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

KAKKADASAM FIRKA, KRISHNAGIRI DISTRICT, TAMIL NADU

दक्षिण पूर्वी तटीय क्षेत्र, चेन्नई

South Eastern Coastal Region, Chennai

REPORT ON
AQUIFER DISPOSITION & MANAGEMENT PLAN
KAKKADASAM FIRKA, KRISHNAGIRI DISTRICT, TAMILNADU STATE

By
Dr.K.Rajarajan
Scientist-B

	SALIENT FEATURES		
1	Name of the Firka/Area Revenue Division Location **(Fig-1)**	**:**	**KAKKADASAM / 171.95 sq.km** **DENKANIKOTTAI TALUK** N 77° 34' 56" to 77° 46' 42" E 12° 25' 04 " to 12° 37' 55"
2	No. of Revenue villages	:	**21**
3	District/State	:	**Krishnagiri / Tamilnadu**
4	Population (2011 Census)	:	43514
5	Normal Rainfall (**mm**)	:	964 Monsoon: 760 Non-Monsoon: 204
6	Agriculture (2012-13)(Ha)	:	1. Gross irrigated area: 1162.56 2. Paddy: 85.38 3. Sugar cane: 12.68 4. Banana: 35.32 5. Other crops: 1029.21 6. Ground water: 1066.58 7. Surface water (Tanks): 95.98
7	Existing and future water demands (HaM)		Domestic & Industrial • Existing: 0.57 • Future (year 2025): 0.64 Irrigation • Existing: 6.53
8	Water level behaviour (m bgl)	:	Pre-monsoon: 6.61 – 12.34 Post-monsoon: 4.50 – 9.84
	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 : 12.44 • Gross Ground Water draft for Irrigation: 6.53 • Gross Ground water draft for domestic and industrial supply: 0.56 • Gross GW draft: 7.09 • Stage of ground water development: 57 % • Category: Safe
13	Ground water extraction	:	Ground water extraction structures: 513 no's • Bore wells: 409 no's • Dug wells: 104 no's
14	Chemical quality of ground water, contamination and its suitability	:	EC (µS/cm) min: 440 and max: 1198 NO_3 (mg/L): Min:10 and Max : 40 F (mg/L): Min:0.1 and Max: 1.00 All chemical constituents are within the permissible limit of BIS drinking water standards (IS: 10500:2012).
15	**Ground Water Recharge Scenario**	:	**MCM**
15.1	Recharge from Rainfall (Monsoon)	:	7.79
15.2	Recharge from Other sources (Tanks and applied irrigation) (Monsoon)	:	2.88
15.3	Recharge from rainfall (Non-Monsoon)	:	2.61
15.4	Recharge from Other sources (Tanks and applied irrigation) (Non-Monsoon)	:	0.55
15.5	Total annual GW Recharge	:	13.83
15.6	Natural Discharge	:	1.38
15.7	Existing Minor Irrigation Tanks (Area in ha)	:	421
15.8	Storage from existing tanks (MCM)	:	4.21
16	Storage from existing AR Structures (MCM)	:	3.62

Fig-1: Location Map of Kakkadasam Firka.

Fig -

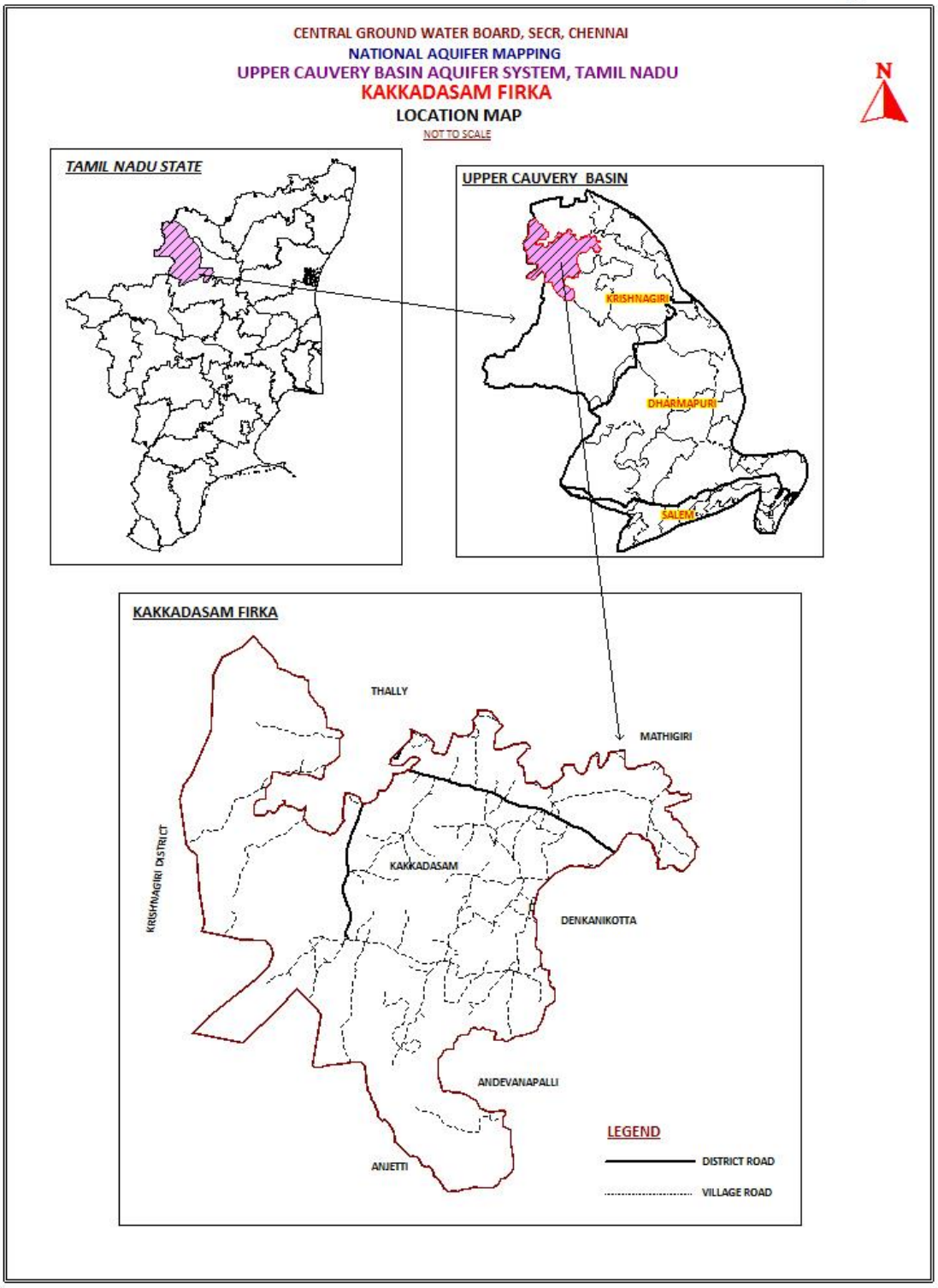
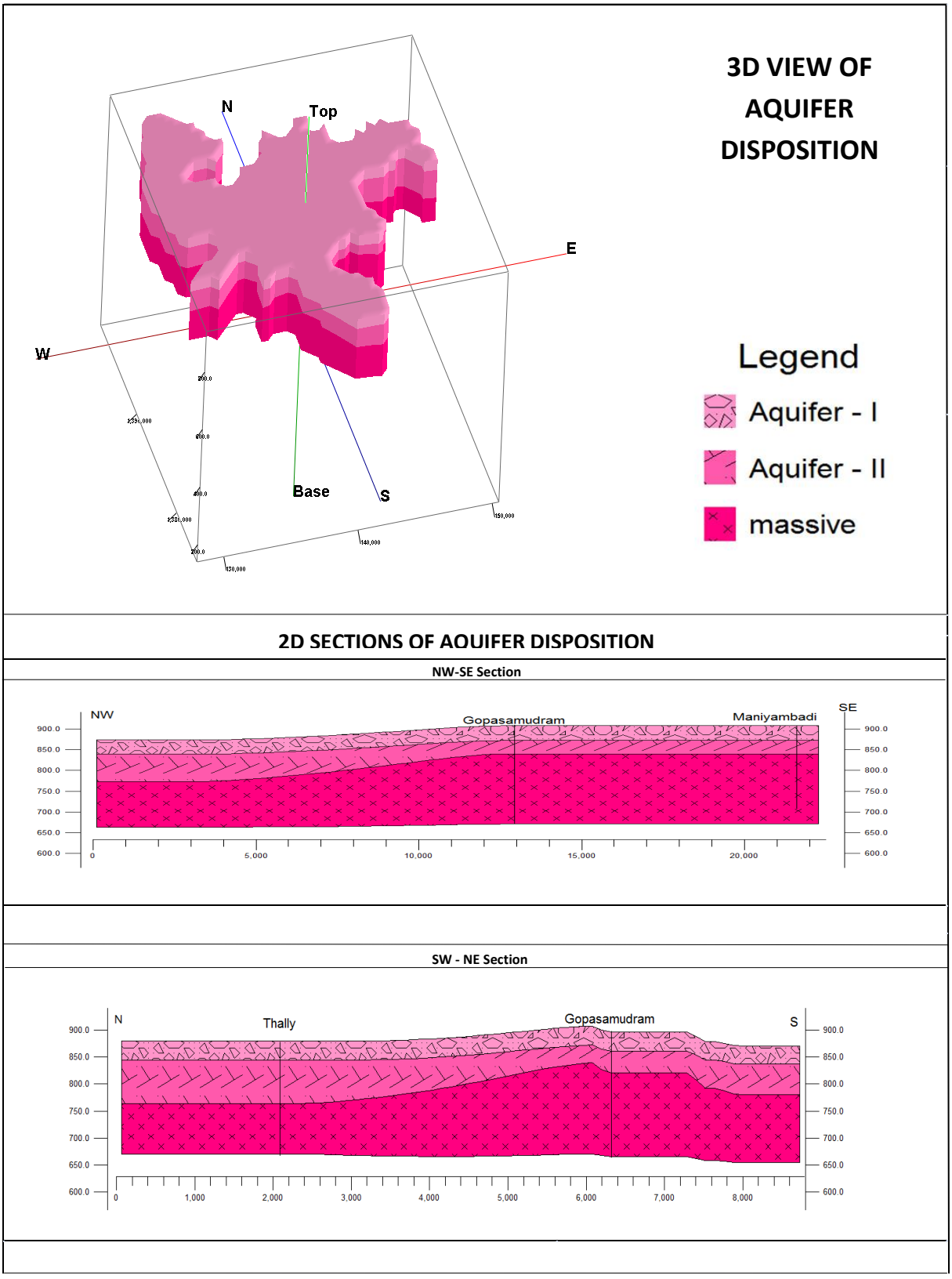


Fig:2 3D and 2D View of Aquifer Disposition, Kakkadasam Firka, Krishnagiri District



AQUIFER MANAGEMENT PLAN
KAKKADASAM FIRKA,
KRISHNAGIRI DISTRICT, TAMILNADU STATE

	WATER RESOURCE AVAILABILITY (MCM)		
1	Ground water (as per GEC 2013)	:	12.44
2	Surface Water (as per 2012-13irrigation data)	:	7.83
3	Total water availability	:	20.27
	Ground Water Resource Enhancement (MCM)		The present requirements of water can be met out from the surface water. Hence, The intervention on both supply and demand may not be required for this firka.
4	Uncommitted surface runoff available for the Firka	:	
5	Total volume of weathered zone	:	
6	Total volume of aquifer available for recharge, considering 3m below Ground Level.		
(a)	**Supply side Interventions**		
ARTIFICIAIL 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:	: : : :	
8	Excepted total groundwater recharge (MCM)	:	
9	Tentative total cost of the project (Rs. In Cr)		
10	Expected raise in water level by recharging/saving (m)		
(b)	**Demand side Interventions**		
11	Existing total Groundwater Draft (MCM)	:	
12	Proposed Micro Irrigation in Ha	:	
13	Cost for micro-irrigation (Rs in Lakhs)	:	
14	Expected ground water saving from micro-irrigation (MCM)	:	
	REGULATION & COMMUNITY INTERVENTIONS		
15	Regulation and control	:	The present development of groundwater should be maintained and should not cross GW availability. As the surface water available is more, any further requirements should be met out from SW sources.