केंद्रीय भूमि जल बोर्ड

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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

KARUMATHAMPATTY FIRKA, COIMBATORE DISTRICT, TAMIL NADU

दक्षिण पूर्वी तटीय क्षेत्र, चेन्नई

South Eastern Coastal Region, Chennai

REPORT ON
AQUIFER DISPOSITION & MANAGEMENT PLAN
KARUMATHAMPATTY FIRKA, COIMBATORE DISTRICT, TAMILNADU STATE

	SALIENT FEATURES		
1	Name of the Firka/Area Revenue Division Location **(Fig-1)**	**:**	**KARUMATHAMPATTY / 171.60 sq.km** **SULUR** N 77° 03' 45" to 77° 15' 28" E 11° 01' 59 " to 11° 12' 16"
2	No. of Revenue villages	:	**11**
3	District/State	:	**Coimbatore / Tamilnadu**
4	Population (2011 Census)	:	87072
5	Normal Rainfall (**mm**)	:	556 Monsoon: 411 Non-Monsoon: 145
6	Agriculture (2012-13)(Ha)	:	Gross irrigated area: 2207.665 Paddy: Nil Sugar cane: 596.295 Banana: 279.655 Other crops: 1331.715 Ground water: 2207.665 Surface water (Tanks): NIL
7	Existing and future water demands (HaM)		Domestic & Industrial • Existing: 134.09 • Future (year 2025): 152.41 Irrigation • Existing: - 63.47
8	Water level behaviour (m bgl)	:	Pre-monsoon: 0.99 – 31.60 Post-monsoon:0.27– 32.80
	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 – Charockite/Gneiss** **Aqufer-1 (Weathered Zone):** Thickness varies from 9 - 15 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 -473 m^2/day Specific storage (S): $2.77*10^{-4}$ - $9.5*10^{-5}$ Cumulative yield (Aquifer 1 and Aquifer 2) 1.0 to 12.0 lps.
11	Ground water Issues	:	Sustainability of wells (1-2 hrs).
12	Ground water resource availability and extraction-2012-13	:	• Net GW availability : 11.22 • Gross Ground Water draft for Irrigation:

	(MCM)		10.33 • Gross Ground water draft for domestic and industrial supply: 1.34 • Gross GW draft: 11.67 • Stage of ground water development: 104 % • Category: Over Exploited
13	Ground water extraction	:	Ground water extraction structures: 2758 no's • Bore wells: 1011 no's • Dug wells: 1747 no's
14	Chemical quality of ground water, contamination and its suitability	:	EC (µS/cm) min: 210 and max: 5780 NO_3 (mg/L): Min: 181 and max 310 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)	:	6.77
15.2	Recharge from Other sources (Tanks and applied irrigation) (Monsoon)	:	1.95
15.3	Recharge from rainfall (Non-Monsoon)	:	1.99
15.4	Recharge from Other sources (Tanks and applied irrigation) (Non-Monsoon)	:	1.76
15.5	Total annual GW Recharge	:	12.47
15.6	Natural Discharge	:	1.24
15.7	Existing Minor Irrigation Tanks (Area in ha)	:	-
15.8	Storage from existing tanks (MCM)	:	-
16	Storage from existing AR Structures (MCM)	:	1.76492

Fig-1: Location Map of Karumathampatti Firka.

Fig -

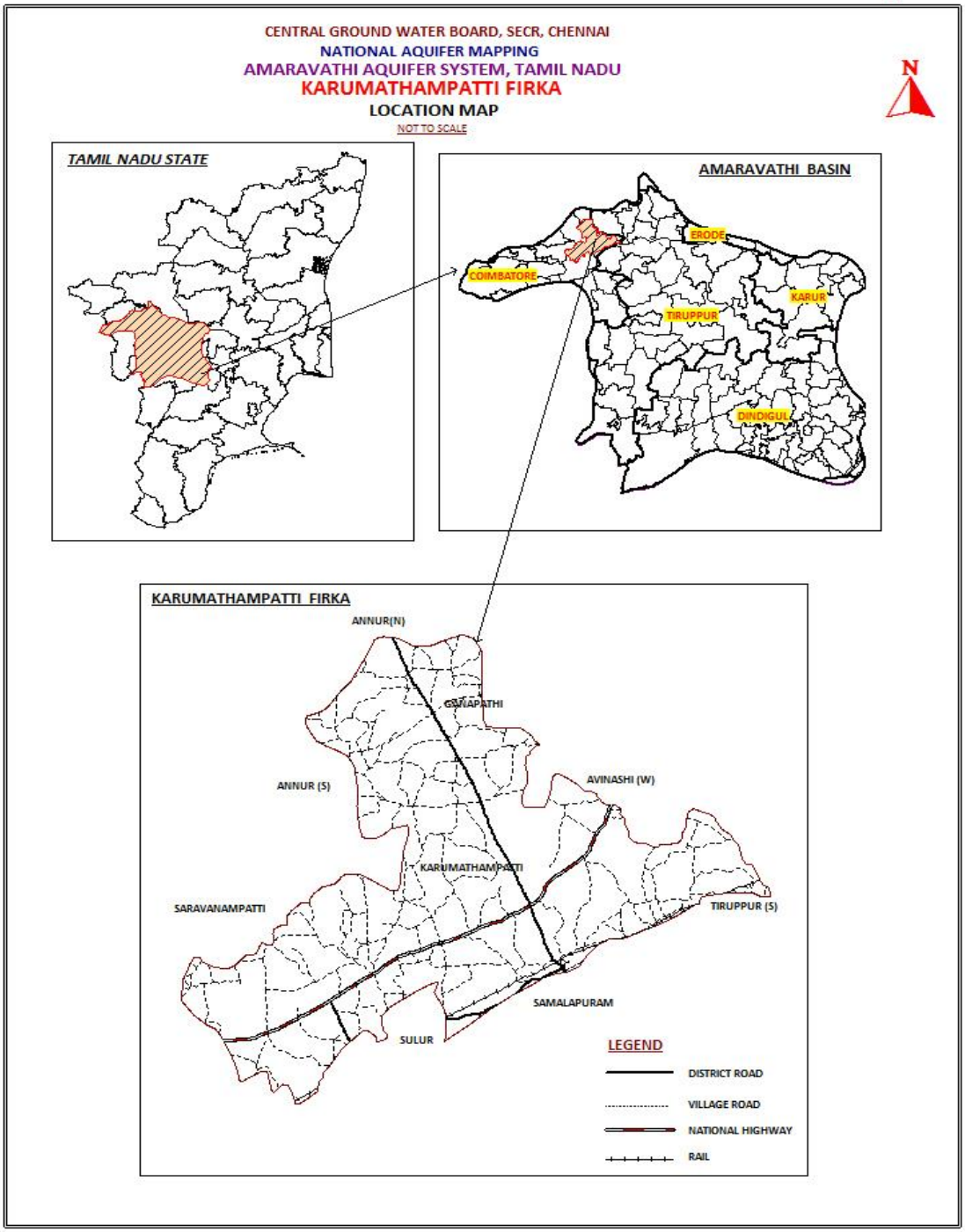
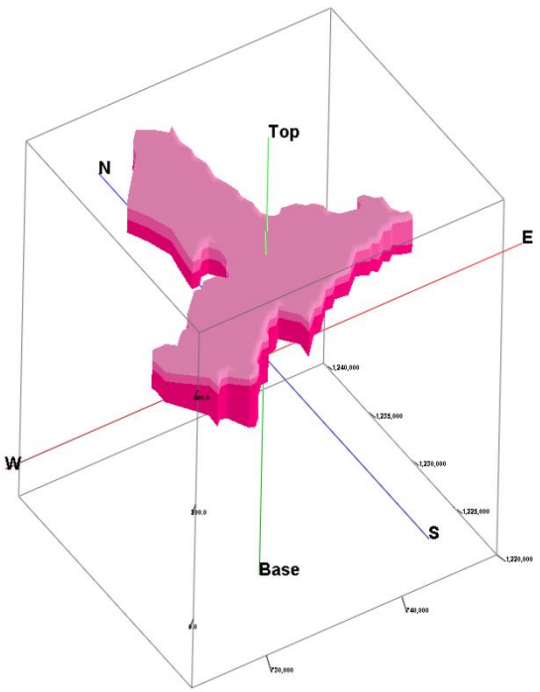


Fig:2 3D and 2D View of Aquifer Disposition, Karumathampatti Firka, Coimbatore



3D VIEW OF AQUIFER DISPOSITION

Legend

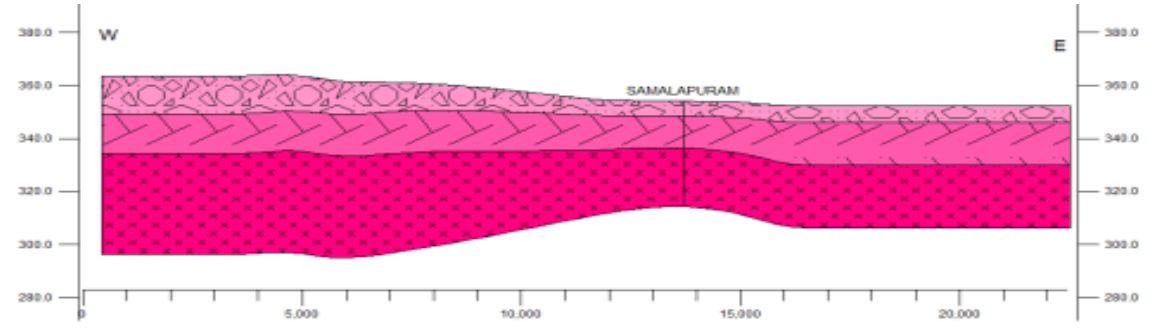
Aquifer - I

Aquifer - II

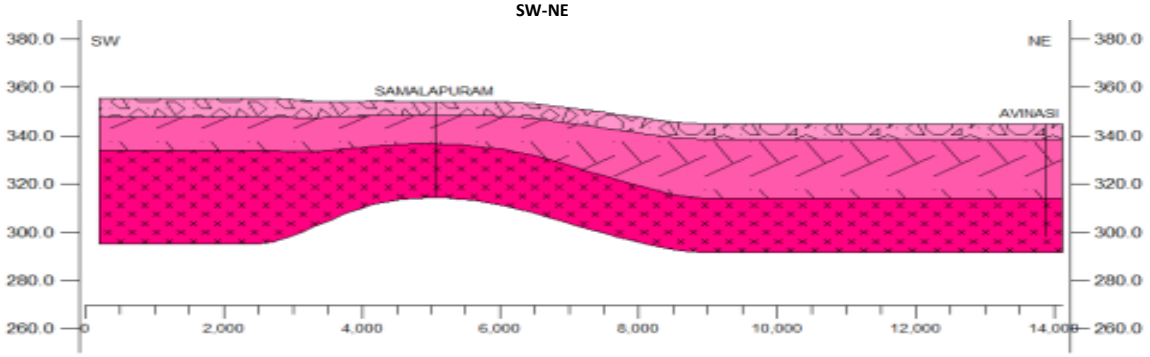
massive

2D SECTIONS OF AQUIFER DISPOSITION

W-E Section



SW-NE



AQUIFER MANAGEMENT PLAN
KARUMATHAMPATTY FIRKA
COIMBATORE DISTRICT, TAMILNADU STATE

	WATER RESOURCE AVAILABILITY (MCM)		
1	Ground water (as per GEC 2013)	:	11.22
2	Surface Water (as per 2012-13irrigation data)	:	1.76492
3	Total water availability	:	12.29492
	Ground Water Resource Enhancement (MCM)		
4	Uncommitted surface runoff available for the Firka	:	10.58
5	Total volume of weathered zone	:	38.61
6	Total volume of aquifer available for recharge, considering 3m below Ground Level.		18.02
(a)	**Supply side Interventions**		
ARTIFICAIL RECHARGE/CONSERVATION MEASURES			
7	Structures Proposed (nos) Masonry Check dam Revival, repair of pond, tanks with recharge haft Percolation Pond with Recharge Shaft Farm Pond:	: : : : 	 3 (Table -1) 12 (Table -3) 7(Table -4) 150 units
8	Excepted total groundwater recharge (MCM)	:	2.87
9	Tentative total cost of the project (Rs. In Cr)		11.02
10	Expected raise in water level by recharging/saving (m)		2.78
(b)	**Demand side Interventions**		
11	Existing total Groundwater Draft (MCM)	:	11.67
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.

Table 1: Locations of proposed Check dams in the firka

S. No.	Longitude	Latitude	Structures
1	77.1555	11.1417	Check Dam
2	77.1575	11.1681	Check Dam
3	77.1825	11.1034	Check Dam

Table 2: Locations of proposed Repair Rejuvination and recharge shaft

S. No.	Longitude	Latitude	Structure	Action
1	77.1555	11.1417	Rejuvination and Recharge Shaft	Repair Tank / Reservoir
2	77.1575	11.1681	Rejuvination and Recharge Shaft	Repair Tank / Reservoir
3	77.1825	11.1034	Rejuvination and Recharge Shaft	Repair Tank / Reservoir
4	77.1555	11.1417	Rejuvination and Recharge Shaft	Repair Tank / Reservoir
5	77.1575	11.1681	Rejuvination and Recharge Shaft	Repair Tank / Reservoir
6	77.1825	11.1034	Rejuvination and Recharge Shaft	Repair Tank / Reservoir
7	77.1555	11.1417	Rejuvination and Recharge Shaft	Repair Tank / Reservoir
8	77.1575	11.1681	Rejuvination and Recharge Shaft	Repair Tank / Reservoir
9	77.1825	11.1034	Rejuvination and Recharge Shaft	Repair Tank / Reservoir
10	77.1555	11.1417	Rejuvination and Recharge Shaft	Repair Tank / Reservoir
11	77.1575	11.1681	Rejuvination and Recharge Shaft	Repair Tank / Reservoir
12	77.1825	11.1034	Rejuvination and Recharge Shaft	Repair Tank / Reservoir

Table 3: Location of proposed recharge shaft

S. No.	Longitude	Latitude	Structure	Action
1	77.0976	11.0427	Recharge Shaft	Tank / Reservoir
2	77.1005	11.0483	Recharge Shaft	Tank / Reservoir
3	77.2357	11.1072	Recharge Shaft	Tank / Reservoir
4	77.1508	11.0981	Recharge Shaft	Tank / Reservoir
5	77.1546	11.0905	Recharge Shaft	Tank / Reservoir
6	77.1129	11.1722	Recharge Shaft	Tank / Reservoir
7	77.1321	11.1759	Recharge Shaft	Tank / Reservoir