

# HISTORICAL ANALYSIS OF URBANITY ON THE WATERFRONT

**Bambang Karsono**

Lecturer - Department of Architecture  
University Malikussaleh, North Aceh INDONESIA  
e-mail: [bambangkarsono23@yahoo.com](mailto:bambangkarsono23@yahoo.com)

## Abstract

*Since the dawn of the civilization, water plays an important role in human life. Water covers 75% of the earth surface and sustains virtually every life form on it. From the early days of human settlement, the banks of the major rivers such as the Nile, Tigris, Euphrates, Indus and Hwang Ho became the cradle of civilizations. It is here the culture developed and the pattern and morphology of urban settlement became the source of our knowledge. This paper attempts to overview the main developmental periods of waterfronts around the world. It discusses on the fundamental periods and events which shaped the city water-borne activities and explained how those events influenced the nature of public space on the waterfronts. The port-city that developed since then will be analyzed corresponding to the historical events that are related to the city development. A few cases studies will be shown in order to present a valuable descriptive situation. Corresponding to the above issues, a continuous process that took place in the development of the waterfront will be discussed extensively.*

**Keywords:** waterfront, developmental periods of waterfront, city-water relationship, public space on waterfront.

## I. EARLY DAYS

Throughout history, people has always lived and settled near water sources in order to sustain their life (Leahey & Lewin, 1979). Therefore, it provide an alternative to people to choose their lifestyle between nomadic or settled in one place (Mumford, 1961). Some people believed to settle down by the water's edge would be better (Mumford, 1961; Mann, 1973; Moughtin, 2003), so that the first civilizations grew and developed along the

water bodies, be it river, lake or sea. Most of the major settlements and cities in the ancient world grew up along rivers like the Nile, Tigris, Euphrates, Indus and the Hwang Ho (Benevolo, 1980; Kostof, 1992; Mann, 1973; Morris 1972; Mumford, 1961; Torre, 1989).

In China, river banks are the preferred to build the city. Their location in orientation to water is reflected in their names (Kostof, 1992). The word – *P'u*, which means the edge or reach of a river, is often found added to the names of cities, as in *Chang-P'u* (Kostof,

1992). This typical name or reference to location on the water can be found in many parts around the world, including Newcastle in England (i.e. Newcastle upon Tyne and Newcastle under Lyme). However, the physical elements of survival, including water and food, were not the only forces shaping prehistoric villages (Kostof, 1992; Mumford, 1961). Both Kostof (1992) and Mumford (1961) concerned close to overlooking the other driving forces, a most important example is the safety of the settlement from external threats. Safety was also among a range of factors which ordered the location of the settlement as being beside a body of water, factors which were reasonable and/or cosmological.

Logically, the pattern of the water's stream, the location of local goods and the productivity of the basin area played a role in deciding the location of the settlement (Kostof, 1992). On the cosmological and mythological obverse, water also played a significant role in the urban life of the ancient world (Wylson, 1986). In ancient Egypt the settlements were situated on the east of the Nile, the west was considered the necropolis. In India, the *ghats* (the steps) on the Ganges River, the holy river of the Hindus, were the precedents of many contemporary cities (Samant, 2004). In China, due to cosmological beliefs, cities were built to the north of the rivers, never to the south. Thus, human beings observed water, tried to control it and feared it. This is paralleled in Greek mythology, in which the sea had dozens

of gods and spirits, while the sea itself was a god named *Pontos*. The Egyptians as well as Mesopotamia's people had many gods of the river reflected the importance of water in their everyday life. Therefore, the story of human beings and water is a growing and multifaceted one, varying between dependency, exploitation, contemplation and reverence.

Water and urbanity, revolved around navigation become the next phase of story of humankind (Wylson, 1986). People cruised and transported across the ancient rivers even before the invention of the wheel (Torre, 1989) and this system became the highways of the ancient world. Being on the water is similar to entering a gateway, a node that was linked to other similar nodes all across the globe (Kostof, 1992). Through these nodes, not only goods and foods were transported to other places, but also building materials and people were brought in. This also led to the realization of new lands to be discovered or conquered. Through navigation, the Vikings roamed the Baltic, the North Sea and the Atlantic. And from their ports, the Romans turned the Mediterranean into a private lake. The Egyptians explored the Red Sea, the Upper Nile and parts of the Indian Ocean. The significance of these gateway settlements was reflected in their design. For example, the design of ports, harbors and jetties was of high architectural value in the Greek and Roman world. Their design reflected their power and

superiority. A main example of this is the port of Caesarea in ancient Judaea (Kostof 1992).

The increase in the logistical and activities strategic at the water's edge required a form of spatial and technical intervention. To prevent floods and to allow for loading and unloading, jetties began to be constructed on the waterfront (Girouard 1985; Wylson 1986). However, these coastal towns behaved like two way conduits and needed to be regulated and secured. Security meant fortification of the waterside on the basis that being on the water is like being at a gateway and any gateway needed to be protected (Konvitz 1978). In Europe, fortification became widespread after the collapse of the Roman Empire. This translated into the architecture of the Medieval Fortified City (Wylson 1986). This trend for fortification also arose in many other places, such as China and Japan (Ishida 2001).

## II. POST-MEDIEVAL WATERFRONT

In the late medieval period and with the rise of the Renaissance era, the European waterside cities came up with new approaches to their waterfronts. The relationship of the water-city began to take on accommodating form. Kostof (1992: 40) expressed the period by stating: *'now the river was a convenience of major roads, drinking water sources, and industrial power'* (for example, to operate grain or timber mills). This transformation in the city-water relationship was accompanied

by the changes in the theological, intellectual and economic. One of the main manifestations of the transformation which is the elimination of various forms of the fortification, many European cities opened up to the water and to rest of the world (Mann, 1973; Meyer, 1999; Wylson, 1986). The new atmosphere brought about by the functional approach was dominated by Mercantilism and then by Capitalism, a port-town gaining recognition and status unprecedented, giving new meaning to what Mumford (1961: 410) referred to as 'commercial or trading cities'. Their new openness 'reclaimed' waterfronts was short-lived, and soon dominated coast port activities during the Renaissance.

The significance of the port city during Renaissance times derived from the high value of trade and the control that merchants handled over cities. However, the polities of Renaissance Europe competed among themselves to trade with the rest of the world through their ports. The competition between these cities became so fierce that in some cases, it generated extreme ideas. For example in 1502 Leonardo da Vinci designed an excavation machine to divert the path of the river Arno. The diversion so created would have linked his city, Florence, to the Mediterranean Sea and disconnected Pisa, its rival city, from a navigable river (Mann 1973). That competition escalated later when it turned from a competition in trade to a competition for control and conquest. Another prime example of that hasty surge for expansion

comes from the period between 1660 and 1715: *'the government of Louis XIV of France built four brand new port cities and rebuilt two more'* (Konvitz 1978: 4). The drive for maritime domination had a major effect on the urban development of most European port cities (Hoyle & Pinder 1992). Konvitz (1978: 3) stated that *'the successful extension of Europe's political, economic, and cultural power from port cities had only reinforced the impression that such cities were indispensable to sea power'*. This paved the way for an era of port city development and the European Imperial system's complete dependency on cities such as Antwerp, Hamburg, Liverpool, London and Marseille (Hoyle & Pinder 1992). Hoyle and Pinder (1992) believe these port cities and the maritime networks between them to have played a role in the evolution of the modern world itself.

Then, the waterfront became dominated by ports and port-related activities. This kind of land use on the waterfronts of cities on navigable bodies of water continued all through this period and all through the industrial revolution phase in a pure functional spatial expression (Kostof, 1991). Moreover, the dependency of urbanity on navigable water bodies continued to grow up to the introduction of the railways. Even so, there has never been any replacement of shipping as the major means of moving immense goods between continents (Craig-Smith & Fagence, 1995; Konvitz, 1978). Consequently, the sustainability of large urban areas depended on

the availability of waterborne link routes and it became widely accepted that *ports created cities, and big ports created big cities* (Konvitz, 1978; Norcliffe, *et al.* 1996), and vice versa (Knapp & Pinder, 1992).

Baroque designs of waterfronts had a similar approach to the Renaissance Ideal City approach. Even though with a limited scope, they visualized the waterfront as the place for palaces not warehouses (Kostof, 1991). This overlooked the practical aspect and relevance of pre-existing economic and industrial arrangements. These were the earliest European efforts at trying to tie the development of commercial and military sea power to an urban context (Konvitz 1978). They represented a leading step towards the privatization of the waterfront.

During the 18<sup>th</sup> century, efforts to monumentalize the waterfront continued to take place in different locations at different times, after the functional approach of the 17th century. These activities aimed to bring non-port activities to the waterfront. Public spaces were opened up on the waterfront along with public and residential buildings in many port cities such as Bordeaux, London, Algiers and Boston (Kostof, 1991). The spatial association between ports and cities remained strong. Nevertheless, the prominent public spaces on the waterfront were still the quaysides. Prominent examples of such a spatial arrangement are the cities of Rotterdam, Amsterdam and Antwerp (Meyer, 1999).

### III. WATERFRONT DURING INDUSTRIAL REVOLUTION

Nearly the whole completion of industrial revolution was staged on the waterfronts of the industrial cities (Cook *et al.* 2001; White 1991). The changes in this period could be summarized by the scale and the type of activities that took place on the waterfront. Those changes were motivated by the invention of the steam engine during the first industrial revolution and the internal combustion engine during the second revolution. However, during this period most of the major port cities did not escape some major changes in the scale of their ports, the approach in which they operated and the introduction of other uses on the waterfront. The industrialization of 'cityports' and 'cityport regions' during this period depended on the port function. Port connected industries derived their raw materials from goods passing through the port, took advantage of the break-of-bulk point and contributed thereby to the provision of employment within the urban area (Hoyle & Pinder, 1981).

This period is considered as the period of maximum socioeconomic symbiosis between ports and their hosting cities (Norcliffe, *et al.* 1996). But this symbiosis was not reflected in the physical arrangement of the port city where, prior to the revolution they had remained easily and informally accessed from the adjacent urban areas (Kostof, 1992). Heavy machinery started to be used in the

loading and unloading of ships, the scale of the ships themselves changed after the invention of the steam and the internal combustion engines, larger ships meant larger docks, quays and shipyards and subsequently larger handling machinery. Finally, the industrial revolution meant a close to total domination of the waterfront by industrial and port activities (Marshall 2001b). By the end of this period all the planning aims of the 17th century to create a cohesive urban framework suitable for the utilization of the sea had collapsed (Wylson, 1986).

What mostly distinguishes this period from the previous one is that ports became cruel in their scale. That scale, accompanied by then new modes of transportation, such as railways and later, highways, completely separated the waterfront from the rest of the city (Marshall 2001a; Saperstein, *et al.* 1983). Nevertheless, this was not the case everywhere. For example, the British Victorian and Edwardian seaside resorts witnessed their heyday during this period. Although the steam boat was the catalyst for this trend in the early Victorian age, it was gradually outmoded and replaced by the railroad in the later stages (Anderson & Swinglehurst, 1978). Therefore, what operated to decrease public accessibility to the waterfronts of port and industrial cities at the same time helped in bringing members of the public of all income groups to the seaside resorts (Anderson & Swinglehurst, 1978).

In the port city, the public's access to other urban open space was drastically reduced during the early years of the industrial revolution. The migration from rural areas to the industrial cities and the rapid expansion of the latter consumed the internal open spaces and severed the urban from the rural (Hough, 1984). These conditions required the creation of urban parks in their modern sense. Central Park in New York City is a famous example of that approach where, public spaces were neglected in the early plans of the city, given that such spaces already existed on the waterfront. Central Park was then created to substitute the loss of open spaces within the southern area of the city and on the waterfront of Manhattan (Heckscher & Robinson 1977).

It is remarkable that almost all the research on waterfronts blames the Industrial Revolution for constraining the city's exposure to water (Carr, *et al.* 1992; Kostof, 1992). Paradoxically, during the first period of the Industrial Revolution, the majority of the canal networks in Europe and North America were laid, adding thousands of miles of canal-side space to the urban and countryside areas of Europe and North America. As stated earlier, the rise of the seaside resorts in Britain during the same period allowed city dwellers to relax on the waterfront and escape their crowded cities (Anderson & Swinglehurst 1978; Kostof 1992). Hence, although the industrial revolution had some negative impacts on the waterfront, it was also the root for creating many new ones.

#### IV. POST-INDUSTRIAL WATERFRONT

Till the end of the 19th century, interdependency and symbiosis were key components of the character of the port city. The roles of ports at any scale were gradually diminishing due to the increased involvement of rail and airline transportation (Tunbridge 1988). After the Second World War a huge amount of land close to the centre of many major cities around the world, such as London, New York, Boston and Sydney, was unchained of port and industrial activity. Most of those areas were left to a gradual decay. It was primarily influenced by three interrelated factors, i.e. new technologies led by containerization, roll-on/roll-off handling methods and bulk cargo facilities required larger handling and storage spaces (Hoyle & Pinder, 1992).

Containerization is an axial technological invention which required those changes, it allowed for larger cargo ships for heterogeneous goods to be built which subsequently needed a deeper river, or deep water ports with better inland connection (Cullinane & Khanna 2000; Malone 1996; Mann 1973; McCalla 1999; Meyer 1999). The new technologies reduced the amount of port-related employment (Hoyle & Pinder 1992). Thus, ports and cities went their own ways on both physical and socio-economic levels. One of the major examples of that port/city

independence is the city of Rotterdam (Graafland, 2001).

The relocation of ports and port-related industries is considered the progenitor of the waterfront decline and regeneration phenomena. This is not to say that only port cities are witnessing this phenomenon, this continuous process is found in most places where settlement and water are juxtaposed (Hoyle & Pinder, 1992). Therefore, the waterfront became a source of hope and concern (Jones 1998). Hope, because the redevelopment of the waterfront could be the socio-economic, environmental and spatial heal for many ailing cities. This concept derives from many sources. First, many city officials refer to select earlier examples, such as Baltimore inner harbour, London's Canary Wharf and Sydney's Darlington harbour, and stamp-copy those examples with a complete disregard for the local context (Breen & Rigby 1996; Jones 1998; Marshall 2001b). Secondly, the waterfront has become the arena over conflict between public and private interests (Dovey 2005). Issues such as gentrification and public's access to the water are sometimes neglected (Breen & Rigby 1996).

## V. CONCLUSION

The discussion showed how the story of urbanity begins on river banks throughout the ancient world. That connection has shifted over time from a simple biological need to embrace spiritual and cosmological matters,

and latterly, strategic ones. The accounts given above shows how the mode of human dependency on water has shifted from one to another and how those shifts are linked to our basic needs, technological advancement and spiritualities. From the history of the waterfront we can see that changes in our perception of the water are linked to changes in our style of satisfying our need for water. During unsettled times waterfronts were fortified, but they were opened up again in times of peace and with the rise of commerce and industry they became largely given over to port activities.

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