

Learning from traditional social institutions

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The traditional management of Mudiyanur tank provides an interesting example of a system of management that ensured fair distribution of water to the land of all households, promoted respect for different roles in society, and sought to resolve conflict between different parties in as harmonious a manner as possible. The practices were found effective not only to meet the irrigation needs of the villagers but also to conserve ground water levels. Much can be learned from them to build more effective and sustainable systems of community-based tank management for today.

Photo: S Jayaraj



Group discussions by village communities

Tanks of South India are potentially best suited to recharge ground water and to extend safe drinking water to the families in the command area. In spite of this, they have lost their significance over the last few decades due to many factors such as - emphasis of the state governments on large-scale irrigation projects and well irrigation, introduction of superior water lifting technologies; take over of management of tanks by the Minor Irrigation Department, marginalisation of age-old social institutions constituted by the communities for tank management and alienation of the community for the outputs from tanks and subsequent transfer of such rights to respective departments.

Despite all the above listed causes, there are documented and reported cases of tanks such as Mudiyanur of Mulbagal taluk, which are being effectively managed by communities as a source of irrigation. Mudiyanur is part of a chain of tanks in Mulbagal taluk in Kolar district of Karnataka, serving seven other villages for irrigation purpose. The catchment area of the Mudiyanur tank comprises about 993ha.

The system of irrigation

The command area of Mudiyanur is structured in such a way that it conserves every drop of water harvested into the tank. The structure is so well designed that its efficiency in distribution of water is achieved by a good network of canals and drainage system. Water distribution is through two sluices located on either side of the tank. The canal extending from the sluice runs all along the command area, and is named *Rajakaluve*. From this canal, distributaries are drawn both vertically and horizontally. At the lowest point of the command area and at the tail end, arrangements are made to collect the drained water from the fields on either side of the command area.

Fields receiving water from the left bank canal are called *vanamu gadde* (garden land) as this portion is elevated compared to the rest of the command area. The surplus from all these portions flows to the lowest point, irrigating a few fields. This collected water is then reused for irrigation purposes. Apart from the canal used in utilising drained water, there are three other points where small bunds called *ooddu* are created to tap the surplus water flowing out of the tank along with the seepage from the fields. Water collected at each of these *ooddu* is reused for irrigation. Along with these the surplus water flowing from the dry lands around the command area and from small ponds in the vicinity of the command area is collected at the *ooddu* and used for irrigating the land at the tail end.

Complementing the good network of canals in the command area, the cultivation of crops is also efficiently planned. As the tank is located in a low rainfall region, a catch crop is planned to allow the collection of water to its potential capacity during the monsoon season. This catch crop is partially irrigated and that too for one and half a months in the later stages of the crop. The catch crop is followed by irrigated paddy only during summer months if the tank is holding water to its total potential.

Informal but recognised social institution

Mudiyanur tank which was built around 828 AD, was the exclusive property of the *Jodidars* (are those appointed by the British during colonial times to collect revenue and also administer law and order in the village) residing at Mudiyanur village. There were 56 families having rights to the *Jodidar* system and each family head took it in turn to be the head of the village, bearing the name *Patel*. As the tank was an exclusive property of *Jodidars*, the entire command area was also exclusively owned by them. The villagers

in the neighbourhood villages were hired in as tenants. After the abolition of the *Jodidar* system in 1957, the *inamathi* system in 1976 and subsequent land reforms in the 1970s of the last century, the *Jodidars* started selling their holdings within the command area to the farmers within the Mudiyanur village and other villages in the neighbourhood. Even today, about 40 per cent of the land in the command area is cultivated by tenants.

To achieve efficiency in water use, farmers dwelling in the command area of Mudiyanur tank respect the decisions of an informal institution. This informal institution whose genesis dates back to colonial times, comprises of a council of elders from all the seven villages. They make decisions on both the tank and water management.

The structure of the council of elders is two-tiered. Representatives of each caste group residing in each village constitute the first tier, and the village functionaries constitute the second tier. The council is first constituted at the village level by inviting representatives from each caste residing in the village. Normally this representative will be from the largest group and also from that which commands the largest area under cultivation.

Traditionally, the council of elders is headed by one of the *Jodidars* from Mudiyanur. Normally, it was the *Patel* who heads the council of elders constituted for the temple. Although the post of *Patel* was abolished in 1976, the son of the last *Patel* is recognised as the head of this council. This continuation is not challenged, although people do recognise the emergence of another capable person. Though this emerging person is not invited officially to the meetings, he is consulted on various issues pertaining to the temple and the tank.

In the case of village functionaries, the head of the office changes every year on the basis of an understanding arrived at by the families of the scheduled caste. These village functionaries include *Thooti* (village guard), *Neerganti* (the man responsible for releasing water and delivering messages) and *Talwara* (originally the personal attendant to the village head). In Mudiyanur there are four households of scheduled caste and each family takes up a different role each year. Only these four families have the right to be the *Neerganti* for the Mudiyanur tank, and to claim *inam* land (although this is independent of performance of duty as a *Neerganti*). No other family from any other village has the right to be a *Neerganti*.

Most decisions are on the release of water for irrigation, attending to repairs required for the infrastructure for effective delivery of water and, above all, conflict resolution. Decision making with regard to water and infrastructure management are largely guided by well-established patterns of behaviour. No one is aware of the genesis of these patterns, but they are well understood and practised by each and every one related to the tank. Any deviation from the pattern is considered as a risk factor and is normally avoided.

Water management

The council of elders follow the established patterns on release of water and the consequent practises to be followed in each season.

At the end of the harvest, the *Thooti* gets 6 bundles of paddy, *Neerganti* gets 12 and *Talwara* 3 from one unit or half acre (*dala*) of land. During a good harvest, *Neerganti* may end up getting 25–35 bags (each bag of 60kg) of rice and other two get half and quarter of that. In addition, the four families of *Thooti*, *Neerganti* and *Talwara* have been given 16 acres of dry land and 5 acres of irrigated land.

Accordingly, during the rainy season no farmer, irrespective of the level of water stored in the tank, is allowed to draw water for raising a seedbed or puddling the field. Water is not released for irrigation purposes till the commencement of *Magge* (early summer) rainfall. By this time the crop sown would have reached earhead formation stage and irrigation will definitely boost the yield.

Water is released for irrigation after the consultative meeting of the council of elders in the first week and last week of December during which the council of elders with the assistance of the *Neergantis* and other farmers estimate whether water accumulated in the tank is sufficient for a crop or not. To estimate the sufficiency, there are indicators, which are proven to be practical over the years. According to these indicators, if the water level in the tank is up to the uppermost division marked on the exclusive stone pillar erected for the purpose of measuring the depth of water which is located closer to the sluice, or if the water level touches the horizontally laid stone slabs over the sluices then it is estimated as sufficient to raise a crop of paddy. If the level is far below the set pattern then no crop is raised and water will not be released for irrigation. If the level of water is just few feet lower than the marks for the full tank, then the opinion of the *Neerganti* is sought. If the *Neerganti* expresses his confidence on the water stored in the tank to help in raising a crop, then the council decides to release water for irrigation. Based on these estimations, the dates for the release of water are decided. Normally, it is the *Neerganti* who will advise the council of elders on the exact day for release of water. This suggestion of *Neerganti* is essential, as he has to attend to the repairs and maintenance of canals before the release of water.

Using water efficiently

Farmers mainly grow traditional varieties of paddy using customised seeds during the *Kharif* season. Direct sowing or broadcasting of seeds is carried out during mid-June as soon as the monsoon sets in. The soil, being clay loam, holds lot of moisture. The tank sluices are not opened until the end of July, at the time of weeding. This saves nearly 30% of the tank water. In former times (fifteen years or so), if the tank overflowed before June or if the storage reached the optimum level, farmers would transplant the seedlings. Over the years, farmers have experienced water shortages even after the tank filled up in June. Hence they have resorted to direct sowing which better suits the water scarce situation. More over, it is very difficult to cultivate other crops in this stretch during *Kharif*, since the clay loam soils can quickly become waterlogged if there is a sudden outburst of rains.

During the summer, there is no restriction on the variety to be grown and individual preferences of farmers are honoured.



Discussions with local Neerganti

However, the preference is for short-term varieties as they reduce the risk of shortages at the end of the season and the chances of losing a crop due to stray cattle grazing, if the duration is beyond the cropping season.

Of late, farmers have started experiencing water shortages for growing paddy in *Rabi* season (summer crop) even with the tank overflowing in the month of December. Consequently, better wisdom prevailed on the farmers and from last year the council of elders arrived at a conclusion to irrigate only part of the command area. i.e., 80 acres out of the total 240 acres. The command area was divided into three divisions of 80 acres and in the first year, the first division was irrigated during summer. In the second year the second division was taken up for irrigation and in the third year the last division was taken up for cultivation. It is reported that all farmers in the command area have accepted this change.

Maintenance of structures

Basic infrastructure for the delivery of water in the command area is regarded as the property to be managed by the council of elders and the rest, including sluices, bunds and other structures in the catchments are not regarded as the properties to be managed by the council. With such options the council of elders seek the opinion of *Neerganti* in the maintenance and management of these properties. Based on the suggestions of *Neergantis*, the council advises the farmers to attend to the repairs of the tank infrastructures.

Structures that require repairs are the sluices and the delivery canals. As the sluices are built of stone pillars, no repairs are required. But to tap every drop of water in the tank, silt accumulated around

the sluice has to be removed. Normally this will be accomplished by the concerned *Neerganti*. If the canal has to be drawn from the point where water is accumulated within the bed, then the farmers receiving water from considered sluice will be summoned to make a canal.

Farmers attend to the major canals and distributaries on a regular basis. Works in these canals are attended to only if the *Neerganti* summons all the farmers served by the canal. Farmers are summoned for two kinds of activities. Firstly, to remove weed and desilt the canals regularly in each season prior to the release of water, secondly, to attend to major repairs like breach in the canal or strengthening the canal bund with additional reinforcement, etc. To attend to regular weeding and desilting during each season, through informal consultations, the *Neerganti* collects the opinion of several farmers, especially those who hold land on a large scale, and fixes the day for weeding and desilting. Normally, the day fixed will be a Monday - as no farmers engage animals for any activity in the field on that day as a custom. All canals are weeded out and desilted in each season from top to bottom with the collective participation of all the farmers served by that canal. If the work remains incomplete, farmers could be summoned on the next day or on the following Monday.

A person failing to participate in the desilting and weeding activities without prior permission is liable for punishment. Punishments are decided by the council of elders based on the complaint filed by the *Neerganti* identified for the respective canal. The council of elders has the right to stop the supply of water to the fields of the offender. In some cases, release of water may be delayed in order to exact a change in behaviour, although

the extreme step of cutting off irrigation supply entirely is not generally exercised.

Water management challenges in current times

The water availability in the tanks has reduced over the years for various reasons. Also there are changes in social norms. The council of elders themselves note that there are many changes in the villages, and that these changes pose a major challenge to them. According to them, such changes include an increasing number of absentee landlords, the emergence of new leaders, external political influences, and government institutions themselves.

Mudiyanur tank, an example of strong traditional system is gradually dying out. Even with an understanding that the system is very well related to the status of the catchments, the institutional structure is not able to address the issues of the catchment effectively. The council of elders has not taken up the issue of changes in the land use pattern or the diversion of runoff from the tank. Though admitting the tank is the lifeline of the poor villagers around the tank, the present system has totally failed to check silting of the tank. Though the government agencies have taken appropriate steps to provide drinking water facilities, the problem of declining ground water and consequent impact on the availability of water are addressed neither by these agencies nor by the council of elders.

However, many lessons can be learnt from this traditional social institution. The management of Mudiyanur tank provides an example of a still-functioning traditional system of decision-making, a system that was common in the area in earlier times but which is to be found less and less. Whilst the system has flaws – and may be particularly criticised for the lack of participation of women and the manner in which roles are caste-determined – it can nevertheless provide interesting lessons. Building on and enhancing traditional systems of management are often more effective than introducing completely new mechanisms.

Understanding the traditional system provides an insight into the tank as a natural resource that is the focus of a social system. The tank at Mudiyanur, and other tanks in the chain are particularly useful to the poor as a means of sustaining livelihoods. In a drought prone region, the availability of water for production purposes is crucial for crop irrigation, for livestock, for bathing and washing clothes. Having access to tank water means that the poor can avoid situations of seeking favours from the rich farmers owning wells. Women's domestic drudgery, in particular, is reduced if they have ready access to water.

The way in which water shortages are shared not only in Mudiyanur, but also in the tanks of Mandikal, Kothamangala, etc, provides insight on how farmers tailor paddy cultivation to short and uncertain water supplies. As has been seen, water use is judiciously regulated, paddy varieties chosen carefully, and the method of cultivation adapted to low water availability. An additional important point is that shortages in water supplies are shared in a manner that is accepted by the community members as equitable.

Since seven villages share the Mudiyanur tank, they provide an example of the management of a resource used by more than one community. The formation of the council of elders at different levels and the power shared by each council at each level may provide insights in developing a system for the management of a resource owned or used by many communities. The council at each level being responsible to its members is also an example of decentralisation of power.

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