केंद्रीय भूमि जल बोर्ड

जल संसाधन, नदी विकास और गंगा संरक्षण

विभाग, जल शक्ति मंत्रालय

भारत सरकार

Central Ground Water Board

Department of Water Resources, River Development and Ganga Rejuvenation,

Ministry of Jal Shakti

Government of India

AQUIFER MAPPING AND MANAGEMENT OF GROUND WATER RESOURCES

PALAYAM FIRKA, DHARMAPURI DISTRICT, TAMIL NADU

दक्षिण पूर्वी तटीय क्षेत्र, चेन्नई

South Eastern Coastal Region, Chennai

REPORT ON
AQUIFER DISPOSITION & MANAGEMENT PLAN
PALAYAM FIRKA, DHARMAPURI DISTRICT, TAMILNADU STATE

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Scientist-B

	SALIENT FEATURES		
1	Name of the Firka/Area Revenue Division Location **(Fig-1)**	**:**	**PALAYAM / 144.00 sq.km** **DHARMAPURI** N 77° 54' 54" to 78° 11' 49" E 11° 53' 34 " to 12° 03' 53"
2	No. of Revenue villages	:	**09**
3	District/State	:	**Dharmapuri / Tamilnadu**
4	Population (2011 Census)	:	57070
5	Normal Rainfall (**mm**)	:	622 Monsoon: 502 Non-Monsoon: 120
6	Agriculture (2012-13)(Ha)	:	1. Gross irrigated area: 2244.68 2. Paddy: 305.35 3. Sugar cane: 281.39 4. Banana: 45.40 5. Other crops: 1612.56 6. Ground water: 2244.68 7. Surface water (Tanks): NIL
7	Existing and future water demands (HaM)		Domestic & Industrial • Existing: 75.32 • Future (year 2025): 85.61 Irrigation • Existing: 1862.75
8	Water level behaviour (m bgl)	:	Pre-monsoon: 8.90 – 17.10 Post-monsoon: 4.35 – 15.50
	AQUIFER DISPOSITION	:	
9	No of Aquifers	:	2
10	3-D aquifer disposition and basic characteristics of each aquifer **Fig.2**: **3 D map and 2D - Sections**	:	**Geology – Charockites/Gneisses** **Aqufer-1 (Weathered Zone):** Thickness varies from 9 - 20 m Transmissivity(T): 3 - 45 m^2/day Specific Yield (Sy): 0.01to 0.015 **Aquifer-2 (Fractured Zone):** Depth of fracturing varies from 20-190 m. Transmissivity (T): 10 -75 m^2/day Specific storage (S): 0.00001- 0.0002 Cumulative yield (Aquifer 1 and Aquifer 2)

			0.1 to 2.5 lps.
11	Ground water Issues	:	Sustainability of wells (1-2 hrs).
12	Ground water resource availability and extraction-2012-13 (MCM)	:	• Net GW availability : 10.82 • Gross Ground Water draft for Irrigation: 18.63 • Gross Ground water draft for domestic and industrial supply: 0.75 • Gross GW draft: 19.38 • Stage of ground water development: 179 % • Category: Over Exploited
13	Ground water extraction	:	Ground water extraction structures: 4114 no's • Bore wells: 467 no's • Dug wells: 3647no's
14	Chemical quality of ground water, contamination and its suitability	:	EC (µS/cm) min: 529 and max: 2910 NO_3 (mg/L): Min: 12 and max 90 F (mg/L): Min 0.46 and Max: 0.92 All chemical constituents are within the permissible limit of BIS drinking water standards (IS: 10500:2012) except Nitrate having High values.
15	**Ground Water Recharge Scenario**	:	**MCM**
15.1	Recharge from Rainfall (Monsoon)	:	5.62
15.2	Recharge from Other sources (Tanks and applied irrigation) (Monsoon)	:	3.85
15.3	Recharge from rainfall (Non-Monsoon)	:	1.12
15.4	Recharge from Other sources (Tanks and applied irrigation) (Non-Monsoon)	:	1.43
15.5	Total annual GW Recharge	:	12.02
15.6	Natural Discharge	:	1.20
15.7	Existing Minor Irrigation Tanks (Area in ha)	:	NIL
15.8	Storage from existing tanks (MCM)	:	NIL
16	Storage from existing AR Structures (MCM)	:	1.44

Fig-1: Location Map of Palayam Firka

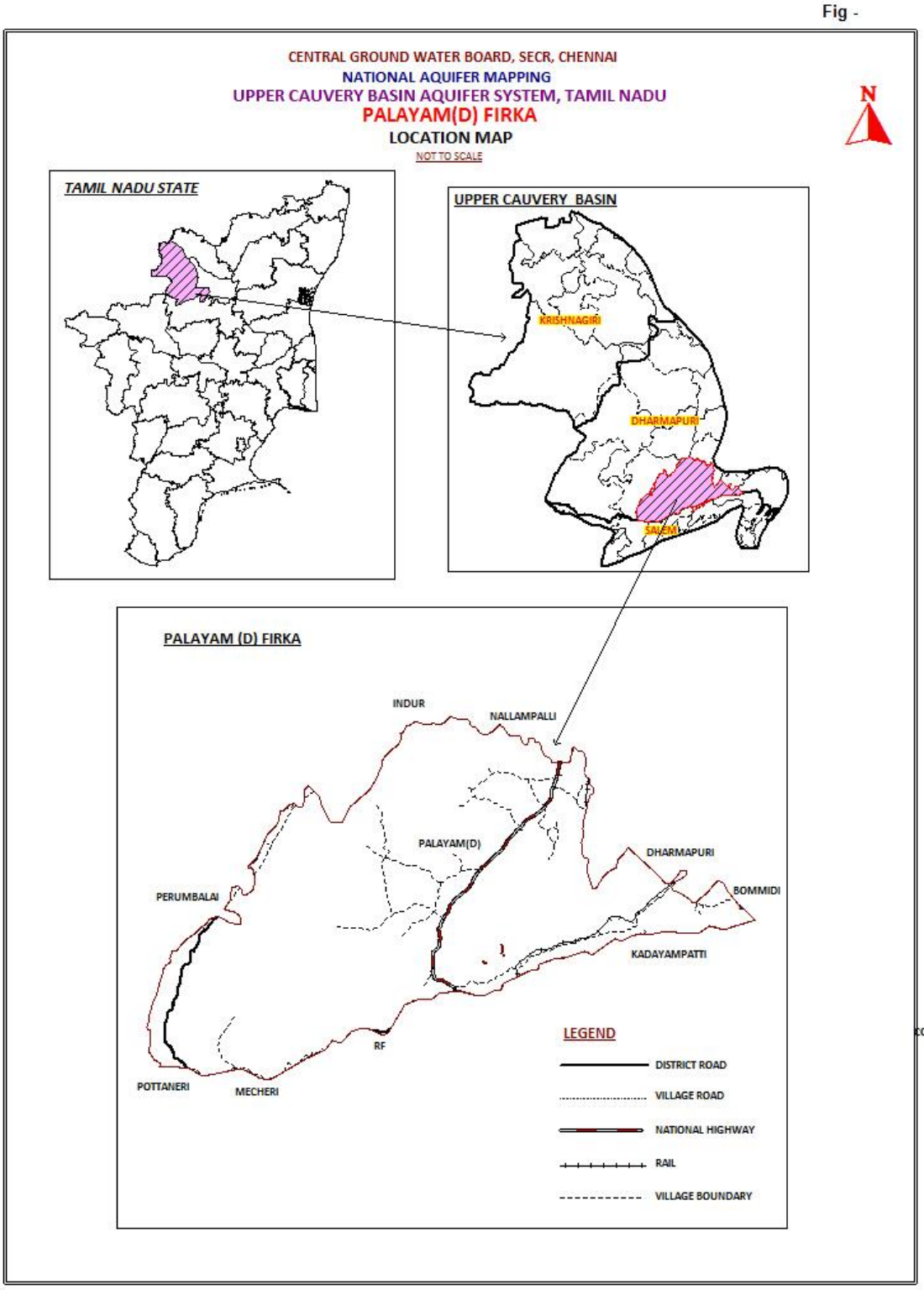
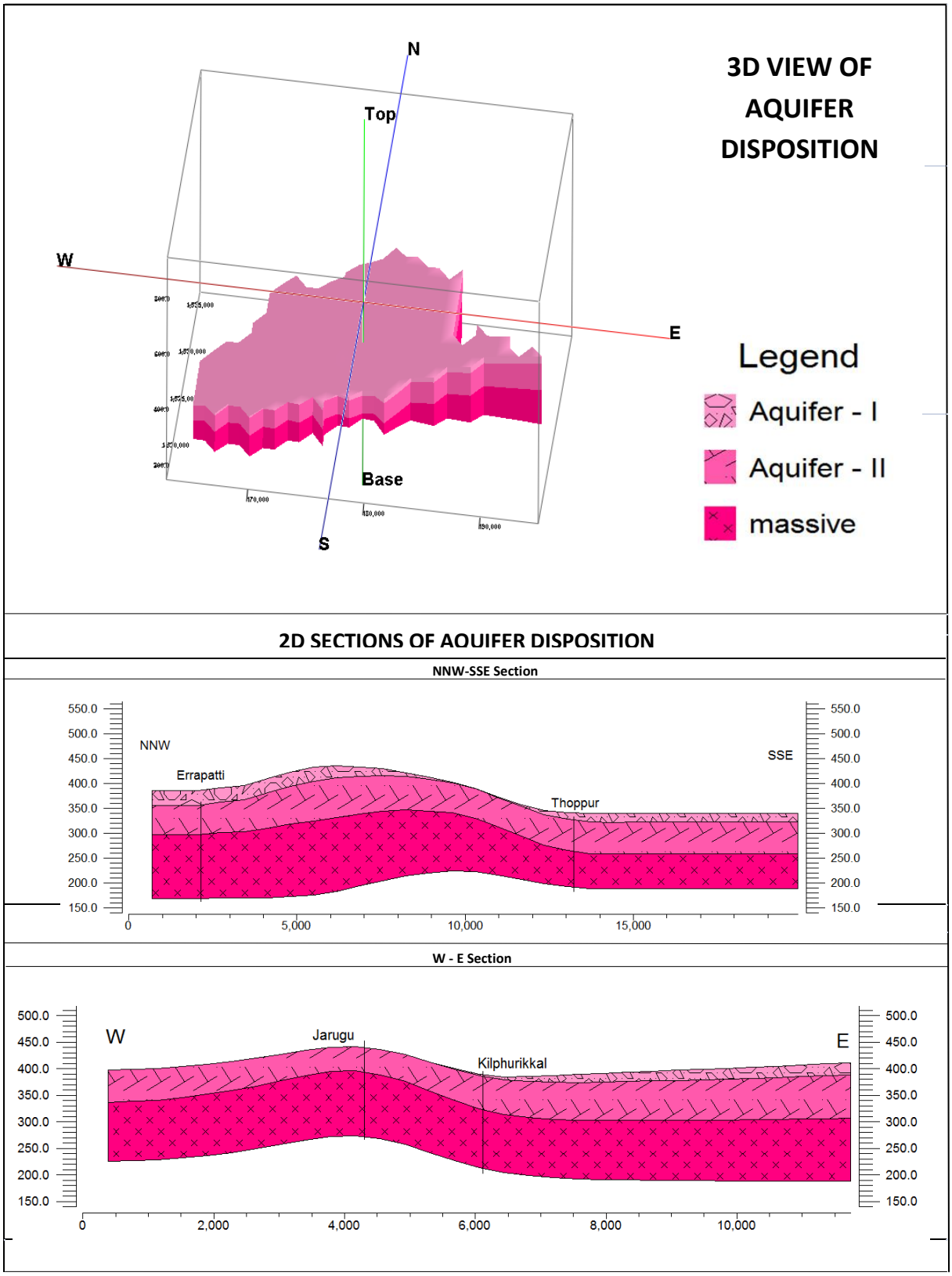


Fig:2 3D and 2D View of Aquifer Disposition, Palayam Firka, Dharmapuri District



AQUIFER MANAGEMENT PLAN
PALAYAM FIRKA,
DHARMAPURI DISTRICT, TAMILNADU STATE

	WATER RESOURCE AVAILABILITY (MCM)		
1	Ground water (as per GEC 2013)	:	10.82
2	Surface Water (as per 2012-13irrigation data)	:	1.44
3	Total water availability	:	12.26
	Ground Water Resource Enhancement (MCM)		
4	Uncommitted surface runoff available for the Firka	:	34.56
5	Total volume of weathered zone	:	33.04
6	Total volume of aquifer available for recharge, considering 3m below Ground Level.		49.55
(a)	**Supply side Interventions**		
ARTIFICAIL RECHARGE/CONSERVATION MEASURES			
7	Structures Proposed (nos) Masonry Check dam Nala Bund Revival, repair of pond, tanks with recharge haft Percolation Pond with Recharge Shaft Farm Pond:	: : : : 	 20 (Table -1) 30 (Table -2) 30 (Table -3) 10 (Table -4) 150 units
8	Excepted total groundwater recharge (MCM)	:	3.23
9	Tentative total cost of the project (Rs. In Cr)		15.717
10	Expected raise in water level by recharging/saving (m)		1.95
(b)	**Demand side Interventions**		
11	Existing total Groundwater Draft (MCM)	:	19.38
12	Proposed Micro Irrigation in Ha	:	150
13	Cost for micro-irrigation (Rs in Lakhs)	:	90
14	Expected ground water saving from micro-irrigation (MCM)	:	0.45
	REGULATION & COMMUNITY INTERVENTIONS		
15	Regulation and control	:	Systematic monitoring in groundwater contaminated area particularly Fluoride. Planning of alternate source for drinking water purposes. The systematic development of groundwater is suggested to sustain the available and recharged groundwater.