



Indigenous Knowledge on Nomenclature of water Storage structures in Tirumala foothill villages

KEYWORDS

Indigenous Knowledge, water storage structures

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ABSTRACT *The present study focuses on indigenous knowledge on the nomenclature of water storage structures in Tirumala foothill villages in Chittoor district, Andhra Pradesh. The main thrust is laid on local knowledge on the categorization of water resources based on the utilization and nature of formation of the water storage structures.*

INTRODUCTION

Indigenous knowledge is the cultural capital of traditional society held in the memories of people and transmitted orally. Indigenous knowledge has been viewed as ethno-scientific knowledge. Chambers (1983) views indigenous knowledge as "stock of knowledge" as well as "systems of concepts, beliefs and ways of learning" held by a culture group. Indigenous knowledge is said to be produced by people in direct contact with the physical environment (Howes and Chamber, 1980). Through the indigenous knowledge the people of Tirumala foothill villages named of each and every water storage structure. They classified several types of traditional water storage structure, in which some structures were natural formations and some were manmade. Traditional water harvesting systems in Tirumala foothill villages reveal fascinating attempts to capture the water available through either a plethora of harvesting systems or a complex water conveyance network. With the onset of modern water management systems, there has been a decline of these traditional systems. The present study conducted in the villages adjacent to Tirumala foothill villages in Chittoor district. The data was collected through field walking for observation, formal and informal interviews.

Several water harvesting structures exist here with a rich terminology that reflects the various techniques of water utilization. The topography of this region comprises discontinuous hilly terrain with tiers of huge fissured boulders. The agricultural fields are small in size, built as terraces along slopes, water courses and *Guttalu* (hummocks). On the whole, the area available for cultivation is skimpy.

Water storage structures here range from big to small pits either natural formation or manmade. A brief discussion of each structure is as follows:

NATURAL WATER STORAGE STRUCTURE

Madugu

Madugu is a naturally formed, perennial or seasonal, wide or a sort of water storage pond like structure located usually in the beds of streams or rivulets and is full of pebbles and boulders. *Madugulu* (plural) are used both for irrigation and feeding the rivulet and these are also the places for fishing. During rainy season, water flows through the streams and fills the *madugu*, then overflows either into another *Madugu* or a stream or rivulet. The farmers irrigated their fields using the water from *madugulu* through lifting devices. Some times the *madugu* is associated with folklore and fair and people treated them as sacred pools; the people baths here during Mahasivaratri.

Chelama (Natural springs)

Chelama is a naturally formed spring in the foothills or in

ravines. The *chalamas* are oozes of water in rainy season and this water is used the people for irrigation and drinking. A small *Chelamas* has a diameter of about 2.5 m and big one has about 10-15 m. A portion of *Chelama* towards slope is drawn into a sort of neck which proceeds further to form a long furrow or canal linked directly to a feeder channel of a *Cheruvu*. *Chelama* is an important source of water supply for small fields of about 3-5 acres for raising one wet-crop. As these water bodies are very important for poor or marginal farmers, special care is taken to protect them. In summer season these are the sources of drinking water for cattle.

Dhona

Dhona is a small natural pool of water usually located in hills or rocky places. Some of them are perennial and some are used to store rain water for a few days or few months. Some *dhonas* are perennial having water throughout the year even in severe droughts. Some of these are associated with local deities and the people considered them as sacred. Sometimes the taboos are associated with these structures of that the people do not clean foot in this water and do not use this water during menstruation.

Kona (Big stream)

It is naturally formed channels which carry water to various storage structures, found at several places in studied region. *Kona* refers to bigger streams running for several kilometers meandering through valleys. *Kona* has specific names and may have springheads. Some of them begin as a *vanka* (streamlet) before becoming a *kona*. The *jari* starts in *kona*. The *jari* is a perennial water fall; water starts here and flows several kilometers as streams.

Yeru (Stream)

Yeru is a seasonal rivulet into which several *vankalu* or *Vagulu* drain at different places all along its course before it finally joins a bigger river. *Yeru* is an important source for irrigation in this region. Water for irrigation is taken by means of a *Kanju* or *Anakatta*. *Yeru* is the way to divert rain water towards down slopes. The streams receive water from *javukulu* (oozing hummocks, small Gullies) in rainy season.

Vanka (Drainage channel)

Vanka is a gully which carries rain water from the hill slopes and run off rain water from agricultural fields. These are diverted into tanks to receive rain water. These are naturally formed drainage channels mostly confined to areas near foot hills or in tank catchments or in village habitat. These channels travel some distance along slopes to join a reservoir. These are usually disjointed channels connecting a series of water reservoirs like tanks and *kuntas*. They serve as feeder channels to tanks and other storage res-

ervoirs used for irrigation. Sometimes a number of *vankas* carries rain water to streams.

Narava (Gully)

Narava is oozing water channel carrying rain water or oozing water from a certain level between hillocks or at foot-hills. The water flows through these *Naravas* to the tanks or streams. These are the best source of drinking water for wild species in the forest.

Sela (Puddle)

Sela is a sort of puddle in a rocky place from which water keeps flowing. The watercourse may usually lead to another bigger *Madugu* within the hill. These are the water falls during rainy season; the watercourse may also drain into a *vagu*. There are number of *selas* seen in rainy seasons along with Tirumala hills.

Springs and patches of hummocks which are marshy lands located at high gradients are seen in this region though most of them no longer exude water. Three local terms are associated with springs. Namely *Javuku*, *Voota* and *Bugga*. In the upper zones on the hills and rock sheets and certain patches of lands ooze out water. This phenomenon is called *javuku*. *Voota* (land oozing water) is a similar phenomenon as *javuku* but occurs at base-levels or plain lands. The term is usually confined to water bodies and not to patches of land. Certain points in streams, wells, brooks and tanks also exhibit this phenomenon. A small *Guntha* (small well) is excavated near this *voota* and the oozing water is diverted to this well and used in irrigation. The lands under this irrigation are called *Vootumadi*. *Bugga* is a small natural fountain or ejection which may be seen in a well or by the river side or several meters away from a tank. In some cases, the *bugga* gets activated, that is water gushes out, when a nearby pond or tank is full with water to its capacity.

Cheruvu (Tank)

Cheruvu is manmade earthen banded water harvesting structures usually constructed across slopes of the landscape. *Cheruvulu* (tanks) are very popular and the major source of irrigation for wet cultivation in the study villages. Tanks in Tirumala foothills may be termed as chain tanks. From the high gradient near foothills through valleys to the base level, several tanks are constructed. Each one is connected to the other by *maravakalava* (weir canal) or *vanka* which carry surplus flows of water from tanks in upper reaches to tanks in lower reach. Some tanks may also receive drainage from their own free basin. Usually the tank system comprises tank structures, which constitute *katta* (tank bund), *thoomu* (sluices) and *morava* (surplus weirs); water spread area; catchment area and command area.

Katta is simple earthen sections constructed using the earth removed from the tank site or brought specially for the purpose. *Thoomu* (Sluice) is used to let out the water from tank, which are simple in design having a barrel embedded in the bund with a plug and rod at the entrance of the barrel to open or close the sluices. Some of the tanks of the sluices had two entrances, upper (*pythumu*) and lower (*lothumu*). The sluices are opened based on the availability of water level in the tank. *Morava* (Weir) is meant to dispose off the surplus water from a tank safely to a downstream channel known as *moravakalava* or *vanakalava* (surplus course or drainage channel). The weirs are embedded with stones to prevent soil erosion due to overflows.

Kunta (Small tank)

Kunta is a smaller version of *Cheruvu* consisting of a small bund, one sluice and one flood weir. Sometimes the *kuntas* do not have any sluices and weirs, only used for preserve the water for drinking animals. It is usually used to irrigate small areas of below 5 acres. Usually, a *kunta* is located between two tanks. A stream or *moravakalava* (canal) for surplus runoff links them. Sometimes *kunta* is located at higher gradients. Such structures act as small reservoirs meant for receiving percolation water oozing out of *Guttalu* (hummock) or *Bandalu* (rock mounds) and receive surplus water from tanks when they are situated at lower gradients.

Oddu (Artificial bund)

Oddu is an artificial bund usually laid horizontally across the overflowing weir water of another big tank in the upper reaches. The bund may or may not have sluice and flood weir. The bund is usually 150m in length and 4-10 m in height. The main uses of *Oddu* is to irrigate fields at higher gradient and to store surplus runoff water from main tank. The surplus runoff in the *Oddu* is drained into another *Oddu* or *Cheruvu* downwards.

Conclusion

Indigenous Knowledge on water resources is immense practical consequence. The water is a most important resource for survival of the lives. Human have identified the importance of water and has developed the local classification of different water storage structures located in their surrounding environment. The topographical name of water bodies can provide easily identification and understanding about several types of water bodies.

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