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## IRRIGATION SYSTEM, WATER MANAGEMENT AND AGRARIAN SYSTEM IN SOUTHERN PENNAR VALLEY UNDER THE CHOLAS

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### Abstract:

*Agriculture is the major non-industrial sector of India since ancient times. In Tamil country, as explored in Tamil literature, the major economic activity had been agriculture. Particularly, there is a poetic proverb among Tamils, "Cholanadu Chorudaithu", which means Chola country that is the Thanjavur delta is the "Grannery of South India". Like the Thanjavur delta, Naduvil-nadu a territorial division lays in, Southern Pennar River Basin of Tamil country still has been a strong agrarian belt. The area of the riverside basin of southern Pennar (South Pennaiyar or Ponnaiyar) in Naduvil Nadu lying between Gadilam river on the left and Ginji river or Sangaraparani river on the right. Most of the scholars have agreed that the term Naduvil-Nadu comes from the territory in between Tondai-Nadu and Chola-Nadu.*

### INTRODUCTION:

The Cholas were the early rulers of this region right from the period of early historical age. Among the early Chola rulers, Karikala Chola (50-95 A.D) was the most powerful. The Chola rulers were overthrown by Simhavishnu Pallava and South Arcot (Southern Pennar Valley) region was under Pallava rule for a short period. The later Chola dynasty thus emerged as a major force in South India, under Rajaraja's (985-1014 A.D) leadership. Chola forces overran all of Southern India, extinguishing the Pandyan Kings and placing Chola regents in Madurai. Rajaraja I (1012-1014) expanded Chola power over northern Srilanka. Totally, Chola ruled this area including Naduvil Nadu with the succession of powerful rulers.

Since Early times, the whole South India was divided into several Mandalams. The Mandalams were subdivided into Valanadus. Each Valanadu further subdivided into smaller territorial units called Nadus. The Southern Pennar Valley (Naduvil-Nadu) was first appeared of only in the reign of Chola Kulottunga I. Its fullest extent was reached only at the end of the twelfth century. Throughout the thirteenth century the Naduvil-nadu stood only in the position of a Nadu<sup>1</sup>. Only from the last quarter of the thirteenth century, it came to be known as Naduvil-Mandalam. Naduvil-Nadu or Mandalam.<sup>2</sup> Naduvil-Nadu or Mandalam, which covers the taluks of modern use viz., Kallakkurichi, Tirukkoyilur, Villupuram and Cuddalore. The important rivers cross the area, are the Pennai River on the north and Gadilam in the centre and the Vellar on the Southern areas. The Gadilam, Malattar and Kuduvaayar get water from the Pennai River. Some of the tanks also get water from the South Pennai river. The Southern Pennai River is the main source of irrigation of our study area. The agrarian conditions and assessment of Naduvil-Nadu has been taken up for discussion against this geographical and historical background. This paper focus on Irrigation system, Irrigation tax, Village sabha and Water Management, Water user community and their responsibility, Agricultural production, Significance in agricultural techniques, crops, and kinship relations among the agrarian communities during the imperial Cholas.

### DEVELOPMENT OF IRRIGATION SYSTEM

The agricultural prosperity of a country depends upon the sound irrigation system, which it builds.

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Early civilization flourished on the river banks, where water was available in plenty. The construction of tanks was considered in later times as a meritorious work as gleaned from inscriptions. The earliest South Indian ruler who realized the necessity of providing facilities for irrigation was the illustrious Chola king Karikalan, who according to Tamil literature (Kalinagthupparani) constructed embankments on both the sides of the river Caveri and turned its delta into a fertile land. He is also said to have ordered his enemies captured in the battle field to provide labour for this great undertaking. Inscriptions of the later Pallava kings state that a separate committee called erivariyam came into being to look after the tanks, lakes, etc. An inscription<sup>3</sup> of Kampavarman from Uttirmerur reveals, that the great people constituting the erivariyam (the tank committee) had to spend a certain sum from the capital towards keeping the tanks in condition.

As agriculture was the main profession of the people the importance of irrigation was keenly felt. Maintenance of irrigation works was considered to be very important. Distribution of paddy was made for the maintenance of lake and tanks. Their maintenance was one of the primary concerns of local administration. Lakes and tanks were the main source of irrigation, which provided water for agriculture, and sometimes it also served as drinking water (Uruni). In short it amounts to works of conservation and preservation such as preventing damages to irrigation works, repairing the damaged ones, raising tank bunds, removing silt and such other works. Any deliberate attempt to damage irrigational tanks was considered as a crime. Inscriptions swear curses on those, who destroyed or caused any damage to tanks. The existence of lakes, streams, etc. are realized from the fact, that whenever any description of land boundaries were given streams, river (aru), pond (kulam), source of drinking water (Uruni) etc., found place.

An interesting inscription from Siddhalingamadam, South Arcot district states that an agreement was reached between the urar of Marudur in Malathukurukkai-kurram and Iraiyan kudi Kilavan according to which, the urar were paid 75 kalanju of gold by the above person in order to draw water (5½ were capacity) that followed through the big sluice in the channel of their village to irrigate a temple land assigned as balipatti. The urar also agreed not to collect any other tax for the water (niramanji) other than the one that was already agreed upon. It is also stated that, in case of the stoppage of the flow of water the urar agreed to pay a fine of two kalanju of gold. Thus the right to water supply was jealously guarded. The local administration was also cautious in providing water supply to those lands that, were not authorized to receive water and charged water-cess. There is no information on the irrigation carried out from major rivers in the Chola country. But inscriptions during the period speak more of works of minor irrigation.

Since the construction of an irrigation system was usually beyond the labour resources of single household, it was undertaken by a village or a group of villages. Irrigation management in the medieval period was often uneconomical. Tanks and canals were neglected and abandoned. The use of stored water was also used for other difficult jobs, i.e, the leveling and terracing of fields, and demarcation of boundaries with small bunds, which were necessary to keep water on the field during the ripening of crops. The main crop on the wet lands was paddy, the most important food grain of Southern India. The most intensive and productive method of paddy cultivation was based on the transplantation of seedlings.

#### **The System of Agricultural Production**

The economic conditions of medieval south India really started with the rise of the Chola Empire in the 9th century. Chola Empire (A.D. 850-1279), was essentially peasant based. The basic unit of production was peasant family, settled in villages living in cluster near the fertile tracts of the Pennar river basin, and enjoying customary rights to the land. The backbone of the state was the village and cultivation as predominant activity. In the reverie areas we could find certain multiple-cropping, with rice, or with other crops. These tracts were thus sources of abundant surplus produce, and throughout the medieval period surplus produce existed.

#### **AGRICULTURAL TECHNIQUES**

The available contemporary sources are extremely insufficient for a full understanding. The level of development and the special characteristics of agricultural production in this period. South Indian agricultural production was developing first of all on the basis of utilizing the natural features of the land. The land was harrowed several times with heavy, harrows. After one more weeding, the field was leveled with a light harrow and the sowing took place. The cultivation of virgin red soils was almost equally labour-intensive. Besides clearing, ploughing and harrowing, red soil requires fertilizers. Even virgin red soil was manured with cow-dung, ashes, or village wastes. Dry cultivation was moist widespread in southern Pennar valley in South India and compared to the northern parts, more reliable there. At least the crop in the rainy season was usually good. Nevertheless, each village had to have a part of land artificially irrigated to reduce

the risk of crop failure and starvation.

#### **CULTIVATION SEASONS**

There were two main seasons of rice cultivation Kuruvai Pashnam and Samba-Pashanam. They were named after the varieties of paddy, cultivated during the summer and winter months. For the summer crop a part of the best land was allotted, and the productivity was higher. Winter crops were grown on the much more extensive sown area and though the productivity was lesser by a half of one-third, the gross output was much more abundant. But there were no two distinct agricultural seasons in southern India for other crops. For instance, in south Arcot dry crops (kambu, red gram, horse gram, green gram, and castor) were sown from May to September/October and harvested from August to December/January. On the wet lands in August/September the ragi and Cholam, and in February/March the paddy crop were harvested. On other lands one paddy crop was standing in the field from June/July up to December/January and another from January/February up to April/May. The important crops of the region were paddy, millet sugarcane etc.<sup>4</sup> the work of paddy sowing and harvesting during the seasons tended to be the toiling periods. Each household, even the marginal peasant, had to use additional labour in these seasons. This additional labour force was mobilized from lower castes. We can find reference in the inscriptions of Rajaraja I, Mentioned the residential place of lower cast. There was a special implement for every agricultural operation and for various kinds of soil. The hard black soil was cultivated with heavy ploughs, each drawn by two to three pairs of bullocks or buffaloes. For less hard un-irrigated land the medium-size plough was used. The plough used on the wet land was the smallest. Besides these main types there were several others, especially suitable for the different regions. The ploughs were made of certain kinds of hardwood. For the light sandy soil a wooden ploughshare was sometimes used, the ploughshare was made of iron. Besides ploughs, many varieties of harrows with wooden and iron teeth, seed rills, hoes, sickles were used.<sup>5</sup>

The Nanjay lands as a rule did not demand crop rotation and manuring, as the inflow of water contained the mineral and organic substances, which manured and improved the soil. Dry black soil, as mentioned above, retained its productivity for a long period and during some years of decreasing output they accumulated the organic matters, which gave a boost to productivity in the beginning of the next agricultural cycle. Manuring was not essential for this soil. The importance of manuring the red soil was realized. The possibilities of manuring with cow-dung at that time were more favourable than they are now. In all parts except Tanjore there were enough grazing grounds and there were many cattle.

#### **IRRIGATION TAX ERI-AMANJI, THE PHYSICAL SERVICE**

In Tribhuvanai-madhadevi Chaturvedi-Mangalam apart from the Eri-Variayam the tax Eri-Amanji was also collected.<sup>6</sup> It was realized in terms of land due. The utiliser of the Eri water for cultivation were asked to render the physical service to desilt the tank periodically.<sup>7</sup> Thus, the utiliser of the Eri-water had to pay the tax Eri-Ayam apart from rendering the physical service which was called as Eri-Amanji. The endowed land for Vidyaboga was also subject to pay the above mentioned taxes.<sup>8</sup>

#### **PADIKKAVAL TAX OF POLICE AUTHORITY**

Padikkaval tax was collected by the local police authority to give protection to the cultivable land. Padikkaval system became very popular since it had determined the political status of the Padikkaval authorities. The padikkaval authority was very popular in Tondaimandalam and it became immense in number from the heyday of the Cholas down to the decline of the Chola Empire. The prevalence of the padikkaval authorities in Tondaimandalam proves the existence of the local chieftain cites.

#### **PADIKKAVAL REALIZED IN KIND**

An inscription dated 1120 A.D.<sup>9</sup> found at the Siva Temple in Tiruvakkarai. Villupuram taluk, South Arcot district clearly records the measure of the padikkaval tax and the authority. It proves the above said fact, and it is obviously said in the inscription that the pre-Araiyar the Chief of the Chifdom Oymanadu alias Vijaya Rajendra Valanadu was the padikkaval authority of Mattur-nadu collecting the padikkaval tax on Tiruvakkarai Udaiyadevedanam. It is clearly stated in the inscription that the due padikkaval was realized in kind (paddy incase of wet land, millet incase dry land).

### VILLAGE SABHA AND WATER MANAGEMENT

The village was the smallest administrative unit under the Cholas and had a local self-governing institution called "village sabha".<sup>10</sup> Village sabha consisted of all the male inhabitants of the area.<sup>11</sup> They had complete control over the rural administration and acted on their own initiative, independent of any directive from Chola Kings. For the purpose of administration, the Sabha created "committees".<sup>12</sup> The management of tanks was entrusted to a committee called "Eri-variya"<sup>13</sup> which took up the responsibility of regular maintenance, failing which the members of the assembly were liable for fines and punishment.<sup>14</sup> The leadership of the village was in the hands of farmers. Hence they knew the importance of irrigation works and paid much attention to water management.

### SAMUDHAYAM THE WATER USERS COMMUNITIES: RESPONSIBILITIES AND POSITIONS

Historically, community of water users undertook all critical functions of water management including construction of small diversion weirs and central networks. Such water user communities were called 'Samudhayam',<sup>15</sup> in the case of central irrigated villages and 'Nadu' for tank and dry villages. The water rights enjoyed by community were indeed gained by them due to their hard work in construction as well as in maintenance. The organizational structure for carrying out the responsibilities of traditional water institutions operated at two levels. The first is of a supervisory nature called Kavaimanyam<sup>16</sup> or Nattamai<sup>17</sup> or Karakarar,<sup>18</sup> who performed the role of an enforcing authority of rules and regulations concerning water management. The second one, who were locally called, Neerkattai<sup>19</sup> or Neerpaichi or Kambakkarasm, was more of a menial nature, former is an honorary position. The community at the end of every season or year paid the latter in kind, in many parts of the country. These positions were held on hereditary basis.

The traditional irrigation systems, which prevailed in Tamil Country reflected very well rights enjoyed by the village societies over water and other natural resources. The community had complete control and access over water resources within their jurisdiction. The systems was functioning well and there existed well laid out rules and regulations to undertake all critical functions of water management such as system maintenance, water sharing particularly during times of scarcity, conflict, collection of penalty for non-participation in the maintenance work and so forth. There existed hierarchy of functionaries to undertake all these activities. The caste structure played a crucial role in preserving and in allocating responsibilities among various functionaries. For instance, a farmer invariably held the position of a canal manager from a higher caste and the position of irrigation workers (menials) was held only by people from lower castes. Nevertheless, the traditional irrigation institution had enforcement mechanism, which facilitated a smooth functioning of water control system.

To sum up it is found that the agricultural prosperity of a country depends upon the sound irrigation system, which it builds. Lakes and tanks were the main source of irrigation, which provided water for agriculture, and sometimes it also served as drinking water (Uruni). Any deliberate attempt to damage irrigational tanks was considered as a crime. Inscriptions swear curses on those, who destroyed or caused any damage to tanks. The construction of an irrigation system was usually beyond the labour resources of single household, it was undertaken by a village or a group of villages.

There were two main seasons of rice cultivation Kuruvai Pashnam and Samba-Pashanam. The tax Eri-Amanji was also collected. The utiliser of the Eri water for cultivation were asked to render the physical service to desilt the tank periodically. Thus, the utiliser of the Eri-water had to pay the tax Eri-Ayam apart from rendering the physical service which was called as Eri-Amanji. Padikkaval tax was collected by the local police authority to give protection to the cultivable land. Padikkaval was realized in kind. For the purpose of administration, the Sabha created "committees". The management of tanks was entrusted to a committee called "Eri-variya" which took up the responsibility of regular maintenance, failing which the members of the assembly were liable for fines and punishment. Community of water users undertook all critical functions of water management including construction of small diversion weirs and central networks. Such water user communities were called 'Samudhayam'. A supervisory nature called Kavaimanyam or Nattamai or Karakarar, who performed the role of an enforcing authority of rules and regulations concerning water management.

Thus, the medieval Tamil country particularly, the period of the late Cholas (850-1279 A.D.) has been a remarkable history not only for their huge victories in the wars, but also for their land assessment and temple economy. By and large, the social divisions had the impact of 'Chaturvarna', but the agrarian communities were not comprised to the limitation drawn by such social prejudices. Brahmans had their importance on state affairs as well as religious and cultural activities. Like agrarian elite's of Nadu,

Valanadu and other units, the mercantile elite's were also equally important in strengthening the economy of Chola State.

The historians have identified the southern part of eastern coast of India Coromandel Coast not just because of their political map covered the area, but the agrarian extensions and trading affluence the Cholas had achieved during the medieval period. The history of Cholas is still the study material because of their name and fame.

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