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

COIMBATORE SOUTH FIRKA, COIMBATORE DISTRICT, TAMIL NADU

दक्षिण पूर्वी तटीय क्षेत्र, चेन्नई

South Eastern Coastal Region, Chennai

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

	SALIENT FEATURES		
1	Name of the Firka/Area Revenue Division Location **(Fig-1)**	**:**	**COIMBATORE SOUTH / 22..56 sq.km** **Thondamuthur** N 76° 54' 37" to 77° 03' 30" E 10° 58' 22 " to 11° 02' 11"
2	No. of Revenue villages	:	**3**
3	District/State	:	**Coimbatore / Tamilnadu**
4	Population (2011 Census)	:	159224
5	Normal Rainfall (**mm**)	:	692 Monsoon: 522 Non-Monsoon: 170
6	Agriculture (2012-13)(Ha)	:	Gross irrigated area: 333.305 Paddy: 4.045 Sugar cane: 56.92 Banana: 66.185 Other crops: 206.155 Ground water: 333.305 Surface water (Tanks): NIL
7	Existing and future water demands (HaM)		Domestic & Industrial • Existing: 245.20 • Future (year 2025): 278.70 Irrigation • Existing: -121.31
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 (MCM)	:	• Net GW availability : 3.84 • Gross Ground Water draft for Irrigation: 2.26 • Gross Ground water draft for domestic and industrial supply: 2.45 • Gross GW draft: 4.71 • Stage of ground water development: 123 % • Category: Over Exploited
13	Ground water extraction	:	Ground water extraction structures: 382 no's • Bore wells: 184 no's • Dug wells: 198 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)	:	1.13
15.2	Recharge from Other sources (Tanks and applied irrigation) (Monsoon)	:	2.22
15.3	Recharge from rainfall (Non-Monsoon)	:	0.31
15.4	Recharge from Other sources (Tanks and applied irrigation) (Non-Monsoon)	:	0.61
15.5	Total annual GW Recharge	:	4.26
15.6	Natural Discharge	:	0.43
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 Coimbatore South Firka.

Fig -

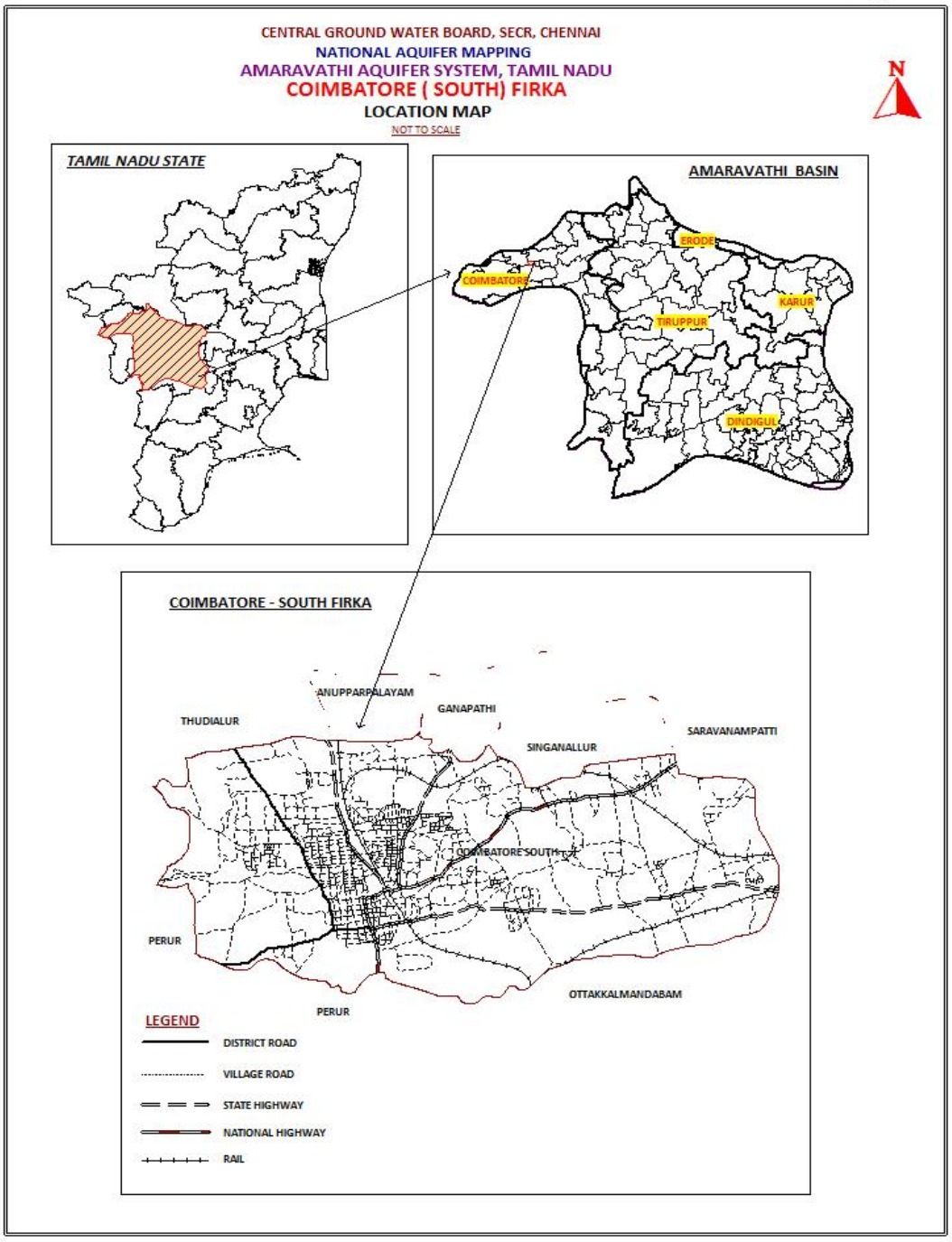
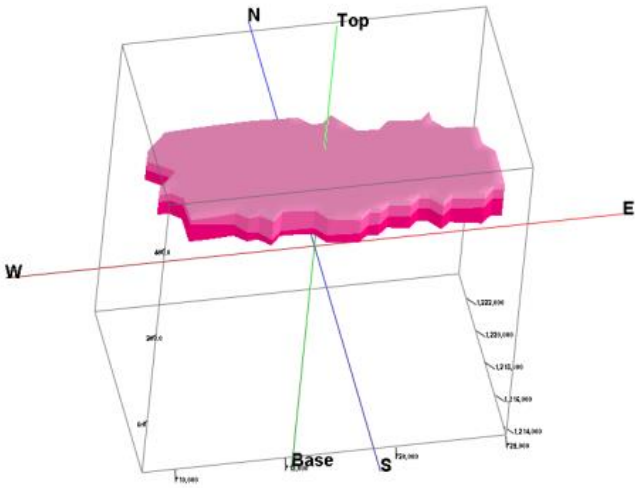


Fig:2 3D and 2D View of Aquifer Disposition, Coimbatore South Firka, Coimbatore District



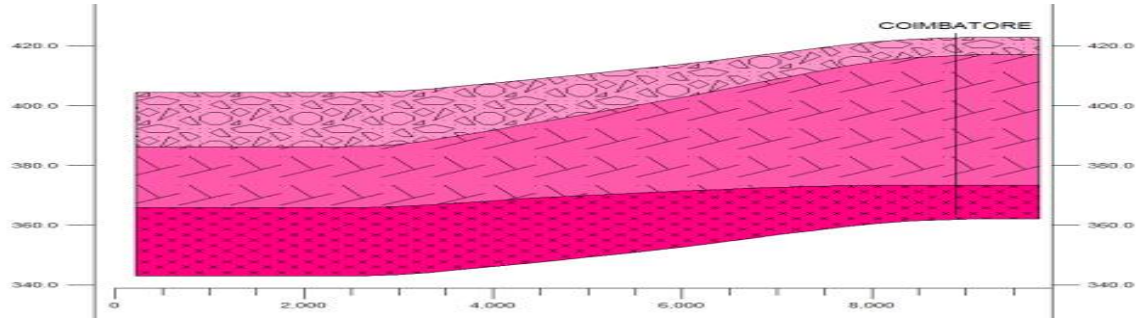
3D VIEW OF AQUIFER DISPOSITION

Legend

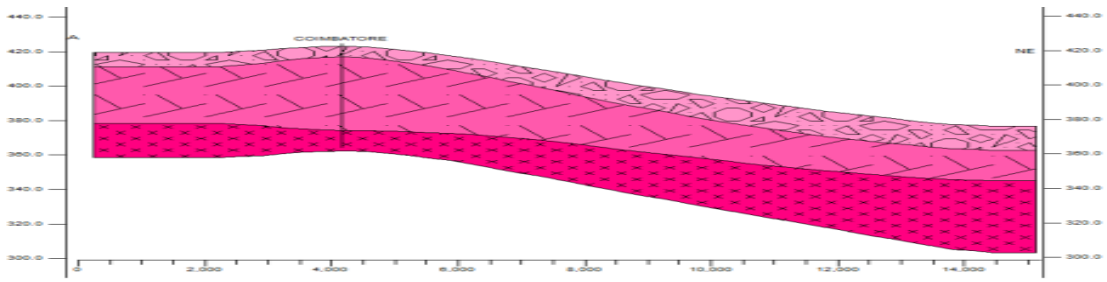
- Aquifer - I
- Aquifer - II
- massive

2D SECTIONS OF AQUIFER DISPOSITION

N-S Section



SW-NE Section



AQUIFER MANAGEMENT PLAN
COIMBATORE SOUTH FIRKA,
COIMBATORE DISTRICT, TAMILNADU STATE

	WATER RESOURCE AVAILABILITY (MCM)		
1	Ground water (as per GEC 2013)	:	3.84
2	Surface Water (as per 2012-13irrigation data)	:	1.63396
3	Total water availability	:	5.47396
	Ground Water Resource Enhancement (MCM)		
4	Uncommitted surface runoff available for the Firka	:	1.77
5	Total volume of weathered zone	:	5.08
6	Total volume of aquifer available for recharge, considering 3m below Ground Level.		2.37
(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:	: : : :	 3 (Table -1) - (Table -2) 3 (Table -3) 11(Table -4) 100 units
8	Excepted total groundwater recharge (MCM)	:	3.11
9	Tentative total cost of the project (Rs. In Cr)		3.36
10	Expected raise in water level by recharging/saving (m)		10.80
(b)	**Demand side Interventions**		
11	Existing total Groundwater Draft (MCM)	:	4.71
12	Proposed Micro Irrigation in Ha	:	100
13	Cost for micro-irrigation (Rs in Lakhs)	:	60
14	Expected ground water saving from micro-irrigation (MCM)	:	0.15
	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	76.9557	11.0291	Check Dam
2	76.9986	11.0184	Check Dam
	77.0142	11.0064	Check Dam

Table 2: Locations of proposed Repair Rejuvination and recharge shaft

S. No.	Longitude	Latitude	Structure	Action
1	76.9210	11.0210	Repair Rejuvination and Recharge Shaft	Tank / Reservoir
2	76.9263	11.0295	Repair Rejuvination and Recharge Shaft	Tank / Reservoir
3	77.0224	11.0052	Repair Rejuvination and Recharge Shaft	Tank / Reservoir

Table 3: Location of proposed recharge shaft

S. No.	Longitude	Latitude	Structure	Action
1	76.9375	11.0029	Recharge Shaft	Tank / Reservoir
2	76.9443	11.0023	Recharge Shaft	Tank / Reservoir
3	76.9521	10.9809	Recharge Shaft	Tank / Reservoir
4	76.9574	10.9812	Recharge Shaft	Tank / Reservoir
5	76.9604	10.9840	Recharge Shaft	Tank / Reservoir
6	76.9699	10.9899	Recharge Shaft	Tank / Reservoir
7	76.9825	10.9931	Recharge Shaft	Tank / Reservoir
8	76.9940	11.0066	Recharge Shaft	Tank / Reservoir
9	77.0209	10.9924	Recharge Shaft	Tank / Reservoir
10	77.0259	10.9863	Recharge Shaft	Tank / Reservoir
11	77.0212	10.9862	Recharge Shaft	Tank / Reservoir

Table 4: Locations of proposed Nalabund in the firka

S. No	Longitude	Latitude	Structures
1	76.9785	11.0388	Nalabund