



## 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**

**INDUR FIRKA, DHARMAPURI DISTRICT,  
TAMIL NADU**

दक्षिण पूर्वी तटीय क्षेत्र, चेन्नई

South Eastern Coastal Region, Chennai

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

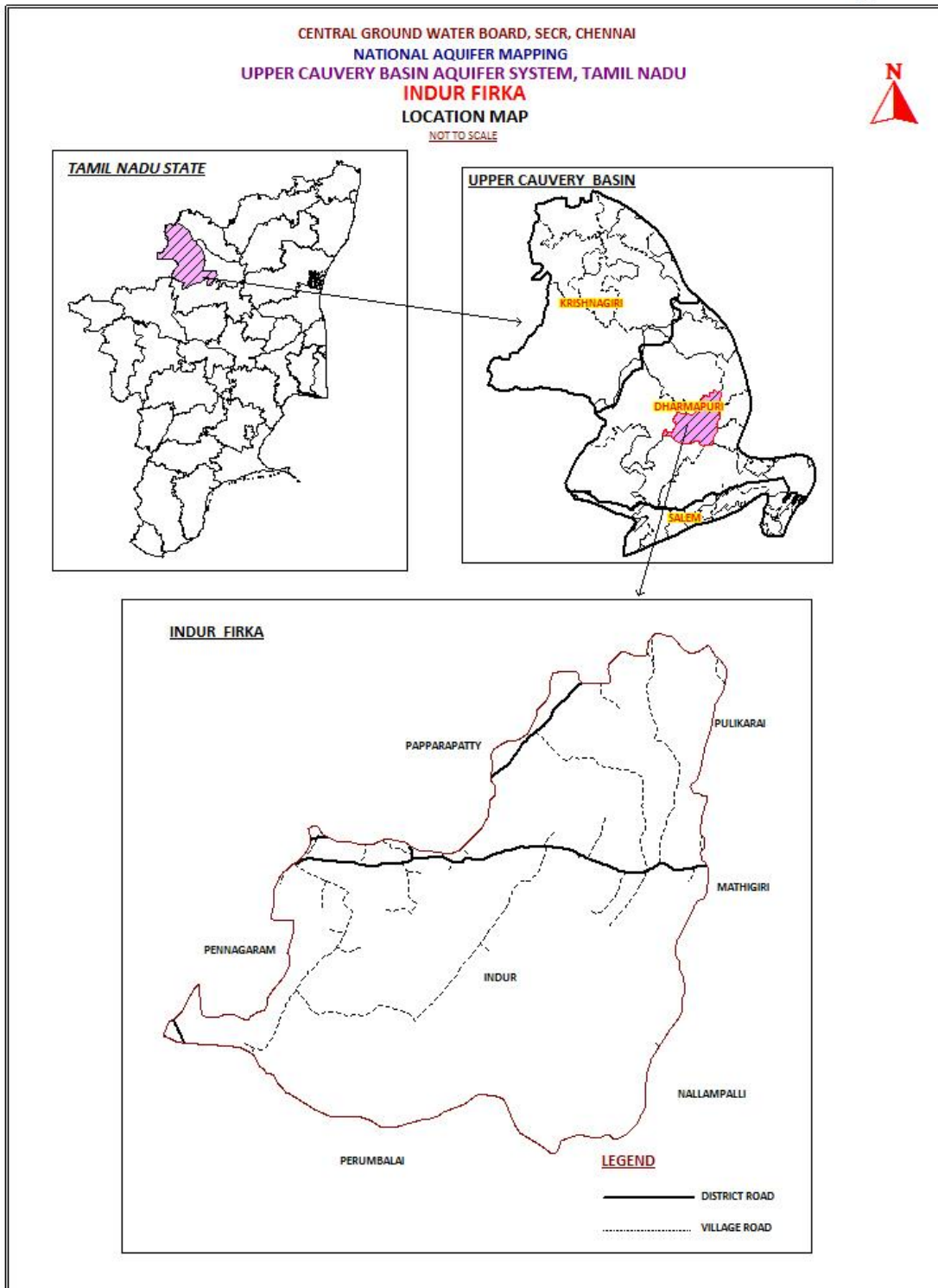
**By  
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Scientist-B**

<b>SALIENT FEATURES</b>		
1	Name of the Firka/Area  Revenue Division  Location <b>(Fig-1)</b>	:    <b>INDUR / 142.13 sq.km</b>  <b>DHARMAPURI TALUK</b>  N 77° 55' 25" to 78°04' 39" E 12°03' 09 "to 12° 11'48"
2	No. of Revenue villages	: <b>12</b>
3	District/State	: <b>Dharmapuri / Tamilnadu</b>
4	Population (2011 Census)	: 60924
5	Normal Rainfall (mm)	: 622 Monsoon: 502 (81%) Non-Monsoon: 120 (19%)
6	Agriculture (2012-13)(Ha)	: 1. Gross irrigated area: 1642.45 2. Paddy: 126.05 (8%) 3. Sugar cane: 181.55 (11%) 4. Banana:10.20 (1%) 5. Other crops: 1324.66 (80%) 6. Ground water: 1642.45 7. Surface water (Tanks): Nil
7	Existing and future water demands (HaM)	Domestic & Industrial • Existing: 81.74 • Future (year 2025): 92.91 Irrigation • Existing: 1954.63
8	Water level behaviour (m bgl)	: Pre-monsoon: 8.21-16.10 Post-monsoon: 7.51-10.90
<b>AQUIFER DISPOSITION</b>		
9	No of Aquifers	: 2
10	3-D aquifer disposition and basic characteristics of each aquifer  <b>Fig.2: 3 D map and 2D - Sections</b>	: <b>Geology – Charockites/Gneisses</b> <b>Aquifer-1 (Weathered Zone):</b> Thickness varies from 5- 20 m Transmissivity(T): 3 - 45 m <sup>2</sup> /day Specific Yield (Sy): 0.01to 0.015 <b>Aquifer-2 (Fractured Zone):</b> Depth of fracturing varies from 20-110 m. Transmissivity (T): 10 -75 m <sup>2</sup> /day Specific storage (S): 0.00001- 0.0002 Cumulative yield (Aquifer 1 and Aquifer 2)

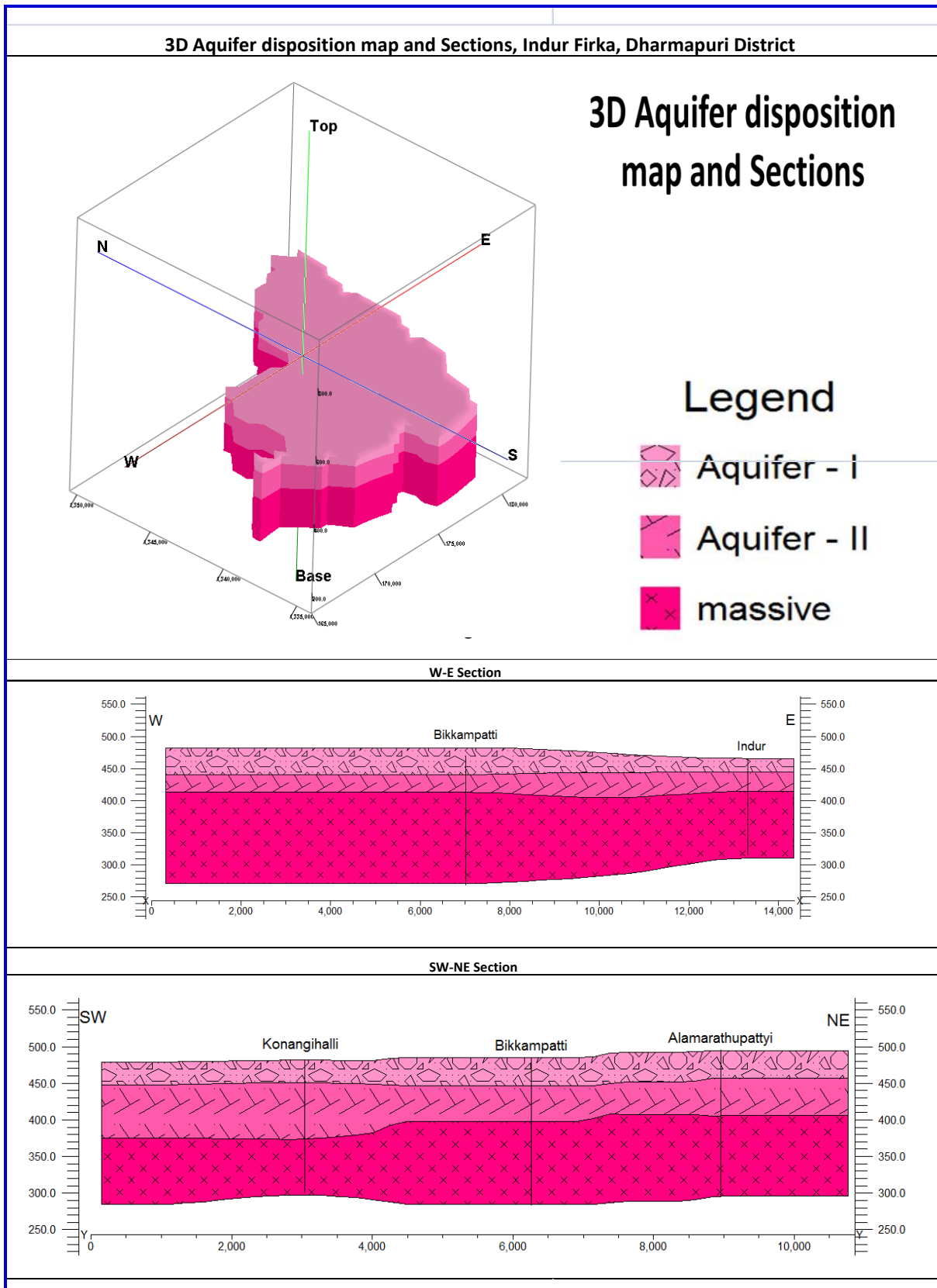
			0.1 to 2.5 lps.
11	Ground water Issues	:	<ul style="list-style-type: none"> <li>• Sustainability of wells (1-2 hrs).</li> </ul>
12	Ground water resource availability and extraction-2012-13 (MCM)	:	<ul style="list-style-type: none"> <li>• Net GW availability : 11.46</li> <li>• Gross Ground Water draft for Irrigation: 19.55</li> <li>• Gross Ground water draft for domestic and industrial supply: 0.82</li> <li>• Gross GW draft: 20.37</li> <li>• Stage of ground water development: 178 %</li> <li>• Category: Over Exploited</li> </ul>
13	Ground water extraction	:	<p>Ground water extraction structures:4123 no's</p> <ul style="list-style-type: none"> <li>• Bore wells: 159 no's</li> <li>• Dug wells: 3964 no's</li> </ul>
14	Chemical quality of ground water, contamination and its suitability	:	<p>EC (<math>\mu</math>S/cm) min: 900 and max: 3000  NO<sub>3</sub> (mg/L): Min: 62 and max 136  F (mg/L): Min 0.88 and Max:1.8</p> <p>All chemical constituents are within the permissible limit of BIS drinking water standards (IS: 10500:2012) except Nitrate .and Fl are having High values.</p>
15	<b>Ground Water Recharge Scenario</b>	:	<b>MCM</b>
15.1	Recharge from Rainfall (Monsoon)	:	6.0
15.2	Recharge from Other sources (Tanks and applied irrigation) (Monsoon)	:	3.82
15.3	Recharge from rainfall (Non-Monsoon)	:	1.2
15.4	Recharge from Other sources (Tanks and applied irrigation) (Non-Monsoon)	:	1.72
15.5	Total annual GW Recharge	:	12.74
15.6	Natural Discharge	:	1.27
15.7	Existing Minor Irrigation Tanks (Area in ha)	:	63
15.8	Storage from existing tanks (MCM)	:	0.63
16	Storage from existing AR Structures (MCM)	:	2.21

**Fig-1: Location Map of Indur Firka.**

Fig -



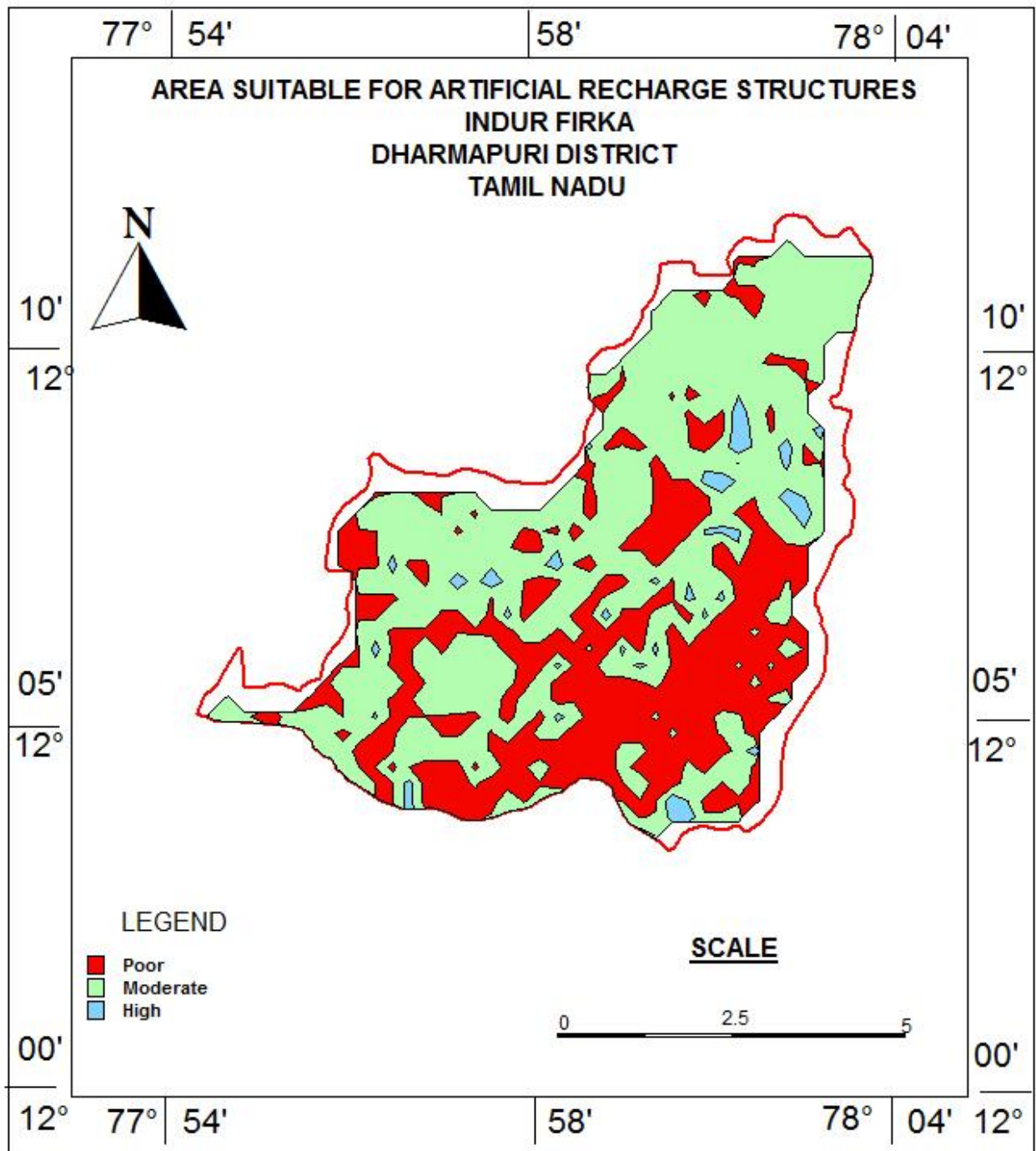
**Fig-2: 3 D map and 2D - Sections.**



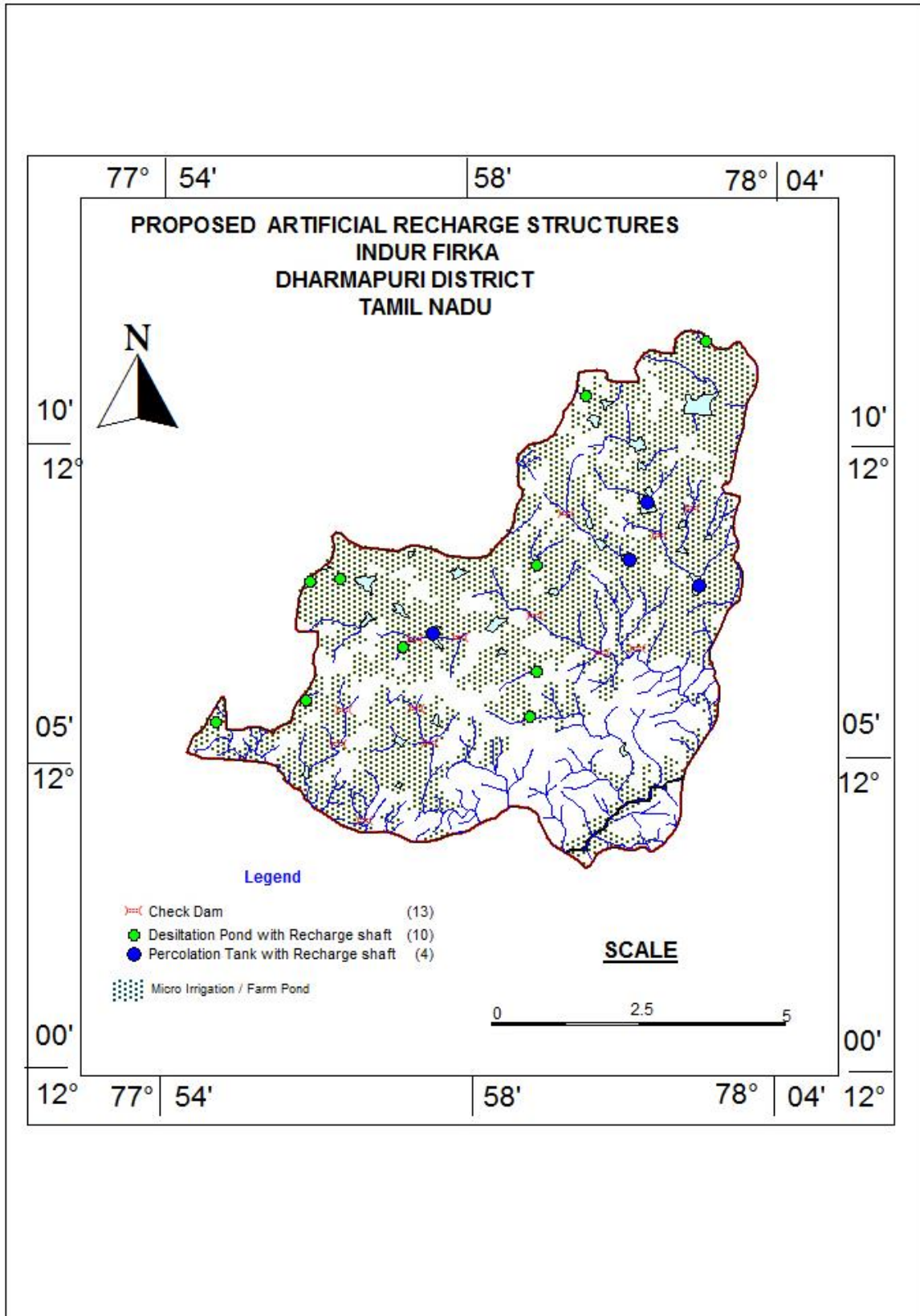
**AQUIFER MANAGEMENT PLAN  
INDUR FIRKA,  
DHARMAPURI DISTRICT, TAMILNADU STATE**

	<b>WATER RESOURCE AVAILABILITY (MCM)</b>		
1	Ground water (as per GEC 2013)	:	11.46
2	Surface Water (as per 2012-13irrigation data)	:	2.84
3	Total water availability	:	14.30
	<b>Ground Water Resource Enhancement (MCM)</b>		
4	Uncommitted surface runoff available for the Firka	:	10.37
5	Total volume of weathered zone	:	16.524
6	Total volume of aquifer available for recharge, considering 3m below Ground Level.		27.47
(a)	<b>Supply side Interventions</b>		
<b>ARTIFICIAL RECHARGE/CONSERVATION MEASURES</b>			
7	Structures Proposed (nos)  Masonry Check dam Revival, repair of pond, tanks with recharge haft Percolation Pond with Recharge Shaft Farm Pond:	:	Based on spatial integration : Fig-3 Area suitable for GW recharge : Fig-4 Location of ARS : 13 (Table -1) 10 +10(Table -2) 04+4 (Table -3) 100 units
8	Expected total groundwater recharge (MCM)	:	3.52
9	Tentative total cost of the project (Rs. In Cr)		14.31
10	Expected raise in water level by recharging/saving (m)		2.09
(b)	<b>Demand side Interventions</b>		
11	Existing total Groundwater Draft (MCM)	:	20.
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
	<b>REGULATION &amp; COMMUNITY INTERVENTIONS</b>		
15	Regulation and control	:	Systematic monitoring of 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.

**Fig-3: Area suitable for groundwater recharge**



**Fig-4: Location of ARS Proposed**





**Table-1 Location of proposed Check dam**

<b>S. No.</b>	<b>Longitude</b>	<b>Latitude</b>	<b>Structures</b>
1	78.03	12.15	Check Dam
2	78.04	12.11	Check Dam
3	78.05	12.11	Check Dam
4	78.02	12.12	Check Dam
5	77.98	12.11	Check Dam
6	78.00	12.11	Check Dam
7	77.99	12.10	Check Dam
8	77.99	12.09	Check Dam
9	78.06	12.15	Check Dam
10	78.05	12.14	Check Dam
11	77.97	12.10	Check Dam
12	77.96	12.09	Check Dam
13	77.97	12.07	Check Dam

**Table-2 Location of proposed de-siltation of pond/tanks with recharge shaft**

S. No.	Longitude	Latitude	Structure	Action
1	78.06	12.19	Tank / Reservoir	De-siltation And Recharge Shaft
2	78.03	12.18	Tank / Reservoir	De-siltation And Recharge Shaft
3	78.02	12.13	Tank / Reservoir	De-siltation And Recharge Shaft
4	78.02	12.11	Tank / Reservoir	De-siltation And Recharge Shaft
5	78.02	12.09	Tank / Reservoir	De-siltation And Recharge Shaft
6	77.96	12.10	Tank / Reservoir	De-siltation And Recharge Shaft
7	77.96	12.13	Tank / Reservoir	De-siltation And Recharge Shaft
8	77.96	12.13	Tank / Reservoir	De-siltation And Recharge Shaft
9	77.93	12.09	Tank / Reservoir	De-siltation And Recharge Shaft
10	77.98	12.11	Tank / Reservoir	De-siltation And Recharge Shaft

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

S.No.	Longitude	Latitude	Structure	Action
1	78.05	12.15	Tank / Reservoir	Percolation Tank With Shaft
2	78.04	12.14	Tank / Reservoir	Percolation Tank With Shaft
3	78.06	12.13	Tank / Reservoir	Percolation Tank With Shaft
4	77.99	12.12	Tank / Reservoir	Percolation Tank With Shaft