



**PUBLIC WORKS DEPARTMENT  
IRRIGATION**

**DEMAND NO: 40  
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MINISTER FOR PUBLIC WORKS**

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## INDEX

Sl. No	Subject	Page
1.	Water Resources Department	1
2.	Important Initiatives undertaken as per the orders of the Hon'ble Chief Minister	7
3.	Vision of the Hon'ble Chief Minister – Inter-linking of Rivers in Tamil Nadu	14
4.	Inter State River Water Issues	25
5.	Dam Safety Bill, 2010	77
6.	Dam Rehabilitation and Improvement Project (DRIP)	87
7.	Tamil Nadu Irrigated Agriculture Modernisation and Water Bodies Restoration and Management Project (TN IAMWARM)	93
8.	Maintenance of Dams and Parks	119
9.	13 <sup>th</sup> Finance Commission Grant-in-aid Programme	121

10.	Repair, Renovation and Restoration(RRR) of Water Bodies in 51 Drought Prone Blocks in Tamil Nadu	138
11.	Accelerated Irrigation Benefits Programme (AIBP)	140
12.	Irrigation Schemes	142
13.	National Agriculture Development Programme (NADP)	158
14.	Part – II Schemes (2011-2012)	161
15.	Flood Mitigation Schemes	163
16.	Artificial Recharge Scheme	173
17.	Strengthening of Institute of Hydraulics and Hydrology (IHH), Poondi	174
18.	Irrigation Management Training Institute (IMTI), Trichy	178
19.	State Ground and Surface Water Resources Data Centre	181
20.	Institute for Water Studies (IWS)	183
21.	Directorate of Boilers	188

## **1. WATER RESOURCES DEPARTMENT**

### **1.1. Introduction**

The Water Resources Department is planning, evolving, executing and maintaining the irrigation facilities and infrastructure of the State. Sustainable development of the available water resources in a judicious and equitable manner is scientifically ensured by this Department. The main thrust is to reduce the gap between the irrigation potential created and available and the irrigation potential effectively put to use optimally. Regulation of water from dams, flood control and mitigation, coastal protection, ground water recharge, rain water harvesting, inter-linking of rivers to divert surplus flood flows to drought prone areas are the main activities of this Department.

Tamil Nadu is a pioneering State in creation and maintenance of irrigation systems from time immemorial. The Participatory Irrigation Management, prevalent in

Tamil Nadu hundreds of years back, has been developed scientifically and implemented successfully by this Department at present.

**1.2.** The Public Works Department has two Wings viz., the Water Resources Department and the Public Works Department (Buildings Organisation). The Water Resources Department has four Regional Chief Engineers located at Chennai, Trichy, Madurai and Coimbatore. These Chief Engineers are the Basin Managers of the River Basins in their jurisdiction. In addition, three Chief Engineers for Plan Formulation, Design Research & Construction Support and Operation & Maintenance are stationed at Chennai and they carry out specialised functions in formulating, designing and operating Irrigation Projects. The Institute for Water Studies and the State Ground and Surface Water Resources Data Centre located at Chennai and the Irrigation Management Training Institute located at Trichy are each headed by a Chief Engineer. The Engineer-in-Chief, Water Resources

Department, coordinates the functions of these ten Chief Engineers and acts as the Technical Head of the Department.

### **1.3. Irrigation Infrastructure**

Tamil Nadu has 34 River Basins which have been grouped as 17 Major River Basins and 127 Sub-Basins. The average rainfall of the State is 911.60 mm. The total surface water potential of the State has been assessed as 853 T.M.Cft., which includes 261 T.M.Cft. contributed by the neighbouring States. The surface water potential of the State has been fully harnessed. There are 85 large Dams and 4 small Dams in the State with a combined storage capacity of 238.58 T.M.Cft. Further, there are 13,699 Tanks under the control of the Water Resources Department. The Government is taking continuous efforts to improve the water use efficiency and the service delivery mechanism of the irrigation sector, through capacity building at various levels.

### **1.4. Ground Water Resources**

The "Annual Ground Water Replenishable Resources" of the State has been estimated as 811 T.M.Cft., out of which, the Net Annual Ground Water availability has been assessed as 729.65 T.M.Cft. The Annual Ground Water requirement for all uses has been estimated as 585.30 T.M.Cft. and the present ground water requirement for irrigation has been assessed as 519.83 T.M.Cft. The Net Annual Ground Water availability for further irrigation development is 144.35 T.M.Cft. About 80% of the available ground water in the State has been harnessed and utilised. As on 31.03.2009, out of the 386 Blocks in the State, 139 Blocks have been categorised as over exploited, 33 Blocks as critical, 67 Blocks as semi critical, 11 Blocks as poor quality and the balance 136 Blocks as safe. No Schemes should be formulated in the over exploited and critical Blocks notified as 'A' Category Blocks. In the semi critical and safe Blocks notified as 'B' Category Blocks,

all the Schemes should be formulated through the State Ground and Surface Water Resources Data Centre of the Water Resources Department and the Chief Engineer, State Ground and Surface Water Resources Data Centre will issue "No Objection Certificate" for ground water clearance. The Government have taken initiatives to recharge the ground water potential through rain water harvesting and recharge structures. Measures to curb the ingress of saline water into the inland have also been initiated by the Government.

**1.5. The following Flagship Schemes of the Government are elucidated in this Policy Note:**

- i. Tamil Nadu Irrigated Agriculture Modernisation and Water Bodies Restoration and Management (TN IAMWARM) Project.
- ii. Interlinking of Rivers within the State.

- iii. Flood Mitigation Schemes such as Flood Management Programme & Flood Protection Schemes under JNNURM and NABARD.
- iv. Master Plan for Artificial Recharge Scheme.
- v. Coastal Protection Works.
- vi. Restoration of Traditional Water Bodies.
- vii. Schemes under National Agriculture Development Programme (NADP).
- viii. Dam Rehabilitation and Improvement Project (DRIP).

In addition, all the activities undertaken to improve and maintain the existing irrigation infrastructure of the State by the Water Resources Department are also dealt in detail in this document.

## **2. IMPORTANT INITIATIVES UNDERTAKEN AS PER THE ORDERS OF THE HON'BLE CHIEF MINISTER**

### **2.1. Advance release of water from the Mettur Dam for the benefit of the farmers in the Cauvery Delta**

The Mettur Dam in Salem District has an original capacity of 93.47 T.M.Cft. This Dam facilitates irrigation and generation of power. The Dam is usually opened for irrigation on 12<sup>th</sup> June and closed on 28<sup>th</sup> January. Considering the benefits of the farmers in the Cauvery Delta, the Hon'ble Chief Minister ordered to open the Dam on 06.06.2011 for irrigation. This is the 1<sup>st</sup> time since independence and the 10<sup>th</sup> time since commissioning of the Dam, the Dam had been opened before its due date of 12<sup>th</sup> June.

Based on the representations of the farmers and the recommendations of the District Collector, Thanjavur,

the Hon'ble Chief Minister ordered to release water from the Mettur Dam up to 05.02.2012, much beyond the closing date of 28.01.2012. During this period from June 2011 to February 2012, 222.064 T.M.Cft. of water has been released from the Dam for irrigation in the Cauvery Delta.

### **2.2. Construction of a Check Dam at an estimate of Rs.32 crore across Cauvery River near Mutharasanallur in Kambarasampettai village in Srirangam Taluk of Trichy District**

The Government have accorded administrative sanction for construction of a Check Dam across Cauvery River near Mutharasanallur in Kambarasampettai village in Srirangam Taluk of Trichy District at an estimate of Rs.32 crore with NABARD assistance to augment the ground water resources and store the rain water during rainy season, since the ground water levels deplete during Summer and Drought period, thereby benefiting water supply schemes.

The Work has commenced and is progressing.

The Scheme envisages construction of a Check Dam with Scour Vents, Diaphragm Wall and strengthening the Bund portion. This Scheme will ensure recharge of water level of Wells in the nearby areas of the Cauvery Basin.

### **2.3. Augmentation of Chennai City Water Storage**

As per the Inter - State Agreement with the Government of Andhra Pradesh, a total quantity of 12 T.M.Cft. of water under the Krishna Water Supply Project from the Kandaleru Reservoir is to be realised at the Tamil Nadu border. Based on the Hon'ble Chief Minister's request, on 04.06.2011, to the Hon'ble Chief Minister of Andhra Pradesh to release the water, a total quantity of 8 T.M.Cft. of water has been received from 23.06.2011 to 10.11.2011.

At present, the Chennai City Water Supply Reservoirs viz., Poondi, Redhills, Chembarambakkam and Cholavaram receive and store the monsoon flows and Krishna water under the Krishna Water Supply Project. The combined storage capacity of the above Reservoirs is 11.057 T.M.Cft.

To fulfil the City water supply demand and to fully harness the Krishna water, the storage capacity is proposed to be augmented by forming three new Reservoirs and restoring the existing Tanks.

#### **2.3.1. Formation of New Reservoirs**

- a) Administrative sanction has been accorded for Rs.330 crore for formation of a new Reservoir near Kannankottai and Thervaikandigai villages in Gummidipoondi Taluk of Tiruvallur District aiming to store 1 T.M.Cft. of Krishna water in

2 fillings. The Preliminary Work for this Scheme has already begun.

- b) A Detailed Project Report for construction of a Check Dam across Kosasthalaiyar River at Thirukandalam in Uthukottai Taluk of Tiruvallur District with NABARD assistance at an estimate of Rs.35 crore is under consideration.
- c) A Detailed investigation is proposed to be carried out for forming a new Reservoir across Kosasthalaiyar River at Ramanjeri in Tiruthani Taluk of Tiruvallur District.

### 2.3.2. Restoration of Existing Tanks

Under Phase I of this Scheme, administrative sanction has been accorded for Rs.130 crore for creation of additional water storage capacity in Cholavaram, Porur, Nemam and Ayanambakkam Tanks.

The details of additional storage to be created are given below.

S. No.	Name of Tank	Present Storage (in M.Cft.)	Proposed Storage (in M.Cft.)	Increase in Storage (in M.Cft.)	Project Cost (Rs. in crore)
1	Cholavaram	881	1081	200	0.50
2	Porur	46	70	24	20.00
3	Ayanambakkam	290	314	24	30.00
4	Nemam	257	577	320	79.50
	<b>TOTAL</b>	<b>1474</b>	<b>2042</b>	<b>568</b>	<b>130.00</b>

### **2.3.3. Strengthening of Redhills Tank**

The Redhills Tank is one of the major city water supply tanks having a storage capacity of 3300 M.Cft. This Tank receives Krishna water from the Poondi Reservoir through a feeder canal and water from the Cholavaram Tank through lower supply channel and from its catchment area.

It is proposed to strengthen the Redhills Tank by rehabilitating the Weirs, Regulator and Surplus Course of the Tank.

Administrative sanction has been accorded by the Municipal Administration and Water Supply Department for Rs.10.56 crore for strengthening the Tank Bund, rehabilitation of 2 numbers of Weirs, Regulator and Surplus Course, providing Service Road and Chain Link Fencing. These Works would be taken up early.

### **3. Vision of the Hon'ble Chief Minister – Inter-linking of Rivers in Tamil Nadu**

#### **3.1. Concept**

The Government is keen on utilising the available water resources of the State, optimally and effectively. The State receives a chunk of the rainfall over a short period of three to four months in a year. The distribution of rainfall over place and time varies significantly. In order to utilise the available water potential, the Hon'ble Chief Minister has come up with a Vision in which the following Concepts have been declared:

- i. Transfer of water from water surplus areas to water deficit areas.
- ii. Inter basin / Sub-basin transfer of water after attending to local riparian obligations.
- iii. Inter-linking of Rivers based on the concept of diverting flood water

from the surplus basins to deficit basins.

- iv. Resorting to Pumping Schemes based on the terrain requirements.

The ground water resources of the State are also proposed to be developed through recharging and augmenting of ground water by construction of Check Dams, Recharge Wells / Shafts, etc.

### **3.2. Inter – Linking Schemes**

The following River Links have been identified.

- i. Pennaiyar (Krishnagiri Reservoir) to Palar
- ii. Pennaiyar (Sathanur Dam) to Palar
- iii. Cauvery (Mettur Dam) - Sarabanga (Namakkal District)
- iv. Athikadavu – Avinashi Flood Canal Project

- v. Cauvery (Kattalai Barrage) to Gundar

- vi. Recharge of the Ground Water Aquifers by constructing Check Dams

#### **3.2.1. Pennaiyar (Krishnagiri Reservoir) to Palar**

This Link envisages transfer of 3.5 T.M.Cft. of annually available water at the Krishnagiri Reservoir as flood flows to Kallar, a tributary of Palar over a period of 15 days at the rate of 5 days a month from October to December. This 55.7 km long Link Canal with an Off-take Tunnel at 200m from the Reservoir will have gravity flow. This Scheme will stabilise an existing command area of about 2931 acre irrigated through existing wells and borewells, besides recharging the ground water potential of the Palar Basin. The approximate cost of the Scheme is estimated at Rs.253 crore.

### **3.2.2.Pennaiyar (Sathanur Dam) to Palar**

In this Link, it is proposed to connect the Pennaiyar in Tiruvannamalai District with the Cheyyar River, a tributary of the Palar by construction of a new Head Regulator and excavation of a Link Canal for a length of 23.55 km. Surplus flows of about 3 T.M.Cft. from the Sathanur Dam can be diverted to the Cheyyar River by excavation of a Feeder Canal for a length of 38.72 km to feed the Nandan Channel. Through this Scheme, the ayacut under the Nandan Channel will also be benefited. The diverted flood water will benefit 5 Anicuts in the Cheyyar River. On completion of this Scheme, about 10700 acre of ayacut will be benefited. The diverted flood water will also satisfy the drinking water needs under various schemes of the TWAD Board along the Cheyyar River. A Detailed Project Report for this Scheme has been prepared for Rs.200 crore and sent to the Government of India seeking assistance under the Accelerated Irrigation Benefits Programme

(AIBP). However, it is proposed to execute the Work with the State Fund.

### **3.2.3.Cauvery (Mettur Dam) - Sarabanga (Namakkal District)**

In this Scheme, it is proposed to excavate a Link Canal for a length of 182 km to augment the irrigation potential through the existing Anicuts and Tanks in Sarabanga, Thirumanimuthar and Musiri Minor Basins by utilising the surplus water of the Mettur Dam. Under this Scheme, about 2 T.M.Cft. of water will be diverted through this Link Canal, thereby benefiting an ayacut of 30,430 acre in Salem, Namakkal, Perambalur and Trichy Districts. The approximate cost of the Scheme is Rs.1134 crore.

### **3.2.4.Athikadavu – Avinashi Flood Canal Project**

The Athikadavu - Avinashi Flood Canal Project envisages diversion of flood surplus

of 2000 cusecs from the Bhavani River to 31 Water Resources Department Tanks, 40 Panchayat Union Tanks and 538 Ponds in Coimbatore, Tiruppur and Erode Districts during the flood period.

During the flood season, the river banks of the Bhavani River gets eroded and the villages along the river banks are affected, resulting in loss of human lives and cattle, submergence of paddy fields, damages to houses, etc. Hence, Athikadavu - Avinashi Flood Canal Project has been conceived to mitigate the effects of flood, by means of excavation of a Flood Carrier Canal from the Pillur Dam water spread area. The Flood Flow Canal includes one Main Canal and two Branch Canals viz., Avinashi Branch Canal and Perundurai Branch Canal to divert flood water to the tanks and ponds in Coimbatore, Tiruppur and Erode Districts which act as flood absorbers. Necessary Cross Drainage Works, Cross Masonry Works and Regulators have been proposed at required places.

The Government have sanctioned an amount of Rs.30 lakh for detailed investigation to prepare a Detailed Project Report. After completion of Surveying and Levelling Works for about 100 km, which almost falls in mountainous area, a Detailed Project Report has been prepared for Rs.1862 crore.

This Detailed Project Report will be sent to the Government of India seeking assistance under the Flood Management Programme. Soil Investigation Works for preparation of detailed design and drawings are in progress.

### **3.2.5.Cauvery (Kattalai Barrage) to Gundar**

In this Scheme, it is proposed to divert 7 T.M.Cft. of flood water from the Cauvery at the Kattalai Barrage through a Canal for a length of 258 km to the Gundar. On completion, an ayacut of 1,86,636 acre will be stabilised, besides bridging a gap of 32,871 acre. Trichy and Srirangam Towns would be protected from flood hazard.

A Detailed Project Report has been prepared for this Scheme at an estimate of Rs.5166 crore and sent to the Government of India on 15.11.2011 seeking funds under the Flood Management Programme.

### 3.2.6.Recharge to the Ground Water Aquifers

The Ground Water aquifers and flood plains of the Cheyyar, Palar, Pennaiyar, Gundar and Vaigai are proposed to be recharged by using the surface flow at the intersection locations and downstream areas by constructing major Check Dams in the Rivers and minor Check Dams across the Tributaries. By constructing the Check Dams across the Rivers, the ground water levels in the Basin area will improve, which in turn will improve the ground water quality & food production and employment & sustainable economic growth of the region will be ensured through this initiative.

The proposed locations for construction of Check Dams are as follows:

Sl. No.	Name of the River	Number of locations	Estimate (Rs. in crore)
i)	Vaigai	7	35
ii)	Gundar	5	20
iii)	Pennaiyar	8	24
iv)	Palar	8	56
v)	Cheyyar	11	55
vi)	Tributaries	210	210
	<b>Total</b>	<b>249</b>	<b>400</b>

### 3.3. Linking of Rivers within the State under implementation

The Government have taken the initiative to link the Rivers within the State to primarily serve as Flood Carriers and to divert the flood flows to reach the drought prone areas. In this direction, the following two Schemes are under implementation:-

**i. Interlinking of Cauvery, Manimuthar, Vaigai and Gundar Rivers**

As a first stage of this Link, construction of a Barrage across the Cauvery River below 250 m from the existing Kattalai Bed Regulator in Karur District an estimate of Rs.234 crore is in progress. So far, 72% of the Work has been completed at a cost of Rs.140.71 crore.

**ii. Formation of a Flood Carrier Canal from the Kannadian Channel to drought prone areas of Sathankulam and Thisaiyanvilai by Interlinking Tamiraparani, Karumeniyar and Nambiyar Rivers in Tirunelveli and Thoothukudi Districts**

This Scheme envisages diversion of the dependable portion of surplus from the Kannadian Anicut to the drought prone areas of

Sathankulam and Thisaiyanvilai up to M.L.Theri sand dunes, stabilising the water starved ayacuts of the Manimuthar Channel in III and IV Reaches and interlinking the Tributaries of the Tamiraparani River namely, Pachaiyar, Kodumudiyar, besides interlinking the Karumeniyar and Nambiyar Rivers.

This Project was sanctioned at an estimate of Rs.369 crore for implementation in 4 Stages, in anticipation of approval under the Accelerated Irrigation Benefits Programme (AIBP). Works in Stages I and II and land acquisition process also are in progress. Works in Stages III and IV are proposed to be taken up early. A Detailed Project Report for Rs.453.44 crore is under the consideration of the Government of India for sanction under the Accelerated Irrigation Benefits Programme.

An expenditure of Rs.173.93 crore has been incurred so far for this Scheme. By implementing this Scheme, an extent of 23,040 hectare of land will be benefited including 17,002 hectare of new ayacut. The ground water level in the nearby wells will also be increased.

#### **4. INTER STATE RIVER WATER ISSUES**

##### **4.1. Cauvery Water Issue**

The Cauvery Water issue could not be resolved even after negotiations through 26 meetings, bilateral and under the auspices of the Central Government, for over 23 years and finally, as per the Orders of the Supreme Court on 04.05.1990, the Government of India constituted the Cauvery Water Disputes Tribunal (CWDT) on 02.06.1990.

The Interim Order on the first petition filed by Tamil Nadu was pronounced by the Cauvery Water Disputes Tribunal on 25.06.1991, directing Karnataka to release water so as to ensure 205 T.M.Cft. at the Mettur Reservoir as per the prescribed monthly pattern and out of this, 6 T.M.Cft. is to be given to the Karaikkal Region of the Union Territory of Puducherry and also, the State of Karnataka shall not increase its area under irrigation beyond 11.2 lakh acres as on June 1990. Further, the Interim Order will remain operative till the final adjudication of the dispute. The Interim Order was published in the Gazette of the Government of India on 10.12.1991.

A "Scheme" to give effect to the decision of the Tribunal was notified in the Gazette by the Government of India on 11.08.1998. As per this Scheme, a Cauvery River Authority headed by the Hon'ble Prime Minister of India has been constituted with the Hon'ble Chief Ministers of all the Party States as Members. To assist the Authority, a Cauvery Monitoring Committee headed by

the Secretary to Government of India, Ministry of Water Resources has also been constituted with the Chief Secretaries and Chief Engineers of the Basin States as Members.

The Tribunal after examining all the documents and statistics of the Case and hearing the arguments put forth by the Party States, finally pronounced its final decision on 05.02.2007 under Section 5(2) of the Inter State River Water Disputes Act.

The salient features of the Final Order are:

- The yield of the Cauvery at the Lower Coleroon Anicut site on the basis of 50% dependability is 740 T.M.Cft. as per the Report of the Cauvery Fact Finding Committee.
- As per the Final Order, the allocation made among the Party States at 50% dependability is as follows:

<b>Tamil Nadu</b>		<b>in T.M.Cft.</b>
At Billigundulu or any other agreed point at the common border between Karnataka and Tamil Nadu	182	<b>419</b>
Flow available in Tamil Nadu between Billigundulu and Mettur	25	
<b>Total flow at Mettur</b>	207	
Flow available in Tamil Nadu below Mettur	212	
<b>Total for Tamil Nadu</b>	419	
<b>Karnataka</b>		<b>270</b>
<b>Kerala</b>		
Kabini sub-basin	21	<b>30</b>
Bhavani sub-basin	6	
Amaravathi sub-basin	3	
<b>Total for Kerala</b>	30	

<b>Puducherry</b>	7
Inevitable surplus	4
Environment Protection (At Billigundulu or any other agreed point at the common border between Karnataka and Tamil Nadu)	10
<b>Grand Total</b>	<b>740</b>

- As per the Final Order, the flow that will be made available at the Mettur Dam will be 207 + 10 T.M.Cft. for Environmental Protection = 217 T.M.Cft., as against 205 - 6 (for Puducherry) = 199 T.M.Cft. as per the Interim Order.
- The use of Ground Water by any State shall not be reckoned as use of water of the River Cauvery.
- The Tribunal has also suggested constitution of a Cauvery Management Board and Cauvery Water Regulation Committee to effectively implement the Order.

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 Act seeking clarification.

The States of Karnataka and Kerala have filed Special Leave Petitions in the Supreme Court in April, 2007, against the Order of the Tribunal. A Special Leave Petition (SLP) was also filed by State of Tamil Nadu in the Supreme Court in May, 2007, against certain aspects of the Order of the Tribunal. In the SLPs filed in the Supreme Court, the State of Karnataka has filed additional documents in 25 volumes and the State of Kerala in 15 volumes. To counter this, the State of Tamil Nadu has filed documents in 13 volumes in consultation with the Advocates.

The Tribunal, in its Order dated 10.07.2007, has ordered that only after the Special Leave Petitions 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 and a further report will be sent to the Government of India. Till then, the Interim Order already passed by the Tribunal on 25.06.1991 will be in force.

The Government of Tamil Nadu filed an Interlocutory Application (I.A.) in the Supreme Court on 01.09.2011 with a request to clarify that there would be no impediment to 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. When the Civil Appeals and Interlocutory Applications were heard on 22.09.2011 and 18.10.2011 respectively, the Supreme Court has directed to list the matter during February 2012. Thereafter the Civil Appeals have not been listed for Hearing.

Tamil Nadu has also filed an I.A. in the Supreme Court in November 2008 against the unilateral action contemplated by

Karnataka in proceeding with execution of the Sivasamudram Seasonal Power Scheme and the Mokedatu Hydro Electric Scheme and praying for directions to the Central Government to take up all the Hydel Schemes in Cauvery between Krishna Raja Sagar and Mettur Dams by the NHPC as a package deal, as already contemplated by them. In this I.A., an additional Affidavit was filed by Tamil Nadu in August 2009 objecting to the unilateral action of Karnataka in taking up the Sivasamudram Hydro Electric Project. This is yet to be taken up for Hearing in the Supreme Court.

Tamil Nadu has also filed two Original Suits in the Supreme Court, O.S.No.3 of 2001 on 19.09.2001 and O.S.No.3 of 2002 on 10.07.2002, praying mainly for passing a Decree of Mandatory Injunction directing the Central Government to frame either a new Scheme in substitution / replacement of the 1998 Scheme or an additional Scheme making adequate provisions therein for all matters necessary to give effect to the Interim Order dated 25.06.1991 passed

by the Cauvery Water Disputes Tribunal. These Suits are yet to be taken up for final hearing.

The evolution of a Distress Sharing Formula is pending for a long time. The Cauvery Monitoring Committee finalised a Formula which was accepted by all the Party States except Karnataka. This is to be placed before the Cauvery River Authority for its approval. Tamil Nadu has been urging the Central Government to convene a meeting of the Cauvery River Authority and get the Distress Sharing Formula approved.

During the current irrigation season 2011-2012, since there was substantial carryover storage in the Mettur Dam, it was opened for irrigation on 06.06.2011, ahead of the normal date of 12<sup>th</sup> June. The South West Monsoon set in the catchment area of Cauvery Basin and due to a good spell of rainfall, the Kabini Reservoir in Karnataka reached near about FRL and surplus flows were released till about 28<sup>th</sup> July. Since then, there was a lull in the Monsoon. The

26<sup>th</sup> Meeting of the Cauvery Monitoring Committee was held in New Delhi on 12.08.2011. The inflows into the Mettur dam picked up in the subsequent months which helped to bring down the deficit considerably. The total inflows for the period from June 2011 to January 2012 are 193 T.M.Cft, as against the inflows prescribed in the Interim Order of 196 T.M.Cft. and the deficit is only 3 T.M.Cft. This is likely to be wiped out before the end of the season and the inflows into the Mettur Dam at the end of May, 2012 may be slightly more than 205 T.M.Cft.

In the Memorandum presented to the Hon'ble Prime Minister in New Delhi on 14.06.2011, the Hon'ble Chief Minister had requested to direct the Ministry of Water Resources to take immediate steps to notify the Final Award dated 05.02.2007 of the Cauvery Water Disputes Tribunal (CWDT) in the Gazette of India and to place in position the Cauvery Management Board for

implementation of the Award of the Cauvery Water Disputes Tribunal in letter and spirit.

The Hon'ble Chief Minister on 17.10.2011 addressed the Hon'ble Prime Minister stating that when the Cauvery Water Disputes Tribunal gave its Interim Order on 25.06.1991, it was gazetted by the Government of India on 10.12.1991 based on the opinion rendered by the Supreme Court on 22.11.1991, even though a Section 5(3) Petition seeking explanation or guidance from the Tribunal as well as the Suit and Special Leave Petitions of the Government of Karnataka were pending before the Supreme Court. In that letter, the Hon'ble Chief Minister had stated that notwithstanding the pendency of the Civil Appeals and Reference Petitions pending before the Supreme Court and Cauvery Water Disputes Tribunal respectively and without prejudice to the outcome of these Petitions, the Final Order of the Cauvery Water Disputes Tribunal dated 05.02.2007 should be published in the Gazette of India as required under Section 6(1) of the Inter-State River Water Disputes Act, 1956

and accordingly requested the Hon'ble Prime Minister to notify the Final Order in the Gazette of India and place the Cauvery Management Board in position. The Chief Secretary also sent a letter on 17.10.2011 to the Government of India, Ministry of Water Resources in this respect. In reply, the Minister of Water Resources, in the letter dated 13.01.2012, has informed that it would be appropriate to consider notification of the Order dated 05.02.2007 of the CWDT once the matter is disposed of by the Supreme Court.

In reply to this, the Government of India, Ministry of Water Resources, has again been addressed in the Chief Secretary's letter dated 06.03.2012 that if the Final Order of the Tribunal could not be published now as requested by Tamil Nadu, the Government of Karnataka should be advised to strictly adhere to all the stipulations made in the Interim Order dated 25.06.1991 till the Final Order is gazetted by the Government of India. It was also requested to convene the next meeting of the Cauvery Monitoring

Committee so as to review the storage position in Karnataka vis-a-vis Tamil Nadu and also to instruct the Government of Karnataka not to draw water for irrigation during the summer months.

In order to forbear the Government of Karnataka from drawing water for the 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 21.03.2012 in the Supreme Court of India. The Government of India was again addressed on 21.3.2012, referring to the Clauses 6 and 6A(1) of the Inter-State River Water Disputes Act, 1956 as amended in 2002, that there is no impediment for the Central Government in publishing the Final Order of the Tribunal, though the appeal may be pending in the Supreme Court of India, and even otherwise, the framing of Scheme is not dependent on publication of the decision in the Gazette of India, particularly in view of Section 6A(1) of the said Act which begins with

*"Without prejudice to the provisions of Section 6 the Central Government may, by notification in the Official Gazette, frame a scheme or schemes whereby provision may be made for all matters necessary to give effect to the decision of a Tribunal".* Hence, it was requested that the decision of the Tribunal may be notified and in any case the Cauvery Management Board may be constituted immediately.

In the meantime, the Government of Tamil Nadu on 16.03.2012, has filed a Civil Miscellaneous Petition in the Cauvery Water Disputes Tribunal praying to take up early Hearing of the Petitions under Section 5(3) filed by the Party States and the Government of India.

#### **4.2. Banasurasagar Irrigation Project in Kerala**

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. On examination, it was seen that Kerala is proceeding with this Project as originally envisaged by it for utilisation of 1.7 T.M.Cft. of water for irrigation and was also contemplating to divert as much as 6 to 10 T.M.Cft. 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 T.M.Cft. for in-basin irrigation under the Project. The Government of Kerala has, therefore, been addressed on 12.03.2012 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.

#### **4.3. Mullai Periyar Dam**

Periyar Lease Deed between the Maharaja of Travancore and the Madras Presidency was executed on 29.10.1886 with

retrospective effect from 01.01.1886 for a period of 999 years for diversion of water to the Madras Presidency under the "Periyar Project". About 8000 acre has been demised on payment of an annual rent of Rs.5/- per acre. The present Theni, Dindigul, Madurai, Sivagangai and Ramanathapuram districts are benefited. Presently, about 2,08,144 acre are benefited by this Project, and on an average 22 T.M.Cft. is diverted in a year.

Two Supplemental Agreements were entered into between Kerala and Tamil Nadu on 29.05.1970. These were executed as successors in interest to the Principal Deed of 1886. However, in these Agreements, the basic character of the Principal Deed of 1886 was not changed.

In 1979, certain apprehensions were raised in the Malayalam dailies about the safety of the 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, Central Water Commission, with the Officers and Engineers of both the States. In that Meeting, it was decided to execute certain Improvement Works under three Stages, viz., Emergency Measures, Medium Term Measures and Long Term Measures to bring it to the modern standard. To facilitate execution of the strengthening works, it was decided to reduce the water level **temporarily** from 152 ft. to 136 ft.

After completion of the Emergency and Medium Term Strengthening Measures for the Dam, the Central Water Commission recommended on 29.04.1980 to raise the water level to 145 ft. But, the Government of Kerala did not agree for raising the water level from 136 ft. to 145 ft., even after the Dam has been fully strengthened; it insisted that the water level should continue to be maintained at 136 ft.

In the Writ Petition filed in the Supreme Court along with the connected matters, the

Supreme Court pronounced its Judgment on 27.02.2006 and 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 further strengthening measures, as suggested by the Central Water Commission, to the Baby Dam and Earth Dam. The Supreme Court has 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.

Soon after the Supreme Court pronounced its Judgment, the Government of Kerala passed an Amendment to the Kerala Irrigation and Water Conservation Act, 2003 known as "Kerala Irrigation and Water Conservation (Amendment) Act, 2006" on 18.03.2006, patently to thwart the Supreme

Court's Order and fixed the FRL of the Mullai Periyar Dam as 136 ft. The Government of Tamil Nadu filed a Civil Suit (O.S.No.3 of 2006) on 31.3.2006 in the Supreme Court praying to declare "The Kerala Irrigation and Water Conservation (Amendment) Act 2006" as unconstitutional in its application and effect on the Mullai Periyar Dam.

As per the directions of the Supreme Court on 25.09.2006 and the decision of the All Party Meeting held on 23.10.2006, a Meeting of the Chief Ministers of both the States in the presence of the Minister for Water Resources, Government of India, was held on 29.11.2006. In continuation of that meeting, a Ministers' level Meeting was held on 18.12.2006. A Meeting of the Hon'ble Chief Ministers of Tamil Nadu and Kerala was again held in New Delhi on 19.12.2007 before the Union Minister for Water Resources. No consensus was reached in these meetings.

The three Member Special Bench which heard arguments from 21.10.2009 till 10.11.2009 viewed, among others, that since certain substantial questions of law are involved in interpretation of the Constitution to decide the Suit on the issues framed, it would be necessary to place the matter before a Constitution Bench. It further ordered that the contesting Parties shall maintain "Status quo" in respect of the 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.

The Constitution Bench which was later formed, heard the Suit from 20.01.2010 onwards and on 18.02.2010, ordered formation of an Empowered Committee consisting of 5 Members, including the Chairman, Dr.A.S.Anand, Former Chief Justice of India. The Committee has been requested to analyse all the issues except legal and submit a Report as far as possible within six months. The Supreme Court by

Order dated 27.02.2012 has extended the tenure of the Empowered Committee up to 30th April 2012 and posted the Case to 04.05.2012.

The Governments of Tamil Nadu and Kerala have submitted their respective Memorandum before the Empowered Committee. The Empowered Committee has framed five issues, in which the New Dam proposal of Kerala is one of the issues. The Government of Tamil Nadu has submitted before the Supreme Court as well as before the Empowered Committee that in as much as the Dam has been strengthened on the suggestions 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.

Under the Empowered Committee, a Committee to Co-ordinate (CTC) to carry out Investigations, Testing and Studies (ITS) on the Mullai Periyar Dam under the

Chairmanship of Dr. C.D.Thatte, Member of the Empowered Committee with Members drawn from CWC, CWPRS, CSMRS and Representatives of the States has been constituted. The Committee to Co-ordinate (CTC) has conducted and completed several Tests and Technical Studies, a few of which are progressing and are to be completed shortly.

In the meanwhile, Tamil Nadu filed two Interlocutory Applications (IA) in the Supreme Court: one on 11.03.2011, (No.14/2011), to restrain the State of Kerala from proceeding with construction of a New Dam; and another on 01.04.2011 (No.15/2011), inter alia, to direct the State of Kerala to permit the State of Tamil Nadu to take up the Work of relaying wearing coat on the top of the Baby Dam, as part of maintenance work, to which the Government of Kerala has objected. Apart from these, an I.A. has been filed in the Supreme Court of India on 2.3.2012 to direct the Government of Kerala for carrying out certain maintenance works proposed by

Tamil Nadu, after sending information on 29.12.2011 in this regard.

On 01.08.2011, the State of Kerala filed an Application for taking on Record 'The Feasibility Report of a New Dam at Mullai Periyar, July 2011' before the Empowered Committee which was requested by the Committee, in their letter dated 12.01.2011. Counter for this Application on behalf of Tamil Nadu was filed on 29.08.2011.

On 05.12.2011, the Government of Tamil Nadu filed an I.A. (No.19/2011) in the Supreme Court to direct the Central Government to depute the Central Industrial Security Force for the purpose of policing the Dam site and ensuring the safety of the Dam and its appurtenant structures. On the assurance given by the Government of Kerala that adequate number of personnel have been deployed to ensure safety to the Dam and protect the Dam and also on the Stand of the Government of India that the Central Forces

could be deployed either on the Orders of the Courts or on the request from the State Government, the Supreme Court considered that no further directions would be necessary and accordingly disposed of this Application on 15.12.2011.

The Government of Kerala on 06.12.2011 filed an I.A. (No.20/2011) in the Supreme Court praying to direct the State of Tamil Nadu to lower the storage of the Mullai Periyar Dam, from 136 ft. to 120 ft. forthwith. The Supreme Court, after recording the Statement of the Government of Kerala that it withdraws the Application because it would move some Applications before the Empowered Committee, dismissed the Application on 13.12.2011 as not pressed. The State of Kerala emphasising the same, filed an Application before the Empowered Committee on 15.12.2011, which was, however, not considered by the Empowered Committee.

On 10.12.2011, the Hon'ble Chief Minister released a Press Statement detailing the

technical aspects of the Mullai Periyar Dam and the Strengthening Works carried out by the Government of Tamil Nadu and appealed to the people of Kerala not to succumb to any divisive forces in the interest of both the States, as both the States are committed to maintaining and cherishing cordial relations.

The following Resolutions passed unanimously in the Legislative Assembly on 15.12.2011 was communicated to the Government of India on 16.12.2011 for further action:-

- (a) 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;

- (b) 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;
- (c) 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";
- (d) 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.;

- (e) And that the rights of Tamil Nadu will not be given up under any circumstances.

The Empowered Committee's Meetings were held on 02.01.2012 and 03.01.2012. On 02.01.2012, submissions were made by the Counsels of Kerala and Tamil Nadu before the Empowered Committee. The Counsel for Tamil Nadu categorically stated that there was no need to construct a New Dam, since the retrofitted Mullai Periyar Dam is as good as a New Dam and is functioning well; Tamil Nadu should, therefore, be permitted to raise the water level to 142 ft. as per the judgment of the Supreme Court dated 27.02.2006.

The Government of Kerala on 10.01.2012 again filed an Application before the Empowered Committee, among others, for

construction of a New Dam. The Government of Tamil Nadu has filed its Reply on 23.01.2012 in which it has once again been reiterated that there is no need for a New Dam in as much as the existing Mullai Periyar Dam is functioning as a New Dam.

When the National Disaster Management Authority (NDMA) on the unilateral request of the Government of Kerala constituted a Team of Experts for preparation of a Contingency Response Plan for the Mullai Periyar Dam in its proceedings dated 12.12.2011, the Hon'ble Chief Minister brought to the notice of the Hon'ble Prime Minister in her 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 of India and the Empowered Committee constituted by it. The approach of Kerala to the NDMA is to circumvent the legal process and appears to be a calculated attempt to pressurise the Empowered Committee to declare the Dam

as unsafe. The Hon'ble Chief Minister, therefore, requested the Hon'ble Prime Minister to order the withdrawal of the constitution of the Team of Experts forthwith. The NDMA in its Proceedings dated 22.12.2011 had kept this in abeyance till the Empowered Committee submits its Report to the Supreme Court.

When the Hon'ble Prime Minister visited Chennai on 25.12.2011, in the Memorandum presented to him, Hon'ble Chief Minister sought intervention of the Hon'ble Prime Minister on the following:-

- i. To advise the Government of Kerala to honour the Order of the Supreme Court dated 27.02.2006 for raising the water level initially from 136 ft. to 142 ft. and to make appropriate Amendments to its Kerala Irrigation and Water Conservation (Amendment) Act, 2006;

- ii. To advise the Government of Kerala not to venture upon construction of a New Dam, since the retrofitted Mullai Periyar Dam is safe and functioning well;
- iii. To advise the Government of Kerala not to obstruct but to co-operate with the Government of Tamil Nadu in carrying out the remaining strengthening works suggested by the Central Water Commission and also the routine maintenance works;
- iv. To advise the Government of Kerala to remove all the encroachments that have come up in the leased area;
- v. To deploy the Central Industrial Security Force to safeguard the Mullai Periyar Dam and its appurtenant structures in the leased area; and
- vi. To order the National Disaster Management Authority to withdraw the Notification of the Team of

Experts constituted for formulating a Contingency Response Plan for the Mullai Periyar Dam.

The Hon'ble Chief Minister in her letter to the Hon'ble Prime Minister dated 9.2.2012, requested the Government of India, Ministry of Science and Technology, to desist from entering into any Agreement with the Government of Kerala for a real time monitoring of the Mullai Periyar Dam without the consent of the Government of Tamil Nadu and if already entered into, it may be annulled and also to keep further activities in abeyance and to deploy the CISF as already requested. On the same day, a letter was sent to the Ministry of Science and Technology in this matter. In continuation of these, an I.A. has been filed in the Supreme Court of India on 02.03.2012 to restrain the Government of India from entering into the Agreement, among others.

The Empowered Committee is expected to give its Report to the Supreme Court by the end of April, 2012, after which the legal procedure will follow in the Supreme Court.

The Hon'ble Chief Minister on 08.01.2012 announced that a Memorial would be constructed to Colonel J Pennycuick in the TANGEDCO Complex at the Lower Camp in an area of 2500 Sq.ft. at an estimated cost of Rs.1.00 crore and his grandson will be invited while inaugurating the Memorial. The Works for the Memorial will commence shortly.

The Government of Tamil Nadu will effectively pursue this issue in all forums to safeguard the interests of the State of Tamil Nadu.

#### **4.4. Palar**

The Government of Andhra Pradesh proposed to construct a Reservoir across the Palar at Ganeshapuram, Kuppam Taluk, Chittoor District, Andhra Pradesh. As it

would primarily affect a number of drinking water schemes along the River in Tamil Nadu, the Government of Tamil Nadu filed an Original Suit on 10.02.2006 in the Supreme Court to restrain it.

After hearing the Case, the Supreme Court, in its Order dated 07.01.2008, made it clear that the Union of India may convene a Meeting between the two States to settle the dispute.

Following this, a Meeting at Official level was held by the Chairman, Central Water Commission in New Delhi on 11.03.2008. After discussion, the Central Water Commission requested the Government of Andhra Pradesh not go ahead with 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 the Central Water Commission.

The Secretary, 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 to Government of India concluded that there was no possibility of any negotiated solution in as much as the rigid stand taken by both the States and that the Supreme Court will be informed accordingly.

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 asked the Parties to list the witnesses. The Government of Tamil Nadu has nominated Thiru.G.Ganapathi Subramanian, Engineer-in-Chief (Retd), Public Works Department, as its Witness and he has filed an Affidavit in the Supreme Court on 21.07.2011. Shri B. Venugopalacharya has filed an Affidavit as Witness on behalf of the State of Andhra Pradesh.

The Supreme Court is expected to hear the Suit shortly.

#### **4.5. Parambikulam Aliyar Project - Review of Agreement**

The Parambikulam Aliyar Project, a multi-valley, multipurpose, mammoth Project, was planned, designed and executed by the Government of Tamil Nadu as one of the Second Five Year Plan Projects, with the consent and co-operation of the Government of Kerala for sharing mutual benefits through utilisation of flows in the Rivers of Anamalayar, Nirar, Sholayar, Parambikulam, 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 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, Udumalaipettai

and Dharapuram in the Districts of Coimbatore, Tiruppur and Erode are benefited. The Palakkad District of the Kerala State is also benefited. This Agreement was due for review on 09.11.1988. Accordingly, both the Governments exchanged the documents for review on 21.09.1989 and since then has held several Inter-State discussions for continuation of the Review for another 30 years.

In the Minister's level Meeting held between the 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 submitted its Report in May 2003. The Report was discussed in the Minister's level Meeting held on 10.11.2003 at Chennai and on 4<sup>th</sup> January 2004 at Thiruvananthapuram.

After prolonged correspondence, a Meeting at the Chief Secretary's 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, the Meeting at Chennai was held on 27.02.2009 and it was decided to have a Meeting at the Secretary's level to examine all the issues in their entirety and work out a single Package that can be placed before the Hon'ble Ministers of the concerned States. As per this decision, Meetings at Secretary's level were held in Thiruvananthapuram on 08.04.2009 and on 24.04.2009 and 25.04.2009 in Chennai. The Chief Secretary's level Meeting was held on 21.01.2011 at Thiruvananthapuram.

The following decisions were taken in that Meeting.

**A) Anamalayar - Diversion of 2.5 T.M.Cft. of water from Anamalayar to Tamil Nadu.**

Kerala informed that the site proposed by it for construction of a Reservoir is technically feasible for diversion of 2.5 T.M.Cft. of water to Tamil Nadu and proposed to execute the Project by it. It has also been decided that Kerala will send the Project Report to Tamil Nadu and Tamil Nadu will send its views within two months from the date of receipt of the Project Report. But, so far, no Project Report has been received by Tamil Nadu.

**B) Manacadavu**

Kerala requested for increase of their share of water at Manacadavu Weir from 7.25 T.M.Cft. to 12.00 T.M.Cft. This is further to be discussed.

**C) Balancing Reservoir above Manacadavu Weir**

Kerala is not agreeable to the proposal of Tamil Nadu for constructing a Reservoir with capacity of about 0.5 T.M.Cft. above the existing Manacadavu Weir to regulate the flows to Kerala. It was explained that Tamil Nadu can consider the increase in supply at Manacadavu over 7.25 T.M.Cft., if only Kerala gives its concurrence for the Balancing Reservoir.

**D) Nirar - Nallar Straight Cut**

Tamil Nadu reiterates that the Scheme has to be implemented. But Kerala informed that this issue is outside the scope of purview of the Agreement. However, Kerala requested Tamil Nadu to provide details of possible benefits that Kerala will have from this Scheme for its consideration.

The Government of Kerala have not yet confirmed the above decisions.

The Government is taking all possible steps to complete the review of this Agreement quickly.

#### **4.6. Neyyar Issue**

The Neyyar Irrigation Project, both first and second stages, were planned and executed by the Travancore – Cochin Government. Due to the States' Reorganisation in 1956, a portion of the ayacut localised 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 Kanyakumari District. The Canal Works required to feed this ayacut were executed by the State of Tamil Nadu with the approval of the Central Government and the State of Kerala, under the Second Five Year Plan. The Project is in operation from the year 1965.

The Government of Kerala was supplying water to this area of Tamil Nadu through the left bank canal of the Project, even though the supply made was very much below the designed discharge of 150 cusecs. The supply was made up to February 2004 and after that the Government of Kerala stopped supply of water, abruptly.

After reorganisation of the States, the Government of Kerala wanted the concurrence of the Madras Government for sharing of the cost of the Project as proposed by it in 1957. The amount to be shared by Tamil Nadu was also settled by the Kerala Government on 01.02.1965. Accepting the Kerala's claim, the Government of Tamil Nadu suggested in 1971 that an Agreement may be entered into with the Government of Kerala regarding sharing of Capital and Maintenance Cost and supply of water to the Tamil Nadu ayacut and this has been in correspondence since then. Even though the Government of Kerala agreed on 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 Inter-State agreement regarding sharing of water of this River. This was the first occasion when the Government of Kerala raised the issue that Neyyar is not an Inter-State River.

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 realising 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 use of such water by any other State or the inhabitants thereof" will not arise.

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 13.02.2003 for resolving amicably with the help of the Central Water Commission, whenever required.

The State of Kerala now reiterates the 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. After prolonged correspondence, considering the welfare of the Farmers of Vilavancode, a Revised Draft Agreement was sent to the Government of Kerala on 19.05.2009. But, the Government of Kerala without giving comments on the Revised Draft Agreement dated 19.05.2009, unilaterally prepared a Fresh Draft Agreement and sent it on 11.01.2010, which was not accepted by the Government

of Tamil Nadu. Since the Chief Minister of Kerala requested to send a Team of Technical Officers for discussion, a Team of Technical Officers held discussions at Thiruvananthapuram on 06.05.2011. No consensus was reached on the vital Clauses of the Draft Agreement.

In the meantime, the Government of India was again requested to intervene in this matter. The information requested by the Government of India in letter dated 29.12.2010 was sent to it in letter dated 01.03.2011. The Government of Tamil Nadu is repeatedly requesting the Government of India to advise the Government of Kerala to conclude an Agreement and to release water pending finalisation of the Agreement.

This Government is taking all steps for release of water from the Neyyar Dam for irrigation in the Vilavancode Taluk.

#### **4.7. Shenbagavalli Anicut**

Shenbagavalli Anicut is a small diversion Anicut built at the junction of two Streams viz., Puliampattithodu and Chokkampattithodu in Periyar Basin lying in the Kerala State limits just to the west of the Tamil Nadu border. This Anicut is reported to be in existence since 1773 AD and it diverts flows to mainly two Tanks, namely, Kulasekaraperi and Rasingaperi in Sivagiri Taluk, through which 10,924 acre are irrigated.

Due to remote location in forest, age etc., the Channel was in a dilapidated condition. Repairs were done by Tamil Nadu in 1959-1962 at a cost of Rs.3.25 lakh. Again when the Channel breached in 1971, a sum of Rs.5.15 lakh (50% of the estimated cost) for repair work was deposited with the Government of Kerala, during 1986.

However, the deposit amount of Rs.5.15 lakh was refunded by the Kerala Government 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.

The Sivagiri Vivasayigal Sangam filed a Writ Petition in the High Court of Madras, (WP No.1274 of 2006) seeking issuance of a Writ of Mandamus directing the Governments of Tamil Nadu and Kerala to grant necessary sanction and consequently carryout 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.

In response to the above Order, the Government of Kerala in September, 2006 reiterated its earlier decision to the effect that the Government of Kerala is not in a

position to reconsider its earlier decision in the matter.

In order to ensure 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 Works, the cost will be reimbursed to them.

This is pursued with the Government of India.

#### **4.8. Inter Linking of Rivers**

**Mahanadhi - Godavari - Krishna - Pennar - Palar - Cauvery - Vaigai - Gundar link**

The National Water Development Agency (NWDA) has prepared a Feasibility Report for interlinking of Mahanadhi - Godavari -

Krishna - Pennar - Palar - Cauvery - Vaigai - Gundar Link. It has assessed the overall surplus from the Mahanadhi and Godavari as 925 T.M.Cft. after allowing for all future in-basin requirements. It has proposed to utilise 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 hectare of irrigation including 2.10 million hectare additional irrigation and substantial additional Hydro Power, besides several other intangible benefits. Under this Scheme, Tamil Nadu is expected to get about 214 T.M.Cft. at the border and the additional area that could benefit by irrigation is estimated as Rs.7.74 lakh hectare (Rs.19.13 lakh acre).

Tamil Nadu has requested for enhancing the quantum of water proposed to be transferred to Tamil Nadu by at least another 100 T.M.Cft. 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.

Tamil Nadu in the 52<sup>nd</sup> Meeting of the National Development Council held at New Delhi on 09.12.2006, and in the discussion held on 5.2.2007 with the Vice - Chairman, Planning Commission, has emphasised the urgency to start the linking of the Peninsular Rivers in order to augment the water resources, so as to re-vitalise the agricultural sector.

Tamil Nadu has also suggested to the Government of India that the Parliament can make a Law, by virtue of the powers conferred under the Article 248(1) read with Entry 97 of List 1 (Union List) of the Seventh Schedule of the Constitution, for implementing the interlinking of major Rivers in the Country, so as to facilitate early execution of the Interlinking Rivers Project (ILR).

During the 40<sup>th</sup> meeting of the Technical Advisory Committee held on 20.01.2012 at New Delhi, the NWDA has stated that they have taken up the topographical surveys of the alternative alignment between Pennar – Palar – Cauvery at a higher elevation and the Work is in progress, as requested by the Government of Tamil Nadu.

Now the NWDA is carrying out a Study for alternative off-take point of Mahanadhi – Godavari other than the originally proposed Manibhadra Dam across Mahanadhi due to various issues raised by the Odisha State and Studies are in progress.

In the Writ Petition filed before the Supreme Court regarding Interlinking of rivers, the Supreme Court has delivered Judgment on 27.02.2012 with directions to the Government of India for early implementation of Inter linking of Rivers so that the benefits would accrue within a reasonable time and cost.

Tamil Nadu while welcoming the above judgment of the Supreme Court is pursuing with the Government of India for early implementation of inter linking of the Peninsular Rivers and also for making a Law in the Parliament for implementing the Link.

#### **4.9. Pamba - Achankoil - Vaippar Link**

The NWDA has formulated the Pamba - Achankoil - Vaippar Link Project, which envisages diversion of 22 T.M.Cft. which is only 20% of the surplus water of Pamba and Achankoil Rivers of Kerala to Tamil Nadu to irrigate an ayacut of 91,400 hectare in the dry Taluks of Sankarankoil, Kovilpatti, Sivagiri, Srivilliputhur, Rajapalayam, Sathur and Tenkasi of Tamil Nadu and will also help to generate peak power of 500 MW for Kerala.

The Government of Tamil Nadu has given its acceptance during December, 1995 to the proposal, whereas the Government of Kerala is not in favour of the Project. The Government of Tamil Nadu has been

continuously urging the Government of India and the National Water Development Agency in bringing a consensus for implementation of this Project.

## **5. DAM SAFETY BILL, 2010**

### **OBJECTIVE:**

To provide proper surveillance, inspection, operation and maintenance of all the Dams of certain parameters in India, to ensure their safe functioning and for matters connected therewith or incidental thereto, the Government of India proposed to bring forward a Legislation on Dam Safety keeping in mind the following:-

- As per Article 252 of the Constitution of India, the Parliament of India is empowered to legislate on any subject provided two or more States offer their consent and that Legislation may be adopted by any other State

by a resolution passed in their Legislature.

- In 2008, two States, namely, Andhra Pradesh and West Bengal have requested the Ministry of Water Resources, Government of India, to enact a Central Legislation on Dam Safety by the Parliament of India.

The Dam Safety Bill of the Government of India will directly affect Tamil Nadu in the 4 Dams owned, operated and maintained by Tamil Nadu, lying in the territory of Kerala, viz, 1. Mullai Periyar Dam, 2. Parambikulam Dam, 3. Thunakadavu Dam and 4. Peruvaripallam Dam. The Government of Kerala has already interfered by reducing the Full Reservoir Level of the Mullai Periyar Dam by enacting the Kerala Irrigation and Water Conservation (Amendment) Act, 2006, which has been challenged in the Hon'ble Supreme Court by Tamil Nadu for which the judgement is pending. If the Dam Safety Act, 2010 is passed in the Parliament as proposed by the Ministry of Water

Resources, it will only further embolden the Government of Kerala to do such acts, which will be detrimental to the State of Tamil Nadu. So, the Government of Tamil Nadu objected to certain provisions envisaged in the Bill and requested modifications thereto.

The Dam Safety Bill, 2010 which was approved by the Central Cabinet was introduced in the Parliament. On a reference, the Parliamentary Standing Committee on Water Resources for examination and report, uploaded the text of the Bill as introduced in the Parliament's Website calling for comments / suggestions from individuals / organisations/ institutions / experts on the provisions of the Bill.

The Government of Tamil Nadu sent its views objecting to certain Clauses of the Bill which were not considered favourably by the Parliamentary Standing Committee on Water Resources.

The Hon'ble Chief Minister, in the letter dated 29.7.2011, to the Hon'ble Prime Minister had suggested that certain provisions in the proposed Bill will be detrimental to the interest of Tamil Nadu and requested to carry out modifications in the Dam Safety Bill, 2010. For the purpose of convenience, a comparative statement showing the provisions of the Dam Safety Bill, 2010 of the Government of India and the modifications suggested by the Government of Tamil Nadu are furnished below:-

<b>PROVISION IN THE DAM SAFETY BILL, 2010</b>	<b>MODIFICATION SUGGESTED</b>
<b>Clause 26(1):</b> Without prejudice to the provisions of this Act, all specified dams, shall fall under the jurisdiction of the State Dam Safety Organisation or State Dam Safety Cell, as the case may be, of the	<b>Clause 26(1):</b> Without prejudice to the provisions of this Act, all specified dams, shall fall under the jurisdiction of the State Dam Safety Organisation or State Dam Safety

<p>State in which dam is situated in matters related to dam inspections, analysis of information, reports or recommendations regarding safety status and remedial measures to be undertaken to improve dam safety; and in all such matters full co-operation shall be extended by the concerned Non - State Dam Safety Organisation or the Non-State Dam Safety Cell and the owner of the specified dam.</p>	<p>Cell, as the case may be, of the State <b>owning the dam and under whose control the dam is operated and maintained</b> in matters related to dam inspections, analysis of information, reports or recommendations regarding safety status and remedial measures to be undertaken to improve dam safety.</p>
<p><b>26(2):</b>The authorised representative of the Central Dam Safety Organisation, concerned State Dam Safety Organisation or State Dam Safety Cell, as the</p>	<p><b>26(2):</b> The authorised representative of the Central Dam Safety Organisation, concerned State Dam Safety</p>

<p>case may be, for the purposes of making any inspection or investigation necessary for the implementation of the provisions of this Act, may enter upon any part of the specified Dam or its site as and when required and apply such investigation methods, as may be considered necessary.</p>	<p>Organisation or State Dam Safety Cell as the case may be, <b>in respect of dams referred to in sub-clause 1 above</b>, for the purposes of making any inspection or investigation necessary for the implementation of the provisions of this Act, may enter upon any part of the specified dam or its site as and when required and apply such investigation methods as may be considered necessary.</p>
<p><b>26(3):</b> In case, after making inspection or investigation under sub-section (2), the</p>	<p><b>26(3):</b> This Clause is to be modified commensurate to the modification</p>

<p>representative referred in that sub-section is of the opinion that certain remedial measures are required to be taken, he shall report such remedial measures to the officer-in-charge of such specified dam and the Non-State Dam Safety Organisation or Non-State Dam Safety Cell, as the case may be, and to the concerned State Dam Safety Organisation or State Dam Safety Cell, as the case may be.</p>	<p>suggested for sub-clause (1) of Clause 26.</p>
<p><b>26(4):</b>The Central Dam Safety Organisation and concerned State Dam Safety Organisation or State Dam Safety Cell, as the case may be, in cases of dams being found to be endangered</p>	<p><b>26(4):</b> This clause is to be modified commensurate to the modification suggested for sub-clause (1) of Clause 26.</p>

<p>on account of their age, degeneration, degradation, structural or other impediments, shall suggest such remedial measures on such operational parameters (including maximum reservoir level, maximum spillway discharge and maximum discharges through other outlets) as it may consider necessary.</p>	
<p><b>13(1):</b> The State Committee shall discharge such functions as may be necessary to ensure proper surveillance, inspection, operation and maintenance of all specified dams in that State and ensure their safe functioning.</p>	<p><b>13(1):</b> The Dams located in the territory of another State are owned by the dam owned State and operated and maintained by it. The territorial State shall not have any right to surveillance,</p>

	<p>inspection, operation and suggest remedial measure to be undertaken by the Dam owned State. The present provision will adversely affect the interest of the Dam owned State. Hence, this Provision should exclude the functions of the State Committee on Dam Safety and accordingly this provision has to be revised.</p>
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The Hon'ble Chief Minister on 17.03.2012 has again conveyed to the Hon'ble Prime Minister the genuine apprehensions of the Government on these Clauses in the Dam Safety Bill, 2010 as it would be tantamount to taking away control over maintenance of the Dam from the State which owns the

Dam, consequently affecting hundreds of farmers and agricultural production and requested that the Ministry of Water Resources to delete the objectionable Clauses pointed out by the Government of Tamil Nadu from the Bill.

These apart, the Government of Tamil Nadu has suggested that for the purpose of ensuring proper maintenance of Dams in forests and wild life areas, the following Clause may be included as Clause 26(6):

**“Notwithstanding anything contained in any other Law, the Dam Maintenance Officials / Personnel shall have right to enter into the Forests and Wild Life Sanctuary area to carry out dam safety maintenance and rehabilitation measures”.**

This suggestion of the Government of Tamil Nadu has been accepted.

The Government of Tamil Nadu fervently hopes that the Government of India will delete the objectionable Clauses from the Bill.

**6. DAM REHABILITATION AND IMPROVEMENT PROJECT (DRIP)**

In order to ensure the strength and improve the safety and operational performance of the existing Dams in a sustainable manner, the Dam Rehabilitation and Improvement Project with the World Bank assistance is proposed to be taken up over a period of 6 years from 2012-2013 in 4 Phases. The Project aims to restore the capacity of the Dams, achieve effective utilisation of stored water and manage the long-term performance of the Dams. 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 Organisations, viz., Water Resources Department, Tamil Nadu Generation and

Distribution Corporation Limited / Tamil Nadu Electricity Board and Agricultural Engineering Department are participating in this Project.

**Cost of the Project for Tamil Nadu**

**(Rs. in crore)**

a.	Water Resources Department	:	469.94
b.	Tamil Nadu Generation and Distribution Corporation Limited / Tamil Nadu Electricity Board	:	260.14
c.	Agricultural Engineering Department	:	15.41
	<b>Total</b>	<b>:</b>	<b>745.49</b>

The three main components of the Project are:

- i. Rehabilitation and Improvement of the Dams and associated appurtenances, such as treatment for leakage, reduction of seepage, structural strengthening of Dams, etc.

- ii. Dam safety institutional strengthening through Reservoir Sedimentation Studies, development of Management Information System.
- iii. Establishment of State Project Management Unit.

The Project covers 66 Water Resources Department Dams and 38 Tamil Nadu Generation and Distribution Corporation Limited Dams at a cost of Rs.745.49 crore as detailed below:

Phase	WRD Dams	TANGEDCO Dams	Total
I	20	6	26
II	18	16	34
III	16	12	28
IV	12	4	16
<b>Total</b>	<b>66</b>	<b>38</b>	<b>104</b>

During the First Phase, 20 Water Resources Department Dams at a cost of Rs.103.27 crore and 6 Tamil Nadu Generation and Distribution Corporation Limited Dams at a cost of Rs.19.354 crore are proposed to be rehabilitated. The details of the 20 Water Resources Department Dams and 6 Tamil Nadu Generation and Distribution Corporation Limited Dams are as follows:

Sl. No.	WRD Dams - Phase I	Amount (Rs. in crore)
1.	Vidur	3.18
2.	Rajathopekanar	1.01
3.	Mordhana	3.78
4.	Gomuki	2.80
5	Manimuthar	18.49
6	Adavinainarkoil	1.93
7	Vadakkupachaiyar	2.20
8	Kodumudiyar	1.72

9	Nambiyar	1.76
10	Poigaiyar	1.03
11	Siddhamalli	7.05
12	Kodaganar	4.94
13	Nagavathi	1.00
14	Thoppiar	1.62
15	Manimukthanadhi	13.82
16	Kullursandai	5.43
17	Vaigai	10.17
18	Bhavani Sagar	8.46
19	Amaravathy	8.50
20	Thirumurthy	4.38
	<b>Total</b>	<b>103.27</b>

<b>Sl. No.</b>	<b>TANGEDCO Dams - Phase I</b>	<b>Amount (Rs. in crore)</b>
1.	Avalanche	1.138
2.	Glenmorgan	0.874
3.	Kadamparai	3.468
4.	Mukurthy	2.220
5.	Porthymund	3.198
6.	Servalar	8.456
	<b>Total</b>	<b>19.354</b>

An Empowered Committee under the Chairmanship of the Chief Secretary to Government has been constituted for speedy implementation of the Project. The Project Agreement for implementation of the Dam Rehabilitation and Improvement Project has been signed with the World Bank and the Work would commence during 2012-2013. To look after this Project, a

State Project Management Unit will function from May 2012.

## **7. TAMIL NADU IRRIGATED AGRICULTURE MODERNISATION AND WATER-BODIES RESTORATION AND MANAGEMENT PROJECT (TN IAMWARM)**

The TN IAMWARM Project is being implemented with the assistance of the World Bank at an outlay of Rs.2,547 crore from 2007 to benefit 6.69 lakh hectare. The Project Period is for 6 years. The Water Resources Department and 7 other Line Departments of the Government are the implementing departments of the Project. 4922 Tanks, 669 Anicuts and 8071 Km length of Supply Channels are proposed for rehabilitation under the TN IAMWARM Project.

## **7.1. AIM of the Project / Key Components**

The TN IAMWARM Project aims to improve the service delivery of the irrigation systems and to increase the productivity of irrigated agriculture with effective integrated water resources management in a Sub-basin framework.

### **7.1.1.Irrigation Systems Modernisation in a Sub-basin Framework**

This component aims to improve bulk water delivery through modernisation of the irrigation systems in 61 selected Sub-basins with an ayacut of 6.69 lakh hectare. These activities involve Tank System Modernisation by restoring and repairing the water bodies and improving canal irrigation system through repair and rehabilitation.

### **7.1.2.Agricultural Intensification and Diversification**

This component aims to increase the productivity of agriculture-related activities

through Improved Agricultural Intensification and Diversification of Crops, Micro Irrigation, Animal Husbandry and Fisheries.

### **7.1.3. Institutional Modernisation for Irrigated Agriculture**

It is sought to improve the institutional capacity for irrigation service delivery through the Water Resources Department and the Water Users' Associations (WUAs) with technically better designs and in a socially sustainable manner. The Water Users' Associations would be utilised to implement the Participatory Irrigation Management (PIM) involving the farmers.

### **7.1.4. Water Resources Management**

Capacity building and sustainable water resources management is proposed to be improved by the Water Resources Department through the creation of a State Water Resources Management Agency (SWaRMA). Apart from this, Water

Research would be taken up on relevant topics through Irrigation Research Fund (IRF).

### **7.1.5. Project Implementation (2007-2013)**

Under Phase I, implementation was initiated during 2007-2008 in 9 Sub-basins covering an extent of 2.89 lakh hectare. In the first year itself, Works have been successfully commenced and completed. During the financial year 2008-2009, under Phase II, 16 more Sub-basins with an additional ayacut of about 0.672 lakh hectare were taken up and are nearing completion. During the financial year 2009-2010 and 2010-2011, under Phase-III, 30 Sub-basins covering an extent of 1.821 lakh hectare were taken up and the Works are in progress. During the financial year 2011-2012, under Phase - IV, 6 Sub basins covering an extent of 1.30 lakh hectare were taken up and the Works are in progress.

<b>Phase</b>	<b>Sub - basins</b>	<b>Year of Implementation</b>	<b>Irrigated Ayacut (in Hectare)</b>
I	9	2007-08	289498.50
II	16	2008-09	67206.21
III	30	2009-10 and 2010-11	182119.18
IV	6	2011-12	130330.56

#### **7.1.6. Water Resources Department**

##### **Phase - I (9 Sub-basins)**

The Works under 76 Packages covering the districts of Coimbatore, Perambalur, Pudukottai, Ramanathapuram, Salem, Sivagangai, Tiruppur, Tiruvannamalai, Villupuram and Virudhunagar were taken up and completed. Under Phase I, Rehabilitation Works in 1618 Tanks,

232 Anicuts and 3016 km length of Supply Channels / Canals have been completed.

<b>No. of Sub - basins</b>	<b>No. of Packages</b>	<b>Ayacut (in hectare)</b>	<b>Project Cost (Rs. in crore)</b>
9	76	289498.50	451.25

##### **Phase - II (16 Sub-basins)**

The Works under 43 Packages covering the districts of Ariyalur, Krishnagiri, Madurai, Namakkal, Perambalur, Pudukottai, Salem, Thanjavur, Theni, Thoothukudi, Tirunelveli, Vellore and Virudhunagar were taken up. Works in 40 Packages have been completed and the Works in the remaining 3 Packages are in progress. Of the Rehabilitation Works proposed in 757 Tanks, 165 Anicuts and 1092 km length of Supply Channels / Canals, rehabilitation of 732 Tanks & 155 Anicuts and 979 km

length of Supply Channels have been completed and the remaining works are in progress.

<b>No. of Sub - basins</b>	<b>No. of Packages</b>	<b>Ayacut (in hectare)</b>	<b>Project Cost (Rs. in crore)</b>
16	43	67206.21	187.95

### **Phase - III (30 Sub-basins)**

The Works under 136 Packages covering the districts of Cuddalore, Dharmapuri, Kancheepuram, Kanyakumari, Krishnagiri, Madurai, Ramanathapuram, Sivagangai, Theni, Thiruvallur, Thoothukudi, Tirunelveli, Tiruvannamalai, Vellore, Villupuram and Virudhunagar were taken up. Works in 13 Packages have been completed and the Works in the remaining Packages are in progress. Of the Rehabilitation Works proposed in 1678 Tanks, 256 Anicuts and 2587 km length of Supply Channels / Canals, rehabilitation of 143 Tanks, 34 Anicuts and 427 km length of Supply

Channels have been completed and the remaining Works are in progress.

<b>No. of Sub - basins</b>	<b>No. of Packages</b>	<b>Ayacut (in hectare)</b>	<b>Project Cost (Rs. in crore)</b>
30	136	182119.18	426.60

### **Phase - IV (5 Sub-basins)**

The Works under 47 Packages covering the districts of Kancheepuram, Ramanathapuram, Sivagangai, Thiruvallur, Tiruvannamalai and Virudhunagar were taken up. Works are in various stages of implementation. Rehabilitation of 761 Tanks, 5 Anicuts and 1056 km of length of Supply Channels are proposed.

<b>No. of Sub - basins</b>	<b>No. of Packages</b>	<b>Ayacut (in hectare)</b>	<b>Project Cost (Rs. in crore)</b>
5	47	76996.34	171.72

#### **Phase - IV [One Additional Sub-basin (Amaravathy Sub basin)]**

The World Bank Mission during their visit in September 2011 conveyed their No Objection for inclusion of the Amaravathy Sub-basin as an additional Sub-basin. The Amaravathy Sub-basin has an extent of 0.533 lakh hectare spread over in Dindigul, Karur and Tiruppur districts. Proposals for rehabilitation of 92 Tanks, 10 Anicuts and 257 km length of Supply Channels are evolved and administrative sanction has been accorded for Rs.128.31 crore.

<b>No. of Sub - basins</b>	<b>No. of Packages</b>	<b>Ayacut (in hectare)</b>	<b>Project Cost (Rs. in crore)</b>
1	22	53334.22	128.31

#### **Extension of Time**

Under Phase I and Phase II, out of the 119 Packages, 116 Packages have been completed and the balance 3 Packages are under progress.

Under Phase III, out of the 136 Packages, 13 Packages have been completed and the balance 123 Packages are under progress.

Under Phase IV, out of the 69 Packages, 37 Packages are under progress and the balance 32 Packages will be taken up shortly.

In order to complete all the IAMWARM Project activities, the request for extension of time from April 2013 to September 2014 is under process with the World Bank.

### **7.2.1.Information Technology and Information Management System**

Institutional Modernisation through Information Technology (IT) and Information Management System is proposed for the Water Resources Department 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, Rs.42.4371 crore has been sanctioned and the Work is being executed through M/s.ELCOT.

### **7.2.2.Procurement of Hardware:**

The Water Resources Department has been upgraded by Procurement and installation of

1565 Desktop Computers & 330 Laptops and with necessary Computer Peripherals. Local Area Network (LAN) has been established in 142 Offices.

### **7.2.3.Enterprise Information Management System (EIMS)**

It is a Web based Application to computerise all the Departmental activities to achieve enhanced productivity, communication transparency and reduced documentation including provision of Water Resources related information to the General Public. M/s.Tech Mahindra Limited has been engaged as the Consultant for Rs.8.33 crore through M/s.ELCOT and the Work is under progress. Parambikulam Aliyar Project and Varahanadhi will be taken up initially as Pilot Basins for implementation of the Project.

#### **7.2.4. Providing Wide Area Network (WAN)**

For effective electronic data information exchange, it is proposed to connect the Local Area Network Offices by Wide Area Network (WAN) under the Tamil Nadu State Wide Area Network (TNSWAN) for 55 selected Offices under Stage-I through M/s ELCOT at a cost of Rs.1.68 crore under State fund. The Work will be completed shortly. After completion, the remaining Offices will be taken up under Phase-II.

#### **7.3. Training:**

Under the IAMWARM Project, Rs.7.44 crore has been allotted towards Capacity Building of Officers of the Water Resources Department by conducting various Training Programmes. The Training is being imparted on the following:-

##### **i. Technical Trainings:**

In the field of Water Resources, Environmental, Participatory Irrigation Management through Institutions like

Irrigation Management Training Institute – Trichy, Anna University - Chennai, Anna Institute of Management - Chennai, etc.

##### **ii. I.T. Trainings:**

- ❖ Basic Training through Irrigation Management Training Institute, Trichy.
- ❖ Geographical Information System Training through Bharathidasan University, Trichy and Irrigation Management Training Institute, Trichy.

##### **iii. International Study Tours**

- ❖ World Water Week 2009 - Sweden
- ❖ World Water Week 2010 - Sweden
- ❖ World Water Week 2010 – Singapore

#### **iv. National Study Tours**

- ❖ Study Tour to Uttar Pradesh
- ❖ Study Tour to Gujarat
- ❖ Study Tour to Andhra Pradesh
- ❖ Study Tour to Madhya Pradesh, Rajasthan and Bihar

#### **v. Study Tours within the State**

- ❖ Parambikulam Aliyar Project Area
- ❖ Lower Bhavani Project Area
- ❖ Cauvery Basin Area
- ❖ Periyar Vaigai Area
- ❖ Tamiraparani and Kodaiyar System Area

So far, 198 Technical Training Programmes and I.T Training have been conducted and Trainings have been imparted to 3728 Officers of the Water Resources Department. The total expenditure incurred for all the Training Programmes is Rs.282.54 lakh.

#### **7.4. Construction Quality Management and Technical Supervision**

As per the Project Appraisal Document, Rs.15 crore 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.9.78 crore. An Agreement has been signed with M/s.WAPCOS Ltd, India and the Work has commenced on 14.03.2011. M/s.WAPCOS Ltd., India has established Ground and Mobile Laboratories at Irukkangudi and Villupuram. Collection of samples and conducting tests for assuring the quality of the Works are being carried out by the Firm.

#### **7.5. Environmental Activities**

Environmental activities such as Environmental Impact Assessment, Awareness Program, 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.7.73 crore. 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.

#### **7.6. External Environmental and Social Audit Consultancy**

This is an External Audit Consultancy for improving the environmental activities of the Project as per the Environmental and Social Monitoring Frame Work. Administrative sanction has been accorded for Rs.98.80 lakh. Selection of a Consultancy for Phase I and II Sub-basins is under process. For Phase III and IV Sub-basins, a proposal for Rs.1.50 crore is under process.

#### **7.7. Procurement of Software, Scientific Equipments and Instruments, etc.**

Under the TN IAMWARM Project, administrative sanction has been accorded for an amount of Rs.2.50 crore to procure Software required for preparation of Designs and Drawings such as AUTO CAD Civil 3D 2012, Arc GIS, FEM, GPS and scientific equipments and instruments for various Offices of the Water Resources Department. The procurement process is under various stages.

#### **7.8. 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 and the Rules 2002 and the Election Rules 2003 thereon were framed. The Act has been brought into force in the State, except in the Nilgiris and Chennai Districts where there are no ayacut. The Act envisages

constitution of Farmers' Organisations in the entire command area of all the irrigation systems under management of the Water Resources Department, as follows:

- i) "Water Users' Association" at the Primary level consisting of all the water users.
- ii) "Distributary Committee" at the secondary level.
- iii) "Project Committee" at the project level

In the Water Resources Consolidation Project, a command area covering about 6.00 lakh hectare in 20 Districts, 1566 Water Users' Associations, 161 Distributary Committees and 9 Project Committees have been constituted during 2004.

The five years and six months term of their office ended on June 2009. Therefore, Elections to reconstitute the above Managing Committees have been completed during 2009-2010 and are in position.

The Government have proposed to enforce the Tamil Nadu Farmers' Management of Irrigation Systems Act, 2000, in the Cauvery Basin in future.

2361 Water Users' Associations have been delineated in the IAMWARM Project command areas dividing the Water Users' Association areas into 10,810 Territorial Constituencies. 2344 Presidents and 10,448 Territorial Constituency Members have been elected in 2008, 2009, 2010 and 2011. Fresh Elections to the left out posts in the Managing Committees are to be conducted.

Two days Orientation Training Programme was organised by the Irrigation Management Training Institute. 2896 newly elected Presidents of the Water Users' Associations have benefited so far. To create required awareness among the farmers and to build capacity of the selected Water Users' Associations, 9 Support

Organisations have been formed and the remaining are under process.

The Participatory Irrigation Management Programme has developed improved participation of the farmers in irrigation management and positive changes are taking place.

### **7.8.1. Formation of Water Users' Association**

Under Participatory Irrigation Management in Phase - I, II and III, elections to 2344 Water Users' Associations were conducted. For Phase IV and the remaining left out Associations, elections will be conducted by the Water Resources Department shortly.

Water Walks, IAMWARM Days with all the Line Departments and Workshops are being conducted by the Water Resources Department to ensure convergence and participation of Officers and farmers to identify their problems and propose

solutions. Further, Change Management is being proposed amongst the Engineers of the Water Resources Department and Line Departments to ensure better service delivery and management of scarce water.

Other Line Departments like Agriculture, Horticulture, Agricultural Engineering, Tamil Nadu Agricultural University, Agricultural Marketing, Animal Husbandry and Fisheries are involved in convergence under the Project to increase the water potential and get more income per drop of water so as to uplift the economic status of the Stakeholders.

### **7.9. State Water Resources Management Agency (SWaRMA)**

The Component 'D' of the Project Appraisal Document on Water Resources Management brings out the objective to improve the institutional arrangements and capacity for sustainable Water Resources Management in the State, including creation of State

Water Resources Management Agency (SWaRMA).

The Government have accorded sanction on 13.04.2009 for establishment of State Water Resources Management Agency (SWaRMA) as a State wide Focal Agency for environmentally and socially sustainable inter sectoral water management. The Working Group of the SWaRMA, headed by the Chief Engineer and Director, Institute for Water Studies, Chennai has been established on June 2011. The Government have also accorded administrative sanction for Rs.271.00 lakh for establishment of SWaRMA and to provide amenities and incremental operating cost.

The Executive Wing of SWaRMA was sanctioned on 02.02.2011, with a Director (Water Resources Expert), 7 Consultants / Specialists, Working Group of 14 Members (Redeployed from various wings of the Water Resources Department), 4 Data Entry Operators and 1 Stenographer on contract basis. Accordingly, the office of SWaRMA

was established on June 2011 at the Campus of the Institute for Water Studies, Chennai.

### **7.9.1.Functions of SWaRMA**

1. Development of a common database for water quantity and quality, as well as existing bulk allocations in the State.
2. All Water related legislation including the State Water Policy will be reviewed and enhanced to improve regulation of Water Resources in Tamil Nadu.
3. Review and approval of Master Plans and River Basin Boards.

### **7.9.2.Activities of SWaRMA**

- Vaippar Basin has been taken as a Pilot Basin and data pertaining to the Vaippar Basin are being collected from the Line Departments for the SWaRMA

database and compilation of data is under progress.

- 19 Acts have been collected from various departments and comparison of the various water related laws and policies existing in other States and Departments are being compiled for framing an effective Legislative setup of SWaRMA.
- Reformulation of the Executive Wing of SWaRMA is under process.

#### **7.10. IAMWARM PROJECT II**

The State has 17 Major River Basins, which are sub divided into 127 Sub-basins and the total irrigated ayacut area under the management control of the Water Resources Department is about 21 lakh hectare. The Water Resources Consolidation Project implemented with the World Bank assistance has benefited an ayacut of 5.99 lakh hectare covering 9 Major irrigation systems, 24 Medium irrigation systems and about 620 Rainfed Tanks. The follow up TN IAMWARM Project is being implemented in the State with Multi

disciplinary approach covering an ayacut of 6.69 lakh hectare spread over 61 Sub-basins. The Project period ends during March 2013 and extension has been sought for another 18 months. The TN IAMWARM Project with a concept of improving the service delivery of the irrigation systems and productivity of irrigated agriculture with an effective integrated water resources management involving 8 Line Departments in a Sub-basin framework, is receiving overwhelming response among the Stakeholders. In order to extend these benefits to the farming community in the remaining 66 Sub-basins of the State, the Government have written to the Government of India and the World Bank to sanction funds for a New follow-up Project - IAMWARM II Project. The reply of the Government of India and the concurrence of the World Bank are awaited.

## **8. MAINTENANCE OF DAMS AND PARKS**

**8.1.** The Water Resources Department is maintaining 89 Dams in Tamil Nadu. These Dams are maintained to Standards by the Engineers of the Water Resources Department. As a token of recognition and appreciation of the efforts put in by the Engineers, it has been decided to select the best maintained Dam every year and award the Engineers who have maintained the Dam during that year. For this purpose, a Committee has been constituted on 25.01.2012 for selection of the best maintained Dam every year. For the year 2011-2012, the Vaigai Dam has been selected as the best maintained Dam and awards and prizes were distributed to the Engineers who have maintained the Vaigai dam.

The Hon'ble Chief Minister has announced in the Collectors' Conference to improve and maintain the Parks in the Dams. The Government have taken the initiative to

improve the Parks in all the Dam sites to make them attractive tourist spots and to maintain the dam environment green with flora and fauna. In this direction, it is proposed to improve the Parks using the funds available in the Dam Rehabilitation and Improvement Project as well as other routine Maintenance Grant given to various Dams.

### **8.2. Improvements to Mukkombu Park**

The Mukkombu Park is located at the Upper Anicut on the right bank of the Cauvery River in Srirangam Taluk of Trichy district. This Park, maintained by the Water Resources Department, is one of the important tourist spots in the State. Every day many people across the State and Foreigners visit this Park. During the festive seasons, especially on the 18<sup>th</sup> and 28<sup>th</sup> of the Tamil month 'Aadi' and Pongal, thousands of people spend their time cheerfully with family and friends. An average revenue of Rs.30 lakh is generated every year.

It has therefore become imperative to improve the Park to attract more people to this beautiful picnic spot. Artificial Falls arrangement at a cost of Rs.35 lakh and Dancing Fountains at a cost of Rs.30 lakh are proposed to be taken up at the first instance during 2012-2013.

## **9. 13<sup>th</sup> FINANCE COMMISSION GRANT-IN-AID PROGRAMME**

### **9.1. Coastal Protection**

In Tamil Nadu, the behaviour of the sea field varies throughout the year. During the Monsoon period, the problems get aggravated due to formation of Cyclones, Depression and Low Pressure Zones. This affects the roads, coastal habitations, fishing harbours and agricultural lands causing loss of lives and grave damage to infrastructure. It is of utmost importance that the coastline of the State should be sufficiently protected from sea erosion so as to prevent such loss.

The 13<sup>th</sup> Finance Commission constituted by the Government of India has recommended a Grant of Rs.200 crore for Coastal Protection Works over a period of 4 years from 2011- 2012 under the State Specific Needs Grant. On priority basis, vulnerable Reaches have been identified and Coastal Protection Works in 7 Districts have been recommended.

The Government have accorded administrative sanction for 50 Coastal Protection Works in 7 Coastal Districts, at an estimate of Rs.199.93 crore.

**Regionwise and Phasewise Abstract of Coastal Protection  
Works for the period from 2011-2012 to 2014-2015.**

(Rs. in crore)

NAME OF REGION	PHASE I		PHASE II		PHASE III		PHASE IV		GROSS TOTAL	
	2011-12		2012-13		2013-14		2014-15			
	No. of Works	Amount	No. of Works	Amount						
MADURAI	15	18.44	5	13.64	4	8.06	0	0	24	40.13
CHENNAI	7	16.58	6	28.55	1	21.90	1	18.05	15	85.08
TRICHY	4	15.21	2	8.96	2	19.98	3	30.57	11	74.72
<b>TOTAL</b>	<b>26</b>	<b>50.23</b>	<b>13</b>	<b>51.15</b>	<b>7</b>	<b>49.94</b>	<b>4</b>	<b>48.62</b>	<b>50</b>	<b>199.93</b>

**Phase I – 26 Works**

For the year 2011-2012, financial sanction was accorded for Rs.50.00 crore for 26 Works. Out of this, 3 Works have been completed and the balance 23 Works are under execution. The details of these Works are as follows:

Sl. No.	Name of the Work	Estimate Amount (Rs. in crore)
<b>Completed Works</b>		
1.	Urgent Protection and Replenishment to existing damaged RMS Wall along Ennore Expressway in North Chennai near Chinnakkuppam (LS 15/580 – LS 15/760 km).	0.62
2.	Urgent Protection and Replenishment to existing damaged RMS Wall along Ennore Expressway in North Chennai near Periyakkuppam (LS 16/110 – LS 16/290 km).	0.67

3.	Urgent Protection and Replenishment to existing damaged RMS Wall along Ennore Expressway in North Chennai near Thazhankuppam (LS 16/850 – LS 17/350 km).	2.00
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<b>Works under progress</b>		
4.	Construction of RMS Wall at Devanampattinam (LS 800m - LS 1220m) in Cuddalore Taluk of Cuddalore District.	1.80
5.	Construction of Sea Wall from LS 1850m to 2470m and LS 2710m to LS 3090m (1000m) at Chinna Mudaliyarchavadi in Vanur Taluk of Villupuram District.	2.80
6.	Construction of series of 2 Groynes (3 & 4) at Mudaliyarchavadi in Vanur Taluk of Villupuram District.	8.26

7.	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, Bommayarpalayam and Sodhanaikkuppam in Vanur Taluk of Villupuram District and Thazhanguda to Devanampattinam in Cuddalore Taluk of Cuddalore District.	0.42
8.	Construction of RMS Wall at Palayar village in Sirkali Taluk of Nagapattinam District to a length of 1000m up to +3.25m.	5.97
9.	Construction of RMS Wall at Akkaraipettai village in Sirkali Taluk of Nagapattinam District to a length of 1000m up to +3.66m.	5.18

10.	Construction of RMS Wall at Kallar village in Sirkali Taluk of Nagapattinam District to a length of 700m up to +3.66m.	3.65
11.	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 Seruthur, Samanthapettai, Vanagirikuppam and Thirumullaivasal in Sirkali Taluk of Nagapattinam District.	0.42
12.	Construction of RMS Wall for a length of 230m in Vivekanandar Colony at Saveriyarpuram Village in Thoothukudi Taluk of Thoothukudi District.	1.02

13.	Construction of RMS Wall for a length of 525m & Reformation for a length of 300m of existing RMS Wall at Leepuram in Agastheeswaram Taluk of Kanyakumari District.	2.61
14.	Construction of RMS Wall for a length of 205m & Reformation for a length of 245m of existing RMS Wall at Chinnamuttam in Agastheeswaram Taluk of Kanyakumari District.	1.34
15.	Reformation of existing RMS Wall for a length of 110m at Vavathurai in Agastheeswaram Taluk of Kanyakumari District.	0.23
16.	Reformation of RMS Wall for a length of 260m near west side of Church at Poothurai in Vilavancode Taluk of Kanyakumari District.	0.78

17.	Reformation of RMS Wall for a length of 270m at Erayumanthurai West in Vilavancode Taluk of Kanyakumari District.	0.73
18.	Construction of RMS Wall for a length of 450m at the Gap between Poothurai and Thoothur in Vilavancode Taluk of Kanyakumari District.	1.88
19.	Construction of RMS Wall for a length of 50m at Chinnathurai in Vilavancode Taluk of Kanyakumari District.	0.16
20.	Construction of RMS Wall for a length of 250m at Colachel in Kalkulam Taluk of Kanyakumari District.	1.06
21.	Construction of RMS Wall for a length of 250m at Kadiapattinam in Kalkulam Taluk of Kanyakumari District.	0.67

22.	Reformation of existing RMS Wall for a length of 180m at Melamanakudy in Agastheeswaram Taluk of Kanyakumari District.	0.41
23.	Construction of Groynes at Uvari in Radhapuram Taluk of Tirunelveli District.	4.89
24.	Reformation of existing RMS Wall for a length of 570m at Puthenthurai in Agastheeswaram Taluk of Kanyakumari District.	1.24
25.	Reformation of RMS Wall for a length of 420m at Kodimunai in Kalkulam Taluk of Kanyakumari District.	1.17
26.	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 Tiruchendur Taluk of	0.25

	Thoothukudi District and at Idinthakarai and Uvari villages in Radhapuram Taluk of Tirunelveli District.	
	<b>Total</b>	<b>50.23</b>

### Phase II - 13 Works

During the year 2012-2013, the following 13 Coastal Protection Works would be taken up at an estimated cost of Rs.51 crore.

Sl. No.	Name of the Work	Estimate Amount (Rs.in crore)
1	Construction of series of 2 Groynes (5 & 6) at Mudaliyarchavadi in Vanur Taluk of Villupuram District.	9.65
2	3 Groynes at Bommaiypalayam in Vanur Taluk of Villupuram District.	6.90

3	5 Groynes at Sodhanaikuppam in Vanur Taluk of Villupuram District.	4.72
4	Construction of RMS Wall for a length of 210m from Left bank of Pennaiyar mouth to Suba Uppalavadi Village in Cuddalore Taluk of Cuddalore District.	0.84
5	Construction of RMS Wall for a length of 650m from Right bank of Pennaiyar mouth to Thazhanguda Village in Cuddalore Taluk of Cuddalore District.	2.54
6	Construction of RMS Wall at Devanampattinam (LS 1220m - LS 2140m) in Cuddalore Taluk of Cuddalore District.	3.90
7	Construction of RMS Wall at Seruthur village of Nagapattinam District to a length of 250m on river side and 550m on seashore side up to +1.800m and +3.66m respectively.	3.50

8	Construction of Spurs at Thirumullaivasal village in Sirkali Taluk of Nagapattinam District to a length of 100m up to + 4.50m.	5.46
9	Construction of Training Wall at Punnakayal in Tiruchendur Taluk of Thoothukudi District.	8.47
10	Construction of Additional Groyne at Idinthakarai in Radhapuram Taluk of Tirunelveli District.	0.30
11	Construction of RMS Wall (north side - 1300m) at Perumanal in Radhapuram Taluk of Tirunelveli District.	2.07
12	Reformation of RMS Wall for a length of 350m near Collector's Bungalow and Beach Road in Thoothukudi District.	0.67

13	Reformation of existing RMS Wall for a length of 1200m at Keezhamanakudy in Agastheeswaram Taluk of Kanyakumari District.	2.13
	<b>Total</b>	<b>51.15</b>

## 9.2. Restoration of Traditional Water Bodies

The rainfall in Tamil Nadu is seasonal, temporal and varies over time and place. This results in frequent droughts and occasional floods. Hence, it is highly essential to store water for the drought periods, especially in rain fed tanks, as the water resources in Tamil Nadu are mostly stored in traditional water bodies. These include Tanks and their appurtenant structures and systems. Most of the traditional water bodies are in urgent need of restoration and rehabilitation.

The 13<sup>th</sup> Finance Commission constituted by the Government of India has recommended a Grant of Rs.200 crore for Restoration of the 674 Traditional Water Bodies over a period of 4 years from 2011-2012 under State Specific Needs Grant.

**Regionwise and Phasewise Abstract of Restoration of Traditional Water Bodies for the period from 2011-2012 to 2014-2015**  
(Rs. in crore)

NAME OF REGION	PHASE I		PHASE II		PHASE III		PHASE IV		GROSS TOTAL	
	2011-2012		2012-2013		2013-2014		2014-2015		No. of Work	Amount
	No. of Work	Amount								
CHENNAI	34	10.55	70	17.35	99	26.01	72	24.85	275	78.76
TRICHY	29	9.41	45	15.60	47	15.16	65	18.67	186	58.84
COIM-BATORE	9	1.89	0	0.00	0	0.00	0	0.00	9	1.89
MADURAI	91	28.18	60	16.64	30	8.91	23	6.78	204	60.51
<b>TOTAL</b>	<b>163</b>	<b>50.03</b>	<b>175</b>	<b>49.59</b>	<b>176</b>	<b>50.08</b>	<b>160</b>	<b>50.30</b>	<b>674</b>	<b>200.00</b>

Administrative sanction has been accorded for an amount of Rs.200 crore for restoration of 674 Traditional Water Bodies in 21 districts. For the year 2011-2012, financial sanction was accorded for Rs.50 crore for restoration of 163 Traditional Water Bodies and the Works are in progress. During the year 2012-2013, restoration of 175 Traditional Water Bodies at an estimate of Rs.50 crore will be taken up.

### **9.3. Water Sector Management**

The 13<sup>th</sup> Finance Commission has recommended a Grant of Rs.192 crore for Water Sector Management over a period of 4 years. Every year Rs.48 crore would be allotted for maintenance of major, medium & minor irrigation systems. Release of the Grant is incumbent upon setting up of a Water Regulatory Authority. The SWaRMA (State Water Resources Management Agency) formed under the IAMWARM Project would perform the functions of the Water Regulatory Authority.

### **10. REPAIR, RENOVATION AND RESTORATION (RRR) OF WATER BODIES IN 51 DROUGHT PRONE BLOCKS IN TAMIL NADU**

Water bodies traditionally play an important role in irrigation, drinking water supply, hydropower, ecology, etc. However, some of these water bodies have waned due to lack of maintenance. Hence, there is an urgent need for repair and renovation of such water bodies. The main objective of this Scheme is to restore and augment the storage capacity of the water bodies, to recover and extend their lost irrigation potential, thereby increasing the agricultural productivity by bridging the gap. Restoration of the rain fed tanks also assures drinking water supply through ground water recharge.

The Repair, Renovation and Restoration Project involves rehabilitation of the tank components such as:

- Standardisation of Tank Bund to standards
- Desilting the Tank Bed to restore the storage capacity
- Reconstruction / Improvement to Sluices and Surplus arrangements
- Desilting and Strengthening of Feeder Channel to ensure supply to Tanks

Accordingly, a Project Proposal has been prepared at a cost of Rs.220 crore for restoration of 338 rain-fed tanks in 51 Drought Prone Blocks. After obtaining clearance from the State Technical Advisory Committee, the proposal will be sent to the Government of India, Ministry of Water Resources, seeking funds under the Repair, Renovation and Restoration Project. The funding pattern between the Centre and State for this Project is in the ratio of 90:10.

## 11. ACCELERATED IRRIGATION BENEFITS PROGRAMME (AIBP)

The Accelerated Irrigation Benefits Programme (AIBP) was conceived in the year 1996-1997 in order to expedite completion of selected on-going Major and Medium Irrigation Projects. The revised Accelerated Irrigation Benefits Programme guidelines issued in the year 2006 include the Minor Irrigation Schemes (Benefited ayacut less than 2000 hectare) and Extension, Renovation and Modernisation (ERM) Schemes for funding under this Programme.

The funding pattern for the Centre State is as follows:-

Area	Central Assistance	State Share
Blocks approved under Drought Prone Area Programme (DPAP)	90%	10%

For other areas (Non- drought prone areas)	25%	75%
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### 11.1. New Schemes proposed under AIBP

A list of 105 Medium and Minor Irrigation and Extension, Renovation and Modernisation (ERM) Schemes at an estimate of Rs.1927.03 crore in Drought prone and other areas has been sent to the Government of India on 19.10.2011 seeking funds under the Accelerated Irrigation Benefits Programme.

Under this Scheme, it is proposed to take up extension, renovation and modernisation of River Systems, renovation and modernisation of Anicuts / Tanks, formation of Reservoirs, construction of Anicuts / Check Dams, excavation of new Supply Channels, etc., to assure benefits from the irrigation projects.

## 12. IRRIGATION SCHEMES

**12.1.** During 2011-2012, the following Irrigation Schemes under Major, Medium and Minor Irrigation Systems are under various stages of implementation with State Government Funds of Rs.414.19 crore benefiting 176899 hectare of ayacut.

Sl.No	Name of the Work	Project Cost (Rs. in crore)	Ayacut benefited (hectare)	Completed Works (in %)
1.	Rehabilitation of Contour Canal from LS 0.00 km to LS 49.30 km in Tiruppur and Coimbatore Districts.	184.50	171995	8
2.	Irrigation Facilities to 58 Villages in Usilampatti Taluk of Madurai District.	74.60	925	96

3.	Formation of Tank across Mathalapallam River in Pennagaram Taluk of Dharmapuri District.	14.15	446	93
4.	Formation of Earth Dam and construction of Spillway and River Sluices across Malattar River at Bathallapalli village in Gudiyatham Taluk of Vellore District.	29.55	1717	31
5.	Providing a new Trash Rack arrangement at about 130m Upstream of the Tunnel Entry at Thekkady Head Sluice in the	0.59	-	90

	Leading Channel of the Periyar Lake for maximum drawal of water from the Mullai Periyar Dam to Vaigai Dam.			
6.	Improvement to Veeranam Lake for water supply - New Veeranam Project at Veeranam village in Chidambaram Taluk of Cuddalore District.	106.35	1816	89
7.	Construction of Bridge, Retaining Wall and Road with B.T. surface from Kalimar Bridge to Simon Colony Bridge at Colachel in Kanyakumari District.	2.94	-	10

8.	Drilling 150mm dia vertical holes over top of Periyar Dam and Baby Dam and taking core samples.	0.88	-	90
9.	Pressure grouting of 150mm dia holes from top of the Main Dam and Baby Dam to foundation below 6m rock profile of Mullai Periyar Dam through Gallery and Ledges.	0.50	-	-
10.	Conducting Cylindrical Jack Test at Mullai Periyar Dam by the National Institute of Rock Mechanics, Bengaluru.	0.13	-	-
	<b>Total</b>	<b>414.19</b>	<b>176899</b>	

**12.2.**The following Irrigation Schemes under Medium and Minor Irrigation Systems with State Government Fund of Rs.500.55 crore benefiting 1772 hectare of ayacut will commence during 2012 – 2013.

<b>Sl. No</b>	<b>Name of the Work</b>	<b>Project Cost (Rs. in crore)</b>	<b>Ayacut benefited (in hectare)</b>
1.	Formation of a Flood Carrier Canal from Kanjampatti Odai in Vilathikulam Taluk of Thoothukudi District to feed Sayalkudi and other Tanks in Kamuthi and Kadaladi Taluks of Ramanathapuram District.	18.00	1731
2.	Augmenting Water Supply to Thiruthiyamalai Eri from Ayyar River at Thiruthiyamalai Village in Musiri Taluk of Trichy District.	0.83	41

3.	Protecting the vulnerable portions with Protection Wall and Concrete Slab in Left Bank of Cauvery River from mile 119/0 to 123/2 (Srirangam Nattu Vaikkal Head Sluice to Amma Mandapam) in Srirangam Taluk of Trichy District.	1.60	-
4.	Purchase of two new Boats to replace the two old boats for use of the Water Resources Department in Mullai Periyar Dam.	0.90	-
5.	Strengthening of Water Supply Reservoirs of Chennai Metropolitan City - Cholavaram, Redhills, Poondi and Chembarambakkam Tanks.	19.22	-

6.	Formation of a new Reservoir near Kannankottai and Thervaikandigai villages in Gummidipoondi Taluk of Tiruvallur District.	330.00	-
7.	Creation of additional water storage capacity in four Tanks viz, Cholavaram, Porur, Nemam and Ayanambakkam Tanks and restoration of additional storage space in Chembarampakam Tank.	130.00	-
	<b>Total</b>	<b>500.55</b>	<b>1772</b>

### 12.3. NABARD assisted Schemes

208 Schemes including Tanks at an estimate of Rs.845.25 crore were taken up

under NABARD RIDF XI, XIII, XV, XVI and XVII. Out of this, 169 Schemes have been completed and 29 Schemes are in progress. The remaining 10 Schemes will commence early.

- i. The following 29 Schemes at an estimate of Rs.320.63 crore are in progress, benefiting an ayacut of 161597.52 hectare.

S. No	Name of the Scheme	Cost (Rs. in crore)	Ayacut (in hectare)	Works Completed (in %)
	<b>RIDF - XIII</b>			
1	Flood Protection Works to Cauvery and Coleroon River Banks in Karur, Trichy and Perambalur Districts <b>(4 Works)</b> .	58.49	-	Out of 23 Works, 19 Works have been completed and 4 Works are in progress
	<b>RIDF - XV</b>			
2	Excavation of a Supply Channel from Jerthalav Channel at	6.29	330	69

	LS 5690m to feed Totlampatti Tank, Papparapatti Tank and 15 other Tanks in Palacode and Pennagaram Taluks of Dharmapuri District.			
3	Rehabilitation of Arakkankottai and Thadapalli Channels in Gobi Taluk of Erode District.	17.45	9917	72
4	Rehabilitation of Thovalai Channel and Radhapuram Channel including Tanks in Kanyakumari District.	22.50	12087	40
5	Increasing the carrying capacity of Palayamparavoo Channel and P.T. Rajan Channel in Cumbum valley of Theni District.	10.08	3070	64
6	Construction of a Bed Dam across Vaigai River near	14.20	4007	89

	Manthivalasai to feed Kalari Channel and RMC feeding Tanks in Ramanathapuram District.			
7	Modernisation of Ramanathapuram Big Tank in Ramanathapuram District.	9.73	1604	92
8	Flood Protection Works for Kudamurutty River in Trichy District.	40.62	-	55
9	Formation of BT Road on Left Bank of Uyyakondan Channel in Trichy District.	2.00	-	95
10	Formation of BT Road on Right Bank of Kudamurutty River from Puthur Weir in Trichy District.	1.60	-	40
	<b>RIDF - XVI</b>			
11	Rehabilitation of Nilayur Channel to increase the carrying	23.50	4023	34

	capacity to feed the Extension Channel in Madurai District.			
12	Construction of an Anicut across Vellar River in Thandalai village to feed Mumbalai and Vadakku Manamelkudi Tanks in Manamelkudi Taluk of Pudukottai District.	2.50	154	80
13	Improvements to Panangudi and Kuyavan Channels off taking from Malattar River in Lalgudi Taluk of Trichy District.	3.00	448	65
14	Reconstruction of Neenjalmadavu Anicut near Chengalpattu Taluk of Kancheepuram District.	9.00	2105	60
15	Formation of a Tank across the Nallathangal Odai near Kothayam village in Oddanchatram Taluk of Dindigul District.	6.97	327	80

16	Rehabilitation of South Main Channel and its System Tanks of Srivaikuntam Anicut in Thoothukudi District.	10.00	5164	60
<b>RIDF - XVII</b>				
17	Construction of a Check Dam across Cauvery River near Mutharasanallur, Kambarasampettai, in Srirangam Taluk of Trichy District.	32.00	-	Commenced in 03/12
18	Extension and Rehabilitation of Virudhachalam Anicut across Manimuktha River in Virudhachalam Taluk of Cuddalore District.	13.00	25300	Commenced in 03/12
19	Modernisation of 10th Branch Canal and Construction of a Bye - pass Channel to feed Chunnambur Distributary and Modernisation of connected 12 Tanks in Madurai District.	10.00	5013.51	Commenced in 03/12

20	Flood Protection Works to Kondamvari Odai and Rehabilitation of dilapidated Anicuts and damaged Tanks and Weirs in Madurai District.	10.00	1923.33	Commenced in 03/12
21	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.	3.00	-	Commenced in 03/12
22	Construction of a Bed Dam across Periya Odai in Cuddalore District.	5.50	1700	Commenced in 03/12
23	Permanent Restoration of breached Thali Big Tank in Krishnagiri District.	2.30	44.13	Commenced in 03/12

24	Providing Screw Gearing Shutters to all Sluices in the Lower Bhavani Project Main Canal from mile 0/0 to mile 124-2-560 including Branch Canal and Distributaries in Erode and Karur Districts.	3.00	83771.75	10
25	Rehabilitation and improvement to 16 Anicuts in Kallar River of Vaniar Minor Basin in Dharmapuri District.	2.15	525.00	Commenced in 03/12
26	Excavation of Supply Channel from Viruppampatti Tank to Balethottam Tank and four other Tanks and one Pond in Pochampalli Taluk of Krishnagiri District.	1.75	83.80	Commenced in 03/12
<b>Total</b>		<b>320.63</b>	<b>161597.52</b>	

ii. During 2012-2013, the following 10 Schemes at an estimate of Rs.62.41 crore benefiting an ayacut of 10412 hectare will commence.

Sl. No.	Name of the Scheme	Cost (Rs. in crore)	Ayacut (in hectare)
<b>RIDF - XV</b>			
1.	Construction of a High Level Bridge at Vayalur Road Crossing across Kudamurutty River in Trichy District.	2.80	-
<b>RIDF - XVI</b>			
2.	Formation of a new Tank across Kallar Odai near Viswakudi in Thondamanthurai village in Veppanthattai Taluk of Perambalur District.	19.00	348
3.	Construction of Anicut across Kamandalanaganathi River near Sevur village to feed Irumbedu and Paiyur Tanks in Arni Taluk of Thiruvannamalai District.	2.00	351

4.	Excavation of a new Supply Canal from Baleguli Tank to feed 28 Tanks in Pochampalli Taluk of Krishnagiri District.	6.50	346
<b>RIDF - XVII</b>			
5.	Modernisation of Melmangalam Supply Channel in Melmangalam village in Periyakulam Taluk of Theni District.	4.00	176.80
6.	Modernisation of Right Main Canal in Manjalar Dam in Devadanapatti village in Periyakulam Taluk of Theni District.	2.76	758.29
7.	Modernisation of Jeyamangalam Supply Channel at Jeyamangalam village in Periyakulam Taluk of Theni District.	3.75	375.91
8.	Rehabilitation of 16 Old Anicuts in Amaravathy River System in Karur and Tiruppur Districts.	18.00	6154.65

9.	Reconstruction of Syphon Aqueduct in Mordhana Right Main Canal across Palar near Chithatur village in Vellore District.	1.40	1378
10.	Rehabilitation of Sempoondi Anicut at Kiliyanagar village in Maduranthakam Taluk of Kancheepuram District.	2.20	523.36
<b>Total</b>		<b>62.41</b>	<b>10412</b>

### 13. NATIONAL AGRICULTURE DEVELOPMENT PROGRAMME (NADP)

The Government of India sponsored National Agriculture Development Programme (NADP) aims at achieving 4% annual growth in Agriculture Sector during the XI Five Year Plan by ensuring holistic development of Agriculture and allied sectors. Under this Scheme, rehabilitation and modernisation of the irrigation structures are being undertaken to improve irrigation infrastructure.

For the year 2011-2012, the Government have accorded sanction for 6 Works for Rs.3.45 crore. Out of this 3 Works have been completed and 2 Works are in progress. 1 Work will commence shortly.

### YEAR 2011-2012

Sl. No	Name of the Scheme	Estimate Amount (Rs. in crore)	Stage of the Work
1	Rehabilitation of Keelapudaiyan Eri of Sennampatti village in Thanjavur Taluk of Thanjavur District.	0.15	Work completed.
2	Rehabilitation of Palaya Eri in Palayapatti village in Thanjavur Taluk of Thanjavur District.	0.15	Work completed.

3	Construction of Grade Wall to maintain the theoretical bed level across Paminiyar River at mile 79/27 in Agraharam Kiluvathur village in Mannargudi Taluk of Thiruvarur District.	0.30	Work is in progress
4	Construction of Grade Wall to maintain the theoretical bed level across Paminiyar River at mile 78/06 in Orathur village in Mannargudi Taluk of Thiruvarur District.	0.45	Work is in progress
5	Rehabilitation of Nellithurai Anicut in Coonoor River System in Mettupalayam Taluk of Coimbatore District.	0.40	Work completed.

6	Rehabilitation of existing Bye-Pass Channels and Supply Channels taking off from 6 <sup>th</sup> Distributary of 12 <sup>th</sup> Branch Canal of Periyar Main Canal in Melur Taluk of Madurai District.	2.00	Work will commence shortly
	<b>TOTAL</b>	<b>3.45</b>	

#### 14. PART – II SCHEMES (2011-2012)

The Government have accorded sanction for Rs.684.32 lakh for the following 40 Works under the Part – II Schemes for the year 2011 – 2012:

- i. Construction of a Bridge across the Lower Bhavani Project Main Canal in Erode District at estimate of Rs.60 lakh.
- ii. Construction of 10 Numbers of Sub Division and Section Office Buildings at an estimate of Rs.110.07 lakh.

- iii. Improvement to 5 Numbers of Inspection Bungalows at an estimate of Rs.103 lakh.
- iv. Construction of 12 Numbers of Quarters for Superintending Engineers, Assistant Executive Engineers, Assistant Engineers / Junior Engineers and Irrigation Assistants at an estimate of Rs.175 lakh.
- v. Conversion of Roof into RCC for 11 Numbers of Assistant Engineer / Junior Engineer Quarters, Sub Division Office and Head Mazdoor Quarters at an estimate of Rs.160 lakh.
- vi. Purchase of 14 Numbers of Bolero Jeeps for Departmental use at an estimate of Rs.76.25 lakh.

27 Works have been completed and 13 Works are in progress.

## 15. FLOOD MITIGATION SCHEMES

Tamil Nadu generally receives copious rains during the North East monsoon. The heavy downpour in a short duration results in severe flood causing great risk of damage to life and property of the people and to the State's assets like irrigation infrastructure, roads, etc. Every year, certain areas, especially, the Coastal Districts are very vulnerable to floods. Flood Mitigation Schemes have been identified and are under implementation with the assistance of the Government of India, NABARD and JNNURM.

### 15.1. Flood Management Programme (FMP)

The Flood Management Programme under the National Perspective Plan, a Centre - State shared Scheme in the ratio of 75:25, is under implementation in Tamil Nadu.

Out of the 7 Schemes for a value of Rs.657.16 crore, the Government of India have cleared 5 Schemes at a cost of Rs.635.54 crore for which the Government have accorded administrative sanction. The Schemes involve Flood Protection Works to the Araniar, Kosasthalaiyar, Vellar, Pennaiyar, Gadilam, Malattar, Uppanar, Paravanar and Kollidam Rivers to safeguard Tiruvallur, Villupuram, Cuddalore, Thanjavur and Nagapattinam Districts. Out of the 5 Works, 4 Works have been completed and the remaining 1 Work is in progress.

#### Works Completed

Sl. No	Name of the Scheme	Estimate Amount (Rs. in crore)
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.	<b>12.41</b>

2.	Flood Protection Works to Vellar Basin in Cuddalore and Villupuram Districts.	<b>164.32</b>
3.	Flood Protection Works to Panruti and Cuddalore Towns from Pennaiyar, Gadilam, Uppanar, Paravanar and South Malattar Rivers in Cuddalore District.	<b>68.41</b>
4.	Flood Protection Works to Kosasthalaiyar River from Napalayam to sea mouth in Tiruvallur District.	<b>14.50</b>
		<b>259.64</b>

### Work in Progress

<b>Sl. No</b>	<b>Name of the Scheme</b>	<b>Estimate Amount (Rs. in crore)</b>	<b>Stage of the Work</b>
1.	Flood Protection Works in Kollidam River in Thanjavur, Nagapattinam and Cuddalore Districts.	375.90	Out of 21 Packages, Works in 19 Packages have been completed and Works in 2 Packages are in Progress
	<b>TOTAL</b>	<b>375.90</b>	

## 15.2.Jawaharlal Nehru National Urban Renewal Mission (JNNURM)

A Comprehensive Master Plan for improvement to micro drainages such as, Storm Water Drains and macro drainages like Buckingham Canal, Otteri Nullah, Virugambakkam - Arumbakkam Drain, Cooum and Adyar Rivers is under implementation. This is a Centre - State shared Scheme for a period of 3 years.

The total estimate of this Scheme is Rs.1447.91 crore. Out of this, the amount pertaining to the Water Resources Department for improvements to macro drainages is Rs.633.03 crore and the balance amount of Rs.814.88 crore rests with the Corporation of Chennai for improvements to micro drainages.

Out of Rs.633.03 crore, 35% of the amount will be in the form of Grant from the Central Government and 15% of the amount will be the State Government's share. The

remaining 50% share of the Urban Local Bodies will also be borne by the State Government. The stages of the Works are as follows:

### On Going Packages

Package	Name of the Work	No. of Works	Estimate Amount (Rs. in crore)	Present stage of the Works
I	Improvements to Kodungaiyur Drain, Otteri Nullah and Kolathur-Madhavaram Diversion Channel.	4	63.05	41% Work completed
II	Improvements to Arumbakkam-Virugambakkam Drain & Construction of a Diversion Channel from Maduravoyal to Cooum River.	3	83.89	10% Work completed

III	Improvements to the North Buckingham Canal.	1	110.05	72% Work completed
V	Improvements to the South Buckingham Canal from the Adayar South Lock to the Okkiyam Maduvu (from LS 0 m to LS 10500 m) - Reaches I & II.	2	46.86	44% Work completed
VI	Improvements to the South Buckingham Canal from Okkiyam Maduvu to the Muttukkadu backwater (from LS 10500 m to LS 23500m) - Reach III.	1	78.14	60% Work completed
VII	Improvements to the Veerangal Odai and Shortcut Diversion Drainage Channel for Velachery Tank.	2	82.05	52% Work completed

VIII	Improvements to the Ambattur Tank.	1	19.63	11% Work completed
	<b>Total</b>	<b>14</b>	<b>483.67</b>	

### Packages to be taken up

<b>Package</b>	<b>Name of the Work</b>	<b>Number of Works</b>	<b>Estimate Amount (Rs. in crore)</b>
IV	Improvements to the Central Buckingham Canal (from LS 10500m to LS 23500m) - Reach III.	1	68.62
IX	Improvements to Porur Tank Surplus Drainage.	1	26.96

X	Formation of a Shortcut Diversion Drainage Channel from the Buckingham Canal near the Okkiam Maduvu to the sea.	1	53.76
	<b>Total</b>	<b>3</b>	<b>149.34</b>

### 15.2.1. Jawaharlal Nehru National Urban Renewal Mission - II (JNNURM - II)

#### Rehabilitation of Redhills Tank Surplus Course

The Redhills Tank, one of the major water supply tanks to the Chennai City, is situated in the extended limit of the Chennai Corporation. This Tank receives Krishna Water from the Poondi Reservoir through a Feeder Canal and Cholavaram Tank through Lower Supply Channel and from its

catchment area. The Redhills Tank Surplus Course has a total length of 8.30 km a discharge capacity of 7500 cusecs from LS 0m to LS 4300m and 12500 cusecs from LS 4300m to LS 8300m. Beyond LS 8300m, the surplus course joins the Creek and confluences with the Bay of Bengal.

The Surplus Course is in urgent need of restoration works. During the flood season, the problems get aggravated causing inundation in the residential areas in the vicinity. To overcome this, the following Works are proposed to be taken up on priority basis, seeking funds under JNNURM - II.

Sl. No.	Name of the Work	Estimate Amount (Rs. in crore)
1	Rehabilitation of Redhills Tank Surplus Course including 4 Nos. of high level bridges.	60.00

2	Rehabilitation of Lower Supply Channel including 3 Nos. of high level bridges.	40.00
3	Rehabilitation of Korattur Tank Surplus Course including cut and cover for 1000m and 3 Nos. of high level bridges.	45.00
<b>TOTAL</b>		<b>145.00</b>

## 16. ARTIFICIAL RECHARGE SCHEME

This Scheme aims to replenish the ground water potential of the State by effectively utilising the surplus water from rivers, streams, ponds, etc., through construction of Artificial Recharge Structures. This will also prevent sea water intrusion and mitigate flooding at water logged areas.

A Master Plan for Artificial Recharge Scheme at an estimate of Rs.550 crore is being implemented by the Water Resources

Department, Tamil Nadu Water Supply and Drainage Board, Agricultural Engineering Department and Forest Department. Under this Scheme, Works such as construction of Check Dams, Percolation Ponds and Recharge Shafts are taken up. The Scheme is programmed to be completed by 2012-2013. So far, 523 Works have been sanctioned to the Water Resources Department at an estimate of Rs.265.11 crore. Out of this, 296 Works at a cost of Rs.109.75 crore have been completed and 8 Works have been dropped due to unfavourable site conditions. 72 Works at a cost of Rs.76.61 crore are in progress. Further, 147 Works at a cost of Rs.78.07 crore would be taken up early.

## 17. STRENGTHENING OF INSTITUTE OF HYDRAULICS AND HYDROLOGY (IHH), POONDI

The Institute of Hydraulics and Hydrology, Poondi, was established as an Irrigation Research Station in 1944 at Poondi, a small

village in Tiruvallur District, 60 km from Chennai, adjoining the Poondi Reservoir. During 1973, the name of the Institute was changed from Irrigation Research Station to Institute of Hydraulics and Hydrology.

This Institute, headed by a Director, is carrying out both applied and basic researches. There are two Divisions headed by Deputy Directors, namely, Hydraulics Division at Poondi and Water Shed Management Board Division at Pollachi. The Hydraulics Division conducts Model Studies. The Water Shed Management Board Division carries out Sedimentation Survey Works including Water Shed Management Studies in Reservoirs and major Tanks in Tamil Nadu.

### **Hydraulics Division, Poondi**

This Division is carrying out

- i. Research Studies
- ii. Model Studies

- iii. Coastal Protection Studies and
- iv. Study of Hydraulics and Hydrology problems

### **Water Shed Management Board Division, Pollachi**

The Water Shed Management Board Division, with its headquarters at Pollachi, is engaged in undertaking Sedimentation and Water Shed Management Studies in selected Reservoirs / Tanks in Tamil Nadu for arriving at up-to-date reduction in capacity, assess the useful life of Reservoirs and to suggest remedial Water Shed Management measures to be undertaken in order to arrest the sediment entry into the Reservoirs from the Water Shed.

### **Infrastructure Facilities**

- i. Right Flank Laboratory (area 4.2 hectare)
- ii. Left Flank Laboratory (area 9.8 hectare)
- iii. Research Library

- iv. Reprographic Section
- v. Full-fledged Workshops
- vi. Exhibit Section
- vii. Glass Flumes for Flow studies
- viii. Weather Station
- ix. Power Generators
- x. Collection Well
- xi. Conference Hall
- xii. Coastal Model Trays equipped with Wave Paddle Generators
- xiii. Three Hangars (50m X 20m size)
- xiv. Inspection Bungalow

The Institute of Hydraulics and Hydrology, Poondi, is carrying out Research Studies of Irrigation Projects in the State and Inter-State Projects. All the hydraulic functions of the Projects are finalised and the structures involved as per hydraulic details are recommended for implementation in the field by this Institute. Necessary infrastructure development works will be taken up to strengthen the Institute on a par with National Research Laboratory.

## **18. IRRIGATION MANAGEMENT TRAINING INSTITUTE (IMTI), TRICHY**

The Irrigation Management Training Institute functioning at Trichy was established in the year 1984 to strengthen institutional capabilities of Water Resources and other related Organisations by imparting training to all those involved in irrigated agriculture including farmers, exposing them to modern techniques in irrigation management and also to conduct Action Research on Irrigation Systems. Regular training programmes are conducted on various aspects of irrigation management including Participatory Irrigation Management (PIM), Application of Computer Software in Irrigation Management like Geographical Information System (GIS), Remote Sensing and Auto CAD and Human Resources Development in Participatory Irrigation Management.

Major subjects of training in irrigation management include modern irrigation

methods, irrigation scheduling and on-farm water budgeting, flow measurement, operation & maintenance of irrigation systems, flood and drought management, crop water requirement and operation plan, efficient agricultural practices like System of Rice Intensification (SRI), Precision Farming and Organic Farming and also Integrated Water Resources Planning and Management.

Officers and Farmers are also taken on short study tours to major States of India like Andhra Pradesh, Gujarat, Maharashtra, Rajasthan, Madhya Pradesh, Uttar Pradesh, West Bengal and Odisha to familiarise them with the Water Management Practices and Participatory Irrigation Management Systems followed in these States.

Training Programmes are undertaken on the specific request from Organisations like Water Resources, Agriculture, Agricultural Engineering and Horticulture Departments. Irrigation Management Training

Programmes are also undertaken to Organisations like District Rural Development Agency, District Watershed Development Agency and State Planning Commission on specialised topics. Induction training is also organised for the newly recruited Assistant Engineers of the Water Resources Department.

Special Training Programmes under the World Bank assisted Irrigated Agriculture Modernisation and Water Bodies Restoration and Management (IAMWARM) Project are also conducted by the Institute. Special training is given to the newly elected Presidents of the Water Users' Associations on the provisions of the Tamil Nadu Farmers' Management of Irrigation Systems Act.

With the Budget provision of Rs.4,99,45,000/-, 120 Training Programmes under 50 Course Titles have been conducted during the year 2011-2012 to Engineers, Officials, Field Staff and Farmers. For the

year 2012-2013, it is proposed to conduct 150 Training Programmes that would cover about 2400 Officials of various departments and 800 Farmers.

## **19. STATE GROUND & SURFACE WATER RESOURCES DATA CENTRE**

**19.1.** In the State of Tamil Nadu, about 73% of the area is covered by hard rocks and 27% by sedimentary rocks along the coast. Hence, the ground water potential is limited. Over extraction of groundwater leads to decline in ground water level and deterioration of ground water quality, resulting in reduction of yield in wells and also sea water intrusion in coastal areas.

In order to improve the ground water level and quality, the State Ground and Surface Water Resources Data Centre (SG&SWRDC) is assessing the ground water potential periodically based on the systematic and scientific investigation, adopting the Ground water Resources Estimation Committee

methodologies in co-ordination with the Central Ground Water Board, Ministry of Water Resources, Government of India.

## **19.2. Ground water Resources Assessment on Micro level basis by bifurcating the Blocks into smaller units on the basis of Revenue Firka villages of Tamil Nadu as on 31.03.2011**

The ground water resources of the State were estimated on Block-wise basis so far and based on that, all the Blocks were categorised as over exploited, critical, semi critical and safe Blocks with regard to ground water potential and extraction. In order to locate the potential pockets within the Block, it was decided to do an assessment on micro watershed basis. Since the ground water movement is not bound by watershed boundary on surface and also for effective implementation by the District administration, it has now been decided to take up the next assessment as on 31.03.2011 by bifurcating the Blocks into

smaller units, on the basis of Revenue Firka villages. The present 386 Blocks are segmented and have to be re-assessed as 1150 Assessment Units, instead of the existing 386 Assessment Units as Blocks, by incorporating 1552 micro water sheds data, hydrological data and by considering the Geology of the individual units. This will locate the exact place where ground water needs attention and the other areas will be allowed for ground water development on regulation.

## **20. INSTITUTE FOR WATER STUDIES (IWS)**

### **20.1. Micro Level Studies**

The Institute for Water Studies has grouped the 34 rivers in Tamil Nadu into 17 Major River Basins. So far, Micro Level Studies have been completed for 16 River Basins, except Cauvery River Basin. To update the above reports with present data,

Re-appraisal Studies have been initiated. The Re-appraisal Studies for Vaigai Basin (Micro level), Kodaiyar Basin and Vaippar Basin have been completed.

### **20.2. Tamil Nadu State Water Policy – 2012**

The Tamil Nadu State Water Policy was formulated in the year 1994 based on the National Water Policy 1987. The National Water Policy has been updated and adopted by the National Water Resources Council in April 2002. The Tamil Nadu State Water Policy - 2012 is being prepared.

### **20.3. Remote Sensing and Geo Information System Activities**

Remote Sensing Unit was established during Phase I of the United Nations Development Programme of Ground Water Project in 1968 under a Chief Engineer (Ground Water) of the Public Works Department and

the same was attached to the Institute for Water Studies on 27.02.1997.

The Government have declared the Tamil Nadu Remote Sensing Unit of the Institute for Water Studies as Tamil Nadu State Centre for Remote Sensing Application in the year 2002 – 2003. This Centre has voluminous Remote Sensing Data like aerial photographs on different scales (1:50000, 1:25000, 1:20000 & 1:10000), latest Indian Remote Sensing Satellite Data for different periods for entire Tamil Nadu in digital and hard copy and other thematic maps.

#### **20.4. Work in Progress**

- **Unique Codification of WRD Water Bodies:** For Unique Codification of the Water Bodies of the Water Resources Department in Tamil Nadu, the region-wise details of the water bodies have been collected and the Digitisation Works are in progress. The Digitisation and

Database Creation have been completed for Coimbatore Region which is under verification. Digitisation of Water Bodies in Madurai Region has also been completed and attribution of the database is in progress. For Trichy and Chennai Regions, digitisation Works are in progress.

- **Basin and Sub-basin Boundaries:** For sustainable water resources management in Block / Taluk level, analysis with large scale thematic maps is essential. Hence, the demarcation of Basin and Sub-basin boundaries on 1:50000 scale for the 17 River Basins and 127 Sub-basins of Tamil Nadu is in progress.
- A study on "Evaluation of ground water potential zones using high resolution Cartosat data in Nandhiyar Sub-basin of Chennai Basin" is in progress.
- For developing digital data base on Water Resources assets in Tamil Nadu,

database has been collected for the 86 Major and Medium Projects in Tamil Nadu and sent to the Central Water Commission, New Delhi, to update in the Water Resources Information System (WRIS).

- Fault / Lineament Zone have been demarcated in the Mullai Periyar Reservoir location and water spread area has been arrived for different periods using Remote Sensing and Geo Information System Technology.
- A proposal on "Detection of land use changes by comparing the ayacut area position in 2004 or latest with reference to 1980 aerial photographs and using satellite data" has been prepared.

#### **20.5. Water Resources Research Fund and Research Studies (WRRF)**

- Under Water Resources Consolidation Project, utilising Water Resources Research Fund, 38 Research Studies were done through various Institutions

and Universities in the field of Irrigation, Water Management, Environment, Pollution Control, Ground Water, etc. and the results of the Studies are utilised for preparing the irrigation schemes.

- At present, the following two Research Studies have been taken up under WRRF.
  - i. Estimation of transmission loss in Sathanur System (Estimate - Rs.6.70 lakh) through Anna University.
  - ii. Flood as hazard, disaster prone, vulnerability in North Chennai (Estimate - Rs.4.50 lakh) through University of Madras.

#### **21. DIRECTORATE OF BOILERS**

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 a pioneer in the field of Boiler Manufacturing, Foundries,

Forge Shops, Tubes and Pipes Manufacturing Units, etc. The Directorate of Boilers is the enforcing authority of the Boilers Act, 1923, a Central Act administered by the State for safe operation of the Boilers to ensure safety of public life and property.

The Directorate of Boilers is in charge of implementing the provisions of the Tamil Nadu Boiler Attendant's Rules, 1964 and the Tamil Nadu Boiler Operation Engineer's Rules, 1965 to ensure that the Boilers used in the User Industries are operated by Certified Boiler Attendants or Boiler Operation Engineers. The Directorate of Boilers conducts Tamil Nadu Boiler Attendants Examination for I-Class, II-Class and III-Class Certificate of Competency and the Tamil Nadu Boiler Operation Engineer's Examination Certificate of Proficiency.

The Directorate of Boilers conducts tests to high pressure welders employed in the Boiler Manufacturing Units and Boiler

Ancillary Units, Boiler Erectors and Repairing Organisations 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 ensures that the Boilers and Boiler Components, Piping and its Fittings, viz., Valves, Tees Reducers, Elbows, etc., are designed and manufactured as per the provisions of the Indian Boiler 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 testing and certifying the final product for quality.

In a nutshell, the Directorate of Boilers as a custodian of the Boilers Act 1923, a Central Act implemented by the State, is

responsible for the entire activity in Boilers and its connected pipeline and equipments, right from manufacturing to end use and to ensure safety of the public life and property. By its efficient functioning, the Directorate of Boilers plays a pivotal role in industrial growth in Boilers and Boiler related field of the State.

**K.V.RAMALINGAM**  
**MINISTER FOR PUBLIC WORKS**