

## **MINOR IRRIGATION**

### **AGRICULTURE (GROUND WATER)**

Water is the most critical component of life support system. The water requirements for all usages in Puducherry are mainly met-out from ground water resources. Owing to the dependency on ground water, the ground water resources of Puducherry has reduced in the past. As a result, the ground water levels in Puducherry has lowered from 12 to 35 mts, and sea water has intruded in the ground water aquifers along the Coastal areas to a distance of 1 to 4 kms inland. In order to protect the ground water regime of Puducherry from de saturation, attention was given for rain water harvesting and water conservation programmes during the 10<sup>th</sup> and 11<sup>th</sup> Five Year Plan periods. In addition to this “The Pondicherry Ground Water (Control and Regulation) Act, 2002” was enacted and the provisions of the act are being implemented by a separate body “Pondicherry Ground Water Authority”. The behaviour of ground water is being monitored intensively in terms of quality and quantity.

Owing to the implementation of the above schemes, the stage of ground water development which was 179% as on March 2004 has reduced to 158% as on March, 2008. Besides, a World Bank Loan assisted Project “Hydrology Project Phase-II” is being taken up since 2006-07 for better water resources planning and management. A considerable improvement has been noticed in the water levels of Puducherry region. The above improvement has given lots of encouragement to continue with the activities.

In order to continue with the positive trend in the ground water scenario, the policy of the administration is concentrating its focus on water conservation in terms of ground water potential and quality. The rain water harvesting and water conservation programmes are proposed to be continued in the year 2013-14 and also the regulatory measures will continue to be in force to regulate the exploitation of groundwater and the behaviour of ground water will be monitored continuously to support the on-going schemes and to contemplate innovative rain water harvesting techniques. Besides, the Hydrology Project under implementation will be continued to be operated under a separate organization “Union Territory of Puducherry Hydrology Organization “(UTOPHO) which was created under Societies Act. Additionally, the society will take up research studies on the augmentation of water resources of Puducherry in an intensive scale.

## **PUBLIC WORKS (SURFACE WATER)**

Puducherry region mostly depends on tank irrigation and underground water resource, while Karaikal, Mahe and Yanam regions depend on river water for the purpose of irrigation. There are about 84 tanks in Puducherry region and the total ayacut covered is 6456 Hectares. Karaikal region mainly depends on the surface water of Cauvery river and its distributaries the total ayacut covered is 10,974 Hectares. In Yanam and Mahe regions, the irrigation system is in micro level only.

It is proposed for construction of Bed Dams / Check Dams in order to save more surface water and recharge the depleted ground water to avoid the adverse situation arising out of continuous drawal of ground water resulting intrusion of salinity in the coastal region. Further, it is proposed to improve the tanks, channels and survey works wherever necessary. The tanks such as Oussudu, Karasur, Kanaganeri, Olandai, Murungapakkam, Thondamanatham chinnaeri, Kodathur, Korkadu, surplus weir at Bahour tanks are proposed to be improved during 2013-14. It is proposed to improve the regulatory works, improvements at Kizhur, Mangalam anicuts, etc. Further tank bunds are proposed to be strengthened and developed for inspection tracks. The land inside the Kordadu tank is proposed to be taken up under land acquisition for creating maximum effective storage of water in the tank.

The following major works are proposed during the year 2013-14:

- 1) Reconstruction of bridge with regulator across Malatar River at Kumaramangalam, Puducherry.
- 2) Construction of a barrage with two lane road bridge connecting NH 45A and RC 30 Gudvaiyar river at Sivarandagam Village, Villianur Commune, Puducherry.
- 3) Construction of bed dam-cum-bridge across Pambaiyar near the confluence point at Sellipet Village, Mannadipet Commune.

In Karaikal Region, improving the roads / tanks / mini lakes, forming mini lakes, artificial re-charge of ground water, diverting the irrigation carriers / channels are taken up. Lands have been acquired for the augmentation of water at Kazhugumedu, Padutharkollai and the works are to be taken up. Construction of retaining wall in the LB of Thirumalairajanar, Protecting LB of Kezhasakudy channel and improving the Ponds at various places in Karaikal region will be completed.

In Yanam Region, there are two irrigation channels viz., French Channel and Adavipolam Channel. The length of the French Channel is 2.5 Kms. and the length of the Adavipolam Channel is 5.0 kms. The ayacut of French Channel and Adavipolam Channels are 300 ha. and 550 ha. respectively. Every year desilting of two channels are being carried out for discharging full quantum of water.

Physical targets envisaged :

Sl. No.	Item	Unit	Eleventh Plan (2007-08 to 2011-12) Actual Achievement	Twelfth Five Year Plan 2012-17 Target	Achievement 2012-13	Annual Plan 2013-14 Proposed Target
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Ground Water					
	a) Potential	'000 Ha.	No scope to bring additional area under ground water irrigation			
	b) Utilisation	"	--	--	--	--
2	Surface water					
	a) Potential	Ha.	2425	3000	550	600
	b) Utilisation	"	2425	3000	550	620

## OUTLAY AT A GLANCE

Sector : MINOR IRRIGATION

No. of Schemes : 3

Department : 1. AGRICULTURE

2. PUBLIC WORKS

(₹ in lakh)

Eleventh Plan 2007-12 Actual Expenditure	:	6670.09
Annual Plan 2011-12 Actual Expenditure	:	1489.52
Annual Plan 2012-13 Approved Outlay	:	3187.01
Annual Plan 2012-13 Revised Outlay	:	1941.58
Annual Plan 2013-14 Proposed Outlay	:	2622.96

(₹ in lakh)

Sl. No.	Name of the Scheme	Eleventh Plan 2007-12	Annual Plan 2011-12	Annual Plan 2012-13		Annual Plan 2013-14	
		Actual Expdr.	Actual Expdr.	Approved Outlay	Revised Outlay	Proposed Outlay	Of which capital content
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>AGRICULTURE</b>							
1.	Integrated scheme for development, harvesting, recharging and conservation of ground water	975.97	164.32	252.90	84.96	232.32	--
2.	Hydrology Project Phase-II with World Bank Loan Assistance (EAP)	555.00	400.00	500.00	80.19	370.00	--
	<b>Sub-total</b>	<b>1530.97</b>	<b>564.32</b>	<b>752.90</b>	<b>165.15</b>	<b>602.32</b>	<b>--</b>
<b>PUBLIC WORKS</b>							
3.	Augmentation of surface water and ground water potential recharge scheme including strengthening of infrastructure.	5139.12	925.20	2434.11	1776.43	2020.64*	1396.00
<b>Total</b>		<b>6670.09</b>	<b>1489.52</b>	<b>3187.01</b>	<b>1941.58</b>	<b>2622.96</b>	<b>1396.00</b>

\* Inclusive of (i) ₹1000 lakh under negotiated loan

(ii) ₹ 100 lakh for inter-linking of French channel and Adavipolam channel at Yanam.

Sector : MINOR IRRIGATION

Implementing  
Department : AGRICULTURE

**1. Name of the Scheme** : Integrated scheme for development, harvesting, recharging and conservation of ground water

**2. Objective of the Scheme** :

In order to meet the relentless increase in the demand for water for various purposes and to achieve the goal of optimal use and sustainability and to derive the maximum benefits through development, storage, conservation, distribution and reuse, it has become necessary to make water resources development more imperative by implementing a comprehensive integrated scheme with the following objectives:-

- i) Rainwater harvesting and recharging ground water
- ii) Water conservation and Management
- iii) Construction of rain water harvesting structures like mini lakes and ponds in Karaikal region
- iv) Assessment of ground water potential and monitoring of ground water quality
- v) Stabilization of irrigation command

To regulate the exploitation of ground water in the Union Territory of Puducherry, the “Pondicherry Ground Water Authority” was established in the year 2004 under the Pondicherry Ground Water (Control and Regulation), Act 2002.

**3. Actual Physical Achievements during Eleventh Five Year Plan (2007-12) :**

i) Construction of Farm Ponds in Karaikal region	15	Nos.
ii) Desilting / Reconst. of Percolation ponds / channels / water	10	"
iii) Const. of Recharge tube wells for recharging ground water	68	"
iv) Const. of Roof Top Rain Water Harvesting structures in the Govt. Buildings through M/s. PASIC Ltd. / Other Agencies	15	"
v) Renovation of Dug Wells / Dug-cum-Bore Wells	63	"
vi) Laying of underground pipelines at subsidized cost	166525	Mtrs
vii) Installation of Sprinkler / Drip Irrigation sets at subsidized cost	250	Nos.
viii) Subsidy issued to farmers for construction of Tube well @ 65% subsidy	266	"

ix) Const. of Tube wells in SC farmers holdings at 90% subsidy	18	"
x) Distribution of Submersible pump sets with accessories at 65% subsidized cost	245	"
xi) Construction of New / Replacement Community Tube wells	4	"
xii) Conducting training / awareness campaign / demonstration	19	"
xiii) Construction of Medium / Deep Tube wells	97	"
xiv) Construction of Filter Points / Shallow tube wells	65	"
xv) Area stabilized	286	Ha.

**4. Physical Achievements for the Annual Plan 2012-13:**

i) Dug Wells / Dug-cum-Bore Wells were renovated.	7	Nos.
ii) Underground pipelines were laid at subsidized cost	9285	Mtrs
iii) Sprinkler / Drip Irrigation sets were installed at subsidized cost	16	Nos.
iv) Construction of Tube wells in SC farmers holdings at 90% subsidy	2	"
v) Submersible pump sets with accessories were distributed at 65% subsidized cost	52	"
vi) Training / awareness campaign / demonstration were conducted.	11	"
vii) Medium / Deep Tube wells were constructed.	2	"
viii) Filter Points / Shallow tube wells were constructed.	34	"

**5. Proposed Physical Targets for Annual Plan 2013-14:**

i) Farm Ponds will be constructed in Karaikal region.	24	Nos.
ii) Desilting / Reconst. of Percolation ponds / channels / water	10	"
iii) Const. of Recharge tube wells for recharging ground water	12	"
iv) Roof Top Rain Water Harvesting structures will be constructed in the Govt. Buildings	3	"
v) Dug Wells / Dug-cum-Bore Wells will be renovated.	50	"
vi) Underground pipelines will be laid at subsidized cost.	20000	Mtrs
vii) Sprinkler / Drip Irrigation sets will be installed at subsidized cost	60	Nos.
viii) Subsidy will be issued to farmers for construction of Tube well @ 65% subsidy	20	"
ix) Tube wells will be constructed in SC farmers holdings at 90% subsidy	3	"
x) Submersible pump sets with accessories will be distributed at 65% subsidized cost	20	"
xi) New/Replacement Community Tube wells will be constructed.	1	"

xii) Training / awareness campaign / demonstration will be conducted.	4	"
xiii) Medium / Deep Tube wells will be constructed.	24	"
xiv) Filter Points / Shallow tube wells will be constructed.	15	"
xv) Area to be stabilized	80	Ha.

7. **Remarks** : Continuing Scheme

## Scheme No. 2

Sector : MINOR IRRIGATION

Implementing  
Department : AGRICULTURE

1. **Name of the Scheme** : Hydrology Project-II with world Bank Loan Assistance (EAP)

2. **Objective of the Scheme** :

The World Bank Loan assisted project titled “Hydrology Project, Phase-II”, is under implementation with World Bank Loan assistance with an objective to bring all water related data under one roof ,viz Surface Water, Groundwater, Water Quality, and Climatological data under one roof, for better future water resources planning and management in Puducherry , since 2006-07 onwards. The project which was originally contemplated for completion by June 2012 was extended to May 2014.

The important programmes of the project are as follows:

- Construction of 47 numbers of observation tube wells to strengthen the existing ground water level data collection network and procurement of latest ground water study equipments.
- Establishment of River Gauging stations to monitor flow of water in the rivers and canals to quantify the run off at 4 locations and procurement of latest surface water equipments.
- Establishment of State Water Resources Data Center for housing in the Data related to Surface Water, Hydrometeorology, Ground Water and Water Quality.
- Establishment of an Automatic Weather Station for strengthening the Weather Monitoring and hydrometeorological data collection.
- Establishment of a Level II + Water testing laboratory with a capacity to measure around 78 parameters.

- Capacity building of technical officials of Puducherry in the handling of latest equipments, software and Remote sensing imageries in the water management sector.
- Conduct of a purpose driven study on the improvement of ground water recharge in the Northern parts of Puducherry region.

### **3. Actual Physical Achievements during Eleventh Five Year Plan (2007-12) :**

- i) 150 numbers of technical books on water domain from reputed publications procured and a technical library established
- ii) 4 numbers of motorcycles procured to strengthen the existing transportation facilities of the project
- iii) A well furnished training hall with LCD Projector, mic set etc established.
- iv) 15 numbers of observation tubewells constructed to strengthen the groundwater monitoring network.
- v) An Automatic Weather Station with telemetry established in Kalapet.
- vi) A part of the lab equipments procured for the Level II+ laboratory being established.
- vii) Partial completion of the State Water Resources Data Centre achieved.
- viii) Digital modeling softwares produced and utilized.
- ix) Equipments such as Global Positioning Systems procured and utilized for the research study.
- x) More than 30 technical and non technical officials trained in the usage of advanced equipments and techniques.

### **4. Physical Achievements for the Annual Plan 2012-13:**

- i) Trainings and workshops on the importance of water resources were conducted
- ii) A sophisticated training hall within the state water resources data centre was established.
- iii) 4 nos. of river gauging sites were established.
- iv) Site stores for the river gauging sites were constructed.
- v) Automatic water level recorders were procured and installed for measuring surface water flow in the rivers.
- vi) An additional 10 numbers of observation tubewells were constructed in Pondicherry and Karaikal regions to strengthen the existing groundwater monitoring network.
- vii) Digital water level recorders with telemetry were installed in the observation tubewells for continuous ground water monitoring.



- viii) Automatic Weather station and groundwater equipments were procured and utilized.
- ix) Flame photometer, atomic absorption spectro photo meters and similar water quality equipments were procured for the Level II+ laboratory.
- x) Softwares for digital terrain modeling and groundwater modeling were procured and installed in the State Water Resources Data Centre.
- xi) Construction of State Data Centre was completed.
- xii) A Research Study on artificial recharge was completed during this financial year.

**5. Proposed Physical Targets for Annual Plan 2013-14:**

- i) Trainings and workshops on the importance of water resources will be conducted
- ii) PDS Software will be procured and installed.

**6. Remarks :** Continuing Scheme

**Scheme No. 3**

Sector : MINOR IRRIGATION

Implementing Department : PUBLIC WORKS

**1. Name of the Scheme :** Augmentation of surface water and ground water potential recharge scheme including strengthening of infrastructure.

**2. Objective of the Scheme :**

Augmentation of surface water by desilting and deepening of tanks, lakes, ponds and rivers and strengthening of infrastructure by construction of bed dams, check dams, etc., infiltration wells, construction of regulators and head works, protecting bunds, stabilizing the existing ayacut by way of improvements of various supply channels off taking from tanks, etc. artificial recharge of ground water to store water to a maximum extent.

Creation of infrastructural facilities such as bridge with regulator and bed dam bridges across rivers in the Union Territory of Puducherry by availing negotiated loan from Financial Institutions.

**3. Actual Physical Achievements during Eleventh Five Year Plan (2007-12) :**

- i) 6 nos. of recharge borewells provided.

- ii) 1101 mts. of protection work (wall) in anicut completed.
- iii) One check dam and 7 bed dams constructed.
- iv) 35 box culverts constructed.
- v) 8455 mts. of drains constructed at various places.
- vi) 18964 mts. of Gravel / WBM roads laid.
- vii) Augmentation of two tanks by providing pipe line.
- viii) 2430 mtrs. of revetments works completed.
- ix) 3285 mts. of channel improvement works completed.

**4. Physical Achievements for the Annual Plan 2012-13:**

- i) One recharge borewell was provided.
- ii) 150 mts. of protection work (wall) in anicut was completed.
- iii) One check dam and bed dam were constructed.
- iv) 6 box culverts were constructed.
- v) 2750 mts. of drains were constructed at various places.
- vi) 4200 mts. of Gravel / WBM roads were laid.
- vii) Augmentation of one tank by providing pipe line was executed.
- viii) One bridge and 2 barrages were constructed.
- ix) 152 mtrs. of revetments works completed.
- x) 635 mts. of channel improvement works completed.

**6. Proposed Physical Targets for Annual Plan 2013-14:**

- i) Two recharge borewells will be provided.
- ii) 200 mts. of protection work (wall) in anicut will be completed.
- iii) One check dam and two bed dams will be constructed.
- iv) 6 box culverts will be constructed.
- v) 1410 mts. of drains will be constructed at various places.
- vi) 4732 mts. of Gravel / WBM roads will be laid.
- vii) Augmentation of one tank will be provided.
- viii) One bridge and one barrage will be constructed.
- ix) 175 mtrs. of revetments works will be completed.
- x) 732 mts. of channel improvement works will be completed.
- xi) Inter-linking of French channel in Yanam will be taken up.

### **Negotiated Loan**

- i) Construction of bridge with regulator across Malatar River at Kumaramangalam, Puducherry.
- ii) Construction of bed dam bridge Sellipet Village, Puducherry.
- iii) Ongoing works at Sivaranthagam Bridge, Puducherry.
- iv) Construction of drain from Gopalankadai (State Border) to Thiru Nagar Pump House, Moolakulam, Puducherry.
- v) Construction of RCC Drain for the Oulgaret Pallavoikal from Pitchaveeranpet road culvert to Gundusalai culvert at Moolakulam in Oulgaret, Puducherry.
- vi) Reconstruction of regulator across river Thirumalairajanar at Marampet village in Karaikal.
- vii) Protecting the bank and Construction of Footpath cum Drainage System from Aanavadukkal to Boulevard road at Thathakulam, Mahe.
- viii) Protection the bank and construction of footpath-cum-drainage system from Sub-Jail to Puthalam on southern side of I.K.Kumaran Master road at Mahe.
- ix) Bank protection of channel from Pallor Sub-Station to Arailakath Palam at Pallore, Mahe.

### **Japan International Cooperation Agency (JICA) projects**

- i) Construction of a Bridge-cum-regulator across river Vanjiar connecting Thenpathypet and Subrayapuram village in Karaikal.
- ii) Construction of check dams across Five Major rivers Nandalar, Nattar, Noolar, Vanjiar and Mulliyar at Karaikal.

**6. Remarks** : Continuing Scheme