

## **DEVELOPMENT OF IRRIGATION UNDER THE KAKATIYA SUBORDINATE CHIEFS IN TELANGANA REGION –A CASE STUDY ON PAKHALA LAKE**

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### **ABSTRACT**

*Irrigation is the backbone of agriculture, past and present. This is evident from lot of sources. The Kakatiya period from A.D 1000 to 1323 forms an important phase in political as well as cultural and economic history of Andhradesa. The Kakatiya rulers and their sub-ordinate chiefs etc., greatly improved irrigation and supported agriculture on a large scale. The Kakatiyas were the first to realize that the red and sandy soils of Telangana were extremely fertile and eminently suitable for wet cultivation, its porous character demanded a plentiful supply of water to make it fruitful and yield sufficient grain to feed the people.*

*The Kakatiya period witnessed more dynamic activity in the construction of irrigational works than the earlier times. During this period, we come across number of epigraphical references to the construction of tanks. The Kakatiyas and their sub-ordinates engaged themselves in construction of tanks, as a result of which almost every village in Andhra including Telangana had at least one tank. The Kakatiyas who have built mighty irrigation projects have developed construction technology to suit to the medieval period. They have utilised the natural topographical features for the location of major irrigation projects. An attempt is made in this paper to study the role played by Malyala sub-ordinate chiefs for the development of agriculture through the construction of Pakhala lake during the Kakatiya period.*

**KEYWORDS:** *Irrigation, Agriculture, Economic History, Soil, Yield, Tanks, Construction, Projects*

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### **Article History**

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### **INTRODUCTION**

Kakatiyas ruled Andhra desa for more than three centuries and rendered conspicuous service to the people of Andhra.<sup>1</sup> Starting their rule from Telangana region, later the kings extended their sway slowly all over the land of Telugus. During this period, most of the people depended on agriculture, which formed the main basis of Kakatiya economy and primary source of revenue. Therefore, the Kakatiya rulers and their subordinate chiefs and wealthy people of the period showed keen interest in providing irrigation facilities and promoted agriculture on a large scale.

The Kakatiyas were the first to realize that the red and sandy soils of Telangana were extremely fertile and eminently suitable for wet cultivation, its porous character demand a plentiful supply of water to make it fruitful and yield sufficient grain to feed the people. They pursued this policy in three directions:

- Reclamation of waste land
- Construction of large networks of irrigation tanks
- Granting them as aghararas to temples and brahmanas etc.,

The Kakatiya period witnessed more dynamic activity in the construction of irrigation works than earlier times. During this period,<sup>2</sup> we come across number of contemporary sources to the construction of tanks. Though the construction of tanks was regarded as an act of charity resulting in the acquisition of great religious merit, it also had an economic dimension. It was regarded as one of the seven meritorious acts known as 'sapta santanas' or seven deeds of everlasting virtues. The Karimnagar inscription of Gangadara, minister of Rudrama Devi, the Ganapavaram inscription of Ganapathi Deva and several other inscriptions and Kumarasambhavam of Nannachoda allude to sapta santanas mainly, remaining being the procreation of a son, the composition of a poem, the hoarding of treasury, the planting of a grove, performance of marriage of a girl to a brahmin and construction of a temple and the construction of a tank. Therefore, the royal families, the military chiefs, noble families, wealthy people, guilds and mathas etc., took great interest in promoting irrigation facilities. It is interesting to note that most of the irrigational works built by them are still in existence and irrigate some thousands of acres in the Telangana region.<sup>3</sup> Among them the Pakhala lake was one of the most important tanks during the period. Yazdani observes "Warangal, capital of Kakatiyas, the metropolis of this dynasty abounds in magnificent tanks and lakes and the titanic dykes and sluice gates of Pakhala, Laknavaram and Ramappa lakes are object lessons even to the modern engineers.

The Kakatiya Royal family and their sub-ordinate chiefs viz., Chagis, Viriyala, Recharla, Kayastas and Malyala etc., engaged themselves in the construction of tanks. An attempt is made in this paper to study the role played by Malyala subordinate chiefs for development of irrigation and for growth of agriculture through construction of Pakhala lake in Telangana region during Kakatiya period.<sup>4</sup> The lake was constructed during the time of the Kakatiya Ganapati deva Maharaja by Malyala Jagadula Mummadie, son of the minister Bayyana Nayaka and Bachamambha. According to the inscription, the Pakhala lake was constructed in the year A.D.1243.

### **Construction of the Pakhala Lake**

The lake is situated in the Pakhala village of Khanapurmandal in Warangalrural district and is 11.27 KM to the east of Narsampet and 45 KM from Warangal city.<sup>5</sup> It lies across the Munneru tributary of the Krishna river, is situated in between the two hills which form natural embankments for it (see Figure 1), and is an artificial sheet of water and is formed by a 2000 yards dam across the pakhala river. When the lake is full, the water covers an area of 33.67 Sq. KMs with an average depth of 30 to 40 Ft. It has a catchment area of 268.80 Sq. Kms. And a capacity of irrigation roughly 6879.64 hectares. It is an important benefactor of Narsampet area commanding an ayacut of 4658 hectares in the villages Khanapur, Dharmaraopet, Pakhala, Sarvapuri, Viraram, Inampalli and Thungabandam with a water spread area of 20.959m and the capacity of 95.8. It has now been proposed to expand this ayacut to 11500 hectares of land. The capacity of the tank at F.R.L+829.79 is 3386.30 M.C.Ft.<sup>6</sup> The total yield from the catchment area is 1879 C.F.T.

### **Number and Size of the Tanks**

A correct estimate of the number of tanks that were excavated during the Kakatiya period in the Telangana region cannot be felicitously made. But a general idea about them can be formed from a study of the contemporary literature, copper-plate grants and lithic records. Also the disparity of the size of tanks is significant, That biggest tank in the Telangana area was Pakhala lake in the Khanapoor mandal of Warangal district, which is 103 miles long and the number of the smallest

tanks was too numerous to be counted and given here.

### Canal System and Settled Ayacut under the Pakhala Lake

The Pakhala Lake has five canals viz.

- Sangam Channel
- Tungabandam Channel
- Jalabandam Channel
- Passnor Channel
- Motteveeraram Channel.

Therefore, the lake has 40 distribution canals (Punta Kaluvalu). The puntakaluvaluto carry water to the fields feed from canals. Such canals were also called the presiding deity and the benefactor.

The Canal system of Pakhala lake is retained as per the original planning of the Kakatiya rulers i.e. <sup>7</sup>the water from the bye-wash (weir) is led into the valley and picked up by the ayacuts on either flanks (Jalabandam, Tungabandam) of Pasnoor and Mottaveeraram. There is a high level sluice called Sangam sluice. All the regenerated water of the ayacut is again picked up by the various canals and recycled in this way. There is an excellent supply of water for maximum utilization. This system is now being followed in a number of new projects including the tail end schemes of Nagarjunasagar and SriramSagar projects.

The channels length and settled ayacut are given below the Table:

**Table 1**

S. No	Name of the Canal	Length in Miles	Settled Ayacut in Acres
1	Sangam Channel	12	4461 Abi
2	Tungabandham Channel	9	1932 Tabi
3	Jalabandham Channel	12	1356 Abi
4	PasnoorChanneel	9	706 Tabi
5	Mott Veeraram Channel	6	346 Tabi

### Sluices of the Lake

Important construction of Pakhala tank during the Kakatiya period was the sluices. The construction of sluices to the tank was for controlling the supply of water to the irrigation channels. <sup>8</sup>Stone was the chief material used for this purpose and stone sluice generally is referred to as *Kalutumuin* inscriptions. <sup>9</sup>Alugu is another Telugu word with which a sluice is referred to in epigraphs. The lake has three sluices viz. Tower sluice, Sangam sluice and Mula sluice.

- Tower sluice with sill +799.59
- Sangam sluice with sill +810.16 (recently constructed) and
- Mula sluice with sill +806.31

### Restoration of the Lake

The Pakhala Lake according to the local folklore was breached by one muslim general by name Shitab Khan who stood on the bund and got it breached at point which will wash off the then prosperous village of Pakhala because the farmers refused to

pay the taxes. <sup>10</sup>The breach was repaired and restored in 1922 by the Nizams Government. Meanwhile, the village and the ayakut of Pakhala became a dense forest with a number of dilapidated temples which are the only symptoms left out of the prosperous Pakhala village. In revenue records, Pakhala is listed as “Becheraag” i.e. lampless village.

### **Flood Absorption Capacity of the Lake**

The important technical feature of the Kakatiya engineers is the provision of flood absorption capacity in the Pakhala Lake. <sup>11</sup>Massive earthen bunds were required for safety during floods when the water level increases much above the full reservoir level i.e. the level of the natural bye-wash. A study of the isotopes indicates that the terrain on the banks of Godavari River is prone for a rainfall intensity of over 200mm in a single day. Therefore it is necessary to provide for a higher at the weir site or increase the flood absorption capacity of the lake. The Kakatiyas did the latter and hence the massive bunds are the secret of the survival of this lake for all these years inspite of heavy rainfall.

The Pakhala lake has an important economic dimension, as an income source unit and it augmented the income of the government. By providing the water supply to several fresh lands, it immensely helped the peasant and encouraged them to bring more land under cultivation.

### **CONCLUSIONS**

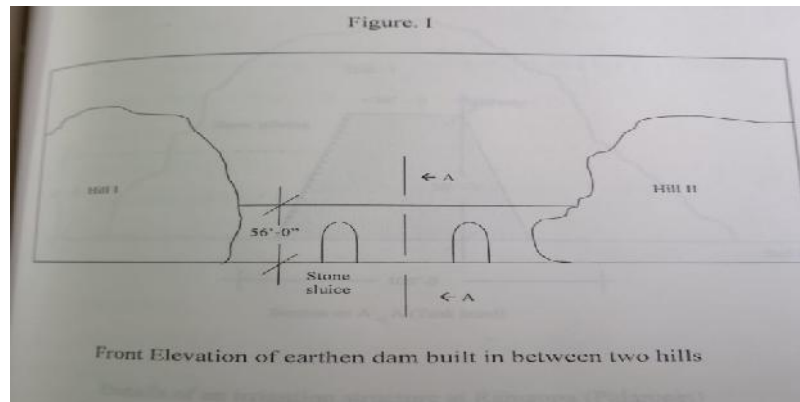
The Pakhala lake area has been made attractive since 1213 A.D. On one side of the lake there is a beautiful garden with many medicinal as well as flower plants. The Forest department’s area is inhabited by nests of different species of birds. There are comfortable dormitories for tourists to stay.

Boat rides in the lake are enjoyable. With boats, the island in the centre of the lake which is green and inhabited by birds can be reached. On the other side of the lake, there is a hill called Chilakalagutta on which a guest house was constructed during the Kakatiya period.

Pakhala lake occupies a unique place, in that it is eighth in position among pollution free lakes in the whole world. In Telangana state, after Godavari river, the Pakhala lake is the longest.

Battery operated vehicles are arranged for wandering on the tank bund. The hill near the garden in is alluring, and available for trekking, with vantage points on the hill to enjoy beautiful views of the lake. Different species of birds, deer, mountain goats, *Duppilu*, rabbits, bears etc., are seen on the hill. Tigers which once inhabited this area are now extinct.

Pakhala has achieved prominence not only as an agricultural center, but also as a tourist area. Many tourists visit Pakhala every day.



**Figure 1: Front Elevation of Earthen Dam Built in between Two Hills.**

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