



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

**KADATHUR FIRKA, DHARMAPURI DISTRICT,
TAMIL NADU**

दक्षिण पूर्वी तटीय क्षेत्र, चेन्नई

South Eastern Coastal Region, Chennai

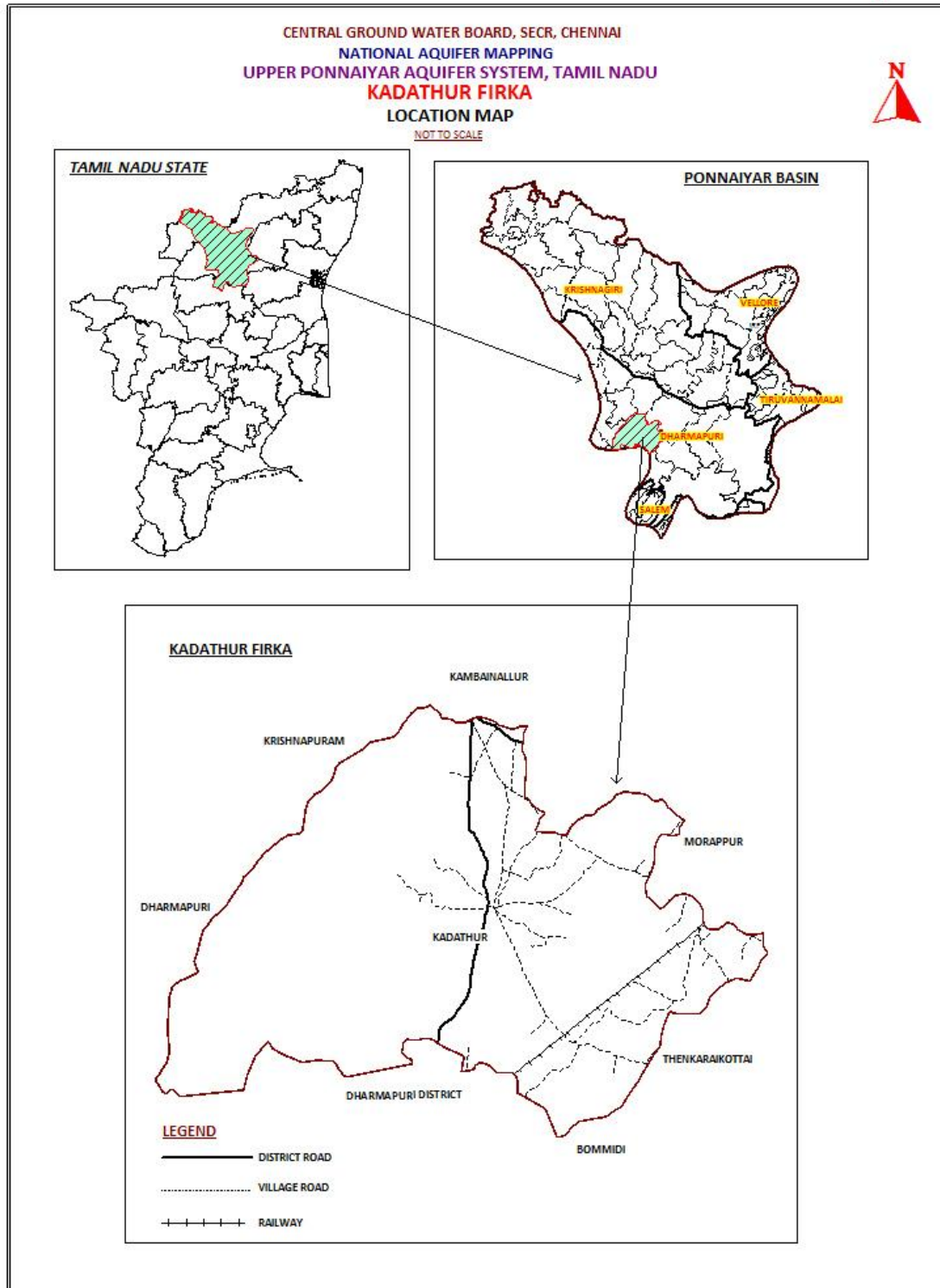
**REPORT ON
AQUIFER MAPS & MANAGEMENT PLANS
KADATHUR FIRKA, DHARMAPURI DISTRICT, TAMILNADU STATE**

SALIENT FEATURES			
1	Name of the Firka/Area Revenue Division Location (Fig-1)	:	KADATHUR / 157.32. sq.km Pappireddipatti N 12°00' 07 "to 12° 08'47" & E 78°11'23"to 78°22' 37".
2	No. of Revenue villages	:	16
3	District/State	:	Dharmapuri / Tamilnadu
4	Population (2011 Census)	:	11673
5	Normal Rainfall (mm) (2013-2014)	:	1012 Monsoon: 796 Non-Monsoon: 216
6	Agriculture (2013-14)(Ha)	:	1. Paddy: 493.69 2. Sugarcane: 394.77 3. Banana: 21.43 4. Ground water: 2340 5. Surface water (Tanks): 93.0
7	Existing and future water demands (HaM)		Domestic & Industrial • Existing: -1567.07 • Future (year 2025): 55.43 Irrigation (Existing): 3006.78
8	Water level behaviour (m bgl)	:	Pre-monsoon: 2-10 Post-monsoon: 1-5
	AQUIFER DISPOSITION	:	
9	No of Aquifers	:	2
10	3-D aquifer disposition and basic characteristics of each aquifer (3D: Fig-2a Section Layout:2b Sections: 2c & 2d)	:	Geology-crystalline metamorphic gneiss comprising hornblende gneiss Aquifer-1 (Weathered Zone): varies from 7- 15.30 m Transmissivity(T): 4.81-101 m ² /day Specific Yield (Sy): 0.12 to 1.5 % Aquifer-2 (Fractured Zone): Depth of fracturing varies from 28-45 m. Transmissivity (T): 10-102.5 m ² /day Specific storage (S): 0.00001-0.02 Cumulative yield (Aq1 and Aq 2) (lps): 0.2 to 1
11	Ground water Issues	:	• Geogenic contamination by Fluoride. • Sustainability of wells (1-2 hrs).
12	Ground water resource availability and extraction (MCM)	:	• Net GW availability : 14.9442 • Gross Ground Water draft for Irrigation: 25.925 MCM

			<ul style="list-style-type: none"> • Gross Ground water draft for domestic and industrial supply: 0.4876 MCM • Gross GW draft: 26.4126 MCM • Stage of ground water development: 176 % • Category: Over Exploited
13	Ground water extraction	:	Ground water extraction structures: 4799 no's <ul style="list-style-type: none"> • Bore wells:281 no's • Dug wells: 4498 no's
14	Chemical quality of ground water, contamination and its suitability	:	EC ($\mu\text{S}/\text{cm}$) min: 700 and max:1000 NO ₃ (mg/L): Min:30 and max 125 F (mg/L): Min 0.25 and Max:1.3
15	Ground Water Recharge Scenario	:	ham
15.1	Recharge from Rainfall (Monsoon)	:	866.38
15.2	Recharge from Other sources (Tanks and applied irrigation) (Monsoon)	:	477.27
15.3	Recharge from rainfall (Non-Monsoon)	:	195.38
15.4	Recharge from Other sources (Tanks and applied irrigation) (Non-Monsoon)	:	102.65
15.5	Total annual GW Recharge	:	1642.07
15.6	Natural Discharge	:	164.21
15.7	Existing Minor Irrigation Tanks(Area in ha)	:	93
16	Storage from existing AR Structures (MCM)	:	11.19 MCM

Fig-1: Location Map of Kadathur Firka.

Fig -



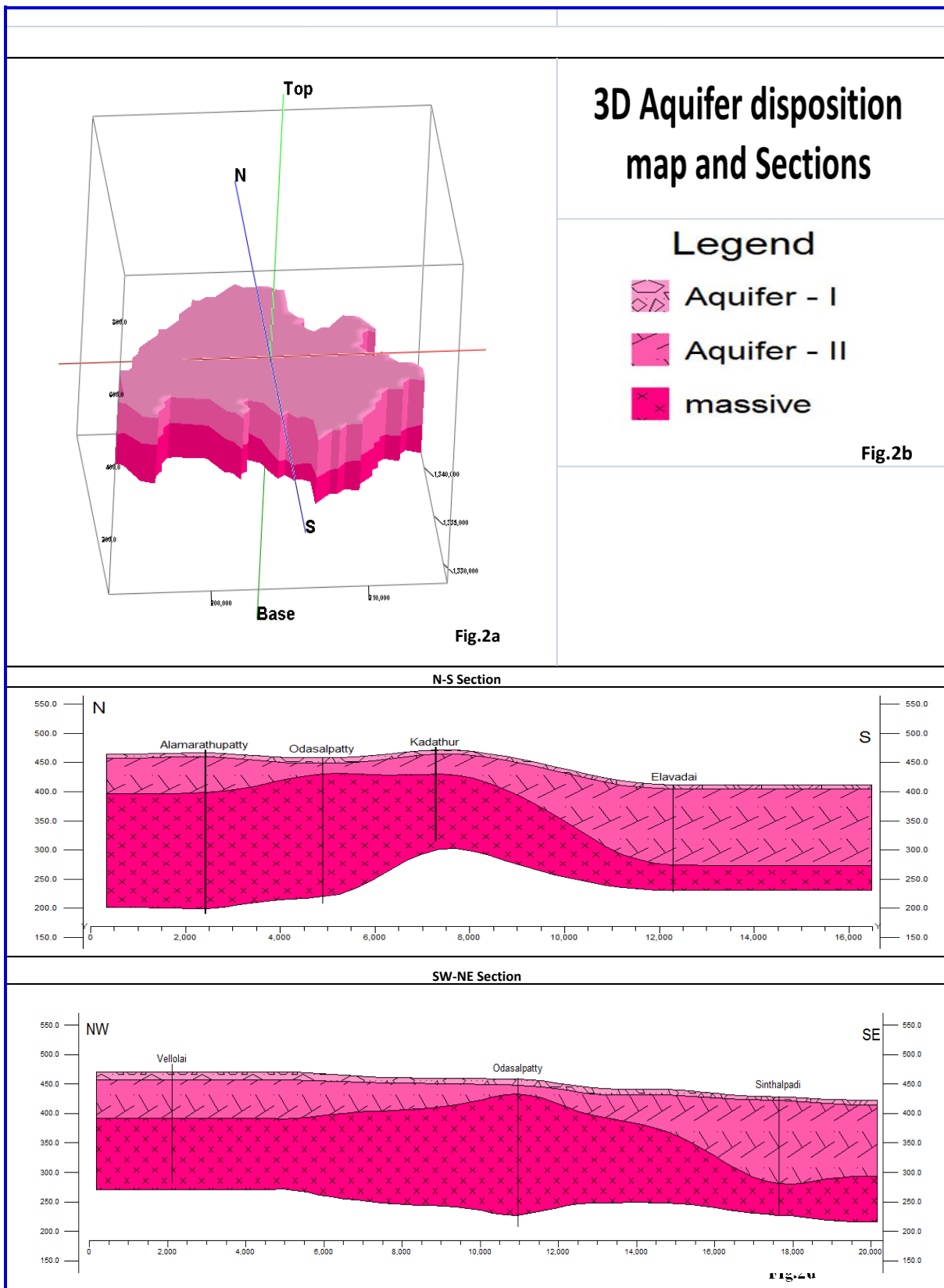


Fig-2(a-d): 3 D map and Sections.

GW MANAGEMENT STRATEGIES KADATHUR FIRKA, DHARMAPURI DISTRICT, TAMILNADU STATE

A	WATER RESOURCE AVAILABILITY		
	• Ground water (as per GEC 2011)	:	23.45 MCM
	• Surface Water (as per 2013-14 irrigation data)	:	2.50 MCM
	• Total water availability	:	25.95 MCM
(a)	Ground Water Resource Enhancement (Table-1)		
	Supply side Interventions		
1	Uncommitted surface runoff available for the Firka	:	16.80 MCM
2	Total volume of weathered zone	:	1190 MCM
3	Total volume of aquifer available for recharge. Considering 5m depths.		744 MCM
ARTIFICIAL RECHARGE/CONSERVATION MEASURES			
6	No. of Structures Proposed (tentative)		
	Masonry Check dam		32
	Percolation Pond with recharge shaft		6
	Revival, repair of pond, tanks with recharge shaft		16
	Recharge shaft		22
7	Improving Water Efficiency /Saving (Micro irrigation system for 100 ha)		0.7 MCM
8	Excepted groundwater recharge		1.9968 MCM
9	Excepted total groundwater recharge/saving		2.6968 MCM
	Tentative total cost of the project		Rs. 8.88 Cr
	Expected raise in water level by recharging/saving		0.38m
(b)	DEMAND SIDE INTERVENTION		
16	Existing total Groundwater Draft	:	26.4126
17	Proposed Micro Irrigation	:	100 ha
18	Cost for micro-irrigation	:	60 lakhs @ 0.60 lakhs per ha.
19	Expected ground water saving from micro-irrigation	:	11.19 MCM of water is expected to be conserved.
(c)	REGULATION & COMMUNITY INTERVENTIONS		
20	Regulation and control	:	Periodical reassessments of groundwater potential on a scientific basis, considering quality of water available Regulation of exploitation of groundwater sources so that extraction

		does not exceed recharge.
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Table 1: location of proposed 60 Check dam in the firka

S. NO.	LONGITUDE	LATITUDE	TYPE OF ARS
1	78.27	12.10	Check Dam
2	78.25	12.09	Check Dam
3	78.26	12.09	Check Dam
4	78.26	12.09	Check Dam
5	78.26	12.09	Check Dam
6	78.25	12.10	Check Dam
7	78.27	12.09	Check Dam
8	78.29	12.11	Check Dam
9	78.29	12.11	Check Dam
10	78.24	12.08	Check Dam
11	78.25	12.09	Check Dam
12	78.26	12.08	Check Dam
13	78.26	12.08	Check Dam
14	78.27	12.08	Check Dam
15	78.29	12.08	Check Dam
16	78.30	12.07	Check Dam
17	78.31	12.05	Check Dam
18	78.33	12.05	Check Dam
19	78.34	12.05	Check Dam
20	78.29	12.05	Check Dam
21	78.29	12.06	Check Dam
22	78.31	12.05	Check Dam
23	78.31	12.04	Check Dam
24	78.31	12.02	Check Dam

25	78.32	12.03	Check Dam
26	78.30	12.03	Check Dam
27	78.27	12.05	Check Dam
28	78.28	12.05	Check Dam
29	78.26	12.04	Check Dam
30	78.21	12.05	Check Dam
31	78.23	12.06	Check Dam
32	78.28	12.12	Check Dam

Table 2: location of proposed de-siltation of pond/tanks with recharge shaft

S. No.	Longitude	Latitude	Structure	Action
1	78.33	12.11	Tank / Reservoir	Desilting And Recharge Shaft
2	78.30	12.10	Tank / Reservoir	Desilting And Recharge Shaft
3	78.30	12.10	Tank / Reservoir	Desilting And Recharge Shaft
4	78.32	12.10	Tank / Reservoir	Desilting And Recharge Shaft
5	78.31	12.10	Tank / Reservoir	Desilting And Recharge Shaft
6	78.31	12.09	Tank / Reservoir	Desilting And Recharge Shaft
7	78.31	12.07	Tank / Reservoir	Desilting And Recharge Shaft
8	78.28	12.04	Tank / Reservoir	Desilting And Recharge Shaft
9	78.28	12.05	Tank / Reservoir	Desilting And Recharge Shaft
10	78.26	12.03	Tank / Reservoir	Desilting And Recharge Shaft
11	78.32	12.05	Tank / Reservoir	Desilting And Recharge Shaft
12	78.31	12.06	Tank / Reservoir	Desilting And Recharge Shaft
13	78.37	12.06	Tank / Reservoir	Desilting And Recharge Shaft
14	78.37	12.06	Tank / Reservoir	Desilting And Recharge Shaft
15	78.24	12.06	Tank / Reservoir	Desilting And Recharge Shaft
16	78.23	12.09	Tank / Reservoir	Desilting And Recharge Shaft

Table 3: location of proposed Percolation pond/tanks with recharge shaft

SI.NO	LONGITUDE	LATITUDE	STRUCTURE	ACTION
1	78.31	12.10	TANK / RESERVOIR	Percolation Tank with shaft
2	78.35	12.08	TANK / RESERVOIR	Percolation Tank with shaft
3	78.32	12.10	TANK / RESERVOIR	Percolation Tank with shaft
4	78.29	12.12	TANK / RESERVOIR	Percolation Tank with shaft
5	78.36	12.07	TANK / RESERVOIR	Percolation Tank with shaft
6	78.33	12.09	TANK / RESERVOIR	Percolation Tank with shaft