



# (Re)visiting and (Re)valuing the Vanishing Water Heritage in VOC Asia: Dutch Malacca and Ceylon

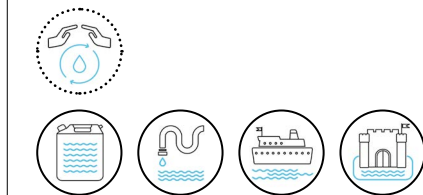
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*Dutch engineers are well-known for their skillful water management, best exemplified in the meticulously designed canals, irrigation and drainage systems, reservoirs, wells and moats that characterize both the Netherlands and places abroad where they have been active. Many of these structures that exist outside the Netherlands and were created by the Dutch East India Company (Verenigde Oostindische Compagnie, VOC, between 1602-1795) in Asia remain understudied. This article identifies and revisits these forgotten and often vanishing water structures through both archival and field research in Dutch Malacca and Ceylon. It explores the ways in which water management interventions during the VOC period recognized and made use of built-upon local wisdom, systematically adapting environmental knowledge into Dutch technology and governance to improve living in the tropics for both the Dutch and the local hybrid communities. Dutch water structures from the VOC period in Malacca in contemporary Malaysia and present-day Sri Lanka are examples of VOC approaches to tackling challenges in tropical environments. These historic sites – including heritage sites, some of which are recognized as UNESCO World Heritage properties – can be informative about how to adapt to current climate situations, both in terms of spatial structures and in terms of intangible practices, including cultural wisdom derived from strategies developed by the Dutch and from interactions between Dutch and local hybrid communities.*



## KEY THEMES



< Fig. 1 Traces of the Dutch moat in Malacca (Source: Queenie Lin, 2019).

## **Dutch Waterways and Water Management in VOC Asia**

The Dutch are known as skillful planners in managing their limited lands, seas, coastlines, and other natural resources. Dutch-influenced water management approaches have shaped diverse cultural landscapes around the world and include systems of canals, irrigation, drainage, reservoirs, wells and moats. Unlike their Spanish and Portuguese colonial predecessors in Ceylon and Malacca, who preferred to settle on higher ground in overseas settlements, the Dutch colonists' extensive knowledge of civil engineering and water management facilitated their settlement in estuaries, on coastlines and along rivers (Van Oers 2000). In addition to their own familiarity with water, the Dutch also relied deeply on local knowledge for efficiently shaping their settlements in tropical territories, where they had to tackle unfamiliar heat, humidity and heavy rainfall on a daily basis. During the period of governance by the Dutch East India Company, or VOC (Verenigde Oostindische Compagnie, between 1602–1795), the Dutch carried out extensive environmental investigations to facilitate resource allocation and improve the quality of life for communities of European settlers and local people. What makes VOC water management stand out is how the VOC drew on local wisdom, something which was less often done by other colonial powers in the same territories. Dutch water interventions form a synthesis of European principles and local construction techniques and materials.

This article explores the formation of Dutch overseas settlements in Dutch Malacca (1641–1825, present-day Melaka in Malaysia) and Ceylon (1640–1796, present-day Sri Lanka) and goes beyond the usual suspect of research on Dutch overseas built heritage: fortifications. Instead, it focuses on overlooked water struc-

tures such as canal systems in Colombo and Negombo and waterway systems in Galle (Sri Lanka). The coastal settlements in these two colonies include several examples of how the VOC approaches to water governance built upon local knowledge concerning environmental challenges and material availability, and how they achieved the pivotal success of building resilient tropical cities that continually benefited later generations. The lack of attention to these structures has ironically allowed for their preservation and protection from over-development or over-restoration. Rethinking the historical and cultural values of these vanishing structures provides new angles for reflection on how to live with water wisely and more sustainably.

## **Building and Managing Water Systems in Malacca**

In Malacca, in order to create settlements suitable for tropical conditions, the VOC not only built extensive water-related infrastructures like the canals, drainage systems, moats, bridges and wells that are also often seen in other VOC settlements, but they also created comprehensive management approaches that are often addressed in official documents, which provide us great opportunities to learn how the VOC valued and managed water structures and maintained water sources. The strategic location of Malacca drew interest from European hyperpowers such as Portuguese, Dutch and British because of the strategic value of maintaining a sentry post in the Strait of Malacca between East and West. The VOC conquered Malacca in 1641 after 130 years of Portuguese occupation (1511–1641) and initiated Dutch control, which lasted for 145 years (1641–1786). Among the well-documented historical records that can help us understand the close relationship between VOC and water management, the *Report of Governor Balthasar Bort on Malacca*,

1678 (hereafter, “the Bort Report”; Bremner and Blagden 1927) is an outstanding source that makes it possible to reconstruct the vivid port city life of Malacca. This report was written by Bort during his governance in 1665–1677 to help prepare his successor, Jacob Jorisz Pits. It provides a clear view of the principles of Dutch policy and administration in the East, as well as their responses to environmental threats. It provides detailed information that can be used to trace vanishing tangible structures and can help reconstruct the water heritage of Dutch Malacca.

The VOC paid special attention to the defense infrastructure such as the moats and drawbridges. Intensive details are provided in the Bort Report regarding the construction year of the moat (1673–1674) that prove the moat is a Dutch construction unlike other fort features that were inherited from their Portuguese predecessors. Today, Dutch bricks are still visible and indicate traces of the Dutch moat that has been obscured and forgotten with time (fig. 1). Other details like the sizes (183 1/2 rods long, 2–4 rods wide and 12 feet deep in Rhenish measure), as well as special features of *fausse braie* and earthen breastwork that provide stronger defense are also highlighted in the Bort Report. Even the fresh and saltwater fish that came into the moat were considered a profitable resource by the Dutch. The moat also provided a rich ecosystem: crocodiles, perch, gray mullet and lobsters (De Witt 2007), which suggests good water quality. These meticulous details concerning the water structures and water bodies demonstrate that the VOC recognized the importance not only the water resource itself but also the creation and management of water-related infrastructures. Another example is Bort’s attention to two drawbridges in Malacca that were made during his governorship, and his reminders that they must be continually kept up

so that they do not fall into ruin and perish. It is possible that these drawbridges were repeatedly mentioned in the Bort Report because they are the sole physical linkage between the two completely different entities in Malacca: the cosmopolitan open city, which was a rapidly growing commercial center and high-density hybrid community settlement, and the low-density administrative center of a closed European town on the opposite side of the Malacca River (Widodo 2011).

Wells are often highlighted and evaluated in Bort’s report, which shows his concern about how to manage these infrastructures that were so crucial for daily living and an example of sustainable water sources in the tropics (fig. 2). For instance, the water quality is constantly evaluated for certain wells, indicating they are “good fresh water”. For the wells valued highly by the VOC, there were frequent efforts to strengthen their protection by adding defensive structures or stationing heavy guards around them. Further efforts were made to protect water providers (drawers of water) and ensure that they had a safe place to obtain water. To further maintain peace and sustainable water sources, the water resources were shared with other ethnic groups. Bort ordered that water be shared with people of all nations who were at peace with the Dutch, including Europeans like the British, French and Danes, and also people of Indian descent who were responsible for drawing water.

In response to the extreme tropical environment, gutters were also valued highly and many management details were included to ensure proper water drainage: “Everyone shall henceforward be bound to make, in front of his doorstep, convenient gutters 1 1/4 feet wide and 1 1/2 feet deep, properly paved with brick in order that the streets may not be damaged and made impassable by the disorderly throwing out of



^ Fig. 2 One of the remaining well structures from the Dutch era in Malacca at the Stadthuys complex shows a mixed use of Portuguese laterite stone for drainage and the Dutch addition of brickworks for defense (Source: Queenie Lin, 2018).

the water” (Bremner and Blagden 1927). This type of detailed legislation concerning water infrastructures is seen throughout VOC archival resources but rarely seen in the archives pertaining to other colonial powers.

### Extensive Canal Systems from Dutch Ceylon

Sri Lanka is the country that has the most tangible heritage from the VOC era, including forts, public buildings and dwellings, as well as intensive canal networks. Sri Lanka also has a long history and significance in maritime trade in the Indian Ocean. It flourished between the sixteenth and nineteenth centuries due to the need for supplies for the fleets used in intensive trading networks with Europe. The high quality of cinnamon and other commodities, such as

various spices, elephants, peacocks, and gems, attracted the Portuguese and British colonial powers when they expanded their trading network in Asia. During the first decades of the seventeenth century, the VOC developed a hegemony over the coastal areas to monopolize the export trade of Sri Lanka, and it continued to maintain a competitive but also mutually beneficial relationship with the Kandyan Kingdom, which was established by the Sinhalese people to obtain spices and other resources from inland. To facilitate inland coastal spice trading routes throughout the country, the VOC created an extensive canal system, initiated by the Portuguese. Due to the relatively slower pace of urban development in Sri Lanka over the past few centuries, these waterways are still traceable but are not easily recognizable, as they are intertwined with the present-day urban fabric.

The canals in Negombo and Colombo linking the Kelani River and Puttalam lagoon are rare examples of the extensive canal systems VOC built that still exist. They demonstrate the opportunity seized by the Dutch to establish lines of waterways providing both easy and economical transport of goods from outlying territories to their ports. The most well-known and well-preserved canal system in Sri Lanka is Negombo's Hamilton Canal, which links the Kelani River with the Negombo lagoon (fig. 3). It was originally constructed by the Dutch and later improved and strengthened by the British, hence its anglicized name (Brohier 1978). The continuous attention it received throughout the British era might be why this canal system is better preserved. It has become one of the nation's popular tourist attractions.

However, despite being the veins of VOC trade in Sri Lanka, the extensive Dutch canal system in cosmopolitan Colombo is not recognized and preserved for its heritage values. One of the main Dutch canals is the San Sebastian Canal, which was ignored and lost in the modern urban context and is used merely as a ditch that is convenient for wastewater discharge (fig. 4). Although these historic canals are still accessible and visible, they often face serious problems of pollution, urbanization, overpopulation and inappropriate land use, which are especially very challenging in countries with rapid developing needs like Sri Lanka. We are losing these historic water systems and their heritage of centuries of human wisdom regarding how to interact with nature.

The VOC port cities in Asia are often located on shipping routes for economic, strategic and recreational purposes, attracting a great deal of tourism but also involving irreversible impact on the environment and heritage. It is a particularly pressing concern that tangible and intangible

heritage is disappearing even faster in coastal areas as a result of excessive reclaimed land development and booming urban regeneration intensified by climate change.

### **Missing Water Heritage and Water Management at UNESCO Sites**

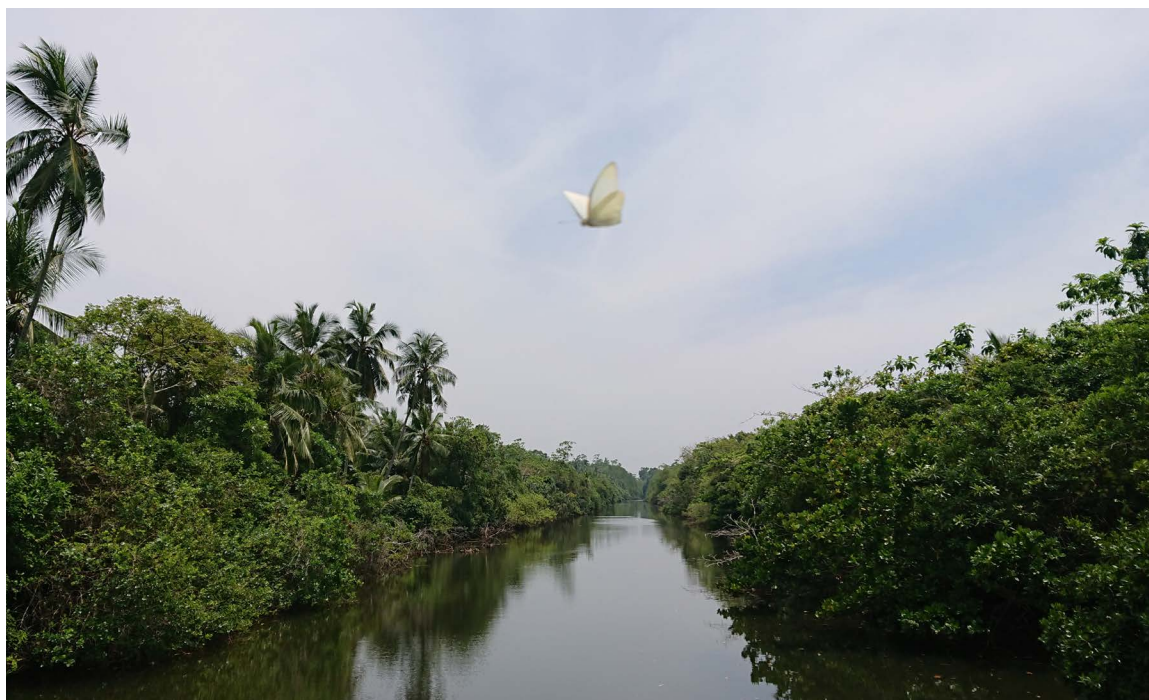
Designated as a UNESCO city (UNESCO 1988) and one of the most well-preserved Dutch overseas settlements, Galle also has rich waterway systems from the Dutch period that are less well-known, which may be due to their sole visibility in currently under-researched archival resources. The irrigation systems, reservoirs and drainages in Galle demonstrate the Dutch urban planning ambition. Canals were also constructed in Galle for the transport of goods, for irrigation and as a flood-control measure. Galle has two canals of around 20 and 30 miles each (Wellmer 2000), and the main water resource comes from a reservoir located in the north outside Galle Fort (fig. 5). These canals and reservoir systems possess rich flora and fauna that are natural treasures, but there have not been enough cultural linkages to the VOC and their Portuguese predecessors. Also, the historic water management approaches that reflect how the VOC responded to water and the environment have been overlooked and are not mentioned in the UNESCO framework. As discussed also by Maria Estefania Gioia, the role of water and water management in the World Heritage framework still needs to be reinforced both in terms of theory and process (Gioia 2022). Similar negligence happens in Malacca. The designation as a UNESCO World Heritage City in 2008 has helped to maintain the tangible and intangible Dutch heritage of Malacca. However, the rich water heritage from the Dutch era, for example, the moat, drainage and irrigation system and water management, are barely mentioned in the UNESCO documents (UNESCO 2008).



^ Fig. 3 The bustling leisure spot and tourist attraction of Hamilton Canal in Negombo (Source: Queenie Lin, 2019).



^ Fig. 4 The neglected Saint Sebastian Canal that is lost in the modern urban context of Colombo (Source: Queenie Lin, 2019).



^ Fig. 5 The rich flora and fauna at the Dutch reservoir outside the old town of Galle (Source: Queenie Lin, 2019).

## Conclusion

Dutch Malacca and Ceylon provide a vivid image of how the Dutch survived in a harsh tropic environment with limited clean water resources by building water-related structures and carefully managing them. The VOC also has carefully documented their way of living with water in the tropics, which involved building on local foundations but also making use of the colonial structures of other nations. The well-documented water management approaches and knowledge of Malacca reveal careful thinking about the creation of complex water systems, and an awareness of social justice pertaining to water resources used by hybrid communities.

Historically the locations of VOC ports were often not only chosen for their strategic military value but also for their value to shipping routes.

Canals were built, as in Ceylon, to become the veins to support trading and shipping activities. The rich water heritage that survives affords many opportunities for cultural tourism but also brings many irreversible changes to the environment and local culture. However, even when these sites become recognized as heritage, a comprehensive approach that includes consideration of water in heritage management is missing. The VOC water heritage offers unique opportunities to rethink the role of water in heritage, especially in a changing contemporary urban context, to gain a better understanding of how to cope with the dilemma between preservation and development, and to meaningfully reflect on how to attach cultural values to water infrastructures. Understanding the connections can help with heritage preservation and sustainable urban development globally.



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