



केंद्रीय भूमि जल बोर्ड

जल संसाधन, नदी विकास और गंगा संरक्षण मंत्रालय

भारत सरकार

Central Ground Water Board

Ministry of Water Resources, River Development and Ganga
Rejuvenation
Government of India

Report

on

AQUIFER MAPS AND GROUND WATER MANAGEMENT PLAN

Karmala, Madha, Malshiras, Mohol, Pandharpur,
South solapur Taluka

Solapur District, Maharashtra

मध्यक्षेत्र, नागपुर
Central Region, Nagpur

**AQUIFER MAPS AND GROUND WATER MANAGEMENT PLANS,
KARMALA, MADHA, MALSHIRAS, MOHOL, PANDHARPUR
SOUTH SOLAPUR BLOCKS, SOLAPUR DISTRICT, MAHARASHTRA**

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SOLAPUR DISTRICT AT A GLANCE

1. GENERAL INFORMATION			
	Geographical Area	:	14,895 Sq. Km.
	Administrative Divisions (2011)	:	Taluka-11; Solapur North, Malshiras, Pandharpur, Barshi, Madha, Sangole, Akkalkot, Mohol, Solapur South, Karmala and Mangalvedhe.
	Villages	:	1,146
	Population	:	43,17,756
	Average Annual Rainfall (2008-2017)	:	541.0mm
	Rainfall 2017	:	532.9 mm
	Normal rainfall (1901-1917)	:	497 to 689 mm
	Long term rainfall Trend (1901-1917)	:	-17.944m/year(Mohol taluka) to 0.93 m/year (Sangola taluka)
2. GEOMORPHOLOGY			
	Major Physiographic unit	:	Three; Valleys, Denudational Hills (Sahaydri), Highly Dissected Basaltic Plateau, Moderately Dissected Basaltic Plateau, and Moderately Dissected Basaltic Plateau
	Major Drainage	:	Bhima River and major tributaries of Bhima river are Nira, Sina and Man rivers.
3. LAND USE (2010-11) (sources: mahasdb.maharashtra.gov.in/districtReport)			
	Forest Area	:	342.00Sq. Km.
	Non Cultivation Area	:	788.97 Sq. Km.
	Cultivation Area	:	11315.22 Sq. Km.
	GW Irrigated Area	:	1788.09 Sq. Km.
4.	SOIL TYPE	:	Medium to deep black soil and deep brown to red soil (Regur).
5. PRINCIPAL CROPS (source: KVK, Solapur)			
	Cereals	:	7619 sq. km.
	Pulses	:	872 sq. km.
	Oil Seeds	:	619 sq. km.
	Fruits	:	445.55 sq. km.
6. IRRIGATION BY DIFFERENT SOURCES (2013-14) – Nos. / Potential Created (ha)			
	Dugwells	:	7873/ 20809
	Tubewells/Borewells	:	324 / 1092
	Other Minor Surface Sources	:	609 / 43059
	Net Irrigated Area	:	65060 ha
7. GROUND WATER MONITORING WELLS (2017)			
	Dugwells	:	58
	Piezometers	:	06
8. GEOLOGY			
	Recent	:	Alluvium
	Up Cretaceous-Lr Eocene	:	Basalt (Deccan Traps)
9. HYDROGEOLOGY			
	Water Bearing Formation	:	Alluvium- Sand & silt
		:	Basalt (Deccan Traps) weathered, fractured, jointed.
	Premonsoon Depth to Water Level (May-2017)	:	4.5 to 28.5 mbgl

	Postmonsoon Depth to Water Level (Nov.-2017)	:	0.5 to 18.5 mbgl
	Premonsoon Water Level Trend (2008-2017)	:	Rise: 0.34 to 0.007 m/year
		:	Fall: 0.004 to 0.67 m/year
	Postmonsoon Water Level Trend (2008-2017)	:	Rise: 0.009 to 0.34 m/year
		:	Fall: 0.001 to 0.42 m/year
10. GROUND WATER EXPLORATION (As on March, 2017)			
	Wells Drilled	:	EW-93, OW-8, Pz-1
	Depth Range	:	44 to 205.25 mbgl
	Discharge	:	0.025 -18.88 lps
	Storativity	:	3×10^{-6} to 1.7×10^{-3}
	Transmissivity	:	0.8 to $130\text{m}^2/\text{day}$ (Basalt)
11. GROUND WATER QUALITY			
	Good and suitable for drinking and irrigation purpose, except Nitrate and Fluoride affected locations for drinking purpose.		
	Type of Water	:	Basalt- Ca-HCO_3
12. DYNAMIC GROUND WATER RESOURCES- (2013)			
	Net Annual Ground Water Availability (ham)	:	158365.11 ham
	Total Draft (Irrigation + Domestic+ Industrial)	:	114689.728 ham
	Projected Demand (Domestic + Industrial)	:	9039.12 ham
	Stage of Ground Water Development	:	75.49 %
	Overall Category	:	Safe
16. MAJOR GROUND WATER PROBLEMS AND ISSUES			
	<p>The entire district comes under the rain shadow area. Rainfall is uncertain and scanty. The average rainfall for the district is 541 mm and classified as Drought Prone area. Decadal water level trend (2008-17) reveals that during pre-monsoon period 68 % of the area and during post monsoon period, 78 % of the area are showing decline in water levels. The Basaltic rocks, due to poor storage and transmission capability, get fully saturated during monsoon and desaturated early in summer. These aquifers also drain naturally due to high ground water gradient formed by sloping and undulating topography. Wide range of problems were faced during drilling operations due to caving formation (red bole) and loss of drilling medium.</p>		

AQUIFER MAPS AND GROUND WATER MANAGEMENT PLANS, KARMALA, MADHA, MALSHIRAS, MOHOL, PANDHARPUR SOUTH SOLAPUR BLOCKS, SOLAPUR DISTRICT, MAHARASHTRA

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AQUIFER MAPS AND GROUND WATER MANAGEMENT PLANS, KARMALA, MADHA, MALSHIRAS, MOHOL, PANDHARPUR SOUTH SOLAPUR BLOCKS, SOLAPUR DISTRICT, MAHARASHTRA

1 INTRODUCTION

1.1 About the Area

Solapur district is one of the five districts of Pune division of Maharashtra State that form the region of Western Maharashtra. It is situated in the southeastern edge of the State and lies between 17°21'N 75°10'E / 17.35°N 75.16°E - 18°19'N 76°09'E / 18.32°N 76.15°E. The total area of the district is 14895 sq. km. and falls in parts of Survey of India degree sheets 47N, 47 J, 47D, 47K & 56K. It has an average elevation of 458 metres. It is the fourth largest district in Maharashtra in terms of land area and seventh largest in terms of population. The district has the largest industry in Maharashtra for Beedi production. Solapur is situated on Deccan plateau. The district is bounded on the north east by Osmanabad district, on the south east by Karnataka state, on the south west by Sangli district, on the west by Satara district on the northwest by Pune and Ahmednagar districts.

The district headquarters is located in Solapur Town. For administrative convenience, the district is divided into 11 talukas viz., Solapur North, Malshiras, Pandharpur, Barshi, Madha, Sangole, Akkalkot, Mohol, Solapur South, Karmala and Mangalvedhe. It has a total population of 4,317,756 as per 2011 census. The district has 11 towns/talukas and 1146 villages. The major part of the district comes under Bhima and Sina catchment of Krishna basin.

Since 1980, Central Ground Water Board has taken up several studies in the district. Keeping in view the current demand and supply and futuristic requirement of water, Central Ground Water Board has initiated the National Aquifer Mapping Programme (NAQUIM) in country during XII five-year plan, with a priority to study Over-exploited, Critical and Semi-Critical talukas. Hence, Solapur district has been taken up to carry out detailed hydrogeological investigations in the year 2016-17. All talukas of Solapur district are categorised as "safe" except Malshiras taluka which is categorised as "over-exploited" and Mohol is "semi-critical" as per Ground Water Resources Estimation as on March 2013. The Index map and Administrative of the study area is presented in **Fig.1.1 & 1.2**.

Ground water exploratory drilling in the district has been taken up in different phases since 1957. The ground water exploration has been done in hard rock areas occupied by Deccan Trap Basalt. To establish the aquifer geometry, disposition and potential of aquifers, ground water exploration down to the depth of 200 m bgl has been taken up where the data gap exists and accordingly 12 exploratory wells and 2 observation wells have been constructed during 2017-18. A total of 93 EW, 8 OW and 1 Piezometer have been constructed till March 2018. Location of exploratory wells is presented in **Fig 1.3** & salient features of ground water exploration are given in **Annexure-I**.

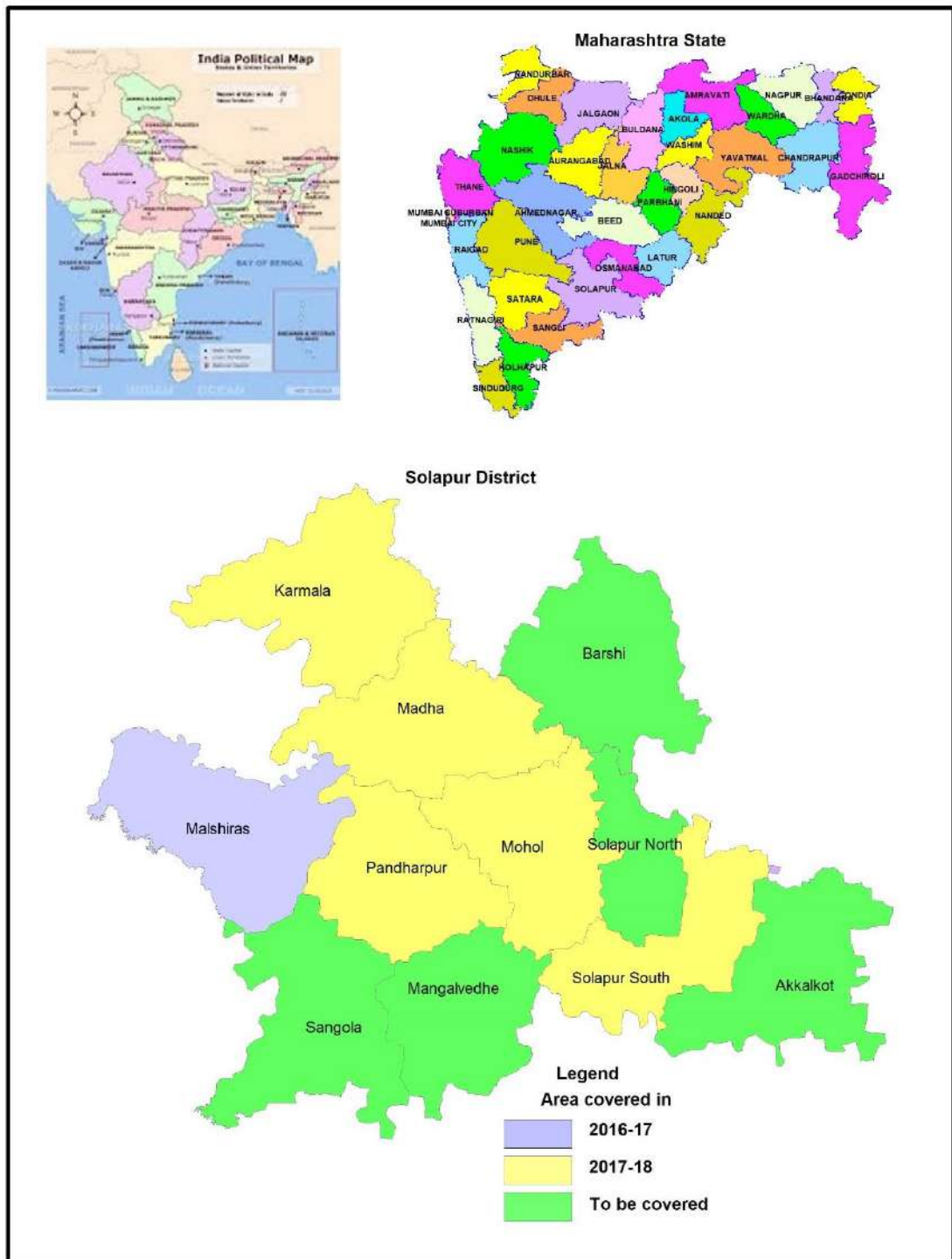


Fig 1.1: Index map of Solapur District

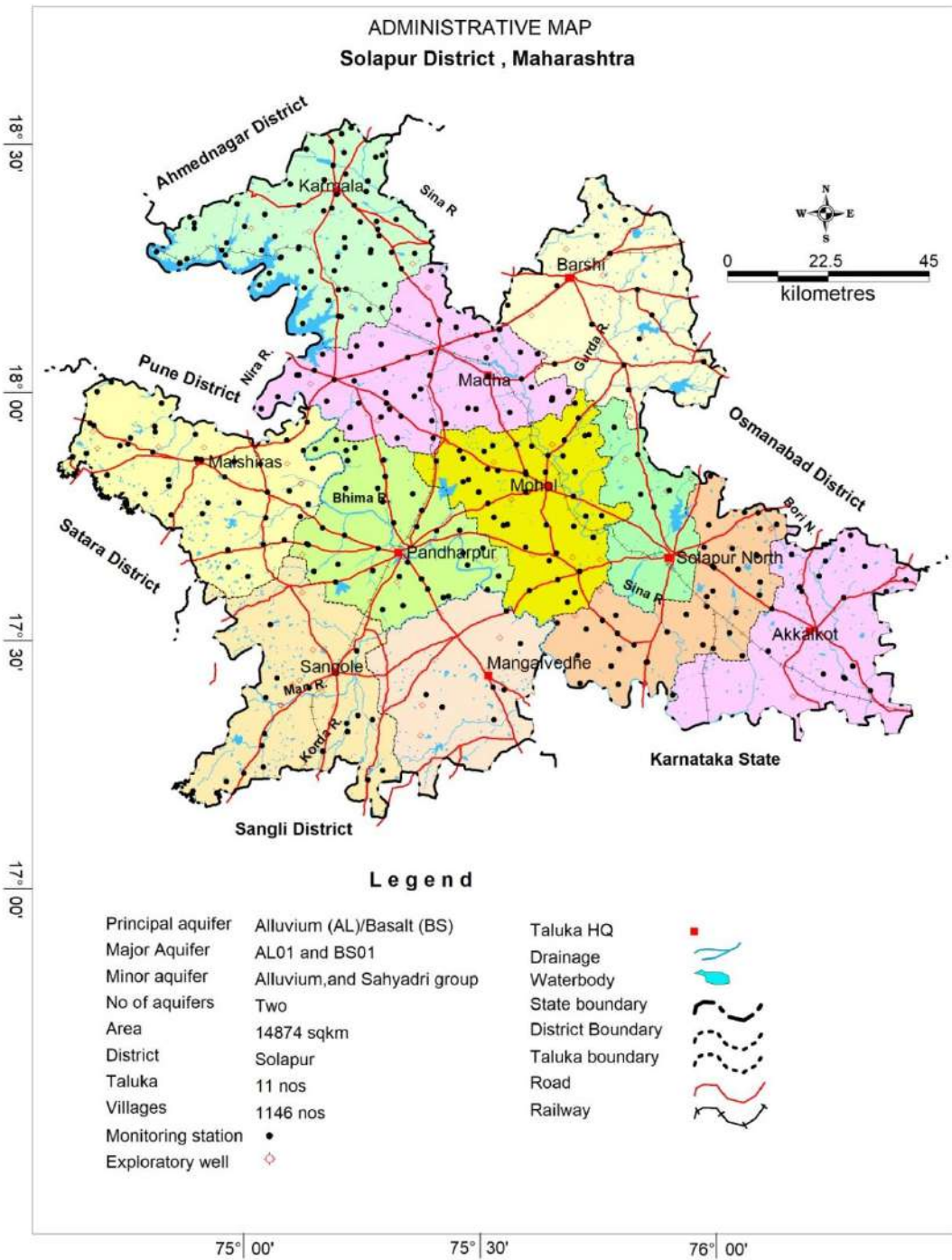


Fig 1.2: Administrative map, Solapur District

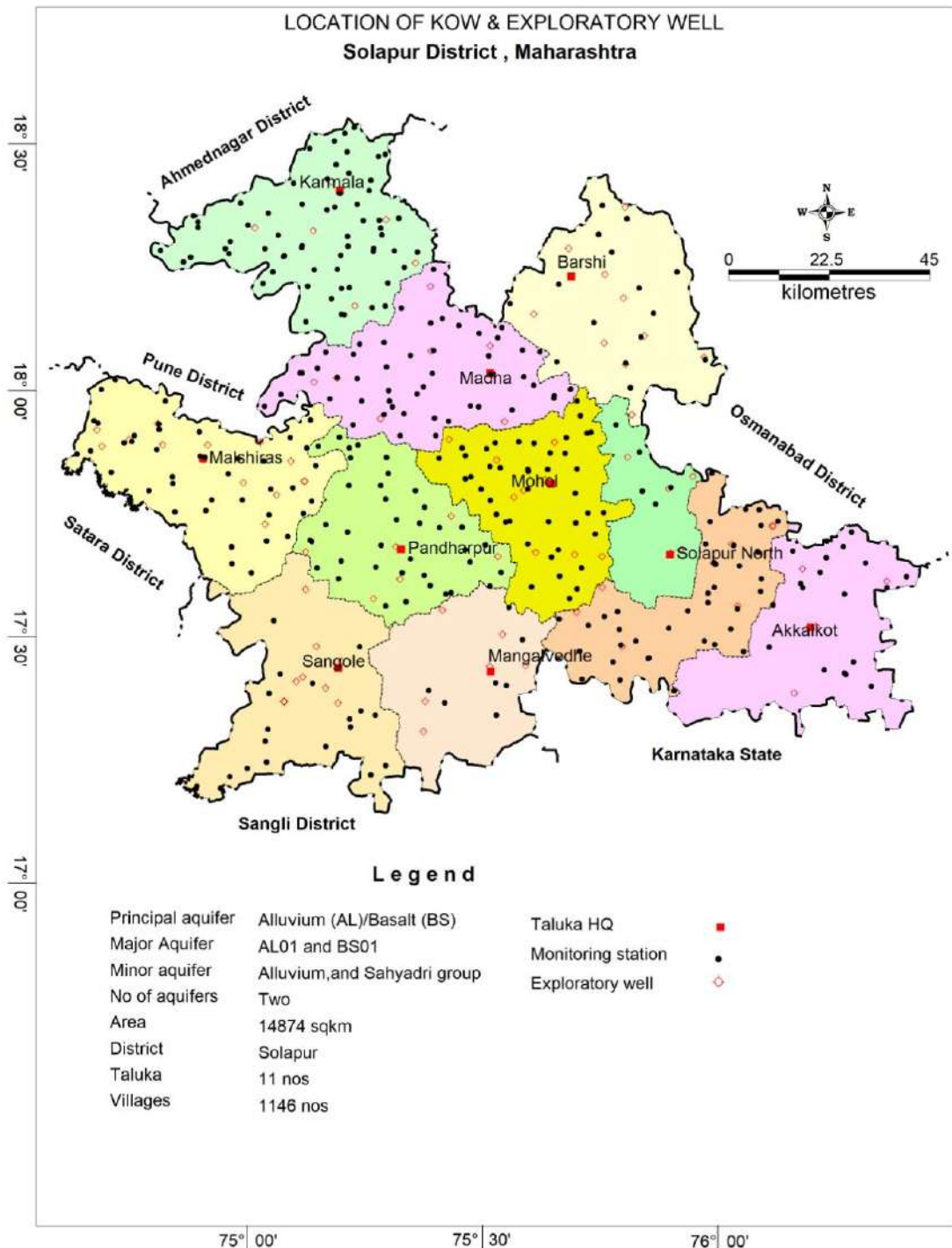


Fig 1.3: Locations of Existing Exploratory wells, Micro level & Monitoring Wells.

1.2 Geomorphology, Drainage and Soil Types

The district forms a part of the vast Maharashtra plateau which abuts against the lofty Sahyadri ranges on the west. The average ground elevation is between 450 to 600 metres above mean sea level and shows gentle slope towards south and south east. The highest elevation in the district is 720 m. amsl, observed on the NW-SE trending hill ranges near Jalbhari and the lowest elevation is 420 mamsl observed near Dharang on Bhima river bed. In general, the district exhibits undulating topography, consisting of low lying plateaux with isolated hillocks. Geomorphological map is given in **Fig 1.4**.

The district comes under Bhima sub-basin of Krishana basin and has flat to undulating topography. The district is typically characterized by the morphology of

Deccan basaltic flows. The elevation in the district is ranges from 420 to 720 m amsl.

The Bhima is the main river of the District. The Nira and the Man are its chief right bank tributaries while the Sina is its main left bank tributary. The Bhima and Sina flow in a general south-easterly direction while the Nira runs east and the Man north-easterly. The major Rivers flowing in the district are the Bhima, Sina and Man. The Bhima river originates near Bhimashankar hills on Western Ghats, known as Sahyadri in Pune District and enters Solapur district near village Jinti in Karmala Taluka. Dendritic drainage has been observed only in the vicinity of major Rivers where alluvial deposits or thick soil cover is present. However, all the streams and Rivers which flow in the district is effluent in nature. All the rivers mostly have semi-dendritic drainage pattern and the drainage density is quite high. These rivers are flooded in the rainy season and are dry in the summer season. Based on geomorphological setting and drainage pattern the district is divided into 16 watersheds. Drainage map of the Solapur district is presented in **Fig 1.5**.

The soil of the Solapur district (**Fig 1.6**) is mainly derived from Deccan basalts. The soil of the district is underlain by partially decomposed basaltic rock locally known as "Murum" which overlies parent rock. The soils of the District can be broadly grouped into three kinds on the basis of colour i.e. black soils, grey soils and reddish soils. Except Karmala, the soil in the district is grey to black while in Karmala taluka half the soil is black and the remaining is red or coarse grey. The black soil here is not very deep except along the valleys. The soils exhibit varying degrees of erosion and truncated profile is a common occurrence. The soils can be broadly classified in the four main categories on the basis of depth and structure.

- i. Very shallow soil with depth less than 7.5 cm.
- ii. Shallow soils between 7.5-to 22.5cm depths.
- iii. Medium deep soils between 22.5 and 90 cm depths.
- iv. Deep soils with depth more than 90 cm.

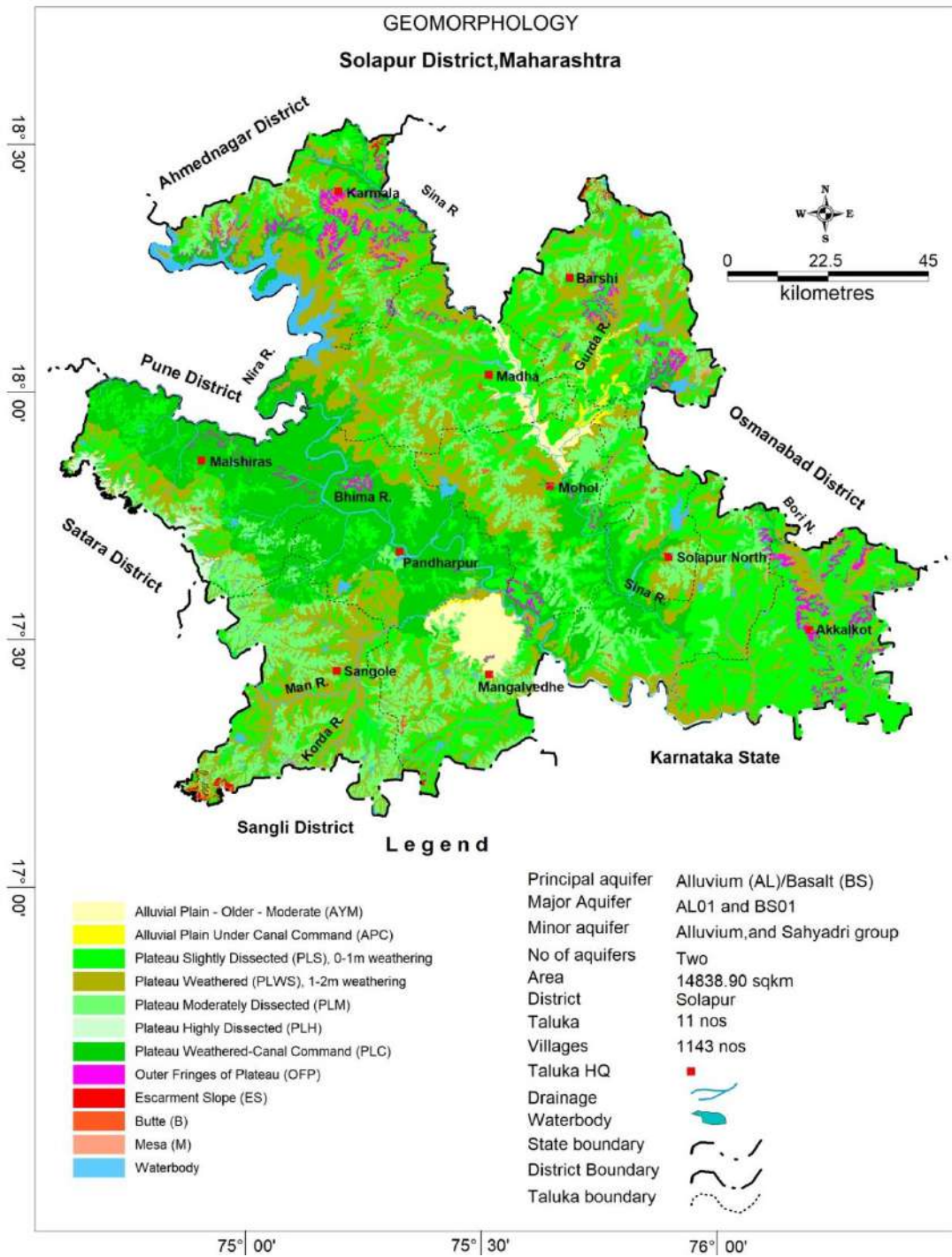


Fig 1.4: Geomorphology map

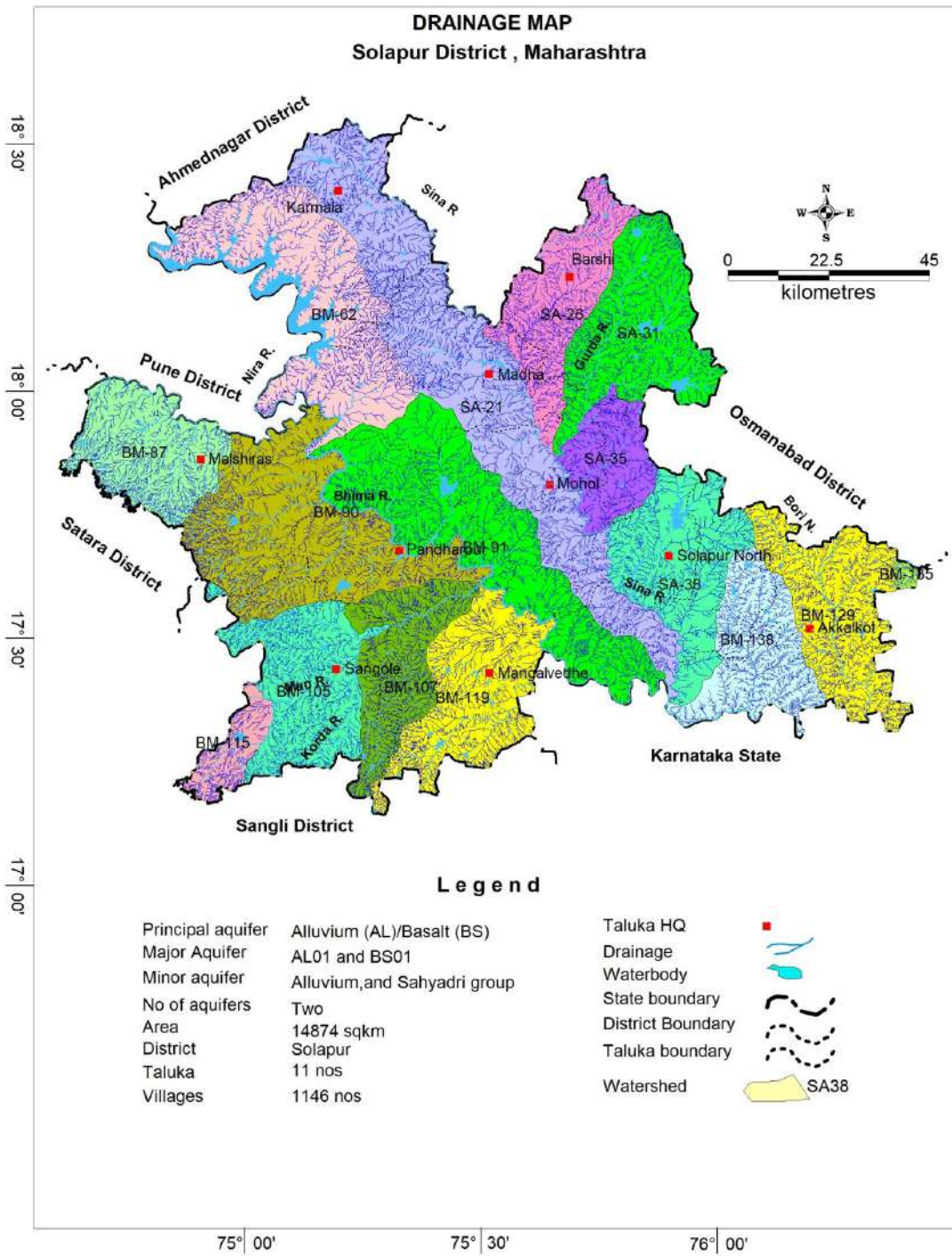


Fig. 1.5 Drainage map

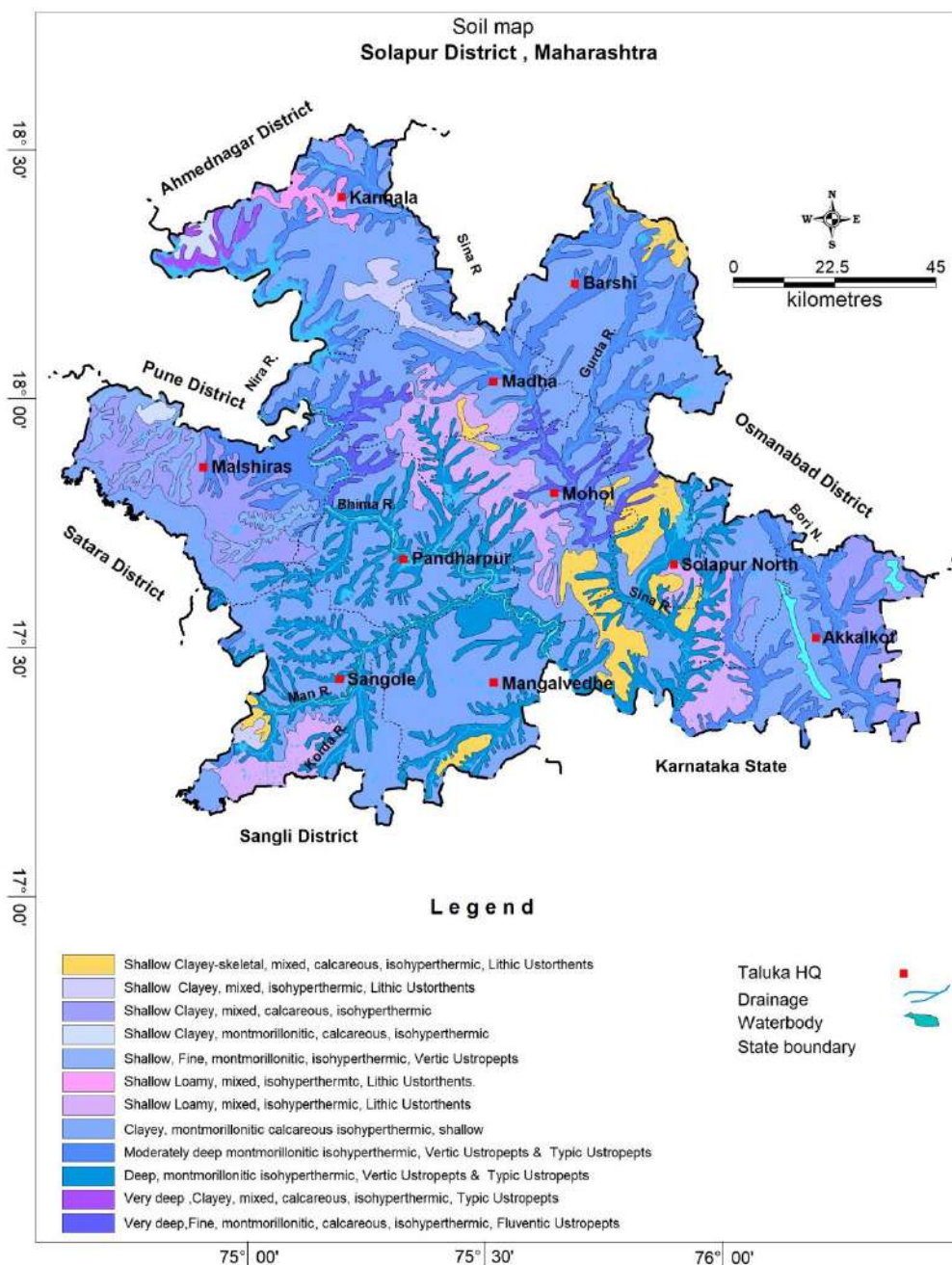


Fig 1.6 Soil map, Solapur District

1.3 Climate and Rainfall

Climate of the District is characterised by general dryness except during the monsoon season. The cold season, from December to about the middle of February is followed by the hot season, which lasts up to the end of May. May is the hottest month of the year. The maximum temperature may usually go up to 34°C or 45°C. June to September is the south-west monsoon season while October and November constitute the post monsoon season. The District falls under rain shadow zone of the State. The south-eastern parts of the District get slightly more rainfall than the rest of the District. The average annual rainfall (2008-2017) of the District is 541.0 mm (Fig 1.7). Most of the rainfall is received during the south-west monsoon in the months from June to September and constitute about 74 percent of the normal annual rainfall. About 17 % of the rainfall in district is received in the post monsoon season. The variation in the annual rainfall from year to year is large. Isohyet of the district for the normal rain fall is given in Fig 1.8.

- Long term rainfall analysis (1901-2017) and annual rainfall data of last ten years is given in **Table 3.1 and 3.2.**
- Based on long term rainfall analysis it is observed that:
- The normal annual rainfall in the district varies between 497 mm in Madha taluka and 689 mm in North Solapur taluka. **Table 3.1**
- The coefficient of variation of the annual rainfall from the normal rainfall has been observed between 29 and 42.
- The percentage of probability of receiving excess rainfall varies from 10 % at S. Solapur and Pandharpur talukas to 22 % at Karmala taluka.

Table 1.1: Long-term rainfall analysis

Taluka	Period	No of Years	Normal Rainfall	Std. Deviation	Coefficient of Variation	Rainfall Trend/Slope (mm/year)	Departures - Number of Years (% of Total Years)						
							Positive	Negative	Droughts			Normal & Excess R/F	
									Moderate	Severe	Acute	Normal	Excess
Akkalkot	1906 - 2017	107	685.8	228	33%	-1.313	51 (48%)	56 (52%)	25 (23%)	1 (1%)	0 (0%)	58 (55%)	23 (21%)
Barsi	1901 - 2017	115	658.5	192	29%	-0.172	59 (51%)	56 (49%)	20 (17%)	6 (5%)	0 (00%)	66 (58%)	23 (20%)
Karmala	1901 - 2017	111	577.5	212	37%	0.552	56 (50%)	55 (50%)	18 (16%)	10 (9%)	0 (0%)	59 (53%)	24 (22%)
Madha	1901 - 2017	111	497.2	194	32%	0.346	50 (48%)	54 (52%)	21 (20%)	1 (1%)	1 (1%)	61 (59%)	20 (19%)
Malshiras	1901 - 2017	113	530	225	42%	0.738	54 (48%)	59 (52%)	24 (21%)	6 (5%)	1 (1%)	61 (54%)	21 (19%)
Mangalvedhe	1998 - 2017	20	574.6	189	33%	-17.167	11 (55%)	9 (45%)	5 (25%)	1 (5%)	0 (0%)	10 (50%)	4 (20%)
Mohol	1998 - 2017	20	575	243	42%	-17.944	10 (50%)	10 (50%)	2 (10%)	2 (10%)	0 (0%)	34 (70%)	2 (10%)
Pandharpur	1901 - 2017	115	610.4	204	33%	-0.231	52 (45%)	63 (55%)	22 (19%)	4 (3%)	0 (0%)	66 (58%)	23 (20%)
Sangola	1901 - 2017	115	572.6	209	37%	0.932	52 (48%)	57 (52%)	29 (27%)	2 (2%)	0 (0%)	58 (53%)	20 (18%)
N.Solapur	1901 - 2017	115	689.9	214	31%	-0.251	53 (45%)	64 (55%)	24 (21%)	3 (3%)	0 (0%)	67 (56%)	23 (20%)
S.Solapur	1998 - 2017	20	599.2	200	33%	-15.49	9 (45%)	11 (55%)	00 (0%)	2 (10%)	0 (0%)	16 (80%)	2 (10%)

NOTE: Rainfall departure: EXCESS: > +25; NORMAL: +25 TO -25; MODERATE: -25 TO -50; SEVERE: -50 TO -75; ACUTE: < -74

Table 1.2: Annual rainfall data (2008-2017) (in mm)

Taluka	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average
N. Solapur	668.4	699.5	781.3	633.5	479.7	545.1	549.2	332.5	582.7	426.7	569.9
S. Solapur	669	699.5	781.3	633.5	472.9	510.6	467.3	266.8	548.6	473.7	552.3
Barshi	710.7	761.5	1067	536.7	551.8	543.2	496.7	309.6	601.4	784.3	636.3
Akkalkot	442.8	575.2	700.1	626	560.3	622.8	551.9	350	460.7	387.9	527.8
Mohol	653.7	596.1	1031.3	519.9	318.6	531.8	436.8	280.8	325.1	526.3	522.0
Madha	657.4	659.7	1200.3	413.7	444.5	602.4	454.3	361.7	542.8	617.8	595.5
Karmala	729.7	646.8	980.9	535.5	272.6	506.8	446.8	333.9	425.3	568.3	544.7
Pandharpur	541.2	745.8	767	413.3	364	577.9	439.6	348.7	377.6	515.8	509.1
Sangola	583.7	706.6	591.9	342.2	401.4	457.3	542.7	334.4	480.7	570.9	501.2
Malshiras	618.5	885.7	741.3	436.8	315.3	597	396.6	277.3	449.1	530.9	524.9
Mangalwedha	578.5	773.8	659.4	332.3	405.8	444	424.7	277.6	324.6	459.1	468.0
District Average	623.1	704.6	845.6	493.0	417.0	539.9	473.3	315.8	465.3	532.9	541.0

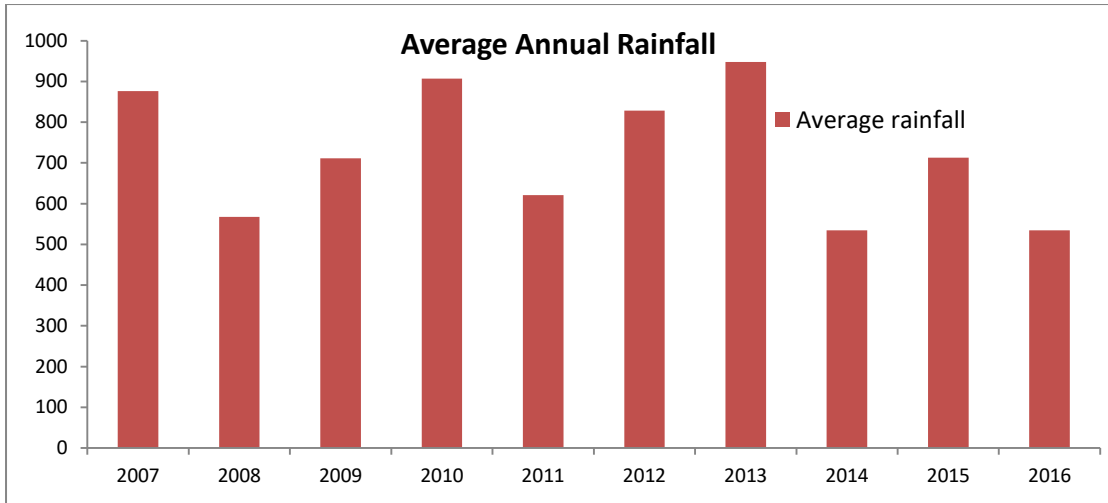


Fig 1.7: Average Annual Rainfall

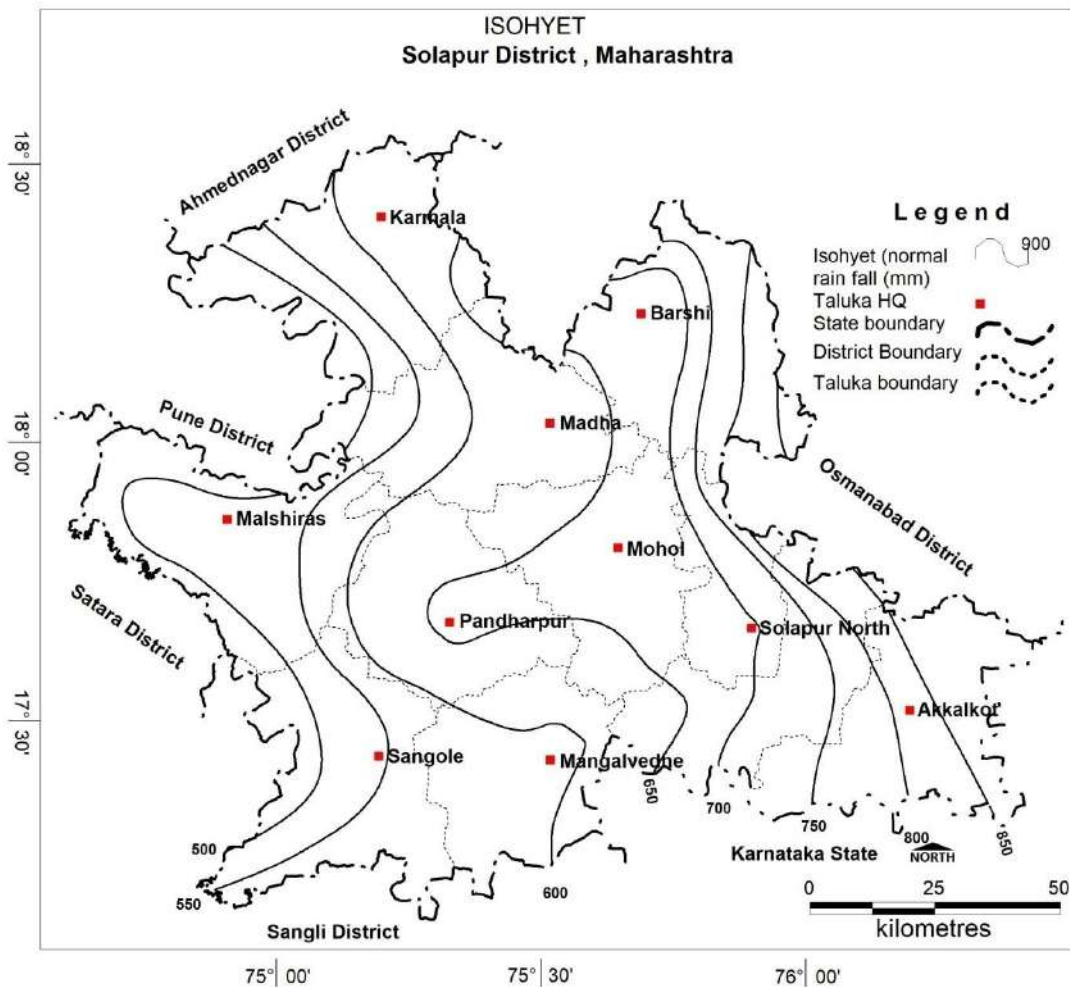


Fig 1.8: Isohyet (normal rainfall)

1.4 Geology

Geologically, Solapur district is divided into two parts i.e., Alluvium and Deccan Trap Basalt formations (**Fig 1.9**). There are 13 basaltic flows between the elevations of 420 m to 720 m amsl (**Fig 1.10**). The generalized geological sequence occurring in the district is given in **Table 1.3**.

Table 1.3: Generalized Geological sequence, Solapur district

Age	Group	Sub-groups	Formation	Thickness in meters	Lithology
Quaternary (Recent to Sub-Recent) (> 1 million years)			Alluvium		Sand, silt and clay.
Late Cretaceous to Eocene (30-60 million years)	North Sahyadri		Mahabaeshwar	32-100	Deccan Trap basalt with inter- trappeans. : Simple flows, aphyric to plagioclase microphyric
		Diveghat	Purandargad	45-90	Deccan Trap basalt with inter- trappeans. : Simple flows, aphyric to plagioclase microphyric
		Diveghat		>190	Deccan Trap basalt with inter- trappeans. : Simple/ Aa flows, aphyric
		Lonavala	Karla	15-25	Deccan Trap basalt with inter- trappeans. : Fine grained, aphyric, pahoehoe flows
			Indrayani	25-45	Deccan Trap basalt with inter- trappeans. :a thick succession of 'Aa' flows - Aphyric to sparsely phyric flows

1.4.1 Alluvium:

Alluvium, belonging to the Quaternary period forms a very productive aquifer in the district. The alluvial deposits are restricted as narrow belts along the banks of major river courses like Sina and their tributaries and in Mangalvedhe taluka. The alluvium occurs in patches in paleo depressions. These shallow alluvium deposits comprise of loose or semi-consolidated medium to coarse grained sands, gravels, fine silt with admixture of clays resting over the massive, weathered or amygdaloidal zones of the basaltic lava flows.

1.4.2 Deccan Trap Basalt:

Almost the entire district is underlain by Deccan Volcanic Basalts belonging to Sahyadri Group of Late Cretaceous to Eocene age, comprises of various lava flows, which can be classified into two types as simple and compound flows. The compound flows occur at lower elevations whereas the simple flows are confined to the elevation above 680 m. The compound flows although vesicular and amygdaloidal in nature, hard and compact in their middle part. They are fractured and jointed, and show moderate degree of weathering at places. Each individual lava flow consists of lower massive part becoming vesicular /amygdaloidal towards top, ranges in their individual thickness from a few centimeters to tens of meters. The flows have wide variation in colour and texture especially when they are amygdaloidal in nature with secondary mineral infillings such as Zeolites, calcite, and Agate and Chalcedony etc. The red /green/black bole beds constituting the marker horizons

separating the two flows were discontinuous and generally inconsistent. The basalts are intruded by dykes and are found commonly in pahoehoe flows in the area. The dykes vary in thickness from one or two meters to as much as 10 meters and extend for long distances. The dykes display the joints parallel to the walls, at right angle to the walls besides horizontal ones, with chilled margins. The dykes act as barrier or as water conduits / pathways for the movement of groundwater flow depending on intensity of fracturing in the dyke rock. The location and orientation of the dykes with respect to the groundwater flow are very important.

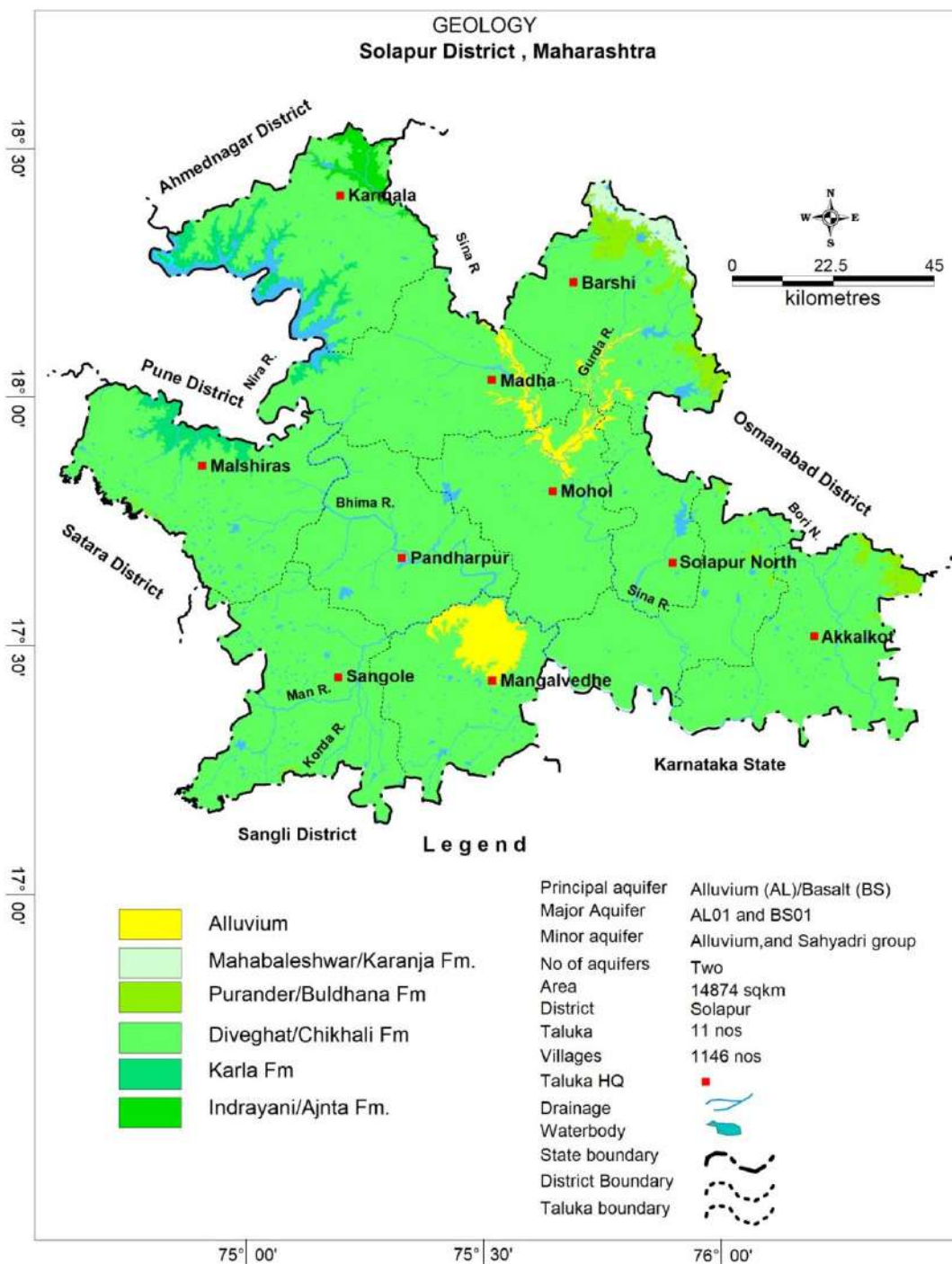


Fig 1.9: Geological map of Solapur district

The oldest Lower, Indrayani Formation is characterized by the presence of compact, massive, porphyritic basalt. The phenocrysts are embedded in fine-grained groundmass. This formation is classified as Khandala Formation of Lonavala sub group based on geochemical

consideration. Indrayani Formation lava flows are, generally jointed and highly weathered, occupy the low-lying flat plain of Bhima and Sina river and give rise to moderate to good aquifers.

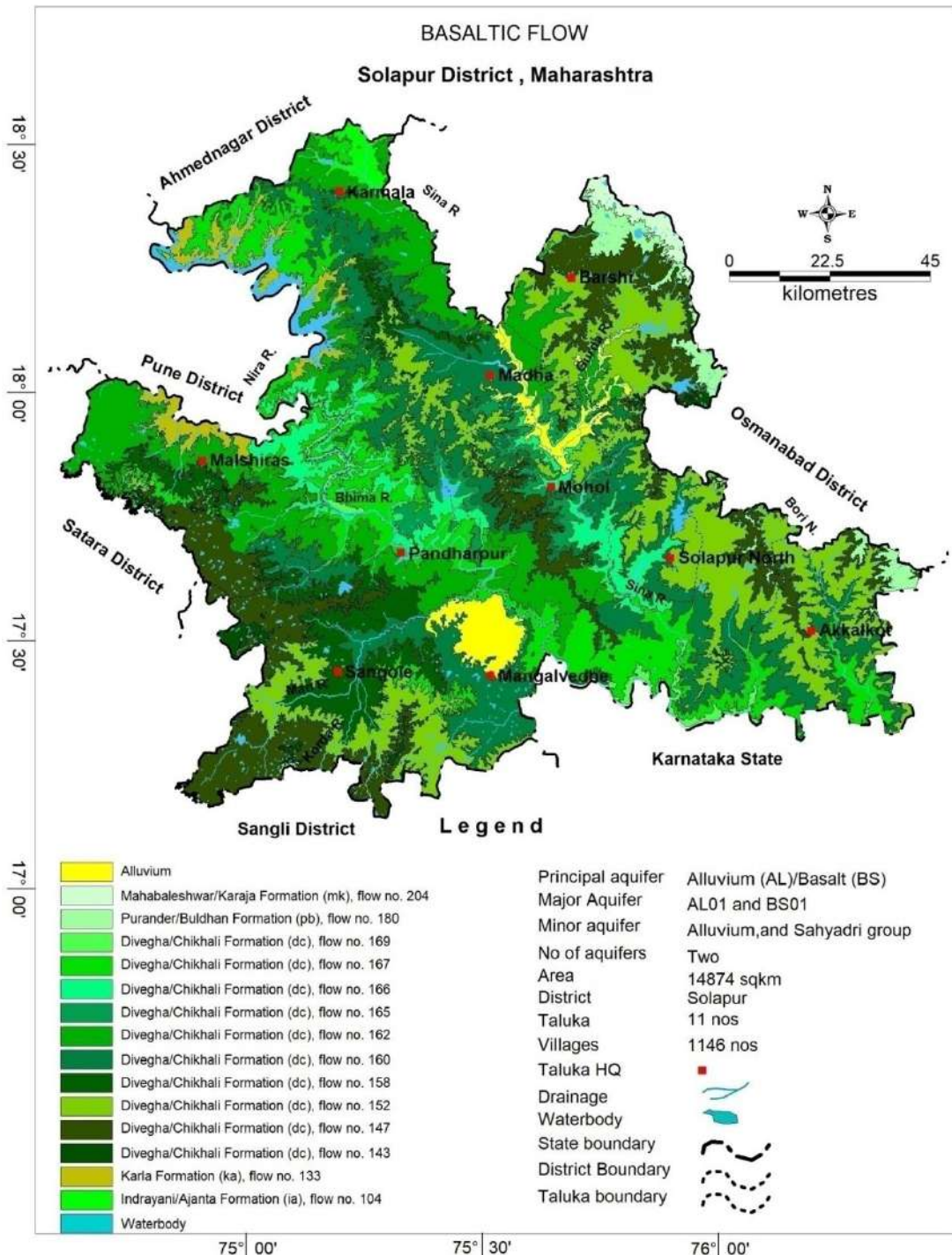


Fig. 1.10: Basaltic Flow

Karla Formation essentially comprises of compound lava flows exhibiting the pahoehoe characters. Based on geochemical characters this formation has been classified as Bushe Formation. It is comprised of aphyric or sparsely plagioclase phyric compound flows. The flows are characterized by the presence coarse grained, altered, amygdaloidal basalt and near absence of plagioclase. From the ground water point of view this formation

occupies the low-lying fiat plains and gives rise to moderate to good aquifers.

Diveghat Formation, overlying the Karla Formation is exposed on the hills and along the hill slopes above 550m from msl. It comprises mainly of simple flows of 'aa' type that are aphyric. The lava flows of this formation are characterized by presence of vesicular, plagioclase basalt with medium-grained groundmass. From hydrogeological view point these flows occur on the hilly terrain and therefore not potential for groundwater.

Purandargad is the youngeert formation characterized by the presence of aphyric to plagioclase microphyric basalt with the phenociysts embedded in a fine-grained groundmass. From hydrogeological point of view this formation is not very significant as it occupies the hills and hill slopes. This formation is not potential for the development of groundwater resources as it forms the runoff zone.

Mahabaleshwar formation comprises 4-6 aa flows with exposed thickness varying from 32 to 100 metre and is mainly exposed in the southern and northeastern part of the district. The unclassified basaltic flows composed mostly aa flows with some compound flows, the general gradient of the flows is around 1:550 to 1:800 towards SE.

2 HYDROGEOLOGY

The whole district is underlain by Deccan trap basalt except the banks of the Bhima River, its tributaries and north of Mangalwedha taluka. A map depicting hydrogeological features is presented in Fig 2.1.

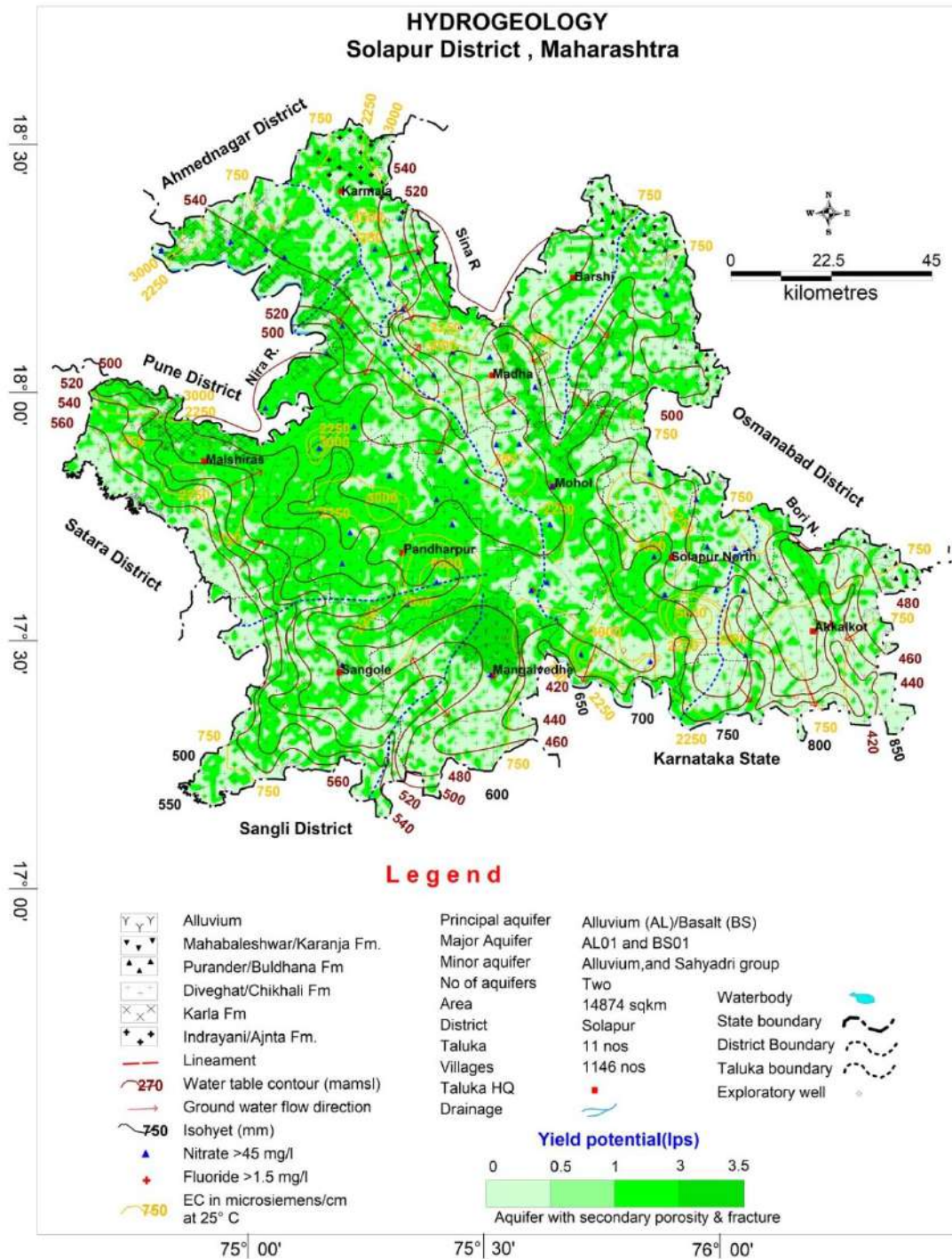


Fig 2.1: Hydrogeology, Solapur district

2.1 Major Aquifer Systems

Alluvium and Basalt aquifers are the main aquifers in the district. Two aquifer Systems in Basalt and one in Alluvium are found to be prevailing in the district. (Fig 2.2)

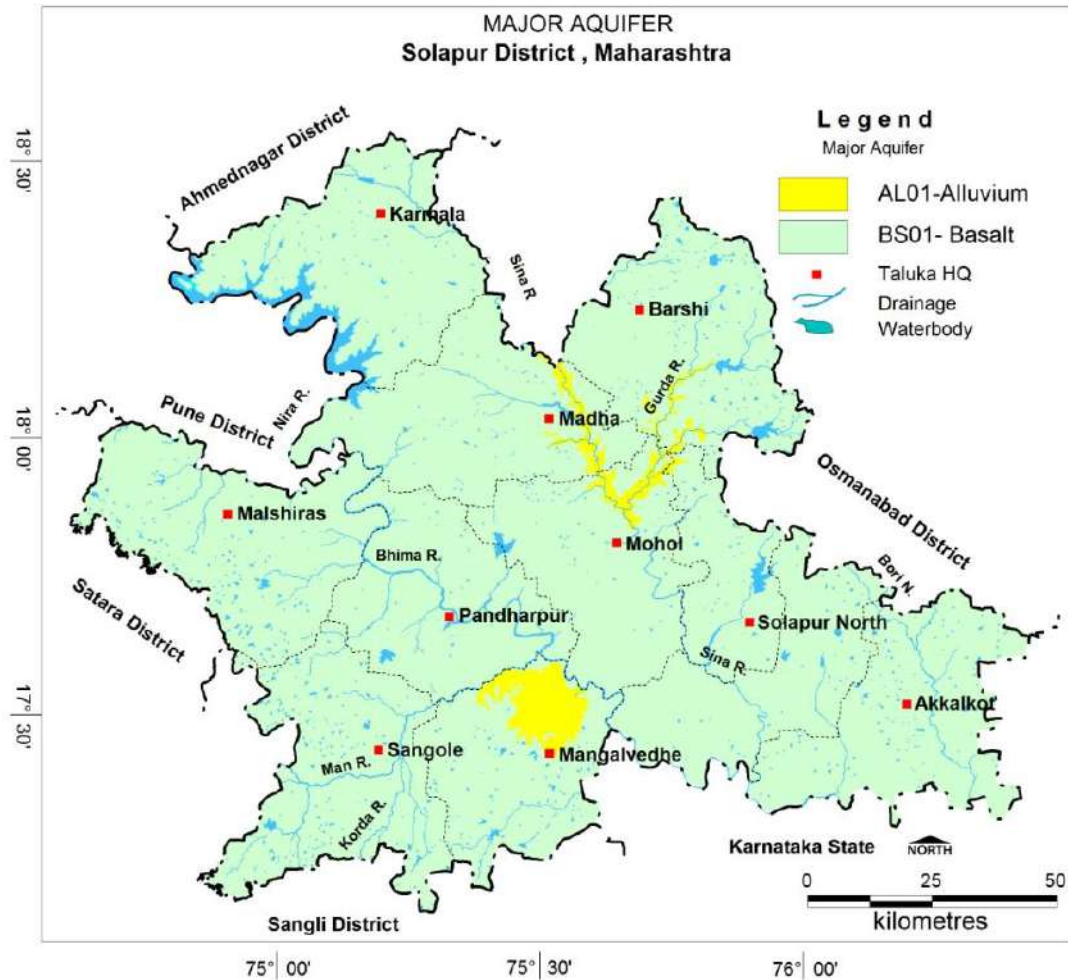


Fig 2.2: Major aquifer, Solapur district

Table 2.1 Aquifer wise characteristics

Type of Aquifer	Formation	Depth range (mbgl)	SWL (mbgl)	Fracture/ weathered Zones encountered (mbgl)	Fractured/ weathered rocks Thickness (m)	Yield (m ³ /day)	Sustai-nability	Aquifer parameter (Transmi ssivity – m ² /day)	Sy/S	Suitability for drinking/ irrigation
Aquifer-I	Alluvium	20-60	4.1 – 23.5	Upto 60	15 to 30	60 to 200 m ³ /day	1 to 5 Hours	1.25-207	0.06-0.1	Yes , suitable for both
Aquifer-I	Deccan Trap-Weathered/ Fractured Basalt	8.9-30	4.1 – 23.5	Upto 30	5 to 15	10 to 100 m ³ /day	1 to 3 Hours	30 -80	0.019-0.028	Yes , suitable for both
Aquifer-II	Jointed/ Fractured Basalt	30 to 196	9.0-55	Upto 196	0.5 to 12	Upto 3.0 lps	0.5 to 3 hour	25 - 210	3x10 ⁻⁶ and 1.7x10 ⁻³	Yes, suitable for both, except High EC

2.1.1 Deccan trap basalt

Hydrogeologically, Deccan Trap basalts are inhomogeneous rock formations. The

ground water occurrence and movement is restricted to only weathered/vesicular and jointed /fractured parts of the rock formations. The basalt consists of multiple aquifers and exhibits a wide variation in the joint/fracture intensity. The yield of the wells depends upon the permeability and transmissivity of the aquifer, which in turn depends upon the presence of the interconnected pore space (either primary or secondary or both) available for storage of water. The ground water potential areas are generally localized in basalt due to wide variation in secondary porosity. Generally ground water occurs under phreatic/unconfined to semi-confined conditions. Shallow Aquifer is generally tapped by dug wells of 10 to 30 m depth with water levels ranging from 4.1 to 23.5 m bgl and yield varies from 10-100 m³/day. The deeper Aquifer is being tapped by borewells with depth ranging from 40 to 205 mbgl and the water level from 9 to 55 mbgl. Based on Ground Water Exploration data, aquifer-wise characteristics are given in **Table 2.1**. Maps depicting depth of occurrence, fractured/granular rock thickness and aquifer-wise yield potential maps are shown in **Fig 2.3, Fig 2.4, Fig 2.5 and Fig 2.6**.

2.1.2 Alluvium

Alluvial deposits occur along the river banks in very thin and isolated pockets, consisting of upper layer of silty material underlain by a layer of coarse material like sand, gravel with admixture of clayey material. The coarser material is found in lenses and form good water bearing horizon while finer material like clay and silty material do not permit movement of ground water. The thickness of alluvial deposits varies from few meters to 20 to 60 mbgl in the Solapur district.

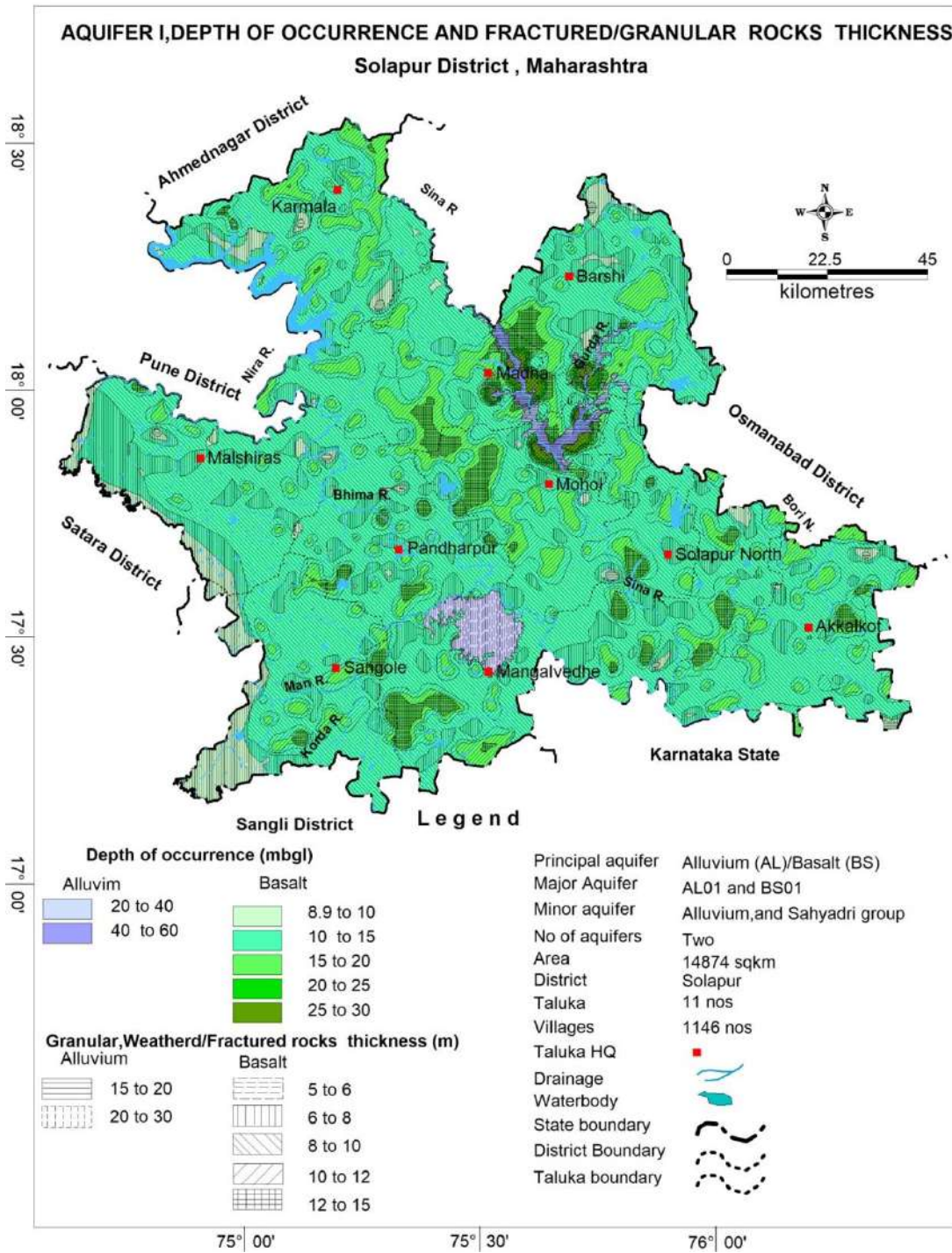


Fig 2.3: Aquifer I, Depth of occurrence and fractured rock thickness

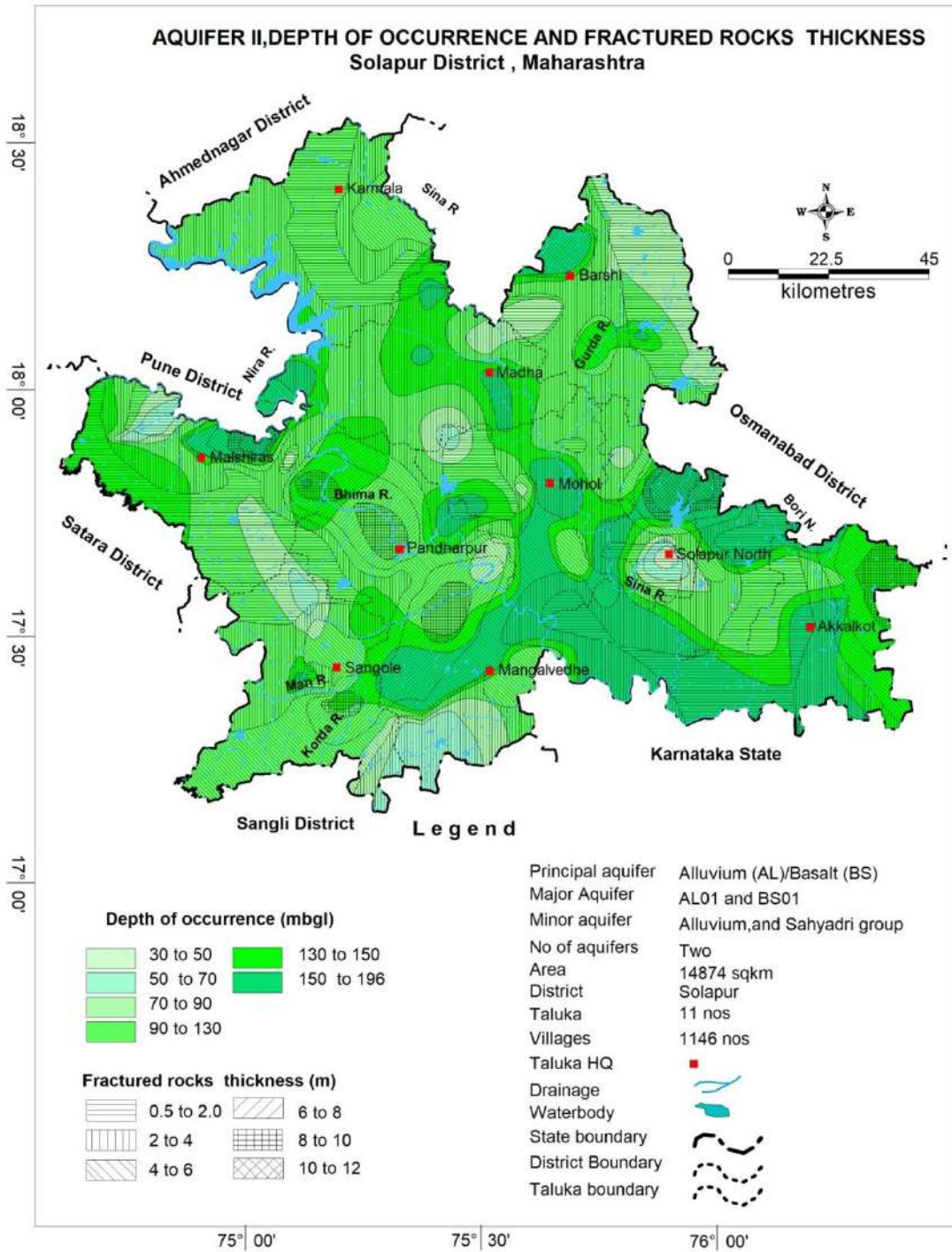


Fig 2.4: Aquifer II, Depth of occurrence and fractured rock thickness

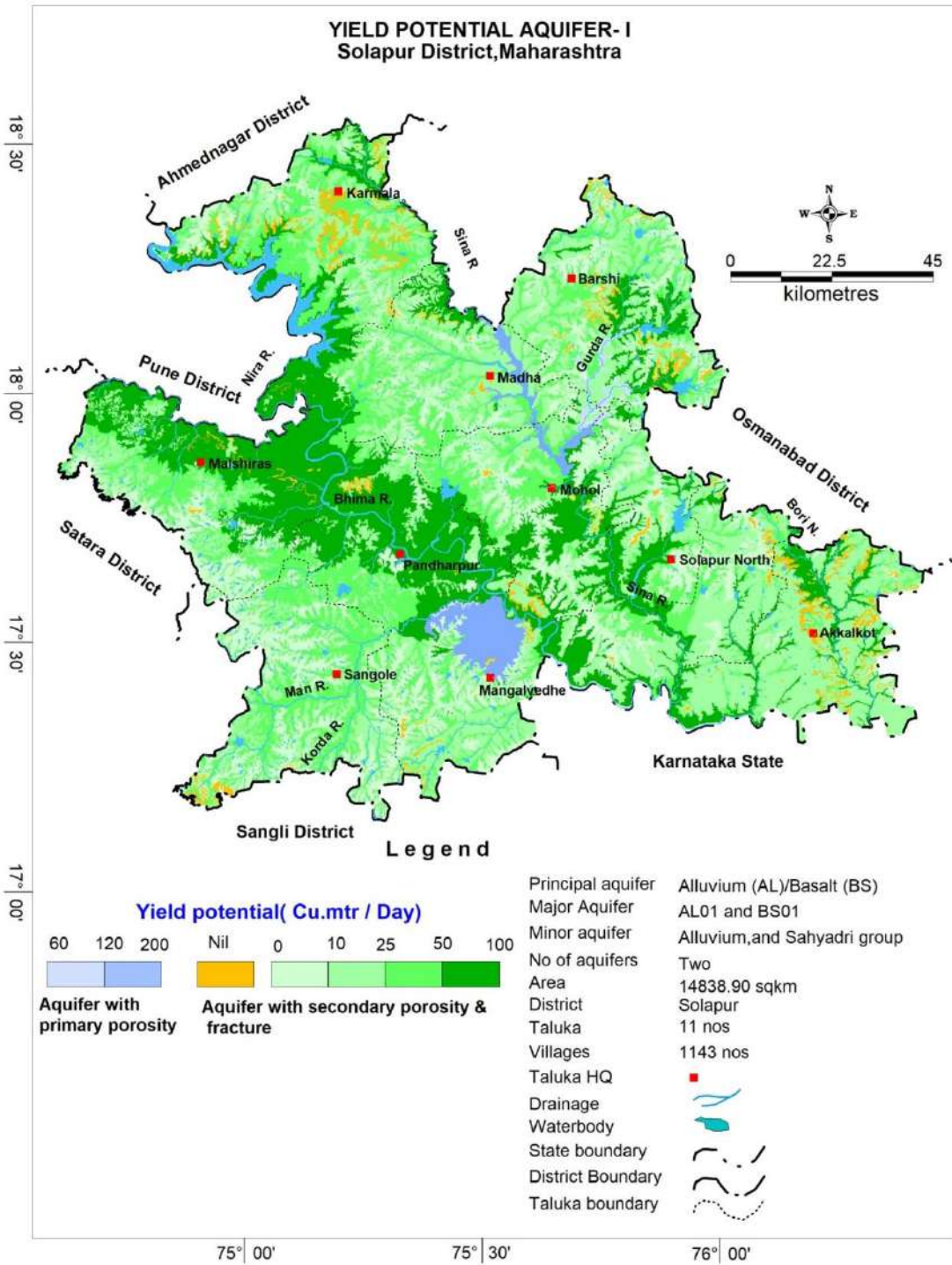


Fig 2.5: Yield potential Aquifer - I

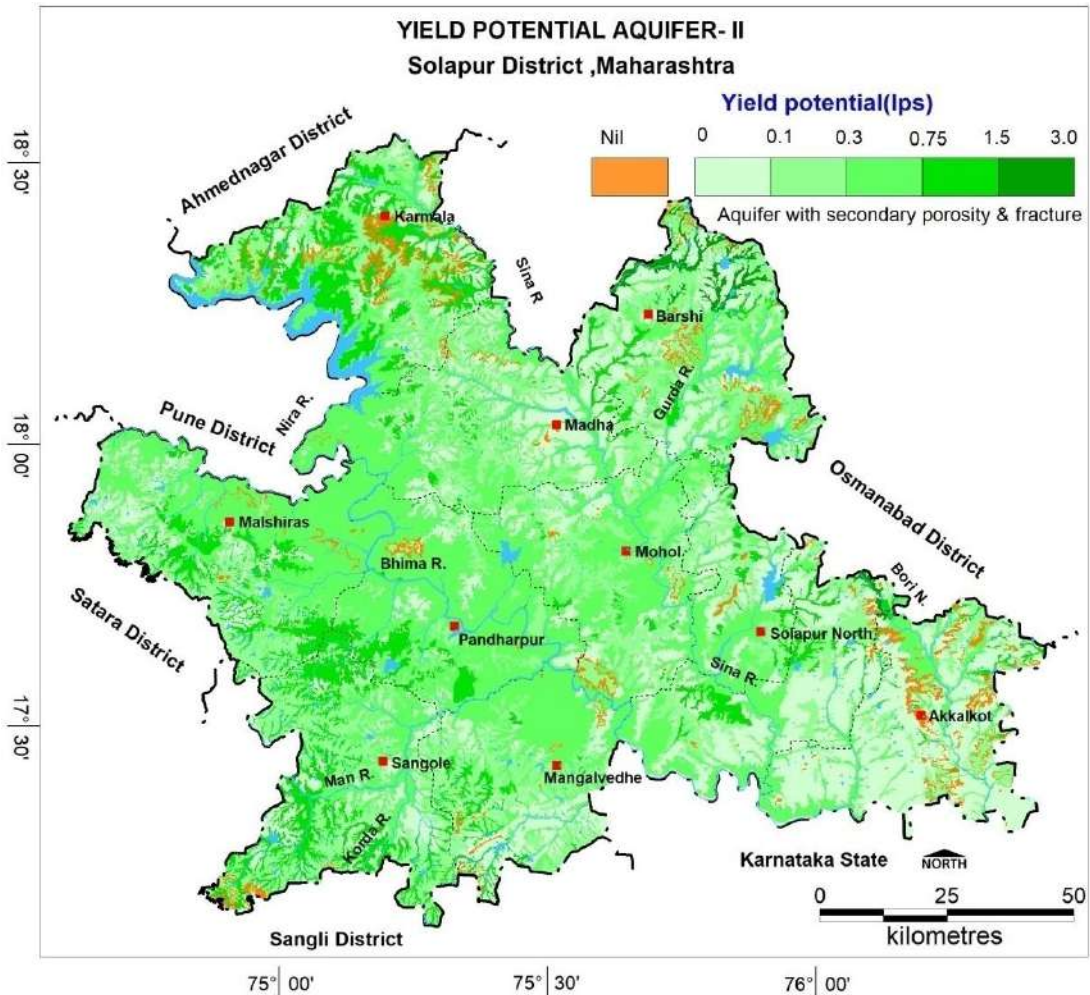


Fig 2.6: Yield potential Aquifer – II

2.2 Aquifer Parameters

Aquifer parameters are available from ground water exploration carried out in the district as well as from the pumping tests carried out on dugwells in Basaltic and Alluvial terrain. The specific capacity of the wells tapping Deccan Trap Basalt ranges between 1.6 and 5 lps/m of draw down and the transmissivity ranges from 1.25 to 207 m²/day. The specific capacity of dugwells tested in alluvial aquifer ranges between 1.1 and 10 lps/m of drawdown. During the pumping tests conducted on the exploratory wells in Alluvium, the transmissivity was found to vary from 30 to as high as 210 m²/day. The storage coefficient varied between 3×10^{-6} and 1.7×10^{-3} .

2.3 3-D and 2-D Aquifer Disposition

Based on the existing data, aquifer disposition in 3D, Fence diagram, and few hydrogeological sections have been prepared along section lines shown in Fig 2.7 to 2.13 to understand the subsurface disposition of aquifer system.

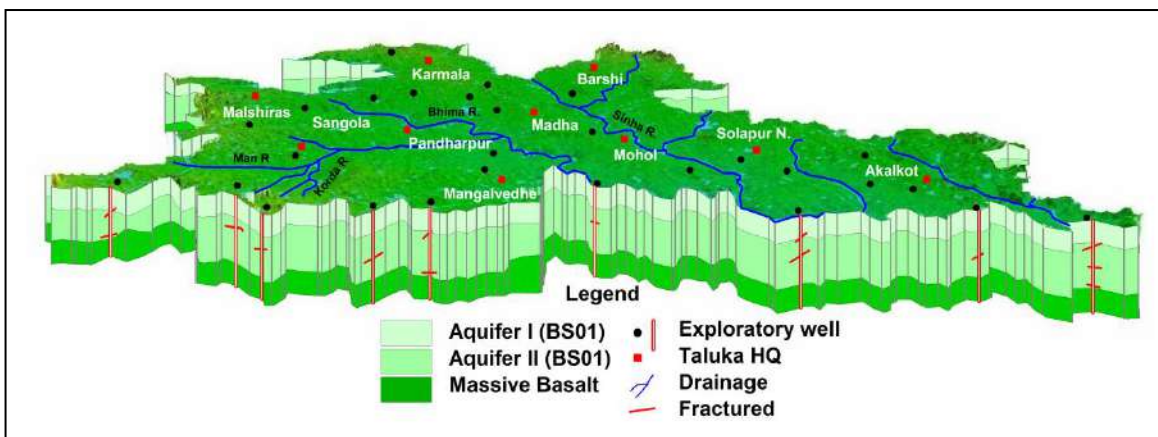


Fig. 2.7: 3D Aquifer Disposition

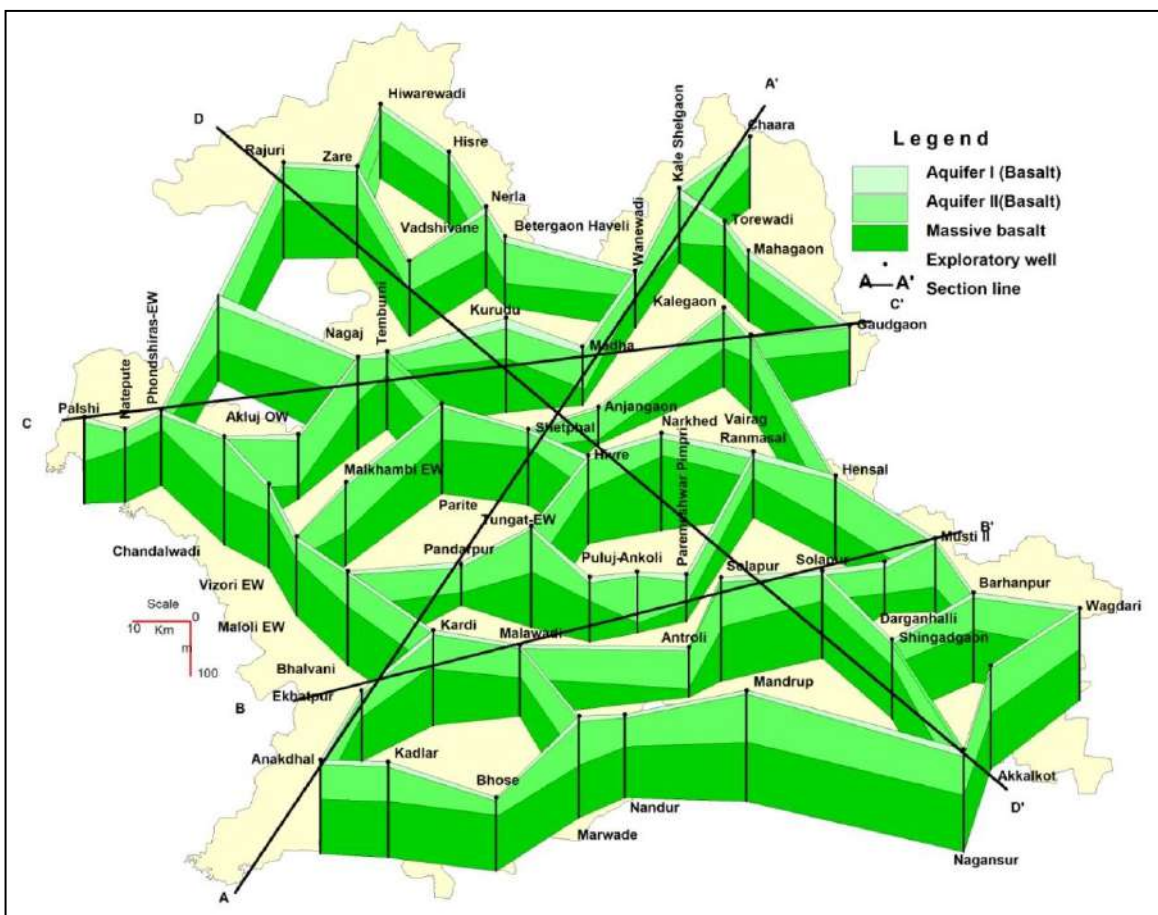


Fig. 2.8: Fence diagram - Aquifer Disposition

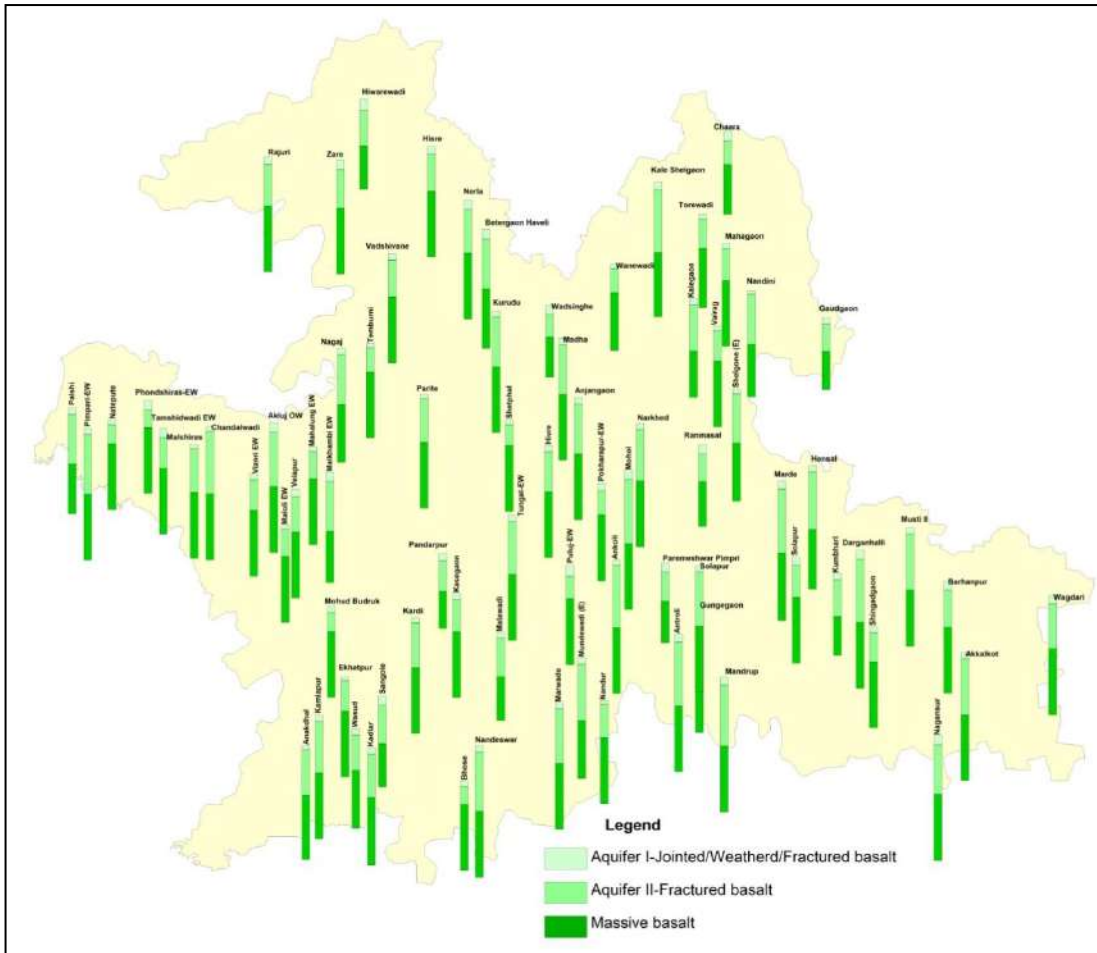


Fig. 2.9: Lithological disposition

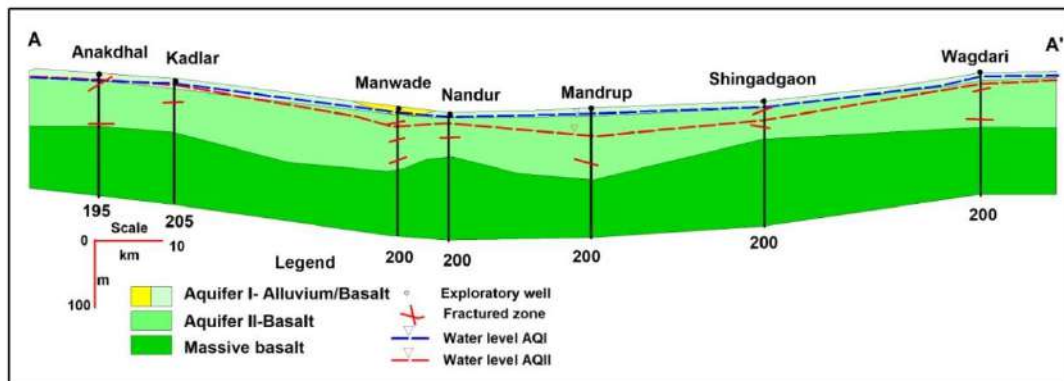


Fig. 2.10: Hydrogeological section AA'

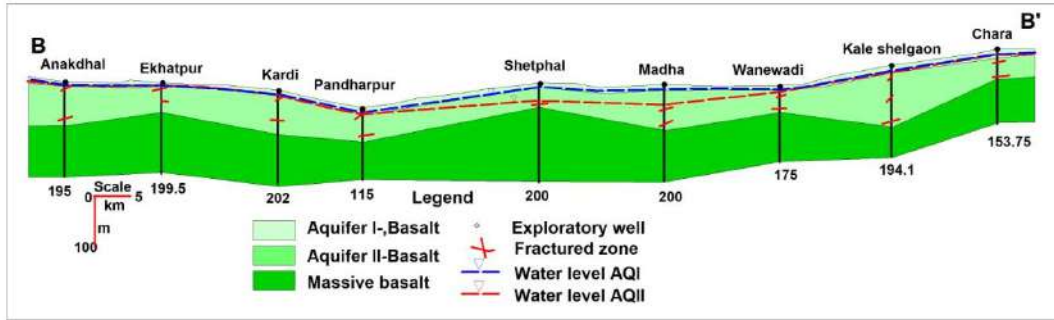


Fig. 2.11: Hydrogeological section BB'

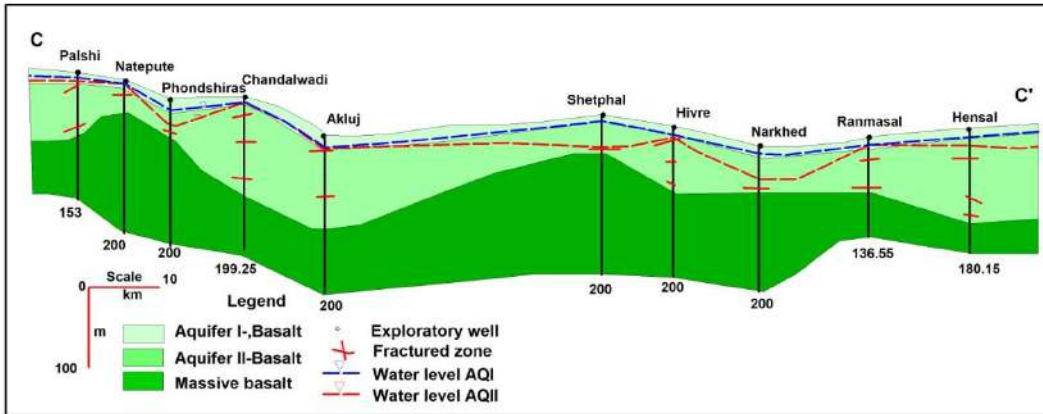


Fig. 2.12: Hydrogeological section CC'

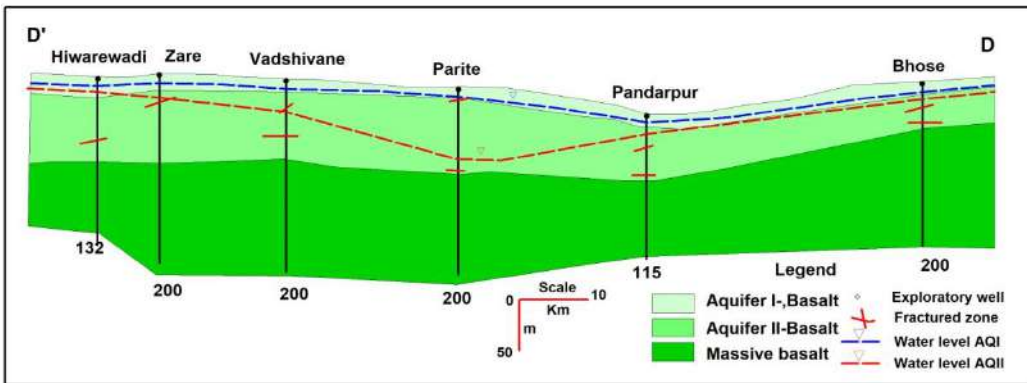


Fig. 2.13: Hydrogeological section DD'

3 WATER LEVEL SCENARIO

3.1 Depth to water level (Shallow Aquifer-I)

The Depth to water level depends on the hydrogeological properties the rock formations, level of ground water development and topography of of the area. Generally, it rises during the monsoon period and gradually decline in water level after monsoon till the next monsoon is arrived in the district. Central Ground water Board, Central Region has established 58 ground water monitoring stations in the entire district and periodically monitors it 4 times in a year, i.e. January, May (Premonsoon), August and November (Postmonsoon). Pre-monsoon and post monsoon water levels along with fluctuation during 2017 and long-term water level trends (2008-2017) are given in **Annexure-II**. Apart from this, under Naqim studies 160 key observation wells were also established and monitored during the year 2017 (**Annexure-III**). Ground water Surveys and Development Agency (GSDA), Govt. of Maharashtra also monitored 199 wells in the entire ditrict. These data have been used for the preparation of depth to water level maps of the district.

3.1.1 Depth to Water Level – Pre-monsoon (May-2017)

The depth to water levels in Solapur district during May 2017 ranges between 4.1 mbgl (Khatgaon, Karmala taluka) and 23.5 mbgl (Maslechaudhary, Mohol taluka and Tanali, Pandharpur). The depth to water levels less than 5 mbgl is represented as localized pint values and not prominent in the district. The depth to Water levels between 5-10 mbgl is observed in most part of the district and covers about 50% of the area. The depth to Water levels between 10-20 mbgl is observed in central part and east west elongated patch covering parts of Madha, Mohol, Pandharpur, North Solapur and South Solapur talukas. The depth to Water levels between 10-20 mbgl is also observed as small pockets in Karmal, Malshiras, Sangola, Mangalwedha and Barshi talukas. This zone covers about 35% of the district area. The depth to Water levels more than 20 mbgl is observed in small pokets around in central part of the district. The premonsoon depth to water level map is depicted in Fig. 3.1.

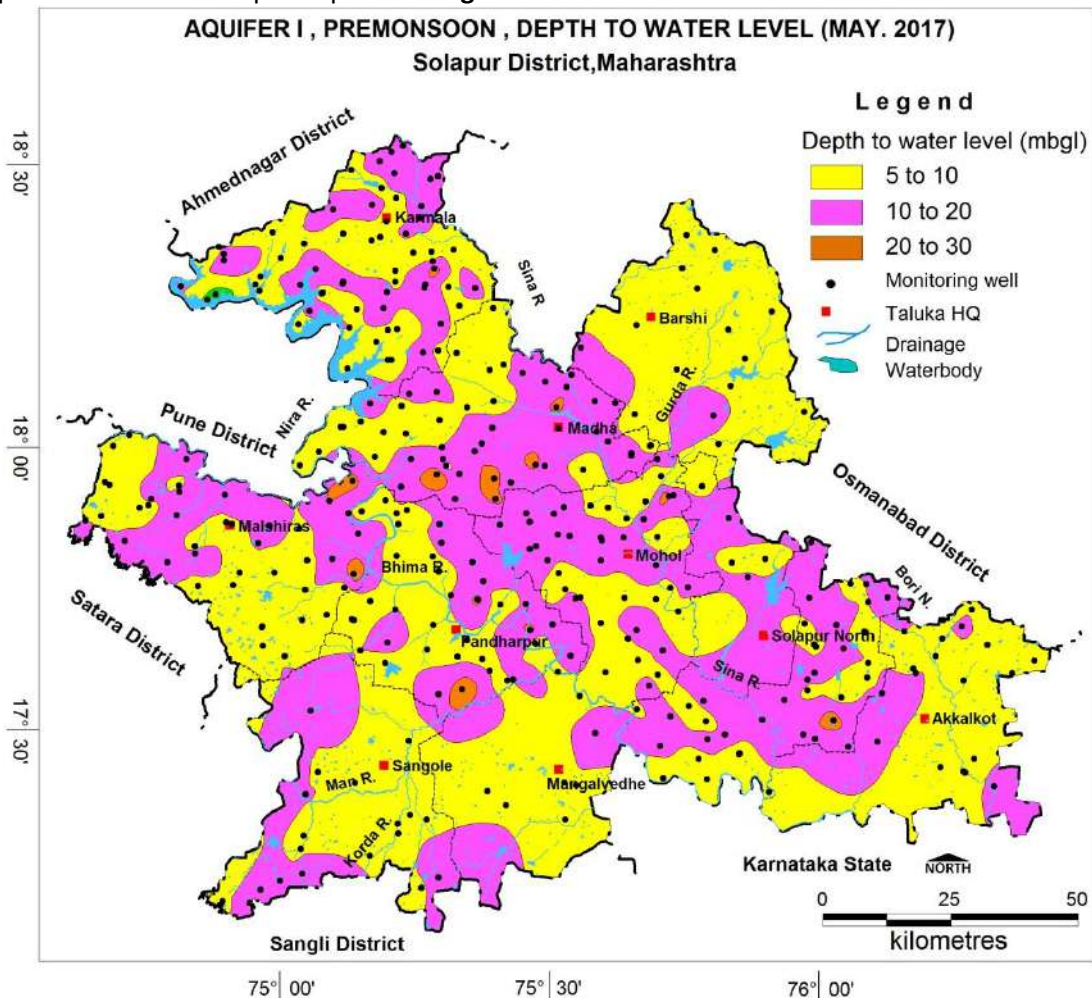


Fig 3.1: Pre monsoon DTWL shallow aquifer (May 2017)

3.1.2 Depth to Water Level – Post monsoon (Nov-2017)

The depth to water levels in Solapur district during Nov. 2017 ranges between 0.5 (Kuslamb, Barshi taluka and Kavitgaon, Karmala taluka) and 18.5 mbgl (Takali Shikandar, Mohol taluka). Shallow water levels within 2 m bgl are observed in north east part of Barshi, central and north east part of Sangola and small patches observed in Mangalwedha, Madha, Mohol and Karmala talukas. The depth to water levels between 2-5 mbgl is observed in major parts of the district covering Akkalkot, Mangalwedha, Madha, Mohol, karmala, Pandharpur, Barshi and malshiras talukas. It consists of about 60% area of the district. The depth to water levels between 5-10 mbgl is observed in most of the north Solapur , south Solpaur, north west of Malshiras talukas and elongate patches in parts of Pandharpur, Madha, Sangola, Mohol, Karmala and north

of Akkalkot talukas. The depth to water levels above 10 mbgl is observed in small patches of north Solpaur, south Solpaur, Pandharpur, Madha and Karmala talukas. The post monsoon depth to water level map is shown in Fig 3.2.

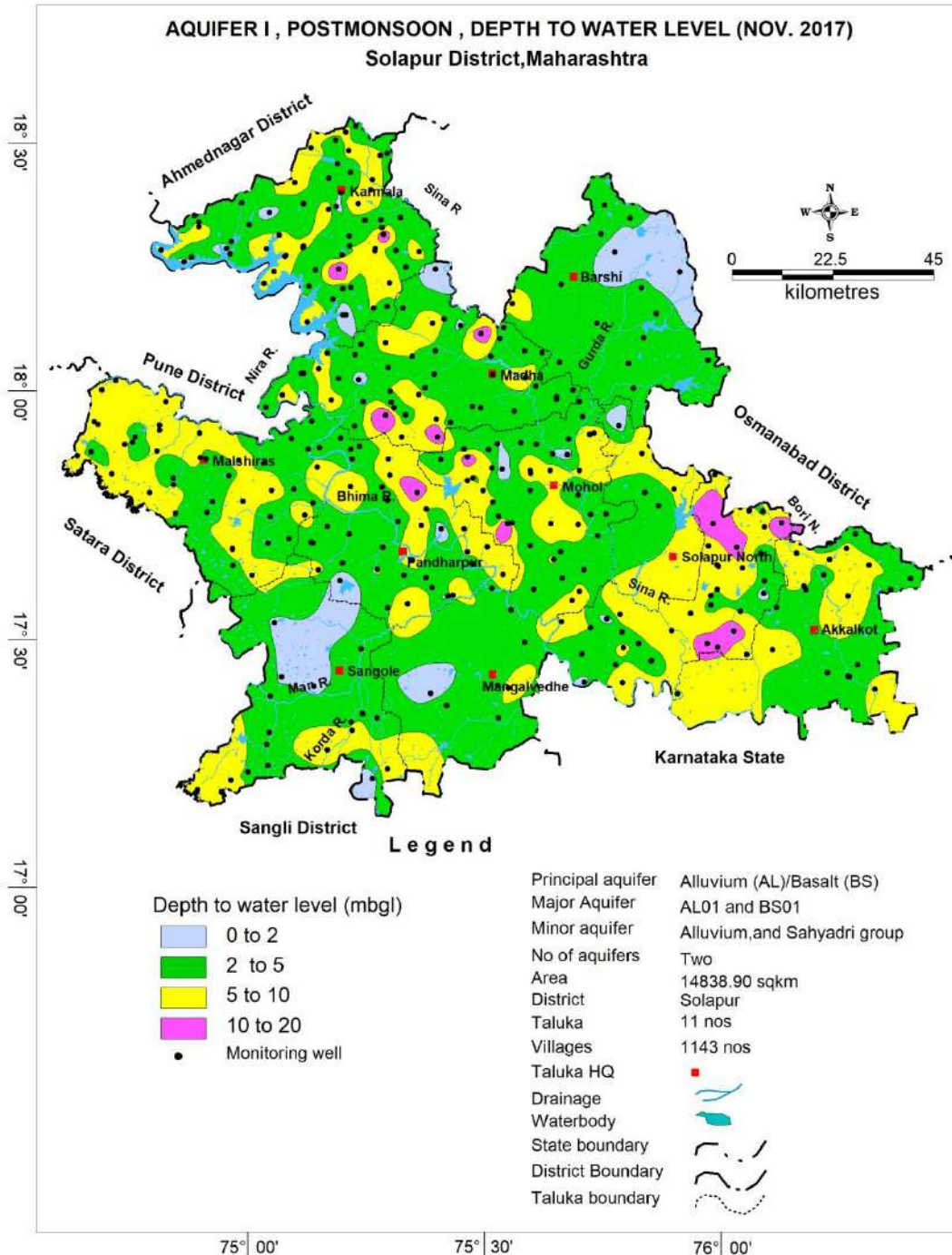


Fig 3.2: Post monsoon DTWL shallow aquifer (Nov 2017)

3.1.3 Seasonal Water Level Fluctuation (May 2017 Vs Nov. 2017)

It is observed that minimum water level fluctuation was measured at Medhapur, Pandharpur taluka (0.20 m) while maximum water level fluctuation was measured at Wadachiwadi, Madha taluka (18 m). Rise in water level has been observed in entire district in the range of Rise 0-2, 2-4, 4-6 and >6 m. No decline in water level was observed in the District (Fig. 3.3.)

3.2 Depth to water level (Deeper Aquifer-II)

3.2.1 Premonsoon Depth to Water Level (May-2017)

The pre-monsoon depth to water levels, during May 2017, range from 8.00 (Kaldar, Sangola taluka) to > 55.00 mbgl (Musti and Kumbhari, South Solapur taluka). The depth to water level less than 10 mbgl is observed in isolated parts of Karmala and Barshi talukas. The major parts of district show depth to water level between > 50 mbgl. The depth to water level between 10 and 30 mbgl is observed in major parts of Sangola, Karmala and Mohol Taluka. The premonsoon depth to water level for Aquifer –II is given in **Fig. 3.4** and the details are presented in **Annexure-IV**.

3.2.2 Postmonsoon Depth to Water Level (Nov.-2017)

In Aquifer-II, the post monsoon depth to water levels in Solapur District during Nov. 2017 range between 2.00 (Chara, Barshi taluka) and 50.5 mbgl (Naganur, Akkalkot taluka). Depth to water level less than 10 m bgl has been observed in the southern and south-central part of the district and in parts of Karmal, Barshi, Sangola and Mohol talukas. The major part of the district shows deeper water levels ranging between 10 and 20 mbgl. The deepest water level of more than 40 mbgl is observed in the southern parts of Akkalkot and Madha talukas. The post monsoon depth to water level for Aquifer –II is given in **Fig. 3.5**.

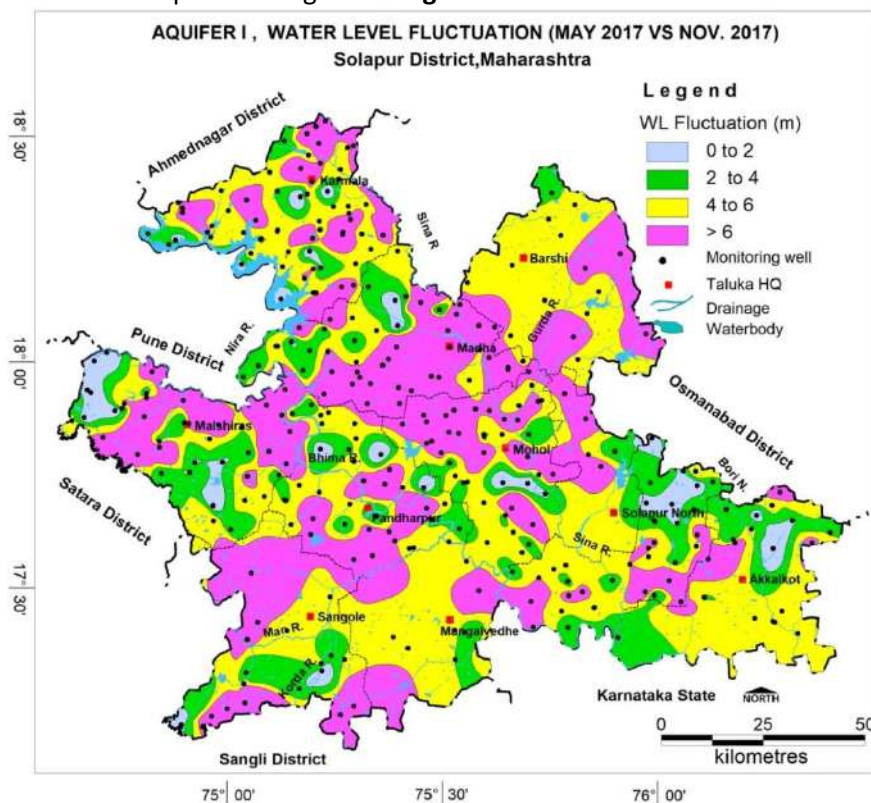


Fig 3.3: Water level fluctuation (May 2017 vs Nov 2017)

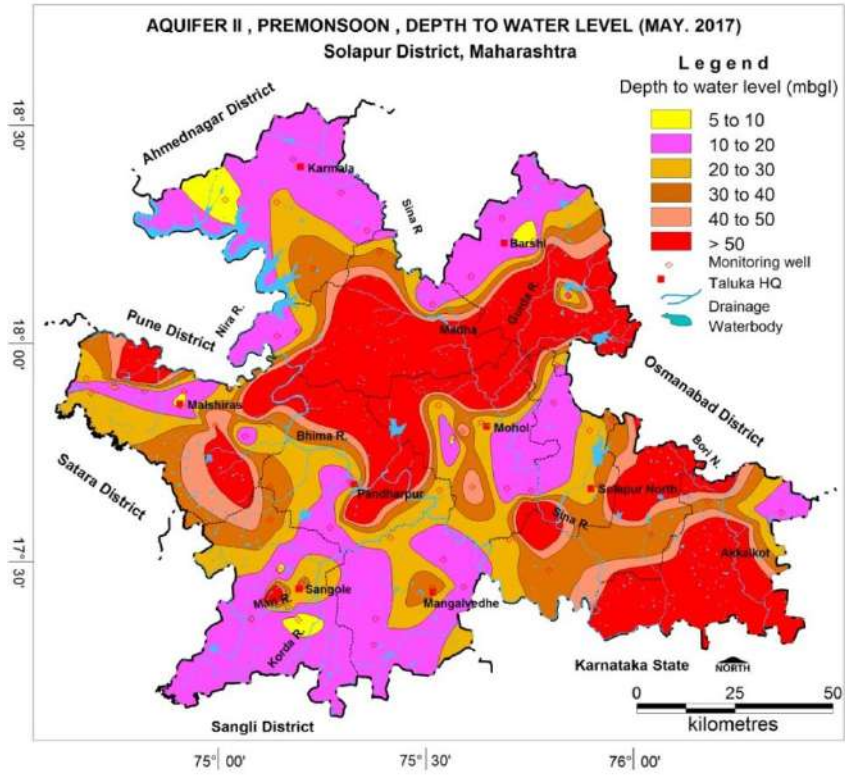


Fig 3.4: DTWL deeper aquifer (May. 2017)

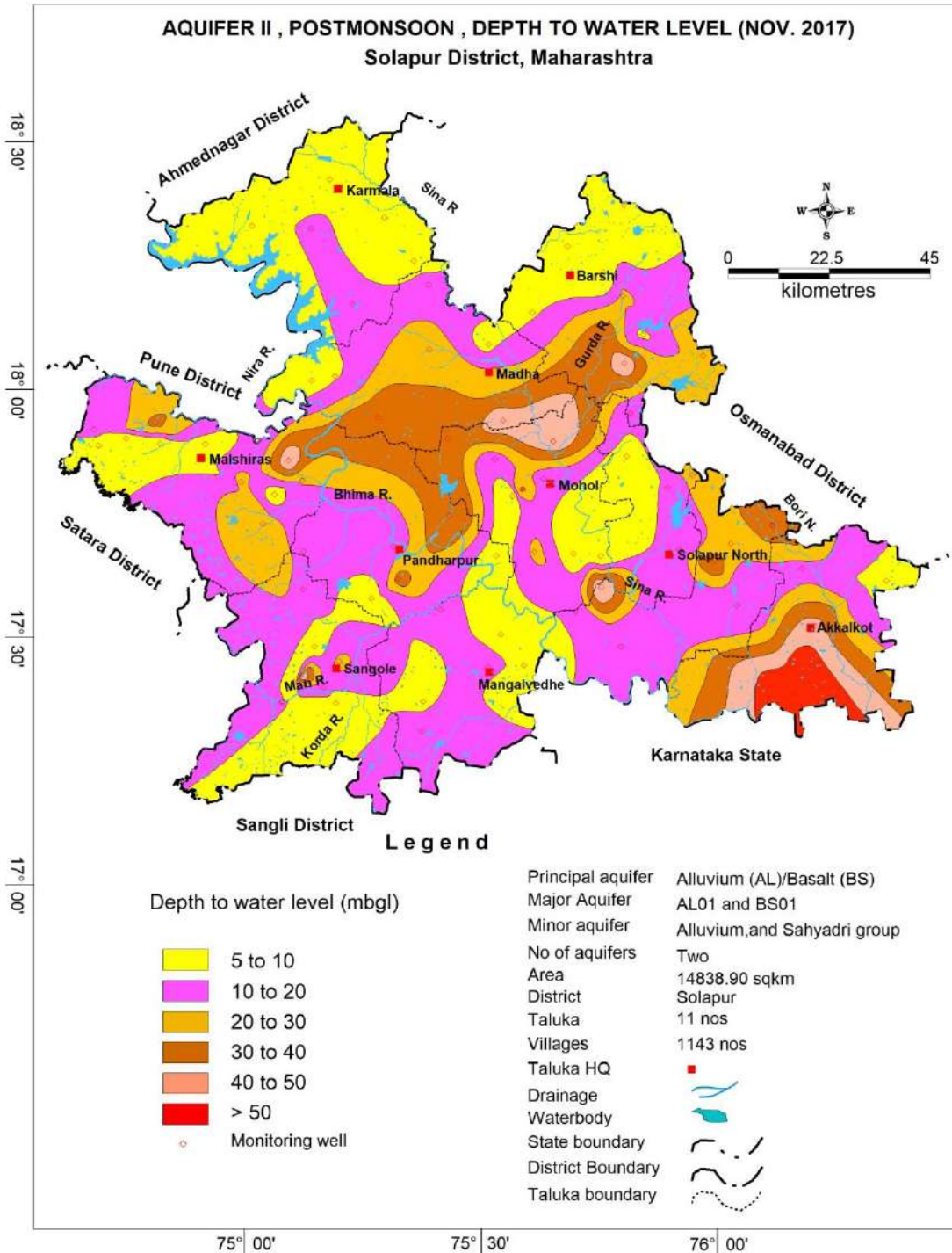


Fig 3.5: DTWL deeper aquifer (Nov. 2017)

3.3 Water Level Trend (2008-2017)

3.3.1 Pre-monsoon water levels trend

In Solapur district, pre-monsoon rise in water levels trend has been recorded at 56 stations and ranges from 0.007 (Rajapur, Sangola taluka) to 0.34 m/year (Ajanale, Sangola taluka) while falling trend was observed in 121 stations varying from 0.004 (Dontri, Soalpur taluka) to 0.67 m/year (Hivare, Mohol taluka). During pre-monsoon, declining water level trend has been observed in about 10191sq km area during 2008-17, i.e., 68.4% of the area. Significant decline more than 0.20 m/year has been observed in 876 sq km, i.e., 5.8 % area covering major part of Karmala, Madha and Mohol talukas. Rise in water level trend has been observed in central

part of the district covering major part of Madha, Barshi and Akkalkot talukas. Premonsoon trend map is presented in Fig 3.6.

3.3.2 Post-monsoon water levels trend

In Solapur district, post monsoon rise in water levels trend has been recorded at 29 stations and it ranges between 0.009 (Natepute, Malshiras taluka) to 0.34 m/year (Basalegaon, Akkalkot taluka) while falling trend was observed in 148 stations varying from 0.001 (Chikharde, Barshi taluka) to 0.42 m/year (Kurbavi, Malshiras taluka). Rising water level trend has been observed in part of Akkalkot and Barshi Taluka Fall in water level trend has been observed in the major parts of the district. Significant decline more than 0.20 m/year has been observed in 439 sq km area Fig 3.7

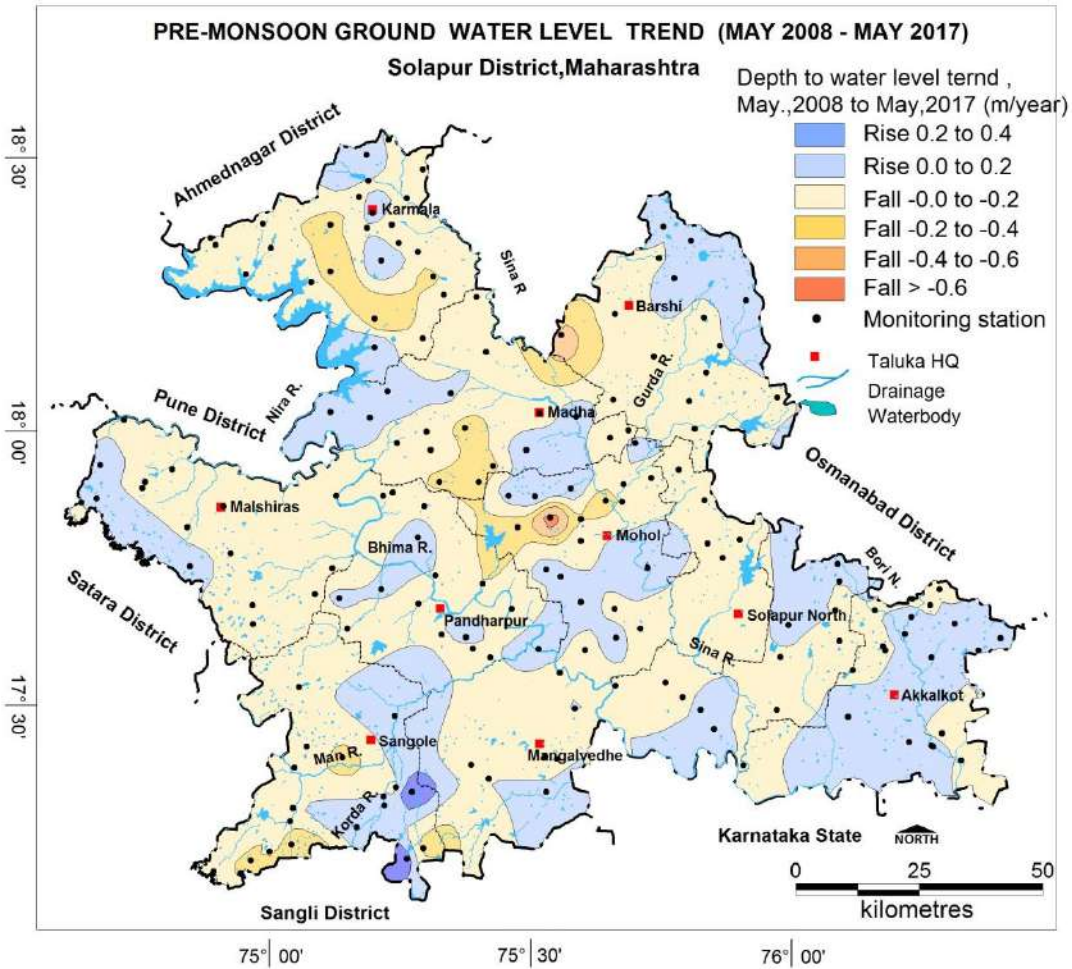


Fig 3.6: Premonsoon decadal water level trend (May 2008-May 2017)

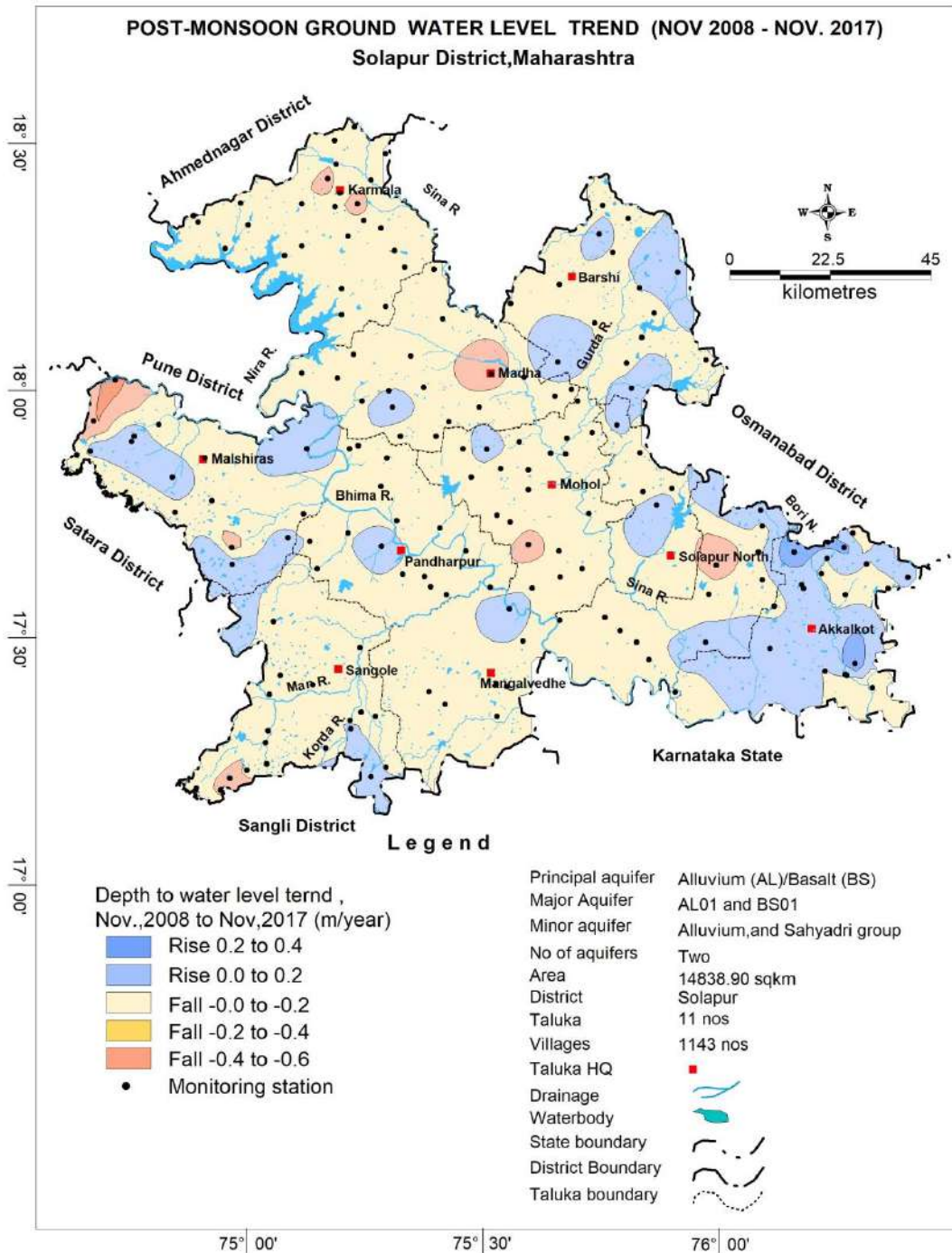


Fig.3.7: Postmonsoon decadal trend (2008-17)

3.4 Hydrograph Analysis

The variation in short term and long-term water level trends may be due to variation in natural recharge due to rainfall and withdrawal of groundwater for various agricultural activity, domestic requirements and industrial needs. The analysis of hydrographs show that the annual rising limbs in hydrographs indicate the natural recharge of groundwater regime due to monsoon rainfall, as the monsoon rainfall is the only natural source of water for recharge to the ground water regime (Fig 3.8 to 3.12) However, continuous increase in the groundwater draft is indicated by the recessionary limb.

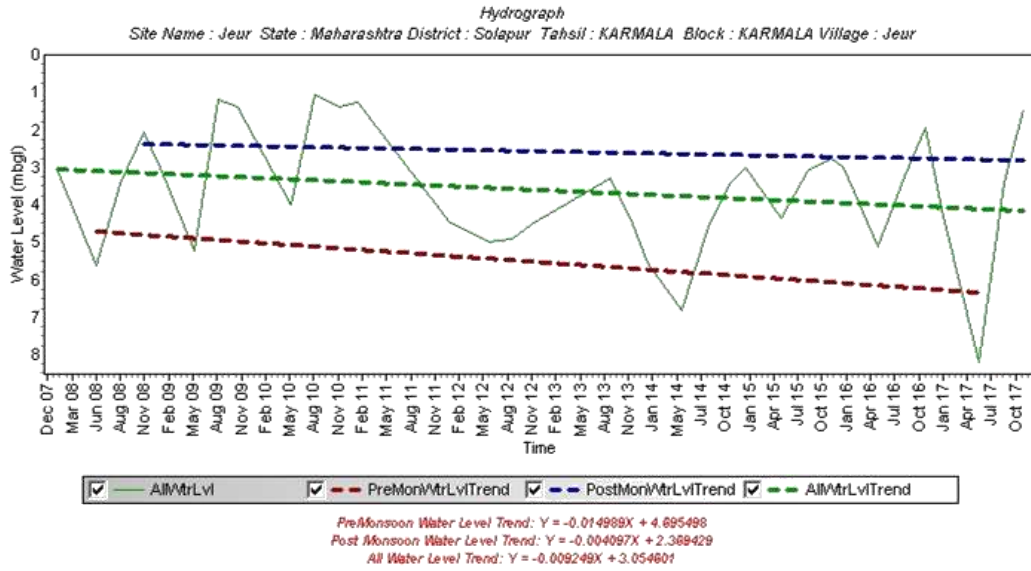


Fig 3.8: Hydrograph (2007-17), Jeur, Karmala Taluka

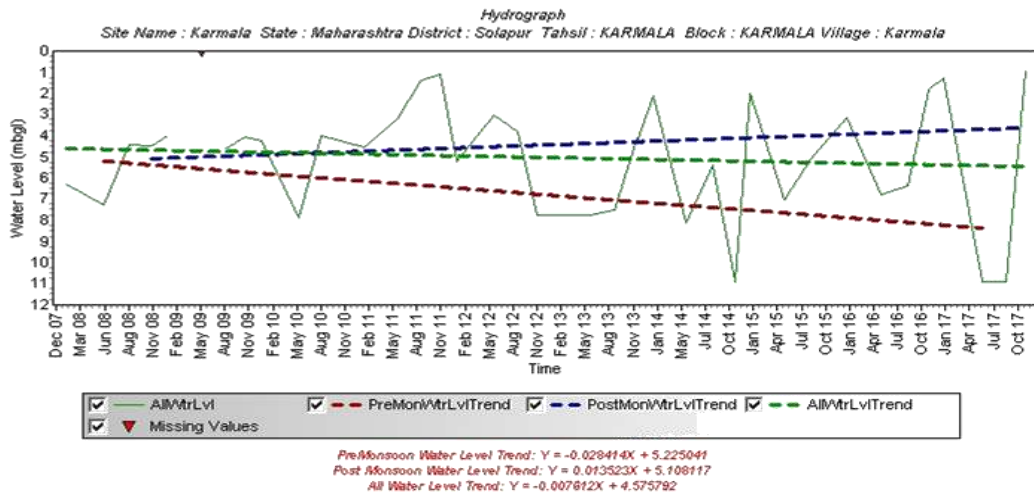


Fig 3.9: Hydrograph (2007-17), Karmala, Karmala Taluka

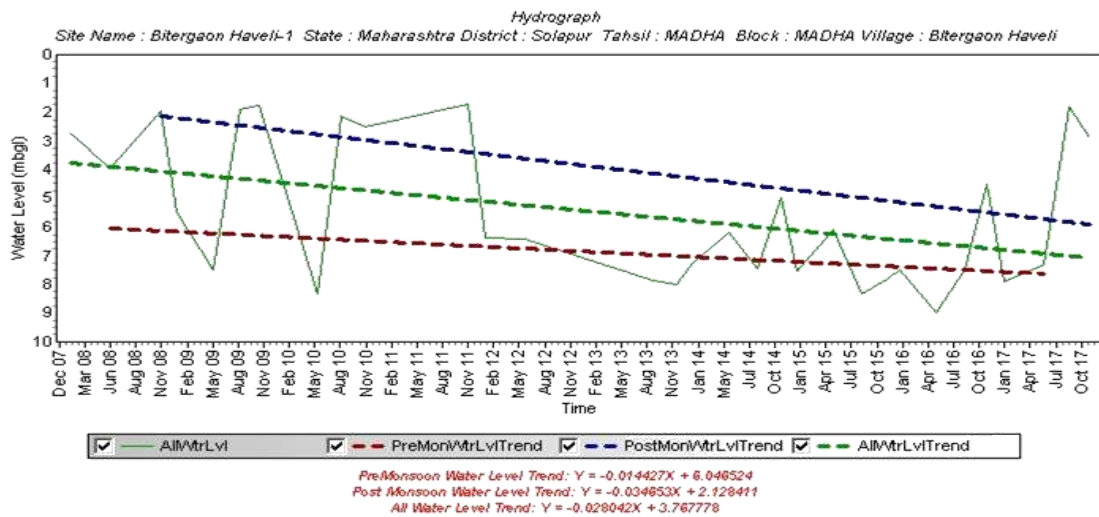


Fig 3.10: Hydrograph (2007-17), Bitergaon Haveli, Madha Taluka

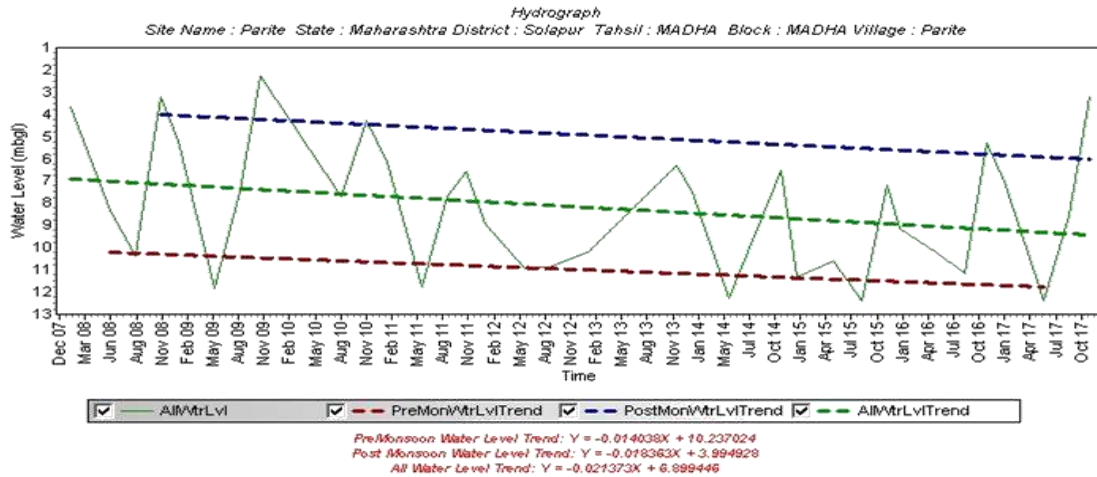


Fig 3.11: Hydrograph (2007-16), Parite, Madha Taluka

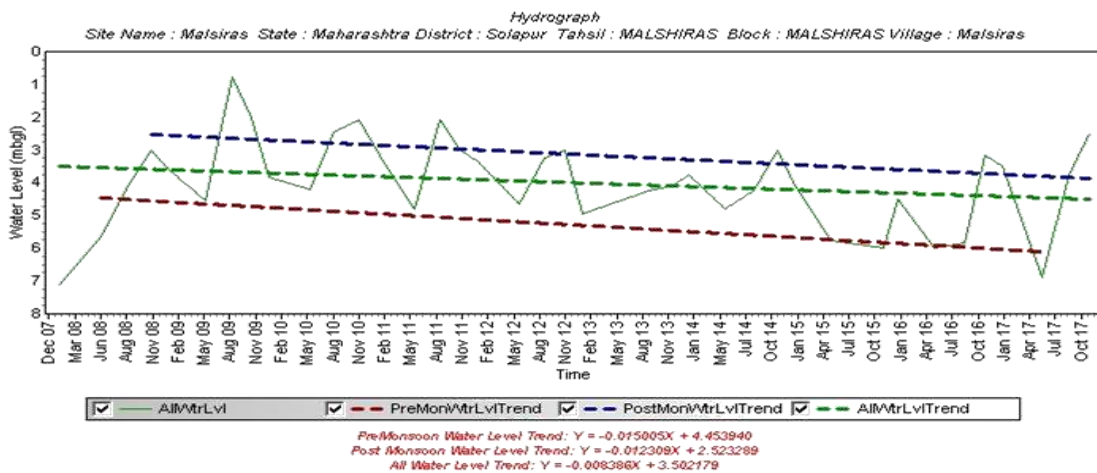


Fig 3.12: Hydrograph (2007-17), Malshiras, Malshiras Taluka, SOLAPUR district

4 GROUND WATER QUALITY

Water sampling is being done every year from GWM wells during pre-monsoon period (May). The data gap analysis has been carried out to find out the adequacy of information on water quality and identified additional locations, 90 for shallow and 15 for deeper aquifers. Ground water quality data of 99 monitoring wells of CGWB and GSDA representing shallow aquifer and 104 samples data from earlier studies representing shallow aquifer have been utilised to decipher the quality scenario of shallow aquifer. 189 exploratory wells tubewells / borewells of CGWB and GSDA and 119 exploratory well data from earlier studies representing deeper aquifer have been utilised to decipher the quality scenario of deeper aquifer. The aquifer wise ranges of different chemical constituents present in ground water are given in **Table 4.1**. The details of ground water quality analysis of Aquifer-I and Aquifer-II are given in **Annexure-VI** and **Annexure-VI** respectively.

Table 4.1: Aquifer wise ranges of chemical constituents in Solapur district

Constituents	Shallow aquifer		Deeper aquifer	
	Min	Max	Min	Max
pH	6.5	9.2	6.5	9.5
EC	298	10000	375	2910
TDS	191	6400	200	1885

Constituents	Shallow aquifer		Deeper aquifer	
	Min	Max	Min	Max
TH	40	2560	25	960
Calcium	8	926	0	245
Magnesium	0	501	0	109
Potassium	0.03	78.45	0	8.3
Sodium	3.9	796	0	400
Bi-carbonate	19.5	658	11	403
Chloride	70	1550	0	440
Sulphate	3	1260	0	752
Nitrate	0	879	0	220
Fluoride	0	1.5	0	12

4.1 Electrical Conductivity (EC)

4.1.1 Distribution of Electrical Conductivity in Shallow Aquifer:

The EC in shallow aquifer varies between 298 (Musti, South Solapur taluka) and 10000 $\mu\text{S}/\text{cm}$ (Akole kathi, North Solapur taluka). Out of 189 samples collected from dug wells, 14 samples are having EC in range of 2250 to 3000 $\mu\text{S}/\text{cm}$ and only 17 samples have shown EC > 30000 $\mu\text{S}/\text{cm}$. It is observed that the concentration of high EC > 2250 $\mu\text{S}/\text{cm}$ has been observed in patches in Pandharpur, North and south Solapur taluka and small parts of Madha and Malshiras taluka. The distribution of electrical conductivity in shallow aquifers is shown in **Fig: 4.1** and analytical data is presented in **Table 4.2**.

4.1.2 Distribution of Electrical Conductivity in Deeper Aquifer:

The concentration of EC in deep aquifer varies between 375 (Shelgone, Barshi taluka) and 2910 $\mu\text{S}/\text{cm}$ (Alagi, Akkalkot taluka). Out of 119 samples collected from tube wells/bore wells, 5 samples are having EC more than 2250 $\mu\text{S}/\text{cm}$. It is observed that the concentration of high EC more than 2250 has been observed in parts of South Solapur and Akkalkot talukas. The distribution of electrical conductivity in deeper aquifers is shown in **Fig: 4.2** and analytical data is presented in **Table 4.2**.

Table 4.2: Aquifer wise Electrical conductivity data

S.No.	EC ($\mu\text{S}/\text{cm}$)	shallow aquifer		Deeper Aquifer	
		No. of samples	% of samples	No. of samples	% of samples
1	< 250	0	0.00	0	0
2	>250-750	27	16.07	49	41.18
3	>750-2250	110	65.48	65	54.62
4	2250-3000	14	8.33	5	4.20
5	3000-5000	12	7.14	0	0
6	5000	5	2.98	0	0
Total samples		168	100	119	100

4.2 Nitrate:

Nitrogen in the form of dissolved nitrate nutrient for vegetation, and the element is essential to all life. The major contribution in ground water is from sewage, waste disposal, nitrate fertilizer and decaying of organic matter. In Solapur district nitrate concentration varies between 0 to 879 mg/l. As per BIS (2012) the desirable limit is 45 mg/l. In shallow aquifer, 189 samples were analysed, out of this 54 water samples show the nitrate concentration exceeded the desirable limit of 45 mg/l. The high concentration of Nitrate may be due to domestic waste and sewage in the urban and rural parts of district. In deeper aquifer, 119 wells analysed, out of this 15 water samples show that the nitrate concentration exceeded the desirable limit of 45 mg/l. The deeper aquifer are also affected by nitrate contamination, it may be due to percolation of nitrate contaminants from the ground surface as there are no other reasons for nitrate contamination in deeper aquifers. Aquifer wise nitrate concentration is given in **Table 4.3**.

4.3 Fluoride:

In shallow aquifer, concentration of fluoride ranges from 0.01 to 1.5 mg/l. out of 169 samples analyzed, only 6 samples show fluoride concentration more than 1 mg/l in shallow aquifer. In Deeper Aquifer, concentration of fluoride ranges from 0.22 to 12 mg/l out of 95 samples analysed, 53 samples show fluoride concentration more than 1 mg/l. In Deeper aquifer, the highest concentration of fluoride is found in Madha, South Solapur and North Solapur Talukas, it may due to the lithological reason only. Aquifer wise fluoride concentration is given in table 4.3.

Table 4.3: Aquifer wise nitrate and Fluoride concentration in Solapur district

Taluka	No ₃ > 45 mg/l		fluoride >1 mg/l	
	No of samples	No of samples	No of samples	No of samples
	Shallow Aquifer	Deeper Aquifer	Shallow Aquifer	Deeper Aquifer
AKKALKOT	0	1	0	2
BARSHI	2		0	2
KARMALA	11	2	0	2
MADHA	11	4	0	10
MALSHIRAS	0	1	0	3
MANGALVEDHE	1	1	0	3
MOHOL	9		0	4
PANDHARPUR	7	1	0	4
SANGOLA	1		0	2
SOLAPUR NORTH	3	3	0	6
SOLAPUR SOUTH	9	2	0	4
Total	54	15	0	42

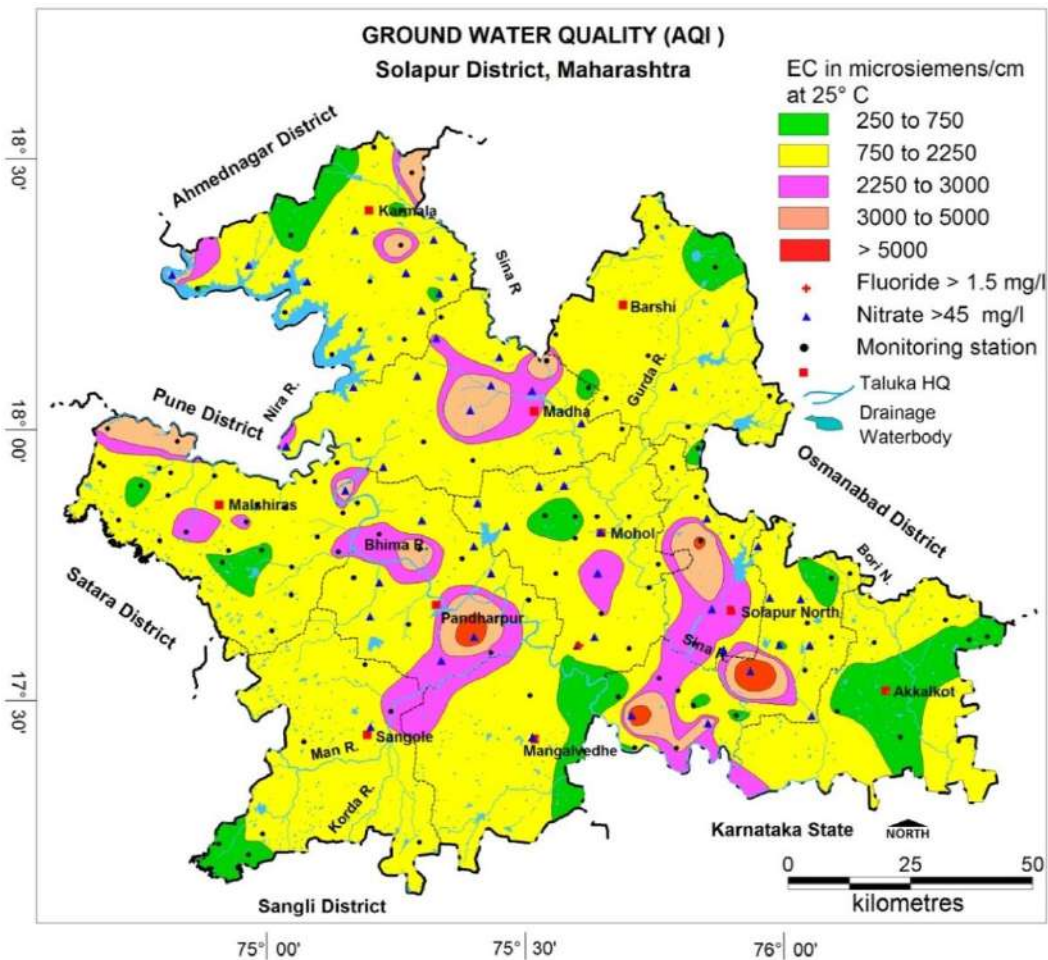


Fig. 4.1: Ground water quality, Aquifer-I

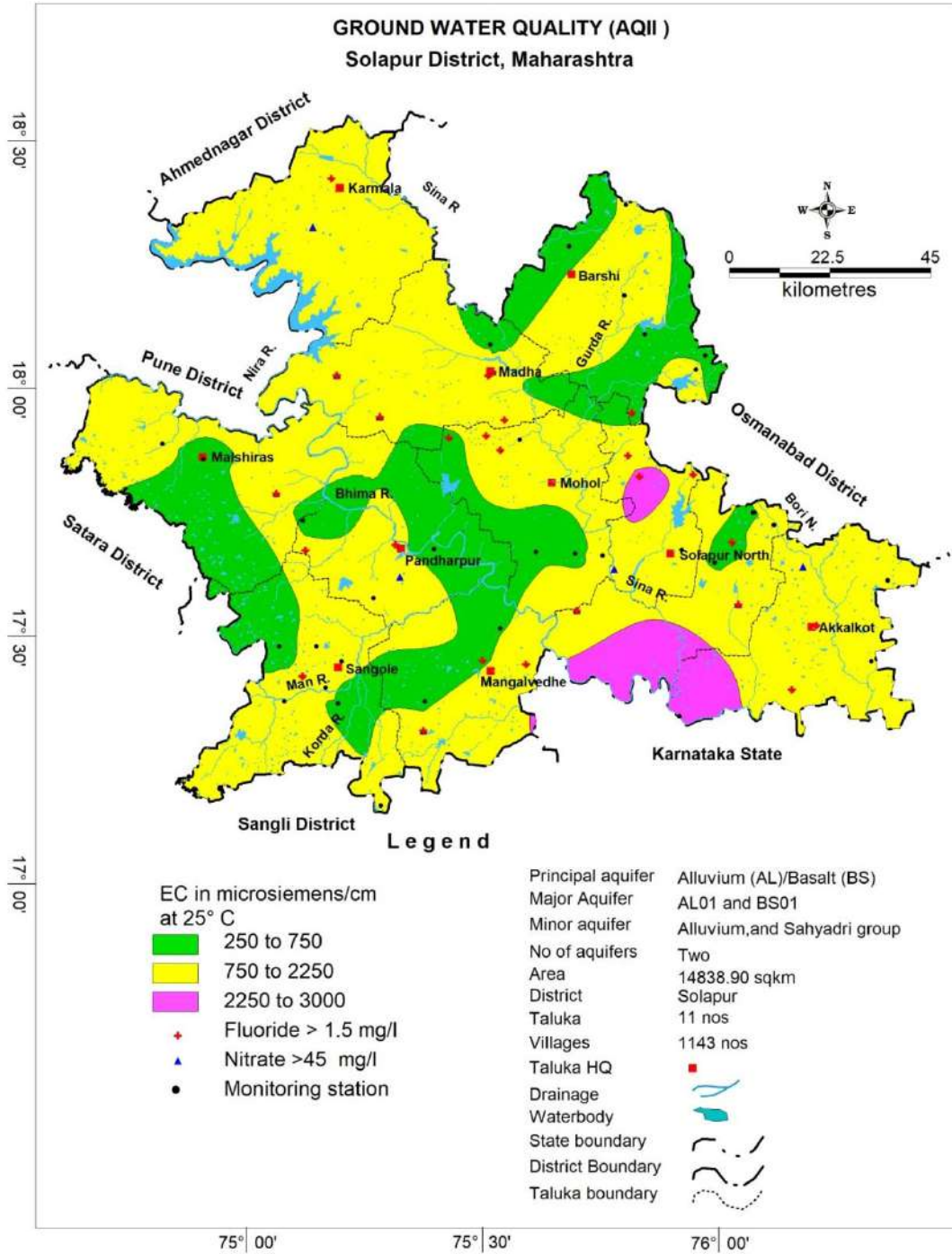


Fig. 4.2: Ground water quality, Aquifer-II

4.4 Suitability of ground water for drinking purpose

In shallow aquifer, 6.41 % samples are having TDS concentration more than maximum permissible limit (MPL) and 55.13 % of samples have TDS concentration above the Desirable limit (DL) but below the MPL. The water from such area is not fit for drinking purpose if directly consumed without treatment. It is also seen that about 1 to 31 % samples are beyond the maximum permissible limit for the parameters like TH, Ca, Mg, Cl, So_4 and No_3 indicating that the water is not suitable for drinking purpose. Concentration of Chemical constituents in shallow Aquifer is given in **Table 4.4**.

In Deeper aquifer, 7.56 % samples are having TDS concentration more than the Desirable limit (DL) but below the MPL. The water from such area is not fit for drinking purpose if directly

consumed without treatment. It is also seen that about 2 to 15 % samples are beyond the maximum permissible limit for the parameters like TH, Ca, Mg, Cl, SO_4 and NO_3 indicating that the water is not suitable for drinking purpose. Concentration of Chemical constituents in shallow Aquifer is given in **Table 4.5**.

Table 4.4: Concentration of Chemical constituents in shallow Aquifer

Parameter	Drinking water Standards (IS-10500-2012)		Total no of ground water samples	Shallow aquifer					
	DL	MPL		Samples (<DL)		Samples (DL-MPL)		Samples (>MPL)	
				No	%	No	%	No	%
pH	6.5-8.5	-	168	156	92.86	12	7.14		0.00
TDS	500	2000	78	30	38.46	43	55.13	5	6.41
TH	300	600	168	56	33.33	73	43.45	39	23.21
Ca (mg/L)	75	200	168	40	23.81	75	44.64	53	31.55
Mg (mg/L)	30	100	168	59	35.12	82	48.81	27	16.07
Cl (mg/L)	250	1000	168	114	67.86	51	30.36	3	1.79
SO_4 (mg/L)	200	400	168	120	71.43	30	17.86	18	10.71
NO_3 (mg/L)	45	No relax	168	114	67.86			54	32.14
F (mg/L)	1	1.5	168	168	100.00				

(Here, DL- Desirable Limit, MPL- Maximum Permissible Limit)

Table 4.5: Concentration of Chemical constituents in Deeper Aquifer

Parameter	Drinking water Standards (IS-10500-2012)		Total no of ground water samples	Shallow aquifer					
	DL	MPL		Samples (<DL)		Samples (DL-MPL)		Samples (>MPL)	
				No	%	No	%	No	%
pH	6.5-8.5	-	119	110	92.44	9	7.56		0.00
TDS	500	2000	119	57	47.90	62	52.10	0	0.00
TH	300	600	119	96	80.67	13	10.92	10	8.40
Ca (mg/L)	75	200	119	91	76.47	23	19.33	5	4.20
Mg (mg/L)	30	100	119	98	82.35	18	15.13	3	2.52
Cl (mg/L)	250	1000	119	102	85.71	17	14.29	0	0.00
SO_4 (mg/L)	200	400	119	89	74.79	18	15.13	12	10.08
NO_3 (mg/L)	45	No relax	98	83	84.69		0.00	15	15.31
F (mg/L)	1	1.5	107	65	60.75	42	39.25		

(Here, DL- Desirable Limit, MPL- Maximum Permissible Limit)

4.5 Suitability of ground water for irrigation

The water used for irrigation is an important factor in productivity of crop, its yield and quality of irrigated crops. The quality of irrigation water depends primarily on the presence of dissolved salts and their concentrations. The Electrical Conductivity (EC), Sodium Absorption Ratio (SAR) and Residual Sodium Carbonate (RSC) are the most important quality criteria, which influence the water quality and its suitability for irrigation.

4.5.1 Electrical Conductivity (EC)

The number of dissolved ions in the water is best represented by the parameter electrical conductivity. The classification of water for irrigation based on the EC values is given in **Table 4.6** and discussed as follows: -

Low Salinity Water (EC: 100-250 $\mu\text{S/cm}$): This water can be used for irrigation with most crops on most soils with little likelihood that salinity will develop.

Medium Salinity Water (EC: 250 – 750 $\mu\text{S/cm}$): This water can be used if moderate amount of leaching occurs. Plants with moderate salt tolerance can be grown in most cases without special practices for salinity control.

High Salinity Water (EC: 750 – 2250 $\mu\text{S/cm}$): This water cannot be used on soils with restricted drainage.

Even with adequate drainage, special management for salinity control may be required and plants with good salt tolerance should be selected.

Very High Salinity Water (EC: >2250 $\mu\text{S/cm}$): This water is not suitable for irrigation under ordinary condition. The soils must be permeable, drainage must be adequate, irrigation water must be applied in excess to provide considerable leaching and very salt tolerant crops should be selected.

Table 4.6: Classification of Ground water for Irrigation based on EC values

S.No.	EC ($\mu\text{S/cm}$)	shallow aquifer		Deeper Aquifer	
		No. of samples	% of samples	No. of samples	% of samples
1	< 250	0	0.00	0	0
2	>250-750	27	16.07	49	41.18
3	>750-2250	110	65.48	65	54.62
4	2250-3000	14	8.33	5	4.20
5	3000-5000	12	7.14	0	0
6	5000	5	2.98	0	0
Total samples		168	100	119	100

In shallow aquifer, maximum numbers of samples fall under the category of medium to high salinity type of water. In deeper Aquifer, also maximum numbers of samples fall under the category of medium to high salinity type of water. The areas wherevery high salinity prevails (>2250 $\mu\text{S/cm}$) ground water can be used for irrigation for very high salt tolerant crops and with proper soil and crop management practices

4.5.2 Sodium Absorption Ratio (SAR)

Since Calcium and Magnesium will replace Sodium more readily than vice versa, the ratio reflects the Sodium hazard. The SAR indicates the relative activity of the Sodium ions in exchange reactions with the soil. The main problem with high sodium concentration is its effect on soil permeability; hardening of soil & water irrigation system. Sodium also contributes directly to the total salinity of the water and may be toxic to sensitive crops such as fruit trees. The higher value of SAR indicates soil structure damage. In shallow aquifer, out of 189 samples analyzed and 187 samples are having SAR less than 10 and 2 samples are having SAR value more than 10. In deeper aquifer, out of 119 samples 113 samples are having SAR value less than 10 and only one sample having SAR more than 18. The classification of ground water samples based on SAR values for its suitability for irrigation purpose is shown in **Table 4.7**.

Table 4.7: Classification of Ground water for Irrigation based on SAR values

Characteristics	Quality	SAR value							
		< 10		10-18		18-26		> 26	
	Good	Good to Permissible		Doubtful		Bad (Unsuitable)			
	Total No of GW samples	Samples		Samples		Samples		Samples	
	No	%	No	%	No	%	No	%	
Shallow Aquifer	189	187	98.94	2	1.07	0	0.00	0	0
Deeper Aquifer	119	113	94.96	5	4.42	1	0.88	0	0
Total	308	300	97.40	7	2.33	1	0.33	0	0

4.5.3 Residual Sodium Carbonate (RSC):

Residual Sodium Carbonate (RSC) is considered to be superior to SAR as a measure of sodicity particularly at low salinity levels. Calcium reacts with bi-carbonate and precipitate as CaCO₃. Magnesium salt is more soluble and so there are fewer tendencies for it to precipitate. When calcium and magnesium are lost from the water, the proportion of sodium is increased resulting in the increase in sodium hazard. This hazard is evaluated in terms of RSC. The classification of ground water samples based on RSC values for its suitability for irrigation purpose is shown in **Table 4.8**.

Table 4.8: Classification of Ground water for Irrigation based on RSC values

Characteristics	Total No of GW samples	RSC values (meq/L)					
		< 1.25		1.25-2.50		> 2.50	
		Good		Doubtful		Bad (Unsuitable)	
		No. of Samples	%	No. of Samples	%	No. of Samples	%
Shallow Aquifer	189	172	91.01	7	4.07	10	5.81
Deeper Aquifer	119	115	96.64	4	3.48	0	0.00
Total	308	287	93.18	11	3.83	10	3.48

In shallow aquifer, it is observed that out of 189 samples only 17 samples show RSC values more than 1.25 meq/L indicating that the ground water of the area is not suitable for irrigation while in deeper aquifer, out of 119 samples only 4 samples show RSC more than 1.25 meq/L indicating that the ground water of the area is not suitable for irrigation.

5 GROUND WATER RESOURCES

5.1 Ground Water Resources – Aquifer-I

Central Ground Water Board and Ground Water Survey and Development Agency (GSDA) have jointly estimated the ground water resources of Solapur district based on GEC-97 methodology. Taluka wise ground water resources are given in **Table 5.1**, and graphical representations of the resources on the map are shown in **Fig. 5.1**.

Table 5.1: Ground water resources, Aquifer-I (Shallow aquifer), Solapur district (2013)

Sr No.	Administrative Unit	Command / Non-Command / Total	Net Annual Ground Water Availability	Existing Gross Ground Water Draft for irrigation	Existing Gross Ground Water Draft for domestic and industrial water supply	Existing Gross Ground Water Draft for All uses	Provision for domestic and industrial requirement supply to 2025	Net Ground Water Availability for future irrigation development	Stage of Ground Water Development %
1	Akkalkot	Command							
2	Akkalkot	Non Command	15427.45	7496.74	499.89	7996.63			
3	Akkalkot	Total	15427.45	7496.74	499.89	7996.63	999.78	6930.93	51.83
4	Barshi	Command							
5	Barshi	Non Command	11626.79	8425.16	466.23	8891.39			
6	Barshi	Total	11626.79	8425.16	466.23	8891.39	932.46	2269.17	76.47
7	Karmala	Command	91.13	44.44	4.58	49.01			
8	Karmala	Non Command	13601.37	9220.83	373.39	9594.23			
9	Karmala	Total	13692.51	9265.27	377.97	9643.24	709.14	3843.88	70.43
10	Madha	Command	1720.08	2077.57	65.01	2142.58			
11	Madha	Non Command	16816.81	11886.24	449.64	12335.88			
12	Madha	Total	18536.90	13963.80	514.65	14478.46	896.67	4400.68	78.11
13	Malshiras	Command	12155.09	12095.48	303.98	12399.46			
14	Malshiras	Non Command	8844.10	8351.80	309.77	8661.56			
15	Malshiras	Total	20999.19	20447.28	613.74	21061.02	890.63	2234.17	100.29
16	Mangalwedha	Command	2128.66	1347.70	62.86	1410.56			
17	Mangalwedha	Non Command	7681.94	5927.65	238.08	6165.73			
18	Mangalwedha	Total	9810.60	7275.35	300.93	7576.29	592.64	1942.61	77.23
19	Mohol	Command	4527.14	4423.23	174.28	4597.51			
20	Mohol	Non Command	10825.94	8043.82	305.94	8349.76			
21	Mohol	Total	15353.08	12467.06	480.21	12947.27	834.54	2941.97	84.33
22	N.Solapur	Command	1318.66	1139.36	81.76	1221.12			
23	N.Solapur	Non Command	5864.88	3184.89	129.15	3314.04			
24	N.Solapur	Total	7183.54	4324.25	210.91	4535.16	418.39	2455.34	63.13

Sr No.	Administrative Unit	Command / Non-Command / Total	Net Annual Ground Water Availability	Existing Gross Ground Water Draft for irrigation	Existing Gross Ground Water Draft for domestic and industrial water supply	Existing Gross Ground Water Draft for All uses	Provision for domestic and industrial requirement supply to 2025	Net Ground Water Availability for future irrigation development	Stage of Ground Water Development %
25	Pandharpur	Command	8658.12	6360.07	249.94	6610.01			
26	Pandharpur	Non Command	7266.20	5502.74	160.94	5663.68			
27	Pandharpur	Total	15924.32	11862.81	410.88	12273.70	798.54	3789.71	77.08
28	S.Solapur	Command	982.06	872.32	44.59	916.90			
29	S.Solapur	Non Command	12138.57	6380.71	321.14	6701.85			
30	S.Solapur	Total	13120.63	7253.02	365.73	7618.75	718.33	5151.66	58.07
31	Sangola	Command	2135.55	1479.70	140.95	1620.65			
32	Sangola	Non Command	14554.56	10429.28	480.60	10909.88			
33	Sangola	Total	16690.12	11908.98	621.55	12530.53	1248.00	3556.78	75.08

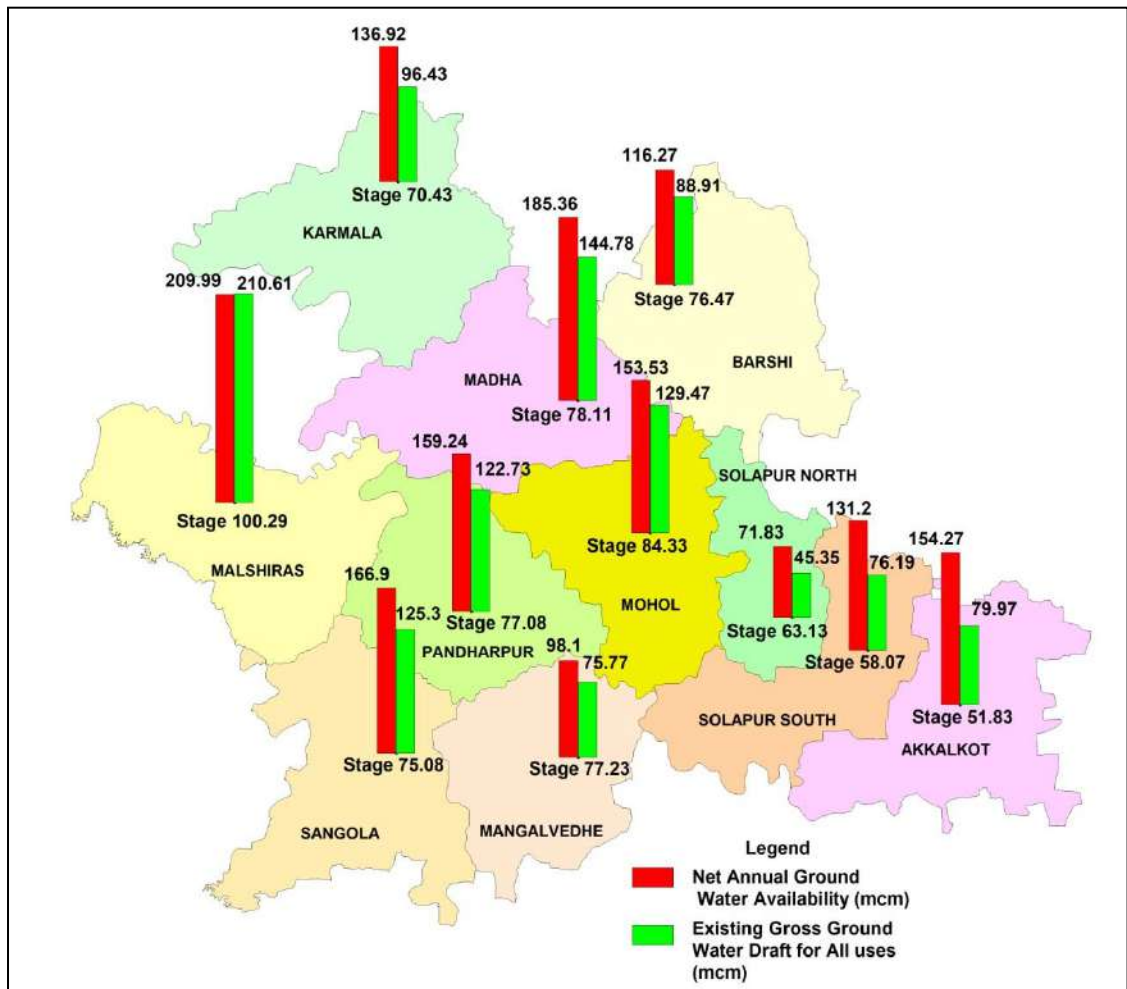


Fig 5.1: Ground Water Resources, Solapur district

Ground Water Resources estimation was carried out for 14838.9 sq. km. area out of which 1972.86 sq. km. is under command and 12866.04 sq. km. is non-command. About 56.1 sq. km. area has hilly area and that area is not considered for resource estimation. As per the estimation, the net annual ground water availability comes to be 1583.65 MCM. The gross draft for all uses is estimated at 1195.52 MCM with irrigation sector being the major consumer having a draft of 1146.89 MCM. The domestic and industrial water requirements are worked at 48.63 MCM. The net ground water availability for future irrigation is estimated at 395.16 MCM. Stage of ground water development varies from 51.83 % (South Solapur) to 100.29% (Malshiras). The overall stage of ground water development for the district is 75.49%. Taluka wise assessments indicate that all the talukas in the district fall under “Safe” category, except Malshiras (Overexploited) and Mohol which is semi-critical.

5.2 Ground Water Resources – Aquifer-II

The ground water resources of Aquifer-II (Basalt) were also assessed to have the correct quantification of resources so that proper management strategy can be framed. The total resources of aquifer-II have been estimated as 348.20 MCM. Taluka wise summarized Ground Water Resources of Aquifer-II is given in **Table 5.2**.

Table 5.2: Taluka wise summarized Ground Water Resources of Aquifer-II (Deeper aquifer)

Taluka	Area (Sq. Km.)	Mean thickness (m)	Piezometric head (meter above bottom of confining layer)	Sy	S	Resource above confining layer (mcm)	Resource in confining aquifer (mcm)	Total Resource (mcm)
KARMALA	232.713	5	60	0.0025	0.0000145	0.2025	2.9089	3.1114
KARMALA	542.063	1.25	65	0.0025	0.0000145	0.5109	1.6939	2.2048
KARMALA	882.606	3	70	0.002	0.0000145	0.8958	5.2956	6.1915
MADHA	79.7695	5	90	0.002	0.0000145	0.1041	0.7977	0.9018
MADHA	66.0907	1.25	55	0.002	0.0000145	0.0527	0.1652	0.2179
MADHA	11.1013	7	60	0.002	0.0000145	0.0097	0.1554	0.1651
MADHA	1402.93	3	65	0.002	0.0000145	1.3223	8.4176	9.7398
MALSHIRAS	189.674	1.25	70	0.005	0.000057	0.7568	1.1855	1.9423
MALSHIRAS	524.5815	11	90	0.005	0.00057	26.9110	28.8520	55.7630
MALSHIRAS	465.3	3	55	0.005	0.000057	1.4587	6.9795	8.4382
MALSHIRAS	95.6643	7	60	0.005	0.00057	3.2717	3.3483	6.6200
MALSHIRAS	150.9551	5	65	0.005	0.00057	5.5929	3.7739	9.3668
MALSHIRAS	65.9971	9	70	0.005	0.00057	2.6333	2.9699	5.6032
MOHOL	288.424	1.25	90	0.005	0.00012	3.1150	1.8027	4.9176
MOHOL	786.944	3	55	0.005	0.000057	2.4671	11.8042	14.2712
MOHOL	285.535	5	60	0.005	0.00057	9.7653	7.1384	16.9037
PANDHARPUR	129.932	1.25	65	0.005	0.0000145	0.1225	0.8121	0.9345
PANDHARPUR	35.643	3	70	0.005	0.000012	0.0299	0.5346	0.5646
PANDHARPUR	370.488	5	90	0.005	0.000012	0.4001	9.2622	9.6623
PANDHARPUR	749.191	9	55	0.005	0.000012	0.4945	33.7136	34.2081
PANDHARPUR	4.862	7	60	0.005	0.0000145	0.0042	0.1702	0.1744
SOLAPUR SOUTH	13.1957	7	60	0.005	0.0000145	0.0115	0.4618	0.4733
SOLAPUR SOUTH	227.231	1.25	70	0.005	0.0000145	0.2306	1.4202	1.6508
SOLAPUR SOUTH	632.191	3	90	0.005	0.0000145	0.8250	9.4829	10.3079
SOLAPUR SOUTH	97.3869	11	55	0.005	0.0000145	0.0777	5.3563	5.4339
SOLAPUR SOUTH	86.8731	5	55	0.005	0.0000145	0.0693	2.1718	2.2411
SOLAPUR SOUTH	27.3479	9	65	0.005	0.000012	0.0213	1.2307	1.2520
AKKALKOT	185.295	5	70	0.005	0.000057	0.7393	4.6324	5.3717
AKKALKOT	154.939	7	90	0.005	0.000057	0.7948	5.4229	6.2177
AKKALKOT	600.211	1.25	55	0.005	0.000057	1.8817	3.7513	5.6330
AKKALKOT	125.346	9	60	0.005	0.000057	0.4287	5.6406	6.0693
AKKALKOT	341.742	3	65	0.005	0.000057	1.2662	5.1261	6.3923
BARSHI	706.404	1.25	70	0.003	0.000012	0.5934	2.6490	3.2424
BARSHI	230.358	5	90	0.003	0.000012	0.2488	3.4554	3.7042
BARSHI	558.61	3	55	0.0025	0.000012	0.3687	4.1896	4.5583
MANGALVEDHE	205.741	1.25	90	0.003	0.00057	10.5545	0.7715	11.3260
MANGALVEDHE	209.734	3	55	0.003	0.000012	0.1384	1.8876	2.0260
MANGALVEDHE	365.161	5	60	0.003	0.00012	2.6292	5.4774	8.1066
MANGALVEDHE	272.445	7	65	0.003	0.00057	10.0941	5.7213	15.8154
MANGALVEDHE	82.8859	9	70	0.003	0.00057	3.3071	2.2379	5.5451
SANGOLA	509.512	3	65	0.005	0.0000145	0.4802	7.6427	8.1229
SANGOLA	271.7293	9	70	0.005	0.0000145	0.2758	12.2278	12.5036
SANGOLA	242.997	1.25	90	0.005	0.0000145	0.3171	1.5187	1.8358
SANGOLA	508.734	5	55	0.005	0.0000145	0.4057	12.7184	13.1241
SANGOLA	232.652	7	60	0.005	0.0000145	0.2024	8.1428	8.3452
SOLAPUR NORTH	46.1043	7	65	0.0025	0.0000145	0.0435	0.8068	0.8503

Taluka	Area (Sq. Km.)	Mean thickness (m)	Piezometric head (meter above bottom of confining layer)	Sy	S	Resource above confining layer (mcm)	Resource in confining aquifer (mcm)	Total Resource (mcm)
SOLAPUR NORTH	200.179	1.25	70	0.0025	0.000012	0.1682	0.6256	0.7937
SOLAPUR NORTH	156.255	3	70	0.0025	0.000012	0.1313	1.1719	1.3032
SOLAPUR NORTH	38.017	9	90	0.0025	0.000012	0.0411	0.8554	0.8964
SOLAPUR NORTH	71.2434	5	55	0.0025	0.0000145	0.0568	0.8905	0.9474
SOLAPUR NORTH	78.0998	11	60	0.0025	0.0000145	0.0679	2.1477	2.2157
Total	14839.08					96.5911	251.6163	348.2074

6 GROUND WATER RELATED ISSUES

6.1 Declining Water Levels

The ground water exploitation has resulted in decline of water levels over the period of time. In premonsoon season, declining water level trend has been observed in about 10191sq km area during 2008-17, i.e., 68.4% of the geographical area. Significant decline more than 0.20 m/year has been observed in 876 sq km, i.e., 5.8 % area covering major part of Karmala, Madha and Mohol talukas. In post monsoon season, fall in water level trend has been observed in the major parts of the district. Significant decline more than 0.20 m/year has been observed in 439 sq km area (Fig. 6.1).

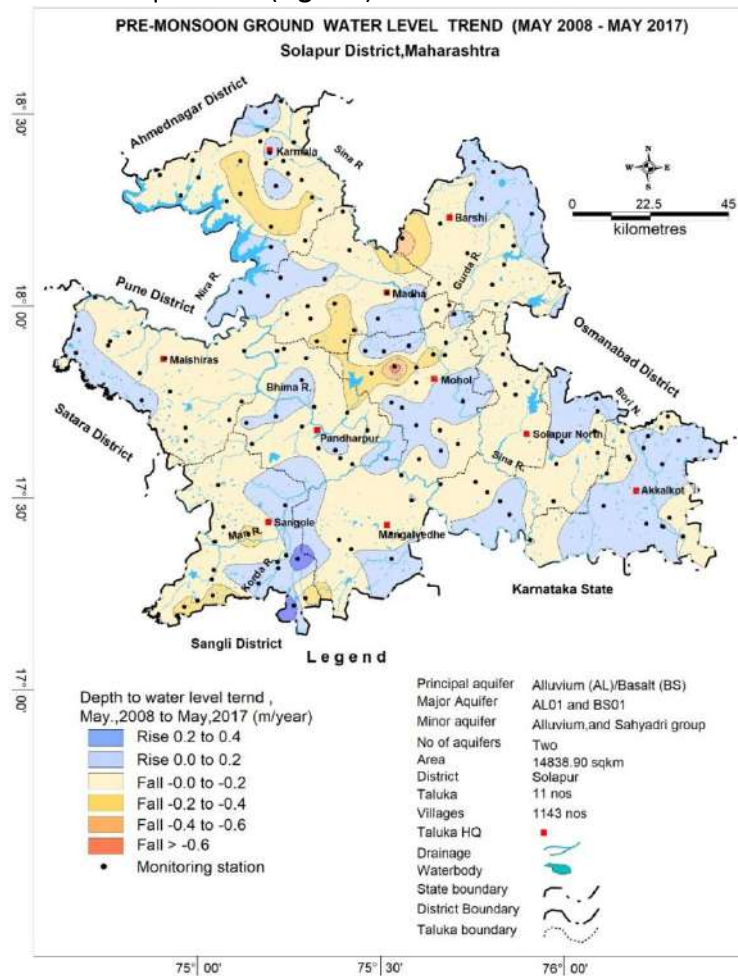


Fig 6.1 Premonsoon water level trend

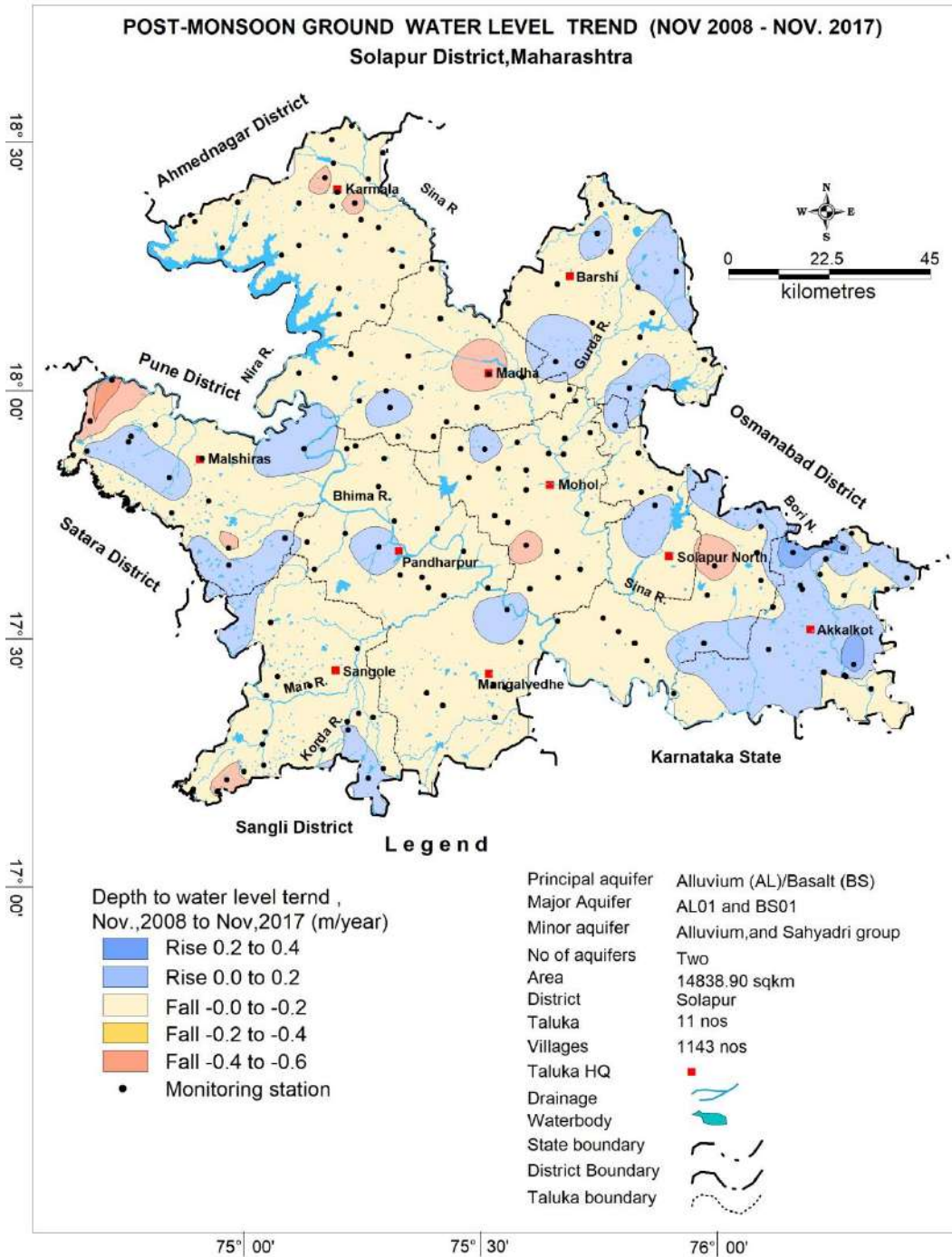


Fig 6.2 Postmonsoon water level trend

6.2 Low Rainfall and Droughts

The entire district comes under the rain shadow area. Rainfall is uncertain and scanty. The average rainfall for the district is 541 mms and classified as Drought Prone areas Based on the rainfall trend analysis from 2006 to 2017 it is observed that the except 3 talukas of Solapur district experience low and declining rainfall trend (Fig 6.3 to Fig 6.5).

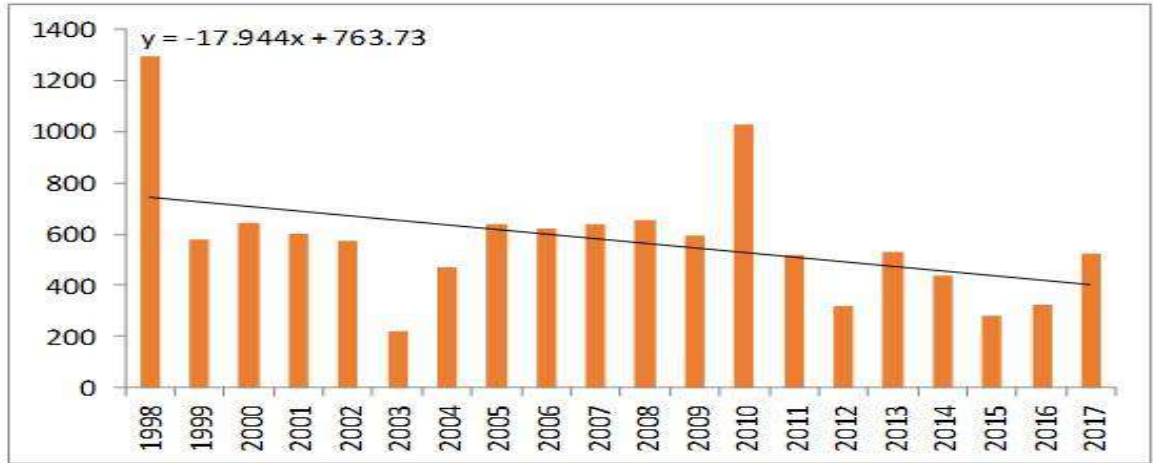


Fig. 6.3: Rainfall Trend (1998-17), Mohol taluka

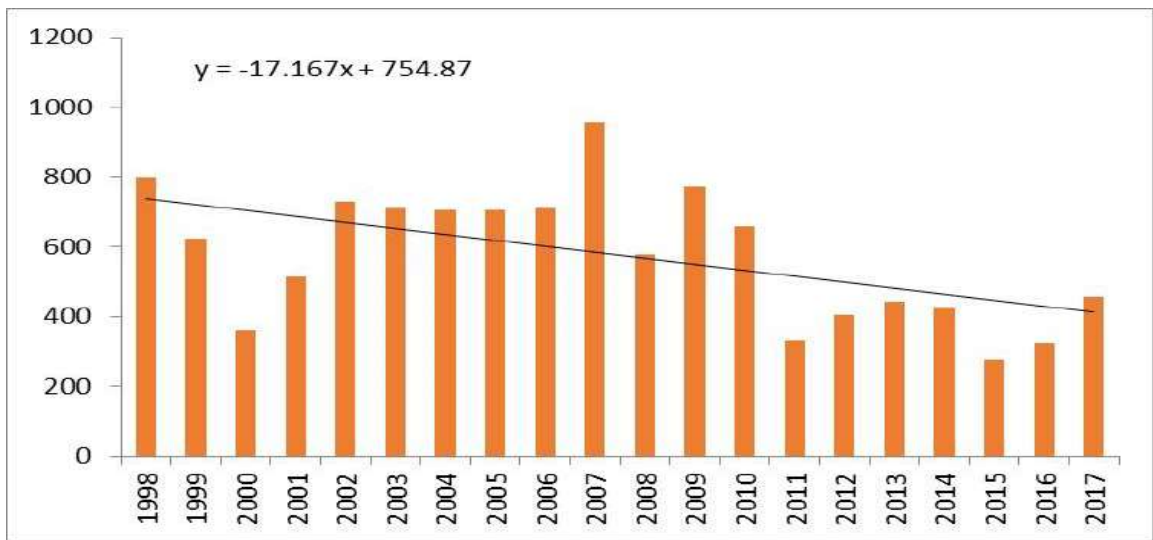


Fig. 6.4: Rainfall Trend (1998-17), Mangalvedhe taluka

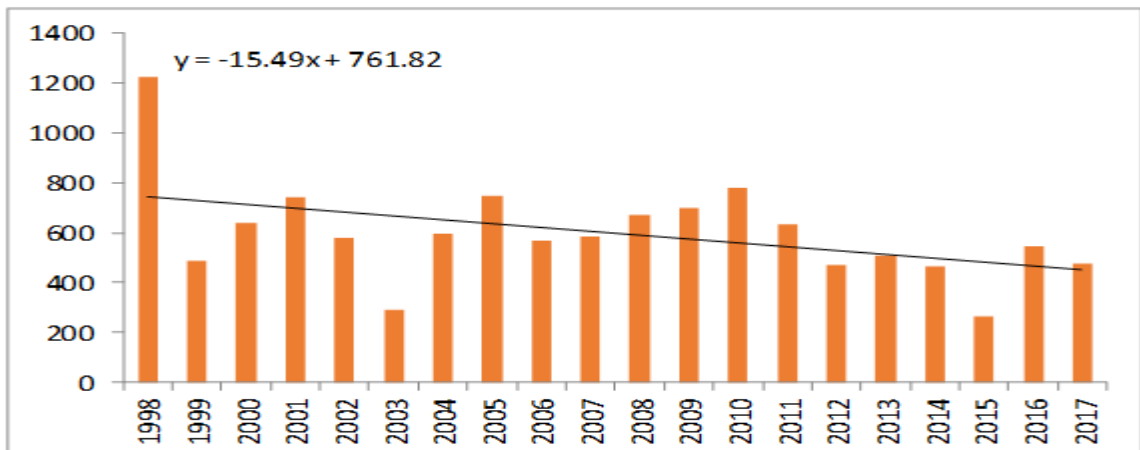


Fig. 6.5: Rainfall Trend (1998-17), South Solapur taluka

6.3 Caving and air loss during drilling:

Red boles, black boles, the intertrappean beds, have collapsible nature when they are saturated. The weathered/highly fractured saturated formation at the contact zones also collapse as a result of which drill rods assembly gets stuck up. This sometimes leads to loss of circulation of fluid there by compounding the problems further. The thickness ranging from 8 to 10 m. The water bearing zones encountered fills up the bore well and that infuses

the bole beds in the succession resulting in the collapse of the bole beds. The casing or cement sealing of the red bole is not possible below 100 m bgl, as the present rig is equipped to lower casing down to 100 m bgl depth. Loss of air in jointed and fractured Basalt was observed during drilling. The problem can be solved by sealing the zones by lowering casing or by cement sealing. This process may often damage the potential aquifer zones if not carried out meticulously with proper equipment.

6.4 Low Ground Water Storage Potential

Low ground water potential areas have been identified in 7878 sq km (about 52.9 %) in the Solapur District, where yield remains less than 25 m³/day, mostly due to limited depth of weathering and fractures in Aquifer-I (Basalt). Limited aquifer potential of Aquifer-II (Basalt) is seen in about 13191 sq km (about 88 %) of the Solapur district, having yield potential less than 1.0 lps. Sustainability of both the aquifers is limited and the wells normally sustain pumping of 0.5 to 3 hours.

6.5 Continues Increase in Draft, and Stage of Ground Water Development

The stage of ground water development has increased over the period of time from 1998 to 2013 from 37.52 % to 75.49 % (Fig. 6.6). The main reason for ground water overdraft is intensive irrigation for cash crop. Overall draft for these talukas has increased from 604.14 MCM in 1998 to 1195.52 MCM in 2013.

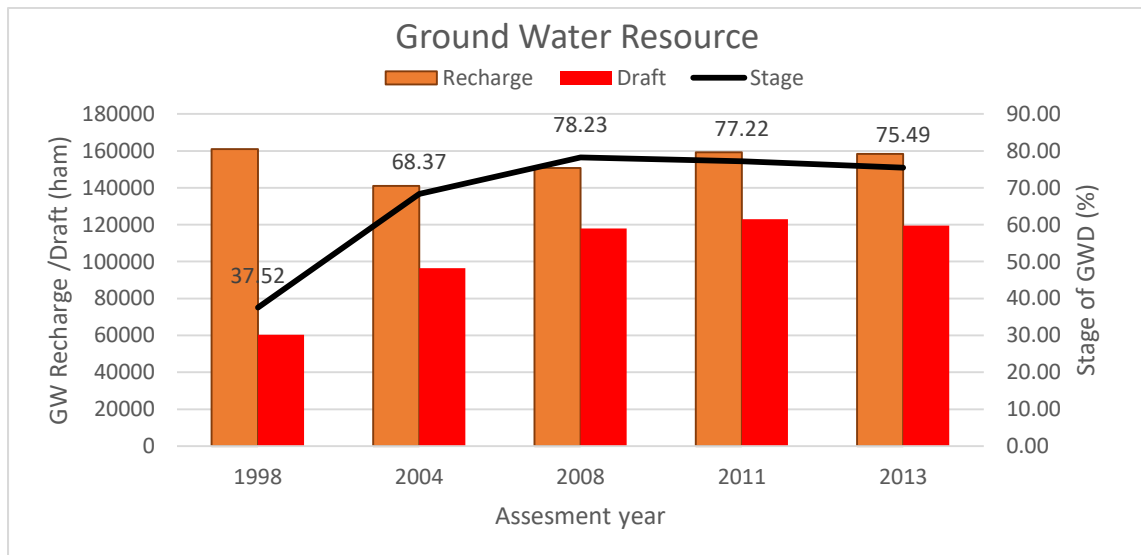


Fig. 6.6: Ground Water Resources, 1998-2013, Solapur district

7 GROUND WATER MANAGEMENT PLAN

The management plan has been proposed to manage the ground water resources and to arrest further decline in water levels. The management plan comprises two components namely supply-side management and demand side management. The supply side Management is proposed based on surplus surface water availability and the unsaturated thickness of aquifer whereas the demand side management is proposed by use of micro irrigation techniques and change in cropping pattern.

7.1 SUPPLY SIDE MANAGEMENT

The supply side management of ground water resources can be done through the artificial recharge of surplus runoff available within river sub basins and micro watersheds. Also, it is necessary to understand the unsaturated aquifer volume available for recharge. The unsaturated volume of aquifer was computed based on the area feasible for recharge, unsaturated depth below 5mbgl and the specific yield of the aquifer. The **Table 7.1** gives the district wise volume available for the recharge.

Table 7.1: Area feasible and volume available for Artificial Recharge

Taluka	Geographical Area (sq. km.)	Area feasible for recharge (Sq km)	Unsaturated Volume (MCM)
Karmala	1659.83	1229.39	2458.78
Madha	1559.33	1484.36	2968.72
Mohol	1360.46	1228.42	2456.84
Pandharpur	1290.1	1052.92	2105.84
S. Solapur	1084.15	963.365	1926.73
Malshiras	1528.01	498.16	996.32
Total	8481.88	6456.615	12913.23

The total unsaturated volume available for artificial recharge is 12913.23 MCM and it ranges from 996 MCM in Malshiras taluka to 2968 MCM in Madha taluka. The available surplus runoff can be utilized for artificial recharge through construction of percolation tanks and Check dams at suitable structures. The number of recharge percolation tanks, and check dams are decided based on the depth to water level and drainage available in the district.

Thus, after taking into consideration all the factors, only 139.93 MCM of surplus water can be utilized for recharge, which is given in table 10.2. This surplus water can be utilized for constructing 1177 check dams and 523 percolation tanks and at suitable sites. The number of feasible artificial recharge structures was calculated by considering 0.20 MCM per percolation tanks and 0.03 MCM per check dam. This intervention should lead to recharge @ 75% efficiency of about 104.93 MCM/year. Tentative locations of these structures are given in **Fig. 7.1** and details also given in **Annexure VI**.

The rainwater harvesting in urban areas can be adopted in 25% of the household with 50 Sq. m roof area. A total of 2.36 MCM potential can be generated by taking 80% runoff coefficient. The estimated cost for rainwater harvesting through rooftop is calculated as Rs. 156.64 crore. Hence, this technique is not economically viable and therefore it is not recommended.

Table 7.2: Proposed Recharge Structures

Taluka	Geographical Area (Sqkm)	Area feasible for recharge (sq. km.)	Unsaturated Volume (MCM)	Surplus water available for AR (MCM)	Proposed number of structures		Total Volume of Water expected to be recharged @ 75 % efficiency (MCM)		Total recharged @ 75 % efficiency (MCM)
					PT	CD	PT	CD	
Karmala	1659.83	1229.39	2458.78	30.12	105	304	15.75	6.84	22.59
Madha	1559.33	1484.36	2968.72	36.36	127	365	19.05	8.21	27.26
Mohol	1360.46	1228.42	2456.84	24.50	93	197	13.95	4.43	18.38
Pandharpur	1290.1	1052.92	2105.84	22.05	90	135	13.5	3.04	16.54
S.Solapur	1084.15	963.365	1926.73	14.70	60	90	9	2.03	11.03
Malshiras	1528.01	498.16	996.32	12.20	48	86	7.2	1.94	9.14
Total	8481.88	6456.62	12913.2		523	1177	78.45	26.48	104.93

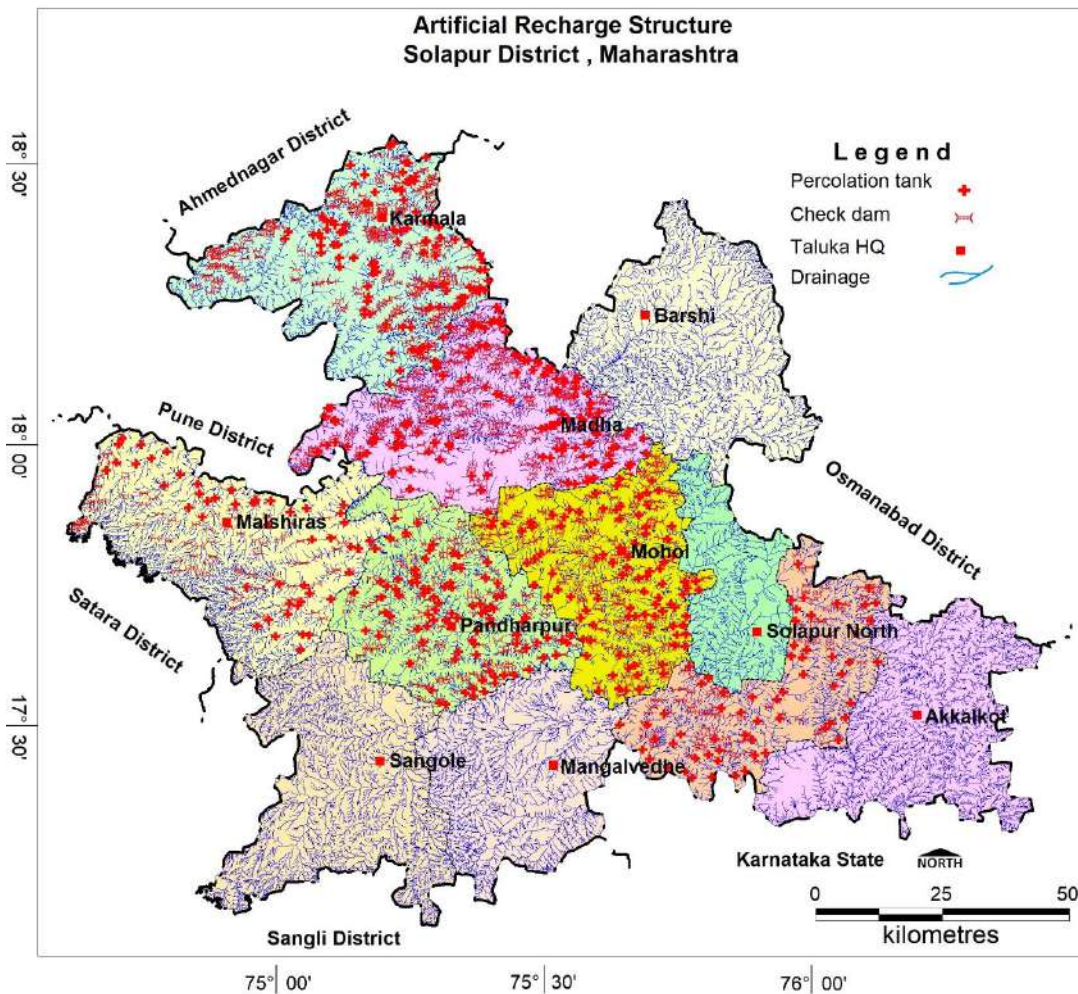


Fig 7.1: Proposed Artificial Recharge structures

7.2 DEMAND SIDE MANAGEMENT

The Demand Side Management is proposed in areas where the Stage of Ground Water Development is relatively high and adopting micro-irrigation techniques for water intensive crops to save water. **Fig 7.2** depicts the proposed demand side interventions of 8481.88 Sq Km (Karmala, Madha, Mohol, Pandharpur, South Solapur and Malshiras Blocks of Solapur District) area.

The micro-irrigation techniques are proposed to be adopted in 129 Sq. Km area in Karmala, Madha, Mohol, Pandharpur, South Solapur and Malshiras Blocks of Solapur District by saving a total of 73.53 MCM as given **Table 7.3**. No change in cropping patterns is proposed in any of the blocks.

Table 7.3: Proposed Recharge Structures

Taluka	Geographical Area (Sqkm)	Remaining Ground water irrigated Sugarcane crop area sqkm	Sugarcane crop area is ground water irrigated, 100 % ground water irrigated proposed to be covered under Drip (sq.km.)	Volume of Water expected to be saved (MCM). Surface Flooding req- 2.45 m. Drip Req. - 1.88, WUE- 0.57 m	Total water save (MCM)
Karmala	1659.83	2	2	1.14	1.14
Madha	1559.33	2	2	1.14	1.14
Mohol	1360.46	17	17	9.69	9.69

Taluka	Geographical Area (Sqkm)	Remaining Ground water irrigated Sugarcane crop area sqkm	Sugarcane crop area is ground water irrigated, 100 % ground water irrigated proposed to be covered under Drip (sq.km.)	Volume of Water expected to be saved (MCM). Surface Flooding req- 2.45 m. Drip Req. - 1.88, WUE- 0.57 m	Total water save (MCM)
Pandharpur	1290.1	2	2	1.14	1.14
S.Solapur	1084.15	3	3	1.71	1.71
Malshiras	1528.01	103	103	58.71	58.71
Total	8481.88	129	129	73.53	73.53

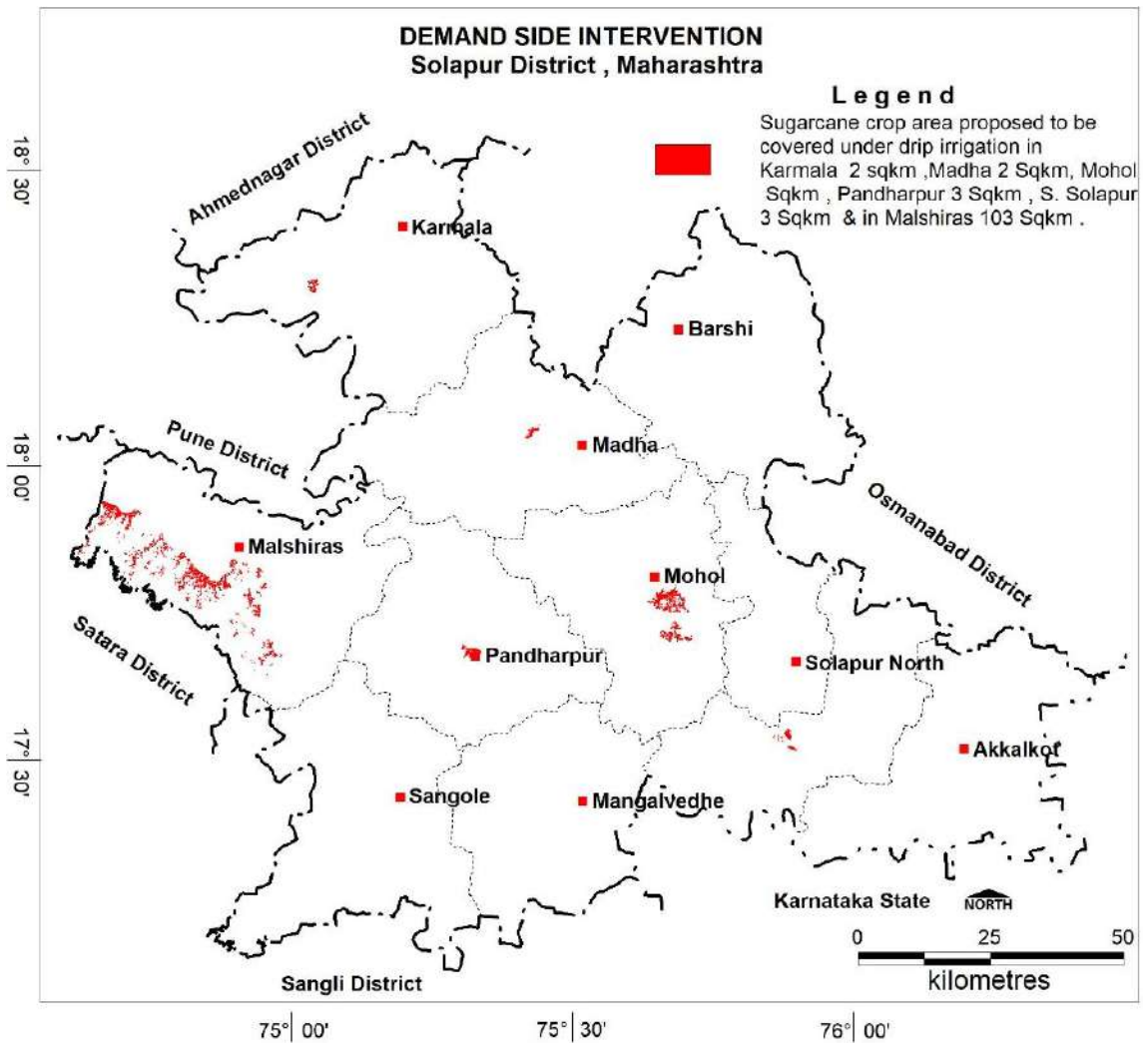


Fig 7.2: Demand side intervention

7.3 Expected Benefits

The impact of groundwater management plans on the groundwater system in the district after its implementation is evaluated and the outcome shows significant improvement in groundwater scenario in all blocks as given in the **Table 7.4 & Fig 7.2**.

Table 7.4: Expected benefits after management options

Block	Water Recharge d by Supply side interventi on (MCM)	Water saving by demand side interventi ons (MCM)	Net Ground water availabilit y(MCM)	Total ground water draft (MCM)	Ground water resources after supply side manage ment(MCM)	Ground water Draft after demand side manage ment(MCM)	Expected stage of Develop ment (%)
Karmala	22.59	1.14	136.93	96.43	159.52	95.29	59.74
Madha	27.26	1.14	185.37	144.78	212.63	143.64	67.55
Mohol	18.38	9.69	153.53	129.47	171.91	119.78	69.67
Pandharpur	16.54	1.14	159.24	122.74	175.78	121.60	69.18
S.Solapur	11.03	1.71	131.21	76.19	142.24	74.48	52.36
Malshiras	9.14	58.71	209.99	210.61	219.13	151.90	69.32
Total	104.93	73.53	976.27	780.22	1081.20	706.69	

7.4 Development Plan:

The ground water development plan is recommended to bring the stage of development upto 70% .Balance ground water resources available for ground water development after the stage of is bought up to 70% after implementing above measures is 50.15 MCM. The development plan is proposed to bring stage of ground water development up to 70 % and details are given in **Table 7.5** and **Fig 7.3**.

Table 7.5 Development plan

Taluka	Net Ground water availabili ty (MCM)	Ground water resources after supply side manage ment (MCM)	Ground water Draft after demand side manage ment (MCM)	Expected stage of Developme nt %	Balance GWR available for GW Develop ment after STAGE OF GWD is brought to 60% (MCM)	Propo sed No. of DW @1.5 ham for 90% of GWR Availa ble)	Propo sed No. of BW @1.5 ham for 10% of GWR Availa ble)	Additional Area (sq.km.) proposed to be brought under assured GW irrigation with av. CWR of 0.65 m after 70% stage of GWD is achieved (Sq.Km)
Karmala	136.93	159.52	95.29	59.74	16.374	982	109	25.19
Madha	185.37	212.63	143.64	67.55	5.20275	312	35	8.00
Mohol	153.53	171.91	119.78	69.67	0.55875	34	4	0.86
Pandharpur	159.24	175.78	121.60	69.18	1.44425	87	10	2.22
S.Solapur	131.21	142.24	74.48	52.36	25.0845	1505	167	38.59
Malshiras	209.99	219.13	151.90	69.32	1.4875	89	10	2.29
Total	976.27	1081.2025	706.69		50.15175	3009	334	77.16

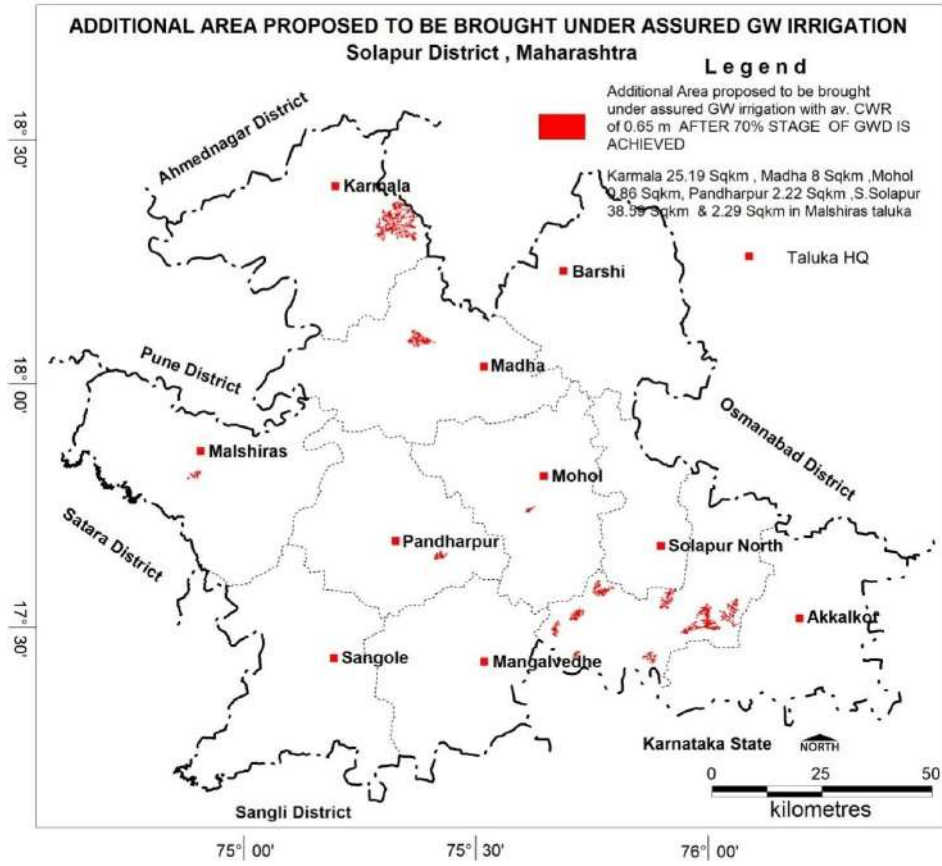


Fig 7.3: Additional area under Assured GW irrigation

8 SUM UP

A thorough study was carried out based on data gap analysis, data generated in-house, data acquired from State Govt. departments and GIS maps prepared for various themes. All the available data was brought on GIS platform and an integrated approach was adopted for the preparation of taluka wise aquifer maps and aquifer management plans of Solapur district.

Solapur district is one of the five districts of Pune division of Maharashtra State that form the region of Western Maharashtra, with a geographical area of 14895 sq. km. The district headquarters is located at Solapur Town. For administrative convenience, the district is divided into 11 talukas viz., Solapur North, Malshiras, Pandharpur, Barshi, Madha, Sangole, Akkalkot, Mohol, Solapur South, Karmala and Mangalvedhe. It has a total population of 4,317,756 as per 2011 census. The district has 11 towns/talukas and 1167 villages. The major part of the district comes under Bhima and Sina basin.

Physiographically the district shows a hilly and undulating terrain, with altitude ranging between 420 and 720 m above MSL. The average rainfall is about 541 mm. The district falls in drought prone areas, receives rainfall of 500 to 600 mm.

Deccan Trap Basalt of upper Cretaceous to lower Eocene age is the major rock formation in the district, whereas only a very narrow belt confined to the banks of rivers is underlain by Recent Alluvium. Alluvium and Basalt form main aquifers in the district. Two aquifer Systems in Basalt and one shallow aquifer in Alluvium (limited to river banks) are found to be prevailing in the district. Deccan basalts are hydrogeologically in-homogeneous rocks. The weathered and jointed /fractured parts of the rock, as also permeable inter-flow beds constitute the zone of ground water storage and flow.

The specific capacity of the wells tapping Deccan Trap Basalt ranges between 1.6 and 5 lps/m of draw down and the transmissivity ranges from 1.25 to 207 m²/day. The specific capacity of dugwells tested in alluvial aquifer ranges between 1.1 and 10 lps/m of drawdown. During the pumping tests conducted on the exploratory wells in Alluvium, the transmissivity was found to vary from 30 to as high as 210 m²/day. The storage coefficient varied between 3×10^{-6} and 1.7×10^{-3} .

The depth to water levels in Solapur district during May 2017 ranges between 4.1 mbgl (Khatgaon, Karmala taluka) and 23.5 mbgl (Maslechaudhary, Mohol taluka and Tanali, Pandharpur). The depth to water levels of less than 5 mbgl is represented as localized. The depth to Water levels between 5-10 mbgl is observed in most part of the district and covers about 50% of the area. The depth to Water levels between 10-20 mbgl is observed in central part and east west elongated patch covering parts of Madha, Mohol, Pandharpur, North Solapur and South Solapur talukas. The depth to Water levels between 10-20 mbgl is also observed as small pockets in Karmal, Malshiras, Sangola, Mangalwedha and Barshi talukas. This zone covers about 35% of the district area. The depth to Water levels more than 20 mbgl is observed in small pokets around in central part of the district. The depth to water levels in Solapur district during Nov. 2017 ranges between 0.5 (Kuslamb, Barshi taluka and Kavitgaon, Karmala taluka) and 18.5 mbgl (Takali Shikandar, Mohol taluka). Shallow water levels within 2 m bgl are observed in north east part of Barshi, central and north east part of Sangola and small patches observed in Mangalwedha, Madha, Mohol and Karmala talukas. The depth to water levels between 2-5 mbgl is observed in major parts of the district covering Akkalkot, Mangalwedha, Madha, Mohol, karmala, Pandharpur, Barshi and malshiras talukas. The depth to water levels between 5-10 mbgl is observed in most of the north Solapur, south Solpaur, north west of Malshisras talukas and elongate patches in parts of Pandharpur, Madha, Sangola, Mohol, Karmala and north of Akkalkot talukas. The depth to water levels above 10 mbgl is observed in small patches of north Solpaur, south Solpaur,

Pandharpur, Madha and Karmala talukas.

As per Ground Water Resource Estimation (2013) of Solapur district, the net annual ground water availability is 1583.65 MCM. The gross draft for all uses is estimated at 1195.52 MCM with irrigation sector being the major consumer having a draft of 1146.89 MCM. The domestic and industrial water requirements are worked at 48.63 MCM. The net ground water availability for future irrigation is estimated at 395.16 MCM. Stage of ground water development varies from 51.83 % (South Solapur) to 100.29% (Malshiras). The overall stage of ground water development for the district is 75.49%. Taluka wise assessments indicate that all the talukas in the district fall under "Safe" category, except Malshiras (Overexploited) and Mohol which is semicritical. The total resources of aquifer-II have been estimated as 348.20 MCM. In Deeper Aquifer-II (Jointed/Fractured Basalt), yield is low (less than 2.5 lps), the transmissivity varies from 18 to 89 m²/day. The storage coefficient varied between 0.00034 and 6.37 x10⁻⁴.

The EC in shallow aquifer varies between 298 (Musti, South Solapur taluka) and 10000 µS/cm (Akole kathi, North Solapur taluka). Out of 189 samples collected from dug wells, 14 samples are having EC in range of 2250 to 3000 µS/cm and only 17 samples have shown EC > 3000 µS/cm. It is observed that the concentration of high EC >2250 µS/cm has been observed in patches in Pandharpur, North and south Solapur taluka and small parts of Madha and Malshiras taluka. The concentration of EC in deep aquifer varies between 375 (Shelgone, Barshi taluka) and 2910 µS/cm (Alagi, Akkalkot taluka). Out of 119 samples collected from tube wells/bore wells, 5 samples are having EC more than 2250 µS/cm. It is observed that the concentration of high EC more than 2250 has been observed in parts of South Solapur and Akkalkot talukas

Taluka wise aquifer management plans have been prepared for Aquifer I (Weathered and jointed fractured Basalt) and Aquifer II (jointed and fractured basalt), with the objective of bringing the current stage of ground water development up to 70% by adopting supply side and demand interventions, for the six talukas (out of 11 talukas of Solapur District), namely, Karmala, Madha, Malshiras, Mohol, Pandharpur and South Solapur talukas, where aquifer mapping has been completed till 2017-18. The management plan has been proposed to manage the ground water resources and to arrest further decline in water levels. The management plan comprises two components namely supply-side management and demand side management. The supply side Management is proposed based on surplus surface water availability and the unsaturated thickness of aquifer whereas the demand side management is proposed by use of micro irrigation techniques. Change in cropping pattern towards less water-intensive irrigation crops has not been proposed in the area as cash crop cultivation drives the economy of the region. The supply side interventions include utilizing 139.93 MCM of Surplus runoff water by a proposal to construct 523 Percolation Tanks and 1177 Check Dams. This supply side intervention should lead to recharge (@ 75% efficiency) of about 104.93 MCM/year. The demand side interventions include proposal to bring 100 % ground water irrigated Sugarcane crop area (129 sq.km.) is proposed to be covered under Drip Irrigation. Volume of water expected to be saved is estimated as 73.53 MCM (Sugarcane Surface Flooding irrigation req- 2.45 m. Drip Req. - 1.88 m, WUE- 0.57 m).

Balance ground water resources available for ground water development is 50.15 MCM after the stage of ground water development is brought down to 70% after implementing demand side management, which can bring additional 77.16 sq. km. area under assured ground water irrigation.

These interventions also need to be supported by regulation of deeper aquifer and hence it is recommended to regulate/ban deeper tubewells/borewells of more than 60 m depth in these talukas, so that the deeper ground water resources are protected for future

generation and also serve as ground water sanctuary in times of distress/drought. IEC activities and capacity building activities need to be aggressively propagated to establish the institutional framework for participatory ground water management.

PROPOSED MANAGEMENT PLAN

Augmentation by AR –
104.93MCM

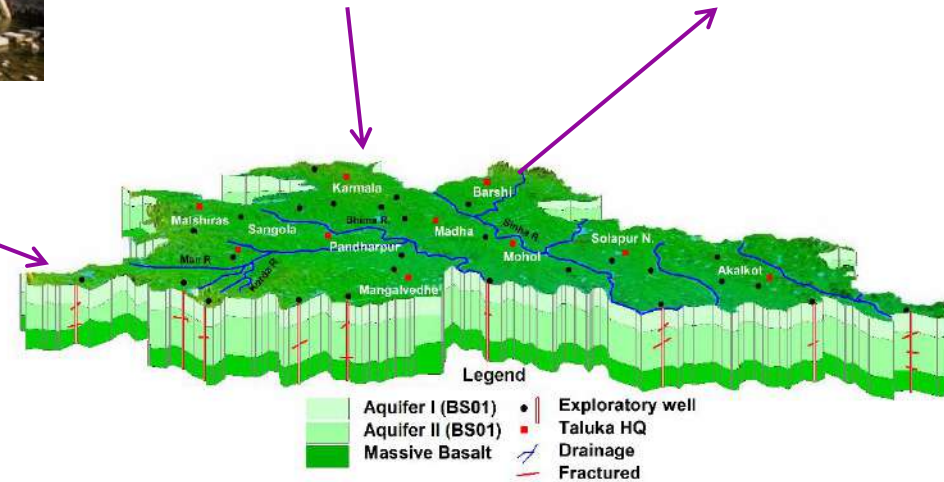
Aquifer I Resources –
Dy- 976.27 MCM
In storage- 0.14

Aquifer II
Resources –
148.04 MCM



GW quantum saved by
WUE – 73.53 MCM

Total Draft –
780.22 MCM



GW SENAREO AFTER IMPLEMENTING Artificial Recharge & available GWR to bring SOD UPTO 70%

GWA 976.27 + 104.93 MCM by AR = 1081.2 MCM

GWR available to develop up to 70%

(Karmala, Madha, Pandharpur & S. Solapur Talukas = 42.98 mcm

WUE Measures

GW saved by WUE measures: 73.53 MCM.

GW quantum required to bring stage of GWD @70% :-66.35 mcm
(Mohol & Malshiras Talukas)

GWR available for Development after bringing stage of GWD up to 70%
(Mohol & Malshiras Talukas) =2.05 mcm

GWR available to develop up to 70% (Karmala, Madha, Pandharpur & S. Solapur Talukas =42.98 mcm and 5.13 mcm by WUE
(Karmala, Madha, Pandharpur & S. Solapur Talukas)

Total = 50.16 MCM

PROBABLE BENEFITS AFTER IMPLEMENTING AR & WUE MEASURES

- Bringing down to STAGE OF GW DEVELOPMENT to 70 % from Present stage of GW development of 84.33% & 100.29% of Mohol and Malshiras respectively with enhance availability of GWR after supply side & Demand side intervention,
- Beside this, about 7717 ha of additional Area can also be brought under assured GW irrigation from 50.16 MCM of Balance GWR available for GW Development after STAGE OF GWD is brought to 70% (safe category)

B **LOCK WISE AQUIFER MAPS AND MANAGEMENT PLAN**

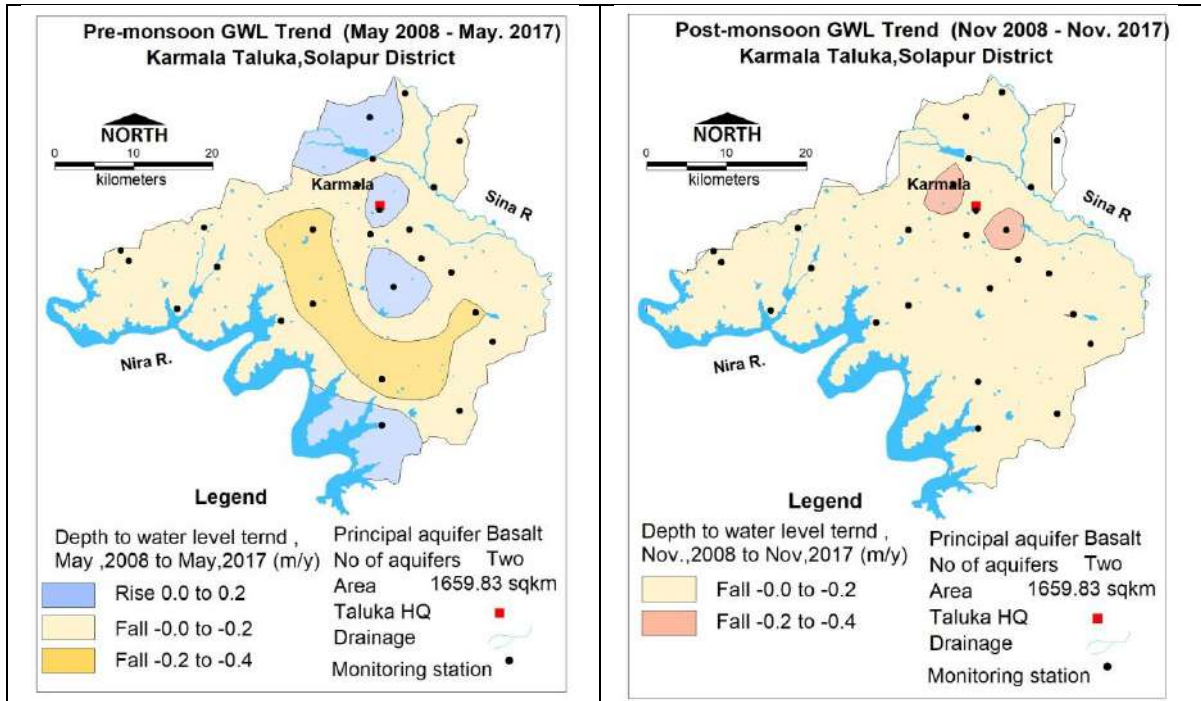
- 1. KARMALA TALUKA**
- 2. MADHA TALUKA**
- 3. MALSHIRAS TALUKA**
- 4. MOHOL TALUKA**
- 5. PANDHARPUR TALUKA**
- 6. SOUTH SOLAPUR**

9 AQUIFER MAPS AND GROUND WATER MANAGEMENT PLAN, KARMALA BLOCK, SOLAPUR DISTRICT, MAHARASHTRA

1. SALIENT FEATURE	
1.1. Introduction	
Block Name	Karmala
Geographical Area (Sq. Km.)	1659.83
Hilly Area (Sq. Km)	0
Saline Area (Sq. Km.)	0
Population (2011)	254489
Climate	Tropical Monsoon
1.2 Rainfall Analysis	
Annual Rainfall (2017) (mm)	568.3 mm
Decadal Average Annual Rainfall (2008-17) (mm)	544.7 mm
Normal Rainfall (mm)	577.5 mm
Long Term Rainfall Analysis (1901-2017)	Rising Trend 0.552 mm/year Probability of Normal/Excess Rainfall- 50% & 50%. Probability of Drought (Moderate/Severe):- 18 % Moderate & 10 % Severe.
Rainfall Trend Analysis (1901 To 2017) EQUATION OF TREND LINE: $y = 0.5522x + 545.99$	
1.3. Geomorphology Soil & Geology	
Geomorphic Unit	Undissected to highly Dissected plateau with weathered thickness ranging from 0 to 1 m. small patch faalls in command area.
Soil	In general, they are clayey loam in texture and fairly high in calcium carbonate, high porosity but low permeability, thus having low to moderate infiltration capacity. Based on physical characteristics the soils of the area have been classified into three major groups: Medium black soil, Red Sandy soils and Shallow black soils
Geology	Alluvium: sand/ silt and clay alternating beds Age: Recent to Sub-recent Deccan Traps (Basalt) Age: Upper Cretaceous to Lower Eocene
1.4. Hydrology & Drainage	
Bigger Minor Irrigation Project (>100 Ha.)	Completed: -16 MI Tanks
Minor Irrigation	Completed: -71 VT, 7 PT, 55 KT weirs & 46 DB

Project (<100 Ha.)																																					
Drainage	The area is drain by Sina river, Nira rivers and its tributaries, flow from NW to SE direction, divide also in same direction.																																				
1.5. Land Use, Agriculture, Irrigation & Cropping Pattern																																					
Geographical Area (Sq. Km.)	1659.83																																				
Forest Area (Sq. Km.)	59.48																																				
Net Sown Area (Sq. Km.)	1185.3																																				
Double Cropped Area (Sq. Km.)	29.79																																				
Gross Cropped Area (Sqkm)	1215.09																																				
Cultivable Area (Sq. Km.)	1384.79																																				
Area under Irrigation (Sq. Km.)																																					
Ground Water	164.42																																				
Surface Water	46.65																																				
Principal Crops Sq. Km.)(Reference year 2013-14)																																					
Area																																					
Wheat	29.25																																				
Jawar	1.51																																				
Bajra	32.99																																				
Maize	39.96																																				
Tur	9.16																																				
Sugarcane	46.11																																				
Chilli	2.83																																				
Mango	6.85																																				
Onion	9.31																																				
Sunflower	35.36																																				
1.6. Water Level Behaviour																																					
1.6.1. Phreatic Aquifer-Water Level																																					
<p style="text-align: center;">Post-Monsoon Water Level (Nov. 2016)</p> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Aquifer I , Premonsoon , DTW (May. 2017) Karmala Taluka, Solapur District</p> <p style="text-align: center;">Legend</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">DTW (mbgl)</td> <td style="width: 30%;">Principal aquifer</td> <td style="width: 40%;">Basalt</td> </tr> <tr> <td>5 to 10</td> <td>No of aquifers</td> <td>Two</td> </tr> <tr> <td>10 to 20</td> <td>Area</td> <td>1659.83 sqkm</td> </tr> <tr> <td>20 to 30</td> <td>Taluka HQ</td> <td></td> </tr> <tr> <td>●</td> <td>Monitoring well</td> <td></td> </tr> <tr> <td></td> <td>Drainage</td> <td></td> </tr> </table> </div> <p>Water level less than 10 mbgl has been observed in major part of the taluka, while water level in the range of 10 to 20 mbgl is close to divide; deeper water level more than 20 mbgl has been observed at Sade village.</p>	DTW (mbgl)	Principal aquifer	Basalt	5 to 10	No of aquifers	Two	10 to 20	Area	1659.83 sqkm	20 to 30	Taluka HQ		●	Monitoring well			Drainage		<p style="text-align: center;">Post-Monsoon Water Level (Nov. 2016)</p> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Aquifer I , Postmonsoon , DTW (Nov. 2017) Karmala Taluka, Solapur District</p> <p style="text-align: center;">Legend</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">DTW (mbgl)</td> <td style="width: 30%;">Principal aquifer</td> <td style="width: 40%;">Basalt</td> </tr> <tr> <td>0 to 2</td> <td>No of aquifers</td> <td>Two</td> </tr> <tr> <td>2 to 5</td> <td>Area</td> <td>1659.83 sqkm</td> </tr> <tr> <td>5 to 10</td> <td>Taluka HQ</td> <td></td> </tr> <tr> <td>10 to 20</td> <td>Monitoring well</td> <td></td> </tr> <tr> <td>●</td> <td>Drainage</td> <td></td> </tr> </table> </div> <p>Water Level less than 10 mbgl has been observed in northern, north-western and southern parts of the block while water level in the range of 10 to 20 mbgl is observed in at Lavhe and Sade villages.</p>	DTW (mbgl)	Principal aquifer	Basalt	0 to 2	No of aquifers	Two	2 to 5	Area	1659.83 sqkm	5 to 10	Taluka HQ		10 to 20	Monitoring well		●	Drainage	
DTW (mbgl)	Principal aquifer	Basalt																																			
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1.6.2. Semi-Confined/Confined Aquifer-Water Level																																					

<p>Pre-Monsoon Water Level (May 2017)</p> <p>Water level < 20 mbgl is observed in south western part of the block; water level > 20 mbgl is observed in southeastern part of the block around Zare and Vadshivane villages.</p>	<p>Post-Monsoon Water Level (Nov. 2017)</p> <p>Water level < 10 mbgl is observed in south western part of the block; water level > 20 mbgl is observed in southeastern part of the block around Zare and Vadshivane villages.</p>
<p>1.7. Hydrograph</p> <p>Hydrograph shows Pre-monsoon rising trend @ 0.38 m/year</p> <p>Hydrograph shows Post-monsoon rising trend @ 0.135 m/year</p>	
<p>1.8 . Water Level Trend (2008-2017)</p>	
<p>1.8.1 Pre-Monsoon trend</p>	<p>1.8.1 Post-Monsoon trend</p>
<p>Rising 0.12 to 0.17 m/year</p>	<p>Rising 0.03 m/year</p>
<p>Falling 0.01 to 0.39 m/year</p>	<p>Falling 0.001 to 0.398 m/year</p>
<p>Declining trend up to 0.2 m/year is observed in almost entire block; decline in water level >0.2 m/year has been observed innorthern part of the block. Rising water level trend has been observed in small part in northern and southern parts and isolated part in western part of the block.</p>	<p>Declining trend up to 0.2 m/year is observed in almost entire block; significant decline in water level > 0.2 m/year has been observed in northern part of the block.</p>
<p>Premonsoon Water level Trend (2007-17)</p>	<p>Postmonsoon Water level Trend (2007-17)</p>

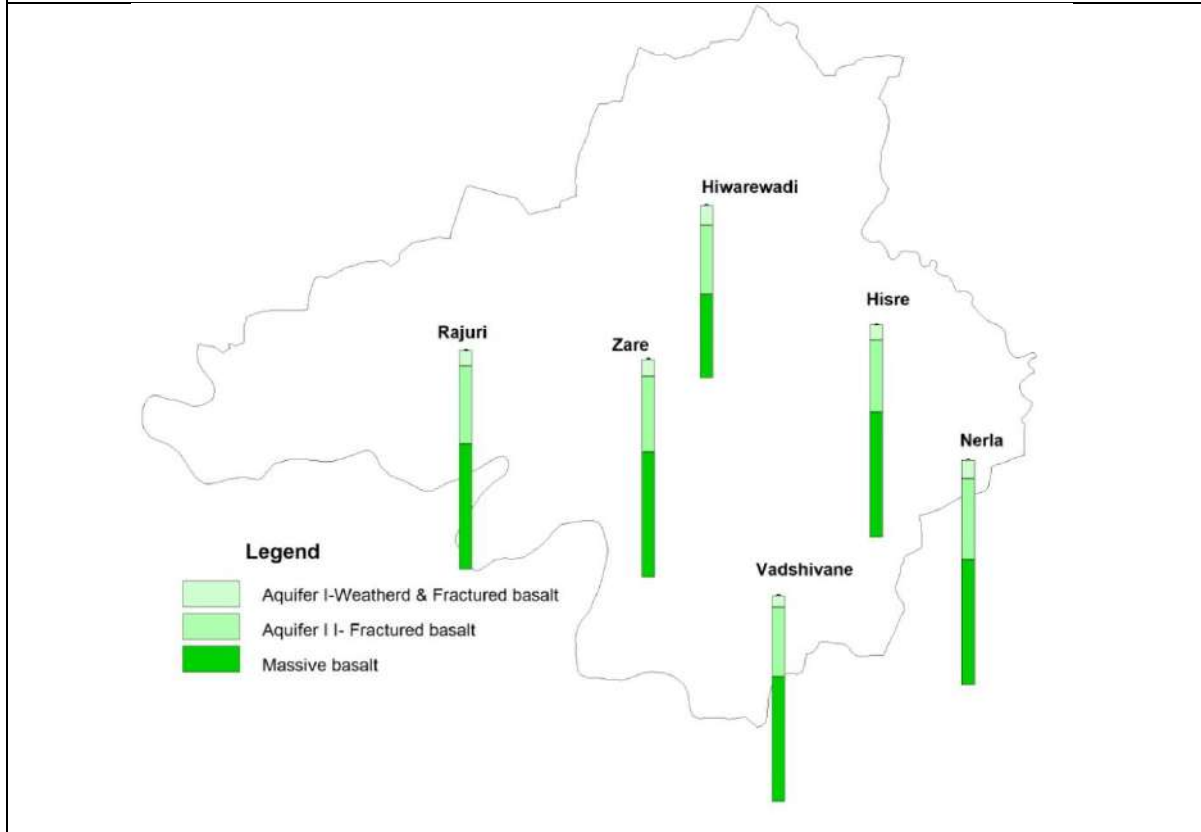


2. GROUND WATER ISSUE	Over - Exploitation Declining WL Limited Aquifer Potential Water Scarcity - lean period
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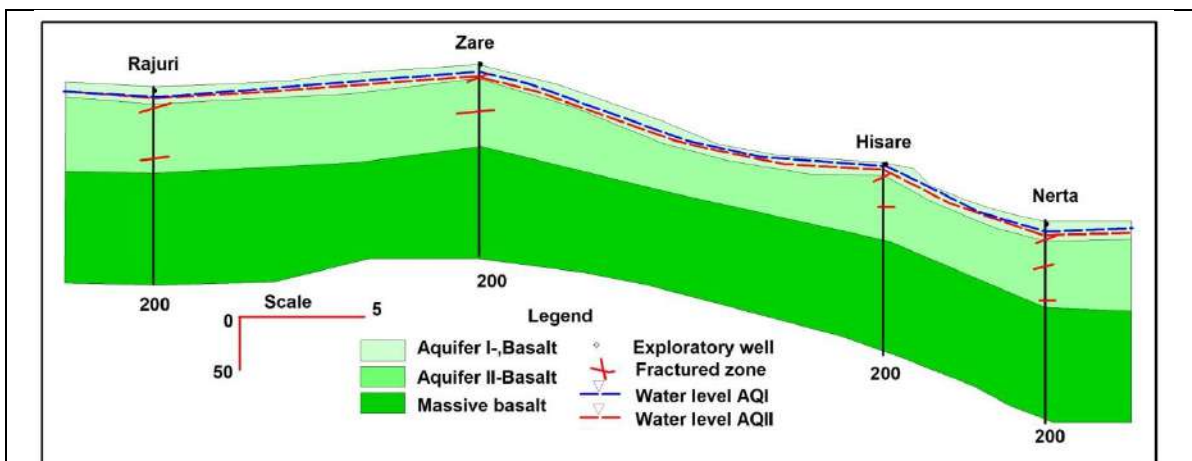
3. AQUIFER DISPOSITION

3.1. Number of Aquifers	Basalt-Aquifer-I (Sahllow Aquifer)	Basalt –Aquifer-II, (Deeper Aquifer)
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3.2. Lithological Disposition



3.3. Cross Sections

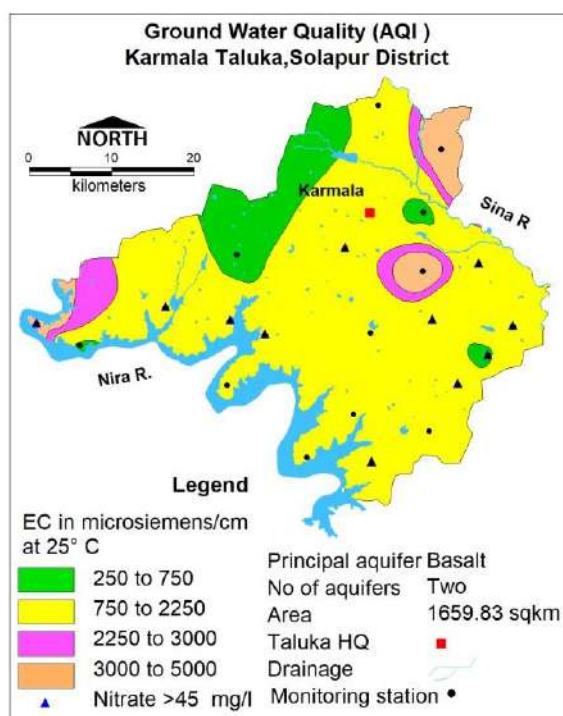


4.4. Aquifer Characteristics

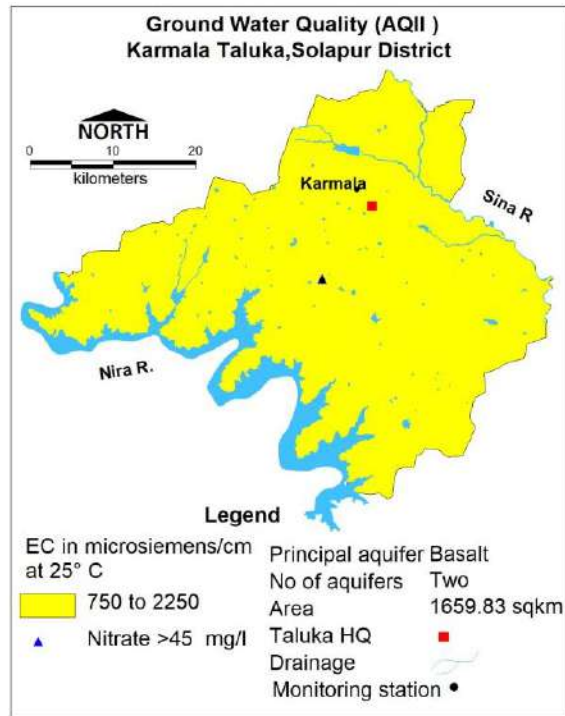
Major Aquifers	Basalt (Deccan Traps)	Basalt (Deccan Traps)
Type of Aquifer	Aquifer-I (Shallow/Phreatic)	Aquifer-II (Deeper/ Semiconfined /confined)
Depth of Occurrence (mbgl)	8 - 30	90 - 196
Thickness of wearherd / fractured rocks (m)	5 - 15	1.25 - 5
Yield	10 - 100 m ³ /day	0-3 lps
Specific yield (Sy)	0.02	0.0025
Storativity (S)		0.0000154
Transmissivity (T) (m ² /day)	T: 5-20 m ² /day	T: 30-70 m ² /day

4. GROUND WATER QUALITY

4.1 Phreatic Aquifer (Aquifer-I)



4.2 Semiconfined/Confined Aquifer (Aquifer II)

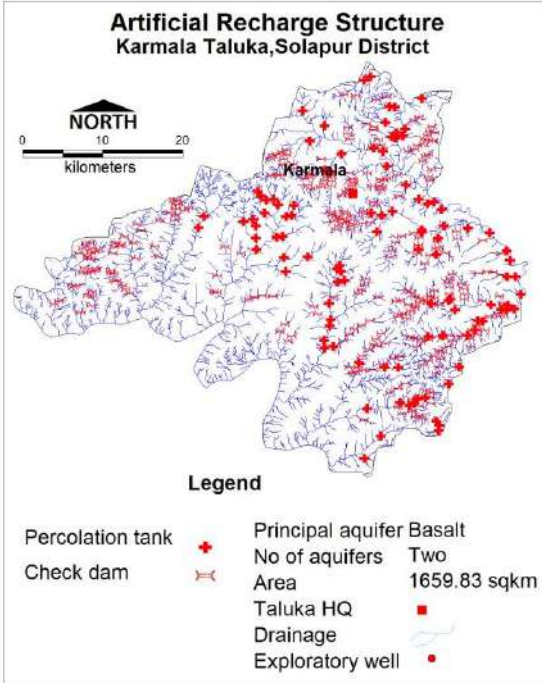
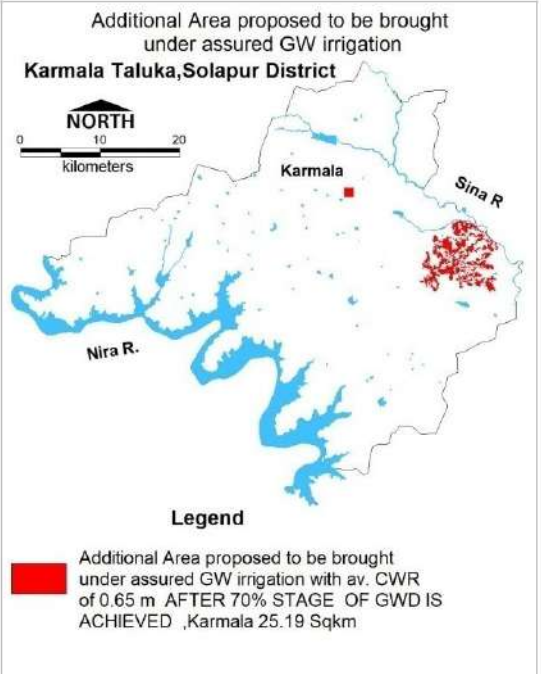


In general the water quality of shallow aquifer in Karmala taluka is potable and good for drinking, domestic, industrial as well as irrigation purposes. Nitrate more than 45 mg per litre was detected in water sample from

In general the water quality of deep aquifer in Karmala taluka is potable and very good for drinking, domestic, industrial as well as irrigation purposes. Nitrate more than 45 mg per litre was detected in water sample from Zarei EW &

Hivare, Sade, Deolali, Sogaon, Parewadi, Kedgaon, Nerle, Varkute and Pathurdi. Very high salinity prevails (>2250 μ S/cm), which is not suitable for drinking, domestic, industrial as well as irrigation purposes. Ground water can be used for drinking only after treatment and for irrigation for very high salt tolerant crops and with proper soil and crop management practices.		Fluorid more than 1.5 mg per litre was detected in water sample from Hiwarewadi EW.					
5. GROUND WATER RESOURCES							
5.1. Aquifer-I/ Phreatic Aquifer (Basalt)							
Ground Water Recharge Worthy Area (Sq. Km.)							1659.83
Total Annual Ground Water Recharge (MCM)							144.13
Natural Discharge (MCM)							7.21
Net Annual Ground Water Availability (MCM)							136.93
Existing Gross Ground Water Draft for irrigation (MCM)							92.65
Existing Gross Ground Water Draft for domestic and industrial water supply(MCM)							3.78
Existing Gross Ground Water Draft for All uses(MCM)							96.43
Provision for domestic and industrial requirement supply to 2025(MCM)							7.09
Net Ground Water Availability for future irrigation development(MCM)							38.44
Stage of Ground Water Development (%)							70.43
Category							SAFE
5.2 Aquifer-II		Semiconfined/Confined Aquifer (Basalt)					
Area (Sqkm)	Mean thickness (m)	Piezometric head (meter above bottom of confining layer)	Sy	S	Resource above confining layer (mcm)	Resource in confining aquifer (mcm)	Total Resource (mcm)
1602.382	2.5	65	0.00232	1.45E-05	1.510245	9.293816	10.80406
6.0. GROUND WATER RESOURCE ENHANCEMENT							
6.1. Supply Side Management							
Net Available Resource (MCM)	136.93						
Gross Annual Draft (MCM)	96.43						
Agricultural Supply -GW	92.65						
Agricultural Supply -SW	71.77						
Domestic Supply - GW	3.78						
Domestic Supply - SW	0.94						
Total Supply	169.15						
Area of Block (Sq. Km.)	1659.83						
Area suitable for Artificial recharge(Sq. Km)	1229.39						
Type of Aquifer	Hard Rock			Soft Rock			
Area feasible for Artificial Recharge(WL >5mbgl) (Sq. Km.)	1229.39						
Volume of Unsaturated Zone (MCM)	2458.78						
Average Specific Yield	0.02			0.07			

Volume of Sub surface Storage Space available for Artificial Recharge (MCM)	49.1756	0	
Surplus water required (MCM)	65.403548		
Surplus water Available (MCM)	30.120055	0	22.590041
Proposed Structures	Percolation Tank (Av. Gross Capacity-100 TCM*2 fillings = 200 TCM)	Check Dam (Av. Gross Capacity-10 TCM * 3 fillings = 30 TCM)	
Number of Structures	105	304	
Volume of Water expected to be conserved / recharged @ 75% efficiency (MCM)	15.75	6.84	
RTRWH Structures – Urban Areas			
Households to be covered (25% with 50 m ² area)	13,430.00	Economically not viable & Not Recommended	
Total RWH potential (MCM)	0.37		
Rainwater harvested / recharged @ 80% runoff co-efficient	0.29261284		
6.2. Demand Side Management			
Micro irrigation techniques			
Sugarcane crop area (33.04), about 20 sqkm area is ground water irrigated , 100 % ground water irrigated (20 sqkm) proposed to be covered under Drip (sq.km.)			2
Volume of Water expected to be saved (MCM). Surface Flooding req- 2.45 m. Drip Req. - 1.88, WUE- 0.57 m			1.14
Area proposed to be covered (37.78sq.km.) 50%Onion area			0
Volume of Water expected to be conserved (MCM). Onion requirement - 0.78 m, Drip - 0.52 m,			0
Area proposed to be covered (37.78sq.km.) 50% double crop area			0
Volume of Water expected to be conserved (MCM). Onion requirement - 0.9 m, Drip - 0.5 m,			0
Proposed Cropping Pattern change			Not proposed
Irrigated area under Water Intensive Crop(ha)			Not proposed
Water Saving by Change in Cropping Pattern			Nil
6.3. Expected Benefits			
Net Ground Water Availability (MCM)			136.92
Additional GW resources available after Supply side interventions (MCM)			22.59
Ground Water Availability after Supply side intervention			159.51
Existing Ground Water Draft for All Purposes (MCM)			96.43
GW draft after Demand Side Interventions (MCM)			95.29
Present stage of Ground Water Development (%)			70.43
Expected Stage of Ground Water Development after interventions (%)			59.74
Other Interventions Proposed, if any			
Alternate Water Sources Available			Nil

6.4. Development Plan	
Volume of water available for GWD to 60% (MCM)	16.36
Proposed Number of DW(@ 1.5 ham for 90% of GWR Available for development)	982
Proposed Number of BW(@ 1.5 ham for 10% of GWR Available for development)	109
Additional Area (sq.km.) brought under assured GW irrigation with av. CWR of 0.65 m	25.18
Regulatory Measures	60m borewell/tube well
<p align="center">Proposed AR Structures</p>  <p align="center">Artificial Recharge Structure Karmala Taluka, Solapur District</p> <p align="center">NORTH 0 10 20 kilometers</p> <p align="center">Karmala</p> <p align="center">Legend</p> <p>Percolation tank + Check dam [Symbol]</p> <p>Principal aquifer Basalt No of aquifers Two Area 1659.83 sqkm Taluka HQ [Red Square] Drainage [Blue Line] Exploratory well [Red Square]</p>	<p align="center">Additional area proposed to be bought under assured GW irrigation</p>  <p align="center">Additional Area proposed to be brought under assured GW irrigation Karmala Taluka, Solapur District</p> <p align="center">NORTH 0 10 20 kilometers</p> <p align="center">Karmala</p> <p align="center">Sina R.</p> <p align="center">Nira R.</p> <p align="center">Legend</p> <p>[Red Area] Additional Area proposed to be brought under assured GW irrigation with av. CWR of 0.65 m AFTER 70% STAGE OF GWD IS ACHIEVED, Karmala 25.19 Sqkm</p>

10 AQUIFER MAPS AND GROUND WATER MANAGEMENT PLAN, MADHA BLOCK, SOLAPUR DISTRICT, MAHARASHTRA

1. SALIENT INFORMATION	
1.1. Introduction	
Block Name	Madha
Geographical Area (Sq. Km.)	1559.33
Hilly Area (Sq. Km)	0.00
Saline Area (Sq. Km.)	0.00
Population (2011)	324027.00
Climate	Tropical Monsoon
1.2 Rainfall Analysis	
Annual Rainfall (2017)(mm)	617.8 mm
Decadal Average Annual Rainfall (2007-17) (mm)	595.5 mm
Normal Rainfall (mm)	497.2 mm
Long Term Rainfall Analysis(1901-2017)	Rising Trend 0.346 mm/year Probability of Normal/Excess Rainfall-48% & 52%. Probability of Drought (Moderate/Severe)-: 21 % Moderate & 1 % Severe and Acute 1%.
Rainfall Trend Analysis (1901 To 2017) EQUATION OF TREND LINE: $y = 0.3461x + 577.52$	
1.3. Geomorphology Soil & Geology	
Geomorphic Unit	Alluvial Plain of Sina River and Plateau ,Undissected to Moderately Dissected (PLM) with weathered thickness ranging from 0 to 1 m.
Soil	In general they are clayey loam in texture and fairly high in calcium carbonate, high porosity but moderate to low permeability, thus having low to moderate infiltration capacity. Based on physical characteristics the soils of the area have been classified into three major groups: Medium black soil, Red Sandy soils and Shallow black soils
Geology	Alluvium : sand/ silt and clay alternating beds Age: Recent to Sub-recent Deccan Traps (Basalt) Age: Upper Cretaceous to Lower Eocene
1.4. Hydrology, Soil & Drainage	
Bigger Minor Irrigation Project (>100 Ha.)	Completed: -1 major & 15 MI Tanks
Minor Irrigation Project (<100 Ha.)	Completed: -82 VT, 7 PT, 62 KT weirs & 71 DB

Drainage	The area is drain by Sina river, Nira rivers and its tributaries,flow from NW to SE direction,divide also in same direction.
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1.5. Land Use, Agriculture, Irrigation & Cropping Pattern

Geographical Area (Sq. Km.)	1559.33
Forest Area (Sq. Km.)	25.84
Net Sown Area (Sq. Km.)	1086.58
Double Cropped Area (Sq. Km.)	59.64
Gross Cropped Area (Sqkm)	1146.22
Cultivable Area (Sq. Km.)	1455.68

Area under Irrigation (Sq. Km.)

Ground Water	223.73
Surface Water	192.16

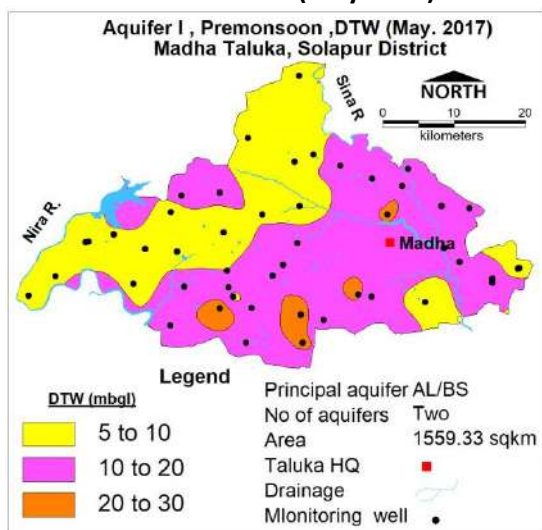
Principal Crops(Reference year 2013-14)

	Area (Sq.km.)
Wheat	70.02
Jawar	3.15
Bajra	22.05
Maize	20.73
Tur	12.5
Sugarcane	43.95
Chilli	4.82
Mango	3.58
Onion	9.5
Sunflower	25.07

1.6. Water Level Behaviour

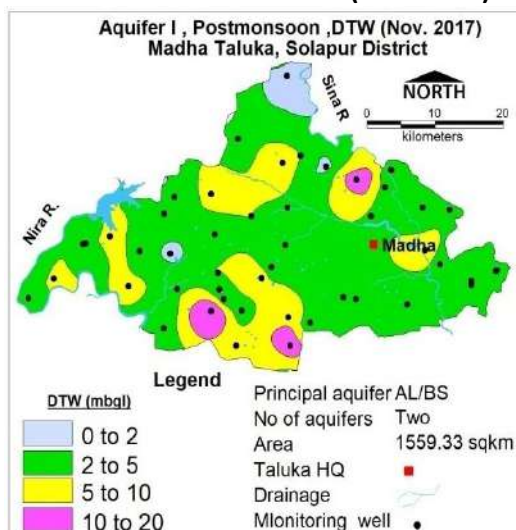
1.6.1. Phreatic Aquifer-Water Level

Pre-Monsoon Water Level (May 2017)



Water level less than 10 mbgl has been observed in northern and western parts of the block while water level in the range of 10 to 20 mbgl is observed in major part of the block; deeper water level more than 20 mbgl has been observed in isolated patch in south eastern parts.

Post-Monsoon Water Level (Nov. 2016)

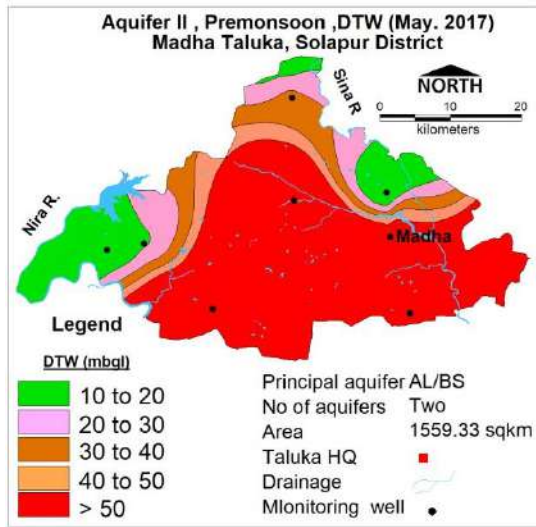


Water Level less than 5 mbgl has been observed in northern, north-western and southern parts of the block while water level in the range of 5 to 10 mbgl is observed in as isolated patch of the block; deeper water level more than 10 mbgl has been observed at Paritewadi and Mhaisgaon.

1.6.2. Semi-Confined/Confined Aquifer-Water Level

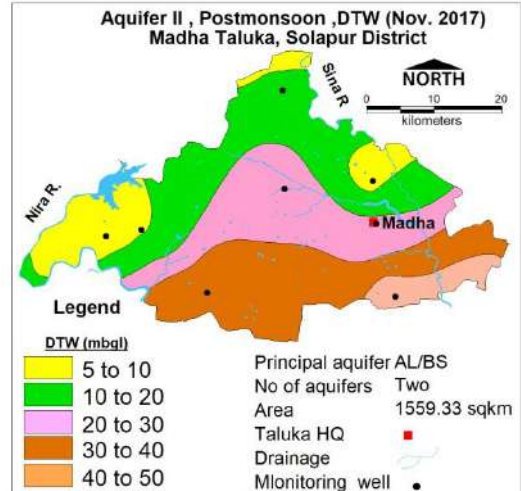
Pre-Monsoon Water Level (May 2017)

Water level > 50 mbgl is observed in major part of the block; shallow water level is observed in northern part of the block

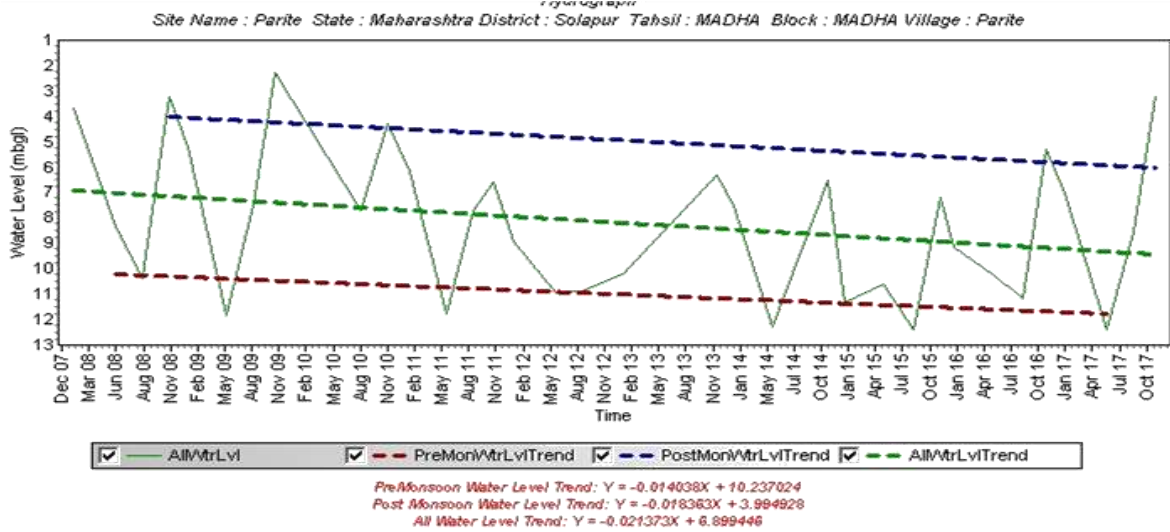


Post-Monsoon Water Level (Nov. 2017)

Water level >20 mbgl is observed in north eastern and south-western parts of the block; while 10 to 20 mbgl is observed in north western part of the block.



1.6. Hydrograph



Hydrograph shows Pre-monsoon rising trend @ 0.38 m/year

Hydrograph shows Post-monsoon rising trend @ 0.135 m/year

1.8. Water Level Trend (2008-2017)

1.8.1 Pre-Monsoon trend

Rising 0.0129 to 0.144m/year

Falling 0.008 to 0.55 m/year

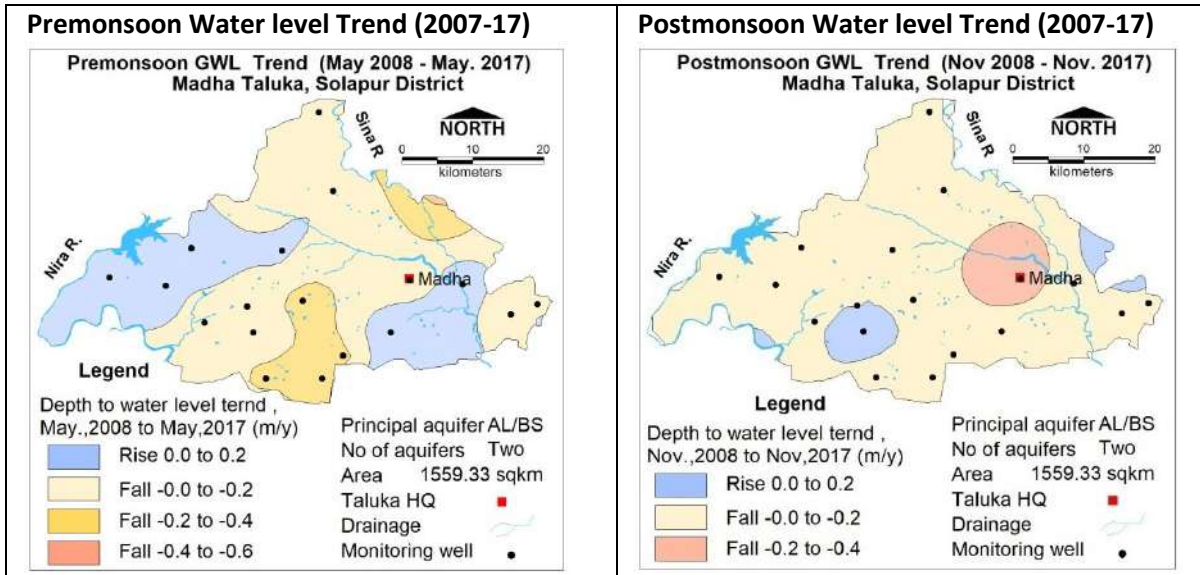
Declining trend up to 0.2 m/year is observed in major part of the block; decline in water level >0.2 m/year has been observed in eastern part of the block. Rising water level trend has been observed in small part in northern and southern parts and isolated part in western part of the block.

1.8.2 Post-Monsoon trend

Rising 0.19 m/year

Falling 0.001 to 0.38 m/year

Declining trend up to 0.2 m/year is observed in almost entire block; significant decline in water level > 0.2 m/year has been observed around Madha town. Rising water level trend has been observed in southern part and in isolated parts in western part of the block.

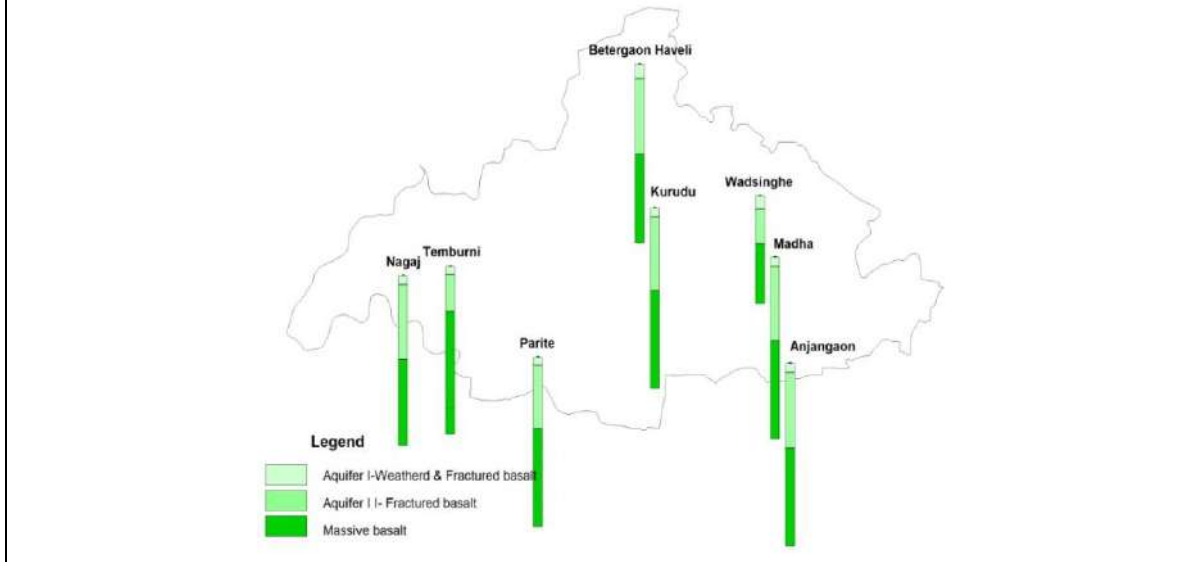


2. GROUND WATER ISSUE	Over - Exploitation Declining WL Limited Aquifer Potential Water Scarcity - lean period
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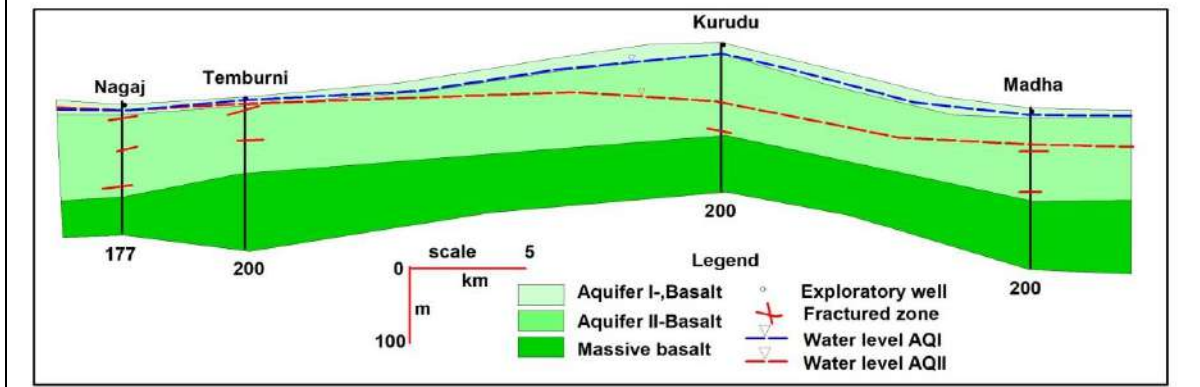
3. AQUIFER DISPOSITION

3.1. Number of Aquifers	Aquifer-I (Shallow/Phreatic)	Aquifer-II (Deeper/ Semiconfined /confined)
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3.2. Lithological Disposition



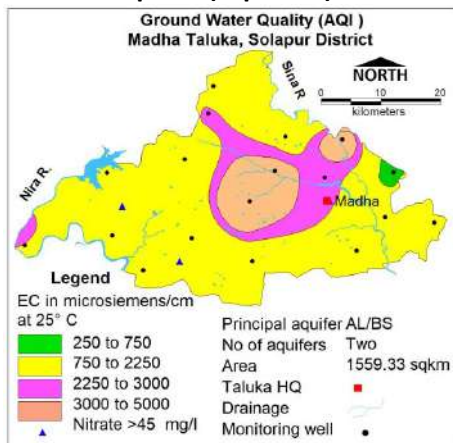
3.3. Cross Sections



3.4. Aquifer Characteristics		
Major Aquifers	Basalt (Deccan Traps)	
Type of Aquifer	Aquifer-I (Phreatic)	Aquifer-II (Semiconfined/confined)
Depth of Occurrence (mbgl)	8 - 30	50 - 196
Thickness of wearherd/ fractured rocks (m)	5 - 15	1.25 - 7
Yield	10 - 100 m ³ /day	.1-1.5 lps
Specific yield (Sy)	0.02	0.0025
Storativity (S)		0.0000154
Transmissivity (T) (m ² /day)	T: 10-25 m ² /day	T: 30-40 m ² /day

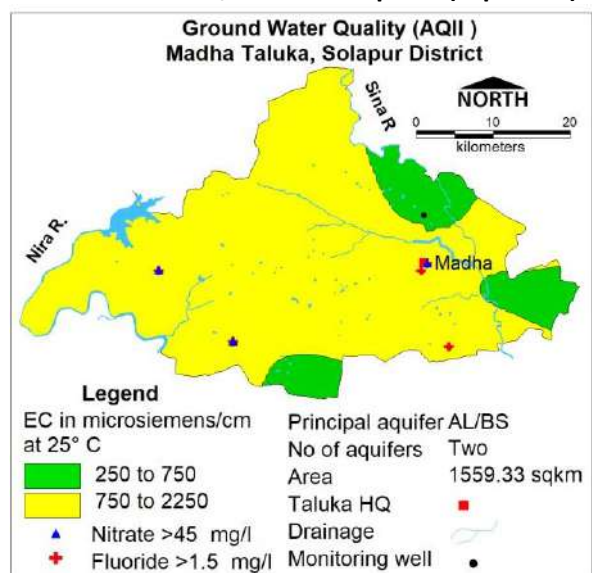
4. GROUND WATER QUALITY

4.1 Phreatic Aquifer (Aquifer-I)



In general the water quality of shallow aquifer in Madha taluka is potable and good for drinking, domestic, industrial as well as irrigation purposes. Nitrate more than 45 mg per litre was detected in water sample from Ghoti, Laul, Manegaon, Anjangaon, Akulgaon, Badalewadi, Shiral Tembhorni, very high salinity prevails (>2250 μ S/cm), which is not suitable for drinking, domestic, industrial as well as irrigation purposes. Ground water can be used for drinking only after treatment and for irrigation for very high salt tolerant crops and with proper soil and crop management practices.

4.2 Semiconfined/Confined Aquifer (Aquifer II)



In general the water quality of deep aquifer in Madha taluka is potable and very good for drinking, domestic, industrial as well as irrigation purposes. Nitrate more than 45 mg per litre was detected in water sample from Madha, Tembhorni, and Parite EW & Fluorid more than 1.5 mg per litre was detected in water sample from Madha EW. .

5. GROUND WATER RESOURCES

5.1. Aquifer-I/ Phreatic Aquifer (Basalt & Alluvium)

Ground Water Recharge Worthy Area (Sq. Km.)	1559.33
Total Annual Ground Water Recharge (MCM)	195.40
Natural Discharge (MCM)	10.03
Net Annual Ground Water Availability (MCM)	185.37
Existing Gross Ground Water Draft for irrigation (MCM)	139.64
Existing Gross Ground Water Draft for domestic and industrial water supply(MCM)	5.15
Existing Gross Ground Water Draft for All uses(MCM)	144.78
Provision for domestic and industrial requirement supply to 2025(MCM)	8.97
Net Ground Water Availability for future irrigation development(MCM)	44.01

Stage of Ground Water Development (%)							78.11
Category							SAFE
5.2 Aquifer-II Semiconfined/Confined Aquifer (Basalt)							
Area	Mean thickness (m)	Piezometric head (meter above bottom of confining layer)	Sy	S	Resource above confining layer (mcm)	Resource in confining aquifer (mcm)	Total Resource (mcm)
1511.892	3	64	0.002	1.45E-05	1.403035	9.071349	10.4743
6.0. GROUND WATER RESOURCE ENHANCEMENT							
6.1. Supply Side Management							
Net Available Resource (MCM)			185.37				
Gross Annual Draft (MCM)			144.78				
Agricultural Supply -GW			139.64				
Agricultural Supply -SW							
Domestic Supply - GW			5.15				
Domestic Supply - SW			1.29				
Total Supply			146.07				
Area of Block (Sq. Km.)			1559.33				
Area suitable for Artificial recharge(Sq. Km)			1484.36				
Type of Aquifer			Hard Rock		Soft Rock		
Area feasible for Artificial Recharge(WL >5mbgl) (Sq. Km.)			1484.36				
Volume of Unsaturated Zone (MCM)			2968.72				
Average Specific Yield			0.02		0.07		
Volume of Sub surface Storage Space available for Artificial Recharge (MCM)			59.37		0		
Surplus waterrequired (MCM)			78.97				
Surplus water Available (MCM)			36.37		0		27.2751
Proposed Structures			Percolation Tank (Av. Gross Capacity-100 TCM*2 fillings = 200 TCM)		Check Dam (Av. Gross Capacity-10 TCM * 3 fillings = 30 TCM)		
Number of Structures			127.00		365		
Volume of Water expected to be conserved / recharged @ 75% efficiency (MCM)			19.05		8.2125		
RTRWH Structures – Urban Areas							
Households to be covered (25% with 50 m2area)				81006.00		Economically not viable & Not Recommended	
Total RWH potential (MCM)				2.41			
Rainwater harvested / recharged @ 80% runoff coefficient				1.93			
6.2. Demand Side Management							
Micro irrigation techniques							
Sugarcane crop area (33.04) ,about 20 sqkm area is ground water irrigated ,100 % ground water irrigated (20 sqkm) proposed to be covered under Drip (sq.km.)						2.00	

Volume of Water expected to be saved (MCM). Surface Flooding req- 2.45 m. Drip Req. - 1.88, WUE- 0.57 m	1.14										
Proposed Cropping Pattern change											
Irrigated area under Water Intensive Crop(ha)	Not proposed										
Water Saving by Change in Cropping Pattern	Nil										
6.3. Expected Benefits											
Net Ground Water Availability (MCM)	185.37										
Additional GW resources available after Supply side interventions (MCM)	27.26										
Ground Water Availability after Supply side intervention	212.63										
Existing Ground Water Draft for All Purposes (MCM)	144.78										
GW draft after Demand Side Interventions (MCM)	143.64										
Present stage of Ground Water Development (%)	78.11										
Expected Stage of Ground Water Development after interventions (%)	67.56										
Other Interventions Proposed, if any											
Alternate Water Sources Available	Nil										
6.4. DEVELOPMENT PLAN											
Volume of water available for GWD to 60% (MCM)	5.20										
Proposed Number of DW(@ 1.5 ham for 90% of GWR Available for development)	312.00										
Proposed Number of BW(@ 1.5 ham for 10% of GWR Available for development)	35.00										
Additional Area (sq.km.) brought under assured GW irrigation with av. CWR of 0.65 m	8.00										
Regulatory Measures	60m borewell/tube well										
Proposed AR Structures	Additional area proposed to be bought under assured GW irrigation										
<p style="text-align: center;">Artificial Recharge Structure Madha Taluka, Solapur District</p> <p style="text-align: center;">Legend</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Percolation tank</td> <td style="width: 50%;">Principal aquifer AL/BS</td> </tr> <tr> <td>Check dam</td> <td>No of aquifers Two</td> </tr> <tr> <td></td> <td>Area 1559.33 sqkm</td> </tr> <tr> <td></td> <td>Taluka HQ</td> </tr> <tr> <td></td> <td>Drainage</td> </tr> </table>	Percolation tank	Principal aquifer AL/BS	Check dam	No of aquifers Two		Area 1559.33 sqkm		Taluka HQ		Drainage	<p style="text-align: center;">Additional Area proposed to be brought under assured GW irrigation Madha Taluka, Solapur District</p> <p style="text-align: center;">Legend</p> <p style="text-align: center;">Additional Area proposed to be brought under assured GW irrigation with av. CWR of 0.65 m AFTER 70% STAGE OF GWD IS ACHIEVED Madha 8 Sqkm</p>
Percolation tank	Principal aquifer AL/BS										
Check dam	No of aquifers Two										
	Area 1559.33 sqkm										
	Taluka HQ										
	Drainage										

11 AQUIFER MAPS AND GROUND WATER MANAGEMENT PLAN, MALSHIRAS BLOCK, SOLAPUR DISTRICT, MAHARASHTRA

1. SALIENT INFORMATION	
1.1. Introduction	
Block Name	Malshiras
Geographical Area (Sq. Km.)	1528.01
Hilly Area (Sq. Km)	35.02
Saline Area (Sq. Km.)	0
Population (2011)	485645
Climate	Tropical Monsoon
1.2 Rainfall Analysis	
Annual Rainfall (2017)(mm)	530.9 mm
Decadal Average Annual Rainfall (2007-17) (mm)	524.9 mm
Normal Rainfall (mm)	530 mm
Long Term Rainfall Analysis(1901-2017)	Rising Trend 0.738 mm/year Probability of Normal/Excess Rainfall- 48% & 52%. Probability of Drought (Moderate/Severe)-: 24 % Moderate ,6 % Severe & Actute 1%.
Rainfall Trend Analysis (1901 To 2017) EQUATION OF TREND LINE: $y = 0.7382x + 486.98$	
1.3. Geomorphology Soil & Geology	
Geomorphic Unit	Plateau Undissected to highly Dissected, Plateau Weathered-Canal Command (PLC).with weathered thickness ranging from 0 to 2 m.
Soil	In general, they are clayey loam in texture and fairly high in calcium carbonate, high porosity but moderate to low permeability, thus having low to moderate infiltration capacity. Based on physical characteristics the soils of the area have been classified into three major groups: Medium black soil, Red Sandy soils and Shallow black soils
Geology	Alluvium: sand/ silt and clay alternating beds, Age: Recent to Sub-recent Deccan Traps (Basalt) Age: Upper Cretaceous to Lower Eocene
1.4. Hydrology & Drainage	
Bigger Minor Irrigation Project (>100 Ha.)	Completed: -3 MI Tanks
Minor Irrigation Project (<100 Ha.)	Completed: -98 VT, 7 PT, 81KT weirs & 80 DB
Drainage	The area is drain by Nira rivers and its tributaries, flow from NW to SE direction, drainage density high in southern boundary of taluka.

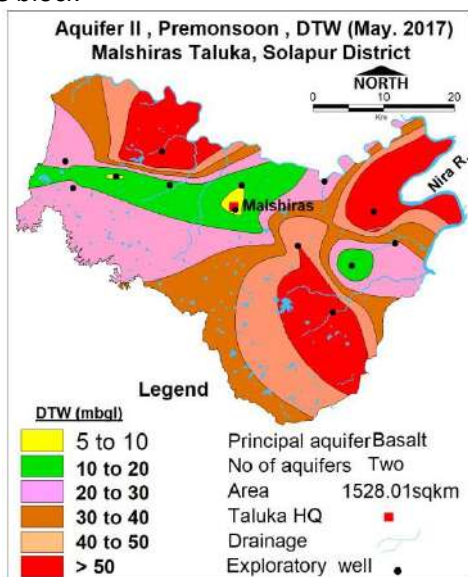
1.5. Land Use, Agriculture, Irrigation & Cropping Pattern	
Geographical Area (Sq. Km.)	1528.01
Forest Area (Sq. Km.)	3.44
Net Sown Area (Sq. Km.)	942.27
Double Cropped Area (Sq. Km.)	40.33
Gross Cropped Area (Sqkm)	982.6
Cultivable Area (Sq. Km.)	1579.98
Area under Irrigation (Sq. Km.)	
Ground Water	314.8
Surface Water	260.51
Principal Crops(Reference year 2013-14)	
Wheat	61.7
Jawar	7.28
Bajra	42.74
Maize	20.7
Tur	11.03
Sugarcane	99.65
Chilli	1.13
Mango	3.79
Onion	9.97
Sunflower	38.34

1.6. Water Level Behaviour
1.6.1. Phreatic Aquifer-Water Level

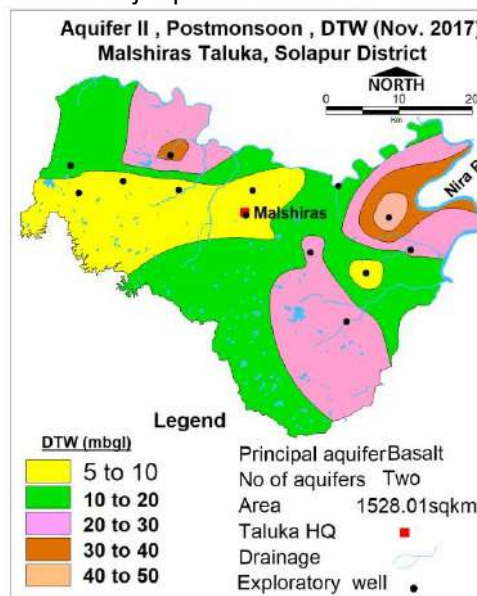
Pre-Monsoon Water Level (May 2017)	Post-Monsoon Water Level (Nov. 2016)
<p>Aquifer I , Premonsoon , DTW (May. 2017) Malshiras Taluka, Solapur District</p> <p>Legend</p> <p>DTW (mbgl)</p> <ul style="list-style-type: none"> 5 to 10 10 to 20 20 to 30 <p>Principal aquifer Basalt No of aquifers Two Area 1528.01sqkm Taluka HQ Drainage Monitoring well</p>	<p>Aquifer I , Postmonsoon , DTW (Nov. 2017) Malshiras Taluka, Solapur District</p> <p>Legend</p> <p>DTW (mbgl)</p> <ul style="list-style-type: none"> 2 to 5 5 to 10 <p>Principal aquifer Basalt No of aquifers Two Area 1528.01sqkm Taluka HQ Drainage Monitoring well</p>
<p>Water level less than 10 mbgl has been observed in major part of the taluka, while water level in the range of 10 to 20 mbgl is close to divide in southern parts and central part; deeper water level more than 20 mbgl has been observed at Dasur and Sangam village.</p>	<p>Water Level less than 5 mbgl has been observed in north-eastern and southern parts of the block while water level in the range of 5 to 10 mbgl is observed in major part of the block;</p>

1.6.2. Semi-Confined/Confined Aquifer-Water Level

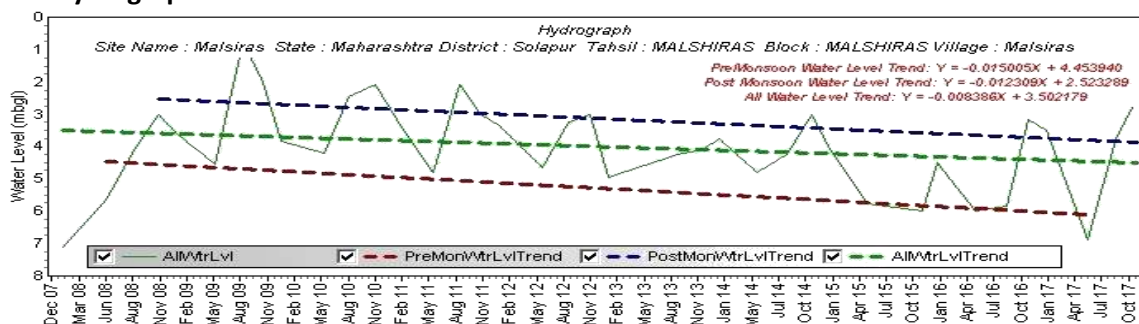
Pre-Monsoon Water Level (May 2017)
Water level > 20 mbgl is observed in major part of the block; water level in the range of 10 to 20 mbgl is observed in central part of the block



Post-Monsoon Water Level (Nov. 2017)
Water level <10 mbgl is observed in north eastern and south-western parts of the block; >10 mbgl is observed in major part of the block



1.7. Hydrograph



Hydrograph shows Pre-monsoon rising trend @ 0.38 m/year

Hydrograph shows Post-monsoon rising trend @ 0.135 m/year

1.8. Water Level Trend (2008-2017)

1.8.1 Pre-Monsoon trend

Rising 0.01 to 0.12 m/year

Falling 0.009 to 0.14 m/year

Premonsoon Water level Trend (2007-17)

Declining trend up to 0.2 m/year is observed in almost entire block; Rising water level trend has been observed in small part in southern parts of the block.

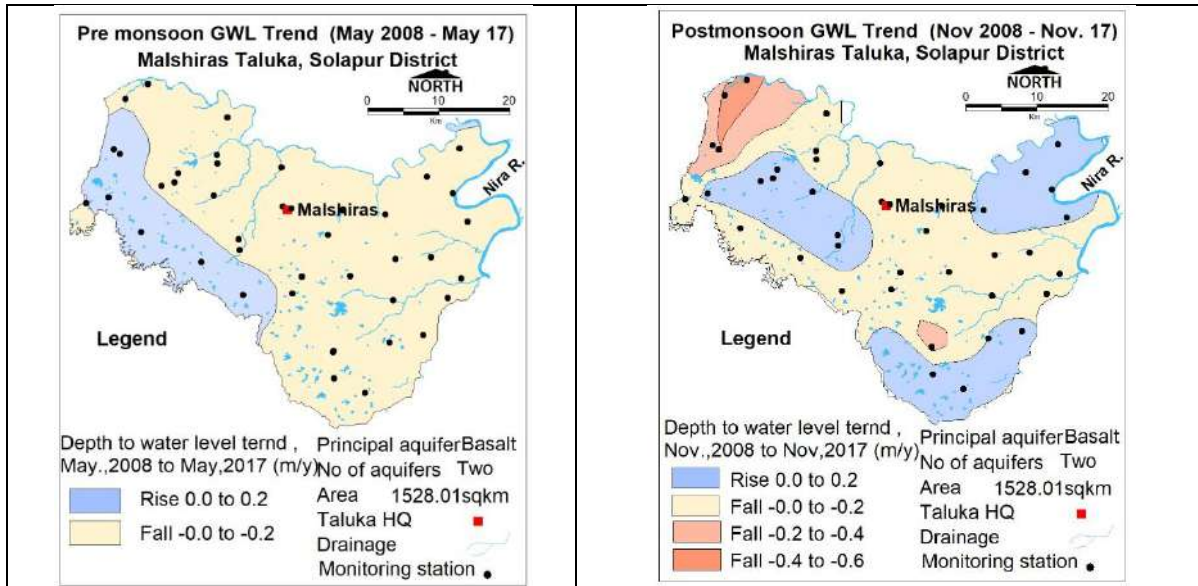
1.8.2 Post-Monsoon trend

Rising 0.009 to 0.18 m/year

Falling 0.02 to 0.42 m/year

Postmonsoon Water level Trend (2007-17)

Declining trend up to 0.2 m/year is observed in major part of the block; significant decline in water level > 0.2 m/year has been observed in eastern part of the block. Rising water level trend has been observed in southern part and in isolated parts in western part of the block.

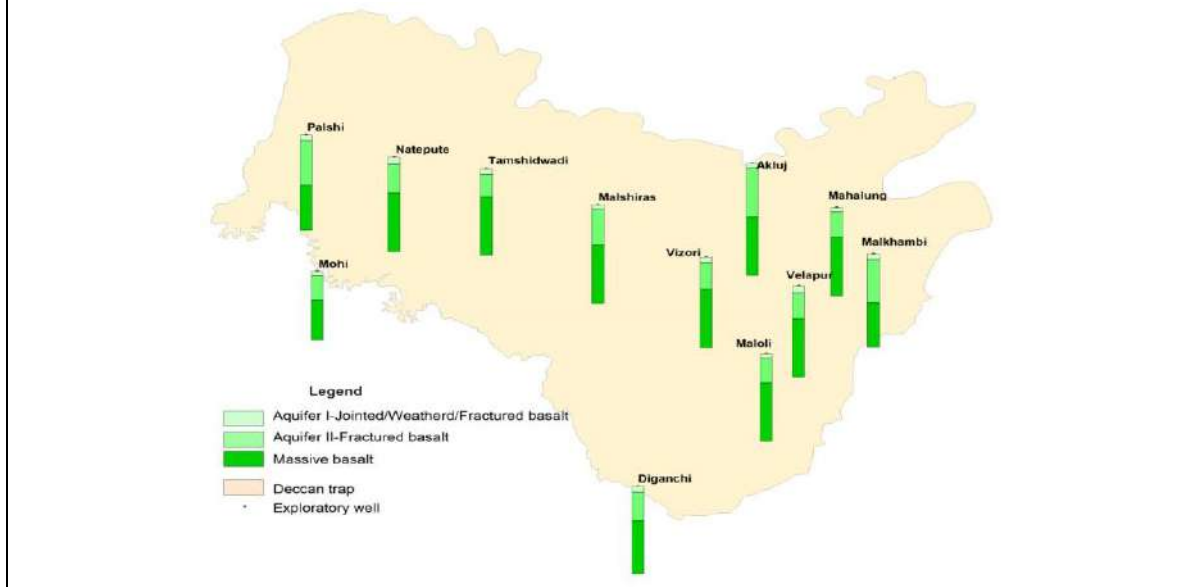


2. GROUND WATER ISSUE Over - Exploitation Declining WL
Limited Aquifer Potential
Water Scarcity - lean period

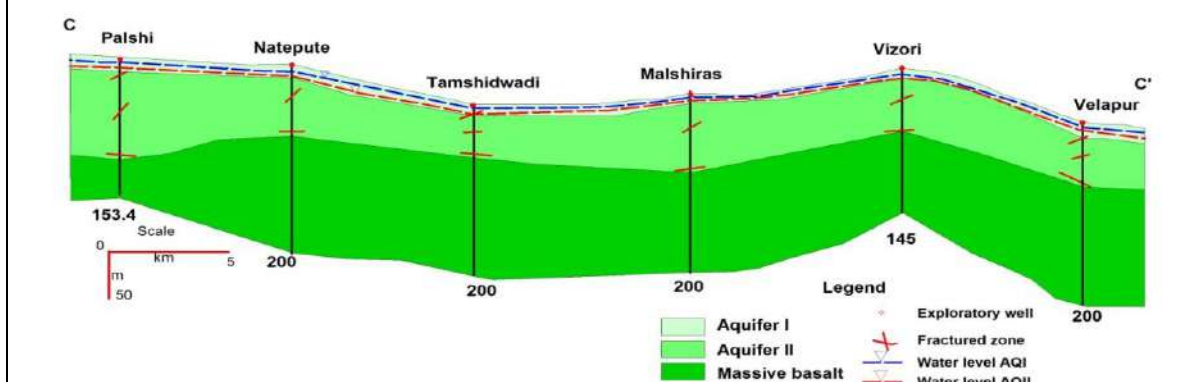
3. AQUIFER DISPOSITION

3.1. Number of Aquifers Aquifer-I (Shallow/Phreatic) Aquifer-II (Deeper/ Semiconfined /confined)

3.2 Lithological dispoition

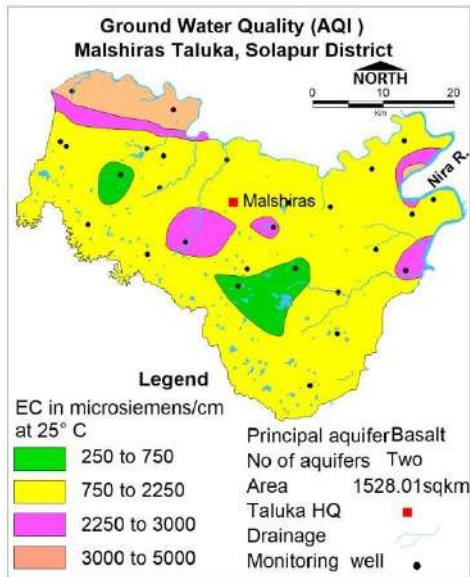


3.3 Cross Section

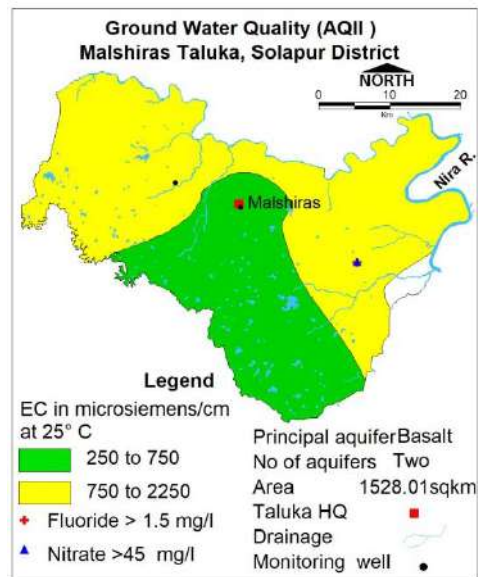


3.4. Aquifer Characteristics		
Major Aquifers	Basalt (Deccan Traps)	Basalt (Deccan Traps)
Type of Aquifer	Aquifer-I (Phreatic)	Aquifer-II (Semiconfined/confined)
Depth of Occurrence (mbgl)	8 - 30	90 - 196
Thickness of weathered/fractured rocks (m)	5 - 15	1.25 - 5
Yield	10 - 100 m ³ /day	0.1 - 0.7 lps
Specific yield (Sy)	0.02	0.005
Storativity (S)		0.00057
Transmissivity (T) (m ² /day)	T: 20-25 m ² /day	T: 30-50 m ² /day

4. GROUND WATER QUALITY



4.1 Phreatic Aquifer (Aquifer-I) : In general the water quality of shallow aquifer in Malshiras taluka is potable and good for drinking, domestic, industrial as well as irrigation purposes. Very high salinity prevails (>2250 μ S/cm), which is not suitable for drinking, domestic, industrial as well as irrigation purposes. Ground water can be used for drinking only after treatment and for irrigation for very high salt tolerant crops and with proper soil and crop management practices.



4.2: Semiconfined/Confined Aquifer (Aquifer II) : In general the water quality of deep aquifer in Malshiras taluka is potable and very good for drinking, domestic, industrial as well as irrigation purposes. Nitrate more than 45 mg per litre was detected in water sample from Velapur EW & Fluorid more than 1.5 mg per litre was detected in water sample from Velapur EW. .

5. GROUND WATER RESOURCE

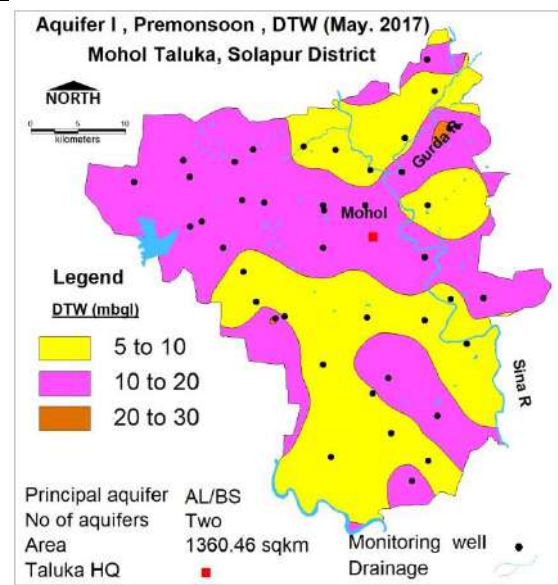
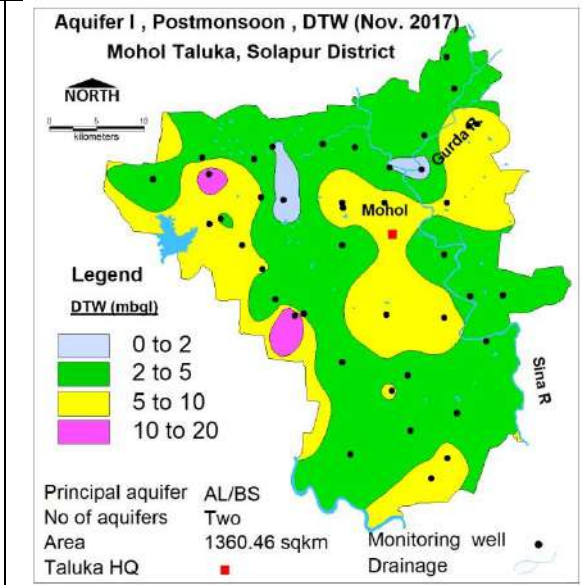
5.1. Aquifer-I/ Phreatic Aquifer (Basalt & Alluvium)	
Ground Water Recharge Worthy Area (Sq. Km.)	1492.99
Total Annual Ground Water Recharge (MCM)	221.04
Natural Discharge (MCM)	11.05
Net Annual Ground Water Availability (MCM)	209.99
Existing Gross Ground Water Draft for irrigation (MCM)	204.47
Existing Gross Ground Water Draft for domestic and industrial water supply (MCM)	6.14

Existing Gross Ground Water Draft for All uses (MCM)							210.61
Provision for domestic and industrial requirement supply to 2025(MCM)							8.91
Net Ground Water Availability for future irrigation development (MCM)							22.34
Stage of Ground Water Development (%)							100.29
Category							O.E.
5.2 Aquifer-II Semiconfined/Confined Aquifer (Basalt)							
Area (Sqkm)	Mean thickness (m)	Piezometric head (m. above bottom of confining layer)	Sy	S	Resource above confining layer (mcm)	Resource in confining aquifer (mcm)	Total Resource (mcm)
1610.172	2.46	60	0.005	0.00019	18.35596	19.80512	38.16108
6.0. GROUND WATER RESOURCE ENHANCEMENT							
6.1. Supply Side Management							
Net Available Resource (MCM)							209.9919
Gross Annual Draft (MCM)							210.6102
Agricultural Supply -GW							204.4727
Agricultural Supply -SW							
Domestic Supply - GW							6.1374
Domestic Supply - SW							1.5343
Total Supply							212.1445
Area of Block (Sq. Km.)							1492.99
Area suitable for Artificial recharge(Sq. Km)							498.16
Type of Aquifer	Hard Rock			Soft Rock			
Area feasible for Artificial Recharge(WL >5mbgl) (Sq. Km.)	498.16						
Volume of Unsaturated Zone (MCM)	996.32						
Average Specific Yield	0.02			0.07			
Volume of Sub surface Storage Space available for Artificial Recharge (MCM)	19.9264			0			
Surplus waterrequired (MCM)	26.502112						
Surplus water Available (MCM)	12.20492			0			
Proposed Structures	Percolation Tank (Av. Gross Capacity-100 TCM*2 fillings = 200 TCM)			Check Dam (Av. Gross Capacity-10 TCM * 3 fillings = 30 TCM)			
Number of Structures	48			86			
Volume of Water expected to be conserved / recharged @ 75% efficiency (MCM)	7.2			1.935			
RTRWH Structures – Urban Areas							
Households to be covered (25% with 50 m2area)	24890			Economically not viable & Not Recommended			
Total RWH potential (MCM)	0.6533625						
Rainwater harvested / recharged @ 80% runoff co-efficient	0.52269						

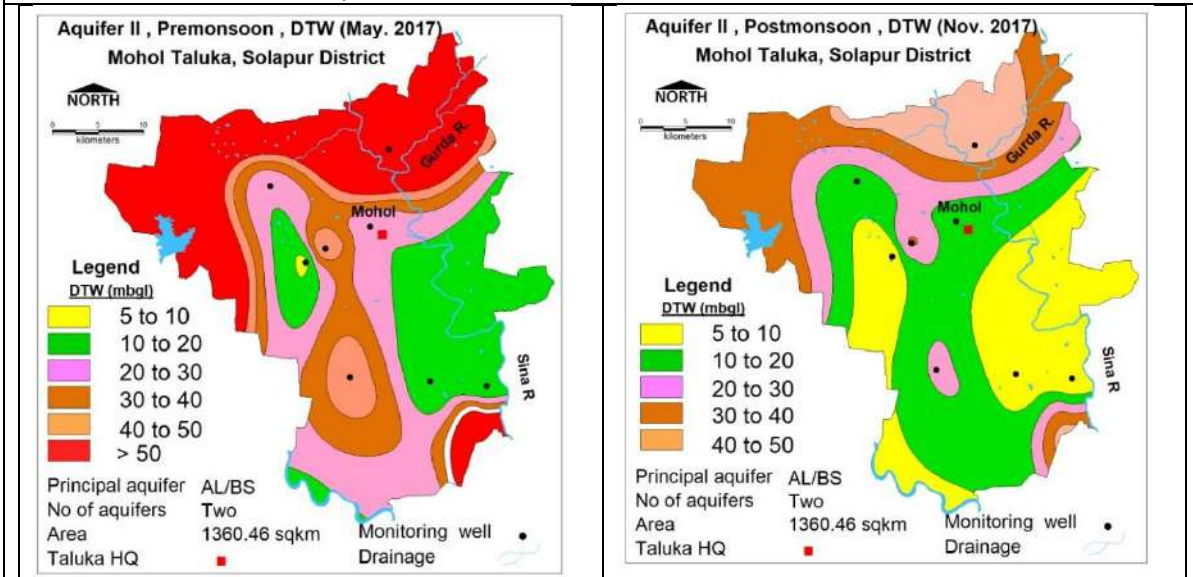
6.2. Demand Side Management	
Micro irrigation techniques	
Sugarcane crop area (33.04), about 20 sqkm area is ground water irrigated ,100 % ground water irrigated (20 sqkm) proposed to be covered under Drip (sq.km.)	103
Volume of Water expected to be saved (MCM). Surface Flooding req- 2.45 m. Drip Req. - 1.88, WUE- 0.57 m	58.71
Proposed Cropping Pattern change	
Irrigated area under Water Intensive Crop(ha)	Not proposed
Water Saving by Change in Cropping Pattern	Nil
6.3. EXPECTED BENEFITS	
Net Ground Water Availability (MCM)	209.9919
Additional GW resources available after Supply side interventions (MCM)	9.135
Ground Water Availability after Supply side intervention	219.1269
Existing Ground Water Draft for All Purposes (MCM)	210.6102
GW draft after Demand Side Interventions (MCM)	151.9002
Present stage of Ground Water Development (%)	100.2944
Expected Stage of Ground Water Development after interventions (%)	69.3206
Other Interventions Proposed, if any	
Alternate Water Sources Available	Nil
6.4. DEVELOPMENT PLAN	
Volume of water available for GWD to 60% (MCM)	1.4886
Proposed Number of DW(@ 1.5 ham for 90% of GWR Available for development)	89
Proposed Number of BW(@ 1.5 ham for 10% of GWR Available for development)	10
Additional Area (sq.km.) brought under assured GW irrigation with av. CWR of 0.65 m	2.2901
Regulatory Measures	60m borewell/tube well
Proposed AR Structures	Additional area proposed to be bought under assured GW irrigation

12 AQUIFER MAPS AND GROUND WATER MANAGEMENT PLAN, MOHOL BLOCK, SOLAPUR DISTRICT, MAHARASHTRA

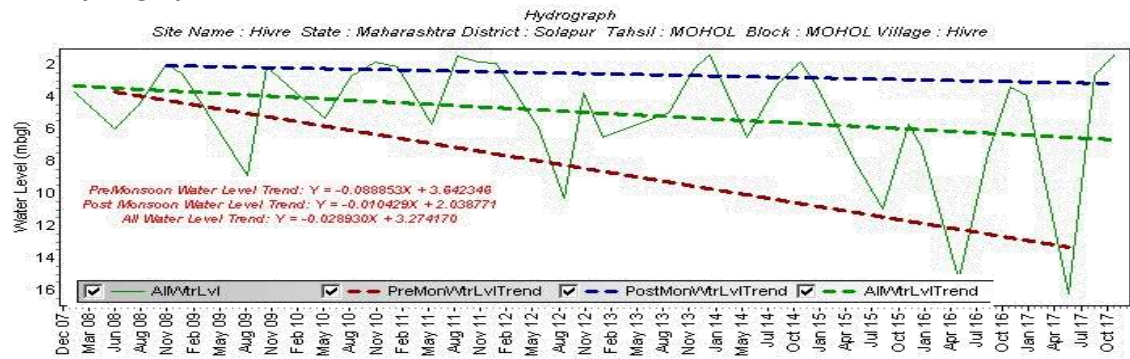
1. SALIENT INFORMATION	
1.1. Introduction	
Block Name	Molol
Geographical Area (Sq. Km.)	1360.46
Hilly Area (Sq. Km)	0
Saline Area (Sq. Km.)	0
Population (2011)	276920
Climate	Tropical Monsoon
1.2 Rainfall Analysis	
Annual Rainfall (2017)(mm)	526.3 mm
Decadal Average Annual Rainfall (2007-17) (mm)	522 mm
Normal Rainfall (mm)	575 mm
Long Term Rainfall Analysis(1998-2017)	Rising Trend 0.479 mm/year Probability of Normal/Excess Rainfall- 50% & 50%. Probability of Drought (Moderate/Severe)-: 2 % Moderate & 1 % Severe.
Rainfall Trend Analysis (1901 To 2017) EQUATION OF TREND LINE: $y = -17.944x + 763.73$	
1.3. Geomorphology Soil & Geology	
Geomorphic Unit	Alluvial Plain of Sina River and Plateau (Undissected to highly Dissected) with weathered thickness ranging from 0 to 1 m.
Soil	In general, they are clayey loam in texture and fairly high in calcium carbonate, high porosity but moderate to low permeability, thus having low to moderate infiltration capacity. Based on physical characteristics the soils of the area have been classified into three major groups: Medium black soil, Red Sandy soils and Shallow black soils
Geology	Alluvium: sand/ silt and clay alternating beds Age: Recent to Sub-recent Deccan Traps (Basalt) Age: Upper Cretaceous to Lower Eocene
1.4. Hydrology & Drainage	
Bigger Minor Irrigation Project (>100 Ha.)	Completed: -7 MI Tanks
Minor Irrigation Project (<100 Ha.)	Completed: -351 1VT, 66 KT weirs & 43 DB
Drainage	The area is drain by Sina rivers and its tributaries, flow from NW to SE direction in central part of the taluka

1.5. Land Use, Agriculture, Irrigation & Cropping Pattern	
Geographical Area (Sq. Km.)	1360.46
Forest Area (Sq. Km.)	15.91
Net Sown Area (Sq. Km.)	910.92
Double Cropped Area (Sq. Km.)	32.76
Gross Cropped Area (Sqkm)	943.68
Cultivable Area (Sq. Km.)	1206.53
Area under Irrigation (Sq. Km.)	
Ground Water	191.8
Surface Water	65.73
Principal Crops Reference year 2013-14)	Area (Sq. Km.)
Wheat	50.56
Jawar	1002.61
Bajra	7.34
Maize	27.45
Tur	12.09
Sugarcane	48.71
Chilli	1.39
Mango	2.99
Onion	4.99
Sunflower	20.43
1.6. Water Level Behaviour	
1.6.1. Phreatic Aquifer-Water Level	
<p>Pre-Monsoon (May-2017)- Water level in the range of 10 -20 mbgl has been observed in major part of the taluka, while water level less than 10 mbgl observed in northern and southern part of the taluka.</p>	
<p>Post-Monsoon (November-2017)- Water Level less than 5 mbgl has been observed in northern, north-western and southern parts of the block while water level in the range of 5 to 10 mbgl is observed as isolated patch</p>	
	
1.6.2. Semi-Confined/Confined Aquifer-Water Level	
<p>Pre-Monsoon (May-2016)- Water level > 20 mbgl is observed in south western part of the block; water level between 10 to 20 mbgl is observed in northeastern part of the block.</p>	
<p>Post-Monsoon (November-2017)-Water level <10 mbgl is observed in north eastern and south-</p>	

western parts of the block; 10 to 20 mbgl is observed in major part of the block while >20 mbgl is observed in north western part of the block.



1.7. Hydrograph



Hydrograph shows Pre-monsoon rising trend @ 0.38 m/year

Hydrograph shows Post-monsoon rising trend @ 0.135 m/year

1.8. Water Level Trend (2008-2017)

1.8.1 Pre-Monsoon trend

Rising 0.0016 to 0.2 m/year

Falling 0.015 to 0.67 m/year

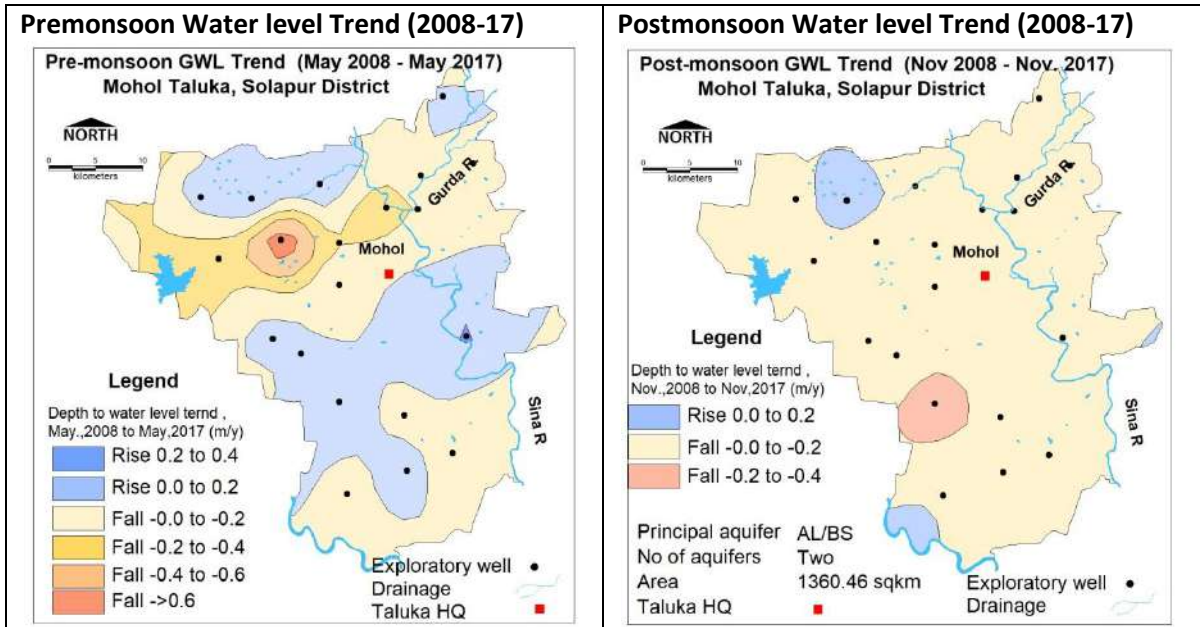
Declining trend up to 0.2 m/year is observed in 50% area of block; decline in water level >0.2 m/year has been observed in eastern part of the block. Rising water level trend has been observed in small part in northern and southern parts and isolated part in western part of the block.

1.8.2 Post-Monsoon trend

Rising 0.1 m/year

Falling 0.009 to 0.268 m/year

Declining trend up to 0.2 m/year is observed in 50% area of block; decline in water level >0.2 m/year has been observed in eastern part of the block. Rising water level trend has been observed in small part in northern and southern parts and isolated part in western part of the block.

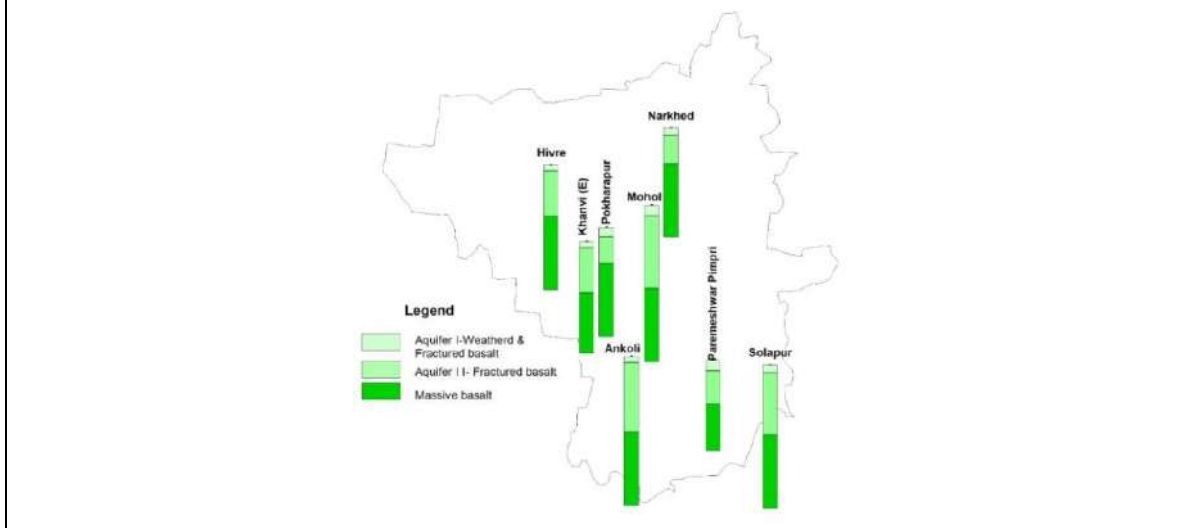


2. GROUND WATER ISSUE	Over - Exploitation Declining WL Limited Aquifer Potential Water Scarcity - lean period
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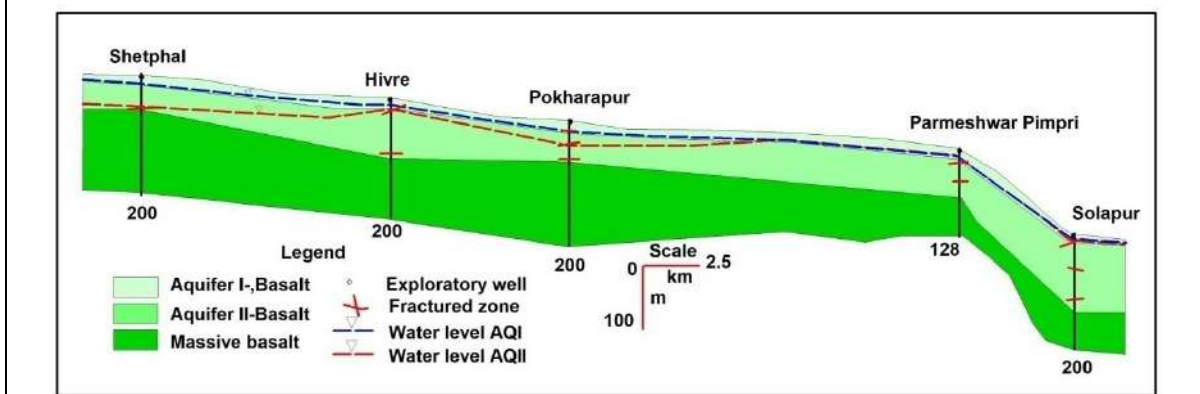
3. AQUIFER DISPOSITION

3.1. Number of Aquifers	Basalt -Aquifer-I (Shallow Aquifer)	Basalt –Aquifer-II (Deeper Aquifer)
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3.2. Lithological disposition



3.3. Cross Sections

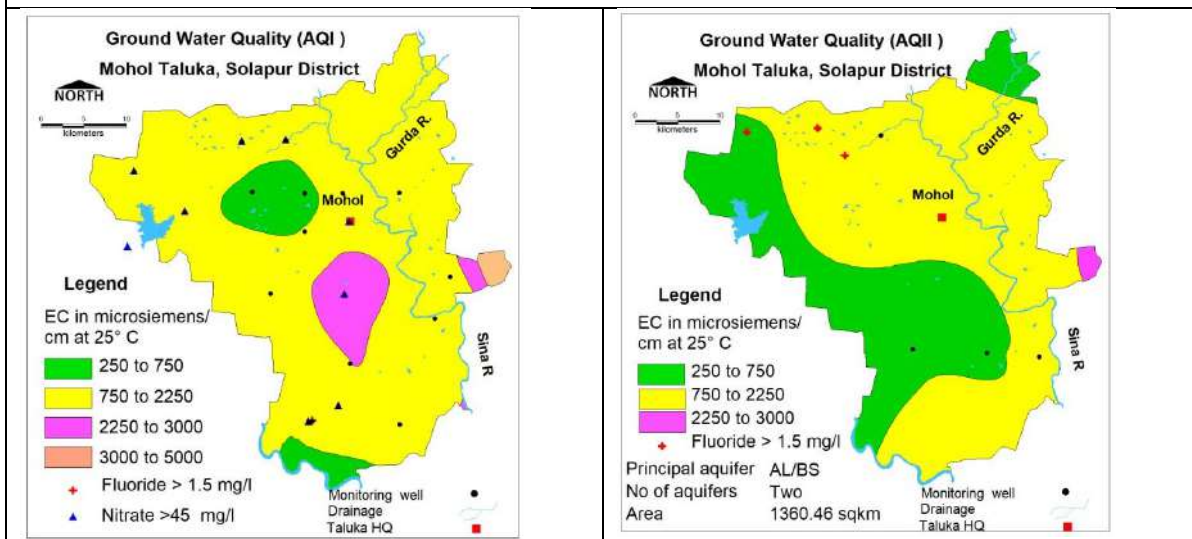


3.4. Aquifer Characteristics		
Major Aquifers	Basalt (Deccan Traps)	
Type of Aquifer	Aquifer-I (Phreatic)	Aquifer-II (Semiconfined/confined)
Depth of Occurrence (mbgl)	8 - 30	50 - 196
Thickness of wearherd/ fractured rocks (m)	5 - 15	1.25 - 5
Yield	10 - 100 m ³ /day	0.1 - 1.5 lps
Specific yield (Sy)	0.02	0.0025
Storativity (S)		0.00057
Transmissivity (T) (m ² /day)	T: 15-30 m ² /day	T: 30-60 m ² /day

4. GROUND WATER QUALITY

4.1 Phreatic Aquifer (Aquifer-I) In general the water quality of shallow aquifer in Mohol taluka is potable and good for drinking, domestic, industrial as well as irrigation purposes. Nitrate more than 45 mg per litre was detected in water sample from Ashti, Teoti, Mohol, Angar, Sohale Ichgaon, Fluorid more than 1.5 mg per litre was detected in water sample from Ichgaon. very high salinity prevails (>2250 μ S/cm), which is not suitable for drinking, domestic, industrial as well as irrigation purposes. Ground water can be used for drinking only after treatment and for irrigation for very high salt tolerant crops and with proper soil and crop management practices.

4.2: Semiconfined/Confined Aquifer (Aquifer II) : In general the water quality of deep aquifer in Mohol taluka is potable and very good for drinking, domestic, industrial as well as irrigation purposes. Fluorid more than 1.5 mg per litre was detected in water sample from Mohol, Shetphal and Narkhed EW.



5. GROUND WATER RESOURCE

5.1. Aquifer-I/ Phreatic Aquifer (Basalt & Alluvium)

Ground Water Recharge Worthy Area (Sq. Km.)	1360.46
Total Annual Ground Water Recharge (MCM)	161.95
Natural Discharge (MCM)	8.42
Net Annual Ground Water Availability (MCM)	153.53
Existing Gross Ground Water Draft for irrigation (MCM)	124.67
Existing Gross Ground Water Draft for domestic and industrial water supply (MCM)	4.80
Existing Gross Ground Water Draft for All uses(MCM)	129.47
Provision for domestic and industrial requirement supply to 2025(MCM)	8.35
Net Ground Water Availability for future irrigation development (MCM)	29.42
Stage of Ground Water Development (%)	84.33
Category	SAFE

5.2 Aquifer-II Semiconfined/Confined Aquifer (Basalt)							
Area (Sqkm)	Mean thickness (m)	Piezometric head (meter above bottom of confining layer)	Sy	S	Resource above confining layer (mcm)	Resource in confining aquifer (mcm)	Total Resource (mcm)
1326.903	4	39.97	0.0055	0.0005	26.51816	29.1918	55.71002
6.0. GROUND WATER RESOURCE ENHANCEMENT							
6.1. Supply Side Management							
Net Available Resource (MCM)		153.5307878					
Gross Annual Draft (MCM)		129.4726961					
Agricultural Supply -GW		124.6705525					
Agricultural Supply -SW							
Domestic Supply - GW		4.802143601					
Domestic Supply - SW		1.2005359					
Total Supply		130.673232					
Area of Block (Sq. Km.)		1360.46					
Area suitable for Artificial recharge(Sq. Km)		1000					
Type of Aquifer		Hard Rock			Soft Rock		
Area feasible for Artificial Recharge(WL >5mbgl) (Sq. Km.)		1000					
Volume of Unsaturated Zone (MCM)		2000					
Average Specific Yield		0.02			0.07		
Volume of Sub surface Storage Space available for Artificial Recharge (MCM)		40			0		
Surplus waterrequired (MCM)		53.2					
Surplus water Available (MCM)		24.5			0		18.375
Proposed Structures		Percolation Tank (Av. Gross Capacity-100 TCM*2 fillings = 200 TCM)			Check Dam (Av. Gross Capacity-10 TCM * 3 fillings = 30 TCM)		
Number of Structures		93			197		
Volume of Water expected to be conserved / recharged @ 75% efficiency (MCM)		13.95			4.4325		
RTRWH Structures – Urban Areas							
Households to be covered (25% with 50 m2area)		14200			Economically not viable & Not Recommended		
Total RWH potential (MCM)		0.37062					
Rainwater harvested / recharged @ 80% runoff co-efficient		0.296496					

6.2. Demand Side Management	
Micro irrigation techniques	
Sugarcane crop area (33.04) ,about 20 sqkm area is ground water irrigated ,100 % ground water irrigated (20 sqkm) proposed to be covered under Drip (sq.km.)	17
Volume of Water expected to be saved (MCM). Surface Flooding req- 2.45 m. Drip Req. - 1.88, WUE- 0.57 m	9.69
Proposed Cropping Pattern change	
Irrigated area under Water Intensive Crop(ha)	Not proposed
Water Saving by Change in Cropping Pattern	Nil
6.3. EXPECTED BENEFITS	
Net Ground Water Availability (MCM)	153.5307
Additional GW resources available after Supply side interventions (MCM)	18.3825
Ground Water Availability after Supply side intervention	171.9132
Existing Ground Water Draft for All Purposes (MCM)	129.4726
GW draft after Demand Side Interventions (MCM)	119.7826
Present stage of Ground Water Development (%)	84.3301
Expected Stage of Ground Water Development after interventions (%)	69.6762
Other Interventions Proposed, if any	
Alternate Water Sources Available	Nil
6.4. DEVELOPMENT PLAN	
Volume of water available for GWD to 70% (MCM)	0.5566
Proposed Number of DW(@ 1.5 ham for 90% of GWR Available for development)	33
Proposed Number of BW(@ 1.5 ham for 10% of GWR Available for development)	4
Additional Area (sq.km.) brought under assured GW irrigation with av. CWR of 0.65 m	0.8563
Regulatory Measures	60m borewell/tube well
Proposed AR Structures	Additional area proposed to be bought under assured GW irrigation
<p>Artificial Recharge Structure Mohol Taluka, Solapur District</p> <p>Legend</p> <ul style="list-style-type: none"> Percolation tank Check dam Principal aquifer AL/BS No of aquifers Two Area 136046 sqkm Taluka HQ 	<p>Additional Area proposed to be brought under assured GW irrigation Mohol Taluka, Solapur District</p> <p>Legend</p> <p>Additional Area proposed to be brought under assured GW irrigation with av. CWR of 0.65 m AFTER 70% STAGE OF GWD IS ACHIEVED Mohol 0.86 Sqkm.</p>

13 AQUIFER MAPS AND GROUND WATER MANAGEMENT PLAN, PANDHARPUR BLOCK, SOLAPUR DISTRICT, MAHARASHTRA

1. SALIENT INFORMATION	
1.1. Introduction	
Block Name	Pandharpur
Geographical Area (Sq. Km.)	1294.37
Hilly Area (Sq. Km)	0.00
Saline Area (Sq. Km.)	0.00
Population (2011)	442368.00
Climate	Tropical Monsoon
1.2 Rainfall Analysis	
Annual Rainfall (2017)(mm)	515.80
Decadal Average Annual Rainfall (2007-17) (mm)	509.1 mm
Normal Rainfall (mm)	610.4 mm
Long Term Rainfall Analysis(1901-2017)	Falling Trend -0.231 mm/year Probability of Normal/Excess Rainfall- 45% & 55%. Probability of Drought (Moderate/Severe)-: 21 % Moderate & 4 % Severe.
Rainfall Trend Analysis (1901 To 2017) EQUATION OF TREND LINE: $y = -0.2306x + 623.87$	
1.3. Geomorphology, Soil & Geology	
Geomorphic Unit	Plateau Undissected to highly Dissected, with weathered thickness ranging from 0 to 2 m Structural hills extended NW -SE.
Soil	In general they are clayey loam in texture and fairly high in calcium carbonate, high porosity but moderate to low permeability, thus having low to moderate infiltration capacity. Based on physical characteristics the soils of the area have been classified into three major groups: Medium black soil, Red Sandy soils and Shallow black soils
Geology	Alluvium : sand/ silt and clay alternating beds Age: Recent to Sub-recent Deccan Traps (Basalt) Age: Upper Cretaceous to Lower Eocene
1.4. Hydrology & Drainage	
Bigger Minor Irrigation Project (>100 Ha.)	Completed: -1 medium & 2 MI Tanks
Minor Irrigation Project (<100 Ha.)	Completed: -36 VT, 35 KT weirs & 60 DB

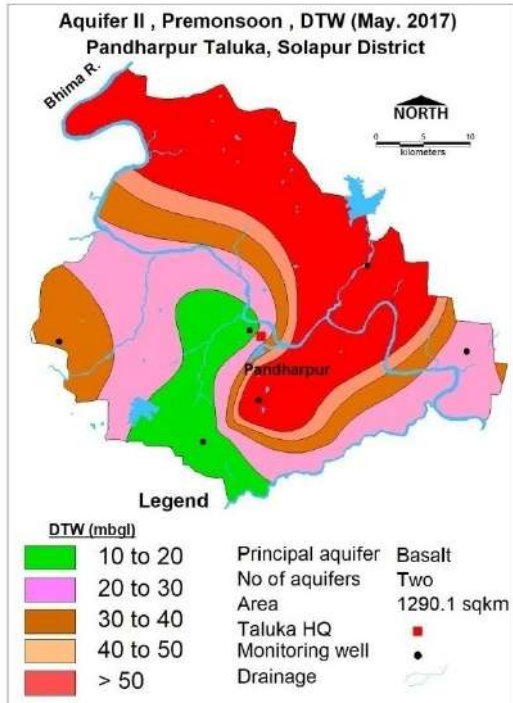
Drainage	The area is drain by Bhima rivers and its tributaries, flow from NW to SE direction in central part of the taluka																																				
1.5. Land Use, Agriculture, Irrigation & Cropping Pattern																																					
Geographical Area (Sq. Km.)	1294.37																																				
Forest Area (Sq. Km.)	54.11																																				
Net Sown Area (Sq. Km.)	1062.82																																				
Double Cropped Area (Sq. Km.)	18.67																																				
Gross Cropped Area (Sqkm)	1081.49																																				
Cultivable Area (Sq. Km.)	1185.41																																				
Area under Irrigation (Sq. Km.)																																					
Ground Water	182.50																																				
Surface Water	225.00																																				
Principal Crops(Reference year 2013-14)																																					
Wheat	75.36																																				
Jawar	55.46																																				
Bajra	12.48																																				
Maize	39.07																																				
Tur	18.79																																				
Sugarcane	82.51																																				
Chilli	4.16																																				
Mango	3.01																																				
Onion	4.39																																				
Sunflower	28.06																																				
1.6. Water Level Behaviour																																					
1.6.1. Phreatic Aquifer-Water Level																																					
Pre-Monsoon (May-2017)- Water level less than 10 mbgl has been observed in major parts of the block while water level in the range of 10 to 20 mbgl is observed in northern part of the block; deeper water level more than 20 mbgl has been observed in isolated patch around Talani village.																																					
Post-Monsoon (November-2017)- Water Level less than 5 mbgl has been observed in major parts of the block while water level in the range of 5 to 10 mbgl is observed in northern part of the block; deeper water level more than 20 mbgl has been observed at Medhapur.																																					
<p style="text-align: center;">Pre-Monsoon Water Level (May 2017)</p> <div style="text-align: center;"> <p>Aquifer I , Premonsoon , DTWI (May. 2017) Pandharpur Taluka, Solapur District</p> </div> <div style="margin-top: 10px;"> <p>Legend</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">DTW (mbgl)</td> <td style="width: 30%;">Principal aquifer</td> <td style="width: 30%;">Basalt</td> </tr> <tr> <td> 5 to 10</td> <td>No of aquifers</td> <td>Two</td> </tr> <tr> <td> 10 to 20</td> <td>Area</td> <td>1290.1 sqkm</td> </tr> <tr> <td> 20 to 30</td> <td>Taluka HQ</td> <td></td> </tr> <tr> <td></td> <td>Monitoring well</td> <td></td> </tr> <tr> <td></td> <td>Drainage</td> <td></td> </tr> </table> </div>	DTW (mbgl)	Principal aquifer	Basalt	 5 to 10	No of aquifers	Two	 10 to 20	Area	1290.1 sqkm	 20 to 30	Taluka HQ			Monitoring well			Drainage		<p style="text-align: center;">Post-Monsoon Water Level (Nov. 2016)</p> <div style="text-align: center;"> <p>Aquifer I , Postmonsoon , DTW (Nov. 2017) Pandharpur Taluka, Solapur District</p> </div> <div style="margin-top: 10px;"> <p>Legend</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">DTW (mbgl)</td> <td style="width: 30%;">Principal aquifer</td> <td style="width: 30%;">Basalt</td> </tr> <tr> <td> 0 to 2</td> <td>No of aquifers</td> <td>Two</td> </tr> <tr> <td> 2 to 5</td> <td>Area</td> <td>1290.1 sqkm</td> </tr> <tr> <td> 5 to 10</td> <td>Taluka HQ</td> <td></td> </tr> <tr> <td> 10 to 20</td> <td>Monitoring well</td> <td></td> </tr> <tr> <td></td> <td>Drainage</td> <td></td> </tr> </table> </div>	DTW (mbgl)	Principal aquifer	Basalt	 0 to 2	No of aquifers	Two	 2 to 5	Area	1290.1 sqkm	 5 to 10	Taluka HQ		 10 to 20	Monitoring well			Drainage	
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1.6.2. Semi-Confined/Confined Aquifer-Water Level

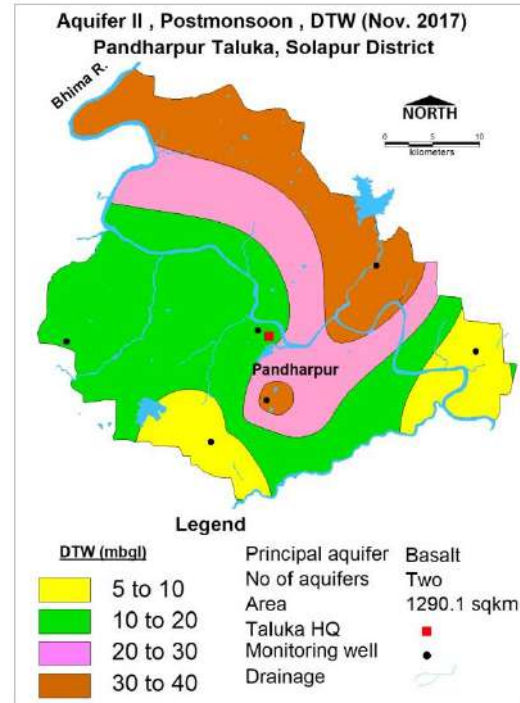
Pre-Monsoon (May-2016)- Water level > 20 mbgl is observed in south western part of the block; water level between 20 to 30 mbgl is observed in major part of the block while water level >30 mbgl is observed in northern and eastern parts of the block.

Post-Monsoon (November-2017)- Water level <20 mbgl is observed in north eastern and south-western parts of the block; 10 to 20 mbgl is observed in northwestern part of the block while >20 mbgl is observed in north western part of the block.

Pre-Monsoon Water Level (May 2017)



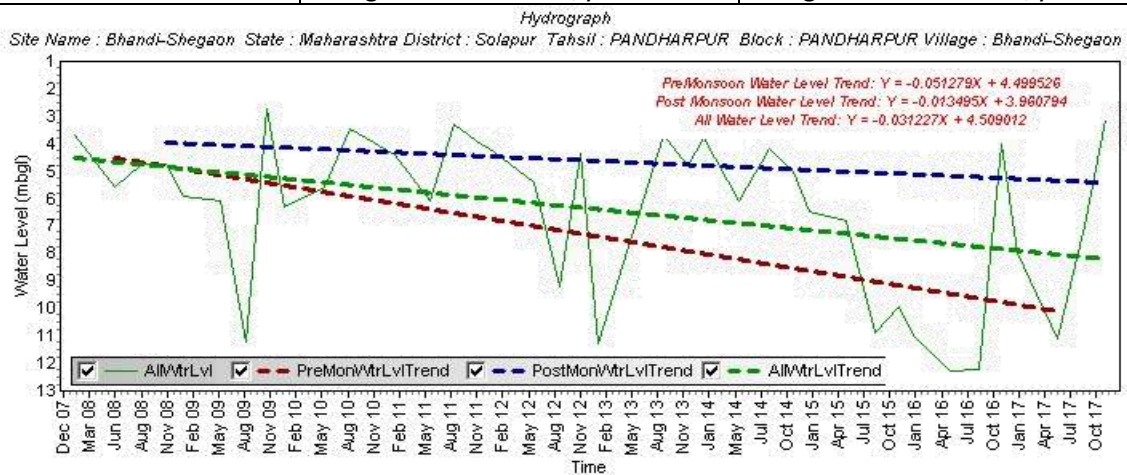
Post-Monsoon Water Level (Nov. 2017)



1.7. Hydrograph

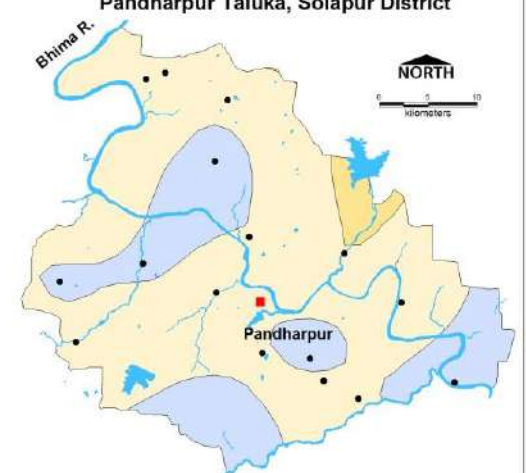

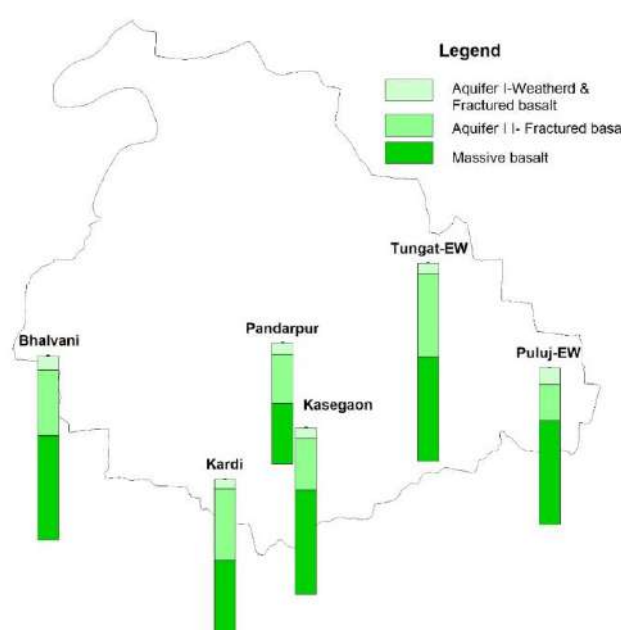
Hydrograph shows Pre-monsoon rising trend @ 0.38 m/year

Hydrograph shows Post-monsoon rising trend @ 0.135 m/year

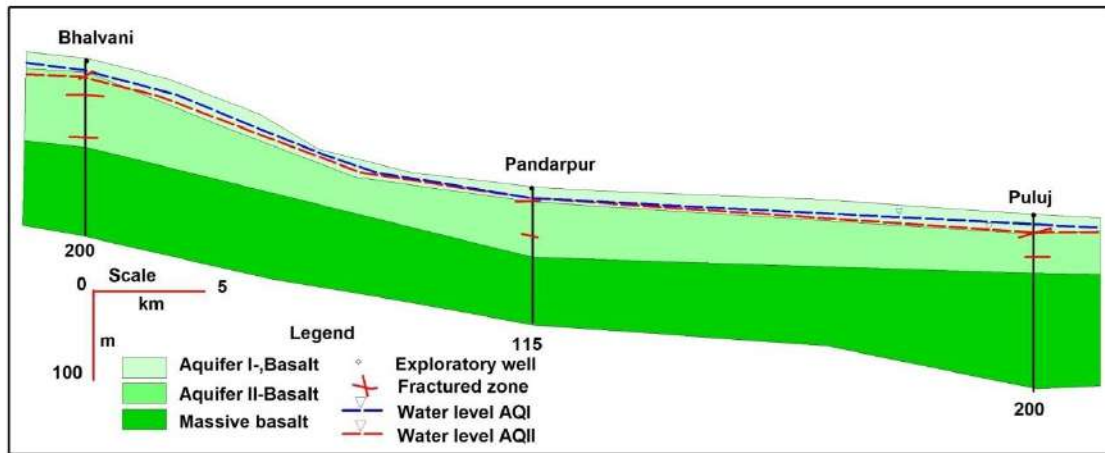


1.8. Water Level Trend (2008-2017)

Pre-Monsoon trend	Post-Monsoon trend
Rising 0.014 to 0.11 m/year	Rising 0.009 m/year
Falling 0.02 to 0.2 m/year	Falling 0.0037 to 0.1 m/year
Declining trend up to 0.2 m/year is observed in almost entire block; decline in water level >0.2 m/year small patch has been observed in	Declining trend up to 0.2 m/year is observed in major part of the block; Rising water level trend has been observed in central & southern in

<p>northern part of the block. Rising water level trend has been observed in small part in northern and southern parts and isolated part in western part of the block.</p>	<p>isolated part of the block.</p>																																				
<p>Pre-monsoon GWL Trend (May 2008 - May 2017) Pandharpur Taluka, Solapur District</p>  <p>Legend</p> <table border="0"> <tr> <td>Depth to water level trend , May.,2008 to May,2017 (m/y)</td> <td>Principal aquifer</td> <td>Basalt</td> </tr> <tr> <td>■ Rise 0.0 to 0.2</td> <td>No of aquifers</td> <td>Two</td> </tr> <tr> <td>■ Fall -0.0 to -0.2</td> <td>Area</td> <td>1290.1 sqkm</td> </tr> <tr> <td>■ Fall -0.2 to -0.4</td> <td>Taluka HQ</td> <td>■</td> </tr> <tr> <td></td> <td>Monitoring well</td> <td>●</td> </tr> <tr> <td></td> <td>Drainage</td> <td>—</td> </tr> </table>	Depth to water level trend , May.,2008 to May,2017 (m/y)	Principal aquifer	Basalt	■ Rise 0.0 to 0.2	No of aquifers	Two	■ Fall -0.0 to -0.2	Area	1290.1 sqkm	■ Fall -0.2 to -0.4	Taluka HQ	■		Monitoring well	●		Drainage	—	<p>Postmonsoon GWL Trend (Nov 2008 - Nov 2017) Pandharpur Taluka, Solapur District</p>  <p>Legend</p> <table border="0"> <tr> <td>Depth to water level trend , Nov.,2008 to Nov.2017 (m/y)</td> <td>Principal aquifer</td> <td>Basalt</td> </tr> <tr> <td>■ Rise 0.0 to 0.2</td> <td>No of aquifers</td> <td>Two</td> </tr> <tr> <td>■ Fall -0.0 to -0.2</td> <td>Area</td> <td>1290.1 sqkm</td> </tr> <tr> <td></td> <td>Taluka HQ</td> <td>■</td> </tr> <tr> <td></td> <td>Monitoring well</td> <td>●</td> </tr> <tr> <td></td> <td>Drainage</td> <td>—</td> </tr> </table>	Depth to water level trend , Nov.,2008 to Nov.2017 (m/y)	Principal aquifer	Basalt	■ Rise 0.0 to 0.2	No of aquifers	Two	■ Fall -0.0 to -0.2	Area	1290.1 sqkm		Taluka HQ	■		Monitoring well	●		Drainage	—
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	Taluka HQ	■																																			
	Monitoring well	●																																			
	Drainage	—																																			
<p>2. GROUND WATER ISSUE</p>	<p>Over - Exploitation Declining WL Limited Aquifer Potential Water Scarcity - lean period</p>																																				
<p>3. AQUIFER DISPOSITION</p>																																					
<p>3.1. Number of Aquifers</p>	<p>Basalt-Aquifer-I (Shallow Aquifer)</p>	<p>Basalt –Aquifer-II (Deeper Aquifer)</p>																																			
<p>3.2. Lithological disposition</p>  <p>Legend</p> <ul style="list-style-type: none"> ■ Aquifer I-Weathered & Fractured basalt ■ Aquifer I- Fractured basalt ■ Massive basalt 																																					

3.3. Cross Sections



3.4. Aquifer Characteristics

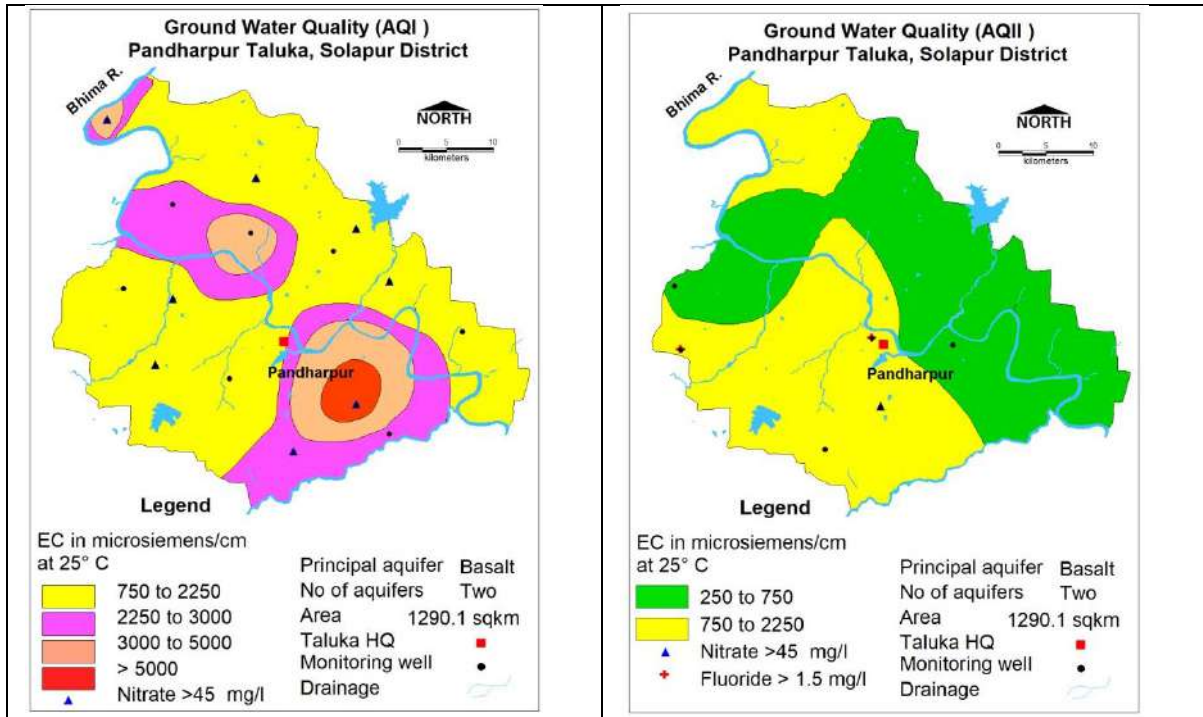
Major Aquifers	Basalt (Deccan Traps)	
Type of Aquifer	Aquifer-I (Phreatic)	Aquifer-II (Semiconfined /confined)
Depth of Occurrence (mbgl)	8 - 30	40 - 196
Thickness of wearherd / fractured rocks (m)	5 - 15	1.25 -9
Yield	10 - 100 m ³ /day	0.1 - 1.5 lps
Specific yield (Sy)	0.015 -0.02	0.0025
Storativity (S)		0.00057
Transmissivity (T) (m ² /day)	T: 5-30 m ² /day	T: 40 - 60 m ² /day

4. GROUND WATER QUALITY

3.1 Phreatic Aquifer (Aquifer-I) : In general the water quality of shallow aquifer in Karmala taluka is potable and good for drinking, domestic, industrial as well as irrigation purposes. Nitrate more than 45 mg per litre was detected in water sample from Palshi, Bhoose, Rople, Talni, Ranzani, and Rople. very high salinity prevails (>2250 μ S/cm at Ranzani), which is not suitable for drinking, domestic, industrial as well as irrigation purposes. Ground water can be used for drinking only after treatment and for irrigation for very high salt tolerant crops and with proper soil and crop management practices.

3.2: Semiconfined/Confined Aquifer (Aquifer II) : In general the water quality of deep aquifer in Karmala taluka is potable and very good for drinking, domestic, industrial as well as irrigation purposes. Nitrate more than 45 mg per litre was detected in water sample from Kasegaon EW & Fluorid more than 1.5 mg per litre was detected in water sample from Bhalwani and Pandharpur EW.

Phreatic Aquifer (Aquifer-I)	Semiconfined/Confined Aquifer (Aquifer II)
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5. GROUND WATER RESOURCE

5.1. Aquifer-I/ Phreatic Aquifer (Basalt & Alluvium)

Ground Water Recharge Worthy Area (Sq. Km.)	1294.37
Total Annual Ground Water Recharge (MCM)	167.84
Natural Discharge (MCM)	8.60
Net Annual Ground Water Availability (MCM)	159.24
Existing Gross Ground Water Draft for irrigation (MCM)	118.63
Existing Gross Ground Water Draft for domestic and industrial water supply (MCM)	4.11
Existing Gross Ground Water Draft for All uses (MCM)	122.74
Provision for domestic and industrial requirement supply to 2025(MCM)	7.99
Net Ground Water Availability for future irrigation development (MCM)	37.90
Stage of Ground Water Development (%)	77.08
Category	SAFE

5.2 Aquifer-II Semiconfined/Confined Aquifer (Basalt)

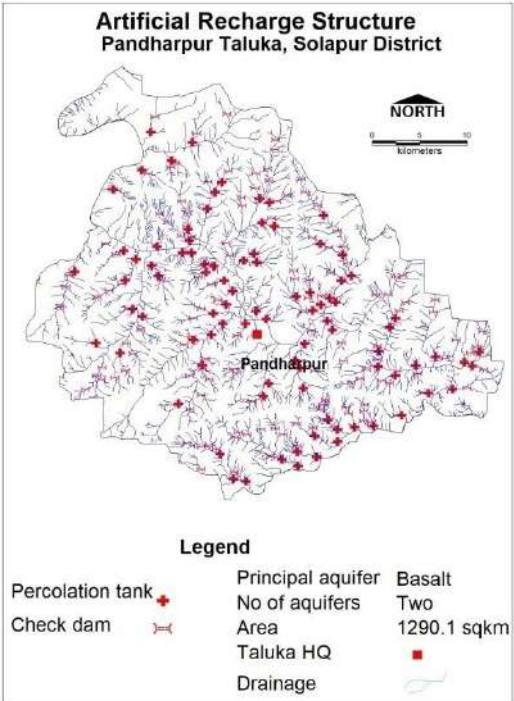
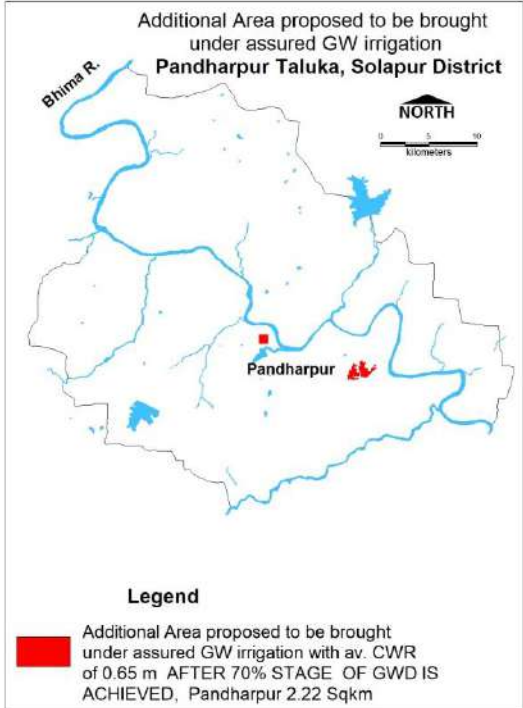
Area (Sqkm)	Mean thickness (m)	Piezometric head (meter above bottom of confining layer)	Sy	S	Resource above confining layer (mcm)	Resource in confining aquifer (mcm)	Total Resource (mcm)
1297.116	5	60	0.005	2.66E-05	2.070197	32.4279	34.4981

6.0. GROUND WATER RESOURCES

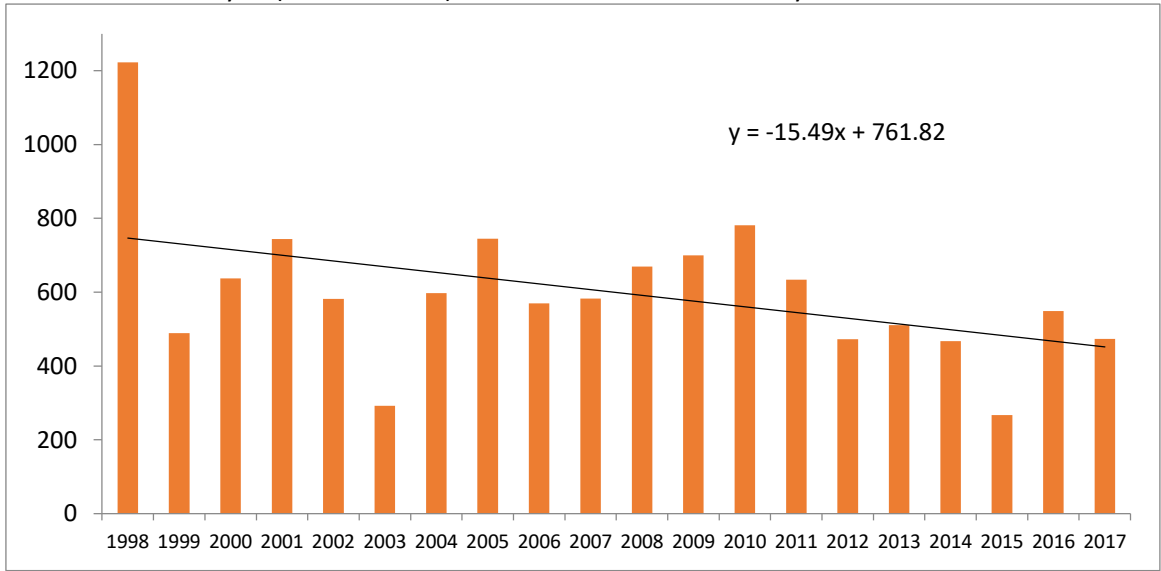
6.1. Supply Side Management

Net Available Resource (MCM)	159.24
Gross Annual Draft (MCM)	122.74
Agricultural Supply -GW	118.63
Agricultural Supply -SW	
Domestic Supply - GW	4.11
Domestic Supply - SW	1.03
Total Supply	123.76
Area of Block (Sq. Km.)	1294.37

Area suitable for Artificial recharge (Sq. Km)		900.00
Type of Aquifer		Hard Rock
Area feasible for Artificial Recharge (WL >5mbgl) (Sq. Km.)		900.00
Volume of Unsaturated Zone (MCM)		1800.00
Average Specific Yield		0.02
Volume of Sub surface Storage Space available for Artificial Recharge (MCM)		36.00
Surplus waterrequired (MCM)		47.88
Surplus water Available (MCM)	22.05	16.54
Proposed Structures	Percolation Tank (Av. Gross Capacity-100 TCM*2 fillings = 200 TCM)	Check Dam (Av. Gross Capacity-10 TCM * 3 fillings = 30 TCM)
Number of Structures	90.00	135.00
Volume of Water expected to be conserved / recharged @ 75% efficiency (MCM)	13.50	3.04
RTRWH Structures – Urban Areas		
Households to be covered (25% with 50 m2area)	22160.00	Economically not viable & Not Recommended
Total RWH potential (MCM)	0.56	
Rainwater harvested / recharged @ 80% runoff co-efficient	0.45	
6.2. Demand Side Management		
Micro irrigation techniques		
Sugarcane crop area (33.04), about 20 sqkm area is ground water irrigated, 100 % ground water irrigated (20 sqkm) proposed to be covered under Drip (sq.km.)		2.00
Volume of Water expected to be saved (MCM). Surface Flooding req- 2.45 m. Drip Req. - 1.88, WUE- 0.57 m		1.14
Proposed Cropping Pattern change		
Irrigated area under Water Intensive Crop(ha)		Not proposed
Water Saving by Change in Cropping Pattern		Nil
6.3. EXPECTED BENEFITS		
Net Ground Water Availability (MCM)		159.24
Additional GW resources available after Supply side interventions (MCM)		16.54
Ground Water Availability after Supply side intervention		175.78
Existing Ground Water Draft for All Purposes (MCM)		122.74
GW draft after Demand Side Interventions (MCM)		121.60
Present stage of Ground Water Development (%)		77.08
Expected Stage of Ground Water Development after interventions (%)		69.18
Other Interventions Proposed, if any		
Alternate Water Sources Available		Nil
6.4. DEVELOPMENT PLAN		
Volume of water available for GWD to 60% (MCM)		1.45
Proposed Number of DW(@ 1.5 ham for 90% of GWR Available for		87.00

development)																	
Proposed Number of BW(@ 1.5 ham for 10% of GWR Available for development)		10.00															
Additional Area (sq.km.) brought under assured GW irrigation with av. CWR of 0.65 m		2.23															
Regulatory Measures	60m borewell/tube well																
<p align="center">Proposed AR Structures</p> <p align="center">Artificial Recharge Structure Pandharpur Taluka, Solapur District</p>  <p align="center">Legend</p> <table border="0"> <tr> <td>Percolation tank</td> <td>Principal aquifer</td> <td>Basalt</td> </tr> <tr> <td>Check dam</td> <td>No of aquifers</td> <td>Two</td> </tr> <tr> <td></td> <td>Area</td> <td>1290.1 sqkm</td> </tr> <tr> <td></td> <td>Taluka HQ</td> <td>■</td> </tr> <tr> <td></td> <td>Drainage</td> <td>—</td> </tr> </table>	Percolation tank	Principal aquifer	Basalt	Check dam	No of aquifers	Two		Area	1290.1 sqkm		Taluka HQ	■		Drainage	—	<p align="center">Additional area proposed to be bought under assured GW irrigation</p> <p align="center">Additional Area proposed to be brought under assured GW irrigation Pandharpur Taluka, Solapur District</p>  <p align="center">Legend</p> <p>■ Additional Area proposed to be brought under assured GW irrigation with av. CWR of 0.65 m AFTER 70% STAGE OF GWD IS ACHIEVED, Pandharpur 2.22 Sqkm</p>	
Percolation tank	Principal aquifer	Basalt															
Check dam	No of aquifers	Two															
	Area	1290.1 sqkm															
	Taluka HQ	■															
	Drainage	—															

14 AQUIFER MAPS AND GROUND WATER MANAGEMENT PLAN, SOUTH SOLAPUR BLOCK, SOLAPUR DISTRICT, MAHARASHTRA

1. SALIENT INFORMATION	
1.1. Introduction	
Block Name	S Slopaur
Geographical Area (Sq. Km.)	1194.63
Hilly Area (Sq. Km)	0.00
Saline Area (Sq. Km.)	0.00
Population (2011)	260897.00
Climate	Tropical Monsoon
1.2 Rainfall Analysis	
Annual Rainfall (2017)(mm)	473.70
Decadal Average Annual Rainfall (2007-17) (mm)	552.3 mm
Normal Rainfall (mm)	599.2 mm
Long Term Rainfall Analysis(1998-2017)	Falling Trend -15.49 mm/year Probability of Normal/Excess Rainfall- 45% & 55%. Probability of Drought (Moderate/Severe)-: 0 % Moderate & 2 % Severe.
Rainfall Trend Analysis (1901 To 2017) EQUATION OF TREND LINE: $y = -15.49x + 761.82$	
	
1.3. Geomorphology, Soil & Geology	
Geomorphic Unit	Plateau Undissected to highly Dissected, with weathered thickness ranging from 0 to 1 m. Major parts of the taluka covered with Plateau Slightly Dissected (PLS), 0-1m weathering
Soil	In general they are clayey loam in texture and fairly high in calcium carbonate, high porosity but moderate to low permeability, thus having low to moderate infiltration capacity. Based on physical characteristics the soils of the area have been classified into three major groups: Medium black soil, Red Sandy soils and Shallow black soils
Geology	Alluvium : sand/ silt and clay alternating beds Age: Recent to Sub-recent Deccan Traps (Basalt) Age: Upper Cretaceous to Lower Eocene
1.4. Hydrology & Drainage	
Bigger Minor Irrigation Project	Completed: -3 MI Tanks

(>100 Ha.)	
Minor Irrigation Project (<100 Ha.)	Completed: -801VT, 56 KT weirs & 43 DB
Drainage	The central part of taluka is drain by Sina rivers and its tributaries, flow from NW to SE direction and northern part drain by Bori river. The taluka falls in Bhima subbasin.

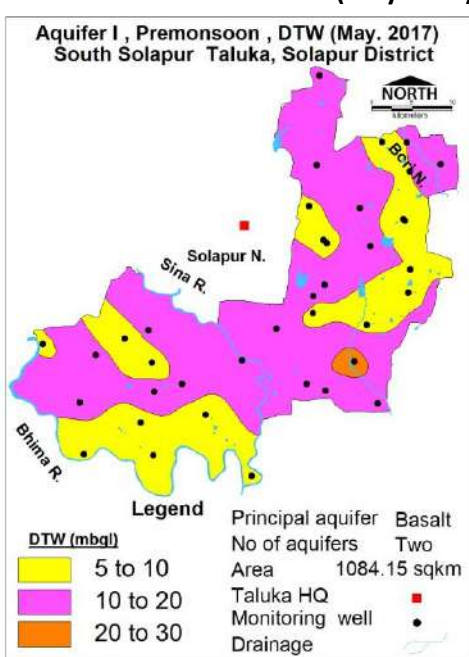
1.5. Land Use, Agriculture, Irrigation & Cropping Pattern

Geographical Area (Sq. Km.)	1194.63
Forest Area (Sq. Km.)	18.27
Net Sown Area (Sq. Km.)	915.73
Double Cropped Area (Sq. Km.)	39.51
Gross Cropped Area (Sqkm)	955.24
Cultivable Area (Sq. Km.)	1149.78
Area under Irrigation (Sq. Km.)	
Ground Water	111.58
Surface Water	4.42
Principal Crops(Reference year 2013-14)	
Wheat	56.92
Jawar	677.37
Bajra	7.85
Maize	12.66
Tur	6.41
Sugarcane	35.72
Chilli	2.78
Mango	4.36
Onion	4.50
Sunflower	36.26

1.6. Water Level Behaviour

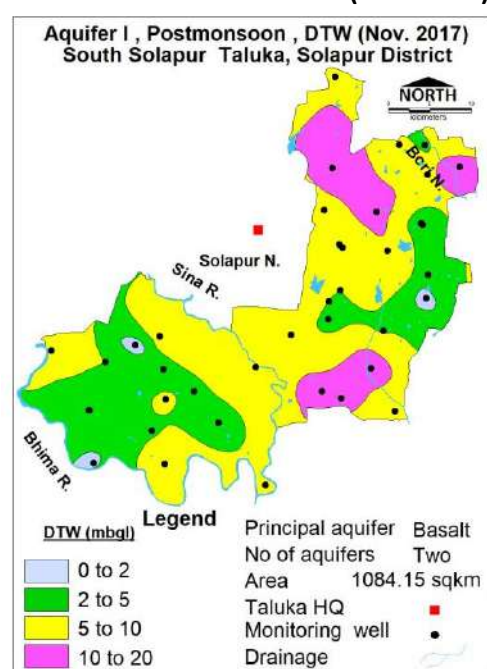
1.6.1. Phreatic Aquifer-Water Level

Pre-Monsoon Water Level (May 2017)



Water level in the range of 10 -20 mbgl has been observed in major part of the taluka, while

Post-Monsoon Water Level (Nov. 2016)



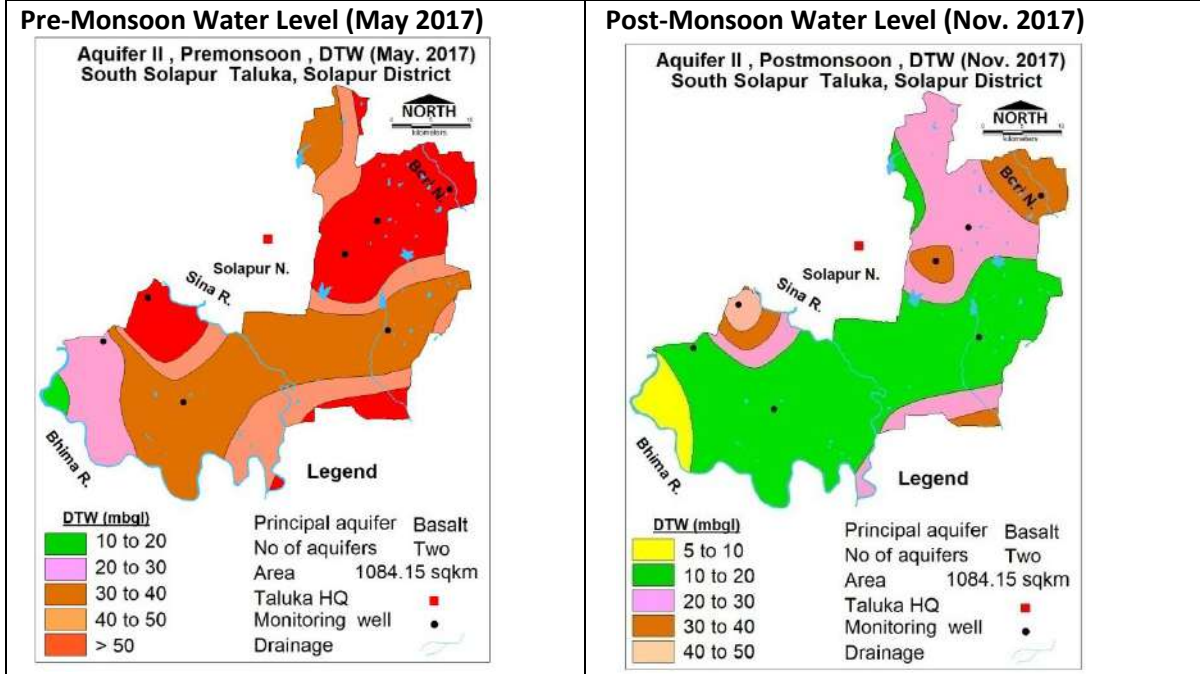
Water Level less than 5 mbgl has been observed in northeastern and southern parts

water level less than 10 mbgl observed in northern and southern part of the taluka.	of the block while water level in the range of 5 to 10 mbgl is observed in major part of the block; deeper water level more than 20 mbgl has been observed as isolated.
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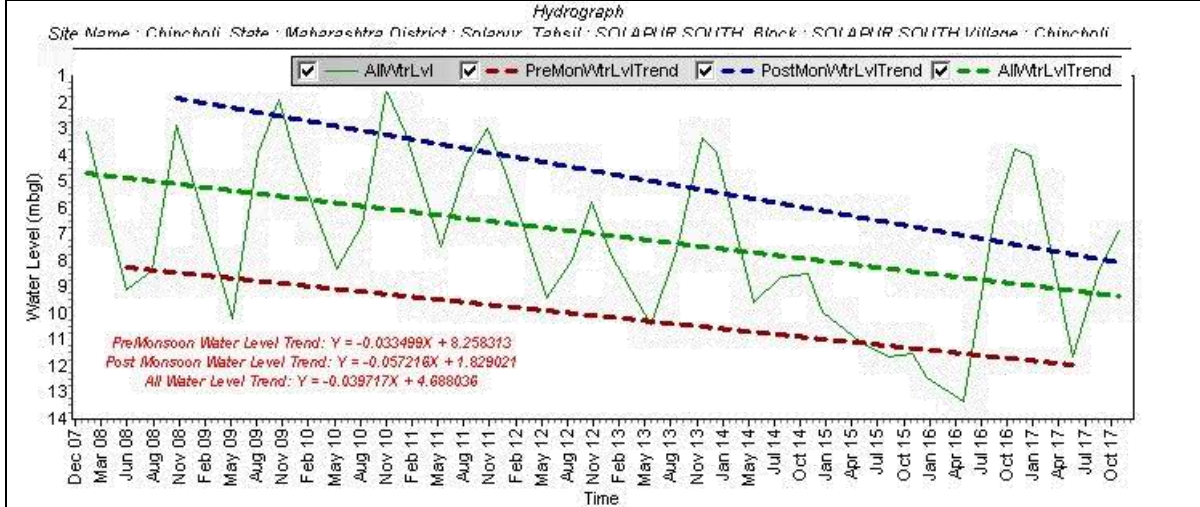
1.6.2. Semi-Confined/Confined Aquifer-Water Level

Pre-Monsoon (May-2017)- Water level > 20 mbgl is observed in south western part of the block; deeper water level between 40 to >50 mbgl is observed in northern part of the block .

Post-Monsoon (November-2017)- Water level <10 mbgl is observed in southwestern parts of the block; 10 to 20 mbgl is observed in major part of the block while >20 mbgl is observed in northern part of the block.

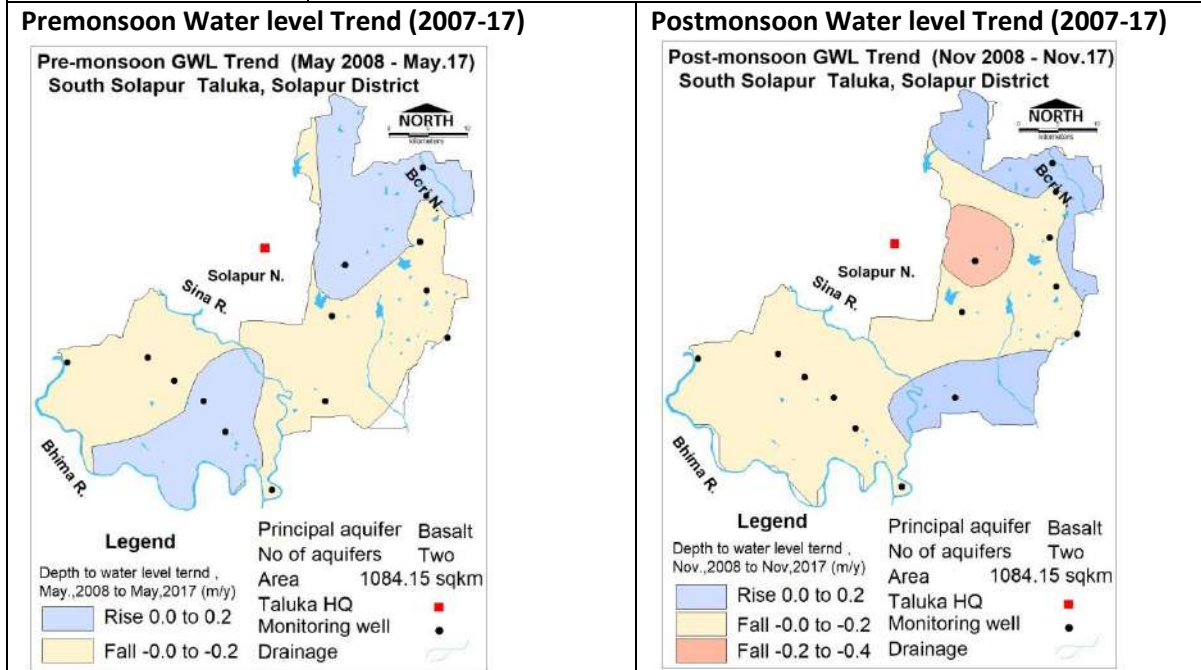


1.7. Hydrograph	Hydrograph shows Pre-monsoon rising trend @ 0.38 m/year	Hydrograph shows Post-monsoon rising trend @ 0.135 m/year
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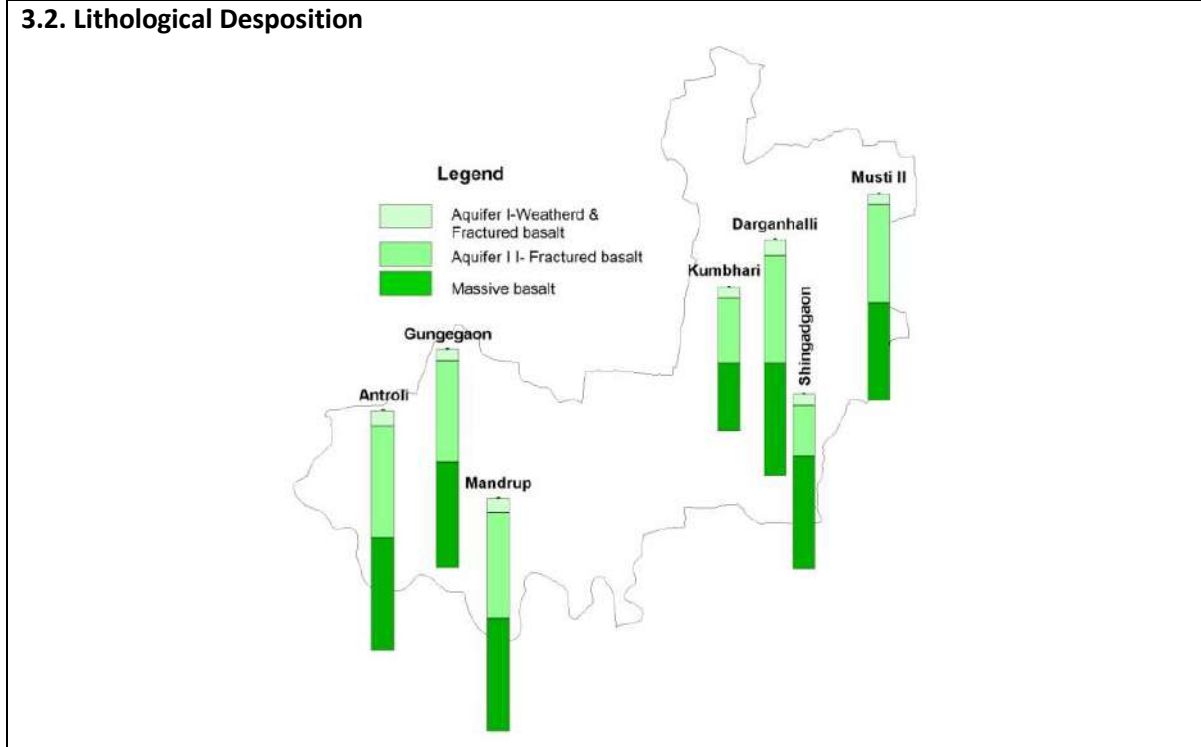
1.8. Water Level Trend (2008-2017)	
Pre-Monsoon trend	Rising 0.03 to 0.196 m/year
	Falling 0.004 to 0.176 m/year
	Declining trend up to 0.2 m/year is observed in about 50% area of block; Rising water level trend has been observed in southern part and in isolated parts in northern part of the block.

Post-Monsoon trend	Rising 0.07 to 0.15 m/year
	Falling 0.005 to 0.3 m/year
	Declining trend up to 0.2 m/year is observed in major part of block; Rising water level trend has been observed in southern part and in isolated parts in northern part of the block.

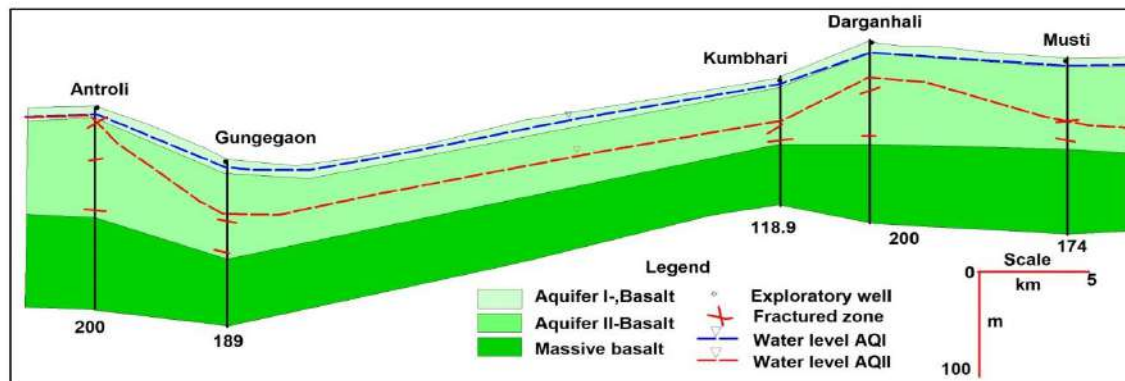


2. GROUND WATER ISSUE	Low ground water development, Limited Aquifer Potential Water Scarcity - lean period
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3. AQUIFER DISPOSITION		
3.1. Number of Aquifers	Aquifer-I-Basalt (Shallow Aquifer)	Aquifer-II-Basalt (Deeper Aquifer)



3.3. Cross Sections

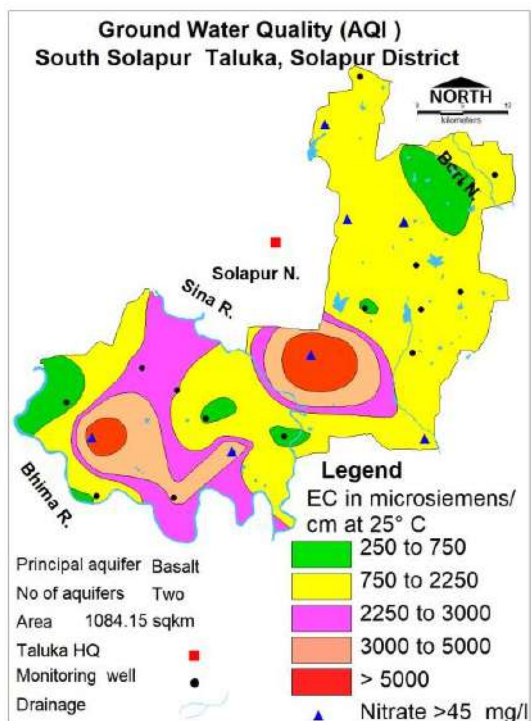


3.4. Aquifer Characteristics

Major Aquifers	Basalt	Basalt
Type of Aquifer	Aquifer-I (Phreatic)	Aquifer-II (Semiconfined/confined)
Depth of Occurrence (mbgl)	8 - 30	60 - 196
Thickness of wearherd /fractured rocks (m)	5 - 15	1.25 - 11
Yield	10 - 100 m ³ /day	0.1 - 1.5 lps
Specific yield (Sy)	0.018- 0.02	0.0025
Storativity (S)		0.0000154
Transmissivity (T) (m ² /day)	T: 5-20 m ² /day	T: 30-70 m ² /day

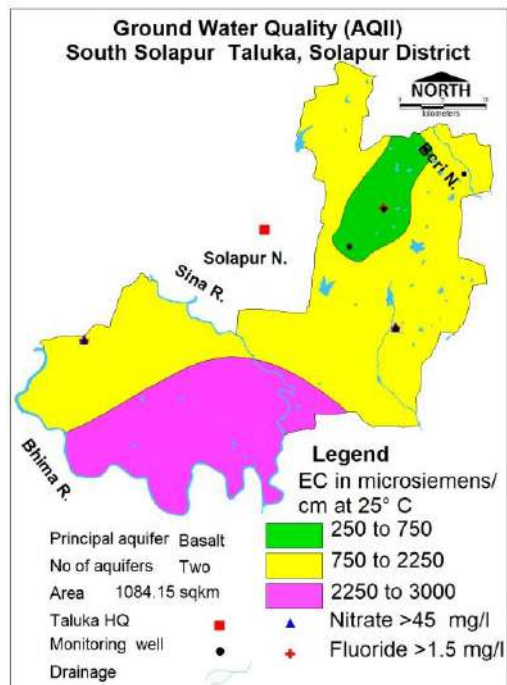
4. GROUND WATER QUALITY

4.1 Phreatic Aquifer (Aquifer-I)



In general the water quality of shallow aquifer in Karmala taluka is potable and good for drinking, domestic, industrial as well as irrigation purposes. Nitrate more than 45 mg per litre was detected in water sample from Hatgi, Chincholi, Hatur, Kanbas, Telgaon

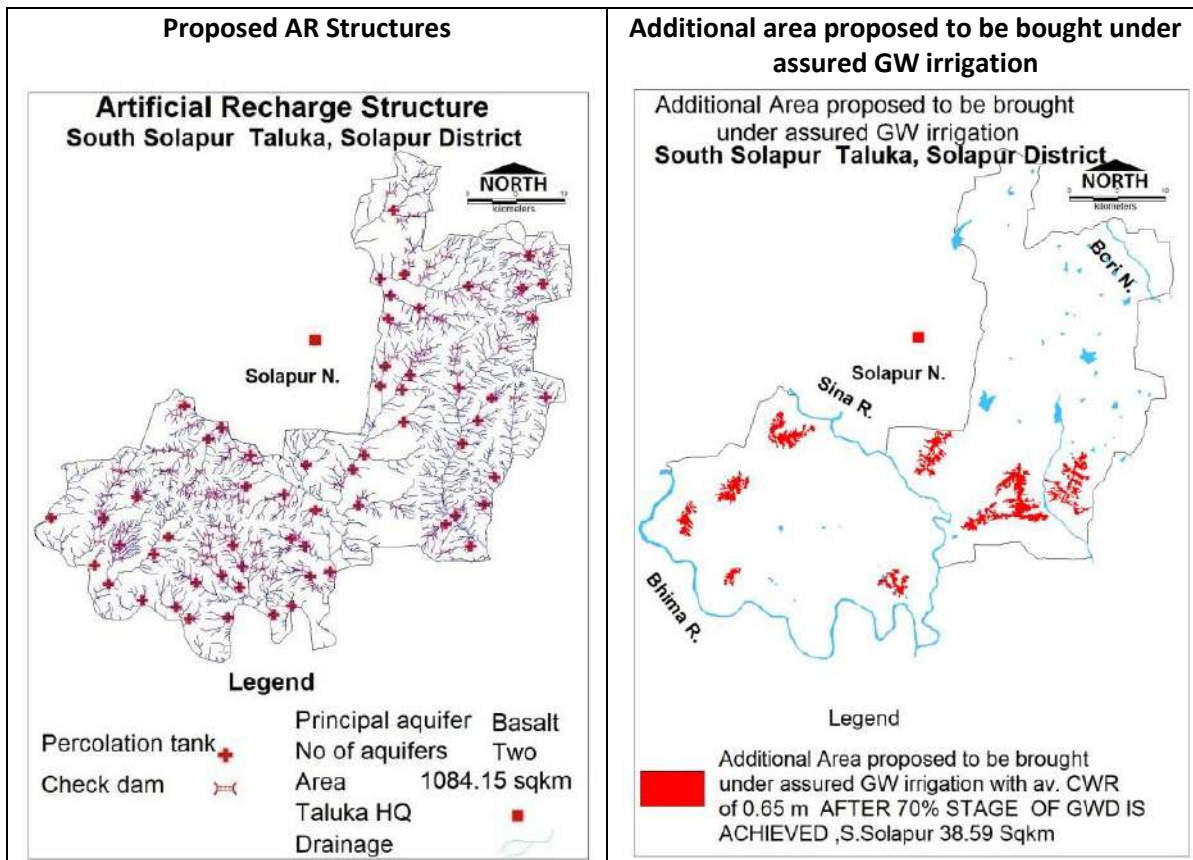
4.2: Semiconfined/Confined Aquifer (Aquifer II)



In general the water quality of deep aquifer in South Solapur taluka is potable and very good for drinking, domestic, industrial as well as irrigation purposes. Fluorid more than 1.5 mg per litre was detected in water sample from Manarup, Anthroli and Darganhalli EW.

Mulegaon, Ule and Darganhalli very high salinity prevails (>2250 μ S/cm at Hatur and Telgaon), which is not suitable for drinking, domestic, industrial as well as irrigation purposes. Ground water can be used for drinking only after treatment and for irrigation for very high salt tolerant crops and with proper soil and crop management practices.							
5. GROUND WATER RESOURCE							
5.1. Aquifer-I/ Phreatic Aquifer (Basalt)							
Ground Water Recharge Worthy Area (Sq. Km.)							1194.63
Total Annual Ground Water Recharge (MCM)							138.11
Natural Discharge (MCM)							6.91
Net Annual Ground Water Availability (MCM)							131.21
Existing Gross Ground Water Draft for irrigation (MCM)							72.53
Existing Gross Ground Water Draft for domestic and industrial water supply(MCM)							3.66
Existing Gross Ground Water Draft for All uses(MCM)							76.19
Provision for domestic and industrial requirement supply to 2025(MCM)							7.18
Net Ground Water Availability for future irrigation development (MCM)							51.52
Stage of Ground Water Development (%)							58.07
Category							SAFE
5.2 Aquifer-II - Semiconfined/Confined Aquifer (Basalt)							
Area (Sqkm)	Mean thickness (m)	Piezometric head (meter above bottom of confining layer)	Sy	S	Resource above confining layer (mcm)	Resource in confining aquifer (mcm)	Total Resource (mcm)
1196.226	3	48	0.005	1.45E-05	0.832573	17.94338	18.77596
6.0. GROUND WATER RESOURCE ENHANCEMENT							
6.1. Supply Side Management							
Net Available Resource (MCM)							131.21
Gross Annual Draft (MCM)							76.19
Agricultural Supply -GW							72.53
Agricultural Supply -SW							
Domestic Supply - GW							3.66
Domestic Supply - SW							0.91
Total Supply							77.10
Area of Block (Sq. Km.)							1194.63
Area suitable for Artificial recharge(Sq. Km)							963.37
Type of Aquifer							Hard Rock
Area feasible for Artificial Recharge(WL >5mbgl) (Sq. Km.)							600.00
Volume of Unsaturated Zone (MCM)							1200.00
Average Specific Yield							0.02
Volume of Sub surface Storage Space available for Artificial Recharge (MCM)							24.00
Surplus waterrequired (MCM)							31.92
Surplus water Available (MCM)							14.70
Proposed Structures			Percolation Tank (Av. Gross Capacity-100 TCM*2 fillings = 200 TCM)		Check Dam (Av. Gross Capacity-10 TCM * 3 fillings = 30 TCM)		

Number of Structures	60.00	90
Volume of Water expected to be conserved / recharged @ 75% efficiency (MCM)	9.00	2.025
RTRWH Structures – Urban Areas		
Households to be covered (25% with 50 m ² area)	12808.00	Economically not viable & Not Recommended
Total RWH potential (MCM)	0.35	
Rainwater harvested / recharged @ 80% runoff co-efficient	0.28	
6.2. Demand Side Management		
Micro irrigation techniques		
Sugarcane crop area (33.04) ,about 20 sqkm area is ground water irrigated ,100 % ground water irrigated (20 sqkm) proposed to be covered under Drip (sq.km.)		3.00
Volume of Water expected to be saved (MCM). Surface Flooding req- 2.45 m. Drip Req. - 1.88, WUE- 0.57 m		1.71
Proposed Cropping Pattern change		
Irrigated area under Water Intensive Crop(ha)		Not proposed
Water Saving by Change in Cropping Pattern		Nil
6.3. EXPECTED BENEFITS		
Net Ground Water Availability (MCM)		131.21
Additional GW resources available after Supply side interventions (MCM)		11.03
Ground Water Availability after Supply side intervention		142.23
Existing Ground Water Draft for All Purposes (MCM)		76.19
GW draft after Demand Side Interventions (MCM)		74.48
Present stage of Ground Water Development (%)		58.07
Expected Stage of Ground Water Development after interventions (%)		52.36
Other Interventions Proposed, if any		
Alternate Water Sources Available		Nil
6.4 DEVELOPMENT PLAN		
Volume of water available for GWD to 60% (MCM)		25.08
Proposed Number of DW(@ 1.5 ham for 90% of GWR Available for development)		1505.00
Proposed Number of BW(@ 1.5 ham for 10% of GWR Available for development)		167.00
Additional Area (sq.km.) brought under assured GW irrigation with av. CWR of 0.65 m		38.59
Regulatory Measures	60m borewell/tube well	



Annexures

Annexure-I: Salient Features of Ground Water Exploration

Sr. No.	Taluka	Formation	Wells			Depth (mbgl)	Pre SWL (mbgl)	Post WSL (mbgl)	Discharge (lps)	Drawdown (m)	Zones (mbgl)
			EW	OW	Pz						
1	Akkalkot	Basalt	4	0)	200	13.9-100	8.00-56.00	meager to 3.00	_	19-172
2	Barshi	Basalt	8	1	0	85-200	12-100	2.0-35.0	meager to 4.4	25.78-86.71	1.8-189
3	Karmala	Basalt	8	0	0	133.2-200	9.0-36.7	5.3-11.25	meager to 5.94	42.95	9.0-191
4	Madha	Basalt	10	2	0	121.9-200	11-100	4.35-82.5	meager to 4.43	28.87-43.6	7.6-154
5	Malshiras	Basalt	12	2	0	150-200	9.0-73.0	3.5-45	Dry to 7.76	15-50	7.0-188
6	Mangalwedha	Basalt	5	0	0	132.1-200	14-36.96	8.0-12.8	meager to 5.0	_	10.0-181.0
7	Mohol	Basalt	10	2	0	100-200	9.0-100.0	2.6-59	meager to 5.94	2.47	2.5-197.0
8	Pandharpur	Basalt	9	0	0	115-202	12.0-98.0	5.1-54.4	meager to 7.76	2.9->30	9.2-160
9	Sangola	Basalt	8	1	0	130-205.25	8.0-100	5.51-45.0	meager to 10	43.0-69.3	6.0-189.3
10	North Solapur	Basalt	5	1	1	40.0-205.25	12.0-100.0	6.56-46.0	meager to 10.8	24.3-24.86	7.0-207.4
11	South Solapur	Basalt	9	0	0	40-200	26-100	11-59.35	meager to 4	43.39	8.6-200
Total			88	9	1	40-205.25	8.0-100.0	2.0-82.5	meager to 10.8	2.47-86.71	1.8-207.4

Annexure-II: Water Level of Ground water monitoring wells (2017) with long term trend (2008-2017)

SN	District	Village	Y	X	Pre DTW (mbgl)	Post DTW (mbgl)	Fluctuation (m)	Premonsoon WL trend (m/year)		Postmonsoon WL trend (m/year)	
								Rise	Fall	Rise	Fall
1	Solapur	Arali	17.674	76.159	10	6.4	3.6	0.00398			0.29335
2	Solapur	Basalegaon	17.449	76.288	8	2.9	5.1	0.04806			0.3443
3	Solapur	Binjger	17.400	76.325	10.5	5.3	5.2	0.01341		0.12452	
4	Solapur	Borgaon	17.650	76.313	5.65	6.1	-0.45		0.12244	0.002	
5	Solapur	Chapalgaon	17.608	76.175	9.1	6.7	2.4		0.16943	0.04786	
6	Solapur	Chikkahalli	17.600	76.179	10.1	3.1	7	0.21843			0.1846
7	Solapur	Chungi	17.661	76.229	8	6.9	1.1		0.11264	0.00837	
8	Solapur	Dudhani (Rural))	17.588	76.268	9.2	8.6	0.6		0.19874	0.02063	
9	Solapur	Gogaon	17.623	76.400	7.3	3.4	3.9		0.10181		0.04496
10	Solapur	Hannur	17.424	76.271	6.6	3.1	3.5		0.13424	0.05023	
11	Solapur	Jeur	17.479	76.108	10.6	6.7	3.9		0.09079		0.1393
12	Solapur	Kajikanbas	17.713	76.283	9.6	3	6.6	0.04081		0.00932	
13	Solapur	Karjal	17.564	76.117	12.8	3	9.8	0.03157		0.03815	
14	Solapur	Kini	17.683	76.265	11.4	6.1	5.3	0.06859			0.26981
15	Solapur	Kurnur	17.631	76.217	7.4	1	6.4		0.05909	0.01263	
16	Solapur	Satan Dudhani	17.426	76.268	9.3	4	5.3		0.0556	0.01325	
17	Solapur	Sultanpur	17.694	76.231	7.5	2.5	5	0.05006			0.30084
18	Solapur	Udagi	17.433	76.225	8.1	3.7	4.4		0.02527	0.00244	
19	Solapur	Wagdari	17.600	76.358	9.2	2.5	6.7	0.00463		0.06271	
20	Solapur	Agalgaon	18.317	75.746	8.9	3.1	5.8	0.02521			0.06321
21	Solapur	Alipur	18.215	75.662	7.9	3.5	4.4	0.11288		0.04718	
22	Solapur	Chare	18.349	75.807	4.2	2.2	2		0.14819	0.05063	
23	Solapur	Chikharde	18.208	75.832	8.9	2.3	6.6	0.05945		0.00067	
24	Solapur	Gaudgaon	18.063	75.972	8.6	2.25	6.35	0.00704		0.02331	
25	Solapur	Jamgaon	18.157	75.863	7.7	2	5.7	0.00391		0.0481	
26	Solapur	Kalambawadi (A)	18.375	75.754	7.5	3.8	3.7		0.01937	0.03061	
27	Solapur	Kari	18.240	75.913	8	0.2	7.8		0.12028		0.15797
28	Solapur	Kuslamb	18.281	75.774	5.8	0.5	5.3		0.10728	0.00585	

SN	District	Village	Y	X	Pre DTW (mbgl)	Post DTW (mbgl)	Fluctuation (m)	Premonsoon WL trend (m/year)		Postmonsoon WL trend (m/year)	
								Rise	Fall	Rise	Fall
29	Solapur	Malwandi	18.058	75.658	7.6	2	5.6	0.06331			0.11492
30	Solapur	Nandani	18.108	75.836	8	3	5	0.03045		0.00493	
31	Solapur	Pangaon	18.138	75.737	8	3.05	4.95	0.02046		0.00426	
32	Solapur	Raleras	18.006	75.814	7	2.4	4.6	0.02641			0.07717
33	Solapur	Shendri	18.176	75.558	10.9	6	4.9	0.4648		0.03899	
34	Solapur	Vairag	18.056	75.804	8.4	3.8	4.6	0.17605		0.04783	
35	Solapur	Alsunde	18.283	75.313	7.55	3.1	4.45	0.255		0.21	
36	Solapur	Arjunnagar	18.329	75.283	7.8	3	4.8	0.04446		0.00562	
37	Solapur	Bhalavni	18.207	75.200	8.1	2	6.1	0.36389		0.07833	
38	Solapur	Bhilarwadi	18.342	74.896	18	4.5	13.5	0.04887		0.00123	
39	Solapur	Bhose	18.429	75.171	12	0.8	11.2	0.09687		0.32914	
40	Solapur	Borgaon	18.426	75.263	12.75	7.9	4.85	0.02116		0.07246	
41	Solapur	Deolali	18.372	75.186	6.5	0.1	6.4	0.02		0.1	
42	Solapur	Ghargaon	18.479	75.293	7.35	0.9	6.45	0.01959			0.03483
43	Solapur	Jategaon	18.506	75.185	13.5	2.9	10.6		0.17299	0.00927	
44	Solapur	Jinti	18.354	74.886	7.8	3	4.8	0.02663		0.04444	
45	Solapur	Karmala	18.400	75.197	8.5	2	6.5		0.1203	0.04897	
46	Solapur	Kavitgaon	18.154	75.200	5.2	0.5	4.7		0.16993	0.02069	
47	Solapur	Kedagaon	18.274	75.079	8.8	4	4.8	0.02083		0.02474	
48	Solapur	Kem	18.171	75.293	9.35	2.6	6.75	0.1692		0.02601	
49	Solapur	Ketur	18.288	74.954	8	0.7	7.3	0.06439		0.07673	
50	Solapur	Khadaki	18.533	75.228	13.61	2.1	11.51	0.01862		0.09589	
51	Solapur	Mangi	18.458	75.189	7.9	3.5	4.4	0.00987		0.08957	
52	Solapur	Padali	18.479	75.293	14.3	5	9.3	0.14467		0.06826	
53	Solapur	Pande	18.378	75.233	10.5	10.5	0	0.14066		0.39843	
54	Solapur	Pophalaj	18.293	75.117	10.8	1.6	9.2	0.39076		0.18663	
55	Solapur	Rajuri	18.335	75.002	8.1	2.8	5.3	0.04601		0.05089	
56	Solapur	Sarapdoh	18.313	75.214	8.1	2.4	5.7		0.14946	0.04328	
57	Solapur	Savadi	18.380	74.986	8.7	3.3	5.4	0.15018		0.12803	
58	Solapur	Shelgaon (Wangi)	18.344	75.247	7	2.7	4.3	0.06389		0.07837	
59	Solapur	Veet	18.378	75.117	7.5	3.6	3.9	0.25		0.13372	

SN	District	Village	Y	X	Pre DTW (mbgl)	Post DTW (mbgl)	Fluctuation (m)	Premonsoon WL trend (m/year)		Postmonsoon WL trend (m/year)	
								Rise	Fall	Rise	Fall
60	Solapur	Warkute	18.250	75.333	7.7	3.1	4.6	0.01413		0.01933	
61	Solapur	Adhegaon	18.036	75.117	6.5	0.7	5.8		0.1337	0.06211	
62	Solapur	Ambad	18.071	75.347	9.65	5	4.65		0.02228	0.01301	
63	Solapur	Aran	17.908	75.325	17.5	6	11.5	0.55129		0.11412	
64	Solapur	Barloni	18.146	75.415	7.65	5	2.65	0.00878		0.0165	
65	Solapur	Bavi	17.938	75.428	12.8	3.1	9.7	0.23		0.01	
66	Solapur	Bhend	18.007	75.374	10.7	2.8	7.9	0.23859		0.07744	
67	Solapur	Dhanore	18.003	75.688	9	3	6	0.1279		0.03932	
68	Solapur	Kanhergaon	18.073	75.226	6.3	3.5	2.8		0.12591	0.05509	
69	Solapur	Kewad	18.028	75.588	12	6.1	5.9		0.07935	0.038	
70	Solapur	Loni	18.246	75.396	6.7	0.2	6.5	0.0337		0.00173	
71	Solapur	Madha	18.033	75.517	17.25	4.8	12.45	0.1087		0.38387	
72	Solapur	Manegaon	17.989	75.652	15	2.6	12.4	0.125		0.06715	
73	Solapur	Modnimb	17.908	75.400	21	12.2	8.8	0.24402		0.14702	
74	Solapur	Palwan	18.000	75.300	10	5	5	0.09511		0.00211	
75	Solapur	Parite	17.979	75.243	12.2	4.5	7.7	0.11861		0.02568	
76	Solapur	Tembhurni	18.026	75.192	6.5	3.6	2.9		0.10791	0.02901	
77	Solapur	Tulshi	17.908	75.325	12.3	6	6.3		0.01582	0.17541	
78	Solapur	Upalai Bk	17.967	75.492	12.3	4.5	7.8		0.1444	0.03222	
79	Solapur	Warawade	17.967	75.308	8.4	2.4	6	0.0112			0.19743
80	Solapur	Barmhapuri	17.560	75.556	8	3.1	4.9	0.04823			0.16461
81	Solapur	Borale	17.494	75.585	13	4	9		0.00777	0.02616	
82	Solapur	Diksal	17.407	75.528	8	2.7	5.3	0.25361		0.09104	
83	Solapur	Jalihal	17.392	75.385	5.5	1.4	4.1	0.1		0.08	
84	Solapur	Kagasht	17.402	75.550	9	6.5	2.5	0.01265		0.07524	
85	Solapur	Pout	17.342	75.529	8	4	4		0.05456	0.05617	
86	Solapur	Siddhankeri	17.367	75.419	8.35	3.5	4.85		0.00074	0.05841	
87	Solapur	Adhegaon	17.735	75.558	8.4	3.2	5.2		0.0162	0.06848	
88	Solapur	Arjunsod	17.751	75.724	7	2.3	4.7		0.20582	0.08071	
89	Solapur	Bairagwadi	17.979	75.700	11.8	3.6	8.2		0.05	0.1	
90	Solapur	Bhoire	17.872	75.675	4.9	1.4	3.5	0.16222		0.00961	

SN	District	Village	Y	X	Pre DTW (mbgl)	Post DTW (mbgl)	Fluctuation (m)	Premonsoon WL trend (m/year)		Postmonsoon WL trend (m/year)	
								Rise	Fall	Rise	Fall
91	Solapur	Deodi	17.882	75.508	14.2	4	10.2		0.15		0.1
92	Solapur	Galandwadi	17.896	75.576	9.2	2.89	6.31		0.1	0.05	
93	Solapur	Hivare	17.843	75.538	15.7	1.2	14.5	0.67241		0.11312	
94	Solapur	Ichgaon	17.601	75.604	6.9	2.5	4.4	0.06481		0.03222	
95	Solapur	Kamthi Kh	17.640	75.710	12.1	2.9	9.2	0.16326		0.11132	
96	Solapur	Kurul	17.676	75.661	6.1	4	2.1	0.05866		0.14129	
97	Solapur	Malikpeth	17.874	75.643	6.1	0.8	5.3	0.35		0.078	
98	Solapur	Maslechaudhari	17.915	75.731	12	7.5	4.5	0.1		0.20081	
99	Solapur	Narkhed	17.904	75.678	7.5	3.2	4.3	0.01535		0.03457	
100	Solapur	Papri	17.825	75.475	15	4.7	10.3	0.275		0.08	
101	Solapur	Patkul	17.749	75.529	7.8	2.3	5.5		0.03807	0.01474	
102	Solapur	Pokharapur	17.800	75.596	11.2	3.5	7.7	0.04405		0.03392	
103	Solapur	Telangwadi	17.883	75.457	18.2	4.3	13.9		0.1	0.05	
104	Solapur	Wagholi	17.624	75.664	6.2	2.1	4.1		0.10256	0.05522	
105	Solapur	Warkute	17.689	75.596	9.2	3.5	5.7		0.10573	0.26887	
106	Solapur	Yawali	17.840	75.596	13.6	8.9	4.7	0.21373		0.10902	
107	Solapur	Ambechinoli	17.603	75.515	9	3	6		0.11	0.1	
108	Solapur	Anawali	17.625	75.376	9	2.7	6.3		0.08389	0.0053	
109	Solapur	Bardi	17.864	75.296	9.7	7.7	2	0.02274		0.06884	
110	Solapur	Bhalawani	17.696	75.133	8.2	4	4.2		0.04333	0.01233	
111	Solapur	Bhandi Shegaon	17.713	75.214	10	4.2	5.8		0.01472	0.01647	
112	Solapur	Bhose	17.807	75.283	7.1	3.7	3.4		0.03194	0.07588	
113	Solapur	Ekhaspur	17.604	75.389	10	3.9	6.1	0.05694		0.01201	
114	Solapur	Gardi	17.640	75.149	10	5.3	4.7	0.08278		0.09335	
115	Solapur	Gurasale	17.738	75.317	10	3.3	6.7	0.00202		0.03373	
116	Solapur	Ishwarwathar	17.722	75.408	6.8	1	5.8	0.2		0.07	
117	Solapur	Jaloli	17.889	75.235	8.3	3.7	4.6	0.02056		0.00327	
118	Solapur	Karkamb	17.864	75.296	10.6	0.7	9.9	0.02306		0.01843	
119	Solapur	Kasegaon	17.630	75.329	8.95	2.1	6.85	0.01163		0.02	
120	Solapur	Kharsoli	17.676	75.464	10.5	5.2	5.3	0.12333		0.04519	
121	Solapur	Sangavi	17.883	75.217	9.7	5	4.7	0.15778		0.059	

SN	District	Village	Y	X	Pre DTW (mbgl)	Post DTW (mbgl)	Fluctuation (m)	Premonsoon WL trend (m/year)		Postmonsoon WL trend (m/year)	
								Rise	Fall	Rise	Fall
122	Solapur	Shirgaon	17.588	75.422	6.4	1.7	4.7	0.0075		0.03933	
123	Solapur	Wakhari	17.686	75.285	8	2.1	5.9	0.04644			0.09567
124	Solapur	Achakadani	17.533	75.056	12.9	1.9	11	0.00524		0.05305	
125	Solapur	Ajanale-Ligadewadi	17.425	75.071	7.8	1.4	6.4	0.00042		0.06954	
126	Solapur	Bamani	17.481	75.239	7	2.2	4.8		0.11614	0.00977	
127	Solapur	Dongargaon	17.334	75.218	8.6	4.4	4.2	0.02345			0.14596
128	Solapur	Hangirage	17.239	75.294	15.9	6.6	9.3	0.25154		0.01429	
129	Solapur	Hatid	17.289	75.039	8.65	3	5.65	0.11		0.05	
130	Solapur	Javala	17.317	75.219	6.6	6.2	0.4		0.07333	0.12975	
131	Solapur	Jujarpur	17.246	75.042	16	3.1	12.9	0.37653		0.06081	
132	Solapur	Junoni	17.233	75.000	13	3.9	9.1	0.1027		0.05255	
133	Solapur	Kamalapur	17.406	75.139	7.2	1.9	5.3	0.24		0.06	
134	Solapur	Pachegaon Bk	17.197	74.893	9.3	7.6	1.7	0.11509		0.04904	
135	Solapur	Pachegaon Kh	17.313	75.044	6	4	2		0.00105	0.01495	
136	Solapur	Pare	17.220	75.263	9.1	1.4	7.7		0.26686		0.15202
137	Solapur	Rajapur	17.342	75.272	7.8	3.7	4.1		0.34184	0.04221	
138	Solapur	Sonand	17.278	75.167	8.7	6.5	2.2		0.13607	0.05434	
139	Solapur	Tippehali	17.217	74.964	14.9	6.2	8.7	0.27313		0.37535	
140	Solapur	Vazare	17.386	75.047	10.65	3.8	6.85	0.05		0.05	
141	Solapur	Wadegaon	17.350	75.242	6.9	4.4	2.5	0.04548		0.10764	
142	Solapur	Akolekati	17.796	75.839	8.6	2.75	5.85	0.05373		0.10192	
143	Solapur	Kalman	17.931	75.783	8.4	1.3	7.1	0.04529			0.05645
144	Solapur	Karamba	17.769	75.868	10.3	3.2	7.1	0.18706			0.07517
145	Solapur	Mardi	17.803	75.900	7.85	5.2	2.65	0.05931		0.01517	
146	Solapur	Wadala	17.875	75.833	13.9	6.9	7	0.08609		0.09252	
147	Solapur	Aurad	17.390	75.907	8.4	6.1	2.3	0.00902		0.03011	
148	Solapur	Bankalgi	17.492	75.971	18.9	10.6	8.3	0.17657			0.07087
149	Solapur	Dhotri	17.674	76.084	9	3	6	0.00049		0.02014	
150	Solapur	Dindur	17.618	76.092	4.8	3.1	1.7	0.07851		0.01481	
151	Solapur	Hotgi	17.589	75.978	12	5	7	0.00725		0.10381	
152	Solapur	Kandalgaon	17.542	75.758	4.1	1.2	2.9	0.11049		0.05963	

SN	District	Village	Y	X	Pre DTW (mbgl)	Post DTW (mbgl)	Fluctuation (m)	Premonsoon WL trend (m/year)		Postmonsoon WL trend (m/year)	
								Rise	Fall	Rise	Fall
153	Solapur	Kumbhari	17.647	75.994	9.4	6.6	2.8		0.03431	0.30313	
154	Solapur	Mandrup	17.492	75.825	9.25	6.1	3.15		0.07834	0.03978	
155	Solapur	Musti	17.726	76.091	9.9	9.9	0	0.02518		0.06686	
156	Solapur	Nandani	17.457	75.851	11.6	4.9	6.7		0.04765	0.04076	
157	Solapur	Takali	17.492	75.825	3	0.4	2.6		0.15941	0.00533	
158	Solapur	Tandulwadi	17.758	76.088	10	4.3	5.7		0.19657		0.15997
159	Solapur	Vadapur	17.536	75.663	12.35	7.1	5.25	0.09329		0.08172	
160	Solapur	Vinchur	17.536	75.663	7.3	6	1.3	0.00341		0.27087	
161	Solapur	Yelegaon	17.515	75.790	6.8	3.8	3	0.09894		0.01443	
162	Solapur	Bacheri	17.649	74.968	9	3.2	5.8	0.06775			0.10329
163	Solapur	Dharpuri	17.939	74.675	7	5.25	1.75		0.12376	0.41871	
164	Solapur	Foundshiras	17.932	74.813	8.6	5.6	3	0.03893		0.06198	
165	Solapur	Gursale	17.878	74.668	4.7	4.2	0.5		0.12675		0.11143
166	Solapur	Jalbhavi	17.754	74.847	7.7	5	2.7		0.01193	0.02784	
167	Solapur	Karunde	17.908	74.761	10.8	4.7	6.1	0.10601			0.18623
168	Solapur	Khudus	17.825	74.842	6	2.5	3.5	0.00754			0.07904
169	Solapur	Kothale	17.871	74.639	10.1	5.9	4.2	0.00095		0.17286	
170	Solapur	Kurbavi	18.022	74.721	7	6.5	0.5	0.08491		0.42012	
171	Solapur	Lawang	17.883	75.126	10.8	3.35	7.45	0.12786			0.07665
172	Solapur	Malshiras	17.864	74.911	9	2.7	6.3	0.10592		0.0509	
173	Solapur	Natepute	17.897	74.756	6	3.9	2.1	0.0566			0.00958
174	Solapur	Piliv	17.683	74.967	9	8	1	0.06574		0.25872	
175	Solapur	Tandulwadi	17.703	75.087	8	2.3	5.7	0.05143			0.05299
176	Solapur	Tarangfal	17.778	74.925	6.4	4.5	1.9	0.0087		0.04571	
177	Solapur	Malkhambi	17.751	75.119	9.1	6	3.1	0.14		0.17545	

Annexure-III: Details of GW monitoring wells and KOWs in Solapur district.

SN	Date of establishment	Taluka	Village	Lat. Dec.	Long. Dec.	Elevation (m amsl)	Depth mbgl	Dia (m)	Geology	Aquifer	Lining (m)	MP (magl)	DTW mbgl (May 2017)	DTW mbgl (Nov 2017)	EC (May 2017)
1	26-04-2017	Karmala	Bhalavni	18.209	75.217	521.4	7	5	BS01	FMB	—	GL	6	4	1617
2	28-04-2017	Karmala	Bhilarwadi	18.331	74.896	552.7	13.5	3.5	BS01	WB	2.8	0.8	13.1	6.2	1764
3	25-04-2017	Karmala	Bitargaon (wangi)	18.140	75.125	504.7	9	6	BS01	WB	4	0.8	9	8.5	954
4	26-04-2017	Karmala	Chikhalthan	18.241	75.055	528.8	13	6	BS01	F&WMB	—	GL	11	5.8	1835
5	26-04-2017	Karmala	Deolali	18.366	75.170	594.1	10	8.5	BS01	WB	2	0.7	6.1	5.7	2230
6	27-04-2017	Karmala	Hisare	18.346	75.281	543.9	13	8.5	BS01	FMB	—	GL	9.4	3.8	1384
7	27-04-2017	Karmala	Hivare	18.349	75.322	533.3	10	8x8	BS01	F&WMB	8	GL	8	2.1	1436
8	26-04-2017	Karmala	Kamone	18.484	75.213	541.1	18	6	BS01	WB	10	0.1	16.3	5.6	1136
9	27-04-2017	Karmala	Karanje	18.406	75.259	519.9	15	8	BS01	WB	5.5	0.7	10.5	6.5	533
10	25-04-2017	Karmala	Kavitgaon	18.154	75.207	513.6	10	3.5	BS01	F&WMB	5	0.9	9	2.2	2352
11	26-04-2017	Karmala	Kedgaon	18.272	75.078	513.3	11	8.5	BS01	WB	1	0.2	10	7	1170
12	27-04-2017	Karmala	Kem	18.168	75.265	536.5	10	8.5	BS01	V&WB	3.5	0.5	12	5.1	933
13	28-04-2017	Karmala	Ketur	18.277	74.962	503	8.5	6	BS01	F&WMB	—	GL	7	2	1314
14	26-04-2017	Karmala	Khadaki	18.522	75.207	538.9	15	3.5	BS01	WB	8	0.8	12.4	7.2	981
15	28-04-2017	Karmala	Khatgaon	18.270	74.880	511	5	5	BS01	FMB	—	GL	4.1	2.9	1211
16	28-04-2017	Karmala	Kondhar Chincholi	18.284	74.816	501.2	11	5.5	BS01	WB	10	0.5	10.6	7	3375
17	27-04-2017	Karmala	Kondhej	18.274	75.198	541.3	15	10	BS01	F&WMB	3.3	0.2	12	3.8	745
18	26-04-2017	Karmala	Kugaon	18.218	75.034	519.4	8.5	6	BS01	WB	—	0.2	8	6.2	1149
19	27-04-2017	Karmala	Lavhe	18.246	75.192	523.2	18	6	BS01	WB	—	GL	17.5	17.1	1277
20	26-04-2017	Karmala	Limbewadi	18.491	75.133	546.8	10.5	3.5	BS01	WB	—	GL	8.4	6	606
21	27-04-2017	Karmala	Nerle	18.281	75.362	504	15	8.5	BS01	F&WMB	2	1	13	6.7	1288
22	25-04-2017	Karmala	Pangare	18.186	75.179	521.2	10.5	8.5	BS01	FMB	3	0.8	9	3	2049
23	28-04-2017	Karmala	Parewadi	18.302	74.964	515	10	6	BS01	WB	—	GL	9.5	4	1688
24	27-04-2017	Karmala	Pathurdi	18.218	75.299	541.6	10	3.5	BS01	F&WMB	—	GL	12	7.8	895
25	28-04-2017	Karmala	Pondhvadi	18.360	75.045	558.6	10	6	BS01	V&WB	—	GL	9.5	1.5	504
26	27-04-2017	Karmala	Pophalaj	18.290	75.117	542.5	10.5	8	BS01	F&WMB	1.5	GL	10	8.5	2520
27	27-04-2017	Karmala	Potegaon	18.475	75.280	559.1	12		BS01	F&WMB			10.7	6.8	3702
28	26-04-2017	Karmala	Pothare	18.441	75.216	526.9	9.5	3.5	BS01	F&WMB	2.3	0.4	9.1	3	3228

SN	Date of establishment	Taluka	Village	Lat. Dec.	Long. Dec.	Elevation (m amsl)	Depth mbgl	Dia (m)	Geology	Aquifer	Lining (m)	MP (magl)	DTW mbgl (May 2017)	DTW mbgl (Nov 2017)	EC (May 2017)
29	27-04-2017	Karmala	Sade	18.288	75.269	543.1	12	8.5	BS01	WB	1	0.4	11	6.6	1464
30	27-04-2017	Karmala	Sade	18.282	75.268	549.4	23	6	BS01	WB	—	GL	22	5.2	966
31	27-04-2017	Karmala	Sade	18.316	75.286	561.1	23	6	BS01	WB	—	GL	22.9	13.6	811
32	25-04-2017	Karmala	Shelgaon (wangi)	18.245	75.142	555	10	3.5	BS01	F&WMB	—	0.5	9	3	1618
33	27-04-2017	Karmala	Sogaon	18.287	75.038	520.6	13	7	BS01	F&WMB	8	0.2	11.9	7	1675
34	28-04-2017	Karmala	Takali (rashin)	18.261	74.865	505.2	5	6	BS01	F&WMB	—	GL	4.5	1	656
35	27-04-2017	Karmala	Umrad	18.315	75.066	499.4	16	10.5	BS01	F&WMB	3	0.8	12.3	5.1	1896
36	26-04-2017	Karmala	Vanjarwadi	18.421	75.098	592.1	13	6	BS01	WB	3	0.5	11.7	6.5	1207
37	25-04-2017	Karmala	Wangi	18.211	75.128	527.3	10.5	6	BS01	WB	5.5	0.6	10	4.1	1808
38	27-04-2017	Karmala	Warkatne	18.293	75.214	565.1	10.5	6.5	BS01	WB	—	GL	8.1	5.1	1581
39	25-04-2017	Madha	Adhegaon	18.036	75.112	500.2	10	5	BS01	FMB	0.5	GL	9.1	4.5	2386
40	23-04-2017	Madha	Akulgaon	18.132	75.450	495.9	15	6	BS01	WB	7	0.2	14.1	1.5	1561
41	24-04-2017	Madha	Anjangaon Umate	18.082	75.584	471.6	14	5	BS01	WB	—	GL	13.5	2.7	778
42	24-04-2017	Madha	Anjangaon(kh)	17.960	75.563	483.3	10.5	5	BS01	F&WMB	2.3	GL	9	4	1766
43	23-04-2017	Madha	Badalewadi	18.098	75.290	547	12.5	6	BS01	F&WMB	—	GL	11	6	1234
44	23-04-2017	Madha	Bhend	17.993	75.361	542.2	17	8.5	BS01	F&WMB	5	0.3	15.9	7.1	1051
45	25-04-2017	Madha	Dahiwali	18.095	75.239	530.4	14	6	BS01	WB	2	0.1	13.1	2.1	2781
46	24-04-2017	Madha	Dhanore	18.002	75.686	495.3	9	8x8	BS01	WB	1	GL	5.9	2.7	1718
47	25-04-2017	Madha	Gar Akole	17.968	75.037	480.2	6	8.5	BS01	WB	2	0.6	5.3	2	1342
48	23-04-2017	Madha	Gavalewadi	18.137	75.390	529.7	8.5	3.5	BS01	WB	5	1	7.3	6	2519
49	23-04-2017	Madha	Ghoti	17.930	75.225	504	19	7.5	BS01	F&WMB	7.6	0.6	17	3.1	2248
50	23-04-2017	Madha	Jakhale	18.167	75.328	540.2	8.5	3.5	BS01	F&WMB	6	1	7.2	4.3	2375
51	24-04-2017	Madha	Kurdu	18.081	75.396	515.1	12	3.5	BS01	F&WMB	4.5	0.7	5.4	4.7	1961
52	23-04-2017	Madha	Laul	18.035	75.394	527.2	16	6.5	BS01	FMB	4	0.3	14	2	4204
53	22-04-2017	Madha	Malegaon	17.983	75.176	491.8	8	6	BS01	F&WMB	1	GL	8	5.4	1002
54	24-04-2017	Madha	Manegaon	17.985	75.652	486.6	12	3.5	BS01	WB	10	0.8	10	3.5	1463
55	24-04-2017	Madha	Manegaon	18.010	75.609	470.2	15	6	BS01	F&WMB	1	GL	11.1	4.1	1024
56	24-04-2017	Madha	Mhaisgaon	18.116	75.492	498	15	6	BS01	WB	3	0.3	15	13.5	3232
57	23-04-2017	Madha	Modnimb	17.944	75.398	522.4	23	6	BS01	F&WMB	5	0.5	22.8	9.2	1350

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58	24-04-2017	Madha	Papnas	18.106	75.532	480.9	22	7	BS01	F&WMB	1	0.5	19.1	4.4	2338
59	23-04-2017	Madha	Paritewadi	17.952	75.291	512	23	6	BS01	V&WB, FMB	1	0.3	22.7	14	753
60	24-04-2017	Madha	Pimpalner	18.048	75.296	527.9	12	5.4	BS01	F&WMB	5.4	0.7	6.8	3.6	1852
61	24-04-2017	Madha	Ridhore	18.128	75.541	477.9	12	8.5	BS01	WB	6	1	11	1.9	3797
62	22-04-2017	Madha	Shiral Tembhorni	18.045	75.150	514.8	15	10.5	BS01	F&WMB	3	0.6	8.6	6.8	1712
63	22-04-2017	Madha	Shiral Tembhorni	18.077	75.167	516.8	14.5	6	BS01	F&WMB	-	GL	14.2	5	1437
64	25-04-2017	Madha	Takali Tembhorni	17.993	75.073	491.1	10	6	BS01	F&WMB	1	0.1	9	6	1171
65	23-04-2017	Madha	Tulshi	17.953	75.333	537	15	8.5	BS01	F&WMB	4.5	0.1	13.5	3.9	1809
66	23-04-2017	Madha	Venegaon	18.024	75.234	512.4	9	3.35	BS01	WB	4.5	0.7	7.8	1.6	2477
67	24-04-2017	Madha	Wadachiwadi	17.969	75.474	507.6	24	5	BS01	F&WMB	1	0.1	21	2.6	1152
68	24-04-2017	Madha	Wadachiwadi	18.078	75.622	495.8	20	7	BS01	WB	7.2	0.8	12.3	4.7	560
69	24-04-2017	Madha	Wadshinge	18.070	75.513	496	22	6	BS01	F&WMB	6	0.3	20.5	4.6	2285
70	23-04-2017	Madha	Warawade	17.979	75.302	508.2	15	6	BS01	F&WMB	1	GL	13	1.6	914
71	16-06-2017	Mohol	Ashti	17.863	75.408	483.5	11	6.5	BS01	F&WMB	6	GL	10	2.8	1882
72	13-06-2017	Mohol	Bhambewadi	17.841	75.700	480.3	13	7	BS01	F&WMB	7	GL	7.3	5.2	985
73	10-06-2017	Mohol	Bitle	17.893	75.609	468.8	10	5.5	BS01	F&WMB	4	GL	9.3	3	1507
74	10-06-2017	Mohol	Dadapur	17.709	75.739	444.3	13	3.2	BS01	F&WMB	6	0.8	5.5	3.7	1187
75	10-06-2017	Mohol	Ghorpadi	17.949	75.708	463	10	5	BS01	F&WMB	3	0.6	7	2.5	1287
76	09-06-2017	Mohol	Hivare	17.894	75.527	486	16	8.5	BS01	F&WMB	6.3	0.5	15.2	2	1133
77	10-06-2017	Mohol	Katewadi	17.731	75.697	449.3	12	8	BS01	F&WMB	4.5	GL	7.5	6.9	5119
78	09-06-2017	Mohol	Khandali	17.868	75.463	505.8	17	8.5	BS01	F&WMB	1	GL	19	12	
79	13-06-2017	Mohol	Kolegaon	17.791	75.697	460.4	14	6.5	BS01	F&WMB	3	0.9	13.5	4	640
80	09-06-2017	Mohol	Konheri	17.846	75.515	508.1	14.5	7	BS01	F&WMB	0	GL	13.1	5.2	623
81	10-06-2017	Mohol	Maslechaudhari	17.913	75.722	470.2	24	8.5	BS01	Soil, FB	20	1	23.5	10	1136
82	10-06-2017	Mohol	Mohol	17.840	75.638	495.4	13.5	7	BS01	F&WMB	8	GL	11.2	6.1	1805
83	14-06-2017	Mohol	Patkul	17.777	75.517	491.3	10	3.2	BS01	F&WMB	5	GL	8.3	5.1	513
84	13-06-2017	Mohol	Penur	17.800	75.497	486	14	7.5	BS01	WB	5	0.4	12.2	5.2	856
85	13-06-2017	Mohol	Pokharapur	17.836	75.597	489.1	11	7.5	BS01	F&WMB	5	0.2	10.2	7	359

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86	10-06-2017	Mohol	Sayyadwarwade	17.734	75.640	486.6	9	3.5	BS01	Soil, WB	9	0.8	8.3	7.5	2712
87	10-06-2017	Mohol	Sohale	17.662	75.646	477.3	10	7	BS01	F&WMB	1	GL	9	5.2	2234
88	14-06-2017	Mohol	Takali (shikandar)	17.733	75.549	479.1	22.8	8.5	BS01	F&WMB	2.8	GL	21	18.5	1158
89	10-06-2017	Mohol	Watwate	17.578	75.685	470.4	13.5	7	BS01	F&WMB	3.5	1	11.4	6	1486
90	10-06-2017	Mohol	Watwate	17.597	75.701	472.3	12	10	BS01	F&WMB	0	GL	8.4	5.8	1163
91	13-06-2017	Mohol	Wirwade Kh	17.752	75.756	455.6	15	7.5	BS01	WB	0	GL	14.5	5	1585
92	13-06-2017	Mohol	Yeoti	17.820	75.464	483.6	16	10.5	BS01	F&WMB	3.3	0.5	13	6.7	837
93	16-06-2017	Pandharpur	Adhiv	17.730	75.366	474.6	22	8.5	BS01	F&WMB	4	1	21	8.6	1599
94	16-06-2017	Pandharpur	Adhiv	17.763	75.377	487.2	20.5	8.5	BS01	F&WMB	4	0.6	12.2	5.1	1071
95	14-06-2017	Pandharpur	Ambe	17.653	75.473	448.2	10	8.5	BS01	WB	2	GL	8	4.3	2468
96	14-06-2017	Pandharpur	Ambechinholi	17.631	75.539	444.8			BS01	F&WMB			12.5	9.5	1750
97	17-06-2017	Pandharpur	Badalkot	17.864	75.219	460.7	10	7.5	BS01	F&WMB	6	GL	9	4	1808
98	16-06-2017	Pandharpur	Bhose	17.831	75.300	487.3	18	9	BS01	F&WMB	0	GL	14	9.2	1235
99	14-06-2017	Pandharpur	Chale	17.723	75.457	450	13	8.5	BS01	F&WMB	3.7	0.2	10.5	9.25	3144
100	15-06-2017	Pandharpur	Dhondewadi	17.728	75.167	489.5	8.5	4.5	BS01	FMB	0	GL	8	3.2	1836
101	16-06-2017	Pandharpur	Hole	17.780	75.294	465	10	8x8	BS01	WB	0	GL	7.3	2.1	3529
102	14-06-2017	Pandharpur	Ite (Puluj)	17.687	75.506	465.2	12.5	6.5	BS01	F&WMB	0	GL	12	7.6	1856
103	15-06-2017	Pandharpur	Jainwadi	17.694	75.138	499.4	8	6.5	BS01	F&WMB	0	GL	7	3.5	1428
104	16-06-2017	Pandharpur	Karole	17.887	75.151	483.8	6	8x8	BS01	F&WMB	0	GL	7	3.5	3463
105	15-06-2017	Pandharpur	Kasegaon	17.659	75.347	465.7	10	8.5	BS01	F&WMB	4	GL	9	7.2	1615
106	15-06-2017	Pandharpur	Khardi	17.563	75.294	482.9	14	7.5	BS01	F&WMB	2	GL	15	4.4	2173
107	15-06-2017	Pandharpur	Korty	17.642	75.273	476.1	10	6.5	BS01	WB	0.8	GL	8	5.1	1188
108	16-06-2017	Pandharpur	Mendhapur	17.796	75.357	495.2	12	8.5	BS01	F&WMB	7	1	12	11.8	556
109	15-06-2017	Pandharpur	Palshi	17.654	75.199	490.1	12.5	6.5	BS01	WB	0	GL	12	3	1508
110	16-06-2017	Pandharpur	Patvardhan Kuroli	17.808	75.217	491.6	8	6.5	BS01	F&WMB	0	GL	7.7	6.5	1343
111	14-06-2017	Pandharpur	Siddhewadi	17.590	75.433	452.6	13	9.5	BS01	F&WMB	1	GL	12	6.1	2612
112	15-06-2017	Pandharpur	Sonke [n.v.]	17.618	75.194	513.9	9	3.5	BS01	WB	0	GL	8	1	568
113	15-06-2017	Pandharpur	Tanali	17.572	75.337	468.1	24	8.5	BS01	F&WMB	3	0.4	23.5	9.2	2112
114	16-06-2017	Pandharpur	Umbare	17.906	75.196	507.6	10	6.5	BS01	F&WMB	3	1	6	3.4	1702

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115	12-06-2017	Solapur South	Balgi	17.449	75.777	448.3	12	8.5x8.5	BS01	F&WMB	0	GL	9.1	4.8	1622
116	11-06-2017	Solapur South	Bankalgi	17.484	75.993	475.8	15.5	6	BS01	WB	0	GL	15	13	1166
117	12-06-2017	Solapur South	Bhandar Kavathe	17.414	75.711	433.6			BS01	F&WMB			8.5	1.9	289
118	11-06-2017	Solapur South	Borul	17.517	76.027	452.1	30	9.5	BS01	F&WMB	6	0.7	22.9	13	1066
119	11-06-2017	Solapur South	Darganhalli	17.686	76.033	501.1	12	7x7	BS01	WB	0	GL	12	11	1033
120	11-06-2017	Solapur South	Dhotri	17.672	76.086	511.3	8.5	6	BS01	F&WMB	5.7	1	5.6	4.3	1827
121	13-06-2017	Solapur South	Gangewadi	17.832	75.986	502.8	12	6	BS01	F&WMB	4	0.8	10.8	9.2	1081
122	12-06-2017	Solapur South	Hatur	17.553	75.935	438.3	10	6.5	BS01	F&WMB	3	GL	13	7	7112
123	11-06-2017	Solapur South	Hipale	17.557	76.041	461.6	10.5	8.5	BS01	F&WMB	0	GL	8.5	4.9	1331
124	12-06-2017	Solapur South	Honmurgi	17.518	75.895	435	30		BS01	F&WMB		1	11.4	8.1	7845
125	11-06-2017	Solapur South	Hotgi	17.601	75.992	467	11.5	8.5x8.5	BS01	WB	0	GL	11.2	5	854
126	11-06-2017	Solapur South	Kanbas	17.470	76.054	442.2	10	8.5	BS01	WB	0	GL	12	5	2195
127	12-06-2017	Solapur South	Kandalgaon	17.551	75.786	452.9	12	6.5	BS01	WB	0	GL	11.5	6	763
128	11-06-2017	Solapur South	Kandehalli	17.644	76.045	493.4	12.5	8	BS01	F&WMB	7	0.3	11.5	9.6	1592
129	11-06-2017	Solapur South	Kumbhari	17.651	75.991	478.8	14	2.6	BS01	WB	12	0.5	9.6	6.4	1519
130	12-06-2017	Solapur South	Kurghot	17.458	75.853	454.3	6	6	BS01	WB	0	GL	7	3.2	2088
131	12-06-2017	Solapur South	Kusur	17.524	75.724	463.6	12	8.5	BS01	Soil, WB	0	GL	11	5	4037
132	13-06-2017	Solapur South	Mulegaon	17.688	75.973	478.2	12	6	BS01	F&WMB	5	0.9	9.5	8	1935
133	11-06-2017	Solapur South	Musti	17.735	76.127	490.4	18	6.5	BS01	F&WMB	0	GL	17	14.1	1362
134	12-06-2017	Solapur South	Nimbargi	17.483	75.793	460.6	10	8.5	BS01	WB	6	GL	12	5.2	0
135	11-06-2017	Solapur South	Phatatewadi	17.570	75.978	466.8	9.5	6	BS01	F&WMB	0	GL	9	4.5	878
136	12-06-2017	Solapur South	Sadepur	17.413	75.792	442.2	12	8.5x8.5	BS01	F&WMB	0	GL	10	6.8	2952
137	11-06-2017	Solapur South	Tandulwadi	17.759	76.059	528.2	10	6	BS01	F&WMB	0	GL	9	7	126
138	12-06-2017	Solapur South	Telgaon Mandrup	17.471	75.706	441			BS01				10.6	3.1	2614
139	11-06-2017	Solapur South	Valsang	17.593	76.090	480	12	8.5	BS01	F&WMB	10	0.9	5.6	1.4	506
140	13-06-2017	Solapur South	Waralegaon	17.734	75.983	476.8	17.5	8.5	BS01	WB	0	GL	16.7	13.5	704
141		Malshiras	Bhamb	17.796	74.792	600.2	19	9.5	BS01	F&WMB	1.5	1	18.3	5.8	1264
142		Malshiras	Chaundeshwarwadi	17.857	75.036	497.7	12.5	4.5	BS01	WVB	4.5	GL	8.9	4.8	1060

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143		Malshiras	Dasur	17.776	75.137	471.2	26	10	BS01	WVB	7.5	0.3	22.3	4.9	690
144		Malshiras	Deshmukhwadi	18.002	74.691	515.2	14	10	BS01	WVB	2.5	GL	7.56	5.9	2775
145		Malshiras	Fadtari	17.834	74.712	614.2	15	8	BS01	F&WMB	6	0.4	11.5	5.1	718
146		Malshiras	Fondshiras	17.921	74.813	511	16	6.5	BS01	WB	2	GL	13	6.1	1160
147		Malshiras	Girzani	17.862	74.980	505.3	19	10	BS01	WMB	6	1	13.6	5.3	2090
148		Malshiras	Jambud	17.847	75.146	491.1	18	6	BS01	WB	6	1.5	15	5.63	1895
149		Malshiras	Kanher	17.812	74.843	546.1	18	8	BS01	FMB	4.9	GL	16.5	5.1	3032
150		Malshiras	Khudus	17.831	74.960	523.7	15	6	BS01	WB	3.5	0.3	10.3	4.8	778
151		Malshiras	Maloli	17.748	75.047	488.7	13	6	BS01	WMB	2.1	GL	10	3.6	956
152		Malshiras	Mandave	17.880	74.808	521.9	19.5	6.5	BS01	W&VB	0	GL	16.2	5.2	1864
153		Malshiras	Nimgaon	17.778	74.989	519.8	8	3	BS01	FB	2	0.4	8	6.1	2100
154		Malshiras	Palasmandal	17.979	74.826	515	14	7.5	BS01	WB	2.5	1	13.2	5.8	4246
155		Malshiras	Sangam	17.940	75.135	485	22	8	BS01	WB	6	0.5	21	4.3	2870
156		Malshiras	Shingorni	17.630	75.009	548.2	13	3	BS01	FB	3	GL	9.35	6.8	1265
157		Malshiras	Tambave	17.905	75.092	496	25	10	BS01	WB	3	0.7	20.1	2.2	2400
158		Malshiras	Tarangfal	17.756	74.913	581.2	14	5.6	BS01	WMB	3.6	GL	7.9	3.85	1355
159		Malshiras	Tirwandi	17.916	74.898	496	18	10	BS01	FMB	4.5	1.5	15.6	8.56	1130
160		Malshiras	Ughadewadi	17.803	75.097	490.3	16	4.5	BS01	Basalt	3	0.6	14	4.56	2154
161		Malshiras	Bacheri	17.649	74.968	572	7.7		BS01				9	3.2	
162		Malshiras	Dharpuri	17.939	74.675	549.3	7.95		BS01				7	5.25	
163		Malshiras	Foundshiras	17.932	74.813	504	10		BS01				8.6	5.6	
164		Malshiras	Gursale	17.878	74.668	624.1	6.5		BS01				4.7	4.2	
165		Malshiras	Jalbhavi	17.754	74.847	594.3	7.95		BS01				7.7	5	
166		Malshiras	Karunde	17.908	74.761	535	10.85		BS01				10.8	4.7	
167		Malshiras	Khudus	17.825	74.842	544	4.95		BS01				6	2.5	
168		Malshiras	Kothale	17.871	74.639	639.3	10.15		BS01				10.1	5.9	
169		Malshiras	Kurbavi	18.022	74.721	509	6.5		BS01				7	6.5	
170		Malshiras	Lawang	17.883	75.126	457	12		BS01				10.8	3.35	
171		Malshiras	Malshiras	17.864	74.911	527.2	8.4		BS01				9	2.7	
172		Malshiras	Natepute	17.897	74.756	535.6	6		BS01				6	3.9	
173		Malshiras	Piliv	17.683	74.967	542	12		BS01				9	8	

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174		Malshiras	Tandulwadi	17.703	75.087	500	7.2		BS01				8	2.3	
175		Malshiras	Tarangfal	17.778	74.925	552.3	8.2		BS01				6.4	4.5	
176		Malshiras	Malkhambi	17.751	75.119	486.7	11		BS01				9.1	6	
177		Malshiras	Dharpuri	17.933	74.683	543.52	8.7		BS01			1.2	7.5	7.1	
178		Malshiras	Malsiras	17.867	74.900	529.88	8.95		BS01			0.95	8	6	
179		Malshiras	Natepute-1	17.893	74.739	549	7.3		BS01			0.5	7	5.83	
180		Malshiras	Piliv	17.682	74.967	765.62	10.55		BS01			0.85	7.53	6.61	
181		Malshiras	Salmukh	17.694	75.042	523.21	8.85		BS01			0.8	8	2.86	
182		Malshiras	Velapur	17.800	75.050	494.54	9.92		BS01			0.92	7.95	5.9	
183		Akkalkot	Arali	17.674	76.159	468	10		BS01				10	6.4	
184		Akkalkot	Basalegaon	17.449	76.288	433.3	10.1		BS01				8	2.9	
185		Akkalkot	Binjger	17.400	76.325	431	11.75		BS01				10.5	5.3	
186		Akkalkot	Borgaon	17.650	76.313	475	8.4		BS01				8	6.1	
187		Akkalkot	Chapalgaon	17.608	76.175	474	11.35		BS01				9.1	6.7	
188		Akkalkot	Chikkahalli	17.600	76.179	500	10.6		BS01				10.1	3.1	
189		Akkalkot	Chungi	17.661	76.229	461.4	10.6		BS01				8	6.9	
190		Akkalkot	Dudhani (Rural))	17.588	76.268	454.1	15.9		BS01				9.2	8.6	
191		Akkalkot	Gogaon	17.623	76.400	532.6	8.85		BS01				7.3	3.4	
192		Akkalkot	Hannur	17.424	76.271	427.5	11.2		BS01				6.6	3.1	
193		Akkalkot	Jeur	17.479	76.108	442.2	11.5		BS01				10.6	6.7	
194		Akkalkot	Kajikanbas	17.713	76.283	517.8	9.75		BS01				9.6	3	
195		Akkalkot	Karjal	17.564	76.117	475.6	13.2		BS01				12.8	3	
196		Akkalkot	Kini	17.683	76.265	493.6	11.4		BS01				11.4	6.1	
197		Akkalkot	Kurnur	17.631	76.217	458.4	14.5		BS01				7.4	3	
198		Akkalkot	Satan Dudhani	17.426	76.268	427.9	9.35		BS01				9.3	4	
199		Akkalkot	Sultanpur	17.694	76.231	477.1	7.5		BS01				7.5	2.5	
200		Akkalkot	Udagi	17.433	76.225	451	8.15		BS01				8.1	3.7	
201		Akkalkot	Wagdari	17.600	76.358	534.9	9.35		BS01				9.2	2.5	
202		Barshi	Agalgaon	18.317	75.746	548.9	13.15		BS01				8.9	3.1	
203		Barshi	Alipur	18.215	75.662	502	15.65		BS01				7.9	3.5	
204		Barshi	Chare	18.349	75.807	599.3	7.56		BS01				7	2.2	

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205		Barshi	Chikharde	18.208	75.832	525.4	9.9		BS01				8.9	2.3	
206		Barshi	Gaudgaon	18.063	75.972	527.6	10		BS01				8.6	2.25	
207		Barshi	Jamgaon	18.157	75.863	518.4	12.65		BS01				7.7	3	
208		Barshi	Kalambawadi	18.375	75.754	592.9	9		BS01				7.5	3.8	
209		Barshi	Kari	18.240	75.913	554.4	9		BS01				8	0.6	
210		Barshi	Kuslamb	18.281	75.774	559	12		BS01				5.8	0.5	
211		Barshi	Malwandi	18.058	75.658	498.7	10.85		BS01				7.6	2	
212		Barshi	Nandani	18.108	75.836	515	8.1		BS01				8	3	
213		Barshi	Pangaon	18.138	75.737	508.1	9.35		BS01				8	3.05	
214		Barshi	Raleras	18.006	75.814	483	7.85		BS01				7	2.4	
215		Barshi	Shendri	18.176	75.558	504.7	18.25		BS01				10.9	6	
216		Barshi	Vairag	18.056	75.804	491.6	18.9		BS01				16	3.8	
217		Karmala	Alsunde	18.283	75.313	522	7.6		BS01				7.55	3.1	
218		Karmala	Arjunnagar	18.329	75.283	543	7.15		BS01				7.8	3	
219		Karmala	Bhalavni	18.207	75.200	514	16.4		BS01				8.1	2	
220		Karmala	Bhilarwadi	18.342	74.896	549.2	19.4		BS01				18	4.5	
221		Karmala	Bhose	18.429	75.171	544.9	12		BS01				12	3	
222		Karmala	Borgaon	18.426	75.263	508	12.75		BS01				12.75	7.9	
223		Karmala	Deolali	18.372	75.186	562.5	7		BS01				6.5	1	
224		Karmala	Ghargaon	18.479	75.293	555.5	7.35		BS01				7.35	2	
225		Karmala	Jategaon	18.506	75.185	565.4	13.5		BS01				13.5	2.9	
226		Karmala	Jinti	18.354	74.886	559.7	7.95		BS01				7.8	3	
227		Karmala	Karmala	18.400	75.197	563.4	9		BS01				8.5	2	
228		Karmala	Kavitgaon	18.154	75.200	506.9	5.5		BS01				5.2	0.5	
229		Karmala	Kedagaon	18.274	75.079	507	9.65		BS01				8.8	4	
230		Karmala	Kem	18.171	75.293	556.9	9.35		BS01				9.35	2.6	
231		Karmala	Ketur	18.288	74.954	510.9	8.45		BS01				8	0.7	
232		Karmala	Khadaki	18.533	75.228	528	13.61		BS01				13.61	2.1	
233		Karmala	Mangi	18.458	75.189	529.6	7.9		BS01				7.9	3.5	
234		Karmala	Padali	18.479	75.293	555.5	16.36		BS01				14.3	5	
235		Karmala	Pande	18.378	75.233	542.3	10.5		BS01				10.5	10	

SN	Date of establishment	Taluka	Village	Lat. Dec.	Long. Dec.	Elevation (m amsl)	Depth mbgl	Dia (m)	Geology	Aquifer	Lining (m)	MP (magl)	DTW mbgl (May 2017)	DTW mbgl (Nov 2017)	EC (May 2017)
236		Karmala	Pophalaj	18.293	75.117	546.2	13		BS01				10.8	1.6	
237		Karmala	Rajuri	18.335	75.002	530.8	9		BS01				8.1	2.8	
238		Karmala	Sarapdoh	18.313	75.214	570	9.85		BS01				8.1	2.4	
239		Karmala	Savadi	18.380	74.986	559	12		BS01				8.7	3.3	
240		Karmala	Shelgaon (Wangi)	18.344	75.247	545	12		BS01				7	2.7	
241		Karmala	Veet	18.378	75.117	555	7.5		BS01				7.5	3.6	
242		Karmala	Warkute	18.250	75.333	519	7.7		BS01				7.7	3.1	
243		Madha	Adhegaon	18.036	75.117	504.4	8.4		BS01				6.5	1.3	
244		Madha	Ambad	18.071	75.347	539.8	9.65		BS01				9.65	5	
245		Madha	Aran	17.908	75.325	511.7	18		BS01				17.5	6	
246		Madha	Barloni	18.146	75.415	508	7.65		BS01				7.65	5	
247		Madha	Bavi	17.938	75.428	515.6	12.8		BS01				12.8	3.1	
248		Madha	Bhend	18.007	75.374	567.1	10.7		BS01				10.7	2.8	
249		Madha	Dhanore	18.003	75.688	492.7	10.5		BS01				9	3	
250		Madha	Kanhergaon	18.073	75.226	520.7	8.7		BS01				6.3	3.5	
251		Madha	Kewad	18.028	75.588	467.4	15.5		BS01				12	6.1	
252		Madha	Loni	18.246	75.396	500.2	6.7		BS01				6.7	0.9	
253		Madha	Madha	18.033	75.517	493.1	17.25		BS01				17.25	4.8	
254		Madha	Manegaon	17.989	75.652	485.6	19.2		BS01				15	2.6	
255		Madha	Modnimb	17.908	75.400	502.9	27.6		BS01				21	12.2	
256		Madha	Palwan	18.000	75.300	517	12		BS01				10	5	
257		Madha	Parite	17.979	75.243	489.9	12.2		BS01				12.2	4.5	
258		Madha	Tembhurni	18.026	75.192	502.3	9		BS01				6.5	3.6	
259		Madha	Tulshi	17.908	75.325	511	12.3		BS01				12.3	6	
260		Madha	Upalai Bk	17.967	75.492	498.2	16.65		BS01				12.3	4.5	
261		Madha	Warawade	17.967	75.308	516	8.5		BS01				8.4	2.4	
262		Mangalvedhe	Barmhapuri	17.560	75.556	455.3	8		BS01				8	3.1	
263		Mangalvedhe	Borale	17.494	75.585	451.2	14		BS01				13	4	
264		Mangalvedhe	Diksal	17.407	75.528	476.7	8		BS01				8	2.7	
265		Mangalvedhe	Jalihal	17.392	75.385	527.2	5		BS01				5.5	1.4	

SN	Date of establishment	Taluka	Village	Lat. Dec.	Long. Dec.	Elevation (m amsl)	Depth (mbgl)	Dia (m)	Geology	Aquifer	Lining (m)	MP (magl)	DTW (mbgl) (May 2017)	DTW (mbgl) (Nov 2017)	EC (May 2017)
266		Mangalvedhe	Kagasht	17.402	75.550	469.6	9		BS01				9	6.5	
267		Mangalvedhe	Pout	17.342	75.529	474	8		BS01				8	4	
268		Mangalvedhe	Siddhankeri	17.367	75.419	523.7	8.35		BS01				8.35	3.5	
269		Mohol	Adhegaon	17.735	75.558	492.4	9.4		BS01				8.4	3.2	
270		Mohol	Arjunsand	17.751	75.724	450.2	13		BS01				7	2.3	
271		Mohol	Bairagwadi	17.979	75.700	481	11.9		BS01				11.8	3.6	
272		Mohol	Bhoire	17.872	75.675	467.3	14.9		BS01				13	1.4	
273		Mohol	Deodi	17.882	75.508	499.1	16		BS01				14.2	4	
274		Mohol	Galandwadi	17.896	75.576	470.6	11.8		BS01				9.2	2.89	
275		Mohol	Hivare	17.843	75.538	505.6	19.1		BS01				15.7	1.2	
276		Mohol	Ichgaon	17.601	75.604	466.3	8.2		BS01				6.9	2.5	
277		Mohol	Kamthi Kh	17.640	75.710	464.4	12.1		BS01				12.1	2.9	
278		Mohol	Kurul	17.676	75.661	473.3	21.9		BS01				18	4	
279		Mohol	Malikpeth	17.874	75.643	457	10.1		BS01				9	2	
280		Mohol	Maslechaudhari	17.915	75.731	466.3	11.5		BS01				12	7.5	
281		Mohol	Narkhed	17.904	75.678	458.3	10.85		BS01				7.5	3.2	
282		Mohol	Papri	17.825	75.475	489	19.55		BS01				15	4.7	
283		Mohol	Patkul	17.749	75.529	486	11.35		BS01				7.8	2.3	
284		Mohol	Pokharapur	17.800	75.596	475	14.1		BS01				11.2	3.5	
285		Mohol	Telangwadi	17.883	75.457	504.4	18.4		BS01				18.2	4.3	
286		Mohol	Wagholi	17.624	75.664	476.6	9.8		BS01				6.2	2.1	
287		Mohol	Warkute	17.689	75.596	471.3	10.9		BS01				9.2	3.5	
288		Mohol	Yawali	17.840	75.596	484.7	14.1		BS01				13.6	8.9	
289		Pandharpur	Ambechinholi	17.603	75.515	443.1	11.15		BS01				9	3	
290		Pandharpur	Anawali	17.625	75.376	472.7	9.65		BS01				9	2.7	
291		Pandharpur	Bardi	17.864	75.296	490	9.7		BS01				9.7	7.7	
292		Pandharpur	Bhalawani	17.696	75.133	498	12.5		BS01				8.2	4	
293		Pandharpur	Bhandi Shegaon	17.713	75.214	464.4	13.2		BS01				10	4.2	
294		Pandharpur	Bhose	17.807	75.283	474.2	10.2		BS01				7.1	3.7	
295		Pandharpur	Eklaspur	17.604	75.389	473	10.6		BS01				10	3.9	
296		Pandharpur	Gardi	17.640	75.149	490.6	13.2		BS01				10	5.3	

SN	Date of establishment	Taluka	Village	Lat. Dec.	Long. Dec.	Elevation (m amsl)	Depth (mbgl)	Dia (m)	Geology	Aquifer	Lining (m)	MP (magl)	DTW (mbgl) (May 2017)	DTW (mbgl) (Nov 2017)	EC (May 2017)
297		Pandharpur	Gurasale	17.738	75.317	469.2	17		BS01				10	3.3	
298		Pandharpur	Ishwarwathar	17.722	75.408	450.6	6.8		BS01				6.8	1	
299		Pandharpur	Jaloli	17.889	75.235	485.9	8.35		BS01				8.3	3.7	
300		Pandharpur	Karkamb	17.864	75.296	490	14		BS01				10.6	3	
301		Pandharpur	Kasegaon	17.630	75.329	465.7	10.2		BS01				8.95	2.1	
302		Pandharpur	Kharsoli	17.676	75.464	455.6	25.1		BS01				21	5.2	
303		Pandharpur	Sangavi	17.883	75.217	486.8	10.6		BS01				9.7	5	
304		Pandharpur	Shirgaon	17.588	75.422	450.7	6.85		BS01				6.4	1.7	
305		Pandharpur	Wakhari	17.686	75.285	454.4	8		BS01				8	2.1	
306		Sangole	Achakadani	17.533	75.056	562.8	12.9		BS01				12.9	1.9	
307		Sangole	Ajanale-Ligadewadi	17.425	75.071	533	7.85		BS01				7.8	1.4	
308		Sangole	Bamani	17.481	75.239	481.3	7		BS01				7	2.2	
309		Sangole	Dongargaon	17.334	75.218	510.6	8.6		BS01				8.6	4.4	
310		Sangole	Hangirage	17.239	75.294	569.5	16.4		BS01				15.9	6.6	
311		Sangole	Hatid	17.289	75.039	545.8	8.65		BS01				8.65	3	
312		Sangole	Javala	17.317	75.219	514.5	10		BS01				6.6	6.2	
313		Sangole	Jujarpur	17.246	75.042	561.9	16		BS01				16	3.1	
314		Sangole	Junoni	17.233	75.000	577.1	14		BS01				13	3.9	
315		Sangole	Kamalapur	17.406	75.139	517.2	7.2		BS01				7.2	1.9	
316		Sangole	Pachegaon Bk	17.197	74.893	695.3	10.8		BS01				9.3	7.6	
317		Sangole	Pachegaon Kh	17.313	75.044	542	6		BS01				6	4	
318		Sangole	Pare	17.220	75.263	577.6	14		BS01				9.1	1.4	
319		Sangole	Rajapur	17.342	75.272	517.9	12.65		BS01				7.8	3.7	
320		Sangole	Sonand	17.278	75.167	537.5	12.2		BS01				8.7	6.5	
321		Sangole	Tippehali	17.217	74.964	627.8	16.3		BS01				14.9	6.2	
322		Sangole	Vazare	17.386	75.047	528.6	10.7		BS01				10.65	3.8	
323		Sangole	Wadegaon	17.350	75.242	514	14.4		BS01				6.9	4.4	

Annexure-IV: DTW Aquifer II , in Solapur district.

Sl. No	Village	Type of Well	Taluka	Lat_Dec	Long_Dec	Depth Drilled (mbgl)	Depth of casing (mbgl)	Aquifer zones Encountered (mbgl)	Aquifer	Pre SWL (mbgl)	Post SWL (mbgl)	Discharge (lps)	DD(m)
1	Mahalung EW	BW	Malshiras	75.094	17.856	200	5.5	85-86	MFB	73	45	0.38 lps	-
2	Malkhambi	BW	Malshiras	75.122	17.815	156	11.5	45-47,85-86,153-155	MFB	27.4	21	3.17 lps	26.63
3	Malkhambi	BW	Malshiras	75.122	17.815	150	13.5	37-39,48-50,88-90	MFB	32	20.05	3.17 lps	27.54
4	Maloli EW	BW	Malshiras	75.039	17.728	200	5.5	80-83	MFB	60	27	meager	-
5	Akluj EW	BW	Malshiras	75.028	17.895	188	5.5	62-65,117.4-120.4,166-169,186-188	MFB	21	14.6	3.17 lps	37.1
6	Akluj OW	BW	Malshiras	75.028	17.894	200	5.5	38-40,66-68,120-122,166-1169	MFB	27.35	12	2.64 lps	-
7	Vizori EW	BW	Malshiras	74.992	17.812	200	26.5	71.6-74.7,89.90-93.3	MFB	50	21	0.38 lps	>50
8	Tamshidwadi	BW	Malshiras	74.822	17.889	200	29.5	93-94	MFB	17	3.5	7.76 lps	15
9	Tungat-EW	BW	Pandarpur	75.434	17.744	200	11.5	32-35,178-181	VB	98	38	Meager	-
10	Pimpri-EW	BW	Malshiras	74.692	17.886	200	11.5	35-38,178-181	MFB	21	9.15	<0.14	-
11	Phondshiras-	BW	Malshiras	74.811	17.932	200	29.5		Dry	76	31	Dry	-
12	Pokharapur-	BW	Mohol	75.587	17.797	200	23.5	68-71	MFB	50.2	31	2.16	-
13	Puluj-EW	BW	Pandarpur	75.533	17.663	200	32.5	27-30,50-52	VFVB	25	5.1	3.77	27
14	Akkalkot	EW	Akkalkot	76.208	17.521	200	5.8	166 -172	F VB	100	43	0.78	-
15	Barhanpur	EW	Akkalkot	76.179	17.638	200	5.8	27 -31 ,105 -114	F VB & F MB	38.3	18	0.78	-
16	Nagansur	EW	Akkalkot	76.162	17.385	200	5.8	36 -38 ,138 -151	VB	100	56	-	-
17	Wagdari	EW	Akkalkot	76.358	17.613	200	5.8	19 -23 ,126 -135	VB	13.9	8	3	-
18	Chaara	EW	Barshi	75.803	18.371	153.75	3	1.8 -3 ,31.5 -43	Basalt	15	2	0.55	86.71
19	Gaudgaon	EW	Barshi	75.971	18.067	117.2	5.8	70 -84	F AB	69.28	23	-	-
20	Kale Shelgaon	EW	Barshi	75.683	18.288	194.1	5.3	4 -5.3 ,20.3 -25.5 ,103 -109.7 ,86 -89 ,145 -171.5 ,182 -189	Basalt	12	4.11	1.48	-
21	Kalegaon	EW	Barshi	75.758	18.096	141.6	5.8	18 -22 ,135 -141	F VB	100	35	4.4	-
22	Mahagaon	EW	Barshi	75.800	18.188	200	5.8	90 -96	F VB	63.8	21	-	-
23	Nandini	EW	Barshi	75.843	18.110	161.5	10.6	10.8 -11.2 ,150 -153	Basalt	19	8.87	0.81	58.59
24	Shelgaon (O)	OW	Barshi	75.817	17.950	85	2	-6 ,17 -24 ,68 -77 ,40 -49	J MB	19	10.99	-	-
25	Shelgone (E)	EW	Barshi	75.817	17.950	175.8	1.7	69.08 -85.13 ,102.6 -152.4	J MB	21	14.22	1.25	25.78

Sl. No	Village	Type of Well	Taluka	Lat_Dec	Long_Dec	Depth Drilled (mbgl)	Depth of casing (mbgl)	Aquifer zones Encountered (mbgl)	Aquifer	Pre SWL (mbgl)	Post SWL (mbgl)	Discharge (lps)	DD(m)
26	Wanewadi	EW	Barshi	75.609	18.154	175	2	6 -11.5 ,41.5 -61	FB	12	9.71	-	-
27	Torewadi	EW	Beed	75.760	18.235	180.9	2	2 -4 ,37 -42	Basalt	8	1.92	1.86	48.8
28	Mundewadi	EW	Kalamb	75.543	17.505	178	19.5	5 -33.5 ,160 -170	FB	15	7.7	3	25.75
29	Anakdhal	EW	Karmala	75.079	17.368	149.4	-		FB	17	9	3	42.95
30	Hisre	EW	Karmala	75.296	18.346	200	5.8	9 -26 ,106 -114	F VB	12	4.48	5.94	-
31	Hiwarewadi	EW	Karmala	75.180	18.423	133.2	-	19 -32	Basalt	17	6	-	-
32	Nerla	EW	Karmala	75.358	18.258	200	5.8	30 -41	F MV/F VB	12	6.3	-	-
33	Rajuri	EW	Karmala	75.017	18.329	200	5.8	10--25	F VB	9	6.1	1.37	-
34	Vadshivane	EW	Karmala	75.229	18.171	200	5.8	59 -65 ,105 -111	F VB	36.7	11	0.78	-
35	Zare	EW	Karmala	75.141	18.324	200	5.8	47027	F VB	21	11.25	-	-
36	Nagaj	EW	Kavathe Mahankal	75.142	18.017	177	-	8 -12 ,48 -58 ,98 -101 ,78 -82 ,118 -120 ,140 -152	W Basalt	12	8	1.69	1.1
37	Anjangaon	EW	Madha	75.547	17.936	200	11.7	80.35 - ,145 -154	F AB	100	45	-	-
38	Betergaon Haveli	EW	Madha	75.390	18.210	180.4	3.75	8 -32.5 ,146.5 -154	Basalt	32	14	-	-
39	Madha	EW	Madha	75.521	18.033	200	5.8	60 -83 ,145 -153	F VB	60.59	21	-	-
40	Parite	EW	Madha	75.283	17.942	200	5.8	13.5 -16 ,124 -130	F VB	98	37	1.37	-
41	Temburni	EW	Madha	75.192	18.025	200	5.8	10 -13 ,65 -75	F VB	24	10.45	4.43	-
42	Temburni	OW	Madha	75.192	18.025	200	5.8	41548	F VB	15	9.1	-	-
43	Vairag	EW	Madha	75.804	18.052	200	5.8	89 -92	F VB	100	45	-	-
44	Wadsinghe	EW	Madha	75.516	18.090	121.9	1.7	8.4 -28 ,33.5 -54	Basalt	11	8.33	3	28.87
45	Malshiras	EW	Malshiras	74.908	17.858	200	5.8	41548	F VB	9	5.44	2.16	-
46	Natepute	EW	Malshiras	74.750	17.900	200	5.8	7 -13 ,38 -58	F VB	9	5	2.16	-
47	Velapur	EW	Malshiras	75.064	17.787	200	5.8	26 -44	F VB	12	6	1.37	-
48	Bhose	EW	Mangalvedhe	75.375	17.308	200	5.8	16 -20	F VB	19	12.8	-	-
49	Malawadi	EW	Mangalvedhe	75.415	17.554	132.1	3.5	10 -21 ,13.79 -19.35,32 -35 ,72 -76 ,42 -55 ,92 -105 ,115 -116	W Basalt	21	11.2	5	-
50	Marwade	EW	Mangalvedhe	75.515	17.439	200	5.8	38 -44 ,160 -166	F VB	36.96	12	1.37	-

Sl. No	Village	Type of Well	Taluka	Lat_Dec	Long_Dec	Depth Drilled (mbgl)	Depth of casing (mbgl)	Aquifer zones Encountered (mbgl)	Aquifer	Pre SWL (mbgl)	Post SWL (mbgl)	Discharge (lps)	DD(m)
51	Nandeswar	EW	Mangalvedhe	75.378	17.369	200	5.8	59 -65 ,163 -181	F VB/MB	14	9	3.77	-
52	Nandur	EW	Mangalvedhe	75.592	17.442	200	11.7	83 -105	/B	17	8	3	-
53	Ankoli	EW	Mohol	75.613	17.671	200	5.5	181 -190	VB	45	21	3.1	-
54	Hivre	EW	Mohol	75.530	17.858	200	5.8	114 -123	F AB	22	15.9	0.78	-
55	Khanvi (E)	EW	Mohol	75.567	17.783	164.6	2	87.4 -123.25	VB	9	2.68	-	-
56	Mohol	EW	Mohol	75.633	17.818	200	5.8	37 -41 ,190 -197	F AB	21	13.9	1.05	-
57	Narkhed	EW	Mohol	75.653	17.894	200	5.8	141 -157	F AB	100	46	3.17	-
58	Narkhed	OW	Mohol	75.653	17.894	200	5.8	47 -70	F AB	100	42	0.78	-
59	Paremeshwar Pimpri	EW	Mohol	75.696	17.667	128	3.5	2.5 -4.8 ,12.7 -28	Basalt	12	2.65	4	2.47
60	Shetphal	EW	Mohol	75.429	17.900	200	5.8	62 -65	F VB	94.78	38	-	-
61	Solapur	EW	Mohol	75.754	17.663	200	5.8	13 -20 ,157 -169	F VB	12	2.6	-	-
62	Bhalvani	EW	Pandharpur	75.125	17.672	200	5.8	25.7 -37	F VB	33.91	16	-	-
63	Kardi	EW	Pandharpur	75.269	17.577	202	17	127 -137	Basalt	14	7.1	3	2.9
64	Kasegaon	EW	Pandharpur	75.325	17.617	200	5.8	34 -44 ,68 -77	F VB	72	32	1.37	-
65	Mangewadi	EW	Pandharpur	75.105	17.409	173	5.5	9.2 -35.5 ,151.6 -153.5	Basalt	12	6.41	2.3	5.87
66	Pandarpur	EW	Pandharpur	75.316	17.683	115	5.8	15 -22.6 ,40 -47	F VB	18	14.6	7.76	-
67	Kurudu	EW	Paranda	75.392	18.080	200	5.8	85.7 -90 ,147 -150	F VB	77.79	25	1.37	-
68	Anakdhal	EW	Sangola	75.079	17.369	195	-		Basalt	15	11.6	5	69.3
69	Anakdhal		Sangola	75.079	17.369	175	-	9 -15 ,65 -67		14	9.71	-	-
70	Chandalwadi	EW	Sangola	74.917	17.889	199.25	5.55	6 -47.8 ,56 -75.6 ,146.4 -179.3 ,92 -137.5 ,184.3 -189.3	Basalt	10	5.96	-	43
71	Ekhatpur	EW	Sangola	75.148	17.480	199.25	6	7 -7.72 ,81.5 -91.5	Basalt	9	5.51	4	-
72	Kadlar	EW	Sangola	75.193	17.365	205.25	60.3	20 -55 ,96.7 -115 ,155.5 -166 ,117.5 -132.5	Basalt	8	6.25	10	-
73	Kamlapur	EW	Sangola	75.119	17.418	200	5.8	65 -68 ,153 -156	F VB	100	45	-	-
74	Mohud Budruk	EW	Sangola	75.125	17.596	200	5.8	35 -38	F VB	35	17	-	-
75	Sangole	EW	Sangola	75.200	17.450	130	1	6.4 -9.4 ,31 -35 ,55.4 -74	Basalt	31	21	-	60

Sl. No	Village	Type of Well	Taluka	Lat_Dec	Long_Dec	Depth Drilled (mbgl)	Depth of casing (mbgl)	Aquifer zones Encountered (mbgl)	Aquifer	Pre SWL (mbgl)	Post SWL (mbgl)	Discharge (lps)	DD(m)
								,42.5 -46.4 ,81 -82 ,115 -116					
76	Wasud	EW	Sangola	75.167	17.396	176.5	4.25	56 -60 ,107 -109	Basalt	25	13.58	2.5	-
77	Gungegaon	EW	Solapur North	75.754	17.600	189	5.11	7 -10 ,168 -181	F VB	100	46	5.9	-
78	Hensal	EW	Solapur North	75.947	17.825	180.15	16.35	10 -14.4 ,10 -14 ,112 -116 ,50.8 -58.8 ,148 -177.8	Basalt	32	22.1	10.8	-
79	Marde	EW	Solapur North	75.895	17.800	205.25	3.85	64 -68.3 ,74 -83 ,161 -166 ,145 -146.3 ,194.8 -197 ,203 -207.4	Basalt	22	10.55	13.75	24.86
80	Ranmasal	EW	Solapur North	75.808	17.864	136.55	2	27.5 -35 ,65 -85	Basalt	12	6.56	2	24.3
81	Solapur	EW	Solapur North	75.921	17.675	171.1	5.8	16 -23 ,77 -117	F VB	39.9	14.88		-
82	Solapur	OW	Solapur North	75.921	17.675	200	5.8	16 -26 ,92 -99	F VB	37.02	16	3.17	-
83	Solapur IMD	Pz	Solapur North	75.900	17.670	40	5.6	12.00-13.00	WFB	25	12	0.04	
84	Antroli	EW	Solapur South	75.700	17.550	200	5.5	26 -35 ,180 -197	VB	26	12		-
85	Darganhalli	EW	Solapur South	76.029	17.688	200	5.5	56 -62 ,190 -200	VB	55.86	21		-
86	Kumbhari	EW	Solapur South	75.991	17.649	118.9	2.4	8.6 -19.3 ,39 -47 ,83 -115 ,67.2 -83	Basalt	100	37	4	43.39
87	Mandrup	EW	Solapur South	75.797	17.480	200	5.5	23 -26 ,182 -187	VB	36.2	12		-
88	Musti I	EW	Solapur South	76.117	17.725	40	-		VB	92.48	35		-
89	Musti II	EW	Solapur South	76.116	17.724	174	18.3	92 -99 ,169 -174	VB	100	35		-
90	Shingadgaon	EW	Solapur South	76.042	17.563	200	-			32	11	-	-
91	Palshi	EW	Malshiras	74.682	17.919	153.4	-	145 -150	Basalt	21	11		

Annexure- V: Chemical analysis of ground water samples, Shallow aquifers (Aquifer I)

SN	Taluka	Village	Type	T	K	pH	EC	TDS	TH	Ca	Mg	Na	K	CO3	HCO3	Cl	SO4	NO3	F	Fe
1	Akkalkot	Bisnger	DW	17.426	76.338	8.3	766	490	180	54	10.7	126	0.3	2.4	257.5	74	26	0	0.9	0.2
2	Akkalkot	Bisnger	DW	17.426	76.338	8.3	1759	1126	524	51	96.2	45	2.4	0	224.5	320	41	0	0.6	0.2
3	Akkalkot	Borgaon	DW	17.650	76.313	8.1	332	532	304	96	15.6	56	3	0	317.2	130	41	0	0.6	0.4
4	Akkalkot	Chapalgaon	DW	17.608	76.175	8	782	500	220	30	4.9	38	1.3	2	217.9	112	45	0	0.4	0.1
5	Akkalkot	Gogaon	DW	17.619	76.393	8	549	415	240	32	3.7	53	0.7	2.7	285.3	74	45	0	0.8	0.1
6	Akkalkot	Jeur	DW	17.481	76.103	7.9	555	419	300	56	38.9	29	0.6	1.6	218.3	76	44	0	0.9	0.2
7	Akkalkot	Jdgi	DW	17.433	76.225	8.8	412	264	152	26	21.4	25	1.3	3	135.6	24	11	0	0.7	0.2
8	Akkalkot	Jdgi	DW	17.433	76.225	7.7	766	490	380	112	24.3	22	0.5	1.1	238.9	90	36	0	0.5	0.2
9	Akkalkot	Wagdari	DW	17.613	76.358	9.2	435	278	40	3	4.9	30	0.4	16.5	110.7	100	3	0	0.9	0.2
10	Barshi	Chikarde	DW	18.208	75.336	8.3	576	433	212	40	27.2	73	0.5	2.4	125.5	94	56	0	0.7	0.2
11	Barshi	Chikarde	DW	18.208	75.336	8.1	1550	922	184	43	18.5	76	0.5	0	219.6	152	45	0	0.9	0.2
12	Barshi	Gaudgaon	DW	18.063	75.972	8.2	797	510	332	56	40.8	24.5	1	0	146.4	124	52	0	0.8	0.3
13	Barshi	Kalaruwada	DW	18.375	75.754	8.4	955	511	332	58	45.7	71	2.5	0	195.2	162	72	0	0.9	0.2
14	Barshi	Malvandi	DW	18.058	75.656	8.5	1635	1046	340	77	36.0	76	5.3	0	102.5	246	19	0	0.7	0.3
15	Barshi	Manegaon	DW	18.078	75.788	0	1572	344	550	120	50.8	112.5	35.51	0	183	230.43	45	301	0.4	0.0
16	Barshi	Nari	DW	18.196	75.888	0	1281	584	475	132	35.2	47.9	2.07	0	256.2	170.16	19	154	0.4	0.0
17	Barshi	Pangaon	DW	18.138	75.737	8.2	1765	1130	500	104	32.6	102	9.8	0	185.4	300	140	0	0.8	0.5
18	Barshi	Pangri	DW	18.300	75.867	0	543	287	160	44	12.2	52.1	78.45	0	555.1	57.355	10	45	0.4	0.0
19	Barshi	Raleras	DW	18.006	75.814	8.3	1117	715	104	32	5.8	123	4.1	0	146.4	92	37	0	0.7	0.2
20	Barshi	Raleras	DW	18.006	75.814	7.5	2570	1645	740	176	72.9	359	1.4	0	283	270	1260	0	0.5	0.1
21	Barshi	Shelgaon	DW	17.967	75.833	0	596	270	185	54	12.2	54.7	1.09	12	244	53.81	13	17	0.5	0.0
22	Barshi	Shendri	DW	18.176	75.558	8.4	1100	704	416	70	58.6	107	0.9	3.6	305	246	38	0	0.3	0.2
23	Karmala	Bitargaon (wangi)	DW	18.140	75.125	8.2	968		378.5	269	26.6	41.9	2.5	0	102.5	231.3	91	38	0.3	0.0
24	Karmala	Deolali	DW	18.366	75.170	7.9	1679		597.6	274	78.7	39.8	2.6	0	551.4	46.3	79	92	0.5	0.0
25	Karmala	Hivare	DW	18.349	75.322	7.7	1465		542.8	344	48.4	50.2	1.4	0	336.7	120.8	93	72	0.5	0.0
26	Karmala	Kandar	DW	18.133	75.200	0	1157	513	410	108	34.0	107.1	23.16	0	347.7	145.35	28	324	0.5	0.0
27	Karmala	Karanje	DW	18.406	75.259	8.1	556		224.1	120	25.4	27.3	3.7	0	175.7	51.4	20	9	0.3	0.0
28	Karmala	Kedgaon	DW	18.272	75.078	7.8	1045		418.3	254	39.9	31.9	0.9	0	297.7	107.9	32	72	0.3	0.0
29	Karmala	Kem	DW	18.168	75.265	7.9	360		214.1	120	23.0	34.4	1.1	0	178.1	100.2	58	25	0.6	0.0
30	Karmala	Khadaki	DW	18.522	75.207	7.7	326		308.8	194	27.8	35.7	1.1	0	285.5	54	46	31	0.3	0.0
31	Karmala	Kondhar	DW	18.284	74.816	7.4	3575		341.6	478	38.3	317	20	0	375.8	429.2	740	90	0.3	0.0

SN	Taluka	Village	Type	Y	K	pH	EC	TDS	TH	Ca	Mg	Na	K	CO3	HCO3	Cl	SO4	NO3	F	Fe
		Chincholi																		
32	Karmala	Kondhej	DW	18.274	75.198	8.4	790		209.2	95	27.8	30	1.1	28.8	109.8	90	46	39	0.9	0.0
33	Karmala	Kugaon	DW	18.218	75.034	7.9	972		303.8	169	32.7	53.4	0.8	0	163.5	95.1	96	34	0.2	0.0
34	Karmala	Nerle	DW	18.281	75.362	7.8	1318		393.4	234	38.7	73.4	5.8	0	175.7	195.3	37	70	0.6	0.0
35	Karmala	Pangare	DW	18.186	75.179	8.1	2040		308.8	125	44.8	308.1	1.3	0	283	233.9	220	30	1.4	0.0
36	Karmala	Parewadi	DW	18.302	74.964	7.1	1861		512.5	398	52.0	58.7	1.8	0	224.5	259.6	120	90	0.5	0.0
37	Karmala	Pathurdi	DW	18.218	75.299	8	387		234.1	139	23.0	53.3	0.9	0	141.5	105.4	53	54	0.6	0.0
38	Karmala	Pondhvadi	DW	18.360	75.045	8	561		184.3	139	10.9	33.5	1.3	0	185.4	43.7	22	29	0.5	0.0
39	Karmala	Potegaon	DW	18.475	75.280	7.7	3954		1489	513	237.2	139.5	1.4	0	165.9	521.7	700	3	0.5	0.0
40	Karmala	Sade	DW	18.288	75.269	7.8	324		283.9	130	37.5	33.1	1.1	0	231.8	74.5	34	48	0.5	0.0
41	Karmala	Sogaon	DW	18.287	75.038	7.8	1615		597.6	413	44.8	45.5	1.3	0	119.6	197.9	250	30	0.3	0.0
42	Karmala	Takali (rashin)	DW	18.261	74.865	8.1	574		194.2	105	21.8	42.3	3.2	0	144	59.4	92	5	0.2	0.0
43	Karmala	Varkute	DW	18.250	75.333	0	587	365	230	56	21.9	39.3	17.4	0	183	113.44	31	73	0.4	0.0
44	Madha	Akulgaon	DW	18.132	75.450	8.2	1680		552.8	384	41.1	52.3	1.8	0	292.8	218.5	140	90	0.4	0.0
45	Madha	Anjangaon(kh)	DW	17.960	75.563	7.8	1872		378.5	219	38.7	150.9	2.3	0	119.6	336.7	190	100	0.8	0.0
46	Madha	Badalewadi	DW	18.098	75.290	7.8	1012		383.5	209	42.4	31.8	0.9	0	178.1	128.5	108	50	0.4	0.0
47	Madha	Bhosre	DW	18.081	75.434	0	3478	1848	1420	313	155.5	192	4.65	0	451.4	765.72	52	388	0.5	0.0
48	Madha	Dhanore	DW	18.002	75.686	8.1	1832		582.7	159	102.9	76.4	33	0	300.1	208.2	280	10	0.3	0.0
49	Madha	Gar Akole	DW	17.968	75.037	7.8	2244		542.8	229	76.2	176.7	1.2	0	236.7	293	400	50	0.8	0.0
50	Madha	Ghoti	DW	17.930	75.225	7.7	2209		737	403	31.1	52.2	2.4	0	136.6	429.2	170	90	0.3	0.0
51	Madha	Jakhale	DW	18.167	75.328	7.8	2371		582.7	189	95.6	128.8	70.1	0	295.2	347	290	50	0.5	0.0
52	Madha	Laul	DW	18.035	75.394	8.1	4714		1015.9	329	167.0	442.3	5.5	0	229.4	1056.3	460	50	0.6	0.0
53	Madha	Malegaon	DW	17.983	75.176	8.1	1001		323.7	189	32.7	53.4	2.6	0	148.8	125.9	146	16	0.2	0.0
54	Madha	Manegaon	DW	18.010	75.609	7.8	1501		224.1	209	3.6	117.3	1.9	0	104.9	177.3	94	100	0.2	0.0
55	Madha	Modnimb	DW	17.944	75.398	8.2	1452		438.2	249	46.0	50	2.2	0	241.6	236.5	110	10	0.4	0.0
56	Madha	Ridhore	DW	18.128	75.541	7.8	3976		1723.1	926	193.6	130.6	2	0	217.2	424.1	1180	10	0.3	0.0
57	Madha	Shiral Tembhurni	DW	18.077	75.167	7.7	1686		527.9	359	41.1	55.9	1.7	0	161	257	240	52	0.2	0.0
58	Madha	Wadachiwadi	DW	18.078	75.622	8	500		129.5	90	9.7	46.3	0.7	0	180.6	20.6	21	21	0.3	0.0
59	Madha	Wadshinge	DW	18.070	75.513	7.7	2484		361.5	448	100.4	55	2.2	0	141.5	454.9	350	120	0.4	0.0
50	Madha	Warawade	DW	17.979	75.302	7.5	949		273.9	164	26.6	44	2	0	266	34.8	42	34	0.4	0.0
51	Malshiras	Akluj	DW	17.866	75.174	9	756	484	128	29	13.6	52	0.2	12.7	134.8	44	29	0	0.3	0.3
52	Malshiras	Dharpuri	DW	17.939	74.675	8.2	1056	576	168	57	0.0	52	0.2	7.2	190.3	104	23	0	0.2	0.2

SN	Taluka	Village	Type	pH	Ca	Mg	Na	K	CO3	HCO3	Cl	SO4	NO3	F	Fe					
53	Malshiras	Dharmपुर	DW	7.933	74.683	0	1357	720	555	128	57.1	44.4	17.33	12	189.1	141.8	41	15	0.6	0.0
54	Malshiras	Natepute	DW	7.897	74.756	0	510	326	176	46	14.6	79	0.1	13	138.5	120	3	0	0.7	0.2
55	Malshiras	Tarangfal	DW	7.778	74.925	3.8	1050	572	248	51	29.2	3.9	0.1	5	178.1	34	27	0	0.8	0.2
56	Mangalvedhe	Marwade	DW	7.431	75.514	0	373	461	285	52	31.6	112.8	31.95	0	250.1	116.99	10	172	0.5	0.0
57	Mohal	Adhegaon	DW	7.735	75.558	7.2	1544	988	588	216	11.7	151	2.1	0	170.8	190	542	0	0.8	0.2
58	Mohal	Chgaon	DW	7.601	75.604	3.9	572	366	52	19	1.0	136	0.9	11.6	156	70	26	0	1.5	0.2
59	Mohal	Kamthi kh.	DW	7.567	75.189	7.9	1224	783	324	96	20.4	169	0.8	0	214.7	202	400	0	1.0	0.2
70	Mohal	Pokharapur	DW	7.800	75.596	3.7	786	503	196	51	16.5	40	1.5	0	219.6	90	74	0	0.7	0.7
71	Mohal	Yawali	DW	7.840	75.596	3.8	355	227	168	54	1.9	28	1	10.1	169.6	20	7	0	0.2	0.2
72	Mohol	Angar	DW	7.895	75.575	0	391	471	350	74	40.1	97.7	3.25	0	244	152.44	50	223	0.5	0.0
73	Mohol	Ashti	DW	7.863	75.408	3.3	2046		463.1	144	77.4	129.7	9.9	28.8	73.2	336.7	260	30	0.5	0.0
74	Mohol	Bhambewadi	DW	7.841	75.700	7.9	966		358.6	204	37.5	28.9	7.8	0	158.6	143.9	52	32	0.3	0.0
75	Mohol	Dadapur	DW	7.709	75.739	7.8	1111		413.3	194	53.2	44.7	7.5	0	251.3	123.4	94	19	0.2	0.0
76	Mohol	Degaon	DW	7.668	75.861	7.9	1122		378.5	164	52.0	56.9	0.9	0	19.5	110.5	72	440	0.8	0.0
77	Mohol	Hivare	DW	7.894	75.527	3.1	1136		358.6	174	44.8	57.9	1.3	0	195.2	177.3	30	110	0.4	0.0
78	Mohol	Hivre	DW	7.842	75.538	0	561	256	230	48	26.7	45.2	1.56	0	250.1	49.63	12	1	0.4	0.0
79	Mohol	Chgaon	DW	7.600	75.600	0	991	452	250	34	40.1	114.9	22.48	0	183	141.8	11	184	0.5	0.0
80	Mohol	Mohol	DW	7.810	75.645	0	1903	366	745	90	126.4	155	19.91	0	195.2	262.33	57	350	0.5	0.0
81	Mohol	Mohol	DW	7.840	75.638	3.1	1740		348.6	139	50.8	171.5	1	0	256.2	233.9	220	20	0.6	0.0
82	Mohol	Sayadwarwad	DW	7.734	75.640	7.8	2821		311.7	324	118.6	195	47	0	273.3	665.7	280	70	0.2	0.0
83	Mohol	Sohale	DW	7.662	75.646	7.7	2242		597.2	413	59.0	95.7	1.2	0	161	367.5	360	30	0.2	0.0
84	Mohol	Sohale	DW	7.617	75.633	0	2146	973	900	232	77.8	33.4	1.34	0	219.6	187.89	57	551	0.5	0.0
85	Mohol	Watwate	DW	7.597	75.701	7.7	1412		493	354	33.9	26	1.4	0	178.1	192.8	152	28	0.2	0.0
86	Mohol	Wirwade Kh	DW	7.752	75.756	7.9	1983		288.8	154	32.7	251	2	0	236.7	290.4	200	10	0.6	0.0
87	Mohol	Yeoti	DW	7.820	75.464	7.9	382		318.7	234	20.6	30.8	1.2	0	170.8	123.4	52	46	0.3	0.0
88	North Solapur	Akole kathi	DW	7.796	75.839	3.7	361	231	144	29	17.5	16	3.3	4.8	102.9	40	47	0	0.3	0.1
89	North Solapur	Akole kathi	DW	7.796	75.839	7.7	10000	5400	480	176	9.7	227	20.1	0	439.2	310	185	0	0.5	0.2
90	North Solapur	Balhe	DW	7.696	75.046	3.5	1944	1244	440	77	50.3	187	10.2	2.4	336.7	196	185	0	0.5	0.3

SN	Taluka	Village	Type	T	K	pH	EC	TDS	TH	Ca	Mg	Na	K	CO3	HCO3	Cl	SO4	NO3	F	Fe
91	North Solapur	Degaon	DW	17.667	75.861	8.5	4830	3091	308	133	115.7	560	3.7	2.4	527	388	264	0	0.3	0.1
92	North Solapur	Dongaon	DW	17.606	75.826	8.4	2960	1894	728	109	110.8	170	2.2	1.2	104.9	576	152	0	0.7	0.3
93	North Solapur	Kalman	DW	17.931	75.783	8	320	525	272	54	27.2	75.2	2.5	4.8	180.6	220	13	0	0.1	0.1
94	North Solapur	Kalman	DW	17.931	75.783	8.2	966	518	284	22	55.4	18	1.2	0	31.7	198	98	0	0.1	0.1
95	North Solapur	Mardi	DW	17.803	75.900	8.3	924	791	296	45	44.7	48.2	1.5	0	302.6	116	32	0	0.3	0.4
96	North Solapur	Mardi	DW	17.803	75.900	7.6	1059	578	400	128	19.4	90	2.4	0	361.1	144	150	0	1.0	0.2
97	North Solapur	Fire Lamtanda	DW	17.508	75.679	8.4	432	276	216	46	24.3	17	15.4	5	210.9	36	23	0	0.9	0.2
98	North Solapur	Vadala	DW	17.876	75.831	7.8	546	349	232	33	5.8	92	0.6	1.2	194.8	34	34	0	0.5	0.1
99	North Solapur	Vadala	DW	17.876	75.831	8.4	1986	1271	408	57	58.3	170	9.7	3.6	35.4	300	140	0	0.4	0.2
100	Pandharpur	Adhiv	DW	17.763	75.377	7.7	1521		483.1	334	36.3	47.5	1.5	0	144	239	144	38	0.2	0.0
101	Pandharpur	Bhandi-shegaon	DW	17.717	75.217	0	1988	907	575	146	75.3	99.4	16.6	0	274.5	248.15	46	413	0.4	0.0
102	Pandharpur	Bhose	DW	17.831	75.300	7.9	1158		343.6	199	35.1	57.7	1.2	0	161	128.5	114	59	0.3	0.0
103	Pandharpur	Dhondewadi	DW	17.728	75.167	7.9	1894		552.8	149	98.0	32.7	0.8	0	214.7	318.7	180	20	0.6	0.0
104	Pandharpur	Hole	DW	17.780	75.294	7.8	3578		381.5	259	151.3	203.7	1.9	0	209.8	431.8	730	40	0.3	0.0
105	Pandharpur	te	DW	17.687	75.506	8.3	1947		318.7	135	44.8	241.2	3.1	28.8	192.8	143.9	410	9	0.5	0.0
106	Pandharpur	Karole	DW	17.887	75.151	7.8	3744		597.6	179	101.7	374	1.4	0	348.9	331.5	770	37	0.8	0.0
107	Pandharpur	Korty	DW	17.642	75.273	8.3	1113		268.9	110	38.7	34.6	1	28.8	168.4	128.5	93	23	0.4	0.0
108	Pandharpur	Narayan Chincholi	DW	17.733	75.433	0	1333	505	505	78	75.3	39.7	2.33	0	353.8	148.89	19	257	0.5	0.0
109	Pandharpur	Palshi	DW	17.654	75.199	7.7	1519		433.3	324	26.6	42.4	1	0	163.5	205.6	112	58	0.3	0.0
110	Pandharpur	Patvardhan Kuroli	DW	17.808	75.217	8.2	2557		259	125	32.7	387.4	3.8	0	388	254.4	380	36	0.7	0.0
111	Pandharpur	Ranzani	DW	17.617	75.400	0	5867	3116	2220	409	291.6	184	52.78	0	329.4	1208.9	54	379	0.3	0.0

SN	Taluka	Village	Type	T	K	pH	EC	TDS	TH	Ca	Mg	Na	K	CO3	HCO3	Cl	SO4	NO3	F	Fe
112	Pandharpur	Rople	DW	17.783	75.400	7.7	1986	903	375	168	110.6	110.4	17.08	0	311.1	262.33	49	526	0.4	0.0
113	Pandharpur	Siddhewadi	DW	17.590	75.433	7.7	2788		961.1	717	59.3	155.2	0.9	0	158.6	431.8	470	17	0.4	0.0
114	Pandharpur	Tanali	DW	17.572	75.337	7.8	2570		901.4	423	116.2	133.3	1.2	0	197.6	321.3	510	50	0.5	0.0
115	Sagola	Hangirge	DW	17.239	75.294	8.3	1690	1081	532	229	14.6	105	1.4	0	58.3	414	300	0	0.7	0.7
116	Sagola	Junoni	DW	17.255	74.991	8.9	361	551	288	59	34.0	108	25	0	322.1	144	57	0	0.9	0.2
117	Sagola	Tipehalli	DW	17.217	74.964	8.6	522	334	168	58	5.8	36	1	4.6	123.2	44	36	0	0.6	0.6
118	Sangola	Ajnale (Jigadewadi)	DW	17.425	75.071	8.3	1588	1016	552	158	37.9	52	0.9	0	195.2	266	280	0	0.9	0.4
119	Sangola	Bamni	DW	17.481	75.239	8.8	2760	1766	940	312	38.9	112	0.9	0	107.4	416	594	0	0.8	0.3
120	Sangola	Wakishivane	DW	18.342	75.258	7.7	3820	2445	1140	318	33.6	104	0.6	0	248.9	320	190	0	0.9	0.5
121	Sangole	Sangola	DW	17.450	75.200	8.0	312	369	245	58	18.2	91.6	1.17	0	262.3	92.17	12	133	0.6	0.0
122	Solapur North	Nannaj	DW	17.835	75.851	8.0	964	510	355	78	38.9	53	12.5	0	250.1	148.89	53	98	0.5	0.0
123	Solapur North	Soregaon	DW	17.592	75.883	8.0	2089	1104	950	160	133.7	38.1	16.38	0	201.3	382.86	10	579	0.5	0.0
124	Solapur South	Bhandar Kavathe	DW	17.414	75.711	7.9	760		199.2	30	29.0	39.7	2.6	0	126.9	34.8	112	7	0.2	0.0
125	Solapur South	Chincholi	DW	17.600	76.050	8.0	1014	463	355	32	36.5	30.4	13.19	0	378.2	127.62	44	113	0.5	0.0
126	Solapur South	Darganhalli	DW	17.686	76.033	8.1	1088		403.4	304	24.2	17.2	1.9	0	280.6	97.7	49	30	0.3	0.0
127	Solapur South	Gangewadi	DW	17.832	75.986	7.9	943		358.6	224	32.7	23.3	0.7	0	139.1	97.7	134	20	0.3	0.0
128	Solapur South	Hatur	DW	17.553	75.935	7.7	7494		2589.6	528	501.0	463	1.7	0	331.8	1549.8	1160	127	0.3	0.0
129	Solapur South	Hipale	DW	17.557	76.041	8.1	1390		592.6	184	99.2	25.6	3.1	0	339.2	143.9	124	12	0.7	0.0
130	Solapur South	Hotgi	DW	17.601	75.992	7.9	715		259	174	20.6	18.6	1	0	192.8	48.8	35	46	0.3	0.0
131	Solapur South	Kanbas	DW	17.470	76.054	7.8	2231		707.2	244	112.5	90	1.4	0	148.8	300.7	170	338	0.3	0.0
132	Solapur South	Kandehalli	DW	17.644	76.045	7.9	1616		577.7	299	57.8	49.6	10	0	353.8	151.6	250	10	0.3	0.0

SN	Taluka	Village	Type	pH	EC	TDS	TH	Ca	Mg	Na	K	CO3	HCO3	Cl	SO4	NO3	F	Fe
133	Solapur South	Kurghot	DW	7.458	5131	1504	249	305.0	398	1.8	0	434.3	732.5	1220	20	0.2	0.0	
134	Solapur South	Mulegaon	DW	7.688	1997	906.4	279	152.5	59.8	11.1	0	312.3	208.2	360	48	0.3	0.0	
135	Solapur South	Musti	DW	7.735	1449	428.3	120	75.0	95.2	1.5	43.2	248.9	113.1	230	27	0.3	0.0	
136	Solapur South	Nandni	DW	7.457	1601	732	570	128	50.8	100.1	1.86	0	164.7	209.16	11	326	0.4	0.0
137	Solapur South	Sadepur	DW	7.413	3017	1180.3	901	57.8	5.7	2.5	0	122	462.6	550	35	0.1	0.0	
138	Solapur South	Telgaon Mandrup	DW	7.471	5825	577.3	70	147.6	796.7	0.9	0	595.4	529.7	380	53	0.5	0.0	
139	Solapur South	Jle	DW	7.783	2078	393	335	144	115.4	75.5	2.69	0	207.4	180.8	22	587	1.2	0.0
140	South Solapur	Aurad	DW	7.474	525	336	144	34	14.6	45	0.3	3	200.9	36	51	0	0.5	0.2
141	South Solapur	Dindur	DW	7.618	328	530	326	120	5.3	55	22.6	0	205	118	155	0	1.0	0.1
142	South Solapur	Kandalgaon	DW	7.542	2360	1510	416	141	15.6	227	0.7	0	307.4	382	265	0	0.9	0.1
143	South Solapur	Mandrup	DW	7.492	533	405	208	50	20.4	120	0.5	1.7	90.2	76	31	0	0.7	0.3
144	South Solapur	Mushti	DW	7.726	298	191	50	3	9.7	56	0.2	1.2	32.7	70	25	0	1.2	0.1
145	South Solapur	Vinchur	DW	7.510	345	541	308	114	5.8	39	0.9	0	161	124	53	0	0.7	3.3
146	South Solapur	Yelegaon	DW	7.520	2270	1453	556	136	52.5	168	0.9	0	478.2	364	189	0	0.7	0.1
147	Malshiras	Bhamb	DW	7.796	1681	542.42	294	34.7	32	0.2	0	209.8	277.57	244	33	0.3	0.0	
148	Malshiras	Chaundeshwar wadi	DW	7.857	1361	562.74	314	50.5	45.8	0.11	0	248.9	200.47	161	32	0.3	0.0	
149	Malshiras	Dasur	DW	7.776	2303	577.28	219	111.3	202.4	0.23	0	351.4	346.97	352	20	0.3	0.0	
150	Malshiras	Deshmukhwadi	DW	7.8002	3165	493.02	134	37.1	499	0.1	0	558.8	341.83	506	33	0.9	0.0	

SN	Taluka	Village	Type	T	K	pH	EC	TDS	TH	Ca	Mg	Na	K	CO3	HCO3	Cl	SO4	NO3	F	Fe
151	Malshiras	Fadtari	DW	17.834	74.712	8.1	362		234.06	75	38.7	39.9	0.04	0	380.6	53.973	45	27	0.5	0.0
152	Malshiras	Fondshiras	DW	17.921	74.813	7.9	378		273.9	139	32.7	71.7	0.04	0	209.8	136.22	57	32	0.7	0.0
153	Malshiras	Girzani	DW	17.862	74.980	7.8	1227		353.58	134	53.2	117.2	2.1	0	248.9	77.104	249	31	0.5	0.0
154	Malshiras	Jambud	DW	17.847	75.146	7.8	2161		597.6	115	117.4	209.4	0.32	0	507.5	316.13	186	33	0.3	0.0
155	Malshiras	Kanher	DW	17.812	74.843	7.9	2829		776.88	194	141.6	291	0.06	0	322.1	508.89	400	32	0.4	0.0
156	Malshiras	Khudus	DW	17.831	74.960	8.1	2385		742.02	194	133.1	199	0.25	0	395.3	344.4	352	15	0.3	0.0
157	Malshiras	Maloli	DW	17.748	75.047	7.8	1495		373.5	209	39.9	168	0.05	0	234.2	187.62	239	33	0.5	0.0
158	Malshiras	Mandve	DW	17.880	74.808	8	1512		423.3	125	72.6	159	0.06	0	273.3	208.18	223	32	0.5	0.0
159	Malshiras	Nimgaon	DW	17.778	74.989	8.4	502		189.24	144	10.9	50	0.06	19.2	33	92.525	71	7	1.5	0.0
160	Malshiras	Palasmandal	DW	17.979	74.826	8.1	3788		991.02	488	122.2	399	3.94	0	273.3	591.36	532	12	0.5	0.0
161	Malshiras	Sangam	DW	17.940	75.135	7.7	1781		717.12	393	78.7	73	0.23	0	170.8	254.44	343	30	0.5	0.0
162	Malshiras	Shingorni	DW	17.630	75.009	7.9	396		278.88	129	36.3	77	0.8	0	258.6	110.52	52	21	0.4	0.0
163	Malshiras	Tambave	DW	17.905	75.092	8	1042		273.9	174	24.2	106	0.2	0	161	164.49	118	29	0.3	0.0
164	Malshiras	Tarangfal	DW	17.756	74.913	8.1	492		199.2	125	18.2	25	0.03	0	214.7	35.982	13	3	0.2	0.0
165	Malshiras	Tirwandi	DW	17.916	74.898	7.8	1410		502.98	354	36.3	35	0.19	0	122	246.73	204	29	0.3	0.0
166	Malshiras	Jghdewadi	DW	17.803	75.097	8.1	1967		537.44	229	99.2	165	0.38	0	307.4	287.85	309	23	0.3	0.0
167	Man	Mhaswad(varkute)	DW	17.930	74.791	8.3	1558	997	388	130	15.6	182	1	0	234.2	298	178	3	0.3	0.1
168	Patan	Dhebewadi	DW	17.236	74.906	8.2	518	396	200	38	25.3	20	0.7	2.1	141.8	56	28	5	0.1	0.3

Annexure VI: Chemical analysis of ground water samples, deeper aquifers (Aquifer II)

SN	Taluka	Village	Type	Y	X	pH	EC	TDS	TH	Ca	Mg	Na	K	CO3	HCO3	Cl	SO4	NO3	F	Fe
1	Pandharpur	Mangewadi	EW	17.733	75.119	8	578	370	155	44	11	53	0.8	0	201	50	35			0
2	Barshi	Kale Shelgaon	EW	18.288	75.683	8.1	550	305	210	52	19	32	0.8	0	281	14	29		0.51	0
3	Solapur North	Ranmasal	EW	17.864	75.808	8	1100	610	110	36	5	184	0.8	0	110	220	107		1.7	0
4	Solapur North	Hensal	EW	17.825	75.947	7.9	1850	1200	145	58		354	1.6	0	37	227	548		2.58	0
5	Pandharpur	Kardi	EW	17.577	75.269	8.2	1050	672	75	28	1	193	0.4	0	73	156	207			0
6	Sangola	Ekhatpur	EW	17.480	75.148	7.8	1111	711	235	56	23	152	0.8	0	317	174	59			0
7	Sangola	Chanaalwadi	EW	17.480	75.069	7.6	476	305	165	46	12	37	0.8	0	250	28	1			0
8	Sangola	Sangole	EW	17.450	75.200	8.6	830	531	83	27	4			6	140	138				0
9	Sangola	Wasud	EW	17.396	75.167	7.1	1689	1081	225	85	4	265	1.6	0	37	394	208			0
10	Sangola	Anakdhal	EW	17.369	75.079	7.9	1260	806	200	76	2	212	0.8	0	229	117	296			0
11	Sangola	Kadlar	EW	17.365	75.193	7.5	609	390	210	52	19	51	1.2	0	275	57	16			0
12	Beed	Torewadi	EW	17.751	76.072	9.2	550	305	45	10	5	94	2	24	12	89	74			0
13	Kalamb	Munaewadi (E)	EW	17.516	75.537	7.4	700	375	190	44	19	71	1.6	0	265	50	57		0.86	0
14	Barshi	Chaara	EW	18.371	75.803	7.8	760	420	285	64	30	46	0.1	0	397	27	22		0.64	0
15	Barshi	Nanaini	EW	18.110	75.843	8.7	485	306	80	16	10	94	1.2	12	85	50	121			0
16	Madha	Wadsinghe	EW	18.090	75.516	7.9	730	410	260	72	19	44	0.4	0	354	43	5		0.72	0
17	Barshi	Shelgone (E)	EW	17.950	75.817	8.4	1000	375	55	16	4	115	0.8	18	18	121	87		3.45	0
18	Solapur North	Marde	EW	17.821	75.833	8.2	2730	1885	635	244	6	368	13.7	0	61	440	752		6.8	0
19	Mohol	Paremeshwar Pimpri	EW	17.667	75.696	7.1	450	260	200	54	16	21	2	0	238	14	31			0
20	Solapur South	Kumbhari	EW	17.649	75.991	8.4	590	350	195	52	16	54	2	18	171	46	77		0.24	0
21	Karmala	Hiwarewadi	EW	18.423	75.180	7.6	1030	715	130	22	2	76	0.3	0	11	67	22	8	4.2	0
22	Kavathe Mahankal	Nagaj	EW	17.450	76.323	7.7	800	512						0	145					0
23	Karmala	Zare	EW	18.324	75.141	7.3	750	408	245	58	24	47	0.9	0	323	42	20	54	0.83	0
24	Barshi	Mahagaon	EW	18.188	75.800	7.6	1930	1253	270	94	9	342	2	0	189	170	524	20	1.4	0

SN	Taluka	Village	Type	Y	X	pH	EC	TDS	TH	Ca	Mg	Na	K	CO3	HCO3	Cl	SO4	NO3	F	Fe
25	Barshi	Gaudgaon	EW	18.067	75.971	8.4	500	320	40	12	24	98	1.5	18	73	60	55	10	1.15	0
26	Madha	Vairag	EW	18.025	75.513	7.2	1570	1010	140	54	1	295	0.9	0	146	174	404	5	6.4	0
27	Madha	Anjangaon	EW	17.936	75.547	7.1	750	444	65	12	9	142	10	0	146	117	51	21	10.9	0
28	Mohol	Narkhed	OW	17.904	75.508	8.3	720	417	70	22	4	127	2.5	0	92	145	62	5	3.73	0
29	Mohol	Narkhed	EW	17.904	75.508	7.7	1120	708	95	32	4	209	1	0	55	170	257	7	0.81	0
30	Mohol	Mohol	EW	17.875	75.538	7.8	1750	1098	285	80	21	260	23	0	116	269	380	4	5.3	0
31	Mohol	Hivre	EW	17.875	75.538	7.2	950	560	85	20	9	179	9	0	110	213	71	2	3.84	0
32	Solapur South	Musti I	EW	17.725	76.117	7.1	1990	1274	240	80	10	328	0.6	0	61	248	548	28	1.25	0
33	Solapur South	Darganhalli	EW	17.688	76.029	8.1	550	305	80	10	14	89	0.4	0	104	92	40	2	5.59	0
34	Solapur North	Solapur	EW	17.675	75.921	7.6	1350	766	485	122	44	85	10	0	281	135	190	42	1	0
35	Mohol	Solapur	EW	17.663	75.754	7.8	1640	994	280	90	13	242	16	0	201	280	230	23	1	0
36	Akkalkot	Barhanpur	EW	17.638	76.179	7.6	970	574	250	76	15	112	11	0	281	103	68	51	0.5	0
37	Akkalkot	Wagdari	EW	17.613	76.358	7.5	1120	640	460	142	26	44	1.2	0	220	160	120	37	0.22	0
38	Akkalkot	Nagansur	EW	17.391	76.155	7.8	1680	1087	195	7	2	295	2	0	85	184	462	21	4.8	0
39	Solapur South	Manarup	EW	17.563	76.042	7.4	2300	1396	350	124	10	316	2	0	110	390	490	6	2.81	0
40	Solapur South	Antroli	EW	17.550	75.700	7.8	1750	1042	480	112	49	169	1	0	195	248	317	45	3.12	0
41	Solapur South	Ankoli	EW	17.550	75.700	8	1500	920	205	52	18	241	4	0	55	298	267	11	9.7	0
42	Akkalkot	Akkalkot	EW	17.521	76.208	8.1	1450	928	155	52	6	241	30	0	92	184	361	2	5.6	0
43	Mangalvedhe	Nanaur	EW	17.442	75.592	7.9	2100	1385	210	76	5	400	6	0	104	291	514	38	5.4	0
44	Karmala	Zare	EW	18.324	75.141	7.3	750	408	245	58	24	47	0.9	0	323	42	20	54	0.83	0
45	Madha	Madha	EW	18.033	75.521	6.9	830	508	180	48	15	108	1.5	0	122	128	87	55	4.21	0
46	Madha	Madha	EW	18.033	75.521	6.5	900	555	155	50	7	133	3	0	122	156	68	74	3.57	0
47	Madha	Madha	EW	18.033	75.521	6.9	750	460	75	20	6	136	3	0	140	99	100	20	6.87	0
48	Madha	Madha	EW	18.033	75.521	6.9	750	460	75	20	6	136	3	0	140	99	100	20	6.87	0
49	Madha	Vairag	EW	18.025	75.513	7.2	1570	1010	140	54	1	295	0.9	0	146	174	404	5	6.4	0
50	Madha	Temburni	EW	18.025	75.192	7.5	1650	963	610	170	45	92	0.1	0	305	227	118	160	2.04	0

SN	Taluka	Village	Type	Y	X	pH	EC	TDS	TH	Ca	Mg	Na	K	CO3	HCO3	Cl	SO4	NO3	F	Fe
51	Madha	Parite Village	BW	17.942	75.283	9.5	420	200	25	6	2	79	4.5	24	49	67		4	12	0
52	Madha	Parite Village	DW	17.942	75.283	7.3	1380	739	590	120	71	41	5.4	0	378	170	34	108	0.76	0
53	Madha	Parite	EW	17.942	75.283	8.2	590	354	65	20	40	103	0	0	116	89	55	15	11.2	0
54	Mohol	Shetphal	EW	17.900	75.429	8.6	690	402	50	16	2	125	1.5	12	110	124	46	15	5.5	0
55	Mohol	Mohol	BW	17.875	75.538	8.1	380	200	80	16	10	49	0.4	0	98	35	38	1	1.48	0
56	Malshiras	Malshiras	EW	17.858	74.908	7.2	640	325	280	72	24	17	0.1	0	354	21	5	9	0.37	0
57	Malshiras	Malshiras	EW	17.858	74.908	7.2	600	306	26	66	23	19	0.1	0	329	18	5	10	0.39	0
58	Malshiras	Malshiras	EW	17.858	74.908	7.2	640	322	280	64	29	19	0.2	0	342	25	3	10	0.37	0
59	Malshiras	Malshiras	EW	17.858	74.908	7.2	610	306	270	64	27	17	0.1	0	329	21	3	9	0.4	0
60	Malshiras	Malshiras	EW	17.858	74.908	7.2	600	308	265	68	23	17	0.1	0	329	21	5	9	0.37	0
61	Malshiras	Malshiras	EW	17.858	74.908	7.2	620	322	265	66	24	19	0.1	0	360	21	2	9	0.38	0
62	Malshiras	Malshiras	EW	17.858	74.908	7.2	620	322	270	66	25	18	0.1	0	354	25	2	9	0.4	0
63	Malshiras	Malshiras	EW	17.858	74.908	7.2	620	322	270	66	25	18	0.1	0	354	25	2	9	0.4	0
64	Malshiras	Velapur	EW	17.787	75.064	7.6	850	468	315	78	29	49	0.4	0	311	67	13	76	0.88	0
65	Malshiras	Velapur	EW	17.787	75.064	7.1	1110	656	215	70	10	157	0.9	0	159	223	81	32	3.12	0
66	Malshiras	Velapur	EW	17.787	75.064	7.4	1240	740	175	64	4	204	0.9	0	79	305	111	11	3.94	0
67	Malshiras	Velapur	EW	17.787	75.064	7.4	1240	740	175	64	4	204	0.9	0	79	305	111	11	3.94	0
68	Pandharpur	Panaharpur	EW	17.683	75.316	7.4	940	594	360	44	61	129	1	0	177	135	125	9	1.15	0
69	Pandharpur	Panaharpur	EW	17.683	75.316	7.3	960	611	370	48	61	135	1	0	183	135	129	9	1.12	0
70	Pandharpur	Panaharpur	EW	17.683	75.316	7.8	730	475	260	20	51	124	1	0	110	128	93	2	1.73	0
71	Pandharpur	Panaarpur	EW	17.683	75.316	7.8	730	475	260	20	51	124	1	0	110	128	93	2	1.73	0
72	Pandharpur	Bhalwani	EW	17.672	75.125	6.8	1030	592	180	46	16	148	11.5	0	189	206	64	4	1.6	0
73	Pandharpur	Bhalwani	EW	17.672	75.125	7.4	830	460	125	18	19	133	2.5	0	73	220	24	6	1.6	0
74	Mohol	Ankdi Mohol	HP	17.671	75.613	7.9	640	359	145	44	9	80	0.6	0	146	67	82	3	0.28	0
75	Solapur North	Gunjegaon	BW	17.633	75.779	7.7	1920	1163	670	208	36	82	76	0	378	241	110	220	0.38	0
76	Solapur North	Gunjegaon	DW	17.633	75.779	7.6	1970	1180	710	132	92	83	83	0	220	333	154	192	0.51	0
77	Solapur North	Gungegaon	EW	17.633	75.779	7.6	1970	1180	710	132	92	83	83	0	220	333	154	192	0.51	0
78	Pandharpur	Kasegaon	HP	17.617	75.325	7.7	2000	1215	350	128	7	295	2	0	122	429	162	129	1.2	0
79	Pandharpur	Kasegaon	BW	17.617	75.325	7.7	1090	611	305	82	24	88	31	0	299	122	76	37	0.56	0

SN	Taluka	Village	Type	Y	X	pH	EC	TDS	TH	Ca	Mg	Na	K	CO3	HCO3	Cl	SO4	NO3	F	Fe
80	Solapur South	Manarup	HP	17.563	76.042	7.9	1250	774	175	64	4	198	1	0	37	209	221	57	1.46	0
81	Solapur South	Antroli Village	HP	17.550	75.700	7.8	2800	1612	980	244	90	200	3	0	403	404	406	63	0.8	0
82	Mangalve dhe	Marwade Village	BW	17.450	75.500	7.9	600	325	230	52	24	42	0.3	0	262	50		25	0.6	0
83	Mangalve dhe	Marwade	EW	17.450	75.500	7.3	710	442	65	20	4	130	1	0	92	99	120	18	4.7	0
84	Sangola	Kamlapur	EW	17.418	75.119	7.3	1080	720	410	60	63	153	2	0	116	160	191	29	3.28	0
85	Sangola	Kamlapur	EW	17.418	75.119	7.3	1080	720	410	60	63	153	2	0	116	160	191	29	3.28	0
86	Mangalve dhe	Nanaeshwar	EW	17.369	75.378	7.4	480	257	120	32	10	55	0.6	0	220	35	6	8	0.57	0
87	Mangalve dhe	Nanaeshwar	EW	17.369	75.378	7.5	500	270	105	22	12	65	0.9	0	214	46	9	7	1.25	0
88	Mangalve dhe	Nanaeshwar	EW	17.369	75.378	7.6	430	232	60	20	2	70	0.5	0	214	21	4	7	0.66	0
89	Mangalve dhe	Bhose	EW	17.308	75.375	7.8	1590	900	615	100	89	82	2	0	287	216	215	53	2.1	0
90	Akkalkoat	Alagi	BW	17.339	75.917	8.3	2910	1862	632	74	109	147	3.3	0	210	420	43	0	0.4	0.1
91	Barshi	Bhalgaon	BW	18.039	75.952	8.4	980	627	272	48	37	124	1.5	0	366	86	100	0	0.8	0.2
92	Barshi	Chara	EW	18.371	75.803	7.8	760	420	285	64	30	46	0	0	397	27	22	0	0.64	0
93	Barshi	Kale Shelgaon	EW	18.288	75.683	8.1	550	305	210	52	20	32	0.78	0	281	14	29	0	0.51	0
94	Barshi	Nandini	EW	18.110	75.843	8.7	485	306	80	16	10	94	1.17	12	85	50	121	0	0	0
95	Barshi	Shelgone (E)	EW	17.950	75.817	7.31	375	375	55	16	4	115	0.78	18	18	121	87	0	3.45	0
96	Beed	Torewadi	EW	17.750	76.075	9.2	550	305	45	10	5	94	1.96	24	12	89	74	0	0	0
97	Kalamb	Mundewadi (E)	EW	17.676	75.397	7.4	375	375	190	44	20	71	1.56	0	265	50	57	0	0.86	0
98	Karmala	Hiwarewadi	EW	18.423	75.180	7.55	1030	715	130	22	2	76	0.27	0	11	67	22	8	4.2	0
99	Kavathe Mahankal	Nagaj	EW	17.158	75.284	7.65	800	800	0	0	0	0	0	0	145	0	0	0	0	0
100	Madha	Wadsinghe	EW	18.090	75.516	7.85	730	410	260	72	20	44	0.39	0	354	43	5	0	0.72	0
101	Mohol	Angar	BW	17.897	75.578	8.7	980	627	324	101	18	63	2.3	0	122	180	73	0	0.6	0.3
102	Mohol	Paremeshwar Pimpri	EW	17.667	75.696	7.1	450	260	200	54	16	21	1.96	0	238	14	31	0	0	0

SN	Taluka	Village	Type	Y	X	pH	EC	TDS	TH	Ca	Mg	Na	K	CO3	HCO3	Cl	SO4	NO3	F	Fe
103	Pandharpur	Kardi	EW	17.577	75.269	8.2	1050	672	75	28	1	193	0.39	0	73	156	207	0	0	0
104	Pandharpur	Mangewadi	EW	17.733	75.119	8	578	370	155	44	11	53	0.78	0	201	50	35	0	0	0
105	Sangola	Anakdhal	EW	17.369	75.079	7.9	1260	806	200	76	2	212	0.78	0	229	117	296	0	0	0
106	Sangola	Chandalwadi	EW	17.480	75.069	7.6	476	305	165	46	12	37	0.78	0	250	28	1	0	0	0
107	Sangola	Ekhatpur	EW	17.480	75.148	7.8	1111	711	235	56	23	152	0.78	0	317	174	59	0	0	0
108	Sangola	Kadlar	EW	17.365	75.193	7.5	609	390	210	52	20	51	1.17	0	275	57	16	0	0	0
109	Sangola	Sangole	EW	17.450	75.200	8.6	830	531	82.5	27	4	0	0	6	140	138	0	0	0	0
110	Sangola	Wasud	EW	17.396	75.167	7.1	1689	1081	225	85	4	265	1.56	0	37	394	209	0	0	0
111	Solapur North	Hensal	EW	17.825	75.947	7.85	1850	1200	145	58	0	354	1.56	0	37	227	548	0	2.58	0
112	Solapur North	Marde	EW	17.821	75.833	8.2	2730	1885	635	245	6	368	13.7	0	61	440	752	0	6.8	0
113	Solapur North	Ranmasal	EW	17.864	75.808	8.04	1100	610	110	36	5	184	0.78	0	110	220	107	0	1.7	0
114	Solapur South	Kumbhari	EW	17.649	75.991	8.4	590	350	195	52	16	54	1.96	18	171	46	77	0	0.24	0
115	Malshiras	Tamsidwadi	EW	17.889	74.822	7.9	808	429	224	39	30	93	0.9	0	268	87	66	25	0.58	0
116	Malshiras	Tamsidwadi	OW	17.889	74.822	7.8	835	442	235	61	19	92	0.9	0	280	89	66	25	0.6	0
117	Malshiras	Tamsidwadi	EW	17.889	74.822	7.9	836	443	230	37	33	93	1	0	244	116	65	24	0.59	0
118	Pandharpur	Panaharpur	EW	17.683	75.316	7.8	890	515	190	54	13	117	0.5	0	195	121	98	15	1.03	0
119	Pandharpur	Panaharpur	EW	17.683	75.316	7.8	890	515	190	54	13	117	0.5	0	195	121	98	15	1.03	0

Annexure VII: Proposed tentative Location Artificial Recharge structures

SN	Village	Taluka	District	X	Y	Structures
1	Aljapur	Karmala	Solapur	75.241	18.5022	Percolation Tank
2	Aljapur	Karmala	Solapur	75.247	18.5016	Percolation Tank
3	Alsunde	Karmala	Solapur	75.3182	18.2739	Percolation Tank
4	Anjandoh	Karmala	Solapur	75.1147	18.3561	Percolation Tank
5	Anjandoh	Karmala	Solapur	75.1073	18.355	Percolation Tank
6	Anjandoh	Karmala	Solapur	75.0835	18.3414	Percolation Tank
7	Anjandoh	Karmala	Solapur	75.0828	18.3544	Percolation Tank
8	Arjunnagar	Karmala	Solapur	75.2796	18.3638	Percolation Tank
9	Arjunnagar	Karmala	Solapur	75.2796	18.3607	Percolation Tank
10	Awati	Karmala	Solapur	75.3809	18.2788	Percolation Tank
11	Awati	Karmala	Solapur	75.3959	18.291	Percolation Tank
12	Awati	Karmala	Solapur	75.3806	18.3106	Percolation Tank
13	Awati	Karmala	Solapur	75.3896	18.3111	Percolation Tank
14	Balewadi	Karmala	Solapur	75.2595	18.4774	Percolation Tank
15	Balewadi	Karmala	Solapur	75.2574	18.4691	Percolation Tank
16	Bhalavni	Karmala	Solapur	75.2049	18.2143	Percolation Tank
17	Bhalewadi	Karmala	Solapur	75.2759	18.3982	Percolation Tank
18	Bhalewadi	Karmala	Solapur	75.2863	18.3927	Percolation Tank
19	Bhalewadi	Karmala	Solapur	75.2937	18.3952	Percolation Tank
20	Bhose	Karmala	Solapur	75.1649	18.4306	Percolation Tank
21	Bitargaon(Shrigonde)	Karmala	Solapur	75.2435	18.4678	Percolation Tank
22	Bitargaon(Shrigonde)	Karmala	Solapur	75.2363	18.4847	Percolation Tank
23	Bitargaon(Shrigonde)	Karmala	Solapur	75.2498	18.4728	Percolation Tank
24	Ghoti	Karmala	Solapur	75.2867	18.2438	Percolation Tank
25	Gulsadi	Karmala	Solapur	75.1825	18.3238	Percolation Tank
26	Gulsadi	Karmala	Solapur	75.2259	18.3612	Percolation Tank
27	Hisare	Karmala	Solapur	75.2965	18.3361	Percolation Tank
28	Hisare	Karmala	Solapur	75.2985	18.3541	Percolation Tank
29	Hivare	Karmala	Solapur	75.3055	18.3682	Percolation Tank
30	Hivare	Karmala	Solapur	75.3339	18.3653	Percolation Tank
31	Hiwarwadi	Karmala	Solapur	75.1714	18.4293	Percolation Tank
32	Jeur	Karmala	Solapur	75.1702	18.2553	Percolation Tank
33	Jeur	Karmala	Solapur	75.1718	18.2627	Percolation Tank
34	Kandar	Karmala	Solapur	75.2114	18.107	Percolation Tank
35	Karanje	Karmala	Solapur	75.2606	18.414	Percolation Tank
36	Kem	Karmala	Solapur	75.3108	18.1905	Percolation Tank
37	Kem	Karmala	Solapur	75.2833	18.1747	Percolation Tank
38	Kem	Karmala	Solapur	75.274	18.1732	Percolation Tank
39	Kem	Karmala	Solapur	75.2701	18.1688	Percolation Tank
40	Kem	Karmala	Solapur	75.2646	18.1663	Percolation Tank
41	Kem	Karmala	Solapur	75.2539	18.1696	Percolation Tank
42	Kem	Karmala	Solapur	75.299	18.1378	Percolation Tank
43	Kem	Karmala	Solapur	75.296	18.1485	Percolation Tank
44	Kem	Karmala	Solapur	75.2999	18.1439	Percolation Tank

SN	Village	Taluka	District	X	Y	Structures
45	Khadaki	Karmala	Solapur	75.2183	18.5356	Percolation Tank
46	Khadaki	Karmala	Solapur	75.2111	18.5316	Percolation Tank
47	Kolgaon	Karmala	Solapur	75.3594	18.3603	Percolation Tank
48	Korti	Karmala	Solapur	75.0215	18.3785	Percolation Tank
49	Korti	Karmala	Solapur	75.0153	18.366	Percolation Tank
50	Kumbhej	Karmala	Solapur	75.1697	18.281	Percolation Tank
51	Kumbhej	Karmala	Solapur	75.1792	18.3195	Percolation Tank
52	Kumbhej	Karmala	Solapur	75.1836	18.3168	Percolation Tank
53	Kumbhej	Karmala	Solapur	75.1802	18.3045	Percolation Tank
54	Kumbhej	Karmala	Solapur	75.1876	18.307	Percolation Tank
55	Malwadi	Karmala	Solapur	75.2511	18.2088	Percolation Tank
56	Malwadi	Karmala	Solapur	75.2356	18.2088	Percolation Tank
57	Mangi	Karmala	Solapur	75.1841	18.4491	Percolation Tank
58	Mirgavhan	Karmala	Solapur	75.3027	18.3862	Percolation Tank
59	Morwad	Karmala	Solapur	75.0854	18.4068	Percolation Tank
60	Morwad	Karmala	Solapur	75.0953	18.3967	Percolation Tank
61	Morwad	Karmala	Solapur	75.0891	18.4011	Percolation Tank
62	Nerle	Karmala	Solapur	75.3883	18.2746	Percolation Tank
63	Nerle	Karmala	Solapur	75.3795	18.2733	Percolation Tank
64	Nerle	Karmala	Solapur	75.3452	18.2616	Percolation Tank
65	Nerle	Karmala	Solapur	75.3513	18.2612	Percolation Tank
66	Nerle	Karmala	Solapur	75.3427	18.251	Percolation Tank
67	Nerle	Karmala	Solapur	75.3612	18.2791	Percolation Tank
68	Nerle	Karmala	Solapur	75.3732	18.2742	Percolation Tank
69	Nimgaon (h)	Karmala	Solapur	75.3836	18.329	Percolation Tank
70	Nimgaon (h)	Karmala	Solapur	75.3797	18.3399	Percolation Tank
71	Padali	Karmala	Solapur	75.2796	18.5112	Percolation Tank
72	Pande	Karmala	Solapur	75.2442	18.3849	Percolation Tank
73	Pande	Karmala	Solapur	75.2197	18.3822	Percolation Tank
74	Pande	Karmala	Solapur	75.2322	18.3796	Percolation Tank
75	Pathurdi	Karmala	Solapur	75.3237	18.2092	Percolation Tank
76	Phisare	Karmala	Solapur	75.2752	18.3421	Percolation Tank
77	Potegaon	Karmala	Solapur	75.2486	18.4667	Percolation Tank
78	Pothare	Karmala	Solapur	75.2331	18.452	Percolation Tank
79	Pothare	Karmala	Solapur	75.2222	18.4555	Percolation Tank
80	Pothare	Karmala	Solapur	75.238	18.4353	Percolation Tank
81	Punwar	Karmala	Solapur	75.1385	18.4972	Percolation Tank
82	Sade	Karmala	Solapur	75.2907	18.2805	Percolation Tank
83	Salse	Karmala	Solapur	75.3106	18.2842	Percolation Tank
84	Salse	Karmala	Solapur	75.3131	18.286	Percolation Tank
85	Satoli	Karmala	Solapur	75.2308	18.1318	Percolation Tank
86	Shelgaon (Wangi)	Karmala	Solapur	75.1746	18.2324	Percolation Tank
87	Shelgaon (Wangi)	Karmala	Solapur	75.1637	18.2395	Percolation Tank
88	Shelgaon (Wangi)	Karmala	Solapur	75.1642	18.2307	Percolation Tank
89	Vadshivane	Karmala	Solapur	75.2146	18.1628	Percolation Tank

SN	Village	Taluka	District	X	Y	Structures
90	Varkute	Karmala	Solapur	75.3332	18.2446	Percolation Tank
91	Varkute	Karmala	Solapur	75.3036	18.2448	Percolation Tank
92	Veet	Karmala	Solapur	75.0937	18.3827	Percolation Tank
93	Veet	Karmala	Solapur	75.1094	18.3917	Percolation Tank
94	Veet	Karmala	Solapur	75.1039	18.3978	Percolation Tank
95	Veet	Karmala	Solapur	75.1251	18.3796	Percolation Tank
96	Veet	Karmala	Solapur	75.1281	18.3906	Percolation Tank
97	Veet	Karmala	Solapur	75.1189	18.3783	Percolation Tank
98	Vihal	Karmala	Solapur	75.0687	18.373	Percolation Tank
99	Vihal	Karmala	Solapur	75.0793	18.375	Percolation Tank
100	Vihal	Karmala	Solapur	75.083	18.368	Percolation Tank
101	Wadgaon(n)	Karmala	Solapur	75.1644	18.4809	Percolation Tank
102	Wadgaon(n)	Karmala	Solapur	75.1466	18.4634	Percolation Tank
103	Zare	Karmala	Solapur	75.1441	18.3328	Percolation Tank
104	Zare	Karmala	Solapur	75.1166	18.3324	Percolation Tank
105	Zare	Karmala	Solapur	75.118	18.3168	Percolation Tank
106	Adegaon	Madha	Solapur	75.1089	18.0403	Percolation Tank
107	Adegaon	Madha	Solapur	75.108	18.0441	Percolation Tank
108	Ahergaon	Madha	Solapur	75.2844	17.9867	Percolation Tank
109	Akulgaon	Madha	Solapur	75.4484	18.1276	Percolation Tank
110	Anjangaon (Kh)	Madha	Solapur	75.5582	17.93	Percolation Tank
111	Anjangaon (Kh)	Madha	Solapur	75.5439	17.9326	Percolation Tank
112	Aran	Madha	Solapur	75.3649	17.9441	Percolation Tank
113	Bairagwadi	Madha	Solapur	75.394	17.8803	Percolation Tank
114	Bembale	Madha	Solapur	75.216	17.9471	Percolation Tank
115	Bembale	Madha	Solapur	75.216	17.9511	Percolation Tank
116	Bhosare	Madha	Solapur	75.4373	18.0775	Percolation Tank
117	Bitergaon	Madha	Solapur	75.3998	18.2177	Percolation Tank
118	Bitergaon	Madha	Solapur	75.4058	18.2208	Percolation Tank
119	Bitergaon	Madha	Solapur	75.3892	18.2063	Percolation Tank
120	Budrukwadi	Madha	Solapur	75.6625	17.964	Percolation Tank
121	Chandaj	Madha	Solapur	75.0944	17.9988	Percolation Tank
122	Chandaj	Madha	Solapur	75.0773	17.9862	Percolation Tank
123	Chavhanwadi	Madha	Solapur	75.2215	17.9933	Percolation Tank
124	Chobepimpari	Madha	Solapur	75.3614	18.1626	Percolation Tank
125	Chobepimpari	Madha	Solapur	75.3584	18.156	Percolation Tank
126	Chobepimpari	Madha	Solapur	75.3587	18.1188	Percolation Tank
127	Darfal	Madha	Solapur	75.5721	18.0436	Percolation Tank
128	Darfal	Madha	Solapur	75.5841	18.0544	Percolation Tank
129	Darfal	Madha	Solapur	75.5855	18.0637	Percolation Tank
130	Darfal	Madha	Solapur	75.5984	18.0494	Percolation Tank
131	Darfal	Madha	Solapur	75.5813	18.0901	Percolation Tank
132	Darfal	Madha	Solapur	75.5873	18.0723	Percolation Tank
133	Darfal	Madha	Solapur	75.5688	18.0481	Percolation Tank
134	Dhanore	Madha	Solapur	75.6856	18.0104	Percolation Tank

SN	Village	Taluka	District	X	Y	Structures
135	Dhanore	Madha	Solapur	75.69	17.9845	Percolation Tank
136	Dhavalas	Madha	Solapur	75.3113	18.1224	Percolation Tank
137	Ghoti	Madha	Solapur	75.2493	17.9208	Percolation Tank
138	Hatkarwadi	Madha	Solapur	75.6593	18.0228	Percolation Tank
139	Hole Kh	Madha	Solapur	75.3231	17.9966	Percolation Tank
140	Jadhavwadi	Madha	Solapur	75.3825	17.9181	Percolation Tank
141	Jamgaon	Madha	Solapur	75.6024	18.0564	Percolation Tank
142	Kewad	Madha	Solapur	75.591	18.0355	Percolation Tank
143	Kewad	Madha	Solapur	75.5982	18.0171	Percolation Tank
144	Kewad	Madha	Solapur	75.5973	18.0213	Percolation Tank
145	Khairao	Madha	Solapur	75.6223	17.9808	Percolation Tank
146	Khairao	Madha	Solapur	75.6149	17.9599	Percolation Tank
147	Khairao	Madha	Solapur	75.6262	17.9668	Percolation Tank
148	Khairewadi	Madha	Solapur	75.573	17.9788	Percolation Tank
149	Kumbhej	Madha	Solapur	75.5804	17.9348	Percolation Tank
150	Kumbhej	Madha	Solapur	75.5934	17.9401	Percolation Tank
151	Kurdu	Madha	Solapur	75.3913	18.1017	Percolation Tank
152	Kurduwadi	Madha	Solapur	75.4116	18.0898	Percolation Tank
153	Kurduwadi	Madha	Solapur	75.4199	18.087	Percolation Tank
154	Lahu	Madha	Solapur	75.4451	18.1599	Percolation Tank
155	Lahu	Madha	Solapur	75.4539	18.1562	Percolation Tank
156	Lahu	Madha	Solapur	75.4625	18.1492	Percolation Tank
157	Lahu	Madha	Solapur	75.471	18.1503	Percolation Tank
158	Londhewadi	Madha	Solapur	75.5862	17.9644	Percolation Tank
159	Madha	Madha	Solapur	75.4942	18.0283	Percolation Tank
160	Madha	Madha	Solapur	75.5034	18.0303	Percolation Tank
161	Madha	Madha	Solapur	75.5277	18.0397	Percolation Tank
162	Madha	Madha	Solapur	75.5342	18.054	Percolation Tank
163	Mahadeowadi	Madha	Solapur	75.391	18.1758	Percolation Tank
164	Mahadeowadi	Madha	Solapur	75.3788	18.1758	Percolation Tank
165	Mahadeowadi	Madha	Solapur	75.3661	18.1667	Percolation Tank
166	Mahatpur	Madha	Solapur	75.5441	18.0448	Percolation Tank
167	Malegaon	Madha	Solapur	75.1545	17.9794	Percolation Tank
168	Malegaon	Madha	Solapur	75.1677	17.9847	Percolation Tank
169	Manegaon	Madha	Solapur	75.6278	17.9933	Percolation Tank
170	Manegaon	Madha	Solapur	75.6347	17.9959	Percolation Tank
171	Manegaon	Madha	Solapur	75.6544	18.0151	Percolation Tank
172	Mhaisgaon	Madha	Solapur	75.4895	18.1454	Percolation Tank
173	Mhaisgaon	Madha	Solapur	75.5136	18.1349	Percolation Tank
174	Mhaisgaon	Madha	Solapur	75.5066	18.136	Percolation Tank
175	Mhaisgaon	Madha	Solapur	75.5006	18.1237	Percolation Tank
176	Mhaisgaon	Madha	Solapur	75.4798	18.132	Percolation Tank
177	Mungshi	Madha	Solapur	75.4116	18.2452	Percolation Tank
178	Nadi	Madha	Solapur	75.4169	18.2377	Percolation Tank
179	Nadi	Madha	Solapur	75.4179	18.2215	Percolation Tank

SN	Village	Taluka	District	X	Y	Structures
180	Palwan	Madha	Solapur	75.296	18.003	Percolation Tank
181	Panch Phulwadi	Madha	Solapur	75.6583	17.9625	Percolation Tank
182	Papnas	Madha	Solapur	75.5233	18.1162	Percolation Tank
183	Papnas	Madha	Solapur	75.5374	18.11	Percolation Tank
184	Papnas	Madha	Solapur	75.536	18.1153	Percolation Tank
185	Parite	Madha	Solapur	75.2502	17.9546	Percolation Tank
186	Pimpalkhunte	Madha	Solapur	75.3448	18.1118	Percolation Tank
187	Pimpalner	Madha	Solapur	75.2981	18.0384	Percolation Tank
188	Pimpalner	Madha	Solapur	75.2985	18.0443	Percolation Tank
189	Pimpalner	Madha	Solapur	75.2884	18.0423	Percolation Tank
190	Ranzani	Madha	Solapur	75.0904	18.0496	Percolation Tank
191	Ranzani	Madha	Solapur	75.0962	18.0643	Percolation Tank
192	Ranzani	Madha	Solapur	75.1018	18.0654	Percolation Tank
193	Rople Kavhe	Madha	Solapur	75.364	18.2076	Percolation Tank
194	Rople Kavhe	Madha	Solapur	75.3688	18.2133	Percolation Tank
195	Rople Kavhe	Madha	Solapur	75.3779	18.2124	Percolation Tank
196	Sapatne Tembhorni	Madha	Solapur	75.2639	18.0219	Percolation Tank
197	Shevare	Madha	Solapur	75.1332	17.9964	Percolation Tank
198	Shingewdi	Madha	Solapur	75.4169	18.2177	Percolation Tank
199	Shingewdi	Madha	Solapur	75.4204	18.2144	Percolation Tank
200	Shingewdi	Madha	Solapur	75.428	18.2001	Percolation Tank
201	Solankarwadi	Madha	Solapur	75.394	17.9445	Percolation Tank
202	Tambave	Madha	Solapur	75.2437	18.0337	Percolation Tank
203	Tambave	Madha	Solapur	75.2477	18.0399	Percolation Tank
204	Tambave	Madha	Solapur	75.2396	18.0366	Percolation Tank
205	Tandulwadi	Madha	Solapur	75.5566	18.0863	Percolation Tank
206	Tandulwadi	Madha	Solapur	75.5584	18.1109	Percolation Tank
207	Tandulwadi	Madha	Solapur	75.5584	18.0992	Percolation Tank
208	Tandulwadi	Madha	Solapur	75.5619	18.1163	Percolation Tank
209	Tembhorni	Madha	Solapur	75.1785	18.0021	Percolation Tank
210	Tembhorni	Madha	Solapur	75.1855	18.0098	Percolation Tank
211	Tembhorni	Madha	Solapur	75.1825	18.0109	Percolation Tank
212	Ujani Madha	Madha	Solapur	75.3221	18.0012	Percolation Tank
213	Undargaon	Madha	Solapur	75.5864	18.0025	Percolation Tank
214	Undargaon	Madha	Solapur	75.5668	18.0291	Percolation Tank
215	Undargaon	Madha	Solapur	75.5825	18.0011	Percolation Tank
216	Upalai Bk	Madha	Solapur	75.512	17.9761	Percolation Tank
217	Upalai Bk	Madha	Solapur	75.4981	17.9779	Percolation Tank
218	Upalai Kh	Madha	Solapur	75.5231	17.9924	Percolation Tank
219	Upalai Kh	Madha	Solapur	75.5388	17.9977	Percolation Tank
220	Upalai Kh	Madha	Solapur	75.5337	17.9887	Percolation Tank
221	Venegaon	Madha	Solapur	75.2354	17.9999	Percolation Tank
222	Venegaon	Madha	Solapur	75.2264	18.0041	Percolation Tank
223	Venegaon	Madha	Solapur	75.2292	18.0153	Percolation Tank
224	Venegaon	Madha	Solapur	75.2243	18.0214	Percolation Tank

SN	Village	Taluka	District	X	Y	Structures
225	Vithalwadi	Madha	Solapur	75.5591	17.9945	Percolation Tank
226	Wadoli	Madha	Solapur	75.1103	18.0038	Percolation Tank
227	Wadshinge	Madha	Solapur	75.5127	18.0612	Percolation Tank
228	Wadshinge	Madha	Solapur	75.5214	18.0621	Percolation Tank
229	Wadshinge	Madha	Solapur	75.524	18.0931	Percolation Tank
230	Wadshinge	Madha	Solapur	75.5247	18.097	Percolation Tank
231	Wakav	Madha	Solapur	75.5952	17.9678	Percolation Tank
232	Warawade	Madha	Solapur	75.3048	17.9735	Percolation Tank
233	Anandnagar	Malshiras	Malshiras	74.9891	17.8995	Percolation tank
234	Borgaon	Malshiras	Malshiras	75.1008	17.833	Percolation tank
235	Chandapuri	Malshiras	Malshiras	74.9438	17.7451	Percolation tank
236	Dahigaon	Malshiras	Malshiras	74.7369	17.9652	Percolation tank
237	Dombalwadi	Malshiras	Malshiras	74.7038	18	Percolation tank
238	Ekshiv	Malshiras	Malshiras	74.7462	17.9999	Percolation tank
239	Falvani	Malshiras	Malshiras	75.0606	17.6596	Percolation tank
240	Falvani	Malshiras	Malshiras	75.0488	17.6616	Percolation tank
241	Fondsiras	Malshiras	Malshiras	74.79	17.926	Percolation tank
242	Fondsiras	Malshiras	Malshiras	74.8193	17.9461	Percolation tank
243	Girzani	Malshiras	Malshiras	74.9834	17.8569	Percolation tank
244	Gursale	Malshiras	Malshiras	74.7009	17.9677	Percolation tank
245	Gursale	Malshiras	Malshiras	74.6824	17.9538	Percolation tank
246	Jambud	Malshiras	Malshiras	75.1394	17.8178	Percolation tank
247	Jambud	Malshiras	Malshiras	75.1527	17.8143	Percolation tank
248	Kacharewadi	Malshiras	Malshiras	74.923	17.8932	Percolation tank
249	Kalamwadi	Malshiras	Malshiras	74.9979	17.6581	Percolation tank
250	Khandali	Malshiras	Malshiras	75.0658	17.8304	Percolation tank
251	Khawale	Malshiras	Malshiras	75.1358	17.7721	Percolation tank
252	Kolegaon	Malshiras	Malshiras	75.0442	17.6336	Percolation tank
253	Kondabavi	Malshiras	Malshiras	74.9569	17.8961	Percolation tank
254	Kondabavi	Malshiras	Malshiras	74.9608	17.9013	Percolation tank
255	Kurbavi	Malshiras	Malshiras	74.7112	18.0103	Percolation tank
256	Lawang	Malshiras	Malshiras	75.126	17.8917	Percolation tank
257	Mahalung	Malshiras	Malshiras	75.1198	17.8775	Percolation tank
258	Malewadi	Malshiras	Malshiras	75.0256	17.8795	Percolation tank
259	Malinagar	Malshiras	Malshiras	75.0565	17.8863	Percolation tank
260	Maloli	Malshiras	Malshiras	75.0457	17.7193	Percolation tank
261	Maloli	Malshiras	Malshiras	75.0395	17.713	Percolation tank
262	Maloli	Malshiras	Malshiras	75.0231	17.7164	Percolation tank
263	Markadwadi	Malshiras	Malshiras	74.8527	17.9294	Percolation tank
264	Markadwadi	Malshiras	Malshiras	74.8563	17.9118	Percolation tank
265	Medad	Malshiras	Malshiras	74.8713	17.8983	Percolation tank
266	Medad	Malshiras	Malshiras	74.8854	17.9035	Percolation tank
267	Mire	Malshiras	Malshiras	75.1265	17.8604	Percolation tank
268	Neware	Malshiras	Malshiras	75.1744	17.8281	Percolation tank
269	Nimgaon	Malshiras	Malshiras	75.0045	17.7502	Percolation tank

SN	Village	Taluka	District	X	Y	Structures
270	Piliv	Malshiras	Malshiras	74.985	17.6875	Percolation tank
271	Piliv	Malshiras	Malshiras	74.9639	17.6765	Percolation tank
272	Pirale	Malshiras	Malshiras	74.7663	17.9755	Percolation tank
273	Pirale	Malshiras	Malshiras	74.7951	17.9867	Percolation tank
274	Purandawade	Malshiras	Malshiras	74.8615	17.8707	Percolation tank
275	Salmukhwadi	Malshiras	Malshiras	75.021	17.6978	Percolation tank
276	Shendechinch	Malshiras	Malshiras	75.0611	17.7345	Percolation tank
277	Tamsidwadi	Malshiras	Malshiras	74.8352	17.8878	Percolation tank
278	Tandulwadi	Malshiras	Malshiras	75.1013	17.7242	Percolation tank
279	Tirwandi	Malshiras	Malshiras	74.9163	17.9186	Percolation tank
280	Velapur	Malshiras	Malshiras	75.0519	17.7487	Percolation tank
281	Adhegaon	Mohol	Solapur	75.5499	17.7288	Percolation Tank
282	Angar	Mohol	Solapur	75.5971	17.9125	Percolation Tank
283	Ankoli	Mohol	Solapur	75.5728	17.6531	Percolation Tank
284	Arbali	Mohol	Solapur	75.6024	17.5614	Percolation Tank
285	ArjunSond	Mohol	Solapur	75.7214	17.7513	Percolation Tank
286	Asti	Mohol	Solapur	75.4014	17.8539	Percolation Tank
287	Asti	Mohol	Solapur	75.4051	17.8645	Percolation Tank
288	Aundhi	Mohol	Solapur	75.591	17.6783	Percolation Tank
289	Aundhi	Mohol	Solapur	75.5869	17.6505	Percolation Tank
290	Bhoire	Mohol	Solapur	75.6766	17.8743	Percolation Tank
291	Bitle	Mohol	Solapur	75.6109	17.886	Percolation Tank
292	Bople	Mohol	Solapur	75.641	17.9389	Percolation Tank
293	Degaon	Mohol	Solapur	75.6919	17.9133	Percolation Tank
294	Degaon	Mohol	Solapur	75.702	17.9355	Percolation Tank
295	Deodi	Mohol	Solapur	75.5166	17.8741	Percolation Tank
296	Dhokbabulgaon	Mohol	Solapur	75.647	17.7671	Percolation Tank
297	Diksal	Mohol	Solapur	75.6932	17.8918	Percolation Tank
298	Ghorpadi	Mohol	Solapur	75.7138	17.9176	Percolation Tank
299	Ghotewadi	Mohol	Solapur	75.6865	17.7381	Percolation Tank
300	Hingani (Nipani)	Mohol	Solapur	75.69	17.8411	Percolation Tank
301	Hingani (Nipani)	Mohol	Solapur	75.69	17.8526	Percolation Tank
302	Hiwre	Mohol	Solapur	75.5374	17.8711	Percolation Tank
303	Hiwre	Mohol	Solapur	75.5318	17.8552	Percolation Tank
304	Jamgaon Kh	Mohol	Solapur	75.6777	17.563	Percolation Tank
305	Kamti Kh	Mohol	Solapur	75.7436	17.6423	Percolation Tank
306	Katewadi	Mohol	Solapur	75.6882	17.6967	Percolation Tank
307	Katewadi	Mohol	Solapur	75.6613	17.7086	Percolation Tank
308	Khandali	Mohol	Solapur	75.4773	17.8526	Percolation Tank
309	Khandali	Mohol	Solapur	75.4754	17.8605	Percolation Tank
310	Khandali	Mohol	Solapur	75.4583	17.8446	Percolation Tank
311	Kharkatne	Mohol	Solapur	75.6343	17.8833	Percolation Tank
312	Khuneshwar	Mohol	Solapur	75.7383	17.8543	Percolation Tank
313	Kolegaon	Mohol	Solapur	75.6969	17.7744	Percolation Tank
314	Konheri	Mohol	Solapur	75.4935	17.8041	Percolation Tank

SN	Village	Taluka	District	X	Y	Structures
315	Korwali	Mohol	Solapur	75.7212	17.6077	Percolation Tank
316	Korwali	Mohol	Solapur	75.7226	17.5914	Percolation Tank
317	Kuranwadi	Mohol	Solapur	75.5661	17.8799	Percolation Tank
318	Kuranwadi (Ashti)	Mohol	Solapur	75.4269	17.8578	Percolation Tank
319	Kurul	Mohol	Solapur	75.6706	17.6932	Percolation Tank
320	Kurul	Mohol	Solapur	75.6586	17.6933	Percolation Tank
321	Lamboti	Mohol	Solapur	75.7168	17.7784	Percolation Tank
322	Lamboti	Mohol	Solapur	75.7233	17.79	Percolation Tank
323	Malikpeth	Mohol	Solapur	75.6414	17.8675	Percolation Tank
324	Miri	Mohol	Solapur	75.6401	17.565	Percolation Tank
325	Mohol	Mohol	Solapur	75.6697	17.8241	Percolation Tank
326	Mohol	Mohol	Solapur	75.6553	17.781	Percolation Tank
327	Mohol	Mohol	Solapur	75.6581	17.7999	Percolation Tank
328	Mohol	Mohol	Solapur	75.6287	17.7891	Percolation Tank
329	Mohol	Mohol	Solapur	75.6419	17.8165	Percolation Tank
330	Mohol	Mohol	Solapur	75.6105	17.8032	Percolation Tank
331	Morvanchi	Mohol	Solapur	75.7305	17.8309	Percolation Tank
332	Mundhewadi	Mohol	Solapur	75.7136	17.7266	Percolation Tank
333	Nalbandwadi	Mohol	Solapur	75.5476	17.8834	Percolation Tank
334	Nandgaon	Mohol	Solapur	75.709	17.7143	Percolation Tank
335	Narkhed	Mohol	Solapur	75.678	17.9063	Percolation Tank
336	Narkhed	Mohol	Solapur	75.6424	17.8901	Percolation Tank
337	Parmeshwar-pimpri	Mohol	Solapur	75.699	17.6743	Percolation Tank
338	Paslewadi	Mohol	Solapur	75.6354	17.9261	Percolation Tank
339	Patkul	Mohol	Solapur	75.5073	17.7284	Percolation Tank
340	Patkul	Mohol	Solapur	75.5254	17.7416	Percolation Tank
341	Peertakali	Mohol	Solapur	75.7608	17.6782	Percolation Tank
342	Peertakali	Mohol	Solapur	75.7413	17.6769	Percolation Tank
343	Pennur	Mohol	Solapur	75.468	17.7896	Percolation Tank
344	Pennur	Mohol	Solapur	75.4824	17.7958	Percolation Tank
345	Pennur	Mohol	Solapur	75.4814	17.7491	Percolation Tank
346	Pennur	Mohol	Solapur	75.5157	17.7702	Percolation Tank
347	Pokharapur	Mohol	Solapur	75.598	17.7975	Percolation Tank
348	Pophali	Mohol	Solapur	75.7365	17.7152	Percolation Tank
349	Sawaleshwar	Mohol	Solapur	75.7621	17.7548	Percolation Tank
350	Sawaleshwar	Mohol	Solapur	75.7679	17.744	Percolation Tank
351	Sawaleshwar	Mohol	Solapur	75.7834	17.7568	Percolation Tank
352	Sawaleshwar	Mohol	Solapur	75.7885	17.7407	Percolation Tank
353	Shingoli	Mohol	Solapur	75.7654	17.6617	Percolation Tank
354	Shingoli	Mohol	Solapur	75.7483	17.6608	Percolation Tank
355	Shirapur(MO)	Mohol	Solapur	75.7656	17.6937	Percolation Tank
356	Shirapur(Solapur)	Mohol	Solapur	75.7411	17.8021	Percolation Tank
357	Sohale	Mohol	Solapur	75.6408	17.6245	Percolation Tank
358	Tambole	Mohol	Solapur	75.5998	17.7257	Percolation Tank
359	Taratgaon	Mohol	Solapur	75.7633	17.6401	Percolation Tank

SN	Village	Taluka	District	X	Y	Structures
360	Waddegaon	Mohol	Solapur	75.5788	17.6236	Percolation Tank
361	Wadwal	Mohol	Solapur	75.6923	17.7645	Percolation Tank
362	Wadwal	Mohol	Solapur	75.6768	17.761	Percolation Tank
363	Wagholi	Mohol	Solapur	75.6692	17.6062	Percolation Tank
364	Wagholiwadi	Mohol	Solapur	75.6586	17.6009	Percolation Tank
365	Warkute	Mohol	Solapur	75.5786	17.7042	Percolation Tank
366	Warkute	Mohol	Solapur	75.5684	17.691	Percolation Tank
367	Watwate	Mohol	Solapur	75.6528	17.5617	Percolation Tank
368	Watwate	Mohol	Solapur	75.6743	17.5893	Percolation Tank
369	Wirawade Bk	Mohol	Solapur	75.721	17.7024	Percolation Tank
370	Wirawade Bk	Mohol	Solapur	75.7439	17.7095	Percolation Tank
371	Wirawade Bk	Mohol	Solapur	75.7071	17.6946	Percolation Tank
372	Wirwade Kh	Mohol	Solapur	75.7598	17.7326	Percolation Tank
373	Yenaki	Mohol	Solapur	75.6285	17.5881	Percolation Tank
374	Ajansond	Pandharpur	Solapur	75.3979	17.689	Percolation Tank
375	Ambe	Pandharpur	Solapur	75.4482	17.6455	Percolation Tank
376	Ambe	Pandharpur	Solapur	75.4494	17.6602	Percolation Tank
377	Ambe	Pandharpur	Solapur	75.4658	17.6373	Percolation Tank
378	Anawali	Pandharpur	Solapur	75.3736	17.6255	Percolation Tank
379	Anawali	Pandharpur	Solapur	75.3705	17.6446	Percolation Tank
380	Avhe	Pandharpur	Solapur	75.1843	17.8144	Percolation Tank
381	Babhulgaon	Pandharpur	Solapur	75.413	17.7522	Percolation Tank
382	Babhulgaon	Pandharpur	Solapur	75.3906	17.7624	Percolation Tank
383	Bhandi Shegaon	Pandharpur	Solapur	75.2132	17.6931	Percolation Tank
384	Bhandi Shegaon	Pandharpur	Solapur	75.2036	17.7005	Percolation Tank
385	Bhatumbare	Pandharpur	Solapur	75.337	17.6908	Percolation Tank
386	Bhose	Pandharpur	Solapur	75.2857	17.8114	Percolation Tank
387	Bhose	Pandharpur	Solapur	75.2923	17.821	Percolation Tank
388	Bhose	Pandharpur	Solapur	75.278	17.796	Percolation Tank
389	Bohali	Pandharpur	Solapur	75.2491	17.6104	Percolation Tank
390	Chale	Pandharpur	Solapur	75.46	17.6831	Percolation Tank
391	Chilaiwadi	Pandharpur	Solapur	75.3324	17.7828	Percolation Tank
392	Chincholi Bhose	Pandharpur	Solapur	75.327	17.6986	Percolation Tank
393	Chinchumbe	Pandharpur	Solapur	75.3848	17.5799	Percolation Tank
394	Degaon	Pandharpur	Solapur	75.3829	17.6989	Percolation Tank
395	Degaon	Pandharpur	Solapur	75.391	17.7044	Percolation Tank
396	Degaon	Pandharpur	Solapur	75.3806	17.7162	Percolation Tank
397	Degaon	Pandharpur	Solapur	75.3663	17.7125	Percolation Tank
398	Devade	Pandharpur	Solapur	75.2275	17.76	Percolation Tank
399	Eklaspur	Pandharpur	Solapur	75.4083	17.5744	Percolation Tank
400	Eklaspur	Pandharpur	Solapur	75.4076	17.5858	Percolation Tank
401	Eklaspur	Pandharpur	Solapur	75.3987	17.595	Percolation Tank
402	Gopalpur	Pandharpur	Solapur	75.3655	17.6516	Percolation Tank
403	Gopalpur	Pandharpur	Solapur	75.3748	17.667	Percolation Tank
404	Gurasale	Pandharpur	Solapur	75.3142	17.7467	Percolation Tank

SN	Village	Taluka	District	X	Y	Structures
405	Gurasale	Pandharpur	Solapur	75.3273	17.7449	Percolation Tank
406	Ishwar Wathar	Pandharpur	Solapur	75.4218	17.732	Percolation Tank
407	Ite	Pandharpur	Solapur	75.5059	17.6552	Percolation Tank
408	Jainwadi	Pandharpur	Solapur	75.1666	17.6681	Percolation Tank
409	Karkamb	Pandharpur	Solapur	75.2633	17.8595	Percolation Tank
410	Kasegaon	Pandharpur	Solapur	75.3339	17.6174	Percolation Tank
411	Kasegaon	Pandharpur	Solapur	75.3393	17.6299	Percolation Tank
412	Kauthali	Pandharpur	Solapur	75.2842	17.7416	Percolation Tank
413	Kauthali	Pandharpur	Solapur	75.3031	17.7181	Percolation Tank
414	Kauthali	Pandharpur	Solapur	75.2768	17.7357	Percolation Tank
415	Kauthali	Pandharpur	Solapur	75.2753	17.7431	Percolation Tank
416	Kauthali	Pandharpur	Solapur	75.2946	17.7276	Percolation Tank
417	Khardi	Pandharpur	Solapur	75.2907	17.5623	Percolation Tank
418	Khed Bhalawani	Pandharpur	Solapur	75.2533	17.7541	Percolation Tank
419	Khed Bhalawani	Pandharpur	Solapur	75.2622	17.7541	Percolation Tank
420	Khed Bhose	Pandharpur	Solapur	75.2603	17.7659	Percolation Tank
421	Khed Bhose	Pandharpur	Solapur	75.2587	17.7765	Percolation Tank
422	Korty	Pandharpur	Solapur	75.273	17.6475	Percolation Tank
423	Mendhapur	Pandharpur	Solapur	75.3401	17.8022	Percolation Tank
424	Mendhapur	Pandharpur	Solapur	75.3447	17.7791	Percolation Tank
425	Mundhewadi	Pandharpur	Solapur	75.4029	17.6806	Percolation Tank
426	Narayan Chincholi	Pandharpur	Solapur	75.4002	17.711	Percolation Tank
427	Narayan Chincholi	Pandharpur	Solapur	75.4064	17.7066	Percolation Tank
428	Narayan Chincholi	Pandharpur	Solapur	75.4118	17.7275	Percolation Tank
429	Nematwadi	Pandharpur	Solapur	75.2425	17.8419	Percolation Tank
430	Nepatgaon	Pandharpur	Solapur	75.4438	17.5894	Percolation Tank
431	Ozewadi	Pandharpur	Solapur	75.4719	17.599	Percolation Tank
432	Palshi	Pandharpur	Solapur	75.1908	17.6586	Percolation Tank
433	Pandharewadi	Pandharpur	Solapur	75.33	17.8059	Percolation Tank
434	Pehe	Pandharpur	Solapur	75.2124	17.8327	Percolation Tank
435	Phandarpur	Pandharpur	Solapur	75.316	17.6867	Percolation Tank
436	Pirachi Kuroli	Pandharpur	Solapur	75.1947	17.7556	Percolation Tank
437	Pirachi Kuroli	Pandharpur	Solapur	75.1453	17.7365	Percolation Tank
438	Pohargaon	Pandharpur	Solapur	75.4862	17.6468	Percolation Tank
439	Puluj	Pandharpur	Solapur	75.5344	17.6501	Percolation Tank
440	Puluj	Pandharpur	Solapur	75.5425	17.6464	Percolation Tank
441	Pulujwadi	Pandharpur	Solapur	75.5495	17.6593	Percolation Tank
442	Ropale	Pandharpur	Solapur	75.3937	17.7897	Percolation Tank
443	Sangavi	Pandharpur	Solapur	75.2213	17.8687	Percolation Tank
444	Sarkoli	Pandharpur	Solapur	75.4989	17.6204	Percolation Tank
445	Shankargaon	Pandharpur	Solapur	75.5228	17.6243	Percolation Tank
446	Shelve	Pandharpur	Solapur	75.2225	17.742	Percolation Tank
447	Shelve	Pandharpur	Solapur	75.229	17.7321	Percolation Tank
448	Shetphal	Pandharpur	Solapur	75.3166	17.5366	Percolation Tank
449	Shetphal	Pandharpur	Solapur	75.3042	17.5391	Percolation Tank

SN	Village	Taluka	District	X	Y	Structures
450	Shirdhon	Pandharpur	Solapur	75.2967	17.7049	Percolation Tank
451	Shirgaon	Pandharpur	Solapur	75.4249	17.588	Percolation Tank
452	Tarapur	Pandharpur	Solapur	75.4658	17.6919	Percolation Tank
453	Tavashi	Pandharpur	Solapur	75.3875	17.5597	Percolation Tank
454	Tavashi	Pandharpur	Solapur	75.3686	17.5509	Percolation Tank
455	Tavashi	Pandharpur	Solapur	75.3524	17.5575	Percolation Tank
456	Tavashi	Pandharpur	Solapur	75.3678	17.5645	Percolation Tank
457	Venunagar (NV) (27)	Pandharpur	Solapur	75.3247	17.753	Percolation Tank
458	Wadi Kuroli	Pandharpur	Solapur	75.2067	17.7475	Percolation Tank
459	Wadi Kuroli	Pandharpur	Solapur	75.1959	17.728	Percolation Tank
460	Wakhari	Pandharpur	Solapur	75.2818	17.6761	Percolation Tank
461	Wakhari	Pandharpur	Solapur	75.2934	17.6863	Percolation Tank
462	Wakhari	Pandharpur	Solapur	75.284	17.6964	Percolation Tank
463	Wakhari	Pandharpur	Solapur	75.2641	17.6714	Percolation Tank
464	Achegaon	Solapur South	Solapur	76.0731	17.5385	Percolation Tank
465	Akole Mandrup	Solapur South	Solapur	75.7716	17.6046	Percolation Tank
466	Alegaon	Solapur South	Solapur	76.0349	17.5024	Percolation Tank
467	Auj Mandrup	Solapur South	Solapur	75.8136	17.4076	Percolation Tank
468	Aurad	Solapur South	Solapur	75.8888	17.4741	Percolation Tank
469	Aurad	Solapur South	Solapur	75.8753	17.4811	Percolation Tank
470	Bandalgi	Solapur South	Solapur	75.9131	17.4502	Percolation Tank
471	Barur	Solapur South	Solapur	75.8757	17.4186	Percolation Tank
472	Baxi Hipparge	Solapur South	Solapur	75.9617	17.723	Percolation Tank
473	Baxi Hipparge	Solapur South	Solapur	75.9717	17.7072	Percolation Tank
474	Bhandar Kavathe	Solapur South	Solapur	75.6836	17.4565	Percolation Tank
475	Bhandar Kavathe	Solapur South	Solapur	75.7079	17.4752	Percolation Tank
476	Bhandar Kavathe	Solapur South	Solapur	75.6975	17.4392	Percolation Tank
477	Bolkavathe	Solapur South	Solapur	75.8938	17.4458	Percolation Tank
478	Boramani	Solapur South	Solapur	76.0476	17.7157	Percolation Tank
479	Chincholi	Solapur South	Solapur	76.07	17.6116	Percolation Tank
480	Chinchpur	Solapur South	Solapur	75.8579	17.4102	Percolation Tank
481	Dhotri	Solapur South	Solapur	76.1105	17.6855	Percolation Tank
482	Doddi	Solapur South	Solapur	75.9998	17.6954	Percolation Tank
483	Hatur	Solapur South	Solapur	75.8896	17.5499	Percolation Tank
484	Honmurgi	Solapur South	Solapur	75.8988	17.5076	Percolation Tank
485	Hotgi	Solapur South	Solapur	75.9848	17.5896	Percolation Tank
486	Ingalgi	Solapur South	Solapur	76.0631	17.5131	Percolation Tank
487	Kanbas	Solapur South	Solapur	76.0257	17.4944	Percolation Tank
488	Kandalgaon	Solapur South	Solapur	75.7943	17.5738	Percolation Tank
489	Karkal	Solapur South	Solapur	75.7631	17.4175	Percolation Tank
490	Karkal	Solapur South	Solapur	75.7762	17.4069	Percolation Tank
491	Kasegaon	Solapur South	Solapur	75.9744	17.7866	Percolation Tank
492	Kumbhari	Solapur South	Solapur	75.9829	17.6201	Percolation Tank
493	Kumbhari	Solapur South	Solapur	75.991	17.6333	Percolation Tank
494	Kumbhari	Solapur South	Solapur	75.9617	17.623	Percolation Tank

SN	Village	Taluka	District	X	Y	Structures
495	Kumbhari	Solapur South	Solapur	75.9667	17.6414	Percolation Tank
496	Kurghot	Solapur South	Solapur	75.8252	17.4359	Percolation Tank
497	Kusur	Solapur South	Solapur	75.6412	17.5006	Percolation Tank
498	Madre	Solapur South	Solapur	75.9351	17.5451	Percolation Tank
499	Malkavathe	Solapur South	Solapur	75.7824	17.4403	Percolation Tank
500	Mandrup	Solapur South	Solapur	75.8186	17.4745	Percolation Tank
501	Mandrup	Solapur South	Solapur	75.8275	17.4554	Percolation Tank
502	Mandrup	Solapur South	Solapur	75.8078	17.4469	Percolation Tank
503	Mangoli	Solapur South	Solapur	75.8074	17.5841	Percolation Tank
504	Mulegaon	Solapur South	Solapur	75.9698	17.6859	Percolation Tank
505	Musti	Solapur South	Solapur	76.1198	17.7179	Percolation Tank
506	Musti	Solapur South	Solapur	76.107	17.744	Percolation Tank
507	Musti	Solapur South	Solapur	76.1001	17.7142	Percolation Tank
508	Nimbargi	Solapur South	Solapur	75.7415	17.4668	Percolation Tank
509	Nimbargi	Solapur South	Solapur	75.7554	17.483	Percolation Tank
510	Phatatewadi	Solapur South	Solapur	75.9466	17.5587	Percolation Tank
511	Sadepur	Solapur South	Solapur	75.7303	17.4241	Percolation Tank
512	Shingadgaon	Solapur South	Solapur	76.0419	17.5697	Percolation Tank
513	Shirval	Solapur South	Solapur	76.05	17.4741	Percolation Tank
514	Sindkhed	Solapur South	Solapur	75.9404	17.512	Percolation Tank
515	Tirth	Solapur South	Solapur	76.1228	17.6127	Percolation Tank
516	Togarhalli	Solapur South	Solapur	76.0384	17.6216	Percolation Tank
517	Vadakbal	Solapur South	Solapur	75.868	17.5223	Percolation Tank
518	Valsang	Solapur South	Solapur	76.0565	17.5907	Percolation Tank
519	Vinchur	Solapur South	Solapur	75.6925	17.5002	Percolation Tank
520	Vinchur	Solapur South	Solapur	75.7245	17.5201	Percolation Tank
521	Wangi	Solapur South	Solapur	75.8356	17.5587	Percolation Tank
522	Wangi	Solapur South	Solapur	75.8313	17.5296	Percolation Tank
523	Waralegaon	Solapur South	Solapur	75.9856	17.7274	Percolation Tank

SN	Village	Taluka	District	X	Y	Structure
1	Aljapur	Karmala	Solapur	75.2257	18.5098	Checkdam
2	Aljapur	Karmala	Solapur	75.2377	18.5128	Checkdam
3	Alsunde	Karmala	Solapur	75.3006	18.2796	Checkdam
4	Arjunnagar	Karmala	Solapur	75.2696	18.3597	Checkdam
5	Arjunnagar	Karmala	Solapur	75.2753	18.3471	Checkdam
6	Awati	Karmala	Solapur	75.3759	18.2813	Checkdam
7	Bhagatwadi	Karmala	Solapur	74.9191	18.3072	Checkdam
8	Bhagatwadi	Karmala	Solapur	74.9156	18.3145	Checkdam
9	Bhagatwadi	Karmala	Solapur	74.9117	18.3153	Checkdam
10	Bhagatwadi	Karmala	Solapur	74.9115	18.3182	Checkdam
11	Bhagatwadi	Karmala	Solapur	74.9154	18.3066	Checkdam
12	Bhalavni	Karmala	Solapur	75.1978	18.2033	Checkdam
13	Bhalavni	Karmala	Solapur	75.2047	18.2091	Checkdam
14	Bhalavni	Karmala	Solapur	75.2018	18.204	Checkdam
15	Bhalavni	Karmala	Solapur	75.1942	18.2094	Checkdam
16	Bhalavni	Karmala	Solapur	75.209	18.2067	Checkdam
17	Bhalavni	Karmala	Solapur	75.2213	18.2064	Checkdam
18	Bhilarwadi	Karmala	Solapur	74.8951	18.3199	Checkdam
19	Bhilarwadi	Karmala	Solapur	74.893	18.3184	Checkdam
20	Bhilarwadi	Karmala	Solapur	74.884	18.3314	Checkdam
21	Bhilarwadi	Karmala	Solapur	74.8888	18.3314	Checkdam
22	Bhilarwadi	Karmala	Solapur	74.8847	18.3349	Checkdam
23	Bhilarwadi	Karmala	Solapur	74.8877	18.3379	Checkdam
24	Bhilarwadi	Karmala	Solapur	74.8897	18.3432	Checkdam
25	Bhilarwadi	Karmala	Solapur	74.8925	18.339	Checkdam
26	Bhilarwadi	Karmala	Solapur	74.8974	18.3417	Checkdam
27	Bhilarwadi	Karmala	Solapur	74.8874	18.3489	Checkdam
28	Bhose	Karmala	Solapur	75.1644	18.4194	Checkdam
29	Bhose	Karmala	Solapur	75.167	18.4233	Checkdam
30	Borgaon	Karmala	Solapur	75.2803	18.4413	Checkdam
31	Dahigaon	Karmala	Solapur	75.1213	18.2389	Checkdam
32	Delwadi	Karmala	Solapur	74.9413	18.3318	Checkdam
33	Delwadi	Karmala	Solapur	74.9136	18.3373	Checkdam
34	Delwadi	Karmala	Solapur	74.9156	18.3448	Checkdam
35	Deolali	Karmala	Solapur	75.1869	18.3849	Checkdam
36	Deolali	Karmala	Solapur	75.1899	18.3821	Checkdam
37	Deolali	Karmala	Solapur	75.1966	18.3781	Checkdam
38	Deolali	Karmala	Solapur	75.1711	18.3843	Checkdam
39	Deolali	Karmala	Solapur	75.1732	18.3819	Checkdam
40	Deolali	Karmala	Solapur	75.1783	18.3792	Checkdam
41	Deolali	Karmala	Solapur	75.1748	18.3742	Checkdam
42	Deolali	Karmala	Solapur	75.1815	18.377	Checkdam
43	Deolali	Karmala	Solapur	75.185	18.3755	Checkdam
44	Deolali	Karmala	Solapur	75.1774	18.3643	Checkdam

SN	Village	Taluka	District	X	Y	Structure
45	Deolali	Karmala	Solapur	75.1804	18.3685	Checkdam
46	Deolali	Karmala	Solapur	75.1859	18.3718	Checkdam
47	Deolali	Karmala	Solapur	75.1913	18.3735	Checkdam
48	Deolali	Karmala	Solapur	75.1952	18.3639	Checkdam
49	Deolali	Karmala	Solapur	75.195	18.368	Checkdam
50	Dhaykhindi	Karmala	Solapur	75.2301	18.4088	Checkdam
51	Dhaykhindi	Karmala	Solapur	75.2324	18.4121	Checkdam
52	Dhaykhindi	Karmala	Solapur	75.2292	18.4134	Checkdam
53	Dhaykhindi	Karmala	Solapur	75.2301	18.4209	Checkdam
54	Dhaykhindi	Karmala	Solapur	75.2345	18.4192	Checkdam
55	Dhaykhindi	Karmala	Solapur	75.2375	18.4218	Checkdam
56	Divegavan	Karmala	Solapur	74.9677	18.3338	Checkdam
57	Divegavan	Karmala	Solapur	74.9633	18.3452	Checkdam
58	Gaundare	Karmala	Solapur	75.3467	18.3152	Checkdam
59	Gaundare	Karmala	Solapur	75.3572	18.3169	Checkdam
60	Gaundare	Karmala	Solapur	75.3637	18.3163	Checkdam
61	Gaundare	Karmala	Solapur	75.3734	18.3132	Checkdam
62	Gharatwadi	Karmala	Solapur	74.9274	18.3566	Checkdam
63	Ghargaon	Karmala	Solapur	75.2886	18.4753	Checkdam
64	Ghargaon	Karmala	Solapur	75.2918	18.4799	Checkdam
65	Ghargaon	Karmala	Solapur	75.2948	18.4731	Checkdam
66	Ghargaon	Karmala	Solapur	75.293	18.4639	Checkdam
67	Ghargaon	Karmala	Solapur	75.2872	18.4646	Checkdam
68	Ghargaon	Karmala	Solapur	75.2819	18.46	Checkdam
69	Ghargaon	Karmala	Solapur	75.2828	18.4659	Checkdam
70	Ghargaon	Karmala	Solapur	75.2858	18.4703	Checkdam
71	Ghoti	Karmala	Solapur	75.2959	18.2437	Checkdam
72	Ghoti	Karmala	Solapur	75.2735	18.2327	Checkdam
73	Ghoti	Karmala	Solapur	75.2782	18.2375	Checkdam
74	Ghoti	Karmala	Solapur	75.2782	18.2409	Checkdam
75	Ghoti	Karmala	Solapur	75.2699	18.2426	Checkdam
76	Ghoti	Karmala	Solapur	75.2652	18.243	Checkdam
77	Ghoti	Karmala	Solapur	75.2872	18.2402	Checkdam
78	Gulmarwadi	Karmala	Solapur	74.9295	18.2969	Checkdam
79	Gulmarwadi	Karmala	Solapur	74.9251	18.3013	Checkdam
80	Hingani	Karmala	Solapur	74.9341	18.2925	Checkdam
81	Hisare	Karmala	Solapur	75.2757	18.3553	Checkdam
82	Hisare	Karmala	Solapur	75.2829	18.3265	Checkdam
83	Hisare	Karmala	Solapur	75.2887	18.3354	Checkdam
84	Hisare	Karmala	Solapur	75.2959	18.343	Checkdam
85	Hisare	Karmala	Solapur	75.2973	18.3512	Checkdam
86	Hisare	Karmala	Solapur	75.3071	18.3378	Checkdam
87	Hisare	Karmala	Solapur	75.2999	18.3443	Checkdam
88	Hivare	Karmala	Solapur	75.3215	18.3539	Checkdam
89	Hivare	Karmala	Solapur	75.3204	18.3618	Checkdam

SN	Village	Taluka	District	X	Y	Structure
90	Hiwarwadi	Karmala	Solapur	75.1723	18.4132	Checkdam
91	Hiwarwadi	Karmala	Solapur	75.1725	18.4185	Checkdam
92	Hiwarwadi	Karmala	Solapur	75.173	18.4238	Checkdam
93	Hiwarwadi	Karmala	Solapur	75.1714	18.427	Checkdam
94	Jategaon	Karmala	Solapur	75.1873	18.5159	Checkdam
95	Jeur	Karmala	Solapur	75.1563	18.2691	Checkdam
96	Jeurwadi	Karmala	Solapur	75.1512	18.2776	Checkdam
97	Jinnti	Karmala	Solapur	74.8877	18.3171	Checkdam
98	Jinnti	Karmala	Solapur	74.883	18.3158	Checkdam
99	Jinnti	Karmala	Solapur	74.8786	18.3156	Checkdam
100	Jinnti	Karmala	Solapur	74.8805	18.3213	Checkdam
101	Jinnti	Karmala	Solapur	74.89	18.2899	Checkdam
102	Jinnti	Karmala	Solapur	74.8893	18.2945	Checkdam
103	Jinnti	Karmala	Solapur	74.884	18.2899	Checkdam
104	Jinnti	Karmala	Solapur	74.8705	18.3013	Checkdam
105	Jinnti	Karmala	Solapur	74.8673	18.2991	Checkdam
106	Kamone	Karmala	Solapur	75.2141	18.4836	Checkdam
107	Kamone	Karmala	Solapur	75.2229	18.4793	Checkdam
108	Kamone	Karmala	Solapur	75.2227	18.4764	Checkdam
109	Karanje	Karmala	Solapur	75.2521	18.4018	Checkdam
110	Karmala (rural)	Karmala	Solapur	75.1899	18.4066	Checkdam
111	Karmala (rural)	Karmala	Solapur	75.1933	18.4097	Checkdam
112	Karmala (rural)	Karmala	Solapur	75.1961	18.4134	Checkdam
113	Karmala (rural)	Karmala	Solapur	75.1989	18.4161	Checkdam
114	Karmala (rural)	Karmala	Solapur	75.1989	18.4198	Checkdam
115	Karmala (rural)	Karmala	Solapur	75.197	18.4216	Checkdam
116	Karmala(Urban)	Karmala	Solapur	75.2197	18.4132	Checkdam
117	Karmala(Urban)	Karmala	Solapur	75.2153	18.4273	Checkdam
118	Karmala(Urban)	Karmala	Solapur	75.1848	18.4029	Checkdam
119	Karmala(Urban)	Karmala	Solapur	75.1933	18.4281	Checkdam
120	Katraj	Karmala	Solapur	74.85	18.2839	Checkdam
121	Katraj	Karmala	Solapur	74.8446	18.2798	Checkdam
122	Kavitgaon	Karmala	Solapur	75.2111	18.1502	Checkdam
123	Kawalwadi	Karmala	Solapur	74.8784	18.3428	Checkdam
124	Kawalwadi	Karmala	Solapur	74.8823	18.3478	Checkdam
125	Kawalwadi	Karmala	Solapur	74.8738	18.3377	Checkdam
126	Kedgaon	Karmala	Solapur	75.0747	18.2858	Checkdam
127	Kedgaon	Karmala	Solapur	75.0809	18.2882	Checkdam
128	Kedgaon	Karmala	Solapur	75.0906	18.29	Checkdam
129	Kem	Karmala	Solapur	75.2963	18.2023	Checkdam
130	Kem	Karmala	Solapur	75.28	18.2129	Checkdam
131	Kem	Karmala	Solapur	75.2876	18.2166	Checkdam
132	Kem	Karmala	Solapur	75.2894	18.1759	Checkdam
133	Kem	Karmala	Solapur	75.2887	18.181	Checkdam
134	Kem	Karmala	Solapur	75.2844	18.1831	Checkdam

SN	Village	Taluka	District	X	Y	Structure
135	Kem	Karmala	Solapur	75.2746	18.1762	Checkdam
136	Kem	Karmala	Solapur	75.2898	18.1687	Checkdam
137	Kem	Karmala	Solapur	75.2761	18.1663	Checkdam
138	Kem	Karmala	Solapur	75.2674	18.1735	Checkdam
139	Kem	Karmala	Solapur	75.2797	18.1529	Checkdam
140	Kem	Karmala	Solapur	75.2757	18.1557	Checkdam
141	Kem	Karmala	Solapur	75.2725	18.1536	Checkdam
142	Kem	Karmala	Solapur	75.2678	18.1601	Checkdam
143	Kem	Karmala	Solapur	75.2559	18.157	Checkdam
144	Kem	Karmala	Solapur	75.2512	18.1642	Checkdam
145	Kem	Karmala	Solapur	75.2418	18.1803	Checkdam
146	Kem	Karmala	Solapur	75.2505	18.1855	Checkdam
147	Kem	Karmala	Solapur	75.2598	18.1913	Checkdam
148	Khadaki	Karmala	Solapur	75.2012	18.5146	Checkdam
149	Khambewadi	Karmala	Solapur	75.2502	18.4255	Checkdam
150	Khatgaon	Karmala	Solapur	74.8879	18.2787	Checkdam
151	Kolgaon	Karmala	Solapur	75.3514	18.3522	Checkdam
152	Kondhej	Karmala	Solapur	75.2083	18.2567	Checkdam
153	Kumbhargaon	Karmala	Solapur	74.9223	18.3456	Checkdam
154	Kumbhargaon	Karmala	Solapur	74.917	18.3485	Checkdam
155	Kumbhargaon	Karmala	Solapur	74.9381	18.3494	Checkdam
156	Kumbhargaon	Karmala	Solapur	74.9242	18.348	Checkdam
157	Kumbhargaon	Karmala	Solapur	74.9422	18.3702	Checkdam
158	Kumbhargaon	Karmala	Solapur	74.9478	18.363	Checkdam
159	Kumbhej	Karmala	Solapur	75.1753	18.2883	Checkdam
160	Lavhe	Karmala	Solapur	75.1784	18.2334	Checkdam
161	Lavhe	Karmala	Solapur	75.1993	18.2522	Checkdam
162	Lavhe	Karmala	Solapur	75.1935	18.2464	Checkdam
163	Lavhe	Karmala	Solapur	75.1866	18.2392	Checkdam
164	Malwadi	Karmala	Solapur	75.2342	18.2125	Checkdam
165	Malwadi	Karmala	Solapur	75.2461	18.2197	Checkdam
166	Malwadi	Karmala	Solapur	75.2533	18.2214	Checkdam
167	Mangi	Karmala	Solapur	75.1943	18.4657	Checkdam
168	Mangi	Karmala	Solapur	75.1915	18.472	Checkdam
169	Mangi	Karmala	Solapur	75.1924	18.4788	Checkdam
170	Nerle	Karmala	Solapur	75.3435	18.2557	Checkdam
171	Nerle	Karmala	Solapur	75.3489	18.2635	Checkdam
172	Nerle	Karmala	Solapur	75.3594	18.2663	Checkdam
173	Nerle	Karmala	Solapur	75.3507	18.2841	Checkdam
174	Nerle	Karmala	Solapur	75.3694	18.2704	Checkdam
175	Nerle	Karmala	Solapur	75.3709	18.2892	Checkdam
176	Nerle	Karmala	Solapur	75.354	18.2509	Checkdam
177	Nerle	Karmala	Solapur	75.372	18.2673	Checkdam
178	Nimbhore	Karmala	Solapur	75.2314	18.2468	Checkdam
179	Nimbhore	Karmala	Solapur	75.2252	18.2416	Checkdam

SN	Village	Taluka	District	X	Y	Structure
180	Nimbhore	Karmala	Solapur	75.2227	18.2351	Checkdam
181	Nimbhore	Karmala	Solapur	75.227	18.2331	Checkdam
182	Nimbhore	Karmala	Solapur	75.2357	18.2361	Checkdam
183	Nimbhore	Karmala	Solapur	75.2173	18.2293	Checkdam
184	Nimbhore	Karmala	Solapur	75.2094	18.2221	Checkdam
185	Nimgaon (h)	Karmala	Solapur	75.3727	18.3375	Checkdam
186	Pande	Karmala	Solapur	75.2552	18.3567	Checkdam
187	Pande	Karmala	Solapur	75.2218	18.3909	Checkdam
188	Pande	Karmala	Solapur	75.2227	18.3952	Checkdam
189	Pande	Karmala	Solapur	75.1975	18.3709	Checkdam
190	Pande	Karmala	Solapur	75.2091	18.3715	Checkdam
191	Pande	Karmala	Solapur	75.2185	18.3724	Checkdam
192	Pande	Karmala	Solapur	75.213	18.3814	Checkdam
193	Pande	Karmala	Solapur	75.2102	18.3845	Checkdam
194	Pathurdi	Karmala	Solapur	75.2995	18.2101	Checkdam
195	Pathurdi	Karmala	Solapur	75.3017	18.2187	Checkdam
196	Pathurdi	Karmala	Solapur	75.3038	18.2269	Checkdam
197	Pathurdi	Karmala	Solapur	75.2945	18.2221	Checkdam
198	Pathurdi	Karmala	Solapur	75.2995	18.2283	Checkdam
199	Phisare	Karmala	Solapur	75.2739	18.3371	Checkdam
200	Pimpalwadi	Karmala	Solapur	75.148	18.4099	Checkdam
201	Pimpalwadi	Karmala	Solapur	75.1443	18.4143	Checkdam
202	Pimpalwadi	Karmala	Solapur	75.1406	18.4213	Checkdam
203	Pimpalwadi	Karmala	Solapur	75.1455	18.4229	Checkdam
204	Pimpalwadi	Karmala	Solapur	75.1427	18.429	Checkdam
205	Pimpalwadi	Karmala	Solapur	75.1487	18.4255	Checkdam
206	Pondhvadi	Karmala	Solapur	75.046	18.3448	Checkdam
207	Pophalaj	Karmala	Solapur	75.1033	18.2893	Checkdam
208	Potegaon	Karmala	Solapur	75.2634	18.4521	Checkdam
209	Potegaon	Karmala	Solapur	75.2703	18.4545	Checkdam
210	Potegaon	Karmala	Solapur	75.274	18.4589	Checkdam
211	Pothare	Karmala	Solapur	75.2282	18.4652	Checkdam
212	Pothare	Karmala	Solapur	75.231	18.4591	Checkdam
213	Pothare	Karmala	Solapur	75.2331	18.454	Checkdam
214	Ravgaon	Karmala	Solapur	75.1004	18.4433	Checkdam
215	Ravgaon	Karmala	Solapur	75.1027	18.4468	Checkdam
216	Ravgaon	Karmala	Solapur	75.1073	18.4488	Checkdam
217	Ravgaon	Karmala	Solapur	75.1136	18.4514	Checkdam
218	Ravgaon	Karmala	Solapur	75.1193	18.4536	Checkdam
219	Ravgaon	Karmala	Solapur	75.1191	18.4485	Checkdam
220	Ravgaon	Karmala	Solapur	75.1166	18.4431	Checkdam
221	Ritewadi	Karmala	Solapur	75.0375	18.312	Checkdam
222	Roshewadi	Karmala	Solapur	75.16	18.4121	Checkdam
223	Roshewadi	Karmala	Solapur	75.1628	18.4159	Checkdam
224	Sade	Karmala	Solapur	75.2703	18.2759	Checkdam

SN	Village	Taluka	District	X	Y	Structure
225	Sade	Karmala	Solapur	75.2771	18.2868	Checkdam
226	Sade	Karmala	Solapur	75.2624	18.2961	Checkdam
227	Sade	Karmala	Solapur	75.266	18.2937	Checkdam
228	Sade	Karmala	Solapur	75.271	18.2892	Checkdam
229	Sade	Karmala	Solapur	75.2818	18.2851	Checkdam
230	Sade	Karmala	Solapur	75.2613	18.2649	Checkdam
231	Sade	Karmala	Solapur	75.2609	18.2693	Checkdam
232	Sade	Karmala	Solapur	75.2508	18.2673	Checkdam
233	Sade	Karmala	Solapur	75.2552	18.2693	Checkdam
234	Sade	Karmala	Solapur	75.2656	18.2724	Checkdam
235	Sade	Karmala	Solapur	75.2717	18.2786	Checkdam
236	Sade	Karmala	Solapur	75.2764	18.282	Checkdam
237	Sade	Karmala	Solapur	75.2634	18.28	Checkdam
238	Sade	Karmala	Solapur	75.2541	18.2841	Checkdam
239	Sade	Karmala	Solapur	75.2497	18.2837	Checkdam
240	Sade	Karmala	Solapur	75.2941	18.2868	Checkdam
241	Sade	Karmala	Solapur	75.2937	18.2954	Checkdam
242	Sade	Karmala	Solapur	75.2901	18.2892	Checkdam
243	Sade	Karmala	Solapur	75.2872	18.2834	Checkdam
244	Sade	Karmala	Solapur	75.2934	18.2813	Checkdam
245	Salse	Karmala	Solapur	75.3154	18.3142	Checkdam
246	Salse	Karmala	Solapur	75.3125	18.3087	Checkdam
247	Salse	Karmala	Solapur	75.311	18.3046	Checkdam
248	Salse	Karmala	Solapur	75.3121	18.2995	Checkdam
249	Salse	Karmala	Solapur	75.3121	18.2919	Checkdam
250	Salse	Karmala	Solapur	75.3269	18.3032	Checkdam
251	Salse	Karmala	Solapur	75.3283	18.2978	Checkdam
252	Salse	Karmala	Solapur	75.3294	18.2916	Checkdam
253	Salse	Karmala	Solapur	75.3294	18.2861	Checkdam
254	Sarapdoh	Karmala	Solapur	75.204	18.2923	Checkdam
255	Sarapdoh	Karmala	Solapur	75.2083	18.2967	Checkdam
256	Sarapdoh	Karmala	Solapur	75.2115	18.3022	Checkdam
257	Sarapdoh	Karmala	Solapur	75.2126	18.3087	Checkdam
258	Savadi	Karmala	Solapur	74.97	18.3748	Checkdam
259	Savadi	Karmala	Solapur	74.982	18.383	Checkdam
260	Savadi	Karmala	Solapur	74.9915	18.3931	Checkdam
261	Savadi	Karmala	Solapur	74.9903	18.3966	Checkdam
262	Savadi	Karmala	Solapur	74.9862	18.3972	Checkdam
263	Savadi	Karmala	Solapur	74.9885	18.3928	Checkdam
264	Savadi	Karmala	Solapur	74.9885	18.3882	Checkdam
265	Savadi	Karmala	Solapur	74.9878	18.3799	Checkdam
266	Savadi	Karmala	Solapur	74.9873	18.3746	Checkdam
267	Savadi	Karmala	Solapur	74.9991	18.3858	Checkdam
268	Savadi	Karmala	Solapur	75.0037	18.3887	Checkdam
269	Shelgaon (K)	Karmala	Solapur	75.2411	18.333	Checkdam

SN	Village	Taluka	District	X	Y	Structure
270	Shelgaon (K)	Karmala	Solapur	75.244	18.3406	Checkdam
271	Shelgaon (K)	Karmala	Solapur	75.2483	18.3495	Checkdam
272	Shetphal	Karmala	Solapur	75.1177	18.2574	Checkdam
273	Shetphal	Karmala	Solapur	75.1119	18.2492	Checkdam
274	Shetphal	Karmala	Solapur	75.1256	18.2441	Checkdam
275	Takali (Rashin)	Karmala	Solapur	74.8763	18.271	Checkdam
276	Taratgaon	Karmala	Solapur	75.2699	18.4865	Checkdam
277	Taratgaon	Karmala	Solapur	75.2756	18.4904	Checkdam
278	Umrad	Karmala	Solapur	75.0657	18.3373	Checkdam
279	Undargaon	Karmala	Solapur	75.0336	18.2949	Checkdam
280	Undargaon	Karmala	Solapur	75.037	18.2934	Checkdam
281	Vanjarwadi	Karmala	Solapur	75.1279	18.4325	Checkdam
282	Vanjarwadi	Karmala	Solapur	75.1272	18.4378	Checkdam
283	Vanjarwadi	Karmala	Solapur	75.1119	18.4255	Checkdam
284	Vanjarwadi	Karmala	Solapur	75.1082	18.4253	Checkdam
285	Vanjarwadi	Karmala	Solapur	75.1018	18.4255	Checkdam
286	Vanjarwadi	Karmala	Solapur	75.1152	18.4367	Checkdam
287	Varkute	Karmala	Solapur	75.3045	18.2433	Checkdam
288	Varkute	Karmala	Solapur	75.3125	18.245	Checkdam
289	Varkute	Karmala	Solapur	75.3211	18.2437	Checkdam
290	Varkute	Karmala	Solapur	75.3319	18.2461	Checkdam
291	Varkute	Karmala	Solapur	75.3388	18.2502	Checkdam
292	Varkute	Karmala	Solapur	75.3111	18.2334	Checkdam
293	Varkute	Karmala	Solapur	75.3158	18.2386	Checkdam
294	Varkute	Karmala	Solapur	75.3367	18.2327	Checkdam
295	Varkute	Karmala	Solapur	75.3367	18.2423	Checkdam
296	Varkute	Karmala	Solapur	75.3453	18.2458	Checkdam
297	Wadachiwadi	Karmala	Solapur	75.2867	18.4483	Checkdam
298	Wadachiwadi	Karmala	Solapur	75.2842	18.4461	Checkdam
299	Wadachiwadi	Karmala	Solapur	75.2872	18.4242	Checkdam
300	Wadachiwadi	Karmala	Solapur	75.2911	18.4323	Checkdam
301	Wadachiwadi	Karmala	Solapur	75.2884	18.4189	Checkdam
302	Wadgaon Kh.	Karmala	Solapur	75.1603	18.4435	Checkdam
303	Warkatne	Karmala	Solapur	75.2177	18.2622	Checkdam
304	Warkatne	Karmala	Solapur	75.2276	18.2881	Checkdam
305	Adegaon	Madha	Solapur	75.116	18.044	Checkdam
306	Adegaon	Madha	Solapur	75.102	18.046	Checkdam
307	Adegaon	Madha	Solapur	75.117	18.0369	Checkdam
308	Ahergaon	Madha	Solapur	75.2701	17.9842	Checkdam
309	Akole Kh	Madha	Solapur	75.1901	18.0746	Checkdam
310	Akole Kh	Madha	Solapur	75.1966	18.068	Checkdam
311	Akole Kh	Madha	Solapur	75.2082	18.0691	Checkdam
312	Akole Kh	Madha	Solapur	75.1901	18.0669	Checkdam
313	Akulgaon	Madha	Solapur	75.448	18.1179	Checkdam
314	Akulgaon	Madha	Solapur	75.4507	18.1355	Checkdam

SN	Village	Taluka	District	X	Y	Structure
315	Akulgaon	Madha	Solapur	75.4284	18.1248	Checkdam
316	Akulgaon	Madha	Solapur	75.4438	18.1274	Checkdam
317	Akumbhe	Madha	Solapur	75.3142	17.9888	Checkdam
318	Alegaon Bk	Madha	Solapur	75.0877	18.035	Checkdam
319	Alegaon Kh.	Madha	Solapur	75.0389	17.9919	Checkdam
320	Alegaon Kh.	Madha	Solapur	75.0331	17.9835	Checkdam
321	Alegaon Kh.	Madha	Solapur	75.0308	17.9749	Checkdam
322	Ambad	Madha	Solapur	75.3362	18.0695	Checkdam
323	Ambad	Madha	Solapur	75.3393	18.0753	Checkdam
324	Ambad	Madha	Solapur	75.3428	18.0772	Checkdam
325	Ambad	Madha	Solapur	75.3478	18.0687	Checkdam
326	Anjangaon (Kh)	Madha	Solapur	75.566	17.958	Checkdam
327	Anjangaon (Kh)	Madha	Solapur	75.5282	17.9335	Checkdam
328	Anjangaon (Kh)	Madha	Solapur	75.5371	17.9349	Checkdam
329	Anjangaon (Kh)	Madha	Solapur	75.5709	17.9419	Checkdam
330	Anjangaon (Kh)	Madha	Solapur	75.5373	17.9276	Checkdam
331	Anjangaon (Kh)	Madha	Solapur	75.5498	17.9279	Checkdam
332	Anjangaon (Kh)	Madha	Solapur	75.5734	17.9311	Checkdam
333	Anjangaon Umate	Madha	Solapur	75.5988	18.075	Checkdam
334	Anjangaon Umate	Madha	Solapur	75.6058	18.0834	Checkdam
335	Anjangaon Umate	Madha	Solapur	75.6108	18.0893	Checkdam
336	Anjangaon Umate	Madha	Solapur	75.6054	18.075	Checkdam
337	Anjangaon Umate	Madha	Solapur	75.6142	18.0742	Checkdam
338	Aran	Madha	Solapur	75.3632	17.9514	Checkdam
339	Aran	Madha	Solapur	75.3694	17.9364	Checkdam
340	Aran	Madha	Solapur	75.3752	17.9269	Checkdam
341	Aran	Madha	Solapur	75.386	17.9254	Checkdam
342	Aran	Madha	Solapur	75.386	17.9368	Checkdam
343	Badalewadi	Madha	Solapur	75.2826	18.0849	Checkdam
344	Badalewadi	Madha	Solapur	75.2888	18.0856	Checkdam
345	Badalewadi	Madha	Solapur	75.2849	18.0926	Checkdam
346	Badalewadi	Madha	Solapur	75.2923	18.0959	Checkdam
347	Badalewadi	Madha	Solapur	75.2834	18.0948	Checkdam
348	Badalewadi	Madha	Solapur	75.2888	18.1014	Checkdam
349	Badalewadi	Madha	Solapur	75.2768	18.094	Checkdam
350	Badalewadi	Madha	Solapur	75.2799	18.0995	Checkdam
351	Badalewadi	Madha	Solapur	75.2732	18.0896	Checkdam
352	Bairagwadi	Madha	Solapur	75.374	17.8851	Checkdam
353	Barloni	Madha	Solapur	75.423	18.1443	Checkdam
354	Barloni	Madha	Solapur	75.4199	18.1523	Checkdam
355	Barloni	Madha	Solapur	75.4095	18.1395	Checkdam
356	Barloni	Madha	Solapur	75.4133	18.1468	Checkdam
357	Barloni	Madha	Solapur	75.4049	18.1435	Checkdam
358	Barloni	Madha	Solapur	75.4168	18.1523	Checkdam
359	Barloni	Madha	Solapur	75.4203	18.1582	Checkdam

SN	Village	Taluka	District	X	Y	Structure
360	Barloni	Madha	Solapur	75.4234	18.1655	Checkdam
361	Barloni	Madha	Solapur	75.4291	18.1692	Checkdam
362	Barloni	Madha	Solapur	75.4207	18.1714	Checkdam
363	Barloni	Madha	Solapur	75.4087	18.1345	Checkdam
364	Barloni	Madha	Solapur	75.4027	18.1334	Checkdam
365	Bembale	Madha	Solapur	75.2259	17.954	Checkdam
366	Bembale	Madha	Solapur	75.236	17.9577	Checkdam
367	Bhend	Madha	Solapur	75.3678	17.9643	Checkdam
368	Bhend	Madha	Solapur	75.3644	17.9577	Checkdam
369	Bhogewadi	Madha	Solapur	75.3273	18.1916	Checkdam
370	Bhosare	Madha	Solapur	75.4372	18.0849	Checkdam
371	Bhuinje	Madha	Solapur	75.2861	17.9899	Checkdam
372	Bhuinje	Madha	Solapur	75.2926	17.9965	Checkdam
373	Bhutashte	Madha	Solapur	75.4403	18.0024	Checkdam
374	Bhutashte	Madha	Solapur	75.4384	17.9947	Checkdam
375	Bhutashte	Madha	Solapur	75.4307	17.9885	Checkdam
376	Bhutashte	Madha	Solapur	75.4157	17.9855	Checkdam
377	Bitergaon	Madha	Solapur	75.3894	18.2183	Checkdam
378	Bitergaon	Madha	Solapur	75.3833	18.2256	Checkdam
379	Chandaj	Madha	Solapur	75.0786	17.991	Checkdam
380	Chandaj	Madha	Solapur	75.0885	17.9993	Checkdam
381	Chandaj	Madha	Solapur	75.0916	18.0057	Checkdam
382	Chavanwadi	Madha	Solapur	75.6115	18.0072	Checkdam
383	Chavhanwadi	Madha	Solapur	75.2163	17.9938	Checkdam
384	Chavhanwadi	Madha	Solapur	75.2124	18.0007	Checkdam
385	Chinchgaon	Madha	Solapur	75.465	18.1032	Checkdam
386	Chinchgaon	Madha	Solapur	75.4635	18.1094	Checkdam
387	Chinchgaon	Madha	Solapur	75.4743	18.127	Checkdam
388	Chincholi	Madha	Solapur	75.4423	18.0163	Checkdam
389	Chincholi	Madha	Solapur	75.4492	18.0057	Checkdam
390	Chincholi	Madha	Solapur	75.4561	18.013	Checkdam
391	Chobepimpari	Madha	Solapur	75.3601	18.171	Checkdam
392	Chobepimpari	Madha	Solapur	75.3559	18.163	Checkdam
393	Chobepimpari	Madha	Solapur	75.3501	18.1648	Checkdam
394	Chobepimpari	Madha	Solapur	75.3455	18.1472	Checkdam
395	Chobepimpari	Madha	Solapur	75.3383	18.1469	Checkdam
396	Dahiwali	Madha	Solapur	75.2626	18.1021	Checkdam
397	Dahiwali	Madha	Solapur	75.2541	18.0995	Checkdam
398	Dahiwali	Madha	Solapur	75.246	18.0984	Checkdam
399	Dahiwali	Madha	Solapur	75.241	18.0992	Checkdam
400	Dahiwali	Madha	Solapur	75.2348	18.101	Checkdam
401	Dahiwali	Madha	Solapur	75.2275	18.105	Checkdam
402	Dahiwali	Madha	Solapur	75.2356	18.0955	Checkdam
403	Dahiwali	Madha	Solapur	75.2377	18.1132	Checkdam
404	Darfal	Madha	Solapur	75.5776	18.0948	Checkdam

SN	Village	Taluka	District	X	Y	Structure
405	Darfal	Madha	Solapur	75.5629	18.0625	Checkdam
406	Dhavalas	Madha	Solapur	75.3046	18.1146	Checkdam
407	Dhavalas	Madha	Solapur	75.3046	18.1274	Checkdam
408	Dhavalas	Madha	Solapur	75.3156	18.1295	Checkdam
409	Dhavalas	Madha	Solapur	75.314	18.1383	Checkdam
410	Dhavalas	Madha	Solapur	75.3154	18.1462	Checkdam
411	Dhavalas	Madha	Solapur	75.3264	18.1491	Checkdam
412	Dhavalas	Madha	Solapur	75.3314	18.1473	Checkdam
413	Footjawalgaon	Madha	Solapur	75.204	18.0808	Checkdam
414	Gar Akole	Madha	Solapur	75.0356	17.9595	Checkdam
415	Gar Akole	Madha	Solapur	75.0399	17.954	Checkdam
416	Ghoti	Madha	Solapur	75.2398	17.9173	Checkdam
417	Ghoti	Madha	Solapur	75.2313	17.9071	Checkdam
418	Ghoti	Madha	Solapur	75.2599	17.9188	Checkdam
419	Hole Kh	Madha	Solapur	75.3343	17.9921	Checkdam
420	Jadhavwadi	Madha	Solapur	75.4901	18.0204	Checkdam
421	Jadhavwadi	Madha	Solapur	75.4851	18.0295	Checkdam
422	Jadhavwadi	Madha	Solapur	75.3871	17.9155	Checkdam
423	Jadhavwadi	Madha	Solapur	75.3678	17.9122	Checkdam
424	Jakhle	Madha	Solapur	75.3478	18.1773	Checkdam
425	Jakhle	Madha	Solapur	75.3408	18.1644	Checkdam
426	Jakhle	Madha	Solapur	75.3343	18.1674	Checkdam
427	Jakhle	Madha	Solapur	75.3333	18.1638	Checkdam
428	Jamgaon	Madha	Solapur	75.6162	18.061	Checkdam
429	Jamgaon	Madha	Solapur	75.6108	18.0599	Checkdam
430	Jamgaon	Madha	Solapur	75.6034	18.0486	Checkdam
431	Kanhergaon	Madha	Solapur	75.2317	18.0772	Checkdam
432	Kanhergaon	Madha	Solapur	75.2229	18.0753	Checkdam
433	Kanhergaon	Madha	Solapur	75.2136	18.0772	Checkdam
434	Kanhergaon	Madha	Solapur	75.2167	18.0805	Checkdam
435	Kanhergaon	Madha	Solapur	75.2229	18.0728	Checkdam
436	Kanhergaon	Madha	Solapur	75.2259	18.0669	Checkdam
437	Kapsewadi	Madha	Solapur	75.6655	18.0273	Checkdam
438	Kavhe	Madha	Solapur	75.4018	18.1743	Checkdam
439	Kavhe	Madha	Solapur	75.4099	18.1758	Checkdam
440	Kavhe	Madha	Solapur	75.411	18.2062	Checkdam
441	Kavhe	Madha	Solapur	75.3528	18.1743	Checkdam
442	Kewad	Madha	Solapur	75.5973	18.0339	Checkdam
443	Khairao	Madha	Solapur	75.6169	17.9745	Checkdam
444	Khairao	Madha	Solapur	75.6171	17.9624	Checkdam
445	Khairewadi	Madha	Solapur	75.5834	17.9808	Checkdam
446	Khairewadi	Madha	Solapur	75.5795	17.9804	Checkdam
447	Kumbhej	Madha	Solapur	75.583	17.9617	Checkdam
448	Kumbhej	Madha	Solapur	75.5778	17.9355	Checkdam
449	Kumbhej	Madha	Solapur	75.584	17.9439	Checkdam

SN	Village	Taluka	District	X	Y	Structure
450	Kumbhej	Madha	Solapur	75.588	17.9415	Checkdam
451	Kurdu	Madha	Solapur	75.3929	18.1054	Checkdam
452	Kurdu	Madha	Solapur	75.3771	18.1006	Checkdam
453	Kurdu	Madha	Solapur	75.3628	18.0984	Checkdam
454	Kurdu	Madha	Solapur	75.3543	18.0933	Checkdam
455	Kurdu	Madha	Solapur	75.3817	18.0706	Checkdam
456	Kurdu	Madha	Solapur	75.3879	18.0728	Checkdam
457	Kurdu	Madha	Solapur	75.3933	18.0673	Checkdam
458	Kurdu	Madha	Solapur	75.3979	18.0717	Checkdam
459	Kurdu	Madha	Solapur	75.3757	18.1145	Checkdam
460	Kurduwadi	Madha	Solapur	75.4137	18.0959	Checkdam
461	Lahu	Madha	Solapur	75.4577	18.1446	Checkdam
462	Lahu	Madha	Solapur	75.4345	18.1479	Checkdam
463	Lahu	Madha	Solapur	75.4388	18.1527	Checkdam
464	Lahu	Madha	Solapur	75.448	18.1608	Checkdam
465	Laul	Madha	Solapur	75.4002	18.0442	Checkdam
466	Laul	Madha	Solapur	75.416	18.0306	Checkdam
467	Laul	Madha	Solapur	75.4157	18.0379	Checkdam
468	Laul	Madha	Solapur	75.4284	18.0383	Checkdam
469	Laul	Madha	Solapur	75.3968	18.0182	Checkdam
470	Laul	Madha	Solapur	75.4037	18.0288	Checkdam
471	Laul	Madha	Solapur	75.4045	18.035	Checkdam
472	Laul	Madha	Solapur	75.3771	18.0204	Checkdam
473	Laul	Madha	Solapur	75.3767	18.0321	Checkdam
474	Laul	Madha	Solapur	75.3802	18.039	Checkdam
475	Laul	Madha	Solapur	75.4157	18.0185	Checkdam
476	Laul	Madha	Solapur	75.411	18.0185	Checkdam
477	Londhewadi	Madha	Solapur	75.5913	17.9666	Checkdam
478	Madha	Madha	Solapur	75.5414	18.0233	Checkdam
479	Madha	Madha	Solapur	75.5371	18.0394	Checkdam
480	Madha	Madha	Solapur	75.5205	18.0379	Checkdam
481	Madha	Madha	Solapur	75.5055	18.0273	Checkdam
482	Mahadeowadi	Madha	Solapur	75.3867	18.1534	Checkdam
483	Mahadeowadi	Madha	Solapur	75.3921	18.16	Checkdam
484	Mahadeowadi	Madha	Solapur	75.3944	18.1681	Checkdam
485	Mahadeowadi	Madha	Solapur	75.3844	18.1718	Checkdam
486	Mahadeowadi	Madha	Solapur	75.3871	18.1824	Checkdam
487	Mahadeowadi	Madha	Solapur	75.3755	18.1699	Checkdam
488	Malegaon	Madha	Solapur	75.1552	17.9864	Checkdam
489	Manegaon	Madha	Solapur	75.6223	17.9863	Checkdam
490	Manegaon	Madha	Solapur	75.6435	17.9932	Checkdam
491	Manegaon	Madha	Solapur	75.659	17.991	Checkdam
492	Manegaon	Madha	Solapur	75.6659	17.9995	Checkdam
493	Manegaon	Madha	Solapur	75.6428	18.0171	Checkdam
494	Manegaon	Madha	Solapur	75.6339	18.0116	Checkdam

SN	Village	Taluka	District	X	Y	Structure
495	Manegaon	Madha	Solapur	75.6227	18.0057	Checkdam
496	Manegaon	Madha	Solapur	75.6162	18.0156	Checkdam
497	Manegaon	Madha	Solapur	75.6617	17.9687	Checkdam
498	Mhaisgaon	Madha	Solapur	75.5078	18.1054	Checkdam
499	Mhaisgaon	Madha	Solapur	75.5078	18.1212	Checkdam
500	Mhaisgaon	Madha	Solapur	75.5144	18.1285	Checkdam
501	Mhaisgaon	Madha	Solapur	75.4943	18.1179	Checkdam
502	Mhaisgaon	Madha	Solapur	75.5036	18.1289	Checkdam
503	Mhaisgaon	Madha	Solapur	75.4827	18.1388	Checkdam
504	Mhaisgaon	Madha	Solapur	75.4881	18.141	Checkdam
505	Mhaisgaon	Madha	Solapur	75.4781	18.1501	Checkdam
506	Modnimb	Madha	Solapur	75.3995	17.9001	Checkdam
507	Modnimb	Madha	Solapur	75.4072	17.8858	Checkdam
508	Nagorli	Madha	Solapur	75.1342	18.0095	Checkdam
509	Nagorli	Madha	Solapur	75.1359	18.0156	Checkdam
510	Nagorli	Madha	Solapur	75.1388	18.0204	Checkdam
511	Nagorli	Madha	Solapur	75.1452	18.0268	Checkdam
512	Nimgaon (Madha)	Madha	Solapur	75.5552	18.0735	Checkdam
513	Nimgaon (Madha)	Madha	Solapur	75.5433	18.0812	Checkdam
514	Nimgaon (Madha)	Madha	Solapur	75.5456	18.0849	Checkdam
515	Nimgaon (Tembhurni)	Madha	Solapur	75.2726	18.0614	Checkdam
516	Nimgaon (Tembhurni)	Madha	Solapur	75.2784	18.0665	Checkdam
517	Nimgaon (Tembhurni)	Madha	Solapur	75.2849	18.0728	Checkdam
518	Nimgaon (Tembhurni)	Madha	Solapur	75.2753	18.0783	Checkdam
519	Nimgaon (Tembhurni)	Madha	Solapur	75.2676	18.0799	Checkdam
520	Padasali	Madha	Solapur	75.3956	17.9657	Checkdam
521	Padasali	Madha	Solapur	75.4064	17.9885	Checkdam
522	Palwan	Madha	Solapur	75.3023	18.0174	Checkdam
523	Palwan	Madha	Solapur	75.2984	18.0068	Checkdam
524	Papnas	Madha	Solapur	75.5321	18.1171	Checkdam
525	Parite	Madha	Solapur	75.273	17.9522	Checkdam
526	Pimpalkhunte	Madha	Solapur	75.332	18.0999	Checkdam
527	Pimpalkhunte	Madha	Solapur	75.3381	18.0999	Checkdam
528	Pimpalkhunte	Madha	Solapur	75.3378	18.1061	Checkdam
529	Pimpalkhunte	Madha	Solapur	75.3277	18.0933	Checkdam
530	Pimpalkhunte	Madha	Solapur	75.3239	18.1003	Checkdam
531	Pimpalkhunte	Madha	Solapur	75.3216	18.0948	Checkdam
532	Pimpalner	Madha	Solapur	75.2699	18.0335	Checkdam
533	Pimpalner	Madha	Solapur	75.2768	18.0379	Checkdam
534	Pimpalner	Madha	Solapur	75.3027	18.0508	Checkdam
535	Pimpalner	Madha	Solapur	75.3069	18.0427	Checkdam

SN	Village	Taluka	District	X	Y	Structure
536	Pimpalner	Madha	Solapur	75.3158	18.0467	Checkdam
537	Pimpalner	Madha	Solapur	75.2919	18.0596	Checkdam
538	Pimpalner	Madha	Solapur	75.2849	18.0548	Checkdam
539	Pimpalner	Madha	Solapur	75.2726	18.0453	Checkdam
540	Ranzani	Madha	Solapur	75.0956	18.0504	Checkdam
541	Ridhore	Madha	Solapur	75.539	18.1274	Checkdam
542	Ridhore	Madha	Solapur	75.5583	18.1267	Checkdam
543	Ropale Kh	Madha	Solapur	75.4635	17.9643	Checkdam
544	Rople Kavhe	Madha	Solapur	75.3755	18.2315	Checkdam
545	Rople Kavhe	Madha	Solapur	75.3663	18.2165	Checkdam
546	Rople Kavhe	Madha	Solapur	75.3632	18.2227	Checkdam
547	Rople Kavhe	Madha	Solapur	75.3574	18.2205	Checkdam
548	Rople Kavhe	Madha	Solapur	75.3308	18.1989	Checkdam
549	Rople Kavhe	Madha	Solapur	75.3358	18.2055	Checkdam
550	Rople Kavhe	Madha	Solapur	75.342	18.2121	Checkdam
551	Rople Kavhe	Madha	Solapur	75.3486	18.1945	Checkdam
552	Rople Kavhe	Madha	Solapur	75.3555	18.1967	Checkdam
553	Rople Kavhe	Madha	Solapur	75.3613	18.2037	Checkdam
554	Rople Kavhe	Madha	Solapur	75.3755	18.1996	Checkdam
555	Sapatne (Bhose)	Madha	Solapur	75.4596	18.0196	Checkdam
556	Sapatne (Bhose)	Madha	Solapur	75.4592	18.0266	Checkdam
557	Sapatne (Bhose)	Madha	Solapur	75.4496	18.0215	Checkdam
558	Sapatne (Bhose)	Madha	Solapur	75.4542	18.0306	Checkdam
559	Sapatne Tembhorni	Madha	Solapur	75.2707	17.9998	Checkdam
560	Sapatne Tembhorni	Madha	Solapur	75.2564	18.0163	Checkdam
561	Sapatne Tembhorni	Madha	Solapur	75.2599	18.0277	Checkdam
562	Sapatne Tembhorni	Madha	Solapur	75.2658	18.0204	Checkdam
563	Shedshinge	Madha	Solapur	75.3081	18.0673	Checkdam
564	Shedshinge	Madha	Solapur	75.3004	18.0643	Checkdam
565	Shedshinge	Madha	Solapur	75.3023	18.0702	Checkdam
566	Shedshinge	Madha	Solapur	75.3115	18.0713	Checkdam
567	Shedshinge	Madha	Solapur	75.3146	18.0643	Checkdam
568	Shevare	Madha	Solapur	75.1295	18.0013	Checkdam
569	Shevare	Madha	Solapur	75.1556	17.994	Checkdam
570	Shindewadi	Madha	Solapur	75.4735	18.0266	Checkdam
571	Shiral Madha	Madha	Solapur	75.3659	18.0603	Checkdam
572	Shiral Madha	Madha	Solapur	75.3586	18.057	Checkdam
573	Shiral Madha	Madha	Solapur	75.3547	18.0541	Checkdam
574	Shiral Madha	Madha	Solapur	75.3478	18.0544	Checkdam
575	Shiral Madha	Madha	Solapur	75.3408	18.0515	Checkdam
576	Solankarwadi	Madha	Solapur	75.3952	17.9492	Checkdam
577	Tadavale	Madha	Solapur	75.4681	18.0856	Checkdam
578	Tadavale	Madha	Solapur	75.4704	18.0816	Checkdam
579	Tadavale	Madha	Solapur	75.4735	18.0768	Checkdam
580	Tadavale	Madha	Solapur	75.4789	18.0698	Checkdam

SN	Village	Taluka	District	X	Y	Structure
581	Tadavale	Madha	Solapur	75.4758	18.0849	Checkdam
582	Takali Tembhorni	Madha	Solapur	75.0561	17.9608	Checkdam
583	Takali Tembhorni	Madha	Solapur	75.0545	17.9646	Checkdam
584	Takali Tembhorni	Madha	Solapur	75.0518	17.9681	Checkdam
585	Takali Tembhorni	Madha	Solapur	75.0516	17.9725	Checkdam
586	Takali Tembhorni	Madha	Solapur	75.0649	17.9798	Checkdam
587	Takali Tembhorni	Madha	Solapur	75.0599	17.9831	Checkdam
588	Takali Tembhorni	Madha	Solapur	75.0667	17.9866	Checkdam
589	Takali Tembhorni	Madha	Solapur	75.0669	17.9932	Checkdam
590	Takali Tembhorni	Madha	Solapur	75.0711	17.9943	Checkdam
591	Tambave	Madha	Solapur	75.2358	18.0323	Checkdam
592	Tandulwadi	Madha	Solapur	75.5637	18.1208	Checkdam
593	Tandulwadi	Madha	Solapur	75.5734	18.1028	Checkdam
594	Tandulwadi	Madha	Solapur	75.556	18.0907	Checkdam
595	Tandulwadi	Madha	Solapur	75.5591	18.1043	Checkdam
596	Tembhorni	Madha	Solapur	75.1754	18.0209	Checkdam
597	Tembhorni	Madha	Solapur	75.1748	18.0061	Checkdam
598	Tembhorni	Madha	Solapur	75.1827	18.0246	Checkdam
599	Tembhorni	Madha	Solapur	75.1814	18.0315	Checkdam
600	Tembhorni	Madha	Solapur	75.1918	18.038	Checkdam
601	Tembhorni	Madha	Solapur	75.2013	18.0444	Checkdam
602	Tembhorni	Madha	Solapur	75.2111	18.0453	Checkdam
603	Tembhorni	Madha	Solapur	75.2057	18.0407	Checkdam
604	Tembhorni	Madha	Solapur	75.2007	18.0372	Checkdam
605	Tembhorni	Madha	Solapur	75.1989	18.0337	Checkdam
606	Tembhorni	Madha	Solapur	75.1945	18.0279	Checkdam
607	Tembhorni	Madha	Solapur	75.1926	18.0253	Checkdam
608	Tembhorni	Madha	Solapur	75.1891	18.0204	Checkdam
609	Tembhorni	Madha	Solapur	75.1889	18.0116	Checkdam
610	Tembhorni	Madha	Solapur	75.1926	18.0114	Checkdam
611	Tulshi	Madha	Solapur	75.3131	17.8942	Checkdam
612	Tulshi	Madha	Solapur	75.3216	17.9056	Checkdam
613	Tulshi	Madha	Solapur	75.3231	17.9177	Checkdam
614	Tulshi	Madha	Solapur	75.3331	17.9173	Checkdam
615	Ujani Madha	Madha	Solapur	75.3478	18.016	Checkdam
616	Ujani Madha	Madha	Solapur	75.3397	18.013	Checkdam
617	Ujani Madha	Madha	Solapur	75.3405	18.0174	Checkdam
618	Ujani Madha	Madha	Solapur	75.3432	18.024	Checkdam
619	Ujani Madha	Madha	Solapur	75.3462	18.0262	Checkdam
620	Ujani Madha	Madha	Solapur	75.3339	18.0134	Checkdam
621	Ujani Madha	Madha	Solapur	75.3324	18.0185	Checkdam
622	Undargaon	Madha	Solapur	75.5595	18.0262	Checkdam
623	Undargaon	Madha	Solapur	75.5807	18.0072	Checkdam
624	Upalai Bk	Madha	Solapur	75.4851	18.0101	Checkdam
625	Upalai Bk	Madha	Solapur	75.4862	17.9573	Checkdam

SN	Village	Taluka	District	X	Y	Structure
626	Upalai Bk	Madha	Solapur	75.4908	17.9683	Checkdam
627	Upalai Bk	Madha	Solapur	75.4719	17.9753	Checkdam
628	Upalai Bk	Madha	Solapur	75.4831	17.9621	Checkdam
629	Upalai Bk	Madha	Solapur	75.509	17.9463	Checkdam
630	Upalai Bk	Madha	Solapur	75.5128	17.9562	Checkdam
631	Upalai Bk	Madha	Solapur	75.5105	17.9657	Checkdam
632	Upalai Bk	Madha	Solapur	75.4901	17.9822	Checkdam
633	Upalai Bk	Madha	Solapur	75.4945	17.9784	Checkdam
634	Upalai Bk	Madha	Solapur	75.476	17.9648	Checkdam
635	Upalai Kh	Madha	Solapur	75.5498	17.9558	Checkdam
636	Upalai Kh	Madha	Solapur	75.5325	18.0039	Checkdam
637	Upalai Kh	Madha	Solapur	75.5279	18.0105	Checkdam
638	Upalai Kh	Madha	Solapur	75.5317	17.9687	Checkdam
639	Upalai Kh	Madha	Solapur	75.5329	17.9782	Checkdam
640	Upalawate	Madha	Solapur	75.2691	18.1252	Checkdam
641	Upalawate	Madha	Solapur	75.299	18.1253	Checkdam
642	Upalawate	Madha	Solapur	75.2618	18.1279	Checkdam
643	Upalawate	Madha	Solapur	75.267	18.133	Checkdam
644	Upalawate	Madha	Solapur	75.2524	18.1194	Checkdam
645	Upalawate	Madha	Solapur	75.2612	18.1205	Checkdam
646	Venegaon	Madha	Solapur	75.2464	17.998	Checkdam
647	Venegaon	Madha	Solapur	75.223	18.0292	Checkdam
648	Venegaon	Madha	Solapur	75.2335	18.0119	Checkdam
649	Venegaon	Madha	Solapur	75.2277	18.0191	Checkdam
650	Vithalwadi	Madha	Solapur	75.5666	17.9769	Checkdam
651	Wadachiwadi	Madha	Solapur	75.6177	18.0775	Checkdam
652	Wadachiwadi	Madha	Solapur	75.4558	18.0566	Checkdam
653	Wadachiwadi	Madha	Solapur	75.4604	18.0654	Checkdam
654	Wadachiwadi	Madha	Solapur	75.4804	17.9481	Checkdam
655	Wadachiwadi	Madha	Solapur	75.4756	17.9391	Checkdam
656	Wadoli	Madha	Solapur	75.1078	18.0086	Checkdam
657	Wadoli	Madha	Solapur	75.1112	18.016	Checkdam
658	Wadshinge	Madha	Solapur	75.497	18.0977	Checkdam
659	Wadshinge	Madha	Solapur	75.5294	18.0834	Checkdam
660	Wadshinge	Madha	Solapur	75.534	18.0863	Checkdam
661	Wadshinge	Madha	Solapur	75.5383	18.0896	Checkdam
662	Wadshinge	Madha	Solapur	75.5387	18.0944	Checkdam
663	Wadshinge	Madha	Solapur	75.5313	18.0948	Checkdam
664	Wadshinge	Madha	Solapur	75.5205	18.0995	Checkdam
665	Wadshinge	Madha	Solapur	75.5078	18.09	Checkdam
666	Wadshinge	Madha	Solapur	75.5144	18.0885	Checkdam
667	Wadshinge	Madha	Solapur	75.5201	18.0907	Checkdam
668	Wadshinge	Madha	Solapur	75.5414	18.101	Checkdam
669	Warawade	Madha	Solapur	75.3081	17.9701	Checkdam
670	Bhamburdi	Malshiras	Solapur	74.8733	17.8483	Checkdam

SN	Village	Taluka	District	X	Y	Structure
671	Bhamburdi	Malshiras	Solapur	74.8772	17.8268	Checkdam
672	Bondale	Malshiras	Solapur	75.1121	17.7766	Checkdam
673	Bondale	Malshiras	Solapur	75.1018	17.7736	Checkdam
674	Borgaon	Malshiras	Solapur	75.1049	17.8361	Checkdam
675	Borgaon	Malshiras	Solapur	75.1224	17.8258	Checkdam
676	Chaundeshwarwadi	Malshiras	Solapur	75.0164	17.84	Checkdam
677	Dahigaon	Malshiras	Solapur	74.7174	17.9419	Checkdam
678	Dasur	Malshiras	Solapur	75.1358	17.7697	Checkdam
679	Dharpuri	Malshiras	Solapur	74.6564	17.9102	Checkdam
680	Dharpuri	Malshiras	Solapur	74.6664	17.9262	Checkdam
681	Dharpuri	Malshiras	Solapur	74.6673	17.9437	Checkdam
682	Dharpuri	Malshiras	Solapur	74.685	17.9844	Checkdam
683	Dharpuri	Malshiras	Solapur	74.6767	17.9766	Checkdam
684	Garvad	Malshiras	Solapur	74.914	17.742	Checkdam
685	Giravi	Malshiras	Solapur	74.7987	17.8292	Checkdam
686	Giravi	Malshiras	Solapur	74.7719	17.8326	Checkdam
687	Girzani	Malshiras	Solapur	74.9752	17.8547	Checkdam
688	Girzani	Malshiras	Solapur	74.9829	17.8709	Checkdam
689	Goradwadi	Malshiras	Solapur	74.8679	17.7712	Checkdam
690	Goradwadi	Malshiras	Solapur	74.8731	17.7886	Checkdam
691	Goradwadi	Malshiras	Solapur	74.8818	17.8003	Checkdam
692	Gursale	Malshiras	Solapur	74.6937	17.968	Checkdam
693	Islampur	Malshiras	Solapur	74.8445	17.8018	Checkdam
694	Kanher	Malshiras	Solapur	74.8347	17.8236	Checkdam
695	Karunde	Malshiras	Solapur	74.6582	17.8855	Checkdam
696	Karunde	Malshiras	Solapur	74.6595	17.8975	Checkdam
697	Karunde	Malshiras	Solapur	74.6475	17.8958	Checkdam
698	Karunde	Malshiras	Solapur	74.6738	17.8992	Checkdam
699	Khandali	Malshiras	Solapur	75.0442	17.8277	Checkdam
700	Khudus	Malshiras	Solapur	74.9752	17.8253	Checkdam
701	Khudus	Malshiras	Solapur	74.9649	17.8062	Checkdam
702	Khudus	Malshiras	Solapur	74.9608	17.8287	Checkdam
703	Kondabavi	Malshiras	Solapur	74.9598	17.8946	Checkdam
704	Kothale	Malshiras	Solapur	74.6473	17.8589	Checkdam
705	Kothale	Malshiras	Solapur	74.642	17.8627	Checkdam
706	Kothale	Malshiras	Solapur	74.6254	17.8554	Checkdam
707	Kothale	Malshiras	Solapur	74.6304	17.8582	Checkdam
708	Kothale	Malshiras	Solapur	74.6335	17.861	Checkdam
709	Kothale	Malshiras	Solapur	74.6379	17.8664	Checkdam
710	Kothale	Malshiras	Solapur	74.6358	17.8494	Checkdam
711	Kothale	Malshiras	Solapur	74.6214	17.8491	Checkdam
712	Kusmod	Malshiras	Solapur	75.0159	17.7053	Checkdam
713	Lonand	Malshiras	Solapur	74.7457	17.8576	Checkdam
714	Mahalung	Malshiras	Solapur	75.0925	17.8689	Checkdam
715	Malewadi	Malshiras	Solapur	75.0282	17.8601	Checkdam

SN	Village	Taluka	District	X	Y	Structure
716	Malkhambi	Malshiras	Solapur	75.1142	17.8135	Checkdam
717	Maloli	Malshiras	Solapur	75.0344	17.7249	Checkdam
718	Maloli	Malshiras	Solapur	75.0277	17.7481	Checkdam
719	Maloli	Malshiras	Solapur	75.0545	17.7442	Checkdam
720	Malshiras	Malshiras	Solapur	74.9186	17.8843	Checkdam
721	Malshiras	Malshiras	Solapur	74.933	17.8417	Checkdam
722	Malshiras	Malshiras	Solapur	74.9294	17.8691	Checkdam
723	Malshiras	Malshiras	Solapur	74.9099	17.852	Checkdam
724	Mandaki	Malshiras	Solapur	74.8373	17.7802	Checkdam
725	Mandaki	Malshiras	Solapur	74.8453	17.782	Checkdam
726	Mandaki	Malshiras	Solapur	74.8563	17.769	Checkdam
727	Mandave	Malshiras	Solapur	74.8044	17.865	Checkdam
728	Mandave	Malshiras	Solapur	74.7797	17.8762	Checkdam
729	Medad	Malshiras	Solapur	74.8859	17.8755	Checkdam
730	Morochi	Malshiras	Solapur	74.7153	17.9086	Checkdam
731	Natepute	Malshiras	Solapur	74.7694	17.9032	Checkdam
732	Natepute	Malshiras	Solapur	74.7514	17.9135	Checkdam
733	Natepute	Malshiras	Solapur	74.7503	17.8934	Checkdam
734	Nimgaon	Malshiras	Solapur	74.9891	17.7587	Checkdam
735	Nimgaon	Malshiras	Solapur	74.9948	17.769	Checkdam
736	Nimgaon	Malshiras	Solapur	74.968	17.7435	Checkdam
737	Nimgaon	Malshiras	Solapur	75.0066	17.7547	Checkdam
738	Pathan Basti	Malshiras	Solapur	74.9284	17.7303	Checkdam
739	Pathan Basti	Malshiras	Solapur	74.9274	17.7234	Checkdam
740	Pathan Basti	Malshiras	Solapur	74.9207	17.7082	Checkdam
741	Piliv	Malshiras	Solapur	74.9757	17.6935	Checkdam
742	Pisewadi	Malshiras	Solapur	75.0287	17.7883	Checkdam
743	Purandawade	Malshiras	Solapur	74.8496	17.8583	Checkdam
744	Rede	Malshiras	Solapur	74.8141	17.7925	Checkdam
745	Rede	Malshiras	Solapur	74.8108	17.7746	Checkdam
746	Shendeinch	Malshiras	Solapur	75.0766	17.7516	Checkdam
747	Tandulwadi	Malshiras	Solapur	75.0725	17.7013	Checkdam
748	Tandulwadi	Malshiras	Solapur	75.0874	17.6901	Checkdam
749	Tarangfal	Malshiras	Solapur	74.9546	17.7685	Checkdam
750	Tarangfal	Malshiras	Solapur	74.9335	17.7719	Checkdam
751	Tarangfal	Malshiras	Solapur	74.9279	17.7763	Checkdam
752	Velapur	Malshiras	Solapur	75.0498	17.789	Checkdam
753	Velapur	Malshiras	Solapur	75.0776	17.7993	Checkdam
754	Vizori	Malshiras	Solapur	75.0066	17.8317	Checkdam
755	Water body	Malshiras	Solapur	74.8589	17.8182	Checkdam
756	Adhegaon	Mohol	Solapur	75.561	17.7414	Checkdam
757	Adhegaon	Mohol	Solapur	75.5649	17.7525	Checkdam
758	Angar	Mohol	Solapur	75.5836	17.9082	Checkdam
759	Angar	Mohol	Solapur	75.5903	17.9067	Checkdam
760	Angar	Mohol	Solapur	75.6133	17.915	Checkdam

SN	Village	Taluka	District	X	Y	Structure
761	Arbali	Mohol	Solapur	75.5977	17.5748	Checkdam
762	Arbali	Mohol	Solapur	75.6111	17.5587	Checkdam
763	Asti	Mohol	Solapur	75.4004	17.866	Checkdam
764	Asti	Mohol	Solapur	75.3863	17.8552	Checkdam
765	Asti	Mohol	Solapur	75.3912	17.8563	Checkdam
766	Asti	Mohol	Solapur	75.3917	17.8398	Checkdam
767	Asti	Mohol	Solapur	75.4041	17.8402	Checkdam
768	Asti	Mohol	Solapur	75.3906	17.8321	Checkdam
769	Asti	Mohol	Solapur	75.3987	17.8235	Checkdam
770	Asti	Mohol	Solapur	75.4232	17.8402	Checkdam
771	Aundhi	Mohol	Solapur	75.6146	17.6699	Checkdam
772	Aundhi	Mohol	Solapur	75.6019	17.6714	Checkdam
773	Aundhi	Mohol	Solapur	75.6034	17.6468	Checkdam
774	Aundhi	Mohol	Solapur	75.5903	17.6504	Checkdam
775	Bairagwadi	Mohol	Solapur	75.3879	17.869	Checkdam
776	Bairagwadi	Mohol	Solapur	75.3763	17.8559	Checkdam
777	Bhairowadi	Mohol	Solapur	75.7025	17.9801	Checkdam
778	Bhairowadi	Mohol	Solapur	75.6977	17.9658	Checkdam
779	Bhambewadi	Mohol	Solapur	75.7203	17.8339	Checkdam
780	Bhoire	Mohol	Solapur	75.6831	17.8496	Checkdam
781	Bhoire	Mohol	Solapur	75.6815	17.8407	Checkdam
782	Bitle	Mohol	Solapur	75.5984	17.8665	Checkdam
783	Bitle	Mohol	Solapur	75.605	17.874	Checkdam
784	Bitle	Mohol	Solapur	75.6079	17.8808	Checkdam
785	Bople	Mohol	Solapur	75.6804	17.9524	Checkdam
786	Bople	Mohol	Solapur	75.6547	17.9386	Checkdam
787	ChincholiKati	Mohol	Solapur	75.8016	17.7635	Checkdam
788	ChincholiKati	Mohol	Solapur	75.792	17.7594	Checkdam
789	Dadapur	Mohol	Solapur	75.7334	17.6736	Checkdam
790	Degaon	Mohol	Solapur	75.6902	17.9252	Checkdam
791	Degaon	Mohol	Solapur	75.6908	17.9095	Checkdam
792	Degaon	Mohol	Solapur	75.7047	17.9495	Checkdam
793	Degaon	Mohol	Solapur	75.6875	17.9438	Checkdam
794	Degaon	Mohol	Solapur	75.6842	17.9506	Checkdam
795	Deodi	Mohol	Solapur	75.4959	17.8808	Checkdam
796	Deodi	Mohol	Solapur	75.5059	17.8781	Checkdam
797	Deodi	Mohol	Solapur	75.5097	17.8829	Checkdam
798	Deodi	Mohol	Solapur	75.5092	17.8687	Checkdam
799	Dhokbabulgaon	Mohol	Solapur	75.664	17.7385	Checkdam
800	Dhokbabulgaon	Mohol	Solapur	75.6532	17.7396	Checkdam
801	Dhokbabulgaon	Mohol	Solapur	75.657	17.7686	Checkdam
802	Diksal	Mohol	Solapur	75.7039	17.8862	Checkdam
803	Diksal	Mohol	Solapur	75.6927	17.897	Checkdam
804	Diksal	Mohol	Solapur	75.7162	17.8896	Checkdam
805	Diksal	Mohol	Solapur	75.7097	17.8983	Checkdam

SN	Village	Taluka	District	X	Y	Structure
806	Ghatne	Mohol	Solapur	75.6593	17.8457	Checkdam
807	Ghotewadi	Mohol	Solapur	75.6948	17.7348	Checkdam
808	Haralwadi	Mohol	Solapur	75.7303	17.5998	Checkdam
809	Haralwadi	Mohol	Solapur	75.7372	17.6086	Checkdam
810	Hingani (Nipani)	Mohol	Solapur	75.6998	17.8614	Checkdam
811	Hingani (Nipani)	Mohol	Solapur	75.691	17.8537	Checkdam
812	Hingani (Nipani)	Mohol	Solapur	75.701	17.8548	Checkdam
813	Hingani (Nipani)	Mohol	Solapur	75.6979	17.8507	Checkdam
814	Hiwre	Mohol	Solapur	75.5138	17.8504	Checkdam
815	Hiwre	Mohol	Solapur	75.523	17.854	Checkdam
816	Hiwre	Mohol	Solapur	75.5292	17.8418	Checkdam
817	Hiwre	Mohol	Solapur	75.5302	17.8498	Checkdam
818	Hiwre	Mohol	Solapur	75.5321	17.8658	Checkdam
819	Jamgaon Bk	Mohol	Solapur	75.684	17.5693	Checkdam
820	Jamgaon Bk	Mohol	Solapur	75.6887	17.5781	Checkdam
821	Jamgaon Bk	Mohol	Solapur	75.6914	17.5682	Checkdam
822	Kamti Bk	Mohol	Solapur	75.7014	17.6273	Checkdam
823	Kamti Bk	Mohol	Solapur	75.6902	17.6328	Checkdam
824	Kamti Bk	Mohol	Solapur	75.6906	17.6387	Checkdam
825	Kamti Kh	Mohol	Solapur	75.7291	17.6435	Checkdam
826	Kamti Kh	Mohol	Solapur	75.7415	17.6446	Checkdam
827	Kamti Kh	Mohol	Solapur	75.7268	17.6365	Checkdam
828	Khandali	Mohol	Solapur	75.4654	17.8585	Checkdam
829	Khandali	Mohol	Solapur	75.4581	17.8495	Checkdam
830	Khandali	Mohol	Solapur	75.476	17.8651	Checkdam
831	Khandali	Mohol	Solapur	75.4827	17.8563	Checkdam
832	Khandali	Mohol	Solapur	75.4538	17.8317	Checkdam
833	Kharkatne	Mohol	Solapur	75.6287	17.8812	Checkdam
834	Khavani	Mohol	Solapur	75.5734	17.8075	Checkdam
835	Khavani	Mohol	Solapur	75.568	17.8075	Checkdam
836	Khuneshwar	Mohol	Solapur	75.701	17.8665	Checkdam
837	Khuneshwar	Mohol	Solapur	75.7155	17.8627	Checkdam
838	Konheri	Mohol	Solapur	75.5167	17.8214	Checkdam
839	Konheri	Mohol	Solapur	75.5128	17.8101	Checkdam
840	Konheri	Mohol	Solapur	75.5043	17.8093	Checkdam
841	Korwali	Mohol	Solapur	75.706	17.5998	Checkdam
842	Korwali	Mohol	Solapur	75.7149	17.6126	Checkdam
843	Korwali	Mohol	Solapur	75.7264	17.5925	Checkdam
844	Korwali	Mohol	Solapur	75.7253	17.5822	Checkdam
845	Kuranwadi	Mohol	Solapur	75.5647	17.8768	Checkdam
846	Kuranwadi	Mohol	Solapur	75.5676	17.8662	Checkdam
847	Kuranwadi	Mohol	Solapur	75.5724	17.8618	Checkdam
848	Kuranwadi	Mohol	Solapur	75.5583	17.8645	Checkdam
849	Kuranwadi	Mohol	Solapur	75.5799	17.8673	Checkdam
850	Kuranwadi (Ashti)	Mohol	Solapur	75.4336	17.8609	Checkdam

SN	Village	Taluka	District	X	Y	Structure
851	Kurul	Mohol	Solapur	75.6798	17.6739	Checkdam
852	Kurul	Mohol	Solapur	75.6836	17.6868	Checkdam
853	Kurul	Mohol	Solapur	75.6478	17.6651	Checkdam
854	Kurul	Mohol	Solapur	75.6428	17.6673	Checkdam
855	Kurul	Mohol	Solapur	75.637	17.6842	Checkdam
856	Kurul	Mohol	Solapur	75.647	17.6875	Checkdam
857	Kurul	Mohol	Solapur	75.6617	17.6596	Checkdam
858	Kurul	Mohol	Solapur	75.6613	17.6739	Checkdam
859	Malikpeth	Mohol	Solapur	75.6378	17.8645	Checkdam
860	Maslechaudhari	Mohol	Solapur	75.7417	17.9078	Checkdam
861	Maslechaudhari	Mohol	Solapur	75.7428	17.9137	Checkdam
862	Maslechaudhari	Mohol	Solapur	75.7359	17.9157	Checkdam
863	Maslechaudhari	Mohol	Solapur	75.7282	17.9175	Checkdam
864	Maslechaudhari	Mohol	Solapur	75.7183	17.9185	Checkdam
865	Miri	Mohol	Solapur	75.6428	17.5536	Checkdam
866	Mohol	Mohol	Solapur	75.6474	17.7715	Checkdam
867	Mohol	Mohol	Solapur	75.6613	17.7774	Checkdam
868	Mohol	Mohol	Solapur	75.6505	17.7983	Checkdam
869	Mohol	Mohol	Solapur	75.6304	17.7943	Checkdam
870	Mohol	Mohol	Solapur	75.6327	17.8027	Checkdam
871	Mohol	Mohol	Solapur	75.6297	17.8295	Checkdam
872	Mohol	Mohol	Solapur	75.6513	17.8174	Checkdam
873	Morvanchi	Mohol	Solapur	75.7415	17.8255	Checkdam
874	Najikpimpri	Mohol	Solapur	75.637	17.7635	Checkdam
875	Najikpimpri	Mohol	Solapur	75.6181	17.7569	Checkdam
876	Narkhed	Mohol	Solapur	75.6659	17.8884	Checkdam
877	Narkhed	Mohol	Solapur	75.6574	17.8761	Checkdam
878	Narkhed	Mohol	Solapur	75.6406	17.8922	Checkdam
879	Narkhed	Mohol	Solapur	75.6312	17.9054	Checkdam
880	Narkhed	Mohol	Solapur	75.6759	17.9128	Checkdam
881	Narkhed	Mohol	Solapur	75.6694	17.8963	Checkdam
882	Papari	Mohol	Solapur	75.4878	17.8321	Checkdam
883	Papari	Mohol	Solapur	75.4793	17.8273	Checkdam
884	Papari	Mohol	Solapur	75.4665	17.824	Checkdam
885	Parmeshwar-pimpri	Mohol	Solapur	75.6925	17.6651	Checkdam
886	Parmeshwar-pimpri	Mohol	Solapur	75.6968	17.6798	Checkdam
887	Patkul	Mohol	Solapur	75.5325	17.7547	Checkdam
888	Patkul	Mohol	Solapur	75.5425	17.7649	Checkdam
889	Pawarwadi	Mohol	Solapur	75.6459	17.9296	Checkdam
890	Pawarwadi	Mohol	Solapur	75.652	17.9267	Checkdam
891	Peertakali	Mohol	Solapur	75.7507	17.6754	Checkdam
892	Pennur	Mohol	Solapur	75.5209	17.7792	Checkdam
893	Pennur	Mohol	Solapur	75.5294	17.7888	Checkdam
894	Pokharapur	Mohol	Solapur	75.5791	17.7833	Checkdam
895	Pokharapur	Mohol	Solapur	75.5923	17.7928	Checkdam

SN	Village	Taluka	District	X	Y	Structure
896	Pokharapur	Mohol	Solapur	75.5907	17.7829	Checkdam
897	Pokharapur	Mohol	Solapur	75.5992	17.817	Checkdam
898	Pokharapur	Mohol	Solapur	75.6088	17.7943	Checkdam
899	Sarole	Mohol	Solapur	75.5583	17.809	Checkdam
900	Saundane	Mohol	Solapur	75.573	17.7209	Checkdam
901	Saundane	Mohol	Solapur	75.5703	17.7271	Checkdam
902	Sawaleshwar	Mohol	Solapur	75.7758	17.751	Checkdam
903	Sawaleshwar	Mohol	Solapur	75.7692	17.7591	Checkdam
904	Sawaleshwar	Mohol	Solapur	75.7731	17.766	Checkdam
905	Sayyadwarwade	Mohol	Solapur	75.6435	17.7161	Checkdam
906	Sayyadwarwade	Mohol	Solapur	75.6435	17.722	Checkdam
907	Sayyadwarwade	Mohol	Solapur	75.6335	17.7312	Checkdam
908	Sayyadwarwade	Mohol	Solapur	75.6343	17.7176	Checkdam
909	Shejbabhulgaon	Mohol	Solapur	75.6023	17.7077	Checkdam
910	Shejbabhulgaon	Mohol	Solapur	75.6088	17.6864	Checkdam
911	Shetphal	Mohol	Solapur	75.4359	17.9097	Checkdam
912	Shetphal	Mohol	Solapur	75.4353	17.9046	Checkdam
913	Shetphal	Mohol	Solapur	75.4239	17.8952	Checkdam
914	Shetphal	Mohol	Solapur	75.4137	17.8827	Checkdam
915	Shirapur(Solapur)	Mohol	Solapur	75.7291	17.7998	Checkdam
916	Shirapur(Solapur)	Mohol	Solapur	75.7338	17.7936	Checkdam
917	Siddewadi	Mohol	Solapur	75.4424	17.9231	Checkdam
918	Sohale	Mohol	Solapur	75.6204	17.6391	Checkdam
919	Sohale	Mohol	Solapur	75.6378	17.6339	Checkdam
920	Tambole	Mohol	Solapur	75.5934	17.7352	Checkdam
921	Tambole	Mohol	Solapur	75.5911	17.7473	Checkdam
922	Tambole	Mohol	Solapur	75.5988	17.74	Checkdam
923	Tambole	Mohol	Solapur	75.5996	17.7488	Checkdam
924	Telangwadi	Mohol	Solapur	75.4475	17.8732	Checkdam
925	Telangwadi	Mohol	Solapur	75.4517	17.8792	Checkdam
926	Valuj	Mohol	Solapur	75.7087	17.9784	Checkdam
927	Valuj	Mohol	Solapur	75.7149	17.9729	Checkdam
928	Valuj	Mohol	Solapur	75.7155	17.9673	Checkdam
929	Valuj	Mohol	Solapur	75.7183	17.9621	Checkdam
930	Valuj	Mohol	Solapur	75.7052	17.9623	Checkdam
931	Valuj	Mohol	Solapur	75.7131	17.9526	Checkdam
932	Wadwal	Mohol	Solapur	75.6825	17.7653	Checkdam
933	Wafale	Mohol	Solapur	75.5097	17.9208	Checkdam
934	Wafale	Mohol	Solapur	75.5103	17.9157	Checkdam
935	Wafale	Mohol	Solapur	75.4997	17.9175	Checkdam
936	Wafale	Mohol	Solapur	75.4922	17.908	Checkdam
937	Wafale	Mohol	Solapur	75.5007	17.9095	Checkdam
938	Wafale	Mohol	Solapur	75.5103	17.9091	Checkdam
939	Wagholi	Mohol	Solapur	75.657	17.624	Checkdam
940	Wagholi	Mohol	Solapur	75.6632	17.6258	Checkdam

SN	Village	Taluka	District	X	Y	Structure
941	Wagholi	Mohol	Solapur	75.674	17.6108	Checkdam
942	Wagholiwadi	Mohol	Solapur	75.6566	17.6079	Checkdam
943	Watwate	Mohol	Solapur	75.652	17.5873	Checkdam
944	Watwate	Mohol	Solapur	75.6593	17.5719	Checkdam
945	Watwate	Mohol	Solapur	75.6709	17.5844	Checkdam
946	Wirawade Bk	Mohol	Solapur	75.7199	17.6908	Checkdam
947	Yawali	Mohol	Solapur	75.5753	17.8328	Checkdam
948	Yawali	Mohol	Solapur	75.5842	17.8358	Checkdam
949	Yawali	Mohol	Solapur	75.5876	17.8442	Checkdam
950	Yawali	Mohol	Solapur	75.595	17.8464	Checkdam
951	Yellamwadi	Mohol	Solapur	75.6582	17.9485	Checkdam
952	Yenaki	Mohol	Solapur	75.6455	17.5778	Checkdam
953	Adhiv	Pandharpur	Solapur	75.3651	17.7291	Checkdam
954	Adhiv	Pandharpur	Solapur	75.364	17.7375	Checkdam
955	Ambe	Pandharpur	Solapur	75.46	17.6303	Checkdam
956	Ambe	Pandharpur	Solapur	75.4519	17.6325	Checkdam
957	Ambe	Pandharpur	Solapur	75.4369	17.6435	Checkdam
958	Ambe	Pandharpur	Solapur	75.4484	17.653	Checkdam
959	Ambe	Pandharpur	Solapur	75.4477	17.6652	Checkdam
960	Anawali	Pandharpur	Solapur	75.391	17.6053	Checkdam
961	Anawali	Pandharpur	Solapur	75.3944	17.6097	Checkdam
962	Anawali	Pandharpur	Solapur	75.396	17.6141	Checkdam
963	Anawali	Pandharpur	Solapur	75.3848	17.642	Checkdam
964	Avhe	Pandharpur	Solapur	75.1881	17.8135	Checkdam
965	Babhulgaon	Pandharpur	Solapur	75.3825	17.7687	Checkdam
966	Babhulgaon	Pandharpur	Solapur	75.3991	17.7596	Checkdam
967	Bardi	Pandharpur	Solapur	75.3455	17.8525	Checkdam
968	Bardi	Pandharpur	Solapur	75.3462	17.862	Checkdam
969	Bhalawani	Pandharpur	Solapur	75.1307	17.7026	Checkdam
970	Bhandi Shegaon	Pandharpur	Solapur	75.1989	17.7012	Checkdam
971	Bhandi Shegaon	Pandharpur	Solapur	75.1801	17.7184	Checkdam
972	Bhandi Shegaon	Pandharpur	Solapur	75.1924	17.7243	Checkdam
973	Bhose	Pandharpur	Solapur	75.2992	17.8319	Checkdam
974	Bhose	Pandharpur	Solapur	75.2788	17.822	Checkdam
975	Bhose	Pandharpur	Solapur	75.3127	17.7989	Checkdam
976	Bhose	Pandharpur	Solapur	75.3119	17.8073	Checkdam
977	Bohali	Pandharpur	Solapur	75.2606	17.6057	Checkdam
978	Chale	Pandharpur	Solapur	75.4118	17.6685	Checkdam
979	Degaon	Pandharpur	Solapur	75.3736	17.6982	Checkdam
980	Degaon	Pandharpur	Solapur	75.379	17.7111	Checkdam
981	Degaon	Pandharpur	Solapur	75.3798	17.7287	Checkdam
982	Degaon	Pandharpur	Solapur	75.3917	17.7133	Checkdam
983	Dhondewadi	Pandharpur	Solapur	75.1681	17.7118	Checkdam
984	Ekhaspur	Pandharpur	Solapur	75.3937	17.5957	Checkdam
985	Ekhaspur	Pandharpur	Solapur	75.3833	17.5877	Checkdam

SN	Village	Taluka	District	X	Y	Structure
986	Fulchincholi	Pandharpur	Solapur	75.5036	17.6978	Checkdam
987	Fulchincholi	Pandharpur	Solapur	75.5055	17.7096	Checkdam
988	Gadegaon	Pandharpur	Solapur	75.2549	17.667	Checkdam
989	Gardi	Pandharpur	Solapur	75.1565	17.6244	Checkdam
990	Hole	Pandharpur	Solapur	75.3004	17.7518	Checkdam
991	Hole	Pandharpur	Solapur	75.2965	17.7636	Checkdam
992	Ishwar Wathar	Pandharpur	Solapur	75.418	17.7441	Checkdam
993	Jadhavwadi	Pandharpur	Solapur	75.3397	17.8224	Checkdam
994	Jadhavwadi	Pandharpur	Solapur	75.3381	17.8341	Checkdam
995	Jaloli	Pandharpur	Solapur	75.2259	17.8837	Checkdam
996	Karkamb	Pandharpur	Solapur	75.2672	17.8679	Checkdam
997	Karkamb	Pandharpur	Solapur	75.3266	17.8297	Checkdam
998	Karkamb	Pandharpur	Solapur	75.2977	17.8862	Checkdam
999	Kasegaon	Pandharpur	Solapur	75.3671	17.5913	Checkdam
1000	Kasegaon	Pandharpur	Solapur	75.3536	17.581	Checkdam
1001	Kasegaon	Pandharpur	Solapur	75.3459	17.5869	Checkdam
1002	Kasegaon	Pandharpur	Solapur	75.3316	17.5862	Checkdam
1003	Kasegaon	Pandharpur	Solapur	75.3181	17.5814	Checkdam
1004	Kasegaon	Pandharpur	Solapur	75.3088	17.5829	Checkdam
1005	Kasegaon	Pandharpur	Solapur	75.3054	17.5785	Checkdam
1006	Kasegaon	Pandharpur	Solapur	75.3227	17.613	Checkdam
1007	Kauthali	Pandharpur	Solapur	75.2818	17.7243	Checkdam
1008	Kauthali	Pandharpur	Solapur	75.2687	17.7316	Checkdam
1009	Keskarwadi	Pandharpur	Solapur	75.1372	17.7214	Checkdam
1010	Keskarwadi	Pandharpur	Solapur	75.1396	17.7327	Checkdam
1011	Kharatwadi	Pandharpur	Solapur	75.3755	17.8121	Checkdam
1012	Kharatwadi	Pandharpur	Solapur	75.3717	17.8246	Checkdam
1013	Khardi	Pandharpur	Solapur	75.2572	17.5733	Checkdam
1014	Khardi	Pandharpur	Solapur	75.2714	17.57	Checkdam
1015	Khardi	Pandharpur	Solapur	75.2795	17.5708	Checkdam
1016	Khardi	Pandharpur	Solapur	75.2869	17.5671	Checkdam
1017	Khardi	Pandharpur	Solapur	75.2714	17.5484	Checkdam
1018	Khed Bhole	Pandharpur	Solapur	75.2576	17.7794	Checkdam
1019	Khed Bhole	Pandharpur	Solapur	75.2622	17.7695	Checkdam
1020	Khed Bhole	Pandharpur	Solapur	75.2518	17.7706	Checkdam
1021	Korty	Pandharpur	Solapur	75.2714	17.6185	Checkdam
1022	Korty	Pandharpur	Solapur	75.273	17.6431	Checkdam
1023	Korty	Pandharpur	Solapur	75.2799	17.6332	Checkdam
1024	Korty	Pandharpur	Solapur	75.2603	17.6376	Checkdam
1025	Korty	Pandharpur	Solapur	75.2761	17.653	Checkdam
1026	Lonarwadi	Pandharpur	Solapur	75.172	17.6336	Checkdam
1027	Lonarwadi	Pandharpur	Solapur	75.1677	17.6372	Checkdam
1028	Magarwadi	Pandharpur	Solapur	75.4658	17.7316	Checkdam
1029	Magarwadi	Pandharpur	Solapur	75.4727	17.7327	Checkdam
1030	Mendhapur	Pandharpur	Solapur	75.347	17.8033	Checkdam

SN	Village	Taluka	District	X	Y	Structure
1031	Mendhapur	Pandharpur	Solapur	75.3582	17.8091	Checkdam
1032	Mendhapur	Pandharpur	Solapur	75.342	17.7875	Checkdam
1033	Mundhewadi	Pandharpur	Solapur	75.3821	17.6802	Checkdam
1034	Narayan Chincholi	Pandharpur	Solapur	75.401	17.736	Checkdam
1035	Nematwadi	Pandharpur	Solapur	75.2414	17.836	Checkdam
1036	Nematwadi	Pandharpur	Solapur	75.246	17.84	Checkdam
1037	Nepatgaon	Pandharpur	Solapur	75.4423	17.5928	Checkdam
1038	Ozewadi	Pandharpur	Solapur	75.4669	17.599	Checkdam
1039	Palshi	Pandharpur	Solapur	75.204	17.6582	Checkdam
1040	Palshi	Pandharpur	Solapur	75.1974	17.6674	Checkdam
1041	Palshi	Pandharpur	Solapur	75.1959	17.642	Checkdam
1042	Palshi	Pandharpur	Solapur	75.1855	17.635	Checkdam
1043	Palshi	Pandharpur	Solapur	75.1731	17.645	Checkdam
1044	Pandharewadi	Pandharpur	Solapur	75.3258	17.8157	Checkdam
1045	Pehe	Pandharpur	Solapur	75.219	17.8297	Checkdam
1046	Phandarpur	Pandharpur	Solapur	75.3081	17.6754	Checkdam
1047	Pirachi Kuroli	Pandharpur	Solapur	75.187	17.7526	Checkdam
1048	Pirachi Kuroli	Pandharpur	Solapur	75.1766	17.7625	Checkdam
1049	Puluj	Pandharpur	Solapur	75.5159	17.6538	Checkdam
1050	Puluj	Pandharpur	Solapur	75.5263	17.6714	Checkdam
1051	Puluj	Pandharpur	Solapur	75.5402	17.6589	Checkdam
1052	Puluj	Pandharpur	Solapur	75.5475	17.6644	Checkdam
1053	Puluj	Pandharpur	Solapur	75.5529	17.6795	Checkdam
1054	Pulujwadi	Pandharpur	Solapur	75.5541	17.6431	Checkdam
1055	Ranzani	Pandharpur	Solapur	75.4218	17.6306	Checkdam
1056	Ranzani	Pandharpur	Solapur	75.4307	17.6343	Checkdam
1057	Ranzani	Pandharpur	Solapur	75.4137	17.6512	Checkdam
1058	Ropale	Pandharpur	Solapur	75.4076	17.7753	Checkdam
1059	Ropale	Pandharpur	Solapur	75.3883	17.7989	Checkdam
1060	Sarkoli	Pandharpur	Solapur	75.4874	17.6394	Checkdam
1061	Sarkoli	Pandharpur	Solapur	75.4935	17.6214	Checkdam
1062	Shankargaon	Pandharpur	Solapur	75.5371	17.6259	Checkdam
1063	Shelve	Pandharpur	Solapur	75.2317	17.7287	Checkdam
1064	Shetphal	Pandharpur	Solapur	75.305	17.5454	Checkdam
1065	Shevate	Pandharpur	Solapur	75.2522	17.8033	Checkdam
1066	Shevate	Pandharpur	Solapur	75.2583	17.7922	Checkdam
1067	Shevate	Pandharpur	Solapur	75.2383	17.7831	Checkdam
1068	Shevate	Pandharpur	Solapur	75.2306	17.7915	Checkdam
1069	Shirdhon	Pandharpur	Solapur	75.2888	17.7092	Checkdam
1070	Shirgaon	Pandharpur	Solapur	75.4191	17.6016	Checkdam
1071	Shirgaon	Pandharpur	Solapur	75.416	17.6075	Checkdam
1072	Suste	Pandharpur	Solapur	75.4461	17.7144	Checkdam
1073	Takli	Pandharpur	Solapur	75.3073	17.6402	Checkdam
1074	Takli	Pandharpur	Solapur	75.3042	17.6439	Checkdam
1075	Tarapur	Pandharpur	Solapur	75.4696	17.6993	Checkdam

SN	Village	Taluka	District	X	Y	Structure
1076	Tarapur	Pandharpur	Solapur	75.4754	17.7067	Checkdam
1077	Tarapur	Pandharpur	Solapur	75.4588	17.7147	Checkdam
1078	Taratgaon Kasegaon	Pandharpur	Solapur	75.4338	17.5943	Checkdam
1079	Taratgaon Kasegaon	Pandharpur	Solapur	75.4342	17.6035	Checkdam
1080	Taratgaon Kasegaon	Pandharpur	Solapur	75.4349	17.6097	Checkdam
1081	Tavashi	Pandharpur	Solapur	75.3675	17.5708	Checkdam
1082	Tavashi	Pandharpur	Solapur	75.3412	17.5608	Checkdam
1083	Tungat	Pandharpur	Solapur	75.4141	17.7603	Checkdam
1084	Upari	Pandharpur	Solapur	75.2117	17.6813	Checkdam
1085	Wakhari	Pandharpur	Solapur	75.2641	17.692	Checkdam
1086	Wakhari	Pandharpur	Solapur	75.2718	17.7008	Checkdam
1087	Wakhari	Pandharpur	Solapur	75.2626	17.6736	Checkdam
1088	Aherwadi	Solapur South	Solapur	75.9767	17.511	Checkdam
1089	Ahtroli	Solapur South	Solapur	75.7133	17.5434	Checkdam
1090	Ahtroli	Solapur South	Solapur	75.7056	17.5449	Checkdam
1091	Akole Mandrup	Solapur South	Solapur	75.7793	17.5871	Checkdam
1092	Alegaon	Solapur South	Solapur	76.0384	17.5084	Checkdam
1093	Aurad	Solapur South	Solapur	75.8791	17.4845	Checkdam
1094	Aurad	Solapur South	Solapur	75.8683	17.472	Checkdam
1095	Bandalgi	Solapur South	Solapur	75.8818	17.4522	Checkdam
1096	Basav Nagar (NV-58)	Solapur South	Solapur	75.8429	17.4665	Checkdam
1097	Bhandar Kavathe	Solapur South	Solapur	75.706	17.4625	Checkdam
1098	Bhandar Kavathe	Solapur South	Solapur	75.7041	17.4698	Checkdam
1099	Bhandar Kavathe	Solapur South	Solapur	75.7118	17.4879	Checkdam
1100	Bhandar Kavathe	Solapur South	Solapur	75.686	17.4923	Checkdam
1101	Bhandar Kavathe	Solapur South	Solapur	75.6883	17.4787	Checkdam
1102	Bolkavathe	Solapur South	Solapur	75.9007	17.4353	Checkdam
1103	Boramani	Solapur South	Solapur	76.0045	17.7247	Checkdam
1104	Boramani	Solapur South	Solapur	76.0106	17.7342	Checkdam
1105	Boramani	Solapur South	Solapur	76.0261	17.7438	Checkdam
1106	Boramani	Solapur South	Solapur	76.055	17.7056	Checkdam
1107	Boramani	Solapur South	Solapur	76.0295	17.707	Checkdam
1108	Borul	Solapur South	Solapur	76.018	17.4923	Checkdam
1109	Chandahal	Solapur South	Solapur	75.9212	17.5316	Checkdam
1110	Darganhalli	Solapur South	Solapur	76.021	17.6846	Checkdam
1111	Dhotri	Solapur South	Solapur	76.0812	17.6692	Checkdam
1112	Dhotri	Solapur South	Solapur	76.0816	17.6589	Checkdam
1113	Dhotri	Solapur South	Solapur	76.0997	17.6908	Checkdam
1114	Dindur	Solapur South	Solapur	76.0928	17.6122	Checkdam
1115	Doddi	Solapur South	Solapur	76.0048	17.6861	Checkdam
1116	Gaujegaon	Solapur South	Solapur	75.7635	17.5963	Checkdam
1117	Gavadewadi(NV-	Solapur South	Solapur	75.787	17.5441	Checkdam

SN	Village	Taluka	District	X	Y	Structure
	76)					
1118	Kanbas	Solapur South	Solapur	76.0118	17.4845	Checkdam
1119	Kanbas	Solapur South	Solapur	76.0249	17.4691	Checkdam
1120	Kandalgaon	Solapur South	Solapur	75.7461	17.5636	Checkdam
1121	Kandalgaon	Solapur South	Solapur	75.7611	17.5643	Checkdam
1122	Kandalgaon	Solapur South	Solapur	75.7743	17.5581	Checkdam
1123	Kandalgaon	Solapur South	Solapur	75.76	17.5441	Checkdam
1124	Kandalgaon	Solapur South	Solapur	75.7527	17.5441	Checkdam
1125	Kandalgaon	Solapur South	Solapur	75.7743	17.5316	Checkdam
1126	Kandalgaon	Solapur South	Solapur	75.777	17.5232	Checkdam
1127	Kandehalli	Solapur South	Solapur	76.0349	17.6357	Checkdam
1128	Kandehalli	Solapur South	Solapur	76.0345	17.6475	Checkdam
1129	Kandehalli	Solapur South	Solapur	76.0365	17.6589	Checkdam
1130	Kasegaon	Solapur South	Solapur	75.9721	17.803	Checkdam
1131	Kasegaon	Solapur South	Solapur	75.9944	17.7824	Checkdam
1132	Kasegaon	Solapur South	Solapur	75.9829	17.7776	Checkdam
1133	Kumbhari	Solapur South	Solapur	76.0183	17.6875	Checkdam
1134	Kumbhari	Solapur South	Solapur	75.974	17.6504	Checkdam
1135	Kumbhari	Solapur South	Solapur	75.996	17.646	Checkdam
1136	Kumbhari	Solapur South	Solapur	76.0006	17.653	Checkdam
1137	Kumbhari	Solapur South	Solapur	76.0064	17.657	Checkdam
1138	Malkavathe	Solapur South	Solapur	75.7731	17.4463	Checkdam
1139	Mandrup	Solapur South	Solapur	75.8286	17.5158	Checkdam
1140	Mandrup	Solapur South	Solapur	75.8201	17.5206	Checkdam
1141	Mandrup	Solapur South	Solapur	75.807	17.5213	Checkdam
1142	Mandrup	Solapur South	Solapur	75.8009	17.4937	Checkdam
1143	Mandrup	Solapur South	Solapur	75.8159	17.4831	Checkdam
1144	Mandrup	Solapur South	Solapur	75.8159	17.4926	Checkdam
1145	Mandrup	Solapur South	Solapur	75.8545	17.5184	Checkdam
1146	Mandrup	Solapur South	Solapur	75.8683	17.5118	Checkdam
1147	Mandrup	Solapur South	Solapur	75.8406	17.4776	Checkdam
1148	Mandrup	Solapur South	Solapur	75.792	17.4753	Checkdam
1149	Mandrup	Solapur South	Solapur	75.7947	17.4842	Checkdam
1150	Mandrup	Solapur South	Solapur	75.7974	17.4643	Checkdam
1151	Mandrup	Solapur South	Solapur	75.7928	17.4577	Checkdam
1152	Mandrup	Solapur South	Solapur	75.7893	17.4654	Checkdam
1153	Mangoli	Solapur South	Solapur	75.8117	17.5559	Checkdam
1154	Mangoli	Solapur South	Solapur	75.819	17.5651	Checkdam
1155	Mulegaon	Solapur South	Solapur	75.9763	17.6813	Checkdam
1156	Musti	Solapur South	Solapur	76.0958	17.7089	Checkdam
1157	Musti	Solapur South	Solapur	76.0989	17.7298	Checkdam
1158	Musti	Solapur South	Solapur	76.0931	17.7453	Checkdam
1159	Musti	Solapur South	Solapur	76.1086	17.749	Checkdam
1160	Musti	Solapur South	Solapur	76.1217	17.7372	Checkdam
1161	Musti	Solapur South	Solapur	76.1252	17.746	Checkdam

SN	Village	Taluka	District	X	Y	Structure
1162	Nandani	Solapur South	Solapur	75.8564	17.4448	Checkdam
1163	Nandani	Solapur South	Solapur	75.8452	17.4529	Checkdam
1164	Sangdari	Solapur South	Solapur	76.0642	17.714	Checkdam
1165	Sangdari	Solapur South	Solapur	76.0573	17.7181	Checkdam
1166	Sindkhed	Solapur South	Solapur	75.9439	17.5195	Checkdam
1167	Vinchur	Solapur South	Solapur	75.7303	17.5246	Checkdam
1168	Vinchur	Solapur South	Solapur	75.7045	17.532	Checkdam
1169	Vinchur	Solapur South	Solapur	75.6956	17.5217	Checkdam
1170	Vinchur	Solapur South	Solapur	75.689	17.5059	Checkdam
1171	Wadji	Solapur South	Solapur	75.9913	17.7493	Checkdam
1172	Wangi	Solapur South	Solapur	75.8321	17.5548	Checkdam
1173	Wangi	Solapur South	Solapur	75.8421	17.5511	Checkdam
1174	Wangi	Solapur South	Solapur	75.8194	17.5316	Checkdam
1175	Waralegaon	Solapur South	Solapur	75.9894	17.7379	Checkdam
1176	Yelegaon	Solapur South	Solapur	75.7966	17.5198	Checkdam
1177	Yelegaon	Solapur South	Solapur	75.7978	17.5243	Checkdam

