



केंद्रीय भूमिजल बोर्ड  
जल संसाधन, नदी विकास और गंगा संरक्षण विभाग  
जलशक्ति मंत्रालय  
भारत सरकार

**CENTRAL GROUND WATER BOARD**  
Department of Water Resources, RD & GR  
Ministry of Jal Shakti  
Government of India

**INCEPTION REPORT: NAQUIM 2.0**  
**DETAILED STUDY ON URBAN AGGLOMERATES IN**  
**AHMEDABAD CITY AND DASKROI AHMEDABAD**  
**DISTRICTS OF GUJARAT STATE**  
**AAP: 2023-24**

**WEST CENTRAL REGION, AHMEDABAD**  
**April 2023**

# DETAILED STUDY ON URBAN AGGLOMERATES IN AHMEDABAD CITY AND DASKROI AHMEDABAD DISTRICTS OF GUJARAT STATE

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# **DETAILED STUDY ON URBAN AGGLOMERATES IN AHMEDABAD CITY AND DASKROI AHMEDABAD DISTRICTS OF GUJARAT STATE**

The National Aquifer Mapping and Management programme (NAQUIM) launched by CGWB in the year 2012 with the objectives of delineating and characterizing aquifers and preparing aquifer management plans on 1:50,000 scale. In this programme, mapping the Aquifers in 1: 50,000 scale was considered sufficient for planning requirements up to mandal level. The findings of NAQUIM studies are being utilized by many agencies, especially the State government agencies involved in ground water management and water supply but large scale implementation at ground level by the user agencies has been lacking. As per the feedback received from the agencies using the NAQUIM outputs, major limitations include non-availability of printed maps at usable scales and lack of site specific recommendations for implementation at village level. Keeping the above limitations in mind and considering the future requirements, now NAQUIM 2.0 has been taken up with broad objectives.

## **In Gujarat State, findings of NAQUIM report are being used in:**

1. Source Water Sustainability (NRDWP)
2. Atal Bhujal Yojna -Participatory Ground Water Management
3. The NAQUIM output are very useful for pinpointing the sites for water supply and Artificial Recharge investigation undertaken by CGWB for various Defence establishments located in Gujarat.

### **1 NAQUIM 2.0:**

Though the NAQUIM output has been useful for sustainable ground water management in numerous ways as enumerated above, large scale implementation of its recommendations at ground level by the user agencies is lacking. As per the feedback received from the agencies using the NAQUIM outputs, major limitations of the on-going studies include i) non availability of printed maps at usable scales and ii) lack of site-specific recommendations for implementation at Panchayat or village level.

Keeping the above limitations in mind and considering the future requirements, broad objectives of NAQUIM 2.0 studies will be i) providing information in higher granularity with a focus on increasing density of dynamic data like ground water level, ground water quality etc. ii) providing issue based scientific inputs for ground water management upto Panchayat level, iii) providing printed maps to the users iv) putting in place a strategy to ensure implementation of the recommended strategies and v) Involving State agencies in the studies for a sense of ownership.

The NAQUIM 2.0 studies are envisaged to be multidisciplinary. The study is designed to provide detailed information to support groundwater management decisions at ground level. Since the issues are different in different areas, the studies under NAQUIM 2.0 are

proposed as issue specific and will be undertaken in prioritized focus areas. Broadly 11 Priority areas are identified based on ground water related issues one of the main identified issues is Water Stressed Areas.

## 2 ABOUT THE STUDY AREA:

The Ahmedabad city and Daskroi of Ahmedabad district has been taken up NAQUIM 2.0 in AAP 2023-24 covering an area of 960 Sq. km for the study under urban agglomerates. The proposed area is to be mapped on 1:10,000 scales. The latitudinal extension of the study area is from 22°48'N to 23°10'N and the longitudinal extension of the study area is 72°26'0 E to 72°50'0 E.

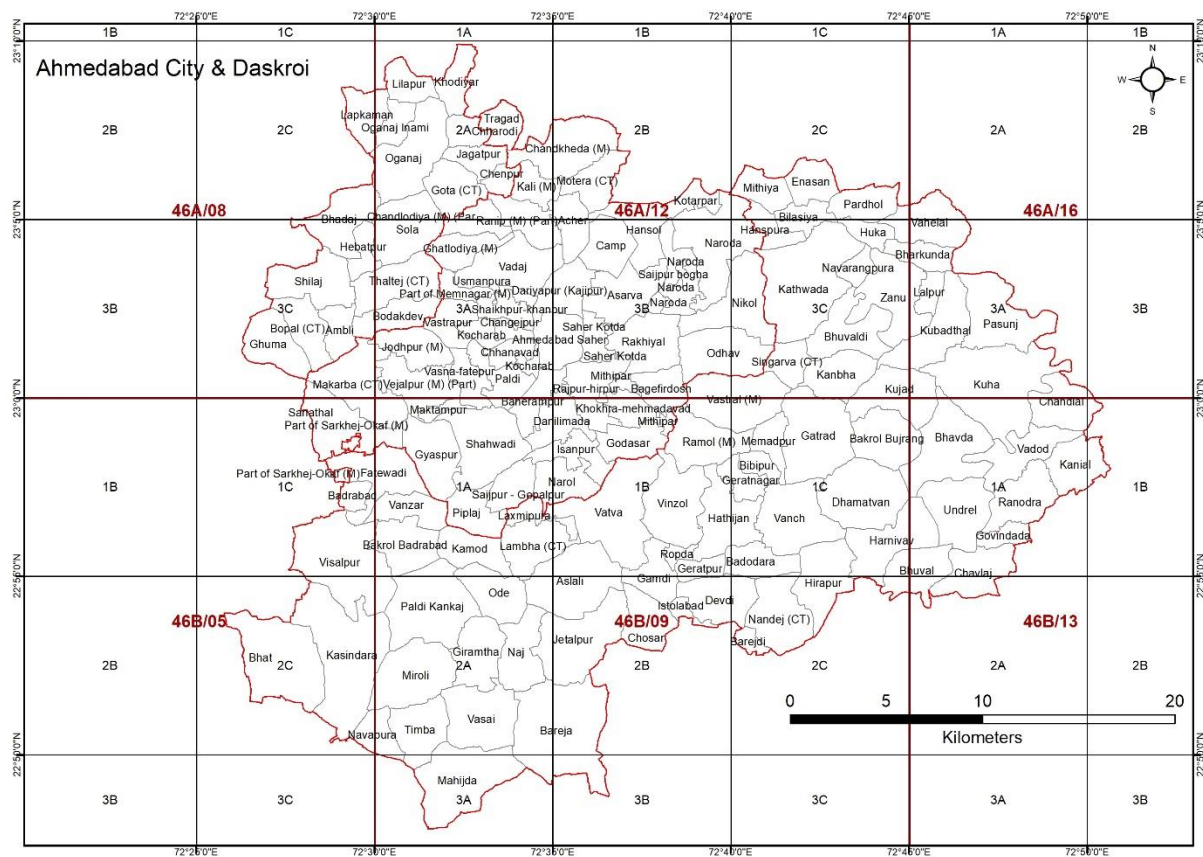


Image 1: Location Map

Table 1 : General Information

A. General Information	
State	Gujarat
District	Ahmedabad
Block	Ahmedabad city & Daskroi
Geographical area (sq km)	960
Mappable Area (sq km)	960
No. of Gram Panchayats	65

	No. of Towns	2			
	No. of Villages Panchayat	65			
	Total population	5,907,345			
	Male	3,109,649			
	Female	2,797,696			
	Rural Population	5,720,563			
	Urban Population	186,782			
	Climate	Tropical			
	Average Rainfall	505			
	River Basin	Sabarmati Basin			
	Drainage	Sabarmati river			
	Soil type	Sandy soil			
<b>B</b>	<b>Land Use</b>				
	Forest area (Ha)	88			
	Cultivable area (Ha)	<b>7</b>			
	Net sown area (Ha)	531			
<b>C</b>	<b>Cropping Pattern</b>				
	Major crops	Kharif	Rabi	Summer	Perennial
		Rice	Wheat	Vegetables	Citrus
			Soya	Chilli	Cotton
			Channa		Sugarcane
			Tuar		
<b>D</b>	<b>Irrigation Facilities</b>				
	Net irrigated Area (Ha)	422			
	Gross Irrigated Area (Ha)	788			
	Gross Area under Irrigation (Source Wise)	BW/TW		Ponds	Canals
		380		11	1398
<b>E</b>	<b>Geology &amp; Hydrogeology</b>				
	Predominant Aquifer Type	Alluvium			
	Major Geological Formation	Alluvium			

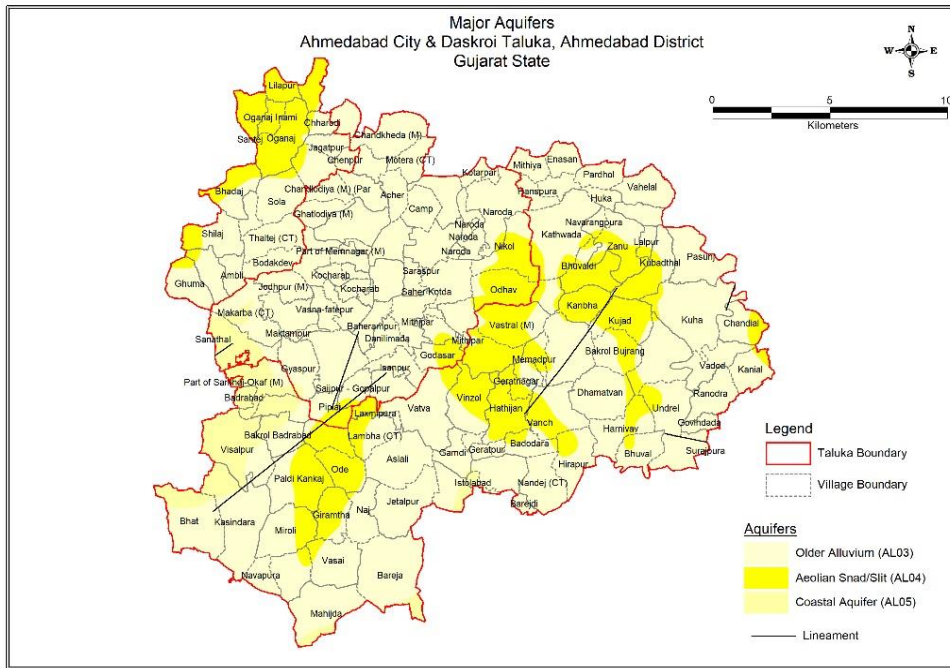


Image 2: Geology Map

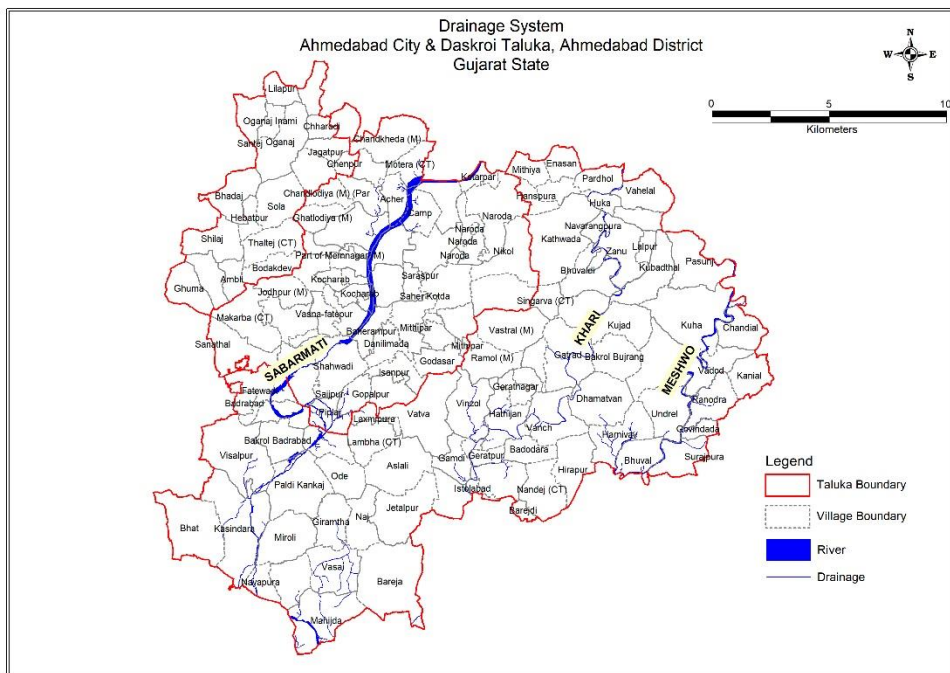


Image 3: Drainage Map

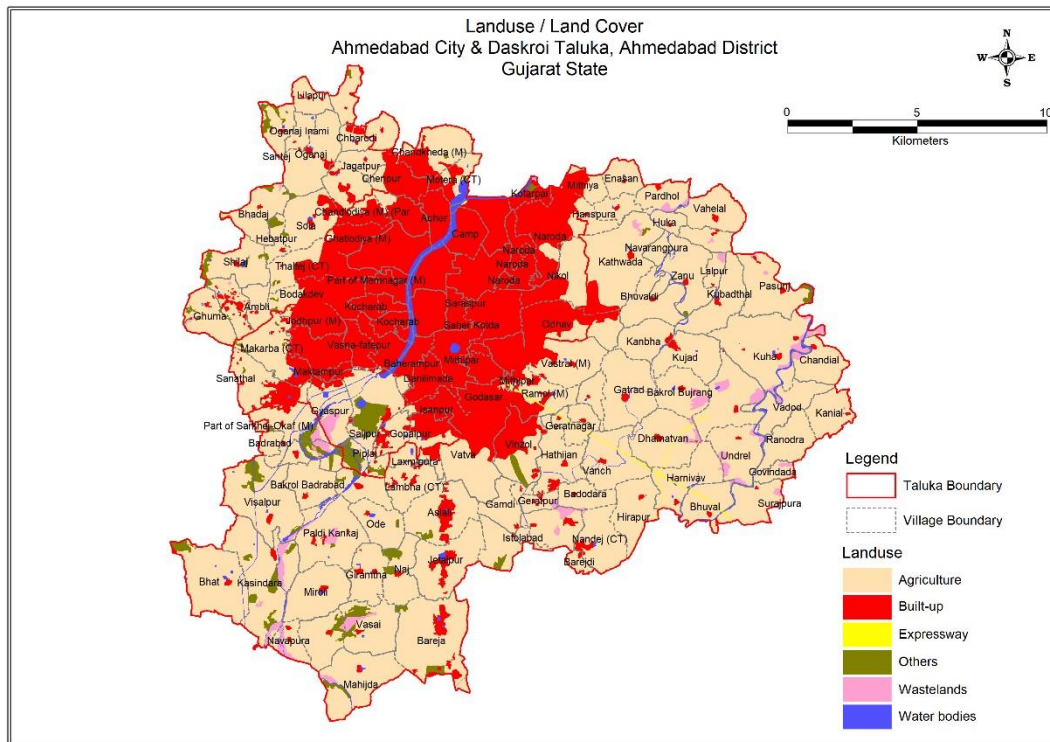


Image 4: Landuse/ Land Cover Map

**Current demand and source of water supply in Ahmedabad city & Daskroi taluka**

Table 2: Different Sources of Water Treatment facilities of the Ahmedabad city

Sr No.	Particulars	Current Capacity	Utilization
A	Kotarpur WTP		
1	Narmada main canal - HR(Gravity-I)	330 MLD	330 MLD
2	Narmada main canal- HR(Gravity-II)	500 MLD	500 MLD
B	Jaspur WTP		
1	Dholka branch canal	400 MLD	395 MLD
C	Raska WTP		

1	Shedhi branch canal	200 MLD	200 MLD
D	Frenchwells- 7 Nos	170 MLD	0 MLD
E	Borewell (598 No.)	500 MLD	110 MLD
	<b>Total</b>	<b>2100 MLD</b>	<b>1535 MLD</b>

**Table 3: Major crops and Source of irrigation of Daskroi taluka**

	<b>Major crops</b>	<b>Rice- 26305 Ha, Wheat- 27850 ha</b>		
	<b>Gross cropped area (Ha)</b>	<b>64700</b>		
	<b>Gross Irrigated Area (Ha)</b>	<b>54300 (84 %)</b>		
	<b>Gross Area under Irrigation (Source Wise in Ha)</b>	<b>TW</b>	<b>Ponds</b>	<b>Canals</b>
		<b>38000 (70 %)</b>	<b>1100</b>	<b>15200</b>

### 3 PRIORITY TYPES

City & Daskroi of Ahmedabad district has been taken up under NAQUIM 2.0 under “**Urban Study**” **Category**. As per GWRA-2022 the stage of groundwater development is Over Exploited category.

### 4 PREVIOUS STUDIES

Following previous work have been carried out in the district.

**Systematic hydrogeological studies:** Systematic hydrogeological studies carried out by Central Ground Water Board are as given in table 5 below.

**Table 4: Systematic hydrogeological studies & NAQUIM**

Name	Taluka	Year
R.C.Jain	Dhanduka, Dholka, Sanand, and part of Viramgam, Dascroi & City Talukas	1981-82, 1983-84 and 1986-87.



P.K.Parchure	Part of Viramgam Taluka	1986-87
Ramesh Jena	Aquifer mapping and management plan of Ahmedabad district	2020

**Reappraisal hydrogeological survey:** Reappraisal hydrogeological survey of the entire district was carried out by following officers of CGWB during 1989-90.

Table 5: Reappraisal hydrogeological survey

Name	Area covered (Talukas)
P.K.Jain	Dhandhuka Taluka
P.R. Gupte	Viramgam, Sanand, City, and Dascroi (Part) Talukas
A.B.Kawde	Dholka, and Dascroi (Part) Talukas

## 5 OBJECTIVES OF THE PRESENT STUDY

NAQUIM 2.0 is designed to provide detailed information to support groundwater management decisions at ground level. Since the issues are different in different areas, the studies under NAQUIM 2.0 are proposed as issue specific and will be undertaken in prioritized focus areas. Broadly 11 Priority areas are identified based on ground water related issues and the present study deals with specific priority area i.e. under “Urban agglomerate” where emphasis is to be placed on the effects of urbanization on ground water system in the study area.

The objectives of the present study is to delineate:

1. Aquifer Dispositions in the area
2. Aquifer-wise Ground water levels
3. Delineation of Recharge Areas
4. Estimation/Refinement of parameters used for resource assessment
5. Assessment of ground water resources aquifer wise
6. Ground Water Quality
  - GIS based maps, Point maps with the concentration as attribute.
  - Contouring wherever continuity is expected.
  - Description on probable sources and release mechanism
  - Vulnerability Map.
  - Ground Water Quality Hotspots
  - Impact of waste disposal sites

-Impact of use of treated wastewater

7. Area showing signs of subsidence.

8. Ground Water Quality Management Interventions including demarcation of safer aquifers

-Map of alternate safe aquifers, if available

-Recommend sites for waste disposal or changing sites of waste disposal

-Recommendations regarding use of treated wastewater etc.

-If well heads (or the recharge areas) are away from the wells they are to be shown on map

-Locations and Designs of recommended structures

9. Artificial Recharge Plan

-Areas recommended for construction of AR structures in shallow aquifers;

-Areas recommended for construction of AR structures in deeper aquifers;

Recommended depths of structures; Locations and Designs of recommended structures

10. Identification of potential aquifers for drinking water supply

- Potential aquifer identification.

-Potential sites for drilling wells from geophysical studies.

11. A plan for drinking water source sustainability

-As per Source Sustainability SoP.

12. Recommendations for tackling water logging

13. Aquifer management plan preparation (Demand side & supply side)

- (Supply side) artificial recharge plan

-(demand side measures): crop diversification, micro-irrigation, regulation etc.

## 6 EXISTING DATA

The available data of the Exploratory wells drilled by Central Ground Water Board, Central Region, Nagpur, Geophysical Surveys carried out in the area, Ground water monitoring stations and ground water quality stations monitored by Central Ground Water Board were compiled and presented in Table 5 to 7.

Table 6: Existing data

S.No.	Data Type	Number
1.	Exploratory Well	10
2.	Observation Well	3
3.	VES	5
4.	NHS (DW/Pz)	33
5.	Water Quality (NHS)	0
6.	Pumping Tests (Aquifer Parameters T & S)	1

Table 7: Existing NHS Monitoring stations in Ahmedabad city and Daskroi.

District	Village	TD	Lattitude	Longitude	Aquifer
Ahmedabad	Vasana(Barriage)	148.00	22.994	72.549	Confined II
Ahmedabad	Scout Bhavan(Paldi)	222.89	23.000	72.566	Confined II
Ahmedabad	Vatva-1	290.01	22.966189	72.616149	Confined II
Ahmedabad	Vatva-2	175.89	22.966189	72.616149	Confined II
Ahmedabad	Ghuma_Pz_I	183.00	23.030136	72.452546	Confined II
Ahmedabad	Sola(HC)_Pz_I	198.00	23.080099	72.524438	Confined II
Ahmedabad	Scout Bhavan(Paldi)	225.00	23°00'00"	72°33'58"	Confined II
Ahmedabad	Vatva-1	293.00	22°56'14"	72°36'43"	Confined II
Ahmedabad	Vatva-2	218.00	22°56'14"	72°36'43"	Confined II
Ahmedabad	Vatva-3	118.36	22.937	72.612	Confined I
Ahmedabad	Bopal_Pz_II	112	23.033	72.463176	Confined I
Ahmedabad	Vastrapur(lake)_Pz_I	124	23.038271	72.529962	Confined I
Ahmedabad	Vatva Pz-II	123	22.966189	72.616149	Confined I
Ahmedabad	Sola_II	126	23.0688	72.510621	Confined I
Ahmedabad	Vasana(Barriage)	150.00	22°59'38"	72°32'56"	Confined I
Ahmedabad	Vatva-3	120.00	22°56'14"	72°36'43"	Confined I
Ahmedabad	Paldi Kankaj	150.00	22°54'09"	72°31'41"	Confined I
Ahmedabad	Oganaj (90)	90.00	23°07'27"	72°31'01"	Confined I
Ahmedabad	Oganaj (150)	150.00	23°07'27"	72°31'01"	Confined I
Ahmedabad	Akru	60	72.6014	22.9767	Unconfined
Ahmedabad	Ambaliyara - III (70.50)	60	72.6228	23.0317	Unconfined
Ahmedabad	Ambaliyara- II (120)	45	72.5461	23.0039	Unconfined
Ahmedabad	Changodar	60	72.6783	22.8958	Unconfined
Ahmedabad	Chhabasar	90	72.5169	23.1242	Unconfined
Ahmedabad	Air-port	60	72.6317	23.0761	Unconfined
Ahmedabad	Chharodi	90	72.8111	22.9722	Unconfined
Ahmedabad	Bhoyani	57.94	72.5878	22.8539	Unconfined
Ahmedabad	Chaloda	123	72.5436	22.8264	Unconfined
Ahmedabad	Bhimtalav	78.08	72.4936	22.9539	Unconfined
Ahmedabad	Chachra Vadi Vasna	85.34	72.4825	22.8928	Unconfined
Ahmedabad	Ghuma	29	72.4458	23.0333	Unconfined
Ahmedabad	Ghuma_Pz_II	35.5	72.4497	23.0339	Unconfined
Ahmedabad	Sola_Pz_III	65	72.5186	23.0806	Unconfined

TABLE 8 : EXISTING GW EXPLORATION DATA IN AHMEDABAD CITY AND DASKROI.

Block	Village	Longitude	Latitude	Aquifer	Year	Type	Aquifer	Drilling depth	Construction depth	Aquifer Zones tapped	Drilling SWL	Discharge	Litholog	E-log	T	S
Ahmedabad city	Sola	72.5186	23.0805	I	1995	Piezometer	Piezometer	200	200	145 to 200	62.38	0.9	Yes	Yes	11	
Ahmedabad city	Sola	72.5186	23.0805	II	1995	Piezometer	Piezometer	124	127	120 to 27	60.3	1.3	Yes	Yes	59	
Ahmedabad city	Sola	72.5186	23.0805	III	1995	Piezometer	Alluvium	58	63	37 to 63	16.61	1.5	Yes	Yes	21.5	
Ahmedabad city	Ahmedabad cantonment	23.0625	72.6038		1995	Piezometer	Alluvium						Yes	Yes		
Daskroi	Ode	22.051778	72.288167	III	2020-21	EW	Alluvium	306	232	143-146, 152-155, 162-165, 170-173, 186-189, 196-202, 210-213, 226-229	81.2	11.9	Yes	Yes		
Daskroi	Gatrad	22.951300	72.700000	III	2020-21	EW	Alluvium	303.25	272	214-217, 227-230, 245-248, 262-268	106.94	15.88	Yes	Yes		
Daskroi	Ranodra	22.953056	72.789472	III	2020-21	EW	Alluvium	294	281	204-207, 222-225, 243-246, 269-278	43.8	18	Yes	Yes		
Ahmedabad city	Ahmedabad NID	23.016764	72.573658	II	1988-89	EW	Alluvium		96-174	96-102, 135-144, 147- 156, 168-174	54.14	57.36 (LPM)	Noi	No	577	
Ahmedabad city	Vatva	22.965517	72.615	I	2004-05	PZ	Alluvium		152-191	152-153, 164-170, 188-191	95.9	108	Yes	Yes	147.81	
Ahmedabad city	Vatva	22.965517	72.615	II	2004-05	PZ	Alluvium		70-120	70-73, 84-90, 102-107, 114-120	81.45	42	Yes	Yes	18.781	
Ahmedabad city	Vatva	22.965517	72.615	III	2004-05	PZ	Alluvium		44-58	44-48, 54-58	0	0	Yes	Yes	0	

TABLE 9: EXISTING VES DATA IN

Sr No.	State	District	Block_Taluk_Mandal_Firka	Village	Latitude	Longitude	Typr of Study (VES/TEM)	Year of Study	Inhouse/ Outsourcing	R1	H1 (m)	Inferred Lithology	R2	H2 (m)	
1	Gujarat	Ahmadabad	Ahmadabad City	Ahmedabad SP Ring Road	22.9986	72.4736	VES	2014-15	Inhouse	14.60	3.40	Top Soil	9.50	9.70	
2	Gujarat	Ahmadabad	Ahmadabad City	Ahmedabad SP Ring Road-2	22.9986	72.4736	VES	2014-15	Inhouse	18.70	2.70	Top Soil	11.23	13.50	
3	Gujarat	Ahmadabad	Daskroi	Daskroi	22.9083	72.6386	VES	2014-15	Inhouse	4.35	0.90	Top Soil	8.78	3.87	
4	Gujarat	Ahmadabad	Daskroi	Daskroi-2	22.9083	72.6386	VES	2014-15	Inhouse	4.90	0.80	Top Soil	9.11	3.15	
5	Gujarat	Ahmadabad	Daskroi	Vatwa	22.9355	72.6195	VES	2014-15	Inhouse	0.004	1.00	Top Soil	0.36	50.50	A

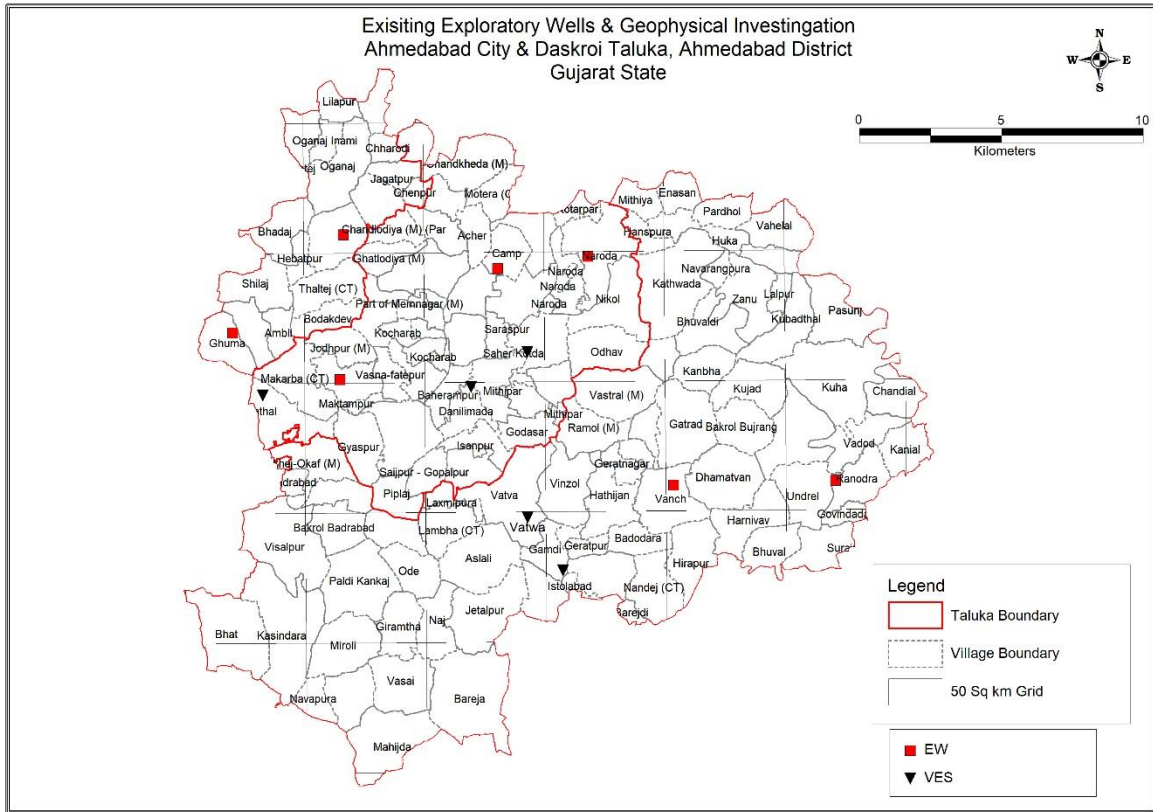


Image 5: Existing Exploratory Wells

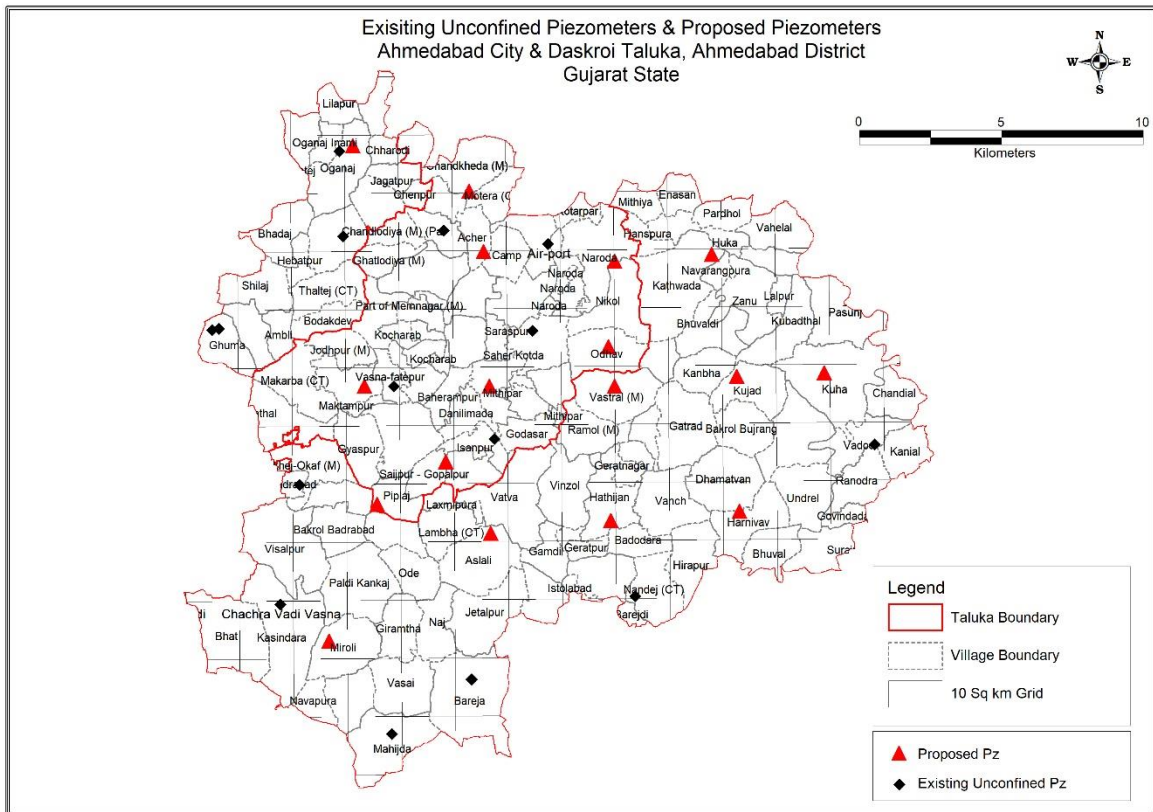


Image 6: Existing Monitoring wells in Unconfined Aquifer

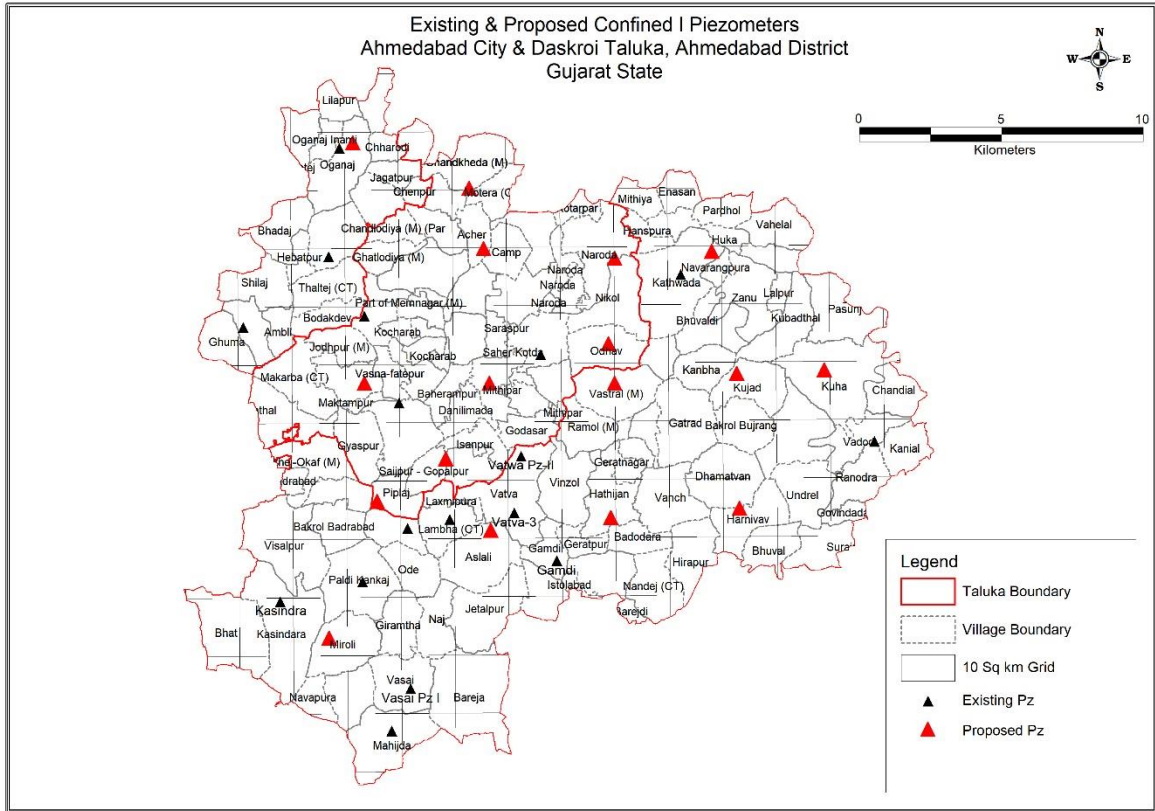


Image 7: Existing Monitoring wells in Unconfined Aquifer

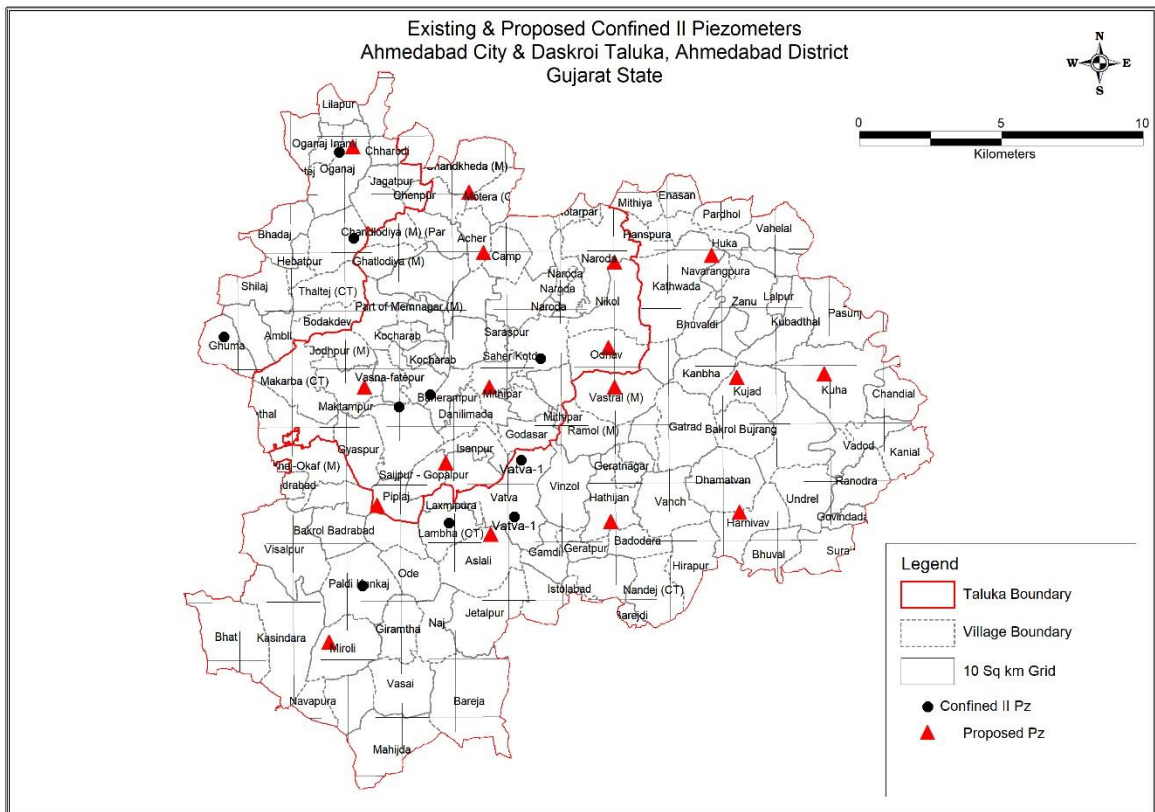


Image 8: Existing Monitoring wells in Unconfined Aquifer



## 7 DATA GAP ANALYSIS

The available data of the Exploratory wells drilled by Central Ground Water Board, West Central Region, Ahmedabad, Geophysical Survey carried out in the area, Ground water monitoring stations and ground water quality stations monitored by Central Ground Water Board were compiled and analysed for adequacy of the same for the aquifer mapping studies (NAQUIM 2.0).

### A) DATA GAP IN GROUND WATER MONITORING AND QUALITY STATIONS:

As per NAQUIM 2.0 the studies will be carried out on 1:10000 or larger Scale, the study needs high density data of ground water level and quality to decipher the good and clear ground water scenario of the area (Spatial and vertical). In order to establish new GW monitoring and Sampling stations (KOWs) a grid of 10 sq km and no. of villages are considered for identifying the data gap.

#### DATA GAP IN GROUND WATER EXPLORATION:

As the study area is covered by soft rock consisting of gravel, sand, silt & clay where ground water occurs in phreatic as well as confined condition

The locations of Existing Exploratory wells in the area have been plotted on the toposheet of 1:50000 scale. The locations of Existing Exploratory wells in the area have been plotted on the toposheet of 1:50000 scale. The area is divided in 50 sq. km grid

The proposed data gap generation to be taken up in the area based on real field conditions like availability and accessibility.

Table 10: Data Density

Data element	Indicative Density
Exploratory Drilling	After studying the Exploratory well density in the study area, new wells proposed based on the Exploratory well target. Exploratory drilling is being taken up in between two existing wells to validate the earlier analysis/profile/section. At least two for each principal aquifer type in the area
Pumping Test	At least one for each principal aquifer type in the area
Water Level	Water level per each aquifer (depth wise) in every 10 sq. km.  In Industrial area water level collection in every 1 sq. km
Water Quality	Ground water samples per each aquifer (depth wise) in every 10 sq. km, In Industrial area and waste disposal site water sample collection in every 1 sq. km
VES/TEM/Imaging	At least 05 for each principal aquifer type in the area

Feedback and Sample survey	At least 3 for each aquifer unit in every 10 sq. km.
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Table 11: Existing Data and Data Gap

<b>SN</b>	<b>Particulars</b>	<b>Existing</b>	<b>Requirement</b>	<b>Data Gap</b>
1	Exploration/pz	10	EW-2, OW-2	EW-2, OW-2
2	Geophysical Studies	5	VES-10	10
3	G W Monitoring (KOW)	33	60	37
4	Water Quality (KOW)	0	276 (3 aquifer systems)	276 (3 aquifer systems)

Table 12: PROPOSED PZ UNDER PIB

State	District	Taluka/Mandal/Bloc	Village/location	X (Longitude)	Y (Latitude)	Proposed	Rig
Gujarat	AHMEDABAD	AHMADABAD CITY	Acher	72.596330000	23.071502000	80	DR
Gujarat	AHMEDABAD	AHMADABAD CITY	Acher	72.596330000	23.071502000	200	DR
Gujarat	AHMEDABAD	AHMADABAD CITY	Acher	72.596330000	23.071502000	300	DR
Gujarat	AHMEDABAD	AHMADABAD CITY	Naroda	72.668548	23.066084	80	DR
Gujarat	AHMEDABAD	AHMADABAD CITY	Naroda	72.668548	23.066084	200	DR
Gujarat	AHMEDABAD	AHMADABAD CITY	Naroda	72.668548	23.066084	300	DR
Gujarat	AHMEDABAD	AHMADABAD CITY	Odhav	72.664873000	23.022549000	80	DR
Gujarat	AHMEDABAD	AHMADABAD CITY	Odhav	72.664873000	23.022549000	200	DR
Gujarat	AHMEDABAD	AHMADABAD CITY	Odhav	72.664873000	23.022549000	300	DR
Gujarat	AHMEDABAD	AHMADABAD CITY	Piplaj	72.536561000	22.942810000	80	DR
Gujarat	AHMEDABAD	AHMADABAD CITY	Piplaj	72.536561000	22.942810000	200	DR
Gujarat	AHMEDABAD	AHMADABAD CITY	Piplaj	72.536561000	22.942810000	300	DR
Gujarat	AHMEDABAD	AHMADABAD CITY	Rajpur-hirpur	72.599021	23.002725	80	DR
Gujarat	AHMEDABAD	AHMADABAD CITY	Rajpur-hirpur	72.599021	23.002725	200	DR
Gujarat	AHMEDABAD	AHMADABAD CITY	Rajpur-hirpur	72.599021	23.002725	300	DR
Gujarat	AHMEDABAD	AHMADABAD CITY	Saijpur - Gopalpur	72.574559	22.96431	80	DR
Gujarat	AHMEDABAD	AHMADABAD CITY	Saijpur - Gopalpur	72.574559	22.96431	200	DR
Gujarat	AHMEDABAD	AHMADABAD CITY	Saijpur - Gopalpur	72.574559	22.96431	300	DR
Gujarat	AHMEDABAD	AHMADABAD CITY	Vejalpur (M) (Part)	72.530043	23.003188	80	DR
Gujarat	AHMEDABAD	AHMADABAD CITY	Vejalpur (M) (Part)	72.530043	23.003188	200	DR
Gujarat	AHMEDABAD	AHMADABAD CITY	Vejalpur (M) (Part)	72.530043	23.003188	300	DR
Gujarat	AHMEDABAD	DASKROI	Aslali	72.599072000	22.927670000	80	DR
Gujarat	AHMEDABAD	DASKROI	Aslali	72.599072000	22.927670000	200	DR
Gujarat	AHMEDABAD	DASKROI	Aslali	72.599072000	22.927670000	300	DR
Gujarat	AHMEDABAD	DASKROI	Harnivav	72.73639	22.937855	100	DR
Gujarat	AHMEDABAD	DASKROI	Harnivav	72.73639	22.937855	200	DR
Gujarat	AHMEDABAD	DASKROI	Harnivav	72.73639	22.937855	300	DR
Gujarat	AHMEDABAD	DASKROI	Hathijan	72.665421000	22.933726000	80	DR
Gujarat	AHMEDABAD	DASKROI	Hathijan	72.665421000	22.933726000	200	DR
Gujarat	AHMEDABAD	DASKROI	Hathijan	72.665421000	22.933726000	300	DR
Gujarat	AHMEDABAD	DASKROI	Kathwada	72.722304	23.069206	100	DR
Gujarat	AHMEDABAD	DASKROI	Kathwada	72.722304	23.069206	200	DR
Gujarat	AHMEDABAD	DASKROI	Kathwada	72.722304	23.069206	300	DR
Gujarat	AHMEDABAD	DASKROI	Kuha	72.783962	23.008195	110	DR
Gujarat	AHMEDABAD	DASKROI	Kuha	72.783962	23.008195	200	DR
Gujarat	AHMEDABAD	DASKROI	Kuha	72.783962	23.008195	300	DR
Gujarat	AHMEDABAD	DASKROI	Mirol	72.509412	22.873328	100	DR
Gujarat	AHMEDABAD	DASKROI	Mirol	72.509412	22.873328	200	DR
Gujarat	AHMEDABAD	DASKROI	Mirol	72.509412	22.873328	300	DR
Gujarat	AHMEDABAD	DASKROI	Oganaj	72.524497000	23.126007000	60	DR
Gujarat	AHMEDABAD	DASKROI	Oganaj	72.524497000	23.126007000	200	DR
Gujarat	AHMEDABAD	DASKROI	Oganaj	72.524497000	23.126007000	300	DR
Gujarat	AHMEDABAD	DASKROI	Vastral (M)	72.667997	23.002231	90	DR
Gujarat	AHMEDABAD	DASKROI	Vastral (M)	72.667997	23.002231	200	DR
Gujarat	AHMEDABAD	DASKROI	Vastral (M)	72.667997	23.002231	300	DR
Gujarat	Ahmedabad	Ahmedabad City	Chandkheda (M)	72.588519	23.102387	80	DR
Gujarat	Ahmedabad	Ahmedabad City	Chandkheda (M)	72.588519	23.102387	200	DR
Gujarat	Ahmedabad	Ahmedabad City	Chandkheda (M)	72.588519	23.102387	300	DR

**B) DATA GAP ANALYSIS OF VES:**

Three Profiling/VES/TEM soundings upto 200 meter interpretation depth are considered for data gap analysis, in each of the nine quadrants of the topo sheet. Total 42 VES are proposed in Katol block considering one VES in 25 kms (5x5km grid).

TABLE 13 : PROPOSED LOCATION OF EW, IN CITY & DASKROI, AHMEDABAD DISTRICT

S.No.	District	Block	Village	Type	Depth (mbgl)	Latitude	Longitude	Geology
1	Ahmedabad	City & Daskroi	Kujad	EW	200	23.002534	72.737596	Alluvium
2	Ahmedabad	City & Daskroi	Kujad	EW	200	23.002534	72.737596	Alluvium
3	Ahmedabad	City & Daskroi	Chandkheda	EW	100	23.130835	72.560330	Alluvium
4	Ahmedabad	City & Daskroi	Chandkheda	EW	100	23.130835	72.560330	Alluvium

TABLE 14: PROPOSED LOCATION OF VES, IN CITY & DASKROI, AHMEDABAD DISTRICT

S_No.	DISTRICT	TALUKA	VILLAGE	LONGITUDE	LATITUDE
1	Ahmedabad	Daskroi	Paldi Kankaj	72.525493000	22.904348000
2	Ahmedabad	Ahmedabad City	Gyaspur	72.528886000	22.970455000
3	Ahmedabad	Ahmedabad City	Nikol	72.664095000	23.038327000
4	Ahmedabad	Daskroi	Bhuvaldi	72.732667000	23.040489000
5	Ahmedabad	Ahmedabad City	Vastrapur	72.528925000	23.039265000
6	Ahmedabad	Daskroi	Ramol (M)	72.661104000	22.970883000
7	Ahmedabad	Ahmedabad City	Motera (CT)	72.592160000	23.097819000
8	Ahmedabad	Daskroi	Timba	72.528421000	22.844902000
9	Ahmedabad	Daskroi	Bopal (CT)	72.470514000	23.040081000
10	Ahmedabad	Daskroi	Pasunj	72.787130000	23.031119000

## 8 NEW DATA GENERATION PLAN:

**Table 15: Activity wise monthly targets for new data generation**

S.No	Deliverables	Officer Assigned	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	March
1	Base Map Preparation & Inception Report	RJ												
2	Establishment of KOWs	SS, SUS												
3	Pre monsoon Water Level Monitoring and Sampling (KOWs+NHS)	SS, SUS												
4	Pre-Monsoon Sample Analysis (Inhouse)	SUS												
5	Pre-Monsoon WQ Data Analysis & Hot Spot Generation	SUS												
6	VES/TEM	VN												
7	Pre monsoon data analysis/Map Preparation	RJ, SS, SUS												
8	Post monsoon Water Level Monitoring (KOWs+NHS)	SS, SUS												
9	Aquifer Management Plan	RJ, SS												
10	Analysis of the Post monsoon Water Quality Data	SUS												
11	Geophysical data Analysis/ Interpretation and Map Preparation	VN												
12	Data Entry in WIMS	SS, SUS												
13	Ground Water Exploration (Drilling) - Inhouse /Outsourcing	SS												
14	Aquifer Parameter Tests	RJ, SS												
15	Rainfall Infiltration Test	SS												
16	Farmer/User Feedback	SS												
17	Field Verification of Ground Water Management Plan, RWH and AR Plan	RJ,SS												
18	Report Preparation	RJ, SS												
19	Draft Report Submission	RJ												
20	Final Report Submission	RJ												

**RAMESH JENA (RJ) TEAM LEAD, SUBHASH SINGH (SS) EXPERT (HYDROGEOLOGY), SUBHAM SHAH (SUS) EXPERT (CHEMIST), VERABABU NAPASANI (VN) EXPERT (GEOPHYSICS)**

## 9 COMPOSITION OF TEAM

Table 16: Composition of team

Team Lead	Ramesh Jena	Hydrogeologist (Sc-C)
Expert (Hydrogeology)-1	Subhash Singh	Assistant Hydrogeologist
Expert (Geophysics)	Napasani Veerababu	Geophysicist (Sc-D) STA (GP)
Expert (Hydrochemistry)	Subham Saha	ACH

## 10 TEAM-MEMBER-WISE RESPONSIBILITIES AND MONTHLY TARGETS FOR ENTERING IN THE MIS

Table 17: Team Member wise Responsibility

Role	Responsibilities	Indicative Designation
<b>Team Lead</b> <b>-Ramesh Jena (Sc-C)</b>	<ul style="list-style-type: none"> <li>- Planning, Supervision and Execution of the Project</li> <li>- Work distribution and monitoring of activities of other team members</li> <li>- Preparation of the inception report.</li> <li>- Timely Delivery of the envisaged Outputs</li> <li>- Finalisation of the management plan</li> <li>- Presentations at different forums, sharing of the outputs.</li> <li>- Preparation of the draft report as per the approved Quality Standards and its Final Submission.</li> <li>- Other members of the team will assist the team lead.</li> </ul>	Hydrogeologist
<b>Expert (Hydrogeology)</b> Subhash Singh	<ul style="list-style-type: none"> <li>- Field Data Collection (Exploration, Pz construction, Water Level, Water Quality, Pumping Tests, Infiltration tests, demand/supply data, sample surveys and others)</li> <li>- Sample collection for quality studies</li> <li>- Secondary Data collection</li> <li>- Entering data in database (WIMS)</li> <li>- Integration of data, preparation of thematic maps, preparation cross sections etc.</li> <li>- Consultation with allied experts like agriculture, irrigation, agro-economics etc.</li> <li>- Preparation of Management Plan</li> <li>- Assisting the Team Lead in preparing</li> </ul>	Hydrogeologist

	maps and reports	
<b>Expert (Geophysics)</b> Napasani Veerababu	<ul style="list-style-type: none"> <li>- Field Geophysical Surveys</li> <li>- Interpretation of field data</li> <li>- Entering data in database (WIMS)</li> <li>- Integration with existing geophysical and lithology data</li> <li>- Preparation of inferred lithologs</li> <li>- Suggesting potential sites for construction of water wells/artificial recharge</li> <li>- Preparation of Tables, graphs and maps for reports</li> <li>- Assisting the Team Lead in preparing the Report</li> </ul>	Geophysicist
<b>Expert (Hydro chemistry)</b> Subham Saha	<ul style="list-style-type: none"> <li>- Sample collection for quality studies</li> <li>- Analysis of samples.</li> <li>- Integration with existing data</li> <li>- Validation and interpretation of data</li> <li>- Entering data in database (WIMS)</li> <li>- Preparation of Tables, graphs and maps for reports</li> <li>- Assisting the Team Lead in preparing the reports</li> </ul>	Chemist

**Table 17: Monthly Target for entering in the MIS**

Teams	Month	Activity
<b>Team Lead</b> <b>-Ramesh Jena (Sc-C)</b>	<b>April</b>	Data Gap Analysis and Preparation of Inception Report
	<b>May</b>	Field Data Collection
	<b>June</b>	Field Data Collection
	<b>July</b>	Data Analysis and Interpretation
	<b>August</b>	Data Analysis and Interpretation
	<b>September</b>	Data Analysis and Interpretation
	<b>October</b>	Preparation for Midterm Workshop for NLEC
	<b>November</b>	Field Data Collection and preparation of Management Plan
	<b>December</b>	Sample Surveys and User Feedback
	<b>January</b>	Preparation of Draft Report
	<b>February</b>	Field Truthing of Management Plan
	<b>March</b>	Sharing of the reports with CHQ, SGWCC and DM/DC
<b>Expert (Hydrogeology)</b> Subhash Singh	<b>May</b>	Field Data Collection and other ongoing field activities.

	<b>June</b>	Field Data Collection
	<b>July</b>	Field Data Collection. Consultation with Allied Experts of Agriculture, Irrigation and economics etc. Secondary data collection from different State Departments.
	<b>August</b>	Data entry in WIMS and other ongoing field activities.
	<b>September</b>	Data Analysis and Interpretation. Consultation with Allied Experts of Agriculture, Irrigation and economics etc. Secondary data collection from different State Departments.
	<b>October</b>	Preparation for Midterm Workshop for NLEC
	<b>November</b>	Field Data Collection and preparation of Management Plan and other ongoing field activities.
	<b>December</b>	Sample Surveys and User Feedback and Data entry in WIMS
	<b>January</b>	Consultation with Allied Experts of Agriculture, Irrigation and economics etc. Preparation of Draft Report and other ongoing field activities.
	<b>February</b>	Consultation with Allied Experts of State GW dept., Agriculture, Irrigation and economics etc. Secondary data collection from different State Departments.Field Truthing of Management Plan and other ongoing field activities.
	<b>March</b>	Sharing of the reports with CHQ, SGWCC and DM/DC and other ongoing field activities.
<b>Expert (Geophysics)</b>  Napasani Veerababu	<b>May</b>	Field Geophysical Survey and other ongoing field activities.
	<b>June</b>	Field Geophysical Survey and interpretation of data
	<b>July</b>	Data interpretation. Integration of existing Geophysical and lithology data and selection of sites suitable for drilling. Data entry in WIMS.
	<b>August</b>	Data entry in WIMS and other ongoing field activities.
	<b>September</b>	Validation and Interpretation of data. Integration of existing Geophysical and lithology data. Preparation of inferred lithologs. Preparation of tables, Graphs and maps for the reports.



	<b>October</b>	Preparation of tables, Graphs and maps for the reports. Preparation for Midterm Workshop for NLEC
	<b>November</b>	Field Data Collection and preparation of Management Plan and other ongoing field activities.
	<b>December</b>	Field Data Collection and Data entry in WIMS
	<b>January</b>	Preparation of Draft Report and other ongoing field activities.
	<b>February</b>	Field Truthing of Management Plan.
	<b>March</b>	Sharing of the reports with CHQ, SGWCC and DM/DC and other ongoing field activities.
<b>Expert (Hydro chemistry)</b>	<b>May</b>	Field Sample Data Collection and other ongoing field activities.
Dr. H. B. Meena	<b>June</b>	Field sample Collection and analysis.
	<b>July</b>	Field sample Collection and analysis and Data entry in WIMS.
	<b>August</b>	Analysis and Integration with Existing data
	<b>September</b>	Analysis and Interpretation of data. Preparation of tables, Graphs and maps for the reports.
	<b>October</b>	Preparation for Midterm workshop for NLEC
	<b>November</b>	Field Data Collection and preparation of Management Plan and other ongoing field activities.
	<b>December</b>	Data entry in WIMS
	<b>January</b>	Preparation of Draft Report and other ongoing field activities.
	<b>February</b>	Preparation of Draft Report and other ongoing field activities.
	<b>March</b>	Sharing of the reports with CHQ, SGWCC and DM/DC and other ongoing field activities.