Water Management and Water Managers in Traditional Tank Systems

R. Seenivasan

Col. Ellis when he described the tank\(^2\) systems exclaimed as 'ingenious' systems designed and developed by the native rulers of South India. As an expert engineer of the colonial times, he could find no better word. The tanks as engineering systems had several subsystems like water regulatory systems with sluices, pipes, gates and channels; water disposal systems with weirs, surplus courses. As professional biases get reflected in every profession, the world of Engineers could not able to appreciate the soft (management) side of it. The tanks had excellent management systems in tune with their size, capacity and network of channels.

Most of the tanks in South India had water managers to effectively manage them. Each tank had one or more such water managers called Neerkattis or Neerkuntis or Kambukattis or Thottis or Thalayaris. There are no accurate estimates that how many Neerkattis would have been involved in such tank management functions. We shall guess from the number of tanks in the region. There exist around 1.50 lakhs tanks which are big and small in size. A decent guess would be 2 Neerkattis per tank would probably be correct and this amounts to 3 lakhs.

As on today, leaving a few places the system of traditional management has given up to chaos and free for all situations. The breakdown of Neerkatti system, apart from the collapse of tanks, has rendered 3 lakh families jobless in south India. It is unfortunate that the modern laws including the recent "Farmers Management of Water" in Tamilnadu, Andhra Pradesh and Karnataka have left this category of water managers without even a mentioning in their annals.

Also it is sad to note that India has not learnt anything from its History of native management systems in managing the modern irrigation systems. The management functions of the irrigation is never thought of the functions at the villages and all the major projects of modern India has no such mechanism to be governed at the village level.

In this note, we try to capture the role and function of traditional managers of tank systems. The Neerkattis had several functions ranging from supply of water to every farmer at the farm level to safeguard the tank from all natural and man-made evils. The typical functions of them included the following. It need not be mistaken that all the functions had been observed in every tank across locations. A great deal of variations in sophistication existed across the region. The description is only an observation of remnants of the past in south Indian situations.

Mobiliser of village labour: The tank as a common property requires collective action to remain fit and performing. The tank complex consists of various subsystems like supply channels, Feeder channels, field channels, tank bund and structures like sluices and weirs. The supply channels and the surplus courses have to be kept clean so that it carry as much water to feed and dispose off the tank during monsoons and floods. The clearing and desilting of channels is an annual work needs to be done before monsoons in a short period. Also the field channels in bigger tanks need clearing and proper alignment. The Neerkatti acts as a planner, manager, and mobiliser of farmers to do the job. With the help of the village elders or administrators he is responsible to do that. He estimates the required laborers after a careful study of the situation and the need for various types of labourers for

---

1 Programme Leader, Tank Programme, DHAN Foundation, Madurai, India - 625 010 <dhan@dhan.org>
2 Tanks are earthen bunded reservoirs, noticed all over the South India. The combined irrigation potential of these structures are estimated as nearly one fourth of the irrigation provided all systems in the area.
jobs like jungle clearance, earthwork. As part of the duty, he informs every household personally or through public announcements. Thus he ensures the work is done.

**Watch and Ward of Tank Properties:** The Neerkattis act as a watchman of the tank against natural calamities like breaching due to floods, collapsing of sluices and weirs due to wear and tear. He is also the caretaker of tank usufructs coming from trees on bund, foreshore and channels apart from the withered and windfallen trees and twigs. Many villages in South India derive their revenue from the sources like tanks. The bund is a place for trees like Tamarind, Jamun and other timber value trees. The tank bund is a place where trees like Babul which grow withstanding the water. The properties from tanks are highly valuable and the biggest source of revenue for the village. The Neerkattis is the guard for such trees apart from watching the crops in the agricultural fields against stray cattle damaging the fields.

**Water Management Functions:** Water Management functions in tank systems vary depending on the availability of water in tank storage, type and extent of crops, class of farmers and set practices in the ayacut areas. While farmers are kept away from irrigating on their own, Neerkatti ensures the water supply to every field on a rational basis. Strict rules for the purpose of irrigation regulation existed in all the tanks. Neerkattis are the only persons allowed to open, close and regulate the flow of water to the fields and the farmers are kept away from the bund for all practical purposes. The most common regulation in times of scarcity and normal situations are described below.

1. **Rotational Water Supply:** The most commonly observed system of water supply is on the basis of irrigating from Head to tail in the ayacut area. Irrigation would start from the tail end fields to the Head reach stage by stage, this method is believed to be the most efficient way of irrigation among the farmers.

2. **Scarcity Management:** In monsoon areas the availability of water in tank storage do not always match with the requirement. Neerkattis are responsible to manage the scarcity and expected to tide over any crisis due to shortage of water. Though there are not uniform rules across tank areas the following are generally observed as management practices.
   - **Restricting the number of wettings:** The Neerkattis resort to restrict the number of wettings so that to minimise the crop losses by providing the threshold level of supplies. This is an optimisation technique learned over a period of experience by the communities to get optimum yields. This method does not reduce the ayacut areas.
   - **Reduction of ayacut area:** In case, restriction of area is necessary to use the water more efficiently the ayacut area will be reduced. There are several ways this reduction is done. Usually uniform area per head is fixed, a limited area closer to the head reach is selected and all the farmers are assured of piece of cultivation.
   - **Grazing by Goats or Cattles:** Also a kind of practice to make the crop stunted in growth in anticipation of delayed rainfall and preparing for the anticipated monsoons.

**Farm Management:** In total, on farm operations related to irrigation of crops in the ayacut area is left only to the Neerkattis. The farmers are not allowed to attend to the irrigation functions. The Neerkattis are also expected to report to the farmers on the crop diseases and pests for control measures.

1. **Forecasting of Monsoon and Water Availabilities:** Neerkattis in many places are used to forecast the arrival of water to the tank, availability of water in days and suitable selection of crop varieties based on the water. There exist measuring posts in the form of pillars or stand
points close to the sluices to exactly calculate and predict the water availability and estimating the availability for crops.

**Revenue for Neerkattis:** Historically Neerkattis have been village workers who have served the farmers in particular and the village society in general. Along with other village workers like washermen, Blacksmith or Barbers they were looked after by the village community. A Patron-Client system existed in most part of the south India, which has sustained them and their productive functions. A range of arrangements existed to keep the Neerkattis system alive over centuries. These arrangements in many places are codified and legalised to the maximum extent. They include the following:

**Share of Crop Produce:** The farmers are expected to pay the Neerkattis a share based on the area under cultivation. At the time of threshing of crops, Neerkattis collect either grains or the bundles of harvested crop.

**Fixed Quantum of Grains per Family:** It is also reported in many areas farmers pay the Neerkattis in kind per household irrespective of the crops cultivated and incomes realised.

1. **Land for Cultivation:** Neerkattis are also provided with piece of land in the ayacut area. This land is allocated as Neerkatti Manyam from the village common land. They are not expected to transact the land for sale or mortgage and allowed to enjoy the land as long as they serve the village as Neerkattis. Similar manyams existed in the villages for other workers also.

**Appointments:** The Neerkattis are mostly appointed from the local villages. The selection, engagement and disengagement of them to work for the tank water management are decided locally. Various types of arrangements existed over the century. They shall be classified as follows:

- **Hereditary Appointments:** Neerkattis hail from the same family and the right to succession comes by birth in the family. The rights are transferred to sons and at times to son in laws also.
- **Annual Appointments:** Neerkattis are appointed annually in many places and provided with pieces of lands. The land will be taken away from them once they relinquish the duties as Neerkattis.
- **Rotational Appointments:** It is also noticed that the appointments are also made in rotation from among the set of families who are mostly relatives. The families of Neerkattis will have set rules among them to stake the right to be Neerkattis.

While most of these Neerkattis are from lower castes especially scheduled castes it is also found that there are people from other farming castes also. Madaikudumban and Neerpaichi Sambhan are common examples of schedule caste Neerkattis. We have also observed people from Reddys, Thevar, Yadavas also serving as Neerkattis in many parts of Andhra and Tamilnadu.

Apart from the functions related to water management and tank systems in many places Neerkattis are also found to be serving other village common functions. They include messenger of sending death and birth, messenger for caste/ village disputes, Thottis to announce village functions, wood cutter for cremation of dead, watchman for cremation grounds, torch bearers for temple processions during cremation etc. These services are observed whenever the Neerkattis are from the scheduled castes. The remuneration for such services are compensated separately through kind or cash.
Neerkattis at Cross Roads: The Indian village polity, social milieu and production systems have changed a lot over the last two centuries due to several reasons. Among this the social changes due to advancement in crop production systems, change in crops, cropping practices, advent of wells and borewells in command areas had crippling effect on tank system management. Though the centralisation of tank administration by the British had brought several changes, they did not affect the Neerkatti systems much. However, the changes in crops in the ayacut area from paddy to cash crops like sugarcane, introduction of wells and borewells with electrical power had made these village servants life miserable. In turn the tank systems are also left unattended by everyone with realisable stakes.

A discussion with a group of Neerkattis held at Punganur in Andhra Pradesh provides a glimpse of changing tank management scenario as seen by Neerkattis. This is true in most parts of the south India.

1. Change of crops and Practices in Ayacut: Paddy used to be the most common crop in tankfed areas in south India. The advent of wells and borewells combined with cheap and easier electrification processes lead to change of crops. Typically, tank ayacuts had good potential for groundwater and farmers resort to digging wells from the fifties. Easy access to groundwater combined with the establishment of modern sugar mills made the farmers to switch to sugarcane. As paddy being an annual crop requiring irrigation for the whole year, they are fed from wells apart from the tank water. The tanks usually supply water from 3 - 5 months and farmers supplement with groundwater. Farmers tend to irrigate their fields on their own through their own or labourers and Neerkattis are not involved in irrigating the sugarcane fields. The irrigation methods, frequencies for paddy is completely different from sugarcane farmers are forced to do without Neerkattis. So Neerkattis are out of their routine works.

2. The monetisation of economy in the villages have brought the deathblow to the services of Neerkattis. The farmers were not paying the Neerkattis in cash whenever their services are rendered irrespective of crops. Since sugarcane and other cash crops are realised at other places than the villages made the farmers not to pay for the services of Neerkattis.

3. Collapse of village administration: The change of village polity and administration had its own share of destablishing the Neerkattis. The British had tried to take away the usufructs and residual revenue from tanks through various government orders and settlements. On this count also the village servants like Neerkattis who used to safeguard the revenue generation become powerless.

4. Quick Fix Options to Growth: The rise of wells

5. The collective action required to keep the tanks performing in the villages have become unnecessary because of the well irrigation which is self contained at the farm level. So the functions other than water management done by Neerkattis have not been attended by them.

6. Change of Land Ownership Pattern: The twentieth century has seen education and industrialisation as the engine of change in village economy. The rich and affluent could get educated and leave the villages for greener pastures towards the cities. The transfer of ownership from the erstwhile land owners to the newly emerging class of farmers took place in many parts. These class of farmers as their earlier counterparts did not value the services of Neerkattis and not paid to them adequately. This practice again forced the Neerkattis to leave away the profession or doing it in sub optional ways.
7. **Breakdown of Social Order/ Discipline:** The complete breakdown of village unity, collective action and restraints for misbehaviour in the villages have become the order of the day. This phenomena is aggravated by various social changes, fends, conflicts, caste wars in the villages and left the villages without any discipline and common restraint towards exploiting common properties. In most of the villages the village meetings as a forum for collective action either cease to exist or reduced to caste group meetings. This total breakdown of social order made the tanks as victim of free riding and rapid exploitation. The Neerkattis are rendered powerless and their survival started declining along with the decline of tank performances.

**What needs to be done?**

Today at the turn of the century just after 4 decades of modern agriculture combined with the failure of pumpset revolution, the south Indian tankfed areas need solution for the problems of a greater magnitude. The solutions are not only to ‘improve’ the performance of tanks, it is to revive the engineering, administration and management regimes. A discussion with a pointed question on ‘how do you revive tanks and your jobs?’ the following practical answers had been generated. The Neerkattis through their wisdom asserts:

i) **Farmers should not attend to their water management functions, simply they should abstain from the tank bund and leave the tank to the Neerkatti.**

   This would mean that a new management regime, restrained behaviour, collective action, individual responsibility to safeguard common property. Also it does mean farmers have to be taught to come together and respect the need for a management order and a manager who run the business on consensus.

ii) **Local illness to be cured: the encroachments on bunds, channels and surplus courses and tank structures need to be evicted locally.**

   This would mean that the farmers have to collectively restrain themselves from indulging in free for all and leave away the marginal for the better performance of tanks.

iii) **Eviction of Major Encroachments: The encroachments on waterspreads need to be evicted and disallowed.**

   This would mean that the government has to resurvey the tanks and demolish structures and evict everyone irrespective of poor or rich to safeguard the common property.

iv) **Attending to Minor Repairs: An immediate task to be done by every stake holder including the farmers.**

   The repairs to sluices, gates, pipes, weirs, closing of breaches have to be done on priority basis to avoid the wastage of water. Along with that Neerkattis shall be enabled to operate them through technical control under lock and key.

These simple repairs combined with the training to Neerkattis will help them manage water efficiently.
v) Rehabilitation of tanks and channels: Priority of the Rural Development Sector

Since most of the tanks are in dilapidated condition, they warrant rehabilitation. More importantly the supply channels need to be brought to their size and shape to avoid leakage and dissipation of water along its way to tanks.

vi) Ban on Borewells: A long term view of the Environment

A complete ban on borewells on the fringes of waterspread and bunds should be announced. The recent trends in many parts of Andhra Pradesh and Tamilnadu show that farmers buy water from these borewell operators who are most often encroachers of government lands. In such cases, the wells be made as common property managed by the Neerkattis.

The solutions for Revival of tank management need to be thought as part and parcel of revival of tank structures.