



**PUBLIC WORKS DEPARTMENT
IRRIGATION**

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POLICY NOTE

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

©

Government of Tamil Nadu
2011

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PREFACE

Public Works Department is one of the oldest Service Departments of the Government, serving in the construction field and maintenance of Irrigation Structures for the past 153 years.

Many dams stand as a testimony to our engineering skill. The organization marches towards better service delivery to the people by adopting to the present day trend of *e-governance*. The concept of artificial recharge, better water management, restoration of water bodies, water users participation in the projects to derive maximum benefit is well understood. The department is working very hard to realise maximum irrigation efficiency.

The necessity for intra-linking of rivers for diversion of flood water and enhancing the storage capacity of water bodies to provide adequate water for irrigation, drinking and other purposes have been well taken. The Department is taking all efforts for better service delivery with this long term vision.

1. WATER RESOURCES DEPARTMENT

1.1. Introduction

Improving and sustaining the precious water resources is the main objective of the Water Resources Department. The Water Resources Department of Tamil Nadu is responsible for planning, developing and managing the State's water resources for irrigation, maintenance, impounding and regulation, flood control and diversion, drainage, coastal protection, regulation of ground and surface water and interlinking of rivers.

Tamil Nadu has a long history of creation and maintenance of irrigation structures dating back to first century A.D. The most famous irrigation structure 'Grand Anicut' built by Chola Rulers which is still functioning is an example. The vast network of irrigation systems created so far has made it possible for agricultural development of the nation.

1.2. The Public Works Department is divided into two wings viz., the Water Resources Department and the Buildings Organisation (Public Works Department). The Water

Resources Department functions on river basin framework. The State has been sub-divided into four Regions, each headed by a Chief Engineer, located in Chennai, Trichy, Madurai and Coimbatore. These Chief Engineers are the Basin Managers for the defined basin boundaries in their jurisdiction. Apart from this, three Chief Engineers stationed in Chennai are carrying out specialized functions and they are designated as Plan Formulation; Operation and Maintenance; Design, Research and Construction Support. Further the Institute for Water Studies and State Ground and Surface Water Resources Data Centre are headed by two Chief Engineers at Chennai. The Engineer-in-Chief, Water Resources Department, Public Works Department coordinates the functions of these nine Chief Engineers and acts as the Technical Head of this Department.

1.3. Irrigation Systems and Status

There are 34 river basins in the State which have been grouped into 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 estimated as 853 T.M.C.ft. which includes 261 T.M.C.ft. contributed by

the neighbouring States and this has been fully harnessed. There are 75 large and 7 small dams in the State with a combined storage capacity of 233.20 T.M.C.ft. Further, there are 39,202 tanks in the State, out of which 13,699 tanks are under the control of the Water Resources Department.

The Government have taken initiatives to improve the water use efficiency by means of modernisation of irrigation systems, improved service delivery, participation of farmers, canal automation, water use efficiency and performance evaluation studies, building the capacity of Water Resources Department officials and farmers.

1.4. Ground Water Resources

The ground water potential of the State has been assessed as 754 T.M.C.ft. It is estimated that out of this total available resources in the State, 85% has been developed for utilisation. Among the total 386 blocks in the State, 139 have been classified as over-exploited, 33 as critical, 67 as semi-critical and 11 as saline. The remaining 136 blocks are considered safe. Therefore, it is necessary to curtail over exploitation of ground water which can be

done only through continuous monitoring and effective intervention. In this direction, efforts are being taken to maintain the quality of ground water. Also by the constructions of Artificial Recharge Structures, effective ground water recharge is accomplished.

2. SPECIAL INITIATIVE SCHEMES OF THE HON'BLE CHIEF MINISTER

2.1. Intra Linking of Cauvery with Agniar, South Vellar, Pambar, Manimuthar, Kottakaraiyar, Vaigai and Gundar

- (i) Excavation of new link canal from Kattalai Barrage to Manimuthar river**

Estimate amount Rs.3787 crore

- (ii) Excavation of new link canal from Manimuthar river to Gundar**

Estimate amount Rs.1379 crore

The capacity of the proposed canals are 6300 cusecs. By implementing the scheme, the flood water will be diverted to the tanks in the Districts Pudukottai, Sivagangai, Ramanathapuram and Virudhunagar. This

will be benefitted during South West Monsoon period through the Anicuts already in existence. It is also proposed to divert the flood flows in the tributaries of Cauvery namely Ariyar and Koraiyar (through which the proposed canal passes) to avoid inundation due to flood in Trichy Town. Hence the proposal for "Connecting Koraiyar and Agniyar River to divert the flood surplus of Koraiyar river to prevent inundation of Trichy City" is proposed to be taken up. The Government of Tamil Nadu will take up detailed investigation and the scheme will be posed to Government of India for financial assistance under Flood Management Programme.

2.2. Inland Water Ways

Out of the five Inland Waterways notified by the Government of India, the stretch of 132 Kms between Pulicat lake to Puducherry falls in Tamil Nadu. The Government proposes to make it a navigable waterway with the help of Government of India.

The Scheme involves the following components.

1. The entire Buckingham Canal is to be desilted.
2. The Drainage culverts are to be modified.
3. The approach road and boat jetty are to be created.
4. Creek area to be desilted besides acquisition of patta land.

Once the project is completed, the waterway will become an economical and popular mode of transport for commercial goods, passenger movement and tourism development.

For this scheme, 90% Central assistance has been sought for. The estimate cost of the project is Rs.650 crore. The Government of Tamil Nadu would undertake detailed investigation and make all necessary efforts to carry out the scheme.

2.3. Construction of Check Dam Across River Cauvery near Kambarasampettai Village in Srirangam Taluk of Trichy District.

Construction of a check dam across river Cauvery at upstream of Kambarasampettai village in Srirangam Taluk of Trichy District to benefit Combined Water Supply Scheme for Ramanathapuram and Sivagangai Districts.

By implementing this scheme, ground water will be recharged in the Cauvery bed and the surrounding areas. It is proposed to give assured water supply for Combined Water Supply Scheme for Ramanathapuram and Sivagangai Districts. Administrative Sanction has been accorded for an amount of Rs.32 crore for implementation under NABARD assistance.

2.4. Athikadavu-Avinashi Canal Scheme

This scheme envisages for diversion of flood surplus of Bhavani River to feed 71 tanks and 538 ponds. A Technical Expert Committee was constituted under the Chairmanship of Prof. Dr.A.Mohanakrishnan, Advisor to Government (WR) to investigate viability of the scheme and based on his

recommendation, detailed investigation is in progress.

The carrying capacity of the canal is 2000 cusecs. The total quantity of water to be diverted during 20 days surplus is 2 T.M.C.ft. and the water will be diverted only when the Bhavanisagar dam surpluses.

The total length of the canal is 129.765 km. The salient engineering features in the proposal include 10 nos. of siphon aqueducts, 2 nos. of super passages and 6 nos. of under tunnels for a length of 3700 m.

The details of canals are:

Main canal

Length of canal	35.20 Km
Number of tanks benefitted	6
Number of ponds benefitted	20

Avinashi Branch Canal

Length of canal	21.65 Km
Number of tanks benefitted	3
Number of ponds benefitted	94

Perundurair Branch Canal

Length of canal	72.915 Km
Number of tanks benefitted	62(25 PWD tanks, 37 Union tanks)
Number of ponds benefitted	424

The proposed Athikadavu-Avinashi flood flow canal will benefit the Unions of Karamadai, Annur, Avinashi, Bhavanisagar, Nambiyur, Uthukkulli, Chennimalai and Thiruppur. By implementing this scheme, nearly 25,000 acres of irrigation land will be benefitted. Tentative cost of the project is Rs.1488 crore.

2.5. Krishna Water Supply Project

As per the Inter State Agreement with the Government of Andhra Pradesh, a total quantity of 12 T.M.C.ft. of Water per year is to be realized at the Tamil Nadu border.

Accordingly, water is to be released from Kandaleru Reservoir to Poondi Reservoir every year for Chennai City Water Supply.

A total quantity of 53.735 T.M.C.ft. of water has been received since its inception in 1996. During last year, a quantity of 4.661 T.M.C.ft. of water has been received from 07.10.2010 to 27.01.2011. During this year a quantity of 3.375 T.M.C.ft. of water has been received from 24.06.2011 to 22.08.2011.

2.6. Proposal for additional storages for Chennai City Water Supply

The Hon'ble Chief Minister instructed to look for additional storage facility to store more water, as water is not being fully harnessed by Tamil Nadu. As per the instruction of the Hon'ble Chief Minister, the existing reservoir capacity of Chennai City will be augmented by 4.2 T.M.C.ft. at a total cost of Rs.1851 crore. The new storage capacity will be created at Thervaikandigai, Thirukandalam and Ramanjeri by 1 T.M.C.ft. each. 0.9 T.M.C.ft. will be added by restoring 6 tanks namely Nemam, Porur, Iyanambakkam, Ambattur, Korattur and Madavaram and a further 0.3 T.M.C.ft by deepening the Cholavaram tank.

Existing Chennai City Water Supply Reservoirs

Sl. No.	Name of the Reservoir	Water Spread Area (Acres)	Capacity in T.M.C.ft.
1	Poondi	8,540	3.231
2	Redhills	13,345	3.300
3	Chembarambakkam	6,300	3.645
4	Cholavaram	1,340	0.881
	TOTAL	29,525	11.057

In the First Phase, Restoration of 5 Tanks (Nemam, Porur, Iyanambakkam, Chembarambakkam and Cholavaram) would be taken up during 2011-2012 to create additional storage of 1.12 T.M.C.ft. of water.

3. INTER STATE RIVER WATER ISSUES

3.1. Cauvery Waters Issue

The Supreme Court in their order dated 04.05.1990 directed the Government of India to constitute a Tribunal for

adjudication of the Cauvery Water Dispute. The Government of India constituted the Cauvery Water Disputes Tribunal in their notification dated 02.06.1990. The Interim Order on the first petition filed by Tamil Nadu was pronounced by the Cauvery Water Disputes Tribunal (CWDT) on 25.06.1991. This was published in the Gazette of the Government of India after the Supreme Court's opinion on the Presidential Reference No. 1 of 1991.

A "Scheme" for implementing the Interim Order 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 (CRA) headed by the Prime Minister of India has been constituted with the 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, with the Chief Secretaries and Chief Engineers of the basin States as Members, has also been constituted.

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, 1956.

The salient features of the Award are:

- The yield of the Cauvery at the Lower Coleroon Anicut site on the basis of 50% dependability is 740 T.M.C.ft. as per the report of the Cauvery Fact Finding Committee.
- Allocation made at 50% dependability is as below:

	in T.M.Cft	
Tamil Nadu		
At Billigundulu or any other agreed point at the common border between Karnataka and Tamil Nadu	182	419
Flow available in Tamil Nadu between Billigundulu and Mettur Dam	25	
Total flow at Mettur Dam	207	
Flow available in Tamil Nadu below Mettur Dam	212	
Total for Tamil Nadu	419	

Karnataka		270
Kerala		
Kabini sub-basin	21	30
Bhavani sub-basin	6	
Amaravathi sub-basin	3	
Total for Kerala	30	
Puducherry		7
Inevitable surplus		4
Environment Protection (At Billigundulu or any other agreed point at the common border between Karnataka and Tamil Nadu)		10
Grand Total		74

- As per the final order, the flow that will be made available at 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 recommended for constitution of a Cauvery Management Board and Cauvery Water Regulation

Committee to effectively implement the order.

The Government of Tamil Nadu filed a petition in the Tribunal under section 5(3) of the ISRWD Act seeking clarification and explanation to the Tribunal's final orders in respect of certain clauses. 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, 1956 seeking clarification and explanation to the Tribunal's final order in respect of certain clauses. The other Party States and the Government of India have also filed petitions in the Tribunal under section 5(3) of the said Act seeking clarification.

The Government of Karnataka and Kerala have filed Special Leave Petitions in the Supreme Court in April, 2007, against the final order of the Tribunal. A Special Leave Petition was also filed by Tamil Nadu in the Supreme Court in May, 2007, against certain aspects of the order of the Tribunal.

Only after the Special Leave Petitions are heard and disposed of, by the Hon'ble Supreme Court, the petitions filed under

section 5(3) of the Act will be heard by the Tribunal and a further report sent to the Government of India. Thereafter, the final order will be published in the Gazette of the Government of India and it will be binding all the Party States. Till then, the interim order already passed by the Tribunal will be in force.

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 the 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 KRS and Mettur 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 still pending in the Supreme Court of India.

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. The Supreme Court has ordered that these Suits will be taken up after the SLPs are heard and disposed of.

During the current year 2011-2012, the Mettur Dam was opened for irrigation on the 6th June, for the first time after independence before the normal date of 12th June when the storage in the reservoir was 87.2 T.M.C.ft. With the available storage in the Mettur Dam and anticipated inflows, it is hoped that the irrigation can be carried on without much difficulty.

The Government on 25.7.2011 have filed an I.A. in the Supreme Court for early hearing of the Civil Appeals or alternatively issue directions to the Cauvery Water Disputes Tribunal for the quick disposal of the clarification petition pending before them. It is hoped that the Supreme Court of India will take up this I.A. for hearing early.

3.2. Mullai Periyar Dam

After completion of the emergency and medium term strengthening measures for the Main 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 main dam has been fully strengthened, they 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 judgement on 27.2.2006 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 judgement, the Kerala Government passed amendment to The Kerala Irrigation and Water Conservation Act, 2003 known as "Kerala Irrigation and Conservation (Amendment) Act, 2006" on 18.03.2006 patently to thwart the Supreme Court's Order and fixed the FRL of 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 Mullai Periyar Dam.

As per the directions of the Supreme Court on 25.9.2006 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 Hon'ble 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 before the Hon'ble Minister for Water Resources in New Delhi. No consensus was reached in these meetings.

Later, as suggested by the Hon'ble Prime Minister, 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 Hon'ble Union Minister for Water Resources. No consensus was reached at this meeting also.

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 the interpretation of the Constitution to decide the Suit on the issues framed, it would be necessary to place the matter before the Chief Justice for directions for placing before a Constitution Bench.

The Constitution Bench which was later formed, heard the Suit from 20.01.2010 onwards and on 18.02.2010 ordered the formation of an Empowered Committee consisting of 5 Members, including the Chairman, Dr.A.S.Anand, Former Chief Justice of India. The Committee has been requested to analyse all the issues except legal and submit a report as far as possible within six months. The Hon'ble Supreme Court in its order dated 06.04.2011 has

granted further six months time for the Committee.

The Empowered Committee has so far met 9 times. The Governments of Tamil Nadu and Kerala have submitted their respective Memorandum before the 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 have 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 the concurrence of Government of Kerala, 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 carryout the investigations, testing and studies (ITS) on Mulla 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 proposed to conduct several tests and technical studies, a few of

which have been completed and others at various stages.

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 the 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. Kerala filed its counter in May 2011. Rejoinder Affidavits to the Counter Affidavit of Kerala have been filed on 02.08.2011 before the Hon'ble Supreme Court of India.

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. Counter for this application on behalf of Tamil Nadu, reiterating that there is no need for a new dam, will be filed before the Empowered Committee shortly.

The Government of Tamil Nadu will effectively pursue the arguments before the Constitution Bench of the Supreme Court of the Empowered Committee to safeguard their interests.

3.3. Palar

The Government of Tamil Nadu filed a Original Suit on 10.02.2006 in the Supreme Court to restrain the Government of Andhra Pradesh from constructing a reservoir across Palar at Ganeshapuram, Kuppam Taluk, Chittoor district, Andhra Pradesh as it would primarily affect number of drinking water schemes along the river in Tamil Nadu.

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 deliberations it was decided that the Government of Andhra Pradesh will not go ahead with the project before the issue is settled and both the States have been

asked to provide technical information. Thereafter, a Study Group which was constituted to go into the availability of water in the Palar Basin has again established that the Palar Basin is a deficit basin. In the meantime the Supreme Court framed issues (7 issues) to decide the Suit.

In its hearing on 28.3.2011, the Supreme Court requested the Secretary, Ministry of Water Resources to assist and help the parties to arrive at an negotiated settlement and submit a report.

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. During that meeting it was insisted that construction of reservoir across Palar by the Government of Andhra Pradesh neither big nor small is not acceptable to Government of Tamil Nadu, as it will affect even the age old usage for drinking water and irrigation.

This Government are taking all sincere efforts to safeguard the interest of Tamil Nadu.

3.4. Parambikulam Aliyar Project - Review of Agreement

The Parambikulam Aliyar Project, a multi-valley, multi-purpose, mammoth project, was planned, designed and executed by the Government of Tamil Nadu as one of the Second Five Year Plan Projects, with the consent and co-operation of the Government of Kerala for sharing mutual benefits through the utilization of flows in the rivers of Anamalayar, Nirar, Sholayar, Parambikulam, Palar and Aliyar and the streams flowing into them, for generation of Hydro Electric Power, irrigation, drinking water supply and industrial use in both the States. An agreement therefore between the Government of Tamil Nadu and Kerala was entered into on 29.05.1970 with retrospective effect from 09.11.1958. The taluks of Pollachi, Palladam, Udumalapettai and Dharapuram in the districts of Coimbatore, Tiruppur and Erode are benefitted. The Palakad District of Kerala State is also benefitted. 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 held several Inter- State discussions for continuation after review for another 30 years.

In the Minister level meeting held between Governments of Kerala and Tamil Nadu on 10.06.2002 at Chennai, a decision was taken to constitute a Technical Committee comprising of Engineers from both the States to first identify the areas where amendments may be required in the Agreement and to facilitate the review at the Government level. The Technical Committee submitted its Report in May 2003. The Report was discussed in the Minister level meeting held on 10.11.2003 at Chennai and on 4th January 2004 at Thiruvananthapuram.

After prolonged correspondence, a meeting at the Chief Secretary level was held on 30.05.2008 at Thiruvananthapuram. In that 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 level to examine all the issues in their entirety and work out a single package that can be placed before the Hon'ble Minister of the concerned States. As per this decision, meetings at Secretary level were held in Thiruvananthapuram on 08.04.2009 and on

24.04.2009 and 25.04.2009 at Chennai. The Chief Secretary 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.C.ft. of water from Anamalayar to Tamil Nadu.

Kerala informed that the site proposed by it for the construction of Reservoir is technically feasible for the diversion of 2.5 T.M.C.ft. of water to Tamil Nadu. But, so far, no Project Report has been sent to Tamil Nadu. It has 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 Project Report.

B) Manacadavu

Kerala requested increase of their share of water at Manacadavu weir from 7.25 T.M.C.ft. to 12.00 T.M.C.ft.

C) Balancing reservoir above Manacadavu Weir

Kerala are not agreeable to the proposal of Tamil Nadu for constructing a reservoir capacity of about 0.5 T.M.C.ft 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.C.ft. if only Kerala give concurrence for the balancing reservoir.

D) Nirar - Nallar Straight Cut

Tamil Nadu reiterated that the scheme has to be implemented. But Kerala informed that this issue is outside the scope of Agreement review. However Kerala requested Tamil Nadu to send the benefits that Kerala could get out of this scheme for their consideration.

It was considered that further discussions may be held at Ministers level of both States.

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

3.5. Neyyar Left Bank Canal Irrigation Project

The Neyyar Irrigation Project both first and second stages were planned and executed by the Government of Kerala. Due to the States' Reorganisation in 1956, a portion of the ayacut localized to be served by this project to an extent of 9200 acres lying in the Vilavancode Taluk got transferred to Madras State (Tamil Nadu) and forms part of Kanyakumari District. The canal works required to feed this ayacut were executed by the State of Tamil Nadu at their cost with the approval of the Central Government and the Government of Kerala. The project is in operation from the year 1965.

Eventhough the Government of Kerala agreed on the sharing of cost etc., they did not concede to the request of Tamil Nadu for entering into an agreement on the lines suggested by Tamil Nadu but kept pending for long. In 1999, Kerala took the stand for the first time that since Neyyar is not an inter-state river, it would not be necessary to conclude an inter State agreement

regarding the sharing of waters of this river. The Government of India informed this Government that due to the non-cooperation from the Government of Kerala, it could not convene the meeting for resolving the issue, but suggested to continue the bilateral talks between the two Governments and Central Water Commission will extend its help whenever required.

Initially the State 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 adhoc supply was made upto February, 2004 and after that the Government of Kerala unilaterally stopped the supply of water.

In 2007, Kerala stated that as per the Resolution passed in the Kerala Legislative Assembly on 18.10.2006, water will be supplied to Tamil Nadu from the Neyyar dam after realizing the value of the water so given. Tamil Nadu are of the firm view that since Neyyar is an inter State river, as per Section 7 of the Inter State River Water Disputes Act, 1956, the question of paying any seigniorage or additional rate or fee (by whatever name called) in respect of the use

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

The Government of Kerala reiterated that Neyyar is not an inter State river, even though Tamil Nadu has established from the topo sheets of the Government of India that the river Neyyar is an Inter State river.

On 26th June 2008, the Government of Kerala sent a draft agreement prepared by them. As some clauses had to be changed or added, a recasted draft was sent by the Government of Tamil Nadu to the Government of Kerala on 31st October 2008, which was also not accepted by that Government.

Again a fresh draft Agreement was sent by the Government of Tamil Nadu to the Government of Kerala on 19.05.2009 for their concurrence. But, the Government of Kerala, without considering it, sent their draft Agreement on 11.01.2010. This was found to be not acceptable to Tamil Nadu. Subsequently, a team of technical officers of both the Governments held discussion on 6.5.2011 at Thiruvananthapuram to find a mutually acceptable agreement. But no consensus was reached. The Government of Tamil Nadu have also approached the

Government of India to advise the Government of Kerala to conclude an agreement.

Notwithstanding the arguments and counter-arguments in this issue, the Government of Tamil Nadu are genuinely interested to have the Neyyar river issue settled amicably and an agreement acceptable to both the States execute at the earliest. This Government is taking all efforts in this regard.

3.6. 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 Kerala State limits just to the west of Tamil Nadu border. This anicut is reported to be in existence since 1773 AD and it diverts flows to mainly two tanks namely Kulasekaraperi and Raisingperi in Sivagiri Taluk, through which 10,924 acres are irrigated.

The Anicut needed repairs. Hence, with reference to the estimates furnished by the Government of Kerala a part of amount Rs.5.15 lakhs (50% of estimated cost) for repair work was deposited, to the Government of Kerala in March 1986 but

was returned by them in December 2005 on the pretext that Kerala could not undertake the repair works of the Shenbagavalli Anicut as it is situated in the core zone of the Periyar Tiger Reserve.

The Government thereafter took up the issue with the Government of Kerala for carrying out the repair works on their own to which the cost would be reimbursed by the Government of Tamil Nadu or in the alternative allow Tamil Nadu to carryout the same. There had not been positive response from the Government of Kerala. Hence, the Government of Tamil Nadu has once again taken up the issue with the Government of India to advise the Government of Kerala on 1.8.2011 to co-operate for carrying out the repair works to the Shenbagavalli Anicut either by the Government of Kerala or by Government of Tamil Nadu.

The Government are taking earnest efforts to carry out the repair works and protect the interests of the Agriculturists of that area.

3.7. Inter Linking of Rivers

Mahanadhi – Godavari – Krishna – Pennar – Palar – Cauvery – Vaigai – Gundar link

The National Water Development Agency (NWDA) has prepared the feasibility report for interlinking of Mahanadhi – Godavari – Krishna – Pennar – Palar – Cauvery – Vaigai – Gundar link. It has assessed the overall surplus from Mahanadhi and Godavari as 925 TMC after allowing for all future in-basin requirements. It has proposed to utilize this surplus for various purposes like irrigation, drinking water, industrial use etc. under the Peninsular Component. They have assessed the benefits that would accrue as about 3 Million hectares of 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.C. at the border and the additional area that could benefit by irrigation is estimated as 7.90 lakh hectares (19.51 lakh acres)

Tamil Nadu have requested for enhancing the quantum of water proposed to be transferred to Tamil Nadu by atleast another 100 TMC. 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 52nd Meeting of the National Development Council held at New Delhi on 09.12.2006, and in the discussion with the Vice-Chairman, Planning Commission, has emphasized the urgency to start the linking of the Peninsular Rivers in order to augment the water resources, so as to re-vitalize the agricultural sector.

Tamil Nadu have 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 Interlinking Rivers Project (ILR).

For this Peninsular link, the National Water Development Agency conducted a consensus meeting of the concerned States on 23.07.2010, wherein divergent views were expressed by the States. The

Government are taking efforts to implement the scheme.

3.8. Pamba - Achankoil - Vaippar Link

The National Water Development Agency (NWDA) has formulated the Pamba - Achankoil - Vaippar Link Project, which envisages diversion of 22 T.M.C.ft. which is only 20% of the surplus waters of Pamba and Achankoil rivers of Kerala to Tamil Nadu to irrigate an ayacut of 91,400 hectares in the dry taluks of Sankarankoil, Kovilpatti, Sivagiri, Srivilliputhur, Rajapalayam, Sathur and Tenkasi Tamil Nadu and will also help to generate peak power of 500 MW for Kerala.

The Government of Tamil Nadu have given their acceptance to the proposal, where as the Government of Kerala are not in favour and keeps saying that they do not have surplus to spare.

The Government of Tamil Nadu on 05.09.2006 requested the Hon'ble Prime Minister to prevail upon the Government of Kerala for giving its concurrence, so that the Pamba - Achankoil - Vaippar Link project, which is beneficial to both the States, could be taken up for implementation.

The Government of Tamil Nadu had again addressed the Government of India, Ministry of Water Resources, on 25.09.2007, requesting them to treat Pamba - Achankoil - Vaippar link as a priority link under the Peninsular River linkage and also direct the NWDA to conduct a joint study with the Government of Kerala as proposed earlier, if necessary, to convince the Government of Kerala to see that there is heavy surplus. However, the Government of India are of the view that implementation of interlinking of rivers shall be by consensus amongst the State Governments.

In the 24th Annual General Body meeting of National Water Development Agency held at New Delhi on 9th July 2008 requested the Government of India to prevail upon the Government of Kerala to get their concurrence.

The same point has been reiterated in all the subsequent Annual General Meetings held during December, 2009 and Governing Body meetings of the National Water Development Agency held during December, 2008, July and November, 2009. The Government of Tamil Nadu have requested the Government of India to take

necessary persuasive measures by formation of a High Level Task Force to come out these problems for speedy implementation of the Peninsular River Development proposals which include the Pamba - Achankoil - Vaippar Link.

The Government of Tamil Nadu are actively pursuing the matter with the Government of India for implementation of this project.

3.9. Pandiyar - Punnampuzha Project

The West flowing Pandiyar - Punnampuzha, an interstate river, originates in the high peaks of Nilgiris in Tamil Nadu, flows west and finally drains into Arabian Sea.

In 1965 an understanding was reached between Tamil Nadu and Kerala permitting Government of Tamil Nadu to execute the Pandiyar - Punnampuzha Hydro Electric Project utilising the west flowing waters of Pandiyar and Punnampuzha rivers within Tamil Nadu in 171.38 sq. km. (66.20 Sq. miles) with an average annual yield of 14 T.M.C.ft. with an installed capacity of 100 MW (2x50 MW) for the first stage and 150 MW in the next stage. The Planning Commission also approved the proposal in 1968.

But on representation from the ryots of Coimbatore district, the possibility of diverting the waters of Pandiar - Punnampuzha lying within Tamil Nadu to Moyar arm of Bhavani River for use by Tamil Nadu was investigated and this was also found feasible. Tamil Nadu wanted diversion of at least 7 T.M.C.ft. of water eastward.

The Tamil Nadu Electricity Board on 29.11.2006 forwarded a modified proposal of the Pandiar - Punnampuzha Hydro Electric Project to the Kerala State Electricity Board for its concurrence.

The Government will pursue with the Government of Kerala for implementation of the Pandiar - Punnampuzha scheme.

4. CONSTRUCTION OF GROUYNE FIELD ALONG PUDUCHERY COAST

Puduchery port was built in 1989, based on the design evolved by the Central Water and Power Research Station (CWPRS), Pune with a provision for pumping the sand deposited at the Southern side to Northern side.

From 2001 onwards pumping of sand was stopped and a sea wall and two groynes were constructed by the Government of Puduchery which cause shifting of erosion in the north (in the bordering villages of Tamil Nadu - Kottaikuppam, Nadukuppam, Thandhiriyankuppam, Chinna Mudaliyar Chavadi and Bommayarpalayam).

The Government of Puduchery has proposed to form deep water port. If this scheme is implemented, it will have catastrophic effect on the shoreline of Villupuram District. Hence, the Government of Tamil Nadu would emphasize the following.

1. A technical feasibility study of the proposed construction and its subsequent effect on the coast of Tamil Nadu.
2. Concurrence of the Government of Tamil Nadu for the project.
3. Implementation of continuous sand pumping of about 0.4 million cubic metre yearly as recommended by Central Water and Power Research Station (CWPRS), Pune.

Necessary groynes in phased manner to protect Tamil Nadu coast line would be

taken up under 13th Finance Commission Programme.

5. DRAFT DAM SAFETY BILL, 2010

In order to provide proper surveillance, inspection, operation and maintenance of all large dams in the country, to ensure their functioning Draft Dam Safety Act, 2002 was prepared and circulated by the Central Water Commission in the year 2003 among the States for consent. The draft act contains nine clauses.

Subsequently, Central Water Commission has revised the draft act with some modifications and renamed it as Draft Dam Safety Act, 2007 and informed in the conference of Principal Secretaries / Secretaries of Irrigation and Water Resources of States held on 16.6.2008 at New Delhi, that the revised Act will be circulated to the States again. But this was not circulated to the States for consent.

However, the Draft Dam Safety Act, 2007 has been obtained from Central Water Commission, wherein the act contain twelve clauses and it was found that many changes have been made in the draft Act, 2002 and additional sub clauses have been introduced.

Some of the modifications and additional clauses introduced in the draft Act, 2007 are not acceptable to the Government of Tamil Nadu, namely clause 4(4), which reads that

“Responsibilities for maintenance and safety of dams shall rest of the owners of dam. However, overall responsibility of the safety shall rest with the State Government in whose territory the dam is situated”.

It was felt that this sub clause seems to create interstate problems in respect of maintenance of interstate dams, to the dam owned by one by one state but lying in another neighbouring state.

The Government of Tamil Nadu having such dams Viz. 1) Mullai Periyar Dam, 2) Parambikulam Dam, 3) Thunakadavu Dam and 4) Peruvuripallam Dam.

Hence, Tamil Nadu Government has lodged its strong objection and requested to delete the provision 4(4) and to defer the proposal of introducing the bill before the Parliament, until a consensus is arrived among all the states. Subsequently, the Draft Dam Safety Bill, 2010 was approved by the Central

Cabinet and introduced in the Lok Sabha and the same was referred to Parliamentary Standing Committee on Water Resources for examination. The Parliamentary Standing Committee has uploaded the Dam Safety Bill, 2010 in the parliament website and invited suggestions /memoranda from individuals/ organizations /institutions etc. This draft bill contain 10 chapters and 49 clauses.

The contents of the Draft Dam Safety Bill, 2010 have been examined by the Government of Tamil Nadu and the Government has requested modifications in the Bill. A letter requesting the modifications as required by the Government of Tamil Nadu was written by the Hon'ble Chief Minister to the Hon'ble Prime Minister.

In this bill, sub-clause 26 (1) reads as

“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 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.

Since this clause will create interstate problem in respect of interstate dams similar to the sub-clause 4(4) of the Draft Dam Safety Act, 2007 earlier objected.

It is suggested to revise the clauses as follows:-

“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 State **owning the dam and under whose control the dam is operated and maintained** 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”

Similarly clause 26(2) reads as:

“The authorized representative of the Central Dam Safety Organization, concerned State Dam Safety Organization or State Dam Safety Cell as the case may be for the purposes of making any inspection or investigation necessary for the implementation of the provisions of the 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”.

It is suggested to modify the clause as below:

“The authorized representative of the Central Dam Safety Organization, concerned State Dam Safety Organization or State Dam Safety Cell as the case may be, **in respect of dams referred to in sub-clause (1) above,** for the purposes of making any inspection or investigation necessary for the implementation of the provisions of the 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.”

Similar modifications will have to be made in sub-clause 26(3), sub-clause 26(4) and clause 13.

In case, after making inspection or investigation under 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 and Non-State Dam Safety Cell, as the case may be and to the concerned State Dam Safety Organisation and State Dam Safety Cell, as the case may be, **in respect of dams referred to in sub-clause (1) above.**

The Central Dam Safety Organisation and concerned State Dam Safety Organisation or State Dam Safety Cell, as the case may be, in respect of dams referred to in sub-clause (1) above in cases of dams being found to be endangered 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.

In addition to this, the following clause is suggested to be added as **clause 26(6)**

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.

In the event of Dam Safety Bill, 2010 passed in Parliament it will be detrimental to the interests of Tamil Nadu since, the control of our Dams will automatically go to Kerala State in whose territory these Dams are situated, though they are owned by Tamil Nadu State. This will create a number of practical problems for the safety, operations and maintenance of the Dams.

Hence, the above modifications and additions are suggested for incorporation in the Dam Safety Bill, 2010.

Accordingly the Secretary, Ministry of Parliament Affairs, Government of India, the Secretary, Ministry of Water Resources,

Government of India, the Director (W&L), Lok Sabha Secretariat, Parliament Standing Committee and the Chairman, Central Water Commission, Government of India have been requested on 27.7.2011 to place the above said modifications before the Parliamentary Standing Committee on Water Resources to take a decision in consonance with the decision of this Government before enacting the Dam Safety Act, 2010.

Above all, Hon'ble Chief Minister has addressed the Hon'ble Prime Minister of India regarding necessity for modifications and additions to be incorporated to the Dam Safety Bill, 2010 to safeguard the interest of Tamil Nadu. In response to our Hon'ble Chief Minister's request the Hon'ble Prime Minister of India has directed the Ministry of Water Resources to look into the matter.

6. DAM REHABILITATION AND IMPROVEMENT PROJECT (DRIP)

To ensure the strength and to safeguard and maintain the health status of dams due to certain general factors like ageing and possible low compliance with Dam safety standards and practices etc, Dam Rehabilitation and Improvement Project with World Bank assistance has been

proposed. The project is for six years from 2011-2012.

Tamil Nadu is one among the four States selected by the World Bank for participation in this project. About 223 large dams in the four participating states with substantial need for rehabilitation and improvements are to be included in the project. It is proposed to execute the project at a cost of Rs.745.49 crore, in Tamil Nadu.

Cost of the project for Tamil Nadu
(Rs.in Crore)

a.	Water Resources Department	:	469.94
b.	Tamil Nadu Generation of Electricity and Development Corporation / Tamil Nadu Electricity Board	:	260.14
c.	Agricultural Engineering Department	:	15.41
	Total	:	745.49

66 Water Resources Department dams at a cost of Rs.469.94 crore are proposed to be rehabilitated. During the first year 12 Water Resources Department dams in 7 Districts are proposed to be taken up for rehabilitation.

The three main components of the Project are:

- (a) Rehabilitation and Improvement of Dams and associated appurtenances.
- (b) Dam Safety institutional strengthening.
- (c) Project Management.

An Empowered Committee under the Chairpersonship of Chief Secretary has been constituted on 19.11.2010 for speedy implementation of the project. The funding pattern between the World Bank and State is in the ratio of 80:20.

The Project will be carried out in phased manner as follows:

Phase	WRD Dams
I	12
II	21
III	20
IV	13
Total	66

During the year 2011-2012, under Phase I the rehabilitation works for the following 12 Water Resources Department dams are proposed to be taken up.

Sl. No.	WRD Dams – Phase – I	Rs.in lakh
1	Vidur	231.40
2	Rajathopekanar	73.47
3	Mordhana	275.00
4	Gomukinadhi	203.76
5	Manimuthar	1346.95
6	Adavinainarkoil	142.02
7	Vadakkupachayar	160.00
8	Kodumudiyar	125.00
9	Nambiar	130.00
10	Poigaiyar	76.00
11	Siddhamalli	427.68
12	Kodaganar	360.00
	Total	3551.28

The implementation of this project will commence early.

7. 13TH FINANCE COMMISSION GRANTS-IN-AID PROGRAMME

The 13th Finance Commission constituted by the Government of India has recommended the following schemes for a period of 4 years from 2011-2012 to 2014-2015.

7.1. State Specific Grants

7.1.1. Coastal Protection

For Coastal Protection, Government of India have recommended a grant of Rs.200 crore for protecting the coastline of Tamil Nadu from sea erosion in nine districts. During this year, the following 24 coastal

protection works for an amount of Rs.50 crore would be taken up.

SL. NO.	NAME OF WORK	ESTIMATE AMOUNT (Rs. in lakh)
1	Construction of RMS wall at Devanampattinam (LS 800m - LS 1220m) in Cuddalore Taluk of Cuddalore District.	179.80
2	Construction of Sea wall from LS 1850m to 2470m and LS 2710m to LS 3090m (1000m) in Chinnamudaliyarchavadi village in Vanur Taluk of Villupuram District.	280.25

3	Construction of series of 2 Groynes (3 & 4) in Mudaliyarchavadi in Vanur Taluk of Villupuram District.	826.40
4	Construction of RMS wall at Devanampattinam (LS 1220m - LS 2140m) in Cuddalore Taluk of Cuddalore District.	390.00
5	Collecting field bed levels along the coast covering required stretch and seaward covering breaker zone and collection of other details like tidal current, along shore current etc. at Mudaliyarchavadi, Bommaiypalayam and Sodhanaikkuppam in Vanur Taluk of Villupuram District and Thazhanguda to Devanampattinam in Cuddalore Taluk of Cuddalore District.	42.00
6	Construction of RMS wall at Palayar village in Sirkali Taluk of Nagapattinam District to a length of 1000m up to +3.25m.	596.50

7	Construction of RMS wall at Akkarapettai village in Sirkali Taluk of Nagapattinam District to a length of 1000m up to +3.66m.	517.90
8	Construction of RMS wall at Kallar village in Sirkali Taluk of Nagapattinam District to a length of 700m up to +3.66m.	364.90
9	Collecting field bed levels along the coast covering required stretch and seaward covering breaker zone and collection of other details like tidal current, along shore current etc. at Vanagirikuppam, Thirumullaivasal in Sirkali Taluk of Nagapattinam District and Seruthur, Samanthanpettai in Sirkali Taluk of Nagapattinam District.	42.00
10	Construction of RMS wall for a length of 230m in Vivekanander colony at Saveriyarpuram Village of Thoothukudi District.	102.40

11	Construction of RMS wall for a length of 525m & Reformation for a length of 300m of existing RMS wall at Leepuram in Agastheeswaram Taluk in Kanyakumari District.	260.80
12	Construction of RMS wall for a length of 205m and Reformation for a length of 245m of existing RMS wall at Chinnamuttam in Agastheeswaram Taluk in Kanyakumari District.	133.60
13	Reformation of existing RMS wall for a length of 110m at Vavathurai in Agastheeswaram Taluk in Kanyakumari District.	23.20
14	Reformation of RMS wall for a length of 260m near Church and west side of Poothurai in Vilavancode Taluk in Kanyakumari District.	78.50
15	Reformation of RMS wall for a length of 270m Erayumanthurai West Vilavancode Taluk in Kanyakumari District.	72.80

16	Construction of RMS wall for a length of 450m at Gap between Poothurai and Thoothur Vilavancode Taluk in Kanyakumari District.	187.90
17	Construction of RMS wall for a length of 50m at Chinnathurai in Vilavancode Taluk in Kanyakumari District.	16.00
18	Construction of RMS wall to a length of 250m at Colachel in Kalkulam Taluk in Kanyakumari District.	106.00
19	Construction of RMS wall for a length of 250m at Kadiapattinam in Kalkulam Taluk in Kanyakumari District.	67.00
20	Reformation of existing RMS wall for a length of 180m at Melamanakudy in Agastheeswaram Taluk in Kanyakumari District.	41.00
21	Construction of Groynes at Uvari in Radhapuram Taluk of Tirunelveli District.	489.20

22	Reformation of existing RMS wall for a length of 570m at Puthenthurai in Agastheeswaram Taluk in Kanyakumari District.	124.00
23	Reformation of RMS wall for a length of 420m at Kodimunai in Kalkulam Taluk in Kanyakumari District.	116.70
24	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 of Thiruchendur Taluk of Thoothukudi District and at Idinthakarai, Uvari in Radhapuram Taluk Tirunelveli District.	25.00
	Total	5083.85

7.1.2. Restoration of Traditional Water Bodies

For Restoration of Traditional Water Bodies, Government of India have recommended a grant of

Rs.200 crore. During this year, Restoration of 163 Traditional Water Bodies for an amount of Rs.50 crore would be taken up.

7.1.3. Water Sector Management

The 13th Finance Commission constituted by the Government of India has recommended the formation of State Water Regulatory Authority and has earmarked Rs.192 crore. Release of the grant is incumbent upon setting up Water Regulatory Authority by March 2012. Each Water Regulatory Authority is to be mandated, inter alia, to regulate water tariff charges for Surface and Sub surface water used for domestic, agriculture, industrial and other purposes. SWaRMA (State Water Resources Management Agency) has been formed.

8. IRRIGATION SCHEMES

8.1. The following irrigation schemes are proposed to be completed during 2011-2012 with State Government Fund under Medium and Minor Irrigation system at a

**cost of Rs.423.47 crore
benefitting 2,30,424 Hectares.**

Sl. No.	Name of work	Project Cost (Rs. in crore)	Ayacut benefitted (Hectares)
1	Irrigation Facilities to 58 Villages in Usilampatti Taluk in Madurai District.	74.60	925
2	Tank across Mathalapallam River in Dharmapuri District.	14.15	446
3	Bathalapalli Reservoir Project across Malattar in Vellore District.	29.55	1,717
4	Construction of Platinum Jubilee Memorial and Celebration of Platinum Jubilee of Stanley Reservoir at Mettur.	1.05	-
5	Providing a new Trash Rack arrangement at about 130m U/s of the Tunnel entry at Thekkady Head Sluice in the Leading Channel of Periyar Lake for maximum drawal of water from Mullai Periyar Dam to Vaigai Dam.	0.60	-

6	Improvements to New Veeranam lake for water supply in Cuddalore District.	106.35	1816
7	Rehabilitation of Contour Canal from LS 0/000 km to LS 49/300 km in Thirupur and Coimbatore Districts.	184.50	1,71,995
8	Construction of bridge, retaining wall and road with B.T. surface from Kalimar Bridge to Symon colony bridge at Colachel in Kanyakumari District.	2.94	
9	Rehabilitation and Gunitting the South Branch and North Branch vents of lower anicut in Thanjavur District.	6.21	53,418
10	Providing Walking path and Landscaping arrangements in both banks of Grand Anicut Canal from Irwin Bridge @ LS 13 / 6797 to LS 14 / 0170 Nagapattinam Road Bridge in Thanjavur Town.	2.35	-

11	Modernisation of Thirumeni Eri and its feeder channel at Thirumakkottai Village in Mannargudi Taluk of Thiruvarur District.	1.17	107
Total		423.47	2,30,424

8.2. The following irrigation schemes are proposed to be taken up during 2011-2012 with State Government Fund under Medium and Minor Irrigation system at a cost of Rs.19.46 crore benefitting 2,103 Hectares.

Sl. No.	Name of work	Project Cost (Rs. in crore)	Ayacut benefitted (Hectares)
1.	Formation of Flood carrier canal from Kanjampatti odai of Vilathikulam Taluk in Thoothukudi district to feed Sayalkudi and other tanks in Kamuthi and Kadaladi Taluks of Ramanathapuram District.	18.00	1,731

2.	Rehabilitation and modernisation of Kakkanallur anicut under Gadana System in Ambasamudram Taluk of Tirunelveli District.	0.63	331
3.	Augmenting water supply to Thiruthiyamalai Eri from Ayyar river in Thiruthiyamalai village in Musiri Taluk of Trichi District.	0.83	41
Total		19.46	2,103

8.3. NABARD Assisted Schemes

26 Schemes sanctioned under RIDF XII at a project cost of Rs.12.90 crore have been completed. 143 Schemes have been sanctioned under RIDF-X, XI, XIII, XV & XVI for Rs.879.30 crore out of which 113 schemes have been completed. 30 schemes are in progress which includes 10 flood protection works schemes.

8.3.1. The following 20 schemes in progress will be completed during 2011-2012 benefitting 91,037 Hectares

Sl. No.	Scheme	Project Cost (Rs. in crore)	Ayacut benefitted (hectare)
RIDF - X			
1.	Excavation of supply channel from Badethalav tank to Vennampalli in Krishnagiri District.	13.50	543
RIDF - XI			
2.	Construction of Anicut across Vilangudi Odai in Perambalur District.	0.35	70
RIDF - XIII			
3.	Rehabilitation of Grand Anicut Canal (GAC) from 58.67 km to 92.20km in Orathanadu in Thanjavur District.	28.58	27,591
4.	Rehabilitation of Grand Anicut from 0.75 km to 58.67km and Modernisation of Kallaperambur Eri in Thanjavur District.	130.34	2,430

RIDF - XV			
5.	Excavation of supply channel from Jerthalav channel at LS 5690m to feed Totlampatti tank, Papparapatti tank and 15 other tanks in Palacode and Pennagaram Taluks of Dharmapuri District.	6.29	330
6.	Rehabilitation and Improvements to Neikkarapatti Tank supply channel in Kondalampatti village of Salem Taluk and District.	2.70	90
7.	Rehabilitation of Arakkankottai and Thadapalli Channels in Gobi Taluk of Erode District.	17.45	9,917
8.	Rehabilitation of Thoivalai Channel and Radhapuram channel including tanks in Kanyakumari District.	22.50	12,087
9.	Increasing the carrying capacity of Palayamparavoo channel and PT Rajan Channel in Cumbum valley of Theni District.	10.08	3,070

10.	Construction of Bed Dam across Vaigai river near Manthivalasai to feed Kalari Channel and RMC feeding tanks in Ramanathapuram District.	14.20	4,007
11.	Modernisation of Ramnathapuram Big Tank in Ramanathapuram District.	9.73	1,604
RIDF - XVI			
2.	Reconstruction of Mylapudur anicuts across Nambiyar River in Anaikulam village of Radhapuram Taluk in Tirunelveli District.	8.00	252
13.	Restoration of Athoor anicut channel of Athoor Taluk in Dindigul District.	8.50	421
14.	Reconstruction of collapsed d/s talus apron and renewing and repairing the worn out steel shutters in the Virahanur regulator across Vaigai River in Madurai District.	5.00	16,766
15.	Rehabilitation of Nilayur Channel for increasing the carrying capacity to feed extension channel in Madurai District.	23.50	4,023

16.	Construction of anicut across Mudiyanur to feed Athani tank in Athani village of Aranthangi Taluk in Pudukottai District.	1.00	238
17.	Construction of anicut across Vellar River in Thandalai village to feed Mumbalai and Vadakku Manamelkudi tanks of Manamelkudi Taluk in Pudukottai District.	2.50	154
18.	Improvements to Panangudi and Kuyavan channels off taking from Malattar River of Lalgudi Taluk in Trichy District.	3.00	448
19.	Reconstruction of Neenjal Madavu anicut near Chengalpattu Taluk and rehabilitation of Ponvilanthakalathur Tank in Kancheepuram District.	9.00	2,105
20.	Formation of a tank across the Nallathangal Odai near Kothayam village of Oddanchatram Taluk in Dindigul District.	6.97	327
Total		329.21	91,037

8.3.2. Schemes to be taken up during 2011-2012

4 Schemes at a cost of Rs.37.50 crore are to be commenced during the year 2011-2012 which would benefit an ayacut of 6,209 Hectare.

Sl. No.	Scheme	Project Cost (Rs. in crore)	Ayacut benefitted (Hectare)
RIDF XVI			
1.	Rehabilitation of South Main Channel and its system tanks of Srivaikuntam anicut in Thoothukudy District.	10.00	5,164
2.	Formation of a new tank across Kallar Odai near Viswakudi in Thondamanthurai village of Veppanthattai Taluk in Perambalur District.	19.00	348
3.	Construction of anicut across Kamandalanaganathi River near Sevur village to feed Irumbedu and Patyur tanks of Arni Taluk in Thiruvannamalai District.	2.00	351

4.	Excavation of a new supply canal from Baleguli tank to feed 28 tanks of Pochampalli Taluk in Krishnagiri District	6.50	346
Total		37.50	6,209

8.3.3. Minor irrigation tanks under NABARD – RIDF

27 minor irrigation tanks at a Project cost of Rs.5.58 crore were taken up and completed under **RIDF XIII**.

8.3.4. Rehabilitation of masonries:

443 works have been taken up at a cost of Rs.33.50 crore for rehabilitating the damaged masonries in Cauvery Delta for the year 2009-2010 and 390 works have been completed. 48 works are in progress and the remaining 5 works to be taken up.

9. NATIONAL AGRICULTURE DEVELOPMENT PROGRAMME UNDER CENTRALLY SPONSORED SCHEME

The Government of India sponsored National Agriculture Development Programme (NADP) aims at achieving 4% annual growth in agriculture sector during XI Plan period by ensuring holistic development of Agriculture and allied sectors is being implemented in the State from the year 2007-2008.

For the year 2010-2011, 3 works for a value of Rs.2.08 crore have been sanctioned under National Agriculture Development Programme. Under this scheme, it is proposed to rehabilitate and modernise the irrigation structures for improving irrigation.

10. PART – II SCHEMES

For the year 2011-2012 the following 40 schemes at an estimate cost of Rs.684.32 lakhs have been proposed to be taken for the execution.

Sl. No.	Name of Scheme	Estimate Amount (Rs.in lakh)
1	Construction of Assistant Engineer Quarters at Kurinjipadi in Kurinjipadi Taluk of Cuddalore District.	15.00
2	Construction of Irrigation Assistant Quarters 4 Numbers at Kurinjipadi in Kurinjipadi Taluk of Cuddalore District.	18.00
3	Construction of Irrigation Assistant Quarters 4 Numbers at Thiruvathigai Anicut in Panruti Taluk of Cuddalore District.	18.00
4	Construction of Superintending Engineer's Quarters in P.W.D. Complex at Katpadi in Katpadi Taluk of Vellore District.	30.00
5	Construction of Assistant Executive Engineer's Quarters in P.W.D. Complex at Katpadi in Katpadi Taluk of Vellore District.	18.00

6	Construction of Assistant Engineers / Junior Engineers Quarters at Gudiyatham in Gudiyatham Taluk of Vellore District.	11.00
7	Construction of Assistant Engineers/Junior Engineer Quarters at Vaniyambadi in Vaniyambadi Taluk of Vellore District.	11.00
8	Construction of Section Office at Gudiyatham in Gudiyatham Taluk of Vellore District.	7.00
9	Construction of Section Office at Sholingar in Walajah Taluk of Vellore District.	7.00
10	Construction of section office building for Mettur canal Section at Ammapet in Bhavani Taluk of Erode District.	7.00
11	Construction of Gauging Section Office at Thanjavur Taluk in Thanjavur District.	7.00
12	Construction of Section Office building at Orathanadu in Orathanadu Taluk of Thanjavur District.	7.00

13	Construction of Section Officer's quarters for River Conservation Section at Kumbakonam in Kumbakonam Taluk of Thanjavur District.	12.00
14	Construction of Twin Type Irrigation Assistant Quarters at Ayyavadi Village in Kumbakonam Taluk of Thanjavur District.	10.00
15	Construction of Section office building for Valangaiman Section at M.K. Head in Nallur village in Valangaiman Taluk of Tiruvarur District.	8.07
16	Construction of Assistant Engineer quarters at Peralam in Nannilam Taluk of Tiruvarur District.	15.00
17	Conversion of Roof into RCC for the Assistant Engineer quarters Door No. 42 in PWD Campus at Palladam in Palladam Taluk of Tiruppur District.	9.00
18	Conversion of Roof into RCC for the Junior Engineer quarters Door No. 43 in PWD Campus at Palladam in Palladam Taluk of Tiruppur District.	7.50

19	Conversion of Roof into RCC for the Sub Division Office in P.W.D. Campus at Palladam Taluk of Tiruppur District.	6.00
20	Conversion of Roof into RCC Dormitory quarters Door No. 17 to 24 in P.W.D. Campus at Palladam Taluk of Tiruppur District.	28.00
21	Conversion of Roof into RCC for the Head Mazdoor quarters Door No. 12 to 16, 29 to 38 and 46 to 53 in P.W.D. Campus at Palladam Taluk of Tiruppur District.	40.00
22	Conversion of Roof into RCC for the Clerk quarters in Door No. 26 to 27 & 44 to 45 in P.W.D. Campus at Palladam Taluk of Tiruppur District.	20.00
23	Improvements to the Lower Bhavani Basin Sub Division No.1 Office Building at Erode in Erode Taluk and District.	10.00
24	Construction of Section Officers quarters at Modakurichi in Erode Taluk and District.	7.00

25	Conversion of AC sheet roofing into RCC roof in Assistant Executive Engineer quarters No. II in Officers Colony at Thirumurthy Nagar in Udumalaipet Taluk of Tiruppur District.	11.00
26	Conversion of AC sheet roofing into RCC roof in Assistant Executive Engineer quarters No.V (Project House No.1) in Officers Colony at Thirumurthy Nagar in Udumalaipet Taluk of Tiruppur District.	12.00
27	Conversion of Mangalore tiled roof in to RCC Roof for sub Division Office Building in PAP Colony at Pongalur in Palladam Taluk of Tiruppur District.	11.50
28	Rehabilitation and Improvements to Inspection Bungalow at Uthamapalayam in Uthamapalayam Taluk of Theni District.	25.00

29	Reconstruction of Office building in Periyar Vaigai basin Sub Division No.I, Madurai, Irrigation Section No.1 and Irrigation Section No.2, Madurai, Nilaiyur section and Vaigai Section of Periyar Vaigai Basin Sub Division No.2, Madurai in PWD Campus at Tallakulam in Madurai North Taluk of Madurai District.	30.00
30	Rehabilitation and Improvements to Section office at Kuppanampatti in Usilampatti Taluk of Madurai District.	7.00
31	Rehabilitation and Improvements to Assistant Engineer/ Junior Engineer quarters at Kuppanampatti in Usilampatti Taluk of Madurai District.	8.00
32	Construction of Inspection Bunglow for WRD at Rameshwaram in Rameshwaram Taluk of Ramanathapuram District.	35.00
33	Reconstruction of Sub Division Office Building at Srivaikuntam in Srivaikuntam Taluk of Tirunelveli District.	20.00

34	Reconstruction of Section Office Building at Panankulam in Nanguneri Taluk of Tirunelveli District.	7.00
35	Reconstruction of Kannadiankalvai Section Officers Quarters at Cheranamahadevi in Ambasamudram Taluk of Tirunelveli District.	10.00
36	Improvements to Inspection Bunglow at Cheranmahadevi in Ambasamudram Taluk of Tirunelveli District.	10.00
37	Reconstruction of Inspection Bunglow at Panankulam in Nanguneri Taluk of Tirunelveli District.	18.00
38	Reconstruction of Inspection Bunglow at Kalakadu in Nanguneri Taluk of Tirunelveli District.	15.00
39	Construction of Bridge across L.B.P Main canal @ mile 65-6-200 of Vadamugam Vellode village in Perundurai Taluk of Erode District.	60.00

40	Purchase of 14 Nos. Mahindra & Mahindra Bolero jeep to the field officers (Executive Engineers / Assistant Executive Engineers) of Water Resources Organisation of Public Works Department.	76.25
Total		684.32

obstructions in the important water ways of the Chennai City. Hence, it is proposed to execute 57 essential works at an estimated cost of Rs.361.75 lakhs before the on-set of North East Monsoon 2011 as a precautionary measure to allow for free flow of water to avoid inundation in city.

11. FLOOD MITIGATION SCHEMES

Devastation by floods is a recurrent annual phenomenon. Certain areas in Tamil Nadu are very vulnerable to floods and there is a great risk of damage to life and property of the people and to the State's assets like irrigation infrastructures, roads, etc. To alleviate the difficulties, flood mitigation schemes have been identified and are taken up with the assistance of Government of India and NABARD.

11.1. Cleaning of Chennai City Drains

Based on the critical situations faced by Chennai City during the floods, it is essential to carry out certain works like desilting and removal of shoals, silt, floating material wastes and other

11.2. Schemes taken up with NABARD Assistance

Sl. No.	Name of Scheme	Estimate Amount (Rs.in crore)	Stage
1.	RIDF XIII-23 Nos. of Flood Protection Works to Cauvery and Coleroon river banks in Karur, Trichy, Ariyalur and Perambalur Districts.	207.54	Total - 23 works Completed - 15 works in Progress-8
2.	RIDF XIII-2 Nos. of Flood protection works in Madurai city. (Sellur tank & Sathaiyar Odai)	12.91	Total - 2 works Completed-1 work in Progress -1

3	RIDF XV - Flood Protection Works in Kudamurutti river and Uyyakondan channel in Trichy district.	45.60	Out of 4 works, 1 work completed, 2 work is in progress and 1 work namely High level bridge will be executed by the Highways Department.
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2 schemes are under consideration of Government of India.

11.3.1. Works in Progress

(Rs.in crore)

Sl. No	Name of Scheme	Estimate Amount
1.	Flood Protection works to Araniyar river at upstream and downstream of A.N.Kuppam Anicut and downstream of Lakshmiapuram Anicut to Pulicat creek in Tiruvallur District.	12.41
2.	Flood Protection Works in Kollidam (Coleroon) River in Thanjavur, Nagapattinam and Cuddalore Districts.	375.90
3.	Flood Protection Works to Vellar Basin in Cuddalore and Villupuram Districts.	164.32
4.	Flood Protection Works to Panruti and Cuddalore Towns from rivers Pennaiyar, Gadilam, Uppanar, Paravananar and South Malattar rivers in Cuddalore District.	68.41

11.3. Flood Management Programme taken up with Central Assistance

The Flood Management programme (FMP) is a Central State shared Scheme implemented in Tamil Nadu at a ratio of 75:25. Out of 7 schemes for a value of Rs.657.16 crore sent to Ministry of Water Resources, Government of India, the Government have cleared 5 schemes as detailed below for an amount of Rs.635.54 crore, for which the Government of Tamil Nadu have accorded Administrative Sanction. The works are in various stages of implementation and scheduled to be completed before March 2012. Other

5.	Flood Protection Works to Kosasthalaiyar river from Napalayam to sea mouth in Tiruvallur District.	14.50
Total		635.54

11.3.2. Schemes under consideration of Government of India

Sl. No	Name of Scheme	Estimate Amount (Rs.in crore)	Stage
1.	Flood Protection Works in Khan Sahib Drainage Channel to protect Chidambaram town of Cuddalore District.	7.50	Techno Economic clearance by Central Water Commission has been accorded and Investment clearance of Planning Commission is awaited
2.	Flood Protection works in Adyar river near NH4 (Road connecting Kathipara Junction and Poonamalee Road) near Nandambakkam bridge between LS 12200m to 12700 m in Kancheepuram District.	14.12	Scheme under consideration of Central Water Commission

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

12.1. Scope:

The IAMWARM project is being implemented in four phases with an outlay of Rs.2,547 crore. The Project period is for of six years to benefit 6.16 lakh hectares in the selected 60 sub-basins of Tamil Nadu, involving Water Resources Department and seven other line Departments including Tamil Nadu Agriculture University.

12.2. Aims of the Project/ Key Components

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

The key components of the Project i.e. i. Irrigation systems modernization and ii. Agricultural Intensification and Diversification, aim to rehabilitate and modernize the irrigation infrastructures and to increase the productivity of agriculture-related activities through agricultural intensification and diversification of crops, micro irrigation and allied activities as in Animal Husbandry and Fisheries. Water Resources Management is the another key component of the Project.

12.3. Project Implementation: (2007-2013):

Water Resources Department:

The phase-wise scheme implementation for WRD are as detailed below

Phase	No. of Sub basins	Year of implementation	Irrigated Ayacut in Hectare
I	9	2007-2008	289498.50
II	16	2008-2009	67206.21
III	30	2009-2010 and 2010-2011	182119.18

Phase - I (9 Sub Basins)

Under Phase-I, 1634 tanks, 233 anicuts and supply channels for a length of 3067.66 km were proposed for rehabilitation. Out of which 1600 tanks, 222 anicuts and supply channel for a length of 2971.65 km have been completed. The remaining works are in progress.

Phase - II (16 Sub Basins)

Under Phase-II, 757 tanks, 165 anicuts and supply channels for a length of 1091.61 km were proposed for rehabilitation. Out of which 625 tanks, 142 anicuts and supply channel for a length of 832.96 km have been completed. The remaining works are in progress.

Phase - III (30 Sub Basins)

Under Phase-III, 1696 tanks, 265 anicuts and supply channels for a length of 2677.87 km were proposed for rehabilitation. Out of which 7 tanks, 1 anicut and supply channel for a length of 54.30 km have been

completed. The remaining works are in progress.

12.4. Phase IV (5 Basins)

During 2011-2012, in the Phase IV, 5 sub basins namely Cooum, Adayar, Cheyyar-Kiliyar, Paralayar and Kayalkudiyar covering an extent of 0.770 lakhs hectare spreading in Tiruvallur, Kancheepuram, Vellore, Thiruvannamalai, Virudhunagar, Ramanathapuram and Sivaganga districts are proposed to be taken up. Thereby modernization of 761 tanks, rehabilitation of 5 anicuts and improvement of 1056 km length of supply channel are to be taken up with an outlay of Rs.172.61 crore.

12.5. Formation of Water Users Association:

Under Participatory Irrigation Management in Phase – I, II and III, elections for 2320 Water Users Associations were conducted. For the remaining 41 associations, elections will be conducted by Water Resources Department shortly.

Water Walks, IAMWARM Days with all line Departments and Workshops are being conducted by the Water Resources Department to ensure convergence, participation of officers the farmers to identify their problems and propose solutions. Further, Change Management is being proposed amongst Water Resources Department Engineers and line Departments to ensure better service delivery and management of scarce water.

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

13. JAWAHARLAL NEHRU NATIONAL URBAN RENEWAL MISSION. (JNNURM)

To avoid flooding in Chennai city, a comprehensive Master Plan on improvements to micro drainages

such as storm water drains, and macro drainages like Buckingham canal, Otteri Nullah, Virugambakkam – Arumbakkam drain, Cooum and Adyar river has been proposed under this scheme. This is a Centre-State shared scheme for a period of 3 years. The scheme commenced from 2010.

The Central Sanctioning and Monitoring Committee (CSMC) approved the total cost of the proposal for macro drain as approved by the State Level Steering Committee is Rs.1447.91 crore. Out of the total project cost of Rs.1447.91 crore, the amount pertaining to Water Resources Department is Rs.633.03 crore and the balance amount Rs.814.88 crore rests with Corporation of Chennai as mentioned below.

(Rs. in crore)

Sl. No.	Name of Basin	Proposal Cost	WRD Component	Corporation of Chennai Component
1.	Northern Basin	359.86	82.69	277.17
2.	Central Basin	345.00	83.89	261.11

3.	Eastern Basin	444.07	303.67	140.40
4.	Southern Basin	298.98	162.78	136.20
	Total	1447.91	633.03	814.88

Out of Rs.633.03 crore, 35% of the amount will be in the form of grant from Central Government, 15% of the amount will be State Government's share. Remaining, 50% will be i.e share of Urban Local Body will also be borne by the State Government. The status of works are as detailed below;

Pkg	Name of Rehabilitation Drains/Tanks	No of Works	Estimate Amount (Rs.in crore)	Present status
I	Kodungaiyur Drain, Kolathur tank, Otteri Nullah	4	63.05	Works are in Progress
II	Maduravoyal tank, Virugambakkam - Arumbakkam Drain	3	83.89	Works are in Progress
III	North Buckingham canal	1	110.05	Work is in Progress
IV	Central Buckingham canal (from 10500m to 23500m) REACH III	1	68.62	Revised Estimate is under preparation
V	South Buckingham canal (from 0m to 10500m) REACH I & II	2	46.86	Works are in Progress

VI	South Buckingham canal (from 0m to 10500m) REACH III	1	78.14	Work is in Progress
VII	a) Veerangal Odai Drainage Course b) short cut drainage channel for Velachery tank surplus	2	82.05	Works are in Progress
VIII	Ambattur Tank	1	19.63	Work is in Progress
IX	Porur Tank	1	26.97	Preliminary works in progress.
X	Diversion drainage channel from Buckingham Canal – Okkiam maduvu to sea	1	53.77	Works to be taken up
	Total	17	633.03	

streams and avoiding sea water intrusion into the land.

14.1. Artificial Recharge through Check Dams

A Master Plan for Artificial Recharge to Ground Water through check dams, ground water shafts, percolation ponds etc., at a cost of Rs.550 crore over a period of 3 years is under implementation from 2008-2009. The State Ground and Surface Water Resources Data Centre is the nodal agency and the implementation of the scheme is being carried out by Water Resources Department, Agriculture Engineering Department, Tamil Nadu Water Supply and Drainage Board and Forest Department. The Project period has been extended by 2 years (2011-2012 and 2012-2013).

The Forest Department and Agriculture Engineering Department have completed all the works sanctioned under this Scheme. In respect of Tamil Nadu Water Supply and Drainage Board, 56 works are in progress. In respect of Water Resources Department, 43 works are in progress.

14. ARTIFICIAL RECHARGE SCHEME

Artificial Recharge Scheme is one of the approach to bring water withdrawals into balance which aims at augmentation of the ground water potential, effective utilization of surplus water in the rivers and

15. 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 2008 thereon were framed. The Act has been brought into force in the State except the Nilgiris and Chennai Districts, where there are no ayacut. The Act envisages for constitution of farmers’ organizations in the entire command area of all irrigation systems under the management of Water Resources Department, as follows:

- (i) Water Users’ Association at the primary level consisting of all the water users.
- (ii) Distributory committee at secondary level.
- (iii) Project committee at the project level.

In the Water Resources Consolidation Project, implemented command areas of about 6.0 lakh hectare, the election was conducted in 2004 for constituting the managing Committee of Water Users’ Association. Election to Distributory Committees and Project Committees were held in 2008.

The five year and six months of the term of their office (amended by the Tamil Nadu Farmers’ Management of Irrigation systems (Amendment) Act, 2009 (Act No. 1/2009) ended during June 2009. Therefore, election to reconstitute the managing committees of 1566 Water Users’ Association was organised in 2009.

1536 Presidents and 7315 Territorial Constituency members have been elected and assumed their offices. 157 Distributory Committees and 9 Project Committees have also been reconstituted. Fresh election to the left out posts in the managing committees is to be organized.

2361 Water Users’ Association have been delineated in the IAMWARM Project command areas dividing the

Water Users' Association areas into 10810 Territorial Constituencies. 2320 Presidents and 10185 Territorial Constituency members have been elected in 2008, 2009 and 2010. Fresh election to the leftout posts in the Managing Committees has to be organized.

2896 newly elected presidents of Water Users' Association have been benefitted so far. Two day orientation training programme was organized by the Irrigation Management Training Institute.

To fulfill the training needs of the Water Users' Association, procurement of support organizations is under process, who would undertake the capacity building programme for the Water Users' Association.

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

16. LINKING OF RIVERS WITHIN THE STATE

Three links have been identified for interlinking of Rivers within Tamil Nadu to primarily serve as flood carriers and to divert the flood flows to reach the drought prone areas.

16.1. Construction of Kattalai Barrage across the Cauvery River at Mayanur Village in Karur District

As a first stage of Linking of the River Cauvery with Agniyar, South Vellar and Pambar the Construction of Barrage across the Cauvery River below 250 m from the existing Kattalai Bed Regulator in Karur District was sanctioned for Rs.189 crore from State fund. This proposal will be sent to Government of India for Environmental Clearance and financial assistance. The Works are proposed to be completed by November 2011. A sum of Rs.107.23 crore has been spent so far.

16.2. Formation of a Flood Carrier Canal from Kannadian Channel to drought prone areas of Sathankulam and Thisaiyanvilai by Interlinking Thamirabarani, Karumeniyar and Nambiyar rivers in Thirunelveli and Thoothukudi Districts of Tamil Nadu

This scheme envisages to divert the dependable portion of surplus from the Kannadian channel to the drought prone areas of Sathankulam, Thisaiyanvilai upto M.L.Theri sand dunes, stabilizing the water starved ayacuts of Manimuthar channel in III and IV reaches and interlinks the Tributaries of Thamirabarani River namely, Pachaiyar, Kodumudiyar besides interlinking Karumeniyar and Nambiyar River basins.

This project was sanctioned at a cost of Rs.369 crore for implementation in 4 stages.

A sum of Rs.117.70 crore has been spent so far. Land Acquisition for stage I and II works are also in progress.

36 packages of the third and fourth stages are to be taken up. By implementing this scheme an extent of 23040 hectare of land will be benefited including a new ayacut of 17002 hectare The ground water level in the nearby wells will also be recharged.

Stage	No. of Packages	Administrative Sanction (Rs. in crore)	Present Stage
I	18	107.62	Completed -1 In progress -17
II	18	98.23	In progress - 18
Total	36	205.85	

16.3. Excavation of link canal to interconnect Pennaiyar River with Palar river through Cheyyar River and augmenting supply to Nandan Canal in Thiruvannamalai District

This proposal has been formulated for linking of the Pennaiyar River in Tiruvannamalai District with Cheyyar River, a Tributary of the River Palar through a link canal. By implementing this scheme an extent of 18237.01 hectare land will be stabilized and a gap of 414.38 hectare of land will be bridged. The ayacut under the Nandan canal will also be benefited.

Detailed Project Report for this scheme has been prepared for an amount of Rs.174 crore and sent to Government of India for seeking assistance under Accelerated Irrigation Benefits Programme (AIBP).

17. REPAIRS, RENOVATION AND RESTORATION OF WATER BODIES IN THE 51 DROUGHT PRONE BLOCKS IN TAMIL NADU

The Project Proposal for 338 tanks benefitting an ayacut of 31357.56 hectares coming under 51 Drought Prone Blocks has been prepared at an estimated cost of Rs.220 crore. The proposal on obtaining clearance from Technical Advisory Committee will be sent to the Ministry of Water Resources Government of India, for getting necessary approval. The funding pattern between the Centre and State would be in the ratio of 90:10.

18. IRRIGATION MANAGEMENT TRAINING INSTITUTE (IMTI)

18.1. The Irrigation Management Training Institute was established in the year 1984 to impart training to all those involved in irrigated agriculture. Training Programmes on Participatory Irrigation Management (PIM), Computer applications in Irrigation Management, Geographical Information System (GIS), Remote sensing, AUTOCAD and Human

Resources Development are conducted by the Institute. In addition, farmers are exposed to modern irrigation techniques and action research programmes are encouraged.

18.2. Modern irrigation management techniques covered irrigation scheduling, on-farm water budgeting, flow measurement, Operation and Maintenance of irrigation systems, flood and drought management, crop water requirement and operation plan, etc., Efficient agricultural practices such as System of Rice Intensification (SRI), Precision Farming and Organic Farming and Integrated water resources Planning and Management are also covered in the training programmes.

18.3. Study tours to other States such as Andhra Pradesh, Gujarat, Maharashtra, Madhya Pradesh and Orissa are also organised for the officers and farmers to gain knowledge of the systems and practices that are adopted. Special training programmes based on the needs of organisations such as Water Resources Department, Agricultural

Engineering Department, District Rural Development Agency, State Planning Commission and Horticulture Department are also conducted. Under the World Bank assisted IAMWARM project, special training programmes are conducted. Training to the Presidents of the Water Users' Associations are also conducted.

18.4. During the year 2010-2011, 132 training programmes and 52 courses were conducted. In the year 2011-2012, it is programmed to conduct 112 training programmes covering 3000 officials and 500 farmers.

19. STATE GROUND AND SURFACE WATER RESOURCES DATA CENTRE

19.1. This centre is engaged in periodic multidisciplinary investigation studies on ground water by maintaining and observing statewide monitoring network for ground water, surface water and water quality. In addition, the following activities are undertaken by the centre.

- a) Providing consultancy services to general public, farmers, public undertakings, other Government Departments etc., in locating favourable area for ground water exploration on scientific basis.
- b) Dissemination of the data generated to the organizations and public based on their needs.

19.2. Micro Water Shed Study

Based on the approval of state level committee for Re-estimation of Ground Water Assessment, it is proposed to take up ground water assessment based on micro watershed basis in which micro water shed will have an area of 50 to 100 Sq.Kms. There are about 1552 micro watersheds in the hard rock part of the State and 3 major water sheds viz., Cauvery, Vennar and New Delta in Cauvery delta area. This study will help to identify the potential pocket within the blocks, categorized as critical and over exploited with regard to groundwater status by other techniques.

19.3. Hydrology Project –II

This is a project assisted by the World Bank at a total cost of Rs.25.27crore for a period of six years (2006-2012). The main components of this project are:

19.3.1. Institutional Strengthening:

It covers the scope of general support works like upgrading the infrastructure created in Hydrology Project-I and general awareness raising programmes.

19.3.2. Decision Support System for Planning (DSS):

Decision Support Systems are developed for the integrated planning of the water resources in the Tamarabarani, Vaippar and Agniyar river basins. They are useful for the dynamic assessment of the surface water and groundwater resources across the river basin and to allocate them among different demand sectors like drinking, agriculture and industrial with pre-defined priorities. It helps assess the impact of adopting

various cropping pattern and the impacts of climate change on the water resources of a river basin.

19.3.3. Hydrological Design Aids:

Hydrological Design Aids are computer based GIS models which are developed for all river basins of the State. It will help standardize the methodology of assessment of water availability and Design Flood in all the rivers of Tamil Nadu for the benefit of all the water using agencies. It is instrumental in the construction of safe and economic design of hydraulic structures like Dams and bridges.

20. INSTITUTE FOR WATER STUDIES

This institute was established in the year 1974 to assist the department in planning, assessing and managing the water resources by taking up necessary studies. The institute has a pool of talent from the field of engineering, hydro geology, geo physics, geo chemistry, environment, photo-geology, remote sensing and agro economics. The on-going activities of this institute are detailed below:

20.1. Micro Level Studies

Out of the 17 river basins in the State, micro level studies have been completed in 16 river basins except Cauvery basin. Re-appraisal studies for Kodaiyar and Vaippar river basins have been completed. At present, the re-appraisal study of the Vaigai basin is in progress.

20.2. State Water Resources Management Agency (SWaRMA)

Under the IAMWARM Project on Water Resources Management, the formation of SWaRMA was emphasized.

An Estimate for Rs.271 lakh has been sanctioned by the Government for the establishment of office and to provide amenities and incremental operating cost to SWaRMA for a period of 3 years upto March 2013 under IAMWARM Project.

The office of SWaRMA is started functioning from June 2011 in the campus of Institute for Water Studies, Tharamani, Chennai.

20.3. Consultancy for Development of Decision Support System for Integrated Water Resources Management in Tamil Nadu River Basins

The Government have accorded administrative sanction for Rs.12.60 crore for this consultancy.

The objectives of this consultancy is to develop a Decision Support System for integrated management of water resources in the following four basins:

- (1) Vellar
- (2) Gundar
- (3) Pambar & Kottakkaraiyar
and
- (4) Parambikulam & Aliyar

The Request for Expression of Interest for the above consultancy was published in the Newspapers on 23.09.2010. Further works are in progress.

20.4. Remote Sensing and GIS Activities

- Preparation of thematic maps for re-appraisal study of Vaigai basin like Geology, Geomorphology, Land in use, waste land, Lineament, Drainage, Village, Index, water level, Water quality, Geophysical resistivity, Contours and depth of bed rock are under progress.
- As a pilot study the digitized water bodies maps for Kodaiyar basin has been prepared and for the remaining area, a detailed proposal is under consideration.

20.5. WATER RESOURCES RESEARCH FUND (WRRF):

At present the following two research studies have been taken up under WRRF.

1. Estimation of Transmission loss in Sathanur system through Anna University.
2. Flood as hazard, disaster proneness, vulnerability in North Chennai through University of Madras.

21. DIRECTORATE OF BOILERS

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

Pipes manufacturing units, etc. The Directorate of Boilers is incharge of implementing the provisions of the Tamil Nadu Boiler Attendant's Rules, 1964 and 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 conduct tests to high pressure welders employed in Boiler manufacturing units and Boiler Ancillary Units, Boiler Erectors and Repairers organizations and issues competency certificates to the successful candidates. The Directorate of Boilers is responsible for detecting and curbing the operation of the unregistered and uncertified Boilers. The Directorate of Boilers ensures that the Boiler 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 a various stages of manufacturing from approving the basic raw materials to the final product is tested and certified for quality.

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

In a nutshell, this Directorate 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 the manufacturing to the end use and in use to ensure safety of the public life and property.

22. PROVIDING LAST MILE CONNECTIVITY THROUGH WIDE AREA NETWORK CONNECTIONS TO WATER RESOURCES DEPARTMENT.

It is proposed to take up institutional strengthening and capacity building of Water Resources Department by creating an environment for collaborative, computing and electronic data information exchange. To achieve this all the, Local Area Network offices are proposed to be connected by Wide Area Network (WAN) under Tamil Nadu State Wide Area Network (TNSWAN) for 55 selected offices under stage-I through ELCOT at a cost of Rs.168.50 lakh.

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