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History of Sri Lanka 10

# THE KINGDOM THAT WALKED ON WATER

*Sri Lanka & The Great Invention*

DAVID SWARBRICK

THE POCKET PROFESSOR  
HISTORY OF SRI LANKA  
BOOK 10

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DAVID SWARBRICK  
& The Editors of The Ceylon Press



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"No wise fish  
would go  
anywhere  
without a  
porpoise."

Alice's Adventures in  
Wonderland  
Lewis Carroll  
1865.

ONE

# The Lost Laboratory

Far into the north of Sri Lanka, forty kilometres from Anuradhapura to the south, and fifty more to the western seaboard, lie the ruins of a shrivelled reservoir - Kuda Vilach Chiya.

The tank is close to some of the country's most iconic and mythical sites, including the landing place of Prince Vijay, paterfamilias of the nation, the palace of his forsaken native queen; and the country's first recorded Singhala kingdom.

Kuda Vilach Chiya sits on the eastern edge of what is now Wilpattu National Park. Reaching the spot is no easy matter since it lies within a deep entangled jungle for which special permission must be granted to gain access.

Even after that, it requires a tractor to take you any closer to the site, and then a lengthy journey on foot. For countless centuries this has been leopard country.

Wilpattu's vast 130,000-hectare wilderness is one of the island's best kept wildlife secrets, so well off the tourist trail as to exponentially nurture its hundreds of rare species of fauna and flora - along with many endemic species: the Toque and Purple-faced Leaf Monkeys, Golden Palm Cat, Mouse Deer, Dwarf Toads, Hour-Glass Tree and Wood Frogs, Ceylon Jungle Fowl and Ceylon Grey Hornbill.

Even the ultra-rare Sloth bear can be seen here, attracted by the sweet golden fruit of the Palu Tree.

But despite all these exceptional features, it is for its water that Wilpattu matters most. Its name is more literally

translated as the “land of Villu,” “villu” being lakes. The whole area is pockmarked with shallow rainwater lakes. But the lakes are eclipsed by Kuda Vilach Chiya, a much more deliberate water feature, and one that is hard to make much sense of at first. Today it amounts to little more than a long two-to-three-kilometre embankment overgrown by trees and grasses and breached in many places by migratory elephants. It is all that remains of the extraordinary man-made lake that was constructed here sometime after 67 BCE by the first Lambakanna king, Vasabha.

Hardier survivors from that time are two masterpieces of ancient aqua engineering, the creation of which allowed Sri Lanka’s builders to construct astonishingly vast water reservoirs. These in turn would propel the 500-year-old kingdom into the political stratosphere. The constructions – Bisokotuwas – allowed water to exit a reservoir without putting so much pressure on the dam embankment that it would collapse. As a result, the size of the reservoir was able to scale up to unprecedented levels; and water of unimaginably enormous quantities could be collected to extend agriculture, support ever larger and more urban populations and produce crops whose surplus would rapidly and exponentially enrich the young state.

The Bisokotuwas at Kuda Vilach Chiya are precision made structures, the stone slabs used on the inner face fitting so

perfectly together that there is no room for even the modest weed to grow. Rising above it, the sluice tower itself can still be seen, part of the same remarkable lost laboratory of water.

The same Lambakanna king, Vasabha, is also credited with the construction of the Mahavilach Chiya Wewa, a tank barely five kilometres away from Kuda Vilach Chiya, with a storage capacity of two thousands four hundred acres that even now is a key part of the modern Sri Lanka's water infrastructure. Quite why two such large tanks were built so close to one another is a mystery.

But their very existence, and that of the Bisokotuwawas that made them possible, is the point that most matters.





TWO

# Crying Out for Water

The area around Kuda  
Vilach Chiya, though  
remote even by Sri  
Lankan standards,  
bears the impact of  
multiple moments of  
serious history.

Not for nothing was it chosen for its capacious reservoirs. It was once a place of some importance. Ten thousand years earlier and thirty kilometres north are hypnotic cave paintings of the Neolithic age in Tantirimale.

Two hundred or so years earlier the local temple, Thanthirimale Rajamaha Viharaya, marks the spot where the sacred Bo tree rested as it travelled to Anuradhapura from India under the protection of the Indian Emperor Ashoka's daughter, Sangamitta.

Some historians even believe that the site was once home to the lost kingdom of Panduvasdewu

Nuwara, the early Vijayan realm that most immediately predated Anuradhapura itself. A monastery lies on the same site, its excavated gardens littered with stone containers created to contain gems, and the statues of gods and lions ruined when the country's last unitary kingdom fell to invaders in 1215 CE. And in the nearby jungle ancient monastic caves crouch, decorated with a script that predated Buddhism itself – Brahmi.

All around it stretch the flat and softly undulating lands of the country's massive Dry Zone. Much of Sri Lanka is very dry - as if the land itself had been bleed white and hung out to dry. It is not perennially wet like Bangladesh. This is especially true of the Rajarata, the land most immediately around the Anuradhapura - stretching from Jaffna and Trincomalee to Puttalam

and Kandy - that lay, like Kuda Vilachchiya itself, solidly within the control of the king.

To achieve anything more than a rudimentary agricultural existence required the availability of year-long water, and plenty of it. Water, after all, permitted greater areas to be used for growing crops, and higher yield densities. It meant food surplus, profit, trade - and with it the capacity to develop an urban and industrial capability, underwritten by technical advances from construction and weaponry to horticulture, and transport.

It meant that the state could better develop those organizational and professional skills essential for its success - commerce, industry, engineering, labour, planning, law, medicine, food storage, finance.

Water management and irrigation, water storage and collection, water distribution - all this was what made the Anuradhapura Kingdom possible in the first place. A defensible island state it may have been, and a centralised Buddhist one at that; but without water it could go nowhere, do nothing, be nothing.

This focus on water technology was not a new preoccupation brought into being by the first Lambakarnas in the 67 BCE; but they, more than any other dynasty, ensured the rapid development of the resources and technologies that provided their domain with year-long water.

THREE €

# The Gathering Wave

The scattered Vedda and other pre-Sinhalese populations of the island had mastered the construction of small tanks before the fifth century BCE, and, with it, limited forms of agricultural production.



This was the start of what is now known as the Tank Cascade system. Rainwater was collected in shallow ponds and crude distribution methods used to dispense it. This quickly developed into the construction of low embankments across valleys to dam small rivers or rivulets that would deposit their water into a series of downstream tanks, and, ultimately, paddy fields. Large seasonal rivers were next targeted with dams and distribution channels.

Soon enough a profoundly detailed understanding of how to refine and improve the technical requirements to maximize water availability developed. Inceptor zones were created between the tank and the paddy fields. Studies have shown that seventy-seven types of trees and plants such as arjun trees, butter trees, mangos, and clearing-nut trees with well-developed root systems, were typically used to help absorb the salts and heavy metals from the water before it reached the paddy.

Tree belts were planted well above the water tanks to stop wind, waves, and evaporation.

Sedges, grasses, and special shrubs were planted to purify water run-off. Large catchment forests were planted to improve the groundwater table and regularise the supply of water to the tanks in the dry season. And in the nearby upper catchment areas, small dams and miniature tanks were constructed to deliberately make the land marshy and capture silt that would otherwise run into the tanks.

Then within barely a hundred years of running a kingdom, the Vijayans, the country's first royal dynasty, set about building very large tanks or reservoirs, two of the earliest still in use today – the Gamini Vapi (now known as the Karam Bewa Wewa) and the Abhaya Vapi (known now as Basawak Kaluma Reservoir) with its colossal four hundred and twenty-nine acres of water storage. Anicut dams were invented, for the regularisation of water supply.

By the time Vasabha, the first Lambakarna king came to power in 67 BCE, the state's technical and organizational ability to construct truly massive and complex water infrastructure was maturing in a most agreeable way.

Vasabha himself is credited with building eleven massive reservoirs; and lengthy canals to transport water over very long distances, making possible later ones such as the Yoda Ela, an eight seven-kilometre canal that takes excess water from the one hundred and twenty-three million cubic metre Kala Wewa reservoir south of Aurandurapura to the Tissa Wewa Reservoir that that supplied water to the city of Anuradhapura itself.

Its construction was a remarkable feat of ancient engineering, using natural gravity to propel the water along its course by creating a gradient of ten centimetres per kilometre. The king also built underground canals and water pipes to feed the ponds of Ranmasu Uyana Gardens in Anuradhapura, an innovation that

found its greatest expression in the Water Gardens of Sigiriya, created by the ill-fated King Kashyapa to carry water from the Sigiri Wewa Reservoir.

FOUR

# A State of Radical Technology

Under the Lambakanna, the Bisokotuwa sluice controls and accompanying surge tanks, which were perfected by the kingdom's inventive engineers, made possible the damming of whole perennially wet rivers.

This technology enabled the state to create still vaster reservoirs unthinkable just fifty years earlier. Like the steam engine or spinning jenny that fired the Industrial Revolution nearly two thousand years later in the West, the improvements made then in Bisokotuwa technology, though seemingly modest to uninformed observers, powered a profound series of changes that were to revolutionise Sri Lanka. The young Lambakanna kingdom would grow, - indeed walk - on water.

That it could stay, walking on water, was equally miraculous. For to sustain, maintain and run this vast and complicated water system required a bureaucracy that was widespread, competent and authoritative.

The government of most ancient kingdoms typically evaporates the further from the court and the capital anyone went. And in consequence, the power of the civil service, built around the monarch in the capital, always lessens outside it – and with it the power of the sovereign.

But not in Sri Lanka. Apart from the usual administrative apparatus all ancient kings anywhere would create, in Sri Lanka they went one stage further and built a pervasive governmental agency to control what mattered most to the state.

The administrators appointed to run the water systems gained their credibility and often



and often employment too, directly from the king, so giving him an unusually penetrating reach into every corner of the kingdom. As well as the sheer power of patronage this conferred on a king, it also meant that, through the water administrators, he could control the one resource on which everyone was dependent – water.

It had a power akin to petrol today. Control the pumps, control the state. For a king who failed to nourish and micromanage this section of civil administration, the consequences, if not immediately in his reign but the next, would always prove fatal. In facing the several invasions from India that destroyed the unitary state – including the final and most devastating one in 993 CE by the Chola emperor, Rajaraja I – it was rarely just a lack of defence preparedness that caused the real problem; but a long-term failure to protect this money tap of a national assent, and all it gave.

Governing the country for over five hundred years, the Lambakarnas used water to transform the moderately successful kingdom they had seized into an unapologetically dominant state that for prolonged periods controlled the entire island. It also maintained a flourishing and confident international presence in South Asia within the Indian Ocean trading zone.

This critical trading hub, which Fa-Hien, a Chinese visitor to the island during the dynasty's

rule, noted, acted like a magnet for merchants who 'flocked in large numbers till it became a great nation." It was to set the measure for the future. Sri Lanka may only rank as one hundred and twentieth in the world in terms of land mass, but Colombo Port today is the planet's twenty fifth busiest port.

Water, and its management, lay at the bottom of all this. "It is possible," wrote a Mr Bailey, Assistant Government Agent of the District of Badulla in 1885, "that in no other part of the world are there to be found within the same space, the remains of so many works of irrigation, which are at the same time of such great antiquity and of such vast magnitude as in Ceylon. Probably no other country can exhibit works so numerous and at the same time so ancient and extensive, within the same limited area, as in this Island."

So robust was the water infrastructure that today, in the dry zone alone, ten thousand ancient tanks are still in productive use – and these amount to just a third of the total once estimated to have been built. A study of the ancient grants associated with water infrastructure conducted in 2018 revealed the remarkable fact that almost half the water grants made were related to individual or family ownership.

The Lambakarna state might be encouraging water resource construction and even building

mega projects, but most ownership was local. Only twenty eight percent of the grants enriched royal or elite groups. Unsurprisingly, the management and upkeep of the systems were also highly localised, and warnings posted to prevent misuse. "The water flowing here from the Kolob canal," reads one pillar inscription of the tenth century CE, "shall not be hindered; may those who transgress the regulations laid down here and commit unlawful acts become crows and dogs".

FIVE

# The Gift That Gave Once More

For hundreds of year  
the massive technology  
and infrastructure that  
had been created was  
left to slowly decay.

The final obliteration of the Anuradhapuram Kingdom in 993 and 1029 CE; the destruction of its successor state in Polonnaruwa in 1215 CE; and the near-on three hundred wilderness years that lasted till the arrival of the first colonists saw the administration and maintenance of the water infrastructure languish, especially in the Dry Zone.

The Portuguese and Dutch did little to retrieve the situation and the British, arriving in 1792, did much, with the mandatory dismantling of forced labour, to make the situation worse. For one and a half thousand years water had been the heartbeat of the country, and nothing except Buddhism itself could compete with it for the national focus it accrued.

And, as the nineteenth-century slid into the twentieth, water returned once again as a main item on the country's priorities - but this time for its ability to generate power as much for the gifts it bestowed on horticulture. Today forty two percent of the country's electricity comes from hydropower - a figure way beyond that of most other countries. Unusually for an island state, its focus on water was inwards, not outwards.

Sri Lanka did not, like Britain, construct a grand navy to conquer far and wide, or invest in large merchant fleets to trade across the Indian Ocean; or even a substantial fishing fleet to harvest its seas. Boats - like much of the outside world itself



- were never much of an island preoccupation.

Most of what it really wanted from beyond its shores came to it like an willing Amazon delivery van, courtesy of merchants eager to trade anything for Sri Lankan spics, gold, elephants, pearls, and sapphires.

This unusual stimulus left its people free to focus on all that was most immediately around them, enriched and made possible by water, a Nirvana H2O, tantric in the good times; and a comfort in the bad.

Water and water technology, like Buddhism, or the country's island status was – and remains – one of the unique characteristics that make Sri Lanka Sri Lankan; that have shaped its history and development; that determines its future and make what you see from your passing car or train, or, better still, plane so spellbindly distinctive.

# ABOUT THE AUTHOR

David Swarbrick is a publisher, planter, hotelier, hermit, and writer.

He was born in Colombo and raised, with few concessions to modernity, in India, Singapore, and the Middle East. Cornish, he gained his degrees on the Celtic fringe: at the Universities of Wales, and Stirling, prolonging an introduction to accepted working hours for as long as was decently possible.

Having worked at News Corp's HarperCollins UK as board director for various otherwise homeless departments including sales, marketing; and HarperCollins India, he ran Hachette's consumer learning division. Prior to this, he launched Oxford University Press's first commercial online business, Oxford Reference Online.

When the doubtful charms of boardroom bawls, bottom lines, and divas diminished, he returned to Sri Lanka, the land of his birth hundreds of years earlier, to rescue a spice plantation and set of art deco buildings that had gone feral in the jungle.

Today, as the Flame Tree Estate & Hotel, it has become one of the country's top ten boutique hotels, run by the kindest and most professional of hospitality teams; and overseen by several small schnauzers.

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