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## Impact of Tank Rehabilitation project Pondicherry

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### ABSTRACT

After independence, there has been widespread recognition that the tanks are on a decline. Many reasons such as silting of feeder channels, encroachments in the tank bed, interruption in the catchment, poor maintenance, and development of well irrigation in tank commands are attributed for the decline in the tank-irrigated area. During the past 2 decades, states in south India have started rehabilitating their tanks. The European Economic Community (EEC), now European Union (EU), the National Bank for Agriculture and Rural Development (NABARD), and the World Bank provided financial assistance for tank rehabilitation in these states. The objectives and the model used for tank rehabilitation projects, their process and lessons learned are discussed in detail in this study. From these studies, recommendations for sustaining tank institution and tank rehabilitations were made. Similarly the studies carried out by Tank Rehabilitation project Pondicherry financial aid by European Union. The present study attempts to explain the impact of tanks rehabilitation Puducherry region with the specific objective of to understand the impact of irrigation tank rehabilitation on improved efficiency of storage structure.

**Keywords:** Agriculture, system tank, Groundwater recharge, Irrigation, Tank rehabilitation,

### Introduction

An irrigation tank can be referred to a small reservoir constructed across the gentle slope of a valley in order to catch and store water during rainy seasons to use in dry seasons. Minor Irrigation tanks are those having an irrigated command area of 80 ha or less, as defined by the *Agrarian Services Act No. 58 of 1979* while medium tanks were 80 tanks those having an irrigated area more than 600 ha. Tanks were common property of village community; they were owned, maintained and managed by the beneficiaries. The benefits occurring out of the tank and its water use including usufruct rights were enjoyed by the village community especially women, Landless and poor. To transform the outcome of rehabilitation, in recent times the main emphasis has been shifted towards the livelihood approaches through community-based tank rehabilitation on environmental restoration. With involvement of multiple stakeholders, which includes small, marginal farmers, landless group, women and other vulnerable groups, irrigation tank rehabilitation provides positive results.

The annual water availability of the Puducherry region is assessed to be 184.975 MCM, out of which share of surface water is 60.905 MCM (32.92%) and ground water is 124.07 MCM (67.08%). As per Central Groundwater Board Notification 2013, the Puducherry region falls under over exploited category and the ground water development is 130.00 percent, which is alarming. The main source of irrigation in the UT prior to 1987 was 84 no's of tanks and lakes which were supplemented by 3,000 numbers of shallow tube wells. The practice of conjunctive usage of surface and ground water was neglected since middle of the 1980's and

thereafter the entire requirement of water is being met out from groundwater leading to neglect of surface water resources. Increasing demand on ground water resources has resulted in drastic declination of ground water levels throughout Puducherry region to a depth of 12 to 45 meters and also sea water has intruded into the ground water aquifers to a distance of 1 to 4 kms inland along the coastal tract. Realizing the need to initiate efforts to restore, conserve, manage and maintain the lakes and ponds as an indivisible part of the whole ecosystem and the significant role played by them in recharge of ground water the Government of Puducherry is taking continuous measures for restoration of surface water bodies and watershed development. The objective of this study was to assess the impact of rehabilitation on tank performance.

## Objectives

1. To assess the impact of tank irrigation in study areas.
2. To bring out the salient features of tank irrigation in the study area.
3. To suggest a suitable plan policy of action for development of tank irrigation.
4. To know about the different types of tanks.

## About Puducherry

The Union Territory of Pondicherry consists of four regions, namely Pondicherry Region (293 Km<sup>2</sup>), Karaikal Region (161 Km<sup>2</sup>) and Yanam Region (20 Km<sup>2</sup>) located along the east coast of India and Mahe (9 Km<sup>2</sup>) located along the West Coast, covering a total area of 483 Km<sup>2</sup>. All the four regions are at different locations, geographically separated from each other. Pondicherry and Karaikal are enclaves of Tamil Nadu, while Yanam and Mahe are Andhra Pradesh and Kerala respectively.

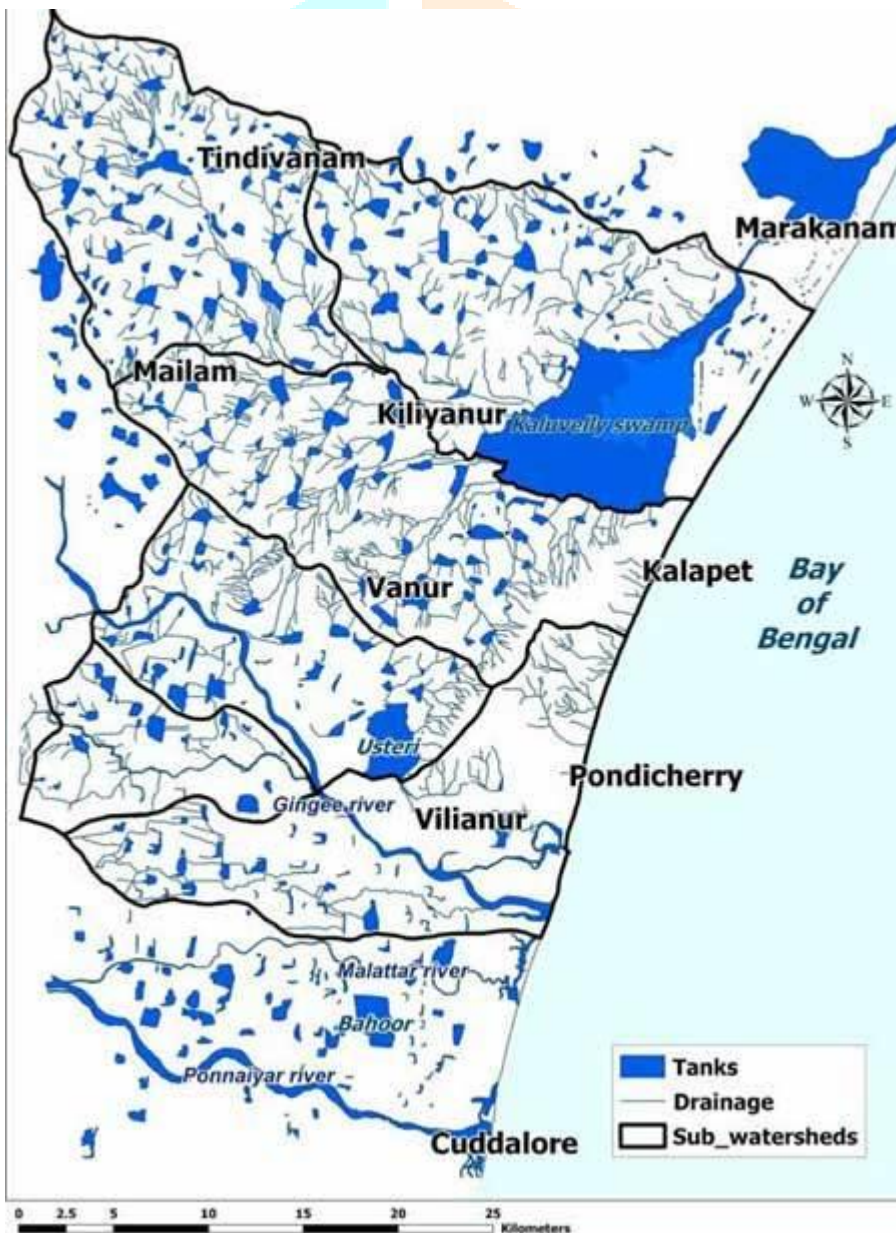


The Union Territory of Puducherry consists of two revenue districts viz., Puducherry and Karaikal. Puducherry district comprises Puducherry, Mahe and Yanam regions. Karaikal District comprises of the Karaikal region. Puducherry region is intersected by the deltaic channels of River Gingee, River Pennaiyar and other streams forming the two main drainage basins. It is also interspersed with lagoons, lakes and tanks. Malattar, Ariankuppam and Pambai rivers are the other drainages in the region. Mahe and Yanam regions are located at the tail end of Mahe River and Gauthami-Godavari River respectively. Karaikal region forms part of the fertile Cauvery delta and the region is completely transected by the rivers Arasalar, Nattar, Vanjiar, Noolar, Pravadaianar and the Thirumalarajanar.

### Water Resources of Puducherry

The Union Territory of Puducherry has 35 million cubic meters (MCM) of surface water and 150 MCM of groundwater. In Puducherry region there are 59 system tanks (i.e. tanks are connected to river systems) and 25 non-system (rainfed) tanks which irrigate about 6600 hectares of land. The system tanks receive supply from the two rivers and three major tributaries. Water from the rivers and tributaries are conveyed to the tanks through feeder channels. Apart from the 25 non-system tanks there are nearly 609 ponds that can hold rainwater. Much of the rainfall runoff can be stored in the 84 tanks that dot the landscape, in particular the Ousteri and Bahour tanks.

### Tamilnadu and Pondicherry traditional water conservation Map



Source: public works department pondicherry

## **Tank Rehabilitation Project-Puducherry (TRPP) (1998-2004)**

The task of rehabilitation of tanks was taken up by the Government of Puducherry under Tank Rehabilitation Project, Puducherry (TRPP) with the financial assistance of European Union in the year 1998 which lasted for 6 years on 2004. Under this project all the 84 numbers of tanks located in Puducherry have been desilted. The rehabilitation project involved desilting of tanks and cleaning the feeder, irrigation and drainage canals to restore optimum capacity and maintaining steady supply of water for irrigation purposes.

### **Implementation**

The project was executed by the Public Works Department with the assistance of the Agricultural Department and other Non Government organization.. Active participation of all the stakeholders Ayacut farmers, non ayacut farmers, farmers with their own bore wells, landless agricultural labours, scheduled caste people in the region, women and youth groups, and other general users of the tank were involved throughout the process since the successful implementation of the tank rehabilitation works and the sustainable management of the system lies in the effective mobilization of the whole community.

### **Financial support**

The total project cost was Rs. 34.73 Crores out of which the European Union extended Rs. 28.13 crores while Puducherry government contributed Rs. 4.4 crore and community stakeholders gave Rs. 2.2 crore. Puducherry started reaping the benefits of this massive project as the storage capacity of all tanks had been increased and the water distribution system, averting inundation and flooding in 80 percent of the villages. There was remarkable improvement in groundwater level after the project.

### **Impact of (TRPP) puducherry Region**

- All the 84 tanks in Pondicherry region were desilted and the total storage capacity has been increased from 35m cum to 75m cum. In this region
- The water holding capacity has been increased from 46 MCM to 75 MCM which has given a good impact in the ground water regime of Puducherry.
- The project also prevented inundation and flooding of villages at times of incessant rain and diminished the reliance of agricultural activities on ground water resources.
- The project not only prevented decline of groundwater level but recharged the aquifers and groundwater level increased to 20 to 30 feet in all parts of the territory.
- Increased storage and increased inflow has helped in better groundwater recharge
- The encroachment in all the water courses and water bodies will be removed.
- Before rehabilitation, the small farmers and marginal farmers raised only one paddy crop through tank irrigation. But now they can go in for cultivate multiple crop with tank water in early stage and tube well in the later stage.
- Rain water harvesting by the individuals and organizations has encouraged.
- Rain water harvesting in commercial, industrial and agricultural sector shall be improved and strengthened.

## Conclusion

Tanks have been in existence in India over centuries. They have been constructed at any particular time period but came into existence as to population pressure and demand for additional water storage to meet people's livelihood needs. Because tanks were constructed over the land surface without digging, availability of suitable adjoining sites to locate a tank played a major role in constructing a tank. The tanks of south India vary over a wide range in their command, catchments and water spread areas ranging from a few hectares to hundreds of hectares. The tank system, which has been developed ingeniously over a period of several centuries, has provided insulation from recurring droughts and floods and vagaries of monsoon, and provided the much needed livelihood avenue to the marginal and poor people living in the fragile semi-arid tropics.

The importance of tanks is being realized more and more, as the continued use of ground water and other large-scale water resources system is proving to be costly and inadequate to meet the increasing demands. So, the tank ecosystems have to be conserved to provide a safety net to the livelihood of millions who depend on these systems. The conservation of tanks has to be done considering the multiple uses such as irrigation, drinking water for people and animals and for recharging ground water. The tank systems also provide fuel wood and timber, fodder, silt, water for rearing fish, and animals and bio-diversity complex for flora and fauna.

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