Journal of Advances and Scholarly Researches in Allied Education
Vol. 19, Issue No. 6, December-2022, ISSN 2230-7540

Documentation, analysis and redevelopmentof the Tamsui river side in Taipei City

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Abstract - Taipei is located on the Tamsui River's right side, which has played an important role in the city's economic, social, and urban development. During the 1960s, population growth and fast urbanization resulted in development without sufficient management of the alluvial plains. Following some severe flooding in the 1960s, and in order to fulfill the increased demand for building land, the government devised a flood-control plan that included the construction of a 117-kilometer-long floodwall with a height range of 6.00 to 9.50 meters. Taipei became a walled city as a result, encircled by a high wall that separates the city from the river, compromising inhabitants' affinity with "water". The goal of the vision presented in this paper is to "make a city for people," to repair the relationship between the Tamsui and its peopleby increasing access and public areas on both sides of the floodwall, allowing the river to be reintegrated into Taipei as an extension of the city. The ability to replicate this timely action on a large scale, through a reactivation-capable process of the riverfront, to mend the original connection between people, Taipei, and the Tamsui river, aims to define a shift toward a people-centered urbanism and an environmentally conscious society, with the goal of becoming a source of hope and inspiration for our cities' aspirations to build a better future.

Keywords - regeneration, tactical urbanism, people-centredurbanism, resilience, waterfront, sustainability

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INTRODUCTION

Taipei, Taiwan's capital city, is located in the extreme north of the island, on the Tamsui River's right bank, in the Taipei basin. With a population of 2.65 million people and a density of 9,781.51 people per square kilometer, it is the island's commercial, political, and cultural hub (Li et al. 2016). Taipei's economic, social, cultural, and urban development were all influenced by the Tamsui River (Zheng 2013). Taiwan is positioned on the primary typhoon track from the Pacific Ocean, and it has severe rains and a large number of wet days, with rainfalls 2.6 times the global average. (Taiwan's Central Weather Bureau2019).

Taipei's connection with Tamsui is adversarial and complicated: the river has been mistreated for centuries, to the point that its wetlands have been reduced to make space for the city's growth.A rapid population surge in Taipei during the 1960s resulted in rapid urban expansion without appropriate management of the floodplains, resulting in densely populated areas along the river(Chang et al. 2013). Following the severe flooding caused by typhoons in the 1960s, and in order to fulfill the increased demand for construction sites, the government devised a flood-management strategy known as the "Taipei Area Flood Control Project". The TAFCP includes: the Erchong floodway (a flood control channel), a rainwater sewer system, 63 stationsfor pumping the water from beyond the wall into the river and 117 kilometers of high floodwalls ranging in height from 6.00 to 9.50 meters. This last element is an artificial vertical barrier meant to temporarily control a river whose water can rise to exceptional heights during seasonal weather extreme events. What makes this study particular is that Taipei's embankments permanently constrain each river along its banks (Su 2016).

Taipei exists thanks to its rivers. According to Casagrande (2011) studies, the first generation lived tightly connected with the fluvial nature, put together as its local know-how, such as collecting the rich resources from the rivers, surviving to floods and even exploiting artificial flooding as a basis for rice cultivation. The second generation is marked by the industrial manifesto, facingthe city as a machine

independent from nature. In Taipei's case, the fluvial nature has been radically separated from the city (Fig.1 and 2): the industrial city has built its own embankment, a high wall of reinforced concrete to completely separate the river from the urban settlement. This wall proved to be very efficient in eliminating nature from urban life. Now, the citizens are children of the machine, not Nature's children. The wall has already been standing for a couple of generations, which means thatfor the young in Taipei, the river doesn't quite exist: nature has become fictional (Wu 2010).

Fig 1: Taipei Riverside, view from Taipei Bridge

Fig 2: Taipei Riverside, view from Yanping North Road

Nevertheless, in recent years thepopulation has been developing a certain sensitivity, they recognize its potentialities and they would like to connect to it, but they don't know how, so they are asking for a better urban project which could join citizens to the river (Wang, 2018).This is a much-discussed topic in town, with Taipei's municipality and the Central Government exploring for ways to link the city to the Tamsui River once again.

MATERIAL AND METHODS

A flooding can be one of the most devastating catastrophesusually linked to human action, either by the lack of adequate urban planning to the natural particularities of the environment, or by the increase of pluviometry index, related to climate change. As said before, during seasonal weather phenomena or severe occurrences, a floodwall is an artificial vertical barrier meant to temporarily restrict a river whose water can rise to exceptional heights during seasonal weather extreme events. It is made of artificial materials such as concrete in places where there is little space between the river and the city, thus keeping the two separatedand compromising the relationship between a river and the citizens. For this reason, a few cities in which they were built developed projects to mitigate the impact of the floodwall with the aim of recovering the relationship between the city and the river once again. Successful examples are: "The Mural Mile" along the Missisipi River in Saint Louis (USA), "Tokyo Super Levees" along the Ara River and Sumida River both in Tokyo (Japan), the "Mobile Floodwall" along the Danubio River in Grain (Austria) and the "Richmond Floodwall Park" along the James River in Richmond (USA).

This research examines the Tamsui riverside portion from Shezi Island, where the Keelung flows into the Tamsui, to the confluence of the Xindian and Tamsui. A GIS-based study and a survey on both sides of the floodwall were conducted to examine the link between the river, the city, and the wall in Taipei to conduct a critical examination of the waterfront from the perspective of the link between the urban settlements and the riverbank. The high wall surrounds the whole perimeter of the riverbank, but aside from the barrier, the riverside is totally walkable and offers attractive natural surroundings; farther south, the riverside is larger and allows for the existence of highways to decongest traffic on the main streets. The river and the linear parks are shut out of the urban design due to the floodwall. There is a quite number of apertures called "evacuation gates" along the floodwall (Fig. 3); they have hydraulic doors and may be utilized by people and, in certain cases, cars. The positions of these old gates correspond to cross vehicular roads, and since they are fragility points along the construction of the wall, they are few and do not match to inhabitants' demands for access to the riverbank. Furthermore, they are not user-friendly, since they require passengers to cross a busy high-speed road to get there. In the event of a flood warning, the Tamsui River Monitoring Command Center, the Water Resource Agency, and the Ministry of Economy lock the evacuation gates, effectively separating the river from the city (Sui, 2016). There are a few isolated polarities along the riverbank, such as Buddhist temples. Because of their spiritual importance to the local people in defending Taipei from flooding, they are usually adjacent to the evacuation gates, the weakest areas of the floodwall.

This field study was performed between February and March 2019 to grasp the thoughts and ambitions of local people in order to analyze the current scenario of Taipei cut out from its river from a sociological standpoint, strolling along the riverfront on both sides of the floodwall. The interviews have been done to the household people. The findings revealed that all of the inhabitants accept the high floodwall since they were born with it and it provides

them with safety. The same people stated that they are aware of how beautiful the landscape on the other side is, but that only 10% of them visit the riverfront to engage in a few activities. The remaining 90% answered that if they have spare time, they prefer to visit other Districts due to the long and perilous road they must go to access the riverbanks. Some individuals, in fact, have self-organized with do-it-yourself steps (Fig. 4) to reach the Tamsui owing to a lack of access to the riverbank. Another aggravating aspect is that, due to the floodwall, this Taipei area is out ofTaipei's housing trends, and has become an unlived margin of the city (MVRDV et al. 2012). People have complained about a lack of public areas in the neighborhood, making it difficult to form a cohesive community. During the study, more over 75% of the residents polled expressed a desire to reclaim the river. In a year, the average of days in which the riverside is totally or partially inaccessible because of the river flood are 10.9% (Taiwan's Central Weather Bureau 2019), the equivalent of 40 days, always during the typhoon season, which is typical of eastern Asia from late spring to the beginning of the summer. During the other days the riverside could be accessible from a more inclusive project in relation to the city and its population. To respond to this request from the citizens, a group called "Riverbank Community Association" was born as an attempt to create a solution to connect city and water. However, this is insufficient; in fact, this is an evident issue and a much-discussed topic in town, so much so that Taipei's municipality and the Central Government are looking for ways to reconnect the city to the Tamsui once again.

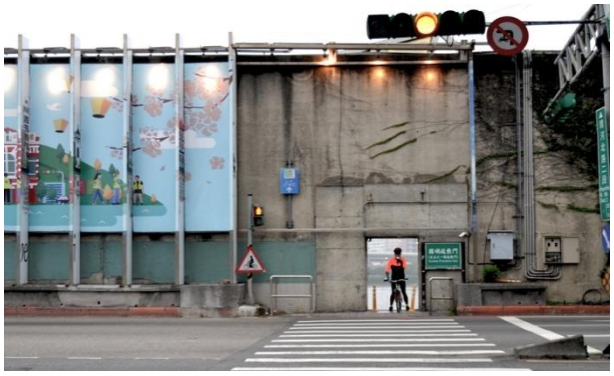

Fig 3: Guoshun Evacuation Gate

Fig 4: DIY stairs to reach the Tamsui Riverside

The floodwalls are necessary for Taipei's survival (Martinelli 2021). In order to reconstruct that identity, interventions must take place on the city's borders, between the urban pattern, the wall, and the river.

RESULTS AND DISCUSSION

This paper's vision is to "make city for people" (Villadsen 2018) by mending the link between people and the Tamsui River by requalifying the waterfront through improving accessibility and public areas on both sides of the floodwall, in order to incorparate it into Taipei as a city's extension. This strategy is aligned with waterfront redevelopment projects in other major cities such as the regeneration of the Huangpu riverside in Shanghai designed by Ghel Office or The Tide in London by Diller Scofidio + Renfro.

The project for Taipei's riverfront is divided into four strategic objectives, which serve as the plan's guiding principles (Planu 2021). Through the concept of "smart city" (Incerti 2013), this strategy integrates the implementation of the relationship between Taipei City and its river by the the construction of high biodiversity atmospheres and continuous pleasant conditions, the design and activation of a polycentric axis with varied locations, and the integration of innovative technologies with public spaces.The goal of the redevelopment of Taipei's waterfront is to find vacant sites on the edges of the city, upgrade them as public spaces, connect them over the floodwall, and to the riverside. Smallareas, such as parking lots or free spaces in front of buildings can be equipped, activated, and connected to the river banks. In this way, the neighborhood's public areas become the focal point of neighborhood life (Zunino 2019)., sincethey are social areas that help to rebuild links with the Tamsui by developing a feeling of belonging and identity. A new crossing system to link the public areas of the urban settlements to the banks of the Tamsui river has been designed. It is defined by a fleeting tower that sticks out in the densely packed urban environment. It is in all the public areas along the waterfront, enabling access to the river by way of a bridge that over the floodwall.The repetition of this solution on a large scale, through a method capable of reactivating, enhancing, and managing the waterfront, thus joining up the original connection between citizens, Taipei, and the Tamsui river, can define the transition towards a people-centered urbanism and an ecologically aware society (Pozo 2019)designed to create an environment for people to lead a more balanced, resilient, and sustainable way of life.

For the detailing of the presented proposal, a specific area was selected: Yanping Riverside is a sector of the Tamsui River's right bank in Datong District. On both sides of the dike, this proposal

integrates activities of sport, leisure, art, relaxing, and nature into one integrated development.Taking into consideration the floodwall's impact on the impression of space, many design concepts (Fig. 5) have been designed to allow it to be mitigated by utilizingarchitectural support components that permit riverbank usage at various levels of the river. They also provide different points of view based on the river's conditions water level.

Fig 5: Design Models

In this paper, "Guisui Park" and "Skate Park" are two pilot projects (Fig. 6 to 10) that were developed with the goal of improving public areas for people while also being connected to the river. The ephemeral tower that connects Taipei's urban development to the Tamsui riverbank is in both areas as a landmark.The floodwall, beyond its primary function as defensive infrastructure, connects the urban spaces between them and to the riverside linear parks, providing new chances and experiences while taking on a new integrated connection with the city.

Fig 6: Cross section of the "Guisui Park" proposal

Fig 6: Axonometric view of "Guisui Park" proposal.

Fig 7: Plan of the "Guisui Park" proposal.

Fig 9: View of "Guisui Park" proposal.

Fig 10: View of the proposal from the Tamsui riverside.

The regeneration of Taipei's waterfront is a complicated and ambitious project that intends to provide residents with a continuous public space while also enhancing their health and quality of life by linking access to natural and leisure resources to the city. All ages of inhabitants are welcome to gather in the riverbank public spaces. Some people ride bikes or skateboard, while others exercise or spend time by the river, resulting in an active community. It is hoped that by implementing this

strategy the relationship between the citizens, Taipei, and the Tamsui River would be rebuilt. The goal of proposing a people-centered strategy to requalify the waterfront is to make it a source of hope and inspiration for our cities' quest for a brighter future.

ACKNOWLEDGEMENTS

The work of this paper was developed by the author during a research partnership between the Department of Architecture of the Ferrara University and the Department of Landscape Architecture of the Chinese Culture University of Taipei, Taiwan.

REFERENCES

1. Casagrande, M. 2011. Taipei from the River. http://casagrandetext.blogspot.com (Visited 27th February 2019).
2. Chang, S., C.H. Wang, K.T. Wu, H.N. Chuang. 2013. Taipei Unveiled. 1st ed. Taipei City Urban Regeneration Office, Taipei City, Taiwan.131 pp.
3. Incerti, G. 2013. La città dialogante. OPERE 34:6-7.
4. Li, J., X. Liu, J. Liu, W. Li. 2016. City Profile: Taipei. Cities 55:1-8.
5. Martinelli, A. 2021. The City Beyond Architecture. Sheng-Yuan Huang and the work of Fieldoffice. 1st ed. Listlab, European Union. 260 pp.
6. MVRDV and Sun Studios. 2012. Unfulfilled Domestic Desires. In: MVRDV and The Why Factory. The Vertical Village: Individual, Informal, Intense. Nai Publishers, Rotterdam, Netherlands. p. 134-141.
7. Planu, F. 2021. Taipei Floodwalls. Proposta strategica per la rigenerazione del lungofiume Tamsui. PaesaggioUrbano 1.2021:146-159.
8. Pozo, M. 2019. Regeneration of the Huangpu riverside, Shangai. Domus 1039:972-983.
9. Su, Y.S. 2016. Urban Flood Resilience: a chronology of policies to prevent flooding in Taipei. International Journal of Development Research 6:6661-6675.
10. Sui, H.C. 2011. Resilience in Space: An experimental analysis of resilience in urban flood management in the Taipei Basin. International Master's Programme Thesis, Department of Environmental Studies and Sustainability Science (LUMES), Lund University, Sweden. 47 pp.
11. Taiwan's Central Weather Bureau. https://www.cwb.gov.tw/V8/C/ (Visited 23rd March 2022).
12. Villadsen, K. 2018. A Game Changer for Shanghai Citizen's Life Quality. https://gehlpeople.com/blog/a-game-changer-for-shanghai-citizens-life-quality/ (Visited 3rd March 2019).
13. Wang, C.H. 2018. Living with Sky, Water and Mountain: Making Places in Yilan. 1st ed. Alliance for Architectural Modernity, Taipei City, Taiwan. 99 pp.
14. Wu, P.S. 2010. Walking in Colonial Taiwan: a study on urban modernization of Taipei, 1895-1945. JABEE 9:307-314.
15. Zheng, P. 2013. Taipei, Water City. https://gehlpeople.com/blog/a-game-changer-for-shanghai-citizens-life-quality/ (Visited 3rd March 2019).
16. Zunino, M.G. 2019. Milan 2030: 88 squares for 88 neighbourhoods. Domus 1041:18-21.

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