



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

Armur Mandal, Nizamabad District, Telangana

दक्षिणी क्षेत्र, हैदराबाद

Southern Region, Hyderabad

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

SALIENT FEATURES		
1	Name of the Mandal/Area Revenue Division Location (Fig-1)	: ARMUR/229Km² NIZAMABAD EL78⁰10'17.05" - 78⁰21'2.03" NL18⁰44'21.03"-18⁰55'40.75"
2	No. of Revenue villages	: 23
3	District/State	: Nizamabad/Telangana
4	Population /Density (2011 Census)	: 121987/533 per Km ²
5	Normal Rainfall (mm) Actual Rainfall (mm)(2014-2015)	: 1072.3 (Monsoon: 867.7 (81%) (Non-Monsoon:204.60 (19%)) 661.2
6	Agriculture (2014-15)(Ha)	: Kharif season : 1. Net area sown: 11290 2. Total oil seeds:5971(53%) 3. Paddy: 2235(20%) 4. Maize: 1466 (13%) 5. Total spices:1390 (12%) 6. Other crops:221(2%) Rabi season : 1. Net area sown: 8766 2. Paddy: 1674(19%) 3. Vegetables: 780 (9 %) 4. Total oil seeds:736(8%) 5. Bajra: 500 (6%) 6. Total pulses:17(1%) 7. Total spices:113(1%) 8. Maize: 87(1%) 9. Other crops: 4859 (55%)
7	Irrigation (2014-15) (Ha)	: 1. Gross irrigated area: 14065 2. Net irrigated area: 5316 3. Area irrigated more than once: 8749 • Ground water: 13968 • Surface water (Tanks):97
8	Existing and future water demands (MCM)	Domestic & Industrial • Existing:0.45 • Future (year 2025): 7.02 Irrigation (Existing): 35.28
9	Depth to water level (m bgl)	: Pre-monsoon: 9-17 Post-monsoon: 11-20
AQUIFER DISPOSITION		:
10	No of Aquifers	: 2
11	3-D aquifer disposition and basic characteristics of each aquifer (3D: Fig-2a Section Layout:2b Sections: 2c & 2d)	: Geology-Granites Aquifer-1 (Weathered Zone): varies from 7-22 m Transmissivity(T): 6-181 m²/day Specific Yield (Sy):0.2 to 2 %

			Aquifer-2 (Fractured Zone): Depth of fracturing varies from 10-30 m. Transmissivity (T): 10-117 m ² /day Specific storage (S):0.00001-0.02 Cumulative yield (Aq1 and Aq2) (Ips): 0.5 to 6
12	Ground water Issues	:	<ul style="list-style-type: none"> • Anthropogenic contamination by nitrate. • Sustainability of wells (3-4 hrs).
13	Ground water resource availability and extraction (MCM)	:	<ul style="list-style-type: none"> • Net GW availability :39.67 • Gross Ground Water draft for Irrigation:31.93 • Gross Ground water draft for domestic and industrial supply:0.45 • Gross GW draft:32.38 • Stage of ground water development: 82 % • Category: Semi Critical
14	Ground water extraction	:	Ground water extraction structures: 8387 no's <ul style="list-style-type: none"> • Bore wells:8058 no's • Dug wells:329 no's
15	Chemical quality of ground water and contamination	:	<p>Pre-monsoon EC (μS/cm) min: 700 and max:1750 NO₃ (mg/L): Min:30 and max 125 F (mg/L): Min 0.25 and Max:1.5</p> <p>Post-monsoon EC (μS/cm) min: 700 and max:1400 NO₃ (mg/L): Min 10 and max 75 F (mg/L): Min: 1 and Max :1.5 2 villages are affected with high Fluoride(f>1.5mg/l)</p>
16	Ground Water Recharge Scenario	:	MCM
16.1	Recharge from Rainfall (Monsoon)	:	21.60
16.2	Recharge from Other sources (Tanks and applied irrigation) (Monsoon)	:	8.66
16.3	Recharge from rainfall (Non-Monsoon)	:	3.57
16.4	Recharge from Other sources (Tanks and applied irrigation) (Non-Monsoon)	:	10.25
16.5	Total annual GW Recharge	:	44.07
16.6	Natural Discharge	:	4.41
16.7	Existing Minor Irrigation Tanks(nos)	:	57
16.8	Storage from existing tanks	:	0.61
16.9	Existing Artificial Recharge Structures (PT, CD and Farm ponds)	:	21/13/380
17	Storage from existing AR Structures	:	0.35

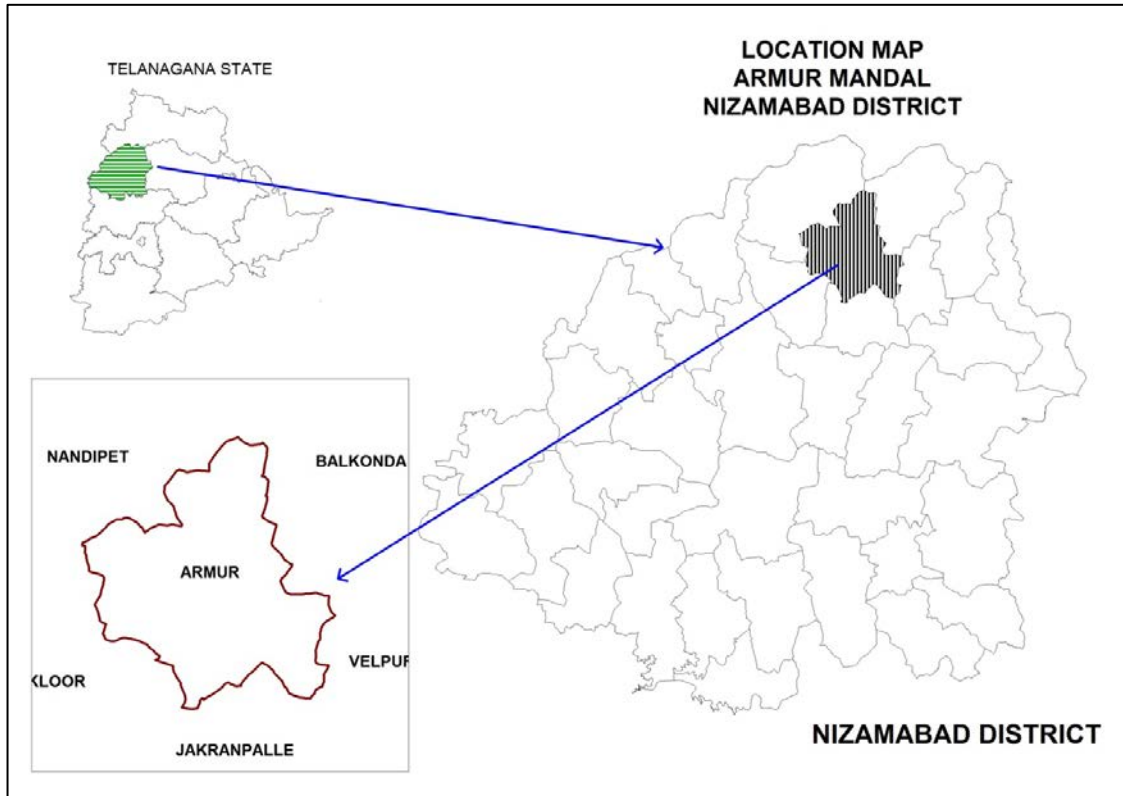


Fig-1: Location Map of Armur Mandal.

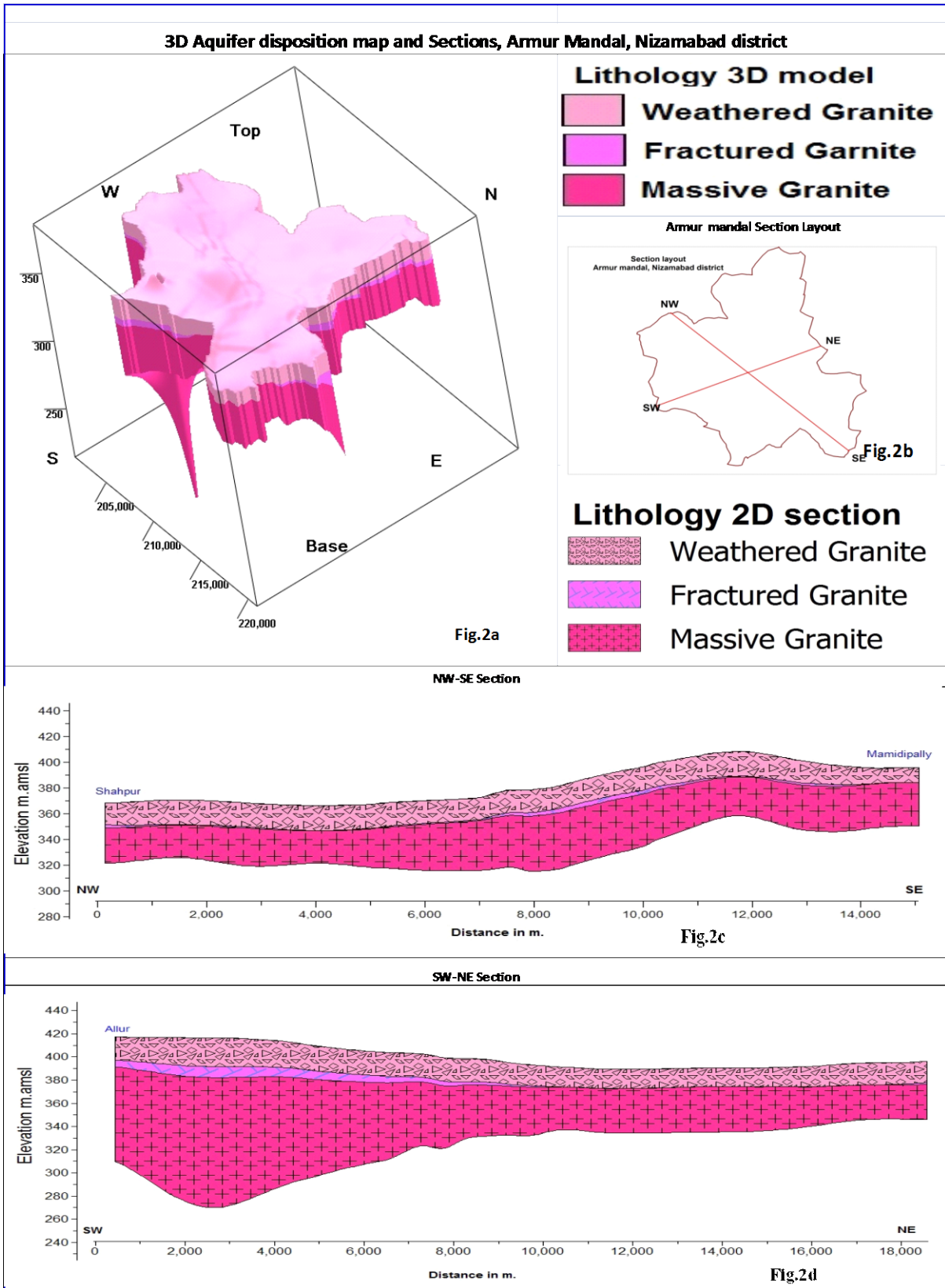


Fig-2(a-d): 3 D map and Sections.

GW MANAGEMENT STRATEGIES, ARMUR MANDAL, NIZAMABAD DISTRICT

A	WATER RESOURCE AVAILABILITY		
	• Ground water (as per GEC 2012-13)	:	39.67 MCM
	• Surface Water(as per 2014-15 irrigation data)	:	0.8MCM
	• Total water availability	:	40.47MCM
(a)	Ground Water Resource Enhancement (Table-1)		
	Supply side Interventions		
1	Aquifer wise space available for recharge and proposed interventions	:	10-17 m
2	Volume of Un-saturated zone (upto 3mbgl)	:	2476 MCM
3	Recharge Potential (Sy2 %)		49.5 MCM
5	Utilizable Yield available for ARS	:	7.6 MCM
6	No. of Check dams (CD's) / Mini percolation tanks (MPT's) recommended	:	261 (134 CD's+127PT's)
7	Total Cost of ARS	:	19.4 Cr
8	Expected Ground Water Recharge through ARS	:	3.8 MCM
9	Water Conservation Measures (WCM) (Farm Ponds)	:	40
10	Total Cost of WCM	:	0.1 Cr
11	Mission Kakatiya- Repair & Renovation of existing Tanks	:	0.66 MCM (27 tanks)
12	Proposed tanks to be taken up in phased manner		30 tanks (@0.01 MCM)
13	Expected GW Recharge under Mission Kakatiya	:	0.20 MCM(30 % of capacity)
14	Mission Bhagiratha (Providing drinking water needs to the entire population) @ 100 lpcd/person (rural) and 135 (urban) from surface water source from outside the mandal area (From SRSP- River Godavari)	:	5.03MCM/year
15	Net Saving of Ground water from Mission Bhagiratha	:	2.67 MCM/year
(b)	DEMAND SIDE INTERVENTION		
16	Existing Micro Irrigation Intervention & Gross area irrigated	:	393 Micro irrigation units/390 ha
17	Proposed Micro Irrigation	:	200 ha in 2 Villages @ 100 ha in each Non-command village.
18	Cost for micro-irrigation	:	1.2 Cr@ 0.60 lakhs per ha.
19	Expected ground water saving from micro-irrigation	:	0.4 MCM of water is expected to be conserved.
(c)	REGULATION & COMMUNITY INTERVENTIONS		
20	Regulation and control	:	<ul style="list-style-type: none"> • WALTA-Act to be implemented in true spirit. • Regulation of power supply in 2 spells @ 4 hours/spell to increase bore well/GW

			<p>sustainability.</p> <ul style="list-style-type: none"> • 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.
(d)	OTHER INTERVENTIONS SUGGESTED	:	<ul style="list-style-type: none"> • Participatory Ground Water Management with community and women participation. • Paddy cultivation during rabi 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. • 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. • 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.
(e)	EXPECTED RESULTS AND OUTCOME		
21	Total Cost of Interventions (Excluding Mission Kakatiya and Bhagiratha)	:	20.7Cr
22	Likely benefit of Interventions	:	~7.07 MCM ground water can be saved from the above interventions. The stage of Ground water development may likely to be come down by 13 % (from 82 % to 69%).

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	Aloor	16	4.44	0.57	10	10	150	0.29
2	Ankapur	12	2.07	0.36	7	6	95	0.18
3	Armur (pt)	15	1.18	0.19	4	3	50	0.10
4	Komanpalle	10	1.44	0.30	4	5	70	0.15
5	Manthani	14	1.34	0.20	3	2	35	0.10
6	Perkit	14	2.77	0.40	8	8	120	0.20
7	Rampur	16	0.90	0.11	1	1	15	0.06
8	Surabiryal	11	1.40	0.26	4	4	60	0.13
9	Mamidipalle	11	1.62	0.30	5	5	75	0.15
10	Kothaarmur	12	1.12	0.19	4	4	60	0.10
	Priority-1 (total)				50	48	730	1.444
	Priority-2							
11	Amdapur	12	1.21	0.24	5	4	65	0.12
12	Chepur	11	2.64	0.49	9	9	135	0.25
13	Degaon	16	4.52	0.59	10	10	150	0.30
14	Fathepur	12	2.08	0.37	6	6	90	0.18
15	Gaggupalle	16	1.54	0.20	3	3	45	0.10
16	Issapalle	16	2.36	0.31	6	5	80	0.15
17	Khanapur	11	1.61	0.31	5	5	75	0.15
18	Macherla	17	4.24	0.51	10	9	140	0.25
19	Magidi	12	3.49	0.60	10	10	150	0.30
20	Merdhapalle	16	1.54	0.20	4	3	50	0.10
21	Pipri	14	4.06	0.60	11	10	155	0.30
22	Govindpet	13	1.97	0.32	5	5	75	0.16
23	Priority-2 (total)				84	79	1210	2.362
	Total (P-1&P-2)				134	127	1940	3.806

