



## 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 MAPPING AND MANAGEMENT PLAN**

**Sadasivanagar Mandal, Nizamabad District,  
Telangana**

दक्षिणी क्षेत्र, हैदराबाद

Southern Region, Hyderabad



भारत सरकार  
जल संसाधन, नदी विकास एवम् गंगा संरक्षण मंत्रालय  
केंद्रीय भूमिजल बोर्ड

GOVERNMENT OF INDIA  
MINISTRY OF WATER RESOURCES, RIVER DEVELOPMENT AND  
GANGA REJUVENATION

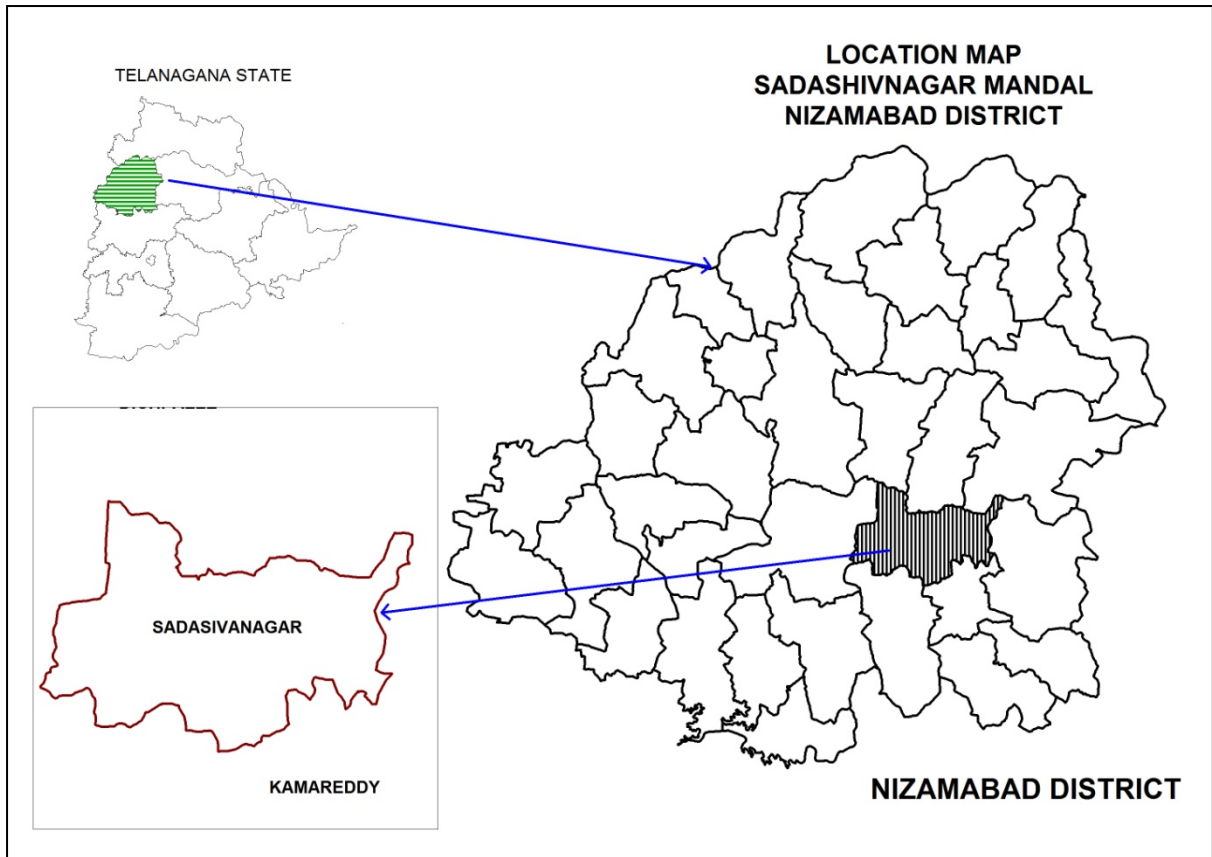
**REPORT ON**  
**AQUIFER MAPS & MANAGEMENT PLANS**  
**SADASIVANAGAR MANDAL, NIZAMABAD DISTRICT, TELANGANA STATE**

**CENTRAL GROUND WATER BOARD**  
**SOUTHERN REGION**  
**HYDERABAD**  
**JULY-2016**

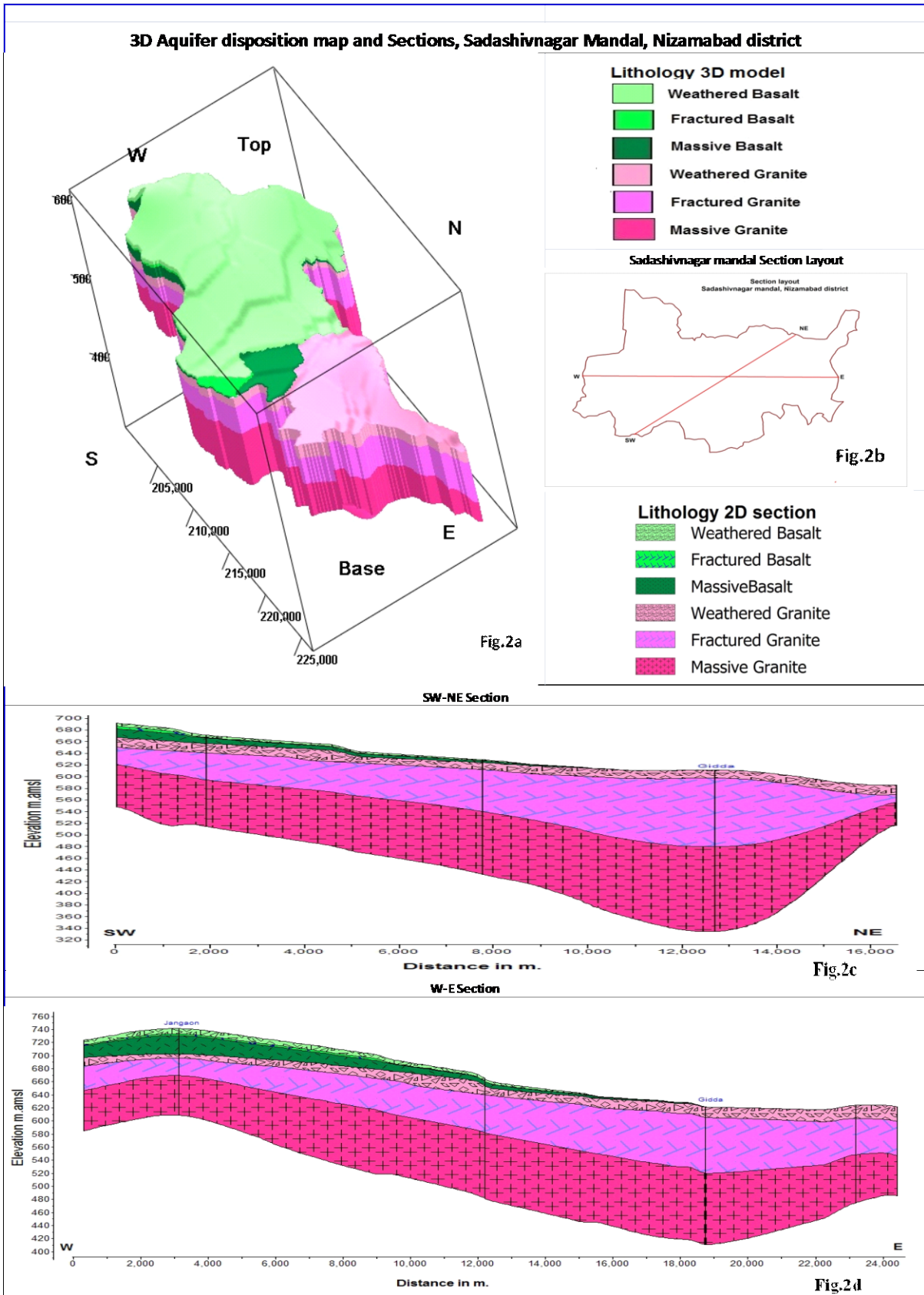
**REPORT ON  
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SADASIVANAGAR MANDAL, NIZAMABAD DISTRICT, TELANGANA STATE**

<b>SALIENT FEATURES</b>		
1	Name of the Mandal/Area Revenue Division Location <b>(Fig-1)</b>	: <b>SADASIVANAGAR/227 Km<sup>2</sup> NIZAMABAD NL78<sup>0</sup>10'0.22" - 78<sup>0</sup>24'37.26" EL18<sup>0</sup>20'28.12"-18<sup>0</sup>30'10.10"</b>
2	No. of Revenue villages	: <b>28</b>
3	District/State	: <b>Nizamabad/Telangana</b>
4	Population /Density (2011 Census)	: 56005/247 per Km <sup>2</sup>
5	Normal Rainfall (mm)  Actual Rainfall(2014-2015)	: 993.4 -Monsoon: 773.9 mm (78%) -Non-Monsoon:219.50 mm (22%) 716.6
6	Agriculture (Ha) (2014-15):	: Kharif season 1. Net area sown: 9698 2. Total oil seeds: 4603(47%) 3. Paddy: 1726 (18%) 4. Maize: 1143(12%) 5. Total pulses: 111(1%) 6. Cotton 1239(13%) 7. Other crops: 866(9%) Rabi season 1. Net area sown: 2232 2. Paddy: 259(12%) 3. Total oil seeds: 53(2%) 4. Total pulses: 250 (11%) 5. Total spices: 53(2%) 6. Maize: 261(12%) 7. Other crops: 1356(61%)
7	Irrigation (2014-15) (Ha)	: 1. Gross irrigated area: 4590 2. Net irrigated area: 2608 3. Area irrigated more than once:1982 • Ground water: 4590
8	Existing and future water demands (MCM)	Domestic & Industrial • Existing:0.35 • Future (year 2025): 1.96 Irrigation (Existing): 25.67
9	Water level behaviour	: 10-19 m (Pre-monsoon) 9-21 m (Post-monsoon)
<b>AQUIFER DISPOSITION</b>		:
10	No of Aquifers	: 2
11	3-D aquifer disposition and basic characteristics of each aquifer <b>(3D: Fig-2a Section Layout:2b Sections: 2c &amp; 2d)</b>	: <b>Geology-Granites</b> <b>Aquifer-1 (Weathered Zone):</b> Weathering varies from 11-40 m Transmissivity(T): 6-181 m <sup>2</sup> /day Specific Yield (Sy):0.2 to 2 % <b>Aquifer-2 (Fractured Zone):</b> Depth of fracturing varies from 30-95 m.

			Transmissivity (T): 10-117 m <sup>2</sup> /day Specific storage (S):0.00001-0.02 Cumulative yield (Aq1 and Aq 2) (lps): 0.5 to 2.5
12	Ground water Issues	:	<ul style="list-style-type: none"> <li>• Geogenic contamination by Fluoride.</li> <li>• Anthropogenic contamination by Nitrate.</li> <li>• Sustainability of wells (3-4 hrs).</li> </ul>
13	Ground water resource availability and extraction (MCM)	:	<ul style="list-style-type: none"> <li>• Net GW availability :24.19</li> <li>• Gross Ground Water draft for Irrigation:21.86</li> <li>• Gross Ground water draft for domestic and industrial supply:0.35</li> <li>• Gross GW draft:22.21</li> <li>• Stage of ground water development: 92 %</li> <li>• Category: Critical</li> </ul>
14	Ground water extraction	:	No of ground water extraction :5544 No. of Dug wells :646 No. of Bore wells :4898
15	Chemical quality of ground water and contamination	:	<p><b>Pre-monsoon</b> EC (µS/cm) min: 450 max:1500 NO<sub>3</sub> (mg/L): Min :10 and max :80 F (mg/L): Min 0.5 and Max:1.75</p> <p><b>Post-monsoon</b> EC (µS/cm) min: 450 max:1500 NO<sub>3</sub> (mg/L): Min :10 and max :90 F (mg/L): Min :0.5 and Max: 2 2 villages are affected with high fluoride(f&gt;1.5mg/l)</p>
16	<b>Ground Water Recharge Scenario</b>	:	<b>MCM</b>
16.1	Recharge from Rainfall (Monsoon)	:	14.07
16.2	Recharge from Other sources (Tanks and applied irrigation) (Monsoon)	:	3.90
16.3	Recharge from rainfall (Non-Monsoon)	:	4.30
16.4	Recharge from Other sources (Tanks and applied irrigation) (Non-Monsoon)	:	4.62
16.5	Total annual GW Recharge	:	26.88
16.6	Natural Discharge	:	2.69
16.7	Existing Minor Irrigation Tanks(nos)	:	75
16.8	Storage from existing tanks	:	2.70
16.9	Existing Artificial Recharge Structures (PT, CD and Farm ponds)	:	20/49/750
17	Storage from existing AR Structures	:	4.31



**Fig-1: Location Map of Sadasivanagar Mandal.**



**Fig-2(a-d): 3 D map and Sections.**

**GW MANAGEMENT STRATEGIES, SADASIVANAGAR MANDAL, NIZAMABAD DISTRICT**

<b>A</b>	<b>WATER RESOURCE AVAILABILITY</b>	
	• Ground water (as per GEC 2012-13)	: 24.19 MCM
	• Surface Water (as per 2014-15 irrigation data)	: 0 MCM
	• Total water availability	: 24.19 MCM
<b>(a)</b>	<b>Ground Water Resource Enhancement (Table-1)</b>	
	<b>Supply side Interventions</b>	
1	Aquifer wise space available for recharge and proposed interventions	: 6-18 m
2	Volume of Un-saturated zone (upto 3mbgl)	: 2187 MCM
3	Recharge Potential (Sy 2%)	43.7 MCM
4	Utilizable Yield available for ARS	: 6.68 MCM
5	No. of Check dams (CD's) / Mini percolation tanks (MPT's) recommended	: 201 (CDs:93+PTs:108)
6	Total Cost of ARS	: 15.45 Cr
7	Expected Ground Water Recharge through ARS	: 3.3 MCM
8	Water Conservation Measures (WCM) (Farm Ponds)	: 500
9	Total Cost of WCM	: 1.25 Cr
10	<b>Mission Kakatiya-</b> Repair & Renovation of existing Tanks	: 0.48 MCM (21 tanks)
11	Proposed tanks to be taken up in phased manner	54 tanks (@0.01 MCM)
12	Expected GW Recharge under <b>Mission Kakatiya</b>	: 0.24 MCM(50 % of capacity)
13	<b>Mission Bhagiratha</b> (Providing drinking water needs to the entire population) @ 100 lpcd/person (rural) and 135 (urban) from surface water source from outside the mandal area ( <b>From River Krishna</b> )	: 2..04 MCM/year
14	Net Saving of Ground water from <b>Mission Bhagiratha</b>	: 1.6 MCM/year
<b>(b)</b>	<b>DEMAND SIDE INTERVENTION</b>	
15	Existing Micro Irrigation Intervention & Gross area irrigated	: 230 Micro irrigation units/213 ha
16	Proposed Micro Irrigation	: 2800 ha in 28 Villages @ 100 ha in each non command village.
17	Cost for micro-irrigation	: 16.8 Cr@ 0.60 lakhs per ha.
18	Expected ground water saving from micro-irrigation	: 5.6 MCM of water is expected to be conserved.
<b>(c)</b>	<b>REGULATION &amp; COMMUNITY INTERVENTIONS</b>	
19	Regulation and control	: <ul style="list-style-type: none"> <li>• WALTA-Act to be implemented in true spirit.</li> </ul>

			<ul style="list-style-type: none"> <li>• Regulation of power supply in 2 spells @ 4 hours/spell to increase bore well/GW sustainability.</li> <li>• As mandatory measures power connection may be given to only those farmers who are adopting micro irrigation for all new bore well to be constructed.</li> </ul>
(d)	<b>OTHER INTERVENTIONS SUGGESTED</b>	:	<ul style="list-style-type: none"> <li>• Participatory Ground Water Management with community and women participation.</li> <li>• Paddy cultivation during rabbi season should be reduced and to be shifted to ID Crops and drought resistant crops. If necessary some regulatory rules may be framed and implemented.</li> <li>• In the existing ground water areas sharing of ground water amongst the users to be encouraged to increase the sustainability of wells by reducing well interference.</li> <li>• The bore well owner should be suitably compensated for the cost of well by funding to farmers for adopting micro irrigation practices by the Govt.</li> </ul>
(e)	<b>EXPECTED RESULTS AND OUTCOME</b>		
20	Total Cost of Interventions (Excluding Mission Kaktiya and Bhagiratha)	:	33.5 Cr
21	Likely benefit of Interventions	:	~10.74 MCM ground water can be saved from the above interventions. The stage of Ground water development may likely to be come down by 29 % (from 92 % to 63%).



**Table-1: Village wise list of Artificial Recharge Structures Recommended.**

S.No	Village	Unsaturated thickness upto 3 m. bgl (m.)	Village Recharge potential MCM (upto 3 m.bgl)	20% of Runoff for AR MCM	Proposed CD's	Proposed PT's	Total cost	Expected GW Recharge in MCM
	Priority-1	m	MCM	MCM	NO.	NO.	Lakhs	MCM
1	Adloor Yellareddy	18	5.09	0.43	8	8	120	0.21
2	Amarlabada	7	0.54	0.12	2	1	20	0.06
3	Bhoompalle	10	0.78	0.30	2	5	60	0.15
4	Dhaggi	11	0.49	0.17	1	2	25	0.08
5	Dharmaraopet	10	1.16	0.44	8	7	110	0.22
6	Gidda	11	2.64	0.37	5	7	95	0.19
7	Gollapalle	17	0.13	0.01	0	0	0	0.01
8	Issannapalle	13	1.50	0.18	1	3	35	0.09
9	Kannapur	16	2.74	0.26	4	4	60	0.13
10	Kuprial	13	2.35	0.27	4	4	60	0.14
11	Lingampalle	8	0.50	0.24	5	5	75	0.12
12	Markhal	12	1.99	0.25	4	4	60	0.13
13	Moshampur	11	0.69	0.09	2	2	30	0.05
14	Mudhojiwadi	6	0.37	0.09	0	2	20	0.05
15	Posanipet	12	3.80	0.48	7	6	95	0.24
16	Radhaipalle	11	0.17	0.02	0	0	0	0.01
17	Ramareddi	14	5.38	0.59	9	10	145	0.29
18	Rangampet	15	0.67	0.07	1	0	5	0.03
19	Sadasivanagar	13	4.36	0.72	10	13	180	0.36
20	Thimmajiwadi	11	0.23	0.08	0	1	10	0.04
21	Thirmanpalle	12	2.39	0.30	5	6	85	0.15
22	Thukkojiwadi	11	0.17	0.06	0	0	0	0.03
23	Uppalwai	11	0.78	0.12	2	2	30	0.06
	<b>Priority-1(Total)</b>				80	92	1320	2.83
	<b>Priority-2</b>							
1	Jangaon	7	0.51	0.11	2	1	20	0.06
2	Kammajiwadi	11	0.19	0.03	0	0	0	0.01
3	Kolwaral	13	1.99	0.58	9	10	145	0.29
4	Modegaon	10	0.89	0.13	1	2	25	0.07
5	Padmajiwadi	12	1.26	0.16	1	3	35	0.08
	<b>Priority-2 (Total)</b>				13	16	225	0.51
	<b>Total (P-1&amp;P-2)</b>				93	108	1545	3.34



