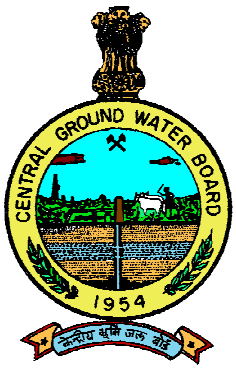

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Technical Report Series

DISTRICT GROUNDWATER BROCHURE
KRISHNAGIRI DISTRICT, TAMIL NADU

V. DHINAGARAN,
SCIENTIST-D

Government of India
Ministry of Water Resources

Central Ground Water Board

South Eastern Coastal Region
Chennai
March 2009

DISTRICT AT A GLANCE (KRISHNAGIRI DISTRICT)

S.NO	ITEMS	STATISTICS	
1.	**GENERAL INFORMATION**		
	i. Geographical area (Sq. km)	**5143**	
	ii. Administrative Divisions (As on 31-3-2007 Number of Taluks Number of Blocks Number of Villages	5 10 626	
	iii. Population (2001 Census) Total Population Male Female	1546700 795718 750982	
	iv. Average Annual Rainfall (mm)	750-900	
2.	**GEOMORPHOLOGY**		
	i. Major physiographic Units	The district forms part of upland region with many hill ranges and undulating plains. Denudational landforms like buried pediments in the plains and inselbergs and plateaus represented by conical hills aligned with major lineaments.	
	ii. Major Drainages	Cauvery and Ponnaiyar.	
3.	**LAND USE (Ha.) (2005-06)**		
	i. Forest area ii. Net area sown iii. Cultivable waste	202409 182119 4991	
4.	**MAJOR SOIL TYPES**	Black soil, mixed soil, gravelly sandy soil and Loamy sandy soil.	
5.	**AREA UNDER PRINCIPAL CROPS (Ha.) (2005-2006)**	1. Paddy –156098 2. Oilseeds – 9772 3. Coconut –5371 4. Sugarcane –3722	
6.	**IRRIGATION BY DIFFERENT SOURCES (During 2005-06)**	**Number**	**Area Irrigated (Ha)**
	i. Dug wells	66206	41513
	ii. Bore wells	279	23
	iii. Tanks	2367	10112
	iv. Canals	109	4839
	v. Other Sources	-	1553
	vi. Net irrigated area	58040	
	vii. Gross irrigated area	58250	

7.	**NUMBER OF GROUND WATER MONITORING WELLS OF CGWB (As on 31.03.2007)**		
	i. Dug wells	11	
	ii. Piezometers	13	
8.	**PREDOMINANT GEOLOGICAL FORMATIONS**	Recent Alluvium, Upper Protero zoic, Lower Proterozoic and Archaeans	
9.	**HYDROGEOLOGY**		
	i. Major water bearing formations	Recent Alluvium, weathered and fractured gneissic rocks	
	ii. Pre- monsoon depth to water level (May 2006)	0.50 –9.90	
	iii. Post- monsoon depth to water level (Jan'2007)	2.00 –9.90	
	iv. Long term water level trend in 10 years (1998-2007) (m/yr)	**Annual**	
		Rise	Fall
		Min: 0.098 Max:0.414	Min:0.0666 Max:1.618
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.	27 11 10	
	iv. Depth range (m bgl)	107 – 300	
	v. Discharge (lps)	Meager to 26.0	
	vi. Storativity (S)	$3.6x10^{-1} – 3 x10^{-3}$	
	vii. Transmissivity (m^2/day)	1 – 188	
11.	**GROUND WATER QUALITY (As on MAY 2006)**		
	i. Presence of chemical constituents more than permissible limit	Fe, F and Nitrate	
	ii. Type of water	$CaHCO_3$, $NaHCO_3$ and Nacl	
12.	**DYNAMIC GROUND WATER RESOURCES (As on 31.03.2004) in MCM**		
	i. Annual Replenishable Ground Water Resources	384.38	
	ii. Total Annul Ground Water Draft for all purposes	358.98	
	iii. Projected demand for Domestic and Industrial Uses up to 2029	24.24	
	iv. Stage of Ground Water Development (%)	95.4	

13.	**AWARENESS AND TRAINING ACTIVITY**	
	i. Mass Awareness Programs Organized	
	Year	2005-06
	Place	Hosur
	No of Participants	300
	ii. Water Management Training Organized	
	Year	2005-06
	Place	Hosur
	No of Participants	21
14.	**EFFORTS OF ARTIFICIAL RECHARGE & RAINWATER HARVESTING**	
	i. Projects completed by CGWB Number of structures Amount spent	Nil
	ii. Projects under technical guidance of CGWB Number of structures	Nil
15.		
	i. Number of OE Blocks	4
	ii. Number of Critical Blocks	1
	iii. Number of Blocks Notified	Nil
16.	**MAJOR GROUND WATER PROBLEMS AND ISSUES.**	As development of ground water has already a high stage in four blocks out of ten blocks of the district, further development of ground water for creation of additional irrigation potential has to be carried out with extreme caution. Necessary measures for regulating the exploitation of ground water may be implemented. Detailed studies on the extent of pollution by industrial units in Hosur Krishnagiri industrial belt may be taken up to assess the damage to the ground water resources in the area. Groundwater in the phreatic zone may cause medium to very high salinity hazard and low to very high alkali hazard when used for irrigation. Proper soil management strategies are to be adopted in select parts of the district while using ground water for irrigation.

1.0 INTRODUCTION

1.1 Administrative Details

Krishnagiri district is having administrative divisions of 5 taluks, 10 blocks (Plate-I) and 626 villages.

S. No.	Taluk	No. of villages	Blocks	No. of villages
1	Denkanikottai	93	1. Thally	53
			2. Kelamangalam	35
2	Hosur	166	3. Hosur	79
			4. Shoolagiri	87
3	Krishnagiri	142	5. Krishnagiri	30
			6. Veppanapalli	68
			7. Kaveripattanam	33
4	Pacchampalli	40	8. Bargur	39
5	Uthangarai	185	9. Uthangarai	145
			10. Mathur	57
	Total	**626**		**626**

(Source: Survey Dept., Office of District Collector)

Basin & Sub basin

Details of Basin, sub-catchment and watershed areas are as follows:

S. No.	Basin	Catchment	Sub-Catchment	Watershed
1	East coast Minor rivers	Between Cauvery and Palar	Upper Ponnaiyar beyond Sattanur dam	Upper Ponniyar Kuppakode Mathur Pullampatti
2	Cauvery	Satanley Reservoir to Krishnarajasagar	L.B.Cauvery	Arkavati Chinnar Dodda

(Source: Watershed Atlas of India, All India Soil Survey & Land Use Dept., Govt. of India)

Drainage

Krishnagiri district forms parts of Cauvery and East Coast Minor Rivers basins. Cauvery River forms the southwestern boundary of the district. Dodda Halla is the most important tributary of Cauvery draining the rugged terrain in the northwestern part of the district. Ponnaiyar is the major river draining the district and is ephemeral in nature. It originates

from Nandhi hills in Karnataka, enters Tamil Nadu west of Bagalur and flows almost in a southeasterly direction till it reaches Manjamedu from where it flows along the district boundary before entering the district, again near Hanuman Tirtham. After flowing for a short distance in an easterly direction, it again follows the district boundary before entering the neighboring Dharmapuri district. Pambar and Burgur Ar., are among the important tributaries of Ponnaiyar draining part of the district.

Irrigation Practices

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

S. No.	Classification	Area (Ha)
1	Forests	202409
2	Barren & uncultivable lands	26679
3	Land put to non-agricultural use	42140
4	Cultivable waste	4991
5	Permanent pastures and other grazing lands	8156
6	Groves not included in the area sown	10316
7	Current fallows	27097
8	Other fallow lands	10419
9	Net area sown	182119

(Source: Irrigation profile 2005-06, Krishnagiri district)

The chief irrigation sources in the district are dug wells, tanks, canals and bore wells. Dug well irrigation is highest in Uthangarai block followed by Kaveri Pattanam. Highest canal and tank irrigation are seen in Kaveripattinam and Krishnagiri respectively. The block-wise and source-wise net irrigated area (Ha) is given below:

S. No.	Block	Canals	Tanks	Bore wells	Dug wells	Others
1	Bargur	56	892	-	7945	-
2	Hosur	55	749	-	3087	35
3	Kaveripattanam	2575	911	-	6403	13
4	Kelamangalam	102	1695	-	1080	399
5	Krishnagiri	1269	1793	23	2051	-
6	Mathur	95	341	-	5200	-
7	Shoolagiri	106	1118	-	3402	180
8	Thally	206	1364	-	1290	843
9	Uthangarai	231	612	-	7928	-
10	Veppanapalli	144	637	-	3127	83
Total		**4839**	**10112**	**23**	**41513**	**1553**

1.2 Studies/Activities carried out by CGWB

Ground water exploration through drilling was first taken up by Central Ground Water Board in Krishnagiri district between 1988 and 1990. Sites for drilling were selected based on hydrogeological, geophysical and Remote Sensing Studies. A total of 17 exploratory bore wells and 11 observation wells, ranging in depth from 107 to 300 m bgl were drilled in the district. Further, 10 bore wells were drilled in the district during 2003-05 through out sourcing as part of the nation wide initiative of CGWB for drought mitigation. A number of bore wells have also been drilled in the district various state Govt. agencies.

The exploratory drilling carried out by CGWB has revealed the presence of productive fractures in the area underlain by crystalline rocks. Productive fractures have been encountered in crystalline rocks in the depth range of 16.65 to 187.29 m bgl. A few of the bore wells have been abandoned due to poor yield.

Systematic Surveys and ground water management studies were carried out under various phases.

2.0 RAINFALL AND CLIMATE

The district receives the rain under the influence of both southwest and northeast monsoons. The normal annual rainfall over the district varies from about 750 to about 900 mm. It is the minimum around Hosur (767.7 mm) and Rayakottai (768.0 mm) in the northern and central parts of the district. It gradually increases towards west and east and is the maximum around Denkanikotai (910.7 mm) in the western part.

The climate of Krishnagiri district is comparatively more pleasant than that of the surrounding districts due to general dryness of atmosphere and appreciable drop in temperature in the monsoon season. The year may be divided into four season namely dry season from January to March, summer season April and May, southwest monsoon season from June to Sept. and northeast monsoon season from October to December.

During summer season (April to May) the maximum temperature is about 37°C, and the mean daily minimum temperature of about 25°C in the plains. There is a gradual decrease of both day and night temperatures from June onwards till December, when the mean daily maximum temperature is about 30°C and the mean daily min. is about 19°C in plains.

The day temperature increases gradually from January onwards. The lowest temperature is reached in January when the mean daily minimum is about 19°C. However, in higher areas i.e., Hosur, Thally and Krishnagiri taluks day and night temperature are lower by about 2 to 3°C. In these areas weather is comparatively pleasant round the year.

3.0 GEOMORPHOLOGY AND SOIL TYPES

3.1 Geomorphology

The prominent geomorphic units identified in the district through interpretation of satellite imagery are structural hills in the southwestern part of the district, denudational land forms like buried pediments in the plains and inselbergs and plateaus represented by conical hills aligned with major lineaments.

Krishnagiri district forms part of the upland plateau region with many hill ranges and undulating plains. The western part of the district has hill ranges of Mysore plateau with a chain of undulating hills and deep valleys extending in NNE-SSW direction. The plains of the district have an average elevation of 488 m amsl. The plateau region along the western boundary and the northwestern part of the district has an average elevation of 914 m amsl. The Guthrayan Durg with an elevation of 1395 m amsl is the highest peak in the district.

Soils

Soils have been classified into Black soil, mixed soil, red loamy soil, gravelly and sandy soils. Red loamy and sandy soils are predominant in Hosur taluk. Vast stretches of loam soils and black soils occur in Krishnagiri district.

4.0 GROUND WATER SCENARIO

4.1 Hydrogeology

Krishnagiri district is underlained by Archaean crystalline formations with Recent alluvial deposits of limited areal extent and thickness along the courses of major rivers (Plate-II). The occurrence and movement of ground water are controlled by various factors such as physiography, climate, geology and structural features. Weathered, and fractured crystalline rocks constitute the important aquifer systems in the district.

Ground water generally occurs under phreatic conditions in the weathered mantle and under semi-confined conditions in the fractured zones at deeper levels. The thickness of weathered zones in the district ranges from less than a meter to more than 15 m. The yield of large diameter dug wells in the district, tapping the weathered mantle of crystalline rocks ranges from 100 to 500 lpm. These wells normally sustain pumping for 2 to 6 hours per day, depending upon the local topography and characteristics of the weathered mantle.

The depth to water level (DTW) during pre monsoon (May 2006) ranged between 0.5 and 9.9 m bgl (Plate-III) in the district. In major part of the district the DTW is more than 5

mbgl. Whereas it ranged between 2 and 9.9 m bgl (Plate-IV) during post monsoon, in the district and the DTW is in the range of 5 – 10 m bgl in the entire district except a few isolated pockets.

The yield of successful exploratory wells drilled in the district ranged from 0.78 lps to 26 lps. As per the studies the wells drilled in granitic gneiss have higher yields than the wells drilled in charnockites. The specific capacity of the wells ranged from 1.2 to 118.0 lpm/m/dd.

The piezometric head of fracture zones varied between 0.50 and 18.45 m bgl.

Ground Water Resources

Central Ground Water Board and State Ground and Surface Water Resources and Data Center, PWD, WRO, Govt. of Tamil Nadu as have computed the ground water resources jointly as on 31st March 2004 and the salient feature of it is given as Table –1.

Long Term fluctuation (1998-2007)

The long-term water level fluctuation for the period of 1998-2007 indicates a rise in water level in the range of 0.098-0.414 m/year whereas the fall in water level ranges between 0.0666 and 1.618 m/year.

4.2 Aquifer Parameters

The transmissivity values of fracture zones ranged from 1 to 188 m^2/day with low to very low permeability values.

Status of ground water Development

The stage of ground water development ranges from 34 to 159%. The minimum is in Thali block and the maximum is in Mattur block. The ground water development is more than 100% in 4 blocks viz., Burgur, Mathur, Uthangarai and Veppanapalli.

The estimation of ground water resources for the district has shown that four blocks are over exploited and one block is semi-critical (Plate-V).

Table- 1. Stage of Ground Water Development as on 31st March 2007 (Ha.m)

Block	Net Ground water availability (M.Cu.m)	Existing Gross Draft for irrigation (M.Cu.m)	Existing Gross Draft for Domestic and Industrial Water supply (M.Cu.m)	Existing gross draft for all uses (M.Cu.m)	Allocation for Domestic and Industrial Requirement supply up to next 25 years (2029) (M.Cu.m)	Net ground water availability for future irrigation development (M.Cu.m)	Stage of Ground Water development (%)	Category of Block
Burgur	45.75	65.71	2.65	68.37	2.78	-22.75	149	Over exploited
Hosur	37.48	25.93	3.84	29.77	4.03	7.51	79	Semi-critical
Kaveripattanam	28.25	21.57	3.22	24.79	3.38	3.29	88	Critical
Kelamangalam	35.24	14.06	1.73	15.80	1.82	19.35	45	Safe
Krishnagiri	43.54	21.70	2.0	23.71	2.10	19.72	54	Safe
Mathur	29.91	45.73	1.72	47.45	1.81	-17.63	159	Over exploited
Shoolagiri	40.92	28.39	2.74	31.14	2.88	9.64	76	Semi-critical
Thali	50.78	15.67	1.56	17.24	1.64	33.46	34	Safe
Uthangarai	45.29	65.60	2.48	68.09	2.61	-22.92	150	Over exploited
Veppanapalli	27.19	31.46	1.10	32.57	1.15	-5.42	120	Over exploited
Total	**384.38**	**335.89**	**23.09**	**358.98**	**24.24**	**24.25**	**95.4**	

The water requirements of rural and urban areas in the district are met with either thorough surface water sources or through various mini water supply schemes or integrated water supply schemes utilizing the available ground water resources as shown in the Table given below.

There are more than 100 medium and large-scale industrial units in the district. Most of the units are located in Hosur taluk. Besides there are nine textile units in the large-scale sector were functioning in Krishnagiri and Hosur taluks. In the absence of any major water intensive industry, the industrial water requirements of the district are met with from either surface water or ground water resources available locally.

Status of urban and rural drinking water supply in Krishnagiri district

Urban Area

		Beneficiaries	Service Level
1	Krishnagiri	68215	50 to 90 lpcd
2	Hosur	47999	>90 lpcd

Urban Town Panchayat

1	Hosur	22795	Below 40 lpcd
2	Kaveripattanam	16927	Below 40 lpcd
3	Uthangarai	14122	Below 40 lpcd
4	Bargur	11751	>70 lpcd
5	Maranda Halli	3457	40 to 69 lpcd
6	Nagajanagalli	9461	40 to 69 lpcd
7	Mathagiri	10887	>70 lpcd
8	Denkanikottai	21735	Below 40 lpcd

Rural Town Panchayat

1	Papparapatti	10580	Below 40 lpcd
2	Kelamangalam	18501	Beloiw 40lpcd

(Source: Website TWAD Board)

5.0 GROUND WATER QUALITY

Ground water in phreatic aquifers in Krishnagiri district, in general, is colorless, odorless and predominantly alkaline in nature. The specific electrical conductance (EC) of groundwater in the phreatic zone (Micro Siemens at 25°C) during May 2006 was in the range of 830 to 3030 in the district. In about 67% of the samples analyzed the ground water is of average quality with EC less than 2250.

It is observed that the ground water is suitable for drinking and domestic uses in respect of all the constituents except total hardness, fluoride and nitrate in about 67.85 and 50% of the samples. Total hardness as $CaCO_3$ is observed to be in excess of permissible limits in 33% of the samples analyzed, whereas nitrate is found in excess of 45 mg/l in about 50% of samples. Excess fluoride more than the permissible limit of 1.5 mg/l is observed

at K.Vetrapatti and Karukanchavadi areas. The incidence of high total hardness is attributed to the composition of litho-units constituting the aquifers in the district, whereas nitrate pollution is most likely due to the use of fertilizers and other improper waste disposal.

6.0 GROUND WATER MANAGEMENT STRATEGY

6.1 Ground Water Development

The development of ground water for irrigation is mainly through dug wells tapping weathered residuum. However, in view of the comparatively high level of ground water development in 4 blocks of the district and the quality problems due to lithogenic and anthropogenic factors, it is necessary to exercise caution while planning further development of available ground water resources in the district.

Dug wells tapping the weathered mantle with horizontal bores wherever feasible are ideally suited for the terrain. The narrow linear valley fill deposits are also suited for development through shallow tube wells drilled down to 30 m bgl. However the actual number of wells will depend on several factors such as availability of land for construction, nature of weathered formation, their water bearing characteristics, etc.

6.2 Water Conservation and Artificial Recharge

CGWB had prepared a master plan to augment groundwater potential by saturating the shallow aquifer taking into consideration the available unsaturated space during post monsoon and available uncommitted surplus run off. Subsequently, computations have been made for Drought Prone Area Program (DPAP) for over exploited and critical blocks in the districts warranting immediate attention. Institute of Remote Sensing, Anna University had prepared block wise maps demarcating potential zones for artificial recharge for the State of Tamil Nadu. Subsequently, State Government agencies have constructed artificial recharge structures with their own fund or with fund from Central Government, dovetailing various government programs.

Ministry of Water Resources, Government of India has initiated Dug Well Recharge Scheme in the State. The scheme is being implemented by the Nodal Department (SG&SWRDC, PWD, WRO, Government of Tamil Nadu) with the technical guidance of CGWB. The subsidy of Rs. 4000/- for small and marginal farmers and Rs. 2000/- for the other farmers is credited to the beneficiaries' bank account through NABARD. The scheme after implementation will prove to be beneficial to the irrigation sector. The available uncommitted surplus run off has to be recomputed, taking into consideration the quantum of recharge effected through existing irrigation dug wells also. The existing structures and uncommitted surplus flow should be considered for further planning of artificial recharge program.

On the basis of experimental studies, it has been found that de-silting of existing tanks followed by percolation pond with recharge wells, recharge shafts are economical.

There is considerable scope for implementation of roof – top rainwater harvesting in the district. Recharge pits / Shafts / trenches of suitable design are ideal structures for rainwater harvesting in such areas. Central Ground Water Board is also providing free technical guidance for implementation of rooftop rainwater harvesting schemes.

A map showing the development prospects and Artificial recharge structures recommended for various blocks in Krishnagiri district are shown in Plate-VI.

7.0 GROUND WATER RELATED ISSUES AND PROBLEMS

Four blocks in the district are over exploited. Analysis of historical ground water level data, indicates a long-term fall in a considerable part of the district. Based on the factors mentioned, it is inferred that a major part of the district could be considered vulnerable to water level depletion. Incidence of fluoride in ground water in excess is reported in Thally and Hosur blocks. The source of Fluoride in ground water is the fluoride bearing minerals present in the granitic gneissic and granites, which underlie the area. TWAD Board has provided a number of villages in the district with fluoride free drinking water supply. The spurt of industrial development in Hosur and Krishnagiri taluks in recent years have made these areas vulnerable to pollution and necessary preventive measures are to be taken to ensure that industrial effluents are properly treated before discharge.

8.0. AWARENESS & TRAINING ACTIVITY

CGWB, SECR, Chennai conducted mass awareness program and water management training program during the AAP 2005-06 at Hosur, Krishnagir district.

9.0 RECOMMENDATIONS

The major ground water related problems in the district include decline in the ground water levels and the incidence of fluoride, nitrate and iron in excess of permissible limits for drinking water use, especially in the fractured zones. Pollution of ground water resources by industrial effluents is likely to be of concerned in future. Detailed studies on the extent of pollution by industrial units in Hosur –Krishnagiri industrial belt may be taken up to assess the damage to the ground water resources in the area.

As the development of ground water has already reached a high stage in four blocks of the district, further development of ground water for creation of additional irrigation potential has to be carried out with extreme caution. Necessary measures for regulating the exploitation of ground water may be implemented in over exploited blocks of the district.

PLATE - I

CENTRAL GROUND WATER BOARD, SECR, CHENNAI

KRISHNAGIRI DISTRICT, TAMIL NADU

LOCATION

(NOT TO SCALE)

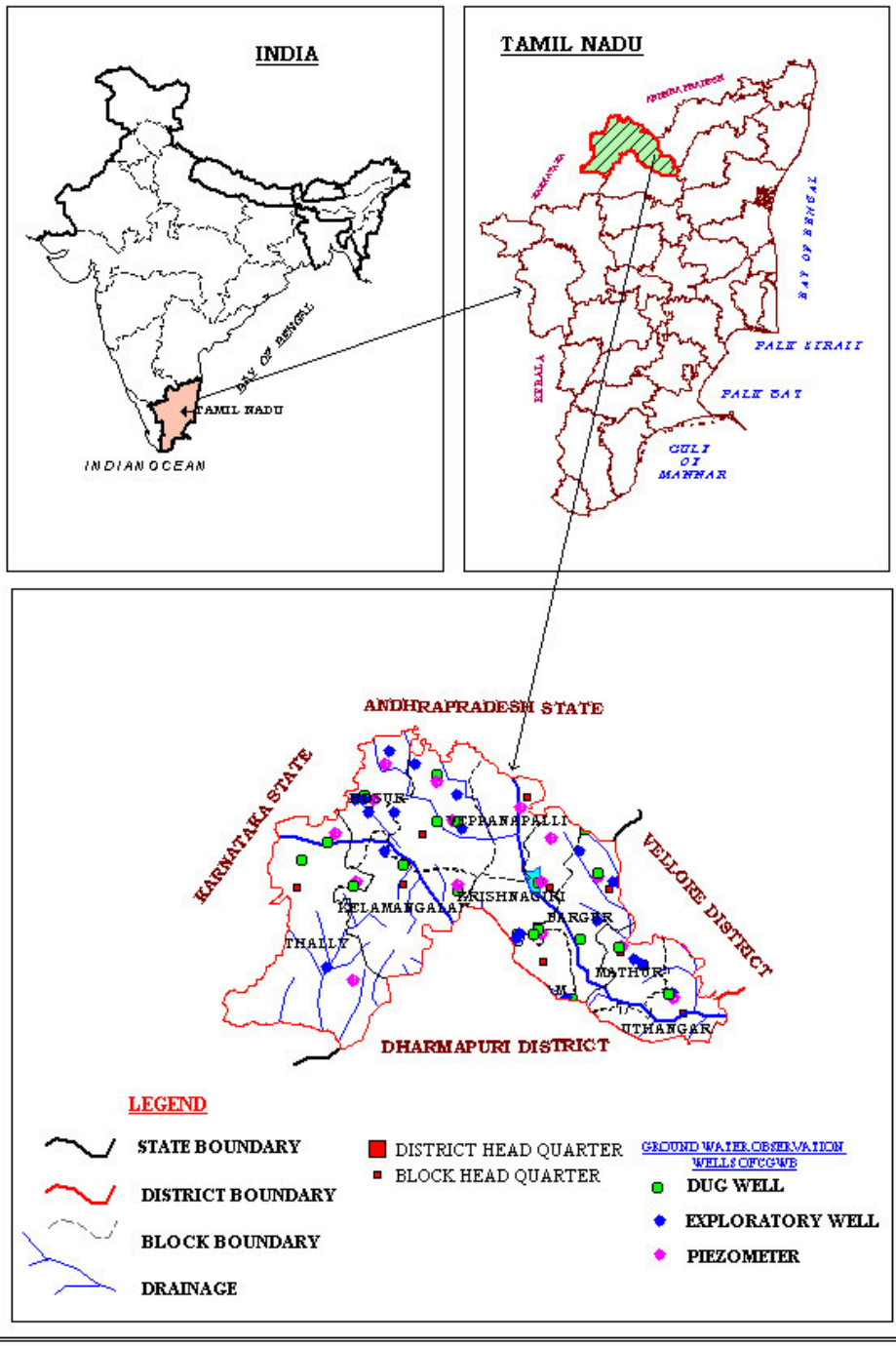
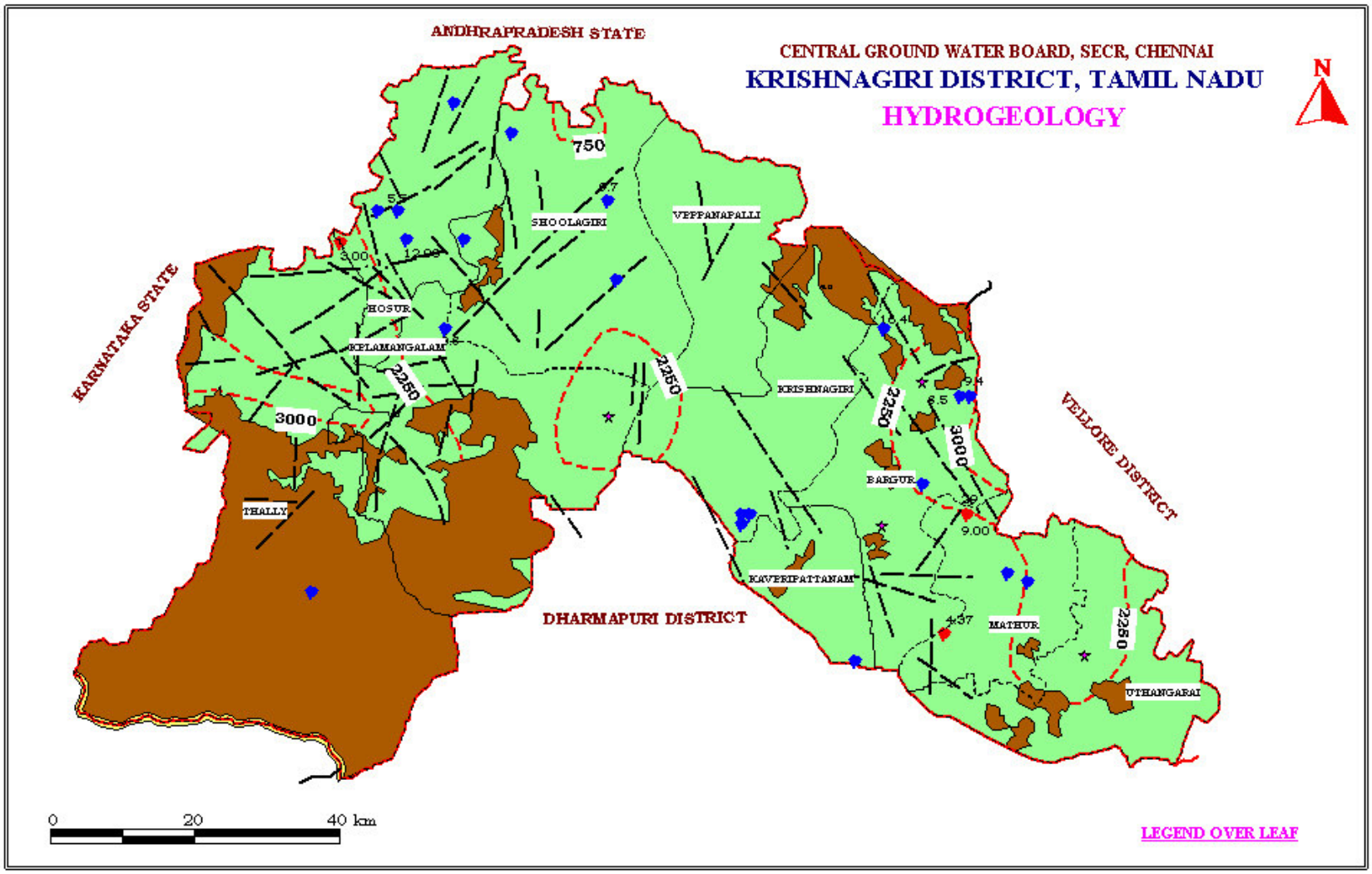


PLATE - II


ANDHRAPRADESH STATE
CENTRAL GROUND WATER BOARD, SECR, CHENNAI
KRISHNAGIRI DISTRICT, TAMIL NADU
HYDROGEOLOGY
N
KARNATAKA STATE
SHOOLAGIRI
VEPPANAPALLI
HOSUR
KELAMANGALAM
KRISHNAGIRI
BARGUR
THALLY
KAVERIPATTANAM
MATHUR
UTHANGARAI
DHARMAPURI DISTRICT
VELLORE DISTRICT
750
2250
3000
0 20 40 km
LEGEND OVER LEAF

LEGEND FOR PLATE - II

ADMINISTRATIVE SETUP

STATE BOUNDARY

DISTRICT BOUNDARY

BLOCK BOUNDARY

HILLY AREA

GROUND WATER HYDROLOGY

EXPLORATORY BORE WELL [CGWB]

HIGH YIELDING BORE WELL [CGWB]

FLUORIDE > 1.5 (MGL)

HYDROCHEMISTRY

750

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

STRUCTURE

TRACE OF LINEAMENT

AQUIFER	AGE	LITHOLOGY	GROUND WATER CONDITIONS	YIELD PROSPECTS (CU.M/D)	GROUND WATER DEVELOPMENT STRATEGIES
UNCONSOLIDATED	RECENT	RIVER ALLUVIUM, FLOOD PLAIN-DEPOSITS	DISCONTINUOUS, THIN, UNCONFINED TO SEMI - CONFINED	> 200	DEVELOPMENT THROUGH LARGE DIAMETER DUG WELLS AND SHALLOW TUBE WELLS.
CONSOLIDATED	ARCHAEAN	GRANITES, GNEISSES, CHARNOCKITE.	DISCONTINUOUS, UNCONFINED TO SEMI-CONFINED 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. BORE WELLS FEASIBLE IN FRACTURE ZONES, BEST LOCATIONS BEING INTERSECTION OF FRACTURES

PLATE - III

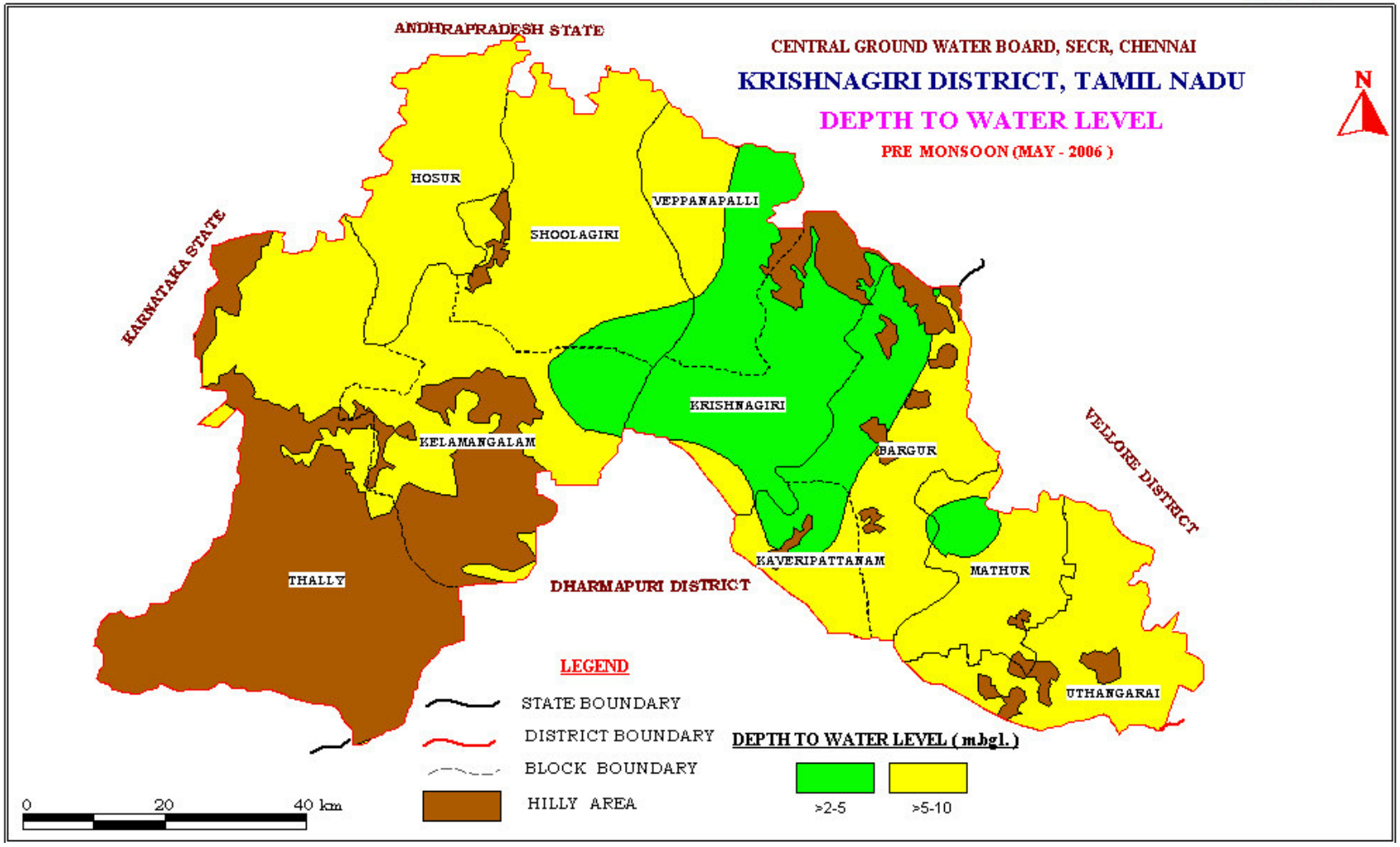

ANDHRAPRADESH STATE
CENTRAL GROUND WATER BOARD, SECR, CHENNAI
KRISHNAGIRI DISTRICT, TAMIL NADU
DEPTH TO WATER LEVEL
PRE MONSOON (MAY - 2006)
N
KARNATAKA STATE
HOSUR
SHOOLAGIRI
VEPPANAPALLI
KRISHNAGIRI
KELAMANGALAM
BARGUR
VELLORE DISTRICT
KAVERIPATTANAM
MATHUR
THALLY
DHARMAPURI DISTRICT
UTHANGARAI
LEGEND
STATE BOUNDARY
DISTRICT BOUNDARY
BLOCK BOUNDARY
HILLY AREA
DEPTH TO WATER LEVEL (mbgl.)
>2-5
>5-10
0
20
40 km

PLATE - IV

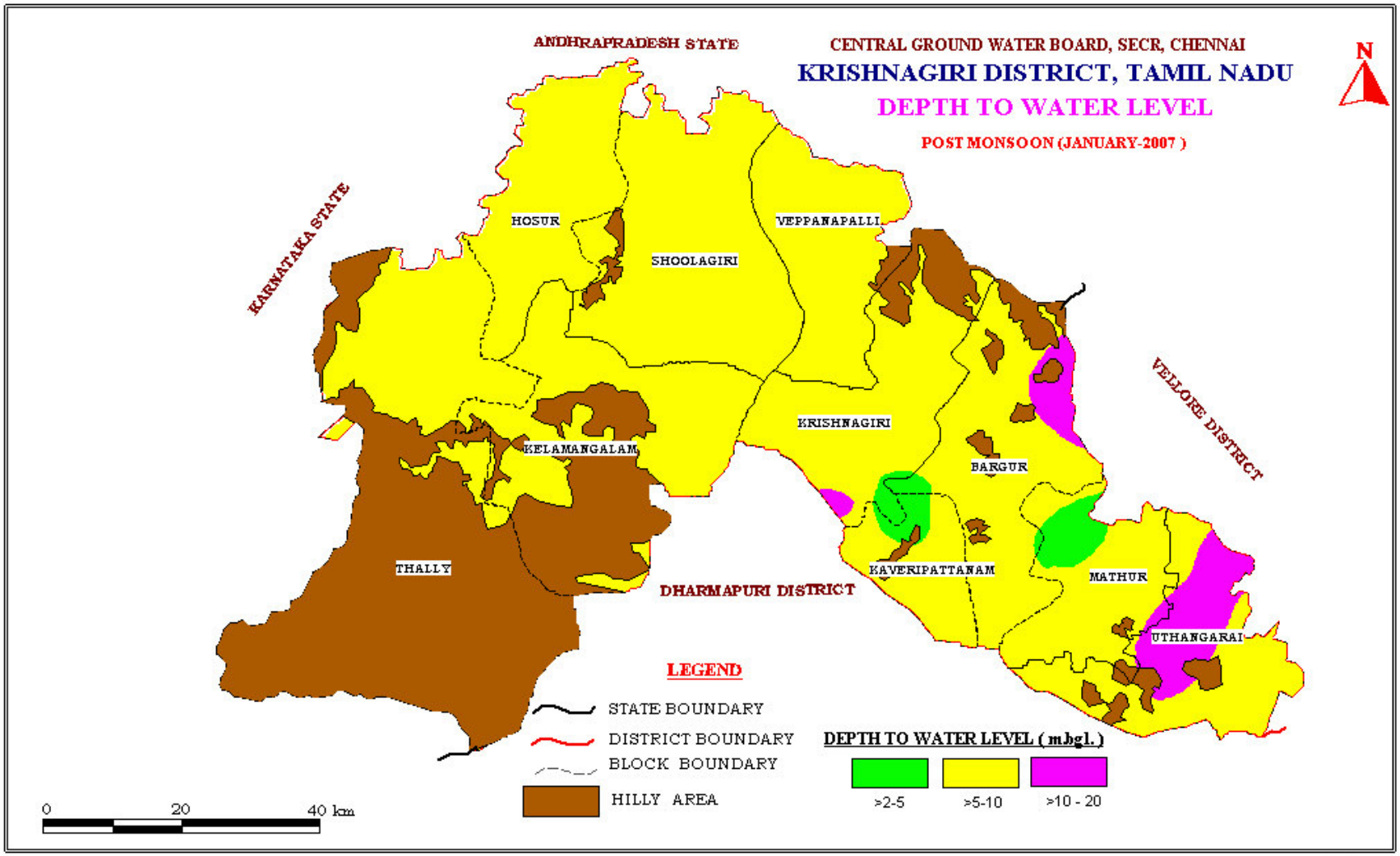

ANDHRAPRADESH STATE
CENTRAL GROUND WATER BOARD, SECR, CHENNAI
KRISHNAGIRI DISTRICT, TAMIL NADU
DEPTH TO WATER LEVEL
POST MONSOON (JANUARY-2007)
N
KARNATAKA STATE
HOSUR
SHOOLAGIRI
VEPPANAPALLI
KRISHNAGIRI
KELAMANGALAM
BARGUR
VELLORE DISTRICT
THALLY
KAVERIPATTANAM
MATHUR
UTHANGARAI
DHARMAPURI DISTRICT
LEGEND
STATE BOUNDARY
DISTRICT BOUNDARY
BLOCK BOUNDARY
HILLY AREA
DEPTH TO WATER LEVEL (mbgl.)
>2-5
>5-10
>10 - 20
0
20
40 km

PLATE - V

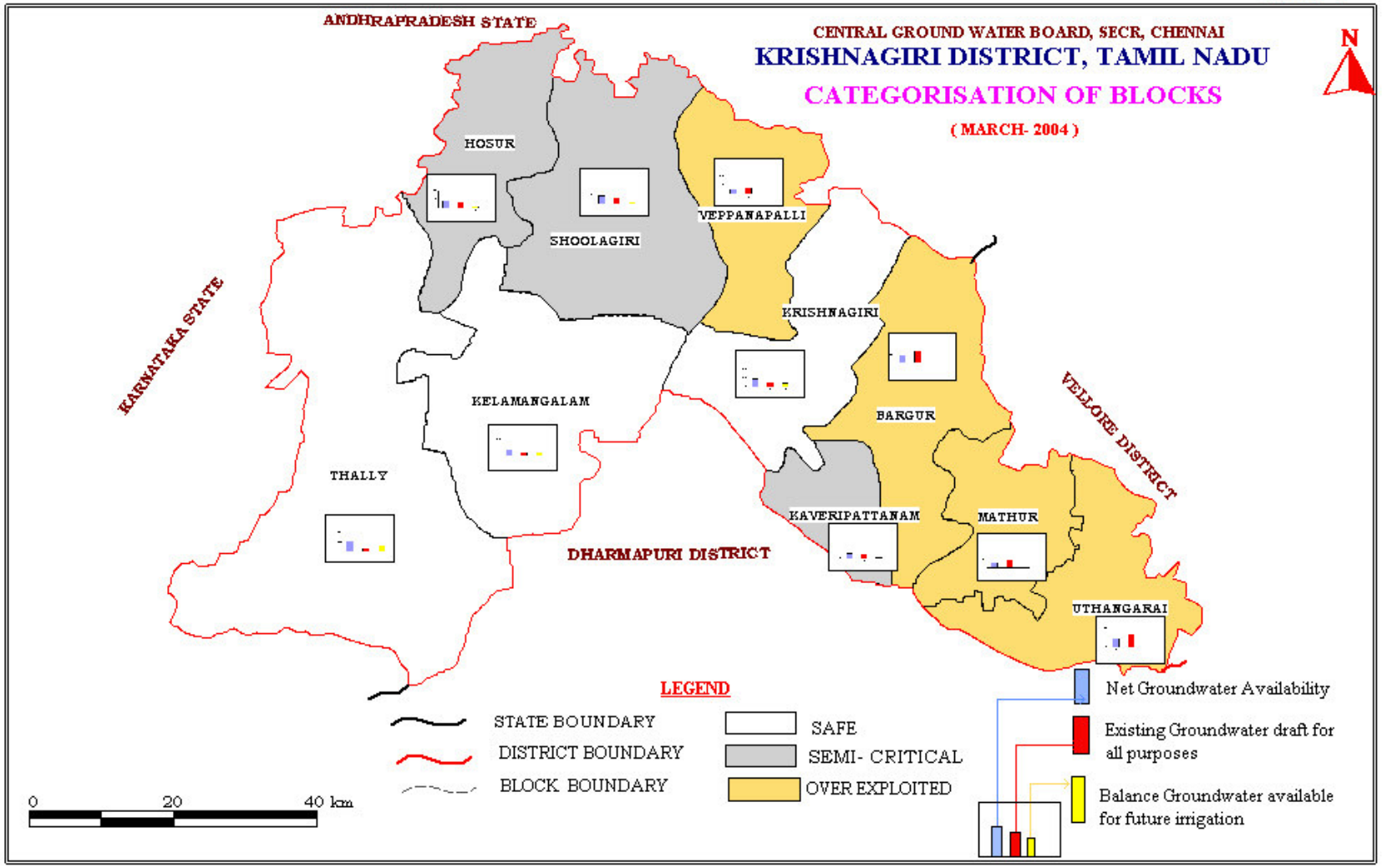
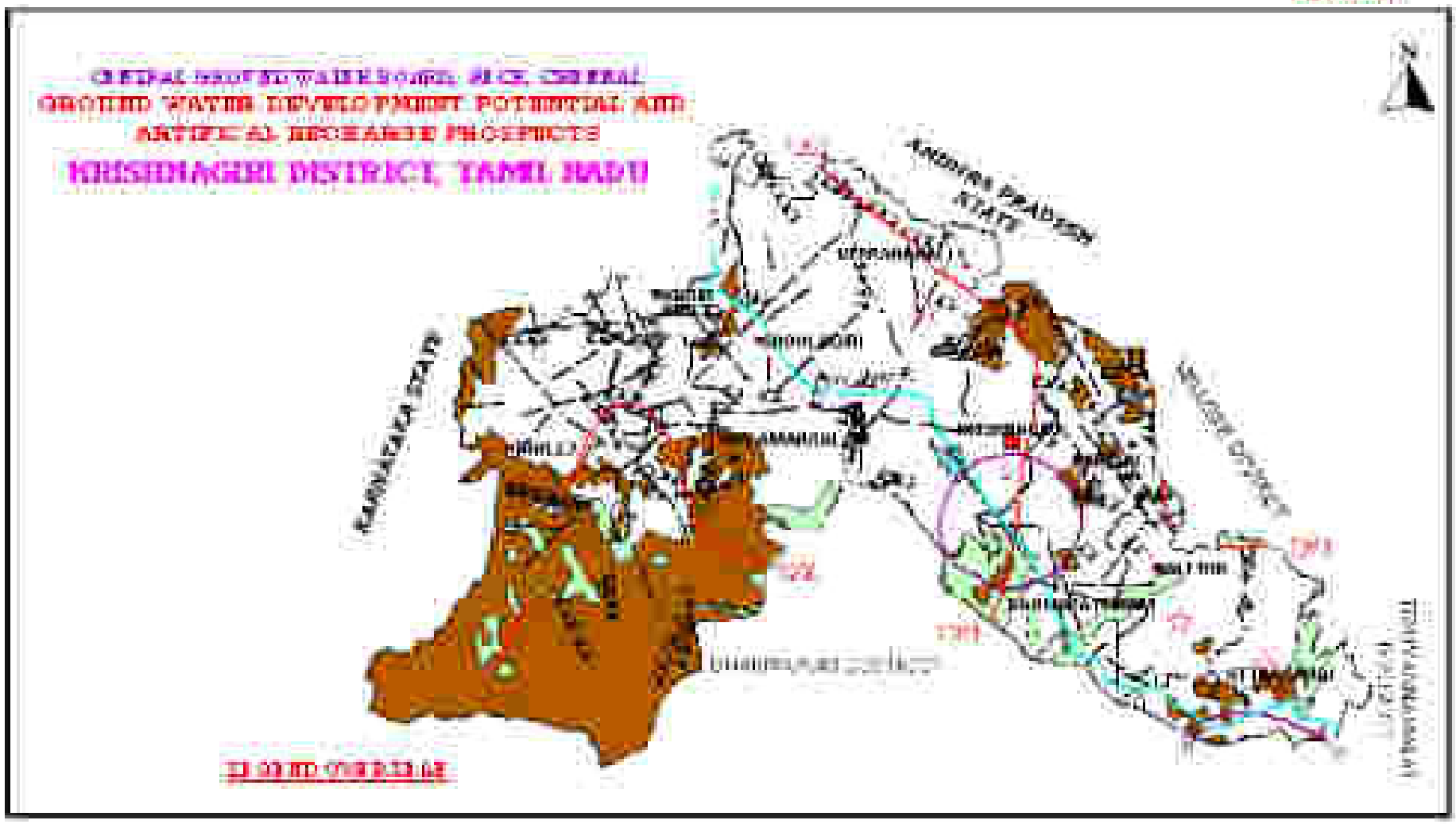

ANDHRAPRADESH STATE
CENTRAL GROUND WATER BOARD, SECR, CHENNAI
KRISHNAGIRI DISTRICT, TAMIL NADU
CATEGORISATION OF BLOCKS
(MARCH- 2004)
N
HOSUR
SHOOLAGIRI
VEPPANAPALLI
KRISHNAGIRI
BARGUR
KELAMANGALAM
THALLY
KAVERIPATTANAM
MATHUR
UTHANGARAI
KARNATAKA STATE
VELLORE DISTRICT
DHARMAPURI DISTRICT
LEGEND
STATE BOUNDARY
DISTRICT BOUNDARY
BLOCK BOUNDARY
SAFE
SEMI- CRITICAL
OVER EXPLOITED
Net Groundwater Availability
Existing Groundwater draft for all purposes
Balance Groundwater available for future irrigation
0
20
40 km

PLATE-VII


KRISHNAGIRI DISTRICT, TAMIL NADU
ANDHRA PRADESH STATE
KARNATAKA STATE
KERALA STATE

LEGEND PLATE -VI

DISTRICT – KRISHNAGIRI

	Wells Feasible	Rigs Suitable	Depth of Well (M)	Discharge (LPM)	Suitable Artificial Recharge Structures
Hard Rock Aquifer	Dug Well Bore Well	Manual DTH	15 – 20 100 - 300	60 - 180	Gully Plugs / Percolation Ponds
Hard Rock Aquifer	Dug Well Bore Well	Manual DTH	15 – 20 100 - 300	180 - 300	Gully Plugs / Recharge Shafts / Percolation Ponds
	District Boundary			Block Boundary	
	District Headquarter			Block Headquarter	
5	Water Level-Pre-Monsoon (Decadal Mean 1993-2002) mbgl		1250	EC (Microsiemens / Cm at 25°C)	
	River			Nitrate Greater Than Maximum Permissible Limit (> 45 mg/l)	
	Fluoride Greater Than Maximum Permissible Limit (1.5 mg/l)			Dyke	
	Hilly Area			Lineament	

OTHER INFORMATION

Geographical Area	5143 Sq. Km
Number Of Blocks	10
Major Drainage	Cauvery & Ponnaiyar
Population (2001)	15,46,700
Average Normal Annual Rainfall (1901- 2004)	750 - 900 mm
Annual Range of Temperature	25 – 37°C
Regional Geology	**Hard rocks:** Gneisses, Granites & Basic Rock Alluvium & & colluvium
Net Ground Water Availability For Future Irrigation	24.25 mcm /year
Stage of Ground Water Development (As on March 2004)	95%
Names of Blocks showing Intensive Ground Water Development	☆ **Over Exploited** - Mathur, Bargur, Uthangarai, & Veppanapalli **Semi-critical** - Hosur, Kevripattinam & Shoolgiri

SAVE WATER

AND

CONSERVE WATER

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