

***IRRIGATION SYSTEM IN MEDIEVAL ANDHRADESA UNDER THE AEGIS OF
VIJAYANAGARA DYNASTY WITH SPECIAL REFERENCE TO ANANTAPURAM
REGION, ANDHRA PRADESH, INDIA***

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ABSTRACT - The history of irrigation in India can be traced back to prehistoric times. The Vedas and the Ancient Indian texts made references to wells, canals, tanks and dams highlighting how they are beneficial to mankind. In an agrarian state utmost attention is paid to irrigation since it is an essential prerequisite for the promotion of agriculture which add much to the revenue of the state. In India major portion of population depending on agriculture, efforts have been made for the augmentation of water resources ever since the Vedic times.

Tank irrigation is very popular in India and the digging of tanks is as old as 9th century A.D. in this region. King Mayindamma of Nolamba family granted a tank at Hemavathi for the maintenance of Ghatikasthan [a place of learning] containing Shaiva teachers. Irrigation management during medieval times was often felt an uneconomical. In result tanks and canals were neglected and abandoned. During the Vijayanagara period great attention was paid for the construction of tanks, wells. As a result, numerous tanks of varied sizes came into existence throughout the Vijayanagara Empire. The development of an efficient secular management of the temples was also closely related to the irrigation technology by the rulers. During this period the irrigation tanks, canals are constructed and maintained by the state as well as rich people. There are a number of contemporary inscriptions shows that the Vijayanagara rulers gave impetus for the development of lands through irrigation, construction and upkeep of the wells, tanks, building sluices and canals.

Key words: Irrigation, Vijayanagara Dynasty, Agriculture, Revenue.

HISTORICAL BACKGROUND

The history of irrigation in India can be traced back to the prehistoric times. In the Vedas and the other Ancient Indian texts there are a reference to wells, canals, tanks and dams showing how they are beneficial to mankind. All the Ancient civilizations were flourished on the banks of the rivers. According to the Ancient Indian texts, the digging of a tank or a well is considered as the meritorious acts of a mankind, the construction and the repair of dams and water tanks is felt as a pious work and the responsibility of its maintenance under taken by the rich landlords. The Vishnu Purana enjoins merit to a person who affects repair to wells, tanks and gardens. In an agrarian state irrigation is paid utmost attention since it is an essential prerequisite for the promotion of agriculture which add much to the revenue of the state. Hence, in a country like India, where major portion of population relied on agriculture, efforts are made at the augmentation of water resources ever since the Vedic times.

Panini and Kautilya refer to Sethubanda to facilitate irrigation by water storage similar to the present dams. There are four ways to help irrigation manual labor, carry western on shoulders, water lifts, and raise water from tanks. In Kautilya's Arthashastra, there is a reference to Aharodaka-setu as a method used for irrigation. The Sinhalese were the first to build completely artificial reservoirs to store water. The Ahar-Pyne system of irrigation in Bihar was probably in use from the time of the Jatakas, the tales of Buddha of his previous birth. Ahar is actually a tank which receives its supplies from small rivers through diversion channel called Pyne. Megasthenes an ancient Greek traveler, who visited India during the reign of Chandragupta Maurya (340-293 B.C.), mentioned the existence of closed canals in Bihar.¹

In the south, perennial irrigation may have begun with the construction of the Grand Anicut as early as the second century to provide irrigation from the river Cauvery. Wherever the topography and terrain permitted, it was an old practice in the region to impound the surface of drainage water in tanks or reservoirs by throwing across an earthen dam with a surplus weir where ever necessary. The entire land-landscape in the central and southern India is studded with numerous irrigation tanks which have been traced back too many centuries before the beginning of the Christian era.

The present paper is an attempt to explore the irrigation system in medieval Andhradesa under the ages of Vijayanagara dynasty with special reference to Anantapur district. During Vijayanagara rule the king as the head of the state, ruling chiefs, officials, local bodies and individuals took interest to dig wells, tanks etc., for the encouragement of agriculture and for their daily needs and other purposes. It gives an account of tanks in Anantapur District of Rayalaseema region which are constructed and maintained by the Vijayanagara rulers. There are a number of contemporary inscriptions to show that the Vijayanagara rulers gave impetus for the development of lands for irrigation and constructing, upkeep of the tanks, building sluices and canals.

Irrigation always received greater attention by the state from the ancient days as well in Medieval Andhra Desa, because agriculture happened to be the main livelihood of the people. It played a vital role in every society and it had religious sanctity so that the officials as well as private individuals to challenge with one another in to dig tanks, wells, etc, for the benefit of the society. Irrigation works may be classified into two types, they are, natural and artificial. The natural sources of water supply were the rivers and rains. Artificial irrigation works are of three types 1) Well including doruvu wells on river banks, 2) River –channels, rivulets and tanks or reservoirs formed by building embankments across the hills and 3) Streams –canals. Panini mentioned that the village depended for their water supply on wells (Kupas) to which were attached Nipanas or water troughs from which the cattle would drink. Ten varieties of Kupas (wells) are mentioned according to their dimensions. They are, Srimukha is to be laid-out in four hastas and, the Sankara type to be laid-out in thirteen hastas, but all these should be laid in circular. The cleaning of Wells in the village were taken up by udagaha or udakagaha, who acted as dredgers, skilled workers in cleaning tanks. Narakasamhita classified the dykes into two types, they are, Kheya and Bandhya. Kheya was dug into the ground and, Bandhya was constructed above the ground level.²

In Anantapur district the digging of tanks is as old as 9th century A.D. King Mayindamma of Nolamba family granted a tank at Hemavathi for the maintenance of Ghatikasthana containing Shaiva teachers³. This is the earliest evidence hitherto known for digging of tanks in the district. During the age of Vijayanagaras irrigation facilities were essential for agriculture and it can broadly be classified into natural and artificial means. The former includes rivers, tributaries, streams and the latter include tanks, ponds, ditches etc. Irrigation may define as the supply of water by artificial means for the cultivation of crops. The irrigation works may either ‘*Nadimatrikas*’ (river fed) or ‘*Devamatrikas*’ (rain fed), or both, depending upon the ecological conditions of the region.⁴

Wittfogel in his “Oriental Despotism” states that the irrigation forming is of two types, hydro agriculture, and hydraulic agriculture. The hydro agriculture is cultivation of lands under minor irrigation works such as wells, ditches which can be developed by a single man, family or small groups of men and in the latter the land is cultivated under large scale irrigations works such as tanks, channels etc., requires organizational patterns and social control of the state. In a despotic state where hydraulic agriculture practiced, the hydro and hydraulic works were strictly controlled and managed by the Government. It is because a large quantity of water can be canalized and kept within the bounds by disciplined and co-ordinate managerial powers. However, under the Rayas of Vijayanagara, both hydro and hydraulic nature agriculture was carried out. But the nature and function of the irrigation works in the state of Vijayanagara vary to a large extent, because of the nature of the state and geopolitical and socio-economic environment of the land.

TANK IRRIGATION IN MEDIEVAL ANANTAPUR

Anantapur district is situated in a low rain fall plateau zone, and it is being characterized as in draught prone region. There are some rivers and rivulets, which are covering these areas as a part of their upper valleys. The river Penna and its tributaries, Chitravathi, Kusavathi, Jayamanagali, Erraeru, Vangapaueru, Hagari, Papagani, Gurricheruvu, Morava vanka, and Maddileru flow through different parts of the district. As this region is more qualified by less rain fall, even the rivers and rivulets, despite their countable number render no solid positive help for the promotion of agriculture. The inhabitants of the district had to carve out for necessary model for water management. So, they resorted to artificial methods of getting water by digging tanks, wells, canals and also building dams for storing water for irrigation and other purposes.

The digging of tanks, wells and even providing the facilities for agricultural purposes acquired a theme of religious significance from the time immemorial. The digging of tanks was undertaken by the rulers, their wives, the feudal chiefs and rich private individuals. In 1388 A.D. Bukkaraya - II was the governor of Penukonda, he provided water from Honna river to Penukonda. He took a great task of building a dam and 15-mile-long channel was dug from dam over Tungabhadra River. Even now it supplies water to the aqueduct of several miles cut out of solid rock at the base of the hills and it was the most remarkable irrigational work undertaken by Vijayanagara rulers of that times. Kriyasakti along with Chikka who happened to be a teacher to the founders of Vijayanagara Empire Harihara-I built many tanks at Dharmavaram, Ravulacheruvu and Gottur. Among other Vijayanagara rulers Bukka II, Devaraya II, Krishnadevaraya were also famous for their construction of works for irrigation and agrarian policy. Bukka III was constructed Padmakara tank and a well after capturing the fort of Pangulla and Saluva Timmayya was also constructed a well at Lingasurta at Mudgar.

Amuktamalyada [IV-V] states that the Vijayanagara rulers gave stress on tanks building for agriculture, Kings, Nobles, wealthy men, village assemblies should take interest in irrigation projects, under the Department of Irrigation. Artificial supply of water was done by unique way to maintain regular supply for irrigation to compensate rain. Water is pumped from natural lakes and wells conveying the water over the land through gravity flow was mastered by Vijayanagara engineers, elaborate, expensive canals system was constructed with rocks which was only one of its kind in the world. You can see the photo of such unique rock pipeline which runs for several kilometers at a stretch.

The epigraphically evidence drives home the point that maintenance of tanks was given utmost importance particularly from the Vijayanagara period onwards. People of all ranks as well as institutions like temples evinced great interest in maintaining tanks and thereby brought large extents of land under cultivation. Permanent arrangements were made for the upkeep of tanks by way of granting land, villages, tax-incomes, etc. to those who were entrusted with this responsibility. Consequently, a good number of tanks excavated during the medieval period continue to serve the purpose even till today. All these evidences indicates that tank irrigation is found more in Madakasira, Hindupur and Kalyanaduragam taluk of the district. The areas where rivers Pennar, Chitravathi and Hagari flow in abundance in Dharamavaram, Gutti, Tadipatri and Rayaduragam taluks no serious or continuous effort were made for the promotion of artificial irrigation.

Tank irrigation was the mainstay of irrigation throughout the Vijayanagara Empire except in those areas, which were watered by the rivers. Construction of tanks received greater attention by the state particularly in Anantapur region. The method of construction of tank is depicted in detail in the famous Porumamilla tank inscription of Bukkaraya Bhayadhura dated 1369 A.D.⁵ The Vijayanagaram kings realized that the prosperity of the state primarily depended on the irrigation facilities arranged. Both religious and economic motives prompted the rulers and their officials to undertake necessary irrigation facilities to the people. The excavation of tanks was included in the saptasantanas, seven kinds of progeny, that keeps on one's name for ever.

In Anantapur region, water was considered highly valuable from the early period. People depended on agriculture and in turn depended on rains. Generally, Anantapur District has remained a dry zone because of the absence of perennial river system, frequent failure of monsoons. People themselves began to dig tanks to irrigate their lands and canals were constructed to bring rain water to the tanks. Some villages in the region have the suffix "Cheruvu" "Kere" ("Kannada word for cheruvu") which means tank. Like Chimmanakere⁶ Apparasa Cheruvu⁷, KrottaCheruvu.⁸ Because of their large size, these tanks were also called 'Samudrams' like BhairaSamudram⁹ Cholasamudram¹⁰ and Kanchisamudram¹¹ and such suffixes in the village names denote that the practice of tank excavation is very old in this region.

In 1340 A.D. an inscription from Kundurpi says certain ChikkaBommayaNayaka, son of Gangeyanayaka and governor of Nidugallurajya, dug a tank named Hampeyadone.¹² The Bukkarayasamudram inscription¹³ dated 1364 states that Anantarasavodeya, the Chief Minister of the king Bukka I, excavates a tank and built a temple of Sankara in the banks of the tank called BukkarayaSamudram, which stands out even today as a monument to the service-oriented administration of the Vijayanagara Kings. During the reign of Harihara II an inscription was at Bukkarayapuram Agrahara, Penukonda mandal dated 1382 A.D. states that Vasudeva minister of the king constructed a tank in the same village¹⁴.

An inscription dated 1388 A.D.¹⁵ was found on a slab set up by the road side to the north of the Medireddypalli village of Gorantla Mandal states the Polinayaka a son of Mahanayakacharaya Kitinayaka ruling at Medireddypalli caused a feeder channel to the tank in the village from the river chireru. In the neighboring Gouribidanur Taluk of Kolar District abutting Hindupur of Anantapur District of Kalludi, there is a record dated in 1388 A.D.¹⁶ states that on the orders of prince Bukka II son of Harihara II, Singayabhata (Hydraulic Engineer) got excavated a channel Pratapabukkaraya mandala kaluva connected to Siruvera tank.

An inscription dated 1397 A.D.¹⁷ belongs to Harihara II was found at Penugonda and registers a grant of land and 300 Gadyanas to Peda Bayira Poju and Pina Bayira Poju to construct a channel at Tirumani Village by Jommadevi, granddaughter of Bukkaraya. The inscription dated 1397 A.D.¹⁸ was found on a rock in the Revanna temple at Haresamudaram, in Madakasira Mandal registers a grant that that one Dhuleyanayaka constructed a tank at Chatyanakunta in Kodainahalli.

Another inscription dated 1400 A.D.¹⁹ states that Goparesu Dandanayaka, an officer of Kalavuru in Tadipatri Mandal had a tank Named Gopasamudram was excavated by Medireddy for this pious work he was rewarded with land as Dasavandam. During 1485 A.D. near Ramapuram village Narasambudhi tank is made as an expansion of a channel into a valley and this work was undertaken by three Brahmans namely, Narasimhasomayaji, PrasannaSomayaji and Lakshmana Somayaji.²⁰ Another inscription dated 1488 A.D.²¹, found on the south base of the Ramaswami temple at Ramapuram, Agali mandal states that Rayaparaju a provincial officer made a gift of land to NarasimhaSomayaji, PrasannaSomayaji and LakshmanaSomayaji on condition that they would convert the valley adjoining the fields in to a tank and call it Narasmbudi after the name of the king, Narasingayya Maharaya .

Sri Krishnadevaraya declared that the prosperity of the country was a source of profit to the state, so, the government should create irrigation facilities by construction of tanks and canals. To provide the country with tanks wells, and canals was believed to bring religious merit to the people. Similarly during this period, prince Virabhadra of Gajapathi family contributed to the digging of a tank at Cherlopalle, as a gift to Lord Tiruvengalanatha of sire for the merit of Srikrishnadevaraya.²² During the same period, in 1517 A.D. certain KottigeTippaya, who is a Karyakarta of the king, dug a tank to the south of Uravakonda village and it is being commissioned by Amarada Timmarasau.²³ To provide the country with tanks wells, and canals was believed to bring religious merit to the people. In an inscription of 1538-39 A.D., the excavation of tanks was included in the Saptasantanas.²⁴

All the Vijayanagara rulers appointed architects to design and plan for constructing dams and canals, according to Robert Sewell, 'Srikrishnadevaraya in 1521 A.D. constructed a dam and channel at Korragal and the Basavanna channel both of which are still in use and of great value to the country. According to Paes and Nuniz, Sri Krishna Devaraya constructed a huge tank with the aid of a Portuguese engineer near the southern entrance of Nagalapur city. Many channels were dug for the supply of water to the city. A stone channel goes up from the throne platform to the walls of the citadel and a branch it reaches the Zenana enclosure and it supplies water to the queen's bath. A tub made with a single granite block measuring 4½ feet in length 3 feet in width and 2 feet in thickness was found there. Abdur Razzak says, "In the king's palace one sees numerous running streams and canals formed of chiseled stone polished and smooth. Sewell states that the remains of these are still to be seen not far from the 'Ladies Bath' where there was a long trough that carried the water and on each side were depressions which may have been hollowed for the reception of round vessels of different sizes, intended to hold water for house-hold use.

An inscription dated 1516 A.D.²⁵ in the region of Krishnadevaraya found on a rock behind the Lingayat Matha of Uravakonda records the gift of some plots of land made by Amarada Timmarasa, the Karyakaratha of the king Kattiga Tippaya for construction of a tank to the south of the Uravakonda village. An inscription dated 1519 A.D.²⁶ States about the construction of tank Anantacheruvu of Atmakuru and Kaluvayi Cheruvu at Kaluvayi.

An inscription dated 1525 A.D.²⁷ found on a slab set up in front of the Bhogeswara temple of Konakondla, Guntakalmandal records that, under the order of the king, Ramaraju made a gift of land to certain persons of kondakundi for constructing a tank of the village and for its supervision. An inscription dated 1538 AD²⁸ it's the region of Achyutharaya found on the southern wall of the Lakshmi temple of Gorrepalli records a grant that one Viranna Nayaka's brother of Penugonda Virupannayya, constructed a canal tailed to Nutana Tungabadra from a spring to the north of the village Modeya. During the reign of Sadasivaraya, an inscription dated 1546 A.D.²⁹ was found on a slab set up before the temple of Hanuman of Baginayakanahalli in Rayadurg mandal, records that Veerannanayaka, an agent to Mahamandaleswara Ramaraju Vitalayyadeva Maharaju, made a Kattumanya grant of some fields to five persons for reconstructing the ruined tank at Baginayakana Halli.

During the rule of king Sri Ranga Devaraya an inscription dated 1584 A.D. ³⁰ was found on a slab built in to the south wall of the Rangaswami temple at Sri Rangapatnam in Kalyanadurgam taluk refers to a report made by the learned men of Erragudi to the king about the gift made to them during the reign of king Sri Krishna Devaraya by SriRangadevaraya, who constructed a tank and a canal connecting to the tank from a river for the supply of water to the region. This tradition was continued further at Ramasamudram near Aiyagaripalle of Kalyanadurgam taluk, Mahanayakacharya Bommanayaka Settur Madigonda constructed a tank.³¹ During 1726 A.D., one LachchaRame Ammavaru, wife of Dalavayi Venkatapatinayaka of Rayadurgam constructed a tank near Rangasamudram.³² In the same way Mahamandalesvara Sammeta Rangaparajadeva Maharaya favored a private individual who dug a tank at Rangapuram.³³

REPAIR AND MAINTAINANCE OF TANKS AND WELLS

In Medieval Anantapur the tanks and wells were not only built and equal care was taken for their maintenance by the rich people. According to an inscription from Manepalle in Hindupur taluk, Nollamba Pallava king Ayyapadeva (897-934) diverted his income from Bittuvata, to the up keep of a tank, undertaken by the influential persons like Choraya, son of Sri Purushayya and the officials like Gamundas and Pannasigas.³⁴ In the succeeding period in 936 A.D., at Gaunimorubagal, Madakasira taluk, certain Varunasiva Bharata who is in charge of Nolambesvara Devasthanas is asked to keep up the tank, and land is granted for the maintenance of tanks.³⁵ During the rule of Irive Nollamba in 950 A.D. certain Gavunda Kadiyana and Pallikaratuvanna repaired Olagere tank and for that purpose the ruler sanctioned three Khandugas of wet land. It is clear that this Olagere tank must have been dug prior to 950 A.D., and probably during the period of NollambaMahendra.³⁶

During the period of Bukkaraya in 1383 A.D. one tank at Harive was repaired by collecting money from the income of Kavuladoregallu (guarding officers) and Ayagars (village servants).³⁷ Similar cases of repairing tanks were found in Vijayanagara Empire during 16th century AD. For instance, in 1534 A.D. certain

Gadada Basavareddi was entrusted with the work of repairing the tank at Bhupasamudram by the village Mahajans.³⁸ Similarly in 1537 A.D the tank of Budili was repaired by Chikka Narasappayya.³⁹ In 1551 A.D, the tank at Doddagatta was repaired by Mali Guda and Parusa Gauda. The King Sadasivaraya gifted Kattukodagi land through Mahamanadalesvara Ramaraju Vitthalayya Deva Maharasu for the repairs of the tank.⁴⁰ In the same way, in 1578 A.D the tank at Kadadarabench, Gutti taluk, was repaired by certain in Handeya Hanumanayaka investing income from a village in Adavani Durga.⁴¹ It has been told in an undated record, that certain Allappa provided money to repair a breach in the bund in Agali tank.⁴² From all these observations, it can be said that many tanks were dug and properly maintained and repaired. Repairing the tanks was undertaken not only by the state, but also by the village officials and influential persons with philanthropic motto. In this context Sir Thomas Munro rightly pointed out that 'water tanks, canals etc., can be repaired at much less expense by individuals, local groups than by the government to keep them in better condition'.

To conclude, Irrigation management during medieval times, it was often an uneconomical. So, tanks and canals were neglected and abandoned, perhaps as often as they were constructed. During the Vijayanagara period great attention was paid for the construction of tanks, wells. As a result, numerous tanks of varied sizes came into existence throughout the Vijayanagara Empire. The development of an efficient secular management of the temples was also closely related to the irrigation technology by the rulers. Thus, it can be concluded that much attention was bestowed by the rulers, their subordinates, rich and influenced people of the times for not only digging of tanks and canals but also provided financial resources for their proper maintenance and repairs for the development of Agriculture in Anantapur District during the period of Vijayanagara rule.

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