For official use

Technical Report Series

DISTRICT GROUNDWATER BROCHURE

DINDIGUL DISTRICT

TAMIL NADU

Government of India
Ministry of Water Resources

Central Ground Water Board

South Eastern Coastal Region
Chennai

February 2008

DISTRICT AT A GLANCE (DINDIGUL DISTRICT)

S.NO	ITEMS	STATISTICS	
1.	**GENERAL INFORMATION**		
	i. Geographical area (Sq.km)	6266.64	
	ii. Administrative Divisions as on 31-3-2007 Number of Tehsils Number of Blocks Number of Villages	 7 14 341	
	iii. Population (as on 2001 Census) Total Population Male Female	 1923014 968137 954877	
	iv. Average Annual Rainfall (mm)	813.0	
2.	**GEOMORPHOLOGY**		
	i. Major physiographic Units	Palani and Sirumalai Hills,	
	ii. Major Drainages	Shanmuganadhi, Nangangiar and Kodavanar	
3.	**LAND USE (Sq. km) during 2005-06**		
	i. Forest area ii. Net area sown iii. Cultivable waste	1389.23 2535.05 89.31	
4.	**MAJOR SOIL TYPES**	Red Soil, Red Sandy Soil & Black Cotton Soil	
5.	**AREA UNDER PRINCIPAL CROPS (AS ON 2005-2006)**	1. Paddy - 25735 Ha – 21% 2. Coconut – 24798 Ha - 21% 3. Fruits & Vegetables – 21069 Ha – 19% 4. Sugarcane – 7014 Ha – 6%	
6.	**IRRIGATION BY DIFFERENT SOURCES (During 2005-06)**	**Number**	**Area irrigated (Ha)**
	i. Dug wells	99350	5290
	ii. Tube wells	375	449
	iii. Tanks	3104	703
	iv. Canals	28	492
	v. Other Sources	-	-
	vi. Net irrigated area	104672 Ha	
	vii. Gross irrigated area	112071 Ha	

7.	**NUMBERS OF GROUND WATER MONITORING WELLS OF CGWB (AS ON31.03.2007)**		
	i. No of dug wells	20	
	ii. No of piezometers	16	
8.	**PREDOMINANT GEOLOGICAL FORMATIONS**	Charnockite & Granite Gneisses	
9.	**HYDROGEOLOGY**		
	i. Major water bearing formations	Weathered & fractured Charnockite & Granite Gneisses	
	ii. Pre- monsoon depth to water level (May 2006)	0.12 – 13.10 m bgl	
	iii. Post- monsoon depth to water level (Jan'2007)	0.90 – 14.90 m bgl	
	iv. Long term water level trend in 10 years (1998-2007) in m/yr	**Annual**	
		Rise (m/year)	**Fall (m/year)**
		Min : 0.0246 Max :0.5907	Min : 0.0417 Max :1.5230
10.	**GROUND WATER EXPLORATION BY CGWB (As on 31-03-2007)**		
	i. Number of Exploratory wells ii. Number of Observation wells iii. Number of Piezometers under Hydrology Project.	44 7 16	
	iv. Depth range(m)	79-300	
	v. Discharge(lps)	0.5 – 12.4	
	vi. Storativity (S)	1.59×10^{-5} to 1.62×10^{-4}	
	vii. Transmissivity (m^2/day)	<1 - 110	
11.	**GROUND WATER QUALITY AS ON MAY 2006**		
	i. Presence of chemical constituents more than permissible limit	TH as $CaCO_3$ & NO_3 in shallow aquifer & Fluoride in deeper fractures	
	ii. Type of water	Ca-Cl, Ca-H CO_3 & Na-Cl	
12.	**DYNAMIC GROUND WATER RESOURCES (as on 31.03.2004) in MCM**		
	i. Annual Replenishable Ground Water Resources	704.70	
	ii. Total Annual Ground Water Draft for all purposes	726.86	
	iii. Projected demand for Domestic and Industrial Uses up to 2025	30.43	
	iv. Stage of Ground Water Development	115%	
13.	**AWARENESS AND TRAINING ACTIVITY**		
	i. Mass Awareness Programmes Organized	One	
	Year	2000-2001	
	Place	Sanarpatti	
	No of Participants	300	
	ii. Water Management Training Organized	Nil	
	Year	-	
	Place	-	
	No of Participants	-	

14.	**EFFORTS OF ARTIFICIAL RECHARGE & RAINWATER HARVESTING**	Technical Guidance were provided as when sought
	i. Projects completed by CGWB Number of structures Amount spent	Nil
	ii. Projects under technical guidance of CGWB Number of structures	Nil
15.	**GROUND WATER CONTROL AND REGULATION**	
	i. Number of OE Blocks	6
	ii. Number of Critical Blocks	2
	iii. Number of Blocks Notified	-
16.	**MAJOR GROUND WATER PROBLEMS AND ISSUES.**	i) High level of ground water development in major part of the district and failure of abstraction structures with time ii) Fluoride excess in deeper fractures iii) Contamination of ground water resources by industrial effluents from Tanneries

1.0 INTRODUCTION

1.1 Administrative Details

Dindigul district is having administrative divisions of 7 taluks, 14 blocks, 539 Panchayats and 341 villages as detailed below:

S.No	Taluk	Name of Block	No. of villages
1	DINDIGUL	1.Dindigul 2.Sanaripatti 3.Athur 4.Reddiarchatram	18 30 21 23
2	Kodaikkanal	1.Kodaikkanal	16
3	Nattam	1.Nattam	26
4	Palani	1.Palani 2.Thoppampatti	39 23
5	Nilakottai	1.Nilakottai 2.Vattalakundu	28 15
6	Oddanchatram	1.Oddanchatram	39
7	Vedasandur	1.Vedasandur 2.Vadamadurai 3.Gujiliyamparai	23 21 19

1.2 Basin and sub-basin

The district is part of Cauvery and Capecomerin to Cauvery Basin and parts of Vaigai and Pambar sub basins.

1.3 Drainage

The important rivers in the basin are Shanmuganadhi, Nangangiar and Kodavanar. These rivers flow north and northeastward and join Amaravathi river which finally confluences with river Cauvery. These originate in the Palani hill range of Western Ghats and Sirumalai hills. They are ephemeral in nature.

The southern part of the district falls under Vaigai Sub basin. The important rivers are Marudhanadhi, Manjalar and Vaigai river. These are also ephemeral in nature and receive flow during monsoon period only.

In the major part of the district the drainage pattern is sub-dentritic and dentritic. Radial and parallel drainage patterns are also seen at places. Most of the streams are structurally controlled.

1.4 Irrigation Practices

The nine-fold lands use classification for the district is given below (2005-06).

S.No	Classification	Area (Ha)
1	**Forests**	**138923**
2	**Barren & Uncultivable Lands**	**36210**
3	**Land put to non agricultural uses**	**65184**
4	**Cultivable Waste**	**8931**
5	**Permanent Pastures & other grazing lands**	**6946**
6	**Groves not included in the area sown**	**7414**
7	**Current Fallows**	**15425**
8	**Other Fallow Lands**	**94126**
9	**Net Area sown**	**253505**
	Total	626664

(Source: Department of Economics & Statistics, Govt. of Tamil Nadu)

The chief irrigation sources in the area are the canals, followed by tanks, wells and tube wells. Canal irrigation is highest in Palani block.

The block wise and source wise net area irrigated in Ha is given below (2005-06).

S.No	**Block**	**Net area irrigated by**					**Total Net Area irrigated**
		Canals	**Tanks**	**Tube wells**	**Ordinary wells**	**Other Sources**	
1	Dindigul	0	26	30	4214	0	4270
2	Athoor	185	868	182	6366	0	7601
3	Reddiarchattiram	0	122	8	9978	0	10108
4	Sanarpatti	0	0	78	6165	0	6243
5	Nilakkottai	780	0	27	6069	0	6876
6	Batlagundu	0	545	132	4701	0	5378
7	Nattam	0	299	25	5923	0	6247
8	Palani	6349	641	438	6635	0	14063
9	Thoppampatti	522	346	517	12940	0	14325
10	Oddanchattiram	0	362	568	11380	0	12310
11	Vedasandur	65	210	106	6032	0	6413
12	Vadamadurai	0	79	78	5248	0	5405
13	Guziamparai	0	105	179	4196	0	4480
14	Kodaikanal	0	0	0	0	953	953
	Total	**7901**	**3603**	**2368**	**89847**	**953**	**104672**

(Source: Department of Economics & Statistics, Govt. of Tamil Nadu)

1.5 Studies/Activities carried out by CGWB

Systematic hydrogeological surveys were carried out in 1985-86 and subsequently re-appraisal hydrogeological surveys were carried during the year 1989-99 and 1999-2001.

Under exploratory programme, 44 exploratory wells and 7 Observation wells have been drilled to evaluate the aquifer parameters in the district during the year 1997-98.

Regional Groundwater Monitoring is being carried out in the district since 1972 and over the years the well density has been optimized for regional monitoring. Under this work, 20 dug wells and 16 piezometers are being monitored for studying the changes in water level and water quality. The monitoring is being carried out 4 times a year for water levels (January, May, August & November) and Water samples are collected during May measurements to study the changes in quality of water with time and space.

A project entitled “Groundwater contamination and Pollutant Migration in the Tannery belt of Dindigul, Tamil Nadu” was undertaken in collaboration with Anna University between 2000 – 2003.

2.0 RAINFALL AND CLIMATE

The normal annual rainfall over the district varies from about 700 mm. to about 1600 mm. It is minimum around Palani (709 mm) in the northwestern part and Vedasandur (732.4mm) in the northeastern part of the district. It gradually increases towards south and southwest and reaches a maximum around Kodaikanal (1606.8 mm)

The district enjoys a tropical climate. The period from April to June is generally hot and dry. The weather is pleasant during the period from November to January. Usually mornings are more humid than afternoons. The relative humidity varies between 65 and 85% in the mornings while in the afternoon it varies between 40 and 70%.

3.0 GEOMORPHYLOGY AND SOIL TYPES

3.1 Geomorphology

Differing resistances of the geological formation has given rise to various land forms, viz., structural hills, residual hills, linear ridges and pediment terrains in the district. The coalescence of alluvial cones and fans, formed after composite slope boundary is bazada zones. These are found well developed in northern part of Palani Hills, southern part of Kodai hills and Natham hills. The valley fill sediments are found to occur in Oddanchatram, Reddiarchatram, Sanarpatti and Natham blocks and the southern slopes of Kodaikkanal hills.

Structured hills are the major land forms in the district. The major part of Kodaikkanal and Palani hill occupies structural hills. Similarly, it is also found in parts of Nilakottai, Natham. Vadamadurai, Oddanchatram and Gujiliamparai blocks.

Shallow buried pediments and pediments are the results of denudational land forms and are encountered in major parts of the area. Flood plains of recent origin are found along the river courses.

3.2 Soils

The major soil types in the district are 1. Red soil , 2. Red sandy soil and 3. Black Cotton soil. Red oils are prevalent in palani, nattam and Odanchattiram, while Red sandy soils are prevalent in Nilakottai, Dindigul and Vedasandur. Black soils are found in all taluks except Kodiakanal

4.0 GROUND WATER SCENARIO

4.1 Hydrogeology

The major part of the district is underlain by Archaean crystalline metamorphic complex. The important aquifer systems encountered in the district are classified into

i) Fissured, fractured and weathered crystalline formations consisting of charnockites, Granite Gneisses and

ii) Valley fill sediments (Unconsolidated Sediments) comprising clay, sand, silt and kankar

.

Valley fill sediments have been observed along valley portions in the depth range of 35 to 40 m bgl in Natham and Sanarpatti blocks. They are characterized by deeper water levels showing high fluctuations. Groundwater occurs under watertable condition. In general, dug wells are used to extract groundwater from these zones and the wells can yield about 200 Cu.m per day and can sustain pumping of 3 – 4 hrs in a day.

In case of crystalline formations, groundwater occurs under watertable condition in weathered and shallow fractures and under semi-confined to confined conditions in deeper fractures. The depth of weathering varies from place to place from less than a metre to a maximum of 40 m bgl. The number of saturated fracture zones varied from 1 to 6 occurring at depths between 10 and 164 mbgl.

The ground water exploration in deeper aquifer reveals that in about 11 per cent of the wells drilled, the yield was more than 3 lps, whereas in about 15 per cent of the wells, the yield ranges from 1 to 3 lps. A few of the wells have been abandoned due to poor yield.

Dug wells are used extract groundwater from weathered formation while deeper fractures are tapped through bore wells and dug cum bore wells.

The yield of open wells in the district tapping the weathered mantle of crystalline rocks generally ranges from 100 to 400 lpm for draw down ranging from 2 to 4.5 m. The dug wells can sustain a pumping of 3-4 hrs in a day.

The wells tapping the deep seated fracture system can yield about 1 – 5 lps and can sustain a pumping of 6-8 hrs a day.

The depth to water level during pre monsoon (May 2006) in the district varied from 0.12 to 13.10 m bgl. Out of 20 wells, 10% of wells had depth to water level in the range of 0- 2 m bgl, 40% in the range of 2 – 5 m bgl, 45% in the range of 10 – 20 m bgl and 5% more than 20 m bgl.

The depth to water level during post monsoon (Jan 2007) varied from 0.90 to 14.90 m bgl and out of 20 wells, 25% of wells had depth to water level in the range of 0- 2 m bgl and 2 – 5 m bgl. 40% of the wells had depth to water level in the range of 10 – 20 m bgl and 10% more than 20 m bgl.

4.1.1 Long Term Fluctuation (1998-2007)

Period	Rise (m)		Fall (m)	
	Minimum	Maximum	Minimum	Maximum
Pre monsoon (May 1998 – May 2006)	0.06	15.22	0.06	1.50
Post Monsoon (Jan 1998 – Jan 1998)	0.22	10.72	0.01	12.87

4.1.2 Aquifer Parameters

Transmissivity (m^2/day) : < 1 to 110

Storativity : 1.59×10^{-5} to 1.62×10^{-4}

Specific Yield : 1.5%

4.2 Ground Water Resources

The ground water resources have been computed jointly by Central Ground Water Board and State Ground & Surface Water Resources and Development Centre (PWD, WRO, Government of Tamil Nadu) as on 31st March 2004. The salient features of the computations are furnished below.

Stage of Groundwater Development in Dindigul District, Tamil Nadu as on 31st March 2004									
S.No	Block	Net Groundwater Availability	Existing Gross Draft for Irrigation	Existing Gross Draft for Domestic and industrial water supply	Existing Gross Draft for all uses	Allocation for Domestic and Industrial Requirement supply upto next 25 years (2029)	Net Groundwater Availability for future Irrigation Development *	Stage of Groundwater Development	Category of the Block
1	Attur	3698.57	4885.68	270.72	5156.40	280.24	0.00	139	Over Exploited
2	Batlagundu	2789.69	4056.41	210.64	4267.05	218.05	0.00	153	Over Exploited
3	Dindigul	3230.63	3124.35	260.71	3385.06	269.87	0.00	105	Over Exploited
4	Guzliamparai	3811.04	5071.82	168.81	5240.63	174.74	0.00	138	Over Exploited
5	Kodaikanal	5326.35	0.00	67.00	67.00	69.36	5256.99	1	Safe
6	Natham	4295.27	2539.19	259.13	2798.32	268.24	1487.84	65	Safe
7	Nilakkottai	6878.13	6276.11	208.09	6484.20	215.41	386.61	94	Critical
8	Oddanchattram	4773.53	7916.79	239.12	8155.91	247.53	0.00	171	Over Exploited
9	Palani	7664.22	6817.52	235.70	7053.22	243.99	602.71	92	Critical
10	Reddiarchattiram	4469.87	7214.93	193.57	7408.50	200.38	0.00	166	Over Exploited
11	Sanarpatti	3627.09	4482.70	206.98	4689.68	214.26	0.00	129	Over Exploited
12	Thoppampatti	6226.80	8729.70	230.50	8960.20	238.61	0.00	144	Over Exploited
13	Vadamadurai	3225.63	3984.28	187.27	4171.55	193.86	0.00	129	Over Exploited
14	Vedasandur	3406.06	4646.44	201.72	4848.16	208.81	0.00	142	Over Exploited
	District Total	**63422.88**	**69745.92**	**2939.97**	**72685.89**	**3043.36**	**0**	**115**	

*** - If the difference between Net Groundwater Availability and sum of existing groundwater draft & allocation for domestic is negative, groundwater availability for future is taken as zero. In Case of district total, the negative availability and positive availability is added up to get the district total and if it is negative, it is taken as zero and if it is positive, the district total is given.**

4.3 Ground Water Quality

Ground water in phreatic aquifers in Dindigul district, in general, is colourless, odourless and slightly alkaline in nature. The specific electrical conductance of ground water in phreatic zone (in MicroSeimens at 25^{o} C) during May 2006 was in the range of 97 to 4340 in the district. It is between 750 and 2250µS/cm at 25^{o}C in the major part of the district. Conductance below 750 µS/cm have been observed in ground water in parts of Kodaikanal, Perumalmalai area, whereas conductance exceeding 2250 µS/cm have been observed in part of Dindigul block.

It is observed that the ground water is suitable for drinking and domestic uses in respect of all the constituents except total hardness and Nitrate in more than 90 percent of samples analysed. Total Hardness as $CaCO_3$ is observed to be in excess of permissible limits in about 36 percent of samples analysed whereas Nitrate is found in excess of 45 mg/l in about 32 percent samples. The incidence of high total hardness is attributed to the composition of

lithounits constituting the aquifers in the district, whereas the Nitrate pollution is most likely due to the use of pesticides and fertilizers for agriculture.

With regard to irrigation suitability based on specific electrical conductance and Sodium Adsorption Ratio (SAR), it is observed that ground water in the phreatic zone may cause high to very high salinity hazard and medium to high alkali hazard when used for irrigation. Proper soil management strategies are to be adopted in the major part of the district while using ground water for irrigation.

4.4 Status of Ground Water Development

The estimation of groundwater resources for the district has shown that out of 14 blocks, 10 blocks are categorized as over exploited and 2 blocks as Critical and Safe.

Dug wells are used to extract groundwater from weathered formation while deeper fractures are tapped through bore wells and dug cum bore wells.

The yield of open wells in the district tapping the weathered mantle of crystalline rocks generally ranges from 100 to 400 lpm and can sustain a pumping of 3-4 hrs in a day.

The wells tapping the deep seated fracture system can yield about 1 – 5 lps and can sustain a pumping of 6-8 hrs a day.

5.0 GROUNDWATER MANAGEMENT STRATEGY

5.1 Groundwater Development

In view of the comparatively high level of ground water development in the major part of the district and the quality problems due to anthropogenic factors, it is necessary to exercise caution while planning further development of available ground water resources in the district.

The map showing the development prospects for the district is shown in Plate VI.

5.2 Water Conservation and Artificial Recharge

On the basis of experimental studies, it has been found that desilting of existing tanks followed by percolation pond with recharge wells//recharge shafts are economical. Accordingly, computations have been made for Drought Prone Area Programme (DPAP), over exploited and critical blocks in the districts warranting immediate attention. A summary giving the availability of surface run off, number of structures feasible and cost estimates for the schemes is provided in the table.

Details of computation of the number and cost estimates of artificial recharge structures proposed											
S.No	**Block**	**Area Suitable for Groundwater Development (sq.km)**	**Categorization of Block as on March 2004**	***Harnessable surface water (M.Cu.m)**	****Capacity of existing Tanks (MCM)**	**Committed Supply for existing Tanks (MCM) (2 Fillings)**	**Surplus available for AR (MCM)**	**Available Subsurface storage (MCM)**	**Number of Structures**	**Cost of Structures (Lakhs)**	**Whether Number of Structures are Feasible as per SW Availability**
									PP (1 in 15 sq.km). Capacity - 0.1 M.Cu.m	**PP (Unit Cost - Rs 20 Lakhs)**	
1	Attur	244.09	OE / DPAP	26.20	12.99	25.98	0.22	11.80	1	20	Yes
2	Batlagundu	214.45	OE / DPAP	18.85	2.6	5.20	13.65	4.22	14	280	Yes
3	Dindigul	355.90	OE / DPAP	32.57	11.69	23.38	9.19	19.22	24	480	Yes
4	Guzliamparai	406.30	OE / DPAP	21.27	12.768	25.54	0.00	26.96	0	0	No
5	Kodaikanal	1043.00	OE / DPAP	77.86	0.000	0.00	77.86	123.60	70	1400	Yes
6	Natham	567.00	Safe / DPAP	102.76	7.450	14.90	87.86	20.06	38	760	Yes
7	Nilakkottai	167.36	Critical / DPAP	20.79	7.06	14.12	6.67	3.30	11	220	Yes
8	Oddanchattram	465.52	OE / DPAP	43.59	9.76	19.52	24.07	34.08	31	620	Yes
9	Palani	532.06	Critical / DPAP	36.47	18.25	36.50	0.00	71.43	0	0	No
10	Reddiarchattiram	271.25	OE / DPAP	33.19	9.26	18.52	14.67	5.34	18	360	Yes
11	Sanarpatti	274.93	OE / DPAP	43.33	14.77	29.54	13.79	7.76	18	360	Yes
12	Thoppampatti	594.20	OE / DPAP	28.99	12.11	24.22	4.77	3.69	40	800	Yes
13	Vadamadurai	407.03	OE / DPAP	31.77	17.584	35.17	0.00	54.84	0	0	No
14	Vedasandur	337.20	OE / DPAP	19.49	12.72	25.44	0.00	9.67	0	0	No
	Total			**537.12**	**149.01**	**298.02**	**252.74**	**395.97**	**265**	**5300**	

* Data Source : Institute of Remote Sensing, Anna University, Chennai

** Capacity of existing surface water structures computed from data available with SG&SWRDC, Govt. of Tamil Nadu on waterspread area, assuming average depth of 1.0 m.

Considering 4mm/day recharge for 120 days filling up of tank in a year.

* It is learned from the earlier executed projects that 50% of Percolation Ponds in Tamil Nadu should be provided with Recharge Shaft/Bore Well/Tube Well as per the local terrain condition for effective recharge.

6.0 GROUNDWATER RELATED ISSUES & PROBLEMS

Based on the high level of ground water development, it is inferred that a major part of the district could be considered vulnerable to water level depletion.

The presence of tanneries in and around Dindigul town and the ineffectiveness of Common Effluent Treatment Plant (CETP) have resulted in contamination of groundwater system.

7.0 AWARENESS & TRAINING ACTIVITY

Mass Awareness Campaign (MAP) & Water Management Training Programme (WMTP) by CGWB

One Mass Awareness Campaign on "Ground Water Management, Regulation & Conservation" was organized at Sanarpatti, Dindigul district during 2000-2001. The findings of exploration carried out by CGWB, the results of Geophysical investigations for source finding and their limitations, Ground water resource potential of the district, Techniques on Ground water resource management and need for regulation and water conservation were explained to the gathering of 300 people.

8.0 AREA NOTIFIED BY CGWA/SGWA

Central Ground Water Authority has not notified any area in the district. Government of Tamil Nadu vide G.O.No. 53 has banned groundwater development for irrigation in the over exploited blocks of Tamil Nadu. The over exploited blocks in this district are as follow.

1.Attur, 2. Batlagundu, 3. Dindigul, 4. Guzliamparai, 5.Oddanchattiram, 6. Reddiarchattiram, 7. Sanarpatti, 8. Thoppampatti, 9. Vadamadurai and 10 Vedasandur.

9.0 RECOMMENDATIONS

As the development of ground water has already reached an alarming stage in many blocks of this district, further development of ground water for creation of additional irrigation potential has to be carried out with extreme caution only in the blocks categorized other than "over exploited".

On the basis of the experiences in execution of Central Sector Scheme and Demonstrative Projects on artificial recharge, the desilting of existing ponds/tanks will be the most cost effective structures. The provision of recharge wells/shafts in percolation ponds/ check dams will enhance the efficacy of these structures.

Roof Top Rainwater Harvesting (RTRWH) had been made mandatory for all the buildings in the State of Tamil Nadu. However, it is seen that site specific designs can improve the existing RTRWH system and efforts may be made to

incorporate the improvements if found necessary. A concerted effort involving various Government agencies and NGOs can make the movement of artificial recharge to groundwater a successful one.

Remedial measures and isolation of pollution by industrial units in Dindigul industrial belt may be taken up to reduce the damage to the ground water resources in the area.

Action plan in this direction with participation of state and central agencies and industrial establishments is recommended. Effective aquifer remediation technology can be identified and practiced to minimize the aquifer contamination in vulnerable pockets.

PLATE - I

CENTRAL GROUND WATER BOARD, SECR, CHENNAI

DINDIGUL DISTRICT, TAMIL NADU

LOCATION

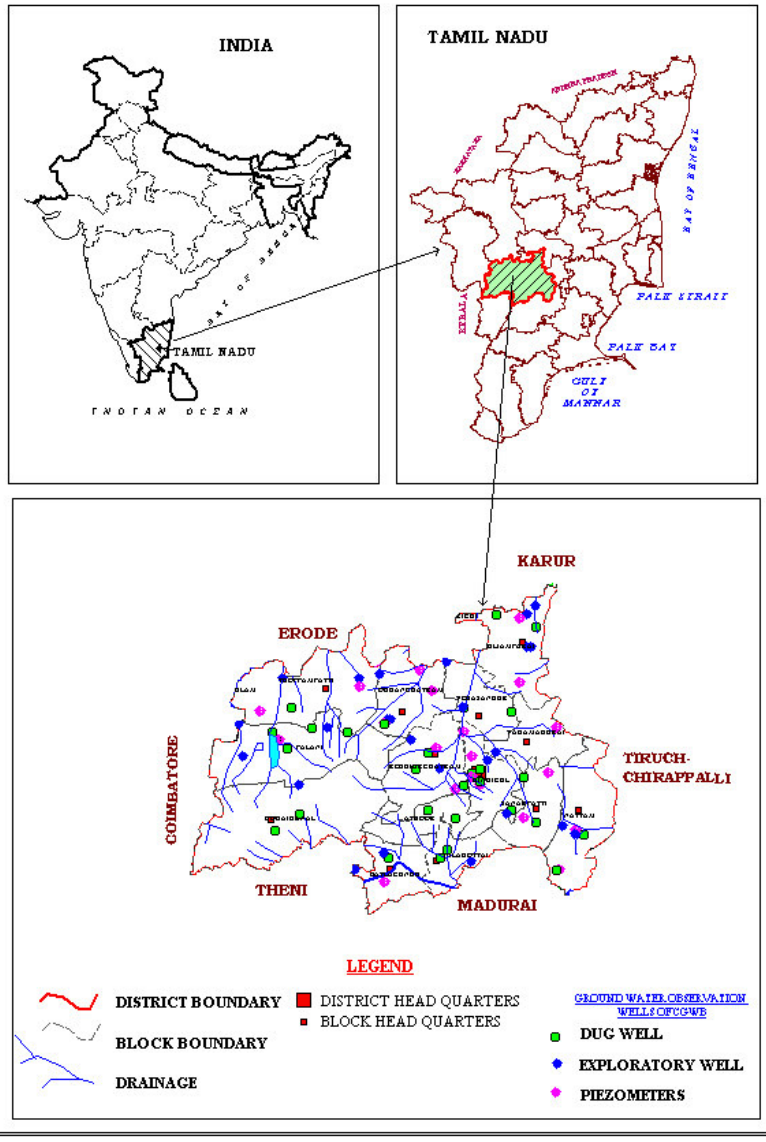


PLATE II

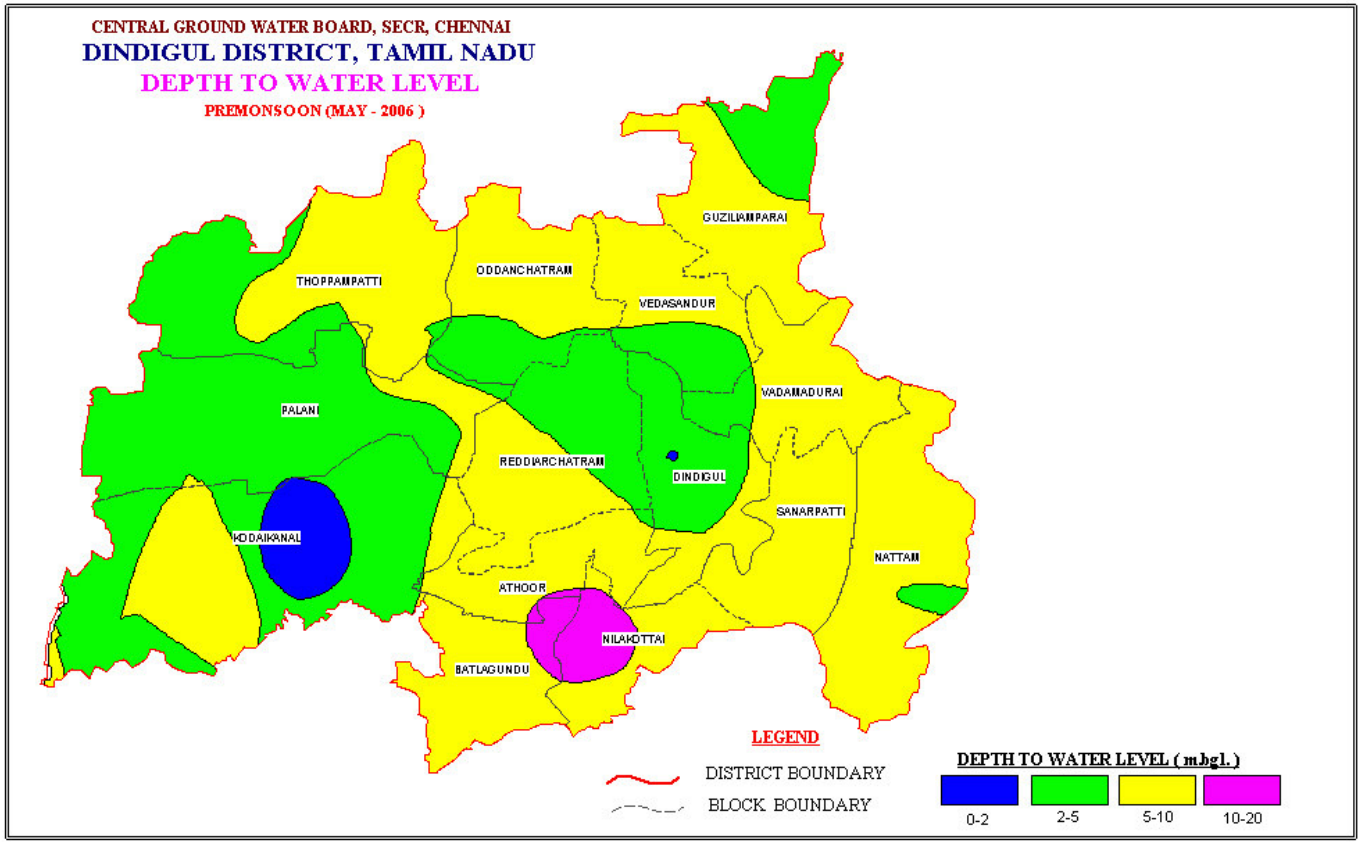

CENTRAL GROUND WATER BOARD, SECR, CHENNAI
DINDIGUL DISTRICT, TAMIL NADU
DEPTH TO WATER LEVEL
PREMONSOON (MAY - 2006)
GUZILIAMPARAI
ODDANCHATRAM
THOPPAMPATTI
VEDASANDUR
VADAMADURAI
PALANI
REDDIARCHATRAM
DINDIGUL
SANARPATTI
KODAIKANAL
NATTAM
ATHOOR
NILAKOTTAI
BATLAGUNDU
LEGEND
DISTRICT BOUNDARY
BLOCK BOUNDARY
DEPTH TO WATER LEVEL (m.bgl.)
0-2
2-5
5-10
10-20

PLATE III

CENTRAL GROUND WATER BOARD, SECR, CHENNAI

DINDIGUL DISTRICT, TAMIL NADU

DEPTH TO WATER LEVEL

POSTMONSOON (JANUARY-2007)

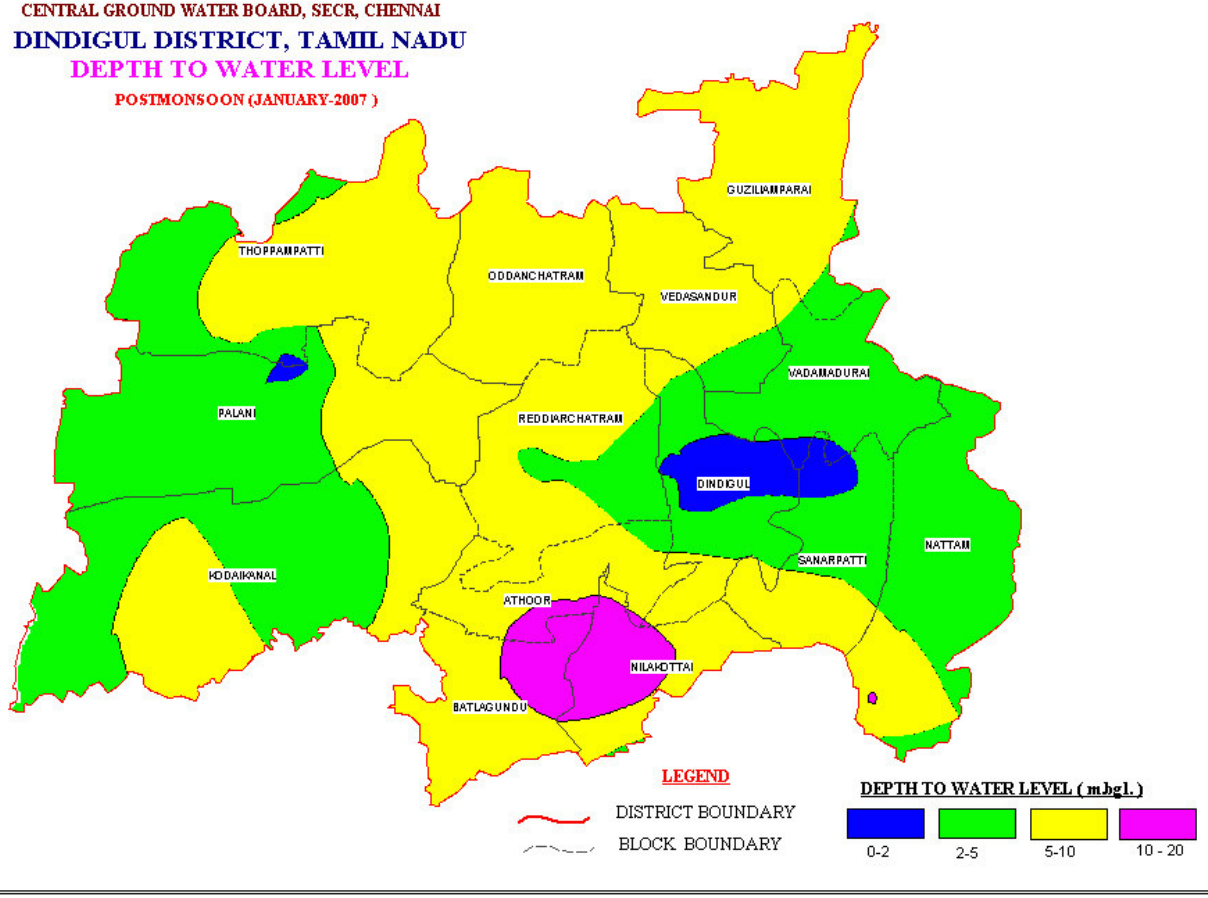


PLATE IV

CENTRAL GROUND WATER BOARD, SECR, CHENNAI

COIMBATORE DISTRICT, TAMIL NADU

CATEGORISATION OF BLOCKS

(MARCH- 2004)

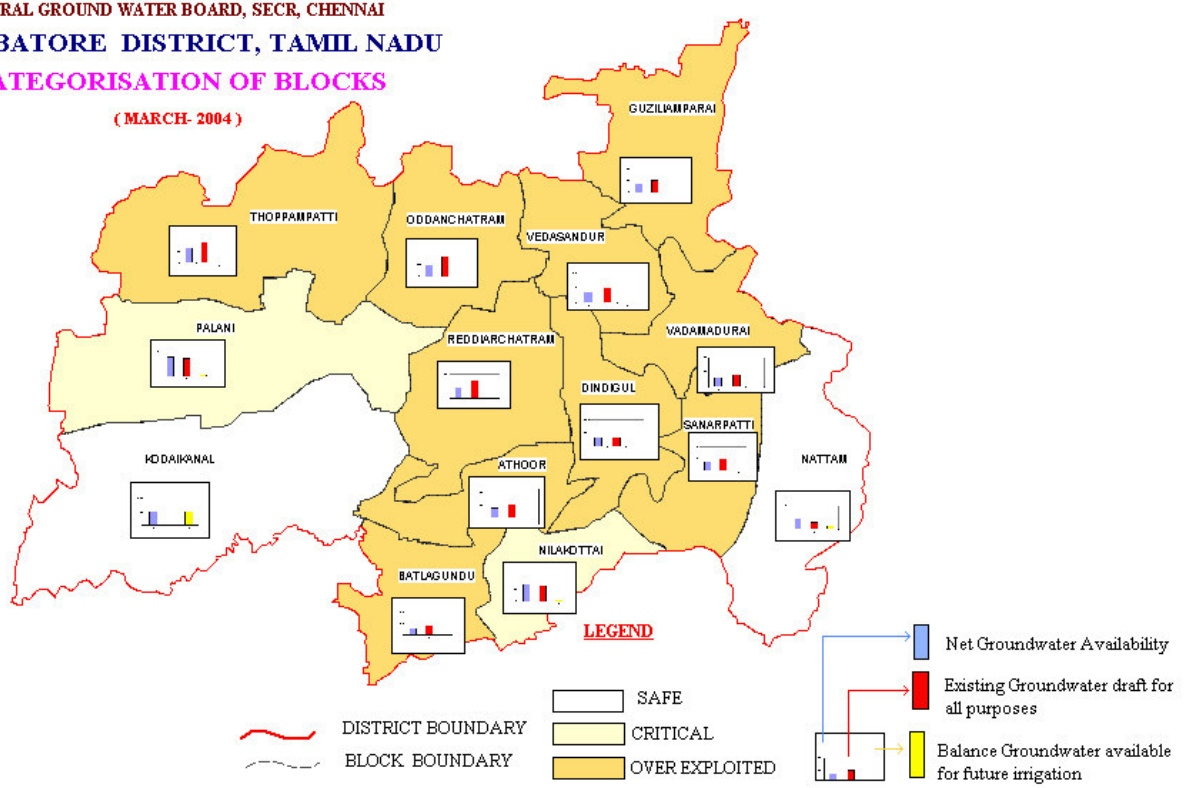
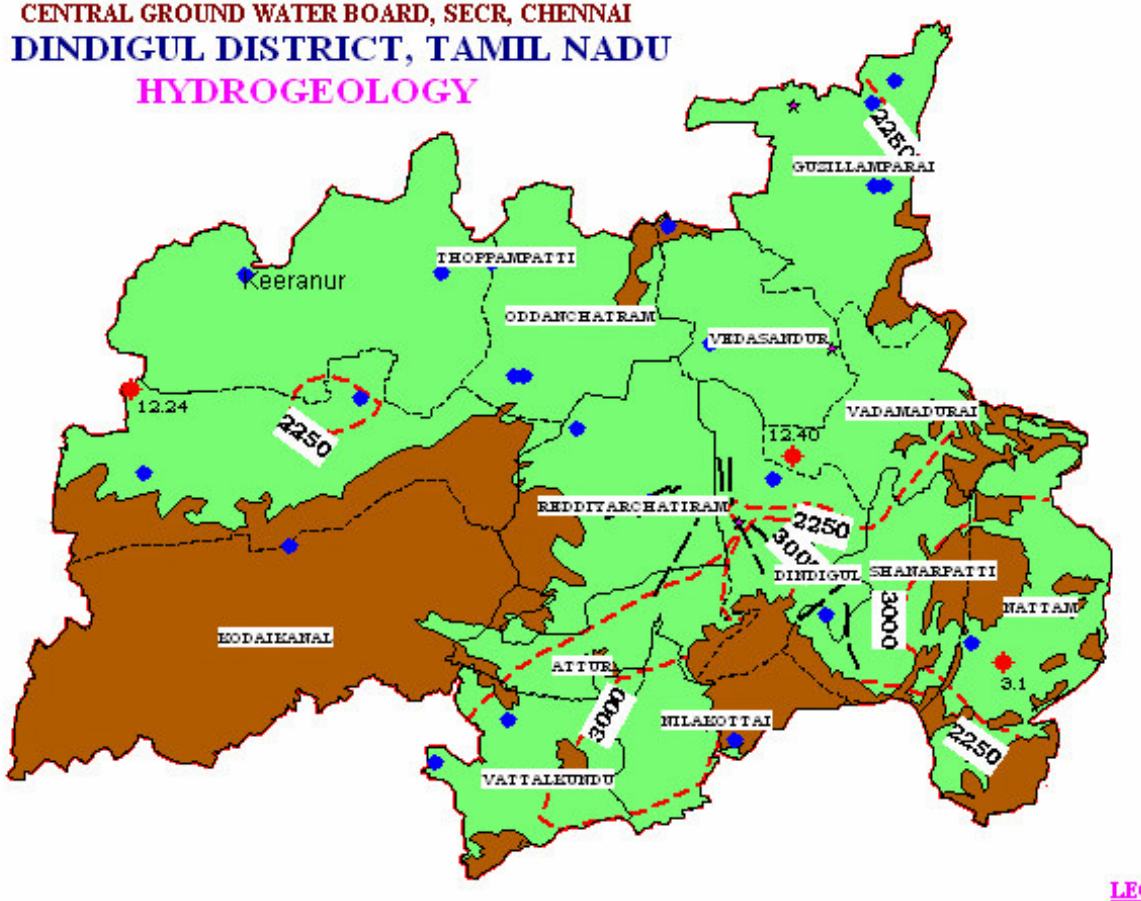


PLATE V

CENTRAL GROUND WATER BOARD, SECR, CHENNAI

DINDIGUL DISTRICT, TAMIL NADU

HYDROGEOLOGY



LEGEND OVER LEAF

LEGEND FOR PLATE V

ADMINISTRATIVE SETUP

DISTRICT BOUNDARY

BLOCK BOUNDARY

HILLY AREA

Δ^{752} TRIANGULATION HEIGHT [elevation in m.amsl]

GROUND WATER HYDROLOGY

EXPLORATORY BORE WELL [CGWB]

5.1 HIGH YIELDING BORE WELL [CGWB]

HYDROCHEMISTRY

750 ISOCONS [Sp ELECTRICAL CONDUCTANCE [µs /Cm at 25° C]

FLORIDE > 1.5 (mgl)

STRUCTURE

TRACE OF LINEAMENT

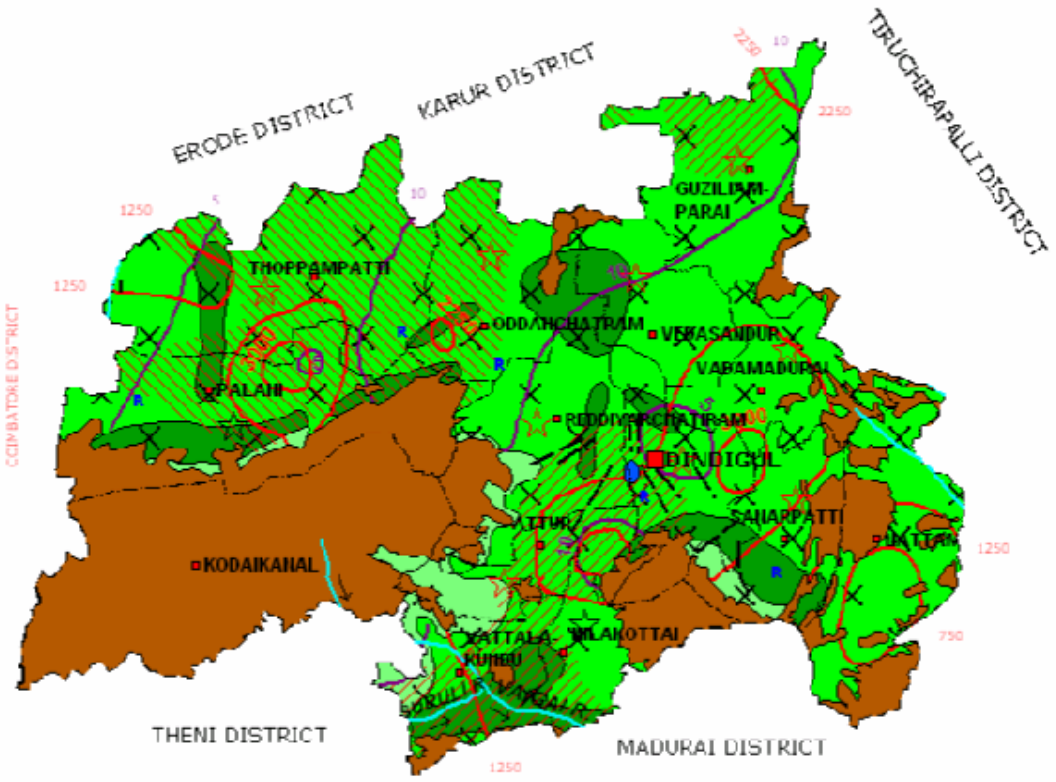
AQUIFER	AGE	LITHOLOGY	GROUND WATER CONDITIONS	YIELD PROSPECTS (CU.M/D)	GROUND WATER DEVELOPMENT STRATEGIES
CONSOLIDATED	ARCHAEAN	GRANITES, GNEISSES, CHARNOCKITE.	DISCONTINUOUS, UNCONFINED TO SEMICONFINED AQUIFERS,RESTRICTED TO WEATHERED RESIDUUM AND FRACTURES	< 50 NEAR WATERSHED DIVIDES & HIGH GROUNDS. 50 - 200 NEAR THIRD ORDER STREAMS AND LOW GROUNDS.	SUITABLE FOR DEVELOPMENT THROUGH DUG WELLS.BOREWELLS FEASIBLE IN FRACTURE ZONES, BEST LOCATIONS BEING INTERSECTION OF FRACTURES

PLATE VI

CENTRAL GROUND WATER BOARD, SECR, CHENNAI.

GROUND WATER DEVELOPMENT POTENTIAL AND ARTIFICAL RECHARGE PROSPECTS

DINDUGUL DISTRICT, TAMIL NADU



LEGEND OVER LEAF

LEGEND PLATE VI

DISTRICT – DINDIGUL

	Wells Feasible	Rigs Suitable	Depth Of Well (M)	Discharge (LPM)	Suitable Artificial Recharge Structures
Hard Rock Aquifer	Dug Well Dug Cum Bore Well Bore Well	Manual Manual + DTH DTH	15 - 20 20 + 75 80 - 130	10 - 60	Check Dams/ Percolation Ponds/ Gully Plugs
Hard Rock Aquifer	Dug Well Dug Cum Bore Well Bore Well	Manual Manual + DTH DTH	10 - 25 25 + 80 70 - 130	60 - 180	Check Dams/ Percolation Ponds/ Farm Ponds
Hard Rock Aquifer	Dug Well Dug Cum Bore Well Bore Well	Manual Manual + DTH DTH	15 - 25 25 + 75 80 - 150	180 - 300	Check Dams/ Percolation Ponds/
	District Boundary			Block Boundary	
	District Headquarters			Block Headquarters	
5	Water Level-Pre-Monsoon (Decadal Mean 1993-2002) Mbgl		1250	EC In Microsiemens / Cm At 25°C	
	River			Nitrate Greater Than Maximum Permissible Limit (45mg/L)	
	Fluoride Greater Than Maximum Permissible Limit (1.5mg/L)			Area Vulnerable For Pollution	
	Hilly Area			Recommended Site For Artificial Recharge Structure	
	Lineament				

OTHER INFORMATION

Geographical Area	6266.64 Sq.km.
Number Of Blocks	14
Major Drainage	Kodavanar, Nanganji & Shanmuganathi
Population (2001)	19,23,014
Average Annual Rainfall	813 mm
Annual Range of Temperature	13 - 43°C
Regional Geology	**Hard rocks:** Charnockites & Gneisses
Net Ground Water Availability For Future Irrigation	Nil
Stage Of Ground Water Development As On January 2003	115 %
Names Of Blocks Showing Intensive Ground Water Development	**Over-Exploited**: Attur, Vattalagundu, Dindigul, Guziliamparai, Oddanchatram, Reddiarchatram, Sanarpatti, Thoppampatti, Vadamadurai Vedasandur **Critical**: Nilakottai & Palani

SAVE WATER

AND

CONSERVE WATER

Authors : Dr.S.Suresh, Scientist-D, CGWB, SECR, Chennai
Published by : Regional Director, CGWB, SECR, E-1, Rajaji Bhavan, Besant Nagar, Chennai-90
☎+914424912941/24914494 ☎/Fax : 91 4424914334 Web: www.cgwb.gov.in
rdsecr-cgwb@nic.in