

MINOR IRRIGATION

AGRICULTURE (GROUND WATER)

Water is an important basic needs for agriculture development and economic advancement in Union Territory of Puducherry. The water required for irrigation, drinking and industrial purposes in Puducherry region are mainly met-out from ground water resources. Owing to the dependence on ground water, the ground water resources of Puducherry has reduced in the past and it is a natural fact that the water requirement of a developing society gets increased day by day. In such a context, the water requirement of Puducherry has also increased due to increase in agricultural activities, population and proliferation of industries. Of the total water requirement of Puducherry, 80% is required for irrigation. The intensity of irrigation through tube wells, which was 50% during the pre-independence period has increased to 98%. As an adverse effect, the ground water levels in the villages of Puducherry lowered gradually and have gone from 12 to 35 meters below ground level and also sea water intruded the ground water regime of villages located in the coastal areas. The intrusion has taken effect to a distance of 1 to 4 kms inland, from the sea shore of Puducherry. The ground water development and management presents special challenges in view of its cross sectoral users for drinking, industrial and irrigation purposes.

To protect the ground water regime of Puducherry from desaturation, attention towards harvesting rain water for recharging ground water and conservation of ground water was given during the 10th and 11th Five Year Plan periods under the scheme “Integrated Scheme for Development, Harvesting, Recharging and Conservation of Ground Water”.

Programmes were implemented for rain water harvesting, water conservation, stabilized the existing irrigable command area coming under irrigation tube wells by extending attractive subsidy assistance. In order to control and regulate the exploitation of ground water. “The Puducherry Ground Water (Control and Regulation), Act” was enacted, and is being enforced by a separate body “Pondicherry Ground Water Authority”. The behavior of ground water was monitored intensely in terms of quality and quantity.

For better water resources planning and management of Puducherry, a World Bank Loan assisted Project “Hydrology Project Phase-II” is being implemented in Puducherry since 2006-07 onwards and will be completed by May 2014. Under the project, a water information system containing exhaustive information on ground water, surface water, water quality and hydrometeorology have been created. Further, it is stated that the establishment of

a state-of-the-art data centre and level II+ laboratory for water testing have been constructed at Lawspet. Besides, an automatic weather station at Kalapet has been established and the observation of tube wells to monitor the behavior of ground water have been constructed. The other programmes like establishment of river gauging sites across river for measurement of surface water flow and research study to improve the ground water potential in the North Western parts of Puducherry are under progress, which will be completed by April 2014. To disseminate the water resources data collected, a website has been created and the project is coming to an end by May 2014. After the funding period of World Bank, the project will be continued and will be operated under a separate organization namely viz. "The Puducherry Water Resources Organization" which was established under Societies Registration Act, 1860.

During the year 2014-15, it is proposed to continue programmes of rain water harvesting, water conservation measures like drip / sprinkler irrigation, stabilization of existing irrigable command area by extending subsidy assistance to farmers as was done in the 10th and 11th Plan periods. Besides, drilling machineries will be hired out at subsidized hire rates to the needy farmers towards construction of tube wells. One new high range power rig and compressor units will be procured to strengthen the drilling unit of the State Ground Water Unit. Control and Regulation of ground water exploitation will be undertaken through Pondicherry Ground Water Authority.

The Hydrology Project Phase-II, which was taken up since 2006-07 for better water resources planning and management have been completed by May 2014 by spending an amount of around Rs.13 crore and the deliverables of the Hydrology Project Phase-II are proposed to be continued / maintained under the 'Puducherry Water Resource Organisation' which was established under Societies Act.

PUBLIC WORKS (SURFACE WATER)

Under Minor irrigation, 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.

Construction of Bed Dams / Check Dams 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 2014-15. 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 following major works are proposed during the year 2014-15:

- 1) Construction of Anicut with High Level Bridge to connect the two villages Suthukeny and Kaikalapet between the left and right bank of Sankaraparani River . By this construction, the adjoining 12 Villagers will be benefited by reduction of 9 Km of travel distance. There will be considerable increase of Ground Water in the adjoining areas which will be help the farmers to undertaking agriculture using Ground Water.

- 2) The “Construction of Bed dam cum bridge across Pambaiyar near the Confluence point at Sellipet Village, Mannadipet Commune, Puducherry” will be taken up. 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.

OUTLAY AT A GLANCE

Sector : MINOR IRRIGATION

No. of Schemes : 3

Department : 1. AGRICULTURE

(Plan : 2 + CSS:1)

2. PUBLIC WORKS

(₹ in lakh)

Annual Plan 2012-13 Actual Expenditure	:	1625.67
Annual Plan 2013-14 Approved Outlay	:	2262.96
Annual Plan 2013-14 Revised Outlay	:	1841.70
Annual Plan 2014-15 Proposed Outlay	:	3018.19

(₹ in lakh)

Sl. No.	Name of the Scheme	Annual Plan 2012-13	Annual Plan 2013-14		Annual Plan 2014-15	
		Actual Expdr.	Approved Outlay	Revised Outlay	Proposed Outlay	Of which capital content
(1)	(2)	(3)	(4)	(5)	(6)	(7)
AGRICULTURE						
1.	Integrated scheme for development, harvesting, recharging and conservation of ground water	164.47	602.32	484.42	500.00	--
PUBLIC WORKS						
2.	Augmentation of surface water and ground water potential recharge scheme including strengthening of infrastructure.	860.69	1020.64	717.28	690.00	272.00
	Negotiated Loan	600.51	640.00	640.00	1825.00	1825.00
	Sub-total	1461.20	1660.64	1357.28	2515.00	2097.00
	Total(Plan)	1625.67	2262.96	1841.70	3015.00	2097.00

Name of the Centrally Sponsored Scheme		Actual Expdr. 2013-14	Unspent Balance as on 01.04.14	Proposed Outlay 2014-15
3.	Census Survey of Minor Irrigation	--	0.18	3.19
Total (Plan + CSS)				3018.19

Scheme No. 1

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: -

- Rainwater Harvesting and Recharging groundwater
- Water conservation and management
- Construction of rain water harvesting structures like mini lakes and ponds in Karaikal region
- Assessment of ground water potential and monitoring of ground water quality
- Stabilization of irrigation command

“The Puducherry Ground Water (Control and Regulation), Act” was enacted, and is being enforced by a separate body “Pondicherry Ground Water Authority”. The behavior of ground water was monitored intensely in terms of quality and quantity.

“Hydrology Project, Phase-II”, will be implemented under Puducherry Water Resources Organisation which was established under societies Act.

3. Actual Physical Achievements made in the Annual Plan 2012-13 :

Sl. No.	Item	Unit	Achievement
i)	Renovation of dug wells / dug-cum-bore wells	Nos.	7
ii)	Laying of underground pipelines at subsidized cost	Mtrs.	1644
iii)	Construction of tube well in SC farmers holdings at 90% subsidy	Nos.	1
iv)	Distribution of submersible pumpsets with accessories at 65% subsidy	"	51
v)	Construction of medium / deep tube wells	"	14
vi)	Construction of filter points / shallow tube wells (by SB sets)	"	2

Hydrology Project Phase-II

- Construction of State Water Resources Data Centre has been achieved.
- A well furnished training hall with LCD Projector, mic set etc has been established.
- 27 numbers of observation tubewells have been constructed to strengthen the groundwater monitoring network.
- Digital water level recorders with telemetry have been installed in the observation tubewells for continuous ground water monitoring
- An Automatic Weather Station with telemetry has been established in Kalapet under the project
- A part of the lab equipments have been procured for the Level II+ laboratory being established under the project.
- Equipments such as Global Positioning Systems have been procured and being utilized for the research study under the project.
- Digital modeling softwares have been produced and being utilized under the project.
- 4 numbers of motorcycles have been procured to strengthen the existing transportation facilities of the project
- More than 30 technical and non-technical officials have been trained in the usage of advanced equipments and techniques.

4. Physical Achievements for the Annual Plan 2013-14:

Sl. No.	Item	Unit	Achievement
i)	Laying of underground pipelines at subsidized cost	Mtrs	3971
ii)	Installation of sprinkler / drip irrigation set	Nos.	48
iii)	Construction of tube well @ 65% subsidy	"	50
iv)	Distribution of submersible pumpsets with accessories at 65% subsidy	"	36
v)	Construction of medium / deep tube wells	"	8
vi)	Construction of filter points / shallow tube wells (by SB sets)	"	1

Hydrology Project Phase-II

- Trainings and workshops on the importance of water resources are proposed to be conducted
- A sophisticated training hall within the state water resources data centre is proposed to be established.

- 4 nos. of river gauging sites are proposed to be established.
- Site stores for the river gauging sites are proposed to be constructed under the project.
- Automatic water level recorders are proposed to be procured and installed for measuring surface water flow in the rivers.
- An additional 10 numbers of observation tubewells are proposed to be constructed in Pondicherry and Karaikal regions to strengthen the existing groundwater monitoring network.
- Water quality equipments like Flame photometer, atomic absorption spectro photo meters are proposed to be procured for completing the setting up of Level II+ laboratory.
- Softwares for digital terrain modeling and groundwater modeling are proposed to be procured and to be installed in the State Water Resources Data Centre.
- The remaining works viz installation of fire fighting equipments, four wheeler shed, partition gates etc for the State Data Centre Building is proposed to be completed under the project during this financial year.
- A Research Study on artificial recharge is proposed to be completed during this financial year under the project.

5. Proposed Physical Targets for the Annual Plan 2014-15 :

Sl. No.	Item	Unit	Target
i)	Construction of Farm ponds in Karaikal region	Nos.	5
ii)	Renovation of dug wells / dug-cum-bore wells	"	5
iii)	Laying of underground pipelines at subsidized cost	Mtrs	3530
iv)	Installation of sprinkler / drip irrigation set	Nos.	50
v)	Construction of tube well @ 65% subsidy	"	50
vi)	Construction of tube well in SC farmers holdings at 90% subsidy	"	3
vii)	Distribution of submersible pumpsets with accessories at 65% subsidy	"	30
viii)	Construction of medium / deep tube wells	"	15
ix)	Construction of filter points / shallow tube wells (by SB sets)	"	5

Hydrology Project Phase-II

- Construction of additional building in the first floor of lab.
- Establishment of river gauging stations (Stilling wells) and posts.
- Observation tubewells (10 nos.)
- Establishment of Automatic Weather Station at karaikal

- Construction of artificial recharge structures under PDS and Rain water harvesting structures in HP-II buildings and observation tubewells under Purpose Drive Study (Research Study)
- Provision of lighting arrangements in the training hall
- Purchase of water quality equipments for the level II+ lab

6. Remarks : Continuing Scheme

Scheme No. 2

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 made in the Annual Plan 2012-13 :

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

4. Physical Achievements for the Annual Plan 2013-14:

- Two recharge borewells were completed.
- 200 mts. of protection work (wall) in anicut were completed.
- One check dam and two bed dams were constructed.
- 6 box culverts were constructed.
- 1410 mts. of drains were constructed at various places.
- 4732 mts. of Gravel / WBM roads were laid.
- Augmentation of one tank was provided.
- One bridge and one barrage were constructed.
- 175 mtrs. of revetments works were completed.
- 732 mts. of channel improvement works were completed.
- Action has been taken for Inter-linking of French channel in Yanam.

5. Proposed Physical Targets for the Annual Plan 2014-15 :

- Reconst of rectangular flume and the confluence point of link channel and Sambodai channel at K.T.Kuppam.
- Construction of Bed dam cum bridge across Pambaiyar near the confluence point at Sellipet village, Puducherry.
- Reconstruction of regulator arrangements in Perungalour chinna Eri and Periya Eri, Villianur Commune, Puducherry.
- Reconstruction of Nadu Madhagu of Uruvaiyar tanks @ Uruvaiyar village, Villianur Commune, Puducherry.
- Reconstruction of Palla Madagu and cistern of Embalam Sitheri, Embalam village, Nettapakkam Commune, Puduchery.
- Reconstruction of Pallamadhagu of P.S.Nallur tank, Nettapakkam Commune, Puducherry.
- Reconstruction Nallur tanks inlet structure with shuttering arrangement at Nallur and Madagadipet, Puducherry.
- Replacing the shutter system and providing new screw gearing arrangements in Bahour tank Palla madhagu and Kona madhagu in Bahour Commune, Puducherry.
- Reconstruction of regulator across the bund of Mannadipet tank in Mannadipet Commune, Puducherry.
- Reconstruction of slab culvert at the chainage 1000m of the Chettipet tank feeding channel in Mannadipet Commune, Puducherry.
- Construction of protection wall at surplus course of Abishegapakkam tank in Abishegapakkam village, Ariyankuppam commune, Puducherry.
- Construction of protection wall at P.S.Nallur feeder canal at P.S.Nallur village from RC Road a culvert to regulator arrangement, Nettapakkam village, Puducherry.
- Construction of pipe culvert across Thamaraikulam supply channel near Iyyanar Koil, Embalam Village.

- Construction of retaining wall in Authuvoikkal at P.S.Nallur village, Nettapakkam Commune, Puducherry.
- Construction of Madagadipet inlet feeder channel at Madagadipet village, Puducherry.
- Construction of protection wall on the upstream of Madagadipet tank inlet shutter near NH Road, Puducherry.
- Impts. To the channel near Sanniyasikuppam Kondam at Sambodai channel at Thiurbuvanai in Puducherry.
- Construction of protection wall at Sambodai channel on the upstream and Downstream of street culvert near school at Thiurbuvanai.
- Protecting the Left Bank and Right Bank of Nathamedu channel near inlet of Bahour tank in Bahour Commune, Puducherry.
- Providing surface dressing to the balance portion of the inspection track of Vadhanur and Sompet tanks in Vadhanur Village in Puducherry.
- Improvements to the inspection track laid over the banks of Vikkravandy channel from Kunichempet, Pudu eri feeding chaneel to Govt. School culvert in Kunichempet Village at Puducherry.
- Providing WBM road over the left bank of Kunichempet Pazhaya eri feeder canal from Thiruvannamalai main road to the regulator in Kunichempet Village in Puducherry.
- Reconstruction of regulator arrangements in Thiurkanchi voikkal near Thiurkanchi tank, Villianur commune, Puducherry.
- Parotection wall on the Uralkuttai channel opposite to Govt. school near Kasturbai Nagar at Madagadipet palayam, Thiurbuvanai, Puducherry.
- Construction of protection wall form Samy Madhagu to Authuvoikkal P.S.Nallur village, Puducherry.
- Forming inspection track to the Meenumoonji off take along Panaiyadikuppam tank feeder channel in Bahour Commune, Puducherry.
- Construction of check dam across the river Sankaraparani at Chettipet Village in Mannadipet Commune, Puducherry.
- Construction of protection wall in the U/s and D/s side of Vadukuppam Bed dam, Vadukuppam village, Nettapakkam commune, Puducherry.
- Construction of Bed Dam across river Guduvaiyar, Sathamangalam village, Villianur Commune, Puducherry.
- Desilting the various tanks in Bahour Commune, Puducherry.
- Improvement works to Pillaiyar koil kulam including inlet arrangement in Nallezhundur channel at Nallezhundur.
- Improvement works to Pillaiyar koil kulam at Thenoor in Thirunallar Commune.
- Deepening of various tanks in Nedungadu Commune, Karaikal Commune, Kottucherry Commune.
- Reconstruction RCC culvert across Keezhakasakudy channel near Pudhunagar in Kottucherry commune.

- Reconstruction of bed dam across Mungilkuthu channel near offtake point.
- Protecting the common bank of Puthavadai voikal and Periya voikal in Kannapur village.
- Reconstruction of culvert across Noolar for Sebasthiyar koil pet at Thakkalore.
- Reconstruction of culvert across Pattinam channel near pumphouse at Muthampallampet in T.R. Pattinam Commune.
- Laying RCC raw water pipe line along french channel from NH 216 towards Sky vision in Yanam.
- Lining the bed of the Adivipolam channel from offtake point to pumphouse at Gurempeta flood bank road in Yanam.
- Improvements to the approach channel and pump house to the left irrigation system in Seetharama Nagar of Dariyalathippa village, Yanam.
- Construction of Box culvert across the drainage channel in front of Bloss oil factory in Dommetipeta village, Yanam.
- Strengthening the French channel inspection track from Veterinary Hospital to Sky vision culvert in Yanam.
- Desilting the drainage channel from water works campus towards 9/8kms. Of Gurempeta flood bank road in Dommetipeta village in Yanam.

Japan International Cooperation Agency (JICA) projects

- Modernisation and Standardisation of the urban canals in Puducherry region.
- Construction of check dams across Five Major rivers Nandalar, Nattar, Noolar, Vanjar and Mulliayar at Karaikal

Negotiated Loan

- Construction of bed dam cum bridge across pambaiar the confluence point at Sellipet village
- Construction of Anicut with High level bridge across Sankaraparani river connecting Kaikalapet and suthukeny in Mannadipet commune.
- Ongoing works at Sivaranthagam Bridge, Puducherry.
- Construction of RCC Drain for the Oulgaret Pallavoikal from Pitchaveeranpet road culvert to Gundusalai culvert at Moolakulam in Oulgaret, Puducherry.
- Reconstruction of regulator across river Thirumalairajanar at Marampet village in Karaikal.
- Protecting the bank and Construction of Footpath cum Drainage System from Aanavadukkal to Boulevard road at Thathakulam, Mahe.
- 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.

- Bank protection of channel from Pallor Sub-Station to Arailakath Palam at Pallore, Mahe.
- Construction of drain from Gopalankadai (State border) to Thirunagar pump house, Moolakulam, Puducherry
- Construction of RCC drain for the Oulgaret Pallavoikal from Pitchaveerampet road culvert to Gundusalai culvert at Moolakulam in Oulgaret, Puducherry
- Construction of Storm water drain from ECR junction to Central Jail junction at Mathur road, Kalapet, Puducherry
- Raising the dipped portion in front of Ponlait and construction of Drain at RC.4 Valudavur road, Puducherry
- Protection the Sellipet bridge at RC.13 by constructing cutoff wall, solid apron and launching Apron in up stream and down stream of the Sankarabarani river, Puducherry
- Construction of 'U' drain and raising the low level of road from P.S.Palayam junction to culvert near Vadhanur Tank, Puducherry
- Protecting the RC.21 frontier road side in left out portion by constructing retaining wall in the eastern side opposite to Vadhanur tank, Puducherry
- Renovation of 'U' drain from Villianur Commune Panchayat office junction to Kottaimedu junction in Villianur, Puducherry
- Reconstruction of 'U' drain from Villianur Commune Panchayat office junction to Kottaimedu junction in Villianur, Puducherry
- Construction of check dam across the Sankaraparani river at Chettipet villages in Mannadipet Commune, Puducherry
- Construction of bed dam across Guduvaiyar at Melsathamangalam, Villianur Commune, Puducherry
- Forming and strengthening the left bank of Thenpennaiyar river from Sitheri anicut to Cuddalore road ECR
- Construction of toe wall and apron in the upstream side of Pillaiyarkuppam anicut in river Sankaraparani in Villianur Commune, Puducherry
- Providing inspection track on the left bank of Bahour surplus course from surplus to ECR road
- Construction of PCC drain from Sedarapet main road to Sedarapet Sitheri at Sedarapet village, Puducherry from Ch.0m to 1300m
- Construction of cuenet and modernization of Maducarai tanks secondary feeding channel from Siruvanthadu road culvert to tank at Maducarai village
- Construction of PCC retaining wall and providing revetment on the northern side bund of Sankaraparani river at down stream and upstream of Pillaiyarkuppam anicut, Puducherry
- Strengthening the left bank of Malatar river on the upstream side of the Nettapakkam bed dam Nettapakkam village
- Construction of retaining wall on the right bank of drainage channel from Lingareddipalayam to Katterikuppam

- Construction of ilet structure and Madagu of Abishegapakkam tank at TN Palayam village in Ariyankuppam Commune
- Construction of retaining wall both sides of the channel from Suthukeny tank surplus to Mailam road bridge at Mannadipet Commune, Puducherry
- Construction of Authuvoikal drain from Villianur main road to Murungapakkam tank in Puducherry (Ch.0m to 4850m to Puducherry)
- Providing protecting wall to the banks of Murungapakkam eri surplus from tank to confluence point of Ariyankuppam river in Puducherry
- Providing concrete lining to the supply channel from 3rd sluice of Murungapakkam tank to the existing drain at Aravindar Nagar in Puducherry
- Construction of Gorimedu drain from Don Bose School to disposal point at Saram in Puducherry
- Improvements to the drainage carrier of the Sakthi Nagar drain from Sathiya Nagar to disposal point at Uppar in Puducherry
- Improvements to the drainage carrier from Mullai Nagar to disposal point near Aattupatti at Uppar in Puducherry
- Reconstruction of Manampet Bed dam regulator across Thirumalairajanar river
- Protecting the bank and construction of vehicular path cum drainage on Northern side of Indoor Stadium at Mahe
- Reconstruction of existing box culvert at Ch.35/660 near Jaya nagar including cross drainage works on NH45A, Puducherry
- Improvements and relaying of roads including platform and Drainage facilities in urban limit, Puducherry
- Improvements to Karuvadikuppam drain from Ajantha Theatre to Sea fall point, Puducherry

6. Remarks : Continuing Scheme