Tanks, the lifeline of villages

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Historical background

Tanks were the major sources of irrigation in the past. Locally called ‘kere’, they were part of the village life system. Every household in the village derived benefit from the tanks. Apart from providing water for agriculture, water was also used for domestic purpose such as washing of cloths, drinking water for cattle, etc. Potters used water and silt from the tank for sustenance of their livelihood. Fisherfolk households in the village also benefited from the tank. Tanks provide water for command area (an area around a water source) farmers whereas the catchment area farmers also derived benefits in the form of fertile silt from the tank. Various cultural activities such as ‘Kerehabba’, ‘Holegangamma’, etc. were centred around the tank.

Construction of tanks was regarded as religious work of the highest order. That is why many tanks were named after the person who constructed them. In the past, they were built by the kings of the erstwhile dynasties, well to do people and by communities themselves. Management aspects were automatically built into the system. Pongamia trees were planted all along the feeder canal. Farmers used to prune the pongamia trees and added the biomass into manure pits. To some extent, this prevented obstacles from interfering with the flow of water in the feeder canal. Also, farmers used to transport a huge quantity of silt every year to their lands and deposit it in their manure pits. This has helped in the desiltation of the tanks every year at zero costs to the government. If this did not suffice, then there were strict guidelines by the community to do shramadan (voluntary labour) regularly. For example, every household should provide equipment such as pick axe, crow bar, carts for the desiltation activity or each person should transport at least ten baskets of silt from the tank bed, etc. The management system was in tune with the agriculture and life styles of the time.

That was indeed a past glory. Now-a-days, the scenario has changed completely. The then British government had established its right over the tanks in the middle of the 18th century by taking control of the management and maintenance. The British government was attracted by the huge amount of revenue from the tanks and precipitated the decline and deterioration of a centuries old management system. Gradually, the communities lost interest in the maintenance of the tanks as they were managed by the people sitting far away from the tanks. Thus, the tanks were alienated from the village life system. The communities also developed the attitude of looking at tanks as somebody's property. The result was the deterioration of the tanks. Once the lifeline of the village system, these tanks have now become a liability with full of silt, encroachment, breached canals and reduced water storage capacity.

Facts and figures

The State of Karnataka is proud for possessing over 36000 tanks with a potential command area of 690000 hectares. Due to lack of proper maintenance and neglect, both by the government and the communities, the actual area irrigated by these tanks have shown a consistently declining trend with the current irrigated area at 240000 hectares. Out of 36000 tanks, 22800 tanks are under the control of the Irrigation Department and the remaining are under the control of taluka administration.

Tanks and biodiversity

Tanks not only provide water for irrigation. They perform various other functions that help to improve the local environment and biodiversity. For example, tanks provide habitat to over ten types of grasses, many birds, frogs, fishes and other life forms that live in the water. It has been estimated that birds from foreign countries do visit 20000 tanks in Karnataka. Tanks are the base for majority of the bird sanctuaries in the State and elsewhere. Tanks are also essential to prevent flooding during periods of heavy rainfall.

The tank system

The tank system consists of the following core components- catchment area, tank area, command area, fore shore, tank bund, sluice, waste weir and feeder canals. The size of the tank was decided based on the catchment area available. Usually, the location having natural depression and surrounded by hills was considered for the construction of tanks. Bigger tanks have larger catchment areas. Lots of trees were planted in the catchment area and foreshore area to prevent the direct flow of water to the tank. The trees also acted as silt traps and prevented the silt from the catchment area. The catchment area appeared like a forest with so many trees. In the absence of natural tree cover, small check dams, sunken ponds and small tanks (gokatte) were built in the catchment area. This helped in preventing siltation of the tanks and increased ground water recharge.

Management of tanks system gains significance in the climate change scenario. The entire area from which the tank gets water is called catchment area. In order to prevent siltation of the tank, the catchment area needs to be treated systematically through watershed activities- field bunding and contour bunding depending on the slope, plantation of forestry species along the bunds, vegetative checks, gully plugging, construction of check dams, farm ponds, plantation all along the feeder canals etc. Rain water percolates into the trenches and thus increasing the moisture regimen on both sides of the trenches. The leaf litter from the forestry trees gets absorbed by the soil and helps in improving soil fertility.

Management of watersheds

Watershed is a geo hydrological entity that drains into a common point. The common point may be a tank, a drain, etc. In majority of the cases, a tank is a common drainage point for watersheds. In Karnataka, watershed development projects were initiated since 1983. During the 8th five year plan, watersheds were implemented in 11 districts.

At present, watershed projects are being implemented across the state. The Watershed Development Department is supporting the
NGOs to implement watershed projects such as Sujala watershed project, IWMP project, etc. NABARD is also supporting NGOs and the government to implement watershed projects through the RIDF fund. Plantation of trees is part in all the watershed projects along with land shaping and farm bunding. However, the tree component is being neglected conveniently in majority of watershed projects. This neglect needs to be addressed as watershed activities carry no meaning without the tree component.

Today, the government has changed certain policies and more emphasis has been given to communities in the management of watersheds. This has helped in involving communities in the planning and execution of activities based on local needs and situations. To some extent this has given good results in Sujala and IWMP watershed projects. One can see some greenery in the watersheds implemented with community participation. But the efforts need to be strengthened further.

**Rejuvenation of tanks**

Tanks were neglected during the British rule as mentioned earlier. The situation continued even after the independence. Due to continued deforestation in the catchment area, tanks were silted and their water holding capacity was reduced considerably. Communities also neglected them. Instead of assets, tanks became liabilities with silt and had garbage dumped into them. Many tanks were encroached and converted for other purposes. In this process, about 5000 tanks have disappeared from the tank list. The severe drought during 1970 opened the eyes of the government and it started to think about the rejuvenation of tanks.

However, tanks continued to be neglected until the World Bank came forward to provide financial support for rejuvenation of tanks in 1979-80. About 165 tanks were rejuvenated with World Bank support. Realising the importance of tank rehabilitation, Government of Karnataka has floated an organisation called Jala Samvardhana Yojana Sangha (JSYS) to implement the Karnataka community based tank management project (KCBTMP) funded by World Bank. The project was initiated during 2002. As on today, 3710 tanks have been rejuvenated through KCBTMP.

Farming communities can adapt to the effects of climate change by managing the tanks properly. Now, it is the responsibility of the TMIs to maintain the tanks after the withdrawal of the JSYS project. TMIs should ensure that there is no encroachment of the tank area such as feeder canal, fore shore, etc. Repairs and replacements are to be carried out as and when required; regular plantation in the foreshore area, catchment area, farm bunding, etc. to avoid further siltation of the tank and the application of silt every year in the catchment area are to be encouraged. This helps in de-silting the tank regularly and in the percolation of water. It is high time we go rejuvenate and maintain the tanks instead of dreaming of big dams as tanks serve the purpose of decentralised water harvesting and equitable sharing of water among the communities.

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**Case study: Development of catchment area through watershed principle**

The BAIF –Institute for Rural Development has demonstrated a model to develop catchment area at Mylanahalli, Arasikere taluka, Hassan district. The model has become a learning place for many NGOs and government departments. Systematic soil and water conservation activities were implemented in 455 hectares belonging to Mylanahalli, Adihalli, Hunasakeatte, M.Koppalu and Ontekallahatti villages with community participation. In some villages, farmers have completed field bunding activity manually, whereas in some villages, due to the hard nature of the soil, machines were used for bunding activity. Totally, 400 farm ponds have been excavated and 22 check dams were built to harvest excess run off during rainy season. This activity has helped in arresting soil erosion to a greater extent and in recharging the ground water table.

Forestry plants are being planted all along the field bunds and in fallow lands covering 455 hectares. Forestry plants start producing biomass and fuel wood from 4th year of plantation. Biomass is being used to prepare compost and applied to the field. This helps in reducing the application of chemical fertilizers and thus reducing the emission of nitrates to the environment. Family level self sufficiency in firewood production can be reached within 5 to 6 years. This helps in reducing pressure on the forest for firewood. Apart from this, trees acts as carbon sinks and thereby helping to mitigate the climate change effects.

The project also supported 350 families to adopt tree based farming system in one acre each. 40 fruit plants including mango, cashew and tamarind were provided to participants. Pit digging and planting, shading, mulching and watering was done by the farmers as their contribution. The fruit trees are protecting the livelihoods of the small and marginal farmers by providing some income even during drought like situations.