



**GOVERNMENT OF TAMILNADU  
PUBLIC WORKS DEPARTMENT  
WATER RESOURCES ORGANISATION**



**INSTITUTE FOR WATER STUDIES  
ACTIVITIES**

**INSTITUTE FOR WATER STUDIES,  
THARAMANI, CHENNAI – 600 113.**

**INSTITUTE FOR WATER STUDIES**  
**WATER RESOURCES DEPARTMENT**  
**OBJECTIVES AND ACTIVITIES**

The Government of Tamil Nadu in G.O.Ms.No.457/PWD dt.08.04.1974 established the Institute for Water Studies to plan, assess and manage the Water Resources in Tamil Nadu in a scientific manner.

**OBJECTIVES**

- Develop broad principles for planning and management of water resources.
- Assist in the formulation of water management policies.
- Fostering or undertaking research, relating to water planning and policy making.
- Develop training programmes.
- Advice the Government, on specific policy matters referred to it.

It is a multi-disciplinary organisation headed by a Director in the rank of Chief Engineer, WRO with a team of Engineers, Hydro-geologists, Geo-chemists, Geophysicists, Environmental Engineers, Photo-geology and Remote Sensing Scientists, Agro-Economist and Administrative Staff.

**ACTIVITIES**

**1. MICRO LEVEL STUDIES**

The Institute for water studies has grouped the 34 rivers in Tamil Nadu into 17 major river basins. So far, Micro level studies have been completed for 16 river basins except Cauvery river basin. These Micro level study reports have been sent to all Regional Chief Engineers of Water Resources Department and other line departments.

To update the above reports with present data, Reappraisal studies were initiated. Accordingly, Reappraisal studies for Kodaiyar River Basin and Vaippar River Basin have been taken up and completed and published in the presence of Principal Secretary to Government on 20.4.2010 and 29.11.2010 respectively.

Now, Reappraisal study report for Vaigai basin (Micro level) is in progress.

## **2. TAMIL NADU STATE WATER POLICY**

The revised draft of Tamil Nadu State Water Policy 2007 has been prepared in line with the National Water Policy 2002. The Government, after consideration circulated the draft Water Policy to all the departments in the Secretariat. Subsequently, the Government sent the draft policy along with the opinions of the various departments to the Chairman, Cauvery Technical Cell, for offering his views. Accordingly, the Chairman, Cauvery Technical Cell has offered his views and sent the finalised draft Tamil Nadu State Water Policy to the Government vide his letter dated 12.06.2009. Subsequently, the government has returned the draft State Water Policy with remarks. The remarks were attended in consultation with the Chairman CTC. After carrying out the remarks, the draft State Water Policy has been sent to the government, for approval on 04.01.2011 and reminded subsequently. The last reminder was sent to the Government on 06.5.2011. Approval of the Government is awaited.

### **3. STATE WATER RESOURCES MANAGEMENT AGENCY (SWaRMA)**

In the G.O (Ms). No. 58 PW (WR1) Department dated 13.04.2009, the Government sanctioned the establishment of State Water Resources Management Agency (SWaRMA), as a **state-wide focal agency for environmentally and socially sustainable inter-sectoral water management.**

#### **Objectives:**

1. To improve the institutional arrangements and capacity for Sustainable Water Resources Management in the State
2. To develop and manage the water resources of the State in a holistic way in a river basin framework.

The Government have accorded Administrative Sanction vide G.O. (Ms). No. 307 Public Works (WR1) Department, dated 20.10.2010 for a sum of Rs.271 Lakhs towards the establishment of office and to provide amenities and incremental operating cost of SWaRMA for a period of 3 years (from April 2010 to March 2013) under TN IAMWARM Project.

The Government has accorded administrative sanction for the formation of the Executive wing of SWaRMA headed by a Director with seven consultants, fourteen posts by redeployment and five posts on contract basis vide G.O.No.34 PW(F1) dept. dated 2-2-2011 and the Office of SWaRMA is functioning from June 2011 in the campus of Institute for Water Studies, Tharamani, Chennai.

#### **4. REMOTE SENSING AND GIS ACTIVITIES**

Remote Sensing Unit was established during phase I of U.N.D.P. Groundwater project in 1968 under Chief Engineer (Ground Water) of P.W.D. and the same has been attached to IWS in 27-02-1997.

The Remote Sensing Unit was declared by Government of Tamil Nadu as Tamil Nadu State Centre for Remote Sensing Application (vide G.O.Ms.No.117 PW(R2) Dept. dated 18-03-2002 and G.O.Ms.No.8 PW(R2) Dated 6.1.2003)

Presently this Centre is equipped with sophisticated remote sensing and GIS software, hardware and peripherals like

- 1.Erdas Imagine Digital Image Processing software and hardware
- 2.Image analysist and MGE GIS software and hardware
- 3.Geomedia Professional system
- 4.Arc GIS system
- 5.Arc View software
- 6.Map-info and Vertical Mapper software
- 7.Digital Photogrammetry system
- 8.A0 size Scanner
- 9.A0 size Plotter
- 10.A3 size colour laser printer

This Centre has volumeness Remote Sensing data like aerial photographs on different scales(1:50000, 1:25000, 1:2000 & 1:10000), latest Indian Remote Sensing Satellite data for different periods for entire Tamil Nadu in digital and hard copy and other thematic maps.

## **Studies completed**

- Technical feasibility study report for the construction of artificial recharge structures across the Adyar river between Anagaputhur and Mambakkam prepared using Remote Sensing & GIS techniques for Chief Engineer, Chennai Region, WRO, PWD.
- Different thematic maps have been prepared and furnished to State Ground & Surface Water Resources Data Centre, WRO, PWD for the purpose of publication of district wise groundwater profile bulletins (Ford Foundation).
- Under MDPU, a pilot study was carried out in Hanumanadhi and Karuppanadhi watershed of Tamiraparani basin in Shengottai and Tenkasi taluks for the implementation of various project proposals funded by the World Bank.
- Demarcated 67 sub basin boundaries for the first, second, third and fourth year of IAMWARM project and generated 10 thematic maps like drainage, administrative, index, village, geology, geomorphology, landuse, irrigation, soil and categorisation for each sub basins for the preparation of detailed project report.
- Prepared sub basin maps for Cauvery basin for the Cauvery Task Force Committee
- As requested by the Chairman, CTC, Palar basin map covering Karnataka and Andhra Pradesh with anicuts and rainguage stations of Tamil Nadu has been prepared and handed over to Central Water Commission, New Delhi regarding the issue of Inter State water dispute.
- Prepared digital coastal area map of Tamil Nadu (Region wise) from Pulicat lake on the north, down to Muttam in south showing

the locations of river mouths, creeks, mangroves, wet lands, lagoons, estuaries, salt pans, rubble mound walls and groyens using IRS IC & ID Satellite data and SOI topo sheets to prevent tsunami impact.

- Consolidated Irrigation Status Map – 2005 based on AWiFS Remote Sensing data showing all reservoirs and anicuts was prepared and sent to all Regional Chief Engineers of WRD and Cauvery Technical Cell.
- The proposed route for flood carrier channel from Tamiraparani river to Karumeniyar (Cannadian Canal-Chokalingapuram to Sathankulam & Thisayanvilai) have been prepared using Remote Sensing & GIS Techniques for Chief Engineer, Plan Formulation, WRO, PWD.
- Vellar meandering study near Killai for railway line route alignment have been prepared for Southern Railway.
- Identification of lineament /fault zone leads the cause of emerging water spring in the down stream of toe drain of the earthen bund in Senbagathoppu reservoir
- Assessment of changes in groundwater quality and landuse environ in Upper Palar river basin using remote sensing techniques at a cost of Rs.5 lakhs during 1999.
- Identification of favourable zones for groundwater development in the over exploited block of Chengam, in Thiruvannamalai district by Remote Sensing and GIS techniques at a cost of Rs.7 lakhs during 2001.
- Targeting groundwater in deeper zones in Thuringalar minor basin using remote sensing and GIS techniques to augment water

resources to irrigate the ayacuts of poor agriculturists at a cost of Rs.10 lakhs during 2002.

- Identification of favourable potential zones in over exploited block of Thalaivasal of Salem district (Vellar basin) using remote sensing and GIS techniques at a cost of Rs.7.4 lakhs during 2005.
- A concept paper on “Managing floods in Tamil Nadu rivers by arresting run off – groundwater recharges inter basin transfer at a cost of Rs.0.82 lakhs during 2008.

### **Training Imparted to Others**

- Basics of Remote Sensing and GIS training to WRO and CGWB Engineers, sponsored by IMTI, Trichy
- Training on Digital Image Processing Techniques for WRO Engineers sponsored by IMTI, Trichy
- Technical guidance and training in Remote Sensing and GIS for the students of different universities and colleges including 19 Research Scholars, 57 Post graduate Science students, 15 Post Graduate Engineering students and 45 under graduate Engineering students. Apart from this, 60 students were given exposure on Remote Sensing & GIS as part of their implant training.

### **Work in Progress**

1. Preparation of thematic maps for re-appraisal study of vaigai basin like Geology, Geomorphology, Land use, waste land, Lineament, Drainage, Village, Index, water level, Water quality, Geophysical resistivity, Contours and depth of bed rock maps are under progress.



2. As per instruction of Secretary PWD and Engineer-in-Chief & Chief Engineer(GI) the digitized water body maps for entire Tamil Nadu is under progress. As a pilot study the water bodies maps for Kodaiyar basin has been prepared and for the remaining area, a detailed proposal has been sent to Government for Rs.2.50 lakhs.
3. Developing digital database on water resources asset for entire Tamil Nadu on 1:50000 scale as required for Central Water Commission and ISRO, Bangalore for preparation of Water Resources Information System (WRIS). As a nodal agency, the data has been collected from different regional office is being sent to CWC, New Delhi.

## 5. WATER RESOURCES RESEARCH FUND (WRRF) STUDIES

- Under Water Resources Consolidation Project I (WRCP-I) Research studies were taken up in the name of Water Resources Research Fund (WRRF).
- 38 Research Studies have been completed in the year 2004 at Rs. 344 lakhs, out of which **World Bank** reimbursement was @ **Rs.320.73 lakhs**
- As per the suggestion in Staff Appraisal Report (SAR) for 1/3<sup>rd</sup> of the amount reimbursed by the World Bank, (i.e. 1/3<sup>rd</sup> of Rs.320.73 lakhs is **Rs.106,91,166**). Sanction was accorded by the Tamil Nadu Government for Rs.106,91,166 as Matching grant and the same was deposited in State Bank of India, Besant Nagar, Chennai-90 as an interest bearing account.

<b>Matching Grant by State Government Order</b>	<b>Rs. in lakhs</b>
1. GO. Ms. No.64, (WR1) Dept., dt. 14.2.2002	25.00
2. GO. Ms. No. 245, PW (WR1) Dept., dt 29.04.2004	70.70
3. GO. Ms. No. 197, PW (WR1) Dept., dt. 22.07.2005	11.21
<b>Total</b>	<b>Rs. 106.91</b>

*\*G.O 64 and 245 have directed the Chief Engineer & Director, IWS, to open an interest bearing bank account in the name of WRRF and authorized the Chief Engineer & Director, IWS, to operate the WRRF, by way of bank account in SBI, Besant Nagar, Chennai.*

- 37<sup>th</sup> Research Advisory Committee (RAC) meeting conducted on 15.02.2006
- Two studies were selected by the Research Advisory Committee after scrutiny.

<b>Sl. No.</b>	<b>Name of the Study</b>	<b>Name of the Institution</b>	<b>Study Area</b>	<b>Cost (Rs. in lakhs)</b>
1	Study on Flood as a Hazard and Disaster – Proneness, Vulnerability and Risk analysis for Flood Management in Tamil Nadu	Department of Geography, University of Madras, Chennai	North Chennai	<b>4.50</b>
2	Study on Estimation of Transmission Loss in an Irrigation system	Center for Water Resources, Anna University, Chennai-25	Sathanur Irrigation System	<b>6.70</b>

- The **Accountant General during 2005-2006**, has expressed a view, that placing of core fund and utilization of interest thereof through separate bank account is not in order and the interest has to be deposited

and operated under “8443 – Civil Deposits” or similar Government account.

- The Government in letter No.24959/WR1/2007-13 Dated 25.01.2010, have directed that the interest accrued upto 30.9.2009 to the tune of Rs.30,99,382/- may be credited to the following newly opened Head of Account, the utilization of the interest amount for the research activities will be considered only after crediting the interest amount in the following Head of Account and fresh proposal in this matter may be sent after the credit is made.

“8443 - 00 – Civil Deposits – 800 – Other deposits – DV Interest Receipts from Water Resources Research Fund” – (DPC 8443 – 00 – 800 - DV – 000C) (Receipt) - (DPC 8443 – 00 – 800 - DV – 0008) (Out go).

- The accrued interest of Rs.30,99,382/- has been credited in the above Head of Account on 17.2.2010.
- For conducting the studies, the Chief Engineer & Director has sought for the orders of the Government in letter No.151/F2/ IWS/Matching Grant/EE VI/2010 dated 27.07.2010 for withdrawing the above amount of Rs.30.99 lakhs. The Government has been reminded vide This office lr.No.239/IWS/EE VI/WRRF/2010, Dt.06.11.2010.Orders of the Government is awaited.

## **6. BENCH MARKING OF IRRIGATION PROJECTS**

In G.O. Ms. No. 252 Public Works (W2) Department dated 08.08.2008 orders have been issued for constituting the “Core Group on Benchmarking of

Irrigation projects at State level”. For this study the following eight projects were selected.

#### **I) CHENNAI REGION**

- a) Kaveripakkam Tank Irrigation System in Vellore.
- b) Kelavarapalli Reservoir

#### **II) TIRUCHY REGION**

- a) Ponnanaiyar Dam
- b) Kariakoil Reservoir Project

#### **III) MADURAI REGION**

- a) Manjalar Dam
- b) Terur tank was selected instead of Pechiparai and Perunchani dam during the meeting held on 18.11.2010. The data collection for Terur tank is under progress.

#### **IV) POLLACHI REGION**

- a) Gunderipallam Reservoir Project
- b) Varattupallam Reservoir Project

A draft report was prepared and presented in the office of the Engineer-in Chief on 18.11.2010 to the members of the core group of Bench Marking of Irrigation Projects and the concerned field officials. Preparation of final report is under progress

### **7. LIBRARY**

Library facility was created during 1984 in this Institute. Government of Tamil Nadu in G.O.Ms No. 72 /PWD/ dt 25.1.96 accorded sanction for Rs.150.00 lakhs for the Construction of Library building and Computer

Centre at Tharamani Campus. The building with ground floor + 2 floors was constructed. The Computer Centre is now working as full-fledged centre and Library Hall is fully furnished and books are arranged neatly to have easy access. The above building was connected with old building with a Connecting Corridor for easy approach. The building was completed @ a total cost of Rs.191.80 lakhs and revised Administrative sanction was obtained from Government in G.O. Ms No.417/PWD dt.01.07.1998. The building was constructed by the Building Division II, Chennai which is under the control of CE (Buildings).

It is fully equipped with all infrastructure facilities and computerized. This Institute has a good collection of books in various disciplines viz. Agriculture, Coastal, Environmental, Geology, Water Resources Engineering, Groundwater, Remote Sensing, Statistics, ISI Codebooks, and Computer Science etc. including Journals and Technical publications etc. related to Water Resources Engineering and allied fields. At present this library is having **1923 books and 6394 reports**. This library is being fully utilized by the staff of the Institute and WRO. On an average **100** person (**students & Staffs**) from different Universities/Colleges (**Anna University, Madras University, Madras Institute of Development Studies, IIT Madras etc**) visit the library annually for using the data available and refer the reports and books in connection with their research/thesis works.

<b>Sl. No.</b>	<b>Description</b>	<b>No. of Books</b>
1	Agriculture	187
2	Coastal	7
3	Computer Science	336
4	Drought	17
5	Environmental Science	492
6	Fluid Mechanics	8
7	General	96
8	Geochemistry	29
9	Geography	21
10	Geology and Hydrogeology	61
11	Geophysics	16
12	Groundwater	72
13	Hydrology and Water Resources Management	204
14	Irrigation Engineering	72
15	Mathematics and Modelling	25
16	Meteorology	20
17	Photogeology and Remote Sensing	85
18	Public Health Engineering	13
19	Sociology and Planning	12
20	Soils	91
21	Statistics	14
22	Water Laws	22
23	Water Quality	23
<b>Total</b>		<b>1923</b>

## **8. FUTURE STUDIES PROPOSED**

The following are the future studies proposed to be carried out

1. Identification of PWD tanks in each river basins in Tamil Nadu and preparation of attributes to each tanks with GIS environs. So far, the work has been completed for Kodaiyar, Vaippar, Kallar, Gundar, Nambiyar and Tamiraparani basins. Similar work will be carried out for the remaining 11 basins.
2. Reappraisal of river basin-wise micro level studies have been completed for Kodaiyar basin and Vaippar basin. The reports have been released and published to the line departments in March 2010 and November 2010 respectively. For the remaining 14 river basins reappraisal studies will be carried out in future.

The Chief Engineer & Director, Institute for Water Studies is a member in the following Committees.

1. Technical Advisory Committee of IWS – Member Secretary.
2. Research Advisory Committee – Member Secretary.
3. SWaRMA – Member Secretary.
4. Water Utilisation Committee – Member.
5. Technical Sub Committee to Water Utilisation Committee– member.
6. Governing Council of IMTI – Member.
7. Flood Management Programme Monitoring Committee – Member.
8. IAMWARM Project – Member.
9. Monitoring Committee for JNNURM Project Works - Member
10. Visveswaraya Endowment Lecture - Member Secretary.
11. Board of Engineers – Member.
12. Water Shed Management Board – Member.
13. INCID (Indian National Committee on Irrigation and Drainage) Sub  
Committee IV – Chairman.



### 17 RIVER BASINS AND DISTRICTS

S.No	Name of the River Basin	Districts covered
1.	Chennai	Tiruvallur, Chennai, Kancheepuram
2.	Palar	Vellore, Tiruvannamalai, Kancheepuram,
3.	Varahanadhi	Villupuram, Tiruvannamalai, Kancheepuram, Pondicherry
4.	Ponnaiyar	Krishnagiri, Dharmapuri, Vellore, Tiruvannamalai, Villupuram, Cuddalore
5.	Paravanar	Cuddalore
6.	Vellar	Cuddalore, Salem, Villupuram, Namakkal, Trichy, Ariyalur, Perambalur
7.	Cauvery	Nilgris, Salem, Coimbatore , Erode, Namakkal, Karur, Dindigul, Trichy, Ariyalur, Perambalur, Thanjavur, Thiruvarur, Nagapattinam, Tiruppur
8.	Parambikulam Aliyar	Coimbatore
9.	Agniyar	Pudukkottai, Dindigul, Trichy, Thanjavur,
10.	Pambar Kottakkaraiyar	Sivagangai, Madurai, Ramanathapuram, Dindigul, Pudukkottai
11.	Vaigai	Madurai, Sivagangai ,Ramanathapuram, Theni, Dindigul
12.	Gundar	Ramanathapuram Virudhunagar, Madurai, Sivagangai Thoothukudi
13.	Vaippar	Virudhunagar, Madurai, Thoothukudi, Theni Tirunelveli
14.	Kallar	Thoothukudi
15.	Tamiraparani	Tirunelveli , Thoothukudi
16.	Nambiyar	Kanyakumari, Tirunelveli , Thoothukudi
17.	Kodaiyar	Kanyakumari, Tirunelveli

### Staff Strength of Institute for Water Studies

Sl. No.	Designation	Sanctioned Strength
1	Chief Engineer & Director	1
2	Superintending Engineer & Joint Director	1 <sup>#</sup>
3	Joint Director (Geology)	1
4	Joint Director (Agriculture)	1
5	Executive Engineer	6
6	Deputy Director (Geology)	1
7	Deputy Director (Photo geology)	1 <sup>#</sup>
8	Assistant Executive Engineer	13
9	Assistant Director ( Geo Phy)	1
10	Assistant Engineer	11
11	Assistant Geologist	2+2 <sup>#</sup>
12	Assistant Geo-physicist	1
13	Assistant Geo-chemist	2
14	Computer Progammer	1
15	Assistant Computer Progammer	2
16	Junior Draughting officer	1
17	Assistant Draughtsman	1 <sup>#</sup>
18	Lab Assistant	1
19	Administrative Officer	1
20	Assistant Accounts officer	1
21	Superintendent	1
22	Assistant	6
23	Junior Assistant	1
24	Steno Grade - I	1

<b>Sl. No.</b>	<b>Designation</b>	<b>Sanctioned Strength</b>
25	Steno Grade - II	2
26	Steno Grade - III	1
27	Typist	1
28	Record Clerk	1
29	Electrician	1
30	Photographer	1 <sup>#</sup>
31	Office Assistant	2+1 <sup>#</sup>
32	Driver	4
33	Watchman	3
	<b>Total</b>	<b>78</b>

# - Permanent Post

\* - Diverted to o/o the CE, Madurai Region, Madurai.

### **Abstract**

Temporary Post Sanctioned GO (D) No.167 PW(R2) Dept. dt. 24-5-2011	71 Nos
Permanent post GO (D) No.103 PW(R2) Dept. dt. 2-4-2009 G.O.Ms.No.726, PWD dt. 28-10-96 & Govt.Lr.No.63759/R2/96-28 dt. 19-11-2001	7
<b>Total</b>	<b>78</b>
* 1 No. EE post diverted to O/o. CE Madurai Region	1
** 1 No. EE post redeployed to SWaRMA	1
** 1 No. DD(G) post redeployed to SWaRMA G.O.Ms.No.34, PWD(F1) Dept. Dt. 2-2-2011	1
Present Strength	51