' 28"	70°55' 29"	unconf ined	BAS	0. 15	308	75	Ma y- 01- 20 13	Pre- mons oon	7.4 0	123 0	770	300	30	54	142	1.70	0	220	65	256	0.53	0.44

Guja rat	Amreli	Dhari	Dhari	Du g We ll	AM R- 01 9	21°19' 52"	71°02' 08"	unconf ined	BAS	0. 30	205		Ma y- 01- 20 13	Pre- mons oon	7.6 0	179 0	116 0	513	105	60	175	0.80	0	464	96	240	0.43	87.6 9
Guja rat	Amreli	Dhari	Halariya	Du g We ll	AM R- 02 0	21°25' 51"	71°04' 02"	unconf ined	ALV	0. 85	162		Ma y- 01- 20 13	Pre- mons oon	8.1 0	210 0	135 0	400	60	60	290	1.90	0	512	67	352	0.32	48.7 1
Guja rat	Amreli	Dhari	Chalala	Du g We ll	AM R- 02 1	21°25' 32"	71°09' 52"	unconf ined	ALV	0	134	30. 25	Ma y- 01- 20 13	Pre- mons oon	8.3 0	230 00	128 90	2875	200	570	3900	71.20	24	98	26	8000	1.15	0.89
Guja rat	Amreli	Dhari	Samadhiyal a(nana)	Du g We ll	AM R- 02 2	21°22' 37"	71°14' 19"	unconf ined	ALV	0	143	57	Ma y- 01- 20 13	Pre- mons oon	7.8 0	850	530	325	25	63	45	0.90	0	232	27	136	0.02	14.6 1
Guja rat	Amreli	Dhari	Dhargani	Du g We ll	AM R- 02 4	21°19' 44"	71°11' 52"	unconf ined	ALV	0	148		Ma y- 01- 20 13	Pre- mons oon	7.6 0	180 0	103 0	588	90	87	142	1	0	244	60	384	0.69	115. 14
Guja rat	Amreli	Dhari	Devda	Du g We ll	AM R- 02 5	21°17' 01"	71°06' 05"	unconf ined	BAS	0. 10	243	90	Ma y- 01- 20 13	Pre- mons oon	7.5 0	158 0	970	550	85	81	108	0.90	0	427	57	168	0.26	168. 29
Guja rat	Amreli	Dhari	Dudhala	Du g We ll	AM R- 02 8	21°09' 33"	71°03' 22"	unconf ined	BAS	0. 60	245	90	Ma y- 01- 20 13	Pre- mons oon	7.9 0	990	620	250	40	36	108	4.40	0	183	61	176	1.73	27.9 0
Guja rat	Botad	Botad	Paliyad	Du g We ll	BV N- 00 7	22°15' 10"	71°34' 35"	unconf ined	BAS	0	121		Ma y- 01- 20 13	Pre- mons oon	7.7 0	250 0	153 0	750	90	126	215	11.50	0	525	67	480	0.01	69.9 7
Guja rat	Botad		Botad	Du g We ll	BV N- 00 8A	22°09' 25"	71°41' 15"	unconf ined	BAS	0	78.8 0		Ma y- 01- 20 13	Pre- mons oon	7.8 0	290 0	187 0	750	85	129	317	4	0	732	104	488	0.11	58.4 6

Guja rat	Botad		Nagalpar	Du g We ll	BV N- 00 9A	22°07' 14"	71°38' 28"	unconf ined	BAS	0	88		Ma y- 01- 20 13	Pre- mons oon	8.2 0	124 0	800	375	35	69	110	0.90	12	390	52	120	0.41	58.9 0
Guja rat	Botad		Jotingada	Du g We ll	BV N- 01 0A	22°07' 00"	71°38' 22"	unconf ined	BAS	0	81		Ma y- 01- 20 13	Pre- mons oon	8.8 0	119 0	830	388	100	33	93	1.90	36	476	0	80	0.29	34.9 9
Guja rat	Botad	Gadha da	Sakhpar Mota	Du g We ll	BV N- 01 3	22°01' 18"	71°38' 34"	unconf ined	BAS	1	107		Ma y- 01- 20 13	Pre- mons oon	8.2 0	210 0	118 0	750	150	90	130	1.40	12	244	90	432	0.23	131. 09
Guja rat	Botad	Gadha da	Sakhpar Mota	Du g We ll	BV N- 01 3A	22°03' 32"	71°31' 52"	unconf ined	BAS	0.75	107		Ma y- 01- 20 13	Pre- mons oon	8	600 0	341 0	1400	100	276	730	5.10	0	366	298	1600	0.43	132. 41
Guja rat	Botad	Gadha da	Gadhada	Du g We ll	BV N- 01 4	21°57' 48"	71°34' 15"	unconf ined	BAS	0.80	86		Ma y- 01- 20 13	Pre- mons oon	8.2 0	119 0	810	225	30	36	169	0.30	12	366	38	160	0.68	7.09
Guja rat	Botad	Gadha da	Mandavdha r	Du g We ll	BV N- 01 5	21°58' 04"	71°32' 04"	unconf ined	BAS	0.30	96		Ma y- 01- 20 13	Pre- mons oon	7.7 0	240 0	148 0	575	60	102	285	2.20	0	464	62	480	0.28	94.7 7
Guja rat	Botad	Gadha da	Limbali	Du g We ll	BV N- 01 6	21°59' 41"	71°27' 21"	unconf ined	BAS	0	130		Ma y- 01- 20 13	Pre- mons oon	7.3 0	340 0	189 0	1438	280	177	116	0.60	0	317	162	800	0.52	147. 91
Guja rat	Botad	Gadha da	Chabhadiya	Du g We ll	BV N- 01 7A	21°54' 01"	71°42' 22"	unconf ined	BAS	0.40	65		Ma y- 01- 20 13	Pre- mons oon	7.6 0	210 0	119 0	450	115	39	266	5.20	0	73	52	640	0.51	12.8 4
Guja rat	Botad	Gadha da	Junavadar	Du g We ll	BV N- 01 8	21°50' 36"	71°31' 17"	unconf ined	BAS	2.35	79		Ma y- 01- 20 13	Pre- mons oon	7.3 0	350 0	198 0	1150	200	156	270	0.60	0	342	133	840	0.52	147. 91

Guja rat	Bhav n a g a r	Umr a l a	Uja l v a v	Du g W e l l	BV N- 02 0	21°54' 06"	71°43' 43"	unconf ined	BAS	0. 50	56		Ma y- 01- 20 13	Pre- mons oon	7.9 0	145 0	880	475	60	78	113	0.80	0	366	40	192	0.48	133. 30
Guja rat	Bhav n a g a r	Umr a l a	Dad va (Ran dal na)	Du g W e l l	BV N- 02 1A	21°51' 41"	71°45' 03"	unconf ined	BAS	0. 60	35		Ma y- 01- 20 13	Pre- mons oon	8	320 0	182 0	850	100	144	340	2.20	0	244	86	904	0.39	9.74
Guja rat	Bhav n a g a r	Umr a l a	Sam adhi yal a	Du g W e l l	BV N- 02 2	21°51' 26"	71°41' 22"	unconf ined	BAS	0. 40	40.5 0		Ma y- 01- 20 13	Pre- mons oon	8	400 0	240 0	1025	115	177	437	14.30	0	573	100	960	0.66	81.9 3
Guja rat	Bhav n a g a r	Umr a l a	Bho javad ar	Du g W e l l	BV N- 02 3A	21°50' 59"	71°43' 25"	unconf ined	ALV	0. 30	36		Ma y- 01- 20 13	Pre- mons oon	8.6 0	195 0	120 0	213	20	39	350	0.40	36	281	76	376	1.48	82.8 1
Guja rat	Bhav n a g a r	Umr a l a	Had mata la	Du g W e l l	BV N- 02 4A	21°51' 14"	71°45' 02"	unconf ined	BAS	0	39		Ma y- 01- 20 13	Pre- mons oon	7.7 0	320 0	196 0	438	95	48	527	3.10	0	439	138	680	0.23	138. 61
Guja rat	Bhav n a g a r	Umr a l a	Ratan par	Du g W e l l	BV N- 02 5A	21°50' 26"	71°49' 11"	unconf ined	BAS	0	22		Ma y- 01- 20 13	Pre- mons oon	7.9 0	380 0	238 0	525	55	93	627	3.90	0	573	138	880	1.02	41.6 3
Guja rat	Bhav n a g a r	Umr a l a	Choga th (Thap nath)	Du g W e l l	BV N- 02 6	21°50' 02"	71°51' 27"	unconf ined	ALV	0. 60	16		Ma y- 01- 20 13	Pre- mons oon	8.2 0	640 0	386 0	975	95	177	1022	2	12	268	860	1400	0.89	79.7 1
Guja rat	Bhav n a g a r	Umr a l a	Umr a l a	Du g W e l l	BV N- 02 7A	21°50' 50"	71°48' 05"	unconf ined	ALV	0. 30	22.3 0		Ma y- 01- 20 13	Pre- mons oon	8	180 0	123 0	175	40	18	332	0.50	0	464	48	320	0.28	15.0 6
Guja rat	Bhav n a g a r	Umr a l a	Pipa rali	Du g W e l l	BV N- 02 8A	21°47' 43"	71°46' 56"	unconf ined	BAS	0. 30	25		Ma y- 01- 20 13	Pre- mons oon	7.9 0	200 0	139 0	238	45	30	349	1	0	598	40	320	0.97	15.0 6

Guja rat	Bhav n a g a r	Umr a l a	Rang h o l a	Du g W e l l	BV N- 02 9	21°46' 40"	71°39' 45"	unconf ined	BAS	0. 30	54		Ma y- 01- 20 13	Pre- mons oon	7.4 0	136 0	870	413	95	42	122	0.60	0	305	20	280	0.06	12.4 0
Guja rat	Bhav n a g a r	Gari ad har	Moti Vavdi	Du g W e l l	BV N- 03 0A	21°35' 54"	71°39' 18"	unconf ined	BAS	0	105		Ma y- 01- 20 13	Pre- mons oon	8.7 0	168 0	107 0	513	55	90	148	1.70	36	488	67	168	0.68	82.8 1
Guja rat	Bhav n a g a r	Gari ad har	Bhandariya	Du g W e l l	BV N- 03 2	21°28' 51"	71°37' 22"	unconf ined	BAS	0	75		Ma y- 01- 20 13	Pre- mons oon	7.6 0	400 0	242 0	725	125	99	584	1.80	0	476	181	920	1	147. 91
Guja rat	Bhav n a g a r	Palita n a	Thadach	Du g W e l l	BV N- 05 5A	21°23' 59"	71°56' 12"	unconf ined	BAS	0	47		Ma y- 01- 20 13	Pre- mons oon	7.4 0	460 0	255 0	1538	100	309	345	2.20	0	403	125	1240	0.18	93.8 9
Guja rat	Bhav n a g a r	Palita n a	Nani Rajasthali	Du g W e l l	BV N- 05 6	21°27' 51"	71°54' 32"	unconf ined	BAS	3	49		Ma y- 01- 20 13	Pre- mons oon	8.2 0	139 0	860	500	85	69	88	2.10	12	317	0	288	0.30	1.77
Guja rat	Bhav n a g a r	Palita n a	Anida(Lakha vad)	Du g W e l l	BV N- 05 7	21°30' 19"	71°54' 47"	unconf ined	BAS	0. 45	50.3 0		Ma y- 01- 20 13	Pre- mons oon	7.3 0	290 0	159 0	1250	250	150	91	0.80	0	220	129	720	0.68	147. 91
Guja rat	Bhav n a g a r	Palita n a	Chonda	Du g W e l l	BV N- 05 9	21°32' 19"	71°42' 52"	unconf ined	BAS	1	87.6 0		Ma y- 01- 20 13	Pre- mons oon	8.4 0	150 0	900	513	70	81	90	31.70	24	244	0	352	0.32	8.86
Guja rat	Bhav n a g a r	Palita n a	Chonda	Du g W e l l	BV N- 05 9A	21°32' 37"	71°42' 59"	unconf ined	BAS	0. 60	87.6 0		Ma y- 01- 20 13	Pre- mons oon	7.3 0	270 0	184 0	963	150	141	160	29.10	0	976	52	320	1.08	31.8 9
Guja rat	Bhav n a g a r	Palita n a	Lakhavad	Du g W e l l	BV N- 06 1	21°29' 01"	71°55' 33"	unconf ined	BAS	1	44.5 0		Ma y- 01- 20 13	Pre- mons oon	8	168 0	104 0	675	100	102	72	5.10	0	390	30	336	0.34	13.7 3

Guja rat	Bhav n agar	Palita n a	Mokhadaka	Du g We ll	BV N- 06 2	21°35' 01"	71°50' 54"	unconf ined	BAS	0. 70	74		Ma y- 01- 20 13	Pre- mons oon	7.9 0	230 0	141 0	625	55	117	235	5.60	0	415	70	512	0.49	10.1 9
Guja rat	Bhav n agar	Palita n a	Nonghanva dar	Du g We ll	BV N- 06 4A	21°38' 18"	71°42' 57"	unconf ined	BAS	0	93		Ma y- 01- 20 13	Pre- mons oon	7.4 0	122 0	830	225	40	30	176	0.80	0	366	43	160	1.48	36.7 6
Guja rat	Bhav n agar	Vallabh ipur	Juni Rajasthali	Du g We ll	BV N- 07 4A	21°51' 10"	71°47' 39"	unconf ined	BAS	0. 20	25.1 0		Ma y- 01- 20 13	Pre- mons oon	8.2 0	135 0	900	238	35	36	200	0.60	12	390	0	224	0.20	14.1 7
Guja rat	Bhav n agar	Vallabh ipur	Vallabhipur	Du g We ll	BV N- 07 5	21°54' 02"	71°52' 42"	unconf ined	ALV	0. 60	17		Ma y- 01- 20 13	Pre- mons oon	8.2 0	720 0	467 0	450	55	75	1445	3.40	12	1196	162	1720	1.57	2.66
Guja rat	Bhav n agar	Vallabh ipur	Panvi	Du g We ll	BV N- 07 7	22°04' 12"	71°53' 31"	unconf ined	ALV	0. 50	17		Ma y- 01- 20 13	Pre- mons oon	7.9 0	320 0	210 0	350	45	57	570	2.70	0	671	70	680	1.14	0
Guja rat	Bhav n agar	Bhavna gar	Bhavnagar	Du g We ll	BV N- 07 8	21°42' 52"	72°09' 22"	unconf ined	BAS	0. 55	33.1 0		Ma y- 01- 20 13	Pre- mons oon	7.6 0	440 0	259 0	1125	260	114	489	3.90	0	366	238	1080	1.48	147. 47
Guja rat	Bhav n agar	Bhavna gar	Vartej	Du g We ll	BV N- 07 9A	21°44' 53"	72°03' 32"	unconf ined	ALV	0. 50	22		Ma y- 01- 20 13	Pre- mons oon	7.5 0	390 0	216 0	1413	110	273	245	1.70	0	268	60	1200	0.24	26.1 3
Guja rat	Bhav n agar	Bhavna gar	Sidsar	Du g We ll	BV N- 08 0A	21°44' 52"	72°08' 24"	unconf ined	BAS	0. 60	40		Ma y- 01- 20 13	Pre- mons oon	8	139 0	890	500	60	84	88	1.30	0	415	42	184	0.41	56.2 4
Guja rat	Bhav n agar	Bhavna gar	Thordi	Du g We ll	BV N- 08 1	21°38' 57"	72°11' 38"	unconf ined	BAS	0. 20	38		Ma y- 01- 20 13	Pre- mons oon	7.4 0	290 0	160 0	1063	185	144	175	1.70	0	220	100	760	0.56	75.2 9

Guja rat	Bhavn agar	Bhavna gar	Kobdi	Du g We ll	BV N- 08 2A	21°38' 37"	72°08' 41"	unconf ined	BAS	0	63		Ma y- 01- 20 13	Pre- mons oon	8.1 0	280 0	156 0	925	55	189	210	3.50	0	366	30	680	0.19	116. 47
Guja rat	Bhavn agar	Bhavna gar	Thalsar	Du g We ll	BV N- 08 3	21°32' 06"	72°14' 35"	unconf ined	ALV	0. 60	28.6 0		Ma y- 01- 20 13	Pre- mons oon	8.1 0	680	430	288	45	42	23	0.60	2.30	198	26	96	0	5.76
Guja rat	Amreli	Dhari	Kagdadi	Du g We ll	AM R- 01 7A	21°24' 14"	70°57' 37"	unconf ined	BAS	0. 50	200		Oct - 01- 20 13	Post- mons oon	8.2 0	182 0	107 0	738	105	114	70	11.90	12	281	95	368	0.84	42.9 6
Guja rat	Amreli	Dhari	Dalkhania	Du g We ll	AM R- 01 8	21°14' 28"	70°55' 29"	unconf ined	BAS	0. 15	308	75	Oct - 01- 20 13	Post- mons oon	7.4 0	149 0	910	550	80	84	88	1.70	0	366	52	216	0.52	101. 86
Guja rat	Amreli	Dhari	Dhari	Du g We ll	AM R- 01 9	21°19' 52"	71°02' 08"	unconf ined	BAS	0. 30	205		Oct - 01- 20 13	Post- mons oon	8.2 0	195 0	119 0	638	80	105	153	0.90	12	427	95	288	0.52	116. 91
Guja rat	Amreli	Dhari	Halariya	Du g We ll	AM R- 02 0	21°25' 51"	71°04' 02"	unconf ined	ALV	0. 85	162		Oct - 01- 20 13	Post- mons oon	7.4 0	107 0	710	238	25	42	135	1.50	0	305	38	160	0.52	18.1 6
Guja rat	Amreli	Dhari	Chalala	Du g We ll	AM R- 02 1	21°25' 32"	71°09' 52"	unconf ined	ALV	0	134	30. 25	Oct - 01- 20 13	Post- mons oon	7.8 0	270 0	175 0	288	35	48	480	0.50	0	561	71	544	0.84	22.5 9
Guja rat	Amreli	Dhari	Samadhiyal a(nana)	Du g We ll	AM R- 02 2	21°22' 37"	71°14' 19"	unconf ined	ALV	0	143	57	Oct - 01- 20 13	Post- mons oon	8.2 0	630	430	213	35	30	46	0.80	1.30	219	14	80	0.35	3.10
Guja rat	Amreli	Dhari	Dhargani	Du g We ll	AM R- 02 4	21°19' 44"	71°11' 52"	unconf ined	ALV	0	148		Oct - 01- 20 13	Post- mons oon	7.8 0	161 0	960	400	45	69	184	0.50	0	268	38	344	0.52	68.2 0

Guja rat	Amreli	Dhari	Devda	Du g We ll	AM R- 02 5	21°17' 01"	71°06' 05"	unconf ined	BAS	0. 10	243	90	Oct - 01- 20 13	Post- mons oon	7.3 0	159 0	950	625	115	81	76	0.90	0	378	71	192	0.52	167. 84
Guja rat	Amreli	Dhari	Virpur	Du g We ll	AM R- 02 6A	21°15' 00"	71°08' 37"	unconf ined	BAS	1	208		Oct - 01- 20 13	Post- mons oon	7.6 0	134 0	890	525	80	78	65	1.50	0	488	48	120	0.52	50.0 4
Guja rat	Amreli	Dhari	Dudhala	Du g We ll	AM R- 02 8	21°09' 33"	71°03' 22"	unconf ined	BAS	0. 60	245	90	Oct - 01- 20 13	Post- mons oon	7.3 0	101 0	700	400	60	60	37	16.90	0	439	24	56	0.52	43.4 0
Guja rat	Botad	Botad	Paliyad	Du g We ll	BV N- 00 7	22°15' 10"	71°34' 35"	unconf ined	BAS	0	121		Oct - 01- 20 13	Post- mons oon	7.2 0	179 0	103 0	725	95	117	76	0.60	0	366	57	288	0.84	147. 91
Guja rat	Botad		Jotingada	Du g We ll	BV N- 01 0A	22°07' 00"	71°38' 22"	unconf ined	BAS	0	81		Oct - 01- 20 13	Post- mons oon	8.2 0	740	510	263	30	45	46	0.50	0.50	339	14	32	1	19.4 9
Guja rat	Botad	Gadha da	Sakhpar Mota	Du g We ll	BV N- 01 3A	22°03' 32"	71°31' 52"	unconf ined	BAS	0. 75	107		Oct - 01- 20 13	Post- mons oon	7.6 0	430 0	251 0	913	50	189	567	1	0	488	138	1040	1.32	167. 40
Guja rat	Botad	Gadha da	Gadhada	Du g We ll	BV N- 01 4	21°57' 48"	71°34' 15"	unconf ined	BAS	0. 80	86		Oct - 01- 20 13	Post- mons oon	7.8 0	670	460	250	40	36	38	0.30	2.40	258	0	80	0	6.20
Guja rat	Botad	Gadha da	Mandavdha r	Du g We ll	BV N- 01 5	21°58' 04"	71°32' 04"	unconf ined	BAS	0. 30	96		Oct - 01- 20 13	Post- mons oon	8.2 0	137 0	910	288	25	54	180	0.90	12	415	52	168	0.68	32.7 7
Guja rat	Botad	Gadha da	Limbali	Du g We ll	BV N- 01 6	21°59' 41"	71°27' 21"	unconf ined	BAS	0	130		Oct - 01- 20 13	Post- mons oon	7.6 0	189 0	110 0	625	65	111	145	1	0	342	18	400	0.41	96.1 0

Guja rat	Botad	Gadha da	Chabhadiya	Du g We ll	BV N- 01 7A	21°54' 01"	71°42' 22"	unconf ined	BAS	0. 40	65		Oct - 01- 20 13	Post- mons oon	7.7 0	960	610	313	65	36	76	0.60	0	281	29	104	0.52	83.7 0
Guja rat	Botad	Gadha da	Junavadar	Du g We ll	BV N- 01 8	21°50' 36"	71°31' 17"	unconf ined	BAS	2. 35	79		Oct - 01- 20 13	Post- mons oon	7.8 0	340 0	188 0	900	165	117	355	1.90	0	183	105	920	0.30	141. 27
Guja rat	Botad	Gadha da	Mandva	Du g We ll	BV N- 01 9	21°48' 22"	71°34' 56"	unconf ined	BAS	0. 30	75		Oct - 01- 20 13	Post- mons oon	7.8 0	102 0	650	238	70	15	124	0.30	0	232	33	160	0.52	69.5 3
Guja rat	Bhavn agar	Umrالا	Ujalvav	Du g We ll	BV N- 02 0	21°54' 06"	71°43' 43"	unconf ined	BAS	0. 50	56		Oct - 01- 20 13	Post- mons oon	7.9 0	119 0	710	375	65	51	100	0.30	0	268	48	144	0.35	141. 71
Guja rat	Bhavn agar	Umrالا	Bhojavadar	Du g We ll	BV N- 02 3A	21°50' 59"	71°43' 25"	unconf ined	ALV	0. 30	36		Oct - 01- 20 13	Post- mons oon	8	440	310	150	30	18	30	2.40	1.70	178	0	48	0.11	0
Guja rat	Bhavn agar	Umrالا	Hadmatالا	Du g We ll	BV N- 02 4A	21°51' 14"	71°45' 02"	unconf ined	BAS	0	39		Oct - 01- 20 13	Post- mons oon	7.7 0	300 0	179 0	800	100	132	318	5.40	0	451	133	616	0.84	141. 71
Guja rat	Bhavn agar	Umrالا	Ratanpar	Du g We ll	BV N- 02 5	21°49' 53"	71°49' 31"	unconf ined	ALV	0	22		Oct - 01- 20 13	Post- mons oon	7.9 0	103 0	710	175	30	24	156	0.40	0	293	62	144	1.16	0
Guja rat	Bhavn agar	Umrالا	Umrالا	Du g We ll	BV N- 02 7A	21°50' 50"	71°48' 05"	unconf ined	ALV	0. 30	22.3 0		Oct - 01- 20 13	Post- mons oon	7.6 0	650	460	163	25	24	73	0.50	1.90	258	24	56	0.84	0
Guja rat	Bhavn agar	Gariad har	Bhandariya	Du g We ll	BV N- 03 2	21°28' 51"	71°37' 22"	unconf ined	BAS	0	75		Oct - 01- 20 13	Post- mons oon	7.9 0	118 0	800	300	40	48	132	0.80	0	366	45	160	0.73	17.2 7

Guja rat	Bhav n agar	Palita n a	Nani Rajasthali	Du g We ll	BV N- 05 6	21°27' 51"	71°54' 32"	unconf ined	BAS	3	49		Oct - 01- 20 13	Post- mons oon	7.3 0	142 0	810	625	135	69	36	0.50	0	244	62	240	0.84	118. 69
Guja rat	Bhav n agar	Palita n a	Anida(Lakha vad)	Du g We ll	BV N- 05 7	21°30' 19"	71°54' 47"	unconf ined	BAS	0. 45	50.3 0		Oct - 01- 20 13	Post- mons oon	7.6 0	120 0	710	450	40	84	68	0.50	0	244	57	208	0.19	55.8 0
Guja rat	Bhav n agar	Palita n a	Chonda	Du g We ll	BV N- 05 9A	21°32' 37"	71°42' 59"	unconf ined	BAS	0. 60	87.6 0		Oct - 01- 20 13	Post- mons oon	7.4 0	110 0	700	313	70	33	93	24.40	0	268	52	144	0.68	81.4 9
Guja rat	Bhav n agar	Palita n a	Lakhavad	Du g We ll	BV N- 06 1	21°29' 01"	71°55' 33"	unconf ined	BAS	1	44.5 0		Oct - 01- 20 13	Post- mons oon	7.4 0	141 0	820	475	80	66	104	0.50	0	232	57	256	0.52	110. 27
Guja rat	Bhav n agar	Palita n a	Mokhadaka	Du g We ll	BV N- 06 2	21°35' 01"	71°50' 54"	unconf ined	BAS	0. 70	74		Oct - 01- 20 13	Post- mons oon	7.9 0	142 0	960	313	50	45	180	1.90	0	415	67	192	0.68	27.4 6
Guja rat	Bhav n agar	Palita n a	Nonghanva dar	Du g We ll	BV N- 06 4A	21°38' 18"	71°42' 57"	unconf ined	BAS	0	93		Oct - 01- 20 13	Post- mons oon	8.4 0	103 0	750	150	30	18	166	0.90	24	415	10	80	1.02	3.54
Guja rat	Bhav n agar	Vallabh ipur	Juni Rajasthali	Du g We ll	BV N- 07 4A	21°51' 10"	71°47' 39"	unconf ined	BAS	0. 20	25.1 0		Oct - 01- 20 13	Post- mons oon	8.2 0	750	510	138	30	15	108	0.20	1.60	218	24	112	0.52	2.66
Guja rat	Bhav n agar	Vallabh ipur	Vallabhipur	Du g We ll	BV N- 07 5	21°54' 02"	71°52' 42"	unconf ined	ALV	0. 60	17		Oct - 01- 20 13	Post- mons oon	7.5 0	720 0	448 0	575	55	105	1380	3	0	854	190	1880	1.65	31
Guja rat	Bhav n agar	Bhavna gar	Bhavnagar	Du g We ll	BV N- 07 8	21°42' 52"	72°09' 22"	unconf ined	BAS	0. 55	33.1 0		Oct - 01- 20 13	Post- mons oon	8.1 0	220 0	160 0	238	45	30	390	4.20	0	854	52	224	1.58	17.7 1

Guja rat	Bhavn agar	Bhavna gar	Sidsar	Du g We ll	BV N- 08 0A	21°44' 52"	72°08' 24"	unconf ined	BAS	0. 60	40		Oct - 01- 20 13	Post- mons oon	8.2 0	103 0	700	375	35	69	63	0.70	12	403	57	56	0.84	24.8 0
Guja rat	Bhavn agar	Bhavna gar	Thordi	Du g We ll	BV N- 08 1	21°38' 57"	72°11' 38"	unconf ined	BAS	0. 20	38		Oct - 01- 20 13	Post- mons oon	7.6 0	157 0	940	563	20	123	100	1.60	0	378	81	216	0.68	100. 53
Guja rat	Bhavn agar	Bhavna gar	Kobdi	Du g We ll	BV N- 08 2A	21°38' 37"	72°08' 41"	unconf ined	BAS	0	63		Oct - 01- 20 13	Post- mons oon	7.8 0	119 0	720	488	35	96	46	0.80	0	329	67	128	0.68	82.3 7
Guja rat	Amreli	Dhari	Kagdadi	Du g We ll	AM R- 01 7A	21°24' 14"	70°57' 37"	unconf ined	BAS	0. 50	200		Ma y- 01- 20 14	Pre- mons oon	7.8 0	220 0	136 0	775	115	117	141	12.50	0	488	81	384	0.03	89.4 6
Guja rat	Amreli	Dhari	Dalkhania	Du g We ll	AM R- 01 8	21°14' 28"	70°55' 29"	unconf ined	BAS	0. 15	308	75	Ma y- 01- 20 14	Pre- mons oon	7.8 0	940	610	250	50	30	99	1.10	0	220	52	160	0.03	6.64
Guja rat	Amreli	Dhari	Dhari	Du g We ll	AM R- 01 9	21°19' 52"	71°02' 08"	unconf ined	BAS	0. 30	205		Ma y- 01- 20 14	Pre- mons oon	8	200 0	121 0	625	85	99	170	1.20	0	415	76	328	0.03	139. 06
Guja rat	Amreli	Dhari	Halariya	Du g We ll	AM R- 02 0	21°25' 51"	71°04' 02"	unconf ined	ALV	0. 85	162		Ma y- 01- 20 14	Pre- mons oon	7.9 0	167 0	109 0	338	50	51	226	2.30	0	390	62	296	0.03	37.2 0
Guja rat	Amreli	Dhari	Chalala	Du g We ll	AM R- 02 1	21°25' 32"	71°09' 52"	unconf ined	ALV	0	134	30. 25	Ma y- 01- 20 14	Pre- mons oon	8.1 0	240 0	148 0	375	75	45	377	1.20	0	268	100	608	0.19	19.9 3
Guja rat	Amreli	Dhari	Samadhiyal a(nana)	Du g We ll	AM R- 02 2	21°22' 37"	71°14' 19"	unconf ined	ALV	0	143	57	Ma y- 01- 20 14	Pre- mons oon	7.9 0	102 0	680	250	45	33	119	0.60	0	293	24	160	0.19	21.2 6

Guja rat	Amreli	Dhari	Dhargani	Du g We ll	AM R- 02 4	21°19' 44"	71°11' 52"	unconf ined	ALV	0	148		Ma y- 01- 20 14	Pre- mons oon	8	200 0	121 0	538	65	90	209	0.80	0	390	48	384	0.19	100. 97
Guja rat	Amreli	Dhari	Devda	Du g We ll	AM R- 02 5	21°17' 01"	71°06' 05"	unconf ined	BAS	0. 10	243	90	Ma y- 01- 20 14	Pre- mons oon	7.8 0	152 0	970	500	80	72	118	1.20	0	488	38	136	0.03	156. 77
Guja rat	Amreli	Dhari	Virpur	Du g We ll	AM R- 02 6A	21°15' 00"	71°08' 37"	unconf ined	BAS	1	208		Ma y- 01- 20 14	Pre- mons oon	7.7 0	125 0	820	400	50	66	101	1.60	0	427	57	96	0.19	90.7 9
Guja rat	Amreli	Dhari	Dudhala	Du g We ll	AM R- 02 8	21°09' 33"	71°03' 22"	unconf ined	BAS	0. 60	245	90	Ma y- 01- 20 14	Pre- mons oon	7.8 0	102 0	700	338	40	57	78	0.40	0	427	19	72	0.03	43.4 0
Guja rat	Botad	Botad	Paliyad	Du g We ll	BV N- 00 7	22°15' 10"	71°34' 35"	unconf ined	BAS	0	121		Ma y- 01- 20 14	Pre- mons oon	7.9 0	240 0	116 0	900	40	192	84	0.70	0	268	76	456	0.52	167. 84
Guja rat	Botad		Jotingada	Du g We ll	BV N- 01 0A	22°07' 00"	71°38' 22"	unconf ined	BAS	0	81		Ma y- 01- 20 14	Pre- mons oon	7.8 0	100 0	710	275	30	48	102	1.30	0	451	10	64	0.68	29.6 7
Guja rat	Botad	Gadha da	Sakhpar Mota	Du g We ll	BV N- 01 3A	22°03' 32"	71°31' 52"	unconf ined	BAS	0. 75	107		Ma y- 01- 20 14	Pre- mons oon	7	530 0	306 0	1338	170	219	599	2.70	0	488	143	1400	0.84	147. 91
Guja rat	Botad	Gadha da	Gadhada	Du g We ll	BV N- 01 4	21°57' 48"	71°34' 15"	unconf ined	BAS	0. 80	86		Ma y- 01- 20 14	Pre- mons oon	7.7 0	129 0	880	225	45	27	192	0.80	0	366	62	184	1.16	19.4 9
Guja rat	Botad	Gadha da	Mandavdha r	Du g We ll	BV N- 01 5	21°58' 04"	71°32' 04"	unconf ined	BAS	0. 30	96		Ma y- 01- 20 14	Pre- mons oon	7.8 0	153 0	104 0	250	50	30	235	0.90	0	451	52	208	0.68	50.0 4

Guja rat	Botad	Gadha da	Limbali	Du g We ll	BV N- 01 6	21°59' 41"	71°27' 21"	unconf ined	BAS	0	130		Ma y- 01- 20 14	Pre- mons oon	7.4 0	500 0	268 0	1788	205	306	323	4	0	207	157	1440	0.84	166. 07
Guja rat	Botad	Gadha da	Chabhadiya	Du g We ll	BV N- 01 7A	21°54' 01"	71°42' 22"	unconf ined	BAS	0. 40	65		Ma y- 01- 20 14	Pre- mons oon	7.3 0	200 0	111 0	500	40	96	227	1.30	0	134	71	512	0.52	110. 71
Guja rat	Botad	Gadha da	Junavadar	Du g We ll	BV N- 01 8	21°50' 36"	71°31' 17"	unconf ined	BAS	2. 35	79		Ma y- 01- 20 14	Pre- mons oon	7.4 0	400 0	226 0	1050	180	144	427	0.60	0	305	124	1040	1	163. 86
Guja rat	Botad	Gadha da	Mandva	Du g We ll	BV N- 01 9	21°48' 22"	71°34' 56"	unconf ined	BAS	0. 30	75		Ma y- 01- 20 14	Pre- mons oon	7.7 0	172 0	101 0	663	50	129	88	1.30	0	403	38	264	0.35	141. 27
Guja rat	Bhav n agar	Umr ala	Ujalvav	Du g We ll	BV N- 02 0	21°54' 06"	71°43' 43"	unconf ined	BAS	0. 50	56		Ma y- 01- 20 14	Pre- mons oon	7.8 0	126 0	730	388	55	60	109	0.70	0	268	43	160	0.68	162. 97
Guja rat	Bhav n agar	Umr ala	Bhojavadar	Du g We ll	BV N- 02 3A	21°50' 59"	71°43' 25"	unconf ined	ALV	0. 30	36		Ma y- 01- 20 14	Pre- mons oon	8.2 0	250 0	164 0	175	40	18	485	3.90	12	561	76	416	1.65	105
Guja rat	Bhav n agar	Umr ala	Hadmatala	Du g We ll	BV N- 02 4A	21°51' 14"	71°45' 02"	unconf ined	BAS	0	39		Ma y- 01- 20 14	Pre- mons oon	7.6 0	370 0	215 0	988	45	210	392	0.80	0	537	129	800	0.68	167. 40
Guja rat	Bhav n agar	Umr ala	Ratanpar	Du g We ll	BV N- 02 5	21°49' 53"	71°49' 31"	unconf ined	ALV	0	22		Ma y- 01- 20 14	Pre- mons oon	7.9 0	230 0	151 0	250	35	39	384	0.40	0	549	110	384	1.48	23.4 7
Guja rat	Bhav n agar	Umr ala	Umr ala	Du g We ll	BV N- 02 7A	21°50' 50"	71°48' 05"	unconf ined	ALV	0. 30	22.3 0		Ma y- 01- 20 14	Pre- mons oon	7.7 0	146 0	100 0	200	25	33	241	1.30	0	439	43	216	0.52	15.5 0

Guja rat	Bhav n a g a r	Gari a d h a r	Bhandariya	Du g W e l l	BV N- 03 2	21°28' 51"	71°37' 22"	unconf ined	BAS	0	75		Ma y- 01- 20 14	Pre- mons oon	7.6 0	350 0	207 0	713	105	108	472	1.60	0	390	152	800	1.16	162. 97
Guja rat	Bhav n a g a r	Palita n a	Nani Rajasthali	Du g W e l l	BV N- 05 6	21°27' 51"	71°54' 32"	unconf ined	BAS	3	49		Ma y- 01- 20 14	Pre- mons oon	7.5 0	161 0	950	563	90	81	110	0.60	0	329	67	240	1.16	151. 01
Guja rat	Bhav n a g a r	Palita n a	Anida(Lakha vad)	Du g W e l l	BV N- 05 7	21°30' 19"	71°54' 47"	unconf ined	BAS	0. 45	50.3 0		Ma y- 01- 20 14	Pre- mons oon	8	210 0	132 0	738	135	96	140	5.10	0	464	80	400	0.22	15.0 6
Guja rat	Bhav n a g a r	Palita n a	Chonda	Du g W e l l	BV N- 05 9A	21°32' 37"	71°42' 59"	unconf ined	BAS	0. 60	87.6 0		Ma y- 01- 20 14	Pre- mons oon	7.6 0	720	500	125	25	15	104	5.80	0.90	229	19	104	0.35	0
Guja rat	Bhav n a g a r	Palita n a	Lakhavad	Du g W e l l	BV N- 06 1	21°29' 01"	71°55' 33"	unconf ined	BAS	1	44.5 0		Ma y- 01- 20 14	Pre- mons oon	8	168 0	101 0	538	110	63	138	0.50	0	317	62	288	0.84	129. 76
Guja rat	Bhav n a g a r	Palita n a	Mokhadaka	Du g W e l l	BV N- 06 2	21°35' 01"	71°50' 54"	unconf ined	BAS	0. 70	74		Ma y- 01- 20 14	Pre- mons oon	7.8 0	171 0	111 0	450	20	96	184	1.90	0	476	62	256	0.84	42.5 1
Guja rat	Bhav n a g a r	Palita n a	Nonghanva dar	Du g W e l l	BV N- 06 4A	21°38' 18"	71°42' 57"	unconf ined	BAS	0	93		Ma y- 01- 20 14	Pre- mons oon	8.5 0	118 0	820	138	20	21	205	1.50	24	390	29	128	1.48	12.4 0
Guja rat	Bhav n a g a r	Vallabh ipur	Juni Rajasthali	Du g W e l l	BV N- 07 4A	21°51' 10"	71°47' 39"	unconf ined	BAS	0. 20	25.1 0		Ma y- 01- 20 14	Pre- mons oon	7.9 0	200 0	124 0	325	40	54	306	1	0	329	52	448	0.68	42.0 7
Guja rat	Bhav n a g a r	Vallabh ipur	Vallabhipur	Du g W e l l	BV N- 07 5	21°54' 02"	71°52' 42"	unconf ined	ALV	0. 60	17		Ma y- 01- 20 14	Pre- mons oon	8.2 0	790 0	499 0	1063	275	90	1324	2.70	12	1061	224	2000	1.48	1.77

Guja rat	Bhavn agar	Bhavna gar	Bhavnagar	Du g We ll	BV N- 07 8	21°42' 52"	72°09' 22"	unconf ined	BAS	0. 55	33.1 0		Ma y- 01- 20 14	Pre- mons oon	8.2 0	510 0	283 0	1425	55	309	511	3.40	12	354	233	1320	1.65	154. 11
Guja rat	Bhavn agar	Bhavna gar	Sidsar	Du g We ll	BV N- 08 0A	21°44' 52"	72°08' 24"	unconf ined	BAS	0. 60	40		Ma y- 01- 20 14	Pre- mons oon	8.3 0	980	700	213	35	30	126	0.90	12	366	43	80	1.16	8.41
Guja rat	Bhavn agar	Bhavna gar	Thordi	Du g We ll	BV N- 08 1	21°38' 57"	72°11' 38"	unconf ined	BAS	0. 20	38		Ma y- 01- 20 14	Pre- mons oon	7.4 0	220 0	140 0	413	20	87	315	1.10	0	537	100	312	0.68	130. 64
Guja rat	Bhavn agar	Bhavna gar	Kobdi	Du g We ll	BV N- 08 2A	21°38' 37"	72°08' 41"	unconf ined	BAS	0	63		Ma y- 01- 20 14	Pre- mons oon	7.8 0	173 0	102 0	738	20	165	57	0.90	0	427	105	224	1	102. 74
Guja rat	Amreli	Dhari	Kagdadi	Du g We ll	AM R- 01 7A	21°24' 14"	70°57' 37"	unconf ined	BAS	0. 50	200		Oct - 01- 20 14	Post- mons oon	8	250 0	149 0	938	165	126	130	14.70	0	427	105	504	0.35	84.1 4
Guja rat	Amreli	Dhari	Dalkhania	Du g We ll	AM R- 01 8	21°14' 28"	70°55' 29"	unconf ined	BAS	0. 15	308	75	Oct - 01- 20 14	Post- mons oon	8.1 0	161 0	100 0	513	110	57	132	1.10	0	366	52	256	0.19	105. 84
Guja rat	Amreli	Dhari	Dhari	Du g We ll	AM R- 01 9	21°19' 52"	71°02' 08"	unconf ined	BAS	0. 30	205		Oct - 01- 20 14	Post- mons oon	8.2 0	196 0	115 0	550	60	96	197	0.70	12	305	95	352	0.52	140. 39
Guja rat	Amreli	Dhari	Halariya	Du g We ll	AM R- 02 0	21°25' 51"	71°04' 02"	unconf ined	ALV	0. 85	162		Oct - 01- 20 14	Post- mons oon	8	230 0	144 0	463	60	75	311	1.20	0	427	62	488	0.52	46.5 0
Guja rat	Amreli	Dhari	Chalala	Du g We ll	AM R- 02 1	21°25' 32"	71°09' 52"	unconf ined	ALV	0	134	30. 25	Oct - 01- 20 14	Post- mons oon	8.6 0	250 0	164 0	225	30	36	468	0.10	36	549	52	456	0.68	42.5 1

Guja rat	Amreli	Dhari	Samadhiyal a(nana)	Du g We ll	AM R- 02 2	21°22' 37"	71°14' 19"	unconf ined	ALV	0	143	57	Oct - 01- 20 14	Post- mons oon	8.7 0	920	600	300	40	48	72	0.50	36	317	0	80	0.35	26.1 3
Guja rat	Amreli	Dhari	Dhargani	Du g We ll	AM R- 02 4	21°19' 44"	71°11' 52"	unconf ined	ALV	0	148		Oct - 01- 20 14	Post- mons oon	8	200 0	119 0	625	95	93	170	0.80	0	366	48	392	0.52	112. 93
Guja rat	Amreli	Dhari	Devda	Du g We ll	AM R- 02 5	21°17' 01"	71°06' 05"	unconf ined	BAS	0. 10	243	90	Oct - 01- 20 14	Post- mons oon	8	153 0	940	538	100	69	103	0.40	0	415	43	176	0.19	159. 43
Guja rat	Amreli	Dhari	Virpur	Du g We ll	AM R- 02 6A	21°15' 00"	71°08' 37"	unconf ined	BAS	1	208		Oct - 01- 20 14	Post- mons oon	8.4 0	132 0	870	500	75	75	71	1.50	24	464	38	112	0.19	46.5 0
Guja rat	Amreli	Dhari	Dudhala	Du g We ll	AM R- 02 8	21°09' 33"	71°03' 22"	unconf ined	BAS	0. 60	245	90	Oct - 01- 20 14	Post- mons oon	8.3 0	920	610	375	35	69	37	0.10	12	390	0	56	0.19	42.9 6
Guja rat	Botad	Botad	Paliyad	Du g We ll	BV N- 00 7	22°15' 10"	71°34' 35"	unconf ined	BAS	0	121		Oct - 01- 20 14	Post- mons oon	7.5 0	167 0	920	588	75	96	112	1.20	0	195	62	336	0.84	162. 97
Guja rat	Botad		Jotingada	Du g We ll	BV N- 01 0A	22°07' 00"	71°38' 22"	unconf ined	BAS	0	81		Oct - 01- 20 14	Post- mons oon	7.7 0	670	420	250	30	42	37	1.30	0.70	219	0	80	0.84	43.8 4
Guja rat	Botad	Gadha da	Sakhpar Mota	Du g We ll	BV N- 01 3A	22°03' 32"	71°31' 52"	unconf ined	BAS	0. 75	107		Oct - 01- 20 14	Post- mons oon	8.2 0	122 0	810	213	35	30	182	0.70	12	317	29	200	1.48	14.1 7
Guja rat	Botad	Gadha da	Gadhada	Du g We ll	BV N- 01 4	21°57' 48"	71°34' 15"	unconf ined	BAS	0. 80	86		Oct - 01- 20 14	Post- mons oon	7.9 0	980	640	188	25	30	136	2.20	0	244	38	160	0.68	22.1 4

Guja rat	Botad	Gadha da	Mandavdha r	Du g We ll	BV N- 01 5	21°58' 04"	71°32' 04"	unconf ined	BAS	0. 30	96		Oct - 01- 20 14	Post- mons oon	8.2 0	133 0	920	225	30	36	200	1.50	12	439	33	168	0.52	9.30
Guja rat	Botad	Gadha da	Limbali	Du g We ll	BV N- 01 6	21°59' 41"	71°27' 21"	unconf ined	BAS	0	130		Oct - 01- 20 14	Post- mons oon	7.4 0	400 0	225 0	1500	335	159	228	0.70	0	305	143	1040	1.16	162. 97
Guja rat	Botad	Gadha da	Chabhadiya	Du g We ll	BV N- 01 7A	21°54' 01"	71°42' 22"	unconf ined	BAS	0. 40	65		Oct - 01- 20 14	Post- mons oon	7.8 0	104 0	620	338	60	45	82	0.50	0	293	0	104	0.68	156. 77
Guja rat	Botad	Gadha da	Junavadar	Du g We ll	BV N- 01 8	21°50' 36"	71°31' 17"	unconf ined	BAS	2. 35	79		Oct - 01- 20 14	Post- mons oon	7.4 0	380 0	205 0	1200	100	228	314	4.60	0	220	105	1040	0.68	166. 07
Guja rat	Botad	Gadha da	Mandva	Du g We ll	BV N- 01 9	21°48' 22"	71°34' 56"	unconf ined	BAS	0. 30	75		Oct - 01- 20 14	Post- mons oon	7.6 0	104 0	660	338	35	60	78	7.70	0	281	43	144	0.68	45.1 7
Guja rat	Bhavn agar	Umrالا	Ujalvav	Du g We ll	BV N- 02 0	21°54' 06"	71°43' 43"	unconf ined	BAS	0. 50	56		Oct - 01- 20 14	Post- mons oon	7.9 0	113 0	720	250	30	42	143	0.70	0	329	29	120	0.52	110. 71
Guja rat	Bhavn agar	Umrالا	Bhojavadar	Du g We ll	BV N- 02 3A	21°50' 59"	71°43' 25"	unconf ined	ALV	0. 30	36		Oct - 01- 20 14	Post- mons oon	7.4 0	108 0	680	263	45	36	124	3.40	0	244	38	176	1.32	56.2 4
Guja rat	Bhavn agar	Umrالا	Hadmatالا	Du g We ll	BV N- 02 4A	21°51' 14"	71°45' 02"	unconf ined	BAS	0	39		Oct - 01- 20 14	Post- mons oon	7.8 0	320 0	192 0	875	80	162	321	12.70	0	573	133	600	1	164. 74
Guja rat	Bhavn agar	Umrالا	Ratanpar	Du g We ll	BV N- 02 5	21°49' 53"	71°49' 31"	unconf ined	ALV	0	22		Oct - 01- 20 14	Post- mons oon	7.8 0	112 0	720	250	50	30	141	0.90	0	244	38	208	1.48	26.1 3

Guja rat	Bhav n agar	Umr ala	Umr ala	Du g We ll	BV N- 02 7A	21°50' 50"	71°48' 05"	unconf ined	ALV	0. 30	22.3 0		Oct - 01- 20 14	Post- mons oon	7.9 0	112 0	760	200	30	30	164	1.80	0	329	43	160	0.68	20.3 7
Guja rat	Bhav n agar	Gari ad har	Bhandariya	Du g We ll	BV N- 03 2	21°28' 51"	71°37' 22"	unconf ined	BAS	0	75		Oct - 01- 20 14	Post- mons oon	7.7 0	320 0	187 0	688	55	132	417	0.90	0	354	148	720	0.52	167. 40
Guja rat	Bhav n agar	Palita n a	Nani Rajasthali	Du g We ll	BV N- 05 6	21°27' 51"	71°54' 32"	unconf ined	BAS	3	49		Oct - 01- 20 14	Post- mons oon	7.5 0	141 0	840	525	50	96	82	0.60	0	317	52	216	0.68	103. 19
Guja rat	Bhav n agar	Palita n a	Anida(Lakha vad)	Du g We ll	BV N- 05 7	21°30' 19"	71°54' 47"	unconf ined	BAS	0. 45	50.3 0		Oct - 01- 20 14	Post- mons oon	7.6 0	177 0	105 0	588	100	81	135	0.80	0	329	71	296	0.52	148. 36
Guja rat	Bhav n agar	Palita n a	Chonda	Du g We ll	BV N- 05 9A	21°32' 37"	71°42' 59"	unconf ined	BAS	0. 60	87.6 0		Oct - 01- 20 14	Post- mons oon	8.2 0	780	540	213	45	24	74	9.60	1	279	19	80	0.52	24.3 6
Guja rat	Bhav n agar	Palita n a	Lakhavad	Du g We ll	BV N- 06 1	21°29' 01"	71°55' 33"	unconf ined	BAS	1	44.5 0		Oct - 01- 20 14	Post- mons oon	7.9 0	129 0	790	500	40	96	65	0.50	0	317	48	216	0.52	32.3 3
Guja rat	Bhav n agar	Palita n a	Mokhadaka	Du g We ll	BV N- 06 2	21°35' 01"	71°50' 54"	unconf ined	BAS	0. 70	74		Oct - 01- 20 14	Post- mons oon	7.9 0	172 0	106 0	413	50	69	203	1.50	0	366	67	280	1	108. 06
Guja rat	Bhav n agar	Palita n a	Nonghanva dar	Du g We ll	BV N- 06 4A	21°38' 18"	71°42' 57"	unconf ined	BAS	0	93		Oct - 01- 20 14	Post- mons oon	8.6 0	107 0	730	250	45	33	130	0.40	36	366	24	88	1.65	22.1 4
Guja rat	Bhav n agar	Vallabh ipur	Juni Rajasthali	Du g We ll	BV N- 07 4A	21°51' 10"	71°47' 39"	unconf ined	BAS	0. 20	25.1 0		Oct - 01- 20 14	Post- mons oon	8.2 0	750	490	200	35	27	80	0.60	0.50	219	0	120	1	25.2 4

Guja rat	Bhavn agar	Vallabh ipur	Vallabhipur	Du g We ll	BV N- 07 5	21°54' 02"	71°52' 42"	unconf ined	ALV	0. 60	17		Oct - 01- 20 14	Post- mons oon	8.1 0	520 0	326 0	313	35	54	1040	1.80	0	610	200	1320	1.81	3.99
Guja rat	Bhavn agar	Bhavna gar	Bhavnagar	Du g We ll	BV N- 07 8	21°42' 52"	72°09' 22"	unconf ined	BAS	0. 55	33.1 0		Oct - 01- 20 14	Post- mons oon	7.7 0	350 0	209 0	913	85	168	381	4.70	0	439	195	800	1.65	64.2 1
Guja rat	Bhavn agar	Bhavna gar	Sidsar	Du g We ll	BV N- 08 0A	21°44' 52"	72°08' 24"	unconf ined	BAS	0. 60	40		Oct - 01- 20 14	Post- mons oon	8.2 0	930	630	238	30	39	103	0.80	12	305	52	80	0.68	28.3 4
Guja rat	Bhavn agar	Bhavna gar	Thordi	Du g We ll	BV N- 08 1	21°38' 57"	72°11' 38"	unconf ined	BAS	0. 20	38		Oct - 01- 20 14	Post- mons oon	8.5 0	146 0	870	450	35	87	127	2	24	268	90	216	0.68	82.8 1
Guja rat	Bhavn agar	Bhavna gar	Kobdi	Du g We ll	BV N- 08 2A	21°38' 37"	72°08' 41"	unconf ined	BAS	0	63		Oct - 01- 20 14	Post- mons oon	7.7 0	141 0	890	438	50	75	122	0.70	0	390	71	160	0.84	100. 09
Guja rat	Amreli	Dhari	Kagdadi	Du g We ll	AM R- 01 7A	21°24' 14"	70°57' 37"	unconf ined	BAS	0. 50	200		Ma y- 01- 20 15	Pre- mons oon	7.8 0	240 0	141 0	875	135	129	139	11.20	0	378	95	496	0.52	100. 09
Guja rat	Amreli	Dhari	Dalkhania	Du g We ll	AM R- 01 8	21°14' 28"	70°55' 29"	unconf ined	BAS	0. 15	308	75	Ma y- 01- 20 15	Pre- mons oon	8.5 0	115 0	710	300	55	39	125	0.80	24	195	52	216	0.52	15.5 0
Guja rat	Amreli	Dhari	Dhari	Du g We ll	AM R- 01 9	21°19' 52"	71°02' 08"	unconf ined	BAS	0. 30	205		Ma y- 01- 20 15	Pre- mons oon	8.2 0	210 0	124 0	550	60	96	225	0.90	12	366	100	344	0.19	159. 87
Guja rat	Amreli	Dhari	Halariya	Du g We ll	AM R- 02 0	21°25' 51"	71°04' 02"	unconf ined	ALV	0. 85	162		Ma y- 01- 20 15	Pre- mons oon	8.1 0	220 0	135 0	500	55	87	274	0.30	0	390	48	480	0.68	58.4 6

Guja rat	Amreli	Dhari	Chalala	Du g We ll	AM R- 02 1	21°25' 32"	71°09' 52"	unconf ined	ALV	0	134	30. 25	Ma y- 01- 20 15	Pre- mons oon	8.4 0	240 0	157 0	400	50	66	366	0.30	24	561	52	440	1.32	21.7 0
Guja rat	Amreli	Dhari	Samadhiyal a(nana)	Du g We ll	AM R- 02 2	21°22' 37"	71°14' 19"	unconf ined	ALV	0	143	57	Ma y- 01- 20 15	Pre- mons oon	8	127 0	740	475	70	72	72	0.60	0	268	71	144	0.35	162. 53
Guja rat	Amreli	Dhari	Morjhar	Du g We ll	AM R- 02 3	21°22' 28"	71°06' 43"	unconf ined	ALV	0	147. 01	63. 1	Ma y- 01- 20 15	Pre- mons oon	8.1 0	240 0	148 0	625	85	99	261	0.50	0	537	57	400	0.03	159. 43
Guja rat	Amreli	Dhari	Dhargani	Du g We ll	AM R- 02 4	21°19' 44"	71°11' 52"	unconf ined	ALV	0	148		Ma y- 01- 20 15	Pre- mons oon	8	210 0	121 0	563	85	84	218	0.50	0	305	43	440	0.52	148. 80
Guja rat	Amreli	Dhari	Devda	Du g We ll	AM R- 02 5	21°17' 01"	71°06' 05"	unconf ined	BAS	0. 10	243	90	Ma y- 01- 20 15	Pre- mons oon	8.2 0	144 0	870	450	55	75	122	1.10	12	366	38	160	0.19	159. 43
Guja rat	Amreli	Dhari	Virpur	Du g We ll	AM R- 02 6	21°15' 00"	71°08' 37"	unconf ined	BAS	1	206. 33	90	Ma y- 01- 20 15	Pre- mons oon	8.1 0	163 0	101 0	463	50	81	160	0.40	0	366	48	288	0.35	65.5 4
Guja rat	Amreli	Dhari	Virpur	Du g We ll	AM R- 02 6A	21°15' 00"	71°08' 37"	unconf ined	BAS	1	208		Ma y- 01- 20 15	Pre- mons oon	8	133 0	870	375	40	66	132	1.10	0	427	48	144	0.19	71.3 0
Guja rat	Amreli	Dhari	Dudhala	Du g We ll	AM R- 02 8	21°09' 33"	71°03' 22"	unconf ined	BAS	0. 60	245	90	Ma y- 01- 20 15	Pre- mons oon	8.5 0	101 0	670	313	50	45	88	0.30	24	366	0	80	0.35	61.5 6
Guja rat	Botad	Botad	Paliyad	Du g We ll	BV N- 00 7	22°15' 10"	71°34' 35"	unconf ined	BAS	0	121		Ma y- 01- 20 15	Pre- mons oon	8.2 0	220 0	131 0	638	55	120	202	10.30	12	403	57	432	0.35	85.9 1

Guja rat	Botad		Jotingada	Du g We ll	BV N- 01 0A	22°07' 00"	71°38' 22"	unconf ined	BAS	0	81		Ma y- 01- 20 15	Pre- mons oon	7.5 0	116 0	840	238	40	33	151	8.10	0	488	0	120	0.84	3.54
Guja rat	Botad	Gadha da	Sakhpar Mota	Du g We ll	BV N- 01 3A	22°03' 32"	71°31' 52"	unconf ined	BAS	0. 75	107		Ma y- 01- 20 15	Pre- mons oon	7.8 0	830 0	454 0	2688	225	510	667	2.50	0	427	267	2400	1	165. 19
Guja rat	Botad	Gadha da	Gadhada	Du g We ll	BV N- 01 4	21°57' 48"	71°34' 15"	unconf ined	BAS	0. 80	86		Ma y- 01- 20 15	Pre- mons oon	8.2 0	220 0	137 0	413	45	72	311	0.50	12	415	100	400	1	72.6 3
Guja rat	Botad	Gadha da	Mandavdha r	Du g We ll	BV N- 01 5	21°58' 04"	71°32' 04"	unconf ined	BAS	0. 30	96		Ma y- 01- 20 15	Pre- mons oon	8.5 0	168 0	107 0	288	45	42	253	0.90	24	354	62	280	1	56.2 4
Guja rat	Botad	Gadha da	Limbali	Du g We ll	BV N- 01 6	21°59' 41"	71°27' 21"	unconf ined	BAS	0	130		Ma y- 01- 20 15	Pre- mons oon	7.5 0	470 0	261 0	1588	275	216	345	2.10	0	317	138	1280	0.68	164. 74
Guja rat	Botad	Gadha da	Chabhadiya	Du g We ll	BV N- 01 7A	21°54' 01"	71°42' 22"	unconf ined	BAS	0. 40	65		Ma y- 01- 20 15	Pre- mons oon	7.7 0	260 0	151 0	625	150	60	303	3.60	0	146	119	720	0.52	36.7 6
Guja rat	Botad	Gadha da	Junavadar	Du g We ll	BV N- 01 8	21°50' 36"	71°31' 17"	unconf ined	BAS	2. 35	79		Ma y- 01- 20 15	Pre- mons oon	8.1 0	440 0	242 0	1388	155	240	369	2.60	0	268	143	1200	0.52	166. 51
Guja rat	Botad	Gadha da	Mandva	Du g We ll	BV N- 01 9	21°48' 22"	71°34' 56"	unconf ined	BAS	0. 30	75		Ma y- 01- 20 15	Pre- mons oon	7.7 0	153 0	880	475	35	93	131	1	0	281	57	240	0.84	162. 53
Guja rat	Bhavn agar	Umrالا	Ujalvav	Du g We ll	BV N- 02 0	21°54' 06"	71°43' 43"	unconf ined	BAS	0. 50	56		Ma y- 01- 20 15	Pre- mons oon	7.9 0	121 0	760	338	45	54	122	0.80	0	329	43	136	0.35	118. 69

Guja rat	Bhavn agar	Umrالا	Bhojavadar	Du g We ll	BV N- 02 3A	21°50' 59"	71°43' 25"	unconf ined	ALV	0. 30	36		Ma y- 01- 20 15	Pre- mons oon	8.6 0	240 0	158 0	250	35	39	435	0.50	36	561	95	352	1.48	93.8 9
Guja rat	Bhavn agar	Umrالا	Hadmatالا	Du g We ll	BV N- 02 4A	21°51' 14"	71°45' 02"	unconf ined	BAS	0	39		Ma y- 01- 20 15	Pre- mons oon	7.6 0	330 0	198 0	713	90	117	422	6.10	0	476	148	680	1.32	162. 09
Guja rat	Bhavn agar	Umrالا	Ratanpar	Du g We ll	BV N- 02 5	21°49' 53"	71°49' 31"	unconf ined	ALV	0	22		Ma y- 01- 20 15	Pre- mons oon	8.5 0	140 0	910	225	35	33	217	0.40	24	317	48	232	1.65	16.3 9
Guja rat	Bhavn agar	Umrالا	Umrالا	Du g We ll	BV N- 02 7A	21°50' 50"	71°48' 05"	unconf ined	ALV	0. 30	22.3 0		Ma y- 01- 20 15	Pre- mons oon	7.6 0	187 0	125 0	350	35	63	266	3.10	0	512	57	304	0.68	24.8 0
Guja rat	Bhavn agar	Gariad har	Bhandariya	Du g We ll	BV N- 03 2	21°28' 51"	71°37' 22"	unconf ined	BAS	0	75		Ma y- 01- 20 15	Pre- mons oon	7.6 0	320 0	187 0	838	65	162	348	2.50	0	427	148	680	0.84	166. 07
Guja rat	Bhavn agar	Palitan a	Nani Rajasthali	Du g We ll	BV N- 05 6	21°27' 51"	71°54' 32"	unconf ined	BAS	3	49		Ma y- 01- 20 15	Pre- mons oon	7.7 0	160 0	103 0	525	85	75	124	1.60	0	427	57	248	0.68	41.6 3
Guja rat	Bhavn agar	Palitan a	Anida(Lakha vad)	Du g We ll	BV N- 05 7	21°30' 19"	71°54' 47"	unconf ined	BAS	0. 45	50.3 0		Ma y- 01- 20 15	Pre- mons oon	8	330 0	180 0	1225	245	147	192	0.60	0	183	119	880	0.68	159. 87
Guja rat	Bhavn agar	Palitan a	Chonda	Du g We ll	BV N- 05 9A	21°32' 37"	71°42' 59"	unconf ined	BAS	0. 60	87.6 0		Ma y- 01- 20 15	Pre- mons oon	8.6 0	109 0	770	238	35	36	134	10.50	36	403	24	88	0.68	0.44
Guja rat	Bhavn agar	Palitan a	Lakhavad	Du g We ll	BV N- 06 1	21°29' 01"	71°55' 33"	unconf ined	BAS	1	44.5 0		Ma y- 01- 20 15	Pre- mons oon	8.3 0	164 0	104 0	575	95	81	112	0.60	12	390	67	272	0.84	27.9 0

Guja rat	Bhav n a g a r	Palit a n	Mokhadaka	Du g W e l l	BV N- 06 2	21°35' 01"	71°50' 54"	unconf ined	BAS	0. 70	74		Ma y- 01- 20 15	Pre- mons oon	8.6 0	470 0	264 0	1075	110	192	578	5.50	36	244	24	1440	1.16	29.6 7
Guja rat	Bhav n a g a r	Palit a n	Nonghanva dar	Du g W e l l	BV N- 06 4A	21°38' 18"	71°42' 57"	unconf ined	BAS	0	93		Ma y- 01- 20 15	Pre- mons oon	8.5 0	127 0	910	200	35	27	198	1.50	24	488	38	96	1.32	15.0 6
Guja rat	Bhav n a g a r	Vallab h i p u r	Juni Rajasthali	Du g W e l l	BV N- 07 4A	21°51' 10"	71°47' 39"	unconf ined	BAS	0. 20	25.1 0		Ma y- 01- 20 15	Pre- mons oon	8.5 0	280 0	156 0	788	65	150	276	5.60	24	195	105	720	0.68	85.4 7
Guja rat	Bhav n a g a r	Vallab h i p u r	Vallabhipur	Du g W e l l	BV N- 07 5	21°54' 02"	71°52' 42"	unconf ined	ALV	0. 60	17		Ma y- 01- 20 15	Pre- mons oon	7.8 0	650 0	396 0	775	60	150	1134	1.70	0	598	248	1760	1.81	14.1 7
Guja rat	Bhav n a g a r	Bhavna gar	Bhavnagar	Du g W e l l	BV N- 07 8	21°42' 52"	72°09' 22"	unconf ined	BAS	0. 55	33.1 0		Ma y- 01- 20 15	Pre- mons oon	8.6 0	460 0	270 0	1275	50	276	462	7	36	549	243	1080	1.32	0
Guja rat	Bhav n a g a r	Bhavna gar	Sidsar	Du g W e l l	BV N- 08 0A	21°44' 52"	72°08' 24"	unconf ined	BAS	0. 60	40		Ma y- 01- 20 15	Pre- mons oon	8.5 0	137 0	880	438	30	87	112	1.80	24	415	81	120	0.84	55.8 0
Guja rat	Bhav n a g a r	Bhavna gar	Thordi	Du g W e l l	BV N- 08 1	21°38' 57"	72°11' 38"	unconf ined	BAS	0. 20	38		Ma y- 01- 20 15	Pre- mons oon	7.6 0	210 0	132 0	588	105	78	211	1.10	0	464	124	304	0.84	132. 86
Guja rat	Bhav n a g a r	Bhavna gar	Kobdi	Du g W e l l	BV N- 08 2A	21°38' 37"	72°08' 41"	unconf ined	BAS	0	63		Ma y- 01- 20 15	Pre- mons oon	8	194 0	119 0	588	45	114	174	2.40	0	488	95	240	1	157. 21
Guja rat	Amreli	Dhari	Kagdadi	Du g W e l l	AM R- 01 7A	21°24' 14"	70°57' 37"	unconf ined	BAS	0. 50	200		Oct - 01- 20 15	Post- mons oon	8.3 0	180 0	990	663	80	111	100	12.30	12	146	95	408	0.52	98.7 6

Guja rat	Amreli	Dhari	Dalkhania	Du g We ll	AM R- 01 8	21°14' 28"	70°55' 29"	unconf ined	BAS	0. 15	308	75	Oct - 01- 20 15	Post- mons oon	8.2 0	129 0	720	425	65	63	98	2.90	12	171	67	216	0.19	129. 31
Guja rat	Amreli	Dhari	Dhari	Du g We ll	AM R- 01 9	21°19' 52"	71°02' 08"	unconf ined	BAS	0. 30	205		Oct - 01- 20 15	Post- mons oon	8.4 0	175 0	101 0	500	50	90	172	0.20	24	256	76	304	0.19	143. 93
Guja rat	Amreli	Dhari	Halariya	Du g We ll	AM R- 02 0	21°25' 51"	71°04' 02"	unconf ined	ALV	0. 85	162		Oct - 01- 20 15	Post- mons oon	8.2 0	430	280	188	25	30	11	1.30	2.20	148	0	56	0.19	8.41
Guja rat	Amreli	Dhari	Chalala	Du g We ll	AM R- 02 1	21°25' 32"	71°09' 52"	unconf ined	ALV	0	134	30. 25	Oct - 01- 20 15	Post- mons oon	8.3 0	230 0	131 0	500	30	102	293	0.40	12	281	76	480	0.19	162. 53
Guja rat	Amreli	Dhari	Samadhiyal a(nana)	Du g We ll	AM R- 02 2	21°22' 37"	71°14' 19"	unconf ined	ALV	0	143	57	Oct - 01- 20 15	Post- mons oon	8	590	380	200	25	33	42	0.80	4.40	185	0	80	0.52	19.9 3
Guja rat	Amreli	Dhari	Morjhar	Du g We ll	AM R- 02 3	21°22' 28"	71°06' 43"	unconf ined	ALV	0	147. 01	63. 1	Oct - 01- 20 15	Post- mons oon	8	980	600	288	60	33	90	3.70	0	122	71	216	0.35	10.6 3
Guja rat	Amreli	Dhari	Dhargani	Du g We ll	AM R- 02 4	21°19' 44"	71°11' 52"	unconf ined	ALV	0	148		Oct - 01- 20 15	Post- mons oon	8.2 0	870	530	250	35	39	83	0.30	12	220	29	96	0.68	76.6 1
Guja rat	Amreli	Dhari	Devda	Du g We ll	AM R- 02 5	21°17' 01"	71°06' 05"	unconf ined	BAS	0. 10	243	90	Oct - 01- 20 15	Post- mons oon	8.3 0	109 0	620	338	45	54	93	0.60	12	207	57	112	0.35	162. 53
Guja rat	Amreli	Dhari	Virpur	Du g We ll	AM R- 02 6	21°15' 00"	71°08' 37"	unconf ined	BAS	1	206. 33	90	Oct - 01- 20 15	Post- mons oon	8.2 0	118 0	640	413	40	75	80	0.70	12	183	57	160	0.35	162. 53

Guja rat	Amreli	Dhari	Virpur	Du g We ll	AM R- 02 6A	21°15' 00"	71°08' 37"	unconf ined	BAS	1	208		Oct - 01- 20 15	Post- mons oon	8.4 0	107 0	670	225	30	36	140	0.90	24	256	48	112	0.35	86.3 6
Guja rat	Amreli	Dhari	Dudhala	Du g We ll	AM R- 02 8	21°09' 33"	71°03' 22"	unconf ined	BAS	0. 60	245	90	Oct - 01- 20 15	Post- mons oon	8.4 0	700	420	300	30	54	21	0.30	5.30	225	0	72	0.19	62.4 4
Guja rat	Botad	Botad	Paliyad	Du g We ll	BV N- 00 7	22°15' 10"	71°34' 35"	unconf ined	BAS	0	121		Oct - 01- 20 15	Post- mons oon	8.3 0	175 0	990	638	60	117	107	0.80	12	317	52	288	0.52	159. 87
Guja rat	Botad		Jotingada	Du g We ll	BV N- 01 0A	22°07' 00"	71°38' 22"	unconf ined	BAS	0	81		Oct - 01- 20 15	Post- mons oon	8.4 0	720	480	288	40	45	31	0.50	5.50	294	0	56	0.84	26.1 3
Guja rat	Botad	Gadha da	Sakhpar Mota	Du g We ll	BV N- 01 3A	22°03' 32"	71°31' 52"	unconf ined	BAS	0. 75	107		Oct - 01- 20 15	Post- mons oon	8.3 0	350 0	203 0	625	95	93	512	1	12	305	90	880	1.32	162. 53
Guja rat	Botad	Gadha da	Gadhada	Du g We ll	BV N- 01 4	21°57' 48"	71°34' 15"	unconf ined	BAS	0. 80	86		Oct - 01- 20 15	Post- mons oon	8.3 0	183 0	116 0	413	35	78	230	0.40	12	427	90	272	0.84	78.3 9
Guja rat	Botad	Gadha da	Mandavdha r	Du g We ll	BV N- 01 5	21°58' 04"	71°32' 04"	unconf ined	BAS	0. 30	96		Oct - 01- 20 15	Post- mons oon	7.8 0	143 0	960	438	45	78	125	2.40	0	488	52	168	0.84	22.5 9
Guja rat	Botad	Gadha da	Limbali	Du g We ll	BV N- 01 6	21°59' 41"	71°27' 21"	unconf ined	BAS	0	130		Oct - 01- 20 15	Post- mons oon	7.5 0	480 0	261 0	1875	375	225	234	0.70	0	232	143	1360	0.84	159. 87
Guja rat	Botad	Gadha da	Chabhadiya	Du g We ll	BV N- 01 7A	21°54' 01"	71°42' 22"	unconf ined	BAS	0. 40	65		Oct - 01- 20 15	Post- mons oon	8.1 0	122 0	690	350	50	54	118	1.20	0	146	38	256	0.68	104. 96

Guja rat	Botad	Gadha da	Junavadar	Du g We ll	BV N- 01 8	21°50' 36"	71°31' 17"	unconf ined	BAS	2. 35	79		Oct - 01- 20 15	Post- mons oon	8	360 0	197 0	1200	190	174	268	0.50	0	232	105	960	0.68	161. 20
Guja rat	Botad	Gadha da	Mandva	Du g We ll	BV N- 01 9	21°48' 22"	71°34' 56"	unconf ined	BAS	0. 30	75		Oct - 01- 20 15	Post- mons oon	8.3 0	690	410	275	55	33	30	2.40	1.30	139	0	136	0.52	42.5 1
Guja rat	Bhavn agar	Umrالا	Ujalvav	Du g We ll	BV N- 02 0	21°54' 06"	71°43' 43"	unconf ined	BAS	0. 50	56		Oct - 01- 20 15	Post- mons oon	8.2 0	930	550	263	45	36	91	1.40	12	183	33	120	0.35	105. 84
Guja rat	Bhavn agar	Umrالا	Bhojavadar	Du g We ll	BV N- 02 3A	21°50' 59"	71°43' 25"	unconf ined	ALV	0. 30	36		Oct - 01- 20 15	Post- mons oon	8	193 0	126 0	250	40	36	328	0.40	0	439	76	320	1.48	86.3 6
Guja rat	Bhavn agar	Umrالا	Hadmatالا	Du g We ll	BV N- 02 4A	21°51' 14"	71°45' 02"	unconf ined	BAS	0	39		Oct - 01- 20 15	Post- mons oon	8	310 0	185 0	763	100	123	357	2.60	0	464	124	640	1	159. 87
Guja rat	Bhavn agar	Umrالا	Ratanpar	Du g We ll	BV N- 02 5	21°49' 53"	71°49' 31"	unconf ined	ALV	0	22		Oct - 01- 20 15	Post- mons oon	8.6 0	540	360	188	30	27	35	3.40	1.10	189	0	72	0.68	7.53
Guja rat	Bhavn agar	Umrالا	Umrالا	Du g We ll	BV N- 02 7A	21°50' 50"	71°48' 05"	unconf ined	ALV	0. 30	22.3 0		Oct - 01- 20 15	Post- mons oon	8.2 0	109 0	760	225	30	36	145	1.50	12	390	38	104	0.52	15.0 6
Guja rat	Bhavn agar	Gariad har	Bhandariya	Du g We ll	BV N- 03 2	21°28' 51"	71°37' 22"	unconf ined	BAS	0	75		Oct - 01- 20 15	Post- mons oon	8.2 0	150 0	950	313	30	57	200	0.50	12	305	62	272	1	31.4 4
Guja rat	Bhavn agar	Palitan a	Nani Rajasthali	Du g We ll	BV N- 05 6	21°27' 51"	71°54' 32"	unconf ined	BAS	3	49		Oct - 01- 20 15	Post- mons oon	8.1 0	119 0	640	450	60	72	65	0.50	0	122	57	240	0.52	114. 70

Guja rat	Bhav n agar	Palita n a	Anida(Lakha vad)	Du g We ll	BV N- 05 7	21°30' 19"	71°54' 47"	unconf ined	BAS	0. 45	50.3 0		Oct - 01- 20 15	Post- mons oon	7.8 0	162 0	990	638	130	75	77	0.70	0	366	71	248	0.68	97.8 7
Guja rat	Bhav n agar	Palita n a	Chonda	Du g We ll	BV N- 05 9A	21°32' 37"	71°42' 59"	unconf ined	BAS	0. 60	87.6 0		Oct - 01- 20 15	Post- mons oon	8.4 0	520	340	213	30	33	15	8.90	1.80	188	0	56	1.16	17.7 1
Guja rat	Bhav n agar	Palita n a	Lakhavad	Du g We ll	BV N- 06 1	21°29' 01"	71°55' 33"	unconf ined	BAS	1	44.5 0		Oct - 01- 20 15	Post- mons oon	8.4 0	132 0	740	450	70	66	96	0.30	24	146	52	264	0.84	86.8 0
Guja rat	Bhav n agar	Palita n a	Mokhadaka	Du g We ll	BV N- 06 2	21°35' 01"	71°50' 54"	unconf ined	BAS	0. 70	74		Oct - 01- 20 15	Post- mons oon	8.4 0	910	550	288	50	39	74	2	24	146	38	168	0.84	14.6 1
Guja rat	Bhav n agar	Palita n a	Nonghanva dar	Du g We ll	BV N- 06 4A	21°38' 18"	71°42' 57"	unconf ined	BAS	0	93		Oct - 01- 20 15	Post- mons oon	8	860	620	225	35	33	92	0.30	0	366	14	72	1.16	7.09
Guja rat	Bhav n agar	Vallabh ipur	Juni Rajasthali	Du g We ll	BV N- 07 4A	21°51' 10"	71°47' 39"	unconf ined	BAS	0. 20	25.1 0		Oct - 01- 20 15	Post- mons oon	8.2 0	920	590	250	30	42	96	0.10	12	244	29	136	0.68	16.3 9
Guja rat	Bhav n agar	Vallabh ipur	Vallabhipur	Du g We ll	BV N- 07 5	21°54' 02"	71°52' 42"	unconf ined	ALV	0. 60	17		Oct - 01- 20 15	Post- mons oon	8	490 0	303 0	325	35	57	974	1.40	0	464	138	1360	1.81	0
Guja rat	Bhav n agar	Bhavna gar	Bhavnagar	Du g We ll	BV N- 07 8	21°42' 52"	72°09' 22"	unconf ined	BAS	0. 55	33.1 0		Oct - 01- 20 15	Post- mons oon	8.4 0	400 0	237 0	1063	85	204	426	6.20	24	451	167	1000	1.48	0
Guja rat	Bhav n agar	Bhavna gar	Sidsar	Du g We ll	BV N- 08 0A	21°44' 52"	72°08' 24"	unconf ined	BAS	0. 60	40		Oct - 01- 20 15	Post- mons oon	8.4 0	108 0	680	388	35	72	68	1.10	24	305	43	120	0.84	34.9 9

Guja rat	Bhavn agar	Bhavna gar	Thordi	Du g We ll	BV N- 08 1	21°38' 57"	72°11' 38"	unconf ined	BAS	0. 20	38		Oct - 01- 20 15	Post- mons oon	8.4 0	660	400	263	40	39	28	2.40	4.90	165	0	120	0.84	10.1 9
Guja rat	Bhavn agar	Bhavna gar	Kobdi	Du g We ll	BV N- 08 2A	21°38' 37"	72°08' 41"	unconf ined	BAS	0	63		Oct - 01- 20 15	Post- mons oon	8.4 0	121 0	710	438	40	81	75	0.80	24	244	62	160	1	82.3 7
Guja rat	Amreli	Dhari	Kagdadi	Du g We ll	AM R- 01 7A	21°24' 14"	70°57' 37"	unconf ined	BAS	0. 50	200		Ma y- 01- 20 16	Pre- mons oon	8.1 0	230 0	137 0	825	160	102	137	14.40	0	366	119	448	0.52	105. 40
Guja rat	Amreli	Dhari	Dalkhania	Du g We ll	AM R- 01 8	21°14' 28"	70°55' 29"	unconf ined	BAS	0. 15	308	75	Ma y- 01- 20 16	Pre- mons oon	8.1 0	149 0	900	563	120	63	81	1.40	0	366	52	184	0.68	153. 67
Guja rat	Amreli	Dhari	Dhari	Du g We ll	AM R- 01 9	21°19' 52"	71°02' 08"	unconf ined	BAS	0. 30	205		Ma y- 01- 20 16	Pre- mons oon	8.2 0	210 0	121 0	613	60	111	194	1	12	329	114	352	0.52	159. 87
Guja rat	Amreli	Dhari	Halariya	Du g We ll	AM R- 02 0	21°25' 51"	71°04' 02"	unconf ined	ALV	0. 85	162		Ma y- 01- 20 16	Pre- mons oon	8.7 0	156 0	110 0	250	30	42	242	2.30	36	561	19	160	1.81	10.6 3
Guja rat	Amreli	Dhari	Chalala	Du g We ll	AM R- 02 1	21°25' 32"	71°09' 52"	unconf ined	ALV	0	134	30. 25	Ma y- 01- 20 16	Pre- mons oon	8.1 0	300 0	184 0	425	55	69	492	0.60	0	415	76	720	0.68	73.0 7
Guja rat	Amreli	Dhari	Samadhiyal a(nana)	Du g We ll	AM R- 02 2	21°22' 37"	71°14' 19"	unconf ined	ALV	0	143	57	Ma y- 01- 20 16	Pre- mons oon	8.6 0	140 0	860	213	35	30	222	1	36	232	14	288	0.84	27.0 1
Guja rat	Amreli	Dhari	Morjhar	Du g We ll	AM R- 02 3	21°22' 28"	71°06' 43"	unconf ined	ALV	0	147. 01	63. 1	Ma y- 01- 20 16	Pre- mons oon	8.2 0	116 0	680	275	40	42	138	1.80	12	73	86	288	0.52	0

Guja rat	Amreli	Dhari	Dhargani	Du g We ll	AM R- 02 4	21°19' 44"	71°11' 52"	unconf ined	ALV	0	148		Ma y- 01- 20 16	Pre- mons oon	8	220 0	126 0	575	75	93	236	1.50	0	281	43	504	0.68	127. 54
Guja rat	Amreli	Dhari	Devda	Du g We ll	AM R- 02 5	21°17' 01"	71°06' 05"	unconf ined	BAS	0. 10	243	90	Ma y- 01- 20 16	Pre- mons oon	8	148 0	910	538	115	60	91	1.70	0	366	67	168	0.52	159. 43
Guja rat	Amreli	Dhari	Virpur	Du g We ll	AM R- 02 6	21°15' 00"	71°08' 37"	unconf ined	BAS	1	206. 33	90	Ma y- 01- 20 16	Pre- mons oon	8.2 0	102 0	610	275	50	36	107	1.10	12	207	29	136	0.68	116. 91
Guja rat	Amreli	Dhari	Virpur	Du g We ll	AM R- 02 6A	21°15' 00"	71°08' 37"	unconf ined	BAS	1	208		Ma y- 01- 20 16	Pre- mons oon	8.2 0	129 0	830	500	45	93	65	0.80	12	439	43	112	0.84	70.8 6
Guja rat	Amreli	Dhari	Dudhala	Du g We ll	AM R- 02 8	21°09' 33"	71°03' 22"	unconf ined	BAS	0. 60	245	90	Ma y- 01- 20 16	Pre- mons oon	8	108 0	720	425	55	69	52	0.80	0	427	14	80	0.52	73.9 6
Guja rat	Botad	Botad	Paliyad	Du g We ll	BV N- 00 7	22°15' 10"	71°34' 35"	unconf ined	BAS	0	121		Ma y- 01- 20 16	Pre- mons oon	8.4 0	182 0	113 0	613	115	78	132	7.10	24	354	71	336	0.35	36.3 1
Guja rat	Botad		Jotingada	Du g We ll	BV N- 01 0A	22°07' 00"	71°38' 22"	unconf ined	BAS	0	81		Ma y- 01- 20 16	Pre- mons oon	8.3 0	118 0	740	425	80	54	68	10.70	12	354	29	112	0.84	104. 96
Guja rat	Botad	Gadha da	Sakhpar Mota	Du g We ll	BV N- 01 3A	22°03' 32"	71°31' 52"	unconf ined	BAS	0. 75	107		Ma y- 01- 20 16	Pre- mons oon	7.9 0	103 00	570 0	2688	325	450	1130	1.50	0	293	262	3200	0.84	159. 87
Guja rat	Botad	Gadha da	Gadhada	Du g We ll	BV N- 01 4	21°57' 48"	71°34' 15"	unconf ined	BAS	0. 80	86		Ma y- 01- 20 16	Pre- mons oon	8.4 0	240 0	150 0	463	100	51	332	4.90	24	378	95	512	0.68	22.5 9

Guja rat	Botad	Gadha da	Mandavdha r	Du g We ll	BV N- 01 5	21°58' 04"	71°32' 04"	unconf ined	BAS	0. 30	96		Ma y- 01- 20 16	Pre- mons oon	8.2 0	380 0	228 0	738	145	90	531	3.20	12	451	133	880	1	156. 77
Guja rat	Botad	Gadha da	Limbali	Du g We ll	BV N- 01 6	21°59' 41"	71°27' 21"	unconf ined	BAS	0	130		Ma y- 01- 20 16	Pre- mons oon	7.8 0	500 0	272 0	1900	380	228	264	0.70	0	268.40	143	1400	0.84	159. 87
Guja rat	Botad	Gadha da	Junavadar	Du g We ll	BV N- 01 8	21°50' 36"	71°31' 17"	unconf ined	BAS	2. 35	79		Ma y- 01- 20 16	Pre- mons oon	8	460 0	256 0	1375	175	225	422	2.80	0	219.60	143	1360	0.68	61.5 6
Guja rat	Botad	Gadha da	Mandva	Du g We ll	BV N- 01 9	21°48' 22"	71°34' 56"	unconf ined	BAS	0. 30	75		Ma y- 01- 20 16	Pre- mons oon	8.1 0	850	480	325	45	51	45	0.20	0	159	29	136	0.52	85.0 3
Guja rat	Bhavn agar	Umrالا	Ujalvav	Du g We ll	BV N- 02 0	21°54' 06"	71°43' 43"	unconf ined	BAS	0. 50	56		Ma y- 01- 20 16	Pre- mons oon	8.3 0	106 0	650	350	55	51	81	0.60	12	268	48	120	0.84	80.1 6
Guja rat	Bhavn agar	Umrالا	Bhojavadar	Du g We ll	BV N- 02 3A	21°50' 59"	71°43' 25"	unconf ined	ALV	0. 30	36		Ma y- 01- 20 16	Pre- mons oon	8.5 0	197 0	129 0	250	50	30	337	0.50	24	427	86	328	1.32	45.6 1
Guja rat	Bhavn agar	Umrالا	Hadmatالا	Du g We ll	BV N- 02 4A	21°51' 14"	71°45' 02"	unconf ined	BAS	0	39		Ma y- 01- 20 16	Pre- mons oon	8.4 0	350 0	200 0	938	120	153	365	3	24	366	129	800	0.68	162. 97
Guja rat	Bhavn agar	Umrالا	Umrالا	Du g We ll	BV N- 02 7A	21°50' 50"	71°48' 05"	unconf ined	ALV	0. 30	22.3 0		Ma y- 01- 20 16	Pre- mons oon	8.2 0	149 0	940	363	70	45	174	0.80	12	305	62	264	0.52	39.4 1
Guja rat	Bhavn agar	Gariad har	Bhandariya	Du g We ll	BV N- 03 2	21°28' 51"	71°37' 22"	unconf ined	BAS	0	75		Ma y- 01- 20 16	Pre- mons oon	8.3 0	200 0	121 0	525	95	69	215	3.60	12	256	110	440	0.68	38.0 9

Guja rat	Bhavn agar	Palitan a	Nani Rajasthali	Du g We ll	BV N- 05 6	21°27' 51"	71°54' 32"	unconf ined	BAS	3	49		Ma y- 01- 20 16	Pre- mons oon	7.9 0	152 0	940	513	140	39	112	0.70	0	305	76	240	0.84	108. 06
Guja rat	Bhavn agar	Palitan a	Anida(Lakha vad)	Du g We ll	BV N- 05 7	21°30' 19"	71°54' 47"	unconf ined	BAS	0. 45	50.3 0		Ma y- 01- 20 16	Pre- mons oon	8	167 0	103 0	575	65	99	119	0.40	0	366	57	320	0.35	26.5 7
Guja rat	Bhavn agar	Palitan a	Lakhavad	Du g We ll	BV N- 06 1	21°29' 01"	71°55' 33"	unconf ined	BAS	1	44.5 0		Ma y- 01- 20 16	Pre- mons oon	7.8 0	157 0	950	625	120	78	72	0.60	0	342	67	248	0.68	99.6 4
Guja rat	Bhavn agar	Palitan a	Mokhadaka	Du g We ll	BV N- 06 2	21°35' 01"	71°50' 54"	unconf ined	BAS	0. 70	74		Ma y- 01- 20 16	Pre- mons oon	8	370 0	219 0	788	200	69	483	3.30	0	256	133	1040	0.52	32.7 7
Guja rat	Bhavn agar	Palitan a	Nonghanva dar	Du g We ll	BV N- 06 4A	21°38' 18"	71°42' 57"	unconf ined	BAS	0	93		Ma y- 01- 20 16	Pre- mons oon	8.4 0	117 0	840	350	80	36	107	0.70	24	488	24	72	1.65	14.6 1
Guja rat	Bhavn agar	Vallabh ipur	Vallabhipur	Du g We ll	BV N- 07 5	21°54' 02"	71°52' 42"	unconf ined	ALV	0. 60	17		Ma y- 01- 20 16	Pre- mons oon	8.7 0	550 0	343 0	275	30	48	1134	1.30	36	549	186	1440	1.81	6.64
Guja rat	Bhavn agar	Bhavna gar	Bhavnagar	Du g We ll	BV N- 07 8	21°42' 52"	72°09' 22"	unconf ined	BAS	0. 55	33.1 0		Ma y- 01- 20 16	Pre- mons oon	8.4 0	143 0	960	313	35	54	175	14.50	24	415	38	200	0.68	8.41
Guja rat	Bhavn agar	Bhavna gar	Sidsar	Du g We ll	BV N- 08 0A	21°44' 52"	72°08' 24"	unconf ined	BAS	0. 60	40		Ma y- 01- 20 16	Pre- mons oon	8.5 0	171 0	111 0	363	50	57	220	9.30	24	366	105	280	0.03	9.30
Guja rat	Bhavn agar	Bhavna gar	Thordi	Du g We ll	BV N- 08 1	21°38' 57"	72°11' 38"	unconf ined	BAS	0. 20	38		Ma y- 01- 20 16	Pre- mons oon	8.5 0	137 0	820	475	65	75	92	4.30	24	256	86	208	1.16	54.4 7

Guja rat	Bhavn agar	Bhavna gar	Kobdi	Du g We ll	BV N- 08 2A	21°38' 37"	72°08' 41"	unconf ined	BAS	0	63		Ma y- 01- 20 16	Pre- mons oon	8	159 0	940	513	60	87	127	1.80	0	293	100	248	0.35	118. 69
Guja rat	Amreli	Dhari	Kagdadi	Du g We ll	AM R- 01 7A	21°24' 14"	70°57' 37"	unconf ined	BAS	0. 50	200		Oct - 01- 20 16	Post- mons oon	8.4 0	530	350	200	45	21	26	3.30	2.50	167	0	80	0.52	4.43
Guja rat	Amreli	Dhari	Dalkhania	Du g We ll	AM R- 01 8	21°14' 28"	70°55' 29"	unconf ined	BAS	0. 15	308	75	Oct - 01- 20 16	Post- mons oon	8.2 0	770	460	238	45	30	66	1.70	3	127	0	176	0.68	28.3 4
Guja rat	Amreli	Dhari	Dhari	Du g We ll	AM R- 01 9	21°19' 52"	71°02' 08"	unconf ined	BAS	0. 30	205		Oct - 01- 20 16	Post- mons oon	8	178 0	109 0	488	75	72	184	0.60	0	354	71	312	0.52	101. 41
Guja rat	Amreli	Dhari	Chalala	Du g We ll	AM R- 02 1	21°25' 32"	71°09' 52"	unconf ined	ALV	0	134	30. 25	Oct - 01- 20 16	Post- mons oon	8.7 0	187 0	125 0	275	40	42	302	0.60	36	500	33	288	0.68	21.7 0
Guja rat	Amreli	Dhari	Samadhiyal a(nana)	Du g We ll	AM R- 02 2	21°22' 37"	71°14' 19"	unconf ined	ALV	0	143	57	Oct - 01- 20 16	Post- mons oon	8.4 0	760	500	238	30	39	63	0.70	3.20	267	14	80	0.52	27.0 1
Guja rat	Amreli	Dhari	Morjhar	Du g We ll	AM R- 02 3	21°22' 28"	71°06' 43"	unconf ined	ALV	0	147. 01	63. 1	Oct - 01- 20 16	Post- mons oon	8.4 0	930	610	300	40	48	75	0.80	24	281	24	112	0.35	11.5 1
Guja rat	Amreli	Dhari	Morjhar	Du g We ll	AM R- 02 3A	21°22' 30"	71°06' 45"	unconf ined	ALV	0	150		Oct - 01- 20 16	Post- mons oon	8.4 0	930	610	300	40	48	75	0.80	24	281	24	112	0.35	11.5 1
Guja rat	Amreli	Dhari	Dhargani	Du g We ll	AM R- 02 4	21°19' 44"	71°11' 52"	unconf ined	ALV	0	148		Oct - 01- 20 16	Post- mons oon	8.1 0	161 0	940	513	65	84	133	0.80	0	268	43	320	0.52	103. 63

Guja rat	Amreli	Dhari	Devda	Du g We ll	AM R- 02 5	21°17' 01"	71°06' 05"	unconf ined	BAS	0. 10	243	90	Oct - 01- 20 16	Post- mons oon	8	100 0	620	250	50	30	113	2.10	0	159	57	200	0.35	30.5 6
Guja rat	Amreli	Dhari	Jira	Du g We ll	AM R- 02 7	21°14' 00"	71°05' 00"	unconf ined	BAS	1. 10	235. 90	60	Oct - 01- 20 16	Post- mons oon	8	970	570	238	45	30	112	1.90	0	110	62	200	0.52	53.5 9
Guja rat	Amreli	Dhari	Dudhala	Du g We ll	AM R- 02 8	21°09' 33"	71°03' 22"	unconf ined	BAS	0. 60	245	90	Oct - 01- 20 16	Post- mons oon	8.2 0	690	420	263	30	45	37	0.50	1.80	188	0	104	0.52	46.5 0
Guja rat	Botad	Botad	Paliyad	Du g We ll	BV N- 00 7	22°15' 10"	71°34' 35"	unconf ined	BAS	0	121		Oct - 01- 20 16	Post- mons oon	7.7 0	174 0	108 0	650	90	102	95	9	0	464	33	272	0.52	85.4 7
Guja rat	Botad		Jotingada	Du g We ll	BV N- 01 0A	22°07' 00"	71°38' 22"	unconf ined	BAS	0	81		Oct - 01- 20 16	Post- mons oon	8.5 0	210 0	134 0	500	30	102	246	2.50	24	549	57	320	1	42.9 6
Guja rat	Botad	Gadha da	Sakhpar Mota	Du g We ll	BV N- 01 3A	22°03' 32"	71°31' 52"	unconf ined	BAS	0. 75	107		Oct - 01- 20 16	Post- mons oon	8.2 0	250 0	141 0	850	160	108	179	3.20	12	171	129	624	0.68	83.2 6
Guja rat	Botad	Gadha da	Gadhada	Du g We ll	BV N- 01 4	21°57' 48"	71°34' 15"	unconf ined	BAS	0. 80	86		Oct - 01- 20 16	Post- mons oon	8	148 0	101 0	375	50	60	166	0.70	0	488	62	176	1.32	24.8 0
Guja rat	Botad	Gadha da	Mandavdha r	Du g We ll	BV N- 01 5	21°58' 04"	71°32' 04"	unconf ined	BAS	0. 30	96		Oct - 01- 20 16	Post- mons oon	8	200 0	122 0	563	60	99	198	1.30	0	378	110	360	1	71.7 4
Guja rat	Botad	Gadha da	Limbali	Du g We ll	BV N- 01 6	21°59' 41"	71°27' 21"	unconf ined	BAS	0	130		Oct - 01- 20 16	Post- mons oon	8.1 0	420 0	229 0	1438	250	195	300	0.90	0	195	152	1160	0.84	168. 29

Guja rat	Botad	Gadha da	Junavadar	Du g We ll	BV N- 01 8	21°50' 36"	71°31' 17"	unconf ined	BAS	2. 35	79		Oct - 01- 20 16	Post- mons oon	8.4 0	300 0	164 0	900	175	111	272	1.30	24	122	105	800	0.68	141. 71
Guja rat	Botad	Gadha da	Mandva	Du g We ll	BV N- 01 9	21°48' 22"	71°34' 56"	unconf ined	BAS	0. 30	75		Oct - 01- 20 16	Post- mons oon	8	700	450	300	65	33	22	0.40	5.30	225	0	88	0.68	35.4 3
Guja rat	Bhavn agar	Umrالا	Ujalvav	Du g We ll	BV N- 02 0	21°54' 06"	71°43' 43"	unconf ined	BAS	0. 50	56		Oct - 01- 20 16	Post- mons oon	8	620	400	275	55	33	15	0.30	2	218	0	72	0.84	27.0 1
Guja rat	Bhavn agar	Umrالا	Bhojavadar	Du g We ll	BV N- 02 3A	21°50' 59"	71°43' 25"	unconf ined	ALV	0. 30	36		Oct - 01- 20 16	Post- mons oon	8.5 0	164 0	108 0	325	45	51	227	0.20	24	488	29	200	1.65	75.7 3
Guja rat	Bhavn agar	Umrالا	Hadmatالا	Du g We ll	BV N- 02 4A	21°51' 14"	71°45' 02"	unconf ined	BAS	0	39		Oct - 01- 20 16	Post- mons oon	7.8 0	250 0	153 0	675	105	99	255	5	0	512	110	400	0.84	168. 29
Guja rat	Bhavn agar	Umrالا	Umrالا	Du g We ll	BV N- 02 7A	21°50' 50"	71°48' 05"	unconf ined	ALV	0. 30	22.3 0		Oct - 01- 20 16	Post- mons oon	8.2 0	680	440	288	45	42	22	1.60	1.50	248	0	72	0.68	30.5 6
Guja rat	Bhavn agar	Gariad har	Bhandariya	Du g We ll	BV N- 03 2	21°28' 51"	71°37' 22"	unconf ined	BAS	0	75		Oct - 01- 20 16	Post- mons oon	8	101 0	690	350	75	39	70	1	0	366	24	112	1	19.4 9
Guja rat	Bhavn agar	Palitan a	Nani Rajasthali	Du g We ll	BV N- 05 6	21°27' 51"	71°54' 32"	unconf ined	BAS	3	49		Oct - 01- 20 16	Post- mons oon	8.3 0	130 0	760	475	80	66	78	1.50	12	220	62	224	0.68	76.1 7
Guja rat	Bhavn agar	Palitan a	Anida(Lakha vad)	Du g We ll	BV N- 05 7	21°30' 19"	71°54' 47"	unconf ined	BAS	0. 45	50.3 0		Oct - 01- 20 16	Post- mons oon	8	163 0	950	463	85	60	160	1.20	0	122	90	424	0.84	21.7 0

Guja rat	Bhav n a g a r	Palita n a	Lakhava d	Du g We ll	BV N- 06 1	21°29' 01"	71°55' 33"	unconf ined	BAS	1	44.5 0		Oct - 01- 20 16	Post- mons oon	8.3 0	109 0	630	425	95	45	54	0.70	12	134	52	232	0.35	37.6 4
Guja rat	Bhav n a g a r	Palita n a	Mokhadaka	Du g We ll	BV N- 06 2	21°35' 01"	71°50' 54"	unconf ined	BAS	0.70	74		Oct - 01- 20 16	Post- mons oon	8.3 0	350 0	201 0	788	170	87	439	3.40	12	110	148	1040	0.35	21.7 0
Guja rat	Bhav n a g a r	Palita n a	Nonghanva dar	Du g We ll	BV N- 06 4A	21°38' 18"	71°42' 57"	unconf ined	BAS	0	93		Oct - 01- 20 16	Post- mons oon	8.4 0	560	370	225	40	30	22	3.20	3.50	186	0	80	0.68	0
Guja rat	Bhav n a g a r	Vallabh ipur	Vallabhipur	Du g We ll	BV N- 07 5	21°54' 02"	71°52' 42"	unconf ined	ALV	0.60	17		Oct - 01- 20 16	Post- mons oon	8.3 0	530 0	331 0	475	80	66	994	1.60	12	586	205	1360	1.81	6.20
Guja rat	Bhav n a g a r	Bhavna gar	Bhavnagar	Du g We ll	BV N- 07 8	21°42' 52"	72°09' 22"	unconf ined	BAS	0.55	33.1 0		Oct - 01- 20 16	Post- mons oon	8.1 0	128 0	910	400	85	45	102	11.90	0	451	90	120	0.68	0.89
Guja rat	Bhav n a g a r	Bhavna gar	Sidsar	Du g We ll	BV N- 08 0A	21°44' 52"	72°08' 24"	unconf ined	BAS	0.60	40		Oct - 01- 20 16	Post- mons oon	8.2 0	115 0	740	400	95	39	76	4.50	12	281	38	192	0.84	9.30
Guja rat	Bhav n a g a r	Bhavna gar	Thordi	Du g We ll	BV N- 08 1	21°38' 57"	72°11' 38"	unconf ined	BAS	0.20	38		Oct - 01- 20 16	Post- mons oon	8.3 0	100 0	670	388	90	39	49	1.80	12	317	57	96	0.84	23.0 3
Guja rat	Bhav n a g a r	Bhavna gar	Kobdi	Du g We ll	BV N- 08 2A	21°38' 37"	72°08' 41"	unconf ined	BAS	0	63		Oct - 01- 20 16	Post- mons oon	8.3 0	121 0	790	425	90	48	81	1.80	12	366	52	128	1	56.2 4
Guja rat	Amreli	Dhari	Kagdadi	Du g We ll	AM R- 01 7A	21°24' 14"	70°57' 37"	unconf ined	BAS	0.50	200		Ma y- 01- 20 17	Pre- mons oon	8.3 0	240 0	133 0	838	120	129	153	15.20	12	146	138	600	0.35	16.6 0

Guja rat	Amreli	Dhari	Dalkhania	Du g We ll	AM R- 01 8	21°14' 28"	70°55' 29"	unconf ined	BAS	0. 15	308	75	Ma y- 01- 20 17	Pre- mons oon	8.2 0	990	570	275	45	39	99	1.70	12	61	76	240	0.19	1
Guja rat	Amreli	Dhari	Dhari	Du g We ll	AM R- 01 9	21°19' 52"	71°02' 08"	unconf ined	BAS	0. 30	205		Ma y- 01- 20 17	Pre- mons oon	8.3 0	195 0	109 0	550	50	102	194	1.70	12	195	114	384	0.03	37
Guja rat	Amreli	Dhari	Halariya	Du g We ll	AM R- 02 0	21°25' 51"	71°04' 02"	unconf ined	ALV	0. 85	162		Ma y- 01- 20 17	Pre- mons oon	8	230 0	135 0	400	505	33	342	1.30	0	85	95	680	0.35	4.50
Guja rat	Amreli	Dhari	Chalala	Du g We ll	AM R- 02 1	21°25' 32"	71°09' 52"	unconf ined	ALV	0	134	30. 25	Ma y- 01- 20 17	Pre- mons oon	8	380 0	234 0	488	85	66	645	1.40	0	390	148	1000	0.52	2
Guja rat	Amreli	Dhari	Samadhiyal a(nana)	Du g We ll	AM R- 02 2	21°22' 37"	71°14' 19"	unconf ined	ALV	0	143	57	Ma y- 01- 20 17	Pre- mons oon	8.6 0	930	580	200	40	24	120	1.30	36	183	0	168	0.03	4
Guja rat	Amreli	Dhari	Morjhar	Du g We ll	AM R- 02 3	21°22' 28"	71°06' 43"	unconf ined	ALV	0	147. 01	63. 1	Ma y- 01- 20 17	Pre- mons oon	8	180 0	100 0	625	60	114	125	0.70	0	244	86	336	0.52	37
Guja rat	Amreli	Dhari	Morjhar	Du g We ll	AM R- 02 3A	21°22' 30"	71°06' 45"	unconf ined	ALV	0	150		Ma y- 01- 20 17	Pre- mons oon	8	180 0	100 0	625	60	114	125	0.70	0	244	86	336	0.52	37
Guja rat	Amreli	Dhari	Dhargani	Du g We ll	AM R- 02 4	21°19' 44"	71°11' 52"	unconf ined	ALV	0	148		Ma y- 01- 20 17	Pre- mons oon	8.4 0	162 0	900	413	55	66	181	0.90	24	146	38	360	0.35	27.2 0
Guja rat	Amreli	Dhari	Devda	Du g We ll	AM R- 02 5	21°17' 01"	71°06' 05"	unconf ined	BAS	0. 10	243	90	Ma y- 01- 20 17	Pre- mons oon	8.4 0	114 0	610	338	50	51	103	4	24	122	43	176	0.19	37

Guja rat	Amreli	Dhari	Jira	Du g We ll	AM R- 02 7	21°14' 00"	71°05' 00"	unconf ined	BAS	1. 10	235. 90	60	Ma y- 01- 20 17	Pre- mons oon	8.2 0	128 0	750	438	50	75	92	0.90	12	268	67	160	0.03	28.4 0
Guja rat	Amreli	Dhari	Dudhala	Du g We ll	AM R- 02 8	21°09' 33"	71°03' 22"	unconf ined	BAS	0. 60	245	90	Ma y- 01- 20 17	Pre- mons oon	8.5 0	740	460	275	30	48	43	0.60	3.70	246	0	80	0.03	13.1 0
Guja rat	Botad	Botad	Paliyad	Du g We ll	BV N- 00 7	22°15' 10"	71°34' 35"	unconf ined	BAS	0	121		Ma y- 01- 20 17	Pre- mons oon	8.3 0	197 0	122 0	625	45	123	156	13.80	12	439	57	368	0.35	6
Guja rat	Botad		Jotingada	Du g We ll	BV N- 01 0A	22°07' 00"	71°38' 22"	unconf ined	BAS	0	81		Ma y- 01- 20 17	Pre- mons oon	8.6 0	130 0	850	413	50	69	103	7.90	36	403	14	160	0.52	3.90
Guja rat	Botad	Gadha da	Sakhpar Mota	Du g We ll	BV N- 01 3A	22°03' 32"	71°31' 52"	unconf ined	BAS	0. 75	107		Ma y- 01- 20 17	Pre- mons oon	8.3 0	900 0	489 0	2375	225	435	970	4.20	12	159	248	2800	1.16	37.6 0
Guja rat	Botad	Gadha da	Gadhada	Du g We ll	BV N- 01 4	21°57' 48"	71°34' 15"	unconf ined	BAS	0. 80	86		Ma y- 01- 20 17	Pre- mons oon	8.5 0	171 0	107 0	338	35	60	236	1.90	24	317	71	312	0.52	10.4 0
Guja rat	Botad	Gadha da	Mandavdha r	Du g We ll	BV N- 01 5	21°58' 04"	71°32' 04"	unconf ined	BAS	0. 30	96		Ma y- 01- 20 17	Pre- mons oon	8.4 0	340 0	203 0	625	55	117	484	3.90	24	451	143	720	0.68	30
Guja rat	Botad	Gadha da	Limbali	Du g We ll	BV N- 01 6	21°59' 41"	71°27' 21"	unconf ined	BAS	0	130		Ma y- 01- 20 17	Pre- mons oon	8	490 0	268 0	1525	215	237	422	1.90	0	207	162	1400	0.52	37.6 0
Guja rat	Botad	Gadha da	Mandva	Du g We ll	BV N- 01 9	21°48' 22"	71°34' 56"	unconf ined	BAS	0. 30	75		Ma y- 01- 20 17	Pre- mons oon	8	210 0	112 0	638	45	126	182	0.90	0	171	90	472	0.19	37.6 0

Guja rat	Bhavn agar	Umrالا	Ujalvav	Du g We ll	BV N- 02 0	21°54' 06"	71°43' 43"	unconf ined	BAS	0. 50	56		Ma y- 01- 20 17	Pre- mons oon	8.4 0	910	590	275	50	36	80	1.30	24	281	24	80	0.19	11.2 0
Guja rat	Bhavn agar	Umrالا	Bhojavadar	Du g We ll	BV N- 02 3A	21°50' 59"	71°43' 25"	unconf ined	ALV	0. 30	36		Ma y- 01- 20 17	Pre- mons oon	8.7 0	230 0	145 0	288	35	48	393	0.80	36	403	110	400	0.84	20.1 0
Guja rat	Bhavn agar	Umrالا	Hadmatالا	Du g We ll	BV N- 02 4A	21°51' 14"	71°45' 02"	unconf ined	BAS	0	39		Ma y- 01- 20 17	Pre- mons oon	8	330 0	185 0	925	90	168	328	7.70	0	183	233	800	0.52	35.2 0
Guja rat	Bhavn agar	Umrالا	Umrالا	Du g We ll	BV N- 02 7A	21°50' 50"	71°48' 05"	unconf ined	ALV	0. 30	22.3 0		Ma y- 01- 20 17	Pre- mons oon	8.3 0	161 0	100 0	338	50	51	214	0	12	305	62	288	0.19	16.9 0
Guja rat	Bhavn agar	Gariad har	Bhandariya	Du g We ll	BV N- 03 2	21°28' 51"	71°37' 22"	unconf ined	BAS	0	75		Ma y- 01- 20 17	Pre- mons oon	7.6 0	320 0	185 0	875	180	102	329	0.90	0	317	129	760	0.52	7.95
Guja rat	Bhavn agar	Palitan a	Nani Rajasthali	Du g We ll	BV N- 05 6	21°27' 51"	71°54' 32"	unconf ined	BAS	3	49		Ma y- 01- 20 17	Pre- mons oon	8.1 0	144 0	860	475	75	69	111	0.30	0	268	71	248	0.68	19.7 0
Guja rat	Bhavn agar	Palitan a	Anida(Lakha vad)	Du g We ll	BV N- 05 7	21°30' 19"	71°54' 47"	unconf ined	BAS	0. 45	50.3 0		Ma y- 01- 20 17	Pre- mons oon	8	220 0	127 0	700	110	102	182	1	0	268	105	480	0.35	15.6 0
Guja rat	Bhavn agar	Palitan a	Lakhavad	Du g We ll	BV N- 06 1	21°29' 01"	71°55' 33"	unconf ined	BAS	1	44.5 0		Ma y- 01- 20 17	Pre- mons oon	8.1 0	177 0	107 0	550	140	48	152	0.60	0	281	76	352	0.35	20.7 0
Guja rat	Bhavn agar	Palitan a	Mokhadaka	Du g We ll	BV N- 06 2	21°35' 01"	71°50' 54"	unconf ined	BAS	0. 70	74		Ma y- 01- 20 17	Pre- mons oon	8.4 0	340 0	200 0	600	120	72	797	3.90	24	220	129	920	0.19	9.60

Guja rat	Bhav nagar	Palita na	Nonghanva dar	Du g We ll	BV N- 06 4A	21°38' 18"	71°42' 57"	unconf ined	BAS	0	93		Ma y- 01- 20 17	Pre- mons oon	8.7 0	114 0	790	288	55	36	129	0	36	415	24	96	1	1.10
Guja rat	Bhav nagar	Vallabh ipur	Vallabhipur	Du g We ll	BV N- 07 5	21°54' 02"	71°52' 42"	unconf ined	ALV	0.60	17		Ma y- 01- 20 17	Pre- mons oon	8.6 0	620 0	379 0	500	70	78	1191	2.50	36	488	233	1680	1.65	5.70
Guja rat	Bhav nagar	Bhavna gar	Bhavnagar	Du g We ll	BV N- 07 8	21°42' 52"	72°09' 22"	unconf ined	BAS	0.55	33.1 0		Ma y- 01- 20 17	Pre- mons oon	8.5 0	162 0	108 0	313	70	33	218	17.50	24	415	38	264	0.35	4.60
Guja rat	Bhav nagar	Bhavna gar	Sidsar	Du g We ll	BV N- 08 0A	21°44' 52"	72°08' 24"	unconf ined	BAS	0.60	40		Ma y- 01- 20 17	Pre- mons oon	8.6 0	144 0	930	375	65	51	153	7.90	36	366	48	200	0.19	6.90
Guja rat	Bhav nagar	Bhavna gar	Thordi	Du g We ll	BV N- 08 1	21°38' 57"	72°11' 38"	unconf ined	BAS	0.20	38		Ma y- 01- 20 17	Pre- mons oon	8.2 0	142 0	870	500	100	60	95	1.40	12	268	76	240	0.52	13.8 0
Guja rat	Bhav nagar	Bhavna gar	Kobdi	Du g We ll	BV N- 08 2A	21°38' 37"	72°08' 41"	unconf ined	BAS	0	63		Ma y- 01- 20 17	Pre- mons oon	8.4 0	141 0	850	463	60	75	110	1.40	24	305	67	176	0.52	26.3 0
Guja rat	Amreli	Dhari	Kagdadi	Du g We ll	AM R- 01 7A	21°24' 14"	70°57' 37"	unconf ined	BAS	0.50	200		Oct - 01- 20 17	Post- mons oon	8	220 0	120 0	763	85	132	142	13.40	0	159	119	528	0.35	24.9 0
Guja rat	Amreli	Dhari	Dalkhania	Du g We ll	AM R- 01 8	21°14' 28"	70°55' 29"	unconf ined	BAS	0.15	308	75	Oct - 01- 20 17	Post- mons oon	8.3 0	105 0	620	388	60	57	61	1.90	12	183	62	176	0.19	10.9 0
Guja rat	Amreli	Dhari	Dhari	Du g We ll	AM R- 01 9	21°19' 52"	71°02' 08"	unconf ined	BAS	0.30	205		Oct - 01- 20 17	Post- mons oon	8.4 0	137 0	780	375	50	60	141	1.70	24	171	71	240	0.19	25.3 0

Guja rat	Amreli	Dhari	Halariya	Du g We ll	AM R- 02 0	21°25' 51"	71°04' 02"	unconf ined	ALV	0. 85	162		Oct - 01- 20 17	Post- mons oon	8.6 0	187 0	115 0	300	45	45	288	4.20	36	244	67	416	0.19	4.30
Guja rat	Amreli	Dhari	Chalala	Du g We ll	AM R- 02 1	21°25' 32"	71°09' 52"	unconf ined	ALV	0	134	30. 25	Oct - 01- 20 17	Post- mons oon	8.7 0	230 0	145 0	275	45	39	400	0.80	36	378	57	480	0.35	11
Guja rat	Amreli	Dhari	Samadhiyal a(nana)	Du g We ll	AM R- 02 2	21°22' 37"	71°14' 19"	unconf ined	ALV	0	143	57	Oct - 01- 20 17	Post- mons oon	8.8 0	870	550	250	35	39	83	2.30	36	220	19	112	0.19	3.60
Guja rat	Amreli	Dhari	Morjhar	Du g We ll	AM R- 02 3	21°22' 28"	71°06' 43"	unconf ined	ALV	0	147. 01	63. 1	Oct - 01- 20 17	Post- mons oon	8	119 0	710	300	65	33	134	1.90	0	73	100	304	0.19	0
Guja rat	Amreli	Dhari	Morjhar	Du g We ll	AM R- 02 3A	21°22' 30"	71°06' 45"	unconf ined	ALV	0	150		Oct - 01- 20 17	Post- mons oon	8	119 0	710	300	65	33	134	1.90	0	73	100	304	0.19	0
Guja rat	Amreli	Dhari	Dhargani	Du g We ll	AM R- 02 4	21°19' 44"	71°11' 52"	unconf ined	ALV	0	148		Oct - 01- 20 17	Post- mons oon	8.6 0	138 0	790	300	45	45	177	1.70	36	61	71	344	0.19	4.50
Guja rat	Amreli	Dhari	Devda	Du g We ll	AM R- 02 5	21°17' 01"	71°06' 05"	unconf ined	BAS	0. 10	243	90	Oct - 01- 20 17	Post- mons oon	8.5 0	700	450	275	50	36	33	1.50	5.50	234	0	80	0.19	9.10
Guja rat	Amreli	Dhari	Jira	Du g We ll	AM R- 02 7	21°14' 00"	71°05' 00"	unconf ined	BAS	1. 10	235. 90	60	Oct - 01- 20 17	Post- mons oon	8.4 0	920	570	275	45	39	83	1	24	171	90	104	0.19	9.30
Guja rat	Amreli	Dhari	Dudhala	Du g We ll	AM R- 02 8	21°09' 33"	71°03' 22"	unconf ined	BAS	0. 60	245	90	Oct - 01- 20 17	Post- mons oon	8.8 0	560	340	250	50	30	13	0.50	1.50	158	0	80	0.35	9.20

Guja rat	Botad	Botad	Paliyad	Du g We ll	BV N- 00 7	22°15' 10"	71°34' 35"	unconf ined	BAS	0	121		Oct - 01- 20 17	Post- mons oon	8.3 0	175 0	104 0	538	75	84	154	0.40	12	366	62	256	0.35	35.2 0
Guja rat	Botad		Jotingada	Du g We ll	BV N- 01 0A	22°07' 00"	71°38' 22"	unconf ined	BAS	0	81		Oct - 01- 20 17	Post- mons oon	8.4 0	920	630	275	35	45	82	2.20	24	378	0	64	0.52	3.50
Guja rat	Botad	Gadha da	Sakhpar Mota	Du g We ll	BV N- 01 3A	22°03' 32"	71°31' 52"	unconf ined	BAS	0. 75	107		Oct - 01- 20 17	Post- mons oon	8	600	390	225	25	39	31	2.50	4.60	195	0	88	0.84	0
Guja rat	Botad	Gadha da	Gadhada	Du g We ll	BV N- 01 4	21°57' 48"	71°34' 15"	unconf ined	BAS	0. 80	86		Oct - 01- 20 17	Post- mons oon	8.7 0	640	420	200	25	33	53	0.40	2	208	0	96	0.35	0.90
Guja rat	Botad	Gadha da	Mandavdha r	Du g We ll	BV N- 01 5	21°58' 04"	71°32' 04"	unconf ined	BAS	0. 30	96		Oct - 01- 20 17	Post- mons oon	8.7 0	116 0	790	250	30	42	150	0.80	36	366	33	128	0.52	0
Guja rat	Botad	Gadha da	Limbali	Du g We ll	BV N- 01 6	21°59' 41"	71°27' 21"	unconf ined	BAS	0	130		Oct - 01- 20 17	Post- mons oon	8	178 0	109 0	488	55	84	183	0.80	0	366	52	336	0.68	15.7 0
Guja rat	Botad	Gadha da	Junavadar	Du g We ll	BV N- 01 8	21°50' 36"	71°31' 17"	unconf ined	BAS	2. 35	79		Oct - 01- 20 17	Post- mons oon	7.8 0	310 0	191 0	513	80	75	474	0.70	0	403	132	736	1	0
Guja rat	Botad	Gadha da	Mandva	Du g We ll	BV N- 01 9	21°48' 22"	71°34' 56"	unconf ined	BAS	0. 30	75		Oct - 01- 20 17	Post- mons oon	8.5 0	140 0	830	525	100	66	78	2.40	12	256	67	224	0.35	22.2 0
Guja rat	Bhav n agar	Umr ala	Ujalvav	Du g We ll	BV N- 02 0	21°54' 06"	71°43' 43"	unconf ined	BAS	0. 50	56		Oct - 01- 20 17	Post- mons oon	8	750	470	250	40	36	56	0.30	1.90	198	29	96	0.84	10.2 0

Guja rat	Bhav n agar	Umr ala	Bhojavadar	Du g We ll	BV N- 02 3A	21°50' 59"	71°43' 25"	unconf ined	ALV	0. 30	36		Oct - 01- 20 17	Post- mons oon	8.4 0	470	320	163	30	21	31	1.70	1.60	168	0	64	0.19	0
Guja rat	Bhav n agar	Umr ala	Hadmatala	Du g We ll	BV N- 02 4A	21°51' 14"	71°45' 02"	unconf ined	BAS	0	39		Oct - 01- 20 17	Post- mons oon	8	300 0	183 0	638	75	108	390	3.80	0	512	138	560	0.52	37.6 0
Guja rat	Bhav n agar	Umr ala	Umr ala	Du g We ll	BV N- 02 7A	21°50' 50"	71°48' 05"	unconf ined	ALV	0. 30	22.3 0		Oct - 01- 20 17	Post- mons oon	7.9 0	920	650	275	40	42	83	1.90	0	366	29	80	0.35	3.20
Guja rat	Bhav n agar	Gariad har	Bhandariya	Du g We ll	BV N- 03 2	21°28' 51"	71°37' 22"	unconf ined	BAS	0	75		Oct - 01- 20 17	Post- mons oon	8	162 0	970	500	60	84	139	4.10	0	232	81	360	0.19	35.2 0
Guja rat	Bhav n agar	Palitan a	Nani Rajasthali	Du g We ll	BV N- 05 6	21°27' 51"	71°54' 32"	unconf ined	BAS	3	49		Oct - 01- 20 17	Post- mons oon	8.1 0	138 0	760	413	80	51	126	1.10	0	85	67	320	0.68	26.8 0
Guja rat	Bhav n agar	Palitan a	Anida(Lakha vad)	Du g We ll	BV N- 05 7	21°30' 19"	71°54' 47"	unconf ined	BAS	0. 45	50.3 0		Oct - 01- 20 17	Post- mons oon	8	119 0	690	388	95	36	94	0.90	0	122	43	280	0.52	25.3 0
Guja rat	Bhav n agar	Palitan a	Lakhavad	Du g We ll	BV N- 06 1	21°29' 01"	71°55' 33"	unconf ined	BAS	1	44.5 0		Oct - 01- 20 17	Post- mons oon	7.9 0	142 0	870	475	75	69	107	0	0	268	57	280	0.19	9.20
Guja rat	Bhav n agar	Palitan a	Mokhadaka	Du g We ll	BV N- 06 2	21°35' 01"	71°50' 54"	unconf ined	BAS	0. 70	74		Oct - 01- 20 17	Post- mons oon	8.4 0	240 0	142 0	588	85	90	278	3.20	24	256	110	560	0.35	11.4 0
Guja rat	Bhav n agar	Palitan a	Nonghanva dar	Du g We ll	BV N- 06 4A	21°38' 18"	71°42' 57"	unconf ined	BAS	0	93		Oct - 01- 20 17	Post- mons oon	8.6 0	630	430	225	25	39	38	3.40	6.20	264	0	56	0.52	0.70

Guja rat	Bhavn agar	Vallabh ipur	Vallabhipur	Du g We ll	BV N- 07 5	21°54' 02"	71°52' 42"	unconf ined	ALV	0. 60	17		Oct - 01- 20 17	Post- mons oon	8	520 0	326 0	313	35	54	1040	1.80	0	610	200	1320	1.81	0
Guja rat	Bhavn agar	Bhavna gar	Bhavnagar	Du g We ll	BV N- 07 8	21°42' 52"	72°09' 22"	unconf ined	BAS	0. 55	33.1 0		Oct - 01- 20 17	Post- mons oon	8.9 0	116 0	730	250	50	30	148	4.40	12	207	33	240	1	0.30
Guja rat	Bhavn agar	Bhavna gar	Sidsar	Du g We ll	BV N- 08 0A	21°44' 52"	72°08' 24"	unconf ined	BAS	0. 60	40		Oct - 01- 20 17	Post- mons oon	8	106 0	650	338	60	45	85	3.40	0	183	71	192	0.35	7.70
Guja rat	Bhavn agar	Bhavna gar	Thordi	Du g We ll	BV N- 08 1	21°38' 57"	72°11' 38"	unconf ined	BAS	0. 20	38		Oct - 01- 20 17	Post- mons oon	8	121 0	780	388	60	57	95	5.80	0	378	48	112	0.35	22.6 0
Guja rat	Bhavn agar	Bhavna gar	Kobdi	Du g We ll	BV N- 08 2A	21°38' 37"	72°08' 41"	unconf ined	BAS	0	63		Oct - 01- 20 17	Post- mons oon	8.2 0	132 0	840	500	85	69	72	1.10	12	354	76	160	0.52	11.4 0
Guja rat	Amreli	Dhari	Kagdadi	Du g We ll	AM R- 01 7A	21°24' 14"	70°57' 37"	unconf ined	BAS	0. 50	200		Ma y- 01- 20 18	Pre- mons oon	8	210 0	116 0	750	40	156	127	13.60	0	171	133	512	0.84	11.4 0
Guja rat	Amreli	Dhari	Dalkhania	Du g We ll	AM R- 01 8	21°14' 28"	70°55' 29"	unconf ined	BAS	0. 15	308	75	Ma y- 01- 20 18	Pre- mons oon	8	106 0	640	313	25	60	98	1.90	0	146	100	200	0.35	6
Guja rat	Amreli	Dhari	Dhari	Du g We ll	AM R- 01 9	21°19' 52"	71°02' 08"	unconf ined	BAS	0. 30	205		Ma y- 01- 20 18	Pre- mons oon	8	141 0	890	375	25	75	150	0.50	0	342	71	208	0.68	14.2 0
Guja rat	Amreli	Dhari	Halariya	Du g We ll	AM R- 02 0	21°25' 51"	71°04' 02"	unconf ined	ALV	0. 85	162		Ma y- 01- 20 18	Pre- mons oon	9	148 0	106 0	325	50	48	188	2.10	36	610	29	96	1.65	1.30

Guja rat	Amreli	Dhari	Chalala	Du g We ll	AM R- 02 1	21°25' 32"	71°09' 52"	unconf ined	ALV	0	134	30. 25	Ma y- 01- 20 18	Pre- mons oon	8.8 0	250 0	162 0	338	55	48	416	1.30	12	525	71	472	0.68	14.8 0
Guja rat	Amreli	Dhari	Samadhiyal a(nana)	Du g We ll	AM R- 02 2	21°22' 37"	71°14' 19"	unconf ined	ALV	0	143	57	Ma y- 01- 20 18	Pre- mons oon	8.9 0	161 0	104 0	213	45	24	270	1.70	24	317	24	328	0.68	3.20
Guja rat	Amreli	Dhari	Morjhar	Du g We ll	AM R- 02 3A	21°22' 30"	71°06' 45"	unconf ined	ALV	0	150		Ma y- 01- 20 18	Pre- mons oon	8.1 0	126 0	780	263	40	39	166	3.60	0	134	105	288	0.84	0
Guja rat	Amreli	Dhari	Dhargani	Du g We ll	AM R- 02 4	21°19' 44"	71°11' 52"	unconf ined	ALV	0	148		Ma y- 01- 20 18	Pre- mons oon	8	162 0	890	438	35	84	170	0.90	0	122	67	376	0.68	30.1 0
Guja rat	Amreli	Dhari	Devda	Du g We ll	AM R- 02 5	21°17' 01"	71°06' 05"	unconf ined	BAS	0. 10	243	90	Ma y- 01- 20 18	Pre- mons oon	8	118 0	400	163	25	24	77	2.50	1	109	0	160	0.19	4.10
Guja rat	Amreli	Dhari	Jira	Du g We ll	AM R- 02 7	21°14' 00"	71°05' 00"	unconf ined	BAS	1. 10	235. 90	60	Ma y- 01- 20 18	Pre- mons oon	7.8 0	124 0	810	450	65	69	74	3.80	12	390	67	120	0.68	9.80
Guja rat	Amreli	Dhari	Dudhala	Du g We ll	AM R- 02 8	21°09' 33"	71°03' 22"	unconf ined	BAS	0. 60	245	90	Ma y- 01- 20 18	Pre- mons oon	8.8 0	880	530	313	35	54	58	0.40	36	244	0	80	0.19	18.1 0
Guja rat	Botad	Botad	Paliyad	Du g We ll	BV N- 00 7	22°15' 10"	71°34' 35"	unconf ined	BAS	0	121		Ma y- 01- 20 18	Pre- mons oon	8.8 0	171 0	101 0	538	95	72	139	9.20	36	244	81	320	0.35	15.4 0
Guja rat	Botad		Jotingada	Du g We ll	BV N- 01 0A	22°07' 00"	71°38' 22"	unconf ined	BAS	0	81		Ma y- 01- 20 18	Pre- mons oon	8.7 0	122 0	820	400	55	63	90	9.90	24	427	19	128	1	4.30

Guja rat	Botad	Gadha da	Sakhpar Mota	Du g We ll	BV N- 01 3A	22°03' 32"	71°31' 52"	unconf ined	BAS	0. 75	107		Ma y- 01- 20 18	Pre- mons oon	7.7 0	860 0	450 0	3813	250	765	218	3.90	0	329	334	2600	1	3.20
Guja rat	Botad	Gadha da	Gadhada	Du g We ll	BV N- 01 4	21°57' 48"	71°34' 15"	unconf ined	BAS	0. 80	86		Ma y- 01- 20 18	Pre- mons oon	8.5 0	260 0	161 0	350	60	48	430	4.60	12	281	129	640	1.32	0.50
Guja rat	Botad	Gadha da	Mandavdha r	Du g We ll	BV N- 01 5	21°58' 04"	71°32' 04"	unconf ined	BAS	0. 30	96		Ma y- 01- 20 18	Pre- mons oon	8.3 0	200 0	126 0	613	125	72	176	2	12	464	81	312	1	19.7 0
Guja rat	Botad	Gadha da	Limbali	Du g We ll	BV N- 01 6	21°59' 41"	71°27' 21"	unconf ined	BAS	0	130		Ma y- 01- 20 18	Pre- mons oon	8	590 0	328 0	1613	310	201	610	4.40	0	171	181	1760	0.52	38.5 0
Guja rat	Botad	Gadha da	Junavadar	Du g We ll	BV N- 01 8	21°50' 36"	71°31' 17"	unconf ined	BAS	2. 35	79		Ma y- 01- 20 18	Pre- mons oon	8	720 0	384 0	3175	665	363	190	2.10	0	122	224	2240	0.84	29
Guja rat	Botad	Gadha da	Mandva	Du g We ll	BV N- 01 9	21°48' 22"	71°34' 56"	unconf ined	BAS	0. 30	75		Ma y- 01- 20 18	Pre- mons oon	8	180 0	101 0	613	115	78	130	1.10	0	207	86	360	0.52	35.4 0
Guja rat	Bhavn agar	Umrالا	Ujalvav	Du g We ll	BV N- 02 0	21°54' 06"	71°43' 43"	unconf ined	BAS	0. 50	56		Ma y- 01- 20 18	Pre- mons oon	8.8 0	940	590	313	55	42	70	1.20	24	232	38	120	1	6.40
Guja rat	Bhavn agar	Umrالا	Bhojavadar	Du g We ll	BV N- 02 3A	21°50' 59"	71°43' 25"	unconf ined	ALV	0. 30	36		Ma y- 01- 20 18	Pre- mons oon	8.9 0	290 0	177 0	338	50	51	506	3.40	36	354	176	560	1.48	32.7 0
Guja rat	Bhavn agar	Umrالا	Hadmatالا	Du g We ll	BV N- 02 4A	21°51' 14"	71°45' 02"	unconf ined	BAS	0	39		Ma y- 01- 20 18	Pre- mons oon	8	360 0	210 0	688	120	93	505	4.30	0	268	186	880	0.68	38.5 0

Guja rat	Bhavn agar	Umrala	Umrala	Du g We ll	BV N- 02 7A	21°50' 50"	71°48' 05"	unconf ined	ALV	0. 30	22.3 0		Ma y- 01- 20 18	Pre- mons oon	8.7 0	870	550	263	50	33	75	4.60	12	171	48	152	0.68	1.30
Guja rat	Bhavn agar	Gariad har	Bhandariya	Du g We ll	BV N- 03 2	21°28' 51"	71°37' 22"	unconf ined	BAS	0	75		Ma y- 01- 20 18	Pre- mons oon	7.8 0	230 0	142 0	550	55	99	266	1.30	0	415	90	488	0.84	9.20
Guja rat	Bhavn agar	Palitan a	Nani Rajasthali	Du g We ll	BV N- 05 6	21°27' 51"	71°54' 32"	unconf ined	BAS	3	49		Ma y- 01- 20 18	Pre- mons oon	8.2 0	162 0	930	475	75	69	153	0.90	12	195	71	320	0.84	28.3 0
Guja rat	Bhavn agar	Palitan a	Anida(Lakha vad)	Du g We ll	BV N- 05 7	21°30' 19"	71°54' 47"	unconf ined	BAS	0. 45	50.3 0		Ma y- 01- 20 18	Pre- mons oon	8	183 0	107 0	688	120	93	103	1.20	0	293	76	352	0.35	27.4 0
Guja rat	Bhavn agar	Palitan a	Lakhavad	Du g We ll	BV N- 06 1	21°29' 01"	71°55' 33"	unconf ined	BAS	1	44.5 0		Ma y- 01- 20 18	Pre- mons oon	8.3 0	178 0	102 0	713	150	81	80	1.90	12	232	71	360	0.52	27.1 0
Guja rat	Bhavn agar	Palitan a	Mokhadaka	Du g We ll	BV N- 06 2	21°35' 01"	71°50' 54"	unconf ined	BAS	0. 70	74		Ma y- 01- 20 18	Pre- mons oon	8.4 0	320 0	184 0	838	115	132	346	4.20	12	256	90	880	0.19	9.20
Guja rat	Bhavn agar	Palitan a	Nonghanva dar	Du g We ll	BV N- 06 4A	21°38' 18"	71°42' 57"	unconf ined	BAS	0	93		Ma y- 01- 20 18	Pre- mons oon	9	115 0	700	463	85	60	50	2.40	36	244	52	160	1.65	8.20
Guja rat	Bhavn agar	Vallabh ipur	Vallabhipur	Du g We ll	BV N- 07 5	21°54' 02"	71°52' 42"	unconf ined	ALV	0. 60	17		Ma y- 01- 20 18	Pre- mons oon	9	770 0	449 0	1875	350	240	905	2.90	36	488	262	2200	1.65	4
Guja rat	Bhavn agar	Bhavna gar	Bhavnagar	Du g We ll	BV N- 07 8	21°42' 52"	72°09' 22"	unconf ined	BAS	0. 55	33.1 0		Ma y- 01- 20 18	Pre- mons oon	8.2 0	136 0	930	400	90	42	120	11.60	12	390	124	144	0.52	0.30

Guja rat	Bhavn agar	Bhavna gar	Sidsar	Du g We ll	BV N- 08 0A	21°44' 52"	72°08' 24"	unconf ined	BAS	0. 60	40		Ma y- 01- 20 18	Pre- mons oon	8.1 0	360 0	214 0	450	75	63	615	3.30	0	183	162	1040	0.84	1.50
Guja rat	Bhavn agar	Bhavna gar	Thordi	Du g We ll	BV N- 08 1	21°38' 57"	72°11' 38"	unconf ined	BAS	0. 20	38		Ma y- 01- 20 18	Pre- mons oon	8.7 0	126 0	790	350	90	30	125	3.50	12	293	57	160	0.84	22.1 0
Guja rat	Bhavn agar	Bhavna gar	Kobdi	Du g We ll	BV N- 08 2A	21°38' 37"	72°08' 41"	unconf ined	BAS	0	63		Ma y- 01- 20 18	Pre- mons oon	8.6 0	137 0	820	350	70	42	152	1.40	12	244	67	200	0.52	30.4 0
Guja rat	Amreli	Dhari	Kagdadi	Du g We ll	AM R- 01 7A	21°24' 14"	70°57' 37"	unconf ined	BAS	0. 50	200		Oct - 01- 20 18	Post- mons oon	7.8 0	210 0	116 0	813	100	135	97	17.80	0	171	138	480	0.19	23.7 0
Guja rat	Amreli	Dhari	Dalkhania	Du g We ll	AM R- 01 8	21°14' 28"	70°55' 29"	unconf ined	BAS	0. 15	308	75	Oct - 01- 20 18	Post- mons oon	7.8 0	910	550	375	65	51	34	2	0	232	0	152	0.52	12.1 0
Guja rat	Amreli	Dhari	Dhari	Du g We ll	AM R- 01 9	21°19' 52"	71°02' 08"	unconf ined	BAS	0. 30	205		Oct - 01- 20 18	Post- mons oon	7.7 0	139 0	820	475	75	69	99	0.70	0	244	110	200	0.52	25.8 0
Guja rat	Amreli	Dhari	Halariya	Du g We ll	AM R- 02 0	21°25' 51"	71°04' 02"	unconf ined	ALV	0. 85	162		Oct - 01- 20 18	Post- mons oon	8.6 0	143 0	940	250	40	36	210	3.10	36	366	57	176	1	11.3 0
Guja rat	Amreli	Dhari	Chalala	Du g We ll	AM R- 02 1	21°25' 32"	71°09' 52"	unconf ined	ALV	0	134	30. 25	Oct - 01- 20 18	Post- mons oon	8.5 0	174 0	113 0	263	40	39	277	1	24	366	105	264	1	11.5 0
Guja rat	Amreli	Dhari	Samadhiyal a(nana)	Du g We ll	AM R- 02 2	21°22' 37"	71°14' 19"	unconf ined	ALV	0	143	57	Oct - 01- 20 18	Post- mons oon	8.4 0	630	400	250	40	36	29	0.40	6.10	204	0	80	0.52	5.80

Guja rat	Amreli	Dhari	Morjhar	Du g We ll	AM R- 02 3A	21°22' 30"	71°06' 45"	unconf ined	ALV	0	150		Oct - 01- 20 18	Post- mons oon	8.2 0	113 0	700	200	30	30	166	2.20	12	122	100	240	0.52	0
Guja rat	Amreli	Dhari	Dhargani	Du g We ll	AM R- 02 4	21°19' 44"	71°11' 52"	unconf ined	ALV	0	148		Oct - 01- 20 18	Post- mons oon	8	135 0	830	275	50	36	182	1.50	0	122	114	320	0.68	0
Guja rat	Amreli	Dhari	Devda	Du g We ll	AM R- 02 5	21°17' 01"	71°06' 05"	unconf ined	BAS	0. 10	243	90	Oct - 01- 20 18	Post- mons oon	7.9 0	500	320	200	30	30	21	2.60	1.60	168	0	56	0.52	7.60
Guja rat	Amreli	Dhari	Jira	Du g We ll	AM R- 02 7	21°14' 00"	71°05' 00"	unconf ined	BAS	1. 10	235. 90	60	Oct - 01- 20 18	Post- mons oon	8	690	410	225	40	30	53	0.50	1.20	129	0	144	0.52	8
Guja rat	Amreli	Dhari	Dudhala	Du g We ll	AM R- 02 8	21°09' 33"	71°03' 22"	unconf ined	BAS	0. 60	245	90	Oct - 01- 20 18	Post- mons oon	7.8 0	840	550	350	60	48	31	0.30	0	317	0	80	0.52	12.2 0
Guja rat	Botad	Botad	Paliyad	Du g We ll	BV N- 00 7	22°15' 10"	71°34' 35"	unconf ined	BAS	0	121		Oct - 01- 20 18	Post- mons oon	8.4 0	168 0	900	638	65	114	90	2	24	195	67	304	0.84	37.5 0
Guja rat	Botad		Jotingada	Du g We ll	BV N- 01 0A	22°07' 00"	71°38' 22"	unconf ined	BAS	0	81		Oct - 01- 20 18	Post- mons oon	9	900	580	375	35	69	33	1.10	36	317	0	80	0.84	3.20
Guja rat	Botad	Gadha da	Sakhpar Mota	Du g We ll	BV N- 01 3A	22°03' 32"	71°31' 52"	unconf ined	BAS	0. 75	107		Oct - 01- 20 18	Post- mons oon	8.4 0	380 0	221 0	650	95	99	570	1.60	12	305	129	960	1	36.9 0
Guja rat	Botad	Gadha da	Gadhada	Du g We ll	BV N- 01 4	21°57' 48"	71°34' 15"	unconf ined	BAS	0. 80	86		Oct - 01- 20 18	Post- mons oon	8.4 0	132 0	850	450	50	78	94	3.10	12	366	38	200	1	3.60

Guja rat	Botad	Gadha da	Mandavdha r	Du g We ll	BV N- 01 5	21°58' 04"	71°32' 04"	unconf ined	BAS	0. 30	96		Oct - 01- 20 18	Post- mons oon	8.7 0	115 0	750	288	35	48	130	1.20	24	305	52	152	0.84	2.60
Guja rat	Botad	Gadha da	Limbali	Du g We ll	BV N- 01 6	21°59' 41"	71°27' 21"	unconf ined	BAS	0	130		Oct - 01- 20 18	Post- mons oon	8	450 0	238 0	2000	325	285	112	2.20	0	183	152	1280	0.68	37.7 0
Guja rat	Botad	Gadha da	Junavadar	Du g We ll	BV N- 01 8	21°50' 36"	71°31' 17"	unconf ined	BAS	2. 35	79		Oct - 01- 20 18	Post- mons oon	8.1 0	550 0	289 0	2563	425	360	84	1.90	0	171	210	1600	0.68	37.7 0
Guja rat	Botad	Gadha da	Mandva	Du g We ll	BV N- 01 9	21°48' 22"	71°34' 56"	unconf ined	BAS	0. 30	75		Oct - 01- 20 18	Post- mons oon	8	780	450	263	50	33	57	1.40	2.10	178	0	96	0.68	28.2 0
Guja rat	Bhavn agar	Umrالا	Ujalvav	Du g We ll	BV N- 02 0	21°54' 06"	71°43' 43"	unconf ined	BAS	0. 50	56		Oct - 01- 20 18	Post- mons oon	8.5 0	850	510	350	55	51	32	1.60	12	244	0	104	1	14.2 0
Guja rat	Bhavn agar	Umrالا	Bhojavadar	Du g We ll	BV N- 02 3A	21°50' 59"	71°43' 25"	unconf ined	ALV	0. 30	36		Oct - 01- 20 18	Post- mons oon	8.2 0	240 0	153 0	325	40	54	400	0.90	12	464	138	400	1.48	23.5 0
Guja rat	Bhavn agar	Umrالا	Hadmatالا	Du g We ll	BV N- 02 4A	21°51' 14"	71°45' 02"	unconf ined	BAS	0	39		Oct - 01- 20 18	Post- mons oon	8.2 0	260 0	145 0	613	65	108	309	3.80	12	183	133	600	0.68	37.5 0
Guja rat	Bhavn agar	Umrالا	Umrالا	Du g We ll	BV N- 02 7A	21°50' 50"	71°48' 05"	unconf ined	ALV	0. 30	22.3 0		Oct - 01- 20 18	Post- mons oon	8.4 0	850	550	238	50	27	84	0.60	12	244	0	128	0.84	4.90
Guja rat	Bhavn agar	Gariad har	Bhandariya	Du g We ll	BV N- 03 2	21°28' 51"	71°37' 22"	unconf ined	BAS	0	75		Oct - 01- 20 18	Post- mons oon	8.3 0	118 0	700	438	45	78	67	1.70	12	220	67	208	0.68	5.90

Guja rat	Bhav n agar	Palita n a	Nani Rajasthali	Du g We ll	BV N- 05 6	21°27' 51"	71°54' 32"	unconf ined	BAS	3	49		Oct - 01- 20 18	Post- mons oon	8	131 0	730	563	100	75	40	1.80	0	183	71	232	0.84	27.4 0
Guja rat	Bhav n agar	Palita n a	Anida(Lakha vad)	Du g We ll	BV N- 05 7	21°30' 19"	71°54' 47"	unconf ined	BAS	0. 45	50.3 0		Oct - 01- 20 18	Post- mons oon	8	151 0	920	500	75	75	115	1.50	0	305	67	264	0.35	69.0 9
Guja rat	Bhav n agar	Palita n a	Lakhavad	Du g We ll	BV N- 06 1	21°29' 01"	71°55' 33"	unconf ined	BAS	1	44.5 0		Oct - 01- 20 18	Post- mons oon	8.1 0	130 0	730	413	65	60	107	0.80	0	110	52	320	0.84	13.1 0
Guja rat	Bhav n agar	Palita n a	Mokhadaka	Du g We ll	BV N- 06 2	21°35' 01"	71°50' 54"	unconf ined	BAS	0. 70	74		Oct - 01- 20 18	Post- mons oon	8.3 0	310 0	176 0	1063	150	165	219	3.70	12	256	138	800	0.68	11.6 0
Guja rat	Bhav n agar	Palita n a	Nonghanva dar	Du g We ll	BV N- 06 4A	21°38' 18"	71°42' 57"	unconf ined	BAS	0	93		Oct - 01- 20 18	Post- mons oon	9	107 0	760	188	25	30	158	1.20	36	415	24	72	1.65	0.10
Guja rat	Bhav n agar	Vallabh ipur	Vallabhipur	Du g We ll	BV N- 07 5	21°54' 02"	71°52' 42"	unconf ined	ALV	0. 60	17		Oct - 01- 20 18	Post- mons oon	8.3 0	720 0	438 0	938	200	105	1220	2.60	12	561	276	2000	1.65	0.30
Guja rat	Bhav n agar	Bhavna gar	Bhavnagar	Du g We ll	BV N- 07 8	21°42' 52"	72°09' 22"	unconf ined	BAS	0. 55	33.1 0		Oct - 01- 20 18	Post- mons oon	8.5 0	580	400	200	35	27	37	3.40	4.20	226	0	64	0.52	0
Guja rat	Bhav n agar	Bhavna gar	Sidsar	Du g We ll	BV N- 08 0A	21°44' 52"	72°08' 24"	unconf ined	BAS	0. 60	40		Oct - 01- 20 18	Post- mons oon	8	156 0	105 0	250	35	39	241	4.30	0	403	52	272	0.84	9.60
Guja rat	Bhav n agar	Bhavna gar	Thordi	Du g We ll	BV N- 08 1	21°38' 57"	72°11' 38"	unconf ined	BAS	0. 20	38		Oct - 01- 20 18	Post- mons oon	8.4 0	530	340	213	35	30	21	2.20	2.10	178	0	72	0.52	2.50

Guja rat	Bhavn agar	Bhavna gar	Kobdi	Du g We ll	BV N- 08 2A	21°38' 37"	72°08' 41"	unconf ined	BAS	0	63		Oct - 01- 20 18	Post- mons oon	8.6 0	100 0	600	375	35	69	55	0.70	24	281	0	120	0.68	15.1 0
Guja rat	Amreli	Dhari	Kagdadi	Du g We ll	AM R- 01 7A	21°24' 14"	70°57' 37"	unconf ined	BAS	0. 50	200		Ma y- 01- 20 19	Pre- mons oon	7.6 0	240 0	138 0	863	115	138	142	15	0	268	106	584	0.33	10
Guja rat	Amreli	Dhari	Dalkhania	Du g We ll	AM R- 01 8	21°14' 28"	70°55' 29"	unconf ined	BAS	0. 15	308	75	Ma y- 01- 20 19	Pre- mons oon	7.8 0	115 0	670	375	60	54	90	1.40	0	146	65	248	0.39	9.50
Guja rat	Amreli	Dhari	Dhari	Du g We ll	AM R- 01 9	21°19' 52"	71°02' 08"	unconf ined	BAS	0. 30	205		Ma y- 01- 20 19	Pre- mons oon	8.4 0	136 0	810	375	45	63	138	0.40	12	244	0	296	0.60	10
Guja rat	Amreli	Dhari	Halariya	Du g We ll	AM R- 02 0	21°25' 51"	71°04' 02"	unconf ined	ALV	0. 85	162		Ma y- 01- 20 19	Pre- mons oon	8	280 0	181 0	288	40	45	509	1.10	0	512	89	600	0.53	10.1 0
Guja rat	Amreli	Dhari	Chalala	Du g We ll	AM R- 02 1	21°25' 32"	71°09' 52"	unconf ined	ALV	0	134	30. 25	Ma y- 01- 20 19	Pre- mons oon	8.1 0	750	490	188	25	30	84	2.70	2	218	0	128	0.41	2.90
Guja rat	Amreli	Dhari	Samadhiyal a(nana)	Du g We ll	AM R- 02 2	21°22' 37"	71°14' 19"	unconf ined	ALV	0	143	57	Ma y- 01- 20 19	Pre- mons oon	8.1 0	141 0	860	250	45	33	206	1.90	0	122	86	360	0.54	0.70
Guja rat	Amreli	Dhari	Devda	Du g We ll	AM R- 02 5	21°17' 01"	71°06' 05"	unconf ined	BAS	0. 10	243	90	Ma y- 01- 20 19	Pre- mons oon	7.8 0	990	600	363	50	57	59	1.10	0	268	0	144	0.18	18.8 0
Guja rat	Amreli	Dhari	Jira	Du g We ll	AM R- 02 7	21°14' 00"	71°05' 00"	unconf ined	BAS	1. 10	235. 90	60	Ma y- 01- 20 19	Pre- mons oon	8.2 0	137 0	850	438	50	75	112	1	12	366	52	160	0.36	21.8 0

Guja rat	Amreli	Dhari	Dudhala	Du g We ll	AM R- 02 8	21°09' 33"	71°03' 22"	unconf ined	BAS	0. 60	245	90	Ma y- 01- 20 19	Pre- mons oon	8.3 0	870	540	300	45	45	61	0.40	12	244	0	120	32	12
Guja rat	Botad	Botad	Paliyad	Du g We ll	BV N- 00 7	22°15' 10"	71°34' 35"	unconf ined	BAS	0	121		Ma y- 01- 20 19	Pre- mons oon	8.8 0	210 0	125 0	625	55	117	183	10.90	24	366	80	392	0.55	16.8 0
Guja rat	Botad		Jotingada	Du g We ll	BV N- 01 0A	22°07' 00"	71°38' 22"	unconf ined	BAS	0	81		Ma y- 01- 20 19	Pre- mons oon	8.3 0	970	660	325	35	57	72	1.50	12	366	0	112	0.78	0.60
Guja rat	Botad	Gadha da	Sakhpar Mota	Du g We ll	BV N- 01 3A	22°03' 32"	71°31' 52"	unconf ined	BAS	0. 75	107		Ma y- 01- 20 19	Pre- mons oon	7.5 0	930 0	496 0	3188	275	600	667	2.90	0	220	358	2800	0.68	41.4 0
Guja rat	Botad	Gadha da	Gadhada	Du g We ll	BV N- 01 4	21°57' 48"	71°34' 15"	unconf ined	BAS	0. 80	86		Ma y- 01- 20 19	Pre- mons oon	8.4 0	142 0	890	313	45	48	180	2.50	24	366	44	144	0.60	32
Guja rat	Botad	Gadha da	Mandavdha r	Du g We ll	BV N- 01 5	21°58' 04"	71°32' 04"	unconf ined	BAS	0. 30	96		Ma y- 01- 20 19	Pre- mons oon	8.3 0	310 0	186 0	675	105	99	399	1.70	24	427	128	640	0.90	33.1 0
Guja rat	Botad	Gadha da	Limbali	Du g We ll	BV N- 01 6	21°59' 41"	71°27' 21"	unconf ined	BAS	0	130		Ma y- 01- 20 19	Pre- mons oon	7.8 0	290 0	165 0	863	150	117	266	1.80	0	232	96	768	0.55	19.9 0
Guja rat	Botad	Gadha da	Junavadar	Du g We ll	BV N- 01 8	21°50' 36"	71°31' 17"	unconf ined	BAS	2. 35	79		Ma y- 01- 20 19	Pre- mons oon	7.4 0	420 0	232 0	1175	125	207	423	2.70	0	268	98	1160	0.42	39.5 0
Guja rat	Botad	Gadha da	Mandva	Du g We ll	BV N- 01 9	21°48' 22"	71°34' 56"	unconf ined	BAS	0. 30	75		Ma y- 01- 20 19	Pre- mons oon	7.8 0	119 0	690	350	55	51	109	4.30	0	220	63	144	0.26	39.7 0

Guja rat	Bhav n a g a r	Umr a l a	Uja l v a v	Du g W e l l	BV N- 02 0	21°54' 06"	71°43' 43"	unconf ined	BAS	0. 50	56		Ma y- 01- 20 19	Pre- mons oon	7.7 0	102 0	690	275	45	39	105	2.30	0	366	0	120	0.91	9.70
Guja rat	Bhav n a g a r	Umr a l a	Bho ja va da r	Du g W e l l	BV N- 02 3A	21°50' 59"	71°43' 25"	unconf ined	ALV	0. 30	36		Ma y- 01- 20 19	Pre- mons oon	8.3 0	280 0	175 0	313	50	45	497	0.80	12	403	188	520	1.35	31.2 0
Guja rat	Bhav n a g a r	Umr a l a	Had ma ta la	Du g W e l l	BV N- 02 4A	21°51' 14"	71°45' 02"	unconf ined	BAS	0	39		Ma y- 01- 20 19	Pre- mons oon	8	290 0	173 0	650	65	117	361	3.40	0	439	140	560	0.59	39.8 0
Guja rat	Bhav n a g a r	Umr a l a	Umr a l a	Du g W e l l	BV N- 02 7A	21°50' 50"	71°48' 05"	unconf ined	ALV	0. 30	22.3 0		Ma y- 01- 20 19	Pre- mons oon	8.3 0	175 0	112 0	250	45	33	286	1.40	12	305	104	320	0.41	12.3 0
Guja rat	Bhav n a g a r	Gari ad har	Bhan da ri ya	Du g W e l l	BV N- 03 2	21°28' 51"	71°37' 22"	unconf ined	BAS	0	75		Ma y- 01- 20 19	Pre- mons oon	7.5 0	194 0	123 0	475	50	84	223	6	0	403	73	392	0.44	2.40
Guja rat	Bhav n a g a r	Palit an a	Nani Raja sthali	Du g W e l l	BV N- 05 6	21°27' 51"	71°54' 32"	unconf ined	BAS	3	49		Ma y- 01- 20 19	Pre- mons oon	8.3 0	142 0	840	375	40	66	151	1.40	12	207	62	280	0.45	15.1 0
Guja rat	Bhav n a g a r	Palit an a	Anida(Lakha vad)	Du g W e l l	BV N- 05 7	21°30' 19"	71°54' 47"	unconf ined	BAS	0. 45	50.3 0		Ma y- 01- 20 19	Pre- mons oon	7.8 0	199 0	113 0	625	60	114	168	2	0	220	93	456	0.06	20.4 0
Guja rat	Bhav n a g a r	Palit an a	Lakha vad	Du g W e l l	BV N- 06 1	21°29' 01"	71°55' 33"	unconf ined	BAS	1	44.5 0		Ma y- 01- 20 19	Pre- mons oon	8.4 0	147 0	910	425	50	72	141	1.30	24	305	55	256	0.13	6.90
Guja rat	Bhav n a g a r	Palit an a	Mokha daka	Du g W e l l	BV N- 06 2	21°35' 01"	71°50' 54"	unconf ined	BAS	0. 70	74		Ma y- 01- 20 19	Pre- mons oon	8.4 0	360 0	208 0	688	60	129	505	4.50	24	195	154	1000	0.11	6.10

Guja rat	Bhavn agar	Palitan a	Nonghanva dar	Du g We ll	BV N- 06 4A	21°38' 18"	71°42' 57"	unconf ined	BAS	0	93		Ma y- 01- 20 19	Pre- mons oon	8.6 0	117 0	840	175	30	24	188	0.40	24	464	0	112	0.91	0.80
Guja rat	Bhavn agar	Vallabh ipur	Vallabhipur	Du g We ll	BV N- 07 5	21°54' 02"	71°52' 42"	unconf ined	ALV	0.60	17		Ma y- 01- 20 19	Pre- mons oon	8.3 0	730 0	460 0	350	55	51	1512	2	24	647	500	1800	1.61	3.30
Guja rat	Bhavn agar	Bhavna gar	Bhavnagar	Du g We ll	BV N- 07 8	21°42' 52"	72°09' 22"	unconf ined	BAS	0.55	33.1 0		Ma y- 01- 20 19	Pre- mons oon	8.3 0	143 0	890	413	65	60	134	5.40	12	305	84	208	0.29	16.5 0
Guja rat	Bhavn agar	Bhavna gar	Sidsar	Du g We ll	BV N- 08 0A	21°44' 52"	72°08' 24"	unconf ined	BAS	0.60	40		Ma y- 01- 20 19	Pre- mons oon	7.8 0	400 0	260 0	338	55	48	745	24.70	0	720	88	920	0.84	2.70
Guja rat	Bhavn agar	Bhavna gar	Thordi	Du g We ll	BV N- 08 1	21°38' 57"	72°11' 38"	unconf ined	BAS	0.20	38		Ma y- 01- 20 19	Pre- mons oon	8.3 0	990	630	288	50	39	92	1.90	12	293	0	128	0.66	13.4 0
Guja rat	Bhavn agar	Bhavna gar	Kobdi	Du g We ll	BV N- 08 2A	21°38' 37"	72°08' 41"	unconf ined	BAS	0	63		Ma y- 01- 20 19	Pre- mons oon	8.3 0	187 0	111 0	500	50	90	198	2.30	24	305	102	304	0.34	30.3 0
Guja rat	Amreli	Dhari	Kagdadi	Du g We ll	AM R- 01 7A	21°24' 14"	70°57' 37"	unconf ined	BAS	0.50	200		Oct - 01- 20 19	Post- mons oon	8.3 0	214 0	122 0	725	100	114	148	15.60	12	207	103	496	0.22	19.5 0
Guja rat	Amreli	Dhari	Dalkhania	Du g We ll	AM R- 01 8	21°14' 28"	70°55' 29"	unconf ined	BAS	0.15	308	75	Oct - 01- 20 19	Post- mons oon	8.7 0	103 0	550	300	25	57	97	1.60	36	85	0	240	0.16	12.2 0
Guja rat	Amreli	Dhari	Dhari	Du g We ll	AM R- 01 9	21°19' 52"	71°02' 08"	unconf ined	BAS	0.30	205		Oct - 01- 20 19	Post- mons oon	8.8 0	205 0	117 0	500	40	96	241	0.60	12	244	103	400	0.34	37.2 0

Guja rat	Amreli	Dhari	Halariya	Du g We ll	AM R- 02 0	21°25' 51"	71°04' 02"	unconf ined	ALV	0. 85	162		Oct - 01- 20 19	Post- mons oon	8	117 0	750	313	40	51	123	1.70	0	305	22	200	0.26	6.70
Guja rat	Amreli	Dhari	Chalala	Du g We ll	AM R- 02 1	21°25' 32"	71°09' 52"	unconf ined	ALV	0	134	30. 25	Oct - 01- 20 19	Post- mons oon	8.6 0	172 0	113 0	300	30	54	255	0.90	24	476	47	232	0.63	13.5 0
Guja rat	Amreli	Dhari	Samadhiyal a(nana)	Du g We ll	AM R- 02 2	21°22' 37"	71°14' 19"	unconf ined	ALV	0	143	57	Oct - 01- 20 19	Post- mons oon	8.4 0	167 0	103 0	250	20	48	268	0.60	12	256	17	400	0.23	5.90
Guja rat	Amreli	Dhari	Morjhar	Du g We ll	AM R- 02 3A	21°22' 30"	71°06' 45"	unconf ined	ALV	0	150		Oct - 01- 20 19	Post- mons oon	8	910	560	188	25	30	121	2.10	0	146	0	232	0.36	1.10
Guja rat	Amreli	Dhari	Dhargani	Du g We ll	AM R- 02 4	21°19' 44"	71°11' 52"	unconf ined	ALV	0	148		Oct - 01- 20 19	Post- mons oon	8	129 0	760	400	50	66	111	0.60	0	244	27	240	0.27	20.3 0
Guja rat	Amreli	Dhari	Devda	Du g We ll	AM R- 02 5	21°17' 01"	71°06' 05"	unconf ined	BAS	0. 10	243	90	Oct - 01- 20 19	Post- mons oon	7.7 0	860	520	313	40	51	52	0.90	0	244	0	120	0.23	15.9 0
Guja rat	Amreli	Dhari	Jira	Du g We ll	AM R- 02 7	21°14' 00"	71°05' 00"	unconf ined	BAS	1. 10	235. 90	60	Oct - 01- 20 19	Post- mons oon	7.9 0	101 0	650	375	40	66	58	0.90	0	317	67	80	0.41	15.7 0
Guja rat	Amreli	Dhari	Dudhala	Du g We ll	AM R- 02 8	21°09' 33"	71°03' 22"	unconf ined	BAS	0. 60	245	90	Oct - 01- 20 19	Post- mons oon	7.6 0	680	430	225	30	36	51	0.40	1.70	228	0	72	0.18	12.4 0
Guja rat	Botad	Botad	Paliyad	Du g We ll	BV N- 00 7	22°15' 10"	71°34' 35"	unconf ined	BAS	0	121		Oct - 01- 20 19	Post- mons oon	8	186 0	102 0	650	50	126	126	4.50	0	281	74	304	0.59	53.6 0

Guja rat	Botad		Jotingada	Du g We ll	BV N- 01 0A	22°07' 00"	71°38' 22"	unconf ined	BAS	0	81		Oct - 01- 20 19	Post- mons oon	8.3 0	830	510	275	25	51	62	2.90	24	244	0	88	0.70	12.9 0
Guja rat	Botad	Gadha da	Sakhpar Mota	Du g We ll	BV N- 01 3A	22°03' 32"	71°31' 52"	unconf ined	BAS	0. 75	107		Oct - 01- 20 19	Post- mons oon	7.9 0	441 0	249 0	1138	150	183	488	2.10	0	342	148	1120	0.88	52.5 0
Guja rat	Botad	Gadha da	Gadhada	Du g We ll	BV N- 01 4	21°57' 48"	71°34' 15"	unconf ined	BAS	0. 80	86		Oct - 01- 20 19	Post- mons oon	8.4 0	115 0	720	200	20	36	170	1.10	24	244	40	176	0.92	10.9 0
Guja rat	Botad	Gadha da	Mandavdha r	Du g We ll	BV N- 01 5	21°58' 04"	71°32' 04"	unconf ined	BAS	0. 30	96		Oct - 01- 20 19	Post- mons oon	7.5 0	108 0	730	288	40	45	115	0.80	0	378	35	104	0.57	12.4 0
Guja rat	Botad	Gadha da	Limbali	Du g We ll	BV N- 01 6	21°59' 41"	71°27' 21"	unconf ined	BAS	0	130		Oct - 01- 20 19	Post- mons oon	7.9 0	980	670	275	30	48	98	0.90	0	390	0	88	0.55	12
Guja rat	Botad	Gadha da	Junavadar	Du g We ll	BV N- 01 8	21°50' 36"	71°31' 17"	unconf ined	BAS	2. 35	79		Oct - 01- 20 19	Post- mons oon	7.4 0	730	430	200	30	30	72	2.70	0.70	99	0	192	0.52	1.10
Guja rat	Botad	Gadha da	Mandva	Du g We ll	BV N- 01 9	21°48' 22"	71°34' 56"	unconf ined	BAS	0. 30	75		Oct - 01- 20 19	Post- mons oon	7.6 0	101 0	570	375	50	60	58	1.50	0	220	28	120	0.32	34.3 0
Guja rat	Bhavn agar	Umrالا	Ujalvav	Du g We ll	BV N- 02 0	21°54' 06"	71°43' 43"	unconf ined	BAS	0. 50	56		Oct - 01- 20 19	Post- mons oon	7.7 0	640	410	225	30	36	42	0.40	0.90	229	0	64	0.72	9.30
Guja rat	Bhavn agar	Umrالا	Bhojavadar	Du g We ll	BV N- 02 3A	21°50' 59"	71°43' 25"	unconf ined	ALV	0. 30	36		Oct - 01- 20 19	Post- mons oon	7.7 0	600	360	213	30	33	37	2.90	0.60	129	0	120	0.52	5.30

Guja rat	Bhavn agar	Umrالا	Hadmatالا	Du g We ll	BV N- 02 4A	21°51' 14"	71°45' 02"	unconf ined	BAS	0	39		Oct - 01- 20 19	Post- mons oon	8.3 0	281 0	155 0	663	35	138	331	14.80	12	244	155	560	0.83	64
Guja rat	Bhavn agar	Umrالا	Umrالا	Du g We ll	BV N- 02 7A	21°50' 50"	71°48' 05"	unconf ined	ALV	0. 30	22.3 0		Oct - 01- 20 19	Post- mons oon	8.9 0	920	630	275	30	48	83	2.40	24	366	0	72	0.45	4
Guja rat	Bhavn agar	Gariad har	Bhandariya	Du g We ll	BV N- 03 2	21°28' 51"	71°37' 22"	unconf ined	BAS	0	75		Oct - 01- 20 19	Post- mons oon	7.8 0	297 0	175 0	650	70	114	382	3.50	0	366	140	640	0.77	38
Guja rat	Bhavn agar	Palitan a	Nani Rajasthali	Du g We ll	BV N- 05 6	21°27' 51"	71°54' 32"	unconf ined	BAS	3	49		Oct - 01- 20 19	Post- mons oon	7.7 0	135 0	790	375	35	69	135	2.30	0	244	62	216	0.77	27.8 0
Guja rat	Bhavn agar	Palitan a	Anida(Lakha vad)	Du g We ll	BV N- 05 7	21°30' 19"	71°54' 47"	unconf ined	BAS	0. 45	50.3 0		Oct - 01- 20 19	Post- mons oon	7.4 0	171 0	990	550	55	99	137	2	0	268	57	344	0.54	23.5 0
Guja rat	Bhavn agar	Palitan a	Lakhavad	Du g We ll	BV N- 06 1	21°29' 01"	71°55' 33"	unconf ined	BAS	1	44.5 0		Oct - 01- 20 19	Post- mons oon	7.9 0	143 0	790	400	45	69	143	0.90	0	122	49	336	0.28	24.2 0
Guja rat	Bhavn agar	Palitan a	Mokhadaka	Du g We ll	BV N- 06 2	21°35' 01"	71°50' 54"	unconf ined	BAS	0. 70	74		Oct - 01- 20 19	Post- mons oon	8.6 0	270 0	157 0	625	50	120	330	3.20	24	256	90	680	0.51	12.5 0
Guja rat	Bhavn agar	Palitan a	Nonghanva dar	Du g We ll	BV N- 06 4A	21°38' 18"	71°42' 57"	unconf ined	BAS	0	93		Oct - 01- 20 19	Post- mons oon	8.8 0	101 0	720	150	20	24	161	1.50	24	390	14	80	1.60	2.10
Guja rat	Bhavn agar	Vallabh ipur	Vallabhipur	Du g We ll	BV N- 07 5	21°54' 02"	71°52' 42"	unconf ined	ALV	0. 60	17		Oct - 01- 20 19	Post- mons oon	8.4 0	544 0	341 0	488	50	87	1022	6.90	24	464	580	1160	0.91	16.4 0

Guja rat	Bhavn agar	Bhavna gar	Bhavnagar	Du g We ll	BV N- 07 8	21°42' 52"	72°09' 22"	unconf ined	BAS	0. 55	33.1 0		Oct - 01- 20 19	Post- mons oon	8.3 0	142 0	930	400	60	60	131	17.60	12	366	60	224	0.57	1.50
Guja rat	Bhavn agar	Bhavna gar	Sidsar	Du g We ll	BV N- 08 0A	21°44' 52"	72°08' 24"	unconf ined	BAS	0. 60	40		Oct - 01- 20 19	Post- mons oon	8.5 0	123 0	770	250	30	42	166	2	24	268	39	184	0.43	14.3 0
Guja rat	Bhavn agar	Bhavna gar	Thordi	Du g We ll	BV N- 08 1	21°38' 57"	72°11' 38"	unconf ined	BAS	0. 20	38		Oct - 01- 20 19	Post- mons oon	7.7 0	147 0	920	438	55	72	134	3	0	354	75	200	0.68	22.8 0
Guja rat	Bhavn agar	Bhavna gar	Kobdi	Du g We ll	BV N- 08 2A	21°38' 37"	72°08' 41"	unconf ined	BAS	0	63		Oct - 01- 20 19	Post- mons oon	8.3 0	102 0	640	325	35	57	83	1.30	12	293	44	104	0.46	13.9 0
Guja rat	Amreli	Dhari	Kagdadi	Du g We ll	AM R- 01 7A	21°24' 14"	70°57' 37"	unconf ined	BAS	0. 50	200		Ma y- 01- 20 20	Pre- mons oon	8	202 0	126 0	413	40	75	268	8.40	0	305	126	440	0.09	1.90
Guja rat	Amreli	Dhari	Dalkhania	Du g We ll	AM R- 01 8	21°14' 28"	70°55' 29"	unconf ined	BAS	0. 15	308	75	Ma y- 01- 20 20	Pre- mons oon	8	115 0	730	325	30	60	113	1.60	0	268	60	192	0.15	4.60
Guja rat	Amreli	Dhari	Dhari	Du g We ll	AM R- 01 9	21°19' 52"	71°02' 08"	unconf ined	BAS	0. 30	205		Ma y- 01- 20 20	Pre- mons oon	7.8 0	202 0	128 0	500	35	99	232	2.40	0	464	116	320	0.18	15.6 0
Guja rat	Amreli	Dhari	Halariya	Du g We ll	AM R- 02 0	21°25' 51"	71°04' 02"	unconf ined	ALV	0. 85	162		Ma y- 01- 20 20	Pre- mons oon	8.4 0	133 0	900	338	35	60	149	0.80	24	451	34	144	1.70	2.30
Guja rat	Amreli	Dhari	Chalala	Du g We ll	AM R- 02 1	21°25' 32"	71°09' 52"	unconf ined	ALV	0	134	30. 25	Ma y- 01- 20 20	Pre- mons oon	8.1 0	800	480	200	25	33	89	1.90	0	134	0	200	0.16	0.50

Guja rat	Amreli	Dhari	Samadhiyal a(nana)	Du g We ll	AM R- 02 2	21°22' 37"	71°14' 19"	unconf ined	ALV	0	143	57	Ma y- 01- 20 20	Pre- mons oon	8.4 0	183 0	114 0	288	25	54	286	1.30	24	305	38	408	0.09	1.50
Guja rat	Amreli	Dhari	Morjhar	Du g We ll	AM R- 02 3A	21°22' 30"	71°06' 45"	unconf ined	ALV	0	150		Ma y- 01- 20 20	Pre- mons oon	7.8 0	920	560	213	25	36	112	0.50	0	122	76	192	0.08	1.30
Guja rat	Amreli	Dhari	Dhargani	Du g We ll	AM R- 02 4	21°19' 44"	71°11' 52"	unconf ined	ALV	0	148		Ma y- 01- 20 20	Pre- mons oon	8	146 0	920	400	40	72	150	0.60	0	329	39	288	0.42	2.50
Guja rat	Amreli	Dhari	Devda	Du g We ll	AM R- 02 5	21°17' 01"	71°06' 05"	unconf ined	BAS	0. 10	243	90	Ma y- 01- 20 20	Pre- mons oon	8.3 0	950	620	200	25	33	124	1.30	12	244	0	176	0.03	0.20
Guja rat	Amreli	Dhari	Jira	Du g We ll	AM R- 02 7	21°14' 00"	71°05' 00"	unconf ined	BAS	1. 10	235. 90	60	Ma y- 01- 20 20	Pre- mons oon	8.4 0	103 0	690	375	35	69	60	4.10	12	415	0	88	0.03	6.70
Guja rat	Amreli	Dhari	Dudhala	Du g We ll	AM R- 02 8	21°09' 33"	71°03' 22"	unconf ined	BAS	0. 60	245	90	Ma y- 01- 20 20	Pre- mons oon	8	680	450	250	25	45	39	0.50	6.50	273	0	56	0.05	5.90
Guja rat	Botad	Botad	Paliyad	Du g We ll	BV N- 00 7	22°15' 10"	71°34' 35"	unconf ined	BAS	0	121		Ma y- 01- 20 20	Pre- mons oon	8	174 0	990	625	35	129	111	1.50	0	305	47	328	0.87	29
Guja rat	Botad		Jotingada	Du g We ll	BV N- 01 0A	22°07' 00"	71°38' 22"	unconf ined	BAS	0	81		Ma y- 01- 20 20	Pre- mons oon	7.4 0	980	640	275	25	51	95	3.30	0	305	0	160	0.78	2.20
Guja rat	Botad	Gadha da	Sakhpar Mota	Du g We ll	BV N- 01 3A	22°03' 32"	71°31' 52"	unconf ined	BAS	0. 75	107		Ma y- 01- 20 20	Pre- mons oon	8	413 0	238 0	788	40	165	586	1.80	0	305	130	1120	1.32	27.5 0

Guja rat	Botad	Gadha da	Gadhada	Du g We ll	BV N- 01 4	21°57' 48"	71°34' 15"	unconf ined	BAS	0. 80	86		Ma y- 01- 20 20	Pre- mons oon	8.3 0	158 0	104 0	250	30	42	247	0.40	24	390	45	248	1.08	8.10
Guja rat	Botad	Gadha da	Mandavdha r	Du g We ll	BV N- 01 5	21°58' 04"	71°32' 04"	unconf ined	BAS	0. 30	96		Ma y- 01- 20 20	Pre- mons oon	8.3 0	143 0	950	288	20	57	194	0.90	24	415	48	192	0.59	2.40
Guja rat	Botad	Gadha da	Limbali	Du g We ll	BV N- 01 6	21°59' 41"	71°27' 21"	unconf ined	BAS	0	130		Ma y- 01- 20 20	Pre- mons oon	8.1 0	182 0	113 0	413	25	84	227	1	0	403	52	312	0.62	22.8 0
Guja rat	Botad	Gadha da	Junavadar	Du g We ll	BV N- 01 8	21°50' 36"	71°31' 17"	unconf ined	BAS	2. 35	79		Ma y- 01- 20 20	Pre- mons oon	7.8 0	399 0	222 0	1238	120	225	346	0.60	0	220	101	1200	0.40	3.80
Guja rat	Botad	Gadha da	Mandva	Du g We ll	BV N- 01 9	21°48' 22"	71°34' 56"	unconf ined	BAS	0. 30	75		Ma y- 01- 20 20	Pre- mons oon	8	820	520	275	25	51	60	1	0	281	0	88	0.50	13.5 0
Guja rat	Bhavn agar	Umrالا	Ujalvav	Du g We ll	BV N- 02 0	21°54' 06"	71°43' 43"	unconf ined	BAS	0. 50	56		Ma y- 01- 20 20	Pre- mons oon	8.1 0	660	420	200	20	36	58	0.40	1.90	198	0	96	0.55	6.20
Guja rat	Bhavn agar	Umrالا	Bhojavadar	Du g We ll	BV N- 02 3A	21°50' 59"	71°43' 25"	unconf ined	ALV	0. 30	36		Ma y- 01- 20 20	Pre- mons oon	8.2 0	235 0	161 0	225	20	42	434	1.10	12	671	91	320	1.77	13.8 0
Guja rat	Bhavn agar	Umrالا	Hadmatالا	Du g We ll	BV N- 02 4A	21°51' 14"	71°45' 02"	unconf ined	BAS	0	39		Ma y- 01- 20 20	Pre- mons oon	7.7 0	295 0	182 0	563	40	111	414	6.40	0	525	73	624	0.60	23.6 0
Guja rat	Bhavn agar	Umrالا	Umrالا	Du g We ll	BV N- 02 7A	21°50' 50"	71°48' 05"	unconf ined	ALV	0. 30	22.3 0		Ma y- 01- 20 20	Pre- mons oon	8.2 0	115 0	770	225	25	39	159	1.30	12	354	23	152	0.46	5.90

Guja rat	Bhav n a g a r	Gari a d h a r	Bhandariya	Du g W e l l	BV N- 03 2	21°28' 51"	71°37' 22"	unconf ined	BAS	0	75		Ma y- 01- 20 20	Pre- mons oon	8.2 0	178 0	104 0	475	25	99	188	1.10	12	220	66	424	0.32	5.30
Guja rat	Bhav n a g a r	Palita n a	Nani Rajasthali	Du g W e l l	BV N- 05 6	21°27' 51"	71°54' 32"	unconf ined	BAS	3	49		Ma y- 01- 20 20	Pre- mons oon	7.8 0	980	590	275	20	54	98	0.50	0	195	0	216	0.88	5.80
Guja rat	Bhav n a g a r	Palita n a	Anida(Lakha vad)	Du g W e l l	BV N- 05 7	21°30' 19"	71°54' 47"	unconf ined	BAS	0. 45	50.3 0		Ma y- 01- 20 20	Pre- mons oon	8	109 0	660	325	30	60	100	0.90	0	183	42	240	0.45	2.80
Guja rat	Bhav n a g a r	Palita n a	Lakhavad	Du g W e l l	BV N- 06 1	21°29' 01"	71°55' 33"	unconf ined	BAS	1	44.5 0		Ma y- 01- 20 20	Pre- mons oon	7.8 0	148 0	890	375	35	69	167	0.70	0	220	35	360	0.45	3.60
Guja rat	Bhav n a g a r	Palita n a	Mokhadaka	Du g W e l l	BV N- 06 2	21°35' 01"	71°50' 54"	unconf ined	BAS	0. 70	74		Ma y- 01- 20 20	Pre- mons oon	8.4 0	361 0	212 0	788	50	159	463	6.30	24	366	86	960	0.62	4.50
Guja rat	Bhav n a g a r	Palita n a	Nonghanva dar	Du g W e l l	BV N- 06 4A	21°38' 18"	71°42' 57"	unconf ined	BAS	0	93		Ma y- 01- 20 20	Pre- mons oon	8.5 0	146 0	101 0	225	30	36	230	1.40	24	488	16	184	1.72	0.90
Guja rat	Bhav n a g a r	Vallabh ipur	Vallabhipur	Du g W e l l	BV N- 07 5	21°54' 02"	71°52' 42"	unconf ined	ALV	0. 60	17		Ma y- 01- 20 20	Pre- mons oon	8.5 0	390 0	241 0	438	35	84	686	14.70	24	439	120	1000	0.64	3.60
Guja rat	Bhav n a g a r	Bhavna gar	Bhavnagar	Du g W e l l	BV N- 07 8	21°42' 52"	72°09' 22"	unconf ined	BAS	0. 55	33.1 0		Ma y- 01- 20 20	Pre- mons oon	7.9 0	158 0	990	375	25	75	183	9.70	0	354	80	248	0.42	17.3 0
Guja rat	Bhav n a g a r	Bhavna gar	Sidsar	Du g W e l l	BV N- 08 0A	21°44' 52"	72°08' 24"	unconf ined	BAS	0. 60	40		Ma y- 01- 20 20	Pre- mons oon	8.3 0	202 0	128 0	350	35	63	299	5.60	12	390	69	400	0.87	8.40

Guja rat	Bhavn agar	Bhavna gar	Thordi	Du g We ll	BV N- 08 1	21°38' 57"	72°11' 38"	unconf ined	BAS	0. 20	38		Ma y- 01- 20 20	Pre- mons oon	7.7 0	131 0	860	375	30	72	127	1.10	0	390	57	168	0.94	9.30
Guja rat	Bhavn agar	Bhavna gar	Kobdi	Du g We ll	BV N- 08 2A	21°38' 37"	72°08' 41"	unconf ined	BAS	0	63		Ma y- 01- 20 20	Pre- mons oon	8.3 0	160 0	103 0	475	35	93	148	1	12	415	64	256	0.47	2.50
Guja rat	Amreli	Dhari	Kagdadi	Du g We ll	AM R- 01 7A	21°24' 14"	70°57' 37"	unconf ined	BAS	0. 50	200		Oct - 01- 20 20	Post- mons oon	8.4 0	175 0	104 0	438	50	75	189	19.90	12	220	87	376	0.42	14.8 0
Guja rat	Amreli	Dhari	Dalkhania	Du g We ll	AM R- 01 8	21°14' 28"	70°55' 29"	unconf ined	BAS	0. 15	308	75	Oct - 01- 20 20	Post- mons oon	8	119 0	700	313	30	57	126	3.60	0	207	59	184	0.47	27.6 0
Guja rat	Amreli	Dhari	Dhari	Du g We ll	AM R- 01 9	21°19' 52"	71°02' 08"	unconf ined	BAS	0. 30	205		Oct - 01- 20 20	Post- mons oon	8.3 0	210 0	119 0	513	40	99	245	1.30	12	293	113	328	0.61	57.3 0
Guja rat	Amreli	Dhari	Halariya	Du g We ll	AM R- 02 0	21°25' 51"	71°04' 02"	unconf ined	ALV	0. 85	162		Oct - 01- 20 20	Post- mons oon	8.4 0	620	380	163	20	27	65	2.50	2.80	147	0	112	0.57	5.20
Guja rat	Amreli	Dhari	Chalala	Du g We ll	AM R- 02 1	21°25' 32"	71°09' 52"	unconf ined	ALV	0	134	30. 25	Oct - 01- 20 20	Post- mons oon	8.5 0	109 0	720	238	25	42	138	2.80	24	342	23	120	0.66	7
Guja rat	Amreli	Dhari	Samadhiyal a(nana)	Du g We ll	AM R- 02 2	21°22' 37"	71°14' 19"	unconf ined	ALV	0	143	57	Oct - 01- 20 20	Post- mons oon	8.5 0	147 0	960	263	30	45	216	1.40	24	366	20	248	0.35	6.20
Guja rat	Amreli	Dhari	Dhargani	Du g We ll	AM R- 02 4	21°19' 44"	71°11' 52"	unconf ined	ALV	0	148		Oct - 01- 20 20	Post- mons oon	7.8 0	179 0	101 0	425	45	75	215	1.20	0	232	40	352	0.70	46.1 0

Guja rat	Amreli	Dhari	Devda	Du g We ll	AM R- 02 5	21°17' 01"	71°06' 05"	unconf ined	BAS	0. 10	243	90	Oct - 01- 20 20	Post- mons oon	8.2 0	840	530	213	25	36	93	1.90	12	244	0	96	0.73	16.5 0
Guja rat	Amreli	Dhari	Jira	Du g We ll	AM R- 02 7	21°14' 00"	71°05' 00"	unconf ined	BAS	1. 10	235. 90	60	Oct - 01- 20 20	Post- mons oon	8.5 0	950	580	350	30	66	55	1.40	12	268	0	128	0.51	14
Guja rat	Amreli	Dhari	Dudhala	Du g We ll	AM R- 02 8	21°09' 33"	71°03' 22"	unconf ined	BAS	0. 60	245	90	Oct - 01- 20 20	Post- mons oon	8.5 0	670	420	200	25	33	60	1.40	6.30	213	0	64	0.49	14.7 0
Guja rat	Botad	Botad	Paliyad	Du g We ll	BV N- 00 7	22°15' 10"	71°34' 35"	unconf ined	BAS	0	121		Oct - 01- 20 20	Post- mons oon	8.4 0	154 0	900	500	30	102	123	0.60	12	244	63	320	0.60	8.62
Guja rat	Botad		Jotingada	Du g We ll	BV N- 01 0A	22°07' 00"	71°38' 22"	unconf ined	BAS	0	81		Oct - 01- 20 20	Post- mons oon	7.4 0	880	560	250	25	45	84	3	0	244	0	160	0.78	2.20
Guja rat	Botad	Gadha da	Sakhpar Mota	Du g We ll	BV N- 01 3A	22°03' 32"	71°31' 52"	unconf ined	BAS	0. 75	107		Oct - 01- 20 20	Post- mons oon	8.2 0	159 0	970	288	30	51	231	1.50	12	244	51	344	1.19	8.26
Guja rat	Botad	Gadha da	Gadhada	Du g We ll	BV N- 01 4	21°57' 48"	71°34' 15"	unconf ined	BAS	0. 80	86		Oct - 01- 20 20	Post- mons oon	8.5 0	122 0	760	250	25	45	162	2.80	24	256	40	200	0.67	8.48
Guja rat	Botad	Gadha da	Mandavdha r	Du g We ll	BV N- 01 5	21°58' 04"	71°32' 04"	unconf ined	BAS	0. 30	96		Oct - 01- 20 20	Post- mons oon	8.2 0	241 0	154 0	413	40	75	363	1.40	12	488	70	480	1	8.59
Guja rat	Botad	Gadha da	Limbali	Du g We ll	BV N- 01 6	21°59' 41"	71°27' 21"	unconf ined	BAS	0	130		Oct - 01- 20 20	Post- mons oon	8.2 0	164 0	950	375	25	75	198	9.50	12	146	77	400	1.23	8.68

Guja rat	Botad	Gadha da	Junavadar	Du g We ll	BV N- 01 8	21°50' 36"	71°31' 17"	unconf ined	BAS	2. 35	79		Oct - 01- 20 20	Post- mons oon	8.1 0	143 0	800	425	45	75	131	0.70	0	110	56	376	0.82	8.46
Guja rat	Botad	Gadha da	Mandva	Du g We ll	BV N- 01 9	21°48' 22"	71°34' 56"	unconf ined	BAS	0. 30	75		Oct - 01- 20 20	Post- mons oon	8	690	410	200	20	36	65	0.80	1.60	138	0	136	1.08	8.36
Guja rat	Bhavn agar	Umrالا	Ujalvav	Du g We ll	BV N- 02 0	21°54' 06"	71°43' 43"	unconf ined	BAS	0. 50	56		Oct - 01- 20 20	Post- mons oon	8.4 0	520	330	150	20	24	48	3.20	1.50	158	0	64	1.27	8.74
Guja rat	Bhavn agar	Umrالا	Bhojavadar	Du g We ll	BV N- 02 3A	21°50' 59"	71°43' 25"	unconf ined	ALV	0. 30	36		Oct - 01- 20 20	Post- mons oon	8.4 0	231 0	147 0	388	30	75	351	5	24	439	95	440	1.82	8.61
Guja rat	Bhavn agar	Umrالا	Hadmatالا	Du g We ll	BV N- 02 4A	21°51' 14"	71°45' 02"	unconf ined	BAS	0	39		Oct - 01- 20 20	Post- mons oon	8.3 0	650	420	138	20	21	85	1.40	3.70	156	0	128	1.28	1.67
Guja rat	Bhavn agar	Umrالا	Umrالا	Du g We ll	BV N- 02 7A	21°50' 50"	71°48' 05"	unconf ined	ALV	0. 30	22.3 0		Oct - 01- 20 20	Post- mons oon	8.5 0	107 0	680	238	25	42	134	1.90	24	244	27	184	0.56	0.17
Guja rat	Bhavn agar	Gariad har	Bhandariya	Du g We ll	BV N- 03 2	21°28' 51"	71°37' 22"	unconf ined	BAS	0	75		Oct - 01- 20 20	Post- mons oon	7.8 0	251 0	146 0	525	35	105	334	2.20	0	183	108	680	0.93	8.59
Guja rat	Bhavn agar	Palitan a	Nani Rajasthali	Du g We ll	BV N- 05 6	21°27' 51"	71°54' 32"	unconf ined	BAS	3	49		Oct - 01- 20 20	Post- mons oon	7.9 0	710	440	188	20	33	75	1.10	1.70	178	0	120	0.37	8.52
Guja rat	Bhavn agar	Palitan a	Anida(Lakha vad)	Du g We ll	BV N- 05 7	21°30' 19"	71°54' 47"	unconf ined	BAS	0. 45	50.3 0		Oct - 01- 20 20	Post- mons oon	7.8 0	138 0	780	375	35	69	143	0.80	0	122	45	360	0.40	8.63

Guja rat	Bhav n a g a r	Palit a n	Lakhav ad	Du g W e l l	BV N- 06 1	21°29' 01"	71°55' 33"	unconf ined	BAS	1	44.5 0		Oct - 01- 20 20	Post- mons oon	7.8 0	149 0	850	375	40	66	168	1	0	122	44	400	0.41	8.58
Guja rat	Bhav n a g a r	Palit a n	Mokhad aka	Du g W e l l	BV N- 06 2	21°35' 01"	71°50' 54"	unconf ined	BAS	0.70	74		Oct - 01- 20 20	Post- mons oon	8.3 0	123 0	820	275	30	48	154	2.50	12	354	34	176	0.88	4.87
Guja rat	Bhav n a g a r	Palit a n	Nonghan va dar	Du g W e l l	BV N- 06 4A	21°38' 18"	71°42' 57"	unconf ined	BAS	0	93		Oct - 01- 20 20	Post- mons oon	8.3 0	175 0	111 0	288	25	54	264	7.10	12	305	70	368	1.37	1.59
Guja rat	Bhav n a g a r	Vallab h ipur	Vallabh ipur	Du g W e l l	BV N- 07 5	21°54' 02"	71°52' 42"	unconf ined	ALV	0.60	17		Oct - 01- 20 20	Post- mons oon	8.3 0	497 0	307 0	450	40	84	928	10.30	12	488	224	1280	0.96	6.80
Guja rat	Bhav n a g a r	Bhavna gar	Bhavnagar	Du g W e l l	BV N- 07 8	21°42' 52"	72°09' 22"	unconf ined	BAS	0.55	33.1 0		Oct - 01- 20 20	Post- mons oon	8.2 0	112 0	700	300	25	57	116	2.60	12	268	37	176	0.35	7.52
Guja rat	Bhav n a g a r	Bhavna gar	Sidsar	Du g W e l l	BV N- 08 0A	21°44' 52"	72°08' 24"	unconf ined	BAS	0.60	40		Oct - 01- 20 20	Post- mons oon	8.3 0	184 0	114 0	313	30	57	275	6.60	12	305	50	400	0.98	8.28
Guja rat	Bhav n a g a r	Bhavna gar	Thordi	Du g W e l l	BV N- 08 1	21°38' 57"	72°11' 38"	unconf ined	BAS	0.20	38		Oct - 01- 20 20	Post- mons oon	8.2 0	850	540	225	25	39	89	2.90	12	207	40	120	0.68	4.69
Guja rat	Bhav n a g a r	Bhavna gar	Kobdi	Du g W e l l	BV N- 08 2A	21°38' 37"	72°08' 41"	unconf ined	BAS	0	63		Oct - 01- 20 20	Post- mons oon	8.3 0	580	380	175	20	30	52	1.10	2.90	197	0	64	0.37	8.64
Guja rat	Amreli	Dhari	Kagdadi	Du g W e l l	AM R- 01 7A	21°24' 14"	70°57' 37"	unconf ined	BAS	0.50	200		Ma y- 01- 20 21	Pre- mons oon	7.80	175 0	10 10	538	60	93	145	14.70	0	159	133	400	0.07	10.3 0

Guja rat	Amreli	Dhari	Dalkhania	Du g We ll	AM R- 01 8	21°14' 28"	70°55' 29"	unconf ined	BAS	0. 15	308	75	Ma y- 01- 20 21	Pre- mons oon	7. 70	122 0	72 0	313	35	54	133	3.20	0	159	92	224	0	17.5 0
Guja rat	Amreli	Dhari	Dhari	Du g We ll	AM R- 01 9	21°19' 52"	71°02' 08"	unconf ined	BAS	0. 30	205		Ma y- 01- 20 21	Pre- mons oon	7. 70	181 0	10 80	375	35	69	242	2.30	0	220	143	336	0.20	28.4 0
Guja rat	Amreli	Dhari	Halariya	Du g We ll	AM R- 02 0	21°25' 51"	71°04' 02"	unconf ined	ALV	0. 85	162		Ma y- 01- 20 21	Pre- mons oon	8. 30	162 0	99 0	375	35	69	196	5.20	12	244	101	320	0.19	8.20
Guja rat	Amreli	Dhari	Chalala	Du g We ll	AM R- 02 1	21°25' 32"	71°09' 52"	unconf ined	ALV	0	134	30. 25	Ma y- 01- 20 21	Pre- mons oon	8. 30	102 0	59 0	275	30	48	105	4.60	12	159	40	168	0.12	22.1 0
Guja rat	Amreli	Dhari	Samadhiyal a(nana)	Du g We ll	AM R- 02 2	21°22' 37"	71°14' 19"	unconf ined	ALV	0	143	57	Ma y- 01- 20 21	Pre- mons oon	8. 30	127 0	80 0	275	35	45	160	7.80	12	256	49	232	0.30	6.40
Guja rat	Amreli	Dhari	Morjhar	Du g We ll	AM R- 02 3A	21°22' 30"	71°06' 45"	unconf ined	ALV	0	150		Ma y- 01- 20 21	Pre- mons oon	8. 10	104 0	63 0	263	35	42	115	3.10	0	183	0	240	0.11	7.50
Guja rat	Amreli	Dhari	Dhargani	Du g We ll	AM R- 02 4	21°19' 44"	71°11' 52"	unconf ined	ALV	0	148		Ma y- 01- 20 21	Pre- mons oon	7. 90	186 0	10 40	413	40	75	235	2.60	0	171	81	400	0.10	38.3 0
Guja rat	Amreli	Dhari	Devda	Du g We ll	AM R- 02 5	21°17' 01"	71°06' 05"	unconf ined	BAS	0. 10	243	90	Ma y- 01- 20 21	Pre- mons oon	7. 70	690	47 0	200	25	33	54	20.70	1.90	248	0	88	0.21	3.30
Guja rat	Amreli	Dhari	Jira	Du g We ll	AM R- 02 7	21°14' 00"	71°05' 00"	unconf ined	BAS	1. 10	235. 90	60	Ma y- 01- 20 21	Pre- mons oon	8. 50	340 0	20 50	300	30	54	640	4.30	24	281	147	840	1.04	24.7 0
Guja rat	Amreli	Dhari	Dudhala	Du g We ll	AM R- 02 8	21°09' 33"	71°03' 22"	unconf ined	BAS	0. 60	245	90	Ma y- 01- 20 21	Pre- mons oon	7. 80	700	43 0	225	25	39	54	3	6.10	204	0	80	0.20	15

Guja rat	Botad	Botad	Paliyad	Du g We ll	BV N- 00 7	22°15' 10"	71°34' 35"	unconf ined	BAS	0	121		Ma y- 01- 20 21	Pre- mons oon	7. 80	198 0	11 00	563	40	111	194	1.70	0	256	66	384	0.15	46.1 0
Guja rat	Botad		Jotingada	Du g We ll	BV N- 01 0A	22°07' 00"	71°38' 22"	unconf ined	BAS	0	81		Ma y- 01- 20 21	Pre- mons oon	8. 40	134 0	89 0	300	30	54	165	5.70	12	390	48	184	0.68	3.70
Guja rat	Botad	Gadha da	Sakhpar Mota	Du g We ll	BV N- 01 3A	22°03' 32"	71°31' 52"	unconf ined	BAS	0. 75	107		Ma y- 01- 20 21	Pre- mons oon	7. 40	971 0	53 40	2500	250	450	108 0	2.80	0	220	470	2800	0.78	64.9 0
Guja rat	Botad	Gadha da	Gadhada	Du g We ll	BV N- 01 4	21°57' 48"	71°34' 15"	unconf ined	BAS	0. 80	86		Ma y- 01- 20 21	Pre- mons oon	8. 30	198 0	12 10	388	30	75	275	1	12	305	98	408	1.04	9.60
Guja rat	Botad	Gadha da	Mandavdha r	Du g We ll	BV N- 01 5	21°58' 04"	71°32' 04"	unconf ined	BAS	0. 30	96		Ma y- 01- 20 21	Pre- mons oon	8. 30	202 0	11 90	538	40	105	215	1.80	12	268	76	464	0.52	8.60
Guja rat	Botad	Gadha da	Limbali	Du g We ll	BV N- 01 6	21°59' 41"	71°27' 21"	unconf ined	BAS	0	130		Ma y- 01- 20 21	Pre- mons oon	7. 40	432 0	24 00	625	80	102	702	6.40	0	110	98	1240	0.57	61.5 0
Guja rat	Botad	Gadha da	Junavadar	Du g We ll	BV N- 01 8	21°50' 36"	71°31' 17"	unconf ined	BAS	2. 35	79		Ma y- 01- 20 21	Pre- mons oon	7. 80	134 60	75 40	2500	175	495	194 0	7.40	0	427	234	4200	0.74	62.9 0
Guja rat	Botad	Gadha da	Mandva	Du g We ll	BV N- 01 9	21°48' 22"	71°34' 56"	unconf ined	BAS	0. 30	75		Ma y- 01- 20 21	Pre- mons oon	8. 10	143 0	86 0	375	35	69	154	2	0	281	54	248	0.32	20.5 0
Guja rat	Bhavn agar	Umrالا	Ujalvav	Du g We ll	BV N- 02 0	21°54' 06"	71°43' 43"	unconf ined	BAS	0. 50	56		Ma y- 01- 20 21	Pre- mons oon	8	690	44 0	150	20	24	88	0.90	2	168	0	136	0.49	2.10
Guja rat	Bhavn agar	Umrالا	Bhojavadar	Du g We ll	BV N- 02 3A	21°50' 59"	71°43' 25"	unconf ined	ALV	0. 30	36		Ma y- 01- 20 21	Pre- mons oon	8. 30	184 0	11 70	250	30	42	306	1	12	366	78	320	1.23	17.3 0

Guja rat	Bhavn agar	Umrالا	Hadmatالا	Du g We ll	BV N- 02 4A	21°51' 14"	71°45' 02"	unconf ined	BAS	0	39		Ma y- 01- 20 21	Pre- mons oon	7. 80	303 0	16 50	625	50	120	405	6.40	0	134	105	768	0.81	59
Guja rat	Bhavn agar	Umrالا	Umrالا	Du g We ll	BV N- 02 7A	21°50' 50"	71°48' 05"	unconf ined	ALV	0. 30	22.3 0		Ma y- 01- 20 21	Pre- mons oon	8. 30	135 0	89 0	250	30	42	192	3.30	12	366	49	192	0.26	7.50
Guja rat	Bhavn agar	Gariad har	Bhandariya	Du g We ll	BV N- 03 2	21°28' 51"	71°37' 22"	unconf ined	BAS	0	75		Ma y- 01- 20 21	Pre- mons oon	8	161 0	97 0	363	35	66	202	1.50	0	207	58	400	0.40	2.40
Guja rat	Bhavn agar	Palitan a	Nani Rajasthali	Du g We ll	BV N- 05 6	21°27' 51"	71°54' 32"	unconf ined	BAS	3	49		Ma y- 01- 20 21	Pre- mons oon	8	860	52 0	300	30	54	57	2.10	0	220	0	144	0.28	11.9 0
Guja rat	Bhavn agar	Palitan a	Anida(Lakha vad)	Du g We ll	BV N- 05 7	21°30' 19"	71°54' 47"	unconf ined	BAS	0. 45	50.3 0		Ma y- 01- 20 21	Pre- mons oon	7. 80	134 0	77 0	375	35	69	133	1.40	0	122	53	352	0.21	4
Guja rat	Bhavn agar	Palitan a	Lakhavad	Du g We ll	BV N- 06 1	21°29' 01"	71°55' 33"	unconf ined	BAS	1	44.5 0		Ma y- 01- 20 21	Pre- mons oon	8	137 0	80 0	375	35	69	140	2.10	0	146	53	344	0.06	5.50
Guja rat	Bhavn agar	Palitan a	Mokhadaka	Du g We ll	BV N- 06 2	21°35' 01"	71°50' 54"	unconf ined	BAS	0. 70	74		Ma y- 01- 20 21	Pre- mons oon	7. 50	570 0	31 80	1000	100	180	847	4.10	0	159	122	1720	0.30	46.4 0
Guja rat	Bhavn agar	Palitan a	Nonghanva dar	Du g We ll	BV N- 06 4A	21°38' 18"	71°42' 57"	unconf ined	BAS	0	93		Ma y- 01- 20 21	Pre- mons oon	8. 10	173 0	11 90	250	30	42	281	2.60	0	512	43	272	1.37	3.40
Guja rat	Bhavn agar	Vallabh ipur	Vallabhipur	Du g We ll	BV N- 07 5	21°54' 02"	71°52' 42"	unconf ined	ALV	0. 60	17		Ma y- 01- 20 21	Pre- mons oon	8. 30	437 0	27 10	375	35	69	827	7.90	12	512	146	1080	0.59	19.2 0
Guja rat	Bhavn agar	Bhavna gar	Sidsar	Du g We ll	BV N- 08 0A	21°44' 52"	72°08' 24"	unconf ined	BAS	0. 60	40		Ma y- 01- 20 21	Pre- mons oon	7. 90	277 0	16 10	350	40	60	472	3.80	0	220	128	640	0.71	46.4 0

Guja rat	Bhavn agar	Bhavna gar	Thordi	Du g We ll	BV N- 08 1	21°38' 57"	72°11' 38"	unconf ined	BAS	0. 20	38		Ma y- 01- 20 21	Pre- mons oon	8. 50	950	60 0	250	30	42	100	3.10	12	244	0	160	0.94	6.40
Guja rat	Bhavn agar	Bhavna gar	Kobdi	Du g We ll	BV N- 08 2A	21°38' 37"	72°08' 41"	unconf ined	BAS	0	63		Ma y- 01- 20 21	Pre- mons oon	8. 30	107 0	63 0	325	30	60	91	8.40	12	244	0	168	0.49	20.7 0
Guja rat	Botad	Botad	Paliyad	Du g We ll	BV N- 00 7	22°15' 10"	71°34' 35"	unconf ined	BAS	0	121		Oc t- 01- 20 21	Post- mons oon	7. 40	212 0	12 20	625	60	114	196	6.20	0	329	91	376	0.69	45
Guja rat	Botad		Jotingada	Du g We ll	BV N- 01 0A	22°07' 00"	71°38' 22"	unconf ined	BAS	0	81		Oc t- 01- 20 21	Post- mons oon	7. 80	990	71 0	275	30	48	98	3.50	0	464	0	64	1.06	4.90
Guja rat	Botad	Gadha da	Sakhpar Mota	Du g We ll	BV N- 01 3A	22°03' 32"	71°31' 52"	unconf ined	BAS	0. 75	107		Oc t- 01- 20 21	Post- mons oon	7. 40	767 0	43 10	2000	250	330	842	1.60	0	354	470	2000	1.15	65.9 0
Guja rat	Botad	Gadha da	Gadhada	Du g We ll	BV N- 01 4	21°57' 48"	71°34' 15"	unconf ined	BAS	0. 80	86		Oc t- 01- 20 21	Post- mons oon	8. 30	223 0	14 70	375	40	66	338	0.80	12	561	106	336	1.58	12
Guja rat	Botad	Gadha da	Mandavdha r	Du g We ll	BV N- 01 5	21°58' 04"	71°32' 04"	unconf ined	BAS	0. 30	96		Oc t- 01- 20 21	Post- mons oon	8. 30	182 0	12 00	313	35	54	272	1.20	12	427	92	296	1.17	5.30
Guja rat	Botad	Gadha da	Limbali	Du g We ll	BV N- 01 6	21°59' 41"	71°27' 21"	unconf ined	BAS	0	130		Oc t- 01- 20 21	Post- mons oon	8. 30	154 0	10 20	275	30	48	225	1.50	12	378	78	280	0.78	3.80
Guja rat	Botad	Gadha da	Junavadar	Du g We ll	BV N- 01 8	21°50' 36"	71°31' 17"	unconf ined	BAS	2. 35	79		Oc t- 01- 20 21	Post- mons oon	7. 70	481 0	27 00	1125	100	210	588	0.40	0	293	214	1240	0.94	53.7 0
Guja rat	Botad	Gadha da	Mandva	Du g We ll	BV N- 01 9	21°48' 22"	71°34' 56"	unconf ined	BAS	0. 30	75		Oc t- 01- 20 21	Post- mons oon	8. 40	670	49 0	175	20	30	71	1.30	1.50	318	0	40	0.80	2.40

Guja rat	Bhavn agar	Umrالا	Ujalvav	Du g We ll	BV N- 02 0	21°54' 06"	71°43' 43"	unconf ined	BAS	0. 50	56		Oc t- 01- 20 21	Post- mons oon	8. 30	510	32 0	150	15	27	46	1.30	3.90	166	0	56	0.67	7.80
Guja rat	Bhavn agar	Umrالا	Bhojavadar	Du g We ll	BV N- 02 3A	21°50' 59"	71°43' 25"	unconf ined	ALV	0. 30	36		Oc t- 01- 20 21	Post- mons oon	7. 70	393 0	22 90	563	60	99	644	1	0	317	157	960	0.71	52.3 0
Guja rat	Bhavn agar	Umrالا	Hadmatالا	Du g We ll	BV N- 02 4A	21°51' 14"	71°45' 02"	unconf ined	BAS	0	39		Oc t- 01- 20 21	Post- mons oon	8. 30	332 0	19 90	500	50	90	530	5.90	12	378	166	720	1.23	38.8 0
Guja rat	Bhavn agar	Umrالا	Umrالا	Du g We ll	BV N- 02 7A	21°50' 50"	71°48' 05"	unconf ined	ALV	0. 30	22.3 0		Oc t- 01- 20 21	Post- mons oon	8. 30	179 0	11 70	300	35	51	271	3.50	12	4.30	79	312	0.61	5.60
Guja rat	Bhavn agar	Gariad har	Bhandariya	Du g We ll	BV N- 03 2	21°28' 51"	71°37' 22"	unconf ined	BAS	0	75		Oc t- 01- 20 21	Post- mons oon	7. 80	257 0	15 90	500	60	84	358	4	0	378	168	520	0.70	17.6 0
Guja rat	Bhavn agar	Palitan a	Nani Rajasthali	Du g We ll	BV N- 05 6	21°27' 51"	71°54' 32"	unconf ined	BAS	3	49		Oc t- 01- 20 21	Post- mons oon	7. 60	137 0	84 0	438	50	75	112	0.80	0	305	105	176	1	19
Guja rat	Bhavn agar	Palitan a	Anida(Lakha vad)	Du g We ll	BV N- 05 7	21°30' 19"	71°54' 47"	unconf ined	BAS	0. 45	50.3 0		Oc t- 01- 20 21	Post- mons oon	7. 60	128 0	79 0	375	40	66	121	0.70	0	268	58	224	0.47	11.2 0
Guja rat	Bhavn agar	Palitan a	Lakhavad	Du g We ll	BV N- 06 1	21°29' 01"	71°55' 33"	unconf ined	BAS	1	44.5 0		Oc t- 01- 20 21	Post- mons oon	7. 60	176 0	10 70	500	50	90	173	0.80	0	329	82	328	0.50	15.7 0
Guja rat	Bhavn agar	Palitan a	Mokhadaka	Du g We ll	BV N- 06 2	21°35' 01"	71°50' 54"	unconf ined	BAS	0. 70	74		Oc t- 01- 20 21	Post- mons oon	8. 40	120 0	78 0	300	35	51	135	2	24	342	55	128	1.04	9.50
Guja rat	Bhavn agar	Palitan a	Nonghanva dar	Du g We ll	BV N- 06 4A	21°38' 18"	71°42' 57"	unconf ined	BAS	0	93		Oc t- 01- 20 21	Post- mons oon	8. 30	187 0	11 30	375	40	66	253	5.70	12	329	88	352	0.85	14.4 0

Guja rat	Bhav nagar	Vallabh ipur	Vallabhipur	Du g We ll	BV N- 07 5	21°54' 02"	71°52' 42"	unconf ined	ALV	0. 60	17		Oc t- 01- 20 21	Post- mons oon	8. 30	672 0	43 00	413	40	75	135 0	6.70	12	878	370	1560	1.27	8.60
Guja rat	Bhav nagar	Bhavna gar	Bhavnagar	Du g We ll	BV N- 07 8	21°42' 52"	72°09' 22"	unconf ined	BAS	0. 55	33.1 0		Oc t- 01- 20 21	Post- mons oon	7. 90	168 0	10 40	438	40	81	173	19.50	0	305	131	264	47	22
Guja rat	Bhav nagar	Bhavna gar	Sidsar	Du g We ll	BV N- 08 0A	21°44' 52"	72°08' 24"	unconf ined	BAS	0. 60	40		Oc t- 01- 20 21	Post- mons oon	8. 40	710	47 0	138	15	24	99	1.50	1.40	189	0	136	0.55	1
Guja rat	Bhav nagar	Bhavna gar	Thordi	Du g We ll	BV N- 08 1	21°38' 57"	72°11' 38"	unconf ined	BAS	0. 20	38		Oc t- 01- 20 21	Post- mons oon	8. 30	920	60 0	275	30	48	83	2.20	12	293	0	120	0.52	7.60
Guja rat	Bhav nagar	Bhavna gar	Kobdi	Du g We ll	BV N- 08 2A	21°38' 37"	72°08' 41"	unconf ined	BAS	0	63		Oc t- 01- 20 21	Post- mons oon	7. 90	173 0	11 10	388	35	72	217	1.90	0	415	144	200	1.04	23.8 0
Guja rat	Amreli	Dhari	Kagdadi	Du g We ll	AM R- 01 7A	21°24' 14"	70°57' 37"	unconf ined	BAS	0. 50	200		Ma y- 01- 20 22	Pre- mons oon	8. 50	111 0	62 0	275	30	48	128	0.70	24	122	58	184	0.62	25.8 0
Guja rat	Amreli	Dhari	Dalkhania	Du g We ll	AM R- 01 8	21°14' 28"	70°55' 29"	unconf ined	BAS	0. 15	308	75	Ma y- 01- 20 22	Pre- mons oon	8. 50	182 0	11 50	313	35	54	273	0.80	24	329	52	376	0.20	3.10
Guja rat	Amreli	Dhari	Dhari	Du g We ll	AM R- 01 9	21°19' 52"	71°02' 08"	unconf ined	BAS	0. 30	205		Ma y- 01- 20 22	Pre- mons oon	8. 40	103 0	59 0	288	30	51	103	1.30	12	110	88	184	0.56	13.7 0
Guja rat	Amreli	Dhari	Halariya	Du g We ll	AM R- 02 0	21°25' 51"	71°04' 02"	unconf ined	ALV	0. 85	162		Ma y- 01- 20 22	Pre- mons oon	8. 60	212 0	13 90	375	40	66	313	1.30	24	586	69	272	1.41	22.1 0
Guja rat	Amreli	Dhari	Chalala	Du g We ll	AM R- 02 1	21°25' 32"	71°09' 52"	unconf ined	ALV	0	134	30. 25	Ma y- 01- 20 22	Pre- mons oon	8. 60	137 0	88 0	250	30	42	198	0.80	24	305	30	240	0.33	5.90

Guja rat	Amreli	Dhari	Samadhiyal a(nana)	Du g We ll	AM R- 02 2	21°22' 37"	71°14' 19"	unconf ined	ALV	0	143	57	Ma y- 01- 20 22	Pre- mons oon	8. 40	120 0	64 0	375	35	69	102	0.60	12	134	90	160	0.55	41.1 0
Guja rat	Amreli	Dhari	Morjhar	Du g We ll	AM R- 02 3A	21°22' 30"	71°06' 45"	unconf ined	ALV	0	150		Ma y- 01- 20 22	Pre- mons oon	8. 40	103 0	59 0	300	35	51	97	1.40	12	110	99	168	0.69	16.6 0
Guja rat	Amreli	Dhari	Dhargani	Du g We ll	AM R- 02 4	21°19' 44"	71°11' 52"	unconf ined	ALV	0	148		Ma y- 01- 20 22	Pre- mons oon	8. 30	145 0	84 0	288	30	51	200	1.10	12	98	88	352	0.50	9.10
Guja rat	Amreli	Dhari	Devda	Du g We ll	AM R- 02 5	21°17' 01"	71°06' 05"	unconf ined	BAS	0. 10	243	90	Ma y- 01- 20 22	Pre- mons oon	8. 50	136 0	78 0	288	30	51	179	0.80	24	146	80	248	0.56	22.8 0
Guja rat	Amreli	Dhari	Jira	Du g We ll	AM R- 02 7	21°14' 00"	71°05' 00"	unconf ined	BAS	1. 10	235. 90	60	Ma y- 01- 20 22	Pre- mons oon	8. 60	540	33 0	213	25	36	25	0.40	5.50	184	0	40	0.24	13
Guja rat	Botad	Botad	Paliyad	Du g We ll	BV N- 00 7	22°15' 10"	71°34' 35"	unconf ined	BAS	0	121		Ma y- 01- 20 22	Pre- mons oon	8. 40	257 0	14 30	675	50	132	275	7.10	24	232	102	560	0.61	42.7 0
Guja rat	Botad		Jotingada	Du g We ll	BV N- 01 0A	22°07' 00"	71°38' 22"	unconf ined	BAS	0	81		Ma y- 01- 20 22	Pre- mons oon	8. 60	950	59 0	300	35	51	79	1.40	24	244	0	150	0.77	4.50
Guja rat	Botad	Gadha da	Sakhpar Mota	Du g We ll	BV N- 01 3A	22°03' 32"	71°31' 52"	unconf ined	BAS	0. 75	107		Ma y- 01- 20 22	Pre- mons oon	7. 80	668 0	37 30	1538	175	264	827	1.80	0	195	334	1880	1.20	50.9 0
Guja rat	Botad	Gadha da	Gadhada	Du g We ll	BV N- 01 4	21°57' 48"	71°34' 15"	unconf ined	BAS	0. 80	86		Ma y- 01- 20 22	Pre- mons oon	8. 60	980	62 0	225	25	39	117	5.80	24	244	0	160	1.16	4.90
Guja rat	Botad	Gadha da	Mandavdha r	Du g We ll	BV N- 01 5	21°58' 04"	71°32' 04"	unconf ined	BAS	0. 30	96		Ma y- 01- 20 22	Pre- mons oon	8. 40	199 0	12 40	413	45	72	266	1.80	12	329	100	408	0.96	6

Guja rat	Botad	Gadha da	Limbali	Du g We ll	BV N- 01 6	21°59' 41"	71°27' 21"	unconf ined	BAS	0	130		Ma y- 01- 20 22	Pre- mons oon	7. 80	339 0	18 90	738	70	135	438	1.80	0	159	136	920	0.82	34.7 0
Guja rat	Botad	Gadha da	Junavadar	Du g We ll	BV N- 01 8	21°50' 36"	71°31' 17"	unconf ined	BAS	2. 35	79		Ma y- 01- 20 22	Pre- mons oon	7. 80	404 0	22 30	1013	95	186	461	1.20	0	183	172	1080	0.84	46
Guja rat	Botad	Gadha da	Mandva	Du g We ll	BV N- 01 9	21°48' 22"	71°34' 56"	unconf ined	BAS	0. 30	75		Ma y- 01- 20 22	Pre- mons oon	7. 90	108 0	63 0	313	30	57	103	0.90	0	183	64	176	0.76	19.5 0
Guja rat	Bhavn agar	Umrالا	Ujalvav	Du g We ll	BV N- 02 0	21°54' 06"	71°43' 43"	unconf ined	BAS	0. 50	56		Ma y- 01- 20 22	Pre- mons oon	8. 40	490	32 0	175	20	30	31	0.40	1.30	179	0	56	0.97	3.40
Guja rat	Bhavn agar	Umrالا	Bhojavadar	Du g We ll	BV N- 02 3A	21°50' 59"	71°43' 25"	unconf ined	ALV	0. 30	36		Ma y- 01- 20 22	Pre- mons oon	8. 40	215 0	14 20	275	30	48	366	0.80	24	500	126	304	1.46	16.1 0
Guja rat	Bhavn agar	Umrالا	Hadmatالا	Du g We ll	BV N- 02 4A	21°51' 14"	71°45' 02"	unconf ined	BAS	0	39		Ma y- 01- 20 22	Pre- mons oon	7. 80	275 0	16 00	450	35	87	422	4.60	0	220	154	640	1.10	36.1 0
Guja rat	Bhavn agar	Umrالا	Umrالا	Du g We ll	BV N- 02 7A	21°50' 50"	71°48' 05"	unconf ined	ALV	0. 30	22.3 0		Ma y- 01- 20 22	Pre- mons oon	8	150 0	96 0	275	30	48	216	1.40	0	305	74	280	0.77	6
Guja rat	Bhavn agar	Gariad har	Bhandariya	Du g We ll	BV N- 03 2	21°28' 51"	71°37' 22"	unconf ined	BAS	0	75		Ma y- 01- 20 22	Pre- mons oon	7. 90	167 0	10 50	400	45	69	198	0.80	0	305	83	344	0.92	2.20
Guja rat	Bhavn agar	Palitan a	Nani Rajasthali	Du g We ll	BV N- 05 6	21°27' 51"	71°54' 32"	unconf ined	BAS	3	49		Ma y- 01- 20 22	Pre- mons oon	8. 30	610	36 0	200	25	33	45	0.90	1.40	149	0	96	0.62	10.4 0
Guja rat	Bhavn agar	Palitan a	Anida(Lakha vad)	Du g We ll	BV N- 05 7	21°30' 19"	71°54' 47"	unconf ined	BAS	0. 45	50.3 0		Ma y- 01- 20 22	Pre- mons oon	7. 80	116 0	70 0	338	35	60	110	0.50	0	183	67	240	0.82	4.50

Guja rat	Bhavn agar	Palitan a	Lakhavad	Du g We ll	BV N- 06 1	21°29' 01"	71°55' 33"	unconf ined	BAS	1	44.5 0		Ma y- 01- 20 22	Pre- mons oon	7. 80	132 0	81 0	375	30	72	129	0.70	0	244	63	264	0.97	4.10
Guja rat	Bhavn agar	Palitan a	Mokhadaka	Du g We ll	BV N- 06 2	21°35' 01"	71°50' 54"	unconf ined	BAS	0. 70	74		Ma y- 01- 20 22	Pre- mons oon	8. 40	176 0	11 20	375	35	69	229	2.70	24	366	71	320	1.33	2.10
Guja rat	Bhavn agar	Palitan a	Nonghanva dar	Du g We ll	BV N- 06 4A	21°38' 18"	71°42' 57"	unconf ined	BAS	0	93		Ma y- 01- 20 22	Pre- mons oon	8. 40	169 0	11 10	225	25	39	284	0.50	24	390	55	280	0.82	7.90
Guja rat	Bhavn agar	Vallabh ipur	Vallabhipur	Du g We ll	BV N- 07 5	21°54' 02"	71°52' 42"	unconf ined	ALV	0. 60	17		Ma y- 01- 20 22	Pre- mons oon	8. 30	356 0	22 80	475	50	84	596	4.50	12	641	120	720	0.62	18.7 0
Guja rat	Bhavn agar	Bhavna gar	Bhavnagar	Du g We ll	BV N- 07 8	21°42' 52"	72°09' 22"	unconf ined	BAS	0. 55	33.1 0		Ma y- 01- 20 22	Pre- mons oon	7. 90	145 0	91 0	375	35	69	154	9.80	0	293	94	240	0.80	12
Guja rat	Bhavn agar	Bhavna gar	Sidsar	Du g We ll	BV N- 08 0A	21°44' 52"	72°08' 24"	unconf ined	BAS	0. 60	40		Ma y- 01- 20 22	Pre- mons oon	7. 80	378 0	21 50	725	75	129	534	1.50	0	220	178	960	0.90	47.3 0
Guja rat	Bhavn agar	Bhavna gar	Thordi	Du g We ll	BV N- 08 1	21°38' 57"	72°11' 38"	unconf ined	BAS	0. 20	38		Ma y- 01- 20 22	Pre- mons oon	7. 90	125 0	75 0	375	30	72	113	0.90	0	232	87	192	0.72	18.2 0
Guja rat	Bhavn agar	Bhavna gar	Kobdi	Du g We ll	BV N- 08 2A	21°38' 37"	72°08' 41"	unconf ined	BAS	0	63		Ma y- 01- 20 22	Pre- mons oon	8	148 0	92 0	450	40	84	131	0.80	0	354	107	184	0.91	19.8 0
Guja rat	Amreli	Dhari	Kagdadi	Du g We ll	AM R- 01 7A	21°24' 14"	70°57' 37"	unconf ined	BAS	0. 50	200		Oct - 01- 20 22	Post- mons oon	7. 90	115 0	69 0	400	40	72	79	1.70	0	183	107	192	0.38	11
Guja rat	Amreli	Dhari	Dalkhania	Du g We ll	AM R- 01 8	21°14' 28"	70°55' 29"	unconf ined	BAS	0. 15	308	75	Oct - 01- 20	Post- mons oon	8	610	36 0	238	20	45	28	0.30	1.80	188	17	48	0.14	15

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Guja rat	Amreli	Dhari	Dhari	Du g We ll	AM R- 01 9	21°19' 52"	71°02' 08"	unconf ined	BAS	0. 30	205		Oct - 01- 20 22	Post- mons oon	8. 30	243 0	15 30	338	40	57	402	1	12	439	155	384	0.64	35.9 0
Guja rat	Amreli	Dhari	Halariya	Du g We ll	AM R- 02 0	21°25' 51"	71°04' 02"	unconf ined	ALV	0. 85	162		Oct - 01- 20 22	Post- mons oon	8. 30	314 0	19 60	463	50	81	508	0.60	12	488	127	680	0.42	15.7 0
Guja rat	Amreli	Dhari	Chalala	Du g We ll	AM R- 02 1	21°25' 32"	71°09' 52"	unconf ined	ALV	0	134	30. 25	Oct - 01- 20 22	Post- mons oon	8. 30	575 0	35 40	513	55	90	108 5	1.20	12	634	126	1520	0.56	17.1 0
Guja rat	Amreli	Dhari	Samadhiyal a(nana)	Du g We ll	AM R- 02 2	21°22' 37"	71°14' 19"	unconf ined	ALV	0	143	57	Oct - 01- 20 22	Post- mons oon	8. 30	194 0	12 40	263	30	45	324	0.70	12	403	21	400	0.07	8.90
Guja rat	Amreli	Dhari	Morjhar	Du g We ll	AM R- 02 3A	21°22' 30"	71°06' 45"	unconf ined	ALV	0	150		Oct - 01- 20 22	Post- mons oon	8	155 0	88 0	413	45	72	166	0.90	0	183	60	320	0	31
Guja rat	Amreli	Dhari	Dhargani	Du g We ll	AM R- 02 4	21°19' 44"	71°11' 52"	unconf ined	ALV	0	148		Oct - 01- 20 22	Post- mons oon	7. 70	201 0	12 00	388	40	69	283	0.70	0	305	69	400	0.31	32.5 0
Guja rat	Amreli	Dhari	Devda	Du g We ll	AM R- 02 5	21°17' 01"	71°06' 05"	unconf ined	BAS	0. 10	243	90	Oct - 01- 20 22	Post- mons oon	8. 30	100 0	62 0	225	25	39	123	2.80	12	183	85	136	0.34	12
Guja rat	Amreli	Dhari	Jira	Du g We ll	AM R- 02 7	21°14' 00"	71°05' 00"	unconf ined	BAS	1. 10	235. 90	60	Oct - 01- 20 22	Post- mons oon	8. 30	113 0	76 0	350	30	66	98	0.30	12	427	52	64	0.37	13.2 0
Guja rat	Amreli	Dhari	Dudhala	Du g We ll	AM R- 02 8	21°09' 33"	71°03' 22"	unconf ined	BAS	0. 60	245	90	Oct - 01- 20	Post- mons oon	8. 30	700	42 0	275	30	48	32	0.90	3.70	196	28	64	0.38	16

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Guja rat	Botad	Botad	Paliyad	Du g We ll	BV N- 00 7	22°15' 10"	71°34' 35"	unconf ined	BAS	0	121		Oct - 01- 20 22	Post- mons oon	8. 30	228 0	12 50	663	65	120	216	2.90	0	207	96	496	0	46.6 0
Guja rat	Botad		Jotingada	Du g We ll	BV N- 01 0A	22°07' 00"	71°38' 22"	unconf ined	BAS	0	81		Oct - 01- 20 22	Post- mons oon	8. 40	740	51 0	238	20	45	58	1.30	7.60	322	9	48	0.79	2.40
Guja rat	Botad	Gadha da	Sakhpar Mota	Du g We ll	BV N- 01 3A	22°03' 32"	71°31' 52"	unconf ined	BAS	0. 75	107		Oct - 01- 20 22	Post- mons oon	7. 70	703 0	29 30	1750	200	300	809	1.70	0	293	390	1880	0.67	60.7 0
Guja rat	Botad	Gadha da	Gadhada	Du g We ll	BV N- 01 4	21°57' 48"	71°34' 15"	unconf ined	BAS	0. 80	86		Oct - 01- 20 22	Post- mons oon	7. 70	550	32 0	200	20	36	31	1.70	0.50	100	7	120	0.05	2.70
Guja rat	Botad	Gadha da	Mandavdha r	Du g We ll	BV N- 01 5	21°58' 04"	71°32' 04"	unconf ined	BAS	0. 30	96		Oct - 01- 20 22	Post- mons oon	8. 50	182 0	11 20	313	35	54	271	1	24	244	117	360	0.29	8.90
Guja rat	Botad	Gadha da	Limbali	Du g We ll	BV N- 01 6	21°59' 41"	71°27' 21"	unconf ined	BAS	0	130		Oct - 01- 20 22	Post- mons oon	7. 80	433 0	24 60	938	95	168	562	1.30	0	293	180	1120	0.45	43.7 0
Guja rat	Botad	Gadha da	Junavadar	Du g We ll	BV N- 01 8	21°50' 36"	71°31' 17"	unconf ined	BAS	2. 35	79		Oct - 01- 20 22	Post- mons oon	7. 80	474 0	26 00	1063	90	201	599	0.80	0	159	179	1320	0.36	53.1 0
Guja rat	Botad	Gadha da	Mandva	Du g We ll	BV N- 01 9	21°48' 22"	71°34' 56"	unconf ined	BAS	0. 30	75		Oct - 01- 20 22	Post- mons oon	8. 10	115 0	67 0	338	35	60	108	0.40	0	183	63	192	0.16	23.8 0
Guja rat	Bhavn agar	Umrالا	Ujalvav	Du g We ll	BV N- 02 0	21°54' 06"	71°43' 43"	unconf ined	BAS	0. 50	56		Oct - 01- 20	Post- mons oon	8. 50	510	33 0	163	15	30	40	0.30	5.50	184	15	40	0.38	4

													22																
Guja rat	Bhav n a g a r	Umr a l a	Bhoj a v a d a r	Du g W e l l	BV N- 02 3A	21°50' 59"	71°43' 25"	unconf ined	ALV	0. 30	36		Oct - 01- 20 22	Post- mons oon	8. 50	217 0	14 30	275	30	48	371	1.30	24	476	160	304	1.21	15.2 0	
Guja rat	Bhav n a g a r	Umr a l a	Had ma ta la	Du g W e l l	BV N- 02 4A	21°51' 14"	71°45' 02"	unconf ined	BAS	0	39		Oct - 01- 20 22	Post- mons oon	8. 10	315 0	18 40	438	40	81	517	6.60	0	244	180	720	0.93	46.2 0	
Guja rat	Bhav n a g a r	Umr a l a	Umr a l a	Du g W e l l	BV N- 02 7A	21°50' 50"	71°48' 05"	unconf ined	ALV	0. 30	22.3 0		Oct - 01- 20 22	Post- mons oon	8. 10	163 0	10 50	275	30	48	246	2	0	317	80	320	0.36	4.60	
Guja rat	Bhav n a g a r	Gari a d h a r	Bhan d a r i y a	Du g W e l l	BV N- 03 2	21°28' 51"	71°37' 22"	unconf ined	BAS	0	75		Oct - 01- 20 22	Post- mons oon	8. 10	132 0	81 0	313	35	54	158	0.70	0	232	90	232	0.39	12.5 0	
Guja rat	Bhav n a g a r	Palit a n a	Nani Raj ast hali	Du g W e l l	BV N- 05 6	21°27' 51"	71°54' 32"	unconf ined	BAS	3	49		Oct - 01- 20 22	Post- mons oon	8. 10	117 0	70 0	400	40	72	84	0.50	0	232	108	144	0.49	20.9 0	
Guja rat	Bhav n a g a r	Palit a n a	Anida(Lakha vad)	Du g W e l l	BV N- 05 7	21°30' 19"	71°54' 47"	unconf ined	BAS	0. 45	50.3 0		Oct - 01- 20 22	Post- mons oon	8. 30	333 0	18 00	1013	105	180	299	0.40	12	146	144	880	0.72	36.9 0	
Guja rat	Bhav n a g a r	Palit a n a	Lakh a v a d	Du g W e l l	BV N- 06 1	21°29' 01"	71°55' 33"	unconf ined	BAS	1	44.5 0		Oct - 01- 20 22	Post- mons oon	8. 20	137 0	81 0	388	30	75	136	0.70	0	171	65	328	0	3.90	
Guja rat	Bhav n a g a r	Palit a n a	Mokha daka	Du g W e l l	BV N- 06 2	21°35' 01"	71°50' 54"	unconf ined	BAS	0. 70	74		Oct - 01- 20 22	Post- mons oon	8. 30	203 0	13 10	438	40	81	263	2.30	12	464	68	376	0.55	2.40	
Guja rat	Bhav n a g a r	Palit a n a	Nonghan va dar	Du g W e l l	BV N- 06 4A	21°38' 18"	71°42' 57"	unconf ined	BAS	0	93		Oct - 01- 20	Post- mons oon	8. 30	208 0	11 60	463	50	81	264	0	12	146	87	480	0.32	36	

													22															
Guja rat	Bhavn agar	Vallabh ipur	Vallabhipur	Du g We ll	BV N- 07 5	21°54' 02"	71°52' 42"	unconf ined	ALV	0. 60	17		Oct - 01- 20 22	Post- mons oon	8. 60	477 0	32 20	538	60	93	846	5.10	24	1025	470	680	0.58	15.1 0
Guja rat	Bhavn agar	Bhavna gar	Bhavnagar	Du g We ll	BV N- 07 8	21°42' 52"	72°09' 22"	unconf ined	BAS	0. 55	33.1 0		Oct - 01- 20 22	Post- mons oon	8. 50	138 0	84 0	375	35	69	134	15.30	24	244	92	216	0.07	12.6 0
Guja rat	Bhavn agar	Bhavna gar	Sidsar	Du g We ll	BV N- 08 0A	21°44' 52"	72°08' 24"	unconf ined	BAS	0. 60	40		Oct - 01- 20 22	Post- mons oon	8. 20	231 0	14 00	413	40	75	339	2.80	12	366	138	392	0.82	37.8 0
Guja rat	Bhavn agar	Bhavna gar	Thordi	Du g We ll	BV N- 08 1	21°38' 57"	72°11' 38"	unconf ined	BAS	0. 20	38		Oct - 01- 20 22	Post- mons oon	8	283 0	16 80	750	55	147	303	0.90	0	415	169	560	0.64	28.7 0
Guja rat	Bhavn agar	Bhavna gar	Kobdi	Du g We ll	BV N- 08 2A	21°38' 37"	72°08' 41"	unconf ined	BAS	0	63		Oct - 01- 20 22	Post- mons oon	8. 50	131 0	74 0	400	35	75	115	0.70	24	159	117	192	0.13	24.2 0

ANNEURE III:

Groundwater Monitoring and Quality Data of CGWB and GWRDC for Bharuch Model Area

a) Groundwater Level Monitoring Data, CGWB, Bharuch and Vadodara Districts, CGWB

SITE ID	SITE NAME	LONG	LAT	May-16	Aug-16	Nov-16	Jan-17	May-17	Aug-17	Nov-17	Jan-18	May-18	Aug-18	Nov-18	Jan-19	May-19	Aug-19	Nov-19	Jan-20	May-20	Aug-20	Nov-20	Jan-21	May-21	Aug-21	Nov-21	Jan-22
W212700072480001	Ilav	72.8	21.45	8.19	1.27	8.19	8.19	8.19		6.17	4.65	8.19	4.37	3.85	6.3			3.7	3.97	5.99	2.93	2.45	3.85	5.65	4.55	3.05	3.18
W212822072483501	Sahol	72.81	21.473	3.55	1.46	2.38	2.57	3.82	0.65					2.53	4.96	6.37	1.63	2.79	3.35	4.72	3.28	2.8	1.9	4	2.45	2.7	2.16
W212930072423001	Jetpur1	72.708	21.492	3.54	1.23	2.35	2.42	2.55	0.96		4.9	3.82		2.38	2.96	3.51	0.2	0.14	1.75	1.78	0.3	5.15	1.6	1.7	4.65	4.65	4.13
W213115072491501	Raymal	72.821	21.521	1.65	1.36	2.77	1.48	1.26	2.24	1.34	1.25	1.4	2.45	1.3	1.91	2.42	1.2	1.2	1.2	1.13	1.19	1.1	1.1	1.1	1.05	1.11	0.38
W213145073211501	Kavachiya	73.354	21.529	7.3																							
W213200073171501	Mokhdi	73.288	21.533	9.84	4.47	7.7	8.58	9.84	4.04		2.54	11.26		5.5	6.53		3.04	2.66	4.37	11.84	2.04	3.79	4.74		11.84	11.84	
W213215072583001	Panoli	72.975	21.538	2.86	0.97	1.27	1.76	1.44	1	1.62	0.55	2.9	5.11	1.85	2.48	3.86	2.47	2.67	3.35	3.35	1.14	4.15	4.51	2.19	0.25	1.55	4.08
W213320072531501	Motwan	72.888	21.556	2.9	1.8	1.97	2.33	2.06	1.72	2.08	1.4	2.5	1.07	2.73	2.83	2.95	1.7	1.98	2.14	2.04	1.75	1.82	2.1	1.9			1.13
W213421073091901	Valia1	73.155	21.573	4.91	2.98																						
W213450073040501	Kondh	73.068	21.581	4.94	6.99	2.78	3.4	4.92	2.4	2.92	4.7	4.85	1.1	3.12	3.88	4.31	1.44	1.87	3.53	4.06	3.67	2.9	3.2	4.06	2	1.7	2.57
W213500072483001	Hansot	72.808	21.583		3.7			3.95		3.4	4.6	5.43	1.68		5.01	5.91	2.4	2.76	4.01	4.11		2.9	3.45	7.5	2.6	2.7	2.51
W213530072493001	Utraj	72.825	21.592	5.73	2.53	6.45	4.86	4.9	4.55	3.52	3.1	3.73	3.32	5.62	4.76	5.81	2.2	4.96	3.2	2.42	1.36	5.1	5.2	4.3	3.7	3.9	3.19
W213545073100901	Jokhla	73.169	21.596	3.9	1.46	0.25	1.52	2.77			1.1	2.67		2.47	7.18	2.21		0.25	4.53			4.8	2.9	5.8	2.5	0.5	4.9
W213645073260701	Arethi	73.435	21.613	14.45	7.22	6.95	7.18	14.45	3.6	6.65	7.05	14.45	2.84	6.7	7.1		3.23	4.38	6.11	14.45	3.68	6	6.75		14.45	14.45	5.99
W213700072552501	Sajod	72.924	21.617	6.32	4.67	4.2	4.45	5.01	4.4	4.12	2.2	5.2	2.09	4.28	4.72	4.91	2.47	2.87	3.7	4.53	0.89	1.14	3.8	3.9	3.9	0.45	2.94
W213800073174501	Modoliya	73.296	21.633	8.87	3.77	8.87	8.87	8.87			6.48	8.87	3.48	8.87													
W213800073220001	Netrang1	73.367	21.633	8.96	7.65	3.34	4.95	8.96	7.3	2.46		6.75	2.55	3.77	7.81		2.95	2.79	6.94	4.3		4.6	6.15	8.7	8.6	2.6	6.52
W213830073220002	Netrang(Rep)_Pz	73.367	21.642	8.25	5.3	6.68	7.68	9.79	4.1	4.82			2.65	6.6	8.41	10.21	3.7	5.24	7.25	9.01	8.07		6.57	11.98	11.4	5.9	6.95
W214030072333001	Luhara	72.558	21.675	2.82	3.4	1.56	2.01	2.08	3.2	0.86	0.75		0.14	1.1	1.73	0.95	0.74	0.6	-0.42	0.85	-0.4	0.4	0.2	1.4	0.31	0.48	0.62
W214030072583001	Juna borbhata	72.975	21.675	8.5	2.62	6.25	8.5	8.5	4	4.12	7.3	8.5	5.1	6.06	6.25		2.1	2.26	5.6	8.5	3.66	5.5	8.5		8.5	8.5	8.5
W214100072453002	Mahegam1	72.758	21.683	6.5	3.62			7.3	5.45	1.21	0.9		0.51		1.06	3.56	1.47	0.1	0.05	4.85	2.27	3.25	0.45	4.35	1.65	0.75	4.07
W214100072490001	Kaswa	72.817	21.683	7.2	7.16	7.2	7.23	7.94	6.75			8.8	2.3		5.35	7.67	2.22	2.4	3.49	5.55	2.37	3	3.45	6.95	6.15	2.65	2.6
W214100073011001	Mulad	73.019	21.683		5.1	1.85	1.08	0.13	7.97	0.32				6.17	6.81	8.16	5.2	3.13									
W214118073230201	Mungaj	73.384	21.688	7.31	1.15				0.35	3.27													2.75		7.35	7.35	
W214200073001501	Bharuch	73.004	21.7	3.97	3.7	3.75	4.38	6.14	3.55	6.41	9.05	13.35	4.09	5.74	6.47	7.46	2.58	2.61	3.95	6.35	2.53	5.09	4.4	7.35	6.4	6.03	6.16
W214228072495001	Navetha	72.831	21.708	6.4	6	6.05	8.13	6.65	6.1	3.46	6.7	7.16	0.2	6.1	6.15	7.71	5.36	4.49	4.8	2.9	0.08	0.85	1.6	6.2	5.1	3.91	3.8
W214230073000001	Bharuch I	73	21.708	7.02	5.6	6.3	6.65	8.04	5.7	4.74	5.7	6.92	2.9	5.28	5.68	7.01	0.9	1.86	3.75	5.84	5.81	2.8	3.9	17.3			3.7
W214230073000002	Bharuch li	73	21.708	16.98	16.85	4.25	6.7	9.08	8.18					5.04	5.59	6.66	0.66		15.2	8.71	5.32		15.45	5.9	5.3	2.9	
W214330072450001	Bhensli	72.75	21.725	3.58	2.9	2.98	2.38	3.25	2.75	1.74	2.25	3.4	0.49	2.51	3.08	3.56	2.29	0.68	1.4	2.1	0.83	1	1.5	2.1	2.45	1	1.3
W214430073123001	Simodra	73.208	21.742	7.97	3.03	4.07	4.71	6.43	3.95		3.45	4.85		3.6	4.22			2.16							9.68	9.68	2.7
W214545072382001	Kadodara	72.639	21.763	7.83	6.3	7.98	8.26	9.33	5.8		7.1	8.27	7.29	8.37	8.57	8.76	5.6	2.9	7.6	9.57	5.83	7.6	7.2	7.25	5.55	6.3	6.41
W214730072400501	Nirnavi	72.668	21.792	8.98	6.79	7.18	8.06	8.69	6.8	3.26	4.8	9.06	0.2	5.36	6.62	9.25	1.02	4	4.9	8.34	1.12	4.55	5.4	7.3	6.3	1.5	3.29
W215445073203001	Sinor	73.342	21.913	21.65	21.7	23.64	24.65	24.67	20.9	25.02	25.4	26.05		24.66	25.12					22.2	19.3	22.4	22.1		22.9	23.1	
W215500072473001	Roja tankaria	72.792	21.917	8.73	10.23	5.84	4.01	8.17	7.35	9.67	6.75	8.27	6.77	7.43	7.96	9.41	7.65	7.52	7.73	8.38	4.59	8.15	6.55	8.15	8.8	7.15	7.76
W215845073563001	Kaprali	73.942	21.979	7.5	4.06							10.53								8.64	3.69	4.3	5.6				
W215930072403001	Tankari	72.675	21.992	6.01	5.33	3.15	3.03	4.25	2.26	2.94	3.5	5.24	3.66	4.17	5.61	6.31	3.62	2.94	4.02	4.92	0.88	2.8	2.5	4.05	4	1.7	1.25

W220030073230001	Segwa chowki I	73.383	22.008	41.15	35.22	35.5	33.36	36.09	33.15	37.2	27.9	29.05	28.76	38	39.52	49	37.6	37.4	37.1	37.15	33.19	35.7	35.6	36.7	34.7	34.54	
W220030073230002	Segwa chouki ii	73.383	22.008	27.32	37.17	35.8	37.94	42.87	35.8	37.7				39.33	40.89	50	31.5	38.56	37.8	38	34.67	37.6	37.8	37			
W220040074050001	Moti chikhali	74.083	22.011	6.4	0.56	3.12	3.25	3.49	2.3	3.34	2.2	6.4		3.23		6.4	5.99	3.11	3.08	4.03	3.79	3.1	3.2	3.2	5.54	3.1	3.96
W220107072454701	Kalak1	72.763	22.019	8	2.53	6.46	6.92		3.65	2.36	5.2	7.3	6.06	6.75	7.48	10.52	5.65	5.93	4.8	6.99	4.75	5.27	4.8	7	6.35	5	4.57
W220137072381001	Sindhav	72.636	22.027	7.51	4.74	4.19	4.47	6.56			2.03	7.85	6.1	8.95	8.98	9.48	3.43	4.23	4.48	7.27	3.23	4.13	4.38	6.63	7.43	4.63	4.48
W220215073531501	Sengpur	73.888	22.038		5.1	6.38	8.7	11.75	4.5	4.76	7.5	11.1	4.25	6.99	8.97	11.31	2.4	5.93	6.56	9.32	2.97	3.82	6.3	7.4	6.04	6.5	5.32
W220300072480002	Jambusar2	72.8	22.05	9.6				8.2											4.22	9.6	9.6	9.6	9.6		9.6	9.6	4.81
W220310072482001	Jambusar	72.806	22.053	5.7	7.05	7.11	7.63	8.57	6.25					7.82	8.17	11.15	8.65			8.71	8.76	10.55	8.95	7.05	6.65	5.95	5.49
W220330072353001	Bhadkodra	72.592	22.058	5.5													1.46	2.25	2.9								
W220330074010001	Saidivasana	74.017	22.058	6.7	2.3	2.7	3.3	6.7	2.2	3	1.6	5.5	1.85	3.43	5.12	6.61	1.7	2.28	2.45	6.7	2.22	2.7	3.45		6.7	2.6	2.93
W220400074083001	Vagudan	74.142	22.067	6.93	1.8	5.57	6.49	6.93	3.5	2.43	4			6.93		6.27	2.25	6.02	5.87	6.93	4.58	5.6	6.93	6.5	5.97	5.8	5.37
W220414073510301	Waghach	73.851	22.071		9.85																						
W220415073510001	Waghach	73.85	22.071							5.91		9.95															
W220425073024502	Handod1	73.046	22.074	29.6	24.73	28.98	28.63	29.3		29.85		29.8					28.41	28.45	29.31				29.05				
W220425073024503	Handod2	73.046	22.074						26.77		28.07			30.17	30.62	32.22	34.49			31.4	28.85	29.02					
W220600073590001	Devat (thadgam)	73.983	22.1	11.7	6.95	7.42	8.24	10.27	8.95	7.42	7.6	11.7	4.8	8.04	8.94	9.11	2.6	3.36	5.33						11.7	4.9	4.71
W220736072401101	Chhindra	72.67	22.127	10.42	8.03	8.2	8.68	9.12	7.18	9.98	8.18	9.98	5.87	11.89	4.94	9.58	4.61	3.96	5.35	9.68	3.58	8.88	5.58	7.08	4.83	3.68	5.18
W220815074003001	Baladgam	74.008	22.138	13	8.55	10.87	12.95	13	8.45	11.25	10.65	13	5.53			10.81	1.59	7.78	12.12	13	7.15	12.05	13		13	9.45	6.31
W220830072543001	Masor	72.908	22.142	15.83	13.95	14.03	14.41	14.34	13.45	12.95				12.25						13.12	10.23	12.85	9.45		10.75	9.05	8.09
W220848073452001	Kosindra Pz-I	73.756	22.147	2.48		3.98	3.72	4.84		2.72				3.47			1.41	2.16	2.15	3.88	3.3	2.8	2.9	3.96	2.84	2.35	2.35
W220850074014001	Tokri	74.028	22.147	8.34	3.57	6.32	10.06	29.32	6.7	6.1							2.42										
W220930072453001	Sarod	72.758	22.158	9.26		9.45	10.22	9.92	9.2	10.2	8.05	10.74	7.29	8.36	8.81	8.92	6.9	5.5	6.4	15.22	9.23	7.66	7.7	9.3	9.3	8.1	7.21
W220934073244501	Vega	73.413	22.159	6.2	3.9	4.75	5.29	7.11	3.75	4.85	4.05	7.28		5.13		7.66	2.81	3.22	4.55	6.59	2.73	4	5.45	5.45	5.85	3.45	
W220947073101001	Vadshala Pzi	73.169	22.163		11.6						21.7	23.9	28.3		22.75	24.58		20	19.8	23.45	19.3	12.2		18.5		17.75	
W220947073101002	Vadshala Pz-II	73.169	22.163																								-0.7
W221055072564501	Chitral Pz-I	72.946	22.182	25.72	24.59	24.32	23.56	25.65	22.74	24.47	22.52	24.48	27.63	24.32	23.98	27.09	23.12	22.52	44.32	44.35	43.28	22.42	24.12	21.87	22.07	21.32	19.8
W221055072564502	Chitral PZ_II	72.946	22.182	25.9	23.8	25.3	23.4	25.63	23.14	24.1	23.2	24.96		24.36	26.03	26.13	24.6	22.8	24.85	23.68	22.51	21.95	21.2	21.8	22.15	20.8	19.37
W221105072355001	Dahegam	72.597	22.185	7.71	5.45	9.96	5.2	5.15	7.03	10.35	4.6	10.71	1.25	6.87	7.01	8.42	2.95	4.2	7.13	7.65	3.6	9.5	6.2	5.72	7.2	8	6.9
W221115073591501	Chavaria	73.988	22.188	12.3		12.3		12.3	9.65		10.9	12.3		12.3	9.71	9.21				10.9	5.6	10.2	12.3		12.3	12.3	5.12
W221137072382201	Kavi	72.639	22.194	7.72	7.23	7.05	6.48	7.97	7.11	7	6.2	7.97	6.05	6.61	7.66	7.72	6.33	5.6	5.7	6.36	5.38	6.45	5.9	6.3	6.55	5.3	5.18
W221200073540001	Bhindol	73.9	22.2		3.42					5.72	8.8	9.56	5.27		10.75	10.75	4.14	5.11	6.01	8.48	4.29	3.7	5.58	12.3	10.1	10.4	6.32
W221200074023001	Panwad	74.042	22.2	15.3	0.3	8	9.65	9.78	1.89	7.42	7.3	10.25	0.8	8.73	9.71	9.77	1.15	2.39	6.37	10	2.67	5.72	7.38	9.4	6.2	4.4	3.27
W221213074003801	Asar	74.011	22.204	17.2	13.1				11.5	12.94		17.2		17.2	11.51		6.8	7.92	9.64	17.2		11.4	11.9		17.2	10.1	
W221240073442901	Govindpura	73.741	22.211	8.52	3.95	5.15	5.44	7.87	4.6	4.98	4.2	7.85	2.2	5.49	6.92	8.11	2.04	2.07	3.67	5.66	2.16	3.99	4.7	6.3	4.45	3.6	2.88
W221330073404501	Makni	73.679	22.225	8.22			11.22	10.75					8.65			10.77				14.06		9.7					
W221340073290001	Amreshwar	73.483	22.228	4.07		3.4	2.67	3.73		1.65	1.75	3.35		1.96	2.16	4.04	1.51	2.52	1.97	3.3	0.65	1.95	1.45		2.05	2.45	
W221400073031502	Ghayaj ii	73.054	22.233	18.55	16.4	23.54	23.44	25.12	20.6	18	21.3		19.48	25	25.93	29.53	21.38	22.53	24.02	21.07	20.26	22.2	22.4	18.4	20.9	21.35	23.48
W221500073430001	Alladpur	73.717	22.25	8.7	6.78	9.23	9.49	10.37	8		10.2	10.43	6.4	10.16			6.75	10.43		7.22	7.22	7.2	10.43		10.43	10.43	
W221515073383001	Pitha	73.642	22.254	9.46	3.96	5.19	6.14	9	2.72	4.99	3.96	10.51	1.36	6.74	7.44		0.69	2.62	5.27	8.24	1.96	4.86	4.92		12.66		
W221531073470201	Vadtalav Pz	73.784	22.259	6.8	8.5	7.3	9.12	13.86	8.7	10.9		19		11.6	12.83	16.63	7.45	4.06	4.92	9.86	5.6	4.5	6.7	13.5	10.19	6.4	7.59
W221609073124601	Vadodara_ONGC	73.213	22.269	15.23	17	16.12	16.14	13.66		15.5		16.14		9.29		13.12	7.37		4.18	6.7		7.7	5.4	6.62	6.4	4.95	3.88
W221615073430001	Bodeli	73.717	22.271	6.1	1.62			7.28		2.9		7.28	3.58	5.02	6.2		0.72	1.41						6.48	6.13	1.88	4.69
W221630073263001	Patiyapura	73.442	22.275	11.75	5.65	5.82	6.44	8.11	6.65	5.38	4.5	8.07	3.64	6.6	7.16	9.42	2.4	3.72	5.8	7.8	2.35	4.92	5.2	8.4	6.8	4.6	4.76
W221655073052501	Raypura i	73.09	22.282	30.64	12.7	29.02	28.08	15.52	15.7	15.8	15.4	17.4		28.84	29.41	36.42	26			26.55	23.4	34.1		24.29	24.24	26.7	23.08

W221700073301001	Saidal	73.503	22.283	3.4	0.05	1.94	2.13	2.84		2.04	0.4	2.76	0.57		1.72	3.05	0.9	1.3		1.4	0.36			3	0.65	0.48	1.67
W221730073464501	Suskal	73.779	22.292									8.13					0.86	2.41	4.36								
W221736073115401	Vadodara_Kevada Bag	73.198	22.293	10.6	10.2	9.36	10.63	10.13				8.98		7		9.55	2.7		3.55	5.54		3.2	4.1	7.06	5.94	3.3	2.97
W221817073161801	Vadodara I	73.272	22.305	22.27	12.05	14.76	15.29	16.52	14.05	13.65	11.5	13.74	19.89	16.12	16.27	27.92	13.67	3.27	12.57	12.05	8.28	5.17	6.1	15.29	14.9	5.5	13.52
W221817073161802	Vadodara li	73.272	22.305	5.3	5.3	4.66	5.15	6.42	5.5	7.72	6.2	7.5	13.76	5.47	6.28	8.36	5.05	11.86	4.41	4.29	12.03	12.3	12.5	7.32	6.8		5.3
W221830074010001	Chota udepur	74.017	22.308		1.8			8.36											3.14	3.2	2.33			5.23			1.36
W221830074010002	Chhota udepur	74.017	22.308	8.02	4.86	3.57	4.29	8.72		4.34	0.6	10.2	2.26	3.71	4.11	10.42		3.36	4.42	6.9	4.24	4.23	4.9		2.8	1.8	3.38
W222030073500001	Pavi	73.833	22.342	4.97	2.05	3.22	3.85	4.7	1.68		2.1	4.42	3.71	3.72	5.63	6.85	2.43	3.19	4.95	3.97	0.6	4.85	4.5		7.76	7.76	4.76
W222033073120201	Vadodara_Sama	73.201	22.343	17				3.57					0.6	3.28		3.96	2.43		0.35				3.7	2.25	2.3	2.1	-0.07
W222150073223701	Waghodia Pz	73.377	22.364	8.53	6	7.82	8.26	10.54	4.55	6.7	5.7	6.43		6.95	7.51	9.92	0.1	0.57	3.52	6.8							
W222200074043001	Ghamodi	74.075	22.367	9.08	2.95	4.81	5.95	8.32	1.38	4.82	8.95	9.09	1.43	6.25	7.87	9.15	1.13	2.33	4.82	8.85	2.21	4.35	5.65	9.85	6.05	8.95	4.3
W222200074123001	Ferkuva	74.208	22.367	7.15	2.25	4.89	4.06	6.33	0.27	3.74	9.1	7.9	0.15	2.99	4.15	9.12	0.36	1.46	8.35	6.2	1.43	3	4.1	10.35	4.9	3.1	2.32
W222300073560001	Asala	73.933	22.383	12.5	5.3	4.53	5.19	12.22	5.19	5.05	5.1	12.5	4.88	5.24	8.06		0.4	1.86	4.2	12.5	4.57	3.42	4.4		12.5	12.5	6.23
W222348073255601	Chella Karamsiya Pz	73.432	22.397	3.46	2.2	2.04	2.23	3.58	2.5				1.22	1.88	2.02	5.12	0.62	1.4	2.07	2.1	0.27	1.2	1.65	2.94	2	1.8	1.74
W222400074080001	Chisadia	74.133	22.4	11.88			11.88	11.88			0.3						11.88	11.88		11.88	4.4	4.4	11.88		11.88	11.88	
W222515073251001	Karamasiya	73.419	22.421	13.2		3.58	4.94	13.2			4.4	13.2			13.2			13.2	13.2	13.2			13.2			13.2	13.2
W222620073072001	Sankarda	73.122	22.439	19.47		24.54	26.64	27.23			31.35	32.04	33.88	28.2	45.7	48.72				26.93	22.39	26.1	26.1		26.15		
W222620073072002	Sankarda1	73.122	22.439	28.99		25.6	26.58	27.7				29.16							27.05	26.98	21.48					20.39	
W222630073574501	Jojh	73.963	22.442	13.42	7.88	9.04	10.06	13.42	6.9	10.3	9	13.42	6.95	8.97	11.34	11.72	5.5	6.57	7.97	13.42	6.56	7.5	8.1		8.08	8.2	7.94
W222830073190001	Vadala	73.317	22.475			6.12																					
W222900073121001	Tundav	73.203	22.483	14.56	14.35	10.17	10.28	9.72	11.2	7.46	9.6	10.9	8.7	8.66	8.73	15.03	6.28	5.6	4.88	5.3	3.83	4.05	4.6	9.6	8.17	8.42	9.11
W223015073170001	Juna samalya	73.283	22.504	11.35	11.4		12.43	11.05		10.06	11.1	16.65	2.65	11.17	5.82	14.02	12.1	9.3	10.05	12.3	5.3	13.4	12.4	13.7	9.02	9.9	3.88
W223100073563001	Kevadi	73.942	22.517	8.02	3.9	4.81	5.62	6.42	3.5	5.15	3.8	7.5	3.23	4.82	5.75	7.61	2.7	3.56	4.6	6.9	2.65	4.62	5.35	7.3	6.2	4.4	4.19
W223220073103001	Wankaner2	73.175	22.539	40.3	25.41			36.97	25.6																		
W223220073103002	Sankheda	73.175	22.539	22.18		22.8	26.86	28.03	21.1		30.2	32.17			32.62	37.9							26.4	22.1	22.05	25.9	
W223600073140001	Rasulpur	73.233	22.6	4.28								4.2															
W224000073190001	Chhaliyar	73.317	22.667	22.7	21.37		21.39	23.7	22.01	22.1		23.9		24.55	25.06	27.38	24.15	24.85	24.71	23.28	24.35	24.35	25.45		24.92	2.15	
W224450073212001	Vejpur2	73.356	22.747	2.3	1.3	1.54	1.66	2.45	0.8	1.74	0.4	2.15	0.6	1.79	2.01	3.45	0.8	0.9	1.12	1.93	1.17	1.45	1.9		1.62	1.4	

b) [Groundwater Quality Monitoring Data, Bharuch and Vadodara Districts, CGWB](#)

SITE_ID	SITE_NAME	lat	long	SAMPLING_TIME	TDS	EC	BICARBONATE	CA	CARBONATE	CHLORIDE	FLUORIDE	K	MG	NA	NITRATE	PH	SULPHATE
W212700072480001	Ilav	21.45	72.8	Jun-19		2550	793	24	0	142	2.5	1.6	9.75	541	124	7.94	319
				Jun-21		2700	958	92	0	408	1.23	40	21.99	449	37	7.79	10
W212822072483501	Sahol	21.47277778	72.81346	May-14	4100	6120	195	860	0	1914	0.25	3.8	132	242	2	7.5	317
				May-17	3693	5512	180	660	0	1524	1	3.8	195.31	200	8	7.31	529
				Jun-19		4040	415	84	0	638	0.68	4.9	77.9	681	560	7.53	314
				May-20		5499	281	521	0	1390	0.68	3.1	116.97	390	298	7.62	360
				Jun-21		4600	415	280	0	1135	0.94	2.52	134.06	477	173	8.07	208
W212930072423001	Jetpur1	21.49166667	72.71154	May-12	1148	1713	842	56	0	163	2.6	45.1	63	267	24	8.25	30
				May-14	1072	1600	695	72	0	142	0.65	39	46.28	193	17	8.1	2
				May-15	1124	1678	610	84	0	198	0.5	44.3	46.3	181	18	8.24	47
				May-17	1175	1754	708	96	0	191	0.9	38	48.74	210	30	8.2	16
				Jun-19		4350	439	88	0	908	0.29	17	92.5	714	51	7.49	475

				May-20		1750	451	96	0	347	0.86	36	31.72	240	11	7.68	67
				Jun-21		5555	146	220	144	1489	0.65	59	243.4	522	16	8.27	296
W213115072491501	Raymal	21.52083333	72.82244	May-12	1655	2470	427	112	0	518	0.7	28.8	81	288	18	8.29	125
				May-13	2163	3229	317	100	0	957	0.85	28	121.69	400	25	8.01	10
				May-14	864	1290	281	54	0	284	0.45	11.1	45.04	170	5	8.28	46
				May-15	433	647	195	52	0	99	0.5	3.1	19.51	62	3	7.7	38
				May-16	539	804	195	40	36	149	0.4	7.9	24.36	120	8	8.37	20
				May-17	527	787	305	48	0	99	0.67	6.9	29.23	77	7	7.86	8
				Jun-19		720	146	8	0	113	0.17	1.7	43.77	73	23	7.81	58
				May-20		3069	281	76	0	752	0.61	14	99.78	340	5.7	7.92	69
				Jun-21		2150	348	56	60	454	0.88	7.84	63.28	304	8.5	8.28	37
W213145073211501	Kavachiya	21.52916667	73.35577	May-12	399	595	244	52	0	71	0.5	9.2	44	43	17	8.24	84
				May-14	1742	2600	427	420	0	532	0.4	2.6	49.14	42	6	7.9	216
				May-17	339	506	281	48	0	21	0.3	0.3	19.51	36	17	8.03	3
W213200073171501	Mokhdi	21.53333333	73.2891	May-12	700	1045	525	156	0	71	0.55	7	58	49	26	8.26	175
				May-14	773	1153	488	108	0	92	0.25	4.1	41.46	51	13	7.8	8
				May-18	549	820	207	68	0	64	0.6	0.6	38.98	35	43	7.85	110
				Jun-19		1180	354	72	0	170	0.25	0.35	80.32	35	27	7.06	36
W213215072583001	Panoli	21.5375	72.97821	May-12	1647	2458	439	40	0	440	1.8	1.1	41	390	20	8.24	104
				May-13	4387	6548	478	200	0	1985	1	5.4	279	760	13	8.06	61
				May-14	3350	5000	622	116	0	1347	1.03	3	216.53	650	55	7.8	107
				May-15	3775	5635	439	240	0	1631	1.18	2.3	255.58	552	56	8.21	107
				May-16	4049	6044	573	18	0	1775	1.1	3.2	378.09	710	44	7.81	96
				May-17	1522	2271	610	80	0	354	1.5	0.5	73.04	307	50	7.94	113
				May-18	3705	5530	451	128	0	1454	1.34	3	189.8	777	50	7.52	295
				Jun-19		2700	635	28	0	291	1.5	3.2	34.07	522	55	7.89	358
				May-20		2502	537	40	0	447	1.6	0.65	38.95	495	29	7.9	229
				Jun-21		2572	256	44	0	652	1.4	1.05	46.25	458	34	8.1	140
W213320072531501	Motwan	21.55555556	72.8891	May-12	1836	2741	427	120	0	604	0.95	14.8	73	364	13	8.17	159
				May-13	2283	3408	415	200	0	886	0.85	11.2	36.71	460	28	7.8	19
				May-14	1119	1670	476	48	0	298	0.48	8.2	50	253	5	8.1	56
				May-15	1329	1983	427	72	0	383	0.74	5.5	46.28	272	3	8.18	57
				May-16	1651	2464	464	60	0	540	0.75	8.3	60.86	366	3	8.29	38
				May-17	2386	3561	439	180	0	744	0.8	12.5	97.47	462	16	8.02	400
				May-18	1819	2715	244	48	0	567	1.08	12.2	102.17	373	21	8.16	333
				Jun-19		740	232	40	0	71	0.48	2.3	38.95	49	15	7.38	64
				May-20		3445	464	124	0	794	0.72	12	70.66	602	3.3	7.98	287
				Jun-21		3842	439	220	0	957	0.68	11	97.52	460	9.7	7.96	185
W213415073093001	Valia	21.57083333	73.16154	May-13	2399	3580	415	240	0	851	1.13	0.7	85	400	20	8.07	235
				May-14	2559	3820	342	262	0	922	1.2	1.7	96	490	10	7.92	486
				May-15	2685	4007	354	240	0	780	1.27	0.7	146.17	400	9	7.8	628
				May-16	2395	3574	305	160	0	887	1.4	1.8	85.29	390	9	7.97	67
W213450073040501	Kondh	21.58055556	73.06859	May-12	444	663	317	40	0	64	0.7	1.3	19	97	13	8.21	26
				May-13	1144	1708	403	48	0	305	1.03	0.1	60	230	30	8.27	74

				May-14	1081	1613	390	60	0	269	0.94	0.5	31.68	228	25	8	47
				May-15	1271	1897	342	88	0	368	1.28	2	63.32	207	34	8.2	89
				May-16	913	1363	549	56	0	170	1.3	4.2	46.26	186	39	8.1	6
				May-17	825	1232	427	28	0	156	1.5	1.4	36.5	206	46	8.1	52
				May-18	536	800	232	36	0	106	0.85	3.3	26.79	91	6	8.24	58
				Jun-19		670	268	48	0	64	0.76	1	9.78	79	13	7.64	12
				May-20		847	305	48	0	71	0.99	6.3	19.51	97	20	7.78	58
				Jun-21		1040	311	28	0	128	1.09	13	99.72	15	36	8.06	64
W213530072493001	Utraj	21.59166667	72.82821	May-12	708	1056	512	40	0	78	0.7	4.7	54	158	15	8.29	114
				May-13	677	1010	512	32	0	78	0.7	1.5	24	180	5	8.29	33
				May-14	702	1048	24	16	108	149	0.5	2.5	46.21	162	4	8.7	158
				May-15	643	960	195	24	108	64	1.27	1.3	19.48	200	6	8.5	130
				May-16	598	892	464	24	0	106	0.8	2.3	31.64	168	4	8.13	17
				May-17	536	800	439	32	0	35	0.68	1.8	26	106	3	8.09	6
				Jun-19		962	378	60	0	57	0.64	2.4	34.11	86	24	7.99	67
				May-20		475	207	48	0	28	0.45	0.69	9.78	35	2.8	7.88	17
				Jun-21		2000	519	56	72	213	0.73	21	97.32	186	51	8.41	90
W213545073100901	Jokhla	21.59583333	73.17013	May-13	630	940	451	16	0	71	1.05	0.2	39	145	20	7.7	24
				May-14	771	1150	464	68	0	71	1.15	1.9	46	123	16	8.1	125
				May-15	667	995	439	56	0	78	1.2	0.1	41.4	103	9	7.98	50
				May-16	616	920	525	40	0	71	0.95	1	51.11	124	10	8.29	36
				May-17	631	942	451	92	0	78	1.2	0.7	7.41	116	15	8.12	15
				May-18	704	1050	342	68	0	121	1.28	1.9	26.83	110	18	7.96	62
				Jun-19		989	427	48	0	71	1.2	0.51	41.39	96	42	7.51	14
				Jun-21		1044	293	32	0	184	1.07	0.76	60.82	92	14	8.11	33
W213645073260701	Arethi	21.6125	73.43603	May-12	345	515	220	52	0	21	0.23	0.2	26	29	6	8.27	84
				May-13	362	540	256	56	0	28	0.3	1.2	8	50	4	7.45	24
				May-14	328	490	256	48	0	21	0.25	0.1	14	35	2	7.42	13
				Jun-19		882	220	60	0	43	0.24	0.57	38.97	59	26	7.45	172
W213700072552501	Sajod	21.61666667	72.92628	May-12	1759	2626	854	28	48	312	2	10.6	34	492	16	8.86	34
				May-13	1175	1753	732	20	0	170	2.3	1.7	29	340	22	8.06	40
				May-14	1447	2160	891	28	0	269	2.1	3.6	26.78	440	12	8.1	6
				May-16	486	726	415	76	0	78	0.2	21.2	29.27	82	5	8.06	31
				May-17	1146	1710	390	16	192	128	2.68	2.5	31.63	343	20	8.84	67
				May-18	1034	1543	659	32	33	184	1.54	3	19.49	353	16	8.29	61
				Jun-19		2401	720	24	0	362	2.8	2.9	31.64	463	69	8.01	45
				May-20		2035	683	16	72	191	3.2	2.8	36.49	400	11	8.58	58
				Jun-21		2620	610	32	114	369	1.51	2.62	38.94	490	30	8.66	80
W213800073092501	Talodra	21.63333333	73.15962	May-14	783	1169	378	16	0	149	0.83	4.5	82	110	3	8.1	88
W213800073174501	Modoliya	21.63333333	73.30064	Jun-19		1695	317	88	0	326	0.21	0.5	127.75	45	89	7.32	52
W213800073220001	Netrang1	21.63333333	73.36667	May-12	663	990	244	104	0	149	0.3	0.4	55	25	16	8.26	113
				May-13	842	1256	427	40	0	191	0.26	3.7	84	90	12	7.52	12
				May-14	500	747	268	68	0	92	0.24	0.1	46.28	21	8	8.2	46
				May-18	479	715	146	84	42	78	0.77	0.4	24.42	12	32	8.36	10

				Jun-19		1213	232	128	0	206	0.18	0.3	46.35	39	34	7.16	88
				Jun-21		987	189	80	0	177	0.44	1.41	29.27	65	13	8.03	63
W214030072333001	Luhara	21.675	72.56154	May-12	2309	3447	378	120	156	461	0.48	300	121	295	190	8.58	400
				May-13	2336	3486	878	80	0	603	0.35	300	145	266	170	8.26	45
				May-14	1954	2917	976	48	0	369	0.15	180	102	340	120	8.2	50
				May-15	1384	2066	817	64	0	170	0.2	110	51.14	219	58	7.86	20
				May-17	1793	2676	536	100	200	284	0.34	250	97.37	200	96	8.47	114
				Jun-19		405	183	36	0	14	0.26	2	19.49	13	5	7.67	26
				May-20		2526	732	40	0	255	0.5	315	53.54	255	115	8.14	164
				Jun-21		1051	171	36	0	184	0.74	81	34.08	92	44	7.93	65
W214030072583001	Juna borbhata	21.675	72.97821	May-13	1179	1760	567	20	0	284	0.1	46	89.98	206	6	8.26	40
				May-14	978	1460	476	48	0	213	0.13	45	77.86	157	13	8.24	73
				May-15	1288	1923	814	100	0	262	0.36	39	80.35	201	13	8.2	12
				Jun-19		3500	537	52	0	610	0.66	31	58.41	618	69	7.76	385
W214100072453001	Mahegam	21.68333333	72.76154	May-13	251	375	171	36	0	28	0.2	0.9	19	10	2	7.9	9
				Jun-19		1270	159	28	0	156	0.22	7	34.07	192	18	7.77	259
				May-20		1579	476	116	0	269	0.28	36	68.22	92	0.73	7.79	74
W214100072453002	Mahegam1	21.68333333	72.76154	May-14	332	496	244	40	0	28	0.25	6.6	19.5	35	4	8	12
				May-15	374	558	244	60	0	43	0.22	6.6	19.52	25	5	8.16	18
				May-16	369	551	293	56	0	64	0.15	7.1	19.52	59	9	8.21	9
				May-17	440	656	317	60	0	43	0.3	7.7	12.23	60	10	8.07	0
				Jun-21		470	165	36	24	43	0.33	2.64	19.49	28	5	8.28	4
W214100072490001	Kaswa	21.68333333	72.81667	May-12	686	1024	342	84	0	121	0.1	23	43	64	3	8.12	70
				May-13	529	789	378	68	0	64	0.1	26	31.69	48	13	8.1	15
				May-14	352	526	232	48	0	50	0.11	12	14.65	47	2	8.08	18
				May-15	403	602	244	68	0	50	0.42	10.4	19.53	27	4	8.25	32
				May-16	639	953	500	40	0	99	0.25	12	34.09	164	4	8.28	40
				May-17	458	683	366	64	0	42	0.12	20	36.55	35	10	7.24	17
				May-18	1826	2725	500	40	0	411	0.49	32	114.32	343	23	8.09	335
				Jun-19		2570	842	40	0	206	1.3	2.7	24.36	498	70	7.81	238
				May-20		450	207	44	0	35	0.45	3.4	12.21	37	4.7	7.93	13
				Jun-21		800	171	76	54	121	0.21	24	34.13	20	1.7	8.31	6
W214100073011001	Mulad	21.68333333	73.02051	May-12	1911	2852	634	64	0	535	0.6	38.5	101	347	47	7.93	10
				May-13	1678	2505	525	52	0	503	0.4	3.6	80	380	80	8.2	69
				May-14	1579	2357	598	44	0	418	0.38	1.2	70.56	380	18	8.06	118
				May-15	2015	3008	263	280	0	608	1	23	12.5	357	42	7.98	389
				May-18	1518	2266	390	56	0	440	0.72	2.4	73.01	310	24	7.98	155
				Jun-19		3255	427	40	0	539	0.42	6.8	53.54	600	34	7.51	472
W214118073230201	Mungaj	21.68833333	73.3841	May-14	452	675	329	76	0	28	0.35	0.3	24	23	3	8.12	26
				May-16	309	461	293	40	0	28	0.1	0.1	21.93	50	5	8.2	14
				May-17	1631	2435	573	120	0	496	0.47	12.3	85.24	300	49	8	80
				May-20		528	305	56	0	14	0.13	0.3	26.81	19	1.5	7.48	14
W214200073001501	Bharuch	21.7	73.00577	Jan-12									0				
				May-12	1688	2520	439	68	0	553	0.2	3.7	151	230	3	8.08	141

				May-13	2037	3040	647	108	0	688	0.12	2.5	167.89	282	8	7.96	51
				May-14	1983	2960	634	100	0	631	0.15	2.4	138.71	314	8	7.8	72
				May-15	2144	3200	464	180	0	709	0	3.9	158.25	201	5	7.67	134
				May-16	1832	2734	561	100	0	710	0.25	1.5	182.47	258	3	8.01	80
				May-17	1771	2644	464	140	0	603	0.3	1.8	97.42	282	6	7.91	111
				Jun-19		4250	415	72	0	922	0.29	2.19	201.89	514	61	7.34	410
				May-20		2416	635	144	0	347	0.31	5.3	85.51	206	1.2	7.75	129
				Jun-21		1400	232	80	78	227	0.48	6.02	51.15	128	10.9	8.29	84
W214228072495001	Navetha	21.70777778	72.8359	May-12	917	1369	390	48	0	248	0.1	50	65	132	5	7.9	40
				May-13	1187	1771	512	88	0	326	0.12	46	70	160	6	8.2	25
				May-14	2074	3095	488	132	0	780	0.2	65	112	323	4	8	48
				May-15	2299	3431	464	160	0	815	0.37	40.5	194.7	292	5	8.21	274
				May-17	1767	2637	403	180	0	567	0.08	46	109.63	183	2	7.7	149
				May-18	1491	2225	366	128	0	450	0.38	42	97.41	145	11	7.82	158
				Jun-19		650	183	32	0	99	0.29	4.3	26.78	59	13	7.81	22
				May-20		695	305	64	0	92	0.32	23	26.82	34	2.5	7.81	2.1
				Jun-21		5205	732	280	0	1312	0.22	85	243.47	365	8.1	7.91	119
W214330072450001	Bhensli	21.725	72.75	May-12	476	710	342	52	0	43	0.55	13.4	17	76	6	8.18	16
				May-13	516	770	281	36	0	85	0.43	13.7	22	103	3	8.15	47
				May-14	402	600	268	40	0	57	0.25	10.8	12	80	3	7.56	19
				May-15	529	790	354	44	0	42	0.12	13.1	24.37	80	5	8.16	28
				May-16	856	1277	610	12	132	35	4.05	0.6	17.03	330	3	8.62	33
				May-17	464	693	317	32	0	78	0.4	13	19.49	106	6	8.27	13
				May-18	872	1301	268	32	0	277	0.46	15.2	55.96	147	10	7.97	21
				Jun-19		2920	549	44	0	418	0.74	14.1	60.84	500	44	7.98	360
				May-20		1006	305	48	0	142	0.54	17	26.8	119	5.2	7.91	72
				Jun-21		836	146	56	6	191	0.45	10	24.38	81	6.9	8.35	15
W214430073123001	Simodra	21.74166667	73.21154	May-12	1393	2079	366	72	0	425	0.3	6.6	79	241	12	8.16	112
				May-13	1474	2200	451	40	0	448	0.33	6.7	73	320	19	7.6	67
				May-15	1376	2054	366	84	0	440	0.5	2.8	56.02	246	28	7.85	21
				May-17	1231	1837	281	36	0	418	0.33	4.3	50	257	13	8.29	19
				May-18	1586	2367	366	112	0	489	0.57	5.8	131.43	156	10	7.54	165
W214730072400501	Nirnavi	21.79166667	72.66859	May-12	663	990	159	32	96	78	0.55	25	34.08	128	6	8.5	175
				May-13	708	1056	512	40	0	71	0.36	22.7	44	121	5	8.22	26
				May-14	603	900	415	36	0	71	0.28	22	29	110	2	8.2	5
				May-15	662	988	488	60	0	71	0.5	14.4	24.39	122	2	8.02	10
				May-16	312	465	305	44	0	28	0.35	10	17.07	65	6	8.24	25
				May-17	576	860	476	56	0	50	0.45	16.6	36.54	98	5	8.13	35
				May-18	741	1106	439	76	0	92	0.59	20.5	38.99	85	20	7.76	45
				Jun-19		1655	317	48	0	305	0.56	4.7	31.67	307	26	7.63	212
				May-20		595	329	48	0	28	0.62	12	12.21	66	7.7	7.57	8.5
				Jun-21		750	189	60	60	85	0.63	17	26.82	42	21	8.27	2
W215445073203001	Sinor	21.9125	73.34487	May-12	600	896	390	44	0	64	0.48	0.7	49	86	50	8.26	42
				May-15	856	1277	525	64	0	121	0.44	4.1	90.04	57	7	8.22	42

				May-17	873	1303	512	92	0	106	0.54	13.6	94.93	40	39	8.14	99
				Jun-19		1320	439	60	0	106	0.17	0.3	104.62	34	59	7.35	95
				May-20		1079	500	40	0	64	0.75	0.73	85.14	67	45	8.2	40
W215500072473001	Roja tankaria	21.91666667	72.79487	May-12	2818	4206	525	220	0	1028	0.2	18	219	322	27	8.2	220
				May-13	596	890	378	52	0	92	0.1	27	41	54	3	8.2	5
				May-14	997	1488	439	76	0	227	0.03	45	34.13	175	1	7.7	24
				May-15	474	707	281	60	0	99	0.36	8.6	21.95	64	4	8.23	3
				May-16	647	965	427	76	0	128	0	30.6	29.27	130	5	8.3	53
				May-17	511	762	317	56	0	106	0.34	13.6	24	87	5	8.03	12
				May-18	898	1341	256	52	0	298	0.48	14.6	48.69	141	6	8.1	41
				Jun-19		5420	439	88	0	1135	0.15	11	194.61	771	305	7.44	482
				May-20		1739	476	132	0	326	0.36	46	48.79	131	5.8	7.59	34
				Jun-21		1425	421	96	36	199	0.21	41	46.31	103	4.6	8.28	24
W215845073563001	Kaprali	21.97916667	73.94487	May-14	460	686	342	88	0	21	0.59	0	19.56	22	40	8.2	4
				May-18	491	733	256	100	0	43	0.86	0.2	24.43	9	62	7.82	45
				May-20		632	281	68	0	28	0.67	1.5	24.4	36	54	7.78	22
W215930072403001	Tankari	21.99166667	72.67821	May-12	1534	2290	317	28	144	298	0.8	70	92	282	30	8.52	107
				May-13	1542	2302	830	44	0	326	0.8	60	90.01	307	38	8.1	35
				May-14	1631	2434	903	44	0	333	0.6	69	75.42	346	14	7.96	30
				May-15	2211	3300	903	140	0	496	1	55	170.36	300	18	8.15	227
				May-16	1840	2746	866	44	0	390	0.85	53.5	87.58	440	6	8.07	146
				May-17	2010	3000	281	120	192	461	0.58	50	158.18	250	43	8.67	238
				May-18	2322	3465	683	40	0	504	0.87	120	126.48	446	41	7.51	410
				Jun-19		8614	757	28	0	1582	2	22	41.37	1860	1164	8.01	495
				May-20		4492	879	96	0	908	0.66	113	158.4	544	13	7.93	227
				Jun-21		6856	854	100	0	1738	0.51	162	401.29	636	73	8.08	227
W220040074050001	Moti chikhali	22.01111111	74.08333	May-12	438	654	268	40	0	43	1.15	0.9	41	45	22	8	63
				May-13	442	660	281	40	0	43	2	1.2	38.95	48	24	8.16	46
				May-14	498	743	378	84	0	28	1.78	0.21	17.12	46	15	8	13
				May-15	428	639	305	60	0	43	1.94	0.6	26.82	45	17	7.99	26
				May-17	365	545	207	28	0	28	2.2	0.6	31.64	44	22	8.23	60
				Jun-19		800	268	96	0	35	0.37	3.3	29.29	16	73	7.28	68
				May-20		648	317	64	0	28	3.6	0.41	21.96	50	19	7.78	28
				Jun-21		606	317	56	0	113	1.38	0.79	63.28	28	34	7.88	15
W220100072453001	Kalak	22.01666667	72.76154	May-13	1219	1820	390	96	0	390	0.15	14.8	51	210	13	7.9	18
				May-14	713	1064	366	80	0	142	0.25	13.5	34	119	14	7.6	81
				May-15	921	1375	329	100	0	213	0.3	7.7	36.59	148	6	8.24	136
				May-16	703	1049	586	80	0	99	0.5	18.7	26.84	166	34	8.13	20
W220107072454701	Kalak1	22.01861111	72.76808	May-18	819	1223	110	36	66	213	0.49	2.9	58.4	125	15	8.36	95
				Jun-19		1170	171	44	0	220	0.25	7	29.23	159	21	8.01	112
				May-20		835	354	80	0	64	1.5	36	12.25	60	15	7.01	24
				Jun-21		874	299	68	0	106	0.8	25	36.55	39	31	8.02	13
W220137072381001	Sindhav	22.02694444	72.63718	May-13	18619	27790	878	1060	0	7339	1.23	200	1472.23	4000	60	7.52	5000
				May-14	10807	16130	769	720	0	5814	1.72	120	816	1690	26	6.9	20

				Jul-14													
				May-15	758	1132	415	56	0	135	0.57	16.4	26.81	135	3	8.06	6
				May-16	918	1370	500	52	0	185	0.4	30.5	41.4	185	3	8.17	24
				May-17	737	1100	451	36	0	121	0.5	23.6	46.24	130	5	8.07	14
				Jun-19		1530	512	28	0	121	1.16	27	19.48	269	14	7.98	155
				May-20		567	268	32	0	35	0.34	14	14.63	66	1.4	8	18
W220215073531501	Sengpur	22.0375	73.8891	May-12	387	577	268	72	0	28	0.48	0.3	22	23	30	7.92	33
				May-13	468	698	366	52	0	21	0.43	0.6	38.96	35	14	8	23
				May-14	496	740	390	96	0	21	0.4	0	9.84	44	15	8.2	12
				May-15	399	596	256	68	0	43	0.65	0.8	24.4	25	34	8.08	23
				May-16	584	871	464	148	0	71	0.7	2.2	0.18	69	8	8.05	29
				May-17	399	596	195	44	0	50	0.53	0.7	38.95	31	60	7.97	54
				May-18	402	600	207	68	0	64	0.68	1.9	29.26	18	45	7.66	32
				Jun-19		715	305	60	0	43	0.35	1.2	36.54	25	45	7.85	11
				May-20		541	268	60	0	28	0.57	0.3	21.95	27	22	7.72	14
				Jun-21		1170	384	112	0	170	0.65	2.97	59.7	26	1	8.09	25
W220300072480002	Jambusar2	22.05	72.8	May-17	670	1000	439	88	0	64	0.11	18.4	26.85	108	50	8.04	70
				May-19		1075	366	64	0	78	0.4	46.5	43.84	65	63	7.95	75
				Jun-19		4330	390	52	0	929	0.86	1.8	51.12	839	72	7.82	455
W220330074010001	Saidivasana	22.05833333	74.01667	May-12	533	796	220	12	0	64	1	1.3	36	106	62	8.24	83
				May-14	1764	2633	317	220	0	603	0.35	16	121.83	180	48	8.1	269
				May-17	1968	2937	171	120	192	461	1	40	97.4	375	12	8.54	369
				May-18	616	920	329	84	0	78	0.91	0.4	29.28	60	9	7.65	68
				Jun-19		565	220	52	0	35	0.1	0.5	17.08	38	30	7.73	26
W220400074083001	Vagudan	22.06666667	74.14487	May-14	699	1044	500	88	0	64	2.4	8.6	43.87	66	9	8.26	27
				May-18	409	610	49	40	18	99	0.81	0.7	2.48	87	4	8.3	85
				Jun-19		683	98	24	0	71	0.26	0.8	19.48	94	27	7.46	135
				Jun-21		850	207	120	6	142	0.84	11.21	9.87	28	42	8.28	2
W220415073510001	Waghach	22.07083333	73.85	May-12	563	840	427	40	0	36	1.3	0.1	39	109	64	8.1	39
				May-14	650	970	476	72	0	64	1.4	4.1	21.97	124	60	7.16	6
				May-16	676	1009	317	60	0	227	1.2	1.6	12.23	210	30	8.15	43
				May-17	291	434	244	48	0	14	0.12	0.4	21.94	13	2	7.79	16
W220600073590001	Devat (thadgam)	22.1	73.98333	May-12	529	790	281	52	0	71	1	1.7	44	52	84	7.85	20
				May-13	657	980	329	40	0	64	1.04	1.5	48	60	90	8.05	13
				May-14	690	1030	342	92	0	90	0.88	0.2	48.74	50	115	7.1	31
				May-16	448	668	329	80	0	21	0.7	0.4	24.41	73	130	8	50
				May-17	911	1360	598	76	0	113	1.49	2.9	85.19	80	49	8.04	18
				Jun-19		3650	317	104	0	823	0.13	6.3	172.75	390	54	7.35	350
W220736072401101	Chhindra	22.12666667	72.6709	May-13	576	860	244	40	0	156	0.05	42	36	69	16	8.06	10
				May-14	869	1297	427	84	0	170	0.23	76	48	99	58	8	5
				May-15	602	899	354	60	0	78	0	38	48.7	20	35	8.07	8
				May-16	697	1041	390	60	36	106	0.15	54.9	36.54	130	38	8.35	20
				May-17	739	1103	403	72	0	121	0.26	47	43.85	96	68	8.21	10
				May-18	767	1145	281	72	0	177	0.44	62	51.15	48	68	8.05	36

				Jun-19		1075	366	64	0	78	0.4	46.5	43.84	65	63	7.95	75
				May-20		850	378	64	0	64	0.42	55	26.82	59	21	7.84	31
				Jun-21		1105	207	76	54	156	0.35	68	38.99	53	44	8.32	35
W220815074003001	Baladgam	22.1375	74.01154	May-16	781	1165	476	104	0	177	1.2	2	46.32	127	31	8.11	53
				Jun-19		1320	293	32	0	92	1	2	7.33	253	18	7.85	265
W220830072543001	Masor	22.14166667	72.91154	May-12	1303	1945	952	24	24	99	1.4	0.9	31	390	9	8.5	63
				May-14	1568	2340	656	60	120	248	3.2	0.3	85.17	364	5	8.6	179
				May-15	1193	1780	354	20	168	92	2.9	1.9	36.49	336	11	8.61	204
				May-17	852	1272	293	20	132	50	2.88	2.1	24.34	250	10	8.37	140
				May-18	1604	2394	940	32	15	213	0.65	1	43.8	430	8	8.27	90
				Jun-19		790	268	40	0	78	0.71	1.9	38.95	60	53	7.36	20
				May-20		1290	781	12	0	35	2.8	1.4	12.17	290	2.4	7.89	12
W220930072453001	Sarod	22.15833333	72.76154	May-12	583	870	37	52	132	50	0.35	12	41.4	81	6	8.6	143
				May-13	1943	2900	647	88	0	638	0.4	7.6	230	145	6	8.01	36
				May-14	1541	2300	1000	52	0	206	0.58	5.3	138.65	210	4	8	36
				May-15	1396	2084	866	24	0	205	2.84	2.6	17	398	10	8.15	26
				May-17	1260	1880	1061	44	0	35	1.1	6.6	72.99	246	15	8.02	10
				Jun-19		1119	317	40	0	170	0.46	4.4	48.67	116	14	7.28	41
				May-20		735	293	48	0	85	0.45	16	34.1	55	7.2	8.02	17
				Jun-21		1550	317	40	114	184	0.78	2.43	87.58	140	8.1	8.39	48
W220934073244501	Vega	22.15944444	73.41731	May-12	898	1340	536	100	0	149	0	27	32	154	6	8.03	55
				May-13	854	1275	586	72	0	99	0.13	34	17	192	10	8.1	36
				May-17	808	1206	293	48	0	256	0.37	22	48.68	140	16	8.18	4
				Jun-19		2820	561	44	0	291	0.67	3.5	58.41	482	40	7.45	485
				May-20		1522	573	104	0	177	0.45	31	39.03	170	8.6	8.18	104
				Jun-21		1910	336	140	66	333	0.39	29	19.62	226	19	8.32	99
W221105072355001	Dahegam	22.18472222	72.60256	May-12	823	1228	512	136	0	92	0.18	39	31	55	16	8.27	24
				May-13	984	1468	476	172	0	206	0	48	32	66	50	7.7	25
				May-14	744	1110	427	84	0	135	0.04	40	34.14	100	20	7.76	8
				May-15	1206	1800	378	164	0	276	0	44	31.81	123	70	7.89	45
				May-16	704	1050	573	92	0	106	0	35.7	51.17	95	7	7.89	19
				May-17	555	828	354	84	0	64	0.07	31	29.28	56	3	7.88	65
				May-18	1193	1780	342	100	0	340	0.26	40	73.06	135	88	7.77	55
				Jun-19		1010	366	44	0	92	0.18	31	70.56	32	50	7.64	30
				May-20		1644	512	96	0	213	0.19	49	63.33	133	61	7.76	85
				Jun-21		1520	415	60	0	284	0.15	47	109.48	44	5.6	7.84	13
W221115073591501	Chavaria	22.1875	73.9891	Jun-19		2590	525	48	0	269	3.7	8.9	70.57	401	26	7.47	445
				May-20		1449	439	64	0	199	4.05	2.6	60.86	178	101	7.86	55
W221137072382201	Kavi	22.19361111	72.64179	May-12	3944	5887	866	80	0	815	0.2	900	216	323	490	8.1	600
				May-13	2405	3590	744	216	0	532	0.23	525	39.16	209	230	8.28	225
				May-14	2178	3250	854	20	0	404	0.32	600	72	270	180	7.9	240
				May-15	2160	3224	952	60	0	355	0.4	440	109.48	220	130	8.02	240
				May-16	900	1343	238	40	84	177	0.3	3.5	36.52	185	46	8.48	25
				May-17	1221	1823	561	32	120	128	0.5	300	29.21	159	60	8.41	20

				May-18	1252	1869	232	36	84	191	0.66	310	38.94	125	70	8.39	265
				Jun-19		1715	207	40	0	326	0.29	7.4	38.95	273	27	7.81	198
				May-20		2962	854	40	0	312	0.39	510	43.81	190	121	8.2	157
				Jun-21		2350	360	24	108	340	0.37	416	58.38	151	125	8.72	135
W221200073540001	Bhindol	22.2	73.9	May-12	848	1266	524	24	0	128	1.5	0.4	73	154	8	8.05	69
				May-14	962	1436	683	60	0	71	0.88	0	75.44	129	25	8.1	54
				May-16	1114	1662	1000	36	0	128	2.7	1.6	51.1	360	11	8.27	62
				Jun-19		2302	976	20	0	138	2.6	1.9	72.96	367	18	7.95	136
				May-20		1750	976	28	0	92	4	0.77	68.11	285	3.9	8.2	26
				Jun-21		2000	616	28	138	170	1.39	1.35	89.99	251	0.4	8.3	17
W221200074023001	Panwad	22.2	74.04487	May-14	872	1301	354	124	0	227	0.65	13.5	39.05	93	28	7.96	32
				May-15	1065	1589	500	156	0	248	0.77	28.5	39.09	97	38	7.85	3
				May-17	573	855	159	76	0	92	0.6	11.4	46.29	35	56	8.1	142
				May-18	583	870	220	76	0	121	0.64	9.3	34.13	42	17	7.83	65
				Jun-19		3200	610	44	0	461	1.3	17	131.34	429	76	7.48	375
				May-20		1498	549	36	0	177	1.8	4.4	34.08	272	20	8.02	100
				Jun-21		1240	256	100	36	177	0.48	8.97	58.47	54	1.3	8.28	89
W221213074003801	Asar	22.20361111	74.01462	Jun-19		2450	561	32	0	252	6.4	6.5	31.65	462	45	7.71	356
W221240073442901	Govindpura	22.21111111	73.74449	May-12	4673	6975	451	220	0	2059	2.4	4.2	377	715	120	7.76	231
				May-13	4610	6880	451	140	0	2021	2.36	5.9	278	910	60	8.26	160
				May-14	4799	7163	586	260	0	2127	1.03	4.4	304.23	780	60	7.5	25
				May-15	4108	6132	476	180	0	1702	0.24	5.2	279.82	650	38	7.89	154
				May-16	3629	5417	476	200	0	1313	2.55	5.8	194.75	523	12	7.63	149
				May-17	1205	1798	415	44	0	291	1.3	35	70.56	220	48	8.07	77
				Jun-19		2760	207	196	0	716	0.21	3.6	175.29	77	77	7.26	130
				May-20		6995	500	148	0	2028	1.9	5.8	297.04	1000	20	7.96	488
				Jun-21		7777	293	180	120	2269	1.36	4.94	358.84	915	23	8.32	221
W221330073404501	Makni	22.225	73.68397	May-13	1179	1760	573	96	0	177	0.3	93	61	123	95	7.9	70
				May-14	1288	1923	891	120	0	149	0.6	117	87.67	73	8	8.1	50
				May-15	1066	1591	403	80	0	184	0.43	10	90.06	106	90	7.96	128
				May-16	996	1486	537	140	0	163	0.65	5.3	43.93	133	140	8.08	30
				May-17	1063	1586	244	128	0	170	0.5	4.8	60.94	107	100	7.98	267
W221340073290001	Amreshwar	22.22777778	73.48333	May-13	1253	1870	659	48	0	262	0.7	10.6	22	338	13	7.22	17
				May-14	813	1214	464	52	0	156	0.5	7.2	26.81	178	7	8	16
				May-15	913	1363	390	84	0	213	0.6	8.9	41.43	149	5	8.28	71
				May-16	2431	3629	488	160	0	994	0.65	12.7	85.29	520	15	7.93	45
				May-17	1911	2852	354	100	0	638	0.52	11.2	158.16	230	17	8.02	176
				May-18	1148	1714	354	84	0	362	0.66	11.4	43.87	210	14	7.7	48
				Jun-19		3434	586	48	0	730	0.58	2.9	73	593	85	7.57	132
				May-20		615	293	60	0	57	0.51	0.89	12.23	64	0.16	7.86	11
W221500073430001	Alladpur	22.25	73.71667	May-12	814	1215	537	40	0	64	0.9	3.9	61	145	36	7.78	98
				May-13	996	1487	695	60	0	121	1.1	3.9	56	184	6	8.09	29
				May-14	1093	1631	720	88	0	149	0.85	3.6	68.18	170	8	7.86	56
				May-15	978	1460	598	78	0	128	1.06	3.6	64.52	132	10	8.27	61

				May-16	740	1104	451	48	0	135	1.25	3.4	48.68	145	29	7.84	44
				May-17	1060	1582	659	108	0	156	1.15	21.1	60.91	138	35	8.25	25
				Jun-19		1150	439	52	0	85	1.2	2.6	55.98	98	43	7.33	58
				May-20		1049	427	44	0	113	1.1	2.8	51.11	110	32	8.02	41
W221515073383001	Pitha	22.25416667	73.64487	May-12	1387	2070	744	84	0	298	1.05	12.8	109	215	18	8.24	72
				May-13	1378	2056	634	48	0	319	1.05	20	88	255	21	7.77	47
				May-15	1427	2130	781	84	0	284	1.1	30	97.35	200	22	8.24	16
				May-16	769	1148	122	44	0	149	1.2	2.5	68.13	93	60	7.98	219
				May-17	1226	1830	476	88	0	262	0.9	29.6	87.63	150	29	8.13	111
				Jun-19		2520	769	12	0	206	1.5	1.9	41.35	484	63	8.12	275
				May-20		865	293	52	0	113	0.9	1.9	53.55	57	47	7.96	18
W221609073124601	Vadodara_ONGC	22.26916667	73.21769	May-14	1960	2915	573	140	0	638	0.9	8.9	73.11	462	12	8.1	251
				May-15	2269	3387	573	100	84	638	1.34	5.1	109.53	471	5	8.36	187
				May-17	2002	2988	293	120	144	532	1.4	2	97.4	370	7	8.41	245
				Jun-19		870	329	60	0	32	0.82	3.7	60.86	13	55	7.27	70
				May-20		3301	683	20	72	596	1.5	1.5	77.83	587	1.7	8.59	140
				Jun-21		3236	305	80	72	780	1.24	2.21	36.57	589	12	8.27	117
W221615073430001	Bodeli	22.27083333	73.71667	May-12	965	1441	366	44	0	213	0.4	0.9	36	215	28	7.65	95
				May-13	894	1335	268	28	0	219	0.3	2.4	27	228	31	7.86	113
				May-14	980	1462	464	84	0	213	0.45	0.7	31.71	228	30	7.76	121
				May-15	895	1336	317	60	0	213	0.4	0.5	19.52	185	35	8.02	37
				May-16	1078	1609	207	144	0	305	1.15	2.6	24.49	115	48	7.67	60
				Jun-19		5535	573	220	0	1021	1.2	1.6	202.07	640	64	7.27	775
				Jun-21		2300	451	64	0	553	0.35	5.96	65.72	326	21	7.88	16
W221630073263001	Patiyapura	22.275	73.44487	May-14	1749	2610	537	200	0	425	0.5	5.9	170.44	90	100	7.9	256
				May-15	961	1434	464	84	0	1843	0.8	6.2	82.77	99	55	8.23	73
				May-17	693	1034	378	44	0	106	0.8	3.4	68.13	90	21	8.19	101
				Jun-19		1150	207	112	0	106	0.18	1.5	48.76	41	111	7.19	157
				May-20		1530	476	56	0	213	0.63	0.72	114.34	109	71	7.93	97
W221700073301001	Saidal	22.28333333	73.50385	May-12	5012	7480	366	1000	0	2094	0.47	56.5	280	485	470	7.61	991
				May-13	4583	6840	537	260	0	1702	0.54	98	376	550	220	8.16	331
				May-14	361	539	268	32	0	28	0.48	3.5	17.06	61	4	8.2	18
				May-15	3438	5132	427	220	0	1028	0.8	88.8	279.87	365	130	7.93	545
				May-16	2821	4211	988	220	0	994	0.9	58.1	206.93	416	10	7.89	62
				May-17	2085	3112	659	140	60	496	1.8	7	48.8	489	10	8.64	241
				Jun-19		1930	598	24	0	170	1.3	5.9	43.79	331	87	8.12	158
				May-20		3063	403	80	0	652	0.85	3	182	264	159	7.65	158
				Jun-21		670	256	44	0	57	0.96	1.78	43.82	21	38	8.15	16
W221730073464501	Suskal	22.29166667	73.78397	May-14	471	703	122	68	0	92	0.15	0.7	14.67	48	44	8.28	64
				May-15	431	644	195	60	0	64	0.34	2.6	17.09	40	52	8.28	12
				May-18	1052	1570	232	180	0	277	1.16	2.2	14.81	122	84	7.58	131
W221736073115401	Vadodara_Kevada Bag	22.29333333	73.2041	May-14	997	1488	647	32	0	128	1.4	6.3	17.06	269	30	8.2	32
				May-18	861	1285	415	32	0	113	0.97	8.1	65.68	168	66	8.23	40
				Jun-19		653	256	48	0	35	1	0.5	36.53	27	21	7.46	50

				Jun-21		1260	445	36	0	142	0.71	8.26	75.41	96	39	8.06	32
W221830074010002	Chhota udepur	22.30833333	74.01667	May-13	983	1467	525	44	0	170	1.38	8.8	43	212	12	8.24	62
				May-14	877	1309	512	80	0	142	1.8	5.9	43.86	145	5	8	61
				May-15	910	1358	405	84	108	99	2.36	6.1	31.71	171	7	8.39	45
				May-17	796	1188	586	64	0	78	3	5	29.25	154	11	8.2	6
				Jun-19		810	244	68	0	78	1.2	0.9	17.1	75	71	7.42	33
				May-20		828	207	60	0	85	1	0.71	21.95	74	40	7.53	59
W222030073500001	Pavi	22.34166667	73.83333	May-13	1642	2450	525	84	0	454	1.2	4.8	60	350	6	7.3	129
				May-14	1668	2490	525	160	0	496	0.98	5.7	60.98	276	9	8.1	97
				May-15	1862	2779	439	120	0	567	1.15	6.7	170.34	190	9	8.28	224
				May-16	1686	2517	573	120	0	504	1.3	6.9	56.07	334	12	8.13	51
				May-17	1708	2549	281	160	0	461	1.03	7.8	85.29	270	17	7.96	414
				Jun-19		2460	525	56	0	255	1.3	45	77.87	326	106	7.47	340
				May-20		2007	525	128	0	376	0.95	10	39.06	258	12	8	132
W222033073120201	Vadodara_Sama	22.3425	73.20077	Jun-19		3925	671	28	0	397	0.98	50	136.19	580	34	7.87	790
				Jun-21		1980	580	40	96	248	0.73	40	80.28	233	1.8	8.44	0
W222200074043001	Ghamodi	22.36666667	74.07821	May-12	235	350	195	52	0	36	1.13	1.1	10	32	2	8.03	23
				May-13	275	410	232	44	0	21	1.05	1.2	7	48	2	8.2	19
				May-14	392	585	256	56	0	50	0.97	1.6	19.52	46	5	7.9	31
				May-15	275	410	207	44	0	28	1.19	1.4	12.21	35	2	8.24	21
				May-16	261	390	207	40	0	28	1.3	2.6	7.34	48	14	7.97	10
				May-17	241	360	159	44	0	21	1.25	1.1	2.48	30	4	7.08	18
				May-18	315	470	183	28	0	43	1.2	0.8	23.13	31	10	7.56	15
				Jun-19		4025	915	32	0	553	1.6	1.5	97.29	702	44	7.65	421
				May-20		516	232	48	0	50	1.1	0.86	9.78	50	1.6	7.72	13
				Jun-21		495	207	52	6	28	0.86	1.46	12.22	29	14	8.28	5
W222200074123001	Ferkuva	22.36666667	74.21154	May-12	737	1100	415	152	0	92	0.35	6.2	32	31	60	8.09	54
				May-13	466	695	183	56	0	106	0.23	5.6	31	44	70	7.68	7
				May-14	822	1227	427	144	0	121	0.27	10.1	36.64	42	30	7.65	51
				May-15	709	1058	378	128	0	106	0.5	7.7	31.76	39	40	8.21	38
				May-16	728	1087	317	128	0	99	0.35	7.6	29.33	29	41	8.06	65
				May-17	728	1086	403	108	0	106	0.58	7.4	53.62	35	46	8.02	44
				May-18	817	1220	500	68	0	128	1.46	0.3	48.71	110	6	7.1	25
				Jun-19		901	403	88	0	28	0.99	1.9	41.44	25	37	7.44	45
				May-20		642	244	88	0	71	0.45	3.4	19.56	17	37	7.57	23
				Jun-21		896	189	100	6	149	0.51	4.3	30.51	30	41	8.28	38
W222300073560001	Asala	22.38333333	73.93333	May-12	560	836	195	100	0	107	0.5	0.9	22	36	14	7.35	88
				May-13	570	850	159	104	0	135	0.7	5.7	17	47	70	7.51	49
				May-15	622	928	134	88	0	135	0.63	1	43.87	45	55	7.99	143
				May-17	743	1109	232	152	0	184	1.12	0.9	9.91	48	74	7.63	8
				Jun-19		972	195	136	0	135	1.1	2	12.32	44	99	7.38	54
W222400074080001	Chisadia	22.4	74.13333	Jun-19		1355	305	92	0	149	0.35	5	63.33	83	114	7.25	115
W222515073251001	Karamasiya	22.42083333	73.42051	Jun-19		1030	451	24	0	78	1.8	2.2	68.11	79	31	7.56	10
W222630073574501	Jojh	22.44166667	73.96731	Jun-19		1376	439	32	0	142	0.96	0.9	87.57	112	47	7.48	81

W222900073121001	Tundav	22.48333333	73.20385	May-12	737	1100	378	60	0	121	0.35	58	63	51	50	8.02	40
				May-13	815	1216	427	56	0	113	0.45	77	53	57	50	7.58	20
				May-14	899	1342	451	72	0	142	0.5	68	58.44	62	60	8.1	15
				May-15	682	1018	366	44	0	99	0.4	77	60.84	46	44	8.26	72
				May-16	1359	2029	586	68	0	284	0.5	15.3	99.77	275	230	7.88	101
				May-17	1178	1758	329	52	0	284	0.38	71	85.16	144	120	8.18	19
				May-18	1337	1996	342	80	0	326	1.11	63	75.47	180	92	7.93	162
				Jun-19		3201	451	64	0	348	0.87	23	214.03	245	137	7.36	600
				May-20		1929	439	68	0	305	1.7	26	38.98	296	63	7.89	178
				Jun-21		1350	390	64	0	191	0.52	71	53.57	93	4	8.04	71
W223015073170001	Juna samalya	22.50416667	73.28333	May-12	1327	1980	549	40	0	256	1.25	38.9	88	245	95	8.23	93
				May-13	1185	1768	561	36	0	213	1.14	38	63.26	225	65	7.32	19
				May-14	661	986	354	32	0	135	0.65	0.1	29.21	148	7	8.27	30
				May-15	1206	1800	451	48	0	284	1.18	37	68.14	222	75	8.27	42
				May-16	1058	1579	415	40	0	284	0.7	0.6	46.24	225	17	8.23	17
				May-17	1079	1610	427	60	0	220	1.4	34	58.42	200	50	8.1	112
				May-18	1181	1762	403	60	0	241	1.39	33.5	63.29	201	47	7.78	170
				Jun-19		4000	366	56	0	688	0.76	1.8	165.4	538	52	7.31	650
				May-20		1235	366	40	0	220	0.79	0.65	41.38	166	12	8.08	32
				Jun-21		1760	275	52	96	291	0.29	49	43.83	232	39	8.36	59
W223100073563001	Kevadi	22.51666667	73.94487	May-12	241	360	183	48	0	43	1	0.6	10	35	3	8.06	19
				May-13	278	415	195	44	0	35	1.14	1	5	46	5	7.9	13
				May-14	344	514	220	60	0	43	0.85	0	12.23	40	3	8.16	39
				May-15	342	510	232	48	0	43	1.19	0.6	17.08	47	2	8.18	34
				May-16	344	513	293	72	0	50	1.45	12.7	0.09	72	22	7.75	3
				May-17	319	476	207	48	0	28	1.22	2.1	17.08	36	14	7.95	42
				Jun-19		1115	232	56	0	149	0.68	0.8	43.83	109	68	7.32	98
				May-20		518	220	60	0	43	0.93	0.22	9.8	39	9.3	7.54	21
				Jun-21		660	256	72	0	128	0.93	3.56	31.69	32	25	7.89	10
W223600073140001	Rasulpur	22.6	73.23333	May-12	1112	1660	695	32	0	170	0.83	0.4	34	295	16	8.28	32
				May-13	1226	1830	671	20	0	227	0.97	2	32	375	28	7.51	92
				May-14	1231	1837	476	100	0	305	0.45	22	43.89	222	25	7.8	63
				May-15	1049	1566	476	80	0	277	0.5	25	41.43	196	31	8.15	15
				May-20		975	390	56	0	113	0.41	0.82	68.14	50	29	7.64	39
W224000073190001	Chhaliyar	22.66666667	73.31667	May-12	555	829	439	16	0	36	0.76	0.5	49	91	14	8.04	13
				May-13	603	900	500	40	0	50	1.14	1	48	102	22	7.69	19
				May-14	590	880	439	60	0	43	0.77	0.6	48.7	72	19	8.16	65
				May-15	583	870	159	36	84	50	1	1.1	53.53	72	9	8.38	110
				May-16	543	810	439	60	0	35	0.95	0.7	34.11	74	24	8.19	18
				May-17	532	794	195	20	72	35	0.48	1.3	53.51	66	20	8.41	64
				Jun-19		1210	488	32	0	57	0.84	0.9	63.25	119	61	7.68	70
				May-20		1236	586	20	36	64	2	0.41	17.04	254	33	8.35	19
W224450073212001	Vejpur2	22.74722222	73.35769	May-12	2037	3040	878	24	60	525	2	6.1	58	615	8	8.85	53
				May-13	2258	3370	1061	140	0	567	1.45	7.8	291	630	8	7.92	28

				May-14	2286	3414	1061	100	0	638	1.68	6.2	60.9	600	5	8.28	14
				May-15	628	937	73	24	108	113	0.3	39	31.64	142	3	8.98	90
				May-16	2074	3095	366	180	156	603	1.4	8.2	12.38	503	11	8.6	153
				May-17	2943	4392	610	240	0	815	0.7	50	182.64	364	24	7.97	438
				Jun-19		2040	610	44	0	170	1.9	0.6	38.95	345	66	7.68	215
				May-20		3522	744	24	96	681	2.3	6.4	55.95	760	2.1	8.66	173

c) [Groundwater Level Monitoring Data, Bharuch and Vadodara Districts, GWRDC](#)

May 2012 to October 2017

Well Type	District	Taluka	Village	Geology	Latitude	Longitude	Total Depth	RL	2012_May	2012_Oct	2013_May	2013_Oct	2014_May	2014_Oct	2015_May	2015_Oct	2016_May	2016_Oct	2017_May	2017_Oct
Dug Well	Vadodara	Vadodara	Bapod	Alluvium	22°18'05"	73°15'06"	12.65	43.33	7.25	1.40	4.65	0.25	3.55	2.40	3.80	3.60	4.15	1.65	4.05	1.75
Dug Well	Vadodara	Vadodara	Dashrath	Alluvium	22°23'20"	73°08'55"	21.70	35.87	11.85	11.70	13.85	7.90	9.25	7.90	10.20	9.40	11.75	11.40	12.90	11.70
Dug Well	Vadodara	Vadodara	Sokhda	Alluvium	22°25'23"	73°10'12"	24.50	40.99	13.05	12.00	16.65	11.60	12.75	6.70	11.20	10.80	12.50	11.70	13.10	11.90
Dug Well	Vadodara	Padra	Chansad	Alluvium	22°12'26"	73°07'54"	22.15	26.78	9.15	5.00	7.60	3.75	5.45	4.30	7.05	5.80	8.40	8.10	9.10	5.70
Dug Well	Vadodara	Padra	Masar Road	Alluvium	22°08'48"	72°53'36"	19.10	18.94	12.05	11.60	14.30	10.20	10.90	7.90	10.40	8.80	11.20	10.70	13.20	12.00
Dug Well	Bharuch	Bharuch	Sankhwad	Alluvium	21°42'55"	72°49'01"	11.75	11.63	4.40	2.30	4.35	1.80	2.80	1.80	2.80	2.70	2.90	1.00	1.70	1.25
Dug Well	Bharuch	Jambusar	Sarod	Alluvium	22°09'51"	72°44'33"	18.35	8.90	8.80	8.40	9.80	7.40	7.45	7.30	8.35	8.30	9.50	9.25	10.85	8.55
Dug Well	Bharuch	Jambusar	Tankari	Alluvium	21°59'37"	72°40'05"	7.60	8.55	5.10	2.20	7.00	1.00	4.50	3.10	3.45	3.30	5.70	2.35	4.60	2.70
Tube Well	Bharuch	Jambusar	Bhadkodra	Alluvium	22°03'31"	72°35'18"	31.00	6.21	6.05	5.15	6.50	3.30	5.95	4.90	6.05	5.35	6.55	5.10	6.80	5.30
Tube Well	Bharuch	Jambusar	Sigam	Alluvium	22°08'34"	72°35'10"	35.00	7.97	4.90	4.65	5.50	3.05	4.55	4.35	4.75	4.60	5.00	4.70	5.30	4.60
Tube Well	Bharuch	Amod	Ikhar-I	Alluvium	21°57'18"	73°02'11"	122.00	20.74	25.20	25.10	25.75	23.10	24.25	24.05	24.65	24.55	25.15	23.50	26.10	25.95
Tube Well	Bharuch	Amod	Ikhar-II	Alluvium	21°57'18"	73°02'11"	91.00	20.84	25.75	25.60	26.45	23.50	24.40	24.35	25.10	24.60	25.40	24.00	26.05	25.95
Tube Well	Bharuch	Amod	Ikhar-III	Alluvium	21°57'18"	73°02'11"	61.28	20.91	25.60	25.15	26.05	23.75	24.30	24.10	24.65	24.10	25.45	24.20	26.10	25.45
Tube Well	Bharuch	Bharuch	Varediya	Alluvium	21°52'12"	73°03'23"	60.00	22.20	20.50	19.70	20.75	18.50	19.65	19.65	20.50	20.00	20.65	19.50	21.30	19.90
Tube Well	Bharuch	Amod	Amod	Alluvium	21°59'35"	72°52'21"	50.00	17.50	10.10	9.80	11.55	8.45	9.30	9.20	10.10	9.65	9.95	9.45	10.30	9.60
Tube Well	Bharuch	Vagra	Dahej	Alluvium	21°42'18"	72°35'15"	44.20	7.08	9.35	6.90	9.05	4.95	9.10	7.90	9.35	7.65	9.45	6.30	9.60	5.90
Tube Well	Vadodara	Padra	Mahuvad-I	Alluvium	22°14'18"	73°00'34"	120.00	26.80	29.85	26.40	30.25	22.40	25.35	24.85	26.60	25.10	30.25	24.50	28.10	27.30
Tube Well	Vadodara	Vadodara	Shankarpura	Alluvium	22°16'32"	73°16'13"	33.10	31.72	5.10	3.40	4.80	1.20	3.70	2.55	4.35	4.10	5.75	3.95	5.00	2.20
Tube Well	Vadodara	Vadodara	Ankodiya	Alluvium	22°20'18"	73°06'53"	71.65	35.69	21.10	17.80	21.60	18.20	14.40	11.40	13.80	13.00	18.60	16.30	20.00	19.35
Tube Well	Vadodara	Vadodara	Bajwa	Alluvium	22°22'04"	73°08'15"	60.96	35.75	7.75	4.75	7.70	3.70	6.15	4.40	6.35	6.00	7.80	6.05	8.40	7.50
Tube Well	Vadodara	Vadodara	Ranoli	Alluvium	22°24'20"	73°06'57"	67.00	37.55	29.35	27.30	30.00	24.80	26.05	23.95	27.10	26.35	28.50	26.10	28.60	28.30
Tube Well	Vadodara	Vadodara	Kalali	Alluvium	22°15'27"	73°09'50"	61.20	29.50	5.55	4.05	6.15	1.65	4.90	2.40	3.90	3.40	5.70	5.60	6.60	5.10
Tube Well	Bharuch	Vagra	Limdi	Alluvium	21°48'36"	72°43'12"	45.73	12.40			6.50	4.25	5.40	4.55	5.60	5.25	6.00	5.10	6.20	4.80
Tube Well	Bharuch	Vagra	Narnavi	Alluvium	21°47'14"	72°39'52"	45.73	8.60			8.70	5.45	8.10	6.70	8.15	6.70	8.60	6.20	8.70	6.00
Tube Well	Bharuch	Vagra	Sadathala	Alluvium	21°45'44"	72°46'44"	45.73	10.50			6.50	4.55	5.60	4.90	5.75	5.65	6.20	5.60	6.45	5.50
Tube Well	Bharuch	Vagra	Sutrel	Alluvium	21°48'36"	72°48'36"	45.73	10.50			8.45	6.25	7.20	6.80	7.45	7.10	7.90	7.30	8.05	6.90
Tube Well	Bharuch	Vagra	Vilayat	Alluvium	21°45'00"	72°53'24"	45.73	9.60			7.30	4.70	5.70	5.00	5.90	5.10	6.50	5.90	7.70	5.90
Tube Well	Bharuch	Amod	Valipor	Alluvium	21°56'42"	72°45'01"	60.97	12.30	6.40	4.85	5.95	3.80	5.00	4.20	5.15	4.70	5.70	4.65	5.90	4.40
Tube Well	Bharuch	Amod	Vantasara	Alluvium	21°54'22"	72°59'08"	60.97	18.50	14.55	13.40	13.90	10.50	11.80	11.10	13.45	13.40	12.40	12.25	14.20	13.70
Tube Well	Bharuch	Jambusar	Bhankhetar	Alluvium	22°04'51"	72°48'48"	53.35	22.30	8.70	8.40	9.20	7.15	7.95	7.45	8.80	8.40	8.90	8.75	9.35	8.40
Tube Well	Bharuch	Jambusar	Tundej	Alluvium	22°06'49"	72°43'24"	60.97	18.30	7.40	7.00	7.65	6.30	6.60	6.10	6.50	6.10	6.95	6.75	7.50	6.90
Tube Well	Bharuch	Jambusar	Khanpur Deh	Alluvium	21°59'41"	72°46'08"	57.92	12.30	5.90	5.20	6.20	4.10	5.25	4.40	8.45	4.65	5.90	5.10	6.10	5.40

Tube Well	Bharuch	Jambusar	Piludara	Alluvium	22°10'10"	72°52'23"	60.97	28.30	15.14	15.00	15.74	13.89	14.14	13.54	13.49	12.89	14.54	14.19	15.24	14.74
Tube Well	Bharuch	Jambusar	Uber	Alluvium	22°08'27"	72°49'15"	58.84	25.30	7.45	7.35	7.85	5.55	6.00	5.80	6.30	6.10	7.90	6.70	7.40	6.90
Tube Well	Vadodara	Vadodara	Anagadh	Alluvium	22°22'36"	73°04'52"	60.97	34.00	26.70	25.65	27.05	25.65	25.80	24.65	25.70	25.10	26.80	25.80	27.20	26.60
Tube Well	Vadodara	Vadodara	Bhayli	Alluvium	22°16'51"	73°07'14"	60.00	32.60	26.40	20.70	26.35	15.90	20.10	15.15	18.80	18.00	21.05	16.80	21.00	16.55
Tube Well	Vadodara	Vadodara	Nandesari	Alluvium	22°24'17"	73°05'59"	60.97	33.20	32.80	31.55	33.05	30.00	31.05	28.65	30.60	30.10	31.40	30.10	32.90	31.90
Tube Well	Vadodara	Vadodara	Virod	Alluvium	22°23'37"	73°13'38"	48.78	35.00	13.85	11.45	15.45	8.85	10.95	8.30	15.20	14.90	15.15	15.00	18.00	16.15
Tube Well	Bharuch	Amod	Matar	Alluvium	22°00'19"	72°59'48"	40.00	22.60	25.00	24.70	25.80	22.10	23.35	22.35	25.60	24.25	25.60	22.50	25.80	24.60
Tube Well	Bharuch	Bharuch	Manad	Alluvium	21°40'21"	72°47'35"	60.00	9.50	4.90	4.00	4.90	2.80	4.20	3.95	5.30	4.40	4.75	3.95	4.60	4.40
Tube Well	Bharuch	Bharuch	Tralsa	Alluvium	21°48'17"	72°58'05"	60.00	28.30	14.75	14.10	15.75	11.45	13.40	12.90	13.85	13.60	14.25	11.60	15.40	12.80
Tube Well	Bharuch	Vagra	Vagra	Alluvium	21°50'40"	72°51'33"	45.00	15.50	8.90	8.00	9.30	5.20	7.65	7.20	8.10	7.80	8.80	8.00	9.40	7.50
Tube Well	Vadodara	Padra	Sarswani	Alluvium	22°10'08"	73°05'53"	74.70	33.10		28.00	28.10	24.60	26.60	24.85	25.25	25.10	25.25	24.10	25.80	24.25

May 2018 to October 2022

Well Type	District	Taluka	Village	Geology	Latitude	Longitude	Total Depth	RL	2018_May	2018_Oct	2019_May	2019_Oct	2020_May	2020_Oct	2021_May	2021_Oct	2022_May	2022_Oct
Dug Well	Vadodara	Vadodara	Bapod	Alluvium	22°18'05"	73°15'06"	12.65	43.33	4.20	2.35	4.15	1.35	4.05	1.15	4.15	0.65	4.25	1.65
Dug Well	Vadodara	Vadodara	Dashrath	Alluvium	22°23'20"	73°08'55"	21.70	35.87	13.50	12.30	13.70	10.20	13.20	12.20	13.30	13.10	12.90	13.10
Dug Well	Vadodara	Vadodara	Sokhda	Alluvium	22°25'23"	73°10'12"	24.50	40.99	13.30	11.80	16.20	8.80	13.20	10.30	11.70	11.30	12.40	11.80
Dug Well	Vadodara	Padra	Chansad	Alluvium	22°12'26"	73°07'54"	22.15	26.78	7.50	6.80	7.40	3.10	6.00	3.60	6.90	5.50	7.10	4.40
Dug Well	Vadodara	Padra	Masar Road	Alluvium	22°08'48"	72°53'36"	19.10	18.94	13.60	9.90	11.10	7.90	10.30	4.80	6.50	6.30	10.60	7.10
Dug Well	Bharuch	Bharuch	Sankhwad	Alluvium	21°42'55"	72°49'01"	11.75	11.63	2.00	0.80	2.70	0.50	4.20	0.60	1.70	0.90	3.00	1.20
Dug Well	Bharuch	Jambusar	Sarod	Alluvium	22°09'51"	72°44'33"	18.35	8.90	9.85	8.15	10.75	5.65	7.35	6.95	8.55	5.95	10.45	8.15
Dug Well	Bharuch	Jambusar	Tankari	Alluvium	21°59'37"	72°40'05"	7.60	8.55	5.10	3.30	5.60	1.50	5.40	1.30	4.70	1.60	5.20	1.70
Tube Well	Bharuch	Jambusar	Bhadkodra	Alluvium	22°03'31"	72°35'18"	31.00	6.21	6.30	6.00	6.35	5.50	6.00	4.80	7.00	5.10	5.70	5.00
Tube Well	Bharuch	Jambusar	Sigam	Alluvium	22°08'34"	72°35'10"	35.00	7.97	5.50	4.80	6.00	4.80	5.30	4.10	4.90	4.30	5.20	4.40
Tube Well	Bharuch	Amod	Ikhar-I	Alluvium	21°57'18"	73°02'11"	122.00	20.74	26.15	25.50	26.00	25.80	26.60	24.00	25.10	23.90	24.60	24.50
Tube Well	Bharuch	Amod	Ikhar-II	Alluvium	21°57'18"	73°02'11"	91.00	20.84	26.35	25.70	26.20	26.00	27.20	24.60	24.80	24.20	24.90	23.50
Tube Well	Bharuch	Amod	Ikhar-III	Alluvium	21°57'18"	73°02'11"	61.28	20.91	26.50	25.80	26.40	26.20	26.90	24.40	24.70	24.40	24.70	23.50
Tube Well	Bharuch	Bharuch	Varediya	Alluvium	21°52'12"	73°03'23"	60.00	22.20	21.70	20.60	22.70	20.50	21.20	19.20	19.70	19.10	20.20	19.50
Tube Well	Bharuch	Amod	Amod	Alluvium	21°59'35"	72°52'21"	50.00	17.50	10.40	9.90	11.00	9.20	9.60	7.90	9.20	8.10	9.00	7.80
Tube Well	Bharuch	Vagra	Dahej	Alluvium	21°42'18"	72°35'15"	44.20	7.08	9.60	8.00	9.50	5.00	9.60	6.60	8.10	6.90	9.20	7.40
Tube Well	Vadodara	Padra	Mahuvad-I	Alluvium	22°14'18"	73°00'34"	120.00	26.80	32.15	26.80	35.70	23.60	30.50	24.60	27.90	24.00	26.70	22.80
Tube Well	Vadodara	Vadodara	Shankarpura	Alluvium	22°16'32"	73°16'13"	33.10	31.72	5.30	3.30	4.70		3.30	0.50	3.10	0.40	2.40	1.00
Tube Well	Vadodara	Vadodara	Ankodiya	Alluvium	22°20'18"	73°06'53"	71.65	35.69	20.60	16.80	20.70	11.70	14.70	14.30	17.20	13.60	14.80	13.80
Tube Well	Vadodara	Vadodara	Bajwa	Alluvium	22°22'04"	73°08'15"	60.96	35.75	9.20	6.10	9.50	5.20	8.70	4.00	7.60	5.30	7.30	5.60
Tube Well	Vadodara	Vadodara	Ranoli	Alluvium	22°24'20"	73°06'57"	67.00	37.55	29.70	27.50	30.90	26.40	28.20	25.80	27.20	25.70	27.30	25.90
Tube Well	Vadodara	Vadodara	Kalali	Alluvium	22°15'27"	73°09'50"	61.20	29.50	6.60	5.10	7.35	2.00	5.10	3.60	6.50	4.50	6.80	5.30
Tube Well	Bharuch	Vagra	Limdi	Alluvium	21°48'36"	72°43'12"	45.73	12.40	6.30	4.90	6.50	4.50	5.80	4.10	5.50	3.70	8.10	3.90
Tube Well	Bharuch	Vagra	Narnavi	Alluvium	21°47'14"	72°39'52"	45.73	8.60	8.70	6.60	9.00	5.80	8.50	5.50	7.60	5.00	8.90	6.40
Tube Well	Bharuch	Vagra	Sadathala	Alluvium	21°45'44"	72°46'44"	45.73	10.50	6.65	5.90	6.90	5.40	6.00	5.00	5.70	4.30	6.80	5.00
Tube Well	Bharuch	Vagra	Sutrel	Alluvium	21°48'36"	72°48'36"	45.73	10.50	7.20	7.20	8.40	6.10	7.20	5.70	7.10	5.50	7.30	5.80
Tube Well	Bharuch	Vagra	Vilayat	Alluvium	21°45'00"	72°53'24"	45.73	9.60	6.60	0.30	6.90	5.70	6.10	4.80	5.70	4.70	5.80	4.50
Tube Well	Bharuch	Amod	Valipor	Alluvium	21°56'42"	72°45'01"	60.97	12.30	6.00	4.70	6.20	5.40	5.90	3.50	5.00	3.40	5.00	3.90

Tube Well	Bharuch	Amod	Vantasara	Alluvium	21°54'22"	72°59'08"	60.97	18.50	15.30	13.90	15.00	11.40	14.40	10.30	11.60	10.80	14.40	10.80
Tube Well	Bharuch	Jambusar	Bhankhetar	Alluvium	22°04'51"	72°48'48"	53.35	22.30	9.70	8.65	10.00	7.40	8.20	6.30	7.90	6.10	7.70	5.60
Tube Well	Bharuch	Jambusar	Tundej	Alluvium	22°06'49"	72°43'24"	60.97	18.30	7.40	6.60	8.00	6.80	7.80	5.80	6.50	5.70	6.90	5.60
Tube Well	Bharuch	Jambusar	Khanpur Deh	Alluvium	21°59'41"	72°46'08"	57.92	12.30	6.30	5.40	6.70	5.10	5.70	3.80	5.60	4.70	5.80	4.10
Tube Well	Bharuch	Jambusar	Piludara	Alluvium	22°10'10"	72°52'23"	60.97	28.30	15.64	14.84	16.54	14.24	14.94	12.54	14.44	13.14	15.64	12.34
Tube Well	Bharuch	Jambusar	Uber	Alluvium	22°08'27"	72°49'15"	58.84	25.30	7.90	6.40	8.00	4.60	5.90	3.70	5.60	4.30	6.80	4.70
Tube Well	Vadodara	Vadodara	Anagadh	Alluvium	22°22'36"	73°04'52"	60.97	34.00	27.70	26.40	28.00	25.60	26.80	25.20	26.90	25.10	26.60	25.50
Tube Well	Vadodara	Vadodara	Bhayli	Alluvium	22°16'51"	73°07'14"	60.00	32.60	21.50	16.20	22.00	8.00	12.90	12.50	18.30		18.20	17.80
Tube Well	Vadodara	Vadodara	Nandesari	Alluvium	22°24'17"	73°05'59"	60.97	33.20	33.50	32.00	34.00	31.10	32.50	30.70	32.50	30.70	32.20	30.60
Tube Well	Vadodara	Vadodara	Virod	Alluvium	22°23'37"	73°13'38"	48.78	35.00	16.50	16.30	20.80	13.30	15.10	10.40	15.80	11.90	18.70	13.10
Tube Well	Bharuch	Amod	Matar	Alluvium	22°00'19"	72°59'48"	40.00	22.60	26.20	24.90	27.60	24.40	26.80	22.30	25.40	21.80	24.90	17.10
Tube Well	Bharuch	Bharuch	Manad	Alluvium	21°40'21"	72°47'35"	60.00	9.50	4.80	4.30	5.70	3.30	4.40	2.90	4.50	2.50		
Tube Well	Bharuch	Bharuch	Tralsa	Alluvium	21°48'17"	72°58'05"	60.00	28.30	14.90	13.70	16.20	13.40	14.20	9.40	11.80	9.50	12.00	10.20
Tube Well	Bharuch	Vagra	Vagra	Alluvium	21°50'40"	72°51'33"	45.00	15.50	9.40	8.00	10.20	6.80	9.00	7.10	8.20	6.70		
Tube Well	Vadodara	Padra	Sarswani	Alluvium	22°10'08"	73°05'53"	74.70	33.10	25.70	23.40	26.60	21.70	25.20	22.90	24.30	22.40	24.80	23.20

d) [Groundwater Quality Monitoring Data, Bharuch and Vadodara Districts, GWRDC](#)

Water Quality data of Bharuch, Vadodara Districts

			2012_May														2012_Oct													
District	Taluka	Village	pH	EC	Total Hardness	Total Dis-solved Solids	CO3	HCO3	Cl	SO4	NO3	Ca	Mg	Na	K	F	pH	EC	Total Hardness	Total Dis-solved Solids	CO3	HCO3	Cl	SO4	NO3	Ca	Mg	Na	K	F
Vadodara	Padra	Chansad	7.8	2850	408.22	2140		830	392	182		30	81	240	380.01		8.8	1110	161.05	780	48	366	96	37	0.25	20	27	173	11.24	1.31
Vadodara	Padra	Masar Road	8.1	2150	383.12	1480		561	312	164		15	84	268	78.7		8.7	2410	543.88	1790	60	573	488	138	6.94	25	117	390	2.81	1.29
Bharuch	Jambusar	Sarod	8.6	1510	395.32	960	21	390	272	11		10	90	665	2.4		8.6	1500	531.4	930	36	390	224	49	2.21	20	117	93	4.66	1.29
Bharuch	Jambusar	Tankari	8.8	2730	383.12	1760	60	476	520	135		15	84	712	61.8															
Bharuch	Amod	Valipor	8.2	29170	2065.82	17380	0	122	8400	2544		150	411	5746	2.5		9.1	28360	617.39	17390	60	439	7680	2783	1.65	5	147	6171	106.1	1.07
Bharuch	Amod	Vantasara	8.5	1060	359.13	630	24	159	216	49		40	63	74	1.6		8.3	1140	408.51	700	12	244	224	32	2.96	40	75	71	1.47	1.34
Bharuch	Jambusar	Bhankhetar	8.9	6070	444.98	3650	36	256	1720	328		20	96	1188	1.7		8.8	5790	358.29	3500	12	281	1680	267	2.07	10	81	1159	10.21	1.16
Bharuch	Jambusar	Tundej	9	1740	148.56	1130	36	305	328	89		15	27	328	1.2		9	1670	49.52	1100	24	305	352	46	2.53	5	9	358	4.27	1.14
Bharuch	Jambusar	Khanpur Deh	7.6	42990	4584.59	25130	0	146	13200	2672		605	747	7758	3.2		8.7	35700	4069.21	20390	12	37	11920	968	2.94	275	822	6264	92.26	0.55
Bharuch	Jambusar	Piludara	8.6	10450	1087.9	6270	24	232	2840	953		55	231	1849	81.1		8.7	8400	1062.51	4780	36	171	2760	103	1.45	30	240	1430	8.96	1.3
Bharuch	Jambusar	Uber	9.1	1440	111.39	1050	60	561	104	12		10	21	278	0.8		9.3	1530	37.18	1120	60	549	112	53	2.82	5	6	332	2.31	1.35
Bharuch	Vagra	Limdi																												
Bharuch	Vagra	Narnavi																												
Bharuch	Vagra	Sadathala																												
Bharuch	Vagra	Sutrel																												
Bharuch	Vagra	Vilayat																												
Bharuch	Amod	Matar	8.3	970	322.09	580	12	146	216	37		40	54	71	3.2		8.6	1120	284.78	680	12	171	264	23	2.91	30	51	121	4.64	1.22
Bharuch	Vagra	Vagra	8.9	8600	617.81	4890	84	830	2600	301		20	138	1917	3		9	4320	160.77	2750	72	622	1040	59	2.36	10	33	915	4.27	1.52
Vadodara	Padra	Sarswani															9.2	1680	111.53	1230	84	671	80	32	2.63	15	18	329	5.56	1.55

Bharuch	Jambusar	Bhadkodra	9.3	8920	135.94	5720	99	854	2080	412		5	30	1823	279		9.6	10180	321.25	6560	72	683	2520	825	5.67	10	72	1928	445.5	1.26
Bharuch	Jambusar	Sigam	8.6	3510	185.46	2390	60	744	536	273		10	39	713	11.7		9.1	3330	135.94	2180	72	500	632	232	0	5	30	697	7.85	1.46
Bharuch	Amod	Ikhar-I	7.6	4310	754.73	2460		146	1360	111		60	147	635	6.1		8.2	4570	804.11	2670	0	281	1384	100	0.96	60	159	669	12.77	1.05
Bharuch	Amod	Ikhar-II	7.5	2810	520.17	1640		110	832	137		60	90	403	3.5		8.1	2820	532.24	1610	0	98	880	84	0.3	50	99	396	6.76	1.37
Bharuch	Amod	Ikhar-III	7.7	1610	346.36	1030		317	328	79		25	69	202	11.8		8.2	780	210.71	520	0	183	152	24	0.56	30	33	59	38.11	1.42
Bharuch	Amod	Amod	7.4	4020	156.65	2640		122	1520	66		10	32	280	5.6		7.9	4290	829.92	2440	0	98	1352	151	2.03	100	141	597	4.19	1.26
Bharuch	Vagra	Dahej	8.4	4980	210.15	3530	48	1110	880	246		10	45	838	352.5		8.5	5570	197.93	3800	24	805	1120	485		10	42	1170	354	
Vadodara	Padra	Mahuvad-I	7.9	1080	86.835	800		427	112	28		15	12	208	2.6		8.7	960	197.94	660	24	329	104	20	4.2	15	39	126	2.09	1.3
			2013_May														2013_Oct													
Vadodara	Padra	Chansad	8.8	1200	186.02	860	36	354	160	22		30	27	126	106.36		8.6	1310	148.56	960	24	390	136	95	4.85	15	27	172	99.1	0.34
Vadodara	Padra	Masar Road	8.8	2340	432.78	1600	36	439	240	394		25	90	282	91.49		8.6	2360	296.84	1630	36	549	328	199	30.7	20	60	353	87.43	0.24
Bharuch	Jambusar	Sarod	8.1	2470	865.13	1480		476	552	62		35	189	161	5.09		8.9	1300	346.31	860	36	403	160	34		15	75	136	3.5	
Bharuch	Jambusar	Tankari	8.9	2130	296.84	1470	36	598	312	72		20	60	320	54.61		8.5	1620	198.06	1180	36	586	144	63		15	39	254	43.5	
Bharuch	Amod	Valipor	8.1	25510	1729.7	14860		110	8360	851		50	390	5002	99.59		8.1	24720	432.5	14850		354	7760	1092	1.3	15	96	5418	110.5	1.19
Bharuch	Amod	Vantasara	8.6	1170	519.61	660	24	195	272			40	102	25	1.622		8.2	1070	432.78	660		220	224	38	0.58	25	75	73	1.37	1.36
Bharuch	Jambusar	Bhankhetar	8.5	5950	309.05	3570	24	183	1760	291		15	66	1217	10.85		8.2	5670	99.18	3480	24	220	1640	331	2.97	15	15	1252	10.38	1.25
Bharuch	Jambusar	Tundej	9.7	1770	124.01	1160	48	354	344	26		20	18	346	3.6															
Bharuch	Jambusar	Khanpur Deh	8.2	38440	4430.71	22230		61	12160	1961		400	834	6731	87.88		8.7	33920	49.66	21390	12	37	11920	968	2.94	275	822	6264	92.26	0.55
Bharuch	Jambusar	Piludara	8.3	8450	963.89	4860	24	220	2760	113		35	213	1490	8.74		8.3	7980	951.13	4680	24	354	2400	266	0.87	20	219	1387	6.94	1.41
Bharuch	Jambusar	Uber	9	1590	62.01	1150	36	525	176	54		10	9	335	2.26		8.9	1250	86.7	910	48	464	96	27	2.97	10	15	245	1.66	1.19
Bharuch	Vagra	Limdi	8	15300	1593.77	8970		122	4520	1136		45	360	2762	25.33		8.2	12070	740.98	7130	0	329	3840	338	3.77	10	174	2411	30.42	1.15
Bharuch	Vagra	Narnavi	8.9	11570	482.16	7050	48	732	3480	193		25	102	2390	76.65		8.8	8170	234.98	5210	36	1000	2160	155	5.35	15	48	1736	56.2	1.09
Bharuch	Vagra	Sadathala	8.6	3260	86.84	2190	24	476	552	404		15	12	707	2.94		8.9	2590	74.35	1780	48	586	392	173	1.38	10	12	559	1.77	1.38
Bharuch	Vagra	Sutrel	8.2	6960	716.71	4130		232	2040	398		25	159	1252	24.66		8.3	7770	803.27	4600	12	244	2280	432	9.95	30	177	1388	40.43	1.2
Bharuch	Vagra	Vilayat	8.4	4250	62.01	2680	24	183	1000	505		10	9	941	12.47		8.4	4320	247.18	2620	12	207	1240	213	3.6	10	54	872	10.29	0.32
Bharuch	Amod	Matar	8.4	1230	382.98	710	12	146	296	53		10	87	102	2.6		7.5	1460	507.97	910		317	304	38	5.3	68	84	88	17.8	1.22
Bharuch	Vagra	Vagra	8.8	7710	136.08	5140	96	659	1120	1514		10	27	1708	2.92		8.7	4640	99.04	3070	36	842	1040	99	1.31	10	18	1018	3.24	0.16
Vadodara	Padra	Sarswani	9.1	1630	99.04	1200	48	634	104	62		10	18	326	1.43		8.9	2390	296.84	1580	72	586	400	27	3.99	20	60	409	2.79	0.6
Bharuch	Jambusar	Bhadkodra		10600		7050											8.7	10690	407.53	6920	99	927	2400	867	30.8	5	96	2012	433.4	1.44
Bharuch	Jambusar	Sigam	9	3170	160.91	2130	96	671	496	165		15	30	649	6.14		8.7	2940	136.08	2010	72	720	464	100	8.95	10	27	606	10.35	1.41
Bharuch	Amod	Ikhar-I	8.3	4410	655.83	2560	24	195	1360	85		55	126	703	10.82		8.2	3960	556.23	2370		293	1104	174	6.86	25	120	645	9.49	0.06
Bharuch	Amod	Ikhar-II	4.5	3770	743.5	2220		305	1120	52		100	120	517	5.13		7.8	3400	744.2	1950		73	1040	167	1.86	125	105	434	4.34	1.04
Bharuch	Amod	Ikhar-III	8.3	1190	222.91	760	12	195	272	30		25	39	143	45.53		8.3	450	124.29	330		171	56		4.31	30	12	26	32.18	1.1
Bharuch	Amod	Amod	3.3	5020	744.9	2900			1600	245		150	90	807	3.27		7.7	4590	806.35	2650		61	1392	268	0.78	140	111	678	3.13	0.08
Bharuch	Vagra	Dahej	9	4280	148.28	3090	99	1061	560	248		5	33	714	339.1															
Vadodara	Padra	Mahuvad-I	8.6	770	161.05	520	24	244	104			20	27	100	1.91		8.3	950	185.6	670	24	366	96	0	0.31	15	36	130	1.68	0.1
			2014_May														2014_Oct													
Vadodara	Padra	Chansad	8.3	1440	160.91	1050	12	317	144	226	4.16	15	30	185	120.5	0.55	8.4	1670	222.77	1180	24	390	216	160	8.23	20	42	204	126.7	0.54
Vadodara	Padra	Masar Road	8.1	2750	506.43	1800		451	488	303	8.29	10	117	340	95.53	0.43	7.9	3530	815.89	2330	0	659	600	372	8.87	40	174	360	129.3	1.42
Bharuch	Jambusar	Sarod	8.1	1790	543.6	1210		634	224	55	1.43	15	123	155	5.63	0.23	8.4	1610	555.95	1090	24	586	128	96	1.67	15	126	106	5.7	0.91
Bharuch	Jambusar	Tankari	8.3	2460	358.43	1680	24	537	352	241	4.54	15	78	351	78.93	0.44	8.7	2640	432.26	1750	72	537	392	198	6.5	10	99	349	95.85	0.84
Bharuch	Amod	Valipor	7.9	28380	1521.52	16870		110	8640	1853	1.23	110	303	5767	89.74	1	8.3	25220	716.71	15020	12	244	8000	1073	1.4	25	159	5401	108.4	0.55
Bharuch	Amod	Vantasara	8.2	1050	358.43	610		110	248	80	0.31	15	78	73	1.63	0.21	8.2	970	432.78	540	0	146	240	21	0.45	25	90	19	0.9	0.24
Bharuch	Jambusar	Bhankhetar	8.5	4200	136.22	2590	48	195	1080	321	0.93	15	24	895	9.43	0.27	8.9	4350	74.35	2740	36	268	1040	409	2.87	10	12	959	8.9	0.64

Bharuch	Jambusar	Tundej	8.6	1710	37.32	1120	36	293	360	46	1.72	10	3	373	4.32	0.02	8.9	1770	74.35	1140	36	244	376	89	0.64	10	12	369	3.95	0.53	
Bharuch	Jambusar	Khanpur Deh	7.8	32720	4216.65	18900		85	10080	2008	1.18	250	873	5507	97.26	0.09	8.7	40770	1247.41	24320	24	244	12600	2302	2.29	20	291	8731	110.2	0.79	
Bharuch	Jambusar	Piludara	8.4	4240	518.77	2500	48	293	1240	50	1.18	10	120	730	4.68	0.99	8.7	4020	555.95	2410	24	329	1080	171	0.97	15	126	663	3.74	0.35	
Bharuch	Jambusar	Uber	8.9	1250	62.01	920	48	488	80	29	0.72	10	9	256	1.96	1.5	8.8	1210	74.21	890	36	464	80	49	0.72	15	15	242	1.71	1.36	
Bharuch	Vagra	Limdi	8	13490	901.89	8030		183	4000	920	2.92	25	204	2659	38.62	0.11	8.6	13630	864.85	8080	24	195	4120	776	3.79	25	195	2706	42.35	0.49	
Bharuch	Vagra	Narnavi	8.9	8080	111.39	5230	60	720	1760	834	2.07	10	21	1778	47.31	1.28	9.2	7300	111.39	4650	84	634	1720	541	2.3	10	21	1597	47.99	1.4	
Bharuch	Vagra	Sadathala	8.7	2990	61.87	2030	48	476	440	387	1.39	5	12	656	3.77	1.06	8.8	2790	86.98	1900	36	488	416	333	4.47	20	9	599	2.48	1.15	
Bharuch	Vagra	Sutrel	9.3	6950	494.64	4220	84	159	1720	749	3.55	30	102	1360	13.1	0.12	8.6	6510	543.74	3870	12	183	1920	365	4.72	20	120	1236	12.81	0.81	
Bharuch	Vagra	Vilayat	8.5	4900	222.77	3010	24	195	1280	427	2.86	20	42	1015	11.71	0.16	8.6	4570	272.15	2800	12	244	1240	304	5.38	20	54	916	13.39	0.53	
Bharuch	Amod	Matar	8.2	1250	383.4	730		146	304	71	0.48	25	78	106	2.99	0.21	8.1	1370	482.44	850	0	256	224	151	3.04	35	96	88	3.76	0.27	
Bharuch	Vagra	Vagra	8.9	5040	49.52	3250	48	586	1160	310	1.2	5	9	1133	3.33	0.39	9.2	5220	49.52	3330	84	610	1280	159	1.56	5	9	1175	3.47	0.84	
Vadodara	Padra	Sarswani	8.3	1520	112.23	1190	12	720	80	33	0.84	40	3	296	1.09	1.55	8.6	1580	111.39	1170	48	634	104	37	2.53	10	21	308	2.91	1.36	
Bharuch	Jambusar	Bhadkodra	9.2	10690	373.15	7070	60	393	2400	1146	8.45	100	30	2046	406.9	0.65	9.1	10870	321.11	7090	99	1013	2416	881	8.16	5	75	2083	450.5	0.82	
Bharuch	Jambusar	Sigam	8.9	2830	111.53	1960	48	586	376	312	1.48	15	18	595	6.41	1.48	8.9	2910	98.9	1950	72	549	496	177	3.48	5	21	618	7.52	1.02	
Bharuch	Amod	Ikhar-I	7.5	4250	543.6	2580		207	1048	457	7.14	15	123	717	11.5	0.21	8	3980	370.49	2380	0	220	1160	165	3.27	5	87	734	11.33	0.18	
Bharuch	Amod	Ikhar-II	7.1	3830	881.96	2270		134	1024	346	2.9	195	96	468	5.15	0.01	7.5	4280	1130.82	2430	0	49	1360	176	1.13	265	114	458	5.37	0.63	
Bharuch	Amod	Ikhar-III	7.5	540	123.59	370		134	80	43	1.06	5	27	45	35.28	0.4	7.8	680	148.98	470	0	146	104	66	2.42	30	18	49	60.88	0.47	
Bharuch	Amod	Amod	3	5360	1242.9	3170			1360	730	0.61	300	120	653	3.87	0.05	7.3	5330	1143.02	3060	0	24	1640	318	1.33	260	120	693	3.36	0.27	
Bharuch	Vagra	Dahej	8.7	4260	135.94	3150	36	976	480	567	1.91	5	30	712	343.9	0.76	8.8	4220	172.97	3000	99	903	560	287	1.1	5	39	680	354	1.13	
Vadodara	Padra	Mahuvad-I	7.5	580	247.74	370		183	96		1.23	30	42	15	3.92	0.69	7.3	530	210.57	350	0	183	64	21	3.03	25	36	20	4.93	0.03	
			2015_May															2015_Oct													
Vadodara	Padra	Chansad	9	1930	300	1340	48	451	296	62	8.8	10	66	179	215.2	0.86	8.6	2560	400	1760	36	512	392	208	8.91	10	90	264	238.75	0.28	
Vadodara	Padra	Masar Road	9	2520	525	1550	48	464	520	33	8.98	10	120	328	17.27	0.43	8.5	3350	700	2190	24	500	528	432	8.81	25	153	345	175.35	0.33	
Bharuch	Jambusar	Sarod	9.2	1500	425	960	36	329	152	187	2.33	5	99	147	4.21	1.25	8	2170	625	1480		671	224	195	4.21	40	126	207	7.96	0.88	
Bharuch	Jambusar	Tankari	9.2	2640	400	1720	36	476	408	266	4.83	10	90	417	10.31	0.78	8.7	3120	463	2030	48	537	560	215	7.66	10	105	442	106.16	0.6	
Bharuch	Amod	Valipor	8	28700	213	17340	0	98	8680	1965	4.16	70	9	6487	27.8	0.86	8.1	32000	1375	19510		195	8600	3590	1.6	50	300	6666	104.28	0.35	
Bharuch	Amod	Vantasara	8.5	1340	438	770	24	98	320	96	0.1	20	93	86	35	0	8.2	1220	425	750		98	160	291	0.4	30	84	85	0.69	0.32	
Bharuch	Jambusar	Bhankhetar	8.9	4830	163	3050	48	293	1080	550	0.64	5	36	1031	8.05	0.51	8.7	4540	88	2850	12	207	1120	478	1.64	10	15	999	8.43	0.33	
Bharuch	Jambusar	Tundej	9	1960	100	1270	60	305	368	102	0.64	5	21	402	4.04	1.46	8.7	1890	75	1250	24	329	368	109	0.46	10	12	398	2.93	0.73	
Bharuch	Jambusar	Khanpur Deh	7.9	38700	1000	23110	0	110	12120	2113	3.2	100	180	8381	101.88	1.49	7.9	40000	2875	24010		171	11000	4205	2.38	50	660	7814	108.24	0.79	
Bharuch	Jambusar	Piludara	9	4150	500	2510	60	342	1040	220	0.28	5	117	723	3.31	0.72	8.6	3900	538	2330	24	366	1120	31	0.46	10	123	649	1.75	0.3	
Bharuch	Jambusar	Uber															8.9	1320	100	980	36	549	88	20	0.53	10	18	257	0.33	1.32	
Bharuch	Vagra	Limdi	8.6	13800	750	8250	36	220	4040	937	0.67	10	174	2828	1.97	0.1	8.2	16000	650	9900		232	3960	2148	0.89	10	150	3354	45.61	0.18	
Bharuch	Vagra	Narnavi	9.3	7800	125	5000	84	769	1800	569	0.92	10	24	1729	13.2	1.11	9.4	7600	63	4860	99	732	1680	526	1.67	5	12	1692	46.36	1.38	
Bharuch	Vagra	Sadathala	9.2	3080	113	2100	60	573	440	331	0.77	5	24	649	13.81	1.56	8.8	3000	63	2060	36	573	416	347	5.52	10	9	660	2.19	1.48	
Bharuch	Vagra	Sutrel	8.7	7000	513	4190	48	220	1920	489	8.01	10	117	1373	2.08	0.79	8.3	6500	388	3980	12	244	1720	580	1.67	10	87	1309	12.85	0.28	
Bharuch	Vagra	Vilayat	8.7	4950	238	3070	48	232	1200	488	2.58	10	51	1020	15.63	0	8.4	5400	213	3300	12										

Bharuch	Amod	Ikhar-III	8.5	690	150	460	24	134	120	20	1.44	20	24	54	60.78	0.06	8.2	1270	250	850		183	224	157	1.46	40	36	127	84.17	0.37
Bharuch	Amod	Amod	2.6	5700	863	3270	0	0	1720	410	1.09	55	174	914	0.46	0	2.7	6500	838	3850			1800	683	1.84	130	123	1108	3.69	0.36
Bharuch	Vagra	Dahej	9.4	4090	150	2870	48	915	560	402	1.58	5	33	823	82	1.07	8.9	4520	188	3320	36	1061	600	460	1.34	5	42	728	382.9	1.07
Vadodara	Padra	Mahuvad-I	7.8	430	138	280	0	134	72	0	1.36	10	27	34	2.86	0	8.3	540	163	350	12	159	88		1.14	1	33	47	3.33	0.29
			2016_May														2016_Oct													
Vadodara	Padra	Chansad	8.6	2120	350	1420	24	622	336	0	8.85	25	69	316	17.85	0.65	8.1	2230	375	1570	0	610	400	19	8.85	20	78	200	237.99	0.3
Vadodara	Padra	Masar Road	8.4	2130	525	1320	12	451	448	0	9.15	25	111	246	3.45	1.37	8.2	2250	375	1530	0	549	456	0	8.95	25	75	241	176.22	0.35
Bharuch	Jambusar	Sarod	8.6	1340	363	910	36	500	112	29	2.4	5	84	140	3.25	1.3	8.4	1200	363	800	12	427	152	0	4.31	15	78	105	8	0.85
Bharuch	Jambusar	Tankari	8.7	2650	363	1800	36	671	424	77		10	81	388	93.3	0.81	8.3	3470	688	2280	12	793	640	131	7.71	25	150	419	106.2	0.58
Bharuch	Amod	Valipor	7.5	28000	1438	16550	0	112	8800	1443	5.65	100	285	5763	25.89	0.83	7.8	25000	1500	14920	0	122	7600	1638	1.59	250	210	4998	104.35	0.4
Bharuch	Amod	Vantasara	7.8	1320	250	790	0	85	384	46	0.56	25	45	169	32.88	0.15	8.4	1150	188	720	36	183	240	24	0.45	25	30	178	0.72	0.35
Bharuch	Jambusar	Bhankhetar	8.4	4230	225	2550	12	207	1280	115	0.92	10	48	864	9.12	0.75	8.8	4400	163	2630	24	122	1360	135	1.65	15	30	932	8.45	0.29
Bharuch	Jambusar	Tundej	8.5	1550	50	1000	12	244	392	0	0.85	15	3	330	5.18	1.45	8.7	1550	88	960	24	183	408	0	14.62	5	18	315	2.85	0.75
Bharuch	Jambusar	Khanpur Deh	2.1	34000	5000	19330	0	0	11200	1183	4.13	450	930	5459	104.15	1.32	8	30000	2063	17620	0	354	9600	1151	2.41	50	465	5887	108.35	0.81
Bharuch	Jambusar	Piludara	8.4	2870	463	1720	12	305	800	33	0.85	10	105	445	4.33	0.88	8.4	3100	338	1930	12	403	800	69	0.51	15	72	557	1.85	0.35
Bharuch	Jambusar	Uber	8.7	1120	75	780	24	354	152	0	4.52	15	9	220	5.45	0.75	8.9	1040	250	690	24	305	160	0	0.56	25	45	125	0.35	1.3
Bharuch	Vagra	Limdi	8.4	9800	563	5780	12	232	3200	175	1.88	75	90	1994	2.77	0.31	8.4	12000	1875	6990	12	500	3600	484	0.92	75	405	1871	45.73	0.2
Bharuch	Vagra	Narnavi	8.8	6000	88	3770	36	634	1680	47	1.56	5	18	1331	15.25	1.22	9.3	6100	150	3730	48	366	1800	124	1.72	10	30	1307	46.22	1.32
Bharuch	Vagra	Sadathala	9.1	2460	88	1660	48	525	440	91	0.77	10	15	517	13.86	1.58	9.1	3200	375	1950	48	366	800	69	5.48	10	84	562	2.31	1.45
Bharuch	Vagra	Sutrel	8.4	5640	363	3360	12	256	1720	133	8.45	15	78	1128	4.28	0.89	8.6	5200	600	3110	24	281	1440	286	1.71	10	138	912	12.9	0.31
Bharuch	Vagra	Vilayat	8.4	4000	188	2430	12	232	1200	86	3.26	15	38	823	18.22	0.18	8.6	3700	275	2230	24	220	1040	143	5.29	10	60	716	14.55	0.05
Bharuch	Amod	Matar	8.2	1180	313	730	0	232	256	28	2.87	25	60	127	0.78	0.09	7.5	1350	300	880	0	317	288	0	1.91	60	36	171	2.41	0.63
Bharuch	Vagra	Vagra	8.7	4960	25	3090	24	451	1440	39	0.78	5	3	1129	0.56	0.42	8.8	4680	425	2920	48	525	1200	130	1.52	80	54	879	3.55	0.65
Vadodara	Padra	Sarswani	8.7	1430	75	1020	24	488	192	0	1.85	10	12	293	2.01	1.55	8.2	2080	163	1310	0	293	520	48	4.02	5	36	401	4.85	1.56
Bharuch	Jambusar	Bhadkodra	9.1	10700	375	6610	48	805	3000	331	12.75	25	75	2259	50.22	0.28	9.1	10000	438	6410	48	732	2640	539	12.32	25	90	1782	536.42	0.71
Bharuch	Jambusar	Sigam	8.7	2500	150	1680	36	598	480	11	3.02	15	27	504	3.88	1.22	8.2	2440	263	1560	0	366	560	118	1.85	15	54	436	7.25	1.29
Bharuch	Amod	Ikhar-I	7.7	3610	638	2110	0	122	1120	105	5.85	150	63	532	8.77	0.08	6.9	3990	513	2510	0	464	880	317	12.99	75	78	678	6.45	0.52
Bharuch	Amod	Ikhar-II	7.5	4160	938	2440	0	195	1200	221	0.6	180	117	523	4.55	0.06	7	4320	738	2660	0	305	1120	312	2.52	220	45	650	7.01	0.4
Bharuch	Amod	Ikhar-III	8.1	1390	263	870	0	171	336	71	2.25	10	57	163	60.25	0.02	7.5	780	200	610	0	366	56	0	1.15	40	24	37	85	0.36
Bharuch	Amod	Amod	2.5	5380	1025	3040	0	0	1760	201	1.48	160	150	765	1.25	0.12	2.5	4980	438	2920	0	0	1600	223	1.85	100	45	942	3.54	0.37
Bharuch	Vagra	Dahej	8.2	3670	163	2500	0	781	800	56	2.52	50	9	722	80.75	1.12	7.2	3520	313	2490	0	732	640	242	1.41	45	48	499	282.99	1.09
Vadodara	Padra	Mahuvad-I	7.8	450	138	290	0	122	80	0	1.85	15	24	38	3	0.7	6.9	500	100	340	0	159	88	0	1.19	10	18	67	3.25	0.33
			2017_May														2017_Oct													
Vadodara	Padra	Chansad	8.8	2770	363	2030	12	561	392	308	8.79	60	51	225	416.15	0.68	9.2	2510	338	1550	36	109.8	600	248	0.65	40	57	365	95.9	0.09
Vadodara	Padra	Masar Road	8.9	2690	313	1710	24	281	720	25	9.21	80	27	379	162.25	1.39	9	3040	525	2000	36	646.6	600	77	0.78	45	99	406	88.4	1.22
Bharuch	Jambusar	Sarod	9	1230	375	810	36	366	160	17	2.51	25	75	92	31.91	1.32	9.4	1310	338	800	36	109.8	184	234	0.49	15	72	140	10	0.24
Bharuch	Jambusar	Tankari	9.1	3210	563	2210	24	708	560	171	4.93	20	123	314	280.5	0.86	9.3	3380	400	2130	36	280.6	736	345	1.01	25	81	545	81.3	0.63
Bharuch	Amod	Valipor	8.3	25520	1875	15080	12	183	8000	1265	5.69	375	225	5002	8.28	0.85	7.9	24350	1100	14520	0	1000.4	8000	98	0.22	75	290	5046	81.74	0.82
Bharuch	Amod	Vantasara	8.8	1450	250	900	36	195	320	50	0.61	30	42	209	15.41	0.19	8.4	1290	200	770	12									

Bharuch	Vagra	Limdi	8.2	13250	1500	7760	0	146	4320	463	1.92	175	255	2301	96.51	0.35	8.4	12320	617.67	7220	12	256	4000	284	3.96	15	141	2528	30.84			
Bharuch	Vagra	Narnavi	9.1	7530	313	5350	36	1293	2080	231	1.62	25	60	1535	90.92	1.26	9.9	6510	238	3990	36	158.6	1784	531	0.27	25	42	1352	60.68	0.68		
Bharuch	Vagra	Sadathala	8.7	2920	1250	2000	24	293	2960	480	0.81	200	180	1615	53.26	1.57	9.7	6740	113	4120	36	353.8	2024	162	0.39	30	9	1485	23.07	1.52		
Bharuch	Vagra	Sutrel	8.9	5950	300	3790	12	451	1840	144	8.55	25	57	1199	53.04	0.91	9.4	5200	400	3120	36	231.8	1520	199	0.85	25	81	999	22.29	0.72		
Bharuch	Vagra	Vilayat	8.9	5070	300	3150	36	244	1560	161	3.61	50	42	995	56.55	0.2	9.3	4430	250	2720	36	256.2	1216	221	0.34	25	45	888	27.21	1.21		
Bharuch	Amod	Matar	8.3	1540	250	950	36	159	320	115	2.9	30	42	228	18.58	0.08	7.5	1350	200	850	0	183	344	38	0.19	35	27	215	6.34	0.46		
Bharuch	Vagra	Vagra	9.2	6870	250	4320	12	732	1920	106	0.81	20	48	1448	28.72	0.45	8.8	5860	288	3510	24	146.4	1784	248	0.45	30	51	1209	11.8	0.68		
Vadodara	Padra	Sarswani															8.2	1580	113	990	0	146.4	416	80	0.02	15	18	310	3.18	0.78		
Bharuch	Jambusar	Bhadkodra	8.9	11530	1250	7210	12	1061	3040	531	12.85	100	240	1877	338.4	0.31	9.5	10155	288	6500	36	280.6	1160	353	0.77	45	42	853	119.11	1.21		
Bharuch	Jambusar	Sigam	9.3	2610	163	1650	24	342	680	14	3.09	25	24	506	33.45	1.25	9.4	2350	163	1450	36	146.4	600	142	0.32	25	24	457	14.51	0.76		
Bharuch	Amod	Ikhar-I	6.9	5560	625	3280		171	1720	192	5.89	70	108	958	55.64	0.07	6.8	5480	1725	3340	0	109.8	688	1611	0.45	90	360	448	31.42	0.94		
Bharuch	Amod	Ikhar-II	7.1	5590	263	3380		183	1760	161	0.65	65	24	1139	43.3	0.08	7.1	4780	1150	2900	0	158.6	840	1031	0.15	35	255	561	15.92	1.43		
Bharuch	Amod	Ikhar-III	7.8	2710	200	1750		317	720	71	2.29	45	21	476	93.81	0.06	9.1	2340	388	1440	36	134.2	504	276	0.44	20	81	325	58.7	0.69		
Bharuch	Amod	Amod	7.4	6720	213	4040		73	2080	354	1.51	60	15	1432	26.83	0.15	4	5920	288	3540	0	0	1744	485	0.09	30	51	1224	9.39	0.59		
Bharuch	Vagra	Dahej	8.8	4550	513	3330	24	1196	680	275	2.59	30	105	521	492.1	1.15	9.7	3710	200	2470	36	146.4	760	577	0.18	35	27	587	295.12	1.6		
Vadodara	Padra	Mahuvad-I	7.7	650	150	440	0	183	120	0	1.89	40	12	72	14.03	0.85	8.7	570	175	360	36	134.2	64	19	1.25	20	30	47	6.64	0.4		
			2018_May															2018_Oct														
Vadodara	Padra	Chansad	8.9	2280	313	1470	36	158.6	360	344	23.42	60	39	276	177.08	0.56	8.8	1470	250	1000	36	806	216	110	7.15	50	30	155	115.31	0.41		
Vadodara	Padra	Masar Road	8.7	2840	338	1780	12	134.2	640	345	8.12	50	51	435	106.44	0.49	8.4	3510	500	2260	12	610	784	96	8.99	90	66	558	32.69	0.27		
Bharuch	Jambusar	Sarod	9.1	1250	488	760	36	146.4	96	287	2.78	20	105	61	3.77	0.27	9.1	1160	500	790	36	439.2	64	55	2.48	80	72	34	4.5	1.35		
Bharuch	Jambusar	Tankari	8.9	3200	350	2000	36	134.2	680	429	6.51	40	60	521	92.36	1.25	9	2850	525	1840	36	4392	600	121	9.05	125	51	351	106.77	1.27		
Bharuch	Amod	Valipor	8.1	26450	1675	15860	0	195.2	7640	2191	10.24	155	309	5253	101.53	1.06	8.2	21840	1625	13950	0	2806	5600	710	1.12	300	210	4213	105.61	0.55		
Bharuch	Amod	Vantasara	8.4	1530	713	980	12	146.4	240	598	0.91	100	111	180	1.58	0.48	8.5	820	63	520	12	85.4	240	0	2.77	15	6	159	1.62	0.1		
Bharuch	Jambusar	Bhankhetar	8.8	5090	275	3050	24	134.2	1440	317	10.7	25	51	1037	12.41	0.47	8.8	3830	438	2460	24	549	880	174	1.75	100	45	673	11.19	0.1		
Bharuch	Jambusar	Tundej	9.1	1950	188	1140	36	97.6	520	54	12.77	15	36	359	5.29	0.71	8.9	1750	413	1120	36	341.6	320	77	1.12	75	54	210	4.29	0.4		
Bharuch	Jambusar	Khanpur Deh	2.6	39230	5388	23860	0	0	8816	6913	4.17	625	918	6489	94.71	0.72	8.8	27310	3138	17480	24	3416	6400	1729	3.67	675	348	4776	105.71	0.41		
Bharuch	Jambusar	Piludara	8.8	5040	650	3010	24	280.6	1320	349	7.94	20	144	858	3.79	0.55	8.8	3900	750	2520	24	732	800	175	0.63	140	96	550	3.11	0.04		
Bharuch	Jambusar	Uber	8.8	1770	188	1070	24	109.8	432	122	5.52	20	33	320	2.18	0.43	9	1410	375	910	36	280.6	224	93	0.48	70	48	150	3	0.69		
Bharuch	Vagra	Limdi	8.3	14440	2338	8810	12	915	3400	1582	5.33	200	441	2234	20.67	0.83	8.6	9140	1000	5890	24	1415.2	2160	315	0.91	200	120	1631	19.68	0.39		
Bharuch	Vagra	Narnavi	9.1	9950	288	6110	36	427	2760	609	13.12	25	54	2121	59.16	1.1	9.4	5690	875	3710	36	1098	1200	181	1.64	140	126	875	52.17	1.05		
Bharuch	Vagra	Sadathala	8.3	7500	2725	4800	12	585.6	3384	2718	5.14	225	519	2467	16.5	0.66	8.9	7830	875	5030	24	1220	1840	271	1.08	140	126	1391	12.27	0.33		
Bharuch	Vagra	Sutrel	8.9	5470	338	3320	36	256.2	1480	345	5.99	25	66	1097	9.81	1.22	8.9	4060	563	2600	24	671	896	147	7.26	100	75	670	7.95	0.29		
Bharuch	Vagra	Vilayat	7.7	4600	225	2760	0	219.6	1400	113	9.09	20	42	948	11.49	0.42	8.1	3560	375	2260	0	439.2	896	145	2.01	100	30	639	12.09	0.57		
Bharuch	Amod	Matar	7.9	1640	225	1010	0	97.6	384	185	1.4	35	33	272	2.38	1.05	8.6	1110	175	700	24	158.6	280	0	1.23	40	18	173	3.06	0.6		
Bharuch	Vagra	Vagra	9	6330	288	3800	36	158.6	1800	364	17.5	75	24	1321	4.98	0.97	9.3	5140	75	3290	48	634	1280	160	0.79	5	15	1148	0.26	0.33		
Vadodara	Padra	Sarswani	9.1	1740	175	1050	24	122	424	99	7.86	35	21	319	1.2	1.07	8.8	1500	325	950	24	244	264	127	0.79	50	48	195	0.87	1.2		
Bharuch	Jambusar	Bhadkodra	8.9	5180	625	3350	24	1037	1192	0																						

			2019_May														2019_Oct													
Vadodara	Padra	Chansad	9	1930	300	1240	48	451	296	62	8.8	10	66	179	215.2	0.86	9	1380	350	880	36	244	208	106	7.14	85	33	155	1.9	0.41
Vadodara	Padra	Masar Road	8.5	3130	488	1950	12	390.4	744	139	9.25	100	57	493	3.78	0.51	8.7	4470	1063	2860	24	610	736	591	12.13	220	123	527	21	0.32
Bharuch	Jambusar	Sarod	8.9	1300	346.31	890	36	403	160	34		15	75	136	3.5		9.3	2240	525	1430	36	293	360	298	0.75	110	60	270	5.76	0.23
Bharuch	Jambusar	Tankari	9	3070	475	1960	36	366	640	234	7.99	80	66	423	109.19	0.85	9.2	5370	1250	3430	36	488	880	921	7.63	210	174	580	136.25	0.26
Bharuch	Amod	Valipor	7.9	2860	750	18870	0	488	448	378	0.6	150	90	312	1.12	1.41	9.4	24130	6250	15430	36	2440	3600	4742	0.38	1000	900	2622	89.72	0.55
Bharuch	Amod	Vantasara	8	990	188	650	0	244	208	0	0.63	35	24	141	1.14	0.49	8.8	1470	375	930	24	183	240	197	0.47	65	51	165	1.17	0.1
Bharuch	Jambusar	Bhankhetar	8.9	4120	750	2560	24	439.2	960	292	0.79	130	102	596	10.42	1.11	9.2	3500	750	2240	36	427	640	421	0.41	175	75	456	6.19	0.1
Bharuch	Jambusar	Tundej	9.1	1820	563	1200	36	366	240	202	0.26	150	45	156	6.2	0.56	8.8	1860	400	1190	24	220	320	247	0.49	85	45	242	3.62	0.4
Bharuch	Jambusar	Khanpur Deh	8.2	33580	5000	21380	12	5124	8000	1257	1.99	900	660	5423	1.25	1.14	9.2	33570	7500	21480	36	3050	5600	6081	4.15	150	900	4215	94.94	0.41
Bharuch	Jambusar	Piludara	8.9	3550	475	2260	24	488	800	198	0.72	100	54	595	4.79	0.47	9.4	3560	313	2270	36	220	288	135	1.19	70	33	218	3.34	0.04
Bharuch	Jambusar	Uber	8.3	1750	513	1160	24	427	240	138	0.21	100	63	166	2.04	1.13	9.3	1580	988	1000	36	488	560	509	0.18	175	132	363	1.8	0.69
Bharuch	Vagra	Limdi	7.7	11770	750	7380	0	1220	3200	369	0.14	115	11	2353	15.16	0.12	9.1	11460	2750	7300	36	1342	2000	1684	0.58	500	360	1359	20.25	0.32
Bharuch	Vagra	Narnavi	9.1	6470	750	4100	36	854	1600	209	1.15	150	90	1119	40.27	1.17	10.5	6090	1250	3900	60	732	1120	735	1.1	272	135	801	41.28	0.33
Bharuch	Vagra	Sadathala	8.9	9240	1125	5870	36	1220	2240	389	0.68	250	120	1598	15.65	0.96	9.6	10340	2500	6680	48	1220	1680	1655	0.81	600	240	1221	12.09	0.26
Bharuch	Vagra	Sutrel	8.6	4870	875	3110	24	610	984	472	4.83	200	90	712	10.29	0.94	9.3	4830	1188	3070	36	488	800	786	2.92	250	135	559	9.82	0.24
Bharuch	Vagra	Vilayat	8.5	4130	625	2550	12	390.4	1120	139	1.36	160	54	655	13.18	0.1	9.2	4270	875	2720	36	549	800	474	1.71	175	105	573	10.74	0.23
Bharuch	Amod	Matar	8.4	1110	375	750	12	366	128	47	1.05	65	51	82	2.01	0.92	8.7	1380	313	880	24	220	240	118	2.21	60	39	172	2.97	0.6
Bharuch	Vagra	Vagra	8.9	5530	1250	3580	24	976	960	543	2.09	200	180	694	5.04	0.56	9.4	4680	250	3000	36	159	168	59	4.73	65	21	112	9.44	0.05
Vadodara	Padra	Sarswani	8.1	1900	438	1220	0	268.4	360	207	1.5	90	51	234	2.25	1.12	8.3	1510	450	990	24	342	208	131	0.6	75	63	139	1.83	1.3
Bharuch	Jambusar	Bhadkodra	9.56	5300	563	3340	0	366	1280	523	1.1	125	60	925	60	0.56	9.4	6460	1250	4320	36	488	880	1454	4.69	175	195	657	430.75	0.39
Bharuch	Jambusar	Sigam	9	2230	438	1440	36	427	416	107	1.31	80	57	309	5.3	1.41	9.7	2100	525	1320	48	220	320	321	0.84	90	72	238	5.51	1.08
Bharuch	Amod	Ikhar-I	9	5000	250	3200	36	244	152	0	2.16	60	24	88	52.84	0.59	8.2	6570	1625	4210	0	732	1080	1099	5.69	325	195	749	25.08	0.51
Bharuch	Amod	Ikhar-II	3.2	5200	725	3260	0	610	1200	392	0.65	120	102	858	7.23	0.54	8.2	5770	1188	3690	0	549	1040	927	1.37	250	135	771	16.5	0.71
Bharuch	Amod	Ikhar-III	7.8	2710	200	1550		317	720	71	2.29	45	21	476	93.81	0.06														
Bharuch	Amod	Amod	2.5	5980	1025	3630	0	0	1440	923	0.72	275	81	902	3.98	0.47	3.7	5840	1250	3570	0	0	1120	1289	0.57	225	165	766	4.18	0.08
Bharuch	Vagra	Dahej	9	4150	375	2730	36	280.6	1040	306	0.74	100	30	557	381	0.48	9	4490	288	2790	36	146	144	201	0.85	45	42	99	72.55	0.01
Vadodara	Padra	Mahuvad-I	8.6	830	188	550	24	207.4	144	0	0.41	45	18	102	5	1.27	8.8	1140	313	730	24	281	160	37	8.98	60	39	117	2.08	1.52
			2020_May														2020_Oct													
Vadodara	Padra	Chansad	8.2	2810	525	1790	0	353.8	544	304	9.04	115	57	401	6.3	0.34	8.4	2020	525	1290	24	366	360	132	6.38	115	57	271	2.98	0.83
Vadodara	Padra	Masar Road	8.2	4780	1125	3050	0	549	800	749	9.64	210	144	577	7.5	0.3	8.4	3520	525	2250	24	219.6	296	363	9	90	72	195	78.72	1.19
Bharuch	Jambusar	Sarod	8.7	2330	575	1480	24	305	400	293	1.74	110	72	269	4.1	0.25	8.5	1590	375	1010	12	244	320	115	1.11	75	45	193	0.45	0.32
Bharuch	Jambusar	Tankari	8.5	4860	1075	3190	12	634.4	800	723	3.16	235	117	556	113.87	0.35	8.2	5420	1250	3460		610	880	903	8.55	200	180	658	23.25	0.44
Bharuch	Amod	Valipor	8	26810	6000	17240	0	3050	4480	4419	0.4	1000	840	3341	110.85	0.32	8.9	22370	5500	14320	36	2318	3440	4209	0.51	850	810	2552	106.3	0.44
Bharuch	Amod	Vantasara															7.9	890	225	570		146.4	160	89	1.64	45	27	100	2	0.54
Bharuch	Jambusar	Bhankhetar	8.7	2540	625	1630	24	366	440	297	1.21	125	75	295	3.71	0.76	8.4	1900	400	1190	99	341.6	320		2.3	110	30	237	27.87	1.5
Bharuch	Jambusar	Tundej	8.9	2130	500	1350	36	305	400	184	0.17	100	60	258	3.18	0.08	8.4	1810	450	1160	12	244	304	243	0.75	95	51	207	3.67	0.71
Bharuch	Jambusar	Khanpur Deh	8.7	36510	8125	23770	24	4880	6080	5434	0.52	175	900	4596	108.8	1.14	8.1	30350	7000	19430		2684	4800	5964	2.69	1000	930	3701	100.29	1.2
Bharuch	Jambusar	Piludara	8.3	4090	1000	2620	12	512.4	680	622	0.16	180	132	478	4.05	0.05	8.4	3670	875	2350	12	488	640	488	1.78	175	105	439	4.66	0.23
Bharuch	Jambusar	Uber	8.1	1860	375	1190	0	244	360	214	0.08	75	45	254	1.95	0.35	7.9	1600	400	1030		207.4	256	255	0.61	75	51	183	2.53	0.73
Bharuch	Vagra	Limdi	8.5	13490	3250	8600	12	1342	2240	2375	0.25	600	420	1597	18.29	0.23	8.3	11240	2875	7190	12	1342	1776	1919	0.66	450	420	1249	23.85	0.63
Bharuch	Vagra	Narnavi	9.6	6870	1625	4390	48	878.4	1200	905	0.7	300	210	806	45.57	0.99	9.2	5770	1500	3690	36	549	800	1192	1.16	250	210	612	43.24	1.59
Bharuch	Vagra	Sadathala	8.9	11980	2875	7700	36	1586	2048	1678	0.16	550	360	1426	12.41	0.44	8.9	1450	2500	6680	36	1220	1760	1621	0.35	450	330	1245	14.54	0.25
Bharuch	Vagra	Sutrel	8.6	4300	275	2800	24	183	152	95	0.46	50	36	102	6.91	0.23	8.7	4660	1125	3000	24	732	800	537	0.63	200	150	550	6.93	1.38

Bharuch	Vagra	Vilayat	8.6	4600	1125	2950	24	561.2	736	732	0.39	210	144	535	9.22	0.46	8.7	4660	1125	3000	24	732	800	537	0.63	200	150	550	6.93	1.38				
Bharuch	Amod	Matar	8.3	1340	300	850	12	195.2	256	118	1.48	60	36	169	2.53	0.62	8.1	1160	313	750		170.8	184	169	0.8	60	39	122	2.49	0.74				
Bharuch	Vagra	Vagra	9.1	4970	1188	3210	36	732	840	615	0.73	245	138	591	9.8	0.22	8.7	4390	275	2810	24	219.6	208	95	6.23	60	30	157	14.44	0.6				
Vadodara	Padra	Sarswani	8.5	2200	538	1420	12	475.8	416	89	2.61	85	78	258	1.65	1.16	8.1	1670	163	1070		146.4	160	73	0.45	35	18	98	37.95	1				
Bharuch	Jambusar	Bhadkodra	8.6	2360	475	1500	24	317.2	480	188	2.16	115	45	321	5.17	0.67	8.9	5450	438	3550	36	122	256	404	2.24	50	75	132	175.35	0.5				
Bharuch	Jambusar	Sigam	8.7	2190	525	1410	24	317.2	368	259	1.66	115	57	259	4.72	0.77	8.4	2100	7250	1350	12	7198	10000	2569	1.34	1000	1000	7086	8.92	0.82				
Bharuch	Amod	Ikhar-I	8.3	6280	1375	4030	12	927.2	1200	615	8.5	300	150	801	18.95	0.39	8	5370	1375	3430		488	800	1099	4.34	250	180	590	21.11	0.29				
Bharuch	Amod	Ikhar-II	7.6	6530	1400	4170	0	854	1280	729	1.39	275	171	854	7.21	0.36	8.9	5550	1250	3550	36	610	960	818	3.44	275	135	690	19.36	0.21				
Bharuch	Amod	Ikhar-III	8.7	1120	250	730	24	195.2	184	84	3.45	55	27	130	22.02	0.71	7.5	350	50	220		18.8	88		2.42	15	3	49	15.14	0.32				
Bharuch	Amod	Amod	7.2	6440	1500	4130	0	756.4	1080	1029	2.22	280	192	789	4.17	0.38	9.1	6950	200	4440	36	183	160	15	6.45	45	21	124	3.98	0.64				
Bharuch	Vagra	Dahej	8.9	950	213	600	36	195.2	176	0	0.46	45	24	117	6.15	0.31	7.8	3490	1250	2230		524.6	960	1035	0.45	175	195	684	95.68	0.23				
Vadodara	Padra	Mahuvad-I	8	1110	275	730	0	292.8	224	0	0.29	50	36	128	2.03	0.41	8.5	1140	188	710	24	170.8	272		0.23	55	12	17	5.56	0.79				
			2021_May															2021_Oct																
Vadodara	Padra	Chansad	8.7	2970	700	1910	24	524.6	552	225	0.56	110	102	344	28.7	0.76	7.9	2730	650	1750	0	366	464	385	2.49	115	87	327	3.19	1.23				
Vadodara	Padra	Masar Road	7.8	3250	610	2130	0	524.6	720	505	1.67	140	126	498	13.21	0.14	8.5	3530	750	2260	12	488	640	413	3.28	125	105	462	8.94	0.97				
Bharuch	Jambusar	Sarod	8.6	1590	388	1010	24	256.2	280	142	0.76	65	54	186	3.12	0.27	8.6	910	225	590	24	231.8	160	0	0.99	35	33	105	0.61	0.55				
Bharuch	Jambusar	Tankari	7.8	3060		2030	24	708	480	171	4.93	20	123	545	280.5	0.86	8.3	4520	663	2900	12	768.6	1040	133	2.24	115	90	732	4.29	0.26				
Bharuch	Amod	Valipor	7.6	28000	3750	17920	0	4636	6800	608	0.93	600	540	4686	50	0.36	8.3	22600	3050	14470	12	3806.4	5640	216	0.66	610	366	3766	48.5	0.39				
Bharuch	Amod	Vantasara	8	1270	225	820	0	244	288	23	1.65	40	30	188	1.41	0.05	8.3	740	175	470	12	146.4	160	0	1.29	35	21	86	6.6	0.61				
Bharuch	Jambusar	Bhankhetar	8.5	1880	450	1220	12	390.4	344	110	0.3	75	63	223	4.13	0.04	8.5	1920	263	1220	12	280.6	440	77	2.3	45	36	318	4.5	1.21				
Bharuch	Jambusar	Tundej	8	2060	1125	1320	0	976	1440	464	0.06	175	165	1000	9.35	0.71	8.8	1870	300	1180	24	244	400	122	0.75	50	42	291	2.16	0.99				
Bharuch	Jambusar	Khanpur Deh	3.2	43490	6250	27900	0	7686	10400	781	0.81	950	930	7092	60	1.2	9.2	30280	6250	19400	36	6100	6800	484	2.69	950	930	4074	25.6	1.11				
Bharuch	Jambusar	Piludara	8.3	4540	1000	2920	0	732	880	412	0.35	160	144	580	7.02	0.82	8.6	3220	575	2060	24	610	720	47	1.78	100	78	475	2.63	1.24				
Bharuch	Jambusar	Uber	8.2	2060	413	1320	0	366	448	91	0.34	80	51	283	2.38	1.5	8.12	1560	150	1000	0	244	400	13	0.61	30	18	287	4.25	0.99				
Bharuch	Vagra	Limdi	7.6	16210	3250	10390	0	3050	3600	519	0.14	500	480	2218	26.7	0.48	8.3	11820	1875	7550	12	1952	2800	332	0.97	350	240	1854	3.49	0.46				
Bharuch	Vagra	Narnavi															9.2	6020	1125	3870	48	1098	1280	213	2	200	150	855	20.31	1.09				
Bharuch	Vagra	Sadathala	7.7	15030	2875	9620	0	3050	4400	471	0.34	500	390	2888	20.95	0.09	9.2	11730	1250	7510	48	1769	2880	268	0.56	300	120	2116	11	0.45				
Bharuch	Vagra	Sutrel	8.7	4990	1125	3190	24	793	1040	325	0.53	250	120	625	8.48	0.67	9.4	4580	788	2930	48	732	960	243	1	150	99	690	2.36	1.26				
Bharuch	Vagra	Vilayat	8.5	4880	1000	3110	12	646.6	1000	461	0.25	200	120	656	11.15	0.86	7.2	4200	750	2670	0	610	920	288	1.29	130	102	618	4.29	1.21				
Bharuch	Amod	Matar	8.1	1470	325	940	0	244	288	122	0.25	50	48	187	2.17	0.67	8.5	1080	150	690	12	195.2	256	0	1.21	30	18	177	3.93	0.99				
Bharuch	Vagra	Vagra	8.7	5940	1375	3810	12	976	1120	541	2.28	225	195	730	7.09	1.07	8.8	4060	225	2600	24	219.6	168	0	2.13	45	27	106	7.16	0.26				
Vadodara	Padra	Sarswani	8.7	2130	375	1360	24	390.4	480	24	0.21	65	51	315	4.49	1.58	8.8	1530	300	950	24	183	312	126	0.64	50	42	211	4.24	1.11				
Bharuch	Jambusar	Bhadkodra	8.8	7600	325	4860	24	634.4	2080	286	4.26	65	39	1418	306	0.54	9.1	6170	1250	3930	36	732	1120	804	3.2	210	174	834	16.3	0.54				
Bharuch	Jambusar	Sigam	8.6	2550	375	1630	24	427	576	63	1.88	70	48	412	4.23	0.97	8.3	1980	400	1270	12	280.6	368	206	1.4	65	57	267	7.5	0.22				
Bharuch	Amod	Ikhar-I	8.3	5580	163	3570	15.6	183	176	0	6.41	35	19	115	24.69	0.34	7.2	6340	1125	4050	0	854	1440	423	1	300	90	935	8.97	0.33				
Bharuch	Amod	Ikhar-II	7.5	6750	1175	4330	0	1098	1440	422	2.13	180	174	1008	6.31	1.13	2.4	5980	1250	3830	0	976	1200	471	2.91	200	180	797	4.96	0.2				
Bharuch	Amod	Ikhar-III	7.1	2340	875	1500	0	1586	2240	525	0.69	300	270	1428	16.85	0.26	7.7	800	138	520	0	170.8	176	0	3.2	30	15	118	4.56	0.42				
Bharuch	Amod	Amod	4.2	7140	1125	4570	0	1098	1600	400	0.57	175	165	1122	5.06	0.37	6.7	5800	1250	3720	0	878.4	1080	616	5.21	200	180	758	2.24	0.94				
Bharuch	Vagra	Dahej	8.7	2070	488	1360	24	305	424	136	1.45	75	72	301	20	0.9	9.1	3750	1750	2400	36	1220	1536	702	3.45	350	210	1014	8.69	0.43				
Vadodara	Padra	Mahuvad-I	8.4	1010	225	650	12	195.2	200	38	0.25	55	21	128	1.7	1.14	8.7	900	200	580	24	219.6	160	0	1.69	35	27	114	16	0.99				
			2022_May																															
Vadodara	Padra	Chansad	8.3	2500	575	1600	12	414.8	464	206	5.61	115	69	301	15.5	1.08																		
Vadodara	Padra	Masar Road	8.2	3650	813	2340	24	512.4	640	420	6.66	160	99	454	20.3	1.42																		
Bharuch	Jambusar	Sarod	9	2180	450	1400	36	390.4	416	112	1.3	90	54	294	1.48	1.28																		

[illegible]