



## 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**

**ANDEVANAPALLI FIRKA, KRISHNAGIRI  
DISTRICT, TAMIL NADU**

दक्षिण पूर्वी तटीय क्षेत्र, चेन्नई

South Eastern Coastal Region, Chennai

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

**By  
Dr.K.Rajarajan  
Scientist-B**

<b>SALIENT FEATURES</b>		
1	Name of the Firka/Area  Revenue Division  Location <b>(Fig-1)</b>	: <b>ANDEVANAPALLI / 176.07 sq.km</b>  <b>DENKANIKOTTAI TALUK</b>  N 77° 40' 59" to 77° 51' 40" E 12° 21' 15 " to 12° 32' 16"
2	No. of Revenue villages	: <b>10</b>
3	District/State	: <b>Krishnagiri / Tamilnadu</b>
4	Population (2011 Census)	: 35899
5	Normal Rainfall (mm)	: 1597 Monsoon: 1240 Non-Monsoon: 357
6	Agriculture (2012-13)(Ha)	: 1. Gross irrigated area: 697.15 2. Paddy: 34.08 3. Sugar cane: 18.46 4. Banana: 25.98 5. Other crops: 618.64 6. Ground water: 635.65 7. Surface water (Tanks): 61.50
7	Existing and future water demands (HaM)	Domestic & Industrial • Existing: 0.45 • Future (year 2025): 0.51 Irrigation • Existing:3.02
8	Water level behaviour (m bgl)	: Pre-monsoon: 5.60 – 11.04 Post-monsoon: 3.80 – 9.84
<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 9 - 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 20-190 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	:	Sustainability of wells (1-2 hrs).
12	Ground water resource availability and extraction-2012-13 (MCM)	:	<ul style="list-style-type: none"> <li>• Net GW availability : 12.53</li> <li>• Gross Ground Water draft for Irrigation: 3.02</li> <li>• Gross Ground water draft for domestic and industrial supply: 0.45</li> <li>• Gross GW draft: 3.47</li> <li>• Stage of ground water development: 28 %</li> <li>• Category: Safe</li> </ul>
13	Ground water extraction	:	<p>Ground water extraction structures: 234 no's</p> <ul style="list-style-type: none"> <li>• Bore wells: 71 no's</li> <li>• Dug wells: 163 no's</li> </ul>
14	Chemical quality of ground water, contamination and its suitability	:	<p>EC (<math>\mu\text{S}/\text{cm}</math>) min: 440 and max: 1198  <math>\text{NO}_3</math> (mg/L): Min:10 and Max : 40  F (mg/L): Min:0.1 and Max: 1.00</p> <p>All chemical constituents are within the permissible limit of BIS drinking water standards (IS: 10500:2012).</p>
15	<b>Ground Water Recharge Scenario</b>	:	<b>MCM</b>
15.1	Recharge from Rainfall (Monsoon)	:	9.21
15.2	Recharge from Other sources (Tanks and applied irrigation) (Monsoon)	:	1.07
15.3	Recharge from rainfall (Non-Monsoon)	:	3.31
15.4	Recharge from Other sources (Tanks and applied irrigation) (Non-Monsoon)	:	0.33
15.5	Total annual GW Recharge	:	13.92
15.6	Natural Discharge	:	1.39
15.7	Existing Minor Irrigation Tanks (Area in ha)	:	86.38
15.8	Storage from existing tanks (MCM)	:	0.86
16	Storage from existing AR Structures (MCM)	:	2.63

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

Fig -

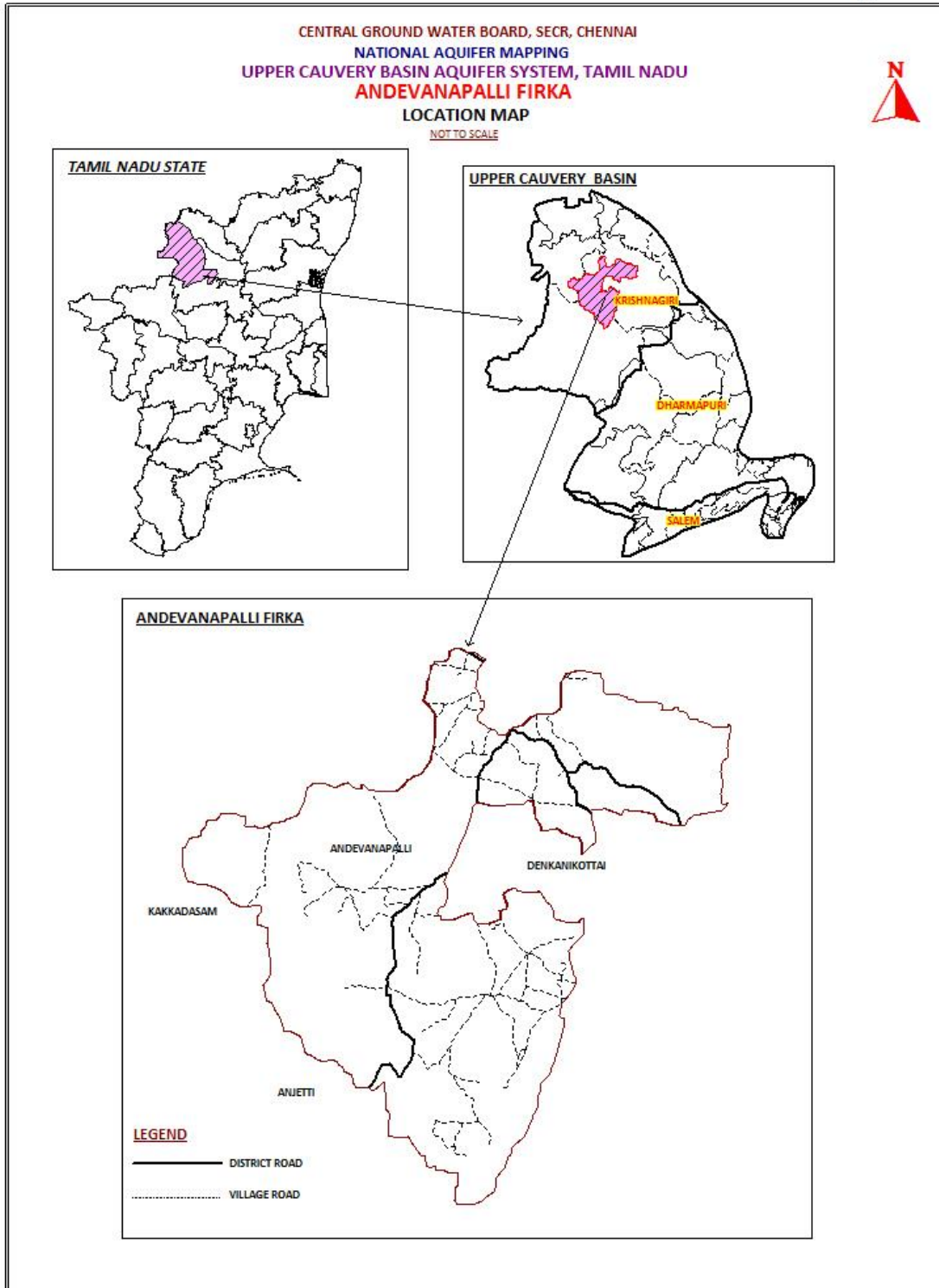
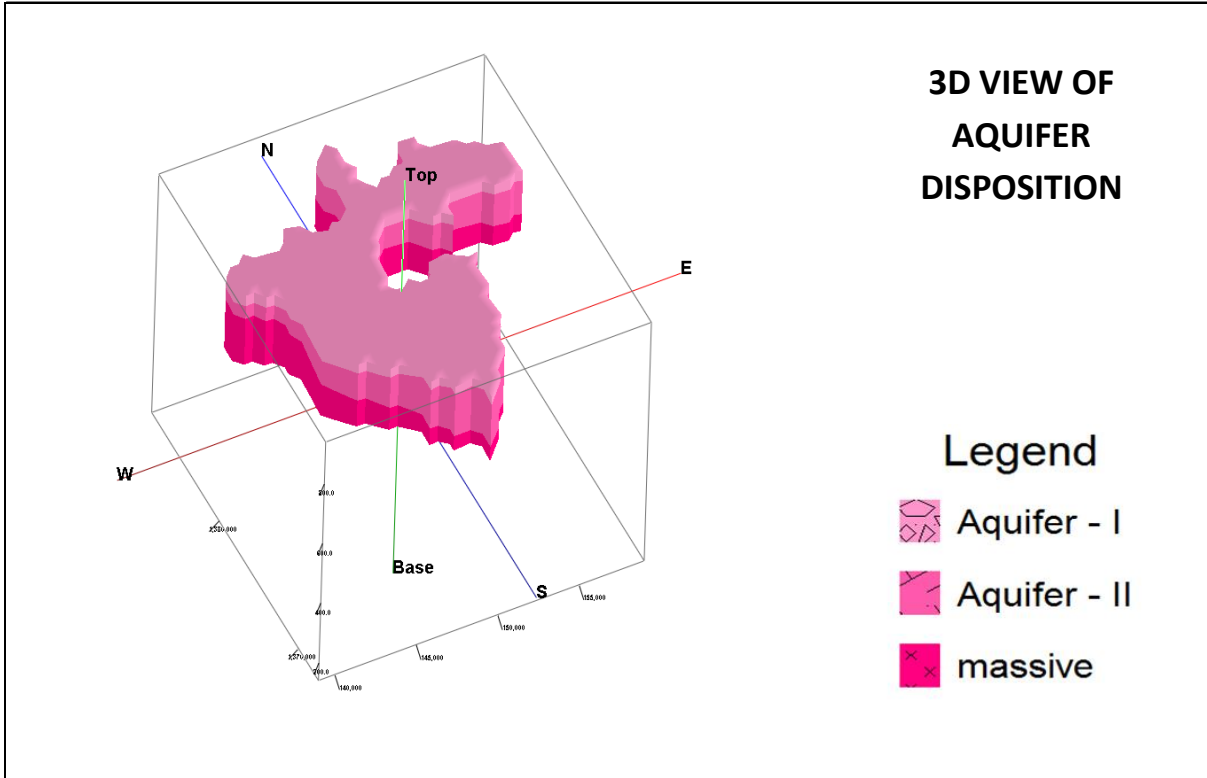
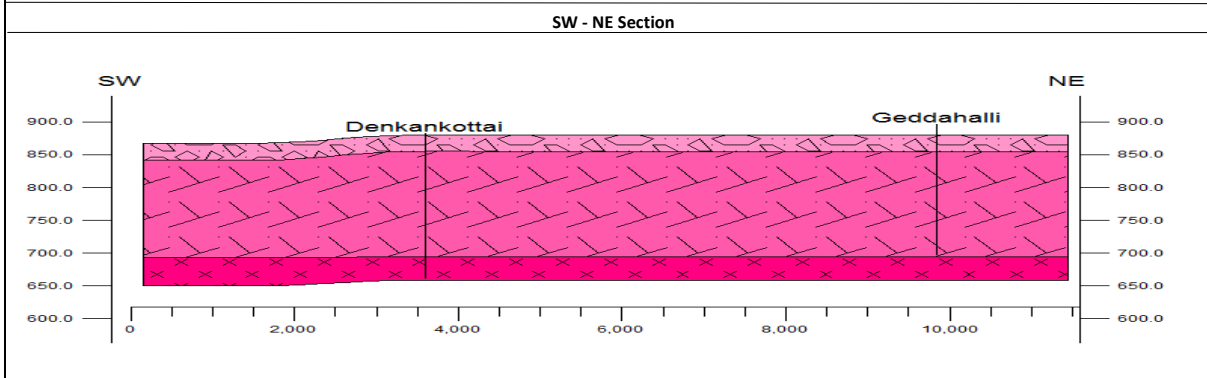
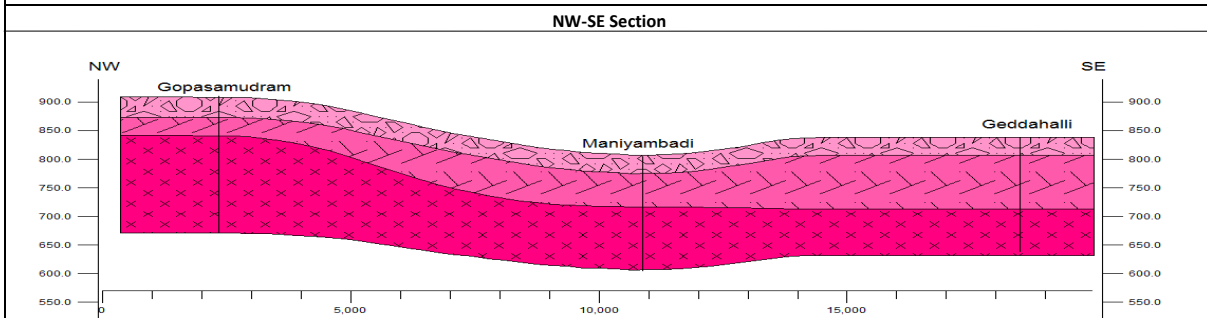


Fig:2 3D and 2D View of Aquifer Disposition, Andevanapalli Firka, Krishnagiri District



**2D SECTIONS OF AQUIFER DISPOSITION**



**AQUIFER MANAGEMENT PLAN  
ANDEVANAPALLI FIRKA,  
KRISHNAGIRI DISTRICT, TAMILNADU STATE**

	<b>WATER RESOURCE AVAILABILITY (MCM)</b>		
1	Ground water (as per GEC 2013)	:	12.53
2	Surface Water (as per 2012-13irrigation data)	:	3.49
3	Total water availability	:	16.02
	<b>Ground Water Resource Enhancement (MCM)</b>		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.		
<b>(a)</b>	<b>Supply side Interventions</b>		
<b>ARTIFICAIL RECHARGE/CONSERVATION MEASURES</b>			
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	Exepected 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>(b)</b>	<b>Demand side Interventions</b>		
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)	:	
	<b>REGULATION &amp; COMMUNITY INTERVENTIONS</b>		
15	Regulation and control	:	The present development of groundwater should be maintained and should not cross the availability of GW. As the surface water available is more, any further requirements should be met out from SW sources.