

HERITAGE RICH IRRIGATION TECHNOLOGIES OF THE SANGAM PERIOD

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Abstract

Inspite of the large scientific and technological input that has gone into the several aspects of irrigation engineering, irrigation practice continues to be an art played by experienced actors at the most challenging circumstances. Irrigation should have thus evolved as an art in ancient times and developed over centuries to meet the necessities of droughts and floods. River Cauvery has been and is the lifeline of the state and it is in this valley that Tamil civilisation flourished. The Sangam age is much earlier to the Christian era and fortunately we are left with a few works in Tamil of great literary value, which throw light on the occupation and socioeconomic conditions of the people of that age. Undisputably agriculture has been their mainstay and the entire civilisation grew in the agrarian background. This paper focuses on irrigation system and rich agrarian society in the Sangam Period in detailed manner.

Key Words

Physiographical, *Kadurai-ulagam, Maivari Ulagam, Tirupunal Ulagam* and the *Perumanal Ulagam*

Methodology

This study makes an attempt to examine the irrigation sources of Sangam period. It is primarily a fact finding venture on the basis of exploratory method. Inscriptions are the major and authentic source material for writing the history of the temple when the literary sources are scanty and silent. The availability of the irrigation sources can be analysed with the help of appropriate statistical data collected from the various statistical reports. This study also evaluates availability of the irrigation sources. Thus, this study is partly exploratory and partly analytical based on thematic and historical approaches.

Despite the significant amount of science and technology that has gone into the many components of irrigation engineering, irrigation practise continues to be an art performed by skilled performers under the most trying conditions. Engineers, agronomists, economists, sociologists, farmers, head-enders, tail-enders, farm labourers, and others are all eager to get more from Mother Earth than they are currently getting in order to increase their income. The actors are numerous, with varying aspirations, accomplishments, and social status. Many are at the grass-roots level. If irrigation is encouraged, Mother Earth produces considerably more fruit. The ultimate goal is to generate enough food and forage for the world's expanding populations of humans and cattle.¹

When the caveman decided he preferred cooked food over raw food, he turned to the land to cultivate what he needed and lived on the banks of streams in valleys and estuaries where he could get water, the second most important ingredient for life after air. He turned to the water resources available to augment the rain when he

was unable to preserve the crops planted between the showers supplied by nature. Thus, irrigation began, although there is no historical evidence indicating when this would have occurred in various places of the planet. In order to address the needs of droughts and floods, irrigation should have grown as an art in ancient times and through many generations.²

In the southernmost region of India, between east longitudes 76°-15' and 80°-20' and between north latitudes 8°-5' and 13° 35', is the Tamil Nadu State, formerly known as the Madras State. Tamil Nadu occupies 1,30,160 square kilometres, or 4% of the country's total land area, and is home to 7% of the nation's population. Tamil Nadu has a coastline of around 920 km and a land border of 1200 km. It is bordered on the north by Karnataka and Andhra Pradesh, on the west by Kerala, on the east and south by the Bay of Bengal and the Indian Ocean. Since it is totally in the tropical region, it receives a lot of sunlight.³ The land extending south from the Deccan Plateau and interspersed with the ranges of the Eastern Ghats has a mild dip towards south and east.

The State may be roughly split physiographically into the coastal plains in the east and the western mountainous regions. The hill groups of the Nilgiris and Annamalais are located in the northwest while the Western Ghats stretch along the western end. The principal outgrowths of the ghats in the south are the Palani Hills, Varshanad, and Andipatti Ranges. The fractured hill ranges that make up the Eastern Ghats are the Javadis, Shevarayan, Kalrayans, and Pachaimalais, and unlike the Western Ghats, they may be crossed in a variety of locations.⁴ The plateau between these hills has a westward increasing average height of 305 m (1000 ft). The Nilgiris' Doddapettah summit is located at EL 2636.5 m. (8650 ft).

Tamil civilization developed in this region, which is where the River Cauvery has been and still is the state's lifeblood. According to some sources, the Cauvery delta adopted irrigation techniques at the same time as the Indus Valley and the Mesopotamian Valley of modern-day Iran.

The Sangam era predates the Christian era by a great deal, but thankfully, there are still a few Tamil works of great literary merit that shed light on the occupations and socioeconomic circumstances of the people of that time. Unquestionably, agriculture has been their primary source of income, and the entire civilization has its roots in agriculture.⁵

We find a direct reference to the four-fold physiographical division of land as then identified in "Tolkappium," literally meaning a renowned grand old text, which is thought to be the first work to define the grammatical version of the Tamil language. These are the *Kadurai-ulagam* (the forests), *Maivari Ulagam* (the hills), *Tirupunal Ulagam* (the plains), and *Perumanal Ulagam* (the littoral or sandy region). The names *Kurunji*, *Mullai*, *Marutham*, *Neithal*, and *Palai* were given to these locations by the poets and bards of this era and are still well recognised in Tamil Nadu. The hilly area known as "Kurunji" is known for its springs and waterfalls. "Mullai," the pastoral or forested area, is related to untamed waterways. Rivers, wells, ponds, and tanks are linked with the agricultural region of "Marutham," whereas dug wells or sand wells, which typically provide brackish water, are connected with the sandy coastal region of "Neithal." The fifth category, "Palai," which designates a stretch of dry desert, is not recognised as a distinct physio-graphic area but rather as a condition of aridity with scrub vegetation that can exist in any of the other four.⁶ The subsurface springs may be the only source of water in such dry situations. The next literary work of the time is "Thirukkural," performed by the saint Thiruvalluvar and composed of 1330 "two line" couplets on 133 subjects with 10 couplets given to each topic and organised in three chapters. This text has been translated into many languages of the world. Almost all aspects of living are dealt within this text under these 133 topics. The author assigns significance to and devotes the next 10 couplets to the word "rain" in this poem, showing how it is necessary for the survival of life right after the first 10 couplets discussing the magnificence of the world's creator. He goes on to highlight how agriculture is the most prestigious occupation in society and the foundation of the state in couplets 1031 to 1040 farther down in the book.⁷

In the Sangam era, irrigated agriculture was therefore conducted in this region of the nation, and the majority of people chose the honourable profession of farming, providing food for the populace and bolstering the royal treasuries.⁸

After much investigation, historians have come to the conclusion that the so-called "Sangam Age" may be considered to have come to an end about the middle of the third century AD. By this time, the Pandyas controlled the southern portion of Tamil Nadu, the Cheras controlled the northern half of what is now Tamil Nadu, and the Cholas ruled the Cauvery delta and its surrounds. Of course, they fought each other frequently

to establish dominance. However, they also let their dependable chieftains to govern over portions of their own nation. Power should have been decentralised in those days of inadequate communication.⁹

The 'Crowned Kings' of the Chera, Chola, Pallava, and Pandyan dynasties, together with a few other minor chieftains, dominated the Tamil Nadu state at the start of the Christian period. All of these nations had thriving agriculture thanks to the support of their monarchs and chieftains. However, it must be noted that these monarchs frequently fought among themselves, frequently annexed or ceded portions of their kingdom, and frequently asserted their suzerainty, causing these boundary lines to shift frequently.¹⁰

Numerous literary works, bardic songs, and inscriptions on stones, mostly in temple precincts, attest to the fact that all kings and other chieftains rendered exemplary service to their mostly agricultural subjects by building small diversion weirs across streams known as anicuts, constructing minor irrigation tanks, ponds, and *urunis* (small pondages primarily intended for domestic and communal use), and digging irrigation ditches.¹¹

Poem 20 in the Sangam classic "Paripadal" describes how the river within the Madurai fort swelled up to the height of the walls surrounding the city and poured down the fort walls through openings that resembled the pouring of waters mixed with blooming flowers as if in worship, by enormous male elephants through their raised trunks. We may infer from passages in "Paripadal" that the river Vaigai was considered a powerful river that was prone to frequent floods, and that various water-heads and sluices were built to manage and regulate it. Pandyan records from the eighth century onwards give glimpses of a good number of sluices and river channels created in and around Madurai for irrigation development.¹²

According to a belief about the unexpected floods brought by Vaigai, Lord Shiva himself descended to earth to save people from the floods. The narrative and belief in the story remain. The Pandyan King once issued a proclamation ordering every family to send one fit man and some tools for voluntary work to fortify the flood barriers when the river surged quickly and dangerously.

An elderly, impoverished widow who relied on the sale of "Puttu," a rice dish loaded with coconut and other ingredients and formed into a cylindrical shape, pleaded to Lord Shiva for assistance because she was unable to follow the ruler's demands.¹³ Lord Shiva pretended to be a labourer, promised to assist her, requested payment in kind and in advance, ate till he was "Puttu"-full, proceeded to the location designated for the elderly woman, and then fell into a sound sleep beneath a tree. The King was informed of the breaking of the agreement and arrived quickly to investigate. He gave the sleeping labourer three strokes on the back as punishment. All of the town's residents, including the King, felt the anguish of being lashed on their backs at the same time. All gathered to the Shiva temple, headed by the *puttu* vendor, to thank him for rescuing the City when the labourer vanished and the waters abated. This mythological story besides eulogising God's Leelas tells us on the sharing of voluntary labour, the King's direct involvement in people's concern and the insistence on the sanctity of contracts accepted in those days.¹⁴

The water wheel, also known as the Persian wheel, should have evolved over time and is still in widespread use today. Of course, they keep the field channel's water supply flowing continuously. There are grounds to believe that this is also an indigenous gadget that was in use before to the Muslim invasion and may have received its current name as a result of upgrades.¹⁵

According to the research shown above, all of these water raising systems for irrigation have persisted to this day because they are straightforward, affordable, and efficient. Since the invention of electricity, lift irrigation has undergone a radical transformation, and we now pump massive volumes of groundwater, often from extremely deep sources, to high-lying regions.

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