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PUBLIC WORKS DEPARTMENT
IRRIGATION

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POLICY NOTE
2015 - 2016

O. PANNEERSELVAM
MINISTER FOR FINANCE AND PUBLIC WORKS

INDEX

Memorable Grand Achievement

Final Order of the Cauvery Water Disputes Tribunal Notified in the Government of India Gazette on 19.02.2013

"…According to me, this can be stated as the grand achievement at a personal level in my life. In my political public life of 30 years, I have satisfaction of accomplishing achievement, only today.

Though many people appreciate me for having achieved many things, I do not consider those events as achievements.

I have deep satisfaction in considering only this, as my grand achievement. This is a grand victory for me, my Government and the farming community of the Cauvery delta…"

Hon'ble Tamil Nadu Chief Minister
Puratchi Thalaivi Amma Avargal

மக்களால் நான்

மக்களுக்காக நான்

Mullai Periyar Dam water level reached 142 Feet on 21.11.2014

"...According to me, the people of Tamil Nadu are my people. That is why I considered this as my personal problem and acted on the Mullai Periyar dam, which is directly linked to improving your life standards, without any delay. This is the Secret of Success. This Victory is Our Victory..."

Hon'ble Tamil Nadu Chief Minister

Puratchi Thalaivi Amma Avargal

PUBLIC WORKS DEPARTMENT

- **Our Ambition is High!**
- **Our Vision is Clear!**
- **Our Victory is Definite!**

- **Hon'ble Tamil Nadu Chief Minister Puratchi Thalaivi Amma Avargal**

INTRODUCTION

வான்நின்று உலகம் வழங்கி வருதலான்
தான்அமிழ்தம் என்றுணரற் பாற்று

(குறள் – 11)

Rainfall is the sustenance of life in the world. This rainfall, therefore, has to be considered as the elixir of life.

Water remains the fundamental requirement for sustenance of life of all living beings in this world and is the elixir of life. "If the water resources are developed, the land resources will prosper" is the golden saying of Hon'ble Tamil Nadu Chief Minister Amma Avargal. That is why the Hon'ble Tamil Nadu Chief Minister Amma Avargal formulates, consolidates and implements various water resources development schemes through the Public Works Department, to develop the water resources and usher in prosperity in the Tamil world.

Tamil Nadu is an agrarian State. The State is predominantly dependent on agricultural farming. Hon'ble Tamil Nadu Chief Minister Amma Avargal is giving special impetus and striving hard for developing the agricultural farming and for ensuring availability of required water for farming at the appropriate time.

The Water Resources Department of the Public Works Department is efficiently implementing various activities as per the instructions, suggestions and effective guidance of the Hon'ble Tamil Nadu Chief Minister Amma Avargal, to improve the livelihood of the agriculturalists and to bring in inclusive growth and prosperity to the State. The initiatives undertaken are efficient maintenance of the existing water resources systems such as reservoirs, anicuts and tanks of the State, creating new irrigation infrastructure for ensuring necessary irrigation facilities and rehabilitating the existing irrigation infrastructure.

PUBLIC WORKS DEPARTMENT
WATER RESOURCES DEPARTMENT

1.0. INTRODUCTION

1.1. Water is the fundamental requirement for the sustenance of life. Agriculture being the predominant occupation of our country, effective utilisation and proper management of the available water resources assume significant importance. Tamil Nadu, located in the tail end of the Indian Peninsula has limited water resources of its own. The effective monsoon for the State is the North East Monsoon, though certain area receives rainfall during the South West Monsoon. The normal annual rainfall of the State is 911.60 mm. The Government is taking all necessary measures to harness, impound and judiciously utilise all the water potential available.The Government is providing special thrust to increase the water use efficiency in

agriculture, industrial development, domestic purposes etc.,

1.2. The Water Resources Department of the Public Works Department is taking up construction, rehabilitation and maintenance of dams, reservoirs, anicuts, checkdams, canal and channel networks, tanks, ponds, artificial ground water recharge structures etc.

Some of the major initiatives undertaken are:

i. The World Bank assisted Dam Rehabilitation and Improvement Project (DRIP).
ii. National Bank for Agriculture and Rural Development (NABARD) assisted Schemes / Works.
iii. Shared Schemes with Government of India such as Jawaharlal Nehru National Urban Renewal Mission (JNNURM) and Repair,

Renovation and Restoration (RRR) of Water Bodies directly linked to agriculture with central assistance.

iv. Asian Development Bank (ADB) assisted Climate Change Adaptation Programme in Cauvery Delta.

v. Cauvery Modernisation Scheme under Accelerated Irrigation Benefits Programme (AIBP).

vi. The World Bank assisted Hydrology Project III.

vii. Desilting of Dams.

viii. Inter-linking of rivers within the State.

Apart from these, various works were completed under the World Bank assisted Irrigated Agriculture Modernisation and Water bodies Restoration and Management (IAMWARM) Project. Under the Grants-in-aid programme of the 13th Finance Commission, Restoration of traditional water

bodies and Coastal Protection works were also recently completed.

1.3. SURFACE WATER POTENTIAL

34 Rivers of the State have been grouped into 17 major River Basins consisting of 127 Sub-Basins. Based on the micro level study under taken in the 17 major river basins in the State, the total Surface Water potential of the State has been re-assessed as 885 TMCft. including 264 TMCft. received from the adjoining States as per agreements, as against the earlier estimation of Surface Water potential of 853 TMCft. In the State, 89 Dams are maintained by Water Resources Department with a total storage capacity of 238.58 TMC ft. Out of the 39,202 tanks in Tamil Nadu, 14,098 major tanks are under the maintenance of the Water Resources Department.

1.4. GROUND WATER POTENTIAL

It has been estimated that about 80% of the available ground water potential is being utilised at present. Out of the total 385 Blocks and Chennai, 139 Blocks have been categorised as Over-exploited, 33 Blocks as Critical, 67 Blocks as Semi-critical, 11 Blocks as Saline / Poor-quality and 136 Blocks as Safe. Construction of structures such as Check dams, Bed dams, sub surface dykes, Recharge Shafts, Percolation Ponds etc., are being carriedout to protect, harness and improve the available ground water potential of the State.

1.5. ORGANISATION ARRANGEMENT

The Engineer-in-Chief (Water Resources Department) and the Engineer-in-Chief (Buildings) are the two technical heads of the Public Works Department. The Chief Engineer (General) is in charge of establishment and administration of

the Department. Presently, the Engineer-in-Chief, WRD is holding the post of Chief Engineer (General). The Water Resources Department of the Public Works Department is functioning on the River-Basin frame work. The State has been divided into four Regions, viz., Chennai, Tiruchirappalli, Madurai and Coimbatore. Each Region is headed by a Chief Engineer, who acts as the Basin Manager of the river basins in their jurisdiction. In addition, there are six functional Chief Engineers and two Directors with specific specialised tasks for the formulation, implementation and management of the Water Resources Development Schemes, acquiring and disseminating ground water and surface water potential data, operation and maintenance, research and studies and impart training.

They are:

i. Plan Formulation.
ii. Design, Research and Construction Support.
iii. Operation and Maintenance.
iv. State Ground and Surface Water Resources Data Centre.
v. Institute for Water Studies.
vi. Irrigation Management Training Institute.
vii. State Water Resources Management Agency. (SWaRMA)
viii. Directorate of Boilers.

1.5.1. PLAN FORMULATION WING

The Plan Formulation wing is responsible for formulation of new schemes by conducting necessary survey and investigation. Designs for all the components of the schemes, based on the field data are being evolved by this Wing. The Detailed Project Report for the schemes are also prepared by this Wing. Apart from this, the proposals for rehabilitation measures of

irrigation infrastructure, Extension, Renovation and Modernisation (ERM) schemes prepared by the Regional Chief Engineers are being scrutinised by this Wing and recommended to Government.

This Wing is responsible for obtaining Government sanction for the Detailed Project Report (DPR) as well as identifying the source of funding. **During the last four years, Administrative Sanction have been accorded for 343 schemes.**

Besides, this Wing provides technical guidance to the field engineers during execution of works. Apart from this, various testing of soil samples for design of foundation, earthern dam etc., and testing of building materials are undertaken by this Wing. In addition, research studies in the field of Civil Engineering are being conducted by this Wing.

1.5.2 DESIGN, RESEARCH AND CONSTRUCTION SUPPORT WING

The **Institute of Hydraulics and Hydrology (IHH)** at Poondi comes under this wing. The activities of IHH are as under:

This Institute is located at Poondi, Tiruvallur District. In this Institute, Model Studies of Hydraulics, Hydrology and coastal structures are carried out. Further, this Institute monitors shore line changes of Tamil Nadu coast and evaluation of coastal protection works.

Watershed Management Board Division, Pollachi is engaged in undertaking sedimentation and watershed management studies in selected reservoirs of Tamil Nadu for arriving up-to-date reduction in storage capacity due to sedimentation.So far, sedimentation studies in 44 Irrigation Reservoirs, 7 Major Tanks, 2 Water supply

Reservoirs and 1 Tourism Reservoir have been carried out and completed. Works are under implementation in other irrigation systems.

In addition, this wing was the designated nodal agency for the works taken up under Grants-in-aid of the 13th Finance Commission, under which the following three components were implemented:

(i) Restoration of Traditional Water bodies.
(ii) Coastal Protection works.
(iii) Water Sector Management.

The proposals for these schemes were scrutinised by a High Level Monitoring Committee and recommended to the Government.

Further, this wing is the nodal agency for all the works taken up under the Centrally shared Repair, Renovation and Restoration (RRR) of water bodies scheme.

1.5.3. OPERATION AND MAINTENANCE WING

This wing primarily collects all the flow data particulars of the dams in the State and furnishes the **Daily Water Report** throughout the year. For this purpose, a Hydro Metric Data (HMD) Cell is being operated round the clock throughout the year. This Cell functions with necessary additional staff to collect the flood related data during the North East Monsoon period, i.e., October - December, every year.

The Dam Safety Directorate functioning under this wing, prepares the health status reports of all the dams in the State (both WRD and TANGEDCO Dams) and furnishes the annual consolidated report to the Central Water Commission, Government of India.

The Public Works Workshop is functioning under this wing. This Workshop is manufacturing,

supplying, erecting, testing, commissioning and maintaining all the embedded parts, shutters and hoisting arrangements of the hydromechanical equipments for the dams in the State.

The State Project Management Unit (SPMU) for DRIP functioning under this wing is the nodal agency for the World Bank aided Dam Rehabilitation and Improvement Project (DRIP) in Tamil Nadu.

1.5.4. STATE GROUND AND SURFACE WATER RESOURCES DATA CENTRE

In order to improve the ground water level and its quality, the State Ground and Surface Water Resources Data Centre (SG&SWRDC) is assessing the ground water potential and quality periodically. This Centre also performs the following activities:

a) **Maintenance of Full Climatic Stations**

To know the inter-relationship between the rainfall, run off and infiltration, various parameters such as rainfall, evaporation, temperature, wind velocity, relative humidity, etc., are being monitored and maintained by this Centre in 45 Full Climatic Stations, selected in all the river basins, having different types of soil characteristics.

b) **Aquifer Mapping and its Management in Tamil Nadu**

Aquifer Mapping and its Management is very essential for the State, since the ground water potential is limited. The aim is to study the 13 major aquifer systems in Tamil Nadu. In the first phase of the study, 9 Aquifer systems covering 17 Districts were selected.

In Zone I, seven Districts, namely, Tiruvallur, Chennai, Kancheepuram, Villupuram, Cuddalore, Vellore and Tiruvannamalai were selected and studies for aquifer identification through mapping and its management are being carried out.

In Zone II, six Districts, namely, Pudukottai, Karur, Krishnagiri, Dharmapuri, Salem and Nagapattinam have been selected.

In Zone III, four Districts, namely, Dindigul, Theni, Madurai and Virudhunagar have been selected.

c) Strengthening of Ground Water Monitoring Network in Tamil Nadu

Since Firka wise assessment of ground water is based on the water level fluctuation, a minimum of three numbers of Piezometers (Observation well) are essential for each Firka. Hence, drilling of new Piezometers are proposed, to

strengthen the Monitoring Network. This study will be taken up for a period of four years from 2015-2016 to 2019-2020. For this purpose, 1,000 bore wells are to be drilled every year at a cost of Rs.4,000 lakh.

d) Data Dissemination

The data collected and generated through the activities of this Centre like Ground Water level, Surface Water quantity, Water quality, Climate, Rainfall, Sub Surface Lithology, etc., were disseminated to the Students, Research Scholars, NGOs and other Line Departments, on cost basis.

1.5.5. INSTITUTE FOR WATER STUDIES

The Institute for Water Studies was established with the objective to plan, access and manage the Water Resources at Micro level of all the River basins in Tamil Nadu. This

Institute has a well developed Remote Sensing Centre in the State.

MICRO LEVEL STUDIES

Tamil Nadu has 34 rivers which have been grouped into 17 Major River basins. So far, Micro level studies have been completed for 16 River basins of Tamil Nadu except Cauvery River basin. To update the above reports with the present data, Reappraisal studies have been initiated since 2010. The Micro level Reappraisal studies for Kodaiyar, Vaippar, Vaigai, Vellar, Palar and Tamirabarani River basins have been completed, reports prepared and sent to all concerned officials for reference.

For 2015-16 the Micro level Reappraisal study for Pennaiyar, Varahanadhi and Paravanar River Basins are taken up and the work is in progress.

REMOTE SENSING AND GIS UNIT

The Remote Sensing Wing of this institute studies the Satellite Imageries, makes necessary interpretation and presents the details to the Water Resources Department and other Departments.

a. Crop Area Assessment in Cauvery River Basin:

Season - wise crop area assessment using temporal Satellite data for the Cauvery basin is being prepared and given to the Cauvery Technical cum Inter State Waters Wing, as and when required.

b. Preparation of Thematic Maps through Satellite Imageries:

Thematic maps are being prepared for Micro level Reappraisal study of Pennaiyar, Varahanadhi and

Paravanar River basins which are essential for Water Resources Management and planning in the basins.

c. Unique coding for WRD tanks/Dams/Canals/Anicut:

Unique coding for all the tanks under the WRD have been completed. Now assigning Unique coding to all Reservoirs / Dams, Anicuts, Checkdams Canals / Channels and Ex – Zameen tanks are taken up during 2015-16.

d. Preparation of sub basin maps:

Sub basin wise maps showing unique codified WRD tanks with their hydrological details have been prepared and sent to all the officials of WRD.

e. Preparation of State Water Policy

Draft State Water Policy prepared by the Institute for Water Studies in tune with the National Water Policy, 2012 is under consideration.

1.5.6. IRRIGATION MANAGEMENT TRAINING INSTITUTE (IMTI)

Tamil Nadu Irrigation Management Training Institute is a premier State Training Institute, functioning at Tiruchirapalli. This Institute conducted various training programmes to the officers related to Irrigated Agriculture in topics such as Participatory Irrigation Management (PIM), Irrigation Water Budgeting, Volumetric Supply of Irrigation Water and Flow Measurement, Water Saving Techniques, Ground Water Development & Management, computer related subjects such as, Basic and Advanced course on

Geographic Information System (GIS) using Quantum GIS and Arc GIS, AutoCAD with AutoLISP and Basic Computer for Ministerial Staff.

Further, unique courses like Disaster Management, Coastal Hydrology and Prevention of sea water intrusion, Dam Safety - Dam Instrumentation, Operation and Maintenance of Irrigation Systems and Formulation, Investigation and Preparation of Detailed Estimate for Irrigation System have been organised to the officers by the IMTI.

Ensuring the Effective Water Management and Maintenance of the Irrigation system, necessary Capacity Building trainings were imparted to the Field Staff of WRD at Action Research Programme unit at Tiruvarur.

Similarly, study tour programmes to other States are being conducted for getting exposure on Water

Management, Modern Techniques, Cropping Pattern, Participatory Irrigation Management which are followed and adopted in those States.

IMTI has organised 592 training programmes in the last 4 years and 8,131 officials from Water Resources Department, Agricultural Engineering, Agriculture and Horticulture departments and 8,585 farmers were trained.

For the year 2015-16, it is planned to conduct 145 training programmes for the officials of Water Resources Department, Agricultural Engineering, Agriculture and Horticulture Departments and farmers.

1.5.7. STATE WATER RESOURCES MANAGEMENT AGENCY (SWaRMA)

SWaRMA, the State wide focal agency functioning since

09.06.2011. This agency, advises the Government for planning water allocation, basin water development and efficient water management.

1.5.8. DIRECTORATE OF BOILERS

As per the Boilers Act, 1923, the Directorate of Boilers is the enforcing authority for the safe operation of the Boilers and to ensure the safety of public life and property. The Directorate of Boilers plays a crucial role in the phenomenal development of Boilers and Boiler Ancillary Industries in the State of Tamil Nadu which is pioneer in the field of Boiler manufacturing, Foundries, Forge Shops, Tubes and Pipes manufacturing units, etc.

The Directorate of Boilers is incharge of implementing the provisions of the Boiler Attendant's Rules, 2011 and Boiler Operation Engineer's Rules, 2011, to ensure that the Boilers used in the user industries are operated by certified

Boiler Attendants or Boiler Operation Engineers, as the case may be. The Directorate of Boilers conducts Examination for issue of Class I and Class II certificate for Boiler Attendants and the certificate of proficiency for Boiler Operation Engineers. The Directorate of Boilers conducts tests to high pressure welders employed in Boiler manufacturing units and Boiler Ancillary Units, Boiler Erectors and Repairers organizations and issues competency certificates to the successful candidates.

The Directorate of Boilers is responsible for detecting and curbing the operation of the unregistered and uncertified Boilers.

The Directorate of Boilers also ensures that the Boiler and its components, piping and its fittings, viz., Valves, Tees, Reducers, Elbows etc., are designed and manufactured as per the provisions of the Indian Boilers Regulations,

1950 by approving the design for the various components and by carrying out inspection at various stages of manufacturing from approving the basic raw materials to the final product. It is also responsible for manufacturing activities in Boiler and its connected pipelines and equipments right from the manufacturing to the user end.

By its efficient functioning, the Directorate of Boilers plays a pivotal role in the industrial growth of the Boilers and Boiler related field in the State of Tamil Nadu.

2.0. HISTORIC ACHIEVEMENTS

(A) MULLAI PERIYAR DAM – HISTORIC JUDGMENT

As a result of the continuous and tireless efforts of the **Hon'ble Chief Minister**, the Supreme Court of India on 07.05.2014, inter alia, ordered that the water level in the Mullai Periyar Dam can be raised to

142 ft., initially, and the balance strengthening works and maintenance works can be undertaken by the Government of Tamil Nadu. In accordance with the Order of the Supreme Court, the Government of India constituted a Supervisory Committee, which inspected the Dam on 17.07.2014 and decided to restore the water level to 142 ft. Following the decision of the Supervisory Committee, the shutters were lowered down on 17.07.2014 itself.

The water level in the Mullai Periyar Dam reached 142 ft. on 21.11.2014 (at 2:00 A.M.) which is a historic event, after almost a span of 35 years. The rights of farmers and the people of Tamil Nadu to store water in the dam initially to 142 ft., have been achieved after a long legal battle due to the persistent and the timely efforts taken by the Government of Tamil Nadu. This

achievement is made possible only because of the persistent efforts and constant guidance of the **Hon'ble Chief Minister**.

(B) NOTIFICATION OF THE FINAL ORDER OF THE CAUVERY WATER DISPUTES TRIBUNAL

The Cauvery Water Disputes Tribunal pronounced its Final Order under Section 5(2) of the Inter-State River Water Disputes Act, 1956, on 05.02.2007. In order to implement it, this Order should be notified by the Central Government in its Official Gazette.

As a result of the strenuous efforts taken by the Hon'ble Chief Minister and the petitions filed in the Supreme Court, the Government of India notified the Final Order of the Cauvery Water Disputes Tribunal in its Official Gazette on 19.02.2013. Because of this, the livelihood of the Cauvery Delta farmers and the

rights of Tamil Nadu are established.

3.0. MEMORABLE ACHIEVEMENTS

3.1. SCHEMES INAUGURATED BY THE HON'BLE CHIEF MINISTER THROUGH VIDEO CONFERENCING ON 08.06.2015

Various irrigation improvement schemes are under implementation to improve the agriculture which is the basis of economic development of the nation, to satisfy the drinking water requirements of the people and to effectively store the available water resources avoiding wastage.

Hon'ble Chief Minister inaugurated on 08.06.2015, through Video Conferencing, the newly constructed Check dam across Amaravathy river in Dharapuram by the Public Works Department, at an estimated cost of Rs.760.37 lakh.

In addition, the following schemes, comprising of a High Level Bridge,

Check dams, Bed dams, Sub-surface Dyke, Supply Channels, Office buildings and Quarters at an estimated cost of Rs.9,074.77 lakh were also inaugurated.

Sl. No.	Name of the Scheme	District	Estimate (Rs. in lakh)
1	Construction of Bridge at Ambalavarkattalai - Sundakudi Road in Km 3/2 across Marudhaiyar River (Km 51/0) in Ariyalur Taluk of Ariyalur District.	Ariyalur	1,000.00
2	Construction of Checkdam across Gadilam River near Koothapakkam Village in Cuddalore Taluk of Cuddalore District.	Cuddalore	1,624.05
3	Construction of Checkdam across Naganjiyar River near Javathupattipudur Village of Oddanchathram Taluk in Dindigul District.	Dindigul	110.90
4	Construction of Checkdam across Kodaganar river near Thirukoornam Village of Vedasandur Taluk in Dindigul District.	Dindigul	410.00

5	Construction of Check Dam across Amaravathy River near Rajapuram Village in Karur District.	Karur	286.00
6	Construction of Check Dam across Vaigai River near Kunappanendal Village below Parthibanur Regulator in Paramakudi taluk of Ramanathapuram District.	Ramanatha puram	1,950.00
7	Construction of Bed Dam across Vaigai River near Valasai Village to feed Lower Nattarkal and 16 benefited tanks in Bogalur block of Ramanathapuram District.	Ramanatha puram	1,986.00
8	Construction of Check Dam across Palar River near Muraiyur village in Thiruppathur Taluk of Sivagangai District.	Sivagangai	145.50
9	Construction of Check dam across Kottagudi River near Kombuthooki Ayyanar kovil near Kottagudi village in Theniyar sub Basin in Theni District.	Theni	70.93

10	Construction of Check dam across Kottagudi River near Sannasipuram hamlet of Anaikkaraipatti village in Theniyar sub Basin in Theni District.	Theni	101.37
11	Construction of Check dam across Vaigai River near Ammachiyapuram village in Upper Vaigai sub Basin in Theni District.	Theni	229.23
12	Construction of Check Dam across Amaravathy River near Salaithurai Village in Tiruppur District.	Tiruppur	418.70
13	Construction of sub - surface Dyke across Koundanya Nadhi at Seevoor Village in Gudiyatham Taluk of Vellore District.	Vellore	384.00
14	Rehabilitation of Chakkilichikulam tank and Nalldiaichery tank supply channel from Duraisamypuram anicut in Duraisamypuram village in Upper Vaigai sub basin in Theni District.	Theni	297.09
15	Construction of Section office Building at Anthiyur in Erode District.	Erode	7.00

16	Construction of Section office Building at Sathyamangalam in Erode District.	Erode	7.00
17	Construction of Sub Division Office with Section Officers for Planning and Design Sub Division at Nagercoil in Kanniyakumari District.	Kanniya kumari	27.00
18	Construction of Section officers Quarters at Amaravathi Nagar in Udumalpet Taluk of Tiruppur District.	Tiruppur	13.00
19	Construction of Section office Building at Amaravathi Nagar in Udumalpet Taluk of Tiruppur District.	Tiruppur	7.00
	Total		**9,074.77**

3.2. TAMIL NADU WATER RESOURCES CONSOLIDATION PROJECT (TNWRCP)

The Tamil Nadu Water Resources Consolidation Project (TNWRCP) was initiated by the **Hon'ble Chief Minister**. This Project was implemented during 1995 to 2004.

The estimated project cost was Rs.1,14,340 lakh and the project was completed with an actual expenditure of Rs.1,08,300 lakh upto 30th September 2004. The Primary objectives of the Project were:

(i) to introduce Water Resources Planning in river basins across all users of water.

(ii) to improve agricultural productivity through modernization of irrigation systems, upgraded water management and farmers participation.

(iii) to assure sustainability of water infrastructure and the environment.

(iv) to improve the institutional and technical capability for managing the State's water resources.

The objectives of the Project were achieved by implementing the following components:

(i) System Improvement and Farmers Turnover (SIFT).
(ii) Scheme completion.
(iii) Water planning, environmental management and research.
(iv) Institutional Strengthening.
(v) Land Acquistion and Economic Rehabilitation (LAER).
(vi) Irrigated Agriculture Intensification Programme (IAIP) to improve productivity of water in the project areas and to promote intensification and diversification of agriculture.
(vii) Rehabilitation of 620 Rain fed tanks.
(viii) Completion of construction of 9 Dam schemes.

Achievements under the Project

The Project was designed to improve the irrigation, distribution network and bringing wide ranging reforms in terms of planning, management and related institutional capacity.

The major achievements are:-

(i) Rehabilitation of 16 irrigation systems and 25 minor schemes consisting of 284 packages were taken up and completed.
- Under SIFT, 2,35,616 acres of land is stabilized and 1,48,840 acres of land is the gap bridged by providing irrigation;
- crop yield increased from 19% to 28% for different field / horticulture crops;
- net income increased from 28% to 35%.

Due to the implementation of the project, 6,36,499 farm

families of 2.17 acre (0.88 hectare) average farm holding size are benefited.

Rehabilitation of 620 rain fed tanks in Vaigai (81), Thamiraparani (77) and Palar (462) river basins were completed. 620 tanks are rehabilitated, 1,53,846 acres of ayacut is stabilized (100% achievement) and 30,971 acres of ayacut gap is bridged, (98% achievement) benefitting 85,028 farm families.

(ii) Following 9 schemes started before the Project were identified and completed under Scheme Completion Component (SCC):

Adavinainarkoil, Gridhumal II, Kodumudiyar, Mordhana, Nambiyar, Poigaiyar, Rajathopekanar, Sothuparai and Vadakku Pachayar.

- Irrigated command area increased by 37,658 acre;
- cropping intensity increased to 191%;
- crop yields increased from 23% to 40% for different field/ horticulture crops;
- net income increased from 36% to 55% for different field / horticulture crops.
- With the average farm holding size of 2.17 acre (0.88 hectare) for the WRCP area, 17,325 farm families are benefited under SCC.

(iii) In addition, 912 Minimum Rehabilitation Programme (MRP) works were completed at an estimated cost of Rs. 5,500 lakh in which 694 works each costing upto Rs.7 lakh were entrusted to the

erstwhile Farmers' Councils. The works executed by the Farmers' Councils were appreciated by the World Bank.

(iv) The Tamil Nadu Farmers' Management of Irrigation Systems (TNFMIS) Act-2000 was enacted and brought into force with effect from 01.10.2002. Rules, 2002, for the Act and Election Rules, 2003, were also framed and implemented.

(v) Election was held in 2004 to constitute 1,566 Water Users' Associations (WUA) in the WRCP area. There was a small but significant participation of women with 30 women Presidents of WUAs and 208 women Territorial Constitutency (TC) members. About 20% of land holding WUA members were women.

(vi) Irrigation Management Training Institute (IMTI) trained 1,552 WUA Presidents, 7,704 TC members and about 1,000 Junior Level Officers of the WRD.

(vii) State Environmental Planning Framework has been developed.

(viii) River Basin Management and Development Boards, Basin Management Committees and a common Technical Secretariat with 13 experts to support the Committee were formed for Palar and Thamiraparani River basins, **first of its kind in South Asia**.

(ix) Micro level water planning in all the river basins of the State (except Cauvery basin) were taken up.

(x) Staff trained by the project includes 18,211 from WRD, 1,725 from Department of Agriculture (DoA), 4,997 from the Revenue Department. 13,931 farmers and 658 other officials received training. In addition, 10,700 farmers and 400 field staff were trained under the IAIP. 150 adaptive research trials and 45 agricultural extension campaigns were also completed.

(xi) Works carried over from the World Bank assisted Dam Safety Project at Vidur, Sathanur, Gomukhinadhi dams, Sethiathope Anicut and additional works at Wellington Reservoir have been completed.

By implementing this project, with the loan assistance of World Bank, the irrigation infrastructure and the Systems were upgraded,

modernized and in addition, participation of farmers in the water management was ensured by the Government.

Under WRCP, the concept of Integrated Water Resources Management (IWRM) was implemented on pilot basis in the Hanumanadhi Sub Basin of Chittar Basin. All the development activities of the line departments were implemented. This attempt paved the way for the recently completed Irrigated Agriculture Modernisation and Water-bodies Restoration and Management **(IAMWARM)** Project.

3.3. Irrigated Agriculture Modernisation and Water-bodies Restoration and Management (IAMWARM) Project

As a follow on project to the successfully completed Water Resources Consolidation Project (WRCP), the Irrigated Agriculture Modernisation and Water-bodies

Restoration and Management (IAMWARM) Project was conceived by the **Hon'ble Chief Minister** in the year **2005**. A Multi Disciplinary Project Unit (MDPU) was formed on 01.12.2005. The Project Steering Committee was formed on 13.12.2005. This project is aimed to modernize the irrigation systems in each basin and provide new growth momentum to the farm sector. The revised outlay of the project is Rs.2,82,093 lakh. The project has been completed in June 2015.

3.4. Dam Rehabilitation and Improvement Project (DRIP)

Under the dynamic vision of the **Hon'ble Chief Minister**, the Dam Rehabilitation and Improvement Project has been conceived to protect and improve the dams in the State. The Project agreement with the World Bank was signed on **21.12.2011**. Tamil Nadu is one of the States in India having significant number of dams and there is a

constant need to strengthen and maintain the dams to ensure that dam structures and systems are properly maintained by regular monitoring and rehabilitation. Keeping this in view, the Dam Rehabilitation and Improvement Project with the World Bank assistance is under implementation at a total cost of Rs.74,549 lakh. Tamil Nadu is one among the four States selected by the World Bank for participation in this project. The funding pattern between the World Bank and the State is in the ratio of 80:20.

Three organizations, viz, Water Resources Department (WRD), Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO) and Agricultural Engineering Department (AED) are participating in this project.

Under this project, rehabilitation works are proposed in 107 dams, which consist 69 WRD dams

(i.e 64 dams + 4 drinking water reservoirs + 1 Lower Anicut) and 38 TANGEDCO dams. In addition, Catchment area treatment works in two reservoirs namely, Krishnagiri and Kundhapalam are being taken up by Agricultural Engineering Department.

Department-wise cost Distribution

Sl. No.	Department	US $ in million	Rs. in lakh
a.	Water Resources	97.91	46,994
b.	Agricultural Engineering	3.21	1,541
c.	Tamil Nadu Generation and Distribution Corporation Ltd. (TANGEDCO)	54.19	26,014
	Total	**155.31**	**74,549**

The three main components of the Project are:

(a) Rehabilitation and Improvement of Dams and associated appurtenances.
(b) Dam Safety Institutional Strengthening.
(c) Establishment of State Project Management Unit.

Present status of Phase I dams

Out of 11 WRD Phase I dams, civil works have been completed in 5 dams namely Nambiyar, Adavinainarkoil, VadakkuPachaiyar, Kodumudiyar and Poigaiyar. Works in 5 dams namely Mordhana, Siddhamalli, Gomukhinadhi, Kodaganar and Vidur are in progress. Work in Manimuthar Dam will commence shortly.

Other than Phase I, 58 WRD Dams

For the remaining 58 WRD dams (other than Phase I), Administrative Sanction has been accorded for 11 dams, out of which works have commenced in 6 dams and work in 5 dams will commence shortly.

4.0. ACHIEVEMENTS ON IRRIGATION INFRASTRUCTURE DURING LAST FOUR YEARS

Water is an essential commodity for sustenance of all the living beings and at the same time, it is an important component for almost all developmental activities. Apparently, various schemes have been taken up by the Government for implementation, since time immemorial for the development of water resources for beneficial use of the society. With the available limited water resources and uncertainity in the monsoon rainfall in the State, where the maximum

irrigation potential has been created and utilised, the distribution of water amongst various sectors has been a challenging one, though there has been appreciable development in the areas of providing drinking water supply and other uses. However, the ever growing population, urbanization and industrialization have led to considerable increase in demand of water for various purposes viz., irrigation, domestic needs, industrial requirements, etc.

Various projects for utilization of surface water as well as ground water resources have been undertaken from time to time. However, the over exploitation of the resource affects the physical sustainability, and there is decline in water table in some areas. Further, the developmental activities for utilization of water resources by the industrial sector coupled with urbanization have resulted in

pollution of both surface water as well as ground water. In addition, the utilization of the created facilities is greatly affected by relatively low water use efficiency and increasing gap between the created irrigation potential and the utilized irrigation potential.

In order to mitigate such scenario, the Water Resources Department has improved many irrigation infrastructure facilities and has implemented many development schemes during the past four years. In addition, the Dam Rehabilitation and Improvement Project (DRIP), Flood Mitigation Schemes, Coastal Protection Schemes, Ground Water Artificial Recharge Schemes and Climate change Adaptation Programme in the Cauvery Delta are under implementation.

These works are being implemented with the State Funds, Centre-State shared schemes, Grants-in-aid of the 13th Finance Commission,

National Bank for Agriculture and Rural Development (NABARD), World Bank and Asian Development Bank (ADB) loan assistance.

Details of the completed and ongoing works Augmenting the Chennai City drinking water supply needs and formation of new Reservoirs

Formation of 3 New Reservoirs in the districts of Tiruvallur, Perambalur and Thoothukudi at an estimated cost of Rs.45,807 lakh is under implementation as mentioned below:

(a) Hon'ble Chief Minister ordered formation of a new reservoir at Kannankottai Village, Tiruvallur District, by combining two tanks viz., Kannankottai Hissa Rajaneri tank and Thervaikandigai tank. This is the first reservoir being constructed since independence

to cater to the drinking Water Supply needs of Chennai City.

Formation of the Kannankottai and Thervaikandigai Reservoir at an estimated cost of Rs.33,000 lakh is under implementation. This reservoir would facilitate storing of about 1 TMC ft., of water in 2 fillings.

Salient Features of this project:

- Forming a new Reservoir by combining Kannankottai and Thervaikandigai big tanks, by an earthern bund to a length of 7.15 km.
- Forming off-take canal from Kandaleru - Poondi canal at LS 2,200 m to a length of 8,300 m to convey Krishna water and store it in the new Reservoir.

- Providing assured irrigation facilities to the existing ayacut.
- The total requirement of lands for this scheme is 1,485.16 acre which includes 800.65 acre Patta lands, 629.92 acre Poramboke lands and 54.59 acre Reserve Forest lands.
- All patta lands and Poromboke lands required for this scheme are being acquired. For acquiring forest land, Central Government's in-principle approval for Stage I & II clearance has been obtained and works are in progress.
- Excavation of canal, for a length of 6.15 km, out of total length of 8.3 km is in progress. Formation of new bund for a length of 5.45 km, out of total length of 7.15 km is in progress. Other cross masonry works such as Inlet, Drop cum regulator, Bridges etc., in Government Poramboke lands

and acquired patta lands are in progress.

At this stage, measures are being taken to complete all works to store the ensuing monsoon flows.

(b) New Reservoir across Marudaiyar river near Kottarai Village in Alathur Taluk of Perambalur District

The Marudaiyar River is a tributary of Coleroon River and originates from the Pachamalai hills near Thumbaranpatty Village of Perambalur District. The river receives supply during both the monsoon periods.

The agriculture practices in the area are almost monsoon dependent and the monsoon in the area has not been much dependable. The area also lies in the over exploited zone in

respect of ground water potential. Hence, this scheme has been formulated to provide assured supply to the dry lands in this area.

The Marudaiyar Reservoir scheme is to be constructed across the River Marudaiyar at an estimated cost of Rs.10,800 lakh. This scheme would facilitate storing of 211.58 M.Cft., of water and it is proposed to yield an annual storage of 423.16 M.Cft., in two fillings. By implementing this scheme, a total new extent of 4,194 acre of dry lands will be brought under cultivation.

Administative Sanction for Rs.2,327.30 lakh has been accorded initially for this scheme in which Rs.65.50 lakh is for conducting the survey and detailed investigation and Rs.2,261.80 lakh for land acquisition cost.

As per the revised alignment, an extent of 921.64 acre of Patta dry lands and 222.94 acre of Poramboke lands are to be acquired for this scheme. Action is being taken to acquire the patta lands through private negotitation. About 90% of the pattadhars have given their consent letters so far. Soil investigation work has been completed. The Design and Drawings for earthen embankment and spillway portions have been finalised. The Design and Drawings for shutters and supply channels are being finalised and Detailed Project Report is under preparation.

(c) Hon'ble Chief Minister, announced during the Collectors' Conference – 2011 for **Upgradation of Peikulam, Pottaikulam and Korampallam tank** into

Reservoirs in Thoothukudi District at a cost of Rs.2,007 lakh.

The Srivaikundam Anicut is the last anicut in the Thamiraparani river system. The Peikulam, Pottaikulam and Korampallam tanks are the tail end tanks of the North Main Channel taking off from the Srivaikundam Anicut. These tanks also receive supply from drainage courses resulting into deposition of huge quantity of clay, thereby reducing the storage capacity of these tanks. By implementation of this scheme, an ayacut of 5,927 acre will be benefited. This scheme is nearing completion.

4.1. Inter-Linking of Rivers in the State

The uncertainity of occurrence of rainfall marked by prolonged dry

spells and fluctuation in seasonal and annual rainfall are major concerns of the State. Regional variations in the rainfall lead to situations when some parts of the State do not have enough water even for raising a single crop. On the contrary, excess rainfall occurring in some parts of the State creates problems due to floods.

By inter-linking of rivers, vast amount of land areas which will not otherwise be irrigated and are unusable for agriculture, can become fertile. During heavy rainfall seasons, some areas experience heavy floods while other areas experience drought-like situation. By networking rivers, this situation can be greatly avoided by channelising excess water to the areas that are not getting adequate rainfall. Further, this would prevent flow of large quantities of surplus water into the sea.

With these objectives, the Government is giving priority for inter-linking of rivers within the State. Under the scheme of inter-linking of rivers within the State, one scheme in Karur District has been completed at an estimated cost of Rs.25,445 lakh.

Another scheme is in progress in the districts of Tirunelveli and Thoothukudi at an estimated cost of Rs.36,900 lakh to benefit an ayacut of 56,931.84 acre.

The details of these schemes are as follows:

4.1.1. Construction of Barrage across River Cauvery in Mayanur Village of Krishnarayapuram Taluk in Karur District

A new barrage has been constructed across Cauvery River at 250 metre downstream of existing Kattalai bed regulator at Mayanur Village in Krishnarayapuram Taluk of Karur

District at an estimated cost of Rs.25,445 lakh.

The new barrage was inaugurated by the Hon'ble Chief Minister on 25.06.2014.

The total length of the barrage is 1,230 m with a storage depth of 5.10 m. It has 86 number of vents and 12 scour vents capable of discharging 4,63,000 cusecs. Works to a value of Rs.16,250 lakh were carried out during the last four years alone in this scheme.

Benefits

- Improvement and better water regulation to the 4 off-take canals namely South Bank canal, Kattalai High Level canal, New Kattalai High Level canal and North Bank canal have been ensured benefiting an ayacut of 1,01,312 acres. Besides, Well irrigation is developed by recharging.

- Storage of water to a height of 5.10m at the regulator impounded 1.05 TMC ft., of water. The afflux created for a distance of about 12 km upstream of the regulator has improved the ground water potential in the nearby areas during non-irrigation period.
- The Two Lane Bridge which is an allied structure of the Barrage has reduced a considerable travel distance of about 45 km between the Villages situated in the Left and Right flanks of the river.
- This scheme would facilitate diversion of about 5.40 TMC ft., of surplus water of Cauvery through the proposed link canal for inter linking the Rivers in the State viz. Agniyaru, South Vellar, Manimuthar, Vaigai and Gundar.

4.1.2. Linking of Tamiraparani, Karumeniyar and Nambiyar Rivers in Tirunelveli and Thoothukudi Districts

- The Tamiraparani River system is the only river system in the State with surface flow almost throughout the year. The catchment of the river and the reservoirs in the system receive copious rainfall during South West and North East monsoons. The average surplus flow over a period of 75 years has been estimated as 13.758 TMC ft., in Tamiraparani River. The surplus flow during the year 2014 amounted to 17.484 TMC ft. On the contrary, the Sathankulam and Thisaiyanvilai in Tirunelveli and Thoothukudi Districts are drought prone areas. It is **proposed to utilize 2.765 TMC ft.,** of water out of 13.758 TMC ft., of water which

goes to sea as surplus water from Tamiraparani river.

- There are 8 anicuts in the Tamiraparani river system. The Kannadian anicut is the third anicut from which the Kannadian canal is taking off fulfilling the irrigation needs under the anicut.

- Formation of a Flood Carrier Canal from the Kannadian Canal to drought prone areas of Sathankulam and Thisaiyanvilai by interlinking Tamiraparani, Karumeniyar and Nambiyar rivers in Tirunelveli and Thoothukudi Districts, at a cost of Rs.36,900 lakh is in progress.

- **Salient features of the scheme**
  - Improvements to the existing Kannadian Anicut.
  - Widening the existing Kannadian Canal from 0 km

to 6.5 km to increase the carrying capacity from 480 cusecs to 3,680 cusecs.

* Formation of a new canal for a length of from LS 6.5 km to 73 km Kannadian canal.
* Construction of weir across Pachaiyar River.
* Formation of percolation pond (2000m x 200m) at M.L.Theri.
* Excavation of link canal and supply channels.
* Excavation of 21 feeder canals to feed 252 tanks.
* Construction of 2 check dams across Karumeniyar.
* Construction of 3 Railway bridges and a 6 lane road bridge.
* Construction of 452 cross mansonry works including Railway and Road bridges.

- By implementing this Scheme, an extent of 56,931.84 acre of land will be benefited including 42,012.86 acre of new ayacut.

The ground water level in the nearby 5,220 Wells will also be increased. 50 Villages will be benefited by this scheme.

The Project was sanctioned at an estimated cost of Rs.36,900 lakh for implementation in 4 stages in anticipation of Accelerated Irrigation Benefits Programme (AIBP) assistance. The proposal has been cleared by the twelve Directorates of Central Water Commission. The Environmental clearance from the Ministry of Environment and Forest, New Delhi has been obtained on 28.05.2015.

The revised cost of the project for Rs.872.54 crores as per Schedule of rates 2014 -15 has been finalized by the Director, Project Appraisal (South) Directorate, Central Water Commission, New Delhi. The revised cost appraisal has been approved by the Technical Advisory Committee of Central Water Commission during

the meeting held on 16.07.15 for availing the grant under AIBP.

Works in stage I and II are in progress. Administrative Sanction has been accorded for Land acquisition for stages III and IV. Out of a total expenditure of Rs.20,859 lakh for Phase I and II, expenditure incurred during 2011-15 is Rs.11,088 lakh.

4.2. Artificial Recharge Structures

The artificial recharge to ground water aims at augmentation of ground water reservoir by modifying the natural movement of surface water utilizing suitable civil construction techniques. Artificial recharge techniques normally address the issues viz., enhancing the sustainable yield in areas where over-development has depleted the aquifer, conservation and storage of excess surface water for future requirements, improve the quality of existing ground water through

dilution, removal of bacteriological and other impurities from sewage and waste water so that water is suitable for re-use. The very essentiality of artificial recharge of ground water is to enrich the aquifer.

The sub-surface reservoirs are technically feasible alternatives for storing surplus monsoon run off. The sub-surface reservoirs can store substantial quantity of water. The structures required for recharging ground water reservoirs are of small dimensions and cost effective, such as, check dams, percolation ponds, surface spreading basins, pits, sub-surface dykes, recharge shafts/wells etc.,

4.2.1. Construction of Recharge Shafts announced by the Hon'ble Chief Minister

Hon'ble Chief Minister announced during the Collectors' Conference 2012, construction of recharge shafts at an estimated cost of

Rs.2,000 lakh in Tiruvarur District. Accordingly, 1,335 artificial recharge shafts in Cauvery and Vennar sub-basins of Tiruvarur District were constructed.

4.2.2. Artificial Recharge Structures under MPARS

The Master Plan Artificial Recharge Scheme (MPARS) was implemented at an estimated cost of Rs.55,000 lakh, to replenish the ground water resource in a systematic manner. In this scheme, Check dams and recharge shafts have been constructed by the Water Resources Department in the rivers. Small Check dams across streams, nullahs and percolation ponds have been constructed by the line departments viz., Tamil Nadu Water Supply and Drainage Board, Agricultural Engineering Department and Forest Department.

During the past four years, the Water Resources Department has constructed 213 check dams,

2 diaphragm walls, 5 grade walls, 29 percolation ponds, 1 bed dam and 6 sub-surface dykes across the rivers at an estimated cost of Rs.15,838 lakh covering 28 Districts of the State viz., Ariyalur, Coimbatore, Erode, Cuddalore, Dharmapuri, Dindigul, Krishnagiri, Madurai, Nagapattinam, Namakkal, The Nilgiris, Perambalur, Karur, Pudukottai, Salem, Sivagangai, Thanjavur, Theni, Thoothukudi, Tirunelveli, Tiruppur, Tiruvallur, Tiruvannamalai, Vellore, Tiruvarur, Tiruchirapalli, Villupuram and Virudhunagar. In addition, 266 recharge shafts at an estimated cost of Rs.566 lakh have been installed in the river beds of the districts of Dharmapuri, Krishnagiri, Sivagangai, Tiruvarur and Thanjavur. The ground water quality and levels in the vicinity of the constructed structures are being continuously monitored by taking measurements from the designated gauge Wells. **There has been**

remarkable rise in the ground water level of the surrounding area by 1.7m to 4.5m, which has improved the agricultural productivity and ground water quality.

The details of the structures constructed during the last 4 years are:

(Rs.in lakh)

Sl. No.	Type of structure	Nos.	Cost
1	Check dam	213	12,273
2	Diaphragm wall	2	645
3	Gradewall	5	398
4	Percolation Pond	29	1,244
5	Bed dam	1	750
6	Recharge Shaft	266	566
7	Sub- surface Dyke	6	528
	Total	**522**	**16,404**

District-wise details of Check dams

(Rs.in lakh)

Sl. No.	District	Check dams	
		Nos.	Estimate
1	Ariyalur	10	282
2	Coimbatore	12	348
3	Cuddalore	5	173
4	Dharmapuri	6	240
5	Dindigul	20	575
6	Erode	12	525
7	Karur	3	96
8	Krishnagiri	3	204
9	Madurai	9	145
10	Nagapattinam	1	50
11	Namakkal	8	188
12	The Nilgiris	1	59
13	Perambalur	3	60
14	Pudukottai	6	103
15	Salem	9	235
16	Sivagangai	8	340
17	Thanjavur	6	364
18	Theni	9	426
19	Thoothukudi	13	1,628
20	Tirunelveli	24	967
21	Tiruppur	4	88

Sl. No.	District	Check dams	
		Nos.	Estimate
22	Tiruvallur	6	2,901
23	Tiruvannamalai	4	94
24	Tiruvarur	4	168
25	Tiruchirapalli	4	83
26	Vellore	2	119
27	Villupuram	7	412
28	Virudhunagar	14	1,400
	Total	**213**	**12,273**

4.2.3. Construction of Aritificial Recharge Wells under IAMWARM Project

In order to augment the ground water, construction of 56 number of artificial recharge Wells in the bed of 54 tanks which were rehabilitated under the Tamil Nadu IAMWARM Project at an estimated cost of Rs.2,482 lakh have been completed.

4.2.4. Artifical Recharge Structures under NABARD

- Construction of an Artificial Recharge Structure across

Varamoongilpallam odai in S.F.No.287 of Narasingapuram Village in Coimbatore South Taluk of Coimbatore District at an estimated cost of Rs.105.50 lakh, was completed. By implemention of this scheme an extent of 46.36 acre in the zone of influence has been benefitted through 52 Wells by means of ground water recharge.

- Construction of an Artificial Recharge Structure across Sullipalam odai in S.F.No.574 of Thennamanallur Village in Coimbatore South Taluk of Coimbatore District at an estimated cost of Rs.106 lakh, was completed. By implemention of this scheme, an extent of 50.53 acre has been benefitted in the zone of influence through 120 open Wells and 170 Borewells by means of ground water recharge.

4.2.5. Sub-surface dykes

- Formation of a sub-surface dykes using impervious soil (Clay, etc.) across Vegavathi river near Mettukuppam Village in Kancheepuram Taluk and District, at a cost of Rs.22 lakh, was completed.
- Construction of Sub-surface dykes across Palar river near Palur Village in Chengalpattu Taluk of Kancheepuram District at an estimated cost of Rs.1,683 lakh was completed. By implementing this scheme, Wells in the Palayaseevaram, Melamanapakkam, Melacherry, Palur, Reddipalayam and Dasanur villages on the left bank and Thirumukoodal, Pinayur, Sittananjeri, Guruvanjeri, Arumpuliyur, Karumpakkam and Santhananjeri Villages on the right bank of Palar river has been benefited.
- Construction of Diaphragm wall across Pennaiyar river between

Perangiyar and Pidagam villages in Villupuram and Ulundurpet Taluks in Villupuram District at an estimated cost of Rs.1,263 lakh, is in progress. By implementing this scheme, the ground water table will be recharged by arresting the ground water flow.

4.3. New Anicuts and Regulators

Non-system Anicuts play an important role in the diversion of water in streams where there is a surface flow for a very limited period, to the nearby tanks and direct ayacuts through canals. 3 new anicuts were constructed in Tiruvannamalai and Pudukottai Districts at an estimated cost of Rs.550 lakh to provide irrigation facilities to an extent of 1,835.97 acre of ayacut. Further, one regulator constructed in Tiruvarur District at an estimated cost of Rs.300 lakh is in progress as detailed below:

- Construction of anicut across Kamandalanaganathi River near Sevur Village to feed Irumbedu and Paiyur tanks of Arni Taluk in Thiruvannamalai District at an estimated cost of Rs.200 lakh was completed. Implementation of this Scheme has benefitted an ayacut of 867.34 acre besides facilitating recharge of the Wells in and around Arni Town, Sevur and nearby Villages.
- Construction of anicut across Vellar River in Thandalai Village to feed Mumbalai and Vadakku Manamelkudi tanks of Manamelkudi Taluk in Pudukottai District at an estimated cost of Rs.250 lakh was completed. Implementation of this scheme has benefited an ayacut of 380.53 acre.
- Construction of anicut across Mudiyanar to feed Athani tank in Athani Village of Aranthangi Taluk in Pudukottai District was completed at a cost of Rs.100 lakh. Irrigation to

an extent of 588.10 acre is ensured by this scheme.

- Construction of tail end regulator across Kandaparisanar drain at L.S.26.40 km in Jambuvananodai village of Thiruthuraipoondi Taluk in Thiruvarur District at an estimated cost of Rs.300 lakh, is in progress. By implementing this scheme an ayacut of 250 acre will be benefited.

4.4. Formation of New Tanks / Ponds

It is essential to create small tanks across streams wherever possible for benefiting the ayacut and for recharging the ground water. One new tank has been formed in Dharmapuri District at an estimated cost of Rs.1,415 lakh. Further, 2 new tanks are being formed in the Districts of Perambalur and Dindigul at an estimated cost of Rs.4,419 lakh to benefit an ayacut of 2,819.40 acre.

The details of these works are furnished below:

- Formation of New Tank across Mathalapallam River in Pennagaram Taluk of Dharmapuri District was completed at a project cost of Rs.1,415 lakh to store 55.632 MC ft., of water. An ayacut of 700 acre under first crop and 400 acre under second crop, spread over the Villages of Ramakondahalli, Sunjalnatham and Nagamarai in Pennagaram Taluk of Dharmapuri District are getting irrigation facilities.
- Formation of a new tank across Nallathangal Odai near Kothayam Village in Oddanchatram Taluk of Dindigul District with a storage capacity of 36.10 MCft**,** at an estimated cost of Rs.1,112 lakh is in progress.This scheme will benefit a new ayacut of 808 acre. In addition, the Ground water level will increase in the Wells situated in the area

thereby ensuring irrigation and drinking water facilities.

- Formation of a new Tank across Kallar Odai near Viswakudi in Thondamanthurai Village in Vepanthattai Taluk of Perambalur District at an estimated cost of Rs.3,307 lakh is in progress to benefit an ayacut of 859.91 acre. This scheme will also cater to an additional indirect Well ayacut of 1,151.49 acre by conjunctive use of ground water.

4.5. Formation of New Canals / Supply Channels

There are many tanks in the State which may not receive any water from the upper chain of tanks due to insufficient inflow of water to the upper reach tanks. However, those tanks can be connected through a canal network from nearby surplus sources or even surplus flood water from nearby streams can be diverted. With these objectives, 3 new canals and 1 supply channel

have been formed in the districts of Krishnagiri, Dharmapuri and Vellore at an estimated cost of Rs.1,725 lakh, assuring irrigation to an ayacut of 2,094.53 acre.

Further, formation of one new canal is under implementation in Thoothukudi district at an estimated cost of Rs.1,800 lakh. By implementing this scheme, an ayacut of 4,246.91 acre would be benefited. Formation of another canal in Dharmapuri and Krishnagiri Districts is in progress at an estimated cost of Rs.1,120 lakh to benefit 925 acre. Formation of channel in Tirupur district to benefit 6,060 acre is in progress.

The details of these schemes are furnished below:

- Excavation of supply channel from Jerthalav channel to feed Totlampatti tank, Papparapatti tank and 15 other tanks in Palacode and Pennagaram Taluks of Dharmapuri

district at an estimated cost of Rs.629 lakh was completed. This scheme diverts the flood water from Chinnar dam to the existing Jerthalav canal assuring irrigation to an ayacut of 814 acre.

- Excavation of Supply Channel from Baleguli tank to feed 28 tanks in Pochampalli Taluk of Krishnagiri District at an estimated cost of Rs.650 lakh was completed. By this scheme, an ayacut of 854.98 acre is stabilised.
- Excavation of new supply channel to feed Kagankarai tank in Tirupattur Taluk of Vellore District at an estimated cost of Rs.271 lakh was completed benefitting an extent of 211.20 acres of wet land besides bridging a gap of 7.35 acres of wet land.
- Excavation of supply channel from Viruppampatti tank to Balethottam tank and four other tanks and one pond in Pochampalli Taluk of Krishnagiri district was completed at a cost of Rs.175 lakh. In this

scheme, a supply canal was excavated from Viruppampatti tank for diversion and utilization of the flood surplus of River Pennaiyar to feed Balethottam, Moonkan-Odukallanur, Thippampatti and Kuttur tanks and one pond in Pochampalli Taluk. An ayacut of 207 acre is benefited in Barandapalli, Ayalampatti, Karadanoor, Odukallanur, Thippampatti and Balethottam Villages in Pochampalli Taluk of Krishnagiri district.

- Formation of a new flood carrier canal from Kanjampatti odai in Vilathikulam Taluk of Thoothukudi district to feed Sayalgudi and other tanks in Kamudhi and Kadaladi Taluks of Ramanathapuram district at an estimated cost of Rs.1,800 lakh is in progress. This scheme will benefit an ayacut of 4,246.91 acre under 43 tanks.
- Excavation of a supply channel from Senganbasuvanthalav tank to divert flood surplus water of Chinnar river

to feed Endapatti tank, Kondasamanahallu tank and 8 other inter-mediate tanks in Palacode Taluk of Dharmapuri District at an estimated cost of Rs.1,020 lakh is in progress. By implementing this scheme, an extent of 650 acre under 10 tanks of Jakkasamudram, Bikkanahalli, Velahalahalli, Karukkanahalli, Dandukaranahalli, Jerthalav and Anumanthapuram villages will be benefited.

- Excavation of supply Channel from Bettamugilalampallam Village of Denkanikottai Taluk of Krishnagiri District to divert water to Kesarigulihalla reservoir in Palacode Taluk of Dharmapuri District to augment irrigation potential of Kesarigulihalla reservoir's ayacut at an estimated cost of Rs.100 lakh, is in progress. By implementing this scheme the ayacut of 275 acre under Kesargulihalla reservoir will be benefited due to the augumentation of 11 Mcft to the reservoir.

- Linking of Parambikulam Aliyar Project system to Uppar Canal in Dharapuram Taluk of Tirupur District at an estimated cost of Rs.810 lakh, is in progress. By implementing this scheme the ayacut of 6,060 acre will be benefited.

4.6. Formation of New Check dams / Bed dams / Grade walls

The rivers and its branches have become degraded due to various reasons and hence the actual bed level becomes lower than the theoritical bed level resulting into inadequate supply to the offtake canals, thereby leading to excessive drawal of water to meet the demand of tail end areas. In order to alleviate this situation and to enhance the ground water potential, construction of check dams, bed dams and grade walls have been taken up.

7 check dams and 3 grade walls have been constructed in the Districts of Tiruchirapalli, Coimbatore, Erode, Tirunelveli and Namakkal at an estimated cost of Rs.478.10 lakh and 9 irrigation infrastructure facilities in Coimbatore, Madurai, Salem, Thanjavur and Villupuram Districts were carried out at a cost of Rs. 743 lakh under National Agriculture Development Programme (NADP).

8 bed dams, 13 grade walls and 39 check dams have been sanctioned under NABARD loan and State fund for implementation in Ramanathapuram, Sivagangai, Cuddalore, Thanjavur, Tiruvallur, Dindigul, Coimbatore, Theni, Nagapattinam and Tiruchirappalli Districts at an estimated cost of Rs. 32,394.80 lakh. Out of which 42 works at a cost of Rs.27,816.80 lakh have been completed and 18 works at cost of

Rs.6,828 lakh are in progress. By implementing these schemes, an ayacut of 79,270 acre would be benefited.

Further, 39 check dams in the Districts of Tiruvallur, Theni, Kancheepuram, Tiruvannamalai, Dharmapuri, Krishnagiri, Cuddalore, Sivagangai, Karur, Thoothukudi, Tirunelveli, Tiruppur, and Dindigul were sanctioned under IAMWARM project at a total estimated cost of Rs.12,579 lakh. were completed.

The details of these works are given below:

- Under National Agriculture Development Programme, 7 check dams at an estimated cost of Rs. 304.10 lakh in Coimbatore, Erode, Tirunelveli, Tiruchirappalli, Namakkal and 3 grade walls at an estimated cost of Rs.174 lakh in Thiruvarur and Thanjavur Districts have been constructed to enhance the water availability. In addition to

this, rehabilitation and modernisation of 9 irrigation structures in tanks, canals, anicuts and ponds in Coimbatore, Madurai, Salem, Thanjavur and Villupuram Districts have been carried out at an estimated cost of Rs.743 lakh.

- Construction of a Bed Dam across Periya Odai in Cuddalore District at an estimated cost of Rs.550 lakh to mitigate flood in Virudhachalam Taluk was completed. The commandability of an ayacut of 4,201 acre was totally cut off from the Vridhachalam anicut due to the flood during 1972. This scheme provides supply of water into the south main canal for extension of irrigation and also to discharge 15,000 cusecs of flood water.
- Construction of a Bed dam across Vaigai River near Valasai Village to feed lower Nattarkal and 16 tanks in Ramanathapuram District, at an estimated cost of Rs.1,986 lakh was completed benefiting an ayacut of 8,369 acre. This scheme will help to

divert the flood flows and normal flows in the Vaigai river to the lower Nattarkal flood carrier effectively.

- Construction of a Bed Dam across Vaigai river near Manthivalasai to feed Kalari Channel and right main canal feeding tanks in Ramanathapuram District was completed at an estimated cost of Rs.1,420 lakh. An ayacut of 9,029 acre under 52 tanks fed by the Kalari branch channel and 3,181 acre under 16 tanks fed by right main canal below Pottithatti Village are benefited.
- Construction of bed dam across Vaigai River to feed Parthibanur big and small tanks, Vannikudi tank and other two tanks at Athanur Village in Manamadurai Taluk of Sivagangai District at an estimated cost of Rs.1,600 lakh was completed. By effective diversion of flood water, irrigation in this area will be sustained. By construction of this bed dam, an ayacut of 1,964 acre is benefited.

- Construction of bed dam across Vaigai River to feed Maranadu Tank and other nine tanks at Ladanendal Village in Manamadurai Taluk of Sivagangai District, at an estimated cost of Rs.1,285 lakh was completed. By this scheme, the water flow can be diverted to the existing right main canal from the existing off-take from Vaigai River to benefit an ayacut of 5,300 acre.
- Construction of Bed dam across Vaigai River near Kamuthagudi Village to feed 36 tanks through Koothangal supply channel in Paramakudi and Muthukulathur Taluks of Ramanathapuram District at an estimated cost of Rs.1,970 lakh was completed. An ayacut of 5,333 acre under 36 tanks fed by the Koothankal supply channel off taking from Vaigai river and 14,787 acre under 21 tanks fed by the left main canal off taking from Parthibanur regulator benefited.

- Construction of Bed dam across Vaigai river near Thelichathanallur Village to feed 14 tanks in Paramakudi Taluk in Ramanathapuram District at an estimated cost of Rs.1,900 lakh was completed. By implemention of this scheme an extent of 6,920 acre under 37 tanks of left main canal of Parthibanur regulator and upper Nattarkal channel has benefited.
- **Hon'ble Chief Minister,** announced Construction of Check Dam across Cauvery River near Mutharasanallur at Kambarasam-pettai Village in Srirangam Taluk of Tiruchirappalli District and it was completed at an estimated cost of Rs.3,370 lakh. This scheme implemented with the objective of catering to the Tiruchirapalli City drinking water supply scheme and other major drinking water supply schemes even during summer season by augmenting the ground water potential. Besides, it is benefiting an area of 4 km radius

from the checkdam by recharging the ground water level. **The check dam was inaugurated by the Hon'ble Chief Minister on 19.06.2014.**

- Construction of Check dam across Kosasthalaiyar at Thirukkandalam Village of Tiruvallur District was sanctioned at an estimated cost of Rs.3,500 lakh. This scheme meant for part of the infrastructural development to fulfil the Chennai City drinking water supply.The above scheme has been completed. By augmenting 160 MCft of water storage in this check dam, which would help to replenish and recharge the ground water.
- Construction of Checkdam across Vaigai River near Kunnappanendal Village below Parthibanur Regulator in Ramanathapuram District at an estimated cost of Rs.1,950 lakh was completed, benefiting an ayacut of 13,614 acre. In addition to this, the ground water level and the quality of water was improved.

- Construction of check dam across kodaganar near Thirukoornam Village in Vedasandur Taluk of Dindigul District sanctioned at an estimated cost of Rs.410 lakh was completed. The construction of this check dam enable storage of water with a capacity of 0.8 MCft. This scheme benefit an extent of 394 acre of dry ayacut.
- Construction of Check dam across Ayyanapuram vari and Nandavanapatti drain below Grand Anicut Canal crossing at LS 8,250 m and LS 3,250 m respectively in Ayyanapuram and Sanjivipuram villages of Thanjavur Taluk and District at an estimated cost of Rs.150 lakh was completed.
- Construction of Check dam across Vallam vari at LS 10.50 Km in Varavukottai Village of Thanjavur Taluk and District at an estimated cost of Rs.32 lakh was completed.
- Construction of Check dams across Vallam Vari drain at LS 13.00 Km, 17.50 Km and 20.20 Km in

Vandaiyariruppu, Sadaiyarkovil, Chinnaponnapur Villages of Orathanadu Taluk in Thanjavur District at an estimated cost of Rs.140 lakh was completed.

- Construction of Check dam across Nasuviniyar Drain at LS 5.50 Km in Thittakudy Village of Pattukkottai Taluk in Thanjavur District at an estimated cost of Rs.120 lakh was completed.
- Construction of Check Dam across Nasuviniyar Drain at LS 18.600 Km in Narasingapuram Village of Thanjavur Taluk and District at an estimated cost of Rs.175 lakh was completed.
- Construction of Check dam across Pattuvanachi Drain at LS 15.25 Km in Veppankulam Village of Pattukkottai Taluk in Thanjavur District at an estimated cost of Rs.90 lakh was completed.
- Construction of Check Dam across Pattuvanachi Drain at LS 19.20 Km in Moothakurichi Village of Pattukkottai Taluk in Thanjavur

District at an estimated cost of Rs.105 lakh was completed.

- Construction of Check dam across Pattuvanachi Drain at LS 23.00 Km in Vattakudy Village of Pattukkottai Taluk in Thanjavur District at an estimated cost of Rs.105 lakh was completed.
- Construction of Check dam across Muthalaimuthuvari at LS 16.20 Km in Vannarapettai village of Thanjavur Taluk and District at an estimated cost of Rs.94 lakh was completed.
- Construction of Check dam across Cholakampatti Drain below Grand Anicut Canal crossing at LS 9,200 m in Thondarayanpadi village of Thanjavur Taluk and District at an estimated cost of Rs.77 lakh was completed.
- Construction of Check dam across Jambugapuram Vari at LS 9.50 Km in Arsuthippattu village of Orathanadu Taluk in Thanjavur

District at an estimated cost of Rs.48 lakh was completed.

- Construction of Check dam across Jambugapuram Vari at LS 14.00 km in Arsuthippattu village of Orathanadu Taluk in Thanjavur District at an estimated cost of Rs.62 lakh was completed.
- Construction of Check dam across Konavari Drain below Grand Anicut Canal crossing LS 3,100 m in Kalvirayanpettai Village of Thanjavur Taluk and District at an estimated cost of Rs.42 lakh was completed.
- Construction of Check dam across Sudukattuvari at LS 3,500 m in Vanarapettai Village of Thanjavur Taluk and District at an estimated cost of Rs.26 lakh was completed.
- Construction of Check dam across Anaimaduvupallam near Boluvam-patti Reserve Forest area in Kalikkanayakkanpalayam Village in Coimbatore South Taluk of Coimbatore District at an estimated

cost of Rs.93 lakh was completed. By implemention of this scheme, an extent of 16.5 acre benefited in the zone of influence through 42 wells by means of ground water recharge.

- Construction of a Check dam across Kumuttipatty Nadhi in S.F.No.77 of Karunchami Goundanpalayam Village in Coimbatore South Taluk of Coimbatore District at an estimated cost of Rs.79 lakh was completed. By implemention of this scheme, an extent of 83.5 acre benefited through 44 wells by means of ground water recharge.
- Construction of Check dam across Vannathangarai odai in S.F.No.463 of Moppiripalayam Village in Sulur Taluk of Coimbatore District at an estimated cost of Rs.73.50 lakh was completed. By implemention of this scheme an extent of 44.54 acre under 1st crop and 22.52 acre under 2nd crop benefited through 51 wells by means of ground water recharge.
- Construction of Check dam across Periyapallam in S.F.No.10 of

Kalampalayam Village in Mettu-palayam Taluk of Coimbatore District at an estimated cost of Rs.66.30 lakh, was completed. By implemention of this scheme, an extent of 54.30 acre in 2 crop periods benefited through 118 wells by means of ground water recharge.

- Construction of Check dam across Kudaganar near Agaram village in Dindigul District at an estimated cost of Rs.680 lakh in order to store 1.26 MCft. of water was completed. By implemention of this scheme an extent of 250 acre benefited through 50 wells and 120 borewells existing in the Zone of Influence.
- Construction of a Grade Wall across Cauvery river at mile 28/68 to feed Koothur Channel and Old Maharajapuram Channel at Koothur village in Thiruvaiyaru Taluk of Thanjavur District at an estimated cost of Rs.1,340 lakh was completed.
- Construction of a Grade Wall across Kudamurutty river at mile 39/0-100

and 40/1 to feed Sorudaiyan Channel and Ayyanarmathur Channel in Thiruchotruthurai village in Thiruvaiyaru Taluk of Thanjavur District at an estimated cost of Rs.1,135 lakh was completed.

- Construction of a Grade Wall across Kudamurutty river at mile 30/2 to feed Konerirajapuram Supplemental channel and Konerirajapuram channel at Konerirajapuram village in Thiruvaiyaru Taluk of Thanjavur District at an estimated cost of Rs.767 lakh was completed.

- Construction of a Grade wall across Vennar river at mile 30/1 to restore the Theoretical bed level and to feed Rettaivoikkal and Aathuvoikkal at Piramanpettai village in Thanjavur Taluk and District at an estimated cost of Rs.713 lakh was completed.
- Construction of a Grade wall across Vennar river at mile 56/5-6 to maintain the Theoretical bed level to feed Samanthana Cauvery channel in Ukkadai village of Papanasam

Taluk of Thanjavur District at an estimated cost of Rs.410 lakh was completed.

- Construction of a Grade wall across Cauvery river at mile 49/5 to feed New Umayalpuram channel in Ramanujapuram village of Papanasam Taluk of Thanjavur District at an estimated cost of Rs.356 lakh was completed.
- Construction of a Grade wall across Pamaniyar river at mile 87/05 to maintain the Theoretical bed level to feed Kandaparichanar main channel at Siramelkudi village in Pattukkottai Taluk of Thanjavur District at an estimated cost of Rs.355 lakh was completed.
- Construction of a Grade wall across Palavar river at LS 35.40 km at Arasalur village in Thiruvidai-maruthur Taluk of Thanjavur District at an estimated cost of Rs.164 lakh was completed.
- Construction of a Grade wall across Cauvery river at LS 106.60 km to feed A 80 - Old Kanjanur channel,

A 79 - Namachivayapuram, A 81 - New Kanjanur Channel, in Manalur Village of Thiruvidaimaruthur Taluk of Thanjavur District at an estimated cost of Rs.119 lakh was completed.

- Construction of a Grade wall across Manniyar river at mile 65/7-4450 to feed Manakathan Channel and Aliyan channel in Koothanur village of Thiruvidaimarudur Taluk of Thanjavur District at an estimated cost of Rs.74 lakh was completed.

- Construction of a Grade wall across Manniyar river at mile 68/6 to feed Melaraman channel, Kondayan channel, Kilimangalam channel, Keelaraman channel and Manakunnam channel in Kuruchi village of Thiruvidaimarudur Taluk of Thanjavur District at an estimated cost of Rs.69 lakh was completed.
- Construction of grade wall across Cauvery river at LS 104.480 Km to feed A78 Manalur channel in

Tirumangalakudi Village of Thiruvidaimaruthur Taluk in Thanjavur District at an estimated cost of Rs.116 lakh was completed. By implementation of this scheme the ground water is recharged and benefited an ayacut of 345 acre.

- Construction of bed dam across river Cauvery at LS 98.40 km to feed A 73 – Veppathur Channel in Thiruvisanallur Village of Thiruvidaimaruthur Taluk in Thanjavur Distirct at an estimated cost of Rs.200 lakh is in progress.
- Construction of check dam across Kosasthalaiyar River in Pattarai-perumpudur Village to channelise water to Veeraragavaperumal temple tank in Tiruvallur taluk and District at an estimated cost of Rs.2,500 lakh, is in progress.
- Construction of Pulankulam check dam across Santhanavarthini river in Vembarpatti village in Dindigul Taluk and District at an estimated cost of Rs.400 lakh, is in progress. By implementing this scheme an

extent of 250 acre will be benefited by means of ground water recharge. Further, 19 acres of ayacut under Pulankulam tank will be benefited by assured supply.

- Construction of Nedunkulam check dam across Santhanavarthini river in Avilipatti village in Dindigul Taluk and District at an estimated cost of Rs.350 lakh, is in progress. By implementing this scheme an extent of 300 acre will be benefited by means of ground water recharge. Further, 29.66 acres of ayacut under Nedunkulam tank will be benefited by assured supply.
- Construction of check dam across Santhanavarthini river in Kombaipatti village in Dindigul Taluk and District at an estimated cost of Rs.175 lakh, is in progress. By implementing this scheme an extent of 15.65 acre will be benefited by means of ground water recharge.
- Construction of 2 check dams across Vaigai river at Valipparai and

Govindanagaram villages in Andipatti Taluk of Theni District at an estimated cost of Rs.495 lakh, is in progress. By implementing this scheme the ayacut will be benefited through 145 wells by means of ground water recharge.

- Construction of Check dam across Ayyar River in Chithambur village of Musiri Taluk in Tiruchirappalli District at an estimated cost of Rs.645 lakh, is in progress. By implementing this scheme the ayacut of 162 acre will be benefited through 15 wells by means of ground water recharge.
- Construction of check dam across Nandiyar river in Vellanur village of Lalgudi Taluk in Tiruchirappalli District at an estimated cost of Rs.320 lakh, is in progress. By implementing this scheme the ayacut of 145 acre will be benefited through 16 wells by means of ground water recharge.
- Construction of check dam across Uppar river in Irungalur village of

Mannachanallur Taluk in Tiruchirappalli District at an estimated cost of Rs.320 lakh, is in progress. By implementing this scheme the ayacut of 210 acre will be benefited through 239 wells by means of ground water recharge.

- Construction of Check dam across Ariyar River in Ammapettai village of Srirangam Taluk in Tiruchirappalli District at an estimated cost of Rs.306 lakh, is in progress. By implementing this scheme the ayacut of 217 acre will be benefited through 365 wells by means of ground water recharge.
- Construction of Check dam across Karaipottanar River in Nagayanallur village of Thottiyam Taluk in Tiruchirappalli District at an estimated cost of Rs.294 lakh, is in progress. By implementing this scheme the ayacut of 483 acre will be benefited through 75 wells by means of ground water recharge.
- Construction of Check dam across Ayyar River near Veeramachanpatty

Village of Thuraiyur Taluk in Tiruchirappalli District at an estimated cost of Rs.260 lakh, is in progress. By implementing this scheme the ayacut of 340 acre will be benefited through 130 wells by means of ground water recharge.

- Construction of Check dam across Dombatchi River in Malaiyadipatti Village of Manapparai Taluk in Tiruchirappalli District at an estimated cost of Rs.166 lakh, is in progress. By implementing this scheme the ayacut of 423 acre will be benefited through 113 wells by means of ground water recharge.
- Construction of Check dam across Thalugai River near Naganallur village of Thuraiyur Taluk in Tiruchirappalli District at an estimated cost of Rs.142 lakh, is in progress. By implementing this scheme the ayacut of 104 acre will be benefited through 26 wells by means of ground water recharge.
- Construction of Check Dam across Kannuthu River in A.Reddiyapatty

Village near Vaiyampatty of Manapparai Taluk in Tiruchirappalli District at an estimated cost of Rs.90 lakh is in progress. By implementing this scheme an extent of 293 acre will be benefitted through 29 wells by means of ground water recharge.

- Construction of Check Dam across Koraiyaru River in Kannivadugapatty Village of Marungapuri Taluk in Tiruchirappalli District at an estimated cost of Rs.70 lakh is in progress. By implementing this scheme, an extent of 290 acre will be benefitted through 71 wells by means of ground water recharge.
- Reconstruction of Grade wall across Veeracholan River at LS 131.20 Km Vasishtacheri Village of Tharangam-badi Taluk in Nagapattinam District at an estimated cost of Rs. 95 lakh, is in progress. By implementing this scheme the ayacut of 699 acre will be benefited.
- Under Tamil Nadu Irrigated Agriculture Modernisation and

Water - Bodies Restoration and Management (IAMWARM) Project, construction of 39 check dams in the Districts of Tiruvallur, Kancheepuram, Tiruvannamalai, Dharmapuri, Krishnagiri, Cuddalore, Sivagangai, Theni, Thoothukudi, Tirunelveli, Tiruppur, Karur and Dindigul at a total estimated cost of Rs.12,579 lakh have been taken up and completed. On completion of this scheme the ground water level is raised and the quality of drinking water and ground water irrigation has been improved.

4.7. Rehabilitation of Anicuts

Anicuts are the vital structures for diversion of water from small streams under non system irrigation which feeds through canals direct ayacuts or indirect ayacuts from tanks or both. Rehabilitation of age old anicuts which lost its commandability has therefore attains importance. 389 Anicuts have been sanctioned for

rehabilitation in Tiruvallur, Kancheepuram, Karur, Cuddalore, Dharmapuri, Thanjavur, Tirunelveli, Coimbatore, Salem, Madurai, Thiruvannamalai, Thiruchirapalli, Theni and Tiruppur Districts at an estimated cost of Rs.19,409 lakh. Out of 389 works, 380 works were completed at an estimated cost of Rs.18,490 lakh and remaining 9 works are in progress at an estimated cost of Rs.979 lakh.

The details of these Works are as under:

- Rehabilitation and Gunitting the South branch and North branch vents of Lower anicut in Thanjavur District was completed at an estimated cost of Rs.621 lakh for arresting the leakage of water and improving water management.
- RCC skin wall from Ellis saddle to 109 m in the left flank of Stanley Reservoir at Mettur Dam in Salem District was completed at an

estimated cost of Rs.60 lakh. By this scheme, leakage of water in the left flank of Mettur Dam was successfully arrested.

- Rehabilitation of Sempoondi anicut at Kiliayanallur Village of Madurantakam Taluk of Kancheepuram District was completed at an estimated cost of Rs.220 lakh to benefit an ayacut of 1,292 acre. Besides irrigation, ground water is recharged in and around the anicut.
- Reconstruction of Neenjal Maduvu anicut across Palar river to feed a chain of 15 tanks and a major tank of Ponvilainthakalathur in Chengalpattu Taluk of Kancheepuram District was completed at an estimated cost of Rs.900 lakh thereby benefiting an ayacut of 5,202 acre.
- Extension and Rehabilitation of Virudhachalam Anicut across Manimuktha River in Virudhachalam Taluk of Cuddalore District at an estimated cost of Rs.1,300 lakh was

completed. The Virudhachalam anicut was constructed to feed a direct ayacut of 9,417 acre through 14 tanks in Virudhachalam and Chidambaram Taluks of Cuddalore District. Due to unprecedented flood during the year 1972 and 2005, the anicut was damaged and the anicut could not accommodate the flood waters. Hence, the anicut has been extended for accommodating 95,000 cusecs of flood water.

- Rehabilitation and improvement of 16 Anicuts in Kallar River of Vaniar Minor Basin in Dharmapuri District at an estimated cost of Rs.215 lakh was completed. In this scheme foot path crossing, road culverts, desilting work, skin wall provision and new head sluice with shutter arrangements are completed thereby benefitting an ayacut of 1,297 acre.
- Reconstruction of Mylapudur anicut across Nambiyar River in Anaikulam Village of Radhapuram Taluk in Tirunelveli District was completed at

an estimated cost of Rs.800 lakh benefitting an ayacut of 623 acre. During the heavy flood in 2005, the anicut was completely damaged and washed away. Due to degradation of river, water could not be drawn through the Anaikulam supply channel and hence cultivation was completely affected. The implementation of this scheme has restored the irrigation.

- Rehabilitation of 16 Old Anicuts in Amaravathy River System in Karur and Tiruppur Districts at an estimated cost of Rs.1,953 lakh was completed thereby stabilising an ayacut of 15,208 acre and provided assured supply of water for irrigation.
- Rehabilitation of Andipalayam anicut South Bank and its supply channel in Palladam Taluk of Tiruppur District at an estimated cost of Rs.60 lakh, was completed. This channel is heavily silted and bund is eroded at many places due to entry of flood from Kunnoor river and the

Reserved Forest area during rainy season. The water could not reach the ayacut for irrigation since the aqueduct near the channel bund has totally breached and is in collapsed condition. Hence, it is necessary to desilt the channel, strengthen the bund and repair the cross masonry structures. By implementation of this work, the irrigation efficiency of the old system improved, the gap in the ayacut would be covered besides the stabilization of existing command of 117 acre.

- Rehabilitation of Kuniyamuthur anicut and its supply channel from LS 0/0 Km to 2/0 Km of Coimbatore South Taluk in Coimbatore District at an estimated cost of Rs.90 lakh, was completed. Due to wear and tear over a long period, the anicut is in partly damaged condition. This causes considerable loss of water. Further, the storage capacity of the anicut has reduced considerably due to silting up of soil on the upstream side of anicut. By

implementation of this work, the system efficiency improved ensuring equitable distribution and assured water supply and benefited an ayacut 115 acre.

- Rehabilitation of Vadaseri anicut across Ariyar River and its feeding tanks in Inamkulathur Village in Srirangam Taluk of Tiruchirappalli District at an estimated cost of Rs.198 lakh, is in progress. By implementing this scheme the ayacut of 347.83 acre will be benefited.
- Rehabilitation of Kothamangalam Anicut across Kothamangalam drain in Kothamangalam Village of Srirangam Taluk of Tiruchirappalli District at an estimated cost of Rs.150 lakh, is in progress. By implementing this scheme the ayacut of 925.48 acre will be benefited.
- Rehabilitation of Punganur Anicut across Ariyar river and its Supply Channel in Punganur Village of Srirangam Taluk of Tiruchirappalli

District at an estimated cost of Rs.104 lakh, is in progress. By implementing this scheme the ayacut of 598.38 acre will be benefited.

- Rehabilitation of Ariyavur Anicut across Ariyar river and its feeding tank, supply channel in Ariyavur Village in Srirangam Taluk of Tiruchirappalli District at an estimated cost of Rs.100 lakh, is in progress. By implementing this scheme the ayacut of 107.348 acre will be benefited.
- Rehabilitation of Pallapatti old anicut, Kottankulam anicut across Palar at Pallapatti village and Kottankulam Kanmoi surplus course of Kottampatti village of Melur taluk in Madurai District at an estimated cost of Rs.125 lakh, is in progress. By implementing this scheme the ayacut of 1,352 acre will be benefited.
- Rehabilitation of Alathur Anicut, supply channel and feeding tanks in Chengam Taluk in Thiruvannamalai

District at an estimated cost of Rs. 65 lakh, is in progress. By implementing this scheme the ayacut of 2,467.43 acre will be benefited.

- Rehabilitation of Thandarai Anicut in Thiruvannamalai Taluk and District at an estimated cost of Rs. 60 lakh, is in progress. By implementing this scheme the ayacut of 371.40 acre will be benefited.

- Rehabilitation of Samyvaikkal anicut across Oothampari aru near Bodi Village of Bodi Taluk in Theni District at an estimated cost of Rs.57 lakh, is in progress. By implementing this scheme the ayacut of 66.22 acre will be benefited.
- Rehabilitation of Vedan Kalingal and Uppathu Kalingal anicut in Uppiliyapuram and Kottapalayam Village of Thuraiyur Taluk in Tiruchirappalli District at an estimated cost of Rs.120 lakh, is in progress. By implementing this

scheme the ayacut of 464 acre will be benefited.

- Under Tamil Nadu IAMWARM Project, 370 anicuts were taken up for rehabilitation in 61 sub basins, at an estimated cost of Rs.12,271 lakh, and have been completed.

4.8. Rehabilitation of Regulators

Rehabilitation of 5 Regulators in the Districts of Tiruchirappalli, Madurai, Dindigul, Erode, Cuddalore and Karur were completed at an estimated cost of Rs.3,390 lakh, benefiting an ayacut of 2,65,637 acre.

4 Regulators in the Cuddalore, Trichy and Thiruvarur Districts at an estimated cost of Rs.3,616 lakh are being rehabilitated, which would benefit an ayacut of 1,98,704 acre. Details of these works are as under:

- Rehabilitation of Regulator for Kondamvari Drain at mile 97/0 in

the left bank of Aganda Cauvery in Manamedu Village, Thottiyam Taluk of Tiruchirappalli District was completed at an estimated cost of Rs.90 lakh assuring irrigation to an ayacut of 4,964 acre.

- Rehabilitation of damaged shutter of Upper Anicut Barrage across Cauvery river in Elamanur Village of Srirangam Taluk in Tiruchirappalli District was completed at an estimated cost of Rs.450 lakh. This has facilitated efficient regulation of water.
- Providing screw gearing shutters to all Sluices in the Lower Bhavani Project Main Canal from mile 0/0 to mile 124/2-560 in Erode and Karur Districts at an estimated cost of Rs.300 lakh was completed assuring irrigation to an ayacut of 2,07,000 acre. Due to wear and tear in several years, the age old shutters had become corroded / damaged and were not functioning properly. 1,374 shutters to the sluices have been provided in the

Lower Bhavani Project main canal to cater to the water for irrigation and also to facilitate easy operation.

- Reconstruction of collapsed downstream talus apron and renewing and repairing the worn out steel shutters in the Virahanur regulator across Vaigai River in Madurai District was completed at an estimated cost of Rs.500 lakh, assuring irrigation to an ayacut of 41,429 acre. Virahanur regulator located at Virahanur village in Madurai district, 86 km from Vaigai Dam, was constructed during the year 1975 across Vaigai River. Due to intense flood in 1977 and 1979 in Vaigai river, Virahanur regulator got damaged. The damaged talus apron and cutoff wall on the downstream of regulator have been reconstructed and shutters renewed and thus the regulator is made effectively functional.
- Special repairs to corroded shutter arrangements in the Peranai Regulator and Renewal and

Replacement of vertical gear shutters in Periyar main canal head sluice in Nilakottai Taluk of Dindigul District at an estimated cost of Rs.300 lakh was completed. The steel shutters which were fitted in Peranai regulator at the time of construction during 1898 were badly corroded and deteriorated. The guide channels were also completely corroded. The repairs carried out has improved the functioning of the regulator.

- Rehabilitation of Pelandurai Regulator across Vellar River in Thittakudy Taluk of Cuddalore District, at an estimated cost of Rs.1,750 lakh, was completed. The Pelandurai Regulator was constructed across Vellar River in Pelandurai Village in the year 1876. Due to maximum flood discharge of 1,14,000 cusecs in November 2005, the downstream and upstream apron were damaged very badly and few shutters washed away. The completion of this

scheme assured irrigation to a total of 12,244 acre under direct ayacut and indirect ayacut through 18 tanks.

- Rehabilitation of Sethiathope (Regulator) Anicut in Cuddalore District at an estimated cost of Rs.2,365 lakh, is in progress. The Sethiathope Anicut across Vellar River lies 60 km down stream of Tholuthur Regulator. This system constructed in the year 1851 was severely damaged during heavy flood in 2005. The 17 service shutters and 4 sand vent shutters were fully damaged resulting into difficulty in manual operation during monsoons and floods. In this scheme, the anicut sluices and shutters are rehabilitated including providing electrical hoisting arrangements of operation of shutters thereby benefiting an ayacut of 40,700 acre.
- Reconstruction of Sirupuliyur Regulator across Nattar river at mile 78/1-33 in Polagudi Village of

Nannilam Taluk in Tiruvarur District at an estimated cost of Rs.114 lakh, is in progress. By implementing this scheme the ayacut of 262 acre will be benefited.

- Rehabilitation of Hydro Mechanical Equipments and upgrading the manual operating arrangements of the shutters by electrification in North & South coleroon at Upper Anicut in Manachanallur taluk of Trichy District at an estimated cost of Rs.1000 lakh is in progress. By implementating this scheme an extent of 1,25,000 acre will be benefited.
- Rehabilitation of the Sand vent at the head of Uyyakondan Channel in Pettavaithalai Village in Srirangam Taluk of Trichy District at an estimated cost of Rs.137 lakh is in progress. By implementating this scheme an extent of 32,742 acre will be benefited.

4.9. Rehabilitation of canals and supply channels

Supply channels are the main component under tank irrigation system through which, the water reaches the tanks in series. Over a period of time the supply channels get silted up. Due to encroachment in the supply channels, its size gets reduced thereby reducing its efficiency which in turn restricts the flow of water to the tanks. Several measures are being taken up to rehabilitate the channels and to evict the encroachments.

Rehabilitation of supply channels in 26 Districts at an estimated cost of Rs.24,724 lakh has been taken up under Tamil Nadu IAMWARM Project.

Rehabilitation works in 4 old Canals and Channels in Erode, Tiruppur and Coimbatore Districts have been taken up at an estimated cost of Rs.32,960 lakh to benefit an ayacut

of 4,65,267 acre. Out of which, 3 works at an estimated cost of Rs.10,845 lakh have been completed.

Further, 19 works for rehabilitation of canals in Madurai, Dindugul, Nagapattinam, Theni,Tiruchirappalli, Salem, Tiruvarur, Coimbatore, Thanjavur, Erode, and Vellore Districts were completed at an estimated cost of Rs.14,166 lakh benefitting an ayacut of 91,073 acre. 2 works for rehabilitation of canals in Kanyakumari and Tiruvallur Districts at an estimated cost of Rs.4,238 lakh to benefit an ayacut of 29,877 acre are in progress.

The details of these works are given below:

- Rehabilitation of Kalingarayan channel from mile 3/3 to 9/7 in Erode Taluk and District is completed at an estimated cost of Rs.5000 lakh. The Kalingarayan

channel takes off from the 700 years old Kalingarayan Anicut built across river Bhavani, irrigates about 15,750 acre of land in Erode Taluk and District. Effluents of tanneries, dyeing and textile industries and also the domestic sewage let out by Erode Corporation areas had polluted the Kalingarayan channel at the stretch from mile 3/3 to 9/7. Construction of retaining wall on the left and right side of channel has reduced the pollution of the Channel.

- Rehabilitation of Kalingarayan channel from mile 0/0-000 to 3/3-00 in Erode Taluk and District, at an estimated cost of Rs.4,100 lakh is completed benefiting an ayacut of 15,750 acre.
- Rehabilitation of Arakkankottai and Thadapalli channels in Gobi taluk of Erode District at an estimated cost of Rs. 4,055 lakh, was completed benefiting an ayacut of 24,504 acre.
- Rehabilitation of Arakkankottai and Thadapalli Channels in Gobichetti-

palayam Taluk of Erode District, at an estimated cost of Rs.1,745 lakh, is completed thereby benefitting an ayacut of 24,505 acre under the age old Kodiveri Anicut system of Bhavani basin.

- Rehabilitation of Nilayur Channel for increasing the carrying capacity to feed extension channel in Madurai District was completed except the railway bridge works at an estimated cost of Rs.2,350 lakh. The Nilaiyur Channel off takes from Nilaiyur Bed Dam constructed across Vaigai River in Mullipallam Village near Sholavandan. The scheme ensured to fulfil the requirement of 654 cusecs to feed 94 dry tanks at the starting point of Nilaiyur extension channel located in Madurai, Virudhunagar and Sivagangai Districts. By implementing this scheme, 9,951 acre under 94 tanks (50 Tanks in Madurai District, 21 tanks in Virudhunagar District

and 23 tanks in Sivagangai District) have benefited.

- Modernisation of 10th Branch Canal and construction of a Bye-pass Channel to feed Chunnambur Distributory and Modernisation of connected 12 Tanks of Periyar Vaigai irrigation system in Madurai District, at an estimated cost of Rs.1,000 lakh, has been completed benefiting an ayacut of 12,388 acre.

- Regradation of Therkkar river from Sathankudi anicut to Melakottai anicut in Thirumangalam town of Madurai District at an estimated cost of Rs.306 lakh, has been completed. This scheme benefited a registered ayacut of 1,294 acre fed by the Therkkar river through five tanks in Sathankudi, Venkatasamudram, Karisalpatti, Thirumangalam, Vadakarai and Melakottai Villages by ensuring assured supply of water.
- Rehabilitaition and improvements to Neikkarapatti Tank supply channel

in Kondalampatti Village of Salem Taluk and District has been completed at an estimated cost of Rs.270 lakh benefiting an ayacut of 222 acre.

- Modernisation of Vadavar Extension canal from L.S.33.01 Km to 44.82 Km in Tiruvarur District, Mannarkudi Taluk at an estimated cost of Rs.2,300 lakh was completed benefiting an ayacut of 15,176 acre. Moreover, seepage loss of water is prevented and the tail-end ayacut get assured supply, right from the beginning of irrigation season.
- Modernisation of Thirumeni Eri and its feeder channel at Thirumakkottai Village in Mannargudi Taluk of Tiruvarur District has been completed at an estimated cost of Rs.117 lakh.
- Increasing the carrying capacity of Palayamparavoo Channel and P.T. Rajan Channel in Cumbum valley of Theni District, at an estimated cost of Rs.1,008 lakh has been completed. This scheme increased

the water carrying capacity of Palayamparavoo channel from 90 cusecs to 150 cusecs and that of P.T.Rajan channel from 70 cusecs to 100 cusecs. An ayacut of 7,587 acre in Theni District has been benefited by this scheme.

- Modernisation of Melmangalam supply channel in Melmangalam Village in Periyakulam Taluk of Theni District, at an estimated cost of Rs.400 lakh, has been completed. The entire supply channel and 32 direct sluices were damaged during 2007-2008 floods thereby reducing the capacity which have been restored thereby benefiting an ayacut of 932 acre.
- Modernisation of Jeyamangalam supply channel in Jeyamangalam Village in Periyakulam Taluk of Theni District, at an estimated cost of Rs.375 lakh, has been completed. The entire supply channel and 18 direct sluices were damaged during 2007-2008 floods. By

implementing this scheme an ayacut of 929 acre has been benefited.

- Modernisation of right main canal in Manjalar dam of Devadanapatti Village in Periyakulam Taluk of Theni District, at an estimated cost of Rs.276 lakh, has been completed. This scheme has benefited an ayacut of 1,873 acre.
- Restoration of Athoor anicut channel of Athoor Taluk in Dindigul District, at an estimated cost of Rs.850 lakh, has been completed. This scheme benefits an extent of 769 acre of single crop and 29 acre of double crop.
- Improvements to Panangudi and Kuyavan channels off taking from Malattar River of Lalgudi Taluk in Tiruchirappalli District, has been completed at an estimated cost of Rs.300 lakh, thereby benefiting an ayacut of 1,107 acre.
- Reconstruction of Syphon Aqueduct in Tirunagari Channel at LS 14.100 Km in Thennilakudi Village of Sirkali Taluk in

Nagapattinam District has been completed at an estimated cost of Rs.195 lakh, thereby benefiting an ayacut of 907 acre will be benefited.

- Construction of well syphon across Palar river to connect the damaged aqueduct portion (Re-construction of syphon aqueduct) in Mordhana Right main canal near Chittathur Village in Gudiyatham Taluk of Vellore District, at an estimated cost of Rs.140 lakh, has been completed. By implementing this scheme, an ayacut of 3,405 acre under 7 tanks receive assured supply from the Mordhana Reservoir.
- A new Trash Rack arrangement at about 130m upstream of the Tunnel Entry at the Thekkady Head Sluice in the Leading Channel of the Periyar Lake for maximum drawal of water from the Mullai Periyar Dam to the Vaigai dam at an estimated cost of Rs.59 lakh has been completed. This has helped to overcome the difficulties and bottlenecks faced to clear the

deposition of silt in the leading channel and facilitate the drawal of water from Periyar dam.

- Rehabilitation of Krishnaiyengar channel in Mettupalayam Taluk in Coimbatore District at an estimated cost of Rs.30 lakh, was completed. By this scheme an ayacut of 117 acre benefited.
- Rehabilitation of Swamimalai bed dam across Cauvery River at mile 54/3 in Swamimalai Village of Kumbakonam Taluk in Thanjavur District at an estimated cost of Rs.75 lakh, was completed. By implementing this scheme, an ayacut of 5,900 acre benefited.
- Rehabilitation of Palavar Head Sluice with syphon arrangements at mile 0/0 in Nagakudi and Melamaruthuvakudi village of Papanasam Taluk in Thanjavur District at an estimated cost of Rs.60 lakh, was completed thereby benefiting an ayacut of 3,983 acre.
- Rehabilitation of Thovalai Channel and Radhapuram Channel including

its Tanks in Kanniyakumari District, at an estimated cost of Rs.2,250 lakh, is in progress. This scheme envisages rehabilitation of Thovalai Channel, its branch channels and irrigation tanks. The works have been split up into 9 packages. Works in 8 packages have been completed and works in 1 package is in progress. A total of 29,877 acre ayacut will be benefited.

- Rehabilitation of Contour Canal from LS 0.00 km to LS 49.30 km in Tiruppur and Coimbatore Districts at an estimated cost of Rs.22,115.22 lakh is in progress. The contour canal under the Parambikulam Aliyar Project (PAP) system originates from the Sarkarpathy Power House and feeds the Thirumoorthy Reservoir. The canal passes through many valleys and tunnels across the forest area for a distance of 49.30 km. Due to the age and continuous function for over 50 years and its geographical

location, the canal has subjected to various deteriorations and lost its structural stability and water conveyance efficiency. The rehabilitation measures presently taken up and implemented during the limited closure period available in a year would assure irrigation to an ayacut of about 4,25,012 acre in Coimbatore and Tiruppur Districts.

- Strengthening the slipped portion at various places of Kandaleru - Poondi canal in between LS 13.00 Km to 25.275 Km in Uthukottai Taluk of Thiruvallur District at an estimated cost of Rs.1,988 lakh, is in progress.
- Rehabilitation of 4,897 km length of supply channel in 61 sub basins in 26 districts were taken up under Tamil Nadu IAMWARM Project for a value of Rs.24,724 lakh of which, works were completed for a length of 4,512 km. Works of Repairs to sluice and renewal of sluice shutters have been completed under Tamil Nadu IAMWARM Project in the irrigation systems of Palar-

Porundalar, Vardhamanadhi, Kuthiraiyar and Santhanavarthini in Dindigul District at an estimated cost of Rs.155 lakh have been completed.

4.10. Renovation of Tanks

There are 14,098 tanks under the control of Water Resources Department. These tanks contribute to a considerable area for irrigation. Rehabilitation and modernisation of tanks are being taken up in several schemes from time to time.

During the past four years, 3,387 tanks were taken up for rehabilitation at an estimated cost of Rs.87,962 lakh. Works in 146 tanks are in progress at an estimated cost of Rs.5,633 lakh. Renovation works in 4 tanks at an estimated cost of Rs.13,000 lakh are under implementation to fulfill the Chennai City drinking water supply. To ensure assured water supply for irrigation to the ayacut

under the respective irrigation systems, tanks have been rehabilitated under IAMWARM project and 13th Finance Commission Grants-in-Aid Programme. Further, rehabilitation works are under implementation with State fund and NABARD loan assistance.

The details of these works are furnished below:

- Under Tamil Nadu IAMWARM Project, rehabilitation of 2,831 tanks in 61 sub basins in 26 Districts were completed at an estimated cost of Rs.69,919 lakh. To facilitate free flow of water from the tank through the sluice into the field channel without hindrance and to measure the quantity of water released from the sluices of tanks, installation of flow measuring device and to line the head reach of field channel for a value of Rs.7,150 lakh in rehabilitated Tanks in 25 sub basins

under IAMWARM project and the works are completed.

Benefits of the project:

1) Increase in cultivable area.
2) Increase in storage capacity.
3) Increase in conveyance efficiency.

1) Increase in cultivable area

Survey has been undertaken to assess the benefit of the project with respect to the extent of area cultivated and gap in cultivation before and after implementation of the project.

From a survey conducted in 141 number of sample tanks spread across 53 sub basins in the project area with a total registered ayacut of 26,607 acre, it has been ascertained that the area cultivated has increased from 14,450 acre to 21,546 acre i.e., there is an

increase in area irrigated of about 7,096 acre (49.12%).

The average registered ayacut per sub basin is 203 acre and the gap in cultivation per sub basin prior to implementation of the project is 92 acre which has been reduced by 37 acre and 56 acre is brought under cultivation. This is attributed to the integrated approach adopted in the project.

2) Increase in storage capacity

From the survey of the 141 sample tanks in 53 sub basins, it is assessed that there is an increase in the average storage capacity of the tanks by 4% to 7% after implementation of the project.

3) Increase in conveyance efficiency

Gauge measurements have been studied in the lined canal of Parambikulam Aliyar Project and the

conveyance efficiency is observed as 97% as against the pre-project efficiency of 60%.

Restoration of Traditional Water Bodies under 13th Finance Commission Grants–in-Aid Programme

- The 13th Finance Commission recommended a grant of Rs.20,000 lakh for Restoration of Traditional Water Bodies over a period of 4 years in 4 Phases from 2011-2012 to 2014-2015. Under this Scheme, Government accorded sanction to restore 690 Traditional Water Bodies in 25 Districts, on priority basis.
- Under this scheme, strengthening of tank bund to the standards, desilting of supply channel to receive full supply from streams and catchment, rehabilitation of sluices and surplus arrangements are carried out.

- So far, restoration works in 549 tanks have been completed. Since the 13th Finance Commission's grant had expired in March 2015, the balance works in 141 tanks are proposed to be taken up under other funds.

Status of works – Abstract

(Rs. in lakh)

Sl. No	Phase	No. of Works completed	Estimate Amount	No. of Works in Progress	Estimate Amount
1	I	163	5002.50	-	-
2	II	175	4959.80	-	-
3	III	174	4549.98	13	458.12
4	IV	37	910.17	128	4119.54
	Total	**549**	**15,422.45**	**141**	**4,577.66**

Districtwise Traditional water bodies Restored / in progress in the last 4 years

(Rs. in lakh)

Sl. No	District	Restored works		Restoration in progress	
		No. of Tanks	Estimate Amount	No. of Tanks	Estimate Amount
1	Ariyalur	2	81.13	-	-
2	Coimbatore	3	57.70	-	-

Sl. No	District	Restored works		Restoration in progress	
		No. of Tanks	Estimate Amount	No. of Tanks	Estimate Amount
3	Cuddalore	20	478.68	-	-
4	Dharmapuri	5	107.00	-	-
5	Dindigul	6	196.81	1	25.52
6	Erode	6	131.74	-	-
7	Kancheepuram	23	738.95	2	45.00
8	Krishnagiri	19	492.10	-	-
9	Madurai	62	2165.47	8	272.32
10	Namakkal	18	485.00	-	-
11	Nagapattinam	-	-	4	135.00
12	Pudukottai	6	104.50	-	-
13	Ramanathapuram	51	1217.29	-	-
14	Salem	20	671.00	-	-
15	Sivagangai	36	810.27	1	-
16	Theni	9	238.34	5	277.68
17	Tiruvallur	44	1235.24	-	-
18	Tiruvannamalai	2	44.98	53	2047.14
19	Tiruvarur	-	-	4	55.42
20	Thoothukudi	13	682.50	-	-
21	Tiruchirapalli	45	1890.66	1	22.00
22	Thanjavur	42	1010.13	57	1430.08
23	Vellore	39	800.44	-	-
24	Villupuram	63	1543.82	5	267.50
25	Virudhunagar	15	238.70	-	-
	Total	**549**	**15,422.45**	**141**	**4,577.66**

- Rehabilitation of South Main Channel and its system tanks of Srivaikuntam anicut in Thoothukudi District was completed at an

estimated cost of Rs.1,000 lakh. The eighth and last anicut of Thamiraparani system is the Srivaikuntam anicut. The South Main Channel and the North Main Channel are taking off from it. Due to continuous flow, most parts of the main channel and tank sluices were completely damaged. This had resulted in wastage of water, difficulty in regulation and damages during floods. By implementing this scheme, wastage of water from the tanks and channels due to seepage has been prevented thereby benefitting an ayacut of 12,760 acre.

- Rehabilitation of Singaneri tank in Kannanthankudy Melaiyur Village in Orathanadu Taluk of Thanjavur District was completed at an estimated cost of Rs.75 lakh. The damaged Singaneri Tank bund, sluices and surplus arrangements were rehabilitated by this scheme thus benefitting an ayacut of 190 acre.

- Renovation and Modernisation of Valayathur tank in Arcot Taluk of Vellore District at an estimated cost of Rs.53 lakh was completed. This work, bridged the gap area of 755.35 acre which increases the productivity.
- Modernisation of Ramanathapuram Big Tank in Ramanathapuram District was completed at an estimated cost of Rs.973 lakh. By implementing this scheme, efficiency of the system has been improved thereby stabilising an ayacut of 3,963 acre.
- Permanent restoration of breached Thali Big tank in Krishnagiri District at an estimated cost of Rs.230 lakh was completed. By this scheme, the bund and the surplus course have been modernised and a new weir has been constructed benefiting an ayacut of 109 acre.
- Restoration of Ooty lake at a cost of Rs.225 lakh was completed. The Kodappamund channel is the main source for Ooty Lake which

originates from the hills of Kodappamund hamlet near Ooty. Cleaning and desilting works for Kodappamund channel for an amount of Rs. 120 lakh and Bioremediation of Ooty lake for an amount of Rs.5 lakh were carried out and a new Sewage Treatment Plant for an amount of Rs.100 lakh was constructed.

- Construction of a Protection wall on the Southern side of the New Sewage Treatment plant to avoid Erosion of soil in to the Ooty lake in Udhagamandalam Taluk of The Nilgiris District at an estimated cost of Rs.64 lakh was completed.
- Rehabilitation of Kottathur Tank, Sathanur Tank, Peramangalam Tank and Mahadevi Tank of Musiri Taluk in Trichy District at an estimated cost of Rs.317.40 lakh, is in progress. By implementing this scheme the ayacut of 937 acre will be benefited.
- Rehabilitation of Nagayanallur tank, Pidaramangalam Tank, Murungai

tank, Valvelputhur anicut and Maruthampatty anicut in Thottiyam Taluk in Tiruchirappalli District at an estimated cost of Rs.295 lakh, is in progress. By implementing this scheme the ayacut of 1,083 acre will be benefited.

- Rehabilitation of Perur Tank, Neyveli tank and Komangalam tank in Musiri Taluk of Tiruchirappalli District at an estimated cost of Rs.151 lakh, is in progress. By implementing this scheme the ayacut of 582 acre will be benefited.
- Modernisation and Rehabilitation of Uppar Nandhiyar Sub Basin and Marudayar Sub Basin, Tanks, Anicuts and Supply Channels in Perambalur District at an estimated cost of Rs.222.30 lakh, is in progress. By implementing this scheme the ayacut of 2,197 acre will be benefited.
- Rehabilitation of Amoor Tank in Ponneri taluk of Tiruvallur District at an estimated cost of Rs.70 lakh, is in progress. By implementing this

scheme the ayacut of 989.42 acre will be benefited.

- **Augmentation of Chennai City drinking water supply**

Hon'ble Chief Minister ordered restoration works in the drinking water supply tanks, viz., Cholavaram, Nemam, Porur and Ayanambakkam to fulfil the drinking water needs of Chennai Metropolitan city. Restoring the full capacity of tanks, creating additional storage, strengthening and standardizing these tanks are the main objectives of this scheme. This scheme is under implementation.

The details of these works taken up are detailed below:

(Rs. in lakh)

Sl. No.	Work	Capacity of tanks (in Mcft)	Addl. Capacity (in MCft)	Cost	Status
1	Chola varam	881	200	50	Work Completed

2	Porur	46	24	2,000	Work in progress
3	Ayanam bakkam	290	24	3,000	Work in progress
4	Nemam	257	320	7,950	Work in progress
	Total	**1,474**	**568**	**13,000**	

Out of the 14,098 tanks under the control of Water Resources Department, 5,227 tanks taken up for rehabilitatation have been completed under the IAMWARM Project.

In addition, 690 tanks were taken up for restoration of Traditional Water Bodies under 13th Finance Commission Grants-in-aid programme. So far, restoration works in 549 tanks have been completed. Since the 13th Finance Commission's grant had expired in March 2015, the balance works in 141 tanks are proposed to be taken up under other funds.

Further, 154 tanks are proposed to be taken up for restoration under the Repair, Renovation and Restoration Scheme of the Government of India. The remaining 8,027 tanks would be taken up for rehabilitation in the coming years under various Schemes, viz, IAMWARM Project II, NABARD Loan assistance, Repair, Renovation and Restoration, 14th Finance Commisssion Grants-in-aid programme, etc.

4.11. Flood Protection Works

Devastation by floods is a recurrent phenomenon in the State. Floods cause enormous damage to life, public property and disruptions to infrastructure, besides psychological and emotional feeling amongst the people.

In order to relieve the public from the damages to their properties and belongings, to protect their life and also to protect the vulnerable

reaches of the river banks, 27 Flood Protection Works in the Districts of Tiruchirappalli, Karur, Madurai, Cuddalore and Ariyalur were completed at an estimated cost of Rs.24,303 lakh. Besides ensuring protection from floods, an ayacut of 7,492 acre also benefited in Madurai District. Further, one Work in Madurai and Tiruchirapalli Districts at an estimated cost of Rs.1,211 lakh is in progress.

In addition, Flood Protection Works in Tiruvallur, Cuddalore, Thanjavur, Nagapattinam and Villupuram Districts at an estimated cost of Rs.63,554 lakh were completed under the Flood Management Programme.

The details of these works are detailed below:

- Flood Protection Works to Kondamvari Odai and Rehabilitation of dilapidated Anicuts and damaged Tanks and Weirs in Madurai District

were completed at an estimated cost of Rs.1,000 lakh. This scheme ensures flood protection and also stabilises an ayacut of 7,492 acre.

- 23 Flood Protection Works to the Cauvery and Kollidam river banks in Karur, Tiruchirappalli and Ariyalur Districts, including permanent protection and strengthening of bunds at vulnerable reaches, permanent protection to Srirangam Nattu Vaikkal and construction of an aqueduct at Puthur Weir for particularly preventing inundation in Tiruchirappalli and Srirangam town limits were completed at a cost of Rs.21,422 lakh.
- Flood Protection Works for Kudamurutty river in Tiruchirappalli District was completed at an estimated cost of Rs.1,672 lakh. By implementing this scheme, the adjacent areas along the Kudamurutty river bank have been relieved from inundation and damages during floods.

- Work for protecting the vulnerable portions with Protection wall and Concrete Slab in the Left Bank of the Cauvery River from mile 119/0 to 123/2 from Srirangam Nattu Vaikkal Head Sluice to Amma Mandapam in Srirangam Taluk of Tiruchirappalli District, at an estimated cost of Rs.160 lakh was completed. The Srirangam Town in Tiruchirappalli District has been protected from floods.
- Temporary Restoration of the meandering portion in the right bank of the Vellar river at Killai in Chidambaram Taluk of Cuddalore District at an estimated cost of Rs.49 lakh was completed.
- Permanent restoration and flood protection works to Anaipappankulam tank surplus course in Thirumangalam town of Madurai District at an estimated cost of Rs.1,100 lakh, is in progress. By implementing this scheme, the Thirumangalam town will be

relieved from flood inundation and flood damages.

- Protecting of Right Bank of River Cauvery at downstream of Upper anicut in Srirangam Taluk of Tiruchirappalli District at an estimated cost of Rs.111 lakh, is in progress.

- **Flood Management Programme (FMP)**

  The Flood Management Programme was implemented in the State under the Eleventh Five Year Plan as a Centre State Shared Scheme to implement the Works related to river management, flood control, drainage development and restoration of damaged structures.

  The following Flood Protection Works were completed at an estimated cost of Rs.63,554 lakh, out of which the works for a value of Rs.50,000 lakh were undertaken in the year 2011-2012.

Under this scheme, Tiruvallur, Villupuram, Cuddalore, Thanjavur and Nagapattinam Districts are protected from the Flood damages.

The works implemented under FMP are detailed below:

(Rs. in lakh)

S. No.	Name of the Scheme	Estimate
1.	Flood protection works to Araniar River at upstream and downstream of A.N.Kuppam Anicut and downstream of Lakshmipuram Anicut to Pulicat Creek in Tiruvallur District.	1,241
2.	Flood protection works to Kosasthalaiyar River from Napalayam to sea mouth in Tiruvallur District.	1,450
3.	Flood protection works to Panruti and Cuddalore Towns from Pennaiyar, Gadilam, Uppanar, Paravanar and South Malattar rivers in Cuddalore District.	6,841
4.	Flood protection works to Vellar Basin in Cuddalore and Villupuram Districts.	16,432

S. No.	Name of the Scheme	Estimate
5.	Flood protection works to Kollidam river in Thanjavur, Nagapattinam and Cuddalore Districts.	37,590
	Total	**63,554**

- **Improvements to Macro Drainages in Chennai**

Under Jawaharlal Nehru National Urban Renewal Mission Scheme (JNNURM), a Comprehensive Master Plan on improvements to macro drainages like Buckingham Canal, Otteri Nullah, Virugambakkam - Arumbakkam Drain, Velachery - Veerangal Odai and Ambattur Tank surplus are implemented by the Water Resources Department and improvements to micro drainages such as storm water drains are implemented by the Corporation of Chennai to mitigate the flood damages during monsoon period in Chennai City.

This is a Centre State Shared Scheme. At present, improvements to the macro drainages are implemented at a revised estimated cost of Rs.69,986 lakh. Out of 10 packages, Works have been completed in 6 packages and Works in 4 packages are in progress.

Status of Rehabilitation and improvements to Macro drains.

Completed Packages:

(Rs. in lakh)

Package	Name of Work	Estimate
I	Improvements to Kodungaiyur Drain, Otteri Nullah and Kolathur-Madhavaram Diversion Channel	9,018
IV	Improvements to Central Buckingham Canal from Cooum South Lock to Adyar North Lock	2,048
V	Improvements to South Buckingham Canal from Adyar South Lock to Okkiyam Maduvu (from 0 m to 10500 m) Reach I and II	5,958

Package	Name of Work	Estimate
VI	Improvements to South Buckingham Canal from Okkiyam Maduvu to Muttukkadu back water (from 10500m to 23500m)	9,036
VIII	Improvements to Ambattur Tank	2,388
X	Formation of new Diversion Channel to Korattur Tank Surplus Course in Ambattur Taluk in Tiruvallur District	2,776
	Total	**31,224**

Ongoing Packages:

(Rs. in lakh)

Package	Name of Work	Estimate
II	Improvement to Arumbakkam-Virugambakkam Drain and construction of Diversion channel from Maduravoyal to Cooum	10,827
III	Improvements to North Buckingham Canal	11,719
VII	Improvements to Veerangal Odai and Short cut Diversion Drainage for Velachery Tank	11,224

Package	Name of Work	Estimate
IX	Improvements to Porur Tank Surplus Drainage	4,992
	Total	**38,762**

4.12. Coastal Protection Works

Shoreline changes induced by erosion and accretion are natural processes that take place over a period of time. They may occur in response to events, such as storms, regular wave action, tides, winds, etc., Hence, most coastlines are naturally dynamic and cycles of erosion are often an important feature of their ecological character. The State of Tamil Nadu has a coastal length of about 1,076 km covering 13 Districts, viz, Kancheepuram, Chennai, Thiruvallur, Villupuram, Cuddalore, Nagapattinam, Thiruvarur, Thanjavur, Pudukottai, Ramanatha-puram, Tirunelveli, Thoothukudi and Kanyakumari. The occurrence of frequent cyclones during the North East monsoon period is a most

common phenomenon, which badly affects the coastal line besides threatening the livelihood of fishermen communities and the public dwelling along the coastal line and damaging their properties and belongings. This requires serious attention and thus the Government have been taking several measures to alleviate this problem.

In Kanyakumari, Thoothukudi, Tirunelveli, Nagapattinam, Tiruvallur, Villupuram and Cuddalore Districts, 53 Coastal Protection works at an estimated cost of Rs.26,162 lakh have been taken up. Out of which, 36 works at an estimated cost of Rs.11,264 lakh were completed. 1 work at an estimated cost of Rs.3,182 lakh is to be commenced. Since the 13th Finance Commission's grant had expired in March 2015, the balance works are proposed to be taken up under other funds.

The details of these works are furnished below:

- Construction of Groyne at Enayamputhanthurai in Vilavancode Taluk of Kanyakumari District was completed at an estimated cost of Rs.350 lakh. The Groyne protects about 400 fishermen familes in the area from natural hazards during monsoon. It has also facilitated safe boat landing and fishing besides protecting the coast line from erosion.
- Rehabilitation and raising the existing RMS wall to a height of 2 m to avoid intrusion and erosion due to high sea waves from LS 13/100 km to 18/640 km along the coastal area from Nethaji Nagar to Nettukuppam in Madhavaram Taluk of Tiruvallur District, at an estimated cost of Rs.2,658 lakh, was completed. This scheme prevents sea water ingress and erosion due to high waves.

- Construction of a series of 10 numbers of Groynes from Ernavoorkuppam to Ennore from LS 15/200 km to 19/000 Km along the coastal area in Madhavaram Taluk of Tiruvallur District was sanctioned at an estimated cost of Rs.3,182 lakh. Environmental Study for obtaining Environmental Clearance has been completed. Clearance under Coastal Regulation Zone (CRZ) Notification 2011 had been obtained. Work will commence soon.

Coastal Protection Works under 13th Finance Commission Grants–in-Aid programme

- The 13th Finance Commission recommended a Grant of Rs.20,000 lakh for Coastal Protection Works over a period of 4 years (3 Phases) from 2011-2012 to 2014-2015. To protect the livelihood of people, land and properties of the Villagers and to achieve stability of the coastal site,

vulnerable reaches were identified on priority basis in 7 Districts to execute 49 Coastal Protection Works at a cost of Rs.19,972 lakh, out of which, 34 works were completed. Since the 13th Finance Commission's grant had expired in March 2015, the balance works are proposed to be taken up under other funds.

- Districtwise Coastal Protection Works completed / in progress in the last 4 years are given below:

(Rs. in lakh)

Sl. No.	District	No. of works	Estimate Amount
1	Villupuram	1	42.00
2	Kanyakumari	18	1878.10
3	Nagapattinam	8	5812.30
4	Tiruvallur	3	328.80
5	Tirunelveli	1	25.00
6	Thoothukudi	3	169.40
	Total	**34**	**8,255.60**

Completed Works

(Rs. in lakh)

Sl. No	Name of Work	Estimate Amount
	Villupuram /Cuddalore Districts	
	Phase - I (2011- 2012)	
1	Collecting field bed levels along the coast covering required stretch and seaward covering breaker zone and collection of other details like tidal current, alongshore current, etc., at Mudaliyarchavadi, Bommaiyarpalayam and Sodanaikuppam in Vanur Taluk of Villupuram District and Thazhanguda to Nampattinam in Cuddalore Taluk of Cuddalore District.	42.00
	Total	**42.00**
	Kanyakumari District	
	Phase - I (2011- 2012)	
1	Reformation of existing RMS Wall for a length of 110 m at Vavathurai in Agastheeswaram Taluk of Kanyakumari District.	23.20
2	Reformation of RMS Wall for a length of 230 m at Erayumanthurai West in Vilavancode Taluk of Kanyakumari District.	72.80
3	Construction of RMS Wall for a length of 50 m at Chinnathurai in Vilavancode Taluk of Kanyakumari District	16.00

Sl. No	Name of Work	Estimate Amount
4	Reformation of RMS Wall for a length of 200 m and Construction of RMS Wall for a length of 100m at Kadiyapattinam in Kalkulam Taluk of Kanyakumari District	67.00
5	Construction of RMS Wall for a length of 525 m and Reformation for a length of 300 m of the existing RMS Wall at Leepuram in Agastheeswaram Taluk of Kanyakumari District	260.80
6	Construction of RMS Wall for a length of 205m and Reformation for a length of 245m of the existing RMS Wall at Chinnamuttam in Agastheeswaram Taluk of Kanyakumari District	133.60
7	Reformation of RMS Wall for a length of 260m near Church & West side of Poothurai in Vilavancode Taluk of Kanyakumari District	78.50
8	Construction of RMS Wall for a length of 500m at Gap between Poothurai and Thoothur in Vilavancode Taluk of Kanyakumari District	187.90
9	Construction of RMS Wall to a length of 250 m at Colachel in Kalkulam Taluk of Kanyakumari District	106.00
10	Reformation of the existing RMS Wall for a length of 570 m at Puthenthurai in Agastheeswaram Taluk of Kanyakumari District	124.00

Sl. No	Name of Work	Estimate Amount
11	Reformation of RMS Wall for a length of 420 m at Kodimunai in Kalkulam Taluk of Kanyakumari District	116.70
12	Reformation of the existing RMS Wall for a length of 180 m at Melamanakudy in Agastheeswaram Taluk of Kanyakumari District	41.00
	Phase II (2012-2013)	
13	Reformation of the existing RMS Wall for a length of 1200 m at Keezhamanakudy in Agastheeswaram Taluk of Kanyakumari District	213.00
	Phase III (2013-2014)	
14	Reformation of the RMS Wall at Mulloorthurai in Vilavancode Taluk of Kanyakumari District	28.10
15	Construction of RMS Wall for a length 460 m at Kotilpadu in Kalkulam Taluk of Kanyakumari District	324.00
16	Construction of RMS Wall for a length of 520 m at Kesavanputhanthurai in Agastheeswaram Taluk of Kanniyakumari District	131.00
17	Construction of RMS Wall at Melmidalam in Vilavancode Taluk of Kanniyakumari District	69.50

Sl. No	Name of Work	Estimate Amount
18	Reformation of RMS Wall at Poothurai in Vilavancode Taluk of Kanniyakumari District	209.00
	Sub Total	**1878.10**
	Nagapattinam District	
	Phase - I (2011- 2012)	
1	Construction of RMS Wall at Akkaraipettai village in Nagapattinam Taluk and District to a length of 1000 m upto +3.66 m.	517.90
2	Construction of RMS Wall at Pazhayar Village in Sirkali Taluk in Nagapattinam District to a length of 1000 m upto + 3.25 m.	596.50
3	Construction of RMS Wall at Kallar Village in Nagapattinam Taluk and District to a length of 700 m upto +3.66 m.	364.90
4	Collecting field bed levels along the coast covering required stretch and seaward covering breaker zone and collection of other details like tidal current, along shore current etc., at Vanagirikuppam and Thirumullaivasal in Sirkali Taluk and Seruthur and Samanthanpettai in Sirkali Taluk of Nagapattinam District.	42.00

Sl. No	Name of Work	Estimate Amount
	Phase II (2012- 2013)	
5	Construction of RMS Wall at Seruthur Village in Nagapattinam District to a length of 200 m on river side and 490 m on Sea Shore Side up to +1.80 m and +3.66 m	350.00
6	Construction of Spurs at Thirumullaivasal village in Sirkali Taluk of Nagapattinam District to a length of 100 m up to +4.50 m	546.00
7	Construction of RMS Wall for a length of 950 m and Construction of Groynes at Vanagirikuppam in Sirkali Taluk of Nagapattinam District.	1698.00
8	Construction of RMS Wall for a length of 500 m and Construction of Groynes at Vanagirikuppam in Sirkali Taluk of Nagapattinam District.	1697.00
	Sub Total	**5812.30**
	Tiruvallur District	
	Phase - I (2011- 2012)	
1	Urgent protection and replenishment to the existing damaged Rubble Mound Sea Wall along Ennore Express Way in North Chennai near Chinnakuppam from LS 15/580 km to 15/760 km.	62.20
2	Urgent protection and replenishment to the existing damaged Rubble Mound	66.90

Sl. No	Name of Work	Estimate Amount
	Sea Wall along Ennore Express Way in North Chennai near Periyakuppam from LS 16/110 km to 16/290 km.	
3	Urgent protection and replenishment to the existing damaged Rubble Mound Sea Wall along Ennore Express Way in North Chennai near Thalankuppam from LS 16/850 km to 17/350 km.	199.70
	Sub Total	**328.80**
	Tirunelveli /Thoothukudi Districts	
	Phase - I (2011- 2012)	
1	Collecting field bed levels along the coast covering required stretch and seaward covering breaker zone and collection of other details like tidal current, alongshore current, etc, at Punnakayal village in Thiruchendur Taluk of Thoothukudi District and at Idinthakarai, Uvari in Radhapuram Taluk of Tirunelveli District.	25.00
	Sub Total	**25.00**
	Thoothukudi District	
1	Construction of RMS Wall for a length of 230 m in Vivekanandar Colony at Saveriyarpuram village in Thoothukudi District	68.72

Sl. No	Name of Work	Estimate Amount
	Phase II (2012- 2013)	
2	Reformation of RMS Wall for a length of 350 m near Collector's Bungalow and Beach Road in Thoothukudi District	67.00
	Phase III (2013- 2014)	
3	Extension of RMS Wall for a length of 80 m and 15 m Bell Mouth in Vivekanandar colony at Saveriyar-puram village in Thoothukudi District	33.68
	Sub Total	**169.40**
	Grand Total	**8,255.60**

4.13. Climate Change Adaptation

Hon'ble Chief Minister ordered that development works at a cost of Rs.1,56,000 lakh for Climate Change Adaptation Programme in Cauvery Delta would be implemented with the loan assistance of Asian Development Bank (ADB).

The Climate Change Adaptation through Sub-Basin Development Programme (CASDP) supports the implementation of the Government of India's National Action Plan on

Climate Change (NAPCC) of 2008 and its National Water Mission (NWM). As part of support to the NAPCC, ADB has prepared sub-basin profiles and a strategic frame work for Climate Change adaptation in 3 sub basins all over India.

The Cauvery Delta is one of the chosen locations by the ADB for the study of impact on surface and ground water due to perceived rise in sea level that might be caused by Climate Change. The terrain in the upstream for a length of about 25 km from the tail end regulators of the Cauvery delta is almost flat which impedes the drainage of flood flows. The rise in sea level could also worsen effective drainage of flood water into the sea and aggravate saline water ingress into the fertile lands.

By executing this scheme, protection of the coastal areas in the Cauvery Delta will be ensured. The structures to be constructed

would act as flood absorbers, facilitating effective use of flood water through recharging the ground water resources and preventing the saline water ingress into the fertile lands. This scheme will benefit an ayacut of about 4.50 lakh acre under Cauvery, Vennar, Grand Anicut Canal System and Lower Coleroon Anicut System covering the Districts of Tiruvarur, Nagapattinam and a part of Thanjavur.

The scheme is proposed to be implemented at a cost of about Rs.1,56,000 lakh, out of which the loan assistance of Asian Development Bank will be Rs.1,09,200 lakh and the State share will be Rs.46,800 lakh.

As a first stage of this project, it is proposed to take up works in the following rivers and drains of the part of Lower Vennar System of the Cauvery Delta, as a "Stand Alone Project":

1. Adappar
2. Harichandranadhi
3. Pandavayar
4. Vellaiyar
5. Valavanar Drain
6. Vedaraniyam Canal

The Detailed Project Report for the Lower Vennar System has been prepared at an estimated cost of Rs.84,063 lakh for which Administrative Sanction has been accorded. Further, orders have been issued to call for tenders for two rivers viz., Vellaiyar and Pandavayar for a value of Rs.25,738 lakh in anticipation of the signing of the agreements with the Asian Development Bank. The draft Procurement documents for Vellaiyar river, Pandavayar river and Pumping schemes have been sent to ADB for approval. The project works will commence early.

4.14. Innovative schemes, Memorials, Buildings and related infrastructure

Memorials are constructed from time to time to commemorate the historical achievements of the great personalities, so that the present and future generation could appreciate the painful efforts taken in achieving their dreams realised.

- Platinum Jubilee Memorial was constructed on the right flank of Mettur dam to commemorate the 75th year of Mettur dam, at an estimated cost of Rs.105 lakh. **The memorial was inaugurated by the Hon'ble Chief Minister on 03.03.2012.**
- Colonel J.Pennycuick Memorial at a cost of Rs.125 lakh constructed on the orders of **Hon'ble Chief Minister** was inaugurated on 15.01.2013.

- **King Karikala Cholan Memorial**

The Grand Anicut built by the great emperor Karikala Cholan in 2nd century across the River Cauvery stands a testimony to the fact that irrigated agriculture and "kudimaramathu" were prevalent from time immemorial. This marvelous structure had been the pioneer irrigation infrastructure in the Country. In order to honour the noble efforts of this great emperor, the **Hon'ble Chief Minister** ordered to construct a memorial for King Karikala Cholan at Kallanai.

The memorial was constructed at an estimated cost of Rs.210 lakh and was inaugurated by the **Hon'ble Chief Minister on 12.02.2014**.

Further, the infrastructural facilities viz., Quarters for the officials incharge of irrigation and Inspection Bungalows / Project Houses etc., at various locations were in urgent need of renovation and new ones

are to be constructured based on necessity. Keeping this in view, during the last four years, 79 works were sanctioned at an estimated cost of Rs.1,536 lakh under Part II Scheme for Construction of quarters, Office buildings, Renovation of Inspection Bungalows, Project Houses, etc., out of which, 78 works were completed at an estimated cost of Rs.1,486 lakh. 1 work at an estimated cost of Rs.50 lakh is in progress. The details are furnished below:

- Renovation of Dormitory Block - II at Thekkady is to be commenced at an estimated cost of Rs.50 lakh after obtaining the clearance from the Forest Department.

4.15. Formation of Roads and Construction of Bridges

In many locations, the public especially, women and children find it very difficult during rainy and

flood situations in crossing small streams and channels. Further pucca approaches are required to protect the banks permanently, where the river banks are utilised for inspection purposes. In order to fulfil the requirement of the public and to ensure their safety during flood times, new bridges and roads were constructed in the Districts of Tiruvallur, Erode, Tiruchirappalli, Thanjavur, Ariyalur, Dindigul and Ramanathapuram at an estimated cost of Rs.2,664 lakh. Besides, construction of 2 new bridges in Ariyalur and Tiruvallur Districts and one road in Ramanathapuram District at an estimated cost of Rs.5,570 lakh are in progress.

Details of the works are as under:

- In order to protect the bridge abutting along the regulator, construction of a low level bridge across Kosasthalaiyar downstream side of Sathiyamoorthy Sagar Reservoir at Poondi in Tiruvallur

Taluk and District at an estimated cost of Rs.286 lakh was completed. This low level bridge connects the Poondi Panchayat road to Rangapuram, Krishnapuram, Nayabakkam, Nambakkam and Ariyathur Village roads etc.

- Construction of bridge at Ambalavarkattalai to Sundagudi road in Km 3/2 across Maruthaiyaru river (Km 51/0) in Ariyalur Taluk and District at an estimated cost of Rs.1,000 lakh was completed.

- Construction of the following new Bridges in Ariyalur Taluk and District was completed.

  1. Bridge across Uppodai (LS 400 m) in Palayapadi Village in Ariyalur Taluk and District at an estimated cost of Rs.26 lakh.
  2. Bridge across Nandiyar main canal at mile 5/4-5 in Kulamanikkam Village in Ariyalur Taluk and District at an estimated cost of Rs.26 lakh.

3. Construction of bridge across Pullambadi main channel at mile 49/3 in Kattur village of Ariyalur Taluk and District at an estimated cost of Rs.12 lakh.

- Construction of High Level Bridge at Vayalur Road crossing across Kudamuruty River in Tiruchirappalli District at an estimated cost of Rs.280 lakh was completed.
- Construction of 3 Bridges in Erode District sanctioned at an estimated cost of Rs.116 lakh were completed.
- Improvements to the approach road to the memorial of Late Thiyagi Immanuel Sekaran in Paramakudi Taluk of Ramanathapuram District were completed at an estimated cost of Rs.260 lakh.
- Walking path and Landscaping arrangements in both banks of Grand Anicut Canal from Irwin Bridge to Nagapattinam Road Bridge in Thanjavur Town were completed at an estimated cost of Rs.235 lakh.

- Formation of BT Road on Left Bank of Uyyakondan channel in Tiruchirappalli District at an estimated cost of Rs.200 lakh was completed.
- Formation of BT Road on Right Bank of Kudamuruty river from Puthur weir in Tiruchirappalli District at an estimated cost of Rs.160 lakh was completed.
- Construction of a Causeway across Kuthiraiyar river and a Culvert in Panchanthangi supply channel near Myladumparai in Pappampatti Village of Palani Taluk in Dindigul District at an estimated cost of Rs.63 lakh was completed.
- **Hon'ble Chief Minister,** during the Collectors' Conference, 2012, announced the construction of a High level bridge across river Kollidam at mile 45/5 in Azhagia-manavalam Village to connect left bank of Kollidam with Melaramanallur Village in Ariyalur Taluk and District at an estimated cost of Rs.4,800 lakh, which is in

progress. This scheme enables the public an easy access to schools, colleges and hospitals.

- Construction of a Causeway across Cooum river at Choranchery Village of Poonamallee Taluk in Tiruvallur District at an estimated cost of Rs.120 lakh is in progress.
- Formation of Service Road on the right side bund of Vaigai River in Paramakudi Town at Ramanatha-puram District at an estimated cost of Rs.650 lakh is in progress.

4.16. Development of Parks

The irrigation infrastructure such as Dams, Regulators etc., besides serving the irrigation and drinking water supply needs have become tourist and picnic spots. To attract more number of tourist, it has become necessary to create recreation facilities and other development activities. The following works have been taken up in Namakkal, Thanjavur and

Tiruchirappalli Districts at an estimated cost of Rs.1,174 lakh.

- Development of Park in Mukkombu in Srirangam Taluk of Tiruchirappalli District at an estimated cost of Rs.310 lakh was completed.
- Development of Kallanai Tourist spot at an estimated cost of Rs.408 lakh in Thanjavur District was completed.
- Development of Park arrangements at Jederpalayam in Namakkal District at an estimated cost of Rs.456 lakh was completed.

4.17. Command Area Development and Water Management Programme (CADWMP)

Under Command Area Development and Water Management Programme, the Correction of System Deficiency component in the systems of capacity upto 150 cusecs was completed in the year 2011-2012 at an estimated cost of Rs.1,441 lakh benefitting an ayacut

of 59,321.25 acre in the following projects:

1. Wellington Reservoir Project in Cuddalore District.
2. Thirukoilur Anicut Project in Villupuram District.
3. Gundar - Chittar - Karuppanadhi Project in Tirunelveli District.

4.18. Other achievements

4.18.1. State Water Resources Management Agency (SWaRMA)

The SWaRMA has created and web hosted a strong e-governance Geographic Information System (GIS) based web enabled inter-sectoral tool "Tamil Nadu Water Resources Information System" (TNWRIS) which is similar to INDIA-WRIS and hosted by the Central Water Commission (CWC) to help towards efficient, integrated Water Resources Management and Regulation. The data base has been

made available among the line Departments for better service delivery.

The web site "TNWRIS" developed by the SWaRMA is appreciated and lauded by one and all, viz-a-viz the World Bank, Central Water Commission, Ministry of Water Resources, River Development and Ganga Rejuvenation and other States and the SWaRMA has been nominated as the nodal organisation for Hydrology Project – III for assisting other States in creating similar web portal.

This web enabled data base, which is very much useful for decision making in managing water, is capable of Geo-visualization and serves as an e-governance tool which will help the Administrators in the optimal use and management of water resources and in taking Tamil Nadu forward for full utilisation of irrigation potential and to maximize crop production per unit of water.

The SWaRMA serves as a hub for various infrastructure development schemes and updating the state of the art and allied technology, GIS training programmes and workshops on preparation of Detailed Project Report (DPR) as per Government of India's guidelines are also part of the SWaRMA activities.

The agency has also published a number of publications essential and useful for the Engineers and Scientists. "The Water Resources field hand book for Madurai Region" which is a ready reckoner on all aspects of water resources of Madurai Region for better basin planning and service delivery and the preparation of hand book for other three regions are in progress.

4.18.2. Participatory Irrigation Management (PIM)

Tamil Nadu is one among the Pioneering States in promoting

Participatory Irrigation Management. "The Tamil Nadu Farmers' Management of Irrigation Systems Act, 2000 (TN Act 7/2001)" was enacted. The Act has been brought into force in the State and envisages constitution of Farmers' Organisations in the entire command area of all the irrigation systems under management of the Water Resources Department, as follows:

a. "Water Users' Association"(WUA) at the Primary level consisting of all the water users.
b. "Distributory Committee" at the secondary level.
c. "Project Committee" at the project level

In the Water Resources Consolidation Project (WRCP), 1,566 Water Users' Associations are formed during 2004 covering a command area of about 6.00 lakh hectare in 20 Districts.

In the IAMWARM Project, 2,815 Water Users' Associations have been delineated in the 61 Sub basins under Phase I, II, III & IV covering a command area of 6.70 lakh hectares.

2,896 newly elected Presidents of the Water Users' Associations have benefitted so far by Orientation Training Programme which was organised by the Irrigation Management Training Institute at Tirucirapalli.

In TN IAMWARM project, necessary training has been arranged to create awareness among the farmers regarding PIM activities and build capacity to Water Users' Associations, by engaging Support Organisations. WUAs under phase I & II, sub basins have been divided into 13 packages. Out of 13 packages, Support Organisations have been procured for 7 packages. 6 Support Organisations have

completed the Capacity Building Training to Water Users' Associations and one Support Organisation has partially completed the Capacity Building Training to WUAs.

A new Alternate model for the Capacity Building Training to Water Users' Associations under Phase III & IV and left out WUAs of Phase I & II has been recommended & approved by World Bank during World Bank Mission February 2013. Government have accorded administrative sanction for Rs.2,204 lakh on 22.05.2013. In this Alternate Model, out of 1,106 training programmes, 969 two days training and 714 one day follow up training programmes have been completed so far. The balance Capacity Building training programmes are under progress.

Government have accorded administrative sanction for Rs.30.32 lakh for conducting training

programmes for Competent Authorities (Assistant Engineers / Junior Engineers) on PIM activities during 2012. 143 Competent Authorities have been trained in 5 batches under Phase I & II of IAMWARM Project during 2012-2013.

Government have accorded administrative sanction for Rs.48.60 lakh on 25.02.2014 for conducting training programmes for Competent Authorities 240 (Assistant Engineers / Junior Engineers) on PIM activities. 182 Competent Authorities have been trained in 8 batches under Phase III and Phase IV by IMTI, Tiruchirapalli.

The Participatory Irrigation Management Programme has developed to encourage the participation of the farmers in Irrigation Management and Operation & Maintenance of

Irrigation system and positive changes are taking place.

4.18.3. Information Technology and Information Management System

Institutional Modernization of the Water Resources Department through Information Technology (IT) and Information Management System has been taken up under the IAMWARM Project. This will facilitate in streamlining and improving efficiency of the Water Resources Department with better planning and management through decisions that emerge by timely flow of information at all levels.

For implementation of the Information Technology and Information Management System, an amount of Rs.4,244 lakh was sanctioned and the works are being executed through M/s.Electronics Corporation of Tamil Nadu Ltd (ELCOT).

Procurement of Hardware:

The Water Resources Department has been strengthened by procurement and installation of 1,565 Desktop Computers & 330 Laptops with necessary Computer Peripherals. Local Area Network (LAN) has been established in 142 Offices.

Enterprise Information Management System (EIMS)

The implementation of Enterprise Information Management System in the department will provide the right information to the right persons at the right time to facilitate in making decisions for effective water service delivery to the utmost benefit of the farmers in the State of Tamil Nadu.

Enterprise Information Management System, a Web based Application to computerize all the Departmental activities to achieve enhanced productivity, communication transparency and reduced

documentation including provision of Water Resources related information to the General Public is being designed and developed by the Consultant M/s.Tech Mahindra Limited at a cost of Rs.833 lakh.

The design of all the 32 modules and the development of 20 modules have been completed. The Enterprise Information Management System will be completed and implemented by June, 2015.

Providing Wide Area Network (WAN)

For effective electronic data information exchange, it was decided to connect 142 Local Area Network Offices by Wide Area Network (WAN) under the Tamil Nadu State Wide Area Network (TNSWAN). Work has been completed for 55 selected Offices under Stage-I through M/s ELCOT at a cost of Rs.168.50 lakh under State fund. Administrative sanction for

Rs.203.48 lakh for providing WAN connections to 79 WRD offices under Stage-II through TNSWAN has been accorded.

4.18.4. Training

Under IAMWARM Project, Rs.846 lakh has been allotted for Capacity Building of Officers of the Water Resources Department.

322 Training programmes comprising Technical Training, Study Tours and Information Technology Trainings have been conducted for 5,803 Officers of the Water Resources Department upto 31.03.2015. The total expenditure incurred for all the Trainings, Study Tour Programmes is Rs.620 lakh.
During the year 2015-2016, Study Tours are proposed to be conducted for officers of WRD through IMTI, Tiruchirapalli.

4.18.5. Quality Management and Technical Supervision

As per the Project Appraisal Document, Rs.1,500 lakh has been allotted for this Consultancy Service to assist the Quality Management System and to develop techniques to improve quality management. Administrative Sanction has been accorded for Rs.978 lakh. An Agreement has been signed with M/s.WAPCOS Ltd, (A Government of India Undertaking) and the work was commenced on 14.03.2011.

M/s.WAPCOS Ltd., has established Ground and Mobile Laboratories at Irukkangudi and Villupuram. Revised Administrative Sanction accorded for Rs.1,248 lakh. Collection of samples and conducting tests for assuring the quality of the Works are being carried out by the firm. So far, 50,000 quality control tests have been conducted by M/s.WAPCOS.

Revised Administrative Sanction of Rs.1,400 lakh with additional cost of Rs.152 lakh is under consideration, so as to continue the work in the extended project period. The Quality control test for the left out works and additional schemes are under progress.

4.18.6. Procurement of Software, Scientific Equipments and Instruments, etc.,

For the Procurement of Software, Scientific Equipments and Instruments, Administrative Sanction was accorded for an amount of Rs.250 lakh. The procurement of Software such as AUTOCAD, Civil 3D 2012, Arc GIS, FEM and scientific equipments and instruments such as Total Station, GPS and Lab equipments for the various Offices of the Water Resources Department have been completed.

4.18.7. Environmental Activities

Environmental activities such as Environmental Impact Assessment, Awareness Programmes, Testing of water and soil samples, etc., are being carried out in Phase I, II, III and IV, Sub-basins for which Administrative Sanction has been accorded for Rs.773 lakh. An expenditure of Rs.733 lakh has been incurred so far. The positive and negative impacts regarding environmental and social aspects due to implementation of the Project in the Sub-basin areas along with the mitigation measures are presented in the Environmental Impact Assessment Reports.

4.18.8. Irrigation Research Fund

Under Tamil Nadu IAMWARM Project, in order to foster research in Irrigation Development and Management by conducting research studies by private sector, academic and department staff,

Government have constituted Irrigation Research Advisory Committee under the Irrigation Research Fund. Administrative Sanction has been accorded for an amount of Rs.153.02 lakh for taking up seven research studies in the field of Re-Use of waste water (Industry & Domestic) for Irrigation, Assessment of project performance, Development of real time flood forecasting and Management system and Research study for the implementation of community collaborative Water Management have been taken up and are nearing completion.

4.19. Award for best maintained dam

Hon'ble Chief Minister, in order to give a fillip for maintaining the dams in good condition, has instituted an award for the "Best Maintained Dam". This award is being given by the **Hon'ble Chief Minister** every year for the selected dam.

For the year 2011-2012, Vaigai Dam was selected as the best maintained dam.

For the year 2012-2013, MULLAI PERIYAR Dam was selected as the best maintained dam.

For the year 2013-2014, the Parambikulam group of Dams (Parambikulam, Thunacadavu and Peruvaripallam) were selected as the best maintained dams.

4.20. Database of Tanks maintained by WRD and Protection of Tanks

4.20.1. Assigning unique identification for WRD Tanks

Assigning unique identification for WRD Tanks was taken by IWS and the total number of tanks identified under WRD is 14,098. Details of tanks were digitized and attributes were generated with unique code for each tank. The Regionwise and

District wise details of tanks are as follows :

Regionwise WRD Tank details

Chennai Region	4,003
Tiruchirapalli Region	2,352
Madurai Region	7,559
Coimbatore Region	184
Total	**14,098**

Districtwise WRD Tank details

S.No.	District	Nos.
1.	Chennai	2
2.	Tiruvallur	608
3.	Kancheepuram	946
4.	Vellore	519
5.	Tiruvannamalai	698
6.	Villupuram	841
7.	Dharmapuri	73
8.	Krishnagiri	87
9.	Salem	107
10.	Cuddalore	229
11.	Erode	22
12.	Namakkal	79
13.	Tiruppur	40

S.No.	District	Nos.
14.	Coimbatore	27
15.	Nagapattinam	5
16.	Tiruvarur	30
17.	Thanjavur	636
18.	Pudukkottai	1,130
19.	Tiruchirapalli	178
20.	Perambalur	73
21.	Ariyalur	95
22.	Karur	19
23.	Sivagangai	1,440
24.	Ramanathapuram	622
25.	Madurai	1,337
26.	Dindigul	190
27.	Theni	135
28.	Virudhunagar	341
29.	Tirunelveli	1,326
30.	Thoothukudi	220
31.	Kanniyakumari	2,043
	Total	**14,098**

4.20.2. Protection of Tanks and Eviction of Encroachments

It has become imperative to protect the water bodies from encroachments and disuse. The

tanks and their components, if not protected and restored to their original capacity, may cause reduction in area of cultivation and thereby reduction in food grains production, depletion of groundwater and environmental degradation. In order to protect the tanks in the State, awareness is being created among the general public especially at village level on the need to keep the tanks in original shape through hand bills, wall posters, print media and "tom-tom". Works such as delineation of tank boundaries, eviction of encroachments and planting of RCC poles along the tank boundaries are being executed for preventing encroachments. Out of the 14,098 tanks maintained by Water Resources Department, 4,087 tanks have been fully restored, and in the remaining tanks, protection works are in various stages of implementation.

TAMILNADU PROTECTION OF TANKS AND EVICTION OF ENCROACHMENT ACT

STATUS OF IMPLEMENTATION

Sl. No.	Region	No. of Tanks under the control of WRD	No of tanks fully restored	No. of Tanks under different stages			
				Surveying	Eviction of Encroachments	Erecting boundary stones	Live Fencing
1	Chennai	4003	783	820	360	466	1
2	Tiruchirapalli	2352	1408	700	86	158	---
3	Madurai	7559	1797	2238	5473	1924	---
4	Coimbatore	184	99	31	28	26	---
	TOTAL	**14,098**	**4,087**	**3,789**	**5,947**	**2,574**	**1**

4.21. Krishna Water Supply Project

As per the Inter-State Agreement between the Government of Andhra Pradesh and Government of Tamil Nadu on 18.04.1983, the Government of Andhra Pradesh has to deliver 12 TMC ft. of water at Tamil Nadu Border, every year as below:

July to October – 8 TMC ft. (4 Months)

January to April – 4 TMC ft. (4 Months)

S. No.	Year	Quantity of Water (in TMC feet)
1.	2011-2012	8.056
2.	2012-2013	4.700
3.	2013-2014	5.665
4.	2014-2015 (Upto 28.06.2015)	5.569

During the past 4 years the following quantity of water has been realized at Tamil Nadu border.

During the current year 2014-2015, the quantity of water to be realized at Tamil Nadu border as per agreement and the quantity of water actually realized at Tamil Nadu border are detailed below:-

Water to be realized at Tamil Nadu Border As per Agreement		Water actually realized at Tamil Nadu Border (Water Year 2014-2015)		Balance Quantity in TMC feet
Period	Quantity in TMC feet	Period	Quantity in TMC feet	
01.07.2014 to 31.10.2014	8.00	05.08.2014 to 31.12.2014	3.013	4.987
01.01.2015 to 30.04.2015	4.00	01.01.2015 to 28.06.2015	2.556	1.444
Total	**12.00**		**5.569**	**6.431**

As per the Agreement, a Liaison Committee has been formed comprising the Chief Secretaries of the two States with senior officials. To resolve the issues like payment of balance amount of Tamil Nadu's share to Government of Andhra Pradesh as well as delivering the agreed quantity of water at Tamil Nadu border by Government of Andhra Pradesh, the 43rd Liaison Committee meeting was held on 28.01.2015, at Hyderabad.

During the meeting, the Government of Tamil Nadu gave Rs.2,500 lakh towards its share to the Andhra Pradesh and also assured to give another Rs.2,500 lakh by March 2015. The Andhra Pradesh has also agreed to increase the realization of water at the Tamil Nadu entry point to a minimum of 500 cusecs and to give 3 TMC ft. of water within two months (i.e. February and March) as requested by Tamil Nadu.

The expenditure for the project was agreed to be shared between two states as per the agreement signed between the two States on the basis of the share of water. The share of Tamil Nadu in the cumulative common component-wise expenditure of the Telugu Ganga Project up to March 2012 is Rs.1,02,421.50 lakh as furnished by the Andhra Pradesh. Amount so far remitted to Andhra Pradesh is Rs.66,200 lakh. Balance amount to

be remitted to Andhra Pradesh is Rs.36,221.50 lakh.

5.0. ROAD MAP FOR VISION 2023

Under the dynamic and visionary leadership and guidance of the **Hon'ble Chief Minister**, the Water Resources Department has been taking many initiatives to ensure **"Assurance of timely irrigation",** the core principle of the Vision 2023. While continuing the implementation of the on-going schemes, new proposals to face the challenges of ever increasing demand for water for irrigation, drinking and industrial purposes have been identified and a Road Map to achieve this goal have been chalked out.

Hon'ble Chief Minister with great foresight has given due priority for the development of Irrigation infrastructure and constituted two Committees to study, analyse the system and to give recommenda-

tions to the Government. The two Committees are:

1) Task Force Committee -Vision 2023
2) Committee on Effective Utilization of the North-East Monsoon Generated flood Water

5.1. Vision Document for Tamil Nadu 2023

Hon'ble Chief Minister released the "Vision Document for Tamil Nadu" in March 2012 with clear goals to be achieved by the year 2023 coinciding with two Five Year Plan periods. A sum of Rs.16,00,000 lakh has been earmarked for Agricultural sector / Irrigation for improving water resources. This includes restoration of wells, tanks and dams and improving the connectivity of dams and canals and extending micro irrigation. The vision also envisages establishment of service centres of

excellence which includes water resources management.

5.1.1. Vision 2023 Phase 2 – Strategic plan for infrastructure development in Tamil Nadu

Hon'ble Chief Minister released the Phase 2 of the Vision document covering the Project Profiles of the Vision Tamil Nadu 2023 – Strategic Plan for Infrastructure Development in Tamil Nadu on 17.02.2014. In this document, schemes proposed to be taken up by the WRD are detailed under the heads of Agriculture and Irrigation Sector and Urban Infrastructure Water Storage and Supply, Solid Waste Management and Housing.

The proposed projects are:

(Rs. in lakh)

Sl. No.	Description	Approximate Cost
1	New Water Reservoir in Tiruvallur District	50,000

Sl. No.	Description	Approximate Cost
2	Strengthening and augmenting existing storage capacity of existing water bodies	3,50,000
3	Creation / Restoration of water bodies	1,75,000
4	Restoration of Chennai City Water Ways	10,00,000
5	Rehabilitation of Tanks and Wells	22,50,000
6	Effective Utilisation of North East Monsoon Drainage Water, Coastal Zone and Cauvery Delta irrigation development plan	3,00,000
7	Lining of major canals in Tamil Nadu	5,00,000
8	Dam Rehabilitation and Improvement Project	75,000
9	Improvement of existing irrigation assets and Inter-linking of Rivers within the State	10,00,000
	Total	**57,00,000**

A total outlay of Rs.57,00,000 lakh has been proposed for taking up these projects over a period of next ten years.

5.1.2. Recommendations of Task Force Committee – Vision 2023

For preparing a systematic programme of execution in Irrigation Sector and to accomplish the targeted goals of the Vision 2023, a Task Force Committee was constituted and this Committee has finalised its report and has come up with the following initiatives:

(Rs. in lakh)

Sl. No.	Description	Approximate Cost
1	Construction of new storages including farm ponds.	1,19,900
2	Construction of artificial recharge structures.	1,30,100

Sl. No.	Description	Approximate Cost
3	Increasing the storage capacity of selected tanks / reservoirs, storages located in the coastal belt and improving the Kazhuveli swamp.	51,500
4	Inter-linking of rivers within the State.	12,37,000
5	Cloud seeding operation for increasing the rainfall in the delta area over a period of 10 years.	1,800
6	Desalination of Sea Water for increasing the availability of drinking water.	4,00,000
7	Greening the catchment areas of the reservoirs to reduce siltation.	50,000
8	Rehabilitation of tanks and improving the distribution systems.	4,04,000
9	Rehabilitation of Dams.	52,000
10	Modernisation of Irrigation distribution systems such as, Cauvery delta Zone, Constructing new tail end	5,19,400

Sl. No.	Description	Approximate Cost
	regulators and maintaining the existing ones, Mettur Canal System, LBP System, Kodivery and Kalingarayan Systems, Systems in Amaravathi Sub-basin, Noyyal Sub-basin, Aliyar Sub-basin and Kallar river systems.	
11	Rehabilitation and modernising the Systems / distribution systems in Palar, Pennaiyar, Vellar, PAP, Thamiraparani Vaigai, and Kodaiyar.	2,00,000
12	Infrastructure improve-ments for conjunctive use of water.	29,800
13	Command Area and On-Farm development initiatives.	35,000
14	Lift Irrigation Schemes / Pumping Schemes.	17,900
15	Popularising SRI method in 7 lakh hectares over a period of 10 years.	15,000

Sl. No.	Description	Approximate Cost
16	Creating infrastructure for Micro Irrigation Methods **(MIM)** in G.A. Canal and PAP commands and popularising MIM, Piped irrigation or combination of them for raising sugarcane, banana, coconut and cereals other than paddy, horticulture crops through incentivising / subsidising.	1,85,000
17	Recycling / re-use of waste water	6,25,000
18	Clearing and improving the city waterways	2,54,000
19	Prevention of Sea Water intrusion	13,000
20	Localisation of ayacut	1,000
21	Transforming the institutions of WRD as Centres of Excellence	8,600
	Total	**43,50,000**

It is expected that by implementing these initiatives, about 500 T.M.Cft., of water can be saved over a period of 10 years. The approximate funding requirement for taking up these schemes / works has been worked out as Rs.43,50,000 lakh, over the next 10 years. The recommendations of the Committee will be duly considered in formulating the new initiatives required for meeting the irrigation and drinking water demands.

5.2. Effective utilisation of the North East Monsoon generated flood waters

The heavy rainfall occurring near the coast during the North East Monsoon period, drains into sea without giving any benefits. The Technical Committee constituted studied the monsoon flows especially near the coastal areas and have recommended to effectively harness and utilise these short duration, high intensity floods.

This Committee recommended proposals in 12 categories with some specific recommendations to be implemented over a period of 10 years at an approximate outlay of Rs.13,56,000 lakh as follows:

(Rs. in lakh)

Sl. No.	Description	Approximate Cost
1	Restoring / Improving the capacity of existing storage structures / Tanks	49,768
2	Restoring / Improving the discharging capacity of channels for providing rush supply to the Tanks	700
3	Constructing bed dams across rivers / tributaries for facilitating to divert the flood flows to the tanks	12,600
4	Constructing check dams across rivers/ tributaries for improving ground water recharge	59,360
5	Provision for artificial ground water recharge through tanks and by utilizing defunct wells	1,100

Sl. No.	Description	Approximate Cost
6	Providing vertical shafts in the tanks for recharging deep aquifers.	500
7	Constructing new reservoirs.	88,630
8	Pumping / Lift Irrigation Schemes	3,074
9	Inter-linking of rivers within the State.	11,39,500
10	Improving the observation of the flows in the tail end of the rivers	300
11	Conducting performances / impact studies on the existing diversion / recharge structures	200
12	Conducting studies for evolving appropriate viable methodologies for removing silt from reservoirs / lakes and for utilizing beneficially / disposing	300
	Grand total	**13,56,032**
	(or) Rs.13,56,000 lakh	

5.3. Forward planning for the future -Road Map for achievement

With the recommendations of the above Committees as a reference and guidance, the Water Resources Department has now identified the following initiatives which will aim to achieve the goals set by the Vision 2023 and will be implemented in a phased manner. The Road Map envisages the broad concepts as follows:

5.3.1. Rehabilitation of Cauvery basin system

The Cauvery River basin comprises of 18 river sub-basins and 17 drains. The irrigation systems in this basin are of ageold systems, need rehabilitation for effective water management for better service delivery as well as for managing the flood and inundation problems. This has become very critical due to climate change effect and due to the flat terrain at coastal

area intensive rainfall in short period.

The irrigation systems in Cauvery basin have been deprived of major financial assistance from the funding agencies due to the Inter-State Water Issues.

Due to the untiring and persistent efforts of the **Hon'ble Chief Minister,** the Cauvery Tribunal Award has been notified by the Government of India, which paves way to undertake Rehabilitation and Modernisation work in this basin in a larger extent.

A preliminary project proposal on the Improvements and Rehabilitation of selected irrigation systems in Cauvery basin for efficient water management was prepared for an amount of Rs.11,42,000 lakh and sent to the Government of India for clearance. The Central Water Commission, Government of India have accorded In-principle

Clearance for this project and for preparation of Detailed Project Report (DPR). This proposal aims for improving and rehabilitating the systems in the Cauvery Delta area such as Cauvery Sub-basin, Vennar Sub-basin, Lower Coleroon Sub-basin, Grand Anicut Canal Sub-basin and other systems of Kattalai High Level Canal Project, Lower Bhavani project, Noyyal Sub-basin and certain other ground water recharge schemes.

As the Phase –I of this project "Improvements and Rehabilitation of Grand Anicut Canal System" is proposed to be taken up. The consultancy services for the preparation of DPR as per CWC guidelines and related works has been entrusted to the consultant, M/s WAPCOS Ltd., and a sum of Rs.1,000 lakh has been sanctioned towards the consultancy charges. The Detailed Project Report has been prepared at a cost of

Rs.2,61,000 lakh and sent to Government of India seeking funding assistance under Accelerated Irrigation Benefits Programme (AIBP).

Similarly the detailed investigation and preparation of the DPR for Improvements and Rehabilitation of Kattalai high level canal systems is being carried out by the Plan Formulation wing in coordination with Irrigation Management Training Institute (IMTI) and the component Ground Water Recharge Schemes is being carried out by Ground Water Wing.

It is aimed to get clearance for these components of the proposal from Central Water Commission and to commence the work during this financial year.

Besides this, to overcome the significant challenges of climate change, a proposal for improving the drains in the Cauvery delta has

been prepared and proposed to be taken up with ADB assistance under the Climate change Adaptation through Sub-Basin Development Programme (CASDP) in a phased manner.

As a first stage, approval has been accorded for the improvement works in 6 rivers/drains in Vennar system i.e., Adappar, Harichandra-nadhi, Pandavayar, Vellaiyar, Valavanar Drain and Vedharanyam Canal at an estimated cost of Rs. 84,063 lakh during this financial year. Further, orders have been issued to call for tenders for two rivers viz., Vellaiyar and Pandavayar for a value of Rs.25,738 lakh in anticipation of the signing of the agreements with the ADB. The draft Procurement documents for Vellaiyar river, Pandavayar river and Pumping schemes have been sent to ADB for approval.

5.3.2. Rehabilitation of Irrigation systems in other basins

The irrigation systems in the other basins of Tamil Nadu are also languishing for modernization except certain systems in the selected basins that have had the benefit of funding from external agencies in the IAMWARM project, where the systems have been rehabilitated to a great extent. However, there is a huge gap and many systems are to be rehabilitated and modernized for better efficiency.

The notable examples include the Periyar Vaigai systems, Cumbum valley systems, the Kodiveri anicut system, certain systems in Cauvery basin, the numerous channels taking off from the river Thamiraparani such as Palayam channel, Thirunelveli channel, Kodagan channel etc., Apart from the above, many medium and minor systems are badly in need of

rehabilitation. The rehabilitation / modernization works on these systems are proposed to be taken up in a phased manner.

The rehabilitation / modernization works on the part of the Periyar Vaigai system, Arakankottai and Thadapalli channel in Kodiveri anicut system, Kumarapalayam channel in Rajavaikal system, Thanthai Periyar channel in Cumbum Valley system, Uyyakondan channel in Cauvery basin system, tanks/anicuts in Ariyar basin, anicuts and supply channels in Cumbum Valley systems etc., are proposed to be taken up this year under NABARD loan assistance.

The proposals will help to improve the conveyance efficiency and service delivery to the stakeholders.

5.3.3. Rehabilitation of tanks

Out of the 14,098 tanks maintained by the WRD, 5,227 tanks have been taken up for rehabilitatation under IAMWARM Project and 690 tanks under 13th Finance Commission Grants-in-aid. Rehabilitation works in about 154 tanks spread in Dharmapuri, Vellore, Sivagangai, Thiruvannamalai Ramanathapuram, and Virudhunagar Districts are proposed to be taken up under "Repair, Renovation and Restoration" (RRR) of water bodies with domestic support scheme of Government of India. Out of which Administrative sanction has been accorded for 49 tanks in Vellore and Ramanathapuram Districts at an estimated cost of Rs.2,737.99 lakh and works will commence shortly. Work in the remaining 105 tanks will be taken up early.

Still there are 8,027 tanks which need to be rehabilitated and the rehabilitation measures will be

taken up on priority basis in a phased manner.

5.3.4. Creation of small storage reservoirs and tanks

There is a temporal and spatial variation in rainfall and runoff in the State. About 80% of runoff in the rivers occurs in the North East monsoon period. Therefore, for meeting the need for water throughout the year, there is a need for creation of storage structures across streams and rivers. Presently, there are about 89 reservoirs, large and small put together and total storage capacity of them is 238.58 TMC ft. Storage capacity is an index of development and it is one of the guides for risk mitigation.

Though the scope for construction of new reservoirs is remote especially in coastal areas, a few locations near the Western as well as Eastern Ghats still offers scope to conserve

the water for strategic utilization during non-monsoon periods. The few examples of such projects are Muskundanadhi reservoir, Valamalayar reservoir, Elumichaiyar reservoir, Vallimalai Odai reservoir, Puliankombai tank scheme and Vellaripallam tank scheme etc.

These schemes will be considered from time to time based on technical, economic viability and last but not the least, the land acquisition issues. During this year one such work namely "Formation of reservoir across Marudaiyar River in Kottarai Village of Perambalur District" is proposed to be taken up.

5.3.5. Tail end regulators or checkdams

The Committee for harnessing North East monsoon floods has established that a significant quantity of surplus is available near the confluence point with sea in all the rivers. This has been established based on the

run off figures compiled from the last irrigation structure in the rivers. This surplus goes to sea as waste and the only way to harness the flow would be to construct tail end regulators and check dams in rivers. These structures apart from storing the lean flows for providing last mile irrigation, will also arrest the intrusion of sea water which is becoming a major problem in the non flow seasons wherein sea water intrudes to nearly 10 to 20 km inland polluting the ground water.

The tail end check dams across Gadilam River near Koothapakkam in Cuddalore District and across Vaippar River near Vaippar Village in Thoothukudi District were implemented during the last year.

Further, construction/reconstruction of tail end regulators in the selected drains in the Vennar system are proposed to be taken up in the Climate change Adaptation through Sub-Basin Development Programme

(CASDP) under Asian Development Bank (ADB) loan assistance.

Besides this, construction of barrage across Kollidam river with head sluices at the downstream of Lower Anicut near Adhanur and Kumaramangalam Villages in Cuddalore and Nagapattinam Districts with 0.6 TMC ft., capacity to hold a portion of flood, during receding time will be taken up during this year. Administrative Sanction accorded for conducting detailed investigation for the above scheme and works are under progress.

The scheme for construction of tail end check dam across Thamiraparani River near Mukkaani in Srivaikundam Taluk of Thoothukudi District will be taken up for execution during this year.

The Water Resources Department would like to extend this concept to all the rivers in the State especially

to arrest estuarine pollution. Notable examples of such scheme are the Vayalur barrage in Palar basin, Adhivaraganallur barrage in Vellar basin and the Erayumanthurai check dam scheme in Kodaiyar basin. Further schemes will be investigated and implemented.

5.3.6. Artificial Recharge Structures

A fairly large number of artificial recharge structures such as check dams, percolation ponds, sub-surface dykes, recharge shafts were undertaken under the Master Plan Artificial Recharge Scheme (MPARS). These structures have given notable positive results and are highly popular with the public. There has been an increasing demand to undertake such schemes by the Members of the Legislative Assembly and Public.

The Committee for harnessing North East monsoon floods has laid special emphasis on the construction of

such structures in identified locations in various basins. The Water Resources Department will adopt a holistic approach in identifying possible locations and based on the hydrology and other factors will take action to construct a significant number of artificial recharge structures throughout the State.

During the last year, about 23 Nos. of check dams spread over in Dindigul, Theni, Coimbatore and Tiruchirappalli Districts were taken up for execution. Further, construction of 35 nos. of check dams spread over in Tiruchirappalli, Karur, Perambalur, Virudhunagar, Kanniyakumari, The Nilgiris, Salem, Dharmapuri, Krishnagiri, Ariyalur, Thoothukudi, Vellore, Coimbatore, Kancheepuram, Sivagangai and Thiruvannamalai Districts are proposed to be taken up this year.

Also, scheme for construction of check dam across Kosasthalaiyar river near Pattaraiperumpudur in Tiruvallur district will be taken up under NABARD loan assistance.

5.3.7. Desilting of specific water-bodies

The Committee for harnessing North East monsoon floods, in its report, has recommended for increasing the storage capacity of the existing tanks / reservoirs to restore their original capacity. It has also recommended to desilt the tank bed and use the excavated earth for formation of islands in the water spread areas. By this methodology, conveyance of earth which is cost effective can be avoided. Administrative Sanction accorded for a sum of Rs.835 lakh for hiring consultancy services for preparation of Detailed Project Report (DPR), getting clearance from Government of India for posing under Centrally sponsored Accelerated Irrigation

Benefits Programme (AIBP), preparation of tender documents etc., for the works of desilting of Mettur, Vaigai, Amaravathy, Pechiparai Reservoirs and Srivaikundam anicut across Thamiraparani river on pilot basis and the preparation of Detailed Project Reports are in progress. The works will be taken up based on economic viability.

The Vengal tank in Araniyar basin, Kaveripakkam tank in Palar basin, Perumal tank in Paravanar basin, Wallajah tank in Palar basin, Panangudi tank in Cauvery delta and Kalakeriyaperumalpatti and Nambipuram tanks in Vaippar basin have been recommended for desilting. The improvements to Kazhuveli Swamp of the East Coast Road is also recommended. Based on the study and success of implementation, further proposals will be evolved since this is one of

the cost effective ways of harnessing and storing flood waters.

5.3.8. Inter-linking of Rivers within the State

Inter-basin water transfer scheme within the State is not new to Tamil Nadu and has executed certain smaller inter-basin links, a century before as noted below:

1. Cauvery (Veeranam) – Vellar (Sethiathope system) - Paravanar (Wallajah tank)
2. Vaigai – Kottakaraiyar (RS Mangalam tank)
3. Vaigai – Gundar basin
4. Kodaiyar - Hanumanadhi (Radhapuram channel)
5. Palar – Kosasthalaiyar – Cooum - Adayar
6. Araniyar - Kosasthalaiyar - Red Hills.

The need for water is increasing day by day, it has become necessary to harness every drop of flood water

and a major solution to this is the Inter-linking of rivers. This recent concept has attracted everyone and the State has embarked on a major programme for inter-linking of rivers in the State.

At present, the Thamiraparani (Kannadian anicut) - Karumeniyar – Nambiyar link project is under implementation.

Further projects on the anvil include the following:

Cauvery-Agniyar-South Vellar - Manimuthar-Vaigai-Gundar link canal scheme

The Cauvery-Gundar Link Canal Scheme is one of the major schemes in the Inter-Linking proposals. It has been conceptualized based on the fact that it is one of the links envisaged in the Feasibility Report prepared for "Peninsular River link surplus" by the National Water Development

Agency (NWDA) of Government of India.

Hon'ble Chief Minister inaugurated the head works of the project as the 1st phase of the scheme namely, the Construction of a Barrage across River Cauvery near Mayanur on 25.06.2014.

In the 2nd phase, a new canal taking off from the upstream of this barrage will connect the rivers of Agniyar, South Vellar, Manimuthar, Vaigai and Gundar to divert the flood water of River Cauvery.

Hon'ble Chief Minister met the Hon'ble Prime Minister of India in 2011 and gave a list of schemes for which the Central Assistance is to be given. This scheme find place in the above list and based on that a Project Report for the Cauvery-Gundar Link Canal Scheme was prepared at a cost of Rs.5,16,600 lakh (as per 2011-2012 schedule of rates) and sent to the

Government of India for getting Central Assistance under Flood Management Programme (FMP).

However, the Central Water Commission has stated that the proposal does not qualify for Flood Management Programme Scheme.

This scheme is now being considered in phases and in the first phase formation of canal from Kattalai barrage upto South Vellar is taken up for investigation. After Notification of the new land acquisition bill of Government of India, preparation of DPR will be taken up.

Pennaiyar (Sathanur dam) – Cheyyar link

This scheme envisages the diversion of surplus flood water of Pennaiyar by excavation of a new canal connecting the Sathanur dam across Pennaiyar to the river Cheyyar, a major tributary of Palar.

In this scheme a new canal will take off from the Sathanur dam at FRL and will connect with the Cheyyar river upstream of Alathur anicut. Further, a branch canal taking off from the above main canal will link the Thurinjalar river and thereby benefitting the ayacut of Nandan channel.

By this scheme, by diversion of the flood waters of Pennaiyar, the ayacut in the Taluks of Thiruvanna-malai, Thandarampattu, Chengam, Polur and Vandavasi in Thiruvanna-malai District and the Taluk of Gingee in Villupuram District will be benefitted. Further, the diverted flood waters will also recharge the ground water table in Palar river bed.

The project report has been prepared for Rs.25,000 lakh based on 2012-2013 schedule of rates. The Government have given direction to prepare the Detailed Project Report after due notification

of the new Land Acquisition Act of Government of India.

Pennaiyar (Nedungal anicut) – Palar link

This scheme envisages the diversion of 3.50 TMC ft., flood water of Pennaiyar river from the Nedungal anicut (situated at the downstream of Krishnagiri reservoir) to the river Kallar a minor tributary of river Palar.

The National Water Development Agency (NWDA) has studied the feasibility of the scheme. In-Principle acceptance has been conveyed for the work of preparation of detailed project report to the National Water Development Agency.

Field works have been completed and preparation of detailed project report is expected to be completed by June 2015. Administrative sanction has been accorded for an

amount of Rs.5 lakh for obtaining environmental clearance and necessary action will be taken to complete the scheme after obtaining necessary clearances.

Cauvery (Mettur dam) – Sarabanga - Thirumanimuthar - Ayyar link scheme

This scheme envisages the diversion of a portion of surplus water of Cauvery river from Mettur dam to the tributaries of river Cauvery confluencing at the left side of the river covering the Districts of Salem, Namakkal, Perambalur and Tiruchirappalli, by excavation of a new canal.

The proposed canal will take off from the Mettur dam at FRL and will link the tributaries of Cauvery viz., Sarabanga, Thirumanimuthar and Ayyar rivers.

Administrative Sanction has been accorded for Rs.50 lakh to take up detailed investigation and preparation of DPR. The investigation works are in progress.

Athikadavu Avinashi Flood Flow Canal

This scheme envisages the diversion of a portion of surplus water of Bhavani River to feed 71 tanks and 538 ponds existing in Karamadai, Annur, Avinashi, Puliampatti, Palladam and Perundurai areas of Coimbatore, Tiruppur and Erode Districts.

The project report for Athikadavu Avinashi Flood Flow Canal Scheme has been prepared at an estimated cost of Rs.1,86,200 lakh based on the schedule of rates for the year 2011-2012.

The flood flow canal includes one main canal for a length of 35.20 Km. and two branch canals

namely, Avinashi branch canal for a length of 21.65 Km. and Perundurai branch canal for a length of 72.915 Km.

This scheme involves acquisition of 1,694 acres of patta land and 28 acres of reserve forest land. Due to technical constraints in the present alignment, alternate proposals are under investigation.

5.3.9. Water Quality and Environment Stability

Inspite of all efforts to save and store water, the quality of water has become major issue. Most of the water stored in the tanks and lakes are often polluted and there is a great level of deterioration in the water quality. This problem is more often confounded in the urban areas, where the water bodies store the sewage generated by the townships and the rivers passing through this urban centres often act as carriers for waste water,

especially during the non rainy seasons.

The Water Resources Department has taken due cognisance of this problem and has already started necessary spade works for long term solution. Sampling of water in river systems at strategic locations, environment awareness campaigns throughout the State and specific studies regarding pollution related issues have been undertaken. Though these initiatives have created a small positive result, the larger problem of pollution of water bodies still exist. The Water Resources Department is taking continuous efforts to mitigate the problem in consultation with various departments concerned and other stake holders.

5.3.10. Creation of Centres of Excellence

The various institutes like Institute of Hydraulics and Hydrology (IHH)

at Poondi and Irrigation Management Training Institute (IMTI) at Tiruchirapalli of the Water Resources Department are ageold and have been assisting the department with many novel research studies. The Vision 2023 has outlined that the Centres of Excellence will be created in order to compete with similar research institutes. In tune with this view, the Water Resources Department will aim to convert its research institutes and design wings into Centres of Excellence.

Institute of Hydraulics and Hydrology, Poondi

The Institute of Hydraulics and Hydrology has been doing yeomen service to the Water Resources Department by conducting physical model studies and giving solutions to many unique problems. This pioneering institute has attracted one and many throughout India and definitely deserves to be classified

as a Centre of Excellence with additional facilities. Necessary efforts to this goal will be initiated.

Irrigation designs wing

The Irrigation Designs wing commonly known as Designs Circle is responsible for evolving design and drawings for all irrigation structures of major and medium projects in the State. This Central Design unit is languishing for infrastructure facilities and it needs to be upgraded into a premier design organization with latest technical support. It is proposed to upgrade the Designs unit into a Centre for Excellence.

6.0. INTER STATE WATER ISSUES

6.1. Cauvery Water Dispute

6.1.1. Final Award of the Tribunal

The Cauvery Water Disputes Tribunal (CWDT) after examining all the documents and statistics of the

case, the affidavits of the Expert Witnesses and their cross-examination and hearing the arguments put forth by the party States, pronounced its Final Decision on 05.02.2007, under section 5(2) of the Inter State River Water Disputes Act, 1956.

6.1.2. The salient features of the Final Award are:

- The yield of the Cauvery at the Lower Coleroon Anicut site on the basis of 50% dependability is 740 TMC.ft. as per the report of the Cauvery Fact Finding Committee.

- The allocation made among the party States at 50% dependability is as below:

Tamil Nadu		**(in TMC.Ft.)**
At Billigundulu or any other point at the common border between Karnataka and Tamil Nadu	182	

Flow available in Tamil Nadu between Billigundulu and Mettur	25	**419**
Total flow at Mettur	207	
Flow available in Tamil Nadu below Mettur	212	
Total allocation for Tamil Nadu	419	
Karnataka		**270**
Kerala		
Kabini sub-basin	21	
Bhavani sub-basin	6	
Amaravathi sub-basin	3	
Total allocation for Kerala	30	**30**
Puducherry		7
Inevitable surplus		4
Environment Protection (At Billigundulu or any other agreed point at the common border between Karnataka and Tamil Nadu)		10
Grand Total		**740**

- As per the Final Order, the flow that will be made available at Mettur will be (182 + 25 + 10 TMC ft. for Environmental Protection) - 217 TMC ft.
- The use of Ground Water by any State shall not be reckoned as use of water of the River Cauvery.
- Until the Government of Kerala takes up projects to utilize its allocated share of water in full, the unutilized flows will be permitted to be used by Tamil Nadu.
- The Tribunal has also recommended for constitution of the Cauvery Management Board and the Cauvery Water Regulation Committee to effectively implement the Final Order.

6.1.3. SLPs (Civil Appeals) in the Supreme Court

The States of Karnataka and Kerala filed Special Leave Petitions in the Supreme Court in April, 2007, against the Final Order of the Tribunal. A Special Leave Petition

was also filed by Tamil Nadu in the Supreme Court in May, 2007, against certain aspects of the Final Order of the Tribunal. These SLPs have been admitted by the Supreme Court and now termed as Civil Appeals. In the Civil Appeal, Tamil Nadu has prayed for restoring the age old Kuruvai crop area in the Cauvery Delta which has not been considered by the Tribunal and the second crop area in other age old systems, and to reduce the overall irrigation efficiency from 65% to 60% and consequently allocate additional quantity of water. In the Civil Appeals, the State of Karnataka has filed documents in 26 volumes and the State of Kerala in 15 volumes. To counter this, the State of Tamil Nadu has filed documents in 13 volumes as per the legal advice of the Advocates. Karnataka has filed its Written Submissions in the Civil Appeal on 02.01.2014. Tamil Nadu has also filed its Written Submissions on

06.01.2014, reiterating the points already mentioned in the Civil Appeal.

It is expected that these Civil Appeals will be taken up for hearing soon.

6.1.4. Petitions filed before the Cauvery Water Disputes Tribunal under Sec. 5(3)

All the Party States and the Government of India have filed petitions in the Tribunal under section 5(3) of the Inter State River Water Disputes (ISRWD) Act, 1956 seeking explanation / guidance on the Final Order. The Tribunal in its Order dated 10.07.2007 ordered that only after the Special Leave Petitions (now Civil Appeals) are heard and disposed of by the Supreme Court, the petitions filed under section 5(3) of the Act will be heard by the Tribunal.

The Government of Tamil Nadu filed an Interlocutory Application (I.A.) in the Supreme Court on 1.9.2011 with a request to clarify that there would be no impediment for the Cauvery Water Disputes Tribunal in proceeding with the applications filed by the party States notwithstanding the pendency of the Civil Appeals and direct the Tribunal to dispose of the pending applications filed by the party States and the Government of India. On 18.10.2011, this I.A. was ordered to be taken up along with the Civil Appeal.

The Government of Tamil Nadu on 16.3.2012, filed a Civil Miscellaneous Petition (CMP) in the Tribunal praying to take up early hearing of the petitions under section 5(3) filed by the party States and the Government of India. When the Tribunal listed this CMP for hearing in April 2012, the Chairman of the Tribunal resigned

on health grounds. Hence, this CMP could not be heard by the CWDT. The Hon'ble Chief Minister on 19.4.2012 addressed the then Hon'ble Prime Minister for filling up the post of Chairman, Cauvery Water Disputes Tribunal. The Ministry of Water Resources, Government of India, on 13.05.2014 notified the appointment of Dr. Justice Balbir Singh Chauhan, Judge of Supreme Court as Chairman of the Tribunal. He assumed charge as Chairman of the Tribunal on 21.05.2014.

The CWDT in its Order dated 15.07.2014, ordered that it is desirable that the State of Tamil Nadu may file a fresh application or press I.A. No.11 filed by it in the Supreme Court in Civil Appeal No. 2453/2007 and get an appropriate direction that the Tribunal may proceed with the application under section 5 (3) of the Act, 1956 and inform the Tribunal. Following this

Order, the Government of Tamil Nadu filed an Interlocutory Application in the Supreme Court on 21.07.2014 (I.A No. 19 of 2014 in C.A.No. 2453 of 2007). When this I.A came up for hearing on 08.08.2014, the Court ordered to "list the matter before a bench of which Hon'ble Justice Mr. Kurian Joseph and Hon'ble Justice Mr.Rohinton Falli Nariman are not the members."

It is expected that the Supreme Court will list these Civil Appeals and I.As for early hearing.

6.1.5. Efforts taken to constitute the Cauvery Management Board (CMB) and the Cauvery Water Regulation Committee (CWRC).

Following the notification of the Final Order of the Tribunal in the Gazette of India on 19.02.2013, the Hon'ble Chief Minister addressed the then Prime Minister on 22.02.2013 and 11.03.2013 to

place in position the Cauvery Management Board and the Cauvery Water Regulation Committee as recommended by the Tribunal in its Final Order.

Since the Government of India did not constitute the Cauvery Management Board and the Cauvery Water Regulation Committee, as per the orders of the Hon'ble Chief Minister, an I.A. (No. 5 of 2013) was filed in the Supreme Court on 18.03.2013 to direct the Government of India to constitute the above machinery before the end of April, 2013. Pending constitution of the Cauvery Management Board, the Supreme Court on 10.05.2013 ordered that a pro tem Supervisory Committee be constituted as a **pro tem measure** for implementation of the Final Order dated February 5, 2007 as notified on February 19, 2013, consisting of the Secretary, Union Ministry of Water Resources as Chairman and

the Chief Secretaries of the States of Karnataka, Tamil Nadu, Kerala and Union Territory of Puducherry as Members.

The Government of India, based on the aforesaid Order of the Supreme Court, notified the constitution of the pro tem Supervisory Committee on Cauvery in its Gazette on 22.05.2013, consisting of the Secretary, Ministry of Water Resources, Government of India, as Chairman, the Chief Secretaries to the State Governments of Karnataka, Tamil Nadu, Kerala and the Union Territory of Puducherry and the Chairman, Central Water Commission as Members and the Chief Engineer, Central Water Commission as the Member-Secretary.

The Hon'ble Chief Minister on 17.05.2013 urged the then Prime Minister to instruct the Ministry of Water Resources to constitute the Cauvery Management Board and

the Cauvery Water Regulation Committee, immediately. Following this, the Hon'ble Chief Minister on 02.09.2013 and 03.09.2013 again requested the then Prime Minister, to constitute the Cauvery Management Board and the Cauvery Water Regulation Committee.

The pro tem Supervisory Committee has so far held four meetings - on 01.06.2013,12.06.2013,15.07.2013 and 08.11.2013. It was found that the Supervisory Committee in these meetings did not take any concrete steps to effectively implement the Final Order of the Tribunal. Hence, as ordered by the Hon'ble Chief Minister, an Interlocutory Application (I.A. No. 7/2013 in C.A.No.2456 of 2007) was filed in the Supreme Court on 11.11.2013, praying to order the Government of India to constitute the Cauvery Management Board and the Cauvery Water Regulation

Committee, as a permanent measure. When this Application came up for hearing on 03.12.2013, the Supreme Court posted this Application for hearing along with the Civil Appeals.

In the Memorandum presented to the Hon'ble Prime Minister on 03.06.2014, the Hon'ble Chief Minister urged him to order the Ministry of Water Resources to constitute the Cauvery Management Board and the Cauvery Water Regulation Committee as a permanent measure in order to implement the Final Order of the Tribunal.

Soon after the Chief Minister of Karnataka presented a Memorandum on 10.06.2014 to the Hon'ble Prime Minister, requesting him not to constitute the Cauvery Management Board and the Cauvery Water Regulation Committee, the Hon'ble Chief Minister on 13.06.2014 had urged

the Hon'ble Prime Minister to constitute the Cauvery Management Board and the Cauvery Water Regulation Committee immediately as the views expressed by Karnataka have no relevance and they should be overruled.

The Tamil Nadu Legislative Assembly passed a unanimous resolution on 05.12.2014 to the effect that "…to ensure the release of water as per the monthly schedule stipulated by the CWDT in the Final Order, this House resolves that the Cauvery Management Board and the Cauvery Water Regulation Committee should be constituted by the Government of India immediately….." Following this, the Hon'ble Chief Minister addressed the Hon'ble Prime Minister on 12.12.2014 in this regard, enclosing the Resolution of the Legislative Assembly. The Hon'ble Chief Minister on 21.03.2015, among others, had

urged the Hon'ble Prime Minister to instruct the Ministry of Water Resources, to constitution the Cauvery Management Board (CMB) and the Cauvery Water Regulation Committee (CWRC) without any further delay so as to ensure that the Final Order of the Cauvery Water Disputes Tribunal is implemented in letter and spirit.

In the Resolution passed unanimously by the Tamil Nadu Legislative Assembly on 27.03.2015 stressed inter alia to forthwith constitute the CMB and CWRC. This was also stressed in the D.O. letter of the Hon'ble Chief Minister dated 27.03.2015 addressed to the Hon'ble Prime Minister, which was handed over in person to the Prime Minster by the team of 55 MPs from Tamil Nadu. The Hon'ble Chief Minister also met the Hon'ble Prime Minister in person on 25.04.2015 and handed over the D.O. letter dated 25.04.2015, inter alia urging

him to direct the Ministry of Water Resources to accede to the long pending request of Tamil Nadu to constitute the CMB and CWRC without any further delay.

Again on 07.08.2015, the Hon'ble Chief Minister presented a Memorandum to the Hon'ble Prime Minister, reiterating the request of Tamil Nadu to form the Cauvery Management Board and the Cauvery Water Regulation Committee immediately.

6.1.6. 2014-2015 Irrigation season

During the irrigation season 2014-2015, the South west monsoon set in on 6th June, 2015. The monsoon was weak in the beginning and it intensified in the catchment area of Cauvery in the second week of July. The inflows into the Mettur Dam improved from the third week of July. The Mettur Dam was opened on 10.08.2014 for irrigation. Thereafter, good inflows

were received due to the release of surplus flows from Karnataka reservoirs. The total flow realised at Billigundulu during 2014 - 2015, is 229.3 TMC ft. as against 192 TMC ft. as per the Final Order. The North-east monsoon also has been normal in the Cauvery Delta. Sufficient supplies were maintained or all the systems under the Mettur Dam. Supplies were allowed from the reservoir upto 05.02.2015.

6.1.7. 2015-16 Irrigation Season

The normal date for opening of Mettur reservoir for Delta irrigation is 12th June. The opening depends on the onset of the southwest monsoon, its intensification in the Cauvery catchment and the storage position in the Mettur reservoir.

This year, the southwest monsoon has set in on the 5th June at Kerala. But it has moved in to the catchment of Cauvery only by the fourth week of June 2015. The

rainfall at Madikere (Mercara) which is the reference station for rainfall in the Cauvery catchment, is 2119 mm from 1st June to 10th August, as against the normal rainfall of 2017 mm.

However, the inflow in the four major reservoirs in Karnataka (viz. KRS, Hemavathy, Kabini and Harangi) is 112.149 TMC ft. upto 10th August as against the long term average of 156.244 TMC ft. The storage in these reservoirs as on 10th August is 82.909 TMC ft. as against the full capacity of 114.6 TMC.

The flows recorded at Billigundulu, which is the reference point for measurement of flow due to Tamil Nadu, is 43.712 TMC ft upto 10th August. The flow due as per the Final Order of the Tribunal is 60.129 TMC ft.

The Mettur reservoir was opened for irrigation on 9th August, when the storage was 60.411 TMC ft. The ryots have been advised to use the water economically.

The storage position is being continuously monitored and all efforts are being taken to get the due share of water from Karnataka.

6.1.8. Other Petitions filed in the Supreme Court

a) I.A. filed in 2008-2009 on Hydel Schemes above Mettur Dam

Tamil Nadu has filed an I.A. (I.A. No. 10 of 2008 in C.A.No.2453 of 2007) in the Supreme Court in 20.11.2008 against the unilateral action contemplated by Karnataka in proceeding with the execution of the Sivasamudram Seasonal Power Scheme and the Mekedatu Hydro Electric Scheme and praying for directions to the Government of India to take up all the Hydel

Schemes in Cauvery between Krishnaraja Sagar and Mettur by the National Hydro Power Corporation Ltd as a package as already contemplated by them. In this I.A., an additional affidavit was filed by Tamil Nadu in 03.08.2009 again objecting to the unilateral action of Karnataka in taking up the Sivasamudram Hydro Electric Project. The Government of Karnataka has filed the Counter Affidavit to this Interlocutory Application on 29.09.2009. This is pending in Supreme Court.

b) I.A. (I.A. No. 16 of 2012 in C.A.No.2453 of 2007) filed in 2012 to forbear the Summer Irrigation in Karnataka

In order to forbear the Government of Karnataka from drawing water for summer irrigation and to carry over the storage to the next irrigation season so as to help release of water to Tamil Nadu as

per the Interim Order, an I.A. was filed on 21.3.2012 in the Supreme Court of India. This is pending in the Supreme Court.

c) I.A. (I.A. No. 1 of 2012 in C.A.No.2454 of 2007) filed in 2012 on Banasurasagar Irrigation project in Kerala

In January, 2012, the Government of Kerala forwarded a Detailed Project Report in respect of the Banasurasagar Irrigation project in the Kabini Basin, which is already under execution and was under discussion during the deliberations of the Cauvery Water Disputes Tribunal. It was seen from the DPR that Kerala is proceeding with this project as originally envisaged by it for utilization of 1.7 TMC.ft. of water for irrigation, and was also contemplating to divert as much as 6 to 10 TMC.ft. of water westwards through a tunnel to augment power generation in the Kuttiyadi hydro

electric project in the adjacent Valarpattinam Basin.

The Tribunal in its Final Order had not allowed the westward diversion and allocated only 0.84 TMC ft. of water for in-basin irrigation under the project. On 12.03.2012, the Government of Kerala was requested, not to proceed with the Banasurasagar Irrigation project in any manner, pending disposal of the Civil Appeals in the Supreme Court and Reference Petitions in the Tribunal. An I.A. has also been filed in the Supreme Court on 24.04.2012 to restrain the Government of Kerala from proceeding with works in any manner with regard to this project. This is pending in Supreme Court.

d) I.A. (I.A. No. 7 of 2013 in C.A.No.2456 of 2007) filed by Tamil Nadu in 2013-2014 to restrain Karnataka from taking up Mekedatu HEP and other schemes

Based on the information published in the media about the Mekedatu Hydro electric Project and other projects being taken up by the Government of Karnataka, the Hon'ble Chief Minister on 02.09.2013 urged the then Hon'ble Prime Minister requesting him to advise the Government of Karnataka not to take up any schemes including hydro electric projects in the Cauvery Basin of Karnataka without the prior consent of the Government of Tamil Nadu and also to advise the Ministry of Environment & Forests, Government of India, not to accord clearance to any Projects of Karnataka in the river Cauvery till a permanent monitoring mechanism viz., the Cauvery Management

Board is formed. The Prime Minister was also requested to instruct the Ministry of Water Resources to constitute the Cauvery Management Board and the Cauvery Water Regulation Committee, for ensuring effective implementation of the Final Order of the Cauvery Water Disputes Tribunal. When the media reported that the Government of Karnataka has proposed to take up modernisation schemes through the Cauvery Neeravari Nigama Limited, the Hon'ble Chief Minister in the letter dated 03.09.2013 to the Hon'ble Prime Minister had urged him to advise the Government of Karnataka and its Cauvery Neeravari Nigama Limited not to proceed with any projects in the Cauvery Basin till Cauvery Management Board is formed. It was also requested to appropriately advise the Cauvery Neeravari Nigama Limited to withhold the invitation for Expression of Interest for the two projects of Karnataka

lying in the Cauvery Basin and also not to call for any Invitation for Expression of Interest lying in the Cauvery Basin of Karnataka till the Cauvery Management Board is formed.

The Secretary, Government of India, Ministry of Water Resources, in the letter dated 07.10.2013 has informed that no DPR of Shivasamudram Run of the River Project or a Hydro electric Project at Mekedatu has been received in Central Water Commission for techno-economic examination / clearance and that action for constitution of the Cauvery Management Board is under consideration of the Ministry of Water Resources in consultation with the Ministry of Law and Justice. On 09.10.2013, the Government of India was again addressed to instruct the Government of Karnataka to furnish the project reports of the above projects and

also advise Karnataka not to proceed with such Projects pending disposal of the Civil Appeals by the Supreme Court. These projects are also referred to in the I.A filed on 11.11.2013 in the Supreme Court for directing to constitute the Cauvery Management Board by the Government of India.

(e) Action taken on Karnataka's other schemes:-

When the media reported that Karnataka has planned to execute lift irrigation and modernisation schemes through Cauvery Neeravari Nigama Ltd., the Government of India was requested to advise the Government of Karnataka, to furnish full information of the schemes and also not to proceed with the Tender Notice issued, till the Cauvery Management Board and the Cauvery Water Regulation Committee are formed. As no reply was received, as ordered by Hon'ble Chief Minister, an I.A. was filed in

the Supreme Court on 11.04.2014 (I.A.No.8 of 2014 in C.A.No.2456 of 2007) to maintain the Status quo ante by the Government of Karnataka till the formation of Cauvery Management Board and the Cauvery Water Regulation Committee.

(f) I.A. filed to restrain Karnataka from taking up two reservoirs at Mekedatu

A news item appeared in Times of India on 12.11.2014, stating, inter-alia, that the Government of Karnataka has decided to proceed with the construction of two reservoirs at Mekedatu and that the State has invited Global Expression of Interest for the technical feasibility study. In this regard, the Hon'ble Chief Minister wrote to the Hon'ble Prime Minister on 12.11.2014 requesting to intervene and advise the Government of Karnataka to withhold the Expression of Interest called for by

it for the technical feasibility study and advise it not to take any steps to execute any irrigation, hydro power, lift irrigation schemes or any other scheme in the guise of drinking water supply in the Cauvery Basin of Karnataka without the consent of the Government of Tamil Nadu. The Hon'ble Prime Minister was also requested to instruct the Ministry of Environment and Forests and Ministry of Water Resources, Government of India, not to give clearance to any project proposed by Karnataka without consulting the Government of Tamil Nadu. The Government of Karnataka and the Government of India, Ministry of Water Resources were addressed in this regard on 12.11.2014 and on 13.11.2014 respectively. Since there was no response either from the Government of Karnataka or the Government of India, Tamil Nadu filed an I.A. on 18.11.2014

(I.A.NO.20 in C.A. No.2453 of 2007), praying to

> "Direct the State of Karnataka to withdraw the notice inviting Global Expression of interest for Technical Study to construct the two reservoirs at Mekedatu across the river Cauvery; Restrain the State of Karnataka from proceeding with the construction of two reservoirs at Mekedatu across river Cauvery as contemplated by the State of Karnataka or any other new projects across the river Cauvery in Karnataka which are not contemplated and/or permitted in the final decision of the Tribunal; and Direct State of Karnataka to maintain status quo and not to proceed with the construction of any project which is not in consonance with the final decision as notified in the Official Gazette on 19.02.2013

pending disposal of the Civil Appeals and the constitution of the Cauvery Management Board."

This I.A. is yet to come up for hearing.

In the meantime, the Government of Karnataka on 18.11.2014 has informed the Government of Tamil Nadu that it has no plans to proceed with the construction of the project without informing the Supreme Court in the pending Interlocutory Application filed in the year 2008.

As the Government of Karnataka is unilaterally taking up the new schemes in the Cauvery Basin, in order to protest and to stop such schemes, the Tamil Nadu Legislative Assembly on 05.12.2014 passed a resolution urging that the Government of India should intervene and advise the Government of Karnataka to stop

the 2 new Dams proposed at Mekedatu in violation of the Final Order, and the schemes proposed to be executed, in the guise of drinking water supply, and also that till the Cauvery Management Board is constituted and the concurrence of the Government of Tamil Nadu is obtained, the Government of Karnataka should not be allowed to execute Dam constructions at Mekedatu or any other schemes.

The Hon'ble Chief Minister while forwarding the resolution of the Legislative Assembly to the Hon'ble Prime Minister on 12.12.2014 has requested him to advise the Government of Karnataka not to take up any schemes till the Cauvery Management Board comes into effect and without obtaining the concurrence of the Government of Tamil Nadu. The Hon'ble Chief Minister in the letter dated 21.03.2015 to the Hon'ble Prime Minister has brought to his notice

about the funds allotted by the Government of Karnataka to prepare a Detailed Project Report to construct a reservoir at Mekadatu and urged him to advise the Government of Karnataka not to proceed with the construction of Reservoirs at Mekadatu and also not to take up any scheme without prior permission of the Government of Tamil Nadu. The Government of Tamil Nadu on 26.03.2015 has filed an Additional Affidavit in the Supreme Court in this regard. On 27.03.2015, the Tamil Nadu Legislative Assembly has urged the Government of India to take immediate appropriate measures to stop the Government of Karnataka preparing a Detailed Project Report for the construction of a new dam at Mekadatu and to advise the Government of Karnataka not to take any action for any scheme like the construction of the dam or reservoirs till the Cauvery Management Board is constituted

and becomes functional and without the consent of the Government of Tamil Nadu. This resolution has been sent to the Hon'ble Prime Minister with a request to take immediate action.

Recently from the Media reports it is seen that the Water Resources Minister of Karnataka has stated that the DPR regarding the Mekedatu project would be sent to centre within 6 months. The Hon'ble Chief Minister of Tamil Nadu met the Hon'ble Prime Minister on 25.04.2015 and apprised him of the latest developments and requested him to intervene in the matter and not to permit Karnataka to take up the preparation of DPR till the CMB is constituted and is in position.

It is learnt through media that the Chief Minister of Karnataka led a delegation of MPs and Floor Leaders of Karnataka Legislature and presented a Memorandum to the Hon'ble Prime Minister on

30.04.2015 requesting for the co-operation of the Union Government in conducting the technical study of the Mekedatu HEP and giving appropriate sanctions whenever the State Government approaches the Centre with all details after preparation of the Final Project Report. It is reported to have stated that the proposed dam at Mekedatu will generate power of about 400 MW and meet the drinking water needs of Bangalore, subject to obligation to ensure 192 TMC at inter-State border in a normal year on a monthly schedule (subject to seasonal accounting in December).

On 07.08.2015, the Hon'ble Chief Minister presented a Memorandum to the Hon'ble Prime Minister, reiterating the request of Tamil Nadu to advise the Government of Karnataka not to proceed with the project without the concurrence of Tamil Nadu and

also not to grant techno-economic clearance and environmental clearance to the project, till the CMB is formed and becomes functional.

(g) Action taken to restrain Kerala from taking up the construction of Dam at Pattisserry across the river Pambar

Based on a news item appeared in "The New Indian Express", on 06.11.2014 stating, inter-alia, that the Government of Kerala has commenced works for a new Dam across Pambar at Pattisserry, for which the Chief Minister of Kerala is reported to have laid foundation on 03.11.2014 through video conferencing, the Hon'ble Chief Minister wrote to the Hon'ble Prime Minister on 08.11.2014 to advise the Government of Kerala to furnish full details of the schemes proposed by Kerala in the Pambar sub-basin and not to proceed with the

proposed construction of the Dam or any other project in any manner in the Pambar sub-basin till the Cauvery Management Board is constituted and the consent of the Government of Tamil Nadu is obtained. The Hon'ble Prime Minister was also requested to immediately intervene in this matter and to constitute the Cauvery Management Board and the Cauvery Water Regulation Committee for the effective implementation of the Final Order of the Tribunal.

An I.A. has been filed in the Supreme Court on 28.11.2014 (I.A No. 2 of 2014 in C.A No.2454 of 2007), among others, to restrain the Government of Kerala from proceeding with the construction of a Dam across the river Pambar at Pattisserry and to maintain status quo and also not to proceed with the execution of any project which are not in accordance with Final

decision dated 05.02.2007 of the Cauvery Water Disputes Tribunal, as notified on 19.02.2013 and the constitution of Cauvery Management Board and the Cauvery Water Regulation Committee and the consent of Government of Tamil Nadu.

As the Government of Kerala is unilaterally taking up the new scheme in the Cauvery basin, in order to protest and to stop such schemes, the Tamil Nadu Legislative Assembly on 05.12.2014 passed a resolution to the effect that the Government of India should advise the Government of Kerala not to take up any construction works for a new reservoir across the river Pambar at Pattisserry and till the Cauvery Management Board is constituted and comes into effect and also that without the concurrence of the Government of Tamil Nadu, no scheme should be taken up for

execution by the Government of Kerala.

The Hon'ble Chief Minister while forwarding the resolution of the Legislative Assembly to the Hon'ble Prime Minister on 12.12.2014, urged him to advise the Government of Kerala not to execute any work for the construction of a Dam at Pattisserry across the river Pambar and also not to take up any schemes till the Cauvery Management Board comes into effect and without obtaining the concurrence of the Government of Tamil Nadu.

The Government of Kerala has informed the Government of India that the proposed construction is only a restoration of the existing check dam and storage is only 0.035 TMC ft. and not 2 TMC ft as reported in the media. Kerala has also filed its counter to Tamil Nadu's I.A. in the Supreme Court on 13.07.2015. It is expected that his

petition will be taken up for hearing soon.

6.1.9. Suit filed by Tamil Nadu in the Supreme Court against Karnataka for claiming compensation due to non-release of water due to Tamil Nadu in 2012-2013.

During the irrigation season 2012-2013, even though the South West monsoon commenced on 05.06.2012, it was below normal and did not intensify in the catchment area of Cauvery. The Government of Karnataka as usual impounded all the flows in its reservoirs. The supplies due to Tamil Nadu either as per the Interim Order or as per the Distress Sharing Formula evolved by the Central Water Commission (CWC) and accepted by the Cauvery Monitoring Committee were not released to Tamil Nadu. So, the Government of Tamil Nadu filed an I.A. in the Supreme Court on

21.07.2012 seeking directions to Karnataka to release water as per the Interim Order. The Supreme Court in its order dated 10.09.2012 directed to release 10000 cusecs of water from 12th to 20th September, 2012 and also ordered that further release be decided by the Cauvery River Authority. The Mettur Dam could, therefore, be opened only on 17.09.2012.

After a gap of nine years, the meeting of the Cauvery River Authority was held on 19.09.2012. Since no consensus could be reached, the then Prime Minister as Chairperson directed Karnataka to release 9,000 cusecs from 20.09.2012 to 15.10.2012 and directed the Cauvery Monitoring Committee to regulate the flows beyond 15th October, 2012. The Government of Karnataka did not accept this order. The Hon'ble Chief Minister of Tamil Nadu opposed this order. As ordered by the Hon'ble

Chief Minister, an I.A. was filed on 25.09.2012 in the Supreme Court to direct Karnataka to forthwith make good the shortfall of 48 TMC ft. of water from its reservoirs and thereafter ensure flows as stipulated in the Interim Order dated 25.06.1991, and for adopting the Distress Sharing Formula evolved by the CWC and finalised by the CMC in its 24th meeting held on 04.12.2009.

As per the directions of the Supreme Court, discussions were held on 29.11.2012 at Bengaluru between the Chief Ministers of Tamil Nadu and Karnataka. In this meeting also, each party reiterated their views and no tangible results could be achieved. As ordered by the Hon'ble Chief Minister, an I.A. was filed before the Supreme Court on 01.12.2012, praying that the Government of Karnataka be directed to make good at least 30 TMC ft. of water between 1st

and 15th December 2012, so that Tamil Nadu could manage its irrigation and salvage the standing crops in the Cauvery Basin. Since the Supreme Court did not consider the request of Tamil Nadu favourably, on the orders of the Hon'ble Chief Minister, Tamil Nadu filed another I.A. on 17.01.2013 in the Supreme Court for directing Karnataka to forthwith release 12 TMC ft. of water from its reservoirs, so as to save at least a portion of standing crops in the Cauvery Delta and also meet the drinking water requirement. When this I.A. came up for hearing on 04.02.2013, the Supreme Court directed the Chairman, CWC, to appoint an Expert Committee of three members who would visit the Delta region of Tamil Nadu comprising of Thiruvarur, Thanjavur and Nagapattinam Districts and report to the Supreme Court before 06.02.2013. In the meanwhile, Tamil Nadu was requested to

release 2 TMC ft. of water from its storage in Mettur Dam to save the standing crop. The Supreme Court also made it clear that irrespective of the report that was to be given by the Expert Committee, Karnataka should release 2 TMC ft. of water to replenish Mettur Dam. Accordingly, Tamil Nadu released about 2.3 TMC. ft. of water from Mettur Dam for the period from 04.02.2013 to 08.02.2013. The Supreme Court on 07.02.2013 accepted the report of the Expert Committee, that about one lakh acres of crop need irrigation, and ordered Karnataka to release 2.44 TMC ft. of water to Tamil Nadu to which Karnataka complied with.

Due to the untiring efforts of the Hon’ble Chief Minister, 69.7 TMC ft. of water was realized at Mettur Dam during the year 2012 – 2013.

The Hon’ble Chief Minister ordered to file a Suit in the Supreme Court

of India claiming Damages for the losses caused to Tamil Nadu due to non-release of stipulated quantity of water by Karnataka during the year 2012-2013. Accordingly, a Suit (O.S.No.4/2013) has been filed in the Supreme Court on 09.05.2013, seeking directions to pay Damages of a sum of about Rs.1045.70 crores towards loss of crops, loss of bio mass and loss of power generation, on account of non-release of water in terms of the Interim Order of the Tribunal during the irrigation year 2012-2013, to pass appropriate order directing the State of Karnataka to release 53.18 TMC ft. being the shortfall at Mettur Dam for the water year 2012-2013 as computed on the pro rata formula and to pay punitive Damages of Rs.1434 crores for deliberate non-compliance of the decision passed by the Tribunal.

The Government of Karnataka has filed its written statement on

10.03.2015. Replication to the Written Statement of Karnataka has been filed on 01.07.2015 in the Supreme Court soon.

It is hoped that the Supreme Court will take up the Suit for hearing shortly.

6.1.10. Letting Sewage into Cauvery and Pennaiyar by Karnataka

News item appeared in the "Bangalore Mirror" on 30.03.2015 that the Karnataka Minor Irrigation Minister has stated that Karnataka is letting down 593 MLD of Sewage water in Cauvery through the Arkavathy (which is a tributary of Cauvery) and 889 MLD in Pennaiyar.

The CWC is regularly testing the water quality of Cauvery at Billigundulu. The CWC was also addressed on 16.04.2015 to regularly test the quality of water of Pennaiyar at its entry point into

Tamil Nadu as is being done in Cauvery. Even though the CWC replied that Tamil Nadu's request for establishing a new water quality site is being explored, the Ministry has been again requested on 07.07.2015 to take this up immediately.

Another news item appeared in Deccan Chronicle dated 9.5.2015 relating to untreated or partially treated sewage water generated by Bengaluru City on a daily basis being let in Cauvery and Pennaiyar. It is also reported that the average acceptable prescribed Bio-chemical Oxygen Demand (BOD) is 3 mg per litre but it was recorded at 29 mg per litre, which confirms the fact that the sewage water that is let into Tamil Nadu by Karnataka is untreated. The untreated sewage / effluent water pollutes the drinking water supply system.

Sewage water contains several chemicals which, if found more

than the prescribed parameters, would be harmful to humans, animals, fish and to the flora and fauna.

The Central Pollution Control Board Zonal Office South had taken three samples from river Pennaiyar, 2 km upstream of the entry point of Tamil Nadu from September 2014 to February 2015 which were analysed in the Zonal laboratory at Bengaluru. The test results reveal that BOD varied from 19.7 to 32 mg per litre and fecal coliform varied from 38,400 to 7,80,000 MPN / 100ml (Most probable number per100 ml)which is highly alarming.

Tamil Nadu also obtained samples on 25.4.2015 from two locations in the two rivers. The samples were collected by the State Pollution Control Board's Laboratory at Hosur and the report reveals alarming results and some of the elements namely the DO, BOD, fecal coliform and

total coliform are far above the tolerance limits prescribed for inland surface water by Bureau of Indian Standards IS: 2296-1982.

The Central Government under the Water (Prevention & Control of Pollution) Act, 1974, has prescribed norms for effluent discharge from the sewage treatment plants. The present discharge of effluents into rivers Cauvery and Pennaiyar by Karnataka is far in excess of the limits and Karnataka has to take appropriate remedial measures immediately before the situation becomes irreversible.

One Mr. K. Sudhan of Madras has filed an application before the National Green Tribunal, Chennai, regarding the sewage let into the rivers of Pennaiyar and Cauvery. This will be heard in the Tribunal soon.

The letting of untreated effluents into rivers or streams without conforming to the standards prescribed by the Central Pollution Control Board, State Pollution Control Boards and the rules and regulations framed for protection of the environment has not only affected the inhabitants of Tamil Nadu by the resultant pollution, but is also causing lasting harm to animals and vegetation. Karnataka is duty bound to ensure that the sewage and industrial effluent are treated as per the standards before the same are let into the rivers.

In view of the huge damage and suffering likely to occur to Tamil Nadu and its inhabitants due to letting in of sewage and industrial effluent in Cauvery and Peenaiyar by Karnataka, based on the orders of the Hon'ble Chief Minster, Tamil Nadu filed an Original Suit in the

Hon'ble Supreme Court on 05.06.2015 to pass a judgment and decree of :-

I. permanent injunction restraining Karnataka and its instrumentalities from letting the untreated sewage and industrial effluents into the river Cauvery, its main stream, its tributaries and all other streams contributing water directly or indirectly before the same enters Tamil Nadu without ensuring that the water let into the river Cauvery conforms to the standard prescribed for discharge of effluent water into rivers by the competent statutory authority;

II. permanent injunction restraining Karnataka and its instrumentalities from letting the untreated effluents into the river Pennaiyar, its main stream, tributaries and all other streams contributing

water directly or indirectly before the same enters Tamil Nadu without ensuring that the water let into the river Pennaiyar conforms to the standard prescribed for discharge of effluent water into rivers by the competent statutory authority;

III. issue a mandatory injunction directing Karnataka to cleanse the waters of Cauvery river and Pennaiyar river before they enter the border of Tamil Nadu and make them pollution free and adopt effective cleansing and treatment technology methods to remove the sludge at the point where the effluents are discharged into the Cauvery and Pennaiyar rivers.

An I.A. has also been filed on the same date praying to

(i) grant ad interim ex-parte order directing the Union of India to constitute a Monitoring Committee comprising of officials of the Ministry of Environment, Forests and Climate Change and representatives of both Tamil Nadu and Karnataka to monitor that the discharge of effluents into the Cauvery and Pennaiyar rivers before the same enter the Tamil Nadu border conforms to the standard prescribed for discharge of effluent water into rivers by the competent statutory authority;

(ii) grant ad interim ex-parte temporary injunction restraining Karnataka and its instrumentalities from letting untreated sewage and industrial effluents into the Cauvery and Pennaiyar rivers, directly or

indirectly before the same enter Tamil Nadu without ensuring water let into the river conform to the standard prescribed for discharge of effluent water into rivers by the competent statutory authority.

6.2. Mullai Periyar Dam

6.2.1. The Periyar Project was executed by virtue of the Lease Deed signed between the Maharaja of Travancore and Madras Presidency on 29.10.1886. This deed is for 999 years with effect from 1.1.1886. About 8000 acres has been demised on payment of lease rent. About 2.20 lakh acres are benefited by this Project in the Districts of Ramanathapuram, Theni, Dindigul, Madurai, and Sivagangai and on an average 22 TMC.ft. of water is diverted and utilised in a year.

6.2.2. Thereafter, two supplemental agreements were entered into

between Kerala and Tamil Nadu in the year 1970. One is for increasing the annual lease rent from Rs.5 to Rs.30 per acre subject to revision in every 30 years and surrendering fishing rights in the Periyar Lake to Kerala. By another supplemental Agreement, Tamil Nadu is to generate hydro electric power on payment of certain charges to Kerala. These are executed as successors in interest to the Principal Deed of 1886. However, the basic character of the principal deed of 1886 was not changed.

6.2.3. In 1979, certain apprehensions were raised in the Malayalam dailies about the safety of the Mullai Periyar Dam. The Chairman, Central Water Commission inspected the Dam on 23.11.1979 and declared that there was no imminent danger to the Dam. On 25.11.1979, a meeting was held at Trivandrum by the Chairman, CWC, with the officers and Engineers of both the

States. In that meeting, it was decided to execute certain strengthening works under three stages, viz., Emergency measures, medium term measures and long term measures to bring the Dam to the modern standards. To facilitate execution of the emergency and medium term works, it was decided to bring down the water level **temporarily** from the FRL of 152 ft. to 136 ft. During 1980-1994, the strengthening works were executed and completed. However, the Government of Kerala insisted that the water level in the Mullai Periyar Dam should continue to be maintained at 136 ft. even after the completion of strengthening works.

6.2.4. In the Writ Petition filed in the Supreme Court along with the connected matters, the Supreme Court pronounced its judgment on 27.02.2006, which permitted the Government of Tamil Nadu to raise the water level from the temporarily

brought down level of 136 ft. to initially 142 ft. and also to carry out the remaining strengthening measures as suggested by the Central Water Commission, viz., to the Baby Dam and Earth Dam. The Supreme Court also held that the State of Kerala and its officers are restrained from causing any obstructions for carrying out the balance strengthening works. The Supreme Court in the same Order stated that after the strengthening works are completed to the satisfaction of the Central Water Commission, independent Experts would examine the safety angle before the water level is permitted to be raised to 152 ft. (FRL).

6.2.5. Soon after the Supreme Court pronounced its judgment, the Government of Kerala amended its Kerala Irrigation and Water Conservation Act, 2003 known as "Kerala Irrigation and Water Conservation (Amendment) Act,

2006" on 18.03.2006, to thwart the Supreme Court's Order and fixed the FRL of Mullai Periyar Dam as 136 ft. As ordered by the Hon'ble Chief Minister, the Government of Tamil Nadu filed a Suit (O.S.No.3 of 2006) in the Supreme Court on 31.3.2006 praying to declare "The Kerala Irrigation and Water Conservation (Amendment) Act, 2006" as unconstitutional in its application and effect on Mullai Periyar Dam. When the case came up for hearing on 10.11.2009, the Supreme Court ordered as below.

"That the contesting parties shall maintain "Status quo" in respect of Mulla Periyar Dam as existing on that date and the order of "Status quo" will not be an impediment for Tamil Nadu to carry out maintenance and repairs for proper upkeep of the said Dam".

6.2.6. The Constitution Bench which was later formed, heard the Suit from 20.01.2010 onwards. On

18.02.2010, the Supreme Court ordered the formation of an Empowered Committee, consisting of 5 Members, including the Chairman, Dr.A.S.Anand, Former Chief Justice of India. The Committee was requested to analyse all the issues except legal aspects and to submit a report as far as possible within six months.

6.2.7. The Governments of Tamil Nadu and Kerala submitted Memorandum before the Empowered Committee. The Empowered Committee framed five issues, in which the New Dam proposal of Kerala was one of the issues. The Government of Tamil Nadu submitted before the Supreme Court as well as before the Empowered Committee, that in as much as the Dam has been strengthened on the recomendations made by the Central Water Commission and with the concurrence of the Government of Kerala, and is functioning as a

new Dam, there is no need for a new Dam as contended by the Government of Kerala.

6.2.8. Under the Empowered Committee, a Committee to Co-ordinate (CTC) to carry out the investigations, tests and studies (ITS) on Mullai Periyar Dam under the Chairmanship of Dr. C.D.Thatte, Member of the Empowered Committee with Members drawn from Central Water Commission (CWC), Central Water and Power Research station (CWPRS), Central Soil and Materials Research Station (CSMRS) and representatives of the States was constituted. The Committee to Co-ordinate (CTC) conducted and completed several tests and technical studies.

6.2.9. The Committee to Co-ordinate submitted its Report to the Empowered Committee. Based on the analysis and findings drawn from the Reports, the Empowered

Committee submitted its report to the Supreme Court on 25.04.2012. In its Report, the Empowered Committee concluded that the Dam is hydrologically, structurally and seismically safe for raising the water level to 142 ft and that the proposal to build a new Dam requires reconsideration by Kerala.

6.2.10. In order to convey consensus view on the Mullai Periyar Dam issue, the special session of Legislative Assembly was held on 15.12.2011 and the following unanimous Resolution was passed in the Legislative Assembly, and sent to the Government of India on 16.12.2011 for immediate action:-

"The Tamil Nadu Legislative Assembly resolves that the Supreme Court, after hearing the arguments of the Governments of Tamil Nadu and Kerala, examining the reports of experts and based on the conclusion that the Mullai Periyar Dam is safe, ordered on

27.2.2006 that the water level in the Dam be raised from 136 ft to 142 ft. After completion of remaining work of strengthening of the Dam, the water level can be raised to 152 ft. With utter disregard to this order and the spirit of the Constitution of India, the Government of Kerala enacted the "Kerala Irrigation and Water Conservation (Amendment) Act, 2006" and when a Suit against this amended Act is pending in the Supreme Court, the Government of Kerala, contrary to truth, carries on propaganda to create panic among its people about the safety of the Mullai Periyar Dam and while stressing the demand for the construction of a new Dam, a resolution was passed by the Government of Kerala in the Kerala Legislative Assembly on 09.12.2011 for lowering the water level to 120 ft. Though this has to be vehemently condemned, since it will not be right approach to condemn

the Kerala Legislative Assembly, which is a Constitutional set up, it is proposed to convey the deep anguish of the people of Tamil Nadu on that Resolution;

"That due to the untruthful propaganda by the Government of Kerala regarding the safety of the Mullai Periyar Dam, the Central Government should immediately deploy the Central Industrial Security Force in that area";

"That in order to honour the decision of the Supreme Court for raising the water level to 142 ft., the Government of Kerala should make appropriate amendment to its "Kerala Irrigation and Water Conservation (Amendment) Act, 2006";

"That the Government of Kerala should not obstruct Tamil Nadu from carrying out the remaining long term strengthening works so

as to raise the water level of the Dam to 152 ft.";
"And that the rights of Tamil Nadu will not be given up under any circumstances."

6.2.11. The National Disaster Management Authority at the unilateral request of the Government of Kerala constituted a team of experts for the preparation of a Contingency Response Plan for Mullai Periyar Dam in its proceedings dated 12.12.2011. The Hon'ble Chief Minister brought to the notice of the then Prime Minister in the letter dated 20.12.2011 to the effect that it is nothing but succumbing to the subterfuge of the Government of Kerala and to present a *fait accompli* to the Supreme Court and the Empowered Committee constituted by it. The approach of Kerala to NDMA is to circumvent the legal process and appears to be a calculated attempt to pressure the Empowered Committee to declare

the Dam unsafe. The Hon'ble Chief Minister, therefore, on 20.12.2011 requested the then Prime Minister to order the withdrawal of the constitution of the team of experts forthwith. The NDMA had kept in abeyance, the work of the team of experts.

6.2.12. The Hon'ble Chief Minister in the Memorandum presented to the then Prime Minister on 25.12.2011 in Chennai, among others, urged for advising Kerala to honour the orders by the Supreme Court dated 27.02.2006; making appropriate amendments to its Kerala Irrigation and Water conservation (Amendment) Act, 2006, and not to venture upon the construction of a new Dam as the retrofitted Mullai Periyar Dam is functioning well.

6.2.13. The Hon'ble Chief Minister in the letter to the then Prime Minister dated 09.02.2012, requested the Government of India, Ministry of Science and Technology, from

entering into any agreement with the Government of Kerala for a real time monitoring of the Mullai Periyar Dam and if already entered into, it may be annulled and also not to carry out any activity and also to deploy Central Industrial Security Force (CISF). On the same day, a letter was sent to the Ministry of Science and Technology in this matter. An I.A. (No. 21/2012), was filed in the Supreme Court on 02.03.2012 to restrain the Government of India from entering into the agreement with the Government of Kerala, among others.

6.2.14. The final arguments of the Suit commenced on 23.07.2013 and continued for 10 days in various stages and concluded on 21.08.2013. The five Member Constitution Bench of the Supreme Court delivered the judgement in the Suit (O.S No.3 of 2006), on

07.05.2014, which is a historic judgement.

Salient aspects of the Judgment:

1. The Lease Deed executed between the Government of Travancore and the Secretary of State for India in Council on 29.10.1886 is valid and binding on the State of Kerala and it is enforceable by Tamil Nadu against the State of Kerala.
2. The State of Kerala is estopped from raising the plea that the lease deed dated 29.10.1886 has lapsed, in view of the Supplemental Agreements dated 29.05.1970.
3. The impugned "Kerala Irrigation & Water Conversation (Amendment) Act, 2006" enacted by the State of Kerala interferes with the judicial process and functions. The amended Act of Kerala is

unconstitutional in so far as Mullai Periyar Dam is concerned.

4. Kerala cannot say that the 2006 judgment of Supreme Court is without jurisdiction and not binding.
5. The finding recorded by it in the earlier Writ Petition (W.P.(Civil) No. 386 of 2001) under Article 32 on 27.02.2006 and in the O.S No. 3/2006 under Article 131 on 07.05.2014 is binding on the two States.
6. The Government of Kerala argued that River Periyar is an Intra State river, as it flows within the State of Kerala. But, the Government of Tamil Nadu in its arguments stated that River Periyar is an Inter-State River, as out of the total basin area of 5398 sq.kms, 114 sq.kms lies in the State of Tamil Nadu. If the Drainage Basin lies in more than one State, and even if the drainage

area is very small in a State, the river Periyar is an inter-State river. The Supreme Court in its judgement has concluded that the River Periyar is an Inter-State River.

7. The Mullai Periyar Dam has been consistently found to be safe, first, by the Expert Committee (2001) and then by the Supreme Court (2006). The hydrological, structural and seismic safety of the Mullaperiyar Dam has also been confirmed by the Empowered Committee (2012).
8. The offer made by Kerala for the new Dam cannot be thrusted upon Tamil Nadu.
9. The State of Kerala is restrained by a decree of permanent injunction in any manner interfering or obstructing the State of Tamil Nadu from increasing the water level to 142 ft. and for carrying out the

repair works as per the judgment dated 27.02.2006.

10. To allay the apprehensions of Kerala, though none exists, a 3 Member Supervisory Committee is constituted with a representative of Central Water Commission as Chairman and one representative from each State. The Committee shall supervise the raising of the water level to 142 ft. in the Mullai Periyar Dam.

6.2.15. The State of Kerala filed a Review Petition on 30.06.2014 in the Supreme Court to Review the judgment dated 07.05.2014 passed by the Supreme Court in O.S.No.3 of 2006. On 02.12.2014, the Supreme Court rejected the Review Petition for hearing in open Court and ordered that, on going through the Review Petition and the connected papers, held that there is

no reason to interfere with the order and dismissed it.

6.2.16. The State of Kerala also filed an Application in the Supreme Court on 15.11.2014 seeking Clarifications and or guidance on the Judgement dated 07.05.2014 of the Supreme Court in O.S.No. 3 of 2006 relating to storage level in the reservoir and operation of the gates. This I.A was disposed of as withdrawn on 20.02.2015.

6.2.17. Supervisory Committee

In the Memorandum presented by the Hon'ble Chief Minister to the Hon'ble Prime Minister on 03.06.2014, the need to immediately constitute the Supervisory Committee, as ordered by the Supreme Court on 07.05.2014 was emphasized. Accepting the request of the Hon'ble Chief Minister, the Government of India on 18.06.2014 decided to

form the Supervisory Committee. The Government of India, Ministry of Water Resources on 01.07.2014 constituted the Supervisory Committee. As ordered by Hon'ble Chief Minister, on 03.07.2014, the Chairman, Supervisory Committee was requested to convene the meeting of the Supervisory Committee immediately before the South-West monsoon intensifies so as to raise the water level in the Dam to 142 ft. as ordered by the Supreme Court.

6.2.18. Following the request of Tamil Nadu to immediately convene the meeting, the 1st meeting of the Supervisory Committee was held on 08.07.2014. In the second meeting held on 17.07.2014, the Committee first inspected the Dam and decided in the meeting to restore the water level to 142 ft. as categorically ordered by the Supreme Court in its order dated: 27.02.2006 and 07.05.2014. Accordingly, **the**

shutters were lowered on 17.07.2014.

Following this, the water level reached 136 ft on 31.10.2014, and the level of 142 ft on 21.11.2014 which is a historic event, after almost a span of 35 years, since the shutters were raised in the year 1979 to facilitate carrying out the strengthening works. The rights of farmers and of the people of Tamil Nadu to store water in the Dam initially to 142 ft., have been restored after a long legal battle and the timely efforts taken by the Government.

6.2.19. In the third and fourth meetings of the Supervisory Committee, the long pending issues viz., restoration of Power supply to the Mullai Periyar Dam disrupted since 2000, repairing the forest road from Vallakadavu to Mullai Periyar Dam, implementing the recommended strengthening measures mentioned

in the Order of the Supreme Court dated 07.05.2014 for storing water to the FRL of + 152 ft., difficulty in transporting the materials to the Dam site, prevention by the Forest officials to visit the gauging site at Mullaikodi etc were discussed.

6.2.20. On 03.11.2014, the 5th meeting of the Supervisory Committee was held, when the water level in the Dam was 137.30 ft. The Additional Chief Secretary, Government of Kerala stressed that Tamil Nadu will not be able to regulate peaking flood and therefore, reservoir level must be restored to +136 ft. However, Tamil Nadu representatives categorically stated that the operation of the gates will be in accordance with the inflows and the present position is entirely under control and fully in accordance with the practice followed in other Dams. The Chairman, Supervisory Committee opined that there is apparently no

immediate justification to open the gates, but however suggested that if there is a rise of 2 ft in reservoir level over the next 24 hrs, Tamil Nadu authorities should start operating gates as to avoid sudden heavy releases downstream.

6.2.21. In the 6th meeting of the Supervisory Committee held on 24.11.2014 also, the long pending issues were discussed. The Government of Tamil Nadu reiterated before the Committee the need to restore the disrupted electricity to the Dam and to repare the Vallakadavu to Mullai Periyar Dam site approach road.

6.2.22. The Hon'ble Chief Minister of Tamil Nadu, in response to the request of the Chief Minister of Kerala for increasing the drawal to Vaigai Dam in order to reduce the level in Mullai Periyar Dam, on 16.11.2014 had firmly pointed out that the Government of Kerala cannot interfere with the regulation of flows

from the Mullai Periyar Dam and requested to extend full co-operation to implement the orders of the Constitution Bench of the Supreme Court to store water up to +142 ft in Mullai Periyar Dam.

6.2.23. The 7th meeting of the Supervisory Committee was held on 22.06.2015. During the meeting, the long pending issues viz., restoring electricity to the dam, repairing the existing Vallakadavu to Mullai Periyar Dam site approach road, deploying Central Industrial Security Force (CISF) were discussed. The Chairman, Supervisory Committee reiterated that the State of Kerala has to cooperate for repairing the existing forest road to the Periyar Dam site from Vallakadavu and provide electricity to the dam, to enable Tamil Nadu to undertake maintenance and strengthening works in the Baby dam, as these facilities are important.

6.2.24. Sub - Committee

As decided in the 2nd meeting of the Supervisory Committee on 17.07.2014, a Sub-Committee was constituted on 13.08.2014 to assist the Supervisory Committee with the Executive Engineer, South Western Rivers Division, CWC as Chairman and two Members each from both the States. The function of the Sub – Committee was to scrutinize all data for close monitoring of the Dam and inspect the Dam periodically, more particularly before the monsoon and during the monsoon and keep close watch on its safety and recommend measures which are necessary to the Supervisory Committee. However, it has no powers to issue any direction to any party.

So far, eleven meetings have been held and the last one was held on 28.07.2015.

Balance Strengthening works to be carried out to restore the water level to + 152 ft (FRL).

6.2.25. The balance works suggested by Central Water Commission, recommended by Expert Committee (2000) and ordered by the Supreme Court in its Order dated 27.02.2006 which has been reiterated by the Empowered Committee (2010) and by the Supreme Court in its Order dated 07.05.2014 for raising the water storage level in the Dam up to +152 ft. are -

i) Strengthening the Baby Dam including instrumentation
ii) Strengthening the earthen bund
iii) Protecting the earth mound (the upstream side of island between Main Dam and Baby Dam)
iv) Protecting the upstream side of the Island between Main Dam and spillway and reservoir. The pitching work up to RL +165.00 ft shall be extended to the downstream side of the

Dam up to the abutments and

v) Raising the upstream parapet wall from + 158 ft. to +160 ft. of the Main Dam in the remaining length of 20 metres.

6.2.26. The preparatory works to take up the strengthening works are currently in progress. Detailed estimate have been prepared and the Government have accorded Administrative Sanction for a sum of Rs 7.85 crores for strengthening the Baby Dam by providing RCC backing and instrumentation for Main Dam and Baby Dam and other strengthening works. Action has been taken to carry out these works.

6.2.27. In the meanwhile, the Legislative Assembly on 04.12.2014 lauding the strenuous and tireless efforts of the Hon'ble Chief Minister in attaining the historic achievement of storing water initially to +142 ft. at Mullai Periyar Dam, unanimously

passed a resolution to the effect that the Government of India shall appropriately advise the Government of Kerala to co-operate with the Government of Tamil Nadu in carrying out the remaining strengthening works as directed by Supreme Court.

6.2.28. Repair & Maintenance works:

The Supreme Court in its Order dated 23.07.2012 allowed the Government of Tamil Nadu to carry out the routine maintenance works by which the works of relaying the wearing coat on Baby Dam, reaming the drainage holes, cleaning of the stilling basin, and clearing the entry to the leading channel by removing silt, debris, water bottles, etc. for ensuring free flow of water through the channel have been completed. In the year 2013–2014 along with other periodical routine maintenance works, non-skidding tiles have been laid in the drainage gallery

at +45 ft. The temporary residence of Colonel J. Pennycuick at Periyar Dam site has also been renovated. In the year 2014-2015, non-skidding tiles have also been laid in the drainage gallery at +10 ft. and +45 ft.

6.2.29. The Supreme Court, in its Order dated 23.07.2012, permitted Tamil Nadu to carry out repairs in the Vallakadavu – Mullai Periyar Dam site forest road subject to clearance from Ministry of Environment and Forest and other statutory authorities. However, the forest department of the Government of Kerala is not forthcoming to give its concurrence or for obtaining clearance from the necessary authorities for taking up the repair works to the existing road. The Government of Tamil Nadu is persuading the Government of Kerala to give the clearances quickly.

6.2.30. The Supreme Court in its Judgment dated 07.05.2014 has accepted the recommendations of the Empowered Committee to carry out the following maintenance and repair measures, i) treatment of upstream surface, ii) reaming of drainage holes, iii) instrumentation, iv) periodical monitoring, analysis and leading away the seepage from toe of the Dam towards downstream, v) geodetic re-affirmation, etc., vi) the Dam body should be grouted with a properly designed grout mix of fine cement / suitable chemical /epoxy / polymer according to expert advice so that its safety continues to remain present.

These works are programmed to be executed in a phased manner.

6.2.31. Regarding the resumption of power supply to the Dam site, to enable to lay underground cable, diversion of forest land of about 0.25 ha. in Periyar Wildlife Sanctuary / Tiger

Reserve of Kerala is required. For that, the Green Bench of the Supreme Court in August 2014, gave its clearance. Necessary further clearance from the Chief Conservator of Forest, Ministry of Environment & Forests, Regional Office (Sz), Bengaluru has not been obtained by the Kerala State Electricity Board, due to the indifferent attitude of the Kerala Forest Department on one pretext or the other to furnish necessary information for obtaining the clearance. The Government of Tamil Nadu is pursuing the matter continuously with the Government of Kerala in this regard.

6.2.32. DEPLOYMENT OF CISF AT THE DAM SITE:

The Government of Tamil Nadu has been requesting the Government of India to deploy the Central Industrial Security Force (CISF) for the purpose of policing the Dam site and ensuring the safety of the Dam

and its appurtenant structures for a long time. In this regard, an I.A (No.19) was filed in 2011 in the Supreme Court during the pendency of the Suit (O.S No.3 of 2006). However, this I.A was disposed of by the Supreme Court, on 15.12.2011 in the light of the assurance given by the State of Kerala, that it shall do all that is necessary to protect the Dam. However, due to certain happenings when the Kerala Police who are presently guarding the Dam failed to protect the Engineers of Tamil Nadu at the Dam site, the Government of Tamil Nadu on 19.11.2014 filed an I.A. (I.A.No.25 of 2014) in the Supreme Court for deputing the Central Industrial Security Force for the purpose of policing the Dam. The State of Kerala has filed its reply. The case is expected to be heard soon. In the meanwhile, the Hon'ble Chief Minister of Tamil Nadu in the Memorandum presented to the

Hon'ble Prime Minister on 07.08.2015 has requested to deploy the Central Industrial Security Force to guard the Mullai Periyar Dam and its appurtenant structures.

6.2.33. Construction of a Mega Car Park in the water spread area of Mullai Periyar Dam by the Government of Kerala.

The Government of Kerala has proposed a Mega car park in the water spread area of Mullai Periyar Dam. In this connection, two Applications were already filed before the National Green Tribunal (Southern Zone) by residents of Kerala, opposing the construction of Mega Car Park by the Government of Kerala. The Government of Tamil Nadu prayed before the National Green Tribunal on 04.09.2014 to implead as a Party Respondent and also prayed to pass an order of injunction restraining the authorities concerned from proceeding with any construction, earth filling or any

related developmental activity in the area leased and in possession of the State of Tamil Nadu. This was accepted by the Tribunal and on 05.09.2014, the National Green Tribunal (Southern Zone) ordered a direction to the Deputy Director, Project Tiger, Thekkady of Kerala to maintain *status quo* by not making any further developmental or constructional activities in the Periyar Tiger Reserve in Idukki District till 26.09.2014 which included Periyar lake area also. On 29.09.2014, when the matter came up for hearing, the National Green Tribunal (Southern Zone) ordered that the *status quo* granted shall continue until further orders.

6.2.34. On 20.11.2014, when the case came up for hearing, the NGT observed that since there is a controversy as regards the factual aspect of the construction site, it constituted a 2 Member Committee, one member to be nominated by

the Surveyor General of India, and the other by the Inspector General of Forests, Government of India to inspect the site and file a report on the factual aspects within 6 weeks.

6.2.35. In the meanwhile, the MoEF constituted a Committee. The MoEF had informed the Tribunal that for conducting inspection survey and submission of report, a sum of Rs.14.60 lakhs would be required and informed to the Tribunal that it should be shared by the Government of Tamil Nadu and Government of Kerala. Accordingly, on 02.03.2015, the Government of Tamil Nadu remitted its share of Rs.7.3 lakhs before the National Green Tribunal.

6.2.36. The two Member Committee comprising of Dr. Swarna Subbarao, Surveyor General of India and Shri.S.M.Somashekar, Chief Conservator of Forest (Central), Regional Office, (Southern Zone, MoEF, GoI)

inspected the disputed area along with the officials of Tamil Nadu and Kerala. On 02.07.2015, the Expert Committee filed the survey report before the National Green Tribunal. The matter is to be listed for hearing soon.

6.2.37. In the meanwhile, the Government of Tamil Nadu has filed a Suit on 26.09.2014 (O.S.No.4 of 2014) in the Supreme Court praying to-

(i) pass a decree of permanent injunction restraining the State of Kerala from trespassing / encroaching upon the area leased to the State of Tamil nadu under the Agreement of 1886 and affirmed by the Supplemental Agreements of 1970 and from taking up any further construction of the Mega Car Park in the leased area and to restore the land trespassed / encroached upon to its original state.

and also an Interlocutory Application (I.A) praying to grant ad-interim temporary injunction restraining the State of Kerala from taking up any further construction of the Mega Car Park in the leased area under the Agreement of 1886, pending disposal of the Suit.

The Supreme Court of India on 13.07.2015 has granted eight weeks time to the State of Kerala to file Written Statement.`

6.2.38. EIA study by Kerala for the proposal of Kerala for the construction of new dam, opposed by Tamil Nadu

The Supreme Court, in its Order dated 07.05.2014, has categorically stated that the existing Mullai Periyar Dam is Hydrologically, Structurally and Seismically safe and added that in view of the matter for the construction of new dam, there has to be an agreement

between the Parties and the offer made by Kerala cannot be thrusted upon Tamil Nadu. Thus, the Supreme Court held that the Government of Kerala is prohibited from constructing a new dam. Irrespective of that, the Government of Kerala had obtained clearance suo moto from the Standing Committee of National Board for Wildlife (NBWL) of Ministry of Environment and Forest (MoEF) for conducting an Environmental Impact Assessment (EIA) study for new Mullai Periyar Dam in a 10 km radius of the proposed dam site.

6.2.39. The Hon'ble Chief Minister of Tamil Nadu on 13.12.2014 has urged the Hon'ble Prime Minister to direct the MoEF to withdraw the clearance given by the Standing Committee of NBWL for the EIA study and requested not to act upon any such request made by the Government of Kerala. In this regard, on

07.05.2015, the Government of Tamil Nadu filed an I.A (No. 27 of 2015) praying to restrain the State of Kerala and its officials from conducting any drilling operation, investigation or survey work or any other work in connection with the New Dam proposal pursuant to the clearance dated 03.12.2014 and also direct the Ministry of Environment and Forests to withdraw the clearance given by the Standing Committee of the National Board for Wildlife and from conducting any Environment Impact Assessment study for construction of a new Mullai Periyar Dam by the Government of Kerala. On this, the State of Kerala has filed its reply.

6.2.40. In the meanwhile, a news item appeared in certain sections of media that the Ministry of Environment, Forests & Climate Change has approved the Terms of Reference submitted by the State of Kerala for carrying out Environment

Impact Assessment Study for construction of new Mullai Periyar dam in Idukki district of Kerala. However, the Ministry clarified on 04.06.2015 that no approval has been granted for carrying out Environment Impact Study for the construction of new Mullai Periyar Dam in Idukki District of Kerala.

6.2.41. However, to protect the interests of Tamil Nadu, the Hon'ble Chief Minister of Tamil Nadu in letter dated 10.06.2015 addressed to the Hon'ple Prime Minister of India pointed out that the very fact of entertaining the Government of Kerala's request and considering the same by the Government of India for approving the terms of reference to conduct and Environmental Impact Assessment Study for the construction of a new dam is itself a gross violation of the Decree and Order of the Hon'ble Supreme Court dated 07.05.2014 and requested to seek personal intervention and

instruct the Ministry of Environment, Forests and Climate Change and its Agencies, to desist from entertaining and considering the proposal of the Government of Kerala in future and also to negative the proposal and return it to the Government of Kerala.

6.2.42. Because of the persistent action taken by the Hon'ble Chief Minister, the Government of India has informed that it has rejected the request of the State of Kerala to conduct the EIA study.

6.2.43. Obstructions caused by the officials of the State of Kerala to go to Mullai Periyar Dam area

The Government of Kerala is obstructing and hindering the free entry and access to the Public Works Department officials of Tamil Nadu; transporting personnel, materials and machinery from the Thekkady boatyard and Vallakadavu – Mullai Periyar Road, against the

judgements of the Hon'ble Supreme Court and insisting to sign in the Visitors Register maintained by the Kerala Forest Department. This is against the provisions of the Lease Deed of 1886 for the Periyar Project and also the judgments of the Hon'ble Supreme Court. Therefore, the Government of Tamil Nadu on 09.04.2015 has filed an Interlocutory Application (I.A.No. 26/2015) in the Supreme Court to direct the Government of Kerala not to obstruct or cause hindrance in any manner on free access of the officials of Tamil Nadu to the Mullai Periyar Dam or not to stop to transport the machinery and materials required for carrying out repairs and maintenance works to the Mullai Periyar Dam and to give concurrence to repair the Vallakadavu – Mullai Periyar Dam site Forest Road. On 01.07.2015, the State of Kerala filed its Counter. It is expected that this Application will be taken up for hearing early.

6.3. Palar River Water Issue

6.3.1. The Inter – State River Palar which originates in Kolar District in Karnataka traverses through Karnataka, Andhra Pradesh via Chittoor District and runs through Vellore, Thiruvannamalai and Kanchipuram Districts in Tamil Nadu, before draining into the Bay of Bengal.

6.3.2. As per the Schedule – A of Madras – Mysore Agreement of 1892, Palar falls under the list of 15 important Inter - State rivers. As per the Agreement, the upstream State cannot construct any Dam structure or structures to impound the flow across the river and also divert the water without getting the concurrence of the downstream States.

6.3.3. When the media, on 04.01.2006, reported that the Government of Andhra Pradesh has proposed to construct a reservoir with a capacity

of 0.6 TMC ft. across Palar near Kuppam in Chittoor District and works were to commence, the Hon'ble Chief Minister on 05.01.2006 pointed out the Agreement conditions of 1892 to the Chief Minister of Andhra Pradesh and urged him to drop the proposal. Following this, the Government of Tamil Nadu on 01.02.2006 requested the Government of India to take immediate action in advising the Government of Andhra Pradesh from executing any irrigation projects in violation of 1892 Agreement across the River Palar and also to stop such works. Since no reply was received and in order to protect the interests of people of Tamil Nadu, on the orders of the Hon'ble Chief Minister, the Government of Tamil Nadu filed a Suit on 10.02.2006 in the Supreme Court to restrain the Government of Andhra Pradesh from undertaking

any project across the River Palar or in its tributaries.

6.3.4. The Supreme Court in its Order dated 07.01.2008, ordered that the Government of India could consider the representation of Tamil Nadu and dispose it. The Government of Andhra Pradesh was also requested to be heard. The Government of India was given liberty to settle the dispute between the two States.

6.3.5. Following this, the Chairman, Central Water Commission held a meeting in New Delhi on 11.03.2008. After discussion, the Chairman, Central Water Commission requested the Government of Andhra Pradesh not to go ahead with the construction of the project before the issue is settled. It has been established that the Palar Basin is a deficit Basin by the study made by a joint study group constituted by Central Water Commission.

6.3.6. As ordered by the Supreme Court on 28.03.2011, the Secretary to Government of India, Ministry of Water Resources, convened a meeting on 26.05.2011 at New Delhi with the officials of the Government of Tamil Nadu and Andhra Pradesh. The Secretary, Government of India, Ministry of Water Resources concluded that there was no possibility of any negotiated settlement in as much as the rigid stand taken by both the States and informed the Supreme Court accordingly.

6.3.7. The Hon'ble Chief Minister of Tamil Nadu, in the Memorandum presented to the then Hon'ble Prime Minister on 14.06.2011 urged to advise the Government of Andhra Pradesh not to go ahead with any work relating to the construction of the proposed Reservoir by the Government of Andhra Pradesh across the River Palar.

6.3.8. In the meantime, the Supreme Court framed 7 issues to decide the Suit. When the Suit came up for hearing on 4.07.2011, the Court requested the parties to list the witnesses. The Government of Tamil Nadu and Government of Andhra Pradesh have nominated their witness and their Affidavits were filed in the Supreme Court.

6.3.9. When media projected that the Government of Andhra Pradesh has decided to construct a reservoir across the River Palar, on 20.06.2014, the Government of India was informed that since the Suit is pending before the Supreme Court and the matter is sub judice, the Government of Andhra Pradesh may be advised not to execute any project across the River Palar or in its tributaries till the Suit is disposed of by the Supreme Court.

6.3.10. The cross-examination of Tamil Nadu witness was held on 12th and 13th November, 2013 and again on

30th January, 2015. Further, cross-examination of Tamil Nadu witness is expected to be held shortly. After the conclusion of cross-examination of the witness of Tamil Nadu and Andhra Pradesh and the arguments and counter arguments of both the states, the Supreme Court is expected to deliver the judgement.

6.3.11. Since, the Palar dispute is pending before the Supreme Court and the C.W.C, Govt of India had already advised the Government of Andhra Pradesh not to go ahead with the project, it is expected that the Government of Andhra Pradesh will not take up the construction of a Dam across the River Palar. However, the Government of Tamil Nadu is closely monitoring this issue and is taking all the necessary steps to protect the rights of people of Tamil Nadu.

6.4. Parambikulam Aliyar Project - Review of Agreement

6.4.1. The Parambikulam Aliyar Project, a multi-valley, multi purpose, mammoth project, was planned, designed and executed by the Government of Tamil Nadu as one of the Second Five Year Plan Projects (1955 - 1960), with the consent and co-operation of the Government of Kerala for sharing mutual benefits through the utilization of flows in the rivers of Anamalayar, Nirar, Sholayar, Parambikulam, Peruvaripallam, Thunakadavu, Palar and Aliyar and the streams flowing into them, for generation of Hydro Electric Power, irrigation, drinking water supply and industrial use in both the States. An agreement therefore between the Government of Tamil Nadu and Kerala was entered into on 29.05.1970 with retrospective effect from 09.11.1958. The taluks of Pollachi, Palladam, Udumalapettai and Dharapuram in the districts of

Coimbatore, Tiruppur and Erode are benefited. The Palakkad District of Kerala State is also benefited. This Agreement was due for review on 09.11.1988 and thereafter once in 30 years. Accordingly, both the Governments exchanged the documents for review on 21.09.1989 and since then held several Inter-State discussions for completing the first review of the Agreement.

6.4.2. In the Minister level meeting held between Governments of Kerala and Tamil Nadu on 10.06.2002 at Chennai, a decision was taken to constitute a Technical Committee comprising of Engineers from both the States to first identify the areas where amendments may be required in the Agreement and to facilitate the review at the Government level. The Technical Committee which was constituted, submitted its Report in May, 2003. The Report was discussed in the

Minister level meetings held on 10.11.2003 at Chennai and on 4th January 2004 at Thiruvananthapuram.

6.4.3. After prolonged correspondence, a meeting at the Chief Secretary level was held on 30.05.2008 at Thiruvananthapuram. In the meeting it was decided to exchange more information and data pertaining to the review of the Agreement and to have another meeting at Chennai. Accordingly, a meeting was held on 27.02.2009 at Chennai and it was decided to have a meeting at the Secretary level to examine all the issues in their entirety and work out a single package that can be placed before the Hon'ble Minister of the concerned States. As per this decision, meetings at Secretary level were held in Thiruvananthapuram on 08.04.2009 and at chennai on 24.04.2009 and 25.04.2009.

6.4.4. In continuation of the above meetings, the Chief Secretary level meeting was held on 21.01.2011 at Thiruvananthapuram.

6.4.5. The following decisions were taken in that meeting for further follow up action:-

6.4.5.1. A) Anamalayar - Diversion of 2.5 TMC ft. of water from Anamalayar to Tamil Nadu.

There is a provision to divert 2.5 TMC ft of water from Anamalayar, as per the Agreement. A Supplementary Agreement is to be executed for this project. Since Kerala contends that the Idamalayar Project has not been completed, the above diversion is yet to be implemented. Kerala proposed to execute the project by itself and sent the combined feasibility report for the "construction of Dam across Anamalayar below the confluence point of Italiar for diversion of

2.5 TMC ft. to Lower Nirar Dam and to divert the balance water to Manali Ar for Hydro Power Generation (2x50 MW)" to Tamil Nadu on 18.06.2013. The report has been examined and on receipt of some necessary further details from the Government of Kerala, suitable action will be taken.

6.4.5.2. B) Balancing reservoir above Manacadavu Weir (0.50 TMC. ft. Capacity)

Kerala is not agreeable to the proposal of Tamil Nadu for constructing a reservoir of capacity 0.50 TMC ft. above the existing Manacadavu Weir to regulate the flows to Kerala. It was explained that its requirement for additional quantity of water at Manacadavu weir over 7.25 TMC ft., can be considered by Tamil Nadu if only Kerala gives concurrence for the Balancing Reservoir.

6.4.5.3. C) Nirar - Nallar Straight Cut

The scheme envisages formation of a reservoir (7 TMC ft. capacity) across Nallar for diversion of water from Upper Nirar weir directly to Nallar by means of a tunnel and also generation of (35 MW + 230 MW) Hydro power. By this scheme, an alternative to the present circuitous route i.e., from Upper Nirar to Sholayar reservoir, then to Parambikulam reservoir and Thirumurthy reservoir is proposed, to directly feed the water into the Nallar stream and thereafter to Thirumurthy reservoir for irrigation. The conveyance length will, therefore, get reduced from about 85 km to 20 km. Tamil Nadu continues to reiterate that the scheme has to be implemented. But, Kerala informed that this issue is outside the scope of the Agreement. However, Kerala requested Tamil Nadu to provide details of possible benefits that Kerala will have from this scheme,

for its consideration. This request is to be examined.

6.4.6. A bilateral Minister level meeting was held on 28.04.2013 at Thiruvananthapuram to review the Agreement and it has been decided to review the above issues further.

6.4.7. In the meantime, Government of Kerala filed a Suit (O.S No. 2 of 2013) in the Hon'ble Supreme Court on 16.04.2013 praying for the enforcement of provisions of the agreement of 1970 and claiming Damages for Rs.50 crore. An I.A was also filed along with the Suit to release at least 3 TMC ft. immediately. Tamil Nadu filed Written Statement in the Supreme Court on 27.10.2014. When the Suit is taken for hearing it wil be argued appropriately.

The Government is also taking all possible steps to complete the first review of this Agreement quickly.

6.5. Neyyar

6.5.1. The Neyyar Irrigation Project, first and second stages were planned and executed by the Travancore – Cochin Government during the 1st and 2nd Five year plan periods (1950-55 & 1955-1960). Due to the States Reorganisation in 1956, a portion of the ayacut localized to be served by this project to an extent of 9200 acres lying in the Vilavancode taluk got transferred to Madras State (Tamil Nadu) and forms part of Kanniyakumari District. The canal works required to feed this ayacut, were executed by the State of Tamil Nadu with the approval of the Government of India and the Government of Kerala, under the Second Five Year Plan. The project is in operation from the year 1965.

6.5.2. Through the Left Bank Canal of the project, the Government of Kerala was supplying water to the area of Tamil Nadu, through the Madras

Regulator. The supply of water was very much below the designed discharge of 150 cusecs. The supply was made up to February, 2004 and thereafter, the Government of Kerala abruptly stopped the supply of water.

6.5.3. After the Re-organisation of States in 1956, the Government of Kerala sought the concurrence of the Madras Government for sharing the cost of the project as proposed by it in 1957. The amount to be shared by Tamil Nadu was also agreed by the Government of Kerala on 01.02.1965. Accepting Kerala's claim, the Government of Tamil Nadu suggested in 1971 that an agreement is to be entered into with the Government of Kerala regarding the sharing of capital and maintenance cost and supply of water to Tamil Nadu ayacut and this has been in correspondence since then. Even though the Government of Kerala agreed on the sharing of

cost etc., it did not concede to the request of Tamil Nadu for entering into an agreement on the lines suggested by Tamil Nadu. In 1999, Kerala took the stand that since Neyyar is not an inter-State river, it would not be necessary to conclude an agreement. This was the first occasion when the Government of Kerala raised the issue that Neyyar is not an inter-State river.

6.5.4. In the meanwhile, when the Government of Tamil Nadu sought the intervention of the Government of India and corresponded continuously, the Government of India in 2003, requested the Government of Tamil Nadu to continue the bilateral discussion held on 13.2.2003 for amicably resolving the issue with the help of Central Water Commission whenever required. After prolonged correspondence, in 2007, the Government of Kerala stated that as per the Resolution passed in the

Kerala Legislative Assembly on 18.10.2006, water will be supplied to Tamil Nadu from the Neyyar Dam after realizing the value of the water so given. Tamil Nadu took the stand that since Neyyar is an Inter-State river, as per Section 7 of the Inter State River Water Disputes Act 1956, the question of paying any seigniorage or additional rate or fee (by whatever name called) in respect of the use of such water by any other State or the inhabitants thereof will not arise.

6.5.5. The Government of Kerala reiterates its stand that Neyyar is not an inter-State river, even though Tamil Nadu has established from the topo sheets of the Government of India that a portion of the catchment of the river (12.90 sq.km) in the head reaches lies in Tamil Nadu. This proves that the River Neyyar is an inter-State River.

6.5.6. After prolonged correspondence with the Government of Kerala and also, considering the welfare of the Farmers of Vilavancode Taluk, a revised draft Agreement was sent to Government of Kerala on 19.05.2009. But, the Government of Kerala without giving comments on the revised draft agreement, unilaterally prepared a fresh draft agreement and sent it on 11.01.2010, which was not accepted, since it was detrimental to the interests of Tamil Nadu. Based on the request of the then Chief Minister of Kerala to send a team of technical officers for discussion, a team of technical officers of both States held discussions at Thiruvananthapuram on 06.05.2011. But, no consensus was reached on the vital clauses of the draft agreement.

6.5.7. In the meantime, the Government of India was again requested to intervene in this matter, for resolving this issue.

6.5.8. As there was no positive response from the Government of India and also since no agreement could be reached with the Government of Kerala, as ordered by the Hon'ble Chief Minister, a Suit was filed in the Supreme Court on 30.05.2012 praying to direct Kerala to release water from Neyyar Dam for irrigation in Tamil Nadu. An Interlocutory application was also filed praying to direct the State of Kerala to supply water forthwith to the State of Tamil Nadu. When the case came up for hearing on 07.02.2014, the Bench permitted Tamil Nadu to file the response to Kerala's application and the Government of India to file its Written Statement. Accordingly, additional documents and the reply of State of Tamil Nadu to the application filed by Kerala were filed on 09.05.2014 and 15.09.2014 respectively. The case was lastly heard on 10.11.2014. The case is

likely to be taken up for hearing soon.

6.5.9. In the memorandum presented by the Hon'ble Chief Minister to the Hon'ble Prime Minister on 03.06.2014, it was requested to direct the Government of Kerala to restore water supply to Tamil Nadu from Neyyar Dam to irrigate 9,200 Acres of land in Vilavankode Taluk of Kanniyakumari District. The Hon'ble Chief Minister in the Memorandum presented to Hon'ble Prime Minister on 07.08.2015 has once again urged to instruct the Government of Kerala to restore water supply to Tamil Nadu from Neyyar dam.

6.5.10. Tamil Nadu Government is taking all efforts to get water from Neyyar Dam and to safeguard the interest of the farmers of Vilavancode taluk, and to protect the rights of Tamil Nadu.

6.6. Shenbagavalli Anicut

6.6.1. Shenbagavalli Anicut is a small diversion Anicut built at the junction of two streams viz., Puliampattithodu andChokkampatti-thodu in Periyar Basin lying in Kerala State limits just to the west of Tamil Nadu border. This anicut is reported to be in existence since 1773 AD and it diverts flows to mainly two tanks namely Kulashekhara Periya Kulam and Raisinge Periya Kulam in Sivagiri Taluk of Tirunelveli District through a channel, namely, Kanyamadagu channel which is 4400 ft (1341m) long. About 10,924 acres in Tirunelveli and Virudhunagar Districts are being irrigated.

6.6.2. Due to remote location in forest, the channel was in dilapidated condition. The repairs were done by the Government of Tamil Nadu in 1959-1962 at an estimated cost of Rs.3.25 Lakhs. Again when the channel breached in 1971, as per

the estimates of the Government of Kerala for Rs.10.20 lakhs, a sum of Rs.5.15 lakhs which is 50% of the estimated cost was deposited to the Government of Kerala, during 1986 to enter in to a contract and complete the repair works.

6.6.3. However, the deposit amount was refunded by the Government of Kerala, in December, 2005 stating that Kerala could not undertake the repair works of the Shenbagavalli Anicut due to the objections raised by the Forest Department, as it is situated in the core zone of the Periyar Tiger Reserve.

6.6.4. The Sivagiri Vivasayigal Sangam filed a Writ Petition in the High Court of Madras, (WP No. 1274 / 2006) seeking issuance of writ of mandamus directing the Governments of Tamil Nadu and Kerala to grant necessary sanctions and consequently carry out repair works to the Kanyamadugu channel and Shenbagavalli anicut. The High

Court passed an ex-parte order on 20.07.2006 directing the Government of Kerala to reconsider its decision.

6.6.5. In response to the above order, the Government of Kerala in September, 2006 reiterated its earlier decision to the effect that Government of Kerala is not in a position to reconsider its earlier decision in the matter.

6.6.6. In order to ensure the protection of the welfare of the farmers benefitted by the Shenbagavalli Anicut, the intervention of the Government of India, has been sought on 01.08.2011 with a request to advise the Government of Kerala to carry out the repair works either by Kerala or by Tamil Nadu and that if the Government of Kerala agrees to carry out the repair works, the cost will be reimbursed. Meanwhile, the Government of India, Ministry of Water Resources on 19.02.2014,

has requested Tamil Nadu to continue the bilateral discussion for amicably resolving all the bilateral inter-State issues including Shenbagavalli with the help of Central Water Commission wherever required. The Government of Kerala in August 2010 stated that the repairs to the Shenbagavalli anicut could not be carried out till a decision is taken up in the Suit on Mullai Periyar Dam. Since the Suit was disposed of 07.05.2014, the Government of Kerala was addressed on 31.07.2014 to convey its concurrence to execute the repair works either by the Government of Tamil Nadu or in the alternative to execute the work by the Government of Kerala for which the cost would be reimbursed by the Government of Tamil Nadu. The Government of Tamil Nadu is persuading the Government of Kerala to give its concurrence.

6.6.7. In the meanwhile, Writ Petitions (MD) No. 1260 of 2015, 2398 of 2015 and 3601/2015 have been filed in the Madurai Bench of Madras High Court. The Government of Tamil Nadu, being one of the Respondents is taking action to file the Counter affidavit in respect of these Writ Petitions.

6.6.8. The Government of Tamil Nadu is taking consistent efforts to repair the Shenbagavalli anicut and to protect the interest of the farmers fed by the Shenbagavalli anicut.

6.7. Pennaiyar River

6.7.1. The River Pennaiyar originates at Nandidurg in Karnataka and flows through the States of Karnataka, Andhra Pradesh, Tamil Nadu and Union Territory of Puducherry before confluencing into the Bay of Bengal.

6.7.2. The Pennaiyar River is an Inter State River and is also one of the rivers mentioned in Schedule-A annexed to the Madras-Mysore Agreement of 1892. As per Clause-II of this Agreement, the upstream State should not, without the previous consent of the downstream Tamil Nadu State, build any new Anicut or any structure to obstruct, divert or store the waters of the river across any part of the river.

6.7.3. The Pennaiyar River flows through the Districts of Krishnagiri, Dharmapuri, Tiruvannamalai, Villupuram and Cuddalore in Tamil Nadu and is the lifeline of the people living in these districts. The river irrigates nearly 4 lakh acres in Tamil Nadu.

6.7.4. The Government of Tamil Nadu in May, 2012, has constituted a committee comprising of the Superintending Engineer, Water Resources Department, Pennaiyar River Basin Circle, Tiruvannamalai

as Chairman, two Executive Engineers, and Revenue Divisional Officer / Sub Collector, Krishnagiri to look into Karnataka's plan to construct diversion structures, Check Dams etc., and submit its report periodically. The Committee has also been instructed to be vigilant in order to protect the interests of Tamil Nadu and to safeguard the interests of the farmers of Tamil Nadu fed by the river Pennaiyar. The Committee is meeting whenever required and submit its report for follow up action.

6.7.5. When the Government of Karnataka had proposed to construct Check Dams and diversion structures across the river Pennaiyar, the Hon'ble Chief Minister on 19.05.2012 had pointed out to the then Prime Minister that the attempt, the Government of Karnataka to construct the check Dams and diversion structures will

withhold the flows across the river Pennaiyar and be a serious breach of Inter-State Agreement on this issue and that it will be a body blow to the farmers of Tamil Nadu, besides affecting the basic drinking water supply position. The Government of Karnataka had neither sought the consent of Tamil Nadu nor furnished any information, despite the Government of Tamil Nadu taking up the matter with the Government of Karnataka to furnish the details of the schemes and urging it not to commence any work without the consent of Tamil Nadu. The Prime Minister was, therefore, requested to advise the Government of Karnataka to stop forthwith the execution of any check Dams or diversion structures etc., across the river Pennaiyar.

6.7.6. In the meanwhile, when the media reported that Karnataka has constructed a diversion structure at Mugalur in Karnataka limits for

diversion of water through a canal to feed Lakkur tank for irrigation, the Hon'ble Chief Minister again on 27.03.2013 urged the then Prime Minister to advise Karnataka not to venture upon any scheme in the Pennaiyar river without the prior consent of Tamil Nadu.

6.7.7. When the Government of Karnataka had decided to execute the check Dam across Markendaya Nadhi, a tributary of Pennaiyar river in Earkole village to feed water to the villages of Earkole, Balamanda and Kamachandara and started preliminary works, in September 2013, the Government of Karnataka was requested to stop the all works till the Government of Tamil Nadu gives its consent to the schemes. Again when Karnataka has proposed to create infrastructure for obstruction / diversion of waters from the Pennaiyar river and also the check Dams, the Government of India, Ministry of Water Resources

was requested in November, 2013, October, 2014, January, 2015 and February, 2015, to issue instructions to advise the Government of Karnataka not to take up any work or divert water without prior concurrence of Tamil Nadu and if any projects are in progress, Karnataka may be advised to stop forthwith until such time the Government of Karnataka furnishes full details of schemes and the consent of Tamil Nadu obtained.

6.7.8. The Government of India, Ministry of Water Resources, in March, 2015 has informed that the Central Water Commission visited the upstream basin areas in the inter-State border as well as Mugalur and Lakkur tank in Karnataka and it appears that there is no apparent breach of Madras-Mysore Agreement of 1892. Further, the Central Water Commission has not received any Detailed Project Report / proposal from the

Government of Karnataka for the construction of check Dam across the Markendaya nadhi, a tributary of River Pennaiyar.

6.7.9. The media reported in March 2015 that Government of Karnataka is letting down untreated sewage and industrial effluents into Cauvery and Pennaiyar rivers and its streams. A private litigant has filed an application (No. 103 of 2015) before the National Green Tribunal, Chennai, regarding the untreated sewage and industrial effluents letting into canals, channels or river courses that eventually join with river Cauvery and Pennaiyar rivers directly or indirectly, impleading Karnataka, Union Government and Government of Tamil Nadu. The Government of Tamil Nadu will be filing a Counter to this Petition shortly. However the Tamil Nadu Pollution Control Board has been instructed to monitor the

quality of water flowing into Tamil Nadu at the border.

6.7.10 Tamil Nadu, filed an Original Suit in the Hon'ble Supreme Court on 05.06.2015 and an I.A to pass a judgment and decree i.e., permanent injunction restraining Karnataka from letting the untreated effluents into the river Cauvery and Pennaiyar, its main stream, tributaries and all other streams before the same enters Tamil Nadu.

6.7.11 The Government of Tamil Nadu is taking all efforts to protect the interest of the farmers fed by the river Pennaiyar and the people as a whole dependent on river Pennaiyar.

6.8. Inter Linking of Rivers

6.8.1. Mahanadhi - Godavari - Krishna - Pennar - Palar - Cauvery - Vaigai - Gundar link

The Hon'ble Chief Minister in the Memorandum presented to the Hon'ble Prime Minister of India on 03.06.2014 has urged the Government of India to implement the inter linking of rivers, namely, Mahanadhi - Godavari - Krishna - Pennar - Palar - Cauvery - Vaigai - Gundar and Pamba - Achankoil - Vaippar. It has been pointed out that the Supreme Court in its Order dated 27.02.2012, directed the Government of India to constitute a Special Committee for the implementation of inter linking of rivers and after the formation of the Committee on 06.05.2013, no steps has been taken by the Government of India to implement the inter linking of rivers project. The Hon'ble Chief Minister requested that the Special Committee should be

activated and all inter State rivers should be nationalised so that water resources of the country are optimally utilised.

6.8.2. The National Water Development Agency (NWDA) has prepared the feasibility report for interlinking of Mahanadhi - Godavari - Krishna - Pennar - Palar - Cauvery - Vaigai - Gundar link. It has assessed the overall surplus from Mahanadhi and Godavari as 925 TMC ft. after allowing for all future in-basin requirements. It has proposed to utilize this surplus for various purposes like irrigation, drinking water, industrial use etc. under the Peninsular Component. The NWDA has assessed the benefits that would accrue as about 3 Million hectares of irrigation including 2.10 Million hectares additional irrigation and substantial additional Hydro Power, besides several other intangible benefits. Under this scheme, Tamil Nadu is expected to

get about 214 TMC ft. at the border and the additional area that could benefit by irrigation is estimated as 7.74 lakh hectares (19.13 lakh acres).

6.8.3. Tamil Nadu has requested for enhancing the quantum of water proposed to be transferred to Tamil Nadu by at least another 100 TMC.ft. Tamil Nadu also suggested an alternative alignment for the Pennar - Palar - Cauvery link, at a higher contour so as to spread the benefits within the State equitably to the most needed areas.

6.8.4. The Ministry of Water Resources, Rivers Development and Ganga Rejuvenation, Government of India, notified the constitution of the Special Committee for Inter linking of Rivers in its Gazette dated 23.09.2014. The Government of Tamil Nadu's nominees in the Committee are:

(1) Hon'ble Minister (Public Works), Government of Tamil Nadu.
(2) The Secretary to Government, Public Works Department, Government of Tamil Nadu as a nominee of the Chief Secretary to Government of Tamil Nadu.

6.8.5. The Hon'ble Chief Minister during the 1st meeting of the Governing Council of NITI AAYOG held on 08.02.2015, has urged the Hon'ble Prime Minister to bring the Ganga to the Cauvery and to implement the interlinking of the rivers Mahanadhi – Godavari – Krishna – Pennar – Palar – Cauvery - Vaigai and then on to Gundar.

6.8.6. During the 5 meetings held on 17.10.2014, 06.01.2015, 19.03.2015, 14.05.2015 and 13.07.2015, Tamil Nadu had emphasised that the Inter Linking of Rivers Project should be taken up immediately as per the orders of the Supreme Court. In addition, the stand of the Government of Tamil

Nadu on the following points was also presented to the Committee:-

a) The Interlinking of Rivers Project should be implemented under National Perspective Plan as is being done in the case of Ganga Rejuvenation. Otherwise, the Interlinking of Rivers Project will be a non-starter.
b) There is no need for consensus building in the implementation of Project, as it would only delay the Project implementation. The preparation of Detailed Project Report (DPR) for linking the Rivers of Mahanadhi – Godavari – Krishna – Palar – Cauvery - Vaigai - Gundar should be taken up without further delay.
c) National Water Development Agency (NWDA) should be instructed to prepare the Detailed Project Report (DPR) for Pamba-Achankoil-Vaippar link immediately as a feasibility

report has already been prepared by NWDA.
d) It was suggested that the Government of India through the Parliament can enact a law for implementing the interlinking of rivers project.
e) It was also urged in the meetings that specific time bound action plan should be drawn by the Special Committee, so that this project of utmost National importance is implemented speedily and effectively without further loss of time.

6.8.7. The Hon'ble Chief Minister in the Memorandum presented to the Hon'ble Prime Minister of India on 07.08.2015 has urged the Government of India to implement the inter linking of rivers, Mahanadhi - Godavari - Krishna - Pennar - Palar - Cauvery - Vaigai - Gundar and Pamba - Achankoil - Vaippar. The Hon'ble Chief Minister

pointed out that the request of nationalisation of all the inter – State rivers must be looked into seriously and implemented into a time bound manner.

The Government of Tamil Nadu is taking all efforts to bring interlinking of Rivers Programme to a reality.

6.9. Pamba - Achankoil - Vaippar Link

6.9.1. The NWDA has formulated the Pamba - Achankoil - Vaippar Link Project, which envisages diversion of 22 TMC.ft. which is only 20% of the surplus waters of Pamba and Achankoil rivers of Kerala to Tamil Nadu to irrigate an ayacut of 91,400 hectares in the dry taluks of Sankarankoil, Kovilpatti, Sivagiri, Srivilliputhur, Rajapalayam, Sathur and Tenkasi in Tamil Nadu and will also help to generate peak power of 500 MW for Kerala.

6.9.2. The Government of Tamil Nadu has given its acceptance in December, 1995 to the proposal. The Government of Kerala has not yet given its concurrence for this project.

6.9.3. The Hon'ble Chief Minister in the Memorandum presented to the Hon'ble Prime Minister of India on 03.06.2014 has urged the Government of India to implement the inter linking of rivers, Pamba – Achankoil – Vaippar.

6.9.4. The Supreme Court in its Order dated 27.02.2012, ordered for the constitution of a "Special Committee for Interlinking of Rivers" for the implementation of interlinking of rivers which includes the Pamba-Achankoil-Vaippar link. In the meetings of the Special Committee for Interlinking of Rivers held on 17.10.2014 06.01.2015, 19.03.2015, 14.05.2015 and on 13.07.2015, the Government of Tamil Nadu had emphasised that

National Water Development Agency (NWDA) should be instructed to prepare the Detailed Project Report (DPR) for Pamba-Achankoil-Vaippar link immediately, as a feasibility report has already been prepared by NWDA.

6.9.5. The Hon'ble Chief Minister during the 1st meeting of the Governing Council of NITI AAYOG held on 08.02.2015 requested the Hon'ble Prime Minister to implement the diversion of waters of the west flowing rivers of Pamba and Achankoil to Vaippar.

6.9.6. In the meanwhile, a Writ Petition (W.P.(MD) No. 5153 of 2014) has been filed in the Madurai Bench of the Madras High Court, praying to implement this project. The Government of Tamil Nadu filed the Counter Affidavit on 19.03.2015.

6.9.7. The Hon'ble Chief Minister in the Memorandum presented to the Hon'ble Prime Minister of India on

07.08.2015 has urged the Government of India to implement the inter linking of rivers, Pamba – Achankoil – Vaippar.

The Government of Tamil Nadu is taking all efforts through NWDA and Government of India to implement this Project.

7.0. SCHEMES UNDER IMPLEMENTATION DURING THE FINANCIAL YEAR 2015–2016

Various schemes are announced by the **Hon'ble Chief Minister** from time to time. In addition, schemes are also announced based on the respresentations from the Hon'ble Ministers, MLAs, MPs and the Public. Schemes are also recommended by various Committees constituted by the Legislature and the Government. These schemes are prioritised based on their need and urgency with due diligence and are taken up for implementation.

Such new schemes sanctioned during the year 2014-15, which are yet to commence will be taken up for implementation during this year. Further, all the spill over schemes, which are under implementation, would be continued this year for speedy completion. Special thrust would be given to complete the schemes which are nearing completion, so as to achieve the contemplated objectives of such schemes.

Implementation of various Schemes at a total cost of **Rs.3,20,761.60 lakh** are proposed to be taken up during 2015-2016. The schemes include Formation of new Reservoirs, Inter-linking of Rivers within the State, Augmentation of Drinking Water Supply Sources, Formation of new Tanks across streams and rivers, Excavation of new supply channels, Construction of new Check dams, Bed dams, Grade walls and

Artificial Recharge Structures across various Rivers, their tributaries and Water bodies, Rehabilitation of Anicuts, Tanks, Regulators, Canals and Channels, Construction and reformation of Coastal protection structures etc. In addition, Flood protection works, Building Infrastructures, Roads and Bridges etc., will also be implemented.

7.1. Implementation of various Schemes

7.1.1. Rehabilitation of Dams

Under Dam Rehabilitation and Improvement Project, 11 WRD dams are proposed to be taken up in Phase I. Out of which, civil works have been completed in 5 dams and works in 5 dams are in progress. The remaining 1 work will commence shortly.

Further, in the Phase II dams, Administrative Sanction has been accorded for 11 dams, out of which

works have commenced in 6 dams and work in 5 dams will commence shortly. The details of these 22 dams are as below:-

(Rs. in lakh)

Sl. No	Name of work	Cost	Stage of work
1	Rehabilitation and Improvement to Nambiyar dam in Tirunelveli District	235.07	Civil work completed
2	Rehabilitation and Improvement to Adavinainarkoil dam in Tirunelveli District	268.26	Civil work completed
3	Rehabilitation and Improvement to Vadakkupachaiyar dam in Tirunelveli District	255.24	Civil work completed
4	Rehabilitation and Improvement to Kodumudiyar dam in Tirunelveli District	220.25	Civil work completed
5	Rehabilitation and Improvement to Poigaiyar dam in Kanyakumari District	115.29	Civil work completed

Sl. No	Name of work	Cost	Stage of work
6	Rehabilitation and Improvement to Mordhana dam in Vellore District	467.45	95% work completed. Further work in progress
7	Rehabilitation and Improvement to Siddhamalli dam in Ariyalur District	1,452.51	85% work completed. Further work in progress
8	Rehabilitation and Improvement to Gomukhinadhi dam in Villupuram District	404.44	65% work completed. Further work in progress
9	Rehabilitation and Improvement to Kodaganar dam in Dindigul District	418.54	75% work completed. Further work in progress
10	Rehabilitation and Improvement to Vidur dam in Villupuram District	592.96	30% work completed. Further work in progress
11	Rehabilitation and Improvement to Thirumurthy Dam in Tiruppur District	438.10	35% work completed. Further work in progress

Sl. No	Name of work	Cost	Stage of work
12	Rehabilitation and Improvement to Kuthiraiyar dam in Dindigul District	129.00	25% work completed. Further work in progress
13	Rehabilitation and Improvement to Palar Porandalar dam in Dindigul District	398.50	9% work completed. Further work in progress
14	Rehabilitation and Improvement to Amaravathy dam in Tiruppur District	602.61	5% work completed. Further work in progress
15	Rehabilitation and Improvement to Thoppaiyar dam in Dharmapuri District	120.00	Work commenced
16	Rehabilitation and Improvement to Nagavathy dam in Dharmapuri District	64.00	Work commenced
17	Rehabilitation and Improvement to Manimuthar dam in Tirunelveli District	1,796.66	Tender rejected. Retender called for.

Sl. No	Name of work	Cost	Stage of work
18	Rehabilitation and Improvement to Anaimaduvu dam in Salem District	222.00	Work to be taken up
19	Rehabilitation and Improvement to Kullursandhai dam in Virudhunagar District	657.00	Work to be taken up. Tender called for.
20	Rehabilitation and Improvement to Golwarpatti dam in Virudhunagar District	509.00	Work to be taken up. Tender called for on 14.08.2015 and under scrutiny in circle office.
21	Rehabilitation and Improvement to Anaikuttam dam in Virudhunagar District	426.00	Work to be taken up. Tender called for on 14.08.2015 and under scrutiny in circle office.

Sl. No	Name of work	Cost	Stage of work
22	Rehabilitation and Improvement to Pilavukkal Periyar dam in Virudhunagar District	204.00	Work to be taken up Tender called for.
	Total	**9,996.88**	

7.1.2. Formation of New Reservoirs

(Rs. in lakh)

Sl. No	Name of work	Cost	Stage of work
1	Formation of a New Reservoir near Kannankottai and Thervaikandigai Village in Gummidipoondi Taluk of Tiruvallur District	33,000.00	47% work completed. Further work in progress
2	Upgradation of Peikulam, Pottaikulam and Korampallam tanks into Reservoir in Thoothukudi District	2,007.00	Works nearing completion

3	Formation of Earth Dam and construction of Spillway and River Sluices across Malattar River at Bathallapalli Village in Gudiyatham Taluk of Vellore District	2,955.00	31% work completed
4	Formation of New Reservoir across Marudaiyar River near Kottarai Village in Alathur Taluk of Perambalur District	10,800.00	Soil investigation completed. Land Acquisition is in process
	Total	**48,762.00**	

7.1.3. Inter-Linking of Rivers within the State

(Rs. in lakh)

Sl. No	Name of work	Cost	Stage of work
1	Formation of a Flood Carrier Canal from Kannadian Canal to drought prone areas of Sathankulam and Thisaiyan-vilai by inter-linking Thamira-parani, Karumeniyar and Nambiyar Rivers in Tirunelveli and Thoothukudi Districts	36,900.00	Work in progress
	Total	**36,900.00**	

7.1.4. Artificial Recharge Structures

(Rs. in lakh)

Sl. No	Name of work	Cost	Stage of work
1	Construction of Diaphragm wall across Pennaiyar River between Perangiyur and Pidagam villages in Ulundurpet and Villupuram Taluks of Villupuram District	1,263.00	Work to be commenced
	Total	**1,263.00**	

7.1.5. Formation of New Tanks / Ponds

(Rs. in lakh)

Sl. No	Name of work	Cost	Stage of work
1	Formation of a New Tank across Kallar Odai near Viswakudi in Thondamanthurai Village of Veppanthattai Taluk in Perambalur District	3,307.00	97% work completed. Further Work in progress
2	Formation of a New Tank across Nallathangal Odai near Kothayam Village of Oddanchatram Taluk in Dindigul District	1,112.00	80% work completed. Land Acquisition is in progress
3	Repairs, Renovation and Restoration of Adanur tank, Singalandapuram tank, Thuraiyur Big tank, Keerambur tank, Nagalapuram tank and Maruvathur tank in Thuraiyur Taluk of Tiruchirappalli District	367.88	Work to be started
	Total	**4,786.88**	

7.1.6. Formation of New Canals / Supply Channels

(Rs. in lakh)

Sl. No	Name of work	Cost	Stage of work
1	Excavation of supply channel from Senganbasuvanthalav Tank to divert flood surplus water of Chinnar River to feed Endapatti Tank, Kondasamanahallu Tank and 8 other inter-mediate Tanks in Palacode Taluk of Dharmapuri District.	1,020.00	43% Work completed. Further Work in progress
2	Linking of Parambikulam Aliyar Project System to Uppar canals in Dharapuram Taluk of Tiruppur District.	810.00	65% Work completed. Further Work in progress
3	Formation of a New Flood carrier canal from Kanjampatti odai of Vilathikulam Taluk in Thoothukudi District to feed Sayalkudi and other tanks in Kamuthi and Kadaladi Taluks of Ramanathapuram District.	1,800.00	18% work completed. Land Acquisition is in progress

Sl. No	Name of work	Cost	Stage of work
4	Diversion of flood water from Betamugilalam-pallam in Denkanikottai taluk of Krishnagiri District to Kesarigulihalla reservoir in Palacode Taluk of Dharmapuri District	100.00	Work in progress
5	Extension of 18th Canal upto Koovalingaaru which drains into Kottakudi river in Bodinayakkanur Taluks of Theni District	5,500.00	As a First phase approval has been accorded for Land acquisition and ordered for commence ment of work by private negotiation
6	Rehabilitation of 1st to 4th Branch channels, 12th Branch channels and Periyar Extension Canal and its distributories of Periyar Main canal in Madurai and Sivagangai Districts	4,000.00	Work has been split into six packages. Estimate for six packages is under preparation

Sl. No	Name of work	Cost	Stage of work
7	Modernisation of Narasingapuram Rajavoikkal Supply channel in Narasingapuram Village of Authoor Taluk in Dindigul District	1,020.00	Design is awaited from SE,Designs Circle,Chennai .On receipt of Designs Technical Sanction of Estimates will be accorded and tenders will be called for
	Total	**14250.00**	

7.1.7. Construction of New Check dams / Bed dams / Grade walls

Check dams

(Rs. in lakh)

Sl. No	Name of work	Cost	Stage of work
1	Construction of Check dam across Koraiyaru River in Kannivaduga-patty Village of Marungapuri Taluk in Tiruchirappalli District	70.00	85% work completed. Further work in progress

Sl. No	Name of work	Cost	Stage of work
2	Construction of check dam across Karaipottanar River in Nagayanallur Village of Thottiyam Taluk in Tiruchirappalli District	294.00	10% work completed. Further work in progress
3	Construction of Check dam across Thalugai River in Naganallur Village of Thuraiyur Taluk in Tiruchirappalli District	142.00	67% work completed. Further work in progress
4	Construction of check dam across Ariyar River in Ammapettai Village of Srirangam Taluk in Tiruchirappalli District	306.00	70% work completed. Further work in progress
5	Construction of Check dam across Kannuthu River in A.Reddiyapatty Village near Vaiyam-patty of Manapparai Taluk in Tiruchirappalli District	90.00	75% work completed. Further work in progress

Sl. No	Name of work	Cost	Stage of work
6	Construction of check dam across Nandiyar River in Vellanur Village of Lalgudi Taluk in Tiruchirappalli District	320.00	25% work completed. Further work in progress
7	Construction of Pulankulam Check dam across Santhana-varthini River in Vembarpatti Village of Dindigul Taluk and District	400.00	55% work completed. Further, Work in progress
8	Construction of Nedunkulam check dam across Santhana-varthini River in Avilipatti Village of Dindigul Taluk and District	350.00	55% work completed. Further, Work in progress
9	Construction of check dam across Santhana-varthini River in Kombaipatti village of Dindigul Taluk and District	175.00	42% work completed. Further, Work in progress

Sl. No	Name of work	Cost	Stage of work
10	Construction of 2 Check dams across Vaigai River at Valipparai and Govindanagaram Villages in Andipatti Taluk of Theni District	495.00	Work in progress
11	Construction of Check dam across Ayyar River in Chithambur Village of Musiri taluk in Tiruchirappalli District	645.00	30% work completed. Further work in progress
12	Construction of check dam across Uppar River in Irungalur Village of Mannacha-nallur Taluk in Tiruchirappalli District	320.00	10% work completed. Further work in progress
13	Construction of check dam across Ayyar River near Veeramachanpatty Village of Thuraiyur Taluk in Tiruchirappalli District	260.00	75% work completed. Further work in progress

Sl. No	Name of work	Cost	Stage of work
14	Construction of check dam across Dombatchi River in Malaiyadipatty Village of Manapparai Taluk in Tiruchirappalli District	166.00	15% work completed. Further work in progress
15	Construction of check dam across Thamiraparani River near Serndamangalam Village (Mukkani) in Srivaikundam Taluk of Thoothukudi District	2,575.00	Tender has been sent to TAC for approval
16	Construction of check dam across Kosasthalaiyar River in Pattaraiperumpudur Village to channelise water to Veera-ragavaperumal temple tank in Tiruvallur taluk and District	2,500.00	Work commenced.
	Total	**9,108.00**	

Bed dams

(Rs. in lakh)

Sl. No	Name of work	Cost	Stage of work
1	Construction of Bed dam across River Cauvery at L.S. 98.40 Km to feed A73 Veppathur channel in Thiruvisanallur village of Thiruvidaimaruthur taluk in Thanjavur District	200.00	95% work completed. Further work in progress
	Total	**200.00**	

7.1.8. Construction of New Regulator and Barrage

(Rs. in lakh)

Sl. No	Name of work	Cost	Stage of work
1	Construction of a tail end regulator across Kanthaparichanar near Jambuvanodai village at L.S. 26.40 Km in Thiruthurai poondi Taluk of Tiruvarur District	300.00	80% work completed. Further work is in progress
2	Construction of barrage across Kollidam river at mileage 74/3 near Adhanur and Kumaramangalam Villages in Cuddalore and Nagapattinam Districts	40,000.00	As a First stage investigation Works are to be taken up
	Total	**40,300.00**	

7.1.9. Rehabilitation of Anicuts / Bed Dam / Grade wall

(Rs. in lakh)

Sl. No	Name of work	Cost	Stage of work
1	Rehabilitation of Vedan Kalingal and Uppathu Kalingal Anicut (Thalaiyar anicut) in Uppiliyapuram and Kottapalayam Villages in Thuraiyur Taluk of Tiruchirapalli District	120.00	70% work completed. Further work is in progress
2	Rehabilitation of Alathur Anicut, supply channel and feeding tanks in Chengam Taluk in Thiruvannamalai District	65.00	32% work completed. Further work is in progress
3	Rehabilitation of Thandarai Anicut in Thiruvannamalai Taluk and District	60.00	17% work completed. Further work is in progress
4	Rehabilitation of Pallapatti old anicut, Kottankulam anicut across Palar at Pallapatti village and Kottankulam Kanmoi surplus course of Kottampatti village of Melur Taluk in Madurai District	125.00	40% work completed. Further work is in progress

Sl. No	Name of work	Cost	Stage of work
5	Rehabilitation of Inamkulathur Anicut across Ariyar river and its feeding tank, Supply Channel in Inamkulathur Village of Srirangam Taluk in Tiruchirappalli District	347.00	Work to be taken up
6	Rehabilitation of Samudram tank, Maravanur tank and 7 Anicuts in Manapparai Taluk of Tiruchirappalli District	275.00	Work to be taken up
7	Rehabilitation of Pirattiyur Anicut across Ariyar in Pirattiyur Village in Srirangam Taluk of Tiruchirappalli District	264.00	Work to be taken up
8	Rehabilitation of Ernankulam anicut, Thambirankulam anicut, Ammakulam anicut, Eluppamarathu anicut, Chennaiyagoundan anicut and Posigoundan anicut in Sudhagangai odai in Pottipuram, Silamalai, Sillamatrathuppatti and Dombucheri Villages of Bodi Taluk in Theni District	238.00	Tenders have been received and is under scrutiny in Circle office.

Sl. No	Name of work	Cost	Stage of work
9	Rehabilitation to Pudu anai, Ottanai, Kodamurutti anai, Birambu anai and Mukkavar dividing dam in Varaganadhi channel in Thenkarai Village of Periyakulam Taluk in Theni District	160.00	Tenders have been sent to TAC for approval.
10	Rehabilitation of Kothamangalam Anicut across Kothamangalam drain in Kothamangalam Village of Srirangam Taluk of Tiruchirappalli District	150.00	Work in progress
11	Rehabilitation of Sand Vent at the Head of Uyyakondan Channel in Pettavaithalai village in Srirangam Taluk of Tiruchirappalli District	137.00	80% work completed. Further work is in progress
12	Rehabilitation of Punganur Anicut across Ariyar river and its Supply Channel in Punganur Village of Srirangam Taluk of Tiruchirappalli District	104.00	Work to be commenced.
13	Rehabilitation of Ariyavur Anicut across Ariyar river and its feeding tank, supply channel in Ariyavur Village in Srirangam Taluk of Tiruchirappalli District	100.00	Work to be Commenced.

Sl. No	Name of work	Cost	Stage of work
14	Rehabilitation of Samyvaikkal anicut across Oothampari aru near Bodi Village of Bodi Taluk in Theni District	57.00	Work is in Progress
	Total	**2202.00**	

7.1.10. Rehabilitation of shutters

(Rs. in lakh)

Sl. No	Name of Work	Cost	Stage of work
1	Rehabilitation of Hydro Mechanical Equipments and upgrading the Manual operating arrangements of the shutters by electrification in North and South Coleroon at Upper Anicut in Mannachanallur Taluk of Tiruchirappalli District	1000.00	80% work completed. Further work is in progress
	Total	**1,000.00**	

7.1.11. Rehabilitation of Regulators

(Rs. in lakh)

Sl. No	Name of work	Cost	Stage of work
1	Rehabilitation of Sethiathope (Regulator) Anicut including Electrical hoisting arrangements in Chidambaram Taluk of Cuddalore District	2,365.00	89% work completed. Further Work in progress.
	Total	**2,365.00**	

7.1.12. Rehabilitation of Canals / Supply Channels / Sluices

(Rs. in lakh)

Sl. No	Name of work	Cost	Stage of work
1	Rehabilitation of Thovalai Channel and Radhapuram Channel including kanmoi in Kanniyakumari District	2,250.00	89% work completed. Further Work in progress
2	Rehabilitation of Contour Canal from LS 0.00 km to LS 49.30 km in Tiruppur and Coimbatore Districts	22,115.22	92 % work completed. Further Work in progress

Sl. No	Name of work	Cost	Stage of work
3	Strengthening the slipped portion at various places of Kandaleru - Poondi canal in between LS 13.00 Km to 25.275 Km in Uthukottai Taluk of Thiruvallur District	1,988.00	Work in progress
4	Rehabilitation and Modernization of Uyyakondan Channel in Palakkarai area of Tiruchirappalli District	1,150.00	Work to be taken up
5	Modernisation of Kunnur anicut supply channel near Kunnur Village of Andipatti Taluk in Theni District	830.00	Estimate under Preparation.
6	Modernisation of Vairavan anicut supply channel in Genguvarpatti Village of Periyakulam Taluk in Theni District	650.00	Estimate under Preparation
7	Protecting the side banks of Chunkan Odai and improvements to Erappaiyar to feed Poigai dam in Thovalai Taluk of Kanniyakumari District	325.00	Tender is under scrutiny in Circle office

Sl. No	Name of work	Cost	Stage of work
8	Modernisation of Thamaraikulam supply channel in Gokilapuram and Uthamapalayam Village of Uthama-palayam Taluk in Theni District	250.00	Design is awaited from SE, Design Circle Chennai. On receipt of Design, Technical sanction will be accorded to Estimate and tenders will be called for.
9	Lining and Improvements to Puthurvayal channel in Gudalur taluk of The Nilgiris District	247.00	Work Commenced.
10	Construction of storm water and Drainage Channel parallel to the right side retaining wall along the road side from Thidiyur Village to downstream of Pachaiyar weir in Palayamkottai Taluk of Tirunelveli District	220.00	Estimate under Preparation

Sl. No	Name of work	Cost	Stage of work
11	Construction of Barrel at LS 2046 m across Kannadian channel to divert the drainage water of Kallidaikurichi town in Amba-samudram Taluk of Tirunelveli District	160.00	Estimate under Preparation.
12	Rehabilitation of Kottayadi Channel from LS. 0/0 Km to 5/800 Km and Restoration of channel from LS 5/800 Km to 6/700 Km under Nanhil Nadu Puthanar Channel system in Thamarai-kulam village of Agasteeswaram Taluk in Kanniyakumari District	115.00	Tender has been accepted. Agreement to be signed.
	Total	**30,300.22**	

7.1.13. Rehabilitation of Tanks

(Rs. in lakh)

Sl. No	Name of work	Cost	Stage of work
1	Restoration of original storage capacity by renovating Chembaram-bakkam tank and creation of additional water storage in four		

Sl. No	Name of work	Cost	Stage of work
	tanks viz. Cholavaram, Porur, Ayanam bakkam and Nemam Tanks		
	a) Cholavaram	50.00	Work completed
	b) Porur	2,000.00	Works in progress.
	c) Ayanambakkam	3,000.00	Works in progress.
	d) Nemam	7,950.00	Works in progress.
2	Rehabilitation and Modernisation of Valasakalpatty tank in Gengavalli block of Salem District.	538.35	80% work completed. Further Work in progress
3	Rehabilitation of Amoor Tank in Ponneri Taluk of Thiruvallur District	70.00	60% works completed. Further Work in progress
4	Modernisation and Rehabilitation of Uppar, Nandhiyar Sub Basin and Marudaiyar Sub Basin Tanks, Anicuts and Supply Channels in Perambalur District	222.30	65% work completed. Further Work in progress

Sl. No	Name of work	Cost	Stage of work
5	Rehabilitation of Perur tank, Neyveli tank and Komangalam tank in Musiri and Thottiyam Taluks of Tiruchirapalli District	151.00	75% work completed. Further Work in progress
6	Rehabilitation of Kottathur tank, Santhanur tank, Peramangalam tank and Mahadevi tank of Musiri Taluk in Tiruchirapalli District	317.40	60% work completed. Further Work in progress
7	Rehabilitation of Nagayanallur tank, Pidaramangalam tank, Murungai tank, Valvelputhur anicut and Maruthampatti anicut in Thottiyam Taluk of Thiruchirapalli District	295.00	67% work completed. Further Work in progress
8	Desilting of Veeranam tank and Rehabilitation Vadavar channel in Cuddalore District	4,000.00	Tender under scrutiny.
9	Rehabilitation of 3 tanks in Musiri, Thuraiyur and Thiruverumbur Taluks in Tiruchirappalli District.	173.50	Agency settled work to be started

Sl. No	Name of work	Cost	Stage of work
10	Repair, Renovation and Restoration (RRR) of Water bodies Scheme		
	Phase –I works		
	(1) Vellore District- 25 Tanks Mambakkam Tank, Soraiyur Tank, Mazhaiyur Tank, Melnethapakkam Tank, Vazhapandal Tank, Arur Tank, Vilapakkam tank, Palayanur Tank, Chinnasamuthiram Tank, Kakkankarai Tank, Kurumberi Tank, Rachamangalam Tank, Simmanapudur Tank, Saduperi Tank, Thorapadi Tank, Veppampattu Tank, Varagur Tank, Kilpadi Tank, Ayiramangalam Tank, Melpudupakkam Big Tank, Melpudupakkam Otteri Tank, Melmanavoor Kadaperi Tank, Marimani-kuppam Tank, Dalavanaickan Tank, Kudapattu Tank.	1097.51	Work will commence shortly

Sl. No	Name of work	Cost	Stage of work
	(2)Ramanathapuram District- 24 Tanks (Ariyanendal Tank, Nenmeni Tank, Urappuli Tank, Soodiyur Tank, Enathikottai Tank, Kamankottai tank, Kallikottai Tank, Kollanur Tank, Poovilathur Tank, Pottithatti Tank, Muthuvayal Tank, Sevoor Tank, Mennanthi Tank, Valasai Tank, Meyyanendal Tank, Vairvanendal Tank, Thennavanur Tank, Mudalur Tank, Karuthanendal Tank, Kumukkottai Tank, Veeravanur Tank, Manjur Tank, Seyyalur Tank, K.Karunkulam Tank).	1640.48	Estimates are under scrutiny.
	Total	**21,505.54**	

7.1.14. Desilting of Reservoir

(Rs. in lakh)

Sl. No	Name of Work	Cost	Stage of work
1	Desilting and Restoring the storage capacity of Parapalar Dam in Dindigul District.	1,950.00	Parappalar Dam located in Vadakkadu Village lies in Environment protected Area. Hence action is being taken to obtain clearance of Ministry of Environment, Forest and Climate change.
	Total	**1,950.00**	

7.1.15. Flood protection Works

(Rs. in lakh)

Sl. No	Name of work	Cost	Stage of work
1	Protection of Right Bank of River Cauvery at Downstream of Upper Anicut in Srirangam Taluk of Tiruchirappalli District	111.00	90% work completed. Further Work in progress

2	Permanent restoration of Flood damages and protection works to Aanaipappankulam tank surplus course in Thirumangalam town of Madurai District	1,100.00	70% work completed. Further Work in progress
	Total	**1,211.00**	

7.1.16. Coastal Protection Works

(Rs. in lakh)

Sl. No	Name of work	Cost	Stage of work
1	Construction of series of 10 numbers of Groynes from Ernavoorkuppam to Ennore from LS 15/200 Km to 19/000 Km along coastal area in Madhavaram Taluk of Tiruvallur District	3,182.00	Coastal regulation zone clearance as per notification 2011 to be obtained and work to be taken up.

Sl. No	Name of work	Cost	Stage of work
2	Providing groynes at Mandaikadupudur village in Kanniyakumari District	782.00	Coastal regulation zone clearance as per notification 2011 to be obtained and work to be taken up.
	Total	**3,964.00**	

7.1.17. Climate Change Adaptation Programme

The Climate Change Adaptation Programme is proposed to be implemented in the Cauvery Delta with the loan assistance of Asian Development Bank at a cost of about Rs.1,56,000 lakh.

As a first stage of this project, it is proposed to take-up works in the following rivers/ drains of the Lower

Vennar System of the Cauvery Delta as a "Stand Alone Project":

i. Adappar
ii. Harichandranadhi
iii. Pandavayar
iv. Vellaiyar
v. Valavanar Drain
vi. Vedaranyam Canal

The Detailed Project Report has been prepared at an estimated cost of Rs.84,063 lakh as detailed below and approval has been accorded. Further, orders have been issued to call for tenders for two rivers viz., Vellaiyar and Pandavayar for a value of Rs.25,738 lakh in anticipation of the signing of the agreements with the ADB. The draft Procurement documents for Vellaiyar river, Pandavayar river and Pumping schemes have been sent to ADB for approval. The Project works will commence early.

(Rs. in lakh)

Sl. No.	River / Drain	Ayacut Benefitted (in Acre)	Amount
1.	Adappar	13,434	14,980.00
2.	Harichandranadhi	31,838	22,183.00
3.	Pandavayar	23,448	9,170.00
4.	Vellaiyar	29,437	16,568.00
5.	Valavanar Drain	39,480	3,676.00
6.	Vedaranyam Canal	44,514	2,682.00
7.	Pumping Schemes – 13 Nos	10,507	1,278.00
8.	Other provisions		13,526.00
	Total	**1,92,658**	**84,063.00**

7.1.18. Buildings and related Infrastructures

(Rs. in lakh)

Sl. No	Name of work	Cost	Stage
1	Renovation of Dormitory Block - II at Thekkady	50.00	After obtaining the clearance from reserve forest, Work will be commenced soon

Sl. No	Name of work	Cost	Stage
2	Purchase of two new Boats for the use of WRD in Mullai Periyar Dam	90.00	Works in progress
	Total	**140.00**	

7.1.19. Formation of Roads and Construction of Bridges

(Rs. in lakh)

Sl. No	Name of work	Cost	Stage
1	Formation of Service Road on the right side bund of Vaigai River in Paramakudi Town at Ramanathapuram District	650.00	90% Work Completed. Further Work in progress
2	Construction of a High level bridge across river Kollidam at mile 45/5 + 50m in Azhagia manavalam Village to connect left bank of Kollidam with Melaramanallur Village in Ariyalur Taluk and District	4800.00	80% works completed. Further Work in progress

Sl. No	Name of work	Cost	Stage
3	Construction of Causeway across Cooum River at Choranchery Village in Poonamallee Taluk of Tiruvallur District	120.00	80% works completed. Further Work in progress
4	Construction of Bridge across Varaganadhi river near Adupalam in Thenkarai village of Periyakulam taluk in Theni District	375.00	Design is awaited from SE, Design Circle Chennai. On receipt of Design, Technical sanction will be accorded to Estimate and tenders will be called for.
	Total	**5945.00**	

7.1.20. Environmental Protection works

(Rs. in lakh)

Sl. No	Name of work	Cost	Stage
1	Installation of submersible Micro Bubble Diffuser Aeration system for Ooty Lake.	549.07	Tender is under scrutiny as per Hill Area Development programme (HADP)
	Total	**549.07**	

7.2. Schemes proposed for implementation

Further, many new schemes and works have been identified after due investigation and have been prioritised for implementation. The schemes include excavation of new supply channels, construction of Check dams, Grade walls and Diaphragm walls, Rehabilitation of regulators, tanks, canals, anicuts, Groynes and Coastal protection structures and Desilting of reservoirs / dams.

These schemes which are on the anvil, at a total estimated cost of **Rs.20,351.01 lakh** are proposed to be taken up during this year, on priority basis with State funds,NABARD Loan assistance, etc. The details of the schemes/works are as under:

7.2.1. Anicuts

(Rs. in lakh)

Sl. No	Name of Work	Cost
1	Construction of Anicut across Vellar River near Athiyur village in Kunnam Taluk of Perambalur District.	811.00
	Total	**811.00**

7.2.2. Check dams

(Rs. in lakh)

Sl. No	Name of Work	Cost
1	Construction of Check dam across Thamarai odai near Kallankurichi Village of Ariyalur Taluk and District	71.00

Sl. No	Name of Work	Cost
2	Construction of Check Dam across Nallar River near Arthanaripalayam Village in Pollachi Taluk of Coimbatore District	167.00
3	Construction of Check dam across Vaniyar River near Paraipattipudur Village in Pappireddipatti Taluk of Dharmapuri District	126.00
4	Construction of Check dam across Ematheertha Odai in Pudinatham Village near Mambadi in Harur Taluk of Dharmapuri District	56.00
5	Construction of Check Dam across a Madavu near Angampakkam Village in Wallajah Taluk of Kancheepuram District	52.00
6	Construction of Check Dam across Nelvoy Madavu near Nelvoy Village in Maduranthagam Taluk of Kancheepuram District	100.00

Sl. No	Name of Work	Cost
7	Construction of Check Dam across Pungar River near Pudupatti Village in Krishnarayapuram Taluk in Karur District	283.00
8	Construction of Check Dam across Kovai Aru (Gundumada halla) near Anchetty Village in Thenkanikottai Taluk of Krishnagiri District	126.00
9	Construction of Check Dam across Odai near Odayaratti Village in Uthagamandalam Taluk in The Nilgiris District	71.00
10	Construction of Check Dam near Nedubula (Kappatty) Village of Kothagiri Taluk in The Nilgiris District	65.00
11	Construction of check dam across Koraiyar River near Suriyur (Villarodai) Village in Kolathur Taluk of Pudukottai District	309.00
12	Construction of Check Dam across Sarabanganathi in Muthunaickenpatti Village of Omalur Taluk in Salem District.	120.00

Sl. No	Name of Work	Cost
13	Construction of Check dam across Virusuliyar River in Kavanur Village in Thirupathur Taluk of Sivagangai District	171.00
14	Construction of Check dam across Karumeniyar River near Kombankulam Village in Sathankulam Taluk of Thoothukudi District	123.00
15	Construction of Check dam across Suganadhi River near Mummuni Village in Vandavasi Taluk of Tiruvannamalai District	127.00
16	Construction of Check Dam across Nandiyar River in Iruthayapuram Village in Lalgudi Taluk of Tiruchirappalli District	300.00
17	Construction of Check Dam across Maanodai near Melarasur Village in Lalgudi Taluk of Tiruchirappalli District	86.50

Sl. No	Name of Work	Cost
18	Construction of Check Dam across Uppar River near Sridevimangalam Village in Mannachanallur Taluk of Tiruchirappalli District	240.00
19	Construction of Check Dam across Shanmuganadhi odai near Thirupattur Village in Mannachanallur Taluk of Tiruchirappalli District	101.00
20	Construction of Check dam across Panguni Drain channel near Sirumarudur Village of Mannachanallur Taluk of Tiruchirappalli District	95.00
21	Construction of check dam across Ponnaniyar River in Manapparai Taluk of Tiruchirappalli District	227.00
22	Construction of Check dam across Mamundiyar River near Samudram Village of Manapparai Taluk of Tiruchirappalli District	209.00

Sl. No	Name of Work	Cost
23	Construction of Check dam across Vellar River near Vembanur Village of Manapparai Taluk in Tiruchirappalli District	115.00
24	Construction of Check dam across Kannuthu Odai near Kumaravadi Village of Manapparai Taluk in Tiruchirappalli District	67.00
25	Construction of Check dam across Koraiyar River near Karuppur Village in Manapparai Taluk of Tiruchirappalli District	57.00
26	Construction of check dam across Uppar Vari near K.Periapatti Village in Manapparai Taluk of Tiruchirappalli District	55.00
27	Construction of Check Dam across Ayyar River near Thandalaiputhur Village in Musiri Taluk of Tiruchirappalli District	259.00

Sl. No	Name of Work	Cost
28	Construction of Check dam across Kothamangalam Vari in Alandhur Village of Srirangam Taluk of Tiruchirappalli District.	65.50
29	Construction of Check Dam across Kattaru near Kumbakudi Village in Tiruchirappalli Taluk and District	196.00
30	Construction of Check dam across Vaippar River near Kottapatti Village of Sivakasi Taluk in Virudhunagar District	544.00
31	Construction of Check dam across Pambar River near old Aathikuppam Village in Thirupathur Taluk of Vellore District	133.00
	Total	**4,717.00**

7.2.3. Grade walls

(Rs. in lakh)

Sl. No	Name of Work	Cost
1	Construction of a grade wall across Cauvery River near Mathiri-mangalam Village in Kuthalam Taluk of Nagapattinam District	149.00

2	Construction of Grade Wall across Nattar River near Kodimangalam Village of Kuthalam Taluk of Nagapattinam District	133.00
3	Construction of Grade wall across Mahimalaiyar River near Muruganthottam Village of Kuthalam Taluk of Nagapattinam District	52.00
4	Construction of Grade Wall across Kaduvaiyar near Kakkalani Village of Keevalur Taluk in Nagapattinam District	146.00
5	Construction of Grade wall across Vikraman River near Melapannaiyur Village in Mayiladuthurai Taluk of Nagapattinam District	92.00
6	Construction of Grade Wall across Puthar River near Kottur Village of Nagapattinam Taluk and District	84.00
7	Construction of grade wall across Veeracholan River in Kothangudy village of Tharangambadi Taluk of Nagapattinam District	93.00
8	Construction of Grade wall across Arasalar River in Nallicheri Village of Kudavasal Taluk of Tiruvarur District	140.00
9	Construction of Grade wall across Solasudamaniar River in Perumpannaiyur Village of Kudavasal Taluk in Tiruvarur District	71.00

10	Construction of Grade wall across Koraiyar in Needamangalam Village andTaluk of Tiruvarur District	136.00
11	Construction of Grade wall across Pamaniyar River in Palaiyur Village of Mannargudi Taluk in Tiruvarur District	168.00
12	Construction of Grade Wall across Koraiyar River in Kadaitheru Village of Mannargudi Taluk in Tiruvarur District	104.00
13	Construction of Grade wall across Kandaparichannar branch channel in Kumuttithidal Village of Mannargudi Taluk in Tiruvarur District	86.00
14	Construction of Grade Wall across Koraiyar River in Uppur Village of Thiruthuraipoondi Taluk in Tiruvarur District	162.00
15	Construction of Grade Wall across Maraikkakoraiyar in Idumbavanam Village of Thiruthuraipoondi Taluk in Tiruvarur District	94.00
	Total	**1,710.00**

7.2.4. Rehabilitation of Tanks, Canals and Anicuts

(Rs. in lakh)

Sl. No	Name of Work	Cost
1	Extension of Perampet Regulator in Chidambaram Taluk of Cuddalore District	1,000.00

Sl. No	Name of Work	Cost
2	Under Repair, Renovation and Restoration (RRR) of water bodies scheme, works in 105 tanks in Ramanathapuram, Sivagangai, Vellore, Thiruvannamalai, Dharmapuri and Virudhunagar Districts.	5,073.01
3	Modernisation of Rajaneri Supply channel in Samudrapatti Village in Natham Taluk of Dindigul District	697.00
4	Rehabilitation of Kalingarayan Anicut in Erode Taluk and District	780.00
5	Rehabilitation of Check dam across Kuzhithuraiyar River in Subpath in Vilavankodu taluk of Kanniyakumari District	635.00
6	Rehabilitation of Kumara-palayam Vaikkal in Namakkal District	838.00
7	Rehabilitation and Improvements of 13 anicuts across Sarabanga river in Omalur Taluk in Salem District	523.00

Sl. No	Name of Work	Cost
8	Rehabilitation of downstream side protection arrangements at VVR Head in Thenperambur Village of Thanjavur Taluk and District	195.00
9	Improvements to Grade wall across Vennar to feed Regunatha Cauvery channel in Thiruvaiyaru Taluk of Thanjavur District	627.00
10	Rehabilitation and Improvements to the Thanthai Periyar channel from L.S 0 m to 12000 m in Theni District	524.00
11	Improvements to Pallamadai tank, Pallikottai Supply Channel and Manur Supply Channel in Tirunelveli District	400.00
12	Reconstruction of Veeranam Anicut across Malattar River in Villupuram Taluk and District	418.00
	Total	**11,710.01**

7.2.5. Rehabilitation of shutters

(Rs. in lakh)

Sl. No	Name of Work	Cost
1	Renewal of Shutters in 30 Vents and 4 Sand Vents of North Arm portion of Coleroon River in Lower Anicut and Rehabilitation of all existing hoisting arrangements in Thiruvidaimaruthur Taluk of Thanjavur District	1,000.00
	Total	**1,000.00**

7.2.6. Roads and Bridges

(Rs. in lakh)

Sl. No	Name of Work	Cost
1	Formation of Service Road on the left side of Vaigai River in Paramakudi Town and Taluk of Ramanathapuram District	403.00
	Total	**403.00**

7.3. Desilting of Reservoirs

Most of the dams existing in Tamil Nadu are very old and due to the natural process of erosion in the catchment area, movement of

sediments and deposition in the waterspread of the reservoir, the storage capacity of these reservoirs has been reduced.

Hon'ble Chief Minister released the Vision 2023 document in which assurance of water supply for timely irrigation is an important goal. To achieve this, the Water Resources Department initiated the process of restoring the original capacity of reservoirs and anicuts in a phased manner. In the first phase, the Water Resources Department identified the following reservoirs/anicut for taking up desilting works.

i. Vaigai Reservoir in Theni District
ii. Pechipparai Reservoir in Kanniyakumari District
iii. Mettur Reservoir in Salem District
iv. Amaravathy Reservoir in Tiruppur District
v. Srivaikundam Anicut in Thoothukudi District

The above reservoirs and anicut are heavily silted up, since desilting operations have not been carried out from their period of construction. By desilting these reservoirs/anicut many benefits, such as increase in the capacity of the reservoirs, assured supply of water to irrigation during scarcity, improvement in ground water level, improvement in ecology and environment, etc., will be ensured.

The tasks of preparation of the Detailed Project Report, Rapid Environment Impact Assessment Study, preparation of Tender Documents and assisting in evaluation of tender, Action taken to get funds through Accelerated Irrigation Benefits Programme (AIBP) for various schemes, Project Management Consultancy Services and Post evaluation study have been entrusted to M/S. WAPCOS Ltd., at a cost of Rs.8,34,83,480/-. At present, preparation of Detailed Project Report is under progress.

Desilting of SrivaiKuntam Anicut

While the above works are in progress, based on the orders of National Green Tribunal, Chennai, approval has been accorded to execute the work in 7 components of which tender for 6 components of work has been finalised. Tender for remaining one work is in process.

7.4. India Water Resources Management Program (IWRM - HP-III)

The third phase of Hydrology Project viz. India Water Resources Management Programme (IWRM-HP-III) has been approved by the Ministry of Water Resources, Government of India.This has been proposed to be executed in eight years commencing from October 2015. This programme will involve 55 Agencies from all the States and Union Territories of India.

The major components proposed for this project are:

- Improving Water Resources Monitoring system (WRMS)
- Improving Water Resources Information Systems (WRIS)
- Water Resources Management Applications (WRMA)
- Strengthening Institutions and Capacity Building.

The proposal comprising all the above components is under active consideration of the Ministry of Water Resources, Government of India.

Under the Guidance of Honourable Chief Minister, continuous efforts are being taken to complete all the above works in time.

"The time will come when the people of Tamil Nadu will not need any free assistance from anybody. The people of Tamil Nadu should not be in a position to receive any dole from anybody. I have a desire to see such a situation in my life time. This is my ambition."

-Hon'ble Tamil Nadu Chief Minister Amma Avargal's proclamation.

To realize this proclamation of the Hon'ble Tamil Nadu Chief Minister Amma Avargal, who is striving hard day and night, the Water Resources Department of the Public Works Department will take all positive actions efficiently and continue to march ahead to bring Tamil Nadu to the forefront of development and to make Tamil Nadu, the primary State in India.

O.PANNEERSELVAM
MINISTER FOR FINANCE AND
PUBLIC WORKS

Hon'ble Chief Minister inaugurated the various irrigation structures and buildings constructed by Public Works Department in 12 Districts through video conferencing on 08.06.2015

Hon'ble Chief Minister inaugurated the Check Dam constructed across the Amaravathi River in Dharapuram Taluk of Tiruppur District through video conferencing on 08.06.2015

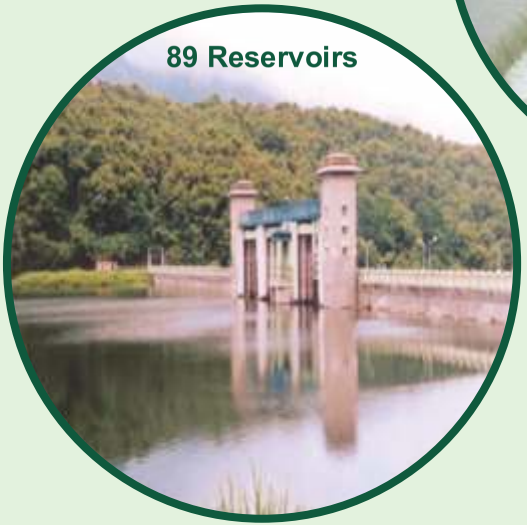
Hon'ble Chief Minister inaugurated the Bridge constructed at Ambalavarkattalai - Sundakudi Road across the Marudhaiyar River in Ariyalur Taluk and District on 08.06.2015

Hon'ble Chief Minister inaugurated the Check Dam constructed across the Vaigai River near Ammachiyapuram Village of Theni District on 08.06.2015

Honourable Chief Minister inaugurated the Check Dam constructed across the Amaravathy River near Rajapuram Village in Aravakurichi Taluk of Karur District on 08.06.2015

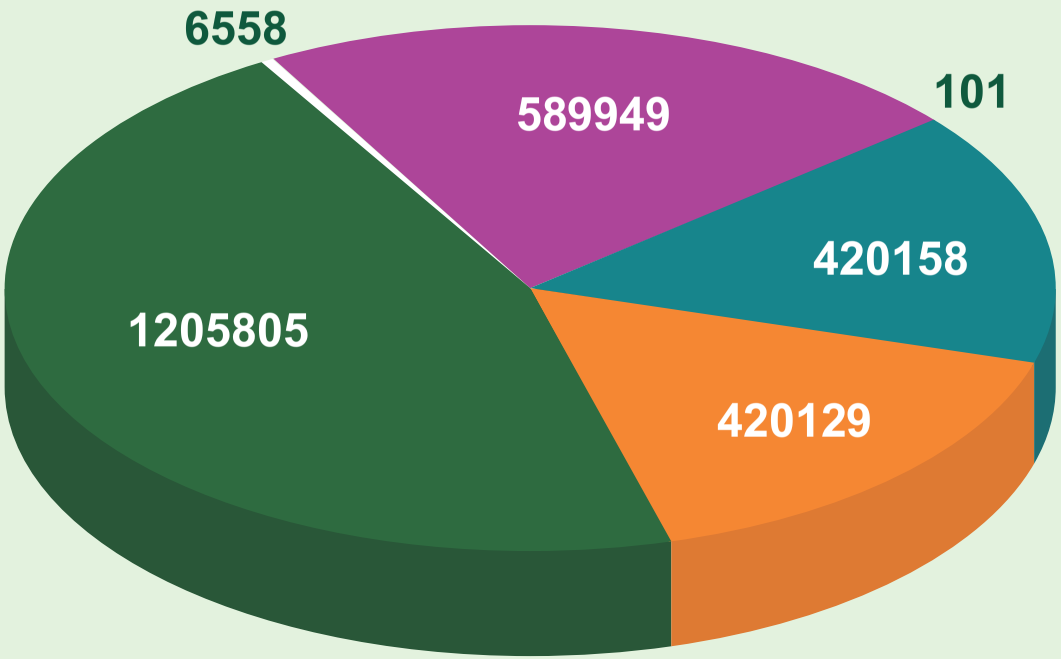
Hon'ble Chief Minister inaugurated the Checkdam constructed across the Gadilam River near Koothapakkam Village in Cuddalore Taluk and District on 08.06.2015

Mullai Periyar Dam water level reached
142 Feet on 21.11.2014



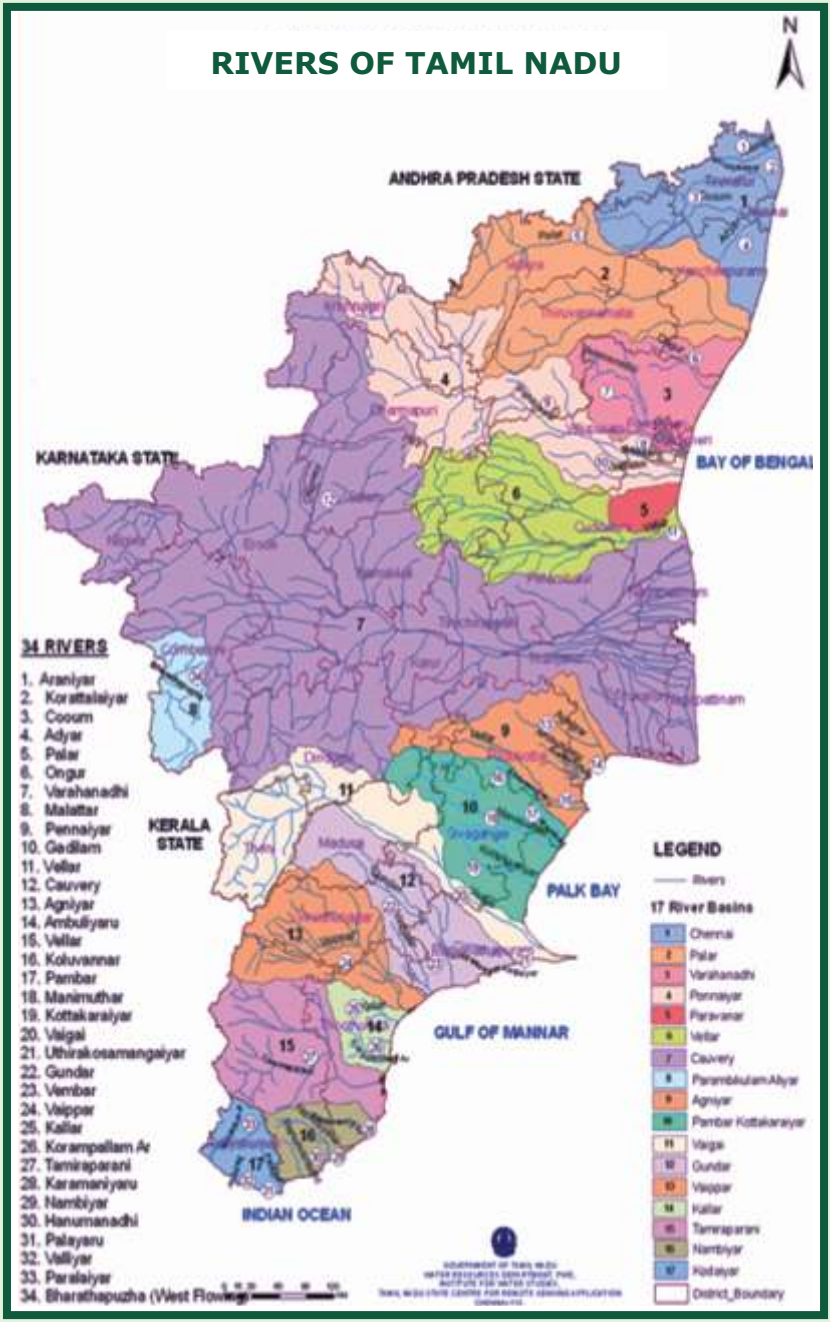
Water Resources under the control of Water Resources Department

Net Irrigated Area (in Hectare)



Government Canals | Private Canals | Tanks | Tube Wells | Open Wells | Other Sources

RIVERS OF TAMIL NADU

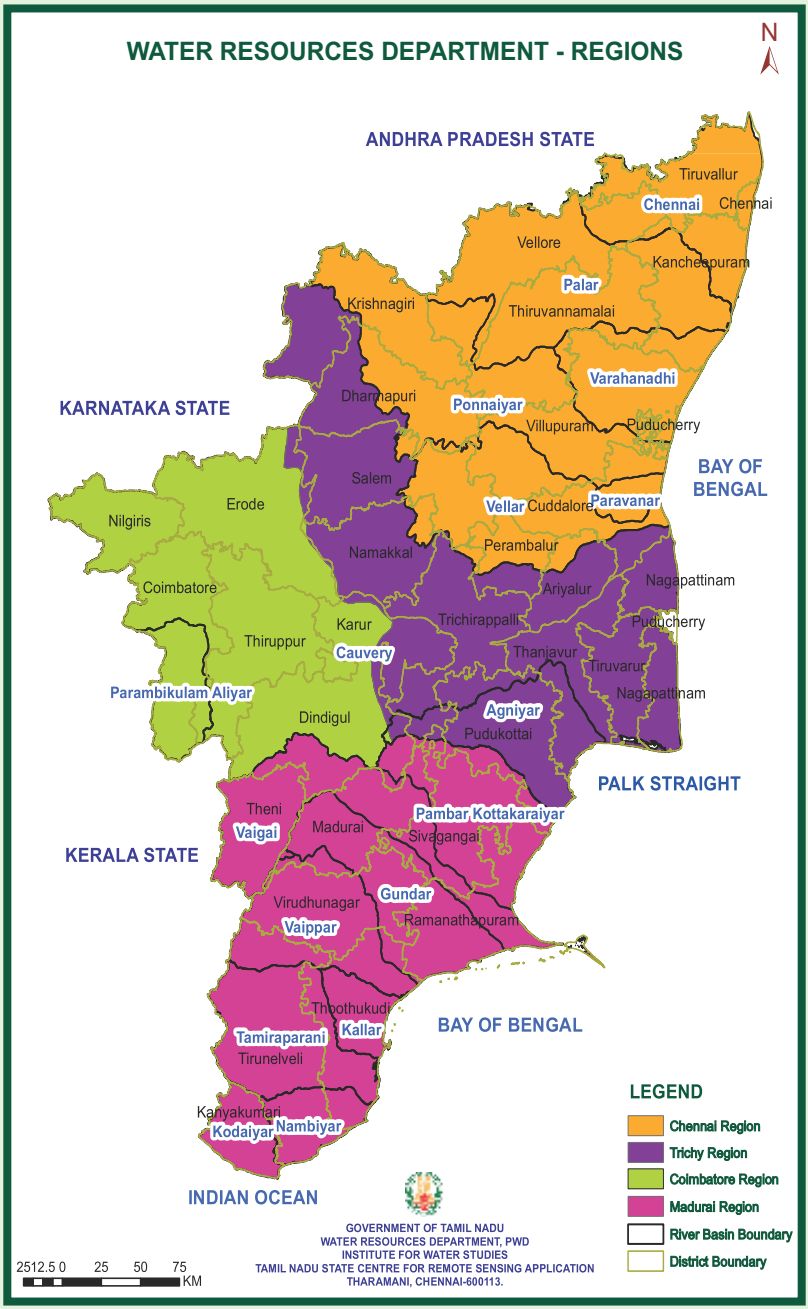


Stanley Reservoir at Mettur Dam of Salem District

Kattalai Barrage constructed across Cauvery River near Mayanur Village in Karur District

Grand Anicut across the Cauvery River in Tiruchirappalli District

Lower Anicut Regulator across Kollidam River in Thanjavur District


WATER RESOURCES DEPARTMENT - REGIONS
N
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Chennai
Vellore
Kancheepuram
Palar
Krishnagiri
Thiruvannamalai
Varahanadhi
KARNATAKA STATE
Dharmapuri
Ponnaiyar
Villupuram
Puducherry
BAY OF BENGAL
Salem
Erode
Nilgiris
Vellar
Cuddalore
Paravanar
Namakkal
Perambalur
Coimbatore
Ariyalur
Nagapattinam
Karur
Trichirappalli
Puducherry
Thiruppur
Cauvery
Thanjavur
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Kallar
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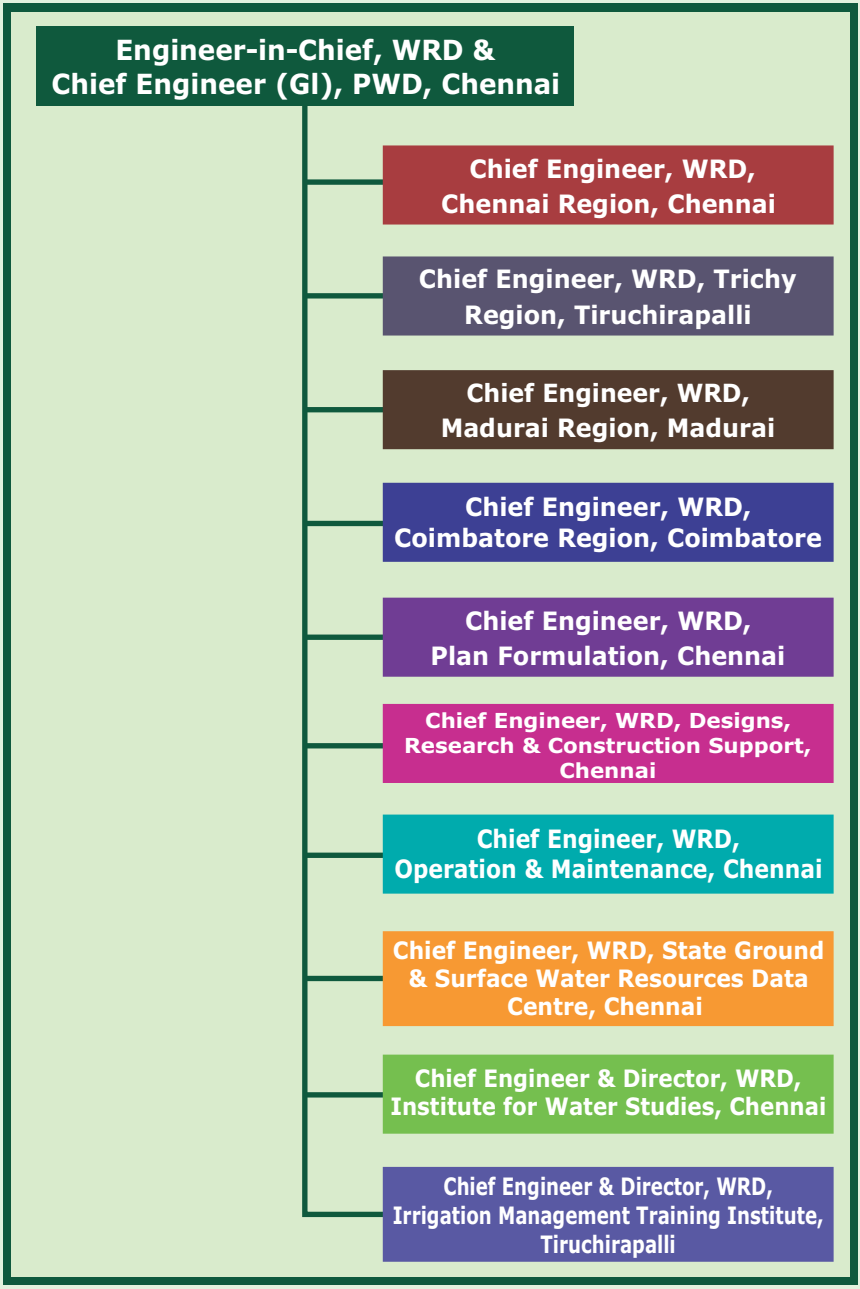
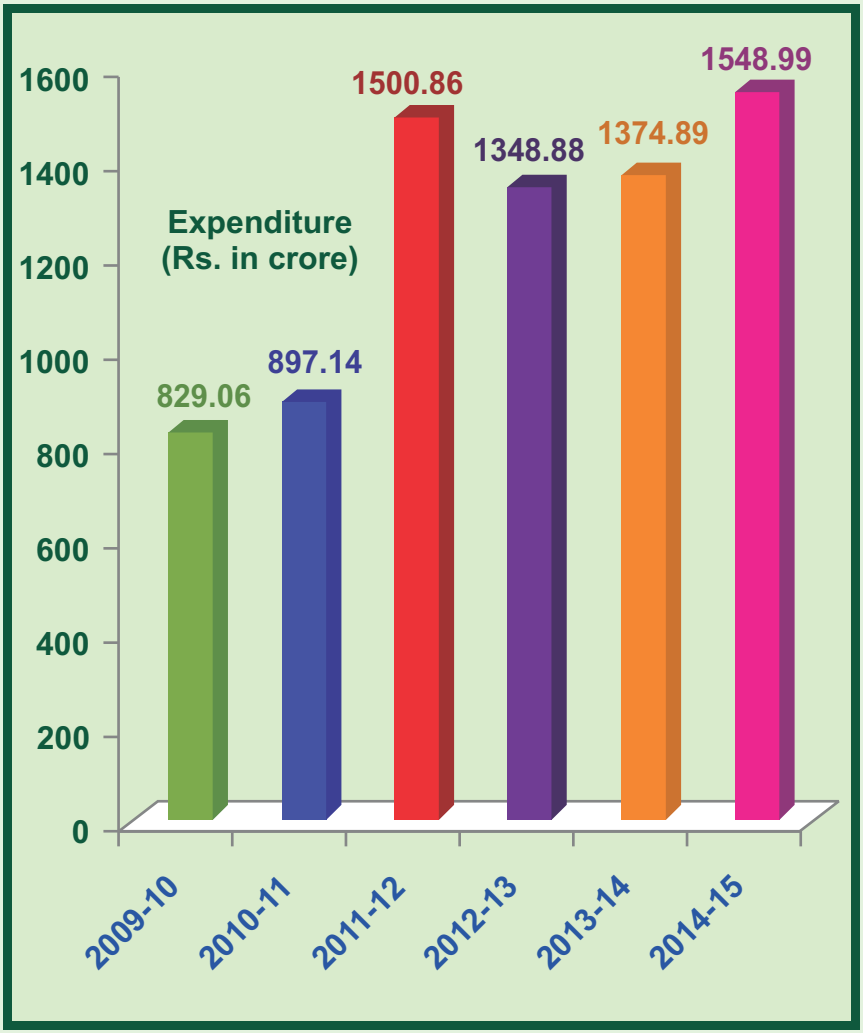
Tamiraparani
Tirunelveli
Kanyakumari
Kodaiyar
Nambiyar
INDIAN OCEAN
LEGEND
Chennai Region
Trichy Region
Coimbatore Region
Madurai Region
River Basin Boundary
District Boundary
GOVERNMENT OF TAMIL NADU
WATER RESOURCES DEPARTMENT, PWD
INSTITUTE FOR WATER STUDIES
TAMIL NADU STATE CENTRE FOR REMOTE SENSING APPLICATION
THARAMANI, CHENNAI-600113.
2512.5 0 25 50 75
KM

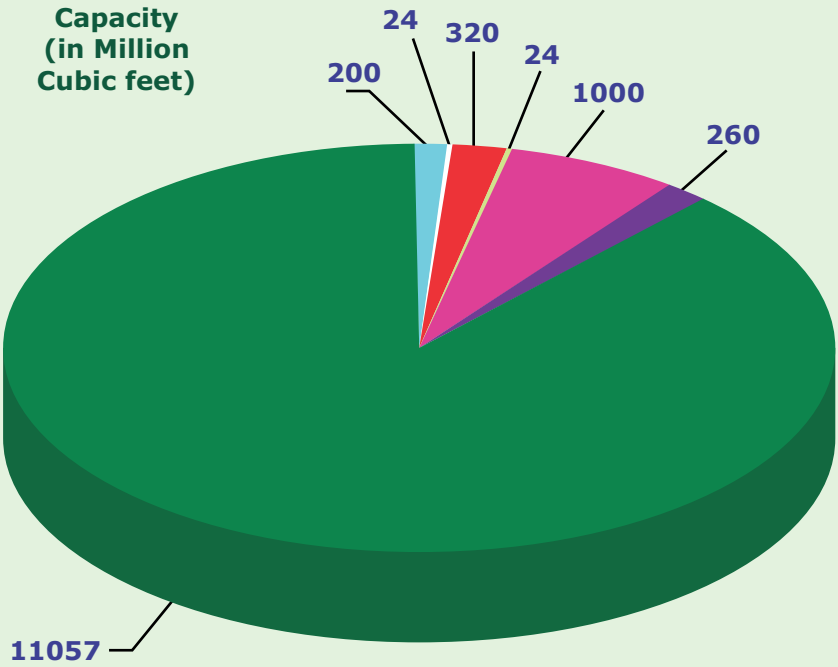
WATER RESOURCES DEPARTMENT - ORGANIZATION CHART



Expenditure details from 2009-10 to 2014-15



Augmentation of Chennai City drinking water supply



Existing storage capacity (Poondi, Redhills, Chembarambakkam & Cholavaram) (M.Cft.)

Additional Storage (M.Cft.)

- Cholavaram Tank
- Porur Tank
- Nemam Tank
- Ayanambakkam Tank
- Kannankottai & Thervaikandigai Reservoir
- Thirukandalam Checkdam

PWD since 1865 WRD

STATE WATER RESOURCES MANAGEMENT AGENCY

TN-WRIS web GIS

English

Function Photos

Upcoming Events & News

21.11.2014 :
Water Level ouches 142 feet in Mullai Periyar

29.11.2014 :
31st Dr .M. Visveswaraya Memorial Lecture

29.11.2014 :
TNWRIS Website- Version 1.0 web hosted

Water Week 2015

- Thematic Maps
- Surface Water
- Ground Water
- Sector Demand
- Land Resources
- Socio Economic
- Data Availability

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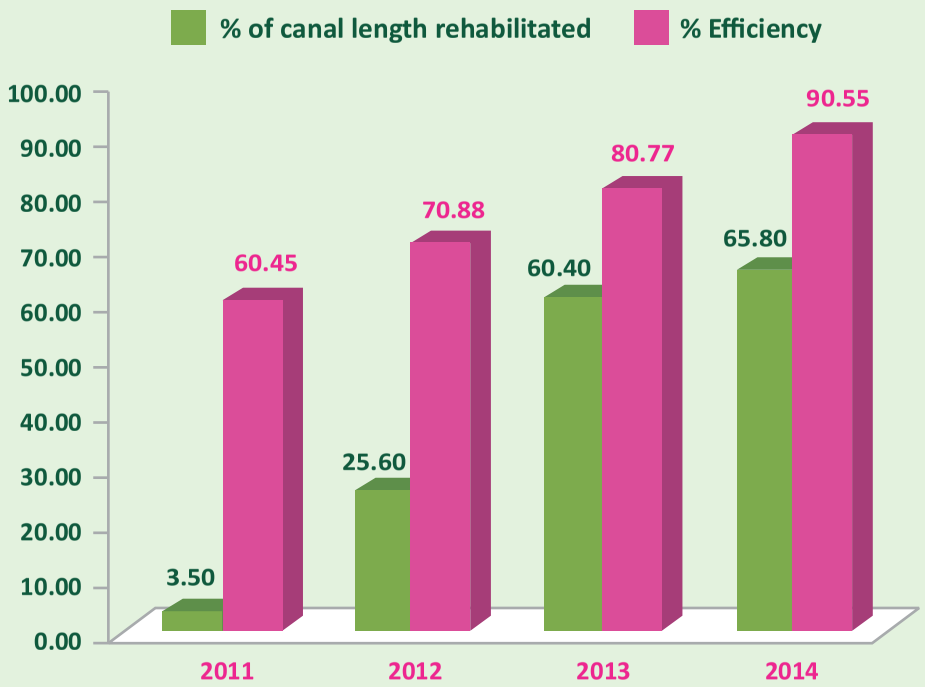
Parambikulam Aliyar Project - Contour Canal Rehabiltation



Expr. (Rs.in cr)	*14.56*	*79.54*	*149.69*	*156.49*

Check dam with Recharge shaft constructed across Nallodai near Sathipattu Village in Panruti Taluk of Cuddalore District under Master Plan Artificial Recharge Scheme

During Execution

After Execution

Artificial Recharge well constructed in Nallavur Tank in Vanur Taluk of Villupuram District under IAMWARM Project

During Execution

After Execution

Grade Wall constructed across Cauvery River at Mile 28/68 to supply water to Old Maharajapuram channel and Koothur channel in Koothur Village in Thiruvaiyaru Taluk of Thanjavur District under NABARD Scheme

Before Execution

After Execution

Rehabilitated Kunnur Anicut in Theni District under IAMWARM Project

Before Execution

After Execution

Reconstructed Sluice in Thoothur tank in Thoothur Village of Ariyalur Taluk and District under Restoration of Traditional Water Bodies component of 13th Finance Commission Grants–in–aid Programme

Improved Porur Tank Surplus Course in Chennai under Jawarharlal Nehru National Urban Renewal Mission Scheme

During Execution

Regulator under construction at L.S. 940 m as part of formation of new Reservoir near Kannankottai and Thervaikandigai Villages in Gummidipoondi Taluk of Tiruvallur District under State Funded Scheme

Before Execution

After Execution

Contour Canal (LS 39.30 km) of Parambikulam Aliyar Project under rehabilitation in Coimbatore and Tiruppur Districts under State Funded Scheme

Vennar - Koraiyar - Pamaniyar Regulator across Vennar River in Needamangalam Taluk of Tiruvarur District

Renewed Shutters of Mudavanar Drain in Sirkali Taluk of Nagappattinam District

Before Execution

After Execution

Reconstructed Sluice of Perumalkoil Right Bank Channel in Papanasam Taluk of Thanjavur District

Before Execution

After Execution

Check Dam Constructed across Koraiyar River in Kannivadugapatty Village of Marungapuri Taluk in Tiruchirappalli District

Before Execution

After Execution

Reconstructed Sluice No.3 of Thanrakulam Tank in Sengamangalam Village of Peravurani Taluk in Thanjavur District