



Università
Ca' Foscari
Venezia

Master's Degree in
Languages, Economics and Institutions of Asia and North Africa

Final Thesis

Postmodern Urban Waterfront in Suzhou: A Critical Approach

Supervisor

Ch. Prof. Stefano Soriani

Assistant Supervisor

Ch. Prof. Daniele Brombal

Graduand

Marina Panozzo

Matriculation number

851177

Academic Year

2018 / 2019

前言

苏州是中华人民共和国江苏省东南部的一个地级市，是中国历史文化著名的古老城市，而且是中国典型的传统水网城市。由于苏州古城美丽的风景与著名的园林，它自古享有“人间天堂”的美誉。苏州是历史悠久的古城，从公元前 514 年已经开始发展城市中最具生命力、最富景观特色的空间，即古城滨水地段。一直到明朝时代（1368 年 - 1644 年）苏州城中水网与滨水空间经历了一段繁荣的时期，因为当时城中水道起非常具体的作用。水上交通曾是最普遍、最便利的流通方式，因此城中水网被认为是苏州经济、社会与文化的核心。由于水在苏州居民的日常生活中占有非常重要的位置，所以他们的文化与传统生活方式受到很大的影响，导致了苏州“水文化”的诞生。但是，随着中国社会经济的发展，苏州水网逐步开始失去传统具体的作用，主要是因为工业与交通工具的现代化。

已从晚清代起，西方国家开始将资本主义的生产方式倡导到中国。这就影响到了全国经济和社会，而且对苏州市经济、社会与城市形态带来了很大的变化。铁路与公路的建设对城中水道造成了不可忽视的破坏。由于传统水网比不上现代交通工具的效率，所以苏州城中滨水地段的重要性开始逐渐地减小。虽然苏州居民在日常生活中一直继续用水，但是他们与水的关系没有以前那样密切，这就威胁了苏州市传统“水文化”的保留。另外一个值得注意的事情是在那一时期苏州城市化速度加快给滨水区带来建设繁荣的同时，也给这些城中地区造成了一系列严肃的挑战。城市化与现代化所带来的这些挑战体现在环境污染、本地特色丧失、传统滨水区活力减弱等问题。从十九世纪末到二十世纪八九十年代，苏州城中水网面临了很严重的困难，特别是在传统水道数目与水质量的这两个方面上。在这一段时期内，城中水网的生态环境受到了很大的挑战，而且这也影响到了苏州“水文化”的保留。

随着最近这几十年中国中央政府推动的环境保护与生态文明政策，苏州地方政府对防止水污染和保护与更新传统水网城市滨水地段开始采取一些具体的措施。通过滨水环境整治与历史水街区积极的保护，苏州滨水管理的系统不断追求进步，目前已经成为了振兴苏州滨水区经济和社会的战略。苏州的滨水地段曾表现城市经济与社会的活力，而现在能够将重新开发，利用传统水网历史文化与休闲旅游的价值。为了更好地了解苏州城中滨水区当代的发

展，本文的第三个部分先简单地介绍滨水区重新开发这种现象在西方国家的出现，以及中国怎么执行这么重要的任务。然后，本文从经济、环境、社会与文化的角度来研究苏州后现代滨水区改造的过程，这就是本文最主要的焦点。具体来说，最关键的话题是为苏州传统滨水空间寻找新的开发机会，例如，文化旅游业与休闲活动对历史水街区所提供的新经济社会发展机会。

为了了解苏州市滨水地段在最近这些年的改造对城市的形态和形象所带来的影响，本文的第三个部分就详细地描写两个历史水街区保护与更新项目的案例。这两个案例体现在位于苏州古城的著名平江历史街区和山塘街区的更新计划。除此以外，本文还对于苏州地方政府在这两个地区整治中采取的措施的优点和缺点进行分析。平江路与山塘街都是苏州著名的名胜古迹，在那里传统水网的水道还保留着原来的面貌与特色。因此，这两个古老地区的更新对苏州城市的旅游业带来了很大的好处，而且在最近这些年有助于生态环境管理的改进。虽然苏州市政府所进行的更新努力，但是主要依靠旅游业发展的改造项目同时有可能会影响到这些历史地区本地有特色的生活方式，以及也会对苏州历史遗产造成商品化的问题。

除了平江路和山塘街这两水上历史地区的重新开发项目以外，本文的第三个部分还介绍位于苏州工业园区的金鸡湖滨水地区发展过程，以便关于苏州滨水地区的振兴提供另外一个具体的案例。苏州工业园区是苏州经济社会创新的中心，从 1994 年起许多著名的跨国公司的投资集中在苏州市的这个地区。另外，苏州市政府通过与国际和国内大学的合作正在促进园区教育与研究发展，以便使园区成为中国最重要的创新中心之一。在这样的背景里，金鸡湖滨水区从二十世纪九十年代开始引起市政府与开发生注意，是由于这个地区有潜力成为苏州市新的象征，甚至对苏州传统园林提供一种对立的、竞争的象形。从那时候起，金鸡湖滨水区经历了一段繁荣、快速发展的时期，特别是在房地产、国际商务与旅游业的层面上，目前已经成为了苏州工业园区的核心。

虽然苏州市滨水地段的振兴努力对城市的经济、社会与文化的发展带来了不可否认的好处，特别是在环境保护和经济促进的层面上，但是这些城市规化的战略对苏州本地社会与文化也造成了一些风险。具体来说，这些风险体现在社会参与不足和历史遗产的商品化。关于社会参与不足这个方面，苏州滨水区开发的项目大概都是由地方政府管理与推动的。这意

味着苏州居民的需要与需求有可能被忽略，以免损害地方政府管理人员或者开发生的经济与政治的利益。关于苏州历史遗产的商品化这个问题，苏州传统水网与城中滨水区的更新项目主要依靠旅游业和休闲活动来给这些地区提供新的发展机会，但是从另外一个角度来看，这也会对苏州当地人与当地传统生活方式带来新的挑战。这些挑战包括按照旅游业的需求与期望来调整苏州历史水街区的特色与面貌。这样的过程会对苏州传统“水文化”造成很严重的损害。为了避免这样的情况会破坏苏州当地人与城中水网密切的关系，苏州市政府应该促进全面的管理方式来保证社会参与。只有市政府采取有效的措施来将遗产保留、旅游业开发与居民需要结合在一起，才能保证苏州城中水网与滨水地区保持其真实的性质。

除了对苏州滨水区改造所带来的变化与面临的挑战进行分析以外，本文的第四部分还提出重新发现苏州“水文化”珍贵重要性的两个解决方案。这些建议就包括促进生态旅游业的发展与建立苏州水博物馆，以便推广环境教育与水污染的防止与控制。假设苏州能够建立一种国际与国内的生态旅游的目的地，它有潜力成为中国生态文明的参考点，为改进人们对水的顾及与行为做出很具体的贡献。特别是通过水博物馆的作用，苏州居民与旅游者会重新接近对于水传统的态度，而且这会对全城市与全社会提供不可忽视的好处。虽然苏州传统水网与滨水地区的更新努力已经有助于缓解城市中的水污染问题，而且对苏州经济提供了新的发展机会，但是只有市政府、私人开发生、旅游业与苏州居民能够共同努力，才能保证对苏州滨水区开发建立一种可持续的态度。

苏州市有特色的风景给本人留下了非常深刻的印象。通过城中的气氛，这么古老的城市不但能够表现出本地悠久的历史与文化，而且也能够将传统的遗产与当代的生活联合在一起。一方面现代化对城市的影响非常明显，但另一方面城市的遗产使人们大开眼界。苏州市与城中历史街区给本人留下这样的印象就引起了本人对于苏州的好奇心并成为了本文的灵感起源。

苏州市与城中滨水区的关系历史悠久，源远流长，虽然在最近几十年经理了一些困难的时期，但是通过城中水网与水环境的更新与保护，苏州居民与旅游者有可能重新发现这些地区本质的价值。值得注意的是研究苏州与水的关系这个话题，涉及到很多不同方面的问题，包括经济发展问题、环境污染问题、旅游问题以及遗产保留问题。这其中的任何一个领域都

需要非常长期的知识积累，需要很高的专业门槛才能够切入这么复杂的话题，做出全面深入的分析 and 评论。因此，本文只是关于苏州市与水的关系总结一些信息和角度来研究苏州市滨水区发展的趋势与潜力。通过专门学报文章与苏州市政府发布正式文件的分析，本文试图将不同的视角结合起来，以便对于苏州市滨水区保护与更新提供一个概述。

TABLE OF CONTENTS

前言	I
TABLE OF CONTENTS	V
ABSTRACT	VII
INTRODUCTION	1
CHAPTER 1 – Suzhou as a Water City	5
1.1 Historical Background	5
1.2 Formation and Early Development of Urban Waterways in Suzhou	8
1.3 Social and Cultural Significance of Urban Waterways in Suzhou.....	11
CHAPTER 2 – Evolution of Suzhou’s Waterfront in the Modernization Era: Uses of Urban Waterways and their Relationship with the City	17
2.1 Suzhou’s Economic Development and Transformation.....	17
2.2 Urban Spatial Reconfiguration of Suzhou and Loss of Traditional Urban Waterways	22
2.3 Uses of Waterways in the Industrial Period: Environmental Pollution and Waterfront Degradation.....	28
2.4 Recent Developments: Environmental Upgrading and Water Pollution Control	32
CHAPTER 3 – Urban Plans for the Rediscovery of Suzhou’s Waterfront Space	41
3.1 Introduction to Waterfront Redevelopment	41
3.2 Waterfront Redevelopment in China	46
3.3 Peculiarity of Suzhou’s Postmodern Waterfront Space.....	58
3.4 Rediscovery of Suzhou’s Historical Waterfront: Pingjiang District and Shantang Street ...	64
3.4.1 Renovation of Pingjiang Historic District	65
3.4.2 Spatial Configuration of Shantang Street	76
3.5 Innovation of Suzhou’s Waterfront Space along Jinji Lake	79

CHAPTER 4 – Issues of Suzhou’s Waterfront Rediscovery and Eco-tourism Opportunities	89
4.1 Critical Issues on Waterfront Rediscovery: Social Sustainability and Heritage	
Commodification	89
4.1.1 Public Participation in Waterfront Revitalization Projects	89
4.1.2 Heritage Conservation and Commodification	91
4.2 Waterfront Rehabilitation for a New Relationship with Water	94
4.3 Suzhou’s Eco-tourism Development for a Renewed Appreciation of Water	97
CONCLUSIVE REMARKS AND DISCUSSION	103
REFERENCES	107
CHINESE REFERENCES	110
LIST OF FIGURES	111
GLOSSARY	112

ABSTRACT

This thesis aims to provide an overview of the transformation of urban waterfront space in Suzhou, China, demonstrating how the city underwent different phases of development that significantly affected its relationship with water. After providing a brief historical background, the research focuses on the emergence and development of Suzhou's urban waterways and on their economic, social and cultural significance. Following the evolution of the city in the modernization era, Suzhou underwent a spatial reconfiguration that resulted in a dramatic loss of traditional waterways and in the detachment of local people from the waterfront space, affected by pollution and environmental degradation. The rediscovery of the value of urban waterways occurred in recent years is then discussed, by analyzing three projects addressing the revitalization of waterfront space in different areas of the city. In conclusion, some social and cultural issues related to the practice of waterfront redevelopment are underlined and the reconciliation of local people with water is identified as a way to preserve and transmit the traditional water culture of the region.

INTRODUCTION

In 2018, thanks to Ca' Foscari Overseas mobility program, I had the opportunity to spend a semester abroad in the fascinating city of Suzhou, where I attended the Xi'an Jiaotong – Liverpool University, located in the development area of the city called Suzhou Industrial Park (SIP). While living in the city known as the “Venice of the East”, I could not avoid the comparison with the time spent back in Venice and with the peculiarity of an urban environment that had become so familiar to my daily life. The layout of Suzhou ancient city, characterized by a grid composed by the juxtaposition of crisscrossing streets and waterways, reminded me of the canals in Venice. At the same time Suzhou's distinctive urban landscape allowed me to perceive the fascination of the local culture. The sharp contrast between the modern urban life of the city center and the timeless atmosphere of the waterfront historic streets became a source of inspiration for initiating this research. The willingness to investigate the relationship between the city of Suzhou and the element of water, as well as the changes that this underwent and is undergoing due to consecutive phases of urban development is the driving motive that informs this work.

This thesis begins with a brief recollection of the historical background of the city of Suzhou and of the major events that marked the history of the city. It focuses in particular on the emergence of water as a crucial element of the urban environment, which influenced the development of the economy, social life and culture in the city. As many other centers in the Jiangnan region, south of the Yangzi River, Suzhou's culture and traditions are closely connected to water. The proximity with water is considered an essential feature of both rural and urban life in the region. Therefore, this work will try to delineate the main linkages between Suzhou's urban environment, water and urban residents, in order to stress the importance of preserving the historical and traditional local relationship with a precious resource as water.

Moving from this basis, this thesis will then investigate how, following the Opium Wars and the establishment of Shanghai as main port and commercial hub of the region, the traditional role of Suzhou as main trade center was gradually eroded. Due to the decrease in the use of waterways as a circulation system serving transport and trade, the urban water system gradually began losing its functions. This was reflected in a progressive detachment of urban people from water.

In addition, with the advent of modernity, the rapid industrialization and urbanization of Suzhou city represented great challenges for the preservation of urban waterways. As the need to make space for the development of the road network or new constructions increased, urban rivers became gradually less accessible and were either filled or turned into drainage canals or sewers. As a consequence, water pollution caused by industrial and domestic wastewater became a threat to the urban living environment and ecosystem.

This set of factors contributed to gradually endanger local people's traditional relationship with water, especially due to the decrease in the practical functions of waterways inside the city, such as transport, trade and source of water for domestic use.

In response to this negative trend, following the recent attempts of the Chinese Central Government to move towards a more sustainable development model, Suzhou has been gradually improving its environmental management capabilities, included water conservancy and pollution control. Therefore, under the umbrella of sustainability, the restoration of the quality of urban waters and the renovation of urban waterfront areas have become major issues for the transformation of the city. The rediscovery of the waterfront is a process that characterizes many port-cities around the world, from North America, to Europe, to Japan. Moving from the redevelopment experiences of other major cities, this thesis attempts to describe the transformation of the waterfront areas in Suzhou by studying the renovation of the historical districts of Pingjiang Road and Shantang Street as well as the development of Jinji Lake waterfront. These areas offer valid insights into the process of waterfront redevelopment in Suzhou, and they also allow to compare the different strategies used to renovate urban historical sites and those used to build the core of the innovative industrial district of SIP along the shores of Jinji Lake.

In addition, an analysis of the role of the public in the redevelopment process is provided, by putting forward some interesting issues concerning the role of residents in contrast with that of tourists. This section also investigates whether the redevelopment of waterfront areas in Suzhou could become the starting point for the creation of a new relationship with water and waterfront areas, by enhancing accessibility, knowledge and awareness of both residents and tourists of the importance of preserving and respecting urban water culture, history and ecological features.

As a further proof of the willingness to promote the preservation of the characteristic local linkages with water, a brief discussion of the phenomenon of eco-tourism and water-tourism in Suzhou concludes this thesis, by putting forward the role that water museums could play for the reinterpretation of human interactions with water.

In conclusion, some limitations and negative aspects of the waterfront redevelopment model in Suzhou are underlined, such as the risk of compromising the local identity through the promotion of an aestheticized and commodified approach to waterfront resources.

While the inspiration and the choice of the research topic was driven by personal experience and direct observation, as far as methodology is concerned, the compilation of this work was possible thanks to the collection of considerable secondary data and information, mainly from academic articles and periodicals both in English and Chinese, as well as from official government reports and plans.

CHAPTER 1

Suzhou as a Water City

1.1 HISTORICAL BACKGROUND

Located in southern Jiangsu province, west of Shanghai, Suzhou city lies at the center of the area known as Yangzi River Delta, south of the Yangzi River and with Tai Lake to its southwest. The first traces of urban settlements in the area date back to the Paleolithic age (before 8000 BC), while findings from the Neolithic age (8000 BC-4000 BC) suggest that the Yangzi River Delta was among the earliest areas in China dedicated to rice production. In particular, remains of the earliest irrigation systems for the cultivation of rice were found in Suzhou, showing the relevance of the location for human settlements since prehistoric times (Wang, Dong and Boelens, 2018).

The foundation of Suzhou city dates back to 514 BC, when it was built out of military needs by Helü, king of Wu, who gave it the name of Dacheng (Wang, Shen and Chung, 2015). Since 513 BC, the city became the capital of the kingdom of Wu until 473 BC. Unlike many other Chinese cities which were successively rebuilt and relocated on new sites, Suzhou has throughout its twenty-five centuries of existence remained substantially in the same location (Johnston, 1983).

Thanks to the excellent climatic conditions and abundance of water in the region, Suzhou soon became a major center for rice cultivation and production, so that it was regarded as one of the wealthiest cities in China (Shannon and Yiyong, 2013). During the politically-unstable Eastern Han dynasty (25-220 AD), Suzhou underwent a process of rapid growth and development due to the migration of people from the Yellow River Basin to the southern regions of the empire (Wang, Shen and Chung, 2015).

During the Sui dynasty (581-618 AD), with the completion of the Grand Canal, Suzhou was linked to other major Chinese cities to its north, in order to facilitate the transportation of goods from the coasts of south east China to the Sui capital Luoyang (Johnston, 1983). This event marked the beginning of the golden age of development of Suzhou, which became established as one of the key trade centers in the region. The city continued to grow in importance during the Tang dynasty (618-

907 AD), since it was located along this major national waterway network (Wang, Shen and Chung, 2015), and since Jiangsu became the most important area for grain production in the country (Wang, Dong and Boelens, 2018).

The strategic position of Suzhou in the water transport network of the time allowed the city to become a major center for the national economy. Trade, textile industry and handicraft industry were prosperous especially during the Song dynasty (960-1279 AD), when the worldwide famous gardens of Suzhou were built for the enjoyment of local merchants and retired officials (Wang, Shen and Chung, 2015). At this time the area witnessed a remarkable growth in urban population and the formation of the urban class, with an increase in social status, resulting in commercial prosperity as well as in the development and specialization of silk production (Wang, Dong and Boelens, 2018).

However, with the defeat of the northern Song by the Jin in 1129, Suzhou was substantially destroyed when the Jin armies invaded the provinces south of the Yangzi (Johnston, 1983). Following the destruction of the city, the rebuilding program initiated under the newly established southern Song dynasty set the basis for an urban pattern of the old city that has largely been preserved up until the mid-nineteenth century (Xie and Heath, 2017).

During the Yuan dynasty (1271-1368), even though the national capital was set in the northern city of Beijing, the economic center remained in the south. At the time, political stability and economic development were ensured by the transport link represented by the Grand Canal. Also the Ming (1368-1644) and early Qing (from 1644 to around 1840) dynasties represented a period in which Suzhou's society and economy continued to prosper (Wang, Dong and Boelens, 2018), even becoming one of the world's most populated cities in the early XIX century (Shannon and Yiyong, 2013).

However, the strategic role of Suzhou as the main trade center in the region was eroded when, following the defeat of the imperial armies in the First Opium War (1839-1842), Shanghai port was opened to foreign traders. As a consequence, Shanghai soon replaced Suzhou as China's national economic center and it witnessed the first sprouts of capitalism, thanks to the influx of foreign capital (Wang, Shen and Chung, 2015).

After this major turning point, Suzhou experienced a period of changes in the economy and in the urban texture. The Taiping Rebellion (1850-1864) led to numerous deaths and to the widespread damage to the urban fabric of the city, including the almost complete destruction of the commercial urban district (Xie and Heath, 2017). Subsequently, as a result of the defeat in the First Sino-Japanese War (1894-1895), the imperial government signed the Treaty of Shimonoseki, according to which Suzhou was opened to foreign trade, and it was designated as a concession area occupied by Japanese, British and Americans (Wang, Shen and Chung, 2015). This period witnessed the foundation of foreign capital enterprises and the introduction of modern technology in the industrial texture of the city (Xie and Heath, 2017). According to Wang, Shen and Chung (2015) Suzhou can be considered as the birthplace of Chinese modern industry, since it underwent rapid development during the First World War (1914-1918). However, they also underline how the city's growth was negatively affected by the turmoil of the Japanese invasion and occupation (1937-1945), and by the instability that characterized the Chinese civil war (1945-1949).

After the foundation of the People's Republic of China in 1949, Suzhou experienced severe damage to the urban structure and to the historical heritage of the ancient city under the centrally planned economy. This was mainly the result of policies promoted by the Communist Party such as the Great Leap Forward, from 1958 to 1961, and the Cultural Revolution (1966-1976) (Xie and Heath, 2017). It was not until the introduction of Deng Xiaoping's reforms in 1978 that Suzhou began to experience rapid economic development accompanied by a sharp spatial reconfiguration. In the last decades, the city underwent rapid changes in its growth model, especially thanks to large inflows of foreign capital, which allowed the city first to shift to an export-oriented economy, and subsequently to focus on the development of capital intensive and high-tech industries (Wang, Shen and Chung, 2015).

Having briefly introduced the history of Suzhou and the main events that influenced the development of the city's economy and society, the following section explores the evolution of the urban water network that has always characterized the urban pattern of Suzhou.

1.2 FORMATION AND EARLY DEVELOPMENT OF URBAN WATERWAYS IN SUZHOU

The city of Suzhou is located in the Yangzi River Delta region, an alluvial plain characterized by rich water resources and fertile soils. According to Breitung and Lu (2017), even to date, there are over 10,000 watercourses within the administrative boundary of the city. The abundance of water in the area was of utmost significance to the early development of urban civilizations, as ever since ancient times, human settlements in China had strongly relied upon watercourses. Many important Chinese cities found their origins near riverbanks, in order to exploit the ample water and food supply, ease of transportation, as well as irrigation and drainage functions offered by watercourses (Shannon and Yiyong, 2013). According to *fengshui*, the settlements were outlined leaning against a hill and facing the river, and this model evolved into a peculiar cultural city pattern, which influenced the urban layout of cities in the Yangzi River Delta for centuries (Wang, Dong and Boelens, 2018).

Since natural and artificial waterways facilitated trade as well as the transport of goods and people, urban settlements prospered in the region (Wang, Dong and Boelens, 2018). The evolution of urban morphology became strongly interconnected with the development of waterways and even dependent from river systems: Alongside the emergence of a structured urban form, complex water management systems were developed, while a number of water bodies became an organic part of the city (Shannon and Yiyong, 2013).

The emergence of the first inner-urban canals in Suzhou dates back to the city foundation in the VI century BC, when the founders of the Wu kingdom began the excavation of the urban water grid for defense, agriculture, transport and water supply purposes (Breitung and Lu, 2017).

It was at that time that the urban structure of Suzhou was laid out following the dictates of classical ritual and historical texts, according to which the square walled city must resemble the form of the universe (Shannon and Yiyong, 2013). The access to the city was possible thanks to the opening of eight water gates and eight earth gates in the city walls, serving road and water traffic and symbolizing heaven and earth (Johnston, 1983). The construction of the ancient city of Suzhou was designed and planned with water as its fulcrum (Ding, 2008). The urban pattern was defined by a complicated system of urban canals, composed by eight transversal and eight longitudinal canals, a huge moat around the city walls as well as an internal canal ring along the walls. The system was

interconnected to the nearby Tai Lake and was only later linked to the Grand Canal (Shannon and Yiyong, 2013).

After four north-south and five east-west canals were dredged around 248 BC, the city's current water and road systems began to take form (Breitung and Lu, 2017). Even up to date, Suzhou remains well-known for its characteristic crisscrossing system of water networks, roads and bridges (Wang, Shen and Chung, 2015), forming a "double chessboard" pattern (*shui lu shuang qipan* 水陆双棋盘), an expression often used to summarize the spatial relationship of the urban waterways with the street (Zhou and Zhang, 2017).

With the completion of the Grand Canal under the Sui dynasty in 610 AD, and the connection of Suzhou's water network to this major national artery, the city became the hub of water transport in eastern China. This laid the basis for the rapid population growth that occurred during the Tang dynasty (Breitung and Lu, 2017). This efficient and convenient water transport network was enhanced by Suzhou's lively urban environment, which saw the emergence of a rich fabric of private gardens, sacred temples as well as commercial, residential and public buildings along its waterways (Shannon and Yiyong, 2013).

Between the early Tang and late northern Song dynasties (VII-XII century), Suzhou witnessed the formation of a network of streets and canals with over 300 bridges, whose basic structure was determined by three east-west and four north-south arteries, interconnected by minor canals (Ding, 2008). The total canal length at the time was equal to almost 80% of the total length of the road network, measuring about 82 km (Breitung and Lu, 2017). The creation of such a canal system had considerable implications for hydraulic engineering design. The earliest known map of Suzhou, the carved-in-stone *Pingjiang tu* 平江图 (Pingjiang map) from 1229, shows the principal routes of the canal system, which, according to Johnston (1983), must have been laid down at the inception of the city's rebuilding. Therefore, he believes that the whole network of water transportation and hydraulics must have been built at one time, for it to have functioned properly and efficiently. This represented an extremely complex engineering project, demonstrating highly developed skills in its execution, as well as an unprecedented expertise in the design, planning and programming of works. According to the analysis by Breitung and Lu (2017), the map also shows watercourses running through the dual gates of Suzhou, connecting the urban water grid with the landscape outside the

walled city. They underline that, even though most of the inner-urban waterways were man-made, they were adapted in order to allow the integration with the natural landscape of waters and rivers, as well as supporting a close economic and cultural connection between the city and the countryside. The authors also focus on the practical functions provided by urban waterways at the time: apart from water transport and fortification, they also ensured water supply for domestic use and manufacturing, as well as for agricultural irrigation. In addition, as highlighted by Johnston (1983), the waterways also represented a natural drainage system capable of controlling the heavy rainfalls that are common in Jiangsu province, while human waste was collected to be used as fertilizer, thus avoiding heavy contamination and degradation of urban water resources. The study by Johnston also demonstrates how water provided by the canals and the presence of vegetation flourishing along the canals served as elements of urban climate regulation. Last but not least, Johnston underlines how the readily available and evenly distributed water supplies provided an advantage for the control and isolation of fires, which had the tendency to spread rapidly since buildings were predominantly made of wood.

Nevertheless, due to various wars and invasions, Suzhou was burnt down several times, but subsequently rebuilt in the exact same location, since the water grid provided a fundamental factor for perpetuating the urban form of the city over the centuries. This is the reason why the layout of the urban waterways in the late Ming dynasty (1368-1644) remained almost identical to the one carved in *Pingjiang tu* in 1229, except for the excavation of some minor canals to link the existing ones. In the period from the late XVI to the early XVII century, the canals in Suzhou reached a total length between 87 and 92 km, more than the total length of the urban road network at the time. This represents the apex of the development of the traditional urban water grid, as this measure is longer than documented on any other map of Suzhou throughout history (Breitung and Lu, 2017).

Up until the beginning of the transformation of Chinese economy and society brought about by the forced interaction with western technology and modern transport, the water network in Suzhou remained a fundamental asset for life, trade and production in the city. However, it did not merely represent a source of functional benefits like those described above, but it also entailed a deeper meaning and cultural value that represent the core of Suzhou's "water culture". This profound relationship that local people developed with water is analyzed in the following section.

1.3 SOCIAL AND CULTURAL SIGNIFICANCE OF URBAN WATERWAYS IN SUZHOU

Water and rivers once held a prominent role in Chinese society, being revered subjects of ancient cartography, history, mythology, festivals and everyday life. Through their study on urban rivers in China, Shannon and Yiyong (2013) provide an interesting starting point for the analysis of the social and cultural significance of urban water in the city of Suzhou. They underline the utmost importance of water in Chinese traditional history, according to which the legendary king Yu the Great, founder of the first dynasty, the Xia (2205-1751 BC), was able to tame rivers from flooding and to initiate the construction of an extensive irrigation network. Since ancient times, water simultaneously represented the possibility for human societies to gain profits and power, but it also constituted a risk of danger that needed to be prevented. In ancient China, the appropriation, management and control of water was a fundamental task, which required a strong centralized authority to be performed. This was what the German sinologist Karl Wittfogel considered to be the basis of what he called a “hydraulic civilization”, a notion according to which in China the social formation was intimately linked to water management and control by a central political power.

According to the analysis by Shannon and Yiyong (2013), water in China did not merely hold a physically prominent position, but it also represented a significant symbolical element. They identify an interesting mixture of these two aspects in the so-called *fengshui*, the traditional Chinese geomancy, aimed at adjusting the features of the landscape in order to derive maximum advantage from favorable conjunctions of human settlements with the environment, while minimizing any adverse influence. As mentioned above, Suzhou city location was identified according to the norms of *fengshui*, and the city was outlined so to ensure positive energy influx (Wang, Dong and Boelens, 2018).

Suzhou is historically known as the first well-planned water network city in Chinese history (Ding, 2008). As seen above, the structure of the ancient city is characterized by a canal grid forming a sort of chessboard pattern, which is representative of the fascinating water environment of the Jiangnan region. Breitung and Lu (2017) believe that the development of urban waterways and their pragmatic functions had an utmost significance for the emergence of this well-defined historical identity of Suzhou. In ancient Suzhou, water and waterways were the at the center of public life, as they assumed a fundamental role for practical, functional, as well as social reasons. Since waterborne transport, at least in the pre-industrial era, was the cheapest and most convenient

circulation system inside the ancient city and to connect it with rural areas, the urban water network was capable of meeting the needs of local transportation. Apart from being a major way of circulation, waterborne transport also served the exchange of goods, therefore contributing to promote the prosperity of local business and trade (Breitung and Lu, 2017). In addition, the urban water network of Suzhou became an important public social space and therefore it was part of people's everyday life, as is shown by the distribution and concentration of houses, shops and workshops in the city's waterfront areas (Ding, 2008).

The strong sense of connection between local people's lives and water is particularly manifest in what Gu (2006) calls the "historical water block", delimited by arterial waterways and roads. Breitung and Lu (2017) describe how within these blocks, parallel alleys and canals sub-divided the land, which was used predominantly for residential purposes. Even though canals and streets had similar and, at times, competing functions, their development was analogous, and it gave rise to a number of front- and rear-facing canal-alley patterns, which reveal the centrality of waterways in the urban form of Suzhou. In front-facing patterns, the front of the houses faced an alley, which was adjacent to the canal, while in rear-facing patterns, the row of houses was immediately adjacent to the waterway. Houses in rear-facing patterns, whose primary access was on the canal, were usually ordinary people's homes, while front-facing houses with their primary access facing the street and a secondary access on the canal served as homes to officials or scholars. Breitung and Lu (2017) underline how, during the Tang dynasty, ordinary citizens were not allowed to build their houses facing the streets and could only use the canals as primary access to their lots. As a consequence, commercial activities at the time often took place on boats.

The components of the urban texture alongside the canals, such as the stone stepped piers, banks and bridges, some of which are still visible nowadays, represented fundamental elements of connection for people with water. They were central points for local residents to collect water for domestic use, to wash laundry, to board, load and unload boats and even to purchase or exchange goods. Hence, these constituents of the urban landscape became focal points for socialization with the local community and with merchants who came to the city to trade their products (Breitung and Lu, 2017).

In addition, by giving physical as well as visual access to the canals, piers and bridges represented a source of vitality and integration of local people with water, thus blending human and natural space

(Gu, 2006). It appears that, for the water system to function properly, the integration of streets, canals and buildings was fundamental, and that the interconnectivity of the waterfront environment in the ancient city was crucial also for the development of an emotional attachment of people to water (Breitung and Lu, 2017).

Consequently, the linking elements like piers and bridges became not only a physical, but also a metaphorical and spiritual connection with the water environment, expression of an outstanding work of ancient Chinese urban planning, as well as footprint of ancient history of Suzhou (Gu, 2006). The bridges, in particular, provided visual connection, unifying urban space and assuming the function of landmarks and meeting points. Traditionally, they served as a location for trade, and were usually shaped as high arches to facilitate waterborne traffic. According to Breitung and Lu (2017) people even adopted the name of bridges as their home address. Alternatively, as found by Xie and Heath (2017), bridges and streets were named after well-known residents or households. Interestingly, Xie and Heath (2017) underline that Suzhou people tended to avoid giving direct meaning and significance to individual buildings or structures, as they were seen as transient and subject to destruction and decay. Instead, they regarded the larger community and neighborhood as upholding and sharing value, and they identified the urban water grid as a crucial element that allowed the city to perpetuate its structure. Indeed, as we have seen, the urban pattern of Suzhou ancient city has been largely preserved, with limited modifications, up to modern times.

As discussed above, Suzhou's water system with its urban waterways can be identified as an inseparable component of the social and cultural life of the city, becoming the nerve center of the urban landscape as well as of social activities. Temples, ancient buildings, pavilions, bridges and ancient trees along the shores made the canals the unifying element of Suzhou's urban texture (Ding, 2008).

The waterfront area in the ancient city, with its open, prosperous, rich cultural landscape and beautiful natural scenery perfectly expressed the depth and peculiarity of the water culture in the Jiangnan region (Ding, 2008). The urban waterways in Suzhou were also a representation of scenic landscape ideals and religious beliefs, as expressed in traditional festivals and as demonstrated by the proximity of water to sacred buildings (Shannon and Yiyong, 2013).

The pragmatic and social functions of the city's waterways were married with an aesthetic relation of people with water, often subject of works of art and literature, such as paintings and poems. As

an example, the following verses by the famous Chinese poet Bai Juyi (772-846) describe the landscape of Suzhou city during the prosperous Tang dynasty.

Green waters surge in all directions of watercourses,
Vermilion painted balustrades stand on three hundred
and ninety bridges.

[...]

Waterways scatter like veins and boats like scales,
Lanes dot like pieces on the checkerboard in this square city. (Shannon and Yiyong, 2013, p. 35)

The study by Breitung and Lu (2017) on the heritage value of Suzhou's water grid is also informed by a number of historical written records as well as well-known artistic and literary materials, including a selection of historical novels, poems and paintings. In their analysis, the portrayal of the urban landscape by these various and multifaceted sources is relevant to understand the emotional value of the water grid for local people in the past, which emerged through the interaction of people with space and water as a fundamental component of the urban landscape. As a further example of how the canals in Suzhou became a constant source of inspiration for poems depicting the city, these verses by the poet Du Xunhe (846-904) provide a famous description of the scenery of the city in the ninth century.

Reaching Gusu [i.e. Suzhou] you will see
People's houses pillowed on the rivers,

[...]

Over the rivers small bridges are many.

Water chestnut fruits and lotus roots are sold in late evening markets,

And spring boats are loaded with luxurious silken fabrics. (Breitung and Lu, 2017, p. 255)

This popular image of Suzhou as a city of canals, bridges and houses "pillowed on the water" remains well-known and still influences people's representation of the city nowadays (Breitung and Lu, 2017). Even the Venetian merchant and traveler Marco Polo referred to the same elements while describing the urban landscape of the ancient city of Suzhou in the XIII century, when he gave Suzhou the name of "Oriental Venice", due to the city's resemblance with venetian canals and bridges (Breitung and Lu, 2017). Even though prone to exaggeration, it is still impressive to read Marco Polo's description of Suzhou as a city with 6,000 stone bridges, such that one or two galleys

could readily pass beneath them (Tagliaferro, 2015). This image of Suzhou as a city on water was possibly the first to reach the European world (Breitung and Lu, 2017) and this is significant as it demonstrates the transfer from the East to the West of a consistent imagery of Suzhou as a city intimately connected to its water environment.

As argued by Wang et. al (2011), people tend to form a complex set of interactions and relationships with space, so that architectural elements and components of the urban landscape are given meaning according to individual and collective perception. They believe that particular cultural attributes shape space and that space influences the development of culture to a certain extent. If this idea is applied to the analysis of Suzhou, the existence of a water network around which economic, social, cultural and religious activities took place is likely to have been the crucial element that gave personality to the city's deep relation with water.

The significance of water for the social and cultural life of Suzhou in pre-modern times represents the intangible and emotional value that people attached to water, expressed in the characteristic feature of the urban water grid. This value primarily stems from the daily interactions of people with water in various forms, from transportation, to commerce, from social interaction, to leisure. The physical and visual accessibility to water made it a natural and organic part of the urban environment, which naturally influences the city's as well as people's identity. Therefore, when dealing with the renovation of historical and cultural waterfronts in Suzhou, the roots of people's relationship with water need to be explored and excavated, in order to avoid losing contact with the local history and culture.

This chapter investigated the formation and evolution of Suzhou's urban waterways in pre-modern times, until the early Qing dynasty (1644-1911). The description of the city's urban water network is functional to understand how, due to vicinity to water, local people could develop a deep relationship with this element. The practical functions of the urban water grid at the time were conducive to the emergence of this emotional attachment to water, which even inspired the production of literary and artistic works. It is then easily understood that any potential loss of functions of the waterways could result in a progressive detachment of local people from water. This is exactly what happened at the rise of modernity in China and it is the subject of the following chapter.

CHAPTER 2

Evolution of Suzhou's Waterfront in the Modernization Era: Uses of Urban Waterways and their Relationship with the City

2.1 SUZHOU'S ECONOMIC DEVELOPMENT AND TRANSFORMATION

For centuries, Suzhou was at the center of the economic network of the Chinese empire, thanks to its wealth and its strategic geographical position along the Grand Canal. The city represented the economic and cultural core of the Yangzi River Delta region since its golden age during the Song dynasty (960-1279), and it became the national center of manufacture and trade under the Ming (1368-1644) and early Qing (1644-1911) dynasties. However, due to the penetration of colonial forces and the devastation brought by the Taiping Rebellion in the XIX century, the prosperity of Suzhou began to experience a period of stagnation (Zhang, Wei and Meng, 2017).

The vital role of this city in the economic and trade fabric of the country began to erode with Shanghai's opening to foreign traders, following the defeat of imperial armies in the First Opium War (1840-42). A number of factors concurred to the wane of Suzhou's prosperity at the dawn of modern times. The rise of Shanghai as the major sea port in the Yangzi River Delta region, the increasing importance of sea traffic, and finally the construction and opening of the first railways all contributed to the decline of waterborne internal transportation through the Grand Canal, which negatively affected the economic position of Suzhou as a major trading port (Wang, Dong and Boelens, 2018).

However, according to the analysis by Wang, Shen and Chung (2015), as a result of the defeat of Chinese armies in the Sino-Japanese war (1894-95), the Treaty of Shimonoseki also designated Suzhou as an open port to foreign enterprises since the end of the XIX century. As a consequence, a vacant area outside the city walls was leased to Japanese forces for the establishment of industrial and commercial activities. The development of cotton mills and commercial facilities in the area was possible also thanks to the proximity to the Grand Canal, which notwithstanding its decline, remained an important asset for facilitating the circulation of goods. The area rapidly evolved into a cluster of modern industrial facilities, fundamentally different from the family-based structures that characterized the textile and commercial industries inside the city walls, based on small scale production. Due to the introduction of foreign capital and of modern technologies, Suzhou soon

witnessed the rise of modern western capitalism in China, becoming the birthplace of Chinese modern industry. With the opening of the railway connecting Suzhou to Shanghai in 1906, the center of modern economic activities in the city was moved to the north, as railway transportation soon began to dominate inter-city traffic in China, overriding waterborne traffic thanks to its efficiency. During the First World War (1914-18) the city experienced rapid development, but it was later negatively impacted by the instability of the Japanese invasion and occupation (1937-45) and, later, by the turmoil brought about by the Chinese civil war (1945-49).

However, as argued by Wang, Shen and Chung (2015), an interesting point in case was the establishment of the tourism industry as a new emergent economic sector in Suzhou since the first decades of the XIX century. This was possible thanks to the rich endowment of tourism resources and the livable atmosphere of the city, among which a prominent role is played by the worldwide famous Chinese classical gardens.

In April 1949, the Chinese Communist Party took over Suzhou city, establishing the communist ruling. With the foundation of the People's Republic of China on 1st October 1949, and the introduction of the centrally planned economy, Suzhou experienced a forced economic restructuring, just like many other commercial cities at the time. The previous balance between the agricultural, industrial and commercial sectors of the economy was overturned, and the city was forced to adopt an industry-prevalent economic structure. After the central government completed the campaign for the nationalization and collectivization of agricultural, handicraft, industrial production and commerce in 1956, known as the "Three Great Reconstructions" (*San da gaizao* 三大改造), people's communes, State-Owned Enterprises (SOEs) and collectively-owned enterprises became dominant in the economic fabric of the city (Wang, Shen and Chung, 2015). Besides, these authors underline how a series of political struggles between the early 1960s and 1970s caused additional economic disruption to Suzhou's traditional economy. Nevertheless, the relocation of urban students from Shanghai to the countryside under the "Down to the Countryside Movement" (*Shangshan xiaxiang yundong* 上山下乡运动) supplied Suzhou with valuable human capital, facilitating the development of some collectively-run enterprises. This process also led to the emergence of business networks and interpersonal linking of Suzhou with the economic center in the region, Shanghai, contributing to the regional economic growth throughout the 1970s and 1980s.

Since the introduction of Deng Xiaoping's reforms in 1978, Suzhou's industrial and urban development brought about a remarkable reconfiguration of the city economic and spatial structure (Wang, Shen and Chung, 2015). As argued by Zhang, Wei and Meng (2017), the 1980s witnessed the booming of local State-directed Township and Village Enterprises (TVEs) in southern Jiangsu, creating a successful bottom-up rural urbanization paradigm, known as the Sunan Model. From 1978 to the early 1990s, the rural areas surrounding the city were the main subjects of economic growth and urbanization, as rural industry represented by the numerous TVEs was dispersed over the countryside in villages and towns. This "urbanization from below" represented a model characterized by the spontaneous development of rural industrial economy, lacking any planning or significant investment by central authorities. In this period, the economic and industrial structure of Suzhou was dominated by small-scale TVEs, capable to absorb agricultural surplus labor in rural areas, without requiring people to leave their town.

The shift towards a new model of development occurred in the year 1985, which marked Suzhou's reopening to the world, since the Yangzi River Delta was identified by the central government as an open economic region, to boost China's development by attracting foreign capital. This political shift resulted in the first peak in the modern economic development of the city, which kept on its positive trend notwithstanding the political turmoil caused by the events of 1989 (Wang, Shen and Chung, 2015).

Moving from the experience of other successful development zones and learning from their example in attracting foreign investments, in the early 1990s Suzhou began to move away from the so-called Sunan Model (Zhang, Wei and Meng, 2017). At the time the development of TVEs was beginning to experience a downturn, due to problems of inefficient management, unclear property rights of collective ownership, as well as low efficiency and corruption (Wang, Shen and Chung, 2015). Zhang, Wei and Meng (2017) further state that, in concurrence with the restructuring and privatization of many TVEs, the economic growth and development of Suzhou intensified, as the establishment of Pudong New Area in Shanghai in 1992 was followed by the investment of large amounts of foreign capital in Suzhou. This injection of FDI resulted in an impressive GDP growth rate for the city, which peaked at 70.4% in 1993 (Wang, Shen and Chung, 2015).

The following decade marked the transformation of the city's economy to embrace globalization, thus making it a prosperous manufacturing center and a major destination for Foreign Direct

Investment (FDI) in China (Zhang, Wei and Meng, 2017). In the late 1990s, Suzhou began to focus on the development of an export-oriented industrial economy, particularly as far as technological and capital-intensive industries are concerned (Wang, Shen and Chung, 2015). The turn of the century witnessed unprecedented openness in terms of economic development in Suzhou, marked by a remarkable increase of FDI in the city. According to Wang, Shen and Chung (2015), between 1990 and 2012, 101.97 billion US dollars were invested in the city by foreign companies. They also underline that Suzhou's FDI inflow had already surpassed Shanghai's in 2003, and that, since the 1990s, Suzhou has constantly been among the top destinations for foreign investments in China. Zhang, Wei and Meng (2017) further found that a considerable proportion of the Fortune Global 500 Companies has established branches in China by investing in Suzhou. Among these companies there are prominent names such as Siemens, Samsung, Fujitsu, and Philips.

The increase in Suzhou's global competitiveness and openness was further enhanced by innovative policies launched by the municipal government, such as the formation of a prototypical spatial organization of labor, which found in Shanghai the research and development center, while in Suzhou the manufacturing site. Even in the city proper of Suzhou, labor was clearly spatially organized. Two modern development zones are located respectively east and west of the ancient city: the former, Suzhou Industrial Park (SIP), established in 1994 with the cooperation of the Singaporean government, hosts larger multinational corporations, while in Suzhou New and Hi-tech Development Zone (SND) more small- and medium- sized domestic enterprises are located (Wang, Shen and Chung, 2015).

Since the reforms and opening occurred in 1978, Suzhou city experienced rapid economic development and urbanization. According to the analysis by Wang, Shen and Chung (2015) the average annual economic growth rate of the city accounted for about 19.83% in the period from 1980 to 2012. In addition, Suzhou's GDP ranked first in Jiangsu province over the last ten years, as the increasingly diversified economy of the city ensured stable growth. Even though the tertiarization of the economy has been highly promoted by the municipal government, in 2015 the secondary sector still accounted for the major contribution in the economic structure of the city, while the primary sector has been steadily decreasing in importance (Wang, Shen and Chung, 2015).

As Suzhou's export-oriented economy was strongly dependent on foreign trade, it has been heavily impacted by 2008 global financial crisis, when its GDP fell by about 13%. In recent years, the

municipal government has followed the national strategy of promoting the expansion of domestic demand and urban consumption, by improving transportation infrastructures and expressways, subways and high-speed railways. This has contributed to avoid further decline and has allowed to stabilize the city's growth rate at around 15% (Wang, Shen and Chung, 2015). According to data reported by Li (2018), the regional GDP of Suzhou city increased from 413.8 billion RMB in 2005 to 1450.4 billion RMB in 2015.

Since in the last decade Suzhou has been mainly considered as a manufacturing site, the research and development activities have not been properly developed in the area. By recognizing the weakness of local R&D, the city has recently made the first steps to become a hub of innovation. Suzhou is currently striving to become an innovative city; therefore, it is promoting the establishment of several research centers as well as foreign and domestic university branches and institutions. These are mainly concentrated in an education zone that is being built along the shores of Jinji Lake in Suzhou Industrial Park (SIP) (Wang, Shen and Chung, 2015).

Currently, as expressed by Li (2018), Suzhou city is the largest city in Jiangsu province in terms of economic output and its per capita GDP ranks among the top cities in the country. The city's urban competitiveness ranks sixth in the country (including Hong Kong and Macao), second only to the mega-cities of Hong Kong, Shanghai, Beijing, Guangzhou and Shenzhen. Since the early 2000s, Suzhou has been at the forefront in the country in terms of eco-industrial park planning and construction. The first plan was launched at the end of 2002, by Suzhou High-tech Zone and, by the end of 2015, five eco-industrial demonstration parks projects were established in Suzhou. By accelerating the transformation of the city's previous economic development model and promoting the optimization and upgrading of the city's industrial structure, Suzhou is currently striving to become a more sustainable city (Li, 2018).

This section aimed to present the economic evolution of Suzhou since the rise of modernity in China, underlining how the local economy experienced rapid change and went through various vicissitudes in the last century. The transformations occurred in the economic and industrial fabric of the city had a major impact on the spatial configuration of the ancient town and contributed to the degeneration of an urban water culture that has been part of the local identity for centuries. By studying the modifications occurred to the city's outline in the last hundred years, the following

section explores how urban waterways in Suzhou were negatively affected by the rise of modern economy.

2.2 URBAN SPATIAL RECONFIGURATION OF SUZHOU AND LOSS OF TRADITIONAL URBAN WATERWAYS

Urban development in Suzhou city was traditionally confined within the square city walls, at least until the early XX century. In 1927, in order to improve the city's transportation and promote urban renewal in the ancient city, the municipal government of the Nationalist Party launched the first modern urban plan. The ancient city walls were finally demolished in 1958, preserving only three of the eight city gates, with the aim of developing Suzhou's road network and to facilitate the establishment of modern industrial facilities. The formulation of the first city master plan under the communist ruling dates back to 1959, when four industrial zones were established in the suburbs of Suzhou. Since then, the economic growth of the city has been based on the spatial expansion of economic zones, giving birth to the phenomenon of the urban sprawl. However, in the pre-reform period, the city's spatial development was primarily in the hands of the central government, thus limiting local interests and uncontrolled expansion of urban land. With the introduction of reforms in 1978, Suzhou experienced a dramatic change in urban form, due to rapid spatial expansion driven by local official's interests and ambitions. As economic and land use administration became decentralized, local cadres were encouraged to promote economic growth through land-use conversion and land leasing, thus damaging the traditional spatial structure of the city (Wang, Shen and Chung, 2015).

During the period from 1986 to 2008, the increase in urban built land in Suzhou was rapid and continuous, and it has been constantly accelerating (Zhang, Wei and Meng, 2017). In 1980, the built-up area was 28.62 km², while it reached 329.29 km² in 2010, registering an increase by 11.51 times. At the same time, the urban population of Suzhou only triplicated in the same period, demonstrating a disproportional growth and use efficiency of land resources. The resulting chaotic and largely unregulated land development produced a highly composite urban landscape in the suburbs of Suzhou, characterized by a curious mix of factories, humble urban villages and luxurious residential compounds (Wang, Shen and Chung, 2015).

As argued by Breitung and Lu (2017), the spatial reconfiguration and urban growth of Suzhou city had already begun compromising the integrity of inner urban branch waterways since the Qing dynasty, during the XVII and XVIII centuries, when Suzhou became one of the most populated metropolises around the world. In this period, the demographic and economic growth of the city resulted in a serious negative physical impact on the urban canals, due to encroachment by residential buildings and other structures erected on the shores of the watercourses. According to their study on Suzhou's urban morphology, the quality of urban waterways already began deteriorating since the early XVIII century, mainly due to urban growth, while at least five full-scale dredging of canals were registered at the time, demonstrating the increasing damage caused to the inner-city water bodies. By comparing historical maps published in official government records of the Qing dynasty, Breitung and Lu (2017) discovered that more than 25% of the urban branch waterways were lost over this period, resulting in a gradual, but dramatic damage to the traditional urban water grid.

However, as underlined by the authors, this loss mainly concerned minor branch canals, without yet compromising the integrity of the principal arterial waterways, which delineated the characteristic urban pattern of the city. As a further proof that the diminishing number and density of urban waterways was predominantly determined by economic and demographic development, Breitung and Lu (2017) found that the area most significantly affected by the loss of canals was the business district in the northwest part of the city, as well as the densely populated neighboring area where small-scale family-based industries were located. Due to the increasing demographic pressure, branch canals continued to experience a declining trend throughout the eighteenth century, while arterial waterways still served as a major waterborne circulation network, even if merely complementing the rapidly developing road system.

The decline of arterial waterways was brought about only some time later, when, in the 1920s, roadside and railway circulation began overriding canals with their efficiency. The XX century saw the emergence of roads and railways as the key routes for connecting Suzhou to Shanghai, the new economic center of the region, and to neighboring cities. In addition, the road network in Suzhou underwent rapid development in order to meet the demand for efficient internal circulation: the construction of ring roads, the opening of a new gate in the city walls and the enlargement of the remaining others all served to accommodate inner city roadside traffic (Breitung and Lu, 2017). The

continuous evolution of car transport and road circulation led to the decrease in the traditional functions of the canals, and to the diffuse belief that the canals were only useless remains of the city's glorious past.



Figure 1: Loss of traditional urban waterways. The map on the left shows the development of Suzhou's water grid between 1229 and 1639, while the map on the right shows the remaining canals existing in 2015. Source: Adapted from Breitung and Lu (2017).

Since 1949, 16 km of urban canals were lost, accounting for 23 urban watercourses (Breitung and Lu, 2017), as a result, the total length of the remaining traditional urban water network measured only 35.28 km in 2008, in contrast with the 82 km at its apogee during the Song dynasty, as reported by Ding (2008). The author further registers a decline in the canal's density from 5.8 per km² to 2.5 per km², leading to landscape fragmentation and to the reduction of waterways' continuity.

As found by Breitung and Lu (2017), the 1960s witnessed the levelling of 12 canals, as they were no longer well connected to the surviving water grid. According to the urban plan of Suzhou city launched by the Nationalist Party in 1927, the moat that surrounds the city was considered the only useful part of a decaying and degraded water network, while most of the crisscrossing canals were

turned into dumping sites. The same document regarded the landfilling of canal branches of the water network as a means to make space for the construction of new roads.

Due to the expansion of Suzhou's urban population, an increasing pressure for the modernization of urban transportation, as well as drivers of commercial interest, most of the rivers and canals experienced rapid urban construction. A considerable portion of urban waterways became part of the sewage system and were subsequently landfilled in order to be turned into road appendices. As an example, Jingde Road, Guanqian Street, Zhongjie Road, Yangyu Lane and Renmin Road in Suzhou all derive from the landfilling process of sewage canals (Ding, 2008).

The development of the inner urban road network also caused the deterioration of a previously fundamental part of the traditional urban environment in Suzhou: More than a hundred bridges were demolished since the first half of the XX century, and the majority of those remaining were levelled in order to serve road circulation, rather than waterborne traffic. By that time, the characteristic double grid that had ensured continuity and consistency to the identity of Suzhou as a water city was severely endangered. Not only minor canal branches disappeared, but even the main arterial waterways were disregarded, causing the loss of the inner moat and of the principal canals in densely populated areas of the city. According to Breitung and Lu (2017), the primary aim of the process of urban modernization and renewal was to develop an efficient road circulation system, at the expense of the urban water network, whose practical functions were drastically downgraded. This loss of practical functions of the inner urban canals significantly endangered the persistence and preservation of the traditional water culture embedded in local people's relationship with water. Notwithstanding this negative trend, Breitung and Lu (2017) also argue that historical photos and records serve as a proof that daily interactions with water still played a part in the everyday life of Suzhou's residents. While drinking water was supplied by boats sailing from nearby water reserves as Tai Lake, local families still kept on using the canals for laundry and other domestic uses. The public space alongside the remaining canals could still represent a place for leisure: chatting and playing chess under the shadow of trees and bridges were some of the most common activities. Waterborne circulation was reduced to the moat and some remaining canals and mainly served for passenger or tourism boats, as well as some trading or grocery boats (Breitung and Lu, 2017).

However, Suzhou's urban transformation, involving the alteration of the spatial pattern of the city due to demolitions, road construction and renewal projects constituted a dramatic change in the spatial scale and proportions of the urban landscape, previously outlined by a rhythmical alternation of waterways, streets and buildings. The original visual and physical relationship between canals, houses and streets was disappearing and this had a major impact on the overall traditional urban form. The construction of modern residential and commercial facilities often resulted in a decreased accessibility of waterfront lines, as the large volumes of the buildings separated people from the canal banks, damaging the close relationship with water and causing the loss of the characteristics traditional white-walled houses with tiled roofs (Ding, 2008).

According to a study by Zhou and Zhang (2017), the prevalence of closed blocks in Chinese cities had a negative impact on public waterfronts, contributing to a reduction of the accessibility of waterfront space, as well as leading to spatial fragmentation and hindering urban renewal. They define close blocks as enclosures hosting "gated communities", characterized by access control to the lot. This model of urban construction was common in the early years after the founding of the People's Republic of China, when neighborhoods and courtyards were built in the form of enclosures. These blocks gradually evolved into residential areas in the following decades and became the dominant model of urban planning in the 1990s in China, including Suzhou city, especially since the rise of commercial real estate.

The construction of large-scale closed blocks in the city led to the segregation of large amounts of social resources and public services previously available in public urban waterfront space. This resulted in the emergence of a series of problems, including the privatization of public resources and the separation from the external environment. In addition, it represented a significant constraint to the development of a comprehensive and continuous urban form. Zhou and Zhang (2017) highlight how the important role held by waterfront space in a water city like Suzhou was seriously impacted by the segregation of waterfront areas due to the construction of closed blocks. As mentioned above, the double chessboard pattern of the urban water network was closely related to the spatial form of the city. However, following the evolution of production and lifestyle models in modern cities, the traditional functions of the water network were gradually abandoned, while the major driver and focal point for the development of urban space shifted to the road network system. Zhou and Zhang (2017) argue that this caused the separation of the water and road network in Suzhou. They underline how most of the roads were secluded from the urban canals, while a large

proportion of the waterfront space was enclosed inside the blocks and consequently isolated from the publicly accessible space.

Not only physical access to urban canals was precluded, but also visual accessibility was severely hindered due to the pursuit of profit maximization in early real estate development. The traditional waterfront presented a highly uniform spatial form, whereas due to increasing complexity of urban industry and modern land use, Suzhou's waterfront areas underwent a process of increasing fragmentation. The neglect of urban waterfront space in planning management further contributed to the fragmentation and reduction of waterfront space, used for parking lots, driveways or enclosed by walls, resulting in a decline in the use value of waterfront landscape and activities. Due to the access control to close blocks, which hindered accessibility of the waterfront space to the public, and the decrease in the integration and public use of such space, the phenomenon of decaying waterfront areas became quite common in Suzhou city (Zhou and Zhang, 2017).

Ding (2008) further highlights how the degradation and decay of beautiful traditional waterfront lines brought about a sense of alienation of local people from water. These transformations severely affected the historical image and lifestyle of Suzhou, causing a shift from the well-established morphological identity of Suzhou as a water city (Breitung and Lu, 2017). As a result of these modifications, the spatial scale of the city's urban form and its environmental background have changed dramatically. In addition, the waterfront area lost its characteristic human touch, which is now difficult to perceive, increasing the risk of wasting a traditional local waterfront environment with a significant intangible heritage value (Ding, 2008).

This section presented how demographic and economic growth gradually endangered the existence of Suzhou's urban water grid, causing dramatic losses to the inner-city water resources. While in pre-industrial times the urban water network represented a fundamental asset for the economic and social life of the city, with the advent of western capitalism and the introduction of modern technologies in China, the efficiency and competitiveness of the traditional economy and circulation network were rapidly overcome. This produced a decline in the functionality of urban canals, whose conservation was considered an impediment to urban development. The following paragraph focuses on the uses of the water grid in the industrial period, showing how functionalism became the main driver of people's relations with water, at the expense of the deeper and emotional value that was previously attributed to this element of the urban landscape in Suzhou.

2.3 USES OF WATERWAYS IN THE INDUSTRIAL PERIOD: ENVIRONMENTAL POLLUTION AND WATERFRONT DEGRADATION

As a result of the rapid economic growth and subsequent urban expansion that characterized Suzhou city's development since the introduction of Deng Xiaoping's reforms in the 1980s, Suzhou became subject of sustainability issues and increasingly serious environmental problems. The accelerated expansion of urban built land at the expenses of agricultural land caused massive arable land loss for the municipality, turning Suzhou into a rice import-dependent area, while it was previously considered one of the wealthiest regions in China for rice cultivation. Apart from significant challenges to the environmental sustainability of this development model, this has also risen concerns for food security in the area and has affected the configuration of landscape in the municipality, resulting in landscape fragmentation. In particular, the rich water resources of the Yangzi River Delta plain were severely impacted by the unprecedented expansion of urban and industrial land occurred throughout the last decades of the XX century, which negatively affected the quality and quantity of water supplies in the basin of Tai Lake, while also causing the eutrophication of this major water body (Zhang, Wei and Meng, 2017).

As far as the urban water grid in Suzhou is concerned, with the advent of modern roadside circulation and the subsequent decline of the practical functionality of inner-city canals, these began to be incorporated into the drainage system of the city and they were basically turned into sewers for the discharge of domestic and industrial wastewater. This practice obviously led to the degradation of urban water quality and it even started to represent a significant hazard for public health, due to potential bacterial or viral contamination and the subsequent spread of diseases. Breitung and Lu (2017) underline how, in order to promote the sanitation of the urban environment, some of the canals were first turned into dumping sites and finally landfilled and levelled up so to ensure cleaner and healthier living conditions for the urban population.

As a result of the centrally planned economy established after 1949, the 1950s witnessed the establishment of heavy industries in the economic fabric of the city. The pollution thus produced significantly affected the quality of urban waterways, leading to a further degradation of Suzhou city's urban water supplies (Breitung and Lu, 2017).

As already mentioned, most of the inner-city canals lost their traditional functions in previous decades: While some became part of the urban drainage and sewage systems, others were adapted to military purposes, becoming part of air defense fortifications after 1969.

As argued by Li (2018), in the early stages of industrialization, the surface water quality in Suzhou city was generally acceptable, belonging to the second or third class of the national water quality standard, which assesses the aggregate concentration of pollutants and reports water quality in terms of class I (highest) to class V (lowest) (Vollmer, 2009). However, in the mid-to-late 1970s, Suzhou became known as the “contaminated paradise” due to severe environmental damage caused by heavily polluting industrial plants such as those operating in the chemical, papermaking, printing, dyeing and electroplating sectors. Even if local people continued to partially rely on some daily functions of the canals, the ever-increasing industrial pollution during the 1970s contributed to accelerate the detachment of people from water, endangering the local water culture (Breitung and Lu, 2017).

Ding (2008) argues that the decline in the practical functions of the water network resulted in an impressive loss of vitality of the urban waterfront in Suzhou. These transformations were brought by changes in the economic and social life of the city, which accounted for the decline of the traditional family-based “waterside industry”. Due to the relocation of industries along major arterial roadside or railway routes, waterborne traffic experienced a significant and rapid decline. As a result, local people stopped using loading docks, freight warehouses and related commercial facilities located along the shores of urban canals. The waterfront zone, formerly the most livable part of the city, began to be considered as an area which offered a poor living environment, mainly due to polluted and unappealing waterways, underdeveloped municipal facilities and lack of employment opportunities. In addition, traditional community activities closely linked to the water system began to be gradually abandoned, while the remaining venues for daily social interaction like bridges, piers, tea houses, did not receive due attention and maintenance, offering a decadent and dilapidated image of the waterfront. Consequently, the waterfront area was no longer favored by urban residents, as it did not meet modern urban life and needs (Ding, 2008).

The whole reconfiguration and partial elimination of the urban water grid basically followed the principles of functionalism and efficiency dictated by the needs of the rapidly developing economy of the city. Following the introduction of modern industry in the economic fabric of the city, the

traditional functions of urban waterways were rapidly discarded, in order to make space for modern development. This process did not take into account neither environmental sustainability, nor the intangible and culturally significant value of water for local people.

Following demographic growth, an unprecedented economic development and the subsequent increase in urban built land, the water environment in Suzhou has undergone tremendous changes in recent decades (Ma and Yan, 2004). As argued by Ding (2008), the socio-economic development of the city and the transformation of urban waterfront areas caused the emergence of a number of new problems for Suzhou, including severe environmental pollution, loss of local identity and weakened vitality. Ding (2008) further underlines how uncontrolled land development and construction along urban canals, accompanied by increasing levels of pollution resulted in severe ecological imbalances for the urban aquatic environment. Apart from serving a number of daily practical functions that characterized local people's relationship with water, Suzhou's urban waterways also had important ecological functions. They contributed to soil and water conservation, as well as to the preservation of water quality and to the regulation of the urban temperature and microclimate. The ecological functionality of urban waterways in Suzhou, however, was severely affected by their reduction and degradation caused by the city rapid economic development and urban growth. Contamination caused by industrial and domestic wastewater discharge increased, following the increasing demand of water for manufacturing as well as domestic daily use. According to a study by Ma and Yan (2004), a large amount of sewage was directly discharged into the urban water network without appropriate treatment, and the main canals were polluted to varying degrees.

The unprecedented acceleration of urbanization and construction in the ancient city had a major impact on the quality and quantity of Suzhou's urban water resources. This resulted in an increasing contradiction between basic demand for water resources and serious water pollution. Even though Suzhou is located in a resource-rich region, especially as far as water resources are concerned, the city began experiencing problems of water deficiency both in terms of quality and quantity (Ma and Yan, 2004). At the same time, due to lack of water and poor water quality, the excessive exploitation of groundwater by the municipality increased the risk of geological hazards and the deterioration of soil quality, forming a vicious circle (Ma and Yan, 2004).

Ding (2008) argues that, notwithstanding the transfer of highly-polluting enterprises to other locations, the water quality of the city did not register a significant improvement and remained severely affected by domestic and industrial wastewater. She underlines that the amount of not-properly treated wastewater discharged in the canals everyday exceeded the self-purification ability of the water bodies, affecting the ecological and control function of the canals. Breitung and Lu (2017) also state that the deterioration of water quality in the city entails the unsuitability of water from urban canals or wells to be used as drinking water. According to Ma and Yan (2004), the organic pollution of the ten major watercourses in Suzhou, contaminated by industrial, domestic and agricultural wastewater, was serious until 2004. They state that water pollution has been increasing year by year until that time. Based on their research, the development trend and pollution control level of the time would have further aggravated the degree of pollution of the major watercourses, causing further damage to the urban ecological environment and increasing the difficulty of governance, if local government had not taken appropriate measures.

This paragraph explored how the traditional uses of the urban water grid underwent significant transformations since the introduction of modern industrial technology and transportation systems in China. The subsequent rapid economic and urban development resulted in serious environmental problems for the city, in particular as far as urban water resources are concerned. Water contamination and degradation contributed to the gradual abandonment of the waterfront areas by urban residents, causing a progressive detachment and alienation of local people from water. Urban waterfront space became a decaying and insalubrious place to dwell, further aggravating the decline of these previously flourishing areas of the city. The following section analyses how, following the national policies of promoting sustainable economic and urban development, the municipal government has attempted to improve environmental governance in Suzhou. In particular, water management and pollution control became a major issue for ensuring the competitiveness and livability of the city. It will be argued that the restoration of the urban ecological balance and the emergence of an increased attention to water resources can be considered as a form of re-appropriation of water and a sign of reconciliation of local people with water.

2.4 RECENT DEVELOPMENTS: ENVIRONMENTAL UPGRADING AND WATER POLLUTION CONTROL

Heritage preservation and environmental upgrading of the historical central areas of Suzhou city already started to be considered in the early 1980s. Breitung and Lu (2017) underline how at the time the municipal government restored the traditional backbone of the water grid pattern composed of three east-west and three north-south canals. In addition, they found that no further decrease in the number of waterways occurred after the introduction of reforms in 1978.

Li (2018) further underlines that, in order to tackle the problems of water pollution in the city, Suzhou's municipal government initially focused on strengthening the supervision over heavily polluting enterprises. In July 1979, Suzhou took the lead in establishing a system for companies to pay for their emissions of pollutants, in particular fines were introduced for the discharge of "the three wastes" (waste gas, waste water and industrial residue) through the promulgation of the *Guanyu jiangli zonghe liyong he "sanfei" paifang fakuan de zanxing guiding* 关于奖励综合利用和“三废”排放罚款的暂行规定 (Provisional Regulations on Rewards for Comprehensive Utilization and Fines for the Discharge of the "Three Wastes"). Subsequently, in November 1980, the introduction of *Suzhou shi paiwu shoufei he fakuan shishi xize* 苏州市排污收费和罚款实施细则 (Suzhou City Executive Rules on the Implementation of Fines and Charges for Pollutants Discharge) further institutionalized and standardized the "polluter pays principle". Since then, Li (2018) argues that Suzhou has been at the forefront of environmental policy innovation in Jiangsu province and even in the whole the country.

However, as we have seen, the process of rapid urbanization and demographic growth in Suzhou resulted in an increase of domestic as well as industrial water demand, use and subsequent sewage discharge. Water deficiency became a relevant issue for the city, therefore, according to Ma and Yan (2004), the municipal government should devote increasing attention to producing accurate forecasts of water demand. They argue that the availability, quality and quantity of water resources should be considered as an important decision-making factor in terms of population, economic, social and environmental development, so to be able to control pollution and protect the environment. The authors discuss how city plans for urbanization growth and industrial transformation must be drafted according to the water demands of an increasing population, considering the concerns for environmental protection, social stability and economic prosperity. A

sustainable use of water resources promotes the sustainable development of both society and economy, becoming a crucial factor for the establishment of an ecological city. Following this lead, local development plans have shown a growing attention to the preservation of the natural environment and urban ecosystem in recent years (Ding, 2008).

According to Zhang, Wei and Meng (2017), the introduction and enforcing of strict, effective land use policies by the local government is needed in order to achieve a sustainable development in a rapidly expanding city such as Suzhou. Smart growth accompanied by compact development should be introduced for the economic, social and environmental sustainability of the city. In addition, the modernization of environmental governance systems and governance capabilities of local governments is an important path towards realizing significant environmental quality improvements.

The analysis conducted by Li (2018) on environmental policy tools and governance performance for the prevention and control of water pollution in Suzhou city allows to demonstrate how the city has been striving to reduce its environmental impact on urban water resources in recent years. The author collected research and statistical data from 2005 to 2015 in order to determine how significant were the improvements of Suzhou city in terms of environmental governance.

During this period, in the process of rapid industrialization and urbanization, the city of Suzhou vigorously promoted industrial upgrading and transformation. At the same time, it began strengthening environmental supervision as well as investments in environmental protection. Li (2018) states that in 2005, Suzhou's environmental protection expenditure was less than 1 billion RMB, while ten years later the annual environmental protection investment was 57.6 billion RMB, registering an increase by more than 57 times. According to Li's study, the increasing importance given to environmental protection and the remarkable amount of resources invested with the aim of curbing the severe water pollution situation have led to a significant improvement in the water environment of Suzhou in recent years. Between 2005 and 2015, industrial wastewater discharge in Suzhou and polluting emissions from industrial wastewater have been steadily decreasing. However, as it is easily understood, the level of urbanization and the improvement of people's living standards have led to a rapid increase in the discharge of domestic wastewater in Suzhou during this period. Nevertheless, the domestic wastewater treatment rate has been greatly improved, thus reducing

the pressure on the water environment from domestic wastewater discharge. In this context, the serious pollution of major watercourses in the city has been ameliorated since 2005.

Li (2018) argues that, over the last few years, Suzhou city has been able to alleviate the serious pollution situation caused by the early stages of reforms and opening, while maintaining a sustained and rapid economic growth. This was possible thanks to the establishment of environmental protection priorities and the integration of various environmental policy tools. Li classifies these instruments into five categories, respectively:

- i. Traditional policy tools (*Chuantong zhengce gongju* 传统政策工具)
- ii. Direct government supply (*Zhengfu zhijie gongji* 政府直接供给)
- iii. Self-regulation by enterprises or industries (*Zhiye [hangye] ziwo jianguan* 企业 (行业) 自我监管)
- iv. Environmental information means (*Huanjing xinxi shouduan* 环境信息手段)
- v. Environmental education means (*Huanjing jiaoyu shouduan* 环境教育手段)

Traditional policy tools are the earliest and most common means employed by the Suzhou Environmental Protection Department to prevent water pollution. They include command and control and economic tools, such as fines for the violation of environmental regulations, sewerage charges and emission trading systems. The basic principle for the functioning of such measures is to influence the production behavior of companies by setting environmental standards and promoting the use of pollution control technologies. However, the efficacy of these policies highly depends on the extent of monitoring and on the amount of penalties set for exceeding environmental standards. Li (2018) highlights that between 2005 and 2015 the Suzhou Environmental Protection Bureau has continuously increased law enforcement efforts, as well as the extent of monitoring and factory inspections.

Direct government supply entails the construction of environmental infrastructures through direct government investment. Li (2018) found that during the Twelfth Five-Year Plan (2011-2015) period, Suzhou city increased its financial resources for water pollution prevention and related environmental projects by 10% to 20% every year. Taking 2015 as an example, the city completed an investment of more than 4 billion RMB for the prevention and control of water pollution in Tai Lake. In the same year, the investment in ecological optimization of Yangcheng Lake reached 2

billion RMB. At the same time, Suzhou's municipal government increased investments for the realization of sewage treatment projects. Suzhou city pays increasing attention to the preservation of ecosystem services in the scope of water pollution prevention and control, as is seen through the protection and restoration of wetlands, which promotes the maintenance of the ecological functions of the aquatic environment (Li, 2018).

Self-regulation by enterprises or industries is highly correlated with the effectiveness of traditional policy tools. These latter are effective when the government has full understanding of relevant factors; the government acts in the public interest and for the maximization of social welfare; companies understand and respond rationally to government behavior; and no transaction costs between government and enterprises exist. However, if these factors do not hold, and information asymmetry is present between government and enterprises, high monitoring and supervision costs exist, and this brings to the emergence of self-regulatory tools in an attempt to reduce these costs. As argued by Li (2018), environmental self-regulations include environmental agreements initiated by a single enterprise, by an industry association, or signed between the government and an enterprise. In recent years such tools have been gradually introduced in Suzhou, including clean production audits for the reduction of emissions, resulting in savings for companies. The most common self-regulatory tool in the city is the public-private environmental agreement, introduced in Suzhou with positive implications for companies as well as for water pollution control (Li, 2018).

Environmental information means entail the publication by government agencies or third parties of the overall environmental performance of an enterprise to induce companies to adopt environmentally friendly behaviors. Third parties include consumers, investors, communities, supply chain members, environmental groups and the like. Li (2018) states that, in order to encourage enterprises to strengthen environmental management and control polluting emissions, Suzhou city began to implement a corporate environmental behavior information disclosure system in 2000. This has resulted in an increased participation of enterprises, in the enhancement of public participation in environmental management and in the promotion of environmental protection and pollution control by companies, through incentives and preferential policies in combination with environmental behavior evaluation. According to Li (2018), the use of environmental information means can not only mobilize social forces to supervise corporate environmental behavior and

promote public participation, but also make up for information asymmetries in traditional environmental supervision and reduce transaction costs.

Last but not least, environmental education means play an important role in the prevention and control of water pollution in Suzhou. While institutional rules and technological innovations are in an undoubtedly crucial position, environmental awareness and environmental knowledge constitute the basis for compliance and technology application. Environmental education means involve the promotion of environmental knowledge of the water resources and the development of public awareness on the need to prevent and control water pollution. By enhancing the public's environmental knowledge and awareness, Li (2018) believes that it is possible to establish the public initiative and value norms necessary for preventing and controlling water pollution and protecting Suzhou's water resources and ecological environment. Significantly, the author underlines how environmental education does not implicate one-way environmental propaganda or indoctrination. Rather, the use of educational tools in water pollution prevention requires participation, innovation and collective performance.

Li (2018) found that the Suzhou Environmental Protection Bureau promotes the application of environmental education methods in the prevention and control of water pollution, emphasizing participation and improving performance. Information media such as television, Internet and newspapers are used to spread environmental knowledge and awareness. The positive role played by environmental education in Suzhou city in the improvement of governance performance for water pollution prevention and control shows that a civil society with vision, knowledge and initiative might be the key towards solving environmental problems. Increasing the citizens' environmental knowledge, promoting their mobilization and inducing them to adopt responsible attitudes and behaviors is crucial to establish a new relationship with water in Suzhou.

Each one of the above-mentioned policies is conducive to the improvement of the water environment in Suzhou, however, it is their combination that majorly enhances water pollution prevention and control in the city. According to the results of Li's research (2018), the combined use of these policy tools in the process of environmental pollution prevention is not only a basic indicator of the modernization of environmental governance systems and governance capabilities, but also an effective way to achieve significant improvements in environmental governance. While administrative-led environmental governance has not fundamentally reversed the grim situation of

China's environmental pollution, a modern approach to environmental governance might become the key for the achievement of positive results in the control of water pollution in Suzhou.

After becoming known as a “contaminated paradise” in the late 1970s, in the last decades Suzhou has been striving to move towards a more sustainable development model. This has resulted in an increased attention to the prevention of environmental and water pollution in particular, which led to a gradual improvement of the city’s environmental governance capabilities and performance. Thanks to the results of Li’s research (2018), this work provides a brief overview of how a more inclusive and comprehensive approach to environmental protection can be conducive to better results in terms of water pollution prevention and control. The active promotion by local governments of sustainable practices in the use and treatment of urban water shows an increasing concern for the local environmental balance. The ecological functions of the urban water grid in Suzhou have been gradually receiving more recognition and this has had a positive impact both on the environmental and social value of urban water. Water quality improvement, especially thanks to the implementation of modern sewage treatment projects, can not only diminish the environmental impact of the city on the local ecosystem, but it also has a significant role in the re-appropriation of local citizens’ relationship with water. The recovery of a pleasant water environment, better if complemented with green public spaces, may help in the rehabilitation of Suzhou’s waterfront reputation.

The abandonment of waterfront space due to economic and social transformations occurred in the XX century has brought to a gradual alienation of local people from water. While Suzhou was historically renowned for its traditional water culture, the rise of modernity witnessed a progressive detachment of economic, cultural and social activities from the waterside environment. The waterfront space became an obsolete part of the city, which could not compete with the skyrocketing economic and urban growth, driven by the introduction of railway and roadside circulation. The unpleasantness and decay of a waterfront environment overlooking heavily polluted waterways discouraged local people to dwell in traditional waterside houses and the value of this once prosperous urban landscape gradually began to be forgotten.

However, the heritage value of the ancient urban waterways was already recognized in the early 1980s, when the first attempts to limit urban waterfront decay were made. As we have seen, in the following decades the ecological value of water resources in the city was also put forward, thus

creating the conditions for a gradual reconciliation of Suzhou city with its neglected waterfront space.

In recent years a number of projects have been introduced for the redevelopment of urban waterfront areas in Suzhou. Local institutions began perceiving the significance of the city's traditional water culture, in an attempt to build a strong local identity, which is favorable for the promotion of Suzhou in the domestic as well as international environment. The city's rich historical and natural endowment is particularly conducive to the development of a strong and prosperous tourism market. Furthermore, the need to combine sustainability practices with heritage preservation offers a clear opportunity for improving Suzhou's image to the eyes of modern and cosmopolitan travelers. Especially since the commercial value of this characteristic urban landscape was identified, the city has been striving to promote its renovation to exploit the cultural value of a traditional historic urban environment. However, these practices result in the emergence of a number of issues in terms of social sustainability and commodification of urban heritage.

This chapter provided an overview of Suzhou city development since the rise of modernity in China and of how the city's growth and transformations severely affected a fundamental part of the urban environment such as the traditional urban water grid. The structural vicissitudes and spatial reconfiguration that the city underwent following the introduction of modern technologies have been explored, focusing on how these dramatically endangered the preservation of the centennial waterways. The urban pattern of the city was structurally transfigured in order to serve the needs of modern economy and transportation. As a consequence, the decline in the canal's functionality resulted in a progressive abandonment and gradual degradation of urban waterfront space. The accessibility of these areas was greatly affected by real estate development and at the same time people started to consider urban waterside environment as a downgraded part of the city. Environmental pollution caused by rampant industrial growth and inconsiderate production practices in the early stages of industrialization contributed to the deterioration of Suzhou's inhabitants' peculiar water culture. Only thanks to the recent introduction of more sustainable practices and to the governmental attention to the prevention and control of water pollution, people have started to reconcile with their heritage. The modernization of environmental governance, accompanied by an increasing inclusion of citizens in the management of urban water resources, have enhanced people's vicinity to water. This is possibly one of the ways to alleviate

environmental problems, while at the same time bringing people in connection with the city's prosperous past.

This last paragraph serves as a linking point with the discussion of Suzhou's waterfront rediscovery, which is the subject of the next chapter. After briefly introducing the process of waterfront redevelopment that is currently emerging in various cities around the world, the following chapter analyses the peculiarities of Suzhou's waterfront, by comparing three different projects involving the rehabilitation and commercial exploitation of waterside locations in the city. The first two examples outline the redevelopment process of historical districts characterized by traditional urban waterways, while the last case provides an overview of a modern lake-side development project in Suzhou Industrial Park.

CHAPTER 3

Urban Plans for the Rediscovery of Suzhou's Waterfront Space

3.1 INTRODUCTION TO WATERFRONT REDEVELOPMENT

In the last few decades, the reconfiguration of urban spaces in the form of waterfront revitalization projects has become increasingly popular around the world. According to an article by Minca and Soriani (2011), an increasing number of “post-industrial” harbor cities is promoting the redevelopment of redundant port areas by assigning new roles and meanings to these strategical components of the urban fabric. This trend initially emerged in North America, but subsequently spread to other western cities in Europe and then reached Asia.

In order to understand what gave rise to the phenomenon of waterfront revitalization, it is useful to briefly address the redefinition of the roles of port cities following the modernization of transport activities. This was mainly represented by containerization and the rise of the intermodal era, which brought about a major reconfiguration of transport activities on the global level, as well as the reorganization of spaces and functions of traditional industrial waterfronts (Minca and Soriani, 2011). When the industrial past of port cities clashed with the demands of the new era in logistics, two major concerns arose: the first is linked with the provision of services and infrastructure development needed to respond to the modernization of distribution, the second deals with the abandonment of port cities' centers as a result of these changes. As these areas were made obsolete and redundant following the transformation of port activities and functions, Minca and Soriani (2011) argue that they become epitome of the contrasts linked with the need to give them a new function and significance. In summary, these semi-abandoned urban centers have increasingly drawn the attention of city authorities in recent years, which identified them as areas that needed to be returned to the city, by giving them new functions, meanings, uses and users, so to create a new and improved social climate. As a consequence, urban waterfronts became the subject of urban policies in many cities around the world, as they began to be perceived by developers and local governments as resources whose economic, residential, cultural and commercial potential could be exploited in order to reevaluate decaying areas of the city (Minca and Soriani, 2011).

By leveraging on gentrification policies to attract new wealthy residents as well as service and commercial activities in these areas, local authorities aimed at inverting the downward spiral of urban and economic decline, while promoting a new image of the whole city in the scope of urban marketing processes.

The re-vitalization of urban waterfronts should therefore be seen both as an integral part of the process of (essentially commercial) gentrification that is progressively re-writing the traditional cores of many cities, as well as a distinct feature of this same process: one that relies upon, of course, the presence of a potentially attractive water exposure (or *exposition*) but also (and necessarily) the presence of private capital willing to finance such a development; the willingness of the local government to invest in such areas (usually former urban port-zones) and to re-fashion the urban identity; and last but certainly not least, the oriented consensus of the tourist market. (Minca and Soriani, 2011, p. 231)

These authors underline how water exposure, be it proximity to the sea, a lake or a river, represents an important driver for the transformation of urban space and for the reinterpretation of waterfront places strongly linked with the city's characteristic identity. In this sense, they consider waterfront rediscovery as an expression of postmodern urbanism, since the renovation of waterfront functions, along with the showcase of the city's past and traditions contribute to the delineation of a distinct urban imagery that can be exploited as symbolic capital.

Minca and Soriani (2011) provide an overview of the concept of postmodern urbanism, underlining how waterfront redevelopment, in its economic, social and cultural dimension, significantly affects the construction and interpretation of space in post-industrial cities. They consider this process of rehabilitation of waterfront space both as a driver and as a peculiar manifestation of postmodern urbanism, which resulted from changes in the economic, cultural, and socio-political environment, and redefined the cityscape.

They further argue that, since the early 1970s, the emergence of new approaches in urban design began to integrate architectural and cultural perspectives in the scope of postmodern urbanism. An increased attention to the revitalization of the old inner city was accompanied by the recognition of urban heritage value, while emphasis was put on preservation of local identities and characteristics, as well as on the valorization of differences. The pedestrianization of ancient streets, together with the identification of protected historical urban districts is a sign of the rediscovery of local peculiarities in the process of urban renewal. However, postmodern urbanism is not only directed towards the revaluation of the city's past, but it constantly looks forward, as is manifest in the

processes of gentrification and spatial segregation of historic blocks that accompany the protection of urban heritage. Gentrification is both a driver and a consequence of the processes of urban reconfiguration occurring in many cities around the world. Among port cities, Amsterdam, Sydney, San Francisco, Baltimore, New York City, Santa Monica, Denver, St. Louis are only a few examples of cities whose waterfront areas experienced this residential and commercial upgrading (Minca and Soriani, 2011). Through the parallel improvement of residential and commercial facilities as well as economic investments by real estate developers, these areas witnessed a population shift: from the relatively poor working-class residents to middle-class young professionals looking for downtown housing. As a consequence, the flourishing of high-end residences, boutiques, cultural venues and services became a driver of economic upgrading and diversification, from a declining manufacturing sector towards a much more prosperous tertiarization of the economy.

The key element in this transfiguration of the urban landscape of waterfront cities is the added value given by water exposure, together with the preservation of historical landmarks, which make the postmodern commercial and residential space reminiscent of the commercial past of the port cities, giving a new appeal and significance to urban rivers, lakes or canals (Minca and Soriani, 2011). The value of water exposure brings the community to reestablish the lost contact with urban waterways, as well as with the urban districts erected on their shores. As argued by Ashraf (2017), the world is witnessing the rise of “a new narrative of water”, which is currently influencing design and architecture to rethink the city’s relationship with its water resources.

Minca and Soriani (2011) analyze how the waterfront redevelopment process follows a precise path, in which the renovation of industrial and residential buildings comes after the implementation of environmental policies for the reclamation of urban water bodies, along which panoramic walks are built in order to create a pleasant urban landscape. Old buildings are converted into modern malls or exclusive residential complexes, while warehouses previously devoted to port activities are turned into cultural venues, such as convention facilities, transforming the decaying waterfront area into a functional and appealing postmodern district. In particular, what they call the “culture industry” plays a significant role in the revival of the previously deteriorating urban waterfront space. In addition, they highlight how the establishment of creative partnerships between the public and the private sectors (Public-Private Partnerships, PPPs) is conducive to the renovation of these strategic urban areas.

Even though every city has a distinctive history, geography and local peculiarities, Minca and Soriani (2011) identify some elements of communality among different urban waterfront rehabilitation projects, which at least partially belong to a postmodern approach in urban design. First of all, they argue that urban waterfront areas, previously predominantly devoted to industrial production and port activities, are becoming sites characterized by modern consumption, cultural production and the provision of services, redefining the positioning of port cities' urban centers in the global economic environment. Secondly, these sites are subject to gentrification policies which increasingly affect the social configuration of the city. Finally, urban waterfronts are expression of a process of "urban renaissance", playing a major role in the promotion of a renewed and embellished image of the city.

In their analysis, Minca and Soriani (2011) identify a new role of waterfront as a "catalyst for change", since industrial activities are leaving space to cultural, service, tourism and leisure activities, leading to a spatial and functional reorganization of the local economy. The relocation of research centers, universities, banks, shopping malls in the waterfront areas demonstrate the increasing importance of the tertiary sector, while also contributing to giving a new image to the city. In particular, the authors underline the prominence of tourism and leisure activities in the economic and cultural transfiguration of urban waterfronts, which become places for seeking a contact with local traditions and identity. Therefore, they identify the objectives of tourism-oriented waterfront redevelopment in economic diversification, increased attractiveness for investors and quality of life enhancement for local residents. In this sense, waterfront redevelopment becomes an opportunity for the reinterpretation of the city's imagery, erasing the memory of a decadent urban environment, and for showcasing the new face of waterfront space.

However, as further discussed by Minca and Soriani (2011), postmodern urbanism not only seemingly erases the previous functions and appearance of waterfront space, but it also attaches new significance to the remnants of the industrial past of the city, which become objects of preservation and part of the local identity. In this sense, waterfront redevelopment projects also assume a deeper value in terms of the relationship between people and their city. The revitalization of waterfront can become a celebration of change, exhibiting the city's new functions, image and attractiveness. The transformation of the waterfront identity thus becomes the subject of urban marketing plans: it serves to create, define and communicate the city's new role. This is possible not

only through the physical reconfiguration of the urban space, but also with the promotion of events and projects for the rediscovery of local unique features and for the sake of “civic pride” and consensus. In these terms, the construction of a heritage landscape (a process that Suzhou is currently undergoing) becomes the materialization of a common past and the construction of a group identity in a nostalgic attempt of citizens to find themselves in the transition to a postmodern society (Minca and Soriani, 2011). This is well represented by “the construction of historical districts” that Minca and Soriani (2011) describe as the restoration of strategic areas of the city to maintain a taste of the past while at the same time looking brand new. Many of these projects are carried out specifically for the purposes of tourism-oriented development, or to increase the competitiveness of the city by underlining its real or constructed historic identity.

In short, waterfront redevelopment can be considered as a comprehensive process of transfiguration of urban space, involving the economic, social (and residential) and cultural spheres. It becomes expression of an urban renaissance, aiming at the rediscovery and economic exploitation of urban landscape tangible and intangible value and imagery. In addition, the revitalization of urban waterfront space becomes a laboratory of urban governance, as it embraces issues related to the relocation of indigenous residents, the privatization of the public space and the role of public-private partnerships, which promote a “market-oriented”, “entrepreneurial approach” to urban redevelopment (Minca and Soriani, 2011). According to this view, waterfront rehabilitation projects become part of a broader strategy to improve the city’s livability, image and attractiveness both to residents and to investors, by eradicating the traditional view of waterfronts as polluted and decadent urban environments, characterized by social instability. However, waterfront reconfiguration also needs to consider the rising social polarization and contradiction resulting from redevelopment projects, which tend to sharpen economic and social conflicts (Minca and Soriani, 2011).

In conclusion, the analysis by Minca and Soriani (2011) focuses on the strategic role of waterfront redevelopment projects in the reconfiguration of postmodern urban landscapes and in the process of reinterpretation of urban space in the post-industrial era. Heritage preservation and the construction of local authenticity and identity, together with gentrification policies and the privatization of public space are only a few of the issues involved in the revitalization of these important component of the urban fabric. They further underline how these processes become a

source of legitimization for the construction of a positive urban identity, capable of competing effectively on the global market.

Even though not exhaustive, this paragraph merely aimed at introducing the multifaceted process that is waterfront revitalization. By taking the work of Minca and Soriani (2011) as a basis, it attempted to provide a brief discussion of the main issues involved in the scope of the redevelopment of urban waterfronts, so to outline a general framework useful in the analysis of the Suzhou case. Before addressing this example in detail, the peculiarity of the Chinese approach to waterfront rehabilitation and development are briefly discussed in the following section.

3.2 WATERFRONT REDEVELOPMENT IN CHINA

As was discussed in the previous paragraph, urban waterfront rehabilitation is becoming an increasingly common strategy for the reinterpretation of urban space in numerous cities in developed countries around the world. However, the environmental benefits of such renovation projects are often only instrumental for the residential, cultural and commercial exploitation of waterfront space. Even in China, waterfront redevelopment projects are becoming an increasingly popular urban policy approach for the revitalization of previously decayed urban environments. Urban renovation projects such as those aimed at the revitalization of urban waterfront space are characterized by remarkable complexities, as they involve a number of problems, whose nature is multifaceted and multidisciplinary: these issues include urban, infrastructural and environmental planning, energetic policies, social services regulation, financing and supply, labor policies and heritage conservation (Brombal, 2017). In a country significantly threatened by sustainability issues such as China, ecological remediation becomes a fundamental prerequisite in order to reconsider the value of neglected waterside areas of the city, and to give them new functions and uses (Vollmer, 2009). Therefore, as argued by Brombal (2017), environmental restoration is increasingly related to urban revitalization and renovation projects in Chinese cities. However, according to literature, environmental restoration and protection are particularly relevant and controversial issues in the scope of urban renewal projects in China. This paragraph presents a number of different views on the Chinese approach to sustainable urban development, in addition, it offers useful insights for the study of waterfront revitalization projects in Chinese cities. While the study by Curien (2014) identifies major discrepancies between the rhetoric of environmental protection and the actual practice of urban planning in China, Vollmer (2009) focuses on the environmental benefits of waterfront rehabilitation in Chinese cities, whereas Brombal and Moriggi (2017) argue that an

increased attention to the social dimension of sustainability is needed in order to comprehensively address the issue of waterfront rehabilitation in Chinese cities.

Notwithstanding these authors adopting different perspectives on the Chinese approach to sustainable urban waterfront redevelopment, waterfront rehabilitation and re-appropriation in Chinese cities may become a springboard for people's reconciliation with these urban environments and for an increased awareness and appreciation of the value of water. Urban water can represent a source of value creation thanks to the ecosystem functions it serves, as well as for its visual appeal, for the recreational and leisure value it entails and for the urban heritage value of urban waterfront space. On the other hand, these wonderful opportunities are closely linked to the involvement of citizens in the sphere of urban renewal project: an increased public participation is needed for establishing a truly authentic relationship between people and the environment they live in.

In order to understand the significance of waterfront restoration in China from the economic, environmental and social point of view, it is useful to briefly consider the emergence of sustainability as a driver of urban policies. According to an article by Curien (2014), who advocates a critical view of the Chinese approach to sustainability, Chinese urban development is characterized by a strong discrepancy between rhetoric and actual realization, as not enough consideration is given to environmental issues in urban planning and construction, notwithstanding the promotion of sustainable development practices by the government. The rapid and unprecedented urban growth that characterized China's last decades was based on what Curien (2014) calls "hyper-functionalism", which resulted in environmental degradation and threats to sustainability. The concerns related to water resources management caused by rapid urbanization in China were explored in an article by Bao and Fang (2012), in which they argue that the overexploitation of natural resources by continuously growing cities has resulted in remarkable impacts on the environment, especially on water resources. Consequently, the increase in domestic and industrial demand for water and the subsequent increase in wastewater discharge aggravated the pollution of water bodies in major Chinese cities.

Curien (2014) identifies a major turning point in 2006, when the promulgation of the Eleventh Five-Year Plan (2006-2010) gave new and greater consideration to environmental protection in China, while at the same time promoting a more balanced development model. At the time, new notions, regulations and plans were introduced in urban planning, which focused on tackling environmental

issues. Environmental protection and pollution control were officially placed at the center of land planning in 2008, with the promulgation of the “Urban and Rural Planning Law”, which established the rules for more considerate land use, provided for the protection of the ecological environment, promoted an efficient use of resources and encouraged social harmony. National pilot projects for the sustainable development of Chinese cities were launched by the Ministry of Housing and Urban-Rural Development and by the Ministry of Environment Protection, demonstrating the increasing prominence of environmental issues in urban development. The popularization of “eco-city” development programs became an inseparable component of new urban plans, showcasing the consideration of environmental issues by national and local authorities.

According to the analysis by Curien (2014), “China appeared to embrace an environmental watershed in the way in which it plans and builds cities, even inventing new ways of designing cities that demonstrate an exemplary level of consideration for the environment” (p. 24), as demonstrated by the increasing importance given in the Chinese political discourse to the concept of “ecological civilization”, focused on the need to establish a new equilibrium between human society and environment and often referred to urbanization (Brombal, 2017). However, Curien (2014) remains highly skeptical on the actuation of the concept promoted by Chinese environmental rhetoric and believes that “‘eco-city’ projects in China remain largely at the intention stage” (p. 24). In his study, Curien (2014) identifies the peculiarities of the urban planning structure in China, underlining the pyramidal procedures originating in Beijing with the formulation of national policies, which are then adapted to local conditions and result in the creation of local guidelines and detailed action plans. According to Curien (2014), the roots of Chinese urban planning practice are to be found in Confucianist order and hierarchy, in addition he states that it was highly influenced by the Soviet experience. However, in the last decades, he found considerable gaps between governmental planning and actual construction of urban space: due to the decentralization of decision-making power on urban development, an entrepreneurial approach to urban development with the aim of economic growth has resulted in landscape fragmentation and environmental imbalances. He further describes the Chinese approach to sustainable urban planning as “hyper-functionalist”, as it is based on technical forecasts of population and land use per inhabitant.

Everything revolves around detailed standards and urban functions, leaving little room for qualitative considerations, discussions airing other points of view as to how to lay out cities, and dialogue with local stakeholders, in particular populations. [...]

Urban planning is a highly technical discipline in China. The work of the Chinese urban planner consists of dealing with technical questions. The rest (such as the implications of choices made in urban planning with regard to energy consumption or social integration) does not concern him. Urban planning in China belongs purely to the realm of the hard sciences [...], which completely overlooks social dimensions or the concerns of the population. (Curien, 2014, p. 28)

In order to provide a brief discussion of the social dimension of sustainable urban development in China, the findings by Brombal (2017) are summarized below. In his study on urbanization and sustainability in China, through the analysis of the Chinese political discourse on urbanization, Brombal (2017) argues that a new narrative of urbanization has been introduced in China with the release of the “New-Type Urbanization Plan” (2014-2020) and the approval of the Thirteenth Five-Year Plan (2016-2020). He underlines that, even though “sustainability has taken roots in Beijing’s approach to urbanization” (p. 305), incremental development, based on technical solutions to specific problems, remains a fundamental driver of Chinese modernization, whereas there is limited potential for China to adopt a transformative approach. In Brombal (2017), a transformative approach to sustainability is defined as the ability to produce a systemic change in the development of human societies, in particular as far as the interactions between people and nature are concerned. Political and socio-economic institutions are particularly important in pursuing sustainability, and the active involvement of stakeholders in decision-making processes is advocated, as it becomes a prerequisite for the inclusion and empowerment of social forces. In his article, Brombal (2017) demonstrates the need to give more attention to political and socio-cultural aspects of sustainability in China. In his analysis of the “New-Type Urbanization Plan”, Brombal (2017) identifies the objectives of Chinese urban development in the willingness to promote the transformation of the development model of Chinese cities and the optimization of the urban space structure, to reinforce the capability of Chinese cities of supporting their population in terms of economy, infrastructures, resources, environments and public services, and to build cities characterized by harmony, livability, and vitality. He further underlines the prominent position given to culture in the political discourse on sustainability, since a people-centered urbanization that recognizes the significance of historical heritage preservation is promoted. However, he identifies the most relevant part in the discussion of the concept of social governance, which is extensively treated, and it recognizes the significant

contribution by social forces in terms of providing sustainable solutions to the problems of urbanization. By studying the indicators employed in the study of sustainable urban planning in China, Brombal (2017) argues that the prominence of economic and environmental indicators shows that the social sphere is still not receiving the due consideration by Chinese authorities. Nevertheless, he found that they are giving an increasing attention to social issues, in particular to the concept of “ecological civilization” and to social governance. Brombal (2017) additionally argues that Chinese researchers are showing increasing awareness on the need to include political aspects in the discussion of sustainability, however, this opening to social innovation remains limited by the predominant role of the Party in the definition of public participation and social inclusion, while the empowerment of marginalized social groups is still lacking.

Despite the skepticism demonstrated by the views of the authors discussed above, on the realization of sustainable urban development in Chinese cities, other authors adopt a more positive approach, which leaves room and hope for improvements in environmental protection and water management, while providing some interesting insights on ecological planning in China. In their study on the management of water resources related to urbanization, Wang et al. (2011) analyze ancient Chinese philosophy and thought, underlining how Chinese people developed a deep understanding and efficient management of their living environment by promoting a harmonious relationship with the complexity of the ecosystem, as is demonstrated for example by the theories of *Yin* and *Yang*, of the five elements or of *fengshui*. They consider the development of a holistic view of the world, which encouraged a unified vision of humanity and nature, as a form of “human ecological theory for the planning and management of the eco-scape” (p. 16), defined as the multi-dimensional set of interactions among the tangible environment and living beings and the intangible elements of cultural heritage and social formations. In this sense, they argue for a renewed approach to land use and development inspired by ancient Chinese tradition, which combines the relationship between economic growth and environmental protection, while balancing natural and social needs. Furthermore, Brombal (2017) underlines how urbanization in China was previously considered as a threat to sustainability, while nowadays it is increasingly being interpreted as an opportunity for the introduction of innovation, in terms of green technology adoption, environmental restoration, tertiarization of the economy and extension of public and social services. As argued by Bao and Fang (2012), in recent years, environmental degradation and ecosystem remediation have been receiving increasing attention and awareness. As a consequence, China is

increasing its efforts in improving wastewater treatment, sewage planning and realization and ecological restoration. In this framework, the re-appropriation of previously decaying urban water environments is seen as an opportunity for the improvement of environmental governance and performance, for the upgrade of local water quality and for offering better living conditions to urban residents.

According to Wang et al. (2011), in order to establish a new sustainable eco-scape in Chinese cities it is necessary to coordinate the use of water for domestic and industrial consumption with its ecosystem functions, to combine the realization of wastewater treating plants and efficient hydro-engineering plans with the protection of wetlands and urban ecosystems. In addition, environmental protection and water pollution prevention and control need to be coordinated with urban heritage preservation and social inclusion, so to foster the emergence of a new emotional proximity to the urban water environment.

Having explored different views on sustainable urban planning and development in China, the peculiarities of waterfront revitalization in Chinese cities are discussed below. The study by Vollmer (2009) explores the Chinese approach to sustainable waterfront rehabilitation; he argues that in China the rediscovery of urban waterfront space represents an opportunity for Chinese cities to shift towards a more sustainable development model. Waterfront rehabilitation projects in China are often identified as a chance for reducing environmental impacts and repairing damage caused by pollution, while at the same time ensuring local economic development (Vollmer, 2009). Therefore, Chinese cities are currently implementing a series of programs for the simultaneous realization of economic growth, environmental sustainability and life quality enhancement.

Vollmer (2009) argues that the Chinese central government is promoting a more comprehensive approach to urban water resources, and it is supporting a number of projects to control pollution and supervise on the quality of major water bodies. However, he also underlines how the constrained availability of financial resources and local interests in economic development often are the main drivers of local government action in terms of environmental management. Therefore, cities tend to favor a combination of solutions capable to meet environmental protection needs with those of economic growth. Waterfront rehabilitation projects in Chinese cities similarly follow a strategy which couples environmental remediation with the renovation of degraded urban areas, aiming at the promotion of economic development.

Furthermore, the management challenges posed by the remediation of urban polluted waterways can become a source of opportunities for the subsequent development of the city. The renovation of a degraded waterfront can result in a point of differentiation and in an advantage for the city in order to attract investments and revitalize the downtown area (Vollmer, 2009). It is then easy to understand that the final goals of these waterfront rehabilitation projects often are not merely focused on environmental protection, but improvements in urban water bodies conditions are a fundamental prerequisite for the success of waterfront revitalization (Vollmer, 2009). In particular, such projects often begin with very pragmatic objectives such as removing the unpleasantness represented by polluted water, often characterized by unappealing colors and odors; then, they gradually move onto the improvement of surface water quality. These efforts are conducive for the revitalization of waterfront space, and complement other actions aimed at the promotion of tourism, the construction of public amenities, encouraging the real estate and commercial development in the area (Vollmer, 2009).

The re-appropriation of Chinese cities' waterfront spaces also follows the recognition of the remarkable amount of ecosystem services offered by these urban environments. As stated by Vollmer (2009), environmental functions of urban water environments include microclimate regulation, drainage and flood control as well as natural sewage treatment. In addition, urban waterfronts have a significant leisure and recreational value, as they can become cultural venues for the performance of different activities both for local residents and for tourists. By increasing the attractiveness of the urban waterfronts in Chinese cities, these areas can become the fulcrum of the cultural and tourism industry in the city. As underlined by Zhao et al. (2013), the presence of water in urban landscapes, especially if combined with the presence of historical heritage remains, positively correlates with people's visual preferences. This study shows that a harmonious proportion of natural and artificial elements, combined with water exposure increase the landscape preference of people, who tend to perceive such urban landscape as visually appealing.

According to the analysis by Vollmer (2009), the significant costs necessary for the realization of similar projects can be covered thanks to the benefits of residential and commercial development, increased tourism and leisure activities, as well as with the contribution of less quantifiable but extremely noteworthy environmental benefits, including sanitation of the urban environment, public health and better quality of life. He further states that the calculation of the benefits of

waterfront rehabilitation projects in China often focus on the rise of prices of real estate properties, while not appropriately taking into account the substantial environmental and public health benefits brought to the city. Of course, the environmental remediation of urban water bodies remains a component of larger rehabilitation programs, therefore, its contribution in increasing environmental performance and alleviating water pollution can be difficult to determine. However, it predominantly focuses on an incremental improvement of water quality, rather than on a dramatic restoration of water bodies conditions, as Chinese cities consider these projects as a balance between maintaining economic growth and avoiding further environmental damage (Vollmer, 2009).

In addition, not only economical costs need to be included in the forecasts for the implementation of waterfront redevelopment projects. In fact, such initiatives aimed at the rehabilitation of particular urban ecosystems need to consider a number of conflicting pressures in terms of social, economic and environmental sustainability (Vollmer, 2009). The need to balance similar requests is particularly significant in China, where urban population is rapidly increasing, and local governments need to foster economic growth while facing increasing pressures in terms of public services extension and stabilization of the urban environment (Vollmer, 2009). In such situations, ecological protection priorities might be downgraded in order to reach a balance between contrasting forces and so obtaining an urban waterfront ecosystem which can effectively support human activities (Vollmer, 2009).

Vollmer (2009) further highlights that if people had a better knowledge and awareness of the environmental, social and commercial value embedded in urban waterfronts, their willingness to pay for these services would increase, demonstrating how urban waterfront can become a source of value creation for the whole city. This also underlines how the spread of knowledge to the public through education and promotion is significant and can increase people's involvement in urban renovation projects. Public participation as well as consultation in the scope of waterfront rehabilitation programs are important issues to be considered, as these projects often involve the demolition and subsequent relocation of local residents. For example, in the revitalization projects studied by Vollmer (2009), the financial contribution by international development banks explicitly required the involvement and consultation of local citizens.

However, while the need of maintaining a rapid economic growth and to restore the environment have been gradually combined in the realization of urban projects, and in particular for urban waterfront revitalization, social sustainability has been partially disregarded. In order to promote a sustainable development of urban waterfronts in China, the social issues related to renovation projects and the relocation of local residents need to be more carefully addressed by local authorities.

An interesting example of the emergence of a new paradigm of integrated territorial and water resources management is provided by Brombal and Moriggi (2017) in their study on water pollution control, environmental remediation and urban renewal in the city of Wuxi, not far from Suzhou, along the shores of the Lihu basin. Their research underlines the significance of watershed management and the complexities involved in integrated territorial management approach. In their paper, they highlight the specificity of the Chinese case, since in China urbanization and the challenges it poses to sustainability and urban governance can be interpreted both as threats and as opportunities for innovation. In agreement with the view expressed by Vollmer (2009), they identify environmental remediation and the reclamation of urban water quality as a precondition for economic development. A clean environment thus becomes the fundamental starting point for urban renewal projects and for the revaluation of degraded urban areas: the two processes are parallel and mutually beneficial for returning these areas to the city. The reconsideration of the environmental and aesthetic value of urban waterfront space is accompanied by an increased attention to the recreational and leisure opportunities offered by such space, together with the development of tourism and real estate industries, especially with the construction of green spaces and western-style architecture.

Brombal and Moriggi (2017) found in the study of the remediation project in Lihu basin a significant example of the Chinese approach to urban waterfront revitalization: it can be considered as a best practice approach in sustainable urban development in China and as a possible pilot project to guide development plans in other cities (Brombal et al., 2018). The environmental remediation project in Wuxi demonstrates the increasing significance given to the protection of wetlands by the Chinese government, both for their economic and eco-touristic value. According to Brombal et al. (2018), it shows the remarkable shift from a view that saw environmental degradation as acceptable and inevitable for development, to one that reconciliates economic and environmental goals.

In addition, Lihu basin redevelopment also represents a typical example of gentrification in Chinese cities, characterized by the displacement of low-income local inhabitants in order to attract wealthy residents and investments. When the potential value of waterfront exploitation in terms of residential, commercial and recreational activities was recognized, a rethinking of waterfront space functions and management resulted in an increased attention to the importance of the real estate sector, as well as to the tertiarization of the economy. This is the reason why, as underlined by Brombal et al. (2018), the Masterplan for the development of Lihu waterfront particularly addressed the importance of the combination of tourism, leisure, real estate development and environmental restoration plan for the realization of the project.

In their study, Brombal and Moriggi (2017) developed a four-step process analysis that can become a useful tool for the description of similar revitalization projects in Chinese cities, such as Suzhou. This analytical tool identifies four stages from pollution reduction and control, to waterfront development through private investments.

In the first stage, the objective was to control and reduce the pollution produced by agricultural and fish farming activities, and to transform the functions of Lihu basin. Brombal et al. (2018) identify in the conversion of lakeside space from the utilization in the primary sector to recreational and tourism activities a significant difference with redevelopment projects occurring in western countries such as in the EU or in the US, where waterfront space is usually converted to the tertiary sector after being exploited for port functions or industrial activities.

In the second stage, these new functions were identified in the leisure and touristic value of the place, and therefore remediation projects for ecological restoration were initiated with the support of public funding and the emergence of new actors.

The third stage was characterized by a focus on sustainability, with the pursuit of economic, social and environmental goals through the development of eco-tourism in the area. It was at this stage that Brombal and Moriggi (2017) identified the need to introduce market mechanisms to generate revenues through scenic areas, cultural activities engaging the local population and international events or congresses. They underline that these urban marketing activities were mainly instrumental for the promotion of the city and for it to gain visibility, but also useful in increasing public awareness and concerns for environmental protection.

In the fourth and last stage of this revitalization project, the city's aim was to engage private investors (Brombal et al., 2018). Brombal and Moriggi (2017) underline the increasingly important

role represented by a private group entrusted with the development of Lihu basin, and engaged both in construction and branding activities, in the competition with other neighboring cities such as Suzhou for attracting tourists and high-income residents. The plan had a positive impact on economic growth in the area, boosting eco-tourism, and increasing the value of properties (Brombal et al., 2018).

In conclusion, Brombal and Moriggi (2017) found that in the Lihu basin redevelopment project, the main focus was on environmental and economic goals, while institutional development and social sustainability remain open issues. They state that due to the change in functions of the basin and the gentrification policies promoted by Public-Private Partnerships (PPPs), relocation problems of indigenous residents emerged, especially due to increased housing prices (Brombal et al., 2018).

This demonstrates how socio-political inclusiveness in the scope of urban renovation projects in China remains scarce. However, they also argue that the Lihu basin case offers a positive example for the harmonization of economic and environmental goals and for the shift from government funding to a more inclusive approach, linking the Chinese experience with those of western cities. As underlined in an article by Brombal et al. (2018), Chinese cities have obtained positive results in the reduction and control of water pollution, by combining environmental remediation and urban renewal projects. On the other hand, in order to realize an Integrated Water Management (IWM) approach in Chinese waterfront cities, characterized by a coordination of economic, social and environmental objectives in urban development, local authorities should foster bottom-up processes and social inclusiveness.

Despite offering positive examples in terms of economic and environmental goals, Brombal et al. (2018) argue that there is still room for improvement in the Lihu basin case, especially as far as the social costs of the projects are concerned. Gentrification policies brought to an increase of the livability of the waterfront areas, but they were accompanied by a subsequent decrease in affordability of housing for indigenous residents, often employed in the primary sector (agriculture and fish farming). Chinese authorities still need to address social conflicts caused by gentrification and to promote social inclusion and an increased attention on the cultural dimension of sustainable urban development (Brombal et al., 2018).

The remediation of urban water environments in China has received increased attention in recent years and it will probably remain a crucial issue in urban redevelopment projects in the next few years. By offering a revitalization opportunity to abandoned areas of the city, the revaluation of urban waterfronts may represent a path for the reinterpretation of the urban space, in particular for those cities whose history and traditions are intimately linked to water, such as Suzhou. Brombal (2017) discusses how Chinese cities are increasingly engaged in competition to attract investments, wealthy residents and tourists, pursuing gentrification policies aimed at the increase in real estate value. On this background, the interaction between various actors engaged in urban management and renovation projects is extremely relevant and is the result of the negotiation between public and private interests, mainly represented by local political and economic élites. By analyzing the example of the sustainable urbanization in Wuxi and of the integrated management of Lihu lake, Brombal (2017) underlines how these processes are predominantly driven not by a revaluation of the relationship between people and the environment, but by the monetization of the value of nature. Environmental remediation becomes instrumental for the promotion of economic development, especially as far as real estate and tourism industries are concerned. In this sense, he argues that the Chinese experience is not so different from those of western cities, particularly in Europe and North America. On the other hand, the lack of a transformative approach, based on stakeholders' empowerment, participation and co-creation is evident in China, and this results in the inability to generate remarkable, inclusive and durable changes in terms of sustainable urban development (Brombal, 2017).

According to Bao and Fang (2012), the key to realizing an environmentally conscious society in terms of water conservation and pollution control is to popularize water-saving and increase public awareness on water management. Public authorities should improve the citizens' knowledge so to allow people to recognize the value of an irreplaceable resource as water. In these terms, public involvement is fundamental to achieve these goals. The rehabilitation of Chinese cities' waterfront space and the improved access to these areas of the city may then become a symbol of a new approach to water. The showcase of reclaimed urban water bodies, be it rivers, lakes or canals, may serve as a communication tool for changing people's relationship and use of water. By educating people and changing the way they consider water, revitalized waterfront may become an inclusive public space, which also serves as a promotion tool for the realization of an environmentally conscious society.

After giving a brief overview of the Chinese approach to sustainable urban planning, this paragraph focused on the relevance of waterfront space rehabilitation in Chinese cities. Just as it is happening in other countries around the world, Chinese authorities have begun to identify the challenges and opportunities of waterfront revitalization in terms of economic, commercial, residential and touristic exploitation. The waterfront space in Chinese cities is thus becoming a laboratory of urban policies devoted to the reconfiguration of previously marginalized or segregated areas of the urban texture. By giving new functions and developing a new and improved economic and social background, waterfront space in China is on the verge of a revolution in its role as a component of the cityscape. The uniqueness of the Chinese case can be identified in the need to alleviate the threats of environmental imbalances and to limit environmental degradation, so to create a basis for sustainable revitalization of urban ecosystems. Environmental issues have been increasingly receiving attention and the remediation of polluted urban waters can become the symbol of a renewed public awareness on water protection and pollution control. However, a number of issues related to the social sustainability of waterfront revitalization projects in Chinese cities have arisen, which local authorities should address carefully in order to maintain social stability.

The next section provides a general discussion of Suzhou's waterfront space, aimed at identifying the peculiarities of the development path followed by these crucial areas of the city. The city's waterfront resources have been receiving increasing attention in recent years and a number of projects for the renaissance of the traditional urban water environment as well as for the development of new waterfront districts in the innovation center of the city have been launched. These programs can be interpreted as an effort to rebuild Suzhou's image as a "water city" and to promote it on the domestic and international market for attracting tourists and investments.

3.3 PECULIARITY OF SUZHOU'S POSTMODERN WATERFRONT SPACE

The waterfront area of Suzhou historically represented the core of traditional economic, social and cultural activities in the city, and it can be considered as its most vital and richest urban landscape at least until the preindustrial era. As seen in the previous chapter, with the introduction of modern transport and the rise of Shanghai as the regional hub of sea traffic, the traditional functions of the water grid which characterizes the structural form of the city were gradually lost, resulting in a progressive reduction in the number of canals and in a dramatic spatial reconfiguration of the city. The segregation of waterfront space caused by inconsiderate real estate development in the early

ears of the economic reforms and opening reduced the physical and visual accessibility to urban waterways, whose quality and appearance were, in any case, heavily impacted by the discharge of polluted industrial and domestic wastewater.

In order to provide a discussion of the revitalization that Suzhou's waterfront space has been undergoing in recent years, it is now useful to analyze the peculiarities of this urban landscape, by comparing its development path to the framework identified by Soriani (1998) for the study of port cities' urban waterfront in the postindustrial transition. This study focuses in particular on the transformations occurred in industrial port cities' urban waterfront landscapes as a consequence of technological development and of the subsequent obsolescence and decline that characterized these areas of the city. By providing a summary of the models introduced by Bird and Hoyle, Soriani (1998) analyzes the relationship between urban centers and their ports, focusing on the development of waterfront as a space devoted to logistics and distribution, which brought to its progressive separation from the city.

According to this approach, port cities' waterfront underwent a series of development phases, from early mercantile activities to the subsequent expansion and modernization of port activities and infrastructures, finding their apex in the industrial growth that characterized the early twentieth century. This period marked the establishment of a series of facilities linked with port functions and logistics, which resulted in a sort of segregation of urban waterfront from the daily life of residents. However, it was only later that, with the development of containerization and the rise of the intermodal era throughout the 1970s and 1980s, waterfront areas in port cities began to face serious challenges, as they needed either to be adapted to the new needs of modern distribution or risked being abandoned and further segregated from the city. This phenomenon, identified as a "retreat from the waterfront" (Soriani, 1998, p. 540), is a direct consequence of the reconfiguration of global and maritime traffic in the second half of the twentieth century, characterized by demands for new lay-outs of waterfronts and new structures to facilitate the rapid circulation of goods. Waterfront space in industrial port cities became a prominent example of urban decline and of the socio-economic issues linked with disurbanization: these areas were particularly affected by the urban crisis in terms of economic and social development, which resulted in the emergence of a negative image of port cities (Soriani, 1998). The transformation occurred in port and industrial activities, due to the global reconfiguration of the economic environment, brought to an identity crisis for waterfront space.

It was on this background that, in the last decades, the phenomenon of the “redevelopment of the waterfront” (Soriani, 1998, p. 540) began to emerge. Urban waterfront space began to be reconsidered as a potential resource for urban development, rather than a black mark on the city’s reputation. The renovation of waterfront space started from the need to give new functions to these areas previously dominated by port and industrial activities, and these new functions were soon identified in the development of a promising tertiary sector. These processes focused on the reinterpretation of waterfront in terms of its economic functions, of its inhabitants as well as its imagery (Soriani, 1998).

Interestingly, Suzhou did not exactly follow the model described above, since the city’s relationship with water was centered on the transport functions of canals for inter-city traffic and circulation, while maritime port activities were dominated by Shanghai. As seen in the first chapter, Suzhou’s golden age dates back to the Song (960-1279) and Ming (1368-1644) dynasties: at the time the city flourished in terms of economic, social as well as cultural development. This was the period in which waterfront space in Suzhou reached its apex. Subsequently, with the decline of internal waterborne circulation and the opening of the first railways and roads, the strategic position of Suzhou along the Grand Canal began losing its significance. As Shanghai took over the burden of becoming the center of maritime transport in the region (Wang, Shen and Chung, 2015), Suzhou was left to its destiny. As a result, the city’s economic, social and cultural development in the following decades was progressively detached from waterfront space, which began to be identified as a decaying urban environment. The separation from waterfront space in Suzhou was in a way marked by the transition from a traditional to an industrial economy, when the city’s role in the economic and transport network of the country experienced a dramatic change.

In these terms, the peculiarity of Suzhou’s inner-city waterfront lies in the fact that it cannot be analyzed according to the framework proposed by Soriani (1998), as its development is not strictly related to industrial port activities. As far as the historical urban waterfront districts of the city are concerned, the framework adopted by Brombal et al. (2018) for the analysis of the Lihu basin redevelopment is not so relevant, while it can be considered for the analysis of Jinji Lake waterfront. The revitalization of Suzhou’s waterfront space does not, in fact, belong to the redevelopment of redundant industrial sites or obsolete port structures, nor to the transition from primary sector activities (such as agriculture or fish farming) to a tertiarization of the economy with the prominence

of tourism and service industries. The redevelopment of Suzhou's waterfront is, in a sense, more deeply rooted in the economic and social texture of the city: after being neglected for around a century, waterfront environment is gradually being brought back to the scene in this city traditionally known as a "water city".

The rediscovery of the value of water, the increased importance given to environmental management as well as to the cultural characteristics connected to it, which contributed to shaping local history and identity, demonstrate the revaluation by local authorities of urban waterfronts as the linking point between water and the city. In this sense, the case of Suzhou finds some similarities with the study by Caroli and Soriani (2017) on "Fragile and resilient cities on water", characterized by a deep relationship between water and urban society. In particular, the analysis of Tokyo's waterfront space, of the city's relationship with water and of the role of waterfronts in the urban fabric includes some interesting insights which may be considered for the discussion of Suzhou's waterfront rediscovery. Both cities have been facing challenges in terms of urban and industrial development that seriously affected their traditional reliance on water, resulting in a progressive detachment from waterfront space. In addition, the two cases are comparable as in the last decades they have both been subject to a reinterpretation of the value of water, in terms of culture, tourism, leisure and identity. The increased awareness of the significance of water in the urban economic, cultural and social fabric can be interpreted as a reconciliation of the city with its water culture heritage, and as the willingness to base the promotion of the city's future development on this rediscovery of the traditional "water city" identity.

According to *Suzhou shi zongti guihua (2011-2020)* 苏州市总体规划 2011-2020 (Suzhou City Master Plan 2011-2020), local authorities are increasingly devoting their attention to the protection of Suzhou's history, culture and traditions, by preserving the historical and cultural heritage embedded in the structure and style of the ancient city, whose historical districts offer abundant cultural relics and historical sites. The Plan establishes an urban protected area of 22.63 km², which includes the ancient city and Shantang Street. It aims at comprehensively protect the style of the ancient city, by maintaining the double chessboard pattern and the water system composed of three east-west canals, three north-south canals and the moat. Its objectives further include the preservation of the characteristic waterways and small bridges, as well as of the urban landscape of the ancient city, characterized by traditional architectural features and designs. These are identified as crucial components of the ancient city inheritance, representing the essence of the local culture, art, traditional crafts and folklore.

In this process of rediscovery of the relationship between water and the city and in the reinterpretation of waterfront environments, the “postmodern” approach to urban revitalization can be identified in Suzhou. In an article by Wang et al. (2015), the authors adopt a postmodern perspective in their analysis of the spatial organization of Suzhou’s historical streets as tourism sites. By applying the concept of deconstruction to Suzhou’s heritage sites, Wang et al. (2015) suggest a division of space in cultural, leisure and landscape space. This paper provides some interesting insights on postmodern thought and on how this can be applied to urban planning and renovation in the case of Suzhou. According to Wang et al. (2015, p. 370),

The core idea [of postmodernism] was to criticize rationalism, which is emphasized by modernism. Postmodernism rejects the idea that a single theory can explain everything or is universally applicable and emphasizes creative thinking with tolerance and openness as characteristics of human nature, culture, and pluralistic values.

They further identify the influence of postmodernism on tourism development, underlining the need to remodel tourism, going beyond commercialization and standardization and emphasizing pluralism, authenticity and sustainable tourism. In addition, Wang et al. (2015) address the impact of postmodernism on urban planning and redevelopment, showing how after the dramatic impact caused by modern urbanism on the original form, texture, and culture of industrial cities, which affected their identity and diversity, postmodernist planning concepts put a new emphasis on urban emotion, historical culture, and the natural environment. The promotion of the preservation of urban heritage and of local authentic culture under this postmodern approach creates the conditions for the conservation of urban heritage sites such as historical streets, or in the case of Suzhou, historical waterfront streets. As underlined by Wang et al. (2015, p. 371),

The core purpose of the postmodern concept of space is to reveal the relationship between various social relations and space, namely, the dialectical unity of society and space as well as the unity of “people” with the “local” scale.

This approach to the study of Suzhou’s spatial organization is therefore comprehensive and attempts to provide an analysis of landscape elements and their interactions with the human factor, be it in the form of tourist or local resident. Postmodern waterfront space in Suzhou becomes then

a symbol of a progressive reconciliation of the city with its characteristic urban water environment, which is expression of the historic relationship of people with water in this area.

The rediscovery of the significance of this urban waterfront landscape is combined with an increase in efforts for the preservation of its heritage and with a rising awareness of the economic value embedded in its exploitation. In addition, new functions and meanings are attributed to these areas of the city, which begin to be identified as a potential differentiating point with neighboring cities in the competitive market for urban promotion (Ma, Weng and Yu, 2015; Gu, 2006). These meanings need to be communicated to the public with substantial urban marketing campaigns for the relaunch of Suzhou's image as a "water city" (Ding, 2018).

In the next chapter some issues will be discussed that arise due to this materialization of urban heritage and monetization of urban environments. These include the risk of compromising local identity and of creating a fictitious water culture for the entertainment of tourists. Therefore, local authorities and the actors involved in redevelopment processes need to be aware of these risks and to promote a balanced approach to urban waterfront revitalization, in order to achieve the goal of redeveloping a decaying area of the city, while preserving its traditional characteristics and local taste.

After discussing the peculiarities of the waterfront space in Suzhou city, the following paragraphs will focus on the specificities of the change in functions of these crucial areas of the city. By analyzing some revitalization projects in different parts of the city, the new face given to waterfront space in Suzhou will be outlined. In addition, some critical issues related to the social and cultural sustainability of the projects will be identified.

3.4 REDISCOVERY OF SUZHOU'S HISTORICAL WATERFRONT: PINGJIANG DISTRICT AND SHANTANG STREET

This paragraph will predominantly address the rediscovery of Suzhou's historical waterfront space in terms of heritage protection and for the development of the tourism industry. As seen above, the revitalization of urban waterfront centers upon the need to find new functions for these heavily neglected areas of the city. While in modern industrial port cities these areas were previously devoted to industry and logistics, waterfront space in Suzhou was characterized by traditional preindustrial activities, linked with trade and the transport of family-based manufactured goods such as silk. Since the use of waterfront space in the city dates back to several centuries, the portions of these areas alongside the inner-city canals that have been preserved offer a significant opportunity for the redevelopment of historical urban districts of the city, which become epitome of Suzhou's ancient "water culture". The undeniable heritage value of historical water streets in the ancient city has been identified as a potential resource for the development of a promising domestic and international tourism market (Ding, 2018), and this has promoted new efforts in the protection and preservation of these resources (Suzhou City Master Plan 2011-2020).

In terms of heritage conservation, Breitung and Lu (2017) notice that, as the water network in Suzhou is the result of a lengthy evolution in terms of structure and uses in different periods, preservation efforts should employ a comprehensive approach, including traces belonging to different stages of development of the water grid. They underline that the conservation should remain open to different interpretations and serve both tourists and local residents, without focusing exclusively on Suzhou's golden age or on recent developments. According to their view, this is expressed by a renovation approach that considers "the inclusion of industrial heritage, different styles of arched and level bridges, and also traces of recent transformation" and "it would also imply openness to future developments of and around the waterways" (Breitung and Lu, 2017, p. 263). In order to enhance the variety of urban heritage features, preservation efforts should aim at representing the life of all ranges of people, including officials, as well as merchants and common folk, so to offer a wide range of options and to increase the diversity of the urban landscape.

As the epitome of oriental "water city", preservation efforts in Suzhou should be predominantly focused on the uniqueness of the urban water grid as a crucial component of the "historical water block". In particular, these efforts should be directed to preserving the integrity of the water

network and of remaining canals, whose physical and visual accessibility should be enhanced, while at the same time promoting variation in appearance and meanings attributed to them. The spatial proportions of the historical waterfront landscape should be preserved, paying particular attention to the juxtaposition of canals, streets and buildings, and to the combination of different styles of bridges, docks and banks (Breitung and Lu, 2017).

Furthermore, Breitung and Lu (2017) argue for the comprehensive recognition of the whole water grid as a target of conservation, while, according to their results, preservation efforts are currently converging on a limited number of projects, such as those involving the areas surrounding Pingjiang Road and Shantang Street. These have been identified as tourism development zones and have subsequently received much attention from local authorities.

Following the modernization and opening of Chinese economy and society in recent years, China has experienced a significant prosperity in terms of tourism development. As a proof, Ding (2018) found that in 2015 China became the fourth largest country in the world for international visitors. According to Shen and Xu (2018), historical and cultural cities in the country have become important destinations for cultural tourism, as they reflect the value of traditional culture. In this sense, historical districts of Chinese cities have been experiencing a tourism revival, which promotes their integration as organic components of the urban fabric. They further argue that tourism development has become a driver for the revitalization of historical blocks in Chinese historical cities, such as Suzhou.

By studying the revitalization projects involving two ancient districts of Suzhou, namely the areas around the famous Pingjiang Road and Shantang Street, this paragraph attempts to offer a panoramic view on the tourism-based revaluation of the city's historical waterfront space.

3.4.1 Renovation of Pingjiang Historic District

The Pingjiang Historic District (*Pingjiang lishi jiequ* 平江历史街区), located in the eastern-central part of the ancient city of Suzhou, is delimited by the city's outer moat in the east, Lindun Road in the west, Ganjiang Road in the south, and Baita East Road in the north, covering an area of approximately 116.5 hectares (Shen and Xu, 2018; Xinhuanet, 2017), with Pingjiang Road measuring 1.1 km in length (Wang et al., 2015). The district was designated as an absolute protected area in the "Suzhou City Master Plan" approved by the State Council in 1986, as it was already identified as the better-preserved area in the ancient city (Shen and Xu, 2018). The core value of Pingjiang District

lies in the conservation of a rich historical and cultural landscape, expressed by the centuries-old double chessboard pattern of parallel canals and streets, lined with white-walled houses and crossed by traditional bridges. This urban landscape represents the epitome of Suzhou ancient city and it remains basically consistent with that carved in *Pingjiang tu*, the earliest map of the city, which dates back to the Song dynasty (Xinhuanet, 2017). The area, rich in historical and cultural relics, is a key site for the preservation of both the intangible and tangible heritage of Suzhou and represents a typical example of the renovation and tourism development of historical blocks in China (Shen and Xu, 2018).

In their analysis, Shen and Xu (2018) investigate the evolution of tourism development of Suzhou Pingjiang Historic District from 1995 to 2013, identifying four tourism development stages: exploration, renovation, preliminary tourism development and further tourism development. They argue that these phases are clearly delimited by some important events, which marked the revitalization of the area.

The renovation project was launched in 2002, when the *Suzhou gucheng Suzhou Pingjiang lishi wenhua jiequ baohu zhengzhi guihua* 苏州古城苏州平江历史文化街区保护整治规划 (Plan for the Protection and Renovation of Suzhou Pingjiang Historic and Cultural District of Suzhou Ancient City) was approved by local authorities in order to welcome the 28th World Heritage Conference that was to be held in the city. In the same year, Suzhou University completed the project named *Suzhou Pingjiang lishi jiequ luyou cehua* 苏州平江历史街区旅游策划 (Suzhou Pingjiang Historic District Tourism Planning), which promoted tourism development in the area. In 2005, Pingjiang Historic District became the only award-winning historical district renovation project of that year, since it was awarded the *Yatai diqu wenhua yichan baohu jiang* 亚太地区文化遗产保护奖 (Asia-Pacific Cultural Heritage Protection Award) by UNESCO, reflecting the initial success and expanding influence of the renovation project. Four years later, in 2009, Pingjiang Historic District was selected as one of the top ten historical and cultural streets in China (Wang et al., 2015). In the same year, it was awarded a prize for the outstanding contribution in the protection of traditional architecture (*Zhongguo minzu jianzhu baohu jiechu gongxian jiang* 中国民族建筑保护杰出贡献奖) and in 2010, it was recognized the title of national 4A-level scenic spot (Shen and Xu, 2018). In the following years the renovation project involving Pingjiang district has kept on receiving praise and awards by the municipal and national government for its approach to heritage protection and tourism development in Suzhou ancient city (Xinhuanet, 2017).

According to the study by Shen and Xu (2018), in the first tourism development phase of Pingjiang Historic District, namely the “exploration” phase before 2001, the focus was on the need to balance the relationship between heritage protection and urban development, demonstrating the rising awareness on the unique features and valuable cultural heritage resources of the area. However, the approach to the protection and utilization of such resources remained relatively vague.

Shen and Xu (2018) identify in the second stage of development, namely the “renovation” phase occurred in the years from 2002 to 2005, a real turning point in the revitalization of the area. This period was marked by the formulation of a series of plans for the development of the area: besides those already mentioned above, the *Suzhou Pingjiang lu jiejing baohu zhengzhi guihua* 苏州平江路街景保护整治规划 (Suzhou Pingjiang Road Streetscape Protection and Renovation Plan) and the *Pingjiang lu fengmao baohu yu huanjing zhengzhi guihua* 平江路风貌保护与环境整治规划 (Pingjiang Road Landscape Protection and Environmental Restoration Plan) contributed to guiding the practice of preservation and development of this urban landmark in Suzhou. The opportunity to provide the city with great visibility and publicity offered by the 28th World Heritage Conference, held in June 2002 in Suzhou, drove local authorities to increase their efforts in the revitalization of Pingjiang Historic District. At the time, the Suzhou Municipal Party Committee and the Municipal Government identified in the “Pingjiang Road Landscape Protection and Environmental Restoration Plan” the leading pilot project for the renovation of the district. In addition, *Suzhou Pingjiang lishi jiequ baohu zhengzhi youxian zeren gongsi* 苏州平江历史街区保护整治有限责任公司 (Suzhou Pingjiang Historic District Protection and Renovation Corporation, Ltd.) was jointly established in December 2002 by *Suzhou shi cheng tou gongsi* 苏州市城投公司 (Suzhou City Investment Corporation) and *Pingjiang qu guozi gongsi* 平江区国资公司 (Pingjiang District State-owned Corporation) and it took over the responsibility for the implementation of the renovation project. According to Xinhuanet (2017) the company's main functions include: the repair of old buildings, renovation and construction works, the management of the street environment, the development and design of tourism projects, promotion and publicity. Finally, Professor Ruan Yisan (阮仪三), a nationally renowned expert in urban protection, was invited to lead the overall protection and environmental remediation plan as a supervisor (Shen and Xu, 2018).

In late 2002 the company identified Pingjiang Road as the crucial focus of the protection and environmental remediation project in the district. The implementation of the project allowed the ancient buildings in the district to maintain their unique architectural characteristics and it granted the possibility for nearly 8,000 households to remain to dwell in the district, thus preserving their original daily habits and way of life. In order to provide for the needs of residents and tourists, the infrastructures and ecological environment have been greatly optimized, and the traditional white-walled houses and waterways have been restored (Xinhuanet, 2017).

The comprehensive objectives of the renovation phase are described by Shen and Xu (2018) as aimed first of all at improving the living conditions of residents in the neighborhood. The renovation plan was formulated after a careful investigation of the conditions in the area, following the principles of protection, renovation and refined scientific techniques and it identified “activation” (*jihuo* 激活) as its key word. In accordance with the requirements of historical blocks and historical buildings protection and remediation, the renovation works included the conservation of cultural relics, the restructuring of residential courtyards, the repairing of damaged pavements, the renovation of docks and banks, the cleaning of canal courses, landscape greening, as well as the modernization of the power grid and of fire protection facilities, the renovation of sanitation facilities, pipelines and sewage pipes, and of street lighting (Xinhuanet, 2017). Through the improvement of basic infrastructures in the area, the project was intended to meet the needs of modern people’s comfortable living, without compromising the integrity of Pingjiang District historical features, expressed by the ancient double chessboard pattern of parallel streets and canals, the traditional bridges and houses with white walls and tiled roofs. These landscape features reflect the cultural specificities of the city and enhance the sense of authenticity, becoming some of the favorite places for tourists to take photos (Wang et al., 2015).

The project also aimed at preserving and renovating the considerable number of heritage buildings located along Pingjiang Road, 59 according to a study by Wang et al. (2015). Xinhuanet (2017) lists a series of old houses and buildings now turned into hotels, museums or galleries, which demonstrate the approach to classic heritage protection and repair in Pingjiang Historic District, including Pingjiang Lodge (*Pingjiang kezhan* 平江客栈), Ding Zhai (丁宅, transformed in a modern art gallery, Wang Xiaohui Art Hall), the Former residence of Pan Zuyin (*Pan Zuyin guju* 潘祖荫故居) and the Former residence of Pan Shi’en (*Pan Shi’en guju* 潘世恩故居).

However, Shen and Xu (2014) argue that the revitalization project of Pingjiang District did not regard the area as an open-air museum, whose development requires the relocation of residents, but it was rather based on the intention to retain local dwellers in the district. The renovation was intended to ensure that a certain number of local residents remain to dwell in the area, so to enhance the livable atmosphere of the historical district, thus providing tourists with the opportunity to interact with local people and experience the local way of life. As an example, Wang et al. (2015) reported a total of 41 resident homes along the arterial Pingjiang Road.

Through Shen and Xu's (2014) study of newspaper reports on Pingjiang District, the authors identified testimonies of a strong living atmosphere of the neighborhood, which enhances a sense of community: they found that these reports cover all aspects of street life, from mutual help and assistance to occasional frictions and complaints among neighbors, demonstrating the authenticity of the life in the district. They further underline how this model attracted the attention of officials and experts, whose numerous visits were reported in local news. As an example, during his visit in May 2004, Mr. Francesco Bandarin, Director of the World Heritage Center, expressed his support for the application of the ancient city of Suzhou to be recognized as a World Heritage Site. Even if, up to date, only the classical gardens of Suzhou, and not the ancient city in its whole, have been included in the World Heritage List, the preparatory work for the application laid the foundation for tourism development of Pingjiang Historic District in the following years. Notwithstanding the application failure, the 2005 award by UNESCO indicates that the previous renovation project had positive results, in line with the principles of cultural heritage protection.

To conclude the discussion of the renovation phase of Pingjiang district, Shen and Xu (2018) highlight the increased attention given to environmental remediation in this period, as environmental protection activities and campaigns became widespread.

The third and fourth stages of tourism development in Pingjiang Historic District, respectively from 2006 to 2009 and from 2010 to 2013, were dominated by tourism promotion activities and cultural revival (Shen and Xu, 2018). The "preliminary tourism development" phase was predominantly centered upon the establishment of basic tourism products and facilities, such as places for staying, dining, sightseeing and shopping, whereas the fourth phase dealt with the improvement, innovation and integration of tourism products with the surrounding resources.

In terms of cultural development and rediscovery, these phases saw the development of the Suzhou Museum of Opera and Theatre and the Suzhou Pingtan Museum, as well as the revival of folk activities and craftsmanship, such as traditional silk embroidery or carving (Shen and Xu, 2018).

According to Xinhuanet (2017), in the protection and renovation project of Pingjiang Historic District, nearly 30,000 square meters of traditional buildings along Pingjiang Road were repaired. These buildings were given new functions in order to promote the development of modern consumption and to rejuvenate the local economy. Wang et al. (2015) discuss the redevelopment of historical buildings along Pingjiang Road, noticing how many of the old structures were reconfigured and found new functions as leisure attractions for tourists. These include Ming Tang, which became a coffee shop; Zhu Yuan guild hall, turned into a craft shop; Li Geng Hall, transformed into a club and other structures turned either into restaurants or modern hotels. According to their results, the large majority of tourists supports the revitalization of historical architecture, through the creative reinterpretation of the functions it serves, demonstrating that the transformation of heritage buildings into modern consumption spaces can meet the demand of visitors while at the same time preserving the local historical remnants. It is further underlined how this approach to heritage protection is favorable for enhancing the tourism experience in Suzhou, as it goes beyond the sterile protection of architectural features, offering new opportunities for the development and modern enjoyment of cultural spaces (Wang et al., 2015).



Figure 2: Current view of Pingjiang Road. Source: photograph by the author, 2018.

Without forgetting the responsibility of urban cultural heritage protection, Suzhou Pingjiang Historic District Protection and Renovation Corporation seeks to establish a commercial model based on high-end goods stores, in order to create a refined shopping atmosphere. Through the establishment of more than 100 commercial activities in the neighborhood, providing food, housing, travel, tourism, shopping, entertainment and other services, a successful combination between tradition and modern living is achieved, showcasing the harmony between nostalgic feelings, romantic atmospheres and comfort (Xinhuanet, 2017).

The spatial organization of streets and alleys has been preserved in order to enhance the sightseeing and consumption experience of visitors, who find themselves surrounded by the unique landscape, walking along the canals while experiencing daily life scenes in the alleys with small family shops departing from the main street (Wang et al., 2015). This creates the condition for tourists to lose themselves in the nostalgic experience of the historical ambience. In addition, the district holds cultural festivals every year, such as the *Pingjiang shai shu jie* 平江晒书节 (Pingjiang Sun Book Festival) and the *Qixi wenhua fengqing jie* 七夕文化风情节 (Qixi Cultural Festival), which contribute to reinforce the distinctive appeal and cultural connotation of Pingjiang Historic District. These serve

to communicate the local traditional culture to visitors and to meet their demand for cultural authenticity by integrating non-material culture into the tourism experience (Wang et al., 2015).

The expression of traditional local culture, represented by arts and crafts as well as folk activities and festivals, shows a significant degree of diversification and it is creatively combined with modern consumption and atmosphere. Wang et al. (2015) argue that Pingjiang Road presents an innovative integration of modern and traditional culture, becoming a linking point with the past, while providing the opportunity for a personalized and original interpretation of space.

Thanks to its unique and elegant environment, which allows visitors to experience a traditional but at the same fashion slow life, Pingjiang Road attracts about 4 million tourists every year (Xinhuanet, 2017). In addition, tourists were found to appreciate the spatial configuration, atmosphere and landscape in Pingjiang Road, since it effectively communicates the local identity and features a unique personality (Wang et al., 2015).

In terms of waterfront space display and exploitation, Wang et al. (2015) found that rest and leisure space has been arranged along Pingjiang Road so that visitors have visual access to both canal banks while enjoying the landscape. Stone benches and tables under the shade of trees located along the waterways offer a great perspective on the urban scenery and have become a preferred site for visitors to spend their leisure time in the district and to perceive the local atmosphere of an ancient city on water. By preserving the proportions and featuring a rhythmical succession of streets, canals and resident homes, the design of landscape in the district attempts to go beyond functionalism and satisfy people's desire for a deeper psychological experience. Wang et al. (2015) discuss how the resulting layout of space, characterized by a significant degree of variation, reveals the value of the historical relationship between society and water in this urban context, further enhancing tourists' appreciation of the landscape. This is expression of Suzhou's historical sceneries, characterized by the integration of natural and artificial elements and commonly referred to as “小桥、流水、人家” (*xiaoqiao, liushui, renjia*), which stands for a combination of small traditional bridges, flowing water and homes (Ding, 2008). Tourists have been found to value the opportunity offered by such a spatial arrangement to be in contact with water, to enjoy the sight of living scenes along the canals and the dynamic interactions of local people with water on piers, wharfs and banks. In particular, the daily life of residents, and the opportunity to witness how they still maintain some of the traditional uses of water reflect their profound connection with the waterfront environment, expressed through their gestures, conversations and behaviors (Wang et al., 2015). As in-depth experience of the local

culture is greatly valued by tourists, Wang et al. (2015) identified a successful “humanization” and “life orientation” approach adopted in Pingjiang district to allow the participation of visitors in the social and cultural life of the historical water street. As an example, traditional boat tours accompanied by boatmen’s songs are offered along Pingjiang Road, providing tourists with a unique perception of the landscape.

Shen and Xu (2018) further underline the significant role played by urban tourism marketing in the tourism development phases of Pingjiang District, highlighting how the preservation of authenticity expressed by local features and characteristics can become a differentiating point which can enhance the promotion of Suzhou city in an increasingly competitive tourism market. A diversification of tourism products, based on the revival of local culture and folk activities, combined with the livability of the urban neighborhood is the key element for a successful revitalization of tourism in historical waterfront areas of Suzhou (Gu, 2006).

As reported by Xinhuanet (2017), in recent years, Suzhou Pingjiang Historic District Protection and Renovation Corporation has been carrying out brand promotion and scenic area operation management around Pingjiang district, establishing the value of “Pingjiang Road” as a brand through the combination of the company’s future development orientation and innovative ideas. These promotional activities feature the recognition of the unique urban landscape and resources of Pingjiang Historic District and their integration in the traditional regional culture embedded in local people. By organizing characteristic thematic activities on a regular basis, the aim of the company is to establish the brand image of Pingjiang Road as a place for cultural discovery and leisure and to attract educated domestic and foreign visitors. In order for the campaigns to be effective, digital media, such as the Pingjiang Road official website, WeChat and Weibo are employed to ensure the spread of publicity and of Pingjiang Road brand. This also impacts on the economic development of the area, since relatively wealthy consumers are attracted to visit the district, which create an increasing demand for high-end commercial and leisure activities.

According to Xinhuanet (2017), in three to five years, the plan for the protection and renovation of Pingjiang Historic District has achieved the following goals:

- The efforts for the protection and revitalization of the ancient city have been integrated, through the renovation of historical and cultural blocks and the continuous development of public facilities, ancient buildings and historical relics are being interconnected.

- The environmental outlook has improved significantly, thanks to the construction of infrastructures and the intensification of urban management efforts. Through the restoration of an appealing environment, a more reasonable regulation of traffic and the improvement of public facilities, the livability of the area has been constantly increasing, positively affecting people's satisfaction, including local residents and tourists.
- The integration of cultural tourism with the local economy has been continuously enhanced. Through guidance and control, businesses that do not conform to the ambience of the ancient city are being relocated, so to ensure the complementarity of commercial activities for the economic and social benefits of the neighborhood.

In addition, the maturity of the pilot project is underlined, which can be considered as the basis for a set of replicable and popularized models in terms of responsibilities, implementation, capital investment, policies and regulations and operation management for the protection of other areas of the ancient city.

Shen and Xu (2018) argue that tourism development in historic districts is a gradual process and that it often clashes with the needs of heritage protection. However, they consider the renovation project of Pingjiang Historic District as a positive example of the combination between preservation and tourism development, since traditional local architectural features, culture and traditions have been paid much attention, while at the same time pursuing the economic benefits of tourism. They identify the project as a relatively recognized historical tourism development case domestically and abroad, which can provide reference for the development of other relevant tourism historical blocks in China.

However, notwithstanding the recognition of Pingjiang Road as a praised example of urban preservation in Suzhou, since it achieved a wonderful and authentic combination of waterways, alleys and buildings, Breitung and Lu (2017) believe that it would not be wise for maintaining a diverse urban landscape to replicate a standardized approach in other areas of the city, as the differences embedded in the functions served by different waterfront spaces, resulting also from the social status of local residents and the activities they were engaged in, should remain visible and perceivable by tourists as well as current residents.

In addition, they argue that preservation efforts should also consider giving new functions to the canals

[...] in order to sustain the liveliness of the canals and to continue their co-evolution with the city. This puts the spotlight on tourism, but the canals can also continue to be essential parts of local people's lives. Provided the water is clean and pleasant, it increases the value of adjacent residential properties. People like to sit, walk and play by the water. Floating restaurants and teahouses and floating stages for performances could serve local people and tourists. (Breitung and Lu, 2017, p. 263)

In order to effectively promote the use of Suzhou's water grid as a tourism resource, Breitung and Lu (2017) suggest the opportunity to further develop the potentiality of the canals as a tourism product, in terms of sightseeing and transportation. They consider the water grid as an attraction per se, while also providing physical and visual connection to points of interest in the city, however, they also argue that, up to date, Suzhou has not been fully exploiting its tourism potential as a city on water. The proposal to re-open the north-south canals in Suzhou's central area and to connect them to the water grid for tourism purposes is included in the "Historical City Conservation Plan of Suzhou" (2013–2025) and is a first step towards the combination of cultural tourism and consumption (Breitung and Lu, 2017). By promoting boat tours in the ancient city, the water grid can be re-integrated in the transport network of Suzhou, linking it again with street circulation and providing tourists with a different perspective on the urban landscape. According to Breitung and Lu (2017), the unusual visual perspective offered by a boat tour is conducive to enhance the local "sense of place and sense of history", as it allows visitors to experience the local traditional lifestyle with the opening of a nostalgic window on the city's past. Furthermore, by offering a parallel and suggestive circulation option to the numerous visitors, Suzhou's water grid can at least partially alleviate roadside congestion by separating sightseeing tours from local traffic, thus reducing conflicts with local residents who often need to find their way in narrow alleys packed with tourists.

This paragraph offered an overview of the revitalization plan involving Pingjiang Historic District in Suzhou, focusing on the strategies adopted for the preservation of local heritage combined with the needs of tourism development in the area. It has been discussed how the project was successful in integrating heritage and environmental protection with economic rejuvenation through the reinterpretation of the functions of historical waterfront space. The resulting livable urban environment has been ensured thanks to the preservation of local cultural features and to the

retention of local residents, who dynamically interact with space in their daily lives, thus avoiding the homogenization and standardization of reused historical space. Wang et al. (2015), underline the postmodern approach adopted for the renovation of Pingjiang Road, showing how the integration of the waterfront historical landscape with local culture and the modern commercial atmosphere is effective for the creation of a unique identity.

The next section is dedicated to another famous example of historical water street revitalization in Suzhou, which, however, did not achieve the same recognition and success.

3.4.2 Spatial Configuration of Shantang Street

Shantang Street (*Shantang jie* 山塘街) is located in the northwest part of the ancient city of Suzhou and it measures 0.36 km in length. The street is about 1100 years old and it was recognized as one of the historical and cultural streets of China in 2010 (Wang et al., 2015). Shantang Street is another example of ancient water street in Suzhou, as it extends along a canal belonging to the city's characteristic water network. However, as it will be argued, the identification of the site as a tourism attraction and the development of a consumption environment in the area are not yet well integrated with the revaluation of urban waterfront space, as it happens, on the other hand, in the most famous Pingjiang District. Even though Shantang Street and Pingjiang Road are similar with respect to position, historical background, features and reputation, they differ in terms of their approach to historical waterfront street revitalization and they present dissimilar patterns in the distribution of commercial, leisure and cultural activities.

The study by Wang et al. (2015) provides detailed information on the spatial configuration of Shantang Street, through the analysis of data from a field survey conducted in 2014 on the arrangement of 135 retail shops and 8 residential buildings along the street. In their analysis, it is underlined how a significant number of heritage buildings, namely 36, characterizes the street environment. However, only three of these historical structures in Shantang Street have been renovated and reconfigured in order to serve new functions, including the Silk Village, which has been transformed into a silk store; Gang Zhou guildhall, which has been turned into a hotel; and, finally, the An Tai Fire Station, which has found new life after being converted into a museum. In comparison with the greater number and variety of structures that have been revitalized in Pingjiang Road, Shantang Street shows a less mature approach to the reinterpretation of the historical waterfront. Variation in the street landscape is limited, thus affecting the opportunities for tourists

to enjoy the authenticity of Suzhou life. As an example, Shantang Street presents only one alley endowed with family shops, while Pingjiang Road offers more opportunities to enjoy contact with local people through interactions in their little shops. In addition, the display of folk arts and crafts at Shantang Street is not well integrated with the street environment: traditional performances and exhibitions remain segregated in “folk points” in proximity of the entrances to the touristic area or are scattered along the street. Often the owners of these stalls are not locals and they offer organized stage performances, affecting the authenticity of the tourism experience.

In terms of cultural space, Wang et al. (2015) notice how craft shops are prevalent along Shantang Street, accounting for about 46% of the area and causing monotony in the visual and spatial perception of the street. The limited variation in the items sold (mainly silk embroideries, pearls and pottery) and in their display affects visitors’ appreciation of the local culture expressed by traditional crafts. In order to avoid this effect and promote the recognition of Suzhou’s traditional culture, Wang et al. (2015) suggest a spatial organization based on the combination of traditional and modern elements and on the ability to express the inheritance of traditional culture by means of the opportunities offered by the vitality of modern culture. In contrast, Shantang Street presents a prevalence of elements referring to traditional local culture, such as historical buildings, museums and craft exhibitions, “decorated with lanterns, silk banners and traditional fonts highlighting heritage protection and traditional sightseeing functions” (Wang et al., 2015, p. 379), while being poor in modern leisure facilities. In comparison with Pingjiang Road, Shantang Street offers only very basic tourism facilities, and as argued by Wang et al. (2015), leisure, shopping and dining functions should be improved in order to meet the needs of modern visitors’ and enhance their experience. As an example, rest and leisure spaces along the street for visitors are inadequate and often lack visual accessibility to the canal, failing to give value to proximity to water and to promote tourists’ appreciation of the surrounding environment.

According to Wang et al., (2015), the lack of sightseeing facilities and of adequate space for the enjoyment of the peculiar water landscape causes visitors to gather on the only two ancient bridges existing in Shantang Street, which results in a potentially unsatisfactory tourism experience. This is due to the relatively poor design of the landscape in the area, which could be significantly improved in order to provide a more various mixture of walkways, canals and buildings for the revaluation of Shantang Street’s potential to offer a complete tourism and living experience.

The main problem that differentiates Shantang Street with Pingjiang Road is the separation of the canal from the street, lined by shops on both sides, which prevent visitors from enjoying the view of the canal while walking along the street. By limiting tourists' accessibility to water, such a street design is not conducive to the promotion of Suzhou's "water culture". The heavy presence of shops along the street further precludes the sight of dwellings, limiting the opportunity of visitors to come into contact with local residents' daily life. Wang et al. (2015) argue that

the aesthetic appreciation of daily life has become an important index for evaluating the construction of landscape space in postmodern societies. When pursuing the return of personality and nature, the display of characteristic landscapes and everyday life through landscape composition, waterfront/life scene landscapes and building façades has become a critical tool in the construction of landscape space. First, it is important to take advantage of a diversified combination of landscape elements to enrich the visual and living experience of visitors. Second, one must recognize and protect characteristic landscape and life elements and then apply "humanization", "experience" and "life orientation" development strategies to meet tourists' needs for in-depth experiences of street landscapes. Third, it is critical to demonstrate street personality that integrates traditionalism and modernism through the "refinement" of building façades. Using these strategies, one can create a unique space image with features and conceptions of historical streets and construct a symbol of landscape space that breaks through the bottleneck of homogenization and realizes the "characteristics" of the historical street. (p. 381)

In addition, sightseeing services for visitors are only offered by means of motorized boats, which affect the uniqueness of the traditional waterfront environment and consequently the quality of the tours. In their analysis, Wang et al. (2015, p. 381) conclude that the "the unique spatial landscape of waterfront land has not played its proper role in this historical street".

In summary, the above-mentioned article analyzes the perception of culture, leisure and landscape space from the point of view of tourists, who in general were found to show a marked preference for the spatial organization of Pingjiang Road, rather than that of Shantang Street. Wang et al. (2015) found significant differences in visitors' evaluation of the two sites, coming to the conclusion that the approach adopted in Pingjiang Road was more successful in meeting the tastes and expectations of tourists. This was possible thanks to the construction of a unique personality in the revitalization of the area, which combines local culture in terms of heritage protection and landscape preservation, with the needs of contemporary society, without replicating standardized development models. Standardization and the prevalence of consumption activities in the revitalization of historical

streets can constitute an obstacle to the development of a lively urban environment. Therefore, Wang et al. (2015) support a new postmodern approach for the rediscovery of traditional urban districts, which gives increasing attention to diversification and local identity, while crafting a space tailored to the diverse demands of contemporary people. Through the integration of traditional and modern culture with the local environment and leisure space, this approach promotes the creation of a unique “place identity”, which is experienced and interpreted by visitors and residents, and which can acquire new meanings and interpretations depending on the different points of view.

This paragraph provided a brief discussion of the spatial organization of Shantang Street and a comparison with the revitalization project of Pingjiang Historic District analyzed above. By summarizing the findings of Wang et al. (2015), the tourism orientation of Shantang Street has been discussed. At the same time, the shortcomings of the approach adopted in the revitalization of such a historical area of Suzhou ancient city have been underlined, showing that there is much space for improvement, especially in the integration of waterfront environment in the streetscape.

After discussing the revitalization efforts in Suzhou’s historical waterfront districts, the following paragraph focuses on the other side of waterfront redevelopment in the city. Through the study of the evolution of Jinji Lake waterfront space, it will be shown how certain areas of Suzhou’s waterfront are being given new functions, especially in terms of the development of the tertiary sector, showing a development direction similar to that of modern industrial cities.

3.5 INNOVATION OF SUZHOU’S WATERFRONT SPACE ALONG JINJI LAKE

Jinji Lake (*Jinji hu* 金鸡湖) is a fresh water lake located east of the ancient city of Suzhou. It covers an area of 7.4 km² and its average depth is approximately 2.5 to 3 meters (<http://jinjilake.sipac.gov.cn>). The lake is located in the heart of the industrial and innovation district known as Suzhou Industrial Park (SIP). This district was developed beginning in 1994 thanks to the cooperation between the Chinese central government and a Singaporean consortium, which offered a significant contribution in terms of financial investments and know-how (Curien, 2014). The area witnessed a rapid development during the 2000s, reaching an extension of 288 km² and hosting about 8 hundred thousand residents and ten thousand enterprises in 2014, according to Curien. However, being a renowned example in China in terms of integration among economic growth, urban design and environmental protection, Curien (2014) underlines the control and

stability that characterized the development of the industrial district, in which great attention is devoted to environmental sustainability.

Jinji Lake area began to attract the attention of local officials and developers since the beginning of the construction of SIP in 1994 in collaboration with Singapore, when the waterfront space along the shores of the lake was identified as the subject of innovative economic and residential development (Hou, 2009). According to Hou (2009), the waterfront landscape along Jinji Lake soon began to be considered a resource for the showcase of the sustainable development of SIP. The construction of an urban environment on the shores of the lake followed the principle of harmony, as it was planned to enhance the aesthetic value of the landscape and to make waterfront space attractive for citizens and tourists, while also considering the ecological environment and quality of life of residents. The waterfront space represents the area of integration between water and land, therefore it is key to consider water in the design of space and in landscape architecture in order to let waterfront express its full potential in terms of economic and real estate development, as well as in the sustainable approach to landscape and ecosystem services. The integration of water in the design of the waterfront space was possible thanks to the remediation of water quality of the lake, previously highly polluted (Dunn and Jamieson, 2011).

Waterfront areas present a combination of natural, artificial and cultural landscape, whose expression is various and should be integrated in order to promote the creation of a sustainable waterfront society. Hou (2009) underlines that public waterfront spaces in China are often identified as subject of large-scale planning for the commercial and touristic development of the areas. He argues that waterfront planning phase follows a number of principles identified in the consideration of the overall urban design of the city, the attention given to sustainable development, in terms of ecosystem, economic, social and cultural sustainability, and finally the need to create a diverse environment which features a combination of traditional and modern culture for enhancing the experience and interaction with water. In recent years, China has been increasingly devoting attention to the development and revitalization of waterfront areas in urban environments, as a consequence, urban waterfront space often is identified as a landmark of the city (Hou, 2009).

Similarly to the Lihu basin case, studied by Brombal et al. (2018), Jinji Lake area was previously devoted to fishing and agricultural use, however, following the joint intervention by the Chinese

government and Singapore, it has begun to witness the establishment of renowned international businesses (Dunn and Jamieson, 2011). As a consequence, real estate development has not been idle, in fact apartment buildings (some of which dedicated to hosting the displaced rural workers), cultural centers and leisure facilities soon started to sprout along the lake (Deitz, 2007). Dunn and Jamieson (2011) argue that the realization of 51 km² of green public waterfront space along the shores of Jinji Lake contributed to crafting a new image for the city. They underline how the award-winning project, which complements the ancient gardens in the old city, is a component of the city's strategy to build an image of Suzhou as an attractive site for foreign investments.

The plan for the design of Jinji Lake waterfront space was realized by the famous landscape architecture and urban design company EDAW, based in San Francisco and responsible for the planning of SIP (Hou, 2009). The firm initially approached the city of Suzhou in 1996, during a workshop held in the city by its president, Joseph E. Brown, who, together with EDAW's professionals, addressed local planners in order to promote the city's environmental restoration and water quality remediation, considering their potential effect on the revitalization of Suzhou's economy. In that occasion Mr. Brown was invited for the first time to express his opinion on the opportunities offered by the development of Jinji Lake in SIP (Deitz, 2007).

The project for the design and realization of Jinji Lake waterfront lasted approximately ten years, for a total investment of 47.7 million USD (Deitz, 2007). The area along the shores of the lake witnessed the establishment of local and international business, commercial areas, residential districts and landscape attractions. These include a walkway, measuring 9 miles in length, that surrounds the lake, which is intended to enhance the recreational and leisure value of the waterfront area (Dunn and Jamieson, 2011). As common in Chinese urban planning, the space along the shores of Jinji Lake is divided according to the various functions it was thought to serve. According to this division, Jinji Lake waterfront features plazas, promenades, residential areas, natural reserves, entertainment centers and two artificial islands (Hou, 2009).

Dunn and Jamieson (2011) describe the area surrounding the lake as featuring eight different neighborhoods characterized by a great landscape variation. Those in the northwestern part of the lake, in proximity with Suzhou city center, feature beautiful waterfront parks with broad promenades which draw residents and visitors to approach the water scenery. The parks are complemented by leisure attractions such as international shopping, entertainment and cultural

facilities. On the other side of the lake, the areas on the southern and eastern shores are dedicated to environmental education and other recreation activities.

In the restoration and development of Jinji Lake waterfront, the aesthetic and environmental significance of the lake were given outmost consideration, as underlined by Deitz (2007), hoping that this sustainable approach to landscape design would attract prominent businesses and be a driver of economic development. She argues that the parks and promenades surrounding Jinji Lake are aimed to express the beautiful and delicate water scenery provided by the lake shores. She metaphorically describes the strategy adopted by the firm as “a sort of fusion cuisine”, since it successfully blended contemporary design approaches with traditional Chinese landscaping in the realization of the lake waterfront development. EDAW’s landscape planners took inspiration from the design of the world-wide famous Chinese classical gardens in realizing a scenery which integrates natural and artificial elements while offering refined perspectives on the lake. According to an interview conducted by Deitz (2007), the project realized by EDAW’s architects aimed at introducing waterfront promenading for the development of a new approach to urban life by the water in the region.

Deitz (2007) describes Millennium Plaza, one of the accesses to the waterfront area, as a transition from urban constructed land to a seemingly natural environment: the communal space, decorated with granite concentric circles opens on a staircase leading to the shores of the lake. Here, planted trees and flowers decorate the scene providing a touch of color. The amphitheater of Harbor Plaza is described as a place of gathering especially during the musical fountain show in the weekends or for morning walking and taiji practicing. The nearby artificial forest and gardens offer a relaxing atmosphere and provide shade and resting space thanks to the modern pavilions reminiscing of traditional Chinese architecture.

Walkways along the shores of Jinji Lake were realized, while resting space and public lightning were designed for the exploitation of the recreational and leisure opportunities offered by waterfront space. The natural elements of the landscape are also given considerable attention, with trees and river rocks carefully placed in order to enhance the perception of authentic natural environment. To enhance visual and physical access to the water, viewing platforms protruding into the lake have been placed along the walkways.

As the lake is connected to the urban network of waterways which characterizes Suzhou ancient city, the linking canals have been dredged in order to improve water quality, and willows have been placed along the banks to provide a poetic scenery, reminiscent of Suzhou’s glorious past. As argued by Deitz (2007), the landscape design of Jinji Lake parks and promenades can be considered to rival Suzhou’s classical gardens in terms of attractiveness and as incisively expressed by David D. Jung, one of the architects who took part in the project, “proximity to water may mean money, but it also represents good *feng shui*” (Deitz, 2007).



Figure 3: Waterfront promenades along Jinji Lake. Source: photograph by the author, 2018.

Meng, Peng and You (2018) agree on the fact that the design of Jinji Lake waterfront space effectively integrates natural landscape with artificial elements like lighting or benches, thus expressing the unique charm of the proximity to water. They argue that public facilities in the area are designed in order to go beyond form and function, showing unique vitality and dynamism, which also represents the development trend of urban waterfront space planning and design. They further argue that the identification of Jinji Lake waterfront as an area full of potential for the positive expression of the city’s innovative image can be conducive to the promotion of the economic

development of the city and to the improvement of the comprehensive competitiveness of Suzhou city. At present, the urban waterfront space is predominantly dedicated to the function of social public space: this space is usually a multi-functional landscape, featuring a combination of leisure, entertainment, recreation, catering and cultural functions.

As epitome of Jinji Lake waterfront utilization, Jinji Lake Scenic Area, covering 11.5 km², is one of the principal open spaces in SIP and it was recognized the rank of 5A-level national tourism attraction. According to the official website (<http://jinjilake.sipac.gov.cn>), it is considered as the only “national business tourism demonstration zone” in the whole country. According to the official website of Jinji Lake Scenic Area, Jinji Lake is located at the center of a network of landmarks which constitute a park for the development of business and tourism in the eastern outskirts of Suzhou. The 8.953 billion RMB investment focuses around the identification of five functional areas, namely a cultural exhibition area, a fashion shopping area, a leisure and catering area, a city sightseeing area and a central waterside area. In the scenic area, numerous points of interest provide visitors with the opportunity to enjoy various leisure activities surrounded by a beautiful and evocative water landscape. These attractions include Asia’s largest ferris wheel on water, Li gong di, lakeside boulevards and piers, Taohua and Linglong Islands and Jinji Lake Bridge. Jinji Lake Scenic Area features a multi-functional agglomeration of spaces for holding conferences and exhibitions, restaurants, housing, travel and tourism facilities, shopping and entertainment spaces. The integration of multiple elements, in particular of service and tourism industries developed synergistically in the area. The innovative face given to Suzhou’s waterfront in Jinji Lake area complements and offers a new perspective on the ancient city on water, demonstrating its attractiveness to international businesses, as well as to domestic and international tourists.

However, in their article, Meng, Peng and You (2018) underline some issues involved in waterfront revitalization and development in Jinji Lake. In particular, the construction of urban spaces along the lake and the subsequent real estate development promoted by local government and developers has caused the emergence of the phenomenon of gentrification: the increase in real estate prices and in the value of properties resulting from waterfront space recovery and exploitation has attracted wealthy residents in the area, driving economically weaker indigenous dwellers to move to other lower-value spaces in the city. This leads to the risk of privatization of the publicly shared waterfront space.

They further address the public services offered by waterfront space, discussing how the natural landscape resources of such space are highly dependent on space development and utilization. If real estate development is not carried out in line with the principles of sustainability and in combination with landscape design, the impediment to visual and physical accessibility to the waterfront space caused by high-rise buildings, roads and squares can affect people's relationship with their environment. Therefore, they argue for an increased attention to public service facilities and to the integration of constructed urban environment with the waterfront landscape, in order to improve people's accessibility to the waterfront.

In terms of the safety features of waterfront space along Jinji Lake, the article by Meng, Peng and You (2018) underlines how waterfront space has the potential to offer an immersive experience, but it is also necessary to consider the security risks involved in proximity to water. In order to ensure personal safety, they express the necessity to set up some protective measures in waterfront public spaces, such as the safety signs describing the layout of safety featured in Jinji Lake Yuanrong Plaza. In addition, these measures must meet the flood control requirements, as it happens thanks to the construction of stepped embankments, which can not only ensure public safety, but they also enhance the aesthetic appearance of the waterfront space.

In short, Meng, Peng and You (2018) identify in the city's waterfront space one of its most valuable assets in terms of landscape appreciation and aesthetic appearance of the city's imagery. The rational utilization and development of waterfront space in Suzhou can enhance people's experience of the city's natural landscape, combined with a cultural and commercial atmosphere. The efforts made in the revitalization of urban waterfronts have also been conducive to the optimization of the overall ecological environment of the city. The rational integration of natural, economic, social environments will be promoted, reflecting the city's renewed attention and consideration of urban waterfront resources.

With the aim to provide a clearer idea of Suzhou city's approach to the supervision of Jinji Lake development, the objectives and management measures adopted in order to ensure the protection of Jinji Lake environment and consistent economic development are discussed below. Taking *Suzhou shi Jinji hu baohu guanli banfa* 苏州市金鸡湖保护管理办法 (Suzhou Jinji Lake Protection Management Measures) as a reference document, the efforts for environmental sustainability and rational construction management are underlined, showing how they aim to promote the

rediscovery of the comprehensive value of the lake, both in terms of its ecological environment, of residential and business development and of leisure and tourism attractions. In addition, the document clarifies the management responsibilities of various local government departments in terms of environmental protection, pollution control, regulation implementation and compliance.

The Measures for Suzhou Jinji Lake protection and management were approved in December 2009 by Suzhou's municipal government, in order to strengthen the management of Jinji Lake area, protect the water quality of Jinji Lake, maintain, improve the appearance of the regional environment, and promote the scientific and rational development and utilization of Jinji Lake's scenic resources. According to the Measures, the protection and management of Jinji Lake area follows the principles of overall consideration, scientific utilization, protection priority and coordinated development. The Suzhou Industrial Park Management Committee is identified as the responsible organism for the protection, supervision and management of Jinji Lake area. In compliance with the document, the administrative departments of city planning, construction, water affairs, transportation, environmental protection, industry and commerce, public security, and comprehensive law enforcement of the urban management committee shall, in accordance with their respective duties, contribute to the protection and management of the Jinji Lake area. All residents, visitors and work units are considered responsible for the protection of Jinji Lake area, while the park management committee shall reward those that have made outstanding contributions to the protection of the lake landscape and water environment.

The document severely prohibits the construction and expansion of buildings and structures that are not related to the landscape, flood control, and improvement of the water environment in Jinji Lake area. In addition, where construction works are carried out, the construction unit shall take necessary pollution prevention measures to avoid the contamination of the lake environment. In order to ensure the protection of the waterbody, the following acts are prohibited in Jinji Lake area:

1. reducing the area of the lake
2. affecting the water storage capacity of the lake and the safety of other facilities
3. damaging water quality
4. destroying the ecological environment of the lake.

In terms of environmental protection of Jinji Lake water and ecosystem, the Measures for Suzhou Jinji Lake protection and management establish the need to set up the necessary facilities for the prevention of external pollution, without compromising flood control safety. The environmental protection department is entitled to the implementation of unified supervision and management of water pollution prevention and control, and to carrying out research on countermeasures for pollution prevention such as eutrophication of water bodies, in order to formulate relevant systems for water pollution prevention and control, and finally to the establishment of a water quality monitoring system.

The document further addresses the construction of a sewage interception pipe network around the lake and the incorporation of such structure into the urban sewage treatment system and sanitation facilities. In addition, it forbids the establishment of heavily polluting facilities in proximity to the lake, so to avoid water contamination.

In order to provide for the conservation of a balanced ecosystem around the shores of the lake, the document regulates landscape design in terms of vegetation, as plants should comply with the requirements of waterbody protection and the landscape shall be rationally laid out and scientifically managed. The farming of aquatic animals that can cause damage to water quality and aquatic plants of Jinji Lake is severely forbidden, as it is the direct discharge of manufacturing and domestic sewage or dumping.

The construction and maintenance of public facilities in Jinji Lake area, including public wharfs, walkways, banks, dams, gates, informative signs, road signs, and safety warning signs is responsibility of the Jinji Lake area management department.

All kinds of tourist landscapes, water sports, catering and entertainment, vacation and leisure facilities that have been approved and set up shall be coordinated with the natural landscape and shall not affect the safety of flood control. In order to ensure people's personal safety, activities involving bathing, swimming and fishing in the lake are severely prohibited.

Finally, the document addresses the regulations for the circulation of boats and ships in the lake. The ships in Jinji Lake shall be neat and beautiful in appearance, coordinated with the water landscape, and they shall be kept in good condition. According to the actual needs and the actual bearing capacity of the waterbody, the number and density of boats in Jinji Lake have been given

reasonable limits, and the operators are determined according to the bidding method. Mobile ships shall use clean energy in accordance with national standards and encourage the use of power sources such as electricity, gas or solar energy.

Having addressed the revitalization of historical waterfront space in the previous sections, this paragraph attempted to provide an idea of another aspect of waterfront revaluation in Suzhou city, by describing the development efforts and plans involving the area surrounding Jinji Lake. The waterfront promenades and parks offer a beautiful framework to the business development in SIP, and it concentrates cultural, leisure and services which demonstrate the willingness to move towards a tertiarization of the economy. SIP is first of all an industrial district, however thanks to the establishment of cultural and education facilities, research centers and university branches, it is seeking to become a hub of innovation and of international partnerships in the region. Jinji Lake can then be considered as a potential landmark for the creation of a clear identity of SIP and of Suzhou in general as a city that finds its roots in ancient times, but that is at constantly striving to move to a more sustainable development model. The sustainable strategies adopted in Jinji Lake development can showcase the approach to economic and environmental management in the city, contributing to attract wealthy residents and prominent businesses for vitalizing the area. In addition, Jinji Lake waterfront can complement the tourism function identified in the revitalization of historical districts in the city center and create a diverse urban pattern that can enhance the variability of the urban landscape, while maintaining a clear link with water as a main theme. This approach can favorably contribute to the establishment of Suzhou's identity as a "water city".

The next chapter investigates the issues related to waterfront revitalization in Suzhou, underlining some negative aspects and risks involved in the redevelopment practices. It further discusses whether the rediscovery of the value of urban water can become the starting point for a deeper revaluation of local people's relationship with the water environment. Finally, it identifies the opportunity to implement a revitalization of waterfront space through the development of eco-tourism attractions.

CHAPTER 4

Issues of Suzhou's Waterfront Rediscovery and Eco-tourism Opportunities

4.1 CRITICAL ISSUES ON WATERFRONT REDISCOVERY: SOCIAL SUSTAINABILITY AND HERITAGE COMMODIFICATION

The previous chapter delineated the strategies adopted in waterfront revitalization projects in Suzhou through the analysis of three renowned examples of waterfront environments in different areas of the city, namely the historic districts of Pingjiang Road and Shantang Street and the area surrounding Jinji Lake in SIP. As it can be understood, such projects each present their specificities, strong points and weaknesses, but they certainly share the need to face some significant challenges. This chapter attempts to address these challenges in order to provide a clearer view of the complexities involved in waterfront revaluation projects in Suzhou. In conclusion, it offers a brief overview of the emergence of eco-tourism as a potential resource for the establishment of a renewed water culture in the region, which can be favorable to increase the public's awareness, knowledge and interest on water related issues.

4.1.1 Public Participation in Waterfront Revitalization Projects

In previous sections, different projects have been discussed for the rediscovery of waterfront space in Suzhou city and it can be easily noticed that the main inputs to the planning and management of these areas has been provided by local authorities and municipal government departments. Especially in the case of Jinji Lake, the realization of the project is also linked to the cooperation with private businesses, as the international firm EDAW. However, it can be underlined that the role of local residents as stakeholders in the waterfront redevelopment projects has not clearly emerged from this research. Seemingly, local inhabitants have been mainly considered as a vitalizing component of urban districts that would otherwise appear as empty and inhabited. These people assumed the function of providing a sense of authenticity of the urban landscape, becoming almost actors in a play directed by local officials and developers. This paragraph attempts to address the issue of the social sustainability of the projects discussed above, which indubitably contributed to the environmental remediation and economic flourishing of Suzhou's urban waterfronts, while arguably giving enough attention to public participation and local people's active involvement.

As mentioned in previous chapters, Suzhou is striving to become a hub of innovation and it is promoting sustainable development especially in the industrial district known as SIP. The need to enhance the city's image and to attract international businesses to invest in its economic development has driven to the construction of a so called "eco-city", considered as a banner of green capitalism in China. According to Caprotti (2014) this approach tends to consider cities as empty laboratories for the experimentation of urban solutions to sustainability challenges. While this strategy often results in the emergence of a series of problems in terms of rising inequalities, dispossessions and demolitions for the reconfiguration and upgrading of the urban form, they become marketing tools for the international promotion of a renewed attention given by Chinese cities to sustainability. These "total planning cities" (Caprotti, 2014) certainly provide residents with a safer and more pleasant environment to live in, but the increase in the value of real estate properties and the subsequent price rise means that only those who have the ability to pay for these benefits can enjoy the life in the "eco-city". On the other side, this limited consideration of the social dimension of sustainability implies that poorer residents are forced to relocate to lower valued urban outskirts, where they are prevented to benefit from the requalification of urban waterfront areas. In order to promote a comprehensive approach for the creation of a truly sustainable urban environment, Caprotti (2014) argues for the need to limit technocratic and depoliticized strategies of urban planning and to value grassroot participation, cooperation and local interests instead.

In terms of public participation in urban regeneration projects, Verdini (2015) discusses the influence of an emergent civil society and the interactions between horizontal groups and local authorities in China. According to his analysis, the role of public participation in the revitalization of historic districts is changing: when local stakeholders develop strong interactions, they tend to create "community-based neighbourhood organizations" (Verdini, 2015, p. 371) to support the safeguard of their interests. The author investigated three different cases of public participation in the implementation of urban redevelopment plans, one of which in Suzhou, and he underlines that digital media were of primary importance for the spread of awareness and for the development of a relatively active network of local stakeholders, motivated by active and educated local actors deeply embedded in the urban texture, identified in the local professional elite and in some eminent local families, who contributed to rise the attention of groups of local residents through online activism. Their reaction to an arguable urban remediation project initiated by the municipal government shows an increasing willingness to resist or oppose socially unsustainable urban plans.

However, the conservation of historic areas in China entails a number of complexities, linked to the common practice of demolitions and redevelopment, which ensures a source of income for local governments that is responsible for the management of land use rights and which leads to the creation of pro-growth coalitions, while disregarding the social sustainability of similar projects. Therefore, while social mobilization is increasing in the realms of urban redevelopment in China, the outcomes are highly dependent on the degree of interaction between the public and the local government, and in the case of Suzhou, the success of the online campaign in opposition to government-led redevelopment is difficult to be determined (Verdini, 2015).

Public participation is becoming increasingly important for the sustainable revitalization of urban environments and it can positively affect the social and environmental outcomes of such projects. According to Zhang (2009), the involvement of the public should be enhanced also in terms of environmental management: he argues for the establishment of a review system for the public approval of construction works, and states that an inclusive approach to water resources protection can improve people's awareness on environmental sustainability.

In order for waterfront revitalization in Suzhou to achieve positive results also in the social dimension of sustainability, a more inclusive and participative approach that considers the needs and interests of local inhabitants is necessary. As underlined by Brombal et al. (2018), in China there is significant room for the improvement of the social dimension of urban waterfront rehabilitation projects.

4.1.2 Heritage Conservation and Commodification

As seen in previous sections, the renovation of waterfront space in historic districts of Suzhou such as those surrounding Pingjiang Road and Shantang Street is heavily dependent on the development of the tourism sector of the economy. While in the case of Pingjiang Road the revitalization project was also planned to be catered to the needs of indigenous dwellers (Shen and Xu, 2014), the efforts to retain local residents in the renewed historical districts appear to be instrumental for the creation of a living environment perceived as authentic by tourists. The plan to redevelop historic waterfront districts into world-famous tourist attractions has undoubtedly brought many advantages to these areas of the city, especially in terms of environmental remediation efforts and heritage conservation projects. However, the instrumental approach to heritage preservation and the postmodern

reutilization of ancient buildings can, at times, be paired with potential risks with respect to the transmission of the traditional culture and local identity embedded in the urban form.

As argued by Breitung and Lu (2017), the perception of the city's identity by urban inhabitants is created through their daily interactions with the landscape, while tourists' vision is heavily affected by media, therefore being rarely accurate and causing them to perceive a lack of authenticity when their personal experience is in contrast with their stereotypical image of Suzhou. On the other hand, local residents' place image is composed of apparently insignificant details like textures, sounds, colors and smells, which become symbolic and contribute to form a deep attachment of people to their native environment. When these elements are affected by changes in the city's form, like those experienced by Suzhou's water grid, the collective perception of the urban image may be compromised, as many of these details are linked to water in some way (Breitung and Lu, 2017). The renovation efforts based on the willingness to communicate a standardized image of Suzhou, one that basically conforms with the marketing slogans with which the city is trying to brand itself, can certainly contribute to the development of a flourishing tourism sector, but at the same time imply the risk of adapting local characteristics to tourists' pre-conceptions and preferences. In these terms, the commodification of the heritage value of Suzhou's historical waterfront district is inherent in the preservation and redevelopment of these sites.

According to Xu and Sofield (2017), heritage preservation is a relatively recent practice in China, both in terms of culture and institutions. They state that, lacking a well-established conservation tradition, the demolition of ancient buildings to leave space for new structures has been a customary practice for hundreds of years. The development of domestic and international tourism since the implementation of reforms and opening has contributed to the emergence of a renewed awareness of the value of heritage and of the economic potential offered by the reutilization of historical structures. At the same time the tourism-based renovation of historical sites, like ancient buildings in Pingjiang Historic District or along Shantang Street, have provided these areas with new functions and economic support, while offering the opportunity for a rediscovery of the place identity and culture.

Xu and Sofield (2017) underline the significant role played by tourism development in the preservation of Suzhou's urban heritage, especially as far as the water grid is concerned. The remaining urban canals lost their main functions expressed by internal circulation of goods and

people but found new life as a tourist attraction and as a source of inspiration for the city's promotional campaigns. However, the reliance on tourism development for the maintenance of urban heritage value involves certain negative aspects, included heritage commodification and potential gentrification of areas that are currently experiencing top-down redevelopment. In addition, the emphasis attached on the aesthetic appearance of elements of the urban landscape and the focus on enhancing the attractiveness of waterfront historic space to the eyes of tourists can affect the genuine relationship of local residents with their environment. This can result in a loss of place identity and place attachment (Xu and Sofield, 2017) from local residents' point of view, which affects their sense of belonging and risks to isolate them from their connection with water, rather than enhancing their interactions with this fundamental component of Suzhou's urban form and culture.

To conclude this brief discussion on the issues involved in waterfront redevelopment, it is useful to point out that in Suzhou the process of rediscovery of the value of water is generally positive in terms of environmental and economic sustainability. However, it sometimes involves social problems connected with limited public participation, inequalities in the opportunity to enjoy the fruits of revitalization projects and marginalization of indigent groups. The focus on creating a high-end commercial and living environment catered to the need of wealthier groups is accompanied by the increasing awareness of the tourism value of waterfront leisure and recreational space. This follows the renovation and heritage conservation efforts intimately linked with tourism development, but which risk to provide a standardized sightseeing experience that meets the expectations of tourists instead of underlining local specificities and cultural uniqueness.

While much has been done in recent years for the reconciliation of the city's economic and ecological environment with its waterfront areas, the social and cultural dimensions of sustainability need to be further investigated in order to provide for a truly comprehensive strategy for the revitalization of these urban ecosystems. The following paragraphs attempt to provide some suggestions for a deeper rediscovery of Suzhou city relationship with water, by outlining some strategies for the revaluation of the regional water culture and for the promotion of eco-tourism. This latter may combine the benefits of tourism development with an increased awareness with regards to the ecological value of water.

4.2 WATERFRONT REHABILITATION FOR A NEW RELATIONSHIP WITH WATER

The rediscovery of Suzhou's waterfront space has been predominantly guided by the economic and residential revitalization of these areas of the city. This process has been heavily dependent on the development of the tourism industry and recreational businesses, for which proximity to water represents an increased attractiveness of the landscape and therefore a source of value for the tourism experience. In previous sections it was already discussed how tourism has both positive and negative implications in terms of waterfront rehabilitation in Suzhou, and in this paragraph, it will be argued that the city needs to focus more on the rediscovery of the deep linkages of its people with water. In recent years local authorities have been attempting to promote the "water city" brand for Suzhou, mainly aiming at positioning the city in the regional tourism market as the authentic city on water, featuring the characteristic water grid (Gu, 2006). However, these marketing approach to the creation of Suzhou's urban identity needs to be more deeply rooted in the city's "water culture", it should not only address the promotion of Suzhou as a tourism destination, but it should also aim at rising local people's awareness of the traditional uses and of the crucial importance of water for the development of Suzhou city, by underlining the humanistic connotation of urban watercourses (Gu, 2006). In the rediscovery of Suzhou's "water culture", the renovation and reutilization of waterfront space in the city may find a more definite development direction, becoming the symbol of a restored respect and emotional proximity to water.

The publication on May 12th 2017 of *Guanyu zuohao Suzhou shi shui wenhua yichan modi diaocha gongzuo de tongzhi* 关于做好苏州市水文化遗产摸底调查工作的通知 (Notice on the Investigation of the Water Culture Heritage in Suzhou) by Suzhou Water Resources Bureau demonstrates the willingness of the municipal authorities to strengthen the connections and cooperation between the water conservancy department and the cultural relics department for the comprehensive understanding of the quantity and distribution of the city's water culture heritage on the urban territory. The document underlines how the investigation is aimed at increasing the understanding of the importance of the study and research work on water culture heritage, including material and non-material heritage protection. These efforts reveal an increased attention and awareness in terms of the rediscovery of the significance of regional water culture and can be conducive to the establishment of a renewed relation between the city and water.

As argued by Ding (2018), the rediscovery of Suzhou's water culture can favor the further development of an already flourishing international tourism, by promoting the understanding of local culture and way of living and designing a unified theme for the establishment of a unique identity of Suzhou city. She argues that water is not only a material resource for people to use, but also a spiritual resource that participates in the landscape, gives people a sense of beauty, and affects people's emotions. By doing so, water interacts with people on a functional as well as on an emotional level, becoming an element that influences local development both in terms of economy and society. Ding (2018) defines water as "the soul" of Suzhou and the water network as "the lifeblood" of the city's past and present. According to her analysis, urban water can become the unifying theme for the integration of Suzhou's heritage, tourism resources, environmental protection and cultural connotations into the promotion of the uniqueness of Suzhou's identity. By maintaining the individuality of the original ecology of the city, local people may feel a renewed sense of belonging and pride, which can lead to a renewed consideration and respect for water and waterfront space. The slogan suggested by Gu (2006) demonstrates this sense of belonging, as it recites: "We are Suzhou, we are water lane people!" (*Women shi Suzhou, women shi shui xiang renjia!* "我们是苏州，我们是水巷人家!"). When tourists enter into contact with local residents, they can therefore become carriers of the economic, social and cultural significance of water for the city, showing their intimate linkage with this component of the urban landscape. Local residents can become embedded in the landscape imagery of ancient Suzhou's water streets and help visitors to form their environmental impression of the urban landscape by allowing them to experience the liveliness of the environment (Gu, 2006). In her analysis, Gu (2006) further addresses the need to protect and respect the interests of local residents in the revitalization of waterfront streets in Suzhou. She argues that an inclusive approach towards indigenous dwellers can become an opportunity to improve their awareness of environmental protection and enhance their sense of responsibility and mission for the preservation of the traditional water culture.

In order to promote the rediscovery of Suzhou city's urban connection with water, it is fundamental to ensure the vitality of waterfront space through the development of waterfront use and functions, in order for it to become again a crucial element in the urban texture. Nevertheless, the maintenance of the place personality and identity through the preservation of historical features and the combination of styles dating back to different periods is as important as the renewal efforts. At the same time, as a rare open space in high-density areas of the city, waterfront space offers the

opportunity to integrate the traditional water network for the construction of a green ecological pattern with waterfront green space as its core. The greening of such urban areas can enhance the ecosystem value of the landscape by allowing the whole city to benefit from the ecological and recreational resources offered by waterfronts Ding (2008).



Figure 4: Traditional boat tour on Pingjiang River. Source: photograph by the author, 2018.

According to Ding (2008), Suzhou's waterfront areas are an important part of urban public space, featuring a combination of natural and artificial landscapes, and offering high-quality recreation, leisure, cultural and tourism resources. However, the limited integration of Suzhou's canals resulting from the industrial and urban development of the city in the last century has caused difficulties in the creation of a unified public space. She further argues that in order to enhance Suzhou's revaluation of urban water it is necessary to fully respect and protect the public resources of the waterfront, by establishing effective monitoring and long-term measures to guide their management. By increasing green open space and public cultural activities, creating new hotspots for waterfront urban life and promoting the overall improvement of the ecological environment,

Ding (2008) believes that Suzhou's water culture can become a prominent element of the city's personality.

The need to rediscover the deeper relationship of the city with water is functional to avoid the over-reliance on tourism as the major driver of waterfront redevelopment and to find a new point of contact for local residents with Suzhou's water culture. However, tourism, in the form of eco-tourism, may be conducive for the environmental education and information of visitors and residents alike, as it will be discussed below.

4.3 SUZHOU'S ECO-TOURISM DEVELOPMENT FOR A RENEWED APPRECIATION OF WATER

As argued by Vollmer (2009), the environmental remediation of polluted water bodies is the fundamental prerequisite for the initiation of a waterfront redevelopment process, especially given the opportunity offered by proximity to water to enhance the appearance and therefore the value of properties as well as the leisure and recreational value of the landscape. Nevertheless, the improvement of the ecological conditions of Suzhou's waters are far to be optimal, as a significant amount of domestic and industrial wastewater keeps to be discharged in urban water courses (Li, 2018). In order to enhance people's sense of responsibility and environmental awareness, environmental education, as argued by Li (2018) is a fundamental instrument that can contribute to the creation of a more sustainable society. However, as he further underlines, environmental education adopts an inclusive approach aimed to stimulate citizens' responsible behaviors and compliance, avoiding ineffective unidirectional environmental propaganda. Therefore, active participation is deemed a basic requirement for the spread of environmental knowledge and awareness. In this respect, thematic activities for the prevention and control of water pollution have already been promoted by Suzhou's municipal government (Li, 2018). These activities are addressed to the public, and to local residents in particular, so to cultivate a responsible and environmentally friendly attitude that could represent a crucial contribution for future developments.

The inclusiveness of such efforts can be extended to tourism in the development of Suzhou as an eco-tourism destination, for spreading environmental knowledge and awareness through the tourism experience. As discussed above, Suzhou's water grid offers great tourism resources in terms of cultural, architectural and historical appreciation. But at the same time this urban environment

is endowed with significant ecological value, which should be given recognition and could be functional for the promotion of sustainable behaviors and lifestyles.

In their article on the protection and renovation of wetlands on Tai Lake, Zhang, Zhang and Ni (2009) underline that the preservation of the biodiversity of ecologically intact waterfronts can result in major ecological, social and economic benefits. They argue that renovation efforts in waterfront areas need to consider the impact on ecological and landscape resources and that accessibility to water should be enhanced by creating urban outdoor space and providing recreational and educational activities. They further underline the fundamental role played by urban wetlands for the ecological balance of the city. According to their article, Suzhou Tai Lake Park is intended to contribute to the ecological rehabilitation and aesthetic improvement of the urban natural landscape rich in biodiversity. The project follows the principles of contextual rebuilding to include local culture in the realization of buildings and structures, and of the social function of the urban waterfront space as a place for leisure and recreational activities and catered to the promotion of social interconnections.

The integration of the ecological, cultural and tourism value of Tai Lake Park has been given great attention in terms of the frail equilibrium leading to sustainable development. Lakeshore renovation efforts had the aim of providing the public, including tourists and residents with a beautiful scenery to enjoy, while restoring the ecological functions of wetlands and promoting environmental education through outdoor activities which bring people in close contact with water. A lakefront road previously merely devoted to connecting the lakefront urban district with tourism resorts has been transformed considering landscape diversity and variability, in order to make the view pleasant, while also contributing to flood prevention and control, as well as the ecosystem services offered, and the social benefits provided by the project. The promenades now offer the opportunity for people to enjoy the peculiarity of the urban waterfront environment, while experiencing the deep cultural relationships with water. The area, which takes the name of Tai Lake Park is freely accessible and attracts a considerable number of local residents and tourists to sightseeing and amusement, especially in the holiday period, when tourists from Shanghai and other peripheral cities are drawn to this beautiful natural wetland scenery. For this reasons, Tai Lake Park has been considered a symbolic scenic spot thanks to its ecological charm. In spite of the environmental challenges represented by urban development along the shores of Tai Lake for the protection of urban

wetlands, wetland renovation projects such as the one in Suzhou Tai Lake Park can enhance ecologic, social and economic benefits (Zhang, Zhang and Ni, 2009).

By taking the experience of Tai Lake Park as a reference, Suzhou's local authorities should consider the opportunity offered by Suzhou's urban waterfront space for the establishment of eco-touristic facilities designed for the promotion of sustainable tourism and for the appreciation of the value of water beyond its functional role. Water scarcity and availability is becoming a pressing problem in many regions of the world and by creating a network of eco-tourism spots, exhibitions, museums and conferences, Suzhou can become a forerunner in China of a renewed respect towards water resources. By integrating the city's traditional water culture with environmental education and knowledge, eco-tourism attractions can become the symbol of the willingness to restore a mutually beneficial relationship between human societies and the environments in which they live and evolve.

In this respect, the promotion of water museums for the reinterpretation of Suzhou's relationship with water can become a first step towards a comprehensive reevaluation of this precious resource. The development of a new narrative of water, through the rediscovery of its ecological, cultural and historical importance is the challenge that Suzhou must face to give new impetus to water preservation and sustainable utilization. The valuable material and non-material heritage of the city is intimately linked with water and by establishing eco-museums for communicating this inheritance to Suzhou's residents and tourists, the city can contribute to give new meanings to water resources. Such institutions can serve as bridges for linking past and present water uses and for the promotion of sustainable behaviors for meeting future needs.

As underlined during the International Workshop "Towards a Global Network of Water Museums", held in Venice in May 2017, despite being the source of life and an invaluable resource that humanity cannot renounce, water is constantly facing the menace of pollution, quality degradation, scarcity and indifference. The project to create a Global Network of Water Museums is believed to have the potential to give a major contribution to the emergence of a new paradigm with respect to the interaction with water, promoting the public awareness on water issues. Water museums represent the opportunity for coming into contact with a priceless legacy made of knowledge, techniques and artefacts that water civilizations around the world developed in centuries and that were preserved through generations. In our overly technocratic contemporary world, the

preservation of this invaluable water heritage is at risk, as technology and globalization promote a standardized management approach that puts local traditions and unique identities in danger. Therefore, by combining environmental education activities with the handing down of traditional knowledge related to water, water museums can become the crucial element for the unification of environmental, technological, cultural and economic efforts for the improvement of water management and use.

As a representative of Suzhou, Liu Yanhua, director and senior engineer of Wujiang Cultural Relics Protection Administration of Suzhou, participated to the 2017 Workshop in Venice with a presentation of Taihu Water Conservation Pavilion. According to his presentation, the museum was established in 2014 and its content have been designed by China Institute of Water Resources and Hydropower Research, featuring more than 400 pictures and 80 artefacts related to the history of Tai Lake. The museum is located in the famous historic water town of Tongli in Suzhou Municipality and attracts nearly one million tourists per year. Among visitors, primary and secondary school students and local employees visit the museum to carry out extracurricular water resources education and activities. In addition, Liu states that international academic conferences, forums and seminars have been held in the museum in recent years, demonstrating its strategic role as a communication resource for the promotion of water protection and water culture. In his presentation, Liu also addressed the challenges faces by the water museum, highlighting the lack of funding and the need to receive local government support for the development of water-related communication and education campaigns, through the exhibition of regional water heritage. He further addresses the relevance of establishing a Global Network of Water Museums for the promotion of international cooperation in the preservation of an invaluable water heritage and in the diffusion of water-related environmental education. Through the integration of diverse experiences and the share of knowledge, eco-museums can become hubs for research and strategic communication, contributing to stimulate people's consideration of water.

To conclude this brief discussion of the opportunities offered by the development of eco-tourism facilities in Suzhou, it appears that some steps have already been made towards the establishment of the city as an eco-tourism destination. However, there remains much to do in order for Suzhou to become the symbol of the sustainable integration of city and water, as it was in the past. The main attempts to identify urban waterfronts as ecological oasis have been concentrated along Tai

Lake, while the urban water grid and Jinji Lake waterfront space remain focused on different uses. The renovation of the historical water network is predominantly devoted to the development of cultural tourism, while Jinji Lake is considered as a more contemporary living and working environment, endowed with a pleasant water scenery. According to the analysis conducted in this thesis, it appears that the rhetoric of Suzhou as the “Oriental Water City” is receiving increasing support, but in terms of waterfront revitalization projects, there lacks a comprehensive and unified approach for the reestablishment of urban waterfront space as crucial components of the urban texture. As argued above, the rediscovery of Suzhou’s urban roots in the irreplaceable connections with water is a possible unifying theme for otherwise single redevelopment projects which risk to result in a fragmented urban environment. The uniqueness of Suzhou’s water culture, then, acquires a multifaceted role in terms of its social, ecological and urban planning dimensions. Local residents revived awareness of the traditional interactions with water is favorable for the adoption of sustainable behaviors in terms of water use, in addition, water culture as expressed by the form taken in the years by the city need to be considered as a prominent theme in any renovation project. The whole city can then become carrier of a new identity: by displaying urban water with pride, by communicating its value to residents and visitors, by creating a network of places dedicated to the transmission of water heritage, such as water museums, Suzhou can favor the emergence of new paradigms and narratives of water. Water deserves respect, water requires significant management efforts, water needs protection, but it should always be remembered that there is no life without water and that every drop is precious. This is the message that Suzhou, a city built on water, a city grown with water, can spread if able to integrate its efforts for the creation of a network of facilities for the promotion of cultural, historic and environmental education related to water.

CONCLUSIVE REMARKS AND DISCUSSION

The aim of this thesis was to open a window on the transformation of urban waterfront space in Suzhou, demonstrating how the city underwent different phases of development that significantly affected its relationship with water. By presenting the main events that marked the history of the city, the first chapter provides the background for the following discussion focused on the emergence of the urban water grid and on the importance of water for the economic, social and cultural evolution of the city. Proximity to canals and daily interactions with water constituted the basis for the symbiotic relationship between human life and this fundamental natural resource.

Following the introduction of modern industrial economy in Suzhou, the second chapter addresses the changes that the city underwent in the last century, showing how it moved from being the regional center of trade and silk production to a hub of industrial manufacturing and how in recent years it began to emerge as an innovation center. These transformations severely affected the long-standing traditional water culture, as they resulted in a gradual loss of functions of the urban canals and in the subsequent detachment from waterfront environments. In addition, water pollution and environmental degradation contributed to the abandonment of the water grid.

With the introduction of a more considerate approach to urban water management and environmental protection, urban waterways were partially recovered in recent years and this contributed to the revaluation of Suzhou's waterfront space. The historical waterfront districts became the main subjects of revitalization efforts, dominated by the growth of the tourism sector, identified as the driver of economic redevelopment of these areas. At the same time, Jinji Lake waterfront space received the attention of local authorities and private developers for the realization of a contemporary urban belt surrounding the lake, integrating residential, touristic and business development.

While the examples analyzed above offer an overview of different strategies in waterfront reutilization in Suzhou, they also provide the starting point for discussing some issues related to the redevelopment of waterfront space. In particular, social sustainability and heritage commodification have been identified as two potential weak points in the realization of top-down projects. In addition, the retention of local residents in areas subject to renovation projects appears to be instrumental

for the creation of a more authentic tourism product, rather than functional for the maintenance of the local way of life and traditions. This approach may entail the risk of constructing an aestheticized urban landscape, in which indigenous dwellers play a part for the enjoyment of visitors. Such risk implies the possibility to cause a dilution of the city's true local identity to conform to the requirements of an increasingly important and demanding tourism market.

In order to avoid the loss of identity, it is therefore crucial for Suzhou to promote the understanding and knowledge of the local water culture, which needs to become the unifying theme for waterfront areas redevelopment efforts. By underlining the emotional proximity to water that characterized the city's development, water culture can be revalued, and this can contribute to the integration of the cultural, social, economic and environmental dimensions of water sustainability.

The need to promote a sustainable paradigm for water utilization can go through the identification of Suzhou as an eco-tourism destination for the diffusion of environmental education. By designing activities for the public participation of residents and tourists and by establishing eco-tourism facilities, such as water museums, environmental awareness can become part of the touristic experience and finally of people's daily life. This can contribute to changing people's consideration of water, by letting them understand that respect, protection and care are needed to preserve this irreplaceable resource.

Suzhou is a wonderful historical city that faced many challenges in its development path, and that today represents one of the most advanced examples of China's modernization. The flourishing economic growth of the city and the deriving urbanization were accompanied by major transformations in the urban life and form. The role of the urban water network and of urban waterfront space has been significantly impacted by modernization and only in recent decades a new attention has been given to this testimony of the city's heritage. The creation of a postmodern waterfront environment that integrates environmental remediation, economic development, cultural rediscovery and social sustainability would be the final achievement of revitalization efforts initiated in the 1980s and systematically promoted throughout the 2000s. The combination of multiple dimensions of urbanity and of local life makes the realization of such a dream a real challenge for the current situation in which much still needs to be done. If local authorities and private developers could adopt an inclusive and participative approach for the solution of issues

related to waterfront renovation, the integration of different actors and interests would be conducive to the creation of a sustainable waterfront space utilization. Suzhou could then become a domestic and international symbol of the positive outcomes of waterfront revitalization in historical cities, both in terms of sustainability and of the traditional spiritual connection of humanity with water.

If properly managed, the revitalization of urban waterfront in Suzhou can promote the reconciliation of local people and tourists with water, helping to establish a renewed respect and awareness of a scarce resource as water, which is often taken for granted and whose value is often underestimated.

The multidisciplinary nature of the research topic represented a challenge for the complexities embedded in the subject. However, it also made the research work stimulating, allowing to put together theories and articles coming from apparently distinct backgrounds. History, geography, urban planning, environmental management, tourism development and heritage preservation theories contributed to inform this work, which attempted to combine different insights to provide a general outlook on the strategies used in the revitalization of Suzhou's urban waterfronts and on the issues involved in such projects. Given the limited number of redevelopment projects considered in this thesis and the difficulty to find relevant material for the analysis and discussion of the various approaches adopted in the realization of renovation works, in the reconfiguration of the economic functions of urban areas subject to redevelopment, as well as of the objectives and achievements of such projects, this work was written with the hope to stimulate further research on the topic.

REFERENCES

ASHRAF, Kazi Khaleed, "Fluid space: Architecture must increasingly adapt to the shifting boundary between wet and dry", *Architectural Review*, 241, 1442, 2017, pp. 8-14.

BAO, Chao, and FANG, Chuang-lin, "Water Resources Flows Related to Urbanization in China: Challenges and Perspectives for Water Management and Urban Development", *Water Resources Management*, 26, 2, 2012, pp. 531-552.

DOI: [10.1007/s11269-011-9930-y](https://doi.org/10.1007/s11269-011-9930-y)

BREITUNG, Werner, and LU, Jing, "Suzhou's water grid as urban heritage and tourism resource: an urban morphology approach to a Chinese city", *Journal of Heritage Tourism*, 12, 3, 2017, pp. 251-266. DOI: [10.1080/1743873X.2016.1236801](https://doi.org/10.1080/1743873X.2016.1236801), available at <https://doi.org/10.1080/1743873X.2016.1236801>

BROMBAL, Daniele, "Urbanizzazione e sostenibilità in Cina – Verso un cambiamento trasformativo?", *Annali di Ca' Foscari. Serie orientale*, 53, 2017, pp. 305-336.

DOI: [10.14277/2385-3042/AnnOr-53-17-11](https://doi.org/10.14277/2385-3042/AnnOr-53-17-11)

BROMBAL, Daniele, and MORIGGI, Angela, "Institutional Change in China's Sustainable Urban Development – A Case Study on Urban Renewal and Water Environmental Management", *China Perspectives*, 2017/1, 2017, pp. 45-56.

Available at <http://journals.openedition.org/chinaperspectives/7196>

BROMBAL et al., "A participatory sustainability assessment for integrated watershed management in urban China", *Environmental Science and Policy*, 85, 2018, pp. 54-63.

Available at <https://doi.org/10.1016/j.envsci.2018.03.020>

CAPROTTI, Federico, "Eco-urbanism and the Eco-city, or, Denying the Right to the City?", *Antipode*, 46, 5, 2014, pp. 1285-1303.

DOI: [10.1111/anti.12087](https://doi.org/10.1111/anti.12087)

CAROLI, Rosa, and SORIANI, Stefano (eds.), *Fragile and Resilient Cities on Water: Perspectives from Venice and Tokyo*, Cambridge Scholars Publishing, 2017, pp. vii-xvii.

CURIEN, Rémi, "Chinese Urban Planning - Environmentalising a hyper-functionalist machine?", *China Perspectives*, 3, 2014, pp. 23-30.

Available at <https://search.informit.com.au/documentSummary;dn=599991491119905;res=IELHSS>

DEITZ, Paula, "Where Progress Is Just a Walk in the Park", *The New York Times*, Sept. 16, 2007, p. 228.

Available at <https://www.nytimes.com/2007/09/16/arts/design/16deitz.html>

DUNN, Scott, and JAMIESON, Walter, "The Relationship of Sustainable Tourism and the Eco-city Concept", in Tai-Chee Wong and Belinda Yuen (eds.), *Eco-city Planning*, Dordrecht, Springer Science+Business Media B. V., 2011, pp. 93-109.

DOI: https://doi.org/10.1007/978-94-007-0383-4_5

HOU, Diyun, *Urban Waterfront Landscape Planning*, Master's Thesis for European Spatial Planning and Regional Development, Blekinge Institute of Technology, Karlskrona, Sweden, 2009.

Available at <https://www.diva-portal.org/smash/get/diva2:828355/FULLTEXT01.pdf>

JOHNSTON, Stewart R., "The Ancient City of Suzhou: Town Planning in the Sung Dynasty", *The Town Planning Review*, 54, 2, 1983, pp. 194-222.

Available at <http://www.jstor.org/stable/40111967>

MA, Mingcao, WENG, Jin, and YU, Larry, "Market size, scale economies, and tourism market structure: A case of historic water town tourism in China", *Tourism Management*, 49, 2015, pp. 119-137.

Available at <http://dx.doi.org/10.1016/j.tourman.2015.02.014>

MINCA, Claudio, and SORIANI, Stefano, "Crafting the new public spaces of postmodern urbanism: the emergence of "historic waterfronts" as new social and functional places", in Sergio Conti (ed.), *Geographies of diversity. Italian perspectives*, Rome, Società Geografica Italiana, 2011, pp. 225-242.

Schedule of the International Workshop "Towards a Global Network of Water Museums – A Common Heritage for a Sustainable Future", Palazzo Zorzi, Venice, May 2-4, 2017.

SHANNON, Kelly, and YIYONG, Chen, "(Recovering) China's Urban Rivers as Public Space", *Footprint*, 7, 1, 2013, pp. 27-44.

Available at <https://journals.open.tudelft.nl/index.php/footprint/article/view/760>

SORIANI, Stefano, "Riutilizzazione del waterfront urbano e transizione postindustriale delle città portuali. Problemi, prospettive e rilievi critici", *Rivista Geografica Italiana*, 105, 1998, pp. 535-582.

TAGLIAFERRO, Maristella, "Suzhou & Venice Water City Story", *Atlante*, Oct. 21, 2015.

Available at http://www.treccani.it/magazine/atlante/cultura/Suzhou_Venice_Water_City_Story.html

VERDINI, Giulio, "Is the incipient Chinese civil society playing a role in regenerating historic urban areas? Evidence from Nanjing, Suzhou and Shanghai", *Habitat International*, 50, 2015, pp. 366-372.

Available at <http://dx.doi.org/10.1016/j.habitatint.2015.09.008>

VOLLMER, Derek, "Urban waterfront rehabilitation: can it contribute to environmental improvements in the developing world?", *Environmental Research Letters*, 4, 2009.

DOI: 10.1088/1748-9326/4/2/024003, available at <https://iopscience.iop.org/article/10.1088/1748-9326/4/2/024003/meta>

WANG, Degen, NIU, Yu, LU, Lin, and QIAN, Jia, "Tourism spatial organization of historical streets – A postmodern perspective: The examples of Pingjiang Road and Shantang Street, Suzhou, China", *Tourism Management*, 48, 2015, pp. 370, 385.

Available at <http://dx.doi.org/10.1016/j.tourman.2014.12.007>

WANG, Lei, SHEN, Jianfa, and CHUNG, Calvin King Lam, "City profile: Suzhou - a Chinese city under transformation", *Cities*, 44, 2015, pp. 60-72.

Available at <http://dx.doi.org/10.1016/j.cities.2014.12.005>

WANG, Rusong, LI, Feng, HU, Dan, and LI, B. Larry, "Understanding eco-complexity: Social-Economic-Natural Complex Ecosystem approach", *Ecological Complexity*, 8, 2011, pp. 15-29.

DOI: 10.1016/j.ecocom.2010.11.001

WANG, Yan, DONG, Wei, and BOELEN, Luuk, "The Interaction of City and Water in the Yangtze River Delta, a Natural/Artificial Comparison with Euro Delta", *Sustainability*, 10, 109, 2018.

DOI: 10.3390/su1001010, available at www.mdpi.com/journal/sustainability

XIE, Jing, and HEATH, Tim, "Conservation and revitalization of historic streets in China: Pingjiang Street, Suzhou", *Journal of Urban Design*, 22, 4, 2017, pp. 455-476.
Available at <https://doi.org/10.1080/13574809.2016.1167587>

XU, Honggang, and SOFIELD, Trevor, "New interests of urban heritage and tourism research in Chinese cities", *Journal of Heritage Tourism*, 12, 3, 2017, pp. 223-226.
DOI: 10.1080/1743873X.2016.1244539, available at <https://doi.org/10.1080/1743873X.2016.1244539>

ZHANG, Hong, ZHANG, Yan, and NI, Yinan, *Evaluation on Layout and Building of Ecological Lakeshore in Suzhou Taihu Lake National Tourism Resort*, 2009 3rd International Conference on Bioinformatics and Biomedical Engineering Bioinformatics and Biomedical Engineering, 2009, Beijing, China.
DOI: 10.1109/ICBBE.2009.5162806

ZHANG, Ling, WEI, Yehua Dennis, and MENG, Rang, "Spatiotemporal Dynamics and Spatial Determinants of Urban Growth in Suzhou, China", *Sustainability*, 9, 3, 2017.
DOI: 10.3390/su9030393, available at <https://www.mdpi.com/2071-1050/9/3/393>

ZHANG, Wenman, "Strategic Management of the Water Resources of Hubei", in *Rivers, Lakes, and Water Resources – Jiangsu, Hubei, and Hunan, Summary of Presentations*, May 2009.
Available at http://siteresources.worldbank.org/CHINAEXTN/Resources/318949-1253778792190/Rivers-Lakes-Water-Resources-Jiangsu-Hubei-Hunan_Summary-of-Presentations.pdf

ZHAO, Jingwei, WANG, Ronghua, CAI, Yongli, and LUO, Pingjia, "Effects of Visual Indicators on Landscape Preferences", *Journal of Urban Planning and Development*, 139, 1, 2013, pp. 70-78.
DOI: 10.1061/(ASCE)UP.1943-5444.0000137

CHINESE REFERENCES

DING Jinhua 丁金华, "Chuantong shuiwang chengshi binshui diduan de baohu yu gengxin – yi Suzhou gucheng wei li" 传统水网城市滨水地段的保护与更新——以苏州古城为例 (Conservation and Renewal of Waterfront in Traditional City with River Networks – A Case of Old Suzhou), in *Journal of University of Science and Technology of Suzhou*, 21, 1, 2008, pp. 54-57.

DING Jinzhu 丁金珠, "Suzhou jianshe 'shui wenhua' wei hexin de guoji luyou mingcheng tansuo" 苏州建设“水文化”为核心的国际旅游名城探索 (Research on Suzhou's construction of "water culture" as the core of the city's international tourism image), in *Technology and Economic Guide*, 26, 8, 2018, pp. 88-89.

GU Yonghong 顾永红, "Suzhou gucheng shui jixiang luyou xingxiang sheji yanjiu" 苏州古城水街巷旅游形象设计研究 (Design for Tourist Image of Suzhou Water Streets), in *Journal of Huaihai Institute of Technology (Social Sciences Edition)*, 4, 1, 2006, pp. 54-60.

"Guanyu zuohao Suzhou shi shui wenhua yichan modi diaocha gongzuo de tongzhi" 关于做好苏州市水文化遗产摸底调查工作的通知 (Notice on carrying out the Investigation of the Water Cultural Heritage in Suzhou City), 2017, http://www.zfxxgk.suzhou.gov.cn/sjg/szsslj/201705/t20170516_869907.html, retrieved 02-04-2019.

LI Ming 李明, "Huanjing zhili zhengce gongju zuhe shiyong: yi Suzhou shi wei li" 环境治理政策工具组合使用：以苏州市为例 (The combination of environmental governance policy tools: The case of Suzhou), in *Shandong Xingzheng Xueyuan Xuebao*, 159, 2018, pp. 96-103.

MA Ancheng 马安成, and YAN Gui'e 晏桂娥, "Suzhou de chengshihua fazhan yu shui huanjing baohu" 苏州的城市化发展与水环境保护 (Suzhou Urbanization development and Water Environment Protection), in *Shui ziyuan baohu*, 2004/2, pp. 60-61.

MENG Jie 孟婕, PENG Yue 彭悦, and YOU Yunya 尤韵雅, "Chengshi binshui kongjian kaifa chutan – yi Suzhou shi binshui kongjian kaifa wei li" 城市滨水空间开发初探——以苏州市滨水空间开发为例 (Preliminary Study on the Development of Urban Waterfront Space – The Development of Suzhou Waterfront Space), in *Guihua yu sheji*, 2008/7, pp. 66-67.

SHEN Suyan 沈苏彦, and XU Jian 徐坚, "Ji yu meiti baodao de lishi jiequ luyou fazhan yanhua tezheng fenxi – yi Suzhou Pingjiang lishi jiequ wei li" 基于媒体报道的历史街区旅游发展演化特征分析——以苏州平江历史街区为例 (Investigating Evolution of Tourism Development in Historic Districts by Analyzing Media Reports: A Case Study of Pingjiang Historic District of Suzhou), in *Journal of Central South University of Forestry & Technology (Social Sciences)*, 12, 2, 2018, pp. 71-76.

"Suzhou Pingjiang Lishi Jiequ Baohu Zhengzhi youxian zeren gongsi" 苏州平江历史街区保护整治有限责任公司 (Suzhou Pingjiang Historic District Protection and Renovation Corporation Ltd.), *Xinhuanet*, 2017, http://www.xinhuanet.com/travel/2017-08/02/c_1121418497.htm, retrieved 02-04-2019.

"Suzhou shi Jinjihu baohu guanli banfa" 苏州市金鸡湖保护管理办法 (Measures for the protection and management of Jinji Lake), 2010, <http://www.szfbz.gov.cn/004/004003/004003002/20100227/3f0f4456-6cf7-4c81-949d-b34bef757093.html>, retrieved 02-04-2019.

“Suzhou shi zongti guihua 2011-2020” 苏州市总体规划 2011-2020 (Suzhou City Master Plan 2011-2020), *Suzhou shi Renmin Zhengfu*, http://www.zfxxgk.suzhou.gov.cn/sjjg/szsgjh/201609/t20160914_772132.html, retrieved 02-04-2019.

“Yinxiang Jinjihu” 印象金鸡湖 (Impression Jinji Lake), *Jinjihu jingqu*, <http://jinjilake.sipac.gov.cn/yxjhh.aspx>, retrieved 02-04-2019.

ZHOU Xi 周曦, and ZHANG Fang 张芳, “Kaifang jiequ beijing xia chengshi binshui kongjian gengxin celue yanjiu – yi Suzhou shi wei li” 开放街区背景下城市滨水空间更新策略研究—以苏州市为例 (The Strategy of Urban Renewal of Waterfront in Perspective of Open Block: A Case Study of Suzhou), in *Guihua yu sheji*, 2017/11, pp. 38-44.

DOI: 10.3969/j.issn.1009-6000.2017.11.006

LIST OF FIGURES

Figure 1: Loss of traditional urban waterways. Source: Adapted from BREITUNG, Werner, and LU, Jing, “Suzhou’s water grid as urban heritage and tourism resource: an urban morphology approach to a Chinese city”, *Journal of Heritage Tourism*, 12, 3, 2017, pp. 251-266. DOI: 10.1080/1743873X.2016.1236801, available at <https://doi.org/10.1080/1743873X.2016.1236801>

Figure 2: Current view of Pingjiang Road. Source: photograph by the author, 2018.

Figure 3: Waterfront promenades along Jinji Lake. Source: photograph by the author, 2018.

Figure 4: Traditional boat tour on Pingjiang River. Source: photograph by the author, 2018.

GLOSSARY

Chinese	Pinyin	English translation
白居易	<i>Bai Juyi</i>	Bai Juyi
白塔东路	<i>Baita donglu</i>	Baita East Road
北京	<i>Beijing</i>	Beijing
传统政策工具	<i>Chuantong zhengce gongju</i>	Traditional policy tools
邓小平	<i>Deng Xiaoping</i>	Deng Xiaoping
丁宅	<i>Ding Zhai</i>	Ding Residence
杜荀鹤	<i>Du Xunhe</i>	Dun Xunhe
风水	<i>fengshui</i>	Chinese geomancy
干将路	<i>Ganjiang lu</i>	Ganjiang Road
广州	<i>Guangzhou</i>	Guangzhou
观前街	<i>Guanqian jie</i>	Guanqian Street
汉	<i>Han</i>	Han dynasty
环境教育手段	<i>Huanjing jiaoyu shouduan</i>	Environmental education means
环境信息手段	<i>Huanjing xinxi shouduan</i>	Environmental information means
江南	<i>Jiangnan</i>	Jiangnan region
江苏	<i>Jiangsu</i>	Jiangsu Province
激活	<i>jihuo</i>	activation
晋	<i>Jin</i>	Jin dynasty
景德路	<i>Jingde lu</i>	Jingde Road
金鸡湖	<i>Jinji hu</i>	Jinji Lake
李公堤	<i>Li gong di</i>	Li gong di
蠡湖	<i>Lihu</i>	Li Lake
临顿路	<i>Lindun lu</i>	Lindun Road
玲珑岛	<i>Linglong dao</i>	Linglong Island
洛阳	<i>Luoyang</i>	Luoyang
明	<i>Ming</i>	Ming dynasty
潘世恩故居	<i>Pan Shi'en guju</i>	Former residence of Pan Shi'en
潘祖荫故居	<i>Pan Zuyin guju</i>	Former residence of Pan Zuyin
平江客栈	<i>Pingjiang kezhan</i>	Pingjiang Lodge
平江历史街区	<i>Pingjiang lishi jiequ</i>	Pingjiang Historic District
平江晒书节	<i>Pingjiang shai shu jie</i>	Pingjiang Sun Book Festival
平江图	<i>Pingjiang tu</i>	Pingjiang map

评弹	<i>Pingtán</i>	Pingtán (storytelling and singing)
清	<i>Qing</i>	Qing dynasty
七夕文化风情节	<i>Qixi wenhua fengqing jie</i>	Qixi Cultural Festival
人民路	<i>Renmin lu</i>	Renmin Road
阮仪三	<i>Ruan Yisan</i>	Ruan Yisan
三大改造	<i>San da gaizao</i>	Three Great Reconstructions
上海	<i>Shanghai</i>	Shanghai
上山下乡运动	<i>Shangshan xiexiang yundong</i>	Down to the Countryside Movement
山塘街	<i>Shantang jie</i>	Shantang Street
深圳	<i>Shenzhen</i>	Shenzhen
水陆双棋盘	<i>shui lu shuang qipan</i>	double chessboard
宋	<i>Song</i>	Song dynasty
隋	<i>Sui</i>	Sui dynasty
苏南	<i>Sunan</i>	Southern Jiangsu
苏州	<i>Suzhou</i>	Suzhou
太湖	<i>Taihu</i>	Tai Lake
太平	<i>Taiping</i>	Taiping (rebellion)
唐	<i>Tang</i>	Tang dynasty
桃花岛	<i>Taohua dao</i>	Taohua Island
同里	<i>Tongli</i>	Tongli
微博	<i>Weibo</i>	Weibo
吴	<i>Wu</i>	Wu
无锡	<i>Wuxi</i>	Wuxi
夏	<i>Xia</i>	Xia dynasty
阳澄湖	<i>Yangcheng hu</i>	Yangcheng Lake
养育巷	<i>Yangyu xiang</i>	Yangyu Lane
扬子	<i>Yangzi</i>	Yangzi (Yangtze River)
阴阳	<i>Yin yang</i>	Yin and yang
禹	<i>Yu</i>	Yu
元	<i>Yuan</i>	Yuan dynasty
政府直接供给	<i>Zhengfu zhijie gongji</i>	Direct government supply
企业（行业）自我监管	<i>Zhiye (hangye) ziwo jianguan</i>	Self-regulation by enterprises or industries
中街路	<i>Zhongjie lu</i>	Zhongjie Road