中国乡村：长江三角洲　湖汊镇的类型形态学方法

Chinese countryside: Yangtze River Delta
A Typo-Morphological approach in Hufu zhen

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#UrbanMorphology #BuildingTypology #ChineseCountryside #WaterTowns
#YangtzeRiverDelta #Tongli #Wuzhen #Zhouzhuang #Hufuzhen

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// INDEX

Fig. 1

0 // ABSTRACT

_Chinese

本双学位硕士论文的研究涉及中国农村传统四合院的形态和类型，尤其是位于长三角地区的水乡城镇。
论文就像一张板凳，基于三条腿：中国农村、城市形态和建筑类型。论文的前三章节涉及：分析中国农村及其从始祖到现代的转变；将城市形态和建筑类型学的历史应用于中国语境下；发展新的理论，比如基于四要素的水乡研究（水路、桥梁、建筑以及道路）。
对长三角地区进行了多尺度和多时间的分析，确立了三个特征元素：水城、水路以及铁路系统。这些元素在项目提案的发展过程中发挥了重要作用。在项目之前的最后几个章节是基于类型和形态学对四个“水乡”的研究：同里、乌镇、周庄和湖汊，它们具有相似的城市形态和建筑类型。
新冠病毒疫情的持续扩散，给该研究项目带来了严重的限制，但也带来了新的机会：在无法实地分析的情况下被限制为使用卫星图像和街景影像进行虚拟考察。同时它让我从一个创新的角度去研究中国城市的形态以及以原创的方式开发一个项目。
本文提出了在中国城市设计中的一种类型-形态学方法，以在快速全球化的时代保留当地的文化特征。类型-形态学是一种工具，可以帮助解决中国城市的一个普遍问题，即以“国际风格”为基础的拥挤的“无场所”建筑。丰富和复杂的中国历史文化似乎逐渐被排除在其建筑表现之外。
本研究不仅限于对城市形态和建筑类型的理论思考，而是通过将其延伸到中国乡村小镇湖汊镇其中的一个区域的规划。克服当前网格城市发展的限制，并考虑到当地特征及其居民的社会身份。
后新冠疫情时代的情景让我们想象一个已经部分发生在中国的现象：回到农村。近些年由于城市人口呈指数级过剩，中国政府已经鼓励将人才和技能带回到农村的这种现象。该项目专为中国的新中产阶级，即那些想拥有高品质生活，远离城市，但同时在家中进行智能工作或大城市的通勤者而设计。

0 // ABSTRACT

_English

The research carried out during this Double Degree Master thesis deals with the study of morphology and building typology in Chinese countryside, particularly, the Water towns of the Yangtze River Delta.
This thesis, like a stool, is based on 3 legs: Chinese Countryside, urban Morphology and building Typology. The first three chapters deal with analysis of Chinese countryside and its transformations from the ancestral to the contemporary period; the study of the history of urban morphology and building typology, applied to the Chinese context; the development of new theories such as the study of Water towns as four elements (water canals, bridges, buildings and streets).
A multiscale and multitemporal analysis is carried out on the Yangtze delta, which identifies 3 characteristic elements: the water towns, the waterways and the railway system. These elements played an important role in the development of the design proposal. The last chapters before the project's one are based on the typological and morphological study of four "cities of water": Tongli, Wu zhen, Zhouzhuang and Hufu zhen, having a common urban morphology and similar architectural typologies.
The persistence of Covid-19 pandemic has entailed strong limits and new opportunities for this research project. It impeded on-site analysis and limited them to virtual inspections through satellite images and street views. At the same time, this allowed me to study Chinese urban morphologies from an innovative point of view and to develop the project in an original way.
This thesis proposes the typo-morphological research approach in Chinese urban design, as a mean to maintain local cultural identity in the era of rapid globalization. Typo-morphology is a tool that can help to solve a common problem in Chinese cities that are congested by "placeless" architecture based on the "international-style". The rich and complex Chinese cultural history seems to be gradually excluded from its architectural representation.
This study does not limit itself to theoretical contemplation of urban morphologies and building typologies but extends it through them to the design of a district in Hufu zhen, a town in the Chinese countryside. It overcomes the current limits of urban grid, taking into consideration the identity of the place and the social identity of its inhabitants.
The post-Covid scenario allows us to imagine a phenomenon that was already partially taking place in China: the return to the countryside. In recent years, the Chinese government has started to encourage this, due to the exponential overpopulation of cities and in order to bring people and skills back to the countryside. The project is designed for the new Chinese middle class who wants to have a high quality of life, away from the city, but at the same time to work remotely or to commute to large cities.

0 // ABSTRACT

_Italian

La ricerca effettuata in questa tesi di Doppia Laurea Magistrale riguarda lo studio morfologico e tipologico delle tradizionali case a corte presenti nella campagna cinese e, in particolare, le città d'acqua nel delta del fiume Yangtze.
La tesi, come uno sgabello, si poggia su 3 gambe: il countryside cinese, la morfologia urbana e la tipologia edilizia. I primi tre capitoli della tesi si occupano di: analizzare la campagna cinese e le sue trasformazioni dal periodo ancestrale fino a quello contemporaneo; studiano la storia della morfologia urbana e della tipologia edilizia applicandole al contesto cinese; sviluppano nuove teorie come lo studio delle Water Towns come quattro elementi (le vie d'acqua, i ponti, gli edifici e le strade).
Un'analisi multiscalare e multitemporale viene effettuata sul delta dello Yangtze individuando i suoi 3 elementi caratteristici: le città d'acqua, le vie d'acqua e il sistema ferroviario. Questi elementi hanno svolto un ruolo importante nello sviluppo della proposta progettuale. Gli ultimi capitoli prima di quello del progetto si basano sullo studio tipologico e morfologico di quattro "città d'acqua": Tongli, Wu zhen, Zhouzhuang and Hufu zhen, avendo una morfologia urbana e tipologia edilizia simile.
Il perdurare della pandemia di Covid-19 ha comportato forti limiti e nuove opportunità a questo progetto di ricerca: impedendo le analisi sul campo e limitandole a sopralluoghi virtuali tramite immagini satellitari e di street view. Allo stesso tempo mi ha permesso di studiare le morfologie urbane cinesi da un punto innovativo e di sviluppare in maniera originale il progetto.
Questa tesi propone un approccio tipo-morfologico nella progettazione urbana cinese, per mantenere l'identità culturale locale in un'era di rapida globalizzazione. La tipo-morfologia è uno strumento che può aiutare a risolvere un problema comune nelle città cinesi, congestionate da architetture "senza posto" e basate sullo "stile internazionale". La ricca e complessa storia culturale cinese sembra essere progressivamente esclusa dalla sua rappresentazione architettonica.
Questo studio non sui limita alla sola contemplazione teorica delle morfologie urbane e delle tipologie edilizie, ma attraverso esse si estende alla progettazione di un distretto di Hufu zhen, una cittadina nel countryside cinese. Superando i limiti correnti dello sviluppo urbano a griglia e tenendo in considerazione l'identità del luogo e quella sociale dei suoi abitanti.
Lo scenario post-Covid ci permette di immaginare un fenomeno che già parzialmente era in atto in Cina: il ritorno verso la campagna. Negli ultimi anni il governo cinese ha già incentivato questo fenomeno a causa dell'esponenziale sovrappopolazione delle città e al fine di riportare persone e capacità nel countryside. Il progetto è studiato per la nuova classe media cinese che vuole avere una qualità della vita alta, lontani dalla città, ma allo stesso tempo di lavorare in smart-working da casa o come pendolare nelle grandi città.

INTRODUCTION

1 // INTRODUCTION

The purpose of this chapter is a multiscale analysis of Chinese countryside. Going over the dichotomic relationship between rural and urban a new phase of urbanization is taking place in it. The countryside of Zhejiang, Jiangsu and Anhui provinces is characterized by great number of Water Towns. Their long history is closely linked to the natural configuration of the surrounding land. The Yangtze River Delta is densely covered with water canals and small lakes. Hence, Numerous Water Towns have developed along the canal infrastructure, used for centuries as a trade route to the North. During the Song Dynasty, the capital was moved to Hangzhou, located along the Grand Canal. During this period all the cities that were connected to it directly or indirectly had a boosted both in economic and cultural terms. During the past century large cities have grown around their ancient historic centers, that slowly reduced their relationship with the countryside and left them frozen in time. Countryside, Water Towns, and Courtyard Houses are all connected by an intricate web of canals. These commercial and cultural exchanges in the Jiangnan region allowed creation of a common architectural language: the courtyard houses, also known as the Hui style Architecture. Vernacular architecture created by Huizhou merchants, famous for their commerce not only in the Anhui Province but also in the entire Jiangnan region. Water was, and still is, the driving force in the urban and the street network development of Water Towns. Waterways, traditionally, had a more important role than streets, as goods were shipped from the countryside into towns. Commercial activities took place on wharfs and piers.

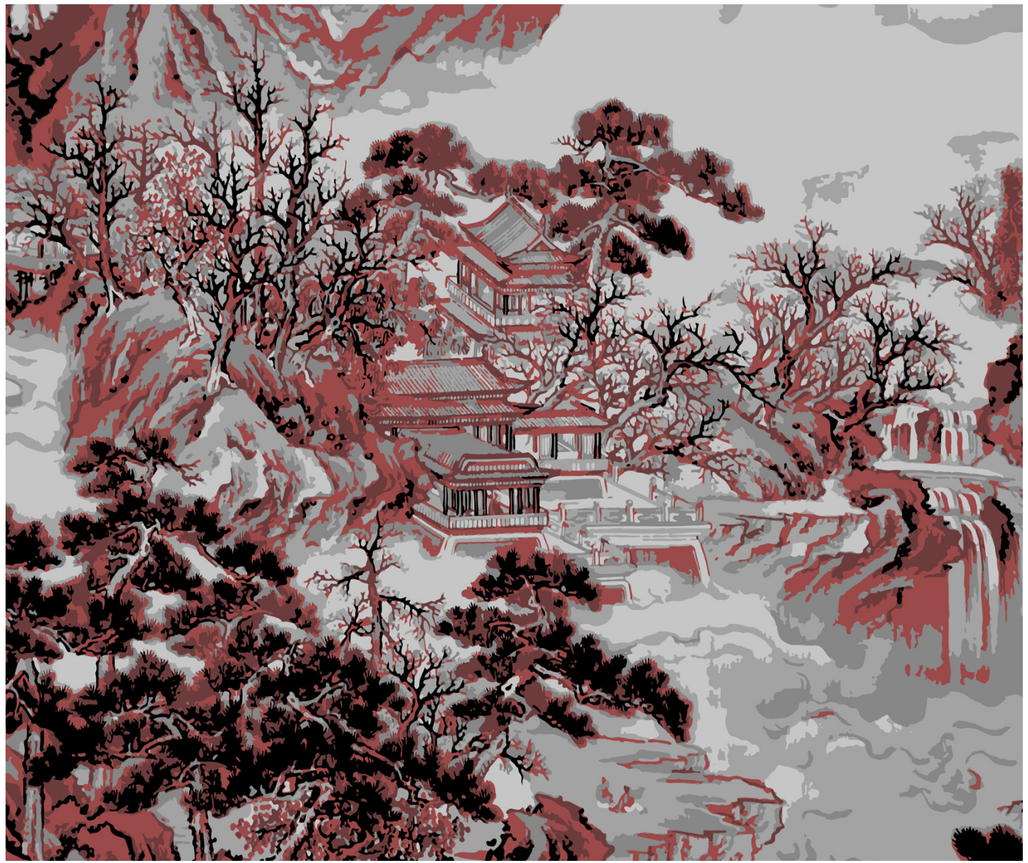


Fig. 2

1 // INTRODUCTION

_Chinese Countryside

1.1 During the last three decades, Chinese culture and people's way of living changed drastically. Just think forty years ago the majority of population in China were farmers. China's economic reforms created a new middle class, (between very rich people and farms who still cultivate the collective land). This new social structure collides with and overtakes the dichotomic relationship between rural and urban. The classic relationship between center and periphery has been superseded by a blanket of urbanization. The rural world has an active role in the process of urban transformation thanks to the Hukou registration policy.[1] This policy enforces the division between city and countryside, the land use rights of rural citizen permitted a more rapid and speculative development of rural land than one in urban areas where the formal mechanism of the government works.

The gap between urban and rural development started to grow and increase yearly since China's reforms of its system through an opening policy in 1978. This is due to China's prioritization of the development of cities as "growth machine" of the huge Chinese Economy. Combined with the Hukou system and a strict control over the migration of citizens from rural to urban areas; it's still very difficult or even impossible to obtain an Urban Hukou for rural inhabitants. Also the economy is very different: the urban economy is characterized by secondary and tertiary industries while in the rural economy the leading industry is still agriculture. Rural-urban migration is strictly controlled. Between 1978 and 1999 the migration was mainly due to economic growth of urban areas, higher wages, urban lifestyle and employment opportunities. Nowadays, thanks to the acceleration of urbanization, cities are losing their appeal to rural migrants, they prefer to keep the government subsidies with a view of urban-rural circularity lifestyle; where a worker spend its working life in the city and goes back to home for its retirement. Ambiguous territories are born between ur-

[1] Hukou is a system of household registration used in mainland China. Established in 1949, each citizen is classified in an agricultural or non-agricultural residency status.

ban processes of expansion and rural processes of transformation, transforming the land into grey areas with unresolved regulations. The satellite view allows a global view of this phenomena: the landscape between rural and urban is characterized by irrational and unpredictable adjacencies like informal settlements near formal one, farmland between different neighborhood, informal settlements near commercial blocks.

Transformation of the Chinese countryside began after the death of Mao Zedong,[2] between 1976 and 1980s, when de-collectivization was put in place. The post-Mao government tried to repair the damages caused by the Cultural Revolution,[3] by improving living standards of Chinese peasants. The Rural reform[4] aimed to give more profits to peasants. After disintegration of collective economy, rural industrialization started and smallholder farming returned. New markets were introduced in the countryside allowing a new economic freedom.

During the Period of Mao Zedong the migration from Rural to Urban areas one was forbidden. By the end of the Maoist Era rural population comprised 80% of the total population in China. Since 1985 the urban population has been increasing by 30-50 million per year. During the era of Deng Xiaoping China experienced an increased migration of workers from rural agricultural areas to industrialized cities.

Since 2005, Chinese Government has been developing its plan to urbanize 350 million of rural inhabitants by 2030, one of the greatest reforms in the cultural, economic and labor fields in the nation's history. This is the a first step in for the construction of a "new Socialist Countryside"[5], a new policy initiative for the rural development. The key of this Reform, is based on the abrogation of numerous agricultural taxes and rural fees. The transfer of the fiscal system from central government funds to local government funds permit a more efficient use of investments. Today, rural China is seeing a massive wave of new housing and infrastructure projects. In fact, Chinese countryside is in a limbo: it is neither modern nor traditional, nor industrial nor agrarian, nor new nor old, nor rural nor urban.

Through this new phase of urban expansion, it's possible to identify five different situations born from interaction of the forces that shape the terrain. These five different conditions (Urban Villages, Factory Village, Suburban Village, Contested Village and Rural Village) were all simple villages at the beginning.[6]

Urban Village (Fig. 3)

Characterized by highly dense migrant housing and black-market services like gambling and often host ethnic minorities. Urban Villages are an alternative to the generic city and during the urban expansion these villages became islands of difference in a sea of similarity. The birth of these villages is due to the actions of families, single investors or village organizations. They represent anomalies in the cityscape, and many have been eradicated in favor of more sanitized and homogeneous urban settlements.

Rural Village (Fig. 4)

Rural villages seem to remain unchanged for the past forty years. Everyone of working age have moved to the city to earn more. These migrants send back money to their relatives who still live in the villages, in this way they could build new houses. Size, number of floors and materials of new houses show the economic success of the family. The poorest still live in the houses dating back to the Economic Reform. The consequences are the economic dependence of the village from the city.

Factory Village (Fig. 5)

Starting from 1978, many global industries have relocated their production facilities in China due to the cheap labor and financial incentives. Many villages transformed their lands into fields for factories. Factory villages are characterized by worker's compounds surrounded by the original villages. The size of these industries could be at small scale up to city scale with 300 thousand workers.

Suburban Village (Fig. 6)

These villages are born post 1978. The new economic system created many wealthy people, villagers became rich by building houses for migrant workers or for their own businesses. The new richness has created a wish for richer lifestyle creating suburban typologies like golf real estate, theme parks and gated tower compounds. These compounds are enclosed by walls and securely segregated from their surrounding urban context.

Contested Village (Fig. 7)

During the rapid process of urban development, many misunderstandings could happen due to conflicting laws at different levels of governance. Contestations between many stakeholders like villagers, builders, local government and investors grow through money compensation and the status of an urban or rural land. These conflicts of interests could lead to the abandonment of the construction site or the construction of only a part of a complex.

[2] Founder of People's Republic of China and its president from its establishment in 1949 until his death in 1976.

[3] Promulgated in 2006 by China's National People's Congress.

[4] Firstly, introduced in China in 1978 has four objectives: the increase of agricultural production, the reduction of poverty, the increase of quantity and quality of food consumptions and the absorption of farm labor by industries.

[5] Promulgated in 2006 by China's National People's Congress.

[6] Bolchover, J., Lin, J., Rural Urban Framework, Transforming the Chinese Countryside, Basel, Birkhäuser, 2014.

3

3. Urban Village

25 m

4 5

6 7

4. Rural Village
5. Factory Village
6. Suburban Village
7. Contested Village

50 m

Fig. 8

1 // INTRODUCTION

_Chinese Water town

1.2 Chinese Water towns, also called also “Venice of the East”, are located in Jiangnan region.[7] These Water Towns are found in the “golden triangle” formed by Shanghai, Suzhou and Hangzhou. These cities are threatened by modern form of urbanization, trying to uniform the Chinese landscape going further local architectural elements. These cities are survived despite industrial and commercial development during the 20th century. The Jiangnan region is located along the Yangtze River Delta, home of numerous Water Towns, including bigger cities like Suzhou and Shanghai.

These towns flourished between the 13th and 19th century, the period of Ming and Qing Dynasties (1368-1911 A.D.).

“Where there is only one river across the town, a belt-shaped town is formed. Where there are two or more rivers, a cross-shaped or tree-crotch-shaped town is formed. Where there are four or even more rivers running through the town, grid-shaped towns are formed.”[8]

On the Neighborhood level, streets are developed parallel to the canals and rivers, due to the convenience guaranteed by the double access via water and land. Houses are built near the water canals, in front there is a street, in the back the water canal. Along the street, buildings with one or two story are characterized by dark tile roofs and wooden facades. Space of the ground floor is used for workshops, stores and shops, meanwhile the upper floor is for living. Traditional buildings are characterized by a wooden structure, interrupted with whitewashed brick facades to prevent diffusion of fires. Wealthy families are usually the owners of the buildings on both sides of the street, locating their commercial activities next to the river.
Private docks have direct access to water canal that is used for the transportation of goods, a street run parallel to the water canals and shops are located on the other side street; residential

[7] Literally “South of the River”, meaning “South of the Yangtze”, this region include the city of Shanghai and the provinces of Jiangsu, Anhui, Jiangxi and Zhejiang.

[8] Ruan, Y.S. Water Towns South of the Yangtze River, Shanghai People’s Fine Arts Publishing House: Shanghai, China, 2009.

rooms are located behind the shop. The typology used for these buildings is the Siheyuan, several courtyard buildings are aligned at the back of the shop. The richer the family is the more complex is the combination of courtyards and private gardens. Wealthy families express their money and power also by erecting “spirit or screen walls”[9] in the front of a house. Rivers and canals crossing Water Towns have a stone revetment, preventing the river banks from collapsing. Private piers are located along the canals; stone stairs permit residents to descend down to the water level to do washing. Rivers and canals are flanked by streets and crossed by bridges. Sometimes the street parallel to the canal is covered by porticoes or protected by trees.

Bridges do not only serve as crossing points but also as important places for commerce, where local vendors and customers meets. There are many typologies of bridges: made of stone or timber, flat or arched, with one or multiple arches, covered or not, straight or zig-zag. Bridges had an important role in Water towns. Most have been destroyed by now but many have been recently rebuilt. They don’t have only a functional but also a symbolic role. Bridges were located near important temples and mansions playing a central role in the social life of Water Towns.

Each city has its own history and its peculiarities. These are the more famous and more relevant from by an architectural point of view: Nanxun, Tongli, Xitang, Wuzhen, Zhujiajiao, Qibao, Luzhi, Zhouzhuang.

Nanxun (Fig. 9)
Characterized by a unique mix of traditional Chinese and Western architecture. It is less famous than other Water towns, along the Nanxun’s canals is still possible to see locals out playing cards or drinking tea. The town dates back to the Chunyou Period of the Song Dynasty (1241-1252 A.D.)

Tongli (Fig. 10)
Tongli is the most well-known Water Town in China and is considered to be a miniature of Venice. It is characterized by nearly every building being located on or by a canal. The town is composed of seven small islands, separated by fifteen canals and forty bridges, moreover many lakes surround the town. The town dates back to the Song Dynasty (960-1279 A.D.)

Xitang (Fig. 11)
This Water Town is characterized by sheltered waterside streets, called Langpeng, allowing locals and tourists to walk along the canals. Since it’s less touristic, it’s possible to see locals fishing on their boats along the canals. Xitang is famous for its ancient buildings, Zhongfu Hall and Wenzun Hall. The town is crossed by nine rivers. Its history dates back to 770-476 B.C.

[9] Used in the traditional architecture to shield an entrance gate. Spirit screen could be positioned on both sides of a gate: inside or outside.

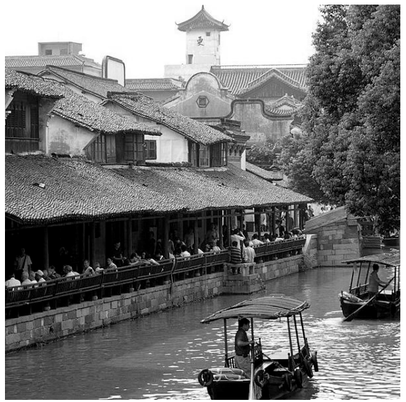
Wuzhen (Fig. 12)
It is Located along the Grand Canal, the longest in the world and the main route between Hangzhou and Beijing. The renovation of the 1300 years old city, started in 1999 finished in 2013. Wuzhen is divided into six districts: the traditional workshop district, the traditional dwelling houses district, the cultural district, the food and beverage district, the shop and store district and the district of life and customs of ancient Water towns.

Zhujiajiao (Fig. 13)
This water town is one of the best preserved ancient towns in Jiangnan region, dating back about 1700 years. It became important for its rice trade. The town is characterized by more than 10 thousand original buildings of Ming and Qing Dynasties (1368-1911 A.D.)

Qibao (Fig. 14)
Located near Shanghai, its name means “seven treasures” which includes: an iron Buddha, a bronze bell, a gold script lotus sutra, a 1,000-year-old catalpa tree, a pair of jade chopsticks, a jade axe and a gold cockerel. These treasures were housed in the Qibao temple. The town is characterized by traditional Chinese Architecture and museums.

Luzhi (Fig. 15)
Located near Suzhou, Luzhi has a long history lasting for about 2500 years. Originally it was called Puli, same as a small village. This Water Town is famous for its bridges, as well as the surrounding buildings that have never been rebuilt and preserve their original charm. Due to its the numerous bridges, the city is also called “Museum of Chinese Ancient Bridges”.

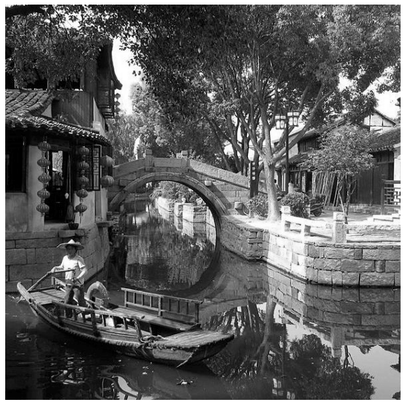
Zhouzhuang (Fig. 16)
Its Architecture dates back to 900 years ago. Zhouzhuang hosts 60 original brick archways and more than one hundred original courtyard houses. Chengxu Taoist Temple was built in the town between 1086 and 1093 and it’s one of the most important Taoist temples in the area.



9 10

11 12

9. Nanxun
10. Tongli
11. Xitang
12. Wuzhen



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13. Zhujiajiao
14. Qibao
15. Luzhi
16. Zhouzhuang

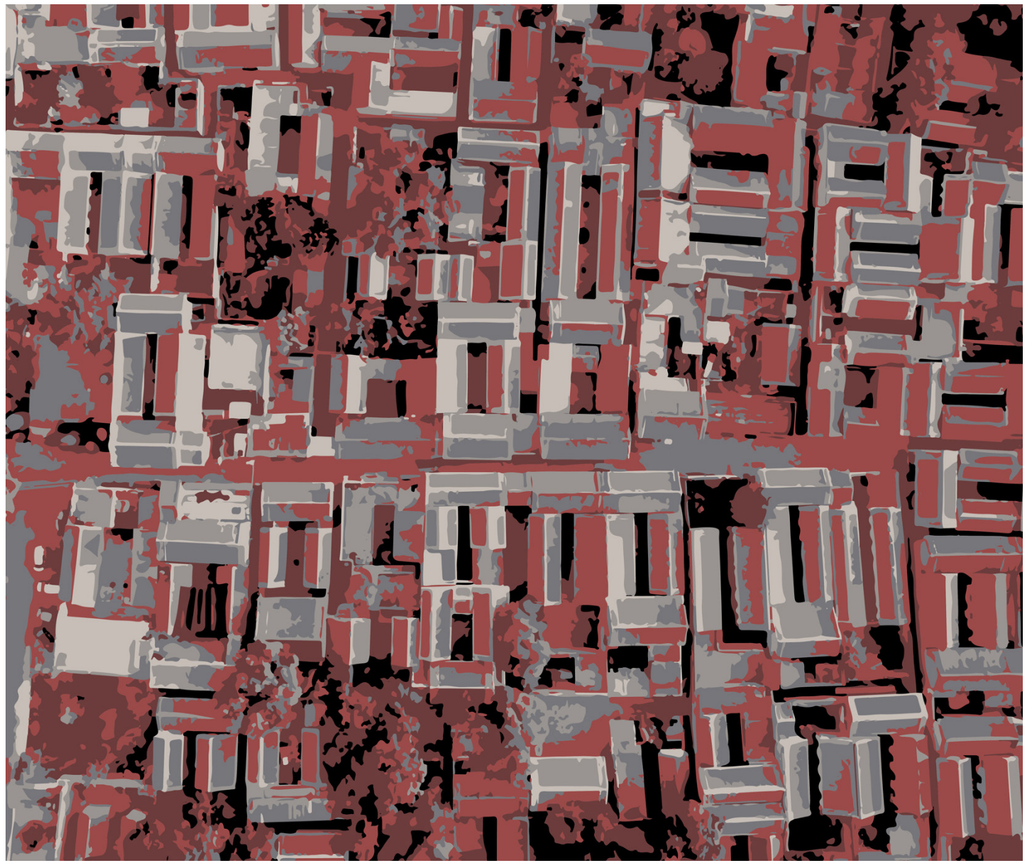

Fig. 17

1 // INTRODUCTION

_Vernacular courtyard house

1.3 For centuries, Chinese cities were places of goods exchange rather than a place of permanent dwelling. Villages reflect the authentic “China” in essence. Vernacular architecture[10] has been organized from top to bottom, but built in the opposite way. Bottom-up approach is the base for the construction of rural settlements because they were socially constructed. The management of the construction of these buildings was based on clan and family. Vernacular buildings were not built by professional architects but, as in the Middle Ages in Europe, by “carpenter-architects” whose oral transmission of knowledge created traditional Chinese Vernacular architecture. Construction works were based on the collaboration and negotiation by many actors and based on traditional values and social rituals. Vernacular China was co-built by clan members, scholars, carpenters, villagers and Feng Shui masters.[11] A mutual learning and shared process is characterized during the construction phases. Feng Shui ideology was used to help spaces to achieve an optimum functionality, harmony of interiors and exteriors and QI flows. For a building to have a good Feng Shui, it has to undergo careful considerations with regards to the conditions of the site during the design process.

Some of these factors could be the building’s orientation, its form, the placement of furniture inside. These rules are determined by Feng Shui teaching, symbols and principles.

The single-extended-family courtyard houses have been the traditional building typology in many parts of China for thousands of years, since the Middle Neolithic period (5000-3000 B.C). The form of the Chinese courtyard is connected with the principles of harmony and social relationship. The courtyard house is one of the oldest typology in the human history, it’s possible to find traces of this typology starting from since 3000 B.C. and in many countries around the world: Asia, Mediterranean region and Latin-Hispanic America. During an archeological excavation, the earliest

[10] Vernacular architecture is characterized by the use of local materials and knowledge; it represents the majority of buildings created in pre-industrial China.

[9] Feng Shui is a traditional practise originating from ancient China, using energy forces to harmonize people with their surrounding environment.

courtyard house has been unearthed in China, dated at the Middle Neolithic period, built by the Yang Shao culture (5000-3000 B.C.).
Chinese ancient population favored the courtyard typology for defense and security reasons and also because it offered in light, air and views. A traditional Chinese multi-courtyard house could host an extended family of three or four generations. In order to reduce the summer sunlight courtyards were smaller in southern China, while bigger in northern China letting in abundance of sunlight during the cold winter. The courtyard, in the Chinese Philosophy, is the link between the Heaven and Earth, it is the place where people offer sacrifices to bring harmony and good fortune to a family.
In recent years Chinese economic development created some new housing forms, inspired by traditional architecture. Chinese-style courtyard garden villas has been in construction since 2000s in China. In Mainland China is possible to identify three main courtyard typologies: Siheyuan, Hui style Architecture and Tulou.

Hui Style Architecture (Fig. 18-19)
Hui architecture, also called Huizhou Architecture,[12] is characterized by black tiles, white walls, wood and brick carvings. It is prevalent not only in the Anhui Province but also in the Western Jiangxi region. This style was created by and for Huizhou merchants, famous for their tea, salt, silk, cloth and paint trade. Many of those merchants became very rich and invited skillful craftsmen to design and build their houses, temple and gardens. Many of their spectacular mansions were built during the Ming (1368-1644) and Qing (1644-1912) dynasties. Villages are strictly connected with nature, located near rivers or canals. Buildings are characterized by Horse-head walls to prevent fire from spreading and protect the courtyard from the wind and rain. During the imperial times, the colors of buildings were strictly regulated, black tiles and white walls were only permitted for private dwellings. From outside a Hui residence looks modest, only two-storeys in height and consists of a single compound, characterized by an inner courtyard with several satellite buildings around its four sides. Owner's wealth is displayed in the interiors, with finest brick sculpture, stone carvings and woodcuttings.

Jiangnan Courtyard Houses (Fig 20-21)
Similar to the Hui Style buildings, the courtyard houses in the Jiangnan region share common architectural elements like white walls and black tiles. Courtyard houses are located in the numerous water towns of Jiangnan region, before the invention of railroad, rivers and canals formed an elaborate system of waterways used for the exchange of goods between northern and southern regions of eastern China. Rivers and canals are flanked by ancient buildings, shops and workshops built on platforms of wood and stone pillars. Water towns flourished in the region between the 13th and 19th century, during the Ming and Qing dynasties. The Jiangnan Courtyard houses are usually wooden structured with whitewashed brick facades, along the streets are aligned buildings with uninterrupted wooden facades. Richer families usually own buildings on both sides of the street and developed their houses around courtyards along a central axis, wealthier was the family more pavilions were built. The family's power was also expressed by spirit or screen wall in front of their buildings and arranging homes in the traditional style of a Siheyuan. A peculiarity of these courtyard dwellings is their arrangement, almost always are perpendicular to commercial streets (the main source of income for the family) which are usually in turn parallel to waterways.

Siheyuan (Fig. 22-23)
A traditional type of courtyard housing in Beijing, Siheyuan[13] reflects climatic, philosophical and spiritual aspects of Chinese culture. Beijing's hutongs are alleys formed by lines of Siheyuan, traditional courtyard dwellings in the heart of the Chinese capital. Siheyuan are characterized by a central courtyard, enclosed by three or four buildings, it is simple and spacious and permits at the same time privacy and social activities. Hutongs were built along the axis north-south and east-west according to the rules of Feng Shui to optimize solar lighting and resist the cold wind. Siheyuan survived many transformations and mutations during the 20th century, initially an uncontrolled construction, in a second time a wide demolition took place due to speculative building interests, and finally the Chinese government protected the remaining ones. Siheyuan means "quadrangles", appeared the first time during the Yuan Dynasty when Mongols conquered Beijing. Many survived hutongs were built during Ming and Qing dynasties which inherited Yuan building traditions. A massive construction of Hutongs happened between 1950s and 1990s due to the rapid expansion of the Chinese population. During the Communist era, destroying old houses as a symbol of previous corrupt society, was a priority. However, in order to host more people, the plan of Siheyuan had to be changed, increasing the capacity by building new bedrooms in the courtyard, covering the original open space. From 1950 to 2005 the Siheyuan areas decreased from 19 km2 to 3 km2 due to the conflict between modernization and preservation.

Tulou (Fig. 24-25)
A unique type of rural dwelling in southern China, characterized by a central courtyard. Built between the 13th and 20th century, each Tulou[14] represent a small village. Houses has a vertical layout, with two or three rooms on each floor.

[12] Huizhou architecture is one of the traditional Chinese architecture styles, Xidi Village is a typical Hui residence, listed as a World Cultural Heritage Site by UNESCO.

[13] Siheyuan (in Chinese: 四合院) was the basic pattern used for residences, temples, monasteries and palaces in Beijing and rural Shanxi.

[14] Tulou (in Chinese: 土楼) is communal traditional residence for Hakka people.

Housing units are identical and there is no distinction between families who live there. Other interior spaces (such as a water well, bathrooms or wash house) and outside (for example the agricultural land) were shared by an entire community. Central courtyard can be free or packed with buildings. The Hakka people were from the Central Plains and found refuge in southern China. Tulou is occupied by a large family clan made of several generations to defend each other. Tulou are made with local resources, like rammed earth (exterior walls). They can be circular or square shaped. First two storeys' bottom is reinforced with rocks and doesn't have any windows for the purpose of defense. There are windows only from the third to the fifth floor, of varying sizes. The roof protrudes from the wall in order to protect rammed earth from rain. "Closed outside, open inside" is the Tulou concept.

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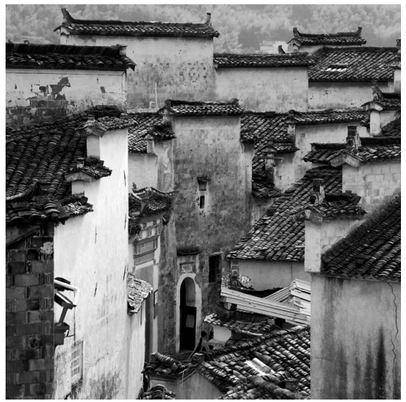
18. Xidi Village



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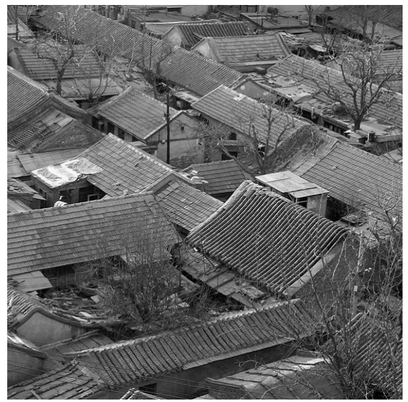
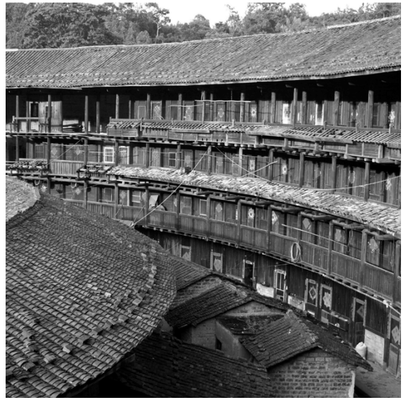
19. Hongcun Village
20. Commercial street, Wuzhen
21. Courtayrd houses, Wuzhen





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22. Hutong, Beijing
23. Xianming Hutong
24. Tianluokeng Tulou
25. Fujian Tulou

Fig. 26

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_List of Figures

COUNTRYSIDE

2 // COUNTRYSIDE

The urbanization of the Chinese countryside is a spatial manifestation of the modernization process and of developments necessary for People's Republic of China to became an industrialized country. To understand those, the drastic changes and conflicts that they have generated must be put into perspective with their historical, economic and cultural context. As the Chinese theorist Jiang Jun, founder of the Urban China magazine, recalls: relocating current phenomena in its historical context allows us to reveal the signs of recurrence, continuity and ruptures of a secular culture, which is based on myths and where there is still confusion between beliefs and reality. The purpose of this chapter is to tell the history of the Chinese countryside, from its earliest artistic depiction (shanshuei) to the plan for "building a new socialist campaign" based on China's eleventh five-year plan in 2005. The massive urbanization that the rural world is experiencing is the consequence of the plan for "the construction of a new socialist countryside". This has led to a homogeneous and uncontrolled urban expansion without considering the local architectural peculiarities and towards creation of a "generic city". This ferocious urbanization is contrasted by the phenomenon of "nail houses" whose owners refuse to abandon their homes in exchange for negligible money compensation. These punctual phenomena represent a resistance to the uncontrolled urbanization process of the Chinese countryside. The urbanization of the Chinese countryside has led to their economic development, the creation of Taobao Villages, through E-commerce, and has allowed creation of new businesses and the reduction of the gap between rural and urban resident.

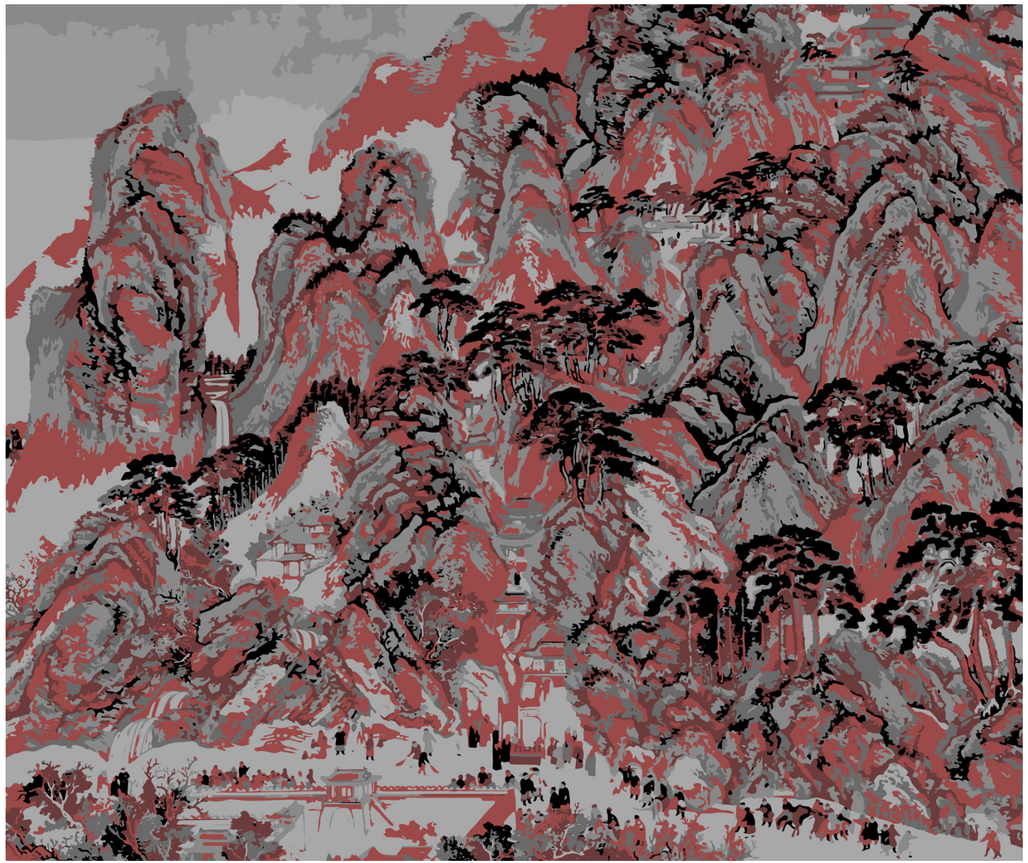

Fig. 27

2 // COUNTRYSIDE

_Identity and perception of the Chinese countryside through history

2.1 The urbanization of the Chinese countryside can be seen as the spatial manifestation of a process of modernization and development. These drastic changes and the consequent conflicts that arise must be put into perspective with their historical, economic and cultural context.

The countryside in Chinese ancestral civilization

The art of painted landscapes[15] teaches the permanence of the ideal relationship of a man with the countryside. Whether it is the representation of a wild, artificial or productive nature, natural elements are always the predominant ones, illustrating the Chinese conception of man's place in the world (Fig. 28).

To understand the rural world through the history, it's necessary to refer to many myths and founding characters. Chinese society was formed from/by a legendary dynasty - the Xia dynasty. It was believed to be based on two mythical characters named Nuwa and Fuxi. Nuwa was primarily responsible for the reorganization of the world, until then in complete chaos. His brother Fuxi, the first emperor of China, established government, law and order. He was above all the creator of the calendar that governs the seasons, the basis of agricultural techniques (Fig. 29-30). The roots of Chinese agricultural culture also go back to another founding figure, a divine farmer: Shennong. He was also the creator of traditional Chinese medicine and agricultural science. The founding couple formed by Nuwa and Fuxi is represented, her holding a compass, him a set square, as the symbol of the dichotomous order of Chinese thought. As for Shennong, he is usually depicted with tangled hair, sitting in a cave, like a hermit in communion with nature. These legendary characters represent yin and yang, symbols of a conception of the world in which man is at the center of a harmonious balance between sky and earth. This good knowledge of nature, agriculture and astrology gave a shape to a landscape scien-

[15] In Chinese ShanShui: 山水 refers to a traditional style of Chinese painting that depicts natural landscapes uing a brush and ink. Shan Shui paintings has been developed during the 5th century.

ce: Feng Shui, which is practiced up till now.
Chinese ancestral agriculture is described in the Shanhaijing or Book of Mountains and Seas, a work dating back to the 3rd century B.C. Agricultural know-how and agricultural autonomy were essential goods in ancient times. Along its history China has been always particularly populated, despite a limited amount of arable land and an unequal distribution of water resources between the north and south.[16] Ancestral agriculture is divided into two main types that exploit climatic and topographical factors as well as hydraulic resources, mainly developing along the drainage basins of the Yellow and Yangtze rivers. A series of archaic agricultural systems guarantees and simultaneously protects from floods and periods of drought. North is characterized by drier climatic conditions. Cultivation of millet has developed in the North, while in the South, with a more humid climate, there are mainly rice fields, an agriculture for which water control is essential. The practice of submerged rice fields allows to produce up to three annual crops at the same field. From the beginning, China's agricultural landscapes were shaped to accommodate terraced fields that can hold water.
During the 11th century B.C. the sacred writings place the number nine on a pedestal giving it cosmic powers. Omnipresent in ancient writings, the number "9" represents the ideal spatial and social organization model. The magic square takes the form of an orthogonal grid divided into nine squares. Eight families cultivate their square as they wish and the ninth must be cultivated by all, to allow the community to pay taxes and offerings to the deities. This system is an ideal concept of the organization of a territory more than a form to give in a territorial reality. In fact, looking at the traces of agricultural terraces, fields and ancestral villages, it is easy to see that they developed according to organic forms, adapting to natural elements such as rivers and reliefs.
The Chinese ideal city is based on following the form of a square of 9 on the side (3735 sqm) and surrounded by a defensive wall. The term "city" in Chinese "chengshi" consists of two ideograms[17] that correspond to its two main roles: defense (cheng, the bastion) and trade (shi, the market). The first Chinese cities are contemporary to the Confucianist ideology, which appeared in 551 B.C. widely spread in Chinese culture. Confucianism is based on the equality of all, on the importance for all to have a moral requirement and on access to some form of education, regardless of their origin.
Cities became convenient places for commercial and cultural exchange, but soon emperors and feudal lords realized the potential of cities as the basis for controlling rural territories. From that moment on, the obsession of the governors would be to constantly reform a rural society that was considered too irrational, superstitious and

[16] China's limited space for farming has been a problem throughout its history, leading to chronic food shortage and famine. Only 10% of Chinese land can be cultivated and support the 20% of the global population.
[17] In Chinese city is: 城市 (ChengShi)

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28. Inquires of the Dao
29. Showing rice culture harvesting
30. Autumn Colors on the Chiao and Hua Mountains

autonomous. In a certain reciprocity, an incessant struggle was established between the reforming urban powers and another order inherent in a rural society steeped in unequal and organized customs, fantasies and divisions.

Chinese rural world at the beginning of the 20th century

The book Peasant Life in China[18] marks a milestone in understanding Chinese agricultural history. Kaihsienkung was a village located in the Yangtze valley (Fig. 31), dismantled a few months after the publication of the study in 1939, following the arrival of Japanese armed troops. It was located at the crossway between two main waterways: the Yangtze river and the Grand Canal.[19] The traditional economic organization of the Chinese village is standard: "The man at the fields and the woman at the loom" (Fig. 32). Complex family and interpersonal relationships govern individual's entire life, place in life, profession, marriage and the number of children. Parental relationships play a crucial role: the child of the family bears full responsibility for his or her parents. Traditionally, the son goes to educate himself and make a fortune in the city, but he always ends up returning to his village, to support his parents or, at least, to honour their memory. During the first half of the 20th century, peasants have a rather narrow range of mobility (Fig. 33). The walking distance between two villages is about twenty minutes. They maintain relations mainly with surrounding villages and, more occasionally, with the nearest city.

A village community is an aggregate of households in a compact residential area. Small shops are concentrated around bridges. The residential area is surrounded by farming land, on the outskirts of the village there are two temples a public school and a silk factory. The basic social group in the village is the Chia, an expanded family, all members of this family possess a common property.

In 1937, the year of Hsiao-Tung Fei's observation, some signs of recession or even misery were noted:

"The hunger of the population is the real problem in China [...]. The main cause of the depression stems from the relationship between the village industry and the world market."[20]

Financial issues were caused by the decline of the silk price due to the industrial development of this key sector of Chinese economy. Silk Industry was developed in the villages around Lake Tai.

The study represents one of the last witnesses of the Chinese rural world at the dawn of the profound changes that occurred with the advent of the People's Republic of China in 1949. The strong communitarianism stemming from Confucianism, present in Chinese society but particularly in rural areas, would be one of the great enemies of the Maoist socialist revolution when it would propose to dismantle the long-standing patriarchal structure of rural society. The combination of tradition and modernity often emerges as an inherent antinomy to the evils of contemporary China.

The countryside-centered conception in the Maoist era

The magazine "L'Architecture d'aujourd'hui" testifies the evolution of the rural landscape and the change in the relationship between city and countryside. The article published in 1979 "Chine 1949-1979" describes Chinese rural situation. Much attention is paid to the impact and future of the campaign-centered conception of society carried out by Maoist socialism. When the People's Republic of China was proclaimed, the country was largely agricultural: the rural population represented 86% of the total population and, with less than 7% of the world's arable land, China fed a fifth of the global population. Chinese countryside has a very high population density and it is characterized by a multitude of small farms.

The Maoist revolution was based primarily on the production force of the rural population. It differed from Soviet communism which based its fight mainly on the struggles of urban workers:

"The countryside is the red base and the city is the state power. The army is a peasant and the political cadres are urban. Finally, agricultural production is an industrial survival and modernization, the possibility of a better future"[22]

The new Republic of China will undergo major agrarian reforms that will mainly affect rural areas. In 1950, initial reform consisted in redistributing agricultural land to all rural families, expropriating the large and rich families of landowners and merchants (Fig. 34). The result was an agrarian system consisting of a series of private properties of rural families. This first phase of reforms hardly corresponded to the Communist-Maoist ideology and its struggle against private property. In 1956 it was followed by a collectivization campaign (Fig. 35) that put an end to the private ownership of agricultural plots. The famous village of Dazhai was erected as a founding myth of a new Chinese society. This village in the Shanxi province, an ideal Maoist village, transformed into a production brigade following the collectivization of the land, becomes the example to follow for the whole country. Villagers of Dazhai have done gigantic work in the service of ideology. They significantly increased agricultural land by remodeling the surrounding mountains and installing hundreds of new small agricultural terraces.

Under the influence of Soviet ideology, the first five-year plan[23] generated immense enthusiasm in 1953 before quickly plunging the country into a

[18] Hsiao-Tung Fei, Peasant Life in China, a field of country life in the Yangtze Valley, London, 1939.

[19] The longest artificial canal in the world, linking Yellow river and Yangtze river, the canal arrives in Beijing passing throw Zhejiang, Jiangsu, Shandong and Hebei provinces. The oldest part of the canal dates back to 5th century B.C. during the Sui Dinasty.

[20] Hsiao-Tung Fei, Peasant Life in China, a field of country life in the Yangtze Valley, London, 1939.

[21] Chine 1949-1979, L'Architecture d'aujourd'hui, n'201, February 1979.

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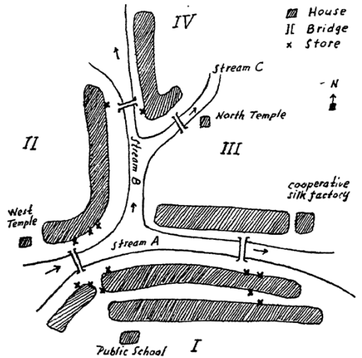
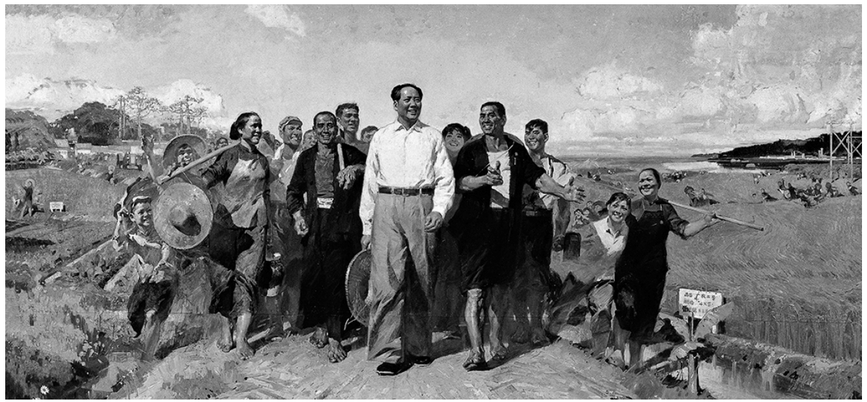


Map III.—The Village Plan



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31. Village plan of Kaihsienkung
32. A Chinese peasant grinding rice
33. Folk scenes in old countryside
34. A rich merchant family

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35. Chairman Mao Inspection of Countryside in Guangdong
36. Famine of 1959–1961

series of disasters (Fig. 36). China then experienced a series of national famines, deadly purges and social crises. From 1958 till 1960, the political and economic errors of “the great leap forward” (duyuejin) were seen as a devastating culmination of Maoist rule. During this period, all rural populations were called to participate in a collective effort for an accelerated industrial and technical development of the country (Fig. 37). They carried the double burden of increasing agricultural production and achieving exceptional industrial performance. Those were the days of the infamous backyard stock steel foundries, for which farmers had to cut down entire forests, abandon their fields and even melt their own tools to achieve steel production quotas. The management of fields and crops was the business of the leaders of the labor brigades and no longer of the farmers themselves, who were relegated to the simple role of executors. From 1959 the disastrous consequences of this policy affected the whole country. It is estimated that 20 to 40 million fell victims of famine and poor health conditions.

This break of the agricultural knowledge, caused by the transfer of the workforce from the countryside to the industries and related to disastrous national policies, marks this dark period in which the countryside was left in a situation of uncultivated land. The situation in the city was not much better: the entire urban population belonged to the labor units (danwei). But, they weren’t competitive and productive.

During the ten years of the Cultural Revolution, from 1966 to 1976, the countryside was again seen as the ideal solution to solve urban poverty. Nearly 35 million urban citizens were sent to the countryside, about a quarter of the urban population, during the process known as “justification” (xia fang).

Ideology exploited urban failure and justified the sending of this horde of unemployed youth with the promise of a “purification of the values of the countryside” and an apprenticeship of the “virtues of rural populations”[24]. In conjunction with the transfer of citizens to the countryside (Fig. 38), we are witnessing a particular territorial phenomenon: a process of industrialization without urbanization.

“The new factories on the outskirts remain the only buildings visible in the middle of the fields, and one gets the impression of” ruralizing the city and urbanizing the countryside”[25]

The result was a blurry transition between the cities and the surrounding countryside, both spatially and socially. Paradoxically, this period could have corresponded to a form of realization of the Marxist-Maoist dream: reduction of the distinctions between city and countryside, passage from the city of consumption to the city of production and from the agricultural to the industrial countryside. The failed attempts of the Maoist era to build a new China led to the looting of the countryside and the sacrifice of generations of farmers (Fig. 39).

The economic reforms of Deng Xiaoping

Deng Xiaoping[26] (Fig. 41) took over the leadership of the new government at the 3rd plenum of the 11th Central Committee of the Communist Party of China in December 1978, distancing himself from Mao’s ideological ambitions and focused primarily on restructuring the country’s economy. He launched the four modernizations: industry and commerce, education, military organization, agriculture. Important reforms were launched and at this new turning point China was reborn from ashes. The rural world was once again reinvented. The new productive organization, the “family responsibility system”, made it possible to maintain collective ownership of agricultural land, while guaranteeing individual rural families the right to use the land. The farmers had the usufruct of the land owned by the rural community. They had to pay production quotas to the state but they can have maintained the production surplus. After a dark period of thirty years, of sacrificed peasant lives and forgotten knowledge, the link between know-how and production has finally been re-established: in the span of six years, from 1978 to 1984, cereal production has experienced unprecedented growth of 25%.[27]

While 81% of the Chinese population was still rural in 1979, the active promotion of small towns and the proliferation of townships and township enterprises radically accelerated rural urbanization across the country (Fig. 40).

During the National Conference on Urban Planning in 1980 the idea of controlling the size of large cities was approved; at the same time to moderate the development of medium-sized cities and promote the development of small cities and rural industries.

The development of these rural enterprises took advantage of the right granted to peasants to work outside agriculture to absorb part of the huge surplus of agricultural labour accumulated during the period of collectivization. However, these rural industrial structures based on township enterprises very quickly turned out to be unprofitable compared to the competition. Furthermore, the lack of national funds placed burden on farming communities to raise funds for the development of public infrastructure for education, health and culture. Faced with bloodless countryside, geographical disparities and growing inequalities, the peasant world found itself forced to exile to the big cities.

The new Socialist Countryside

Since the adoption of the Eleventh Five-Year Plan[28] in 2005, rural China has experienced many reforms and upheavals. First, the country was structured in administrative regions, centered on the cities in which the countryside was incorpora-

[23] The first Five-Year Plan (1952-1957) increased the country’s economic growth in key sectors: industries, steel and coal production and machine building.

[24] Campanella, T.J. The concrete dragon: China’s Urban Revolution and What It Means for the World, New York, Princeton Architectural Press, 2008

[25] Leonardon 1979, Terres chinoises: mutations et défis urbains en milieu rural / Marlène Leroux, Genève: Métis; 2019

[26] Deng Xiaoping (22nd August 1904 – 19th February 1997) has been the supreme leader of the People’s Republic of China from 1978 to 1989, after Mao Zedong’s death.

[27] Xu Z. Urbanisation et croissance des villes en Chine, thèse de

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37. Famers turned into steel workers
38. Collective farming, 1959

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39. Reading of the land reform, 1950
40. Buying a new TV in the 1980s
41. Deng Xiaoping billboard

ted. Considered centers of production, rural areas were incorporated inside cities in order to guarantee their food autonomy. Urban areas were therefore organized as a series of concentric circles: a city center, surrounded by a series of residential areas, industrial areas and rural areas. Cities were administrative units officially designated by the central government, these urban entities took on functions at different levels, far beyond urban borders. A rigorous and highly hierarchical system of administration included cities, city-counties, city-prefectures, sub-provincial cities and city-municipalities. The objective of land management by the administrative regions was to control the size of cities and plan their demographic and spatial growth as much as possible.
This administrative division and the intertwining of entities made it difficult to understand the territory: by including rural territories in urban administrative regions, any indication of the reality of the territory and of the distinctions between types of territory was lost.

"The reclassification between 1982 and 1990 from rural to urban areas represents an important part of the degree of urbanization in China, so we better understand how it is possible that in such a short time 212 new cities and 6661 new towns have appeared in such a short period of time".[29]

Since the establishment of the People's Republic of China[30] there has been a rupture between city and countryside. The measures resulting from the institution of the division of the territory into two categories - on the basis of criteria ratified in 1955 by decree of the Council of National Affairs - favored only cities. Urban workers enjoyed advantageous status: they were employed or received a life pension and have access to health care and housing. Meanwhile, rural dwellers were organized in communities and have little access beyond basic education and a precarious health system. Furthermore, the lack of state funding for rural areas led to the lack of infrastructure and thus hindering their development, widening gap between the city and countryside gap.
This unequal treatment of the territories and their populations has very quickly translated into a massive rural exodus (Fig. 42) on a national scale which still happens today. To count the extent of these population shifts, the strategy was not to rebalance the investments and status of the two types of territory, but rather to create a control system for internal migration and individual mobility.
In 1956 an extremely restrictive residence permit system (hukou)[31] was introduced, which marked a second decisive break between rural and urban society through the stigmatization of rural populations. Urban residents earn 3.3 times more on average than rural ones. It is estimated that nearly 240 million rural people will move to urban areas by 2025. If the current trend persists, 221 urban entities could exceed one million inhabitants - against 35 in Europe - or even reach 5 million inhabitants for 23 of them.[32]
In the 2000s, Chinese national politics underwent a profound reorientation: it has focused on social issues, in search of a more egalitarian society. This new trend took the form of the concept of scientific development (kexue fashan) summarized by the famous formula of "building a harmonious society", first mentioned during the 16th National Congress of the Communist Party of China in 2002 and supported by the Central Committee in 2006. It mainly aims at reduce the gap between rich and poor, fight corruption, improve access to education and health and ultimately reduce pollution.
The Central Committee adopted in October 2005 the eleventh five-year plan (2006-2010) calling for "the construction of new socialist countryside".[33] The formula, still steeped in the rhetoric of the founders of the People's Republic of China, remains very vague, but its objectives are clear. It is a question of carrying out three movements simultaneously: the de-densification of urban centers, the absorption of the current rural exodus and the limitation of the one to come. The program for the construction of the new socialist countryside thus addresses the "three rural problems" (the peasants, the countryside, agriculture). To improve living conditions in rural areas and maximize agricultural profitability, it intends to develop basic infrastructure in rural areas, modernize agriculture and improve the socio-economic situation of farmers. In this respect, the eleventh five-year plan provides for the integration of surplus agricultural work into the secondary and tertiary sectors and the displacement of 45 million rural workers to cities and towns.
The government also wants to tackle, once again, the problem of rural exodus. To counteract the migratory movement towards the large urban poles, it tries to direct its flow to local destinations - "leave the land without leaving the canton". The government therefore opts for a simple strategy: taking the city to the countryside. The "three rural problems" can only be solved in the long term through urbanization (Fig. 43). In 2008, under the presidency of Hu Jintao, a revealing semantic change took place, with the addition of the adjective rural in the title of the ministry dedicated to spatial planning: it became the Ministry of Housing and Urban and Rural Development.
In 2011, the 12th Five-Year Plan, touted as "the new chapter of socialism with Chinese characteristics",[34] follows on from the previous plan. It is characterized by important reforms from the rural world: modernization, mechanization and scientific progress, especially when the theme is that of the country's food autonomy. In fact, if the danger of the scarcity of arable land is widely emphasized, great trust is placed in science and technology to produce more and more food with

[28] The Five-Year Plans consists of a series of social and economic development initiatives. The first Plan was enacted in 1953, an intensive program of industrial growth and socialization based on a Soviet economic model.
[29] Terres chinoises: mutations et défis urbains en milieu rural / Marlène Leroux, Genève: Métis; 2019
[30] Proclamated on 1st October 1949, after a civil war between the government of the Republic of China and the forces of the Communist Party of China.
[31] Hukou (in Chinese 户口) has origin in ancient China, nowadays identify a person as a permanent resident of an area. There are two types of Hukou: Urban Hukou and Rural Hukou, benefits from

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43 44

42. Migrant workers in city
43. New socialist countryside:Huaxi Village
44. Socialist countryside

less land and water. The 12th Plan reinforces the previous ambitions, supporting the urbanization of rural areas (Fig. 44), the improvement of national transport systems and the standardization of new cities, orientations summarized by the formula “accelerate the development of new socialist countryside”.
From a purely functionalist point of view, Chinese experts do not take into account the specific nature when it comes to evaluating the rural world. Considering only negative aspects, such as streets with dead ends, the village does not exploit most of the territory, the zoning is chaotic… The main objective of the negative judgment of rural areas is to punish their lack of modernization and thus to demonstrate the need for their destruction.
In order to develop rural infrastructure, in 2006 339 billion yuan (about 44 billion euros) were allotted for the construction of roads, bridges, hydraulic systems, water networks and biogas. The measures also included the re-evaluation of agricultural taxes, abolition of university fees for rural inhabitants, a national health insurance program in all rural areas, subsidies to farmers depending on the area of their land as well as a profound reform of the residence permit.[35]

the government are different and based on the type of Hukou.
[32] Aveline-Dubach, N. Editorial, Perspective chinoises, n’2, 2013
[33] “Building a new socialist countryside” is more than a political slogan and has the potential to successfully overcome rural poverty and the urban-rural divide. The Plan is based on a new tax payment system, transferring money to poor local governments in order to implement administrative reforms, increasing rural income through a mixture of infrastructure investments, urbanization, agricultural specialization and expansion of social well-being.
[34] The socialism in China was initiated after the launch of reform and opening up in 1978, the new Plan aim to realize socialist modernization during the first stage (2020-2035) in order to create a “great modern socialist country” that is “prosperous, strong, democratic, culturally advanced, harmonious and beautiful”.
[35] Marlène Leroux, Terres chinoises: mutations et défis urbains en milieu rural, Genève, Métis, 2019.

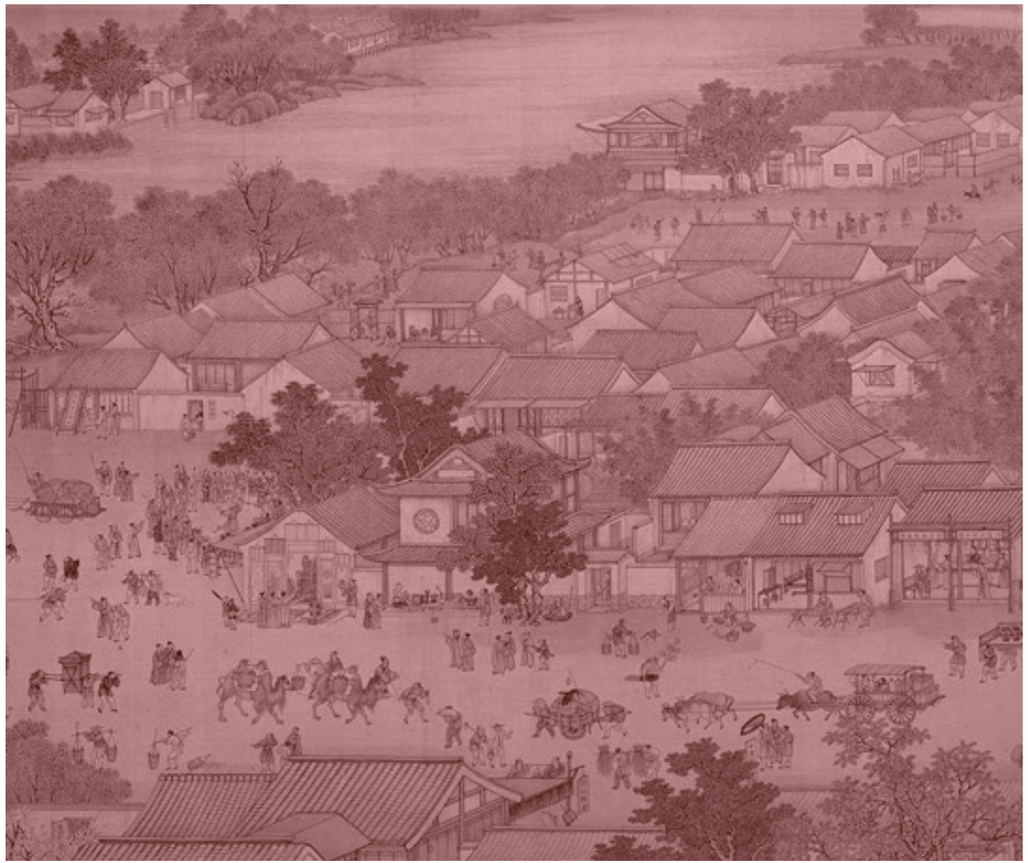


Fig. 45

2 // COUNTRYSIDE

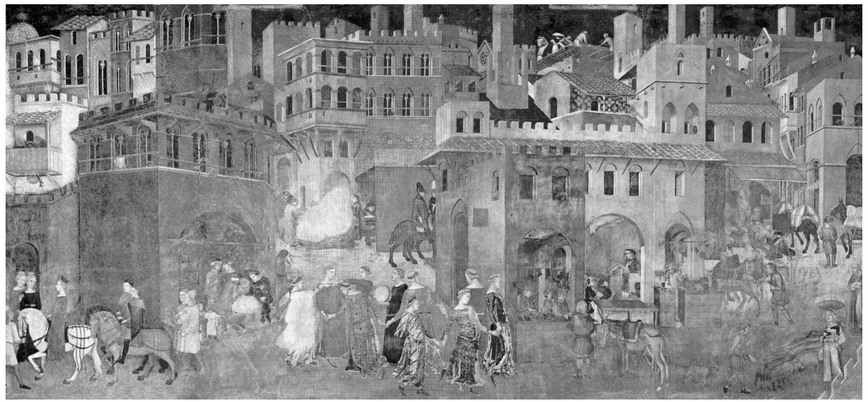
_City and countryside through ancient paintings

2.2 Ancient paintings can serve as an important source of information about the urban form of cities, their relationship with the countryside and the lifestyle in ancient time. I took in consideration two ancient paintings, very similar in their composition and both commissioned by the government of the city. The first one is an Italian fresco of the city of Siena “Allegoria ed effetti del buono e del cattivo governo” and the second one is a Chinese painted silk handscroll “Along the River During the Qingming Festival”. Particularly the second painting and its several versions shares with us abundance of information about ancient Chinese society.

Allegoria ed effetti del buono e del cattivo governo

The painting is an allegorical depictions of a good and bad government, painted by Ambrogio Lorenzetti between 1338 and 1339 located in Siena’s Palazzo Pubblico. The series consists of six scenes in the city and in the countryside. This fresco represents an important key point in the birth of the concept of landscape in Italy. The painting shows three antinomies that occur in the culture of the fourteenth century. The first arises from the encounter between the internal space (the house) and the external one (the vegetable garden); the second is given by the contrast between city and countryside; the last antinomy is given by the contrast between the civilized world and the savage world. These three antinomies create three new architectural forms: garden, villas and belvedere.

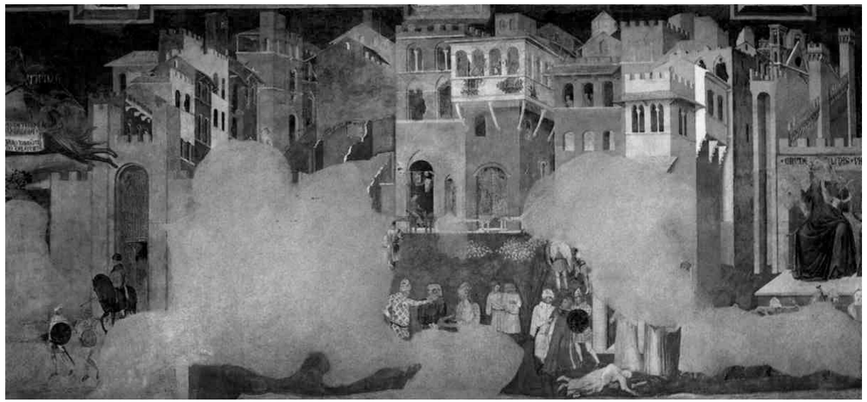
The effects of the good government inside the city are shown by city’s rich palaces, shops and squares (Fig. 46-47-48). The city is populated by hard-working inhabitants, dedicated to crafts, trade and construction. There are also events unrelated to work activities, a young girl on horseback with the crown on her head preparing for marriage, is observed by two women hugging each other and by another young man from behind, followed

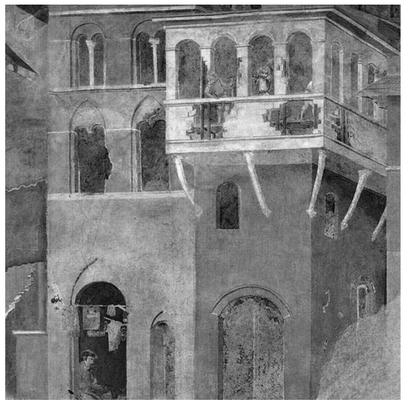


46

47 48

46. City, Effects of good government
47. City wall, Effects of good government
48. Countryside, Effects of good government





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50 51

49. City, Effects of bad government
50. Damaged building in the city, Effects of bad government
51. Countryside, Effects of bad government

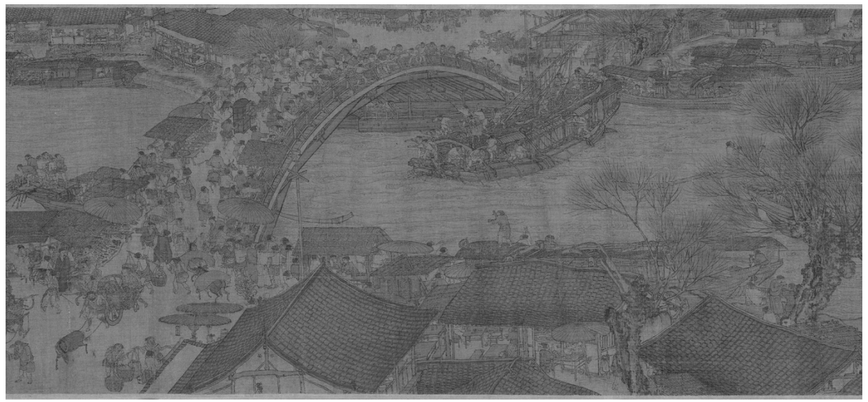
by two other young men on horseback. The city is bounded and separated from the countryside by the city walls. Near the walls, the square seems to be filled by those urban work activities that are most closely linked to the countryside: a shepherd is leaving the city to go to the countryside with his flock of sheep, a gentleman and a lady on foot carry, respectively, a basket of eggs and a duck, all goods from the countryside to be sold in the city. In the countryside you can see citizens and peasants traveling the roads, young people hunting with crossbow amidst vineyards and olive trees, peasants sowing, hoeing and plowing the land, dominated by vineyards and olive groves. Farmhouses, villas, fortified villages are clearly recognizable.
The effects of bad government on the city (Fig. 49-50-51) show a city in danger and full of rubble, because its citizens destroy rather than build, killings are carried out, innocent people are arrested, economic activities are miserable. The effects of the tyranny, therefore, have consequences on the countryside, invaded by armies and set on fire, which even burns some houses, while the few peasants present appear totally unsuitable for their role.

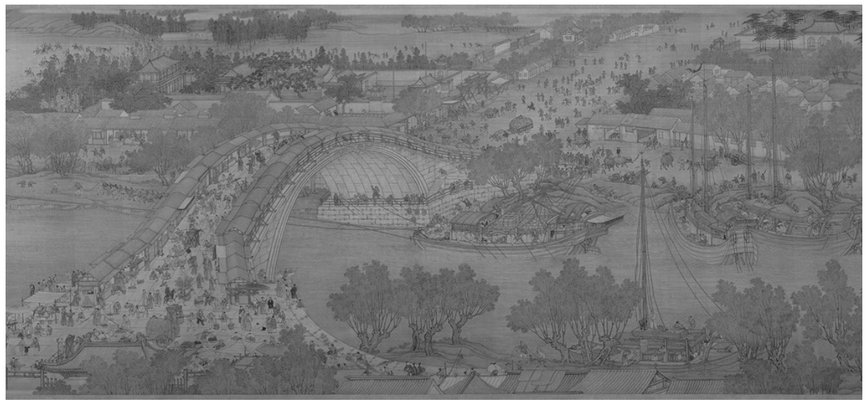
Along the River During the Qingming Festival
This painting represents a unique version of the Italian fresco, showing the Effects of the good government on the city and the countryside set in the Chinese panorama. Also in this painting the city and the countryside are represented together but divided by a fortified wall, portraying scenes of everyday life. In this painting people are gathered along the Bian River for the festival and engaged in all kinds of activities. This masterpiece reveals numerous details about people's daily life during the Song dynasty, their clothes, local customs and architecture (Fig. 52-54).
The panoramic painting, attributed to the Song dynasty artist Zhang Zeduan,[36] captures the daily life at all levels of the society, from rich to poor, in rural and urban areas. The handscroll capture depicts the ancient capital, Bianjing[37] during the Qingming Festival. The countryside and the city are the two main sections of the painting. The river flows along the entire length of the painting, highlighting the importance of water canals since ancient times and their role in connecting not only cities but also rural areas with urban areas.

"On a good day a riverboat could hope to cover fifteen to twenty-five kilometres. The imperial grain vessels seldom kept the same crew from start to end of a journey—there would be changes along the way [Grand Canal], and sometimes the grain might be stored in granaries en route if repairs or bad weather impeded progress. The lives of the river merchants and their captains were a constant procession of misty peaks and water towns, as elegantly conveyed by the Song painter Zhang Zeduan in his famous scroll painting Along the River During the Qingming Festival".[38]

The painting is subdivided into three major sections. The first one (the right one) is the rural area of the city, there are cultivated fields and rural people like farmers and pig herders. A small street gradually becomes a city road. The middle section is characterized by many businesses, there are many shops and vendors that sells medicine, artifacts, food and dyed fabrics. Vendors and their shops are also along the great bridge, called also Rainbow Bridge. The bridge is the center and the main focus of the entire handscroll, as a vivid social and economic center. A boat seems to be about to crash into the bridge while the crowd along the river is shouting and gesturing toward the boat. The last part of the scroll (the left one) is an urban area protected by the city wall, there are economic activities like shops and hotels, private residences, official buildings and mansions with backyards. The size and shape of urban streets are rich of folk activities, courtyard and housing. Squares and street corners are occupied by local markets.
During the Qing Dynasty others versions were made, particularly famous one is the "Qing Court Version" (Fig. 53-55) made by the cooperation of five different court artists.[39] This handscroll is double the original version, the rainbow bridge is made of stone instead of wood, and there are many shops also along sides of the bridge (similar to the Rialto Bridge in Venice). The city of Bianjing is represented bigger than the previous one, the city walls has been implemented and more buildings are depicted inside the city. Furthermore, the painting uses the principles of Western perspective and there is even a Western-style architecture building in the painting.

[36] Zhang Zeduan, 1085-1145, (張擇端) was a court painter during the transitional period from the Northern Song to the Southern Song dynasties. He was a pioneer in the Chinese landscape art, which later became famous as Shan-shui.
[37] Present day the city is called Kaifeng.
[38] Ball, P. The Water Kingdom. A Secret History of China; The Bodley Head: London, UK, 2016.
[39] Chen Mei (陳枚), Sun Hu (孫祜), Jin Kun (金昆), Dai Hong (戴洪), and Cheng Zhidao (程志道)





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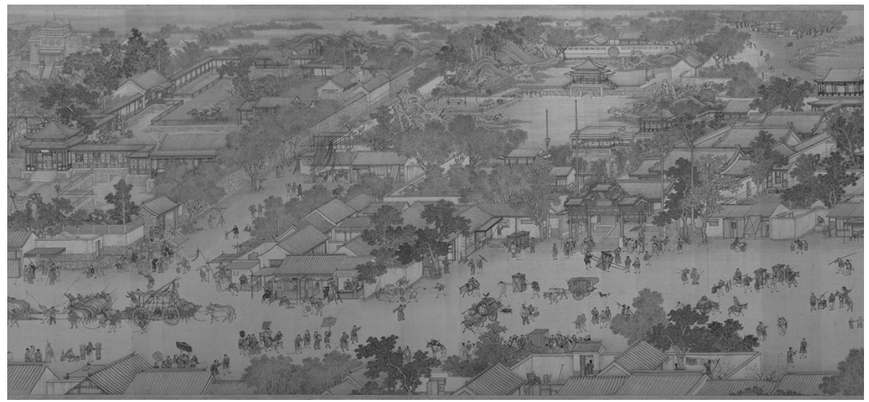
52. Along the River during the Qingming Festival, Song dynasty
53. Along the River during the Qingming Festival, Qing dynasty



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54. Along the River during the Qingming Festival, Song dynasty
55. Along the River during the Qingming Festival, Qing dynasty

Fig. 56

2 // COUNTRYSIDE

_Local resistence to change: Nail Houses

2.3 It is clear that from the territorial point of view the program for the "construction of the new socialist countryside" has caused a massive urbanization which, beyond the high production of real estate operations, cities and standardized infrastructures, has generated a significant crumbling of the countryside due to an uncontrolled urban expansion and rural desolation. The territory has been a subject of numerous attacks on the authenticity of its rural heritage, both territorial and cultural. All the ongoing processes are leaving territories towards an irreparable loss of their rural dimension. Since the 1980s, hundreds of millions of hectares of agricultural land have been destroyed.

The poorest rural residents are often confronted with this massive uncontrolled expansion. New infrastructures and buildings requires space, which means that residents are sometimes forced to move to make room for new projects. Some people refuse to leave their homes, however, often because they consider the offered compensation to them too low. These buildings in China are called "Nail Houses"[40] because they look like a nails but they can't be hammered (Fig. 57). These houses represent a "David and Goliath' struggle". Citizens fight developers and officials to prevent the destruction of their homes, refusing to vacate them. These protests have captivated audiences throughout China, heroic nail-house defenders reveal a new terrain of land rights-centered protest. Nail houses (Fig. 58) are associated with the idea of the nail: difficult to eradicate, they emerge here and there from the ground like protruding, annoying and extraneous objects because they force the builder to turn around them. They first appeared in the mid-1990s, in 1994 a reform had shifted much of the tax revenue from local to national government.

"Triggering a chain of illegal appropriations by small administrations that have begun to sell those lands they had jurisdiction to private compa-

[40] Nail house in chinese: dingzihu, a building on the way to a new development whose owners don't want to move, like a stubborn nail on a plank of wood.

nies of various types."

These buildings survive in the name of a new resistance against corruption. A law passed in 2007 makes land seizure more difficult for the local government,[41] however, the pressures and risks faced by families are high and their stories never end well. The bulldozers arrive and, destroy everything. In exchange, the displaced people get some money or alternative accommodation as compensation.

Innovative protest entrepreneurs and media experts have become increasingly effective in adopting symbols and ideas with culture resonance to shape the frames of injustice.

The Chongqing Nail House (Fig. 59) is one of the most emblematic example of this resistance against the urban expansion.[42] Wu Ping and her husband, Yang Wu and their protests became popular in 2007 on Chinese media and online forums. A new urban development project threatened their home and the one of over 280 households. Developers soon demolished all the surrounding buildings, excavating the terrain all around the house and leaving Wu's home on the top of a 17-meter-high pile of earth. The family resisted four years, despite the cuts of electricity and water. In 2007 the family negotiated for a fair compensation, an apartment in the new complex and space for the family's restaurant. The couple began to advertise their situation to gain public sympathy and pressure developers and local government to yield.

The money compensation for owners whose homes will be demolished is always a source of controversy. Offers are based on the current valuation of the proprieties, which are drastically lower than the new residences. This means that displacement is often inevitable, leading to broken communities and psychological damage from stress and violence, forcing families to seek financial compensation. Residents' petitions have limited success in court. The strong presence of the Chinese Communist Party in every sphere of social and economic life makes it extremely difficult for residents to make successful claims against the state. Court decisions are rarely made against governments, especially in areas where local governments have removed regulatory and physical barriers to the private development of new building complexes. Power cuts, limitation of services and forced eviction and demolition are common fates for nail households.

Resisting families are often stigmatized as "selfish" for trying to protect their interests at the expense of a greater good for their neighbours and the general public. Probably Nail households if consulted and informed by choices to upgrade their homes might not adopt extreme measures. Families do not become nail households overnight. Nor is a nail house the outcome of some intrinsic "selfishness" on the part of the protesters.

[41] The government has passed a series of regulations to protect the land rights of holdout tenants, including outlawing the use of violence during evictions.

[42] Jo Blason, China's nail houses: the homeowners who refuse to make way – in pictures, The Guardian, 15th April 2014.

Families often experience long-term harassment and violence and succumb to despair when they are unable to resolve disputes. Many residents begin by conducting persistent negotiations with local governments or building developers. Over time, residents become more determined, until they are willing to take extreme action to keep their homes.

When a neighbourhood is scheduled for redevelopment, residents face extreme pressure from the local government to relocate. Working closely with neighbourhood leaders to enforce the timely eviction of local residents. Various financial incentives, as well as direct threats and peer pressure, are designed to speed up the eviction process.

In this context, nail houses symbolize the inequality and injustice prevalent in contemporary China (Fig.60). However, a greater awareness of property rights among urban citizens can empower them so that they are no longer subject to the whims of the authoritarian state and for-profit businesses. Greater awareness of rights would also allow them to demand greater participation in urban planning processes that often exclude the voice of citizens.

If government, developers and Chinese citizens recognize the plight of nail owner families, rather than reject and alienate them, it could lead to a fairer system for all. Then, the nail houses will no longer be the massive tombstones of the disappeared communities.

[43] China builds road right around "nail house" as owner Luo Baogen refuses to sell, CBS News, 23rd November 2013.

Another story is told by Luo Baogen and his wife, two duck farmers who said "No" to the demolition of their house on the outskirts of the city of Wenling in Zhejiang province.[43] Their home became the latest symbol of resistance in the frequent standoff between Chinese homeowners and the local government, accused of offering small compensation to vacate the entire neighborhoods for big redevelopment projects.

The new road to the railroad station was interrupted by the Luo's House. Usually local authorities in China take extreme measures, such as cutting off utilities like electricity and water. Sometimes a building is demolished when residents are out for a day. Luo had just completed his home at a cost of around 600,000 yuan ($ 95,000) when the government first contacted him with its standard offer of 220,000 ($ 35,000) to relocate - which he declined, Chen said. At the end of negotiations Luo and his wife accepted the offer of 260,000 yuan ($ 41,000). The building has been demolished on 1st December 2012, after five year of resistance.[44]

[44] Jonathan Kaiman, Chinese 'highway house' is demolished after owners agree to move, The Guardian, 1st December 2012.

57

57. Nail House in Wenling

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58. Nail House in Rui'An
59. Nail House in Chongqing
60. Nail House in Shanghai

Fig. 61

2 // COUNTRYSIDE

_The future face of the Chinese countryside

2.4 China's rural revitalization provides an important example of a way that a countryside can be used. China's new countryside includes four sections: Collective economy, cultural tourism, rural e-commerce and high-tech agriculture (Fig.62). The rural revitalization strategy[45] has been put forward during the 19th National Congress of the Communist Party of China in 2017. It aims to achieve a basic modernization of agriculture and rural areas by 2035 and well-off farmers by 2050.
Chinese countryside has become in recent years a new frontier for architectural experiments, as the country is developing its countryside at a speed never seen before in western countries. The return to pastoral life has long been an ideal of the Chinese literary tradition. In modern times, living in rural areas typically involves aspects such as local policies, economic capital, infrastructure and technology. While modernization and technological progress promise better lives with modern living conditions, to some extent they also sever the link between rural life and tradition. Faced with mass-produced rural homes induced by urbanization, architects try to find a middle ground between tradition and modernization, exploiting modern technology in search of a vernacular connection.
The development of the countryside in contemporary China is unprecedented in both its size and its approaches. More importantly, this development anticipates a new solution based on China's unique conditions. "Building a future countryside" describes the countryside of contemporary China through six episodes: poetic dwellings, local production, cultural practices, agricultural tourism, community reconstruction and exploration of the future. this exhibition outlines a free space for opportunities and anticipates future development. "Building a Future Countryside" has been the subject of the Chinese pavilion at the Venice Biennale in 2018.

[45] Yansui Liu, Yuzhu Zang, Yuanyuan Yang, China's rural revitalization and development: Theory, technology and management, Journal of Geographical Sciences 30, 26th December 2020.

Rural E-Commerce

In China E-commerce has developed at extraordinary speed during last years,[46] some clusters based on E-commerce started to appear since 2000s some clusters of E-commerce are known as “Taobao Villages”. E-commerce could help rural economy and alleviate poverty in rural China. Rural E-commerce is based on internet, unlike strategic sector such as telecommunications, electricity and finance, it’s not dominated by a state-owned enterprise. Internet sector in China is occupied by private enterprises, few Internet giants enjoying near-monopolistic positions: like for Baidu, Tencent and Alibaba.

Thanks to the expansion of the urban middle class and the increasing convenient access to the Internet, China has become the biggest e-commerce market globally. Since 2014, the central government has stepped up the strategy of “Internet Plus” with many relevant policies to develop e-commerce nationwide as part of the new national economic policy from which to start to transform the Chinese economy driven by exports to domestic consumption. Since 2017, Chinese government has encouraged the development of e-commerce in the rural areas in its aim to achieve a “moderately prosperous society”.[47] Also private e-commerce enterprises have tapped the potential of rural e-commerce to support the growing market. Taobao[48] invested a billion of yuan in a project in 2014 in order to establish two-tier service centers at both the county and village levels in order to connect villages with its e-commerce platform. In order to provide consumer goods to rural residents and rural products to consumers online.

Taobao Villages

The number of Taobao villages experienced an exponential growth from 2013 to 2016.[49] The term “Taobao village” refers to a village characterized by a primary e-commerce platform, a total annual e-commerce transactions exceed 10 million RMB and at least 10% of households are engaged in e-commerce. Taobao Villages are concentrated in developed areas of South-eastern China. More than 90% of existing Taobao Villages are located in the eastern coastal provinces and more than 70% are found in southern China. They are located near economically vibrant areas like the Yangtze River Delta. The initial success of some Taobao villages received much praise from the Chinese media, with the hope that they could solve most of the problems of rural China. Rural e-tailers usually use local resources and the e-commerce platform to sell local agricultural products, handmade goods and traditional crafts obtained from nearby wholesale markets. At a later time, e-tailers developed clusters of E-commerce businesses, forming new business connections with subsidiary industries such as express delivery (Fig.63). The growth of these companies implies the birth of new job opportunities in graphic design, photography, convey, IT technicians and secondary companies specializing in shipping and freight storage.

Taobao villages differ from surrounding villages because many new jobs are in the tertiary sector and in information technology, while traditional farm jobs were mainly related to the primary sector. Rural e-commerce has a tendency to penetrate economic and social aspects of villagers’ life and thus transform rural society to a great extent, creating a gradual dependence of rural e-tailers (Fig.64) and their families on a single listed IT conglomerate for economic and social benefits. In Taobao Villages, rural economic activities are more centered on the network economy (Fig.65), Taobao in the long run dominates the economic resources in the villages and exerts enormous power over these locations.

Some media reports have already suggested that Taobao unilaterally changed some policies to the detriment of rural e-tailers. In fact, the e-commerce platform managed by Alibaba is not at all “neutral”, but rather is incorporated in the drive of the listed company to maximize profits at the expense of small local production companies that have no say in the matter. Recently the Chinese Government released new anti-monopoly guidelines targeting its tech giants, including Taobao.[50] New guidelines tightened existing restrictions against the country’s tech giants. The new rules formalized a previous anti-monopoly bill published in November 2020 and clarified a number of monopoly practices that regulators intended to crack down on.

Taobao villages are experiencing rapid development of e-commerce business and are now facing the need for industrial upgrading, such as recruiting talent from outside to improve the e-commerce system. The central government, enthusiastic about e-commerce and its possibilities to revive the rural world, has accumulated financial resources for local governments to start relevant projects. Local governments at county and township level are facilitating and coordinating the growth of Taobao Villages. Local governments and Alibaba are closely related, their partnership requires to boost Alibaba’s sales of rural products and the provision of public goods, such as E-commerce training, cultural and social facilities which are operated by Alibaba and satisfy political goals for the development of rural e-commerce. For Alibaba the partnership required a significant investment effort, but it allowed the company to capture the source of agricultural production and dominate the rural consumption market, preventing other competitors from entering the market in the future.

Dongfeng, a Taobao Village

Dongfeng Village of Shaji Town is located in Jiangsu, one of the provinces together with Zhejiang and Guangdong, whose host the 68% of all Ta-

[46] China is the world’s largest E-commerce market with $2 trillion in annual sales. In recent years E-commerce has spread from cities into rural areas.

[47] E-commerce is changing the retail value, eliminating middlemen creates higher margins on products sold directly by producers, breeders and growers.

[48] Founded by Alibaba in 2003, provide a platform for small businesses and facilitate consumer to consumer retail.

[49] In 2013 there were only 20 Taobao villages in China, 3 years later, in 2016, they became 1331.

[50] Reuter staff, China issues new anti-monopoly rules targeting its tech giants, Reuters, 7th February 2021.

obao Villages.[51] The village is characterized by 16.000 online shops and has a large percentage of migrant workers. Since 2006, local residents have started selling assembled furniture on Taobao. After several years of development online furniture sales, has become the leading industry of the city with sales of hundreds of millions of yuan, forming a distinctive “Shaji Pattern”. With the core elements of “peasant family + Internet + local company”. Being a small city of only 13,000 families, Shaji has over 3,000 people running online businesses with a total turnover of over 1.2 billion yuan in 2013. Inside the Shaji pattern, Internet-driven industrialization and is the key to a radical economic transition in the rural areas. Different from other concentrated areas of E-commerce, they have built on relatively advanced industrial clusters or special resources. Shaji shows a totally new model characterized by a primary local industry entirely incubated by e-commerce.
Initially, the products were made in homes of the shopkeepers, thus transforming the mixed-use village into an agricultural village. Multi-storey factories attached to the houses were built following the increase in sales and others were built on the sides of the new road during its construction: “Taobao road”.[52] Taobao villages, such as Dongfeng, are characterized by an organic and self-built development and move away from agriculture. The very functioning of the Alibaba market leads to a multiplicity of individual manufacturers, hence small shops, which reflect the new spatial fabric of these villages, an unplanned assembly of industrial and residential buildings.

Jumpu, a Taobao Village

Over the past years originally an unknown village, Jumpu[53] attracted thousands of E-entrepreneurs becoming a hotspot for E-commerce startups. The village is located in China’s southern Guangdong province, around 350 of Jumpu’s 500 families works in small firms that offer items for online sales. Many residents abandoned pig farming or labor in tea plantations to devote their time to E-commerce. Nowadays it’s a successful E-commerce hub with above 3 thousand online stores. The village started its E-commerce shops in 2012 with the support of the local government. Huang Jiexi, a 25 years old, who opened with his parents an online denim store, says that E-commerce permitted young generations to stay in their hometown instead of moving to bigger cities to find a well-paid job. Many online shops in Jumpu are founded by ex-workers of local factories and they still have connections with them. The local government played an important role in developing this Taobao Village, providing high-speed internet connection free for residents, free space for new sellers and affordable financial loans. Also Alibaba offers free online sales courses to locals. The rapid development of Jumpu has brought vitality and modernization to this rural village. Today the only problem of village is the lack of diversity of online products, about 50 % of shops sells the same clothes. The fortune of the village could disappear in a downside war of clothing prices due to the high competition, reducing the profits instead of innovating and diversifying their products.

Suichang, a Taobao Village

E-commerce in China is helping to revitalize rural villages. The online market is dominated by Alibaba, three out of four online sales take place on Taobao. Suichang has a population of 50.000 inhabitants, its farming is dominated by agricultural products, such as bamboo shoots, sweat potatoes, tea and wild herbs. E-commerce in Suichang started in 2006, when local government promoted it to farmers, in hope of improving agricultural sales online. With the establishment of the Suichang Online Shop Association in 2010 to provide intermediary services the popularity of the village has grown. Within a year the number of online stores in the city tripled by almost a thousand. The association coordinates the demands of e-tailers and producers such as agricultural cooperatives and farmers. The association transforms low-skilled neighbourhoods into e-tailers. The association, founded by Dongming Pan in 2013 has generated 22 million dollars in sales for Suichang e-tailers. Despite the poor education standard of villagers, E-commerce allows a quick experimentation and learning by doing.
Suichang Village, unlike other Taobao Villages, relies heavily on natural environment conducive to producing quality agricultural products for e-commerce sales. Unlike Dongfeng, development in Suichang is guided by systematic and planned actions by a grassroots association.

[51] Gwenaëlle Brandelet, The Taobao villages phenomenon: how E-commerce (also) redefines rural areas in China, Modu Magazine: a tale of urban China, 3rd August 2019.

[52] E-flux architecture, Stephan Petermann, Put down the hoe, pick up the mouse. https://www.e-flux.com/architecture/urban-village/169786/put-down-the-hoe-pick-up-the-mouse/

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62. A staff member livestreams via a mobile phone to sell potted plants

63

64 65

63. A courier en route to deliver packages
64. A young woman is selling products online
65. A farmer showing the crop of the day online

Fig. 66

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Chinese rapid urbanization in recent years has unfortunately failed to respond to local urban culture. Chinese Water towns display a rich layering of morphological periods, each with slightly different characteristics. The study of local Urban Morphology, together with Typological analysis, can be very important for the development of future communities, generating a new direction for contemporary development in the Jiangnan region based on the study and the preservation of existing urban culture. Urban-morphology and spatial typology can create a continuity between past and present, that nowadays is interrupted by an uncontrolled urbanization. A “placeless” and “international style architecture” is an actual urban problem in China if we consider the rich and complex Chinese cultural history.

This chapter will introduce the concept of “Morphology” that together with “Typology” (analyzed in the next chapter) composes the “Typo-morphological approach”, a methodology for the analysis of Chinese cities and, accordingly, to provide design suggestions in order to produce culturally sustainable urban forms. During the last 10 years research on Chinese urban form has grown rapidly in China.[55]

The purpose of this chapter is to introduce the morphological approach in the Chinese context, in order to better understand water town’s urban morphology, the study starts with the analysis of Suzhou due to its rich documentation. A multiscale decomposition of the city allows to understand the features at four morphological levels: City, District, Block and Dwelling. The study continues with the direct analysis of urban form of Chinese water towns, identifying the four elements that include: water canals, buildings, streets and bridges.

[55] J.W.R. Whitehand, Kai Gu, Research on Chinese urban form: retrospect and prospect, Progress in Human Geography, 2006.

Fig. 67

3 // MORPHOLOGY

_Definition

3.1 Urban Morphology means the study of city's urban form. It investigates the processes and agents responsible for the transformation of a city's urban form. The word "morphology" has been introduced by famous German thinker Johann Wolfang Von Goethe[56] as the "science that deals with the essence of forms". Urban morphology is an interdisciplinary subject, coming from different research fields: architecture, geography planning and history. At the end of nineteenth century Morphology started to be used to study cities. Urban morphology focuses on the transformation and formation of physical forms of cities, towns and villages along the centuries.

The first study on the urban form was conducted by Giambattista Nolli in 1748 on the city of Rome, the results of his studies is the "Nolli's Map" (Fig.81), showing for the first time the spatial structure of the city in two components: public space (voids) and private space (solids).

"Interiors of churches read like piazzas and courtyards of palaces, yet a variety of qualities and scales is articulated"[57]

This Nolli map is also called "Pianta Grande di Roma", the mid-eighteenth century map was innovative if compared to the pictorial maps used to portray cities at that time. These maps focused on artistry rather than accuracy, drawn from a bird's-eye-view of the city (Fig. 82).

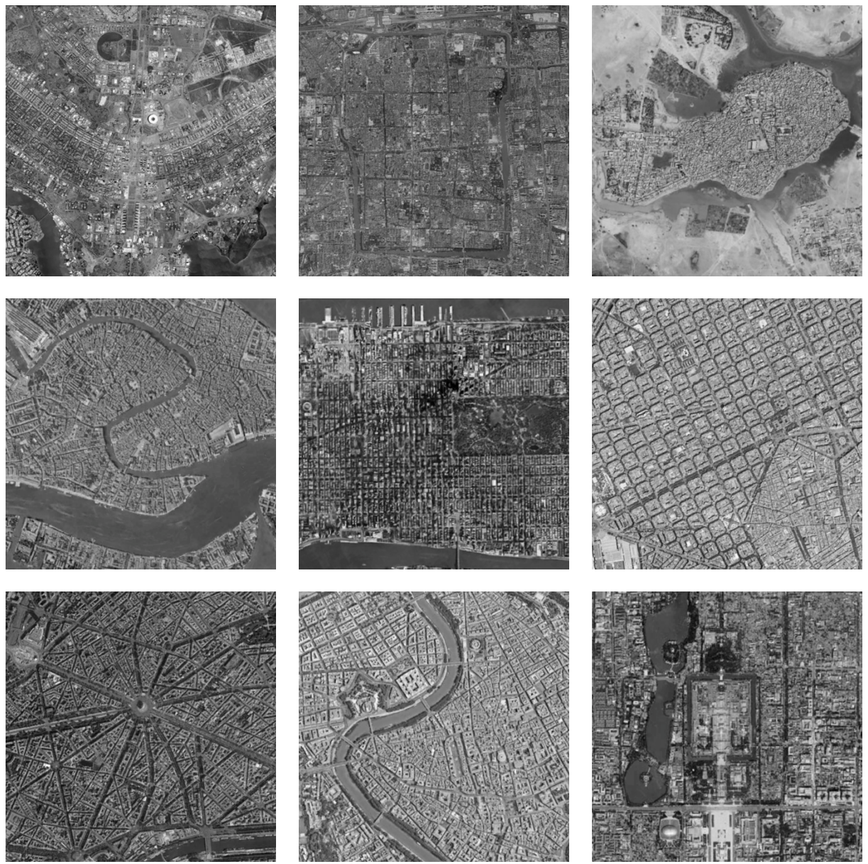
At the beginning of the 20th century the study of the urban form started thanks to the research work developed by German geographers. In the mid-twentieth century, new contributions to the discipline were added by Italian architects, in particular by the development of a typological approach by Saverio Muratori and Gianfranco Caniggia. In the mid-1990s the International Seminar on Urban Form (ISUF) was created that released the journal named "Urban Morphology". As said by Vitor Oliveira: [58]

"Through the detailed study of urban form, both

[56] Johann Wolfang Von Goethe (28th August 1749- 22 March 1832) was a German poet, playwright, novelist, scientist, statesman, theatre director, critic, and amateur artist.

[57] Learning from Las Vegas, Robert Venturi, 1972.

[58] Vítor Oliveira, Teaching Urban Morphology, Springer International Publishing AG; 2018.



68	69	70
71	72	73
74	75	76

68. Brasilia
69. Suzhou
70. Djenné
71. Venice
72. New York
73. Barcelona
74. Paris
75. Rome
76. Beijing

of the present and of the past, we learn both what we should not do and how we can do things better".

"The human creation for excellence is the city, as human artefact", which physical character reflects the changing requirements of human beings at different time periods and in different parts of the world. The built form of a city reflects local, regional and national needs. Town plans can be considered as a source of history, especially in China where historical maps didn't exist up to the colonial period, and eventually were made only for important cities. The historian J. Fritz at the beginning of 20th century entitled his article "The plan of the town as a source for history". He believed that information can be found in the town's plan and brought into line with the information taken from written sources:

"The study of the town's plan will say what it has to say, and if by chance it says something other than what is to be found in the written sources, the greater reliability of the town plan should be accepted … Old written information cannot be in contradiction with what the form of the town itself tells us, once this information has been correctly interpreted. The written sources will always confirm what the plan of the town tells us".[59]

The British Morphological School (BMS) based its work on the German geographer M.R.G. Conzen influenced by other German morphogenesists such as Schluter and Fritz between 19th and 20th century. For Conzen urban forms were differentiated on the base of three elements: plan types, building types and land use. These homogeneous regions are called morphological regions. Each region will require a different design or planning strategies.
The Morphology of cities is extremely complex. There are many elements that constitute their urban form. These are: Urban Tissue, the Natural Context, the Street System, the Plot System and the Building System.

The Urban Tissue

City is composed by urban tissues at general level, in each city street blocks, plots and building itself are combined in a specific way. The configuration of streets produces an infinite types of tissues. Some cities have a unique character and are clearly identifiable by their urban tissue. Cities are the result of a long process of construction, where different layers of different periods of time overlap without the erasing of previous ones. This continuous construction over time is called "palimpsest"[60] in urban morphology. As shown in the images on the previous page, (Fig. 68-76) nine cities of four different continents show urban tissues that are clearly recognizable. Brasilia has a high percentage of open spaces related to build

[59] Bernard Gauthiez, The history of Urban Morphology, Article in Urban Morphology, January 2004.
[60] The first definition of palimpsest in the dictionary is a manuscript on which two or more successive texts have been written, each one being erased to make room for the next.

77 78

79 80

77. Skyscrapers
78. Old city
79. Periphery
80. Gated community

form; Suzhou's center is surrounded by water canals forming a rectangular shape with water canals that also go inside the ancient city; Djenne in Mali has a dense city center and a periphery left without buildings; Venice even more of Suzhou is marked by water and an extremely compact urban tissue; New York has a regular grid of streets and buildings; Barcelona is characterized by octagonal open spaces at the street crossings;[61] Paris with its boulevards, has radial streets surrounded by uniform shape buildings; Rome has a very dense urban tissue interrupted by numerous squares and monuments; Beijing has a dense layout that surrounds the Forbidden City and Tienanmen square characterized by open spaces.
As it's possible to find different tissues in different cities, it's possible to find different urban tissues within the same city. Suzhou for example shows four different tissues within. The first tissue (Fig. 77) is located on the Jinji Lake, this area hosts modern skyscrapers divided by wide streets. Street blocks are regular and the building development has a strong homogeneity. The second urban tissue (Fig. 78) is the ancient city center of Suzhou, characterized by a pattern of narrow streets, forming irregular street blocks of small size. The existing buildings stock is very dense without relevant open spaces. The third tissue (Fig. 79) is the more common pattern in Chinese cities, consisting of 10-storey residential buildings surrounded by fragmentary green areas. Main streets are wide and linear, each building stock is made by the same type of building and surrounded by a security wall. The last urban tissue (Fig. 80) hosts a private residential development, characterized by identical villas surround by private gardens. Open spaces overcome built stock, streets are curved and the gated community usually is surrounded by green spaces or lakes.

The Natural Context

The establishment and the organization of the elements of the urban form are based on the natural context. Land relief, climate, wind and solar exposure are some of the factors that influence the establishment and the foundation of a city. The configuration of land reliefs influences the location and the form of a human settlement. Many cities in the human history were located along ridge lines or thalweg lines.[62] Many cities have a strict relationship between the human occupation and the site where it is settled.
Many important cities were located along land relief, Machu Pichu on the Andes Mountains, Masada fortress built on the top of a mountain in the Judean Desert, the Potala palace in Tibet located on the Red Mountain and Saint-Michel in France located on the homonymous mountain. As in the previous examples we cannot imagine the city of Venice without its relationship with water similar as the intense connection between the city of Varanasi and the Ganges River.

[61] Based on the Plan Cerdà, an urban planning reform and expansion of the city of Barcelona in 1860 which followed an open and egalitarian checkerboard layout. It's named by the engineer who developed it, Ildefonso Cerdà.
[62] In geography and fluvial geomorphology, a thalweg or talweg is the line of lowest elevation within a valley or watercourse.

81

81. Nolli Map, Giambattista Nolli, 1748.

82

82. A 17th century bird's eye view of Paris.

The Street System

Streets define the building blocks that constitute a city, their job is to connect different places, distinguish what is public, and accessible to all citizens, from what is private or semi-public. Streets, in morphological terms, are the most stable element of urban form. Street system offers greater resistance than other elements to the process of urban transformation. Streets have a great temporal stability, while plots system has a minor durability and building stock has lesser stability than streets system or plots system. The plots on both sides of the streets influence them, the location of buildings can create a sense of enclosure or, if they are located far from the street, can offer a greater openness. A valid example is the Avenue des Champs Elysées in Paris, an important symbol of the Baron Haussmann's[63] intervention during the nineteenth century. A strong sense of openness is given by the height of the buildings that is inferior to the street width. Public spaces don't include only the street system, but also the interconnected system of gardens and squares. As it is possible to find different urban tissues in the same city, like in Suzhou, it's possible to find different squares with different functions and forms in the same city. This time we can consider the city of Rome, characterized by a very dense layout interrupted by a numerous notable squares: S. Pietro, Campidoglio, Navona and Rotonda. S. Pietro square is surrounded by a colonnade and the Basilica of Saint Peter. Piazza del Campidoglio has a trapezoidal shape, framed by three buildings on its sides, representing the civic center of the city. Navona square has a rectangular shape with rounded corner on the end sides, built on the remainings of a stadium erected during the first century. Piazza della Rotonda located in front of the Pantheon[64] has an irregular shape due to the dense urban tissue.

The Plot System

Considered as an essential element of the urbanization process, it has a considerable stability over time. It is one of the most important elements of the urban form of a city and its role is to separate the private domain from the public domain. The choice of an urban plot at the beginning of the process of urbanization will condition the urban form for a long period of time. Usually, the existing plot system is preserved even if the city is hit by wars, fires or earthquakes even if there is an excuse to create a new plots structure.

To explain the physical form of a city it is important to study the dimension of its street blocks and of its plots whithin. Usually the dimension of street blocks and of plots decreases as we move from the periphery to the historical center of a city. The same thing happens for the number of plots per street block, they decrease as we move away from the historical center to the periphery of the city.

[63] Georges-Eugène Haussmann, commonly known as Baron Haussmann, chosen by Emperor Napoleon III to carry out a massive urban renewal programme of new boulevards, parks and public works in Paris.

[64] From Greek (Pantheion), the temple of all gods, now a catholic church (Basilica di Santa Maria ad Martyres) in Rome.

The German geographer MRG Conzen was one of the main promoters of the study of the plot in order to explain the physical form of a city. Conzen introduced the concept of burgage cycle, the progressive built occupation of a plot which implies a significant reduction of open spaces. The theory results in a need of urban fallow, releasing the open spaces occupied during the centuries in order to proceed to a new development cycle.

The Building System

Buildings have less stability in time than streets and plots but are the most visible of these elements. Generally, a city is characterized by two types of buildings: ordinary buildings and exceptional buildings. Usually, many residential buildings are included in the first category meanwhile the second category includes buildings with a particular shape or utilization. The position of a building within the plot has a fundamental importance for the urban landscape. Also, the height of buildings and their relationship with the width of the street is an important element in the urban landscape. A sense of enclosure happens when the height of buildings is less than the street width. This perception increases with the vertical growth of buildings. As it is studied for the Urban Tissue, within the same city it is possible to find very different buildings. It's also possible to identify a typological process of evolution studying the succession of a building type in the same cultural area.

Urban Morphology is an interdisciplinary field of study which stems from the geography. As defined by ISUF[65] Urban Morphology is "the study of the city as human habitat which analyses a city's evolution from its formative years to its subsequent transformations, identifying and dissecting its various components".[66] ISUF includes the two main morphological schools: Italian and British.

Italian school: Saverio Muratori

In Italy during the post-war period, architects were involved in the rehabilitation of historic town centres. The Italian Morphological school founded and represented by Saverio Muratori[67] rejects the ideas of the Modern Movement and is based on a historical approach and to architectural types. For Muratori "types were a tool of historical analysis of urban fabrics".[68] Urban Morphology covers a wide spectrum from the scale of the single building to entire urban areas.

The development of the Muratori's morphological school of urban design took place between the late 1940s and the end of 1950s. It's a period during which Muratori made an intense study and survey of the historical fabric of Italian cities, among which were Como and Venice. In 1950 he took up the Chair in Venice and began what has become the Italian school of building typology and urban morphology. In 1959 Muratori published its most famous work "Studi per una Operante Storia Urbana di Venezia" that closed 10 years cycle of

[65] ISUF (International Seminar on Urban Forms), it was inaugurated in 1994 bringing together urban morphologists worldwide.

[66] Anne Vernez Moudon, Urban morphology as an emerging interdisciplinary field, Urban Morphology, 1997.

[67] Saverio Muratori (1910-1973) was an Italian architect, a pioneer of the typomorphological investigations of urban form.

83

84

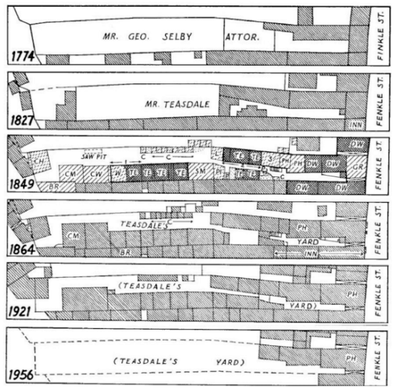
83. Morphological study on Venice, Saverio Muratori
84. Projects for Bareme di San Giuliano, Saverio Muratori

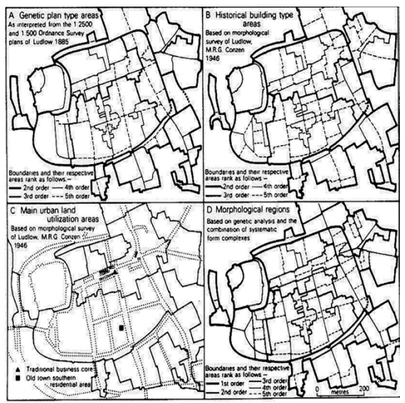
architectural research and historical studies. Urban morphology and design are closely linked in theory but not integrated in practice. For Muratori a contextualized architecture was one of the concepts learned taught by its master Gustavo Giovannoni.
Muratori studied Venice and its districts using cadastral maps, documents and direct reliefs, developing a typological map of its entire ground floor (Fig. 83). Typological maps are similar to the ones drew by archaeologist, these maps are used to study building types through a process that includes the instrument of the analogy. For Muratori in order to be able to design new part of the city it's necessary to understand the urban development of the parts which constitute the city. The development of spaces and built objects in the urban context is considered as an important knowledge to have to allow a conscientious regeneration to design a new part of the city. "Studi per una Operante Storia Urbana di Venezia" and "Studi per una Operante Storia Urbana di Roma" which translate as "Studies of a working urban history of Venice/Rome" are the books that do not just tell the urban history of these two cities but are useful for the work of an architect to design.
During his studies of the city of Venice he discovered three main typical systems of texture that characterize the Venetian urban fabric. The first type is based on a central square located within a group of islands, churches, shops and dwellings are located around it. This type is typical of the Venice of the tenth and eleventh centuries, the city was organized in island parishes and a predominant of water canals over land streets. The second type is the "Gothic Venice" where water canals and streets are parallel and separated by orthogonal public courtyards and family houses. During this period of time the number of waterways and streets are balanced. The third type of texture dates back to the Renaissance when the number of land routes overpass the number of waterways. Houses are aligned along water canals or courtyards orthogonal to waterways. Muratori based his three projects (Fig. 84) for the Bareme di San Giuliano on these three crucial moments of the urban development of the city. There is a direct correspondence between the studies conducted in Venice and the design proposals.

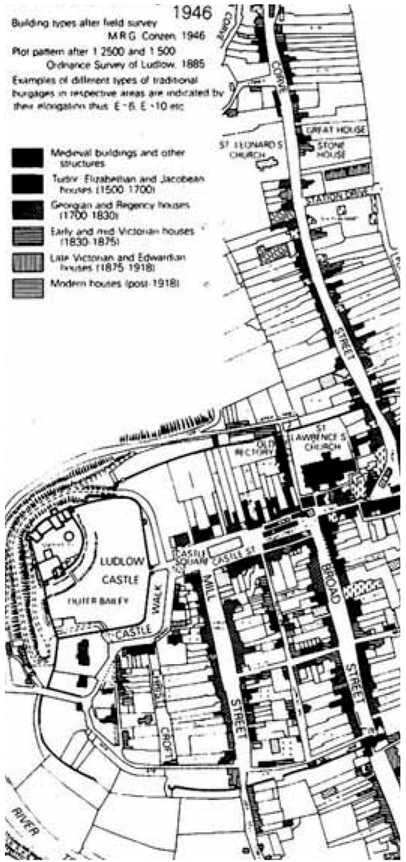
English school: M.R.G. Conzen

The Conzenian school bases its study of the urban form on a descriptive and explanatory purposes to understand why and how cities are built. This approach includes the dynamic study of the city and the relationship between its elements. The urban landscape of Conzen is divided into three elements: the town plan, the building fabric and the land or building utilization. Conzen pays close attention to the relationship between the plots and the plans of a building. Its theory is ba-

[68] Bernard Gauthiez, The history of urban morphology, Urban Morphology, January 2004







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85. Burgage cycle, Conzen
86. Ludlow, Morphological study, Conzen
87. Ludlow, Identification of historical buildings, Conzen

sed on the burgage cycle (Fig. 85), where a first phase is characterized by a progressive filling-in with buildings in the plot that ends with a clearing of all buildings and a period of urban fallow in order to give the start of a new process of urbanization.[69] Conzen studied also the boundaries and dimension of plots, Terry Slater, a continuer of his studies, demonstrated that a metrological analysis of plots can be used for the reconstruction of the history of plot boundaries.

The concept of morphological frame in the Conzen work is based on the way in which forms are created on the ground, during the transformation from the rural land into the urban use. During this phenomena streets and plot boundaries exert a powerful long-term influence. Streets and plots survive the changes of the city and their lineaments are reflected into the new streets and plots. For Conzen in order to explore the physical development of an urban area it is necessary to divide it into morphological regions. Each morphological region is distinguishable from the surrounding areas and its form is homogeneous. In the map of the town of Ludlow (Fig. 86-87) appears five different morphological regions showing the historical development of an urban area. As for Muratori also in the Conzenian theory the past provides lessons for the future, for example the map of Ludlow can provide a basis for the future management of the urban landscape in its local historical development.

Transitional Morphologies

A new study on Urban morphologies is carried by Marco Trisciuoglio and Bao Li,[70] using a transitional paradigm in the urban morphology. Using an adaptive approach, it aims at grasping dynamics in urban evolution and provide tools to operate in urban regeneration design. In 2018 a Joint Research Unit has been established named “Transitional Morphologies” between the Southeast University of Nanjing and Politecnico di Torino. Its goal is to study the methodology and strategies adopted in human settlements to “incrementally change an assembly buildings and space”[71] in different periods of time, different geographic locations and between different cultures. This innovative approach considers urban morphologies not as a result of a process but as a process of its own. Transition is considered as a change from one state or stage to another one, the etymology of the word “transition” comes from the Latin word “transire” that means “passing through”, as if there is an intermediate phase between two moments.

The Transitional Morphologies Research Unit tries to identify the main economic, social and cultural causes that induce the transformations of the urban forms of Chinese cities. One of the results of the studies is a typological map of Hehua Tang area, in the southern part of the Chinese city of Nanjing. Nowadays Hehua Tang is at the centre of many hypothesis of regeneration as the

[69] J.W.R. Whitehand, British urban morphology: the Conzenian tradition, Urban Morphology, 2001.

[70] Marco Trisciuoglio and Bao Li launched the Transitional Morphologies Joint Lab and Teaching activities. Marco Trisciuoglio is full professor at Politecnico di Torino, while Bao Li Deputy Director of the Department of Architecture at Southeast University.

88 89

90 91

88. Aerial view of Nanjing, 1929
89. Satellite image of Nanjing, 1976
90. Satellite image of Nanjing, 2005
91. Satellite image of Nanjing, 2017

area still keeps some of its original characteristics but is inhabited as slums of the city. The transitional morphologies in Hehua Tang are clearly identifiable when comparing the maps made in 1929, 1978 and 2017 (Fig. 88-89-90-91). Particularly interesting is the history of the historic garden of Yuyuan, occupied by factories and workers' houses in 1929 abandoned by the end of the century. Today it has recovered and was brought back to its original configuration. This "transitional" cycle is commonly visible today in Chinese cities. The 1929 map shows a homogeneous urban fabric made up of small courtyard houses, which are traditionally organized in sequences of two or three courtyards, favouring coexistence of different generations within the same dwelling. In 1978 map there was a fragmentation of the original housing system due to the shift from the matriarchal family structure to the one based on smaller families. During 1980s and 1990s as shown in the 2017 map modern building typology of six or seven storey buildings has spread, completely unrelated to the pre-existing urban fabric.
The results of the studies in Hehua Tang is a typological transitional map (Fig. 92-93-94), in scale 1: 500, showing courtyards and their relationship with streets and alleys; six different typologies of buildings are identifiable in the map: The traditional Nanjing court house, the compact court house, the multi-storey building, the industrial building, the shop, and the informal integrations. This transitional map is a working tool which let design the future of the city of Nanjing.
Transitional morphologies, in particular a new urban transitional code has been adopted for the historical centre of the city of Rimini in Italy (Fig. 95). Its urban code is based on the classification of fabrics and the assignment of rules considering the formal urban evolution. Five homogeneous morphological urban fabrics have been identified in Rimini starting from the analysis of the built pattern.

[71] Marco Trisciuoglio, Nota sulle morfologie urbane transizionali come critica agli studi urbani in ambito cinese. La mappa tipologica di Hehua Tang a Nanchino. Urban and Design, 2020.

92 93

94

92. Hehua Tang, Nanjing
93. Typological decomposition, Hehua Tang
94. Traditional courtyard house, Hehua Tang

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95. Morphological analysis of Rimini's historical center

Fig. 96

3 // MORPHOLOGY

_The study of urban form: Along the waterways of Suzhou

3.2 The target of Urban Morphology research is the identification of conservation priorities for larger urban conservation areas.[72] In China the study of urban form is weakly connected to the urban conservation practice which prefers to focus on the preservation of single monuments. Thanks to its important role in the Chinese history, Suzhou is shown in many ancient paintings and maps. The earliest map of Suzhou is carved in stone and dates back to 1229 A.D. “Pingjiang Tu” (Fig.97). This map shows the waterways of the city connecting Suzhou with the surrounding landscape outside of the city walls. Urban waterways supported the economic and cultural connection between the city and the countryside.

It is hard to identify the Chinese Urban tradition due to the continuing modernization of the urban development. Many studies have been conducted on the city of Suzhou, which are very helpful for this study.[73] The history of the urban form of Suzhou is divided into three periods, the first phase started during the Northern Song Dynasty (960-1126 A.D.) when the city was the capital of the state of Wu and the morphological configuration was established. The second period includes the Qing Dynasty (1850s) and the Republic of China, (1911-1948 A.D.) when the city experienced modernization and absorbed western influences. The last period began in 1949, during the People’s Republic of China when the city has undergone profound changes due to urbanization, industrialization and globalization.

The morphological analysis on the city of Suzhou is carried out at four morphological levels: City, District, Block and Dwelling. These levels are based on a hierarchical method, subdividing urban forms: urban blocks are made of plots with buildings.

The city

The city of Suzhou[74] is located in the alluvial plain of the Yangtze River, in the Jiangsu province, this area that “was once the most fertile land in hi-

[72] Whitehand, J. W. R., & Gu, K. (2010). Conserving urban landscape heritage: A geographical approach. Procedia Social and Behavioural Sciences, 2.

[73] Jianmin Ke, The dwelling morphology of a traditional urban settlement, China, Open house international vol.20 1995 n’1.

[74] Suzhou (in Chinese 苏州) founded in 514 B.C. by the ruler of

story".[75]
The basic structure of the city of Suzhou dates back to the 12th century, and it didn't change over many centuries. The city was enclosed by walls, the one outer the city and the inner's one enclose the government of the city, both with a rectangular shape. Inside the city there is a grid of water canals and streets used as a transport network that divided the urban form of the city into various building blocks. The depth of these building blocks is between 60 to 100 meters and their width is between 300 to 500 meters. The main morphological elements are located along the central axis of the city: the government enclosure, temples and commercial center. Suzhou follows many principles of the Chinese city building: centrality, enclosure, regularity and north-south orientation. The city has some variations to the grid system due to pre-existing local conditions, like water canals. The changes that took place in the city until the nineteenth century didn't contradict its traditional patterns, like transformation of open areas into residential blocks. During the last century new elements were added like commercial and industrial facilities and modern streets for vehicles. The city skyline is still horizontal even if some multistory buildings were built during the last decades.

The district (Fig.101-102)
Based on the analysis carried out in the District of Ping Jiang,[76] its morphological pattern is based on a rectangular grid system of water canals, streets and building blocks. Streets and canals work together to define the building blocks. The depth of these rectangular blocks is between 70 to 110 meters and width of 350 meters. The main links between building blocks is provided by the north-south streets and canals, while east-west axis are used to access to particular building blocks. All the east-west canals are located on the south side of their adjacent streets, this means that streets give access only to the blocks located in the northern side. Water canals have a strict relationship to the southern blocks. This means that the southern side of building blocks were used for the main entrance access. In the northern side the service entrances are located. As for Venice,[77] studied by Saverio Muratori, one of the main morphological changes at the District level are represented by the gradual eradication of some water canals (east-west canals) providing a secondary direct access to building blocks from the northern side (Fig. 98-99). This morphological change implies new solutions for the internal arrangement of building blocks.

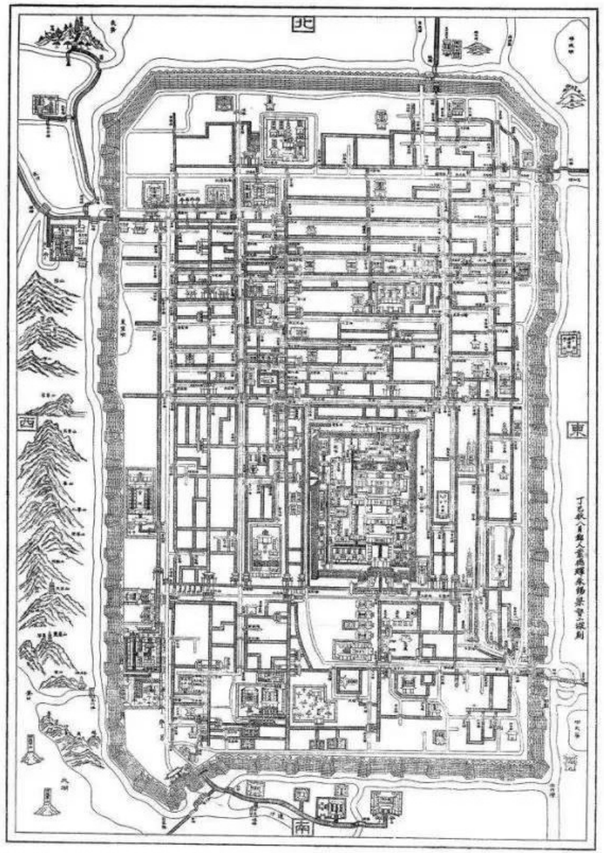
The block (Fig.103)
The boundary of a block is defined by the east-west street to the south front and a water canal in the northern side. Buildings in the traditional morphological pattern fill the width of the block, dwellings are divided by open and covered alleys that create smaller groups of buildings, consisting of five dwellings with a width between 50 to 70 meters. Buildings have direct access from the street, bigger blocks with a width of 200 meters and a depth of at least 90 meters and require open or covered alleys to guarantee the internal access. During the last decades large dwellings have been subdivided into smaller housing units, transforming private alleys into passageways to connect the houses to the street. Moreover, the transformation of many east-west water canals into streets permitted the direct access from the northern side of blocks, fragmenting further the large dwellings into smaller units. The original one-sided arrangement of the main entrance of dwellings has been altered.

The unit
There are two basic elements that characterize the morphological pattern at the unit level: the built space (building unit) and the open space (courtyard). Courtyards houses are clearly visible in the famous handscroll painting "Prosperous Suzhou" painted by Xu Yang in 1759 (Fig. 100). Buildings and courtyards are arranged one behind another along the central axis. The width of a dwelling unit is narrow, between 10 to 14 meters, the depth is around 70 to 90 meters. Due to the socio-economic changes that happened in China after the cultural revolution dwelling units were involved into a sub-division process of a building, where originally a large family lived. Those were replaced with a number of smaller family units. The central axis lost its role of access route along the buildings and courtyards and was replaced by new side alleys creating new routes on the border of the dwelling.

state of Wu of Dong Zhou dynasty. After the building of the Grand Canal Suzhou became an important administrative and commercial center.

[75] Fei Chen, Ombretta Romice, Preserving the cultural identity of Chinese cities in urban design through a typomorphological approach, URBAN DESIGN International, Vol. 14, 2009.

[76] Pingjiang District (simplified Chinese: 平江区)
[77] Saverio Muratori, Studi per una operante storia urbana di Venezia, Roma, Istituto poligrafico, 1960.



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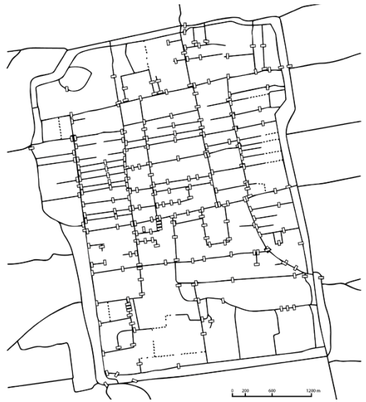
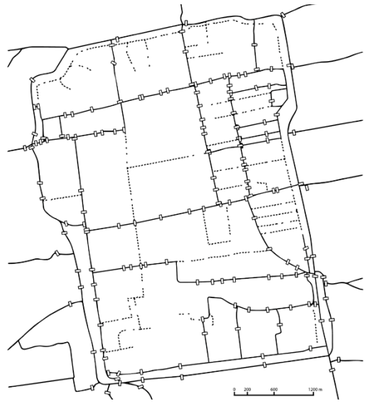
97. Pingjiang Tu map, Suzhou, 1229.





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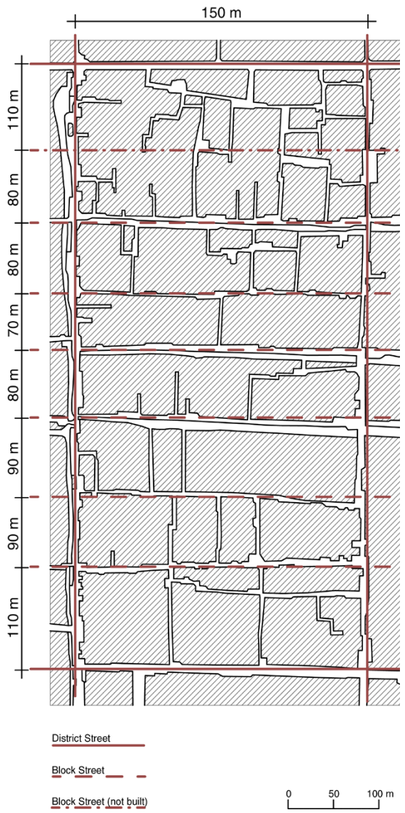
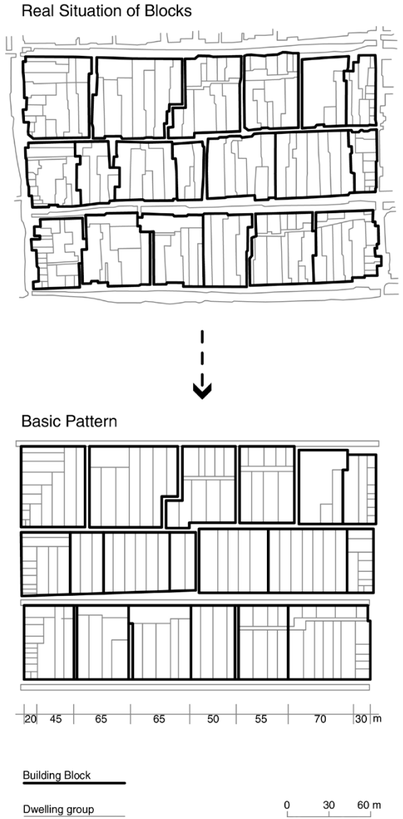
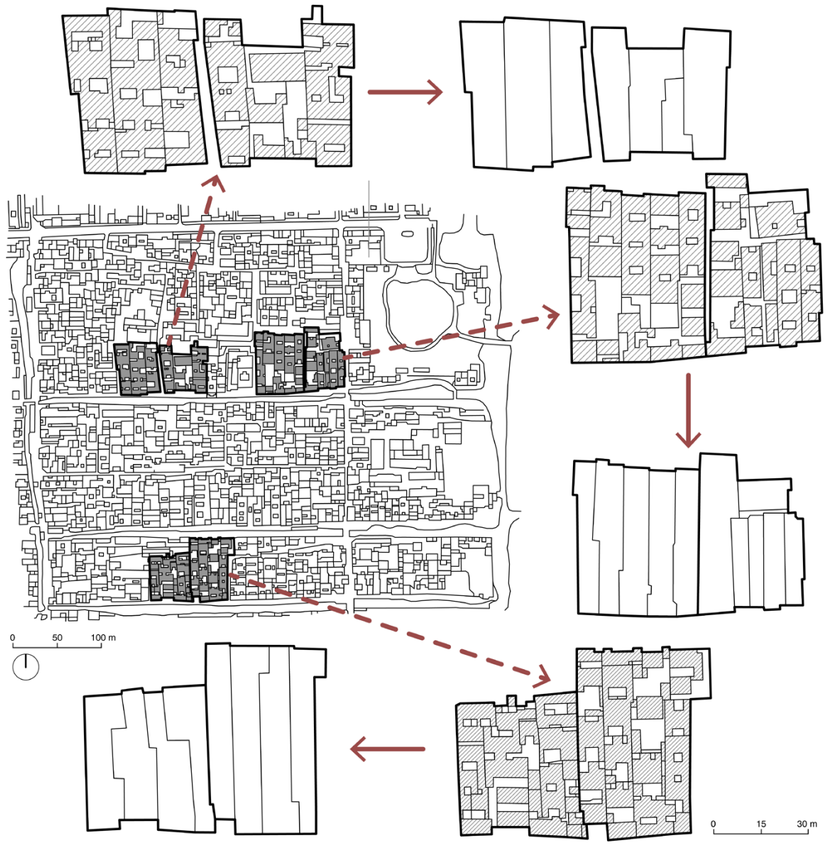
98. Water grid in Suzhou, 1229
99. Water grid in Suzhou in 2015
100. Prosperous Suzhou, Xu Yang





101 102

101. District level, Suzhou
102. Block level, Suzhou



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103. Combination of dwellings into groups, Suzhou

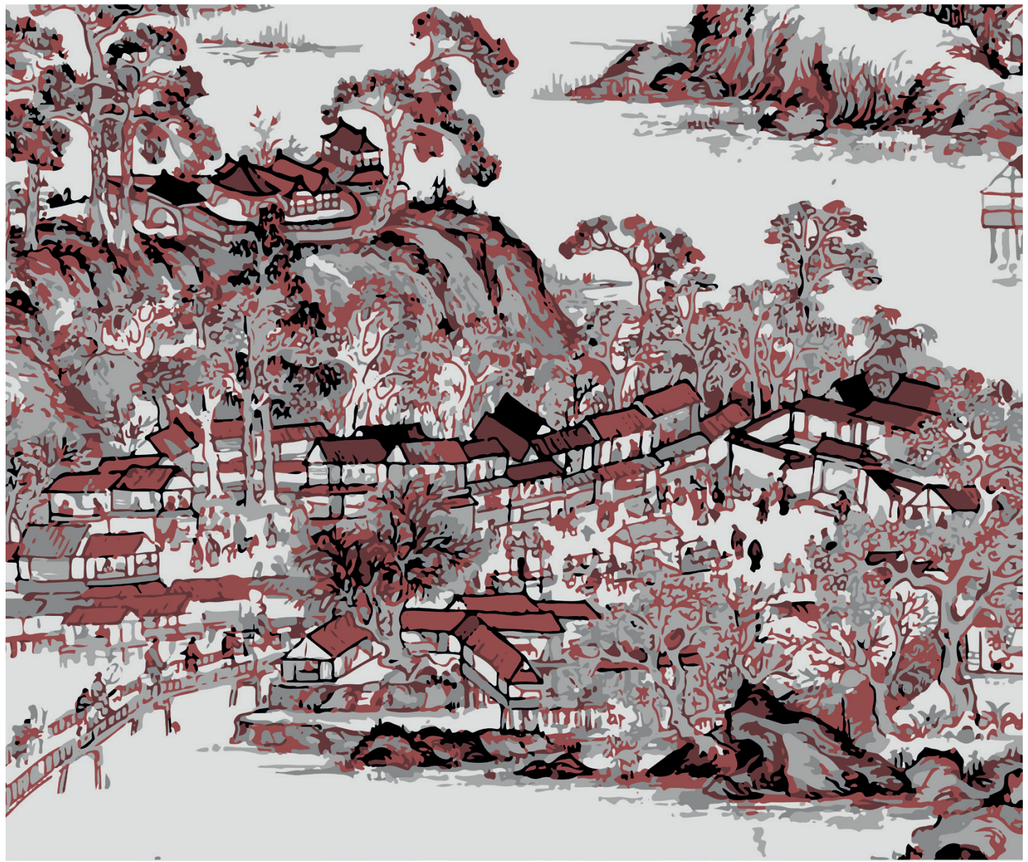

Fig. 104

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_Water Towns as four elements

3.3 The morphology of Chinese Water towns has a close relationship to the natural configuration of the land, especially in the Yangtze River Delta, rich of water canals and rice fields. The development of these cities is strictly related to the predominantly agricultural economy of China. Hundreds of Water Towns were built along water canals, especially in the Jiangnan region[78] and along the Grand Canal. In ancient China water towns were multi-functional sites that included economy, production and residence of farmers and merchants.

[78] Literally “South of the River”, meaning “South of the Yangtze”, this region includes the city of Shanghai and the provinces of Jiangsu, Anhui, Jiangxi and Zhejiang.

Chinese cities have a strong relationship with the countryside. In ancient China, important cities like Suzhou had a defensive wall and a north-south orientation. The strong presence of commerce was mainly located along the main streets especially in larger cities. A Chinese house was a residential complex, surrounded by a wall, with buildings around a central patio. If the family was rich there were several patios along the central axis with buildings placed around symmetrically. Buildings usually had one storey and were lower than the city walls because Chinese considered it presumptuous if someone built a house higher than defensive walls. Each complex corresponded to a large family, usually married sons shared the house with their parents. The building located near the street was less important, while the two perpendicular buildings were occupied by sons and on the last side of the courtyard, parallel to the shop, was located the most private area, reserved for the older members of a family.

The urban form of smaller water towns, like Wuzhen, Tongli and Zhouzhuang, has many common characteristics with Suzhou even if in a smaller urban scale. A perpendicular system of series of courtyard buildings is based on a street parallel to a water canal, on both sides of the street there is a continuous wall of buildings. For decades, buildings were built along the street, the back courtyard was built by the same family that owned the building along the street. The majori-

ty of dwellings are likely to have direct entrance from the street and sometimes from covered or open alleys. Dwellings may be described as consisting of two basic elements: the built space and the courtyard. Buildings are arranged one behind another, along a central axis. Usually the width of these complex remains the same along the central axis. During the last decades a sub-division of the buildings took place as the large families were split and replaced by smaller families. The central axis lost its role as the main access route and has been replaced by lateral alleys that could be covered or not.

Urban Morphology analysis helps to identify the development principles of Water Towns landscape, revealing the role of water canals in the landscape. Waterways are important in the historical development of water towns and their urban landscape.

These “four elements” starts from the “bridge-water-house” trinity defined by Ruan Yisan[79] who firstly studied water towns in 1980s and proposed plans for their conservation. Considering also open spaces like streets and their role in the urban form as the fourth element that composes water towns. We can assume that water towns are characterized by four elements: water canals, buildings, streets and bridges. The morphological characteristic of a city can be analyzed and studied through the spatial relationships between its components.

Water canals (Fig. 105)

Water played an important role in the formation and development of ancient Chinese towns. Ancient water towns were located near the water to facilitate transport, defense and water supply for production and living. As the poem “Songren You Wu” recounts the water based transport was the major way of goods’ circulation and also served for their exchange. During the Tang Dynasty ordinary citizens were allowed to build their entrances only towards the water canals and not to the streets because the commercial activities took place on the boats.[80]

The water grid and water canals are perpetual elements inside cities and towns, wars or invasions caused the destruction of entire cities but waterways remained. As for the city of Suzhou, destroyed many times and rebuilt in the same place in 1130, only few temples within the city wall survived the fire. For centuries water canals were more important than streets, for their role in the commerce. Gradually this role has passed to the street system. The river and canal fronts inside the city have stone revetments in order to protect the riverbank from collapse. Private piers are located with respect to the houses and shops. The stone piers (in the past it served directly to the houses and shops while boat were able to dock alongside the street) has many functions, like facilitating residents to descend to the water level to collect water and wash laundry.

[79] Heleni Porfyriou, Urban Heritage Conservation of China’s historic Water Towns and the Role of Professor Ruan Yisan: Nanxun, Tongli, and Wuzhen. Heritage, 2019.

[80] In another poem “Deng Changmen Xianwang” the author Bai Juyi wrote that “by the door of every house are moored sailing boats”.

105 106

107 108

97. Water Canals, Suzhou
98. Bridges, Nanxun
99. Buildings, Zhouzhuang
100. Streets, Xidi

As the two maps show, water canals gradually left their role of transportation to streets, due to the centuries of decline of the arterial waterways. A map published during the Qing Dynasty in 1749 shows a dramatic loss of about 25% of inner waterways of the city. During the twentieth century roads and railway replaced the role of waterways to connect the city to the surrounding county cities and to Shanghai.

Bridges (Fig. 106)
Unlike Water canals that lost most of their functions nowadays, bridges are still connecting elements, they unify the urban space and serve as landmarks and meeting points. In the past the commerce was conducted on bridges or on boats nearby them. There are different typologies of bridges, made by stone or timber, the shape can be arched or flat, with only one arch or more arches, covered or not and straight or zig-zag. In the past, covered timber bridges offered protection from the bad weather. The position of bridges is not only functional but also symbolic when they are placed near temples or mansions.[81]
Since the seventeenth century big cities like Suzhou built flat bridges for the smooth flow of road traffic, showing that the importance of the street grid transportation overcame the traditional water grid.

Buildings (Fig. 107)
Traditional residential buildings in the Yangtze River Delta are characterized by courtyards. Traditional dwellings are located symmetrically along a central north-south axis. Courtyards are smaller than the north's ones due to the latitude, summers are very hot and their role is to keep away the heat coming from the sun and guarantee the illumination at the same time. Courtyards permit ventilation and daylight, that is essential for residential buildings. Buildings are closely connected to each other with overlapping roofs. Fireproof gable walls divide different buildings, usually covered with gabled roofs. Due to the dense arrangement of buildings, these walls prevent the spreading of the fire to neighboring houses. Houses usually face to the alley with their front door, while the back door faces the water canal. Usually these houses with double access belonged to scholars and officials. The backward facing houses with a waterway as main access were inhabited by ordinary people who occupied smaller batches.

Streets (Fig. 108)
On a neighborhood level streets are developed parallel to the waterways, guaranteeing an easy access to the canals and the land. Pedestrian streets usually flank a water canal on both sides or only one and can be covered or not. Commercial streets are delimitated by double-storey buildings with shops at the ground level. Major streets are intersected by numerous narrow residential alleys, usually wide enough for a single person. Gates interrupt the spatial continuity of these narrow residential alleys. Streets usually flank rivers and canals on both or one side only, they could be covered by porticoes or overhanging houses. Streets can host trees and small public spaces, often adjacent to bridges.
Since 1920s ring roads were built and new gates in the city walls were opened in order to accommodate the new car traffic inside the ancient city. The advancement of the road circulation over the waterways reduced their use and their length to only 35 km while originally it was between 87 to 92 km.

[81] The painting "Gusu Fanhua Tu" (1751) made by the court painter Xu Yang, shows the city of Suzhou and particularly its bridges and buildings along the canals.

Fig. 109

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TYPOLOGY

4 // TYPOLOGY

Recently the public concern has grown over the retention of historic continuity in China, focusing at the same time on the heritage preservation and economic development, becoming a prominent issue of the Chinese urban agendas. The typo-morphological approach with theoretical and methodological perspective could be applied in the Chinese context. Typological approach dates back to 1950s, together with morphological methodology. It was used in Italy as a new practice of urban conservation after destruction of historic centers caused by the Second World War. The typological approach aims to provide a methodology to study how building types and their aggregated urban forms made up urban areas, selecting the areas that need to be preserved or developed. More over the typo-morphological approach provide a great contribution in the study of urban dynamics and its layering process.

Only few typological studies have been conducted in China, mainly in the cities of Suzhou, Shanghai and Guangzhou. This chapter aims to clearly introduce the typological approach, its origins and its development in Chinese context, concentrating on the Chinese courtyard houses in the Jiangnan Region: Light-well or Sky-well houses.

Chinese context hosts a heterogeneous arrangement of building typologies: traditional ones like the courtyard houses that were spread throughout China in ancient time and have developed their own characteristics in each Chinese area. The concern in this chapter is not only on old typologies but also on the new typologies developed in the Twentieth century in China born from the marriage between Western and Chinese elements, like for the Shanghai alleyway house.

Fig. 110

4 // TYPOLOGY

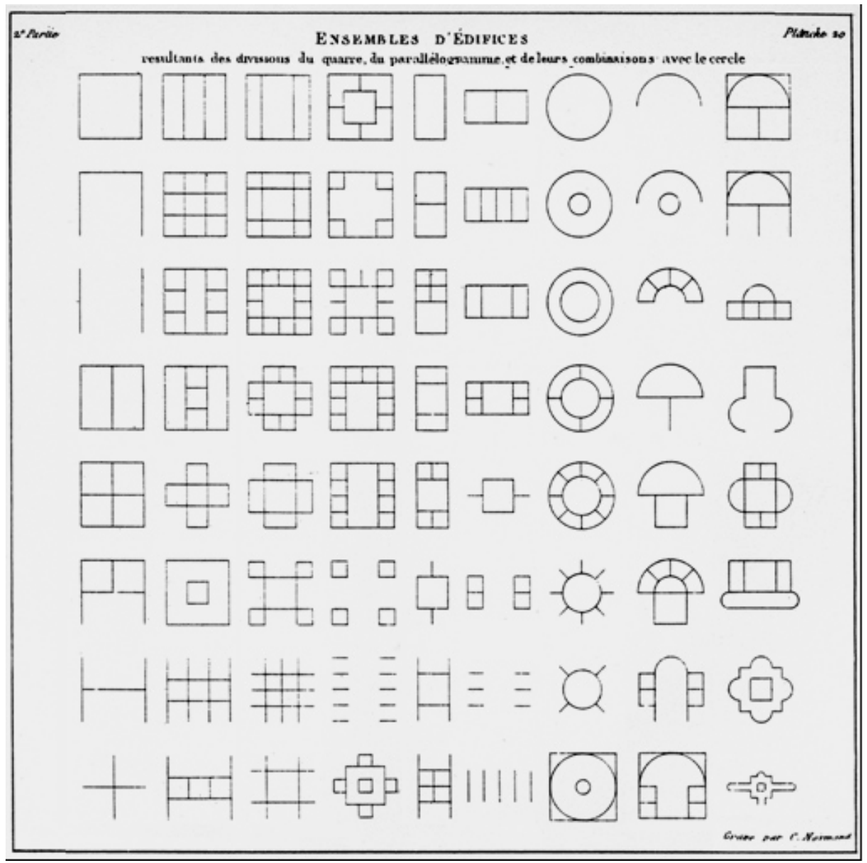
_Definition

4.1 The concept of “type” was introduced in 1825 for the first time in Architecture by Quatremère de Quincy[82] inside his Encyclopédie méthodique: Architecture based the definition of Type as the differences with Model:

“the model understood as part of the practical execution of art is an object which should be imitated for what it is. The type on the other hand is something in relation to which different people may conceive works of art having no obvious resemblance to each other. All is exact and defined in the model; in the type everything is more or less vague. The imitation of types therefore has nothing about it which defies the operation of sentiment and intelligence […]”.

[82] Quatremère de Quincy (1755-1849) was a French architectural theorist and writer on art.

The etymological origin of the “type” can be traced back to a Greek verb, “typo” that means “to beat, to hit, to mark” and the word “typos” meaning “relief, engraving and seal”. Typos in numismatics is the figure engraved on one side of a coin. This word reappear in the Fourteenth century Europe, representing the alphabet character engraved on a metal or wood used for printing. The term “typology” appeared in the middle of the Nineteenth century, during the renewal period in the study of abstract models, the term was used to refer to the study of types, a comparative analysis and classification of characteristics into types.
The significance of type and typology reappeared in the writings of Aldo Rossi, especially in his renowned “The Architecture of the City”. Aldo Rossi used types and typology as operational tools in architectural design in order to obtain the eternal quality of buildings. For Aldo Rossi type represented the idea of architecture while typology served as the analytical moment of architecture. Studying ancient buildings, identifying their geometries as basic types and transforming them into new creations.
Quatremère de Quincy wasn’t the only one to theorize the idea of type during the Eighteenth cen-



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111. Table 20 of Précis des leçons d'architecture donnés à l'École polytechnique, Durand

tury; in 1802 French architect, Jean-Nicolas-Louis Durand published his book "Collection and Parallel" that concerned with architectural typology. Durand was a professor at Ecole Polytechnique, his work was influenced by the discoveries in the field of natural sciences especially those of taxonomy and descriptive geometry. He adopted the taxonomic methodology in order to study a building form through the extraction of a limited number of building elements: pilasters, walls and foundations.

The book "Collection and Parallel" (Fig. 111) shows how Durand juxtaposed drawings of plans, sections and elevations: once a plan is derived, the section can be developed through a similar vertical combinations and then the two create the elevations. His ideation of the architectural form is based on the assumption of progress as a taxonomic work. Using taxonomy to study building forms Durand based his analysis on three building elements: pilasters, walls and foundations. His major work "Recueil et parallele des edifices de tout genre" published in 1801 is a sort of "typological atlas of architecture", representing different type of buildings at the same scale and using the same technique to draw plans, sections and façade of buildings (Fig. 112-113). The classification of those was morphological and functional at the same time. Durand showed was possible to "disconnect the foundation of an architectural order from existing tradition forwards an autonomous architecture".[83] For him the disposition, the rules of composition and the architectonic members are the basic elements of the form-making principles. Durand theory is shown in a table format, where Durand used a combination of geometric forms as a basis for the creation of numerous types of building plans. Typological analysis allows to study a city above its historic dimension, comparing building typologies of different ages starting from their deepest structure.

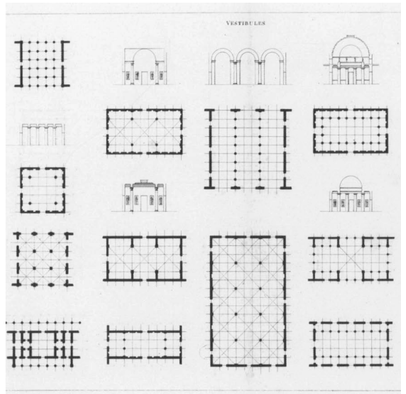
The concept of typology, if extended to the city through the notion of urban morphology, proves to be a fundamental tool in understanding the principles of settlement and working on urban tissue, on the relationships between architecture within a known, recognizable and therefore transformable structure.

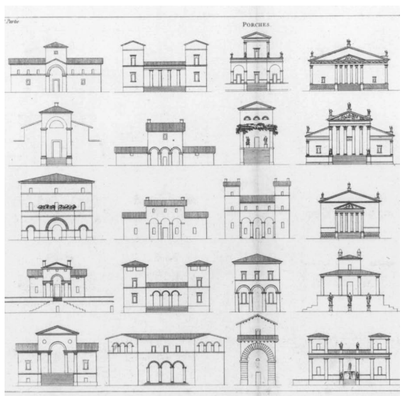
The Italian Typological School

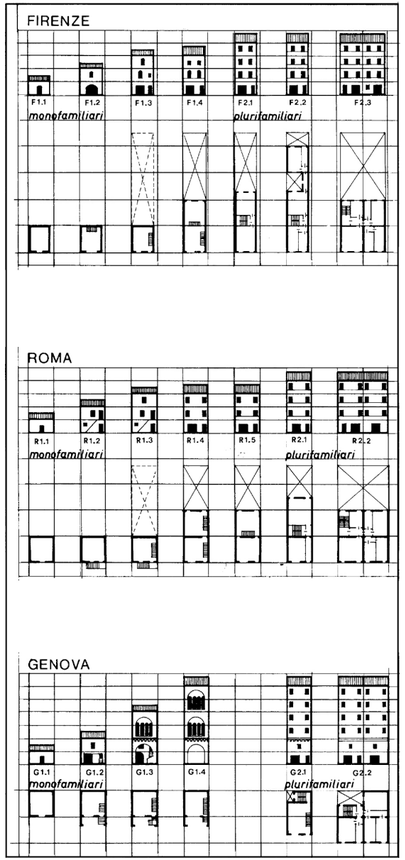
Terms like "urban morphology" and "architectural typology" enjoyed a sort of luck in the Italian design theory during 1960s based on the studies of architecture and the city, "the urban analysis" and the construction of a rational theory aimed at planning operations. Concepts of morphology and typology appear to be of great importance still today; the concept of typology is based on the fact that it is an abstract notion based on practical facts.

As written by Vito Oliveira in his book "Urban Morphology, an introduction to the study of the Physi-

[83] Yasemin I. Guney, Type and typology in architectural discourse, BAÜ FBE Dergisi, Temmuz 2007.







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112. Precis des leçons d'Architecture, Durand
113. Precis des leçons d'Architecture, Durand
114. Diagram for typological succession of urban housing types in Italy, G. Caniggia

cal Form of Cities"[84] one of the morphological approaches is represented by the typological study, developed in Italy around Saverio Muratori and Gianfranco Caniggia. During the period between 1930s and 1970s the Italian Typological school (ITS) provided a great academic atmosphere of public debates among universities. Saverio Muratori moved to Venice in 1952 and published his study and surveys of the city in 1959 in the book "Studi per una Operante Storia Urbana di Venezia", defining the concepts of building type, urban fabric and urban organism. For Muratori the type was initially generated by builders based on their cultural background. Builders, as common people, created types in " asymptotic process of progressive technical optimization and functional adaptation."[85] The urban texture of Venice has been studied by Muratori including typological and morphological analysis. The idea of type in Muratori's mind represented the continuity among different scales of the city, types in Venice are linked to the overall form of the city. In facts for Muratori types are "generators" of the city.

Gianfranco Caniggia was Muratori's assistant. He started his studies from the definition of Muratori's building type and applying it to the urban context. He considered a city as a dynamic procedural typology. Caniggia was more practice-oriented than Muratori translating Muratori's terminology into a clearly architectural concept. For example, the "organism" became "structure" and the "architectural organism" became "architectural type". Caniggia explained his concept and methods on the study of building types (Fig. 114) and the urban tissue in the book, written with Gian Luigi Maffei, "Composizione Architettonica e Tipologia Edilizia, Lettura dell'Edilizia di Base" in 1979. In Muratori and Caniggia theories the "spontaneous consciousness" played an important role in the creation of types. Especially for Caniggia who believed that ordinary buildings, considered as cultural products, reflected the principles of spontaneous consciousness. Typological analysis shows the formations and transformation processes of anthropic structure; the built environment is based on a spontaneous mechanism. During his studies of the city of Como in Italy "Lettura di una città: Como" Caniggia explained his idea of "structure" of the city as its "history". For Caniggia architects should read a typological map of a settlement, like his research of Como, in order to design better its future. The outcome of his research of the city of Como is the map of the ground floor of all buildings of the historical centre of the city, which traces date back to the ancient Roman city. The typo-morphological analysis can be structured on four levels: building types, urban fabrics, settlements and urban morphology. As described in "Lettura dell'edilizia di base" by Caniggia, the urban morphology is the stratification of different settlements, settlements in turn are made of several urban fabrics, lastly the urban fabric is made

[84] Vítor Oliveira, Urban morphology: an introduction to the study of the physical form of cities. Cham: Springer International, 2018.

[85] Giancarlo Cataldi, From Muratori to Caniggia: the origins and development of the Italian school of design typology. Article in Urban morphology, 2003.

by the repetition of several basic building types. Using this instrument Caniggia made a reading of four cities: Roma, Firenze, Genova and Como. The ITS approach is local and historical, studying the history with an operative approach. Scholars of ITS consider city not just as a collection of physical objects but as a result of a construction process through which building forms evolved over time. The typological process creates buildings understood by local people, which would overcome the crisis of confused building languages in different geographical areas like the international style around the world. Typology is based on a comparative study of physical form or other characteristics of the built environment into distinct types. These studies aren't based on the age but to the place where a particular type has grown.
Aldo Rossi[86] based its interpretations on the Quatremére de Quincy's type theory expressed inside the Encylopedie Methodique. The Idea of Aldo Rossi of type is well showed in its major book "Architecture of the City"[87] published in 1982, where he declares that his aim was to propose an "autonomous urban theory". Its analytical method using the typological-morphological approach focused on similarities and the permanent characteristics of cities, through a comparative study of cities' urban form, instead of focusing on their differences during historical periods and the scale or the function of a building. Muratori's work influenced Aldo Rossi theory, promoting traditional building types and focusing on the examination of historic cities for architectural studies. The city itself is considered as an artifact where the type is "the logical principle that's prior to form and constitutes it". For Aldo Rossi typology means the study of elements of a city and of architecture that cannot be further reduced, this process of reduction allows the study of urban and architectural form of cities. The city is a quarry of building types, the city itself generates typologies which elements come from a process of abstraction from the vernacular architecture. The typological concept of Rossi prioritized the local and vernacular elements of architecture mainly neglected by Modernist.

The Chinese context

The typomorphological approach allowed an integrated study on the understanding of the urban physical structure of the city and its formative process. The study of Jiangnan Water Towns (thoroughly studied in the next sub-chapter) is still at the beginning in the national and international studies and analysis. The rapid development of overseas building typologies during the last decades around water towns threatens to destroy local typologies, especially the light-well houses. High-rise buildings are in contrast with the dense development of water towns usually characterized by one or two storey buildings. The typomorphological approach maintains the cultural identity in these historic cities and develops the traditional identity of these places. The application of this methodology in order to explore the Jiangnan water towns, reflects the existing spatial typology maintaining a continuity with traditional spaces. Giving a sense of identity of the space reflecting the vernacular origins of Water Towns in the Yangtze River Delta. The typomorphological approach can be used as a decision-making tool to be used in the contemporary urban growth in the historical Chinese water towns respecting the concept of historic continuity and gradual transformation of a city. Theories of Morphology and Typology can provide design suggestions for urban designers and policy makers in order to create more culturally sustainable urban form. The current architectural language doesn't express local social relations or collective memory. The rapid development of Chinese urban context jeopardizes the survival of the identity of Chinese cities. The identity of a city is closely linked to the social identity of inhabitants. Maintaining the unique Chinese characteristics of urban forms can facilitate a harmonious environment.
Typomorphology can be a solution for the current identity crisis of contemporary Chinese cities,[88] thus new forms don't need to be identical to traditional ones, but have to be harmonious with the surrounding historical context and evoke the local people's sense of place. The typomorphological approach is able to identify the characteristics of urban elements during different historical periods of development. The typological process uses traditional characteristics for new design proposals, providing references for designers and local policy makers.

[86] Aldo Rossi (1931-1997) was an Italian architect and designer, winner of the Pritzker Prize for architecture.
[87] In Italian "L'architettura della città" The city is described as an organism of architectural facts (or single architectural units) with the fundamental role of being the "fixed stage in the theatre of human life".
[88] Fei Chen, Ombretta Romice, Preserving the cultural identity of Chinese cities in urban design through a typomorphological approach, URBAN DESIGN International, Vol. 14, 2009.

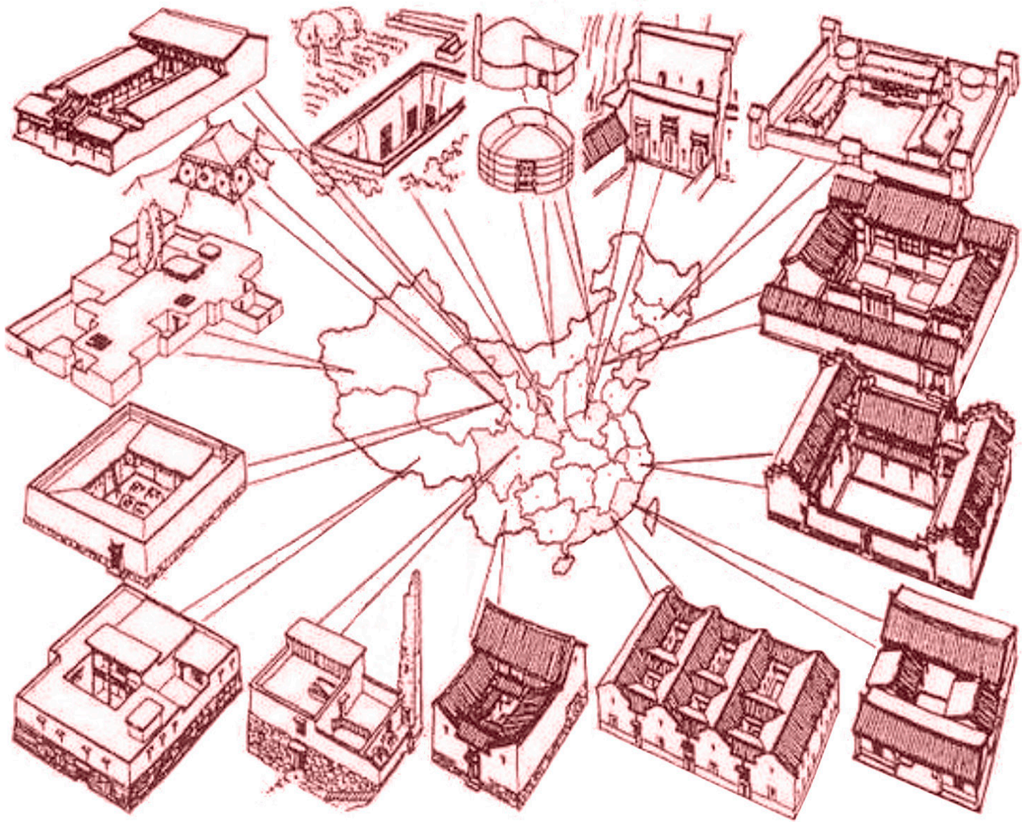

Fig. 115

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_Traditional Courtyard House in China

4.2 The courtyard house has been the main pattern for housing for over one thousand years in the Chinese context. The earliest courtyard house found in China dates back to the Middle Neolithic period (5000-3000 B.C.).[89] Because of the collapse of the last imperial dynasty (1911) and the establishment of the People's Republic of China (1949) China suffered wars and policies which had destructive impact over courtyard houses. Furthermore, since 1980s there was a tendency to replace traditional buildings (with a horizontal development) with multi-storey buildings (with a vertical development). These events interrupted the cultural continuity of the vernacular tradition of Chinese courtyard buildings.

The courtyard house is more suitable than other traditional building type because of its adaptability to the natural environment and the needs of living in China. Courtyard houses are residential compounds enclosed by buildings or tall walls on four sides. Walls protect the inner area from strong monsoon climate, with periodical changes in wind blow, when cold winds blow from north during the winter and typhoons come from the south-east during summers. The isolation of the courtyard from the outside world is an important feature in the Chinese architecture. From imperial palaces to private dwellings of normal people, walled compounds and courtyards survived in the Chinese architectural tradition for more than 2000 years and 20 different dynasties. Safe barriers were necessary to protect against outward misfortunes, like invasions, internal dissension and factional strife. In Chinese houses relationship between buildings and patios seem to be based on a climatic concern. In fact, patios in the south of the country are smaller than the one in the north. Moreover, building's roof located in the south of the country had a shape that offer more protection against the sun exposure.

Chinese vernacular architecture developed numerous distinctive regional characteristics during the long process of evolution based on different

[89] Liu, X. The origins of Chinese architecture, in Chinese architecture (pp. 11-31). New Haven: Yale University Press, 2002.

local environments, climate and cultural background. There are many different building typologies in China: Mongolian yurts, cave or earth-sheltered dwellings, Cliffside dwellings, Hakka Tulous and the courtyard-based dwelling, which is the focus of this chapter. Siheyuan (northern courtyard based dwelling) is the pinnacle of the Chinese Vernacular architecture, based on principles of axiality, balance and symmetry.[90]
There is a clear implication of philosophical culture in traditional courtyard house, the Chinese philosophic system reached its peak during the Han dynasty.[91] The philosophical ideology provided theoretical guidance for housing building practice which ideology builders and building owners tried to express through house design. Ancient Chinese philosophy is composed by Daoism and Confucianism:

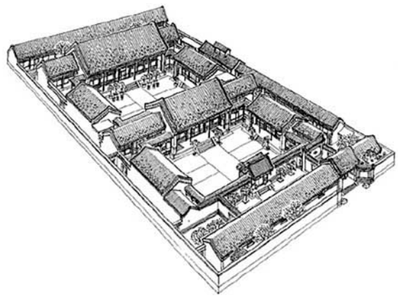
Comparing Daoist with Confucian influences on Chinese architecture, one can observe that Daoism stressed a harmony between buildings and their environments, finding architectural expression in beautifully sited buildings and romantic ensembles, and developing artificial landscapes and ideal man-made environments. The qualities of Confucian architectonics emphasised the importance of hierarchical order, axis and symmetry to control spatial organisations.[92]

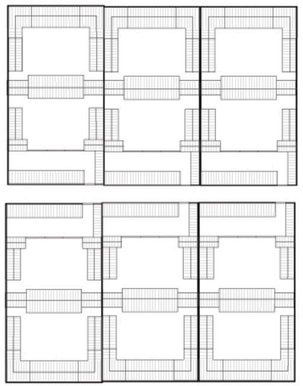
Feng-shui theory is an application of Daoist philosophy applied to housing in practice, for example an ideal site to build should be surrounded by higher land or mountains on three sides to provide protection from wind and enemies. In Feng-shui there should be a river or a valley nearby to drain the water, an enclosed site is preferred in order to contain lively Qi.[93] As an ideal site was impossible to obtain inside cities and towns, the form of the courtyard became a symbolic ideal model. A basic courtyard dwelling in FengShui wasn't only a house but also a structured vision of the universe and a container of Qi. The shape of a courtyard is linked to a cosmic symbolic representation, it must have a square shape because in the Chinese tradition: "sky is round and land is square". This ideal shape of a courtyard follows the Chinese belief that when a man is close to earth, health will prevail. Natural environment, climatic and social conditions influence the form of traditional courtyard house, the building represents the harmony between the universe and man in Chinese tradition. Confucian philosophy dominated for hundreds of years many aspects of its ancient feudal society, for instance there are many rules for to follow for members of a Chinese family. The feudal family and its hierarchical order are represented and symbolized by the axiality of the house and the symmetrical arrangement of spaces of the courtyard houses. The spatial arrangement of a dwelling reflects the power that elders had over younger generations. The rigidly patriarchal system developed along the central axis of courtyard houses, the biggest and highest building of the compound was located in the far north of the axis and was reserved for the older generation. The inner building was destined for younger generations of a family, while the outer building was built for servants and guests. In Chinese tradition ideals of a successful family are expressed through "five generations under one roof" even if it was extremely rare to live under the same roof and hold common family properties.
A typical elite household described by Samuel Y. Liang is enclosed by high walls without windows and is characterized by:

"A complex of doorways, courtyards, halls, rooms, and gardens constituted a communal space of the extended family, a 'hall shared by five generations' (wudai tongtang). Here the liturgical rituals of birth, maturation, marriage, and death were performed, rivaling the ceremonies of any 'public' worship."[94]

The private and public social life of a family was enclosed whithin the courtyard. A house was viewed as a microcosm where there was a harmony between man and nature and the patriarchal order was respected, thus reflecting the heavenly laws. The courtyard acted as a miniature world, with re-created mountains, rivers and plants.
Open and closed elements of a courtyard house are identified by Ronald G. Knapp as reflecting the complementary bipolarity of Yin and Yang.[95] The house and the courtyard are balanced and interdependent and produce harmony. For over one thousand years the courtyard house was an ideal model, protecting people from outside forces and disturbances. Its form remained intact thank to the social stability of the feudal society. There may be differences in size, scale or spatial arrangement in different regions of China, but its main characteristics didn't change. The courtyard represents the heart and soul of dwelling units jointly with axis and the symmetrical planning principles.
Open spaces are fundamental elements in Chinese building culture that can be found throughout the country. The ratio between open spaces and enclosed spaces reduces down from the Northeast of the country to the south-east and south-west of China. In the North courtyards are bigger and in the south are condensed. The term "tianjing" means "light-well"[96] that leads directly to a shape that reminds the form of a courtyard, especially in the south where the verticality is accentuated by the two-storey buildings which reduce the horizontal dimensions. In philosophical terms courtyards act as a link between heaven and Earth.
From north to south of China there are many distinct sub-types of courtyard dwellings in different

[90] Ronald G. Knapp, The Chinese house: Craft, symbol, and the folk tradition (Hong Kong; Oxford University Press, 1990), 11.
[91] Han Dynasty (206 B.C. – 220 A.D.).
[92] Needham, Joseph, Science and Civilization in China, Vol. 4. Cambridge University Press, 1971.
[93] The Qi is an essential element forming all existence in the world and it is the responsible for the quality of a dwelling.
[94] Liang, S. Y. Mapping Modernity in Shanghai: Space, Gender and Visual Culture in the Sojourners' City 1853–98, Abingdon: Routledge, 2010.
[95] Knapp, R. G. China's Old Dwelling's, Honolulu, HI: University of Hawaii Press, 2000.[94] Liang, S. Y. Mapping Modernity in Shan





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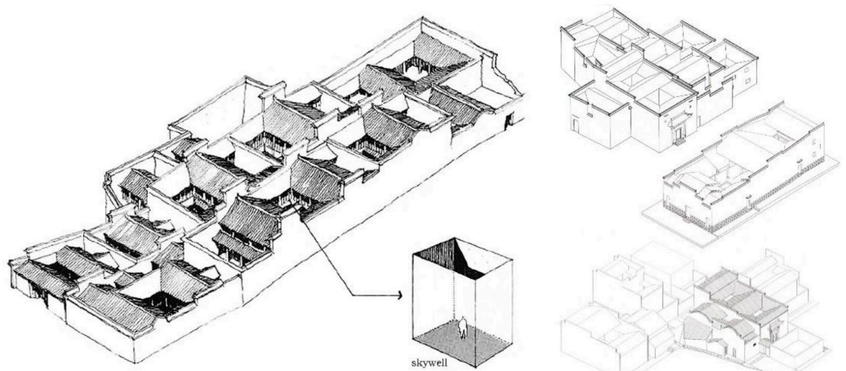
116. Siheyuan courtyard house
117. Siheyuan traditional building typology
118. Hutong in Beijing, Siheyuan typology

Chinese provinces. The function of courtyards is to expand the internal functions and extend the rooms. A veranda usually develops around the central courtyard, as a transition between the internal space and the external one. Courtyards play an important role in traditional daylife. Northern residential dwellings are characterized by a central courtyard enclosed by separate buildings with (but not always) corridors connecting them. Due to its configuration, where wing rooms couldn't block main rooms, the east-west length of a courtyard is bigger than the length of the main rooms. The northern enclosed courtyards are bigger than its southern counterparts, characterized by a close connectivity between buildings. Patio type courtyards result to be smaller than the enclosed ones in the north. In the southern layout wing rooms connect main rooms on the central axis, creating smaller courtyards. The patio-type dwellings create a very dense building stock. Therefore, in order to prevent the expansion of the fire and traffic problems the creation of alleys was necessary, in Suzhou these alleys are called "Beinong". These lanes run externally along the building blocks connecting directly to the street the main rooms.
Vernacular buildings in Water towns were made of simple exterior walls, gray rubbed bricks covered with white lime and gray/black tiles for roofs. Fireproof gable walls were higher than roofs to prevent the spread of fire in densely arranged dwellings. There were common construction methods for exterior walls, characterized by rowlock cavity walls. Usually broken bricks were stuffed in empty inner spaces between other bricks, a lime coat was added to the wall for the protection against the rain. Roofs in vernacular buildings in Jiangnan region were lighter than the ones in the North. Roof tiles were laid directly on rafters or on sheathing tiles. Since wood beams are vulnerable to the rains they are protected by sheathing tiles covered by a second layer of tiles. The roof ridges are characterized by vertical queue of closely tiles, called "ten thousand volumes of books"[97] by ancient craftsmen.
Traditional Chinese dwellings in Jiangnan region are usually based on a column and tie construction because this technology permitted a reduction of the wooden structures which implies a reduction of costs. Thin wood siding walls are connected with the column through ties, these walls were also convenient to disassembly. This ease in disassembly of interior walls permitted to hold large scale events in halls.

Siheyuan (Fig. 116)
The northern Siheyuan, the typical Chinese Courtyard dwelling, is a residential compound characterized by a set of courtyards enclosed by walls or buildings on its four sides. The layout could be extended by the addition of buildings, courtyards and verandas if the family grew richer or

[96] Lightwell or skywell (in Chinese Tianjing, 天井)

[97] Fei Qiao, Chih.Ming Shih, Research on traditional vernacular dwellings in the Li canal reach of the grand canal, Journal of Asian Architecture and Building Engineering, 2020.



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119. Different dimensions of Jiangnan courtyard based houses
120. Sky-well typology, Wuzhen

bigger. The courtyard-house structure has been used also for different buildings with different functions across China. This type of structure can be identified in ancestral temples, guild halls, academies and even The Empire's Forbidden City. The traditional ancient philosophy of "Feng-Shui" is very important in dwelling's environment, e.g. for the north-south orientation, a clear axiality and a balanced side to side symmetry. These principles follow the Confucian ideal of "harmony in social relationships".

Mongols[98] established their capital in Beijing basing their construction projects on the "ideal model" of the Chinese dwelling: the courtyard house. During the following dynasty, the Ming dynasty,[99] the capital was rebuilt over the old one restoring old buildings and adapting them to new exigencies. The last dynasty, the Qing dynasty,[100] together with the previous one used the courtyard buildings as dominant form of Beijing dwellings. Residential areas (hutong) were characterized by lines of courtyard buildings (Siheyuan) that with the Forbidden city formed an extraordinary landscape of courtyard houses (Fig. 117-118). In 1911 with the end of the last imperial dynasty and the feudal society, China was characterized by rapid social changes with a radical influence on the traditional courtyard houses in the capital. The living standards of nobility, merchants and officials declined due to the collapse of the old social and economic order. Large dwelling compounds owned by large families began to break down due to the economic pressure and were replaced with smaller families. Younger generations were leaving their old houses to seek their own fortunes. In order to generate income owners of large dwellings had to rent portions of their compounds. Some hutongs neighborhoods distant from the city center were crowded by ordinary and low-income people. A general housing shortage due to an increase of urban population forced the transformation of single household into overloaded multi-household compounds.

The main building of a courtyard house is the private inner quarter called zhengfang, located on the north side of the courtyard and facing south. Usually it is divided into three rooms, the central one is called tangwu and the adjacent sides rooms (taojian or erfang). These rooms are used as bedrooms for parents and grandparents and place for important family ceremonies. On the eastern and western sides wing rooms are located, known as xiangfang, dividing the main building into three rooms which can be used as bedrooms for married sons or as workrooms or studies. A colonnaded corridor, called youlang, flanks wing rooms and connects the buildings facing the courtyard. The courtyard is usually paved with stones and hosting potted plants and fruit trees.

A series of new policies took place following the Mao Zedong's Communist ideology, the state investment funds were given to urban industries ra-

[98] Mongols, Yuan Dynasty, 1279-1368 A.D.
[99] Ming Dynasty, 1368-1644 A.D.
[100] Qing Dynasty, 1644-1911 A.D.

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121. Courtyard of a Siheyuan building

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122. Tianjing or Sky-well

ther than to the construction of new houses. The state-supervised planned economy mainly based on industrialization increased urban population which led to the expansion of large cities. At the same time new policies forced people to live at a lower level of consumptions and not to invest in urban housing construction. Due to the house shortage, old housing settlement were converted into public properties to host multi-household compounds thus abolishing the private property. The rapid growth of population led to overcrowding of courtyard houses. To solve this issue many residents started to build inside courtyards, transforming physical environment in their residential areas.

The conversion from single-household courtyards houses into multi-household houses reflects the change of ideology in the society, the structure of the family based on a hierarchical society was in conflict with the new proletarian and classless society. Many old buildings were destroyed during the Great Proletarian Cultural Revolution,[101] particularly traditional courtyard houses were demolished when Red Guards destroyed the "Four Olds", i.e. old ideas, old culture, old customs and old habits. Siheyuan, the form of the traditional courtyards buildings was destined to destruction. Not only the buildings were destroyed but also their decorations, wood carvings, wall paintings and old furniture.

Light-well / Sky-well Houses (Fig. 119)

There is a structure similar to Siheyuan in the Yangtze River Delta in Jiangnan Region, with a particular type of courtyard houses: Light-well or Sky-well houses. The Yangtze River Delta has a dense network of rivers and canals that hosted the distinctive Water Towns for thousand years. This area is crossed by a great number of waterways and lakes. This intimate relationship with canals characterizes the vernacular houses of Jiangnan region. Small rivers and interconnected canals flow through water towns like Wuzhen, Tongli and Zhouzhuang (Fig. 120). There is a large number of houses along waterways, connected to boat platforms with steps going down to the river for the daily washing and neighborhood interactions. Jiangnan courtyard houses have common elements like white plaster walls, black tiles, brown beams and doors. Residential dwelling isn't as strictly symmetrical as Siheyuan, higher population density allows to have more arable land for inhabitants, two story buildings have inner courtyards, called skywell or lightwell[102] to permit ventilation and lighting. Narrow skywells create a comfortable inner climate during hot and sultry summer, reducing the direct sunlight. The size of skywells is always smaller in size if compared to a single room. The Northern siheyuan courtyards (Fig. 121) cover about forty per cent of a building's total area, while a skywell (Fig. 122) is usually around twenty per cent or less.

The use of timber limited the height of the buildings in the traditional Chinese architecture, since buildings could not be too high, with maximum three stories. Furthermore, the number of bays[103] was limited by the government: only royal buildings could be more than nine bays wide, normal buildings were between five to seven bays and vernacular dwellings were maximum 3 bays wide. [104] These rules explain spatial arrangement of architectural complexes that were prevalent in the traditional architecture of China. The main feature of ancient buildings is the courtyard, composed by a number of enclosed buildings, and a series of courtyards that constitute a building group usually along the central north-south axis. Main buildings are located along this central line, and secondary buildings are located symmetrically on both side of the central axis. Wealthier families owned a multi-row dwelling that extended not only along the north-south axis but the east-west direction too. These dwellings formed a multi-axis courtyard complex. The courtyard became the central characteristics of any traditional building, the center of family and its social life was often beautifully decorated.

In addition to owning large dwellings some wealthier families owned a landscaped garden at their homes. Gardens were bigger than skywell and usually identified as places "where one can walk, view travel and live".[105] Gardens aimed at evoking different scenes by positioning rocks, planting trees and creating water pools and canals whose spontaneous layout reflect the Daoist principle of "harmony with nature".

An important source of information about small villages and their buildings located along the canals is the book entitled "Peasant Life in China, a field of country life in the Yangtze Valley".[106] This study was conducted about a century ago on the village of Kaihsienkung (Fig. 123) on the south of lake Tai by Hsiao Tung Fei.

A house usually consists of three rooms (Fig. 124), the front room is the bigger one as it is used for work activities (Fig. 125) such as manufacturing silk or threshing rice, to store products and receiving guests, and most importantly there is an ancestral shrine in the room. The back room is the kitchen, where there is a stove and chimney. There is an open yard near the kitchen, between the front room and the bedroom. The bedroom is divided by a wooden partition forming two different rooms, one for parents and another for sons or daughters. An open field is located in the front or behind the building. It can be used as street or little garden with gourds and cucumbers. Houses were built by special craftsmen of the town. In 1939 the price to build a new house was at least five hundred dollars, with further a constant maintenance of the building. Every two or three years' wooden parts needed to be oiled and the tiles of the roof needed to be partially rearranged.

Every household possess a boat which binds it

[101] Great Proletarian Cultural Revolution, 1964-1976 A.D.

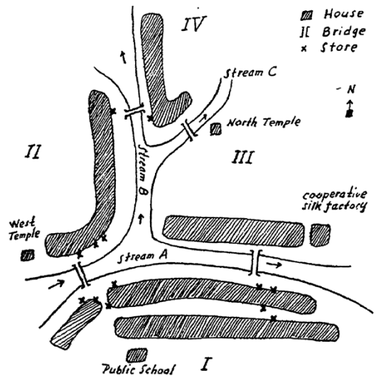
[102] Lightwell or skywell (in Chinese Tianjing, 天井)

[103] One bay is the space enclosed by four colums.

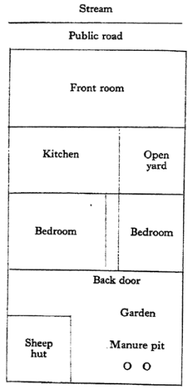
[104] Fei Qiao, Chih.Ming Shih, Research on traditional vernacular dwellings in the Li canal reach og the grand canal, Journal of Asian Architecture and Building Engineering, 2020.

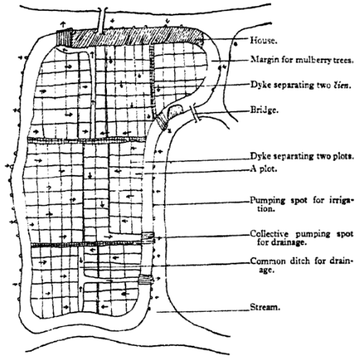
[105] Weiquan Zhou, History of Traditional Chinese Garden, Beijing, Tsinghua University Press, 1999.

[106] Hsiao-Tung Fei, Peasant Life in China, a field of country life in the Yangtze Valley, London, 1939.



Map III.—The Village Plan





Map IV.—Lay-out of the Farms in Hsi Chang Yu.

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123. Village plan of Kaihsienkung
124. Plan type of a house
125. Typical front view of a house
126. Layout of the farms around the village

inextricably to the canals. The function of water canals was not only commercial and transportation but also to supply the water for the rice fields (Fig. 126). The fertile land was divided by water canals, forming tiny islands called “yu”. In the past more than 90% of the surface of yu were used to cultivate crops like rice, wheat and rapeseeds. Along the margin of each yu there were ten to thirty meters of land left for plantation of mulberry trees and a wider space for houses. The bigger was the yu the more difficult was to drain extra water, which led to fragmentation of cultivated fields.

Fig. 127

4 // TYPOLOGY

_New Typologies in China

4.3 Urbanization occurred only recently in China and its urban population is still growing. The proportion of urban residents is above 50 per cent. During the Republic of China, it was around 12-13 per cent. This rapid growth involved development and evolution of several new housing and building types. Since the rise of Maritime Silk Road in the Ninteenth century and globalization, China developed many new building typologies. Some of those are a hybrid marriage between East and West.
Diaolous, Shophouses and Shanghai Alleyway houses show a mixed use of Western and Eastern elements in their decoration and construction. These elements were brought to China by overseas Chinese who returned home after working abroad or by colonial inhabitants of Shanghai. Western colonies in China and the Guangdong Province are rich with these hybrid typologies due to their open relationship with the outside world during the nineteenth and twentieth centuries.

Diaolou (Fig. 128)
Also called tower house in the Wuyi region of Guangdong province, Diaolou represents a hybrid architecture between traditional Chinese architecture and western techniques. Built between 1920s and 1930s, many of them are still visible in the central part of Guangdong. In the past tower buildings were built for surveillance and served as a refuge during periods of disorders (especially during the Ming Dynasty). Guangdong was known for its wealth and many battles happened in the past between warlords for the control of the territory. Diaolou were mainly used to store grains and water and be a refugee for the owners and their properties at times of public disorders. During the Republic of China, those who had migrated overseas to earn and came back rich, attracted the attention of local bandits. To protect themselves and their families they chose to build fortified Diaolous as homes. Based on their function it's possible to classify three types of Diaolous: wa-

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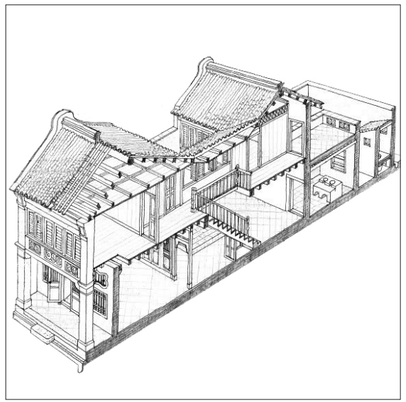
128. Kaiping Diaolou, Zili village
129. Kaiping Diaolou, Jingjiangli village
130. Kaiping Diaolou, Zili village

tch tower, residential tower, and communal tower. Watch towers could be built at the entrance of a village or outside of it, by several neighbouring villages or just one as a response to local bandit activities to protect villagers. Communal towers were used as temporary shelters. Several families or the whole village were involved into their construction. Residential towers were the last to appear in Guangdong countryside, built by rich families and used as fortresses; these buildings also served in daily life of dwellers as kitchens, bathrooms and studies. The owner tastes were reflected by the artistic decorations on the façade of the towers. Western and Chinese styles were merged to create a unique style in the upper part of the building, with elements from Greek, Roman and Islamic styles to enrich the towers.
Lower floors had smaller windows, while upper floors showed off the wealth of families and their cosmopolitan sophistication. Upper floors of the towers were richly decorated (Fig. 129), with many elements from Western neoclassicism and gothic revival. Carved balconies run around all four sides of the towers allowing people to control the surrounding territory. In the past there were at least two or three towers in each village, some had even eight or nine of those, all strategically placed. Thousands of Diaolou can still be found in Kaiping, Taishan and Enping, especially in the rural countryside (Fig. 130).

Shophouses (Fig. 131)
Shophouse type of structures were inhabited by common people. This building typology is mainly found in Guangdong province as for the Diaolou, it is known also as “arcade-dwelling”.[107] As in many Chinese cities, the inner city was occupied by privileged officials and gentry, while common inhabitants lived in the outer city. The shophouse is a commercial-type building in southern China that dates back to the nineteenth century, it usually had two or three storeys. The ground floor was characterized by a colonnade (Fig. 132), called “portico” in Europe, providing protection from the natural elements. The colonnade or covered arcade allowed customers to look at the vendor goods in comfort. This typology was widespread in southern China and Southeast Asia, where the influence of foreign trade was the greatest. In Guangdong, shophouses were a hybrid between Western and Eastern stylistic elements, as in Diaolou. The Maritime Silk Road, deriving its name from the lucrative Chinese silk trade, connected Asian continent to Western countries. This connection brought not only goods but also cultural fusion. Southern China experienced emulating and integrating processes between vernacular architecture and foreign cultures, forming hybrid building typologies. Shophouses (Fig. 133), more than other buildings reflected this cultural phenomenon. In fact, the relationship between dwelling and commerce (mixed-use) facilitated

[107] Shan, D. Chinese Vernacular Dwelling, Beijing: China Intercontinental Press, 2004.



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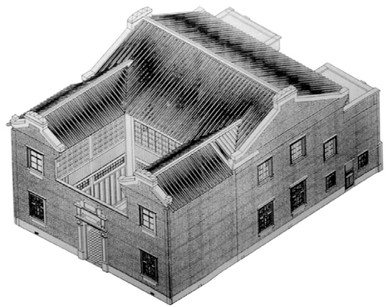
131. Structure of a Shophouse
132. Shophouse typology in Chikan
133. Historic picture of a Shophouse

new hybrid architectural development. Shophouses are an original variation of the local dwelling houses, characterized by a room along the street that transformed into stores. Shoujinliao was the prototype of the shophouse, its urban layout followed the traditional courtyard model a symmetric organization of buildings with an axis that crossed several inner courtyards. The particularity is shown in the façade, where units are placed side by side with a continuous roof and cornices linked together.

Shanghai Alleyway house (Fig. 134)
This typology is found in Shanghai and was inhabited by Chinese migrants whose work for the local industries, they are condensed copies of traditional British row houses, a series of short-width houses joined by common sidewalls called Lilong.[108] Alleyways separated lines of row houses and served as space for communal meetings and cooking. Lilong neighbourhoods rapidly spread in French concession as well as in other international settlements. In 1930 Shanghai hosted 200 thousand units of lilong houses. After the establishment of Chinese Communist Party in 1949 the Shanghai Alleyway housing stock were confiscated from foreign countries and redistributed among local residents, the original population of three million inhabitants reached an overcrowding situation with eleven million inhabitants. After 1980 many lilong neighbourhoods were demolished to build high-rise apartments after decades of neglect and deterioration.
Lilong compounds were guarded by a gate and formed their own neighbourhoods; Shanghai alleyway houses represent a mixed style and layout of Western and Chinese elements. The earliest alleyway houses were U-shaped brick buildings characterized by a small courtyard between the two wings (Fig. 135). The design was based on the traditional courtyard house. The innovation came from how they were built. They were built in clusters, alleyways allowed the access of ventilation and light. Row houses usually had two or three storeys and were laid out in rows reflecting a rational layout of the modern efficiency. Lilong neighbourhoods were built by foreign landowners to rent those to Chinese refugees that escaped during the Taiping Rebellion.[109] The main alleyway ran perpendicular to the access street and was usually four to five meters wide, the houses connected by alleyways (Fig. 136) could have varied in size and opulence, there were usually two room per floor with a floor area between 60 to 105 square meters. An interesting feature was the orientation of alleyway houses, nearly all faced south, following the rules of Feng Shui. The hybrid nature of alleyway houses can be explained by local construction guilds knowledge which was based on local building traditions, especially vernacular dwellings of Jiangnan. Shikumen and skywells, traditional elements of Jiangnan region,

[108] The term “Lilong” describe the layout of these row houses, in fact “li” means neighbourhood and “long” means lanes.

[109] Taiping Rebellion (1850-1864) was a massive rebellion or civil war between the established Qing Dynasty and the theocratic Taiping Heavenly Kingdom, the Qing government won decisively.



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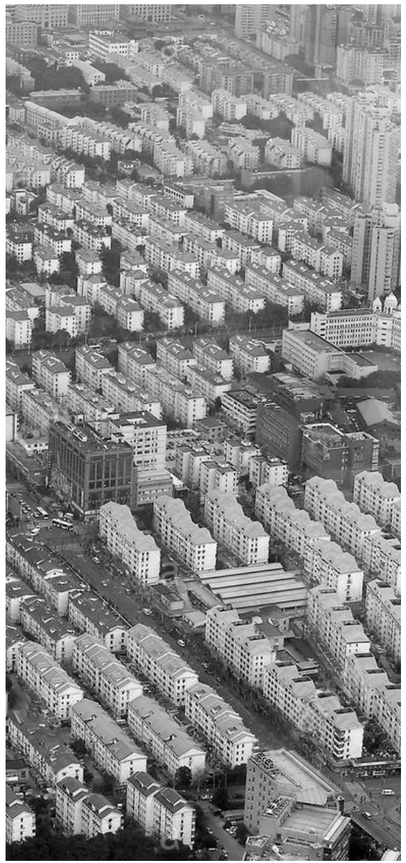
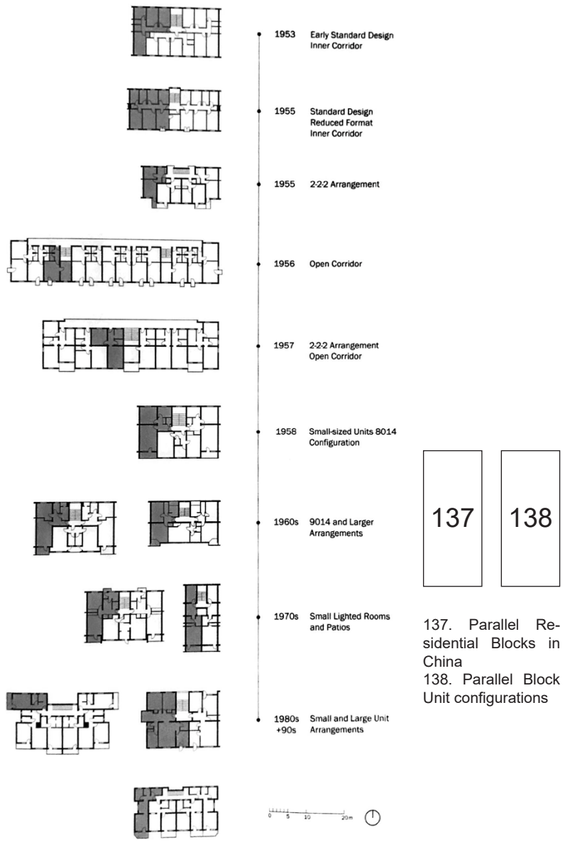
134. Alleyway houses in Shanghai
135. Shikumen house, Shanghai
136. Alleyway in a Lilong compound

were combined with the rigid layout. The small size of buildings involved the movement of some functions that were usually done at home to the alleyway, such as socializing and washing and repairing clothes.
Modern typologies of residential buildings, like Parallel block arrangement, high-rise developments and Garden city neighbourhoods appeared during the People's Republic of China. These typologies neither represent an evolution of vernacular buildings and nor a marriage of Chinese and Western elements, but rather imported types of residential dwellings from Soviet Union, the main ally of the Chinese Communist Party at that time.

Parallel block arrangements (Fig. 137)
This prolific apartment blocks emerged as the strong influence of Soviet Union during the early ages of People's Republic of China. The Soviet model house served the industrialization. New workers' villages "xincun" were mainly built by enterprises for their employees. The land was usually provided for free by local government. Between 1949 and 1957, 110 million square meters of was built as a response to the housing shortage and the new exigencies of industrial development. At the beginning the adopted Soviet model consisted of parallel blocks of apartments, all facing south, between two to five storeys. these buildings called "hanglieshi"[110] were built in the periphery and based on the Soviet standard of 9 square meters per person. In China it halfed, so the same apartment was shared by two families at the same time. Taller residential buildings were located along the perimeter of a block; these buildings were between five to seven storeys. Another Soviet contribution was the standardized design of dwellings at the level of dwelling unit. The standard configuration of the blocks permitted large scale projects in a country that lacked architects and engineers in that period. These complexes consisted of several apartments with a common stairway and a compact arrangement of services. Wall panels were produced in big numbers as standardized components in local factories in order to accelerate the construction speed.
Chinese parallel block arrangements (Fig. 138), like the Soviet "microrayon"[111] worked as compounds with increasing levels of public services inside the compounds, where there were schools, clinics, libraries, community halls, recreational facilities and even hospitals. These spatial arrangements dated back to the Soviet Union in 1920 with the birth of "sotsgorod" also called "compact city". Modern building blocks in Soviet Union dated back to foreign architects who worked there in that period, like Ernst May[112] and Bruno Taut.[113] Walter Gropius[114] introduced the parallel block arrangements with his Zeilenbau, built between 1920 and 1930 in Germany. They were linear

[110] Hanglieshi in Chinese means "lined up in a row".
[111] Microdistrict, or microraion (in Russian: микрорайо́н, mikrorajón) is the primary structural element of a residential area built in the Soviet Union and former Socialist states.
[112] Ernst May (1886-1970) was a German architect and city planner.





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137. Parallel Residential Blocks in China
138. Parallel Block Unit configurations

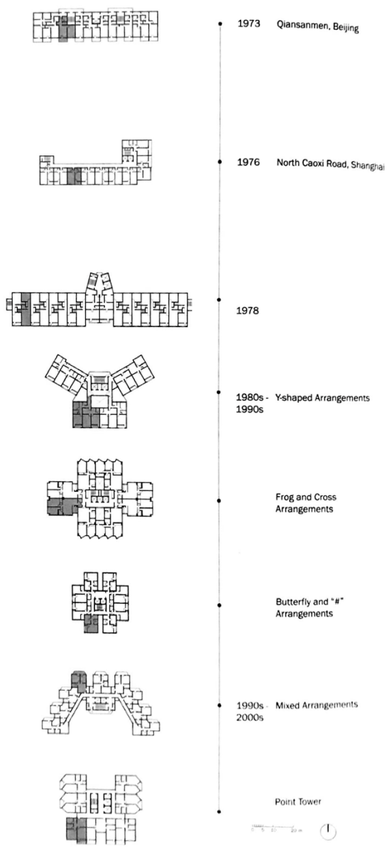
blocks oriented along north-south axis in order to maximise access of daylight. In 1955 Chinese architects started to adapt the Soviet experience to a new functional agenda. The idea to host two families in the same flat was seen as “a rational design but irrational use”,[115] another characteristic of Soviet model the central was abandoned in favour of open corridor on the northern side, due to its lack of ventilation and sunlight. Open corridor apartments had the main habitable rooms on the south side with kitchen and bathrooms on the northern side close to the open corridor. This typology allowed to reduce the number of stairways in the same building block leading to considerable savings of space and money during construction. The perimeter-block arrangements in 1957 started to give way to parallel north-south housing buildings, due to their inefficiency in Chinese climate and living habits, though they were better suited for the urban form of a city and its cityscape. The north-south alignment of units prevailed in all China since nowadays, spaced between them according to the sun angles and the latitude of the site location. In 1958 the Soviet approach to put two families in the same apartment was abandoned, opting for one flat per family. Furthermore, started to appear “small square hall” or “bright square hall” started to appear that connected the stairway with two or three flats for each floor. During the Great Leap Forward a more practical and realistic atmosphere pervaded the real estate market introducing smaller apartments.

High-rise developments (Fig. 139)

This type of buildings appeared later in the People’s Republic of China, exactly at the end of the Cultural Revolution when the scarce land resources combined with the need of people to have a house closer to their employment. The first complexes built were in Beijing, hosting tens of thousands inhabitants of the capital. Only Shanghai experienced the construction of high buildings before Beijing did the same forty years later. Between 1928 and 1938, during the Nanjing decade, 38 buildings were built 10 storeys and above with an elevator. These buildings remind the high rise residential buildings in New York and Chicago built at the same period. The “American Technology” was used in Shanghai. It consisted of masonry-clad steel frame construction and the use of elevators as in the Empire State Building in New York.

The development of high-rise buildings started after adoption of industrialized elements and prefabricated elements such as light-weight panels with steel frames. After the opening of China to the outside world in 1979, in few years 310 million square meters of housing were developed. In 1981, 416 tall buildings have been built thanks to the reliability of elevators and the growing experience. Between 1981 and 1985 75 percent of tall buildings were built in Beijing. This percen-

[113] Bruno Taut (1880-1938) was a German Architect and urban planner.
[114] Walter Adolph Georg Gropius (1883-1969) was a German architect founder of the Bauhaus school, considered a pioneer of the modernist architecture.
[115] Peter G. Rowe, Ann Forsyth, Har Ye Kan, China’s Urban Com-



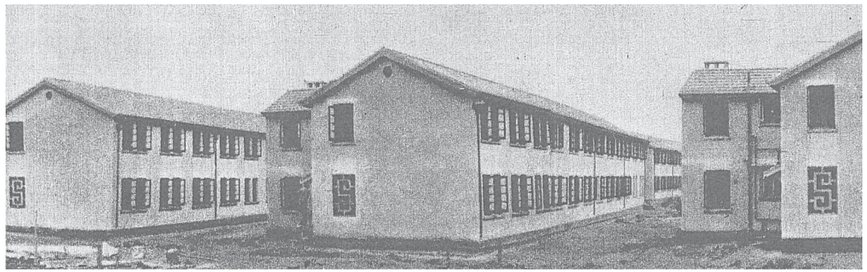
139 140

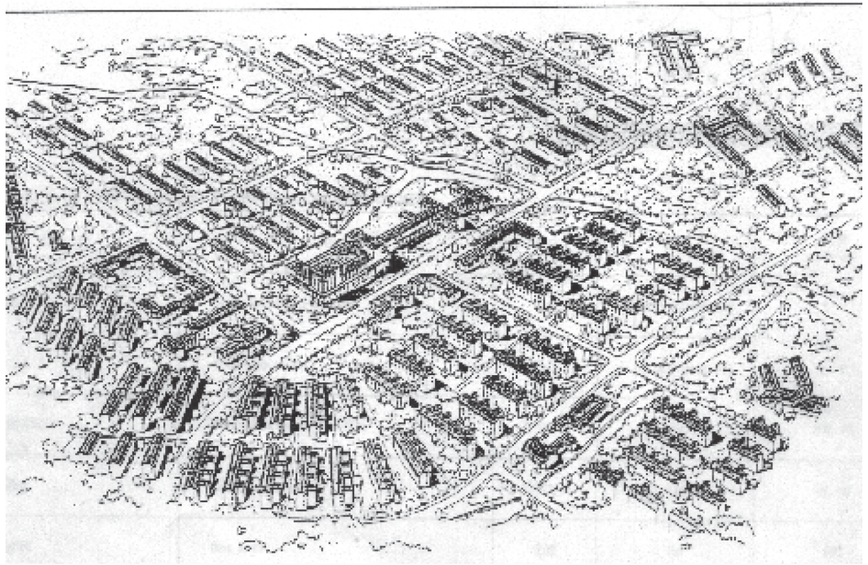
139. High Rise buildings in China
140. High Rise Unit configuration

tage decreased in the following years, reaching below 45 percent. During the five years of "Planned Commodity Economy" 1985-1991, new residential areas underwent new analysis from the government. Outside environment of buildings became more pleasant and sometimes bucolic. New experiments with curvilinear alignment of units in high-rise developments were made to search for more graceful spatial arrangement breaking from the orthogonal and parallel tradition. Since 1985 new building profiles in high-rise construction were developed: Y-shaped, Cross-shaped and Frog-shaped plans. These tall buildings had a compact vertical core characterized by stairs, elevators and services. Other typologies included the ones using inner yards or light courts but were immediately abandoned. The Y-shaped and the frog shaped high-rise buildings emerged, with four and six apartments per floor (Fig. 140). The space standard for each flat increased from 60 to 80 square meters, high-rise developments were typically built in the periphery of cities. Since 1990s up to now high-rise buildings became commonplace in all Chinese cities, in a response to the high cost of land in China.

Garden city neighbourhoods (Fig. 141)
The Garden city neighbourhoods were born as parallel block arrangement thanks to Soviet influences. This typology has been criticized earlier by the Communist party due to its capitalistic planning. The Caoyang district (Fig. 142) in Shanghai is an example of Garden city neighbourhood where inner streets are adjacent to rows of two storey houses (Fig. 143-144). In 1984 Caoyang became a city inside the city, when its population arrive to 100,000 inhabitants. The neighbourhood is based on the principles of walking distances[116] with spaces for recreation, shopping, wider streets host main public functions, meanwhile inner streets are tighter and allow the local access. The building density is very low for a usual Chinese neighbourhood because many buildings are only three storey height compared to Parallel block arrangements with five storeys. Garden city neighbourhoods, such as Caoyang, had a short life and didn't spread around the country.

munities: Concepts, Contexts, and Well-Being, Birkhauser Veriag, 2016.
[116] Clarence Perry's "neighborhood theory" 1920s.





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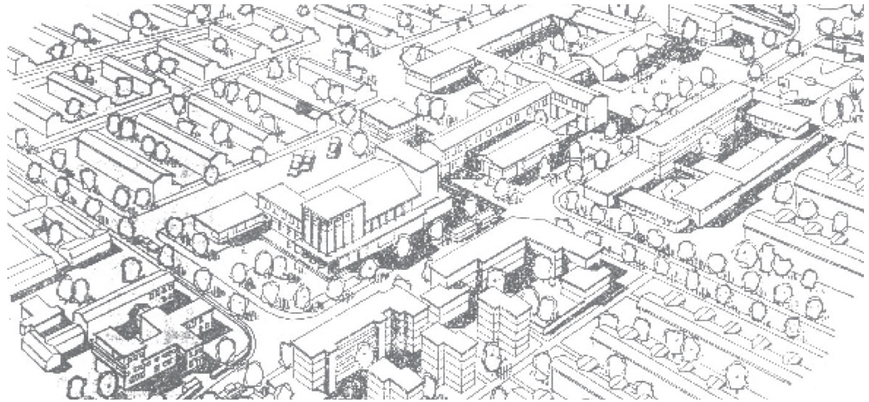
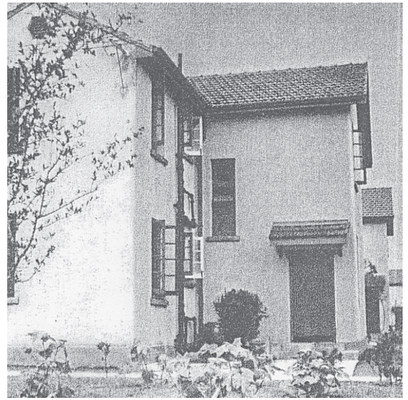
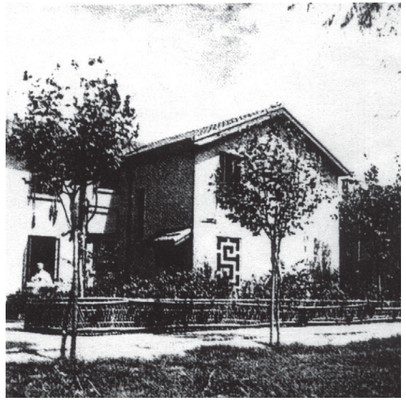
141. Early development of Caoyang Village







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143 144

142. Public center of Caoyang
143. Village No.1 1951-52
144. Village No.1 1951-52

Fig. 145

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4 // TYPOLOGY

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TERRITORIAL DIAGNOSIS

5 // TERRITORIAL DIAGNOSIS

This chapter will analyse the territorial components on a regional scale, the railway system, waterways and Water Towns that distinguish the Yangtze River Delta. They were selected for their representative value of change in the Chinese territories. These three territorial elements are strictly interconnected and had interrelated consequences for each other. The construction of the Railways system caused the decline and the abandonment of the Grand Canal, which in turn modified the Yangtze River Delta and thanks to commercial exchanges created famous Water towns. The decline of many of these water cities is due to the decline and gradual abandonment of the Grand Canal as a trade route. The development of the railway on the Chinese east coast caused reduction of trade along the waterways, trains were more efficient and faster than boats to transport people and grain.

A multiscalar and multitemporal analysis has been conducted in order to better understand processes that led to the abandonment of the Water towns. Only recently these cities, famous for their beauty and charm started to come back to life through tourism, both Chinese and international. Thanks to the good geographical conditions, the Yangtze River Delta has been home to villages, towns and cities for thousands of years with a unique architectural style and a natural propensity to innovation and cultural exchange. As a foreign concession in Shanghai it was a key point in global trade and home to innovative infrastructures as train lines and the Grand Canal.

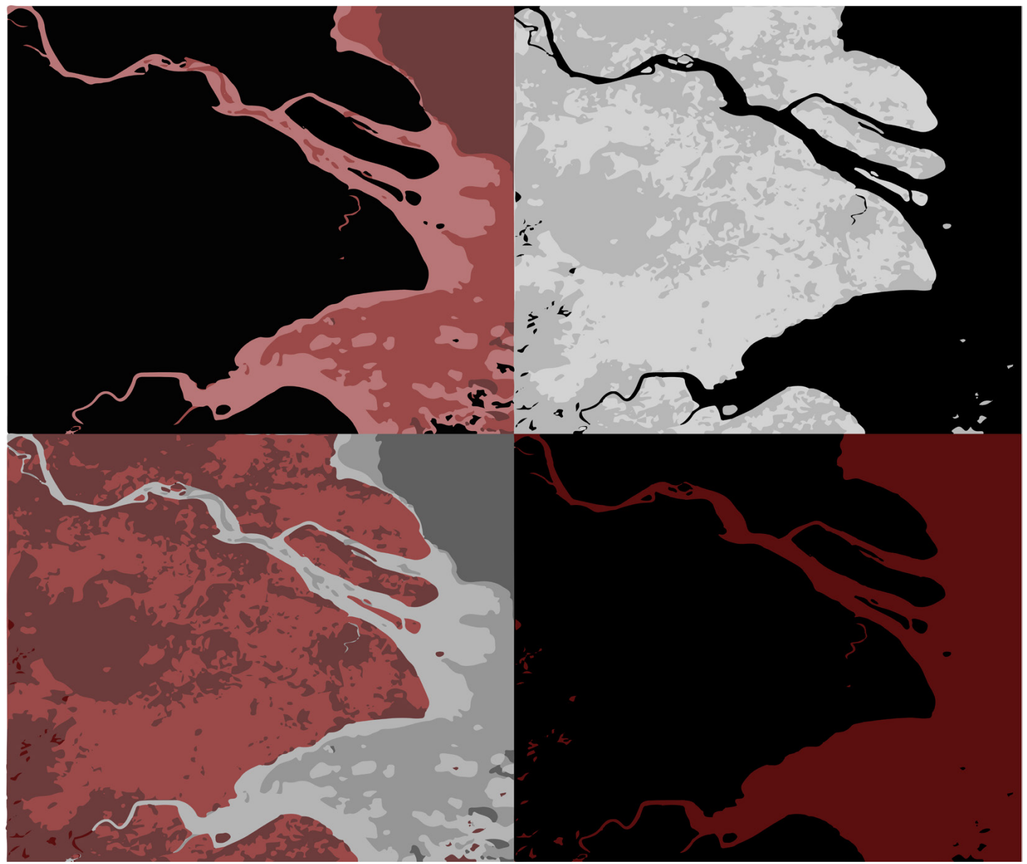

Fig. 146

5 // TERRITORIAL DIAGNOSIS

_Yangtze River Delta

5.1 The Yangtze Delta (Fig. 147-148) is 320 kilometers wide, rich with water canals, streams, rivers, lakes and water reservoirs. There are two important cities to mark the beginning of the River Delta and its end. There is Nanjing at the beginning and Shanghai at the mouth of the river. Moreover, the Yangtze River is now the China's largest industrial engines, contributing up to a quarter in the country growth. At the dawn of the Eastern Jin dynasty (317 – 420 AD) when the capital was moved to Nanjing (originally named Jiankang) The Yangtze River Delta was considered to be the major cultural, economic and political center in China. In 1688 Louis Le Comte[117] visited China during his religious mission, he wrote:

"the canals which are cut through it would alone be sufficient to make it so. But besides their great usefulness in [irrigation] and the way of trade, they add also much beauty to it. They are generally of a clear, deep, and running water, that glides so softly it can scarcely be perceived".[118]

As written by Le Comte, the system or waterways played many important roles in: irrigation, communication, transport and power. Waterways were considered as veins and arteries of the State, along which grain and rice were shipped from south to north. The management of the water system was essential to maintain social order in Ancient China. In Yangtze River Delta there are approximately 200 small tows connected by a system of waterways. This area was famous for its traditional production of grain and silk. Many of these towns (Fig. 149) declined during the 20th century and only recently became a touristic attraction.

"The Yangtze Plain is a land of rivers and canals. Probably nowhere else in the world is there an area with so many navigable waterways. The Yangtze Kiang, the Hwai Ho, and their tributaries provide a splendid highway through the length of the region. In addition to the many rivers there are a

[117] Louis Le Comte also called Louis-Daniel Lecomte (1655-1728) was a Frenc Jesuit who went to China in 1687 for a Jesuit mission.

[118] Le Comte, Nouveau mémoire sur l'état présent de la Chine, Paris, 1696.

147 148

149 150

147. General Map around Shanghai
148. Satellite image Yangtze River Delta
149. Nanxun
150. Wuzhen

series of great lakes, chief among which are Tungting, Poyang, Tai, and Hungtse Hu. It is the canals, however, which give the most characteristic note to the landscape. These canals are the very arteries of life. In the region of Yangtze Delta, they form an intricate network and serve as an artificial drainage system which takes the place of rivers. Their length in the south delta alone is estimated by F. H. King, at twenty-five thousand miles."

The River Delta is not only characterized by towns and water canals but also is rich of numerous natural lakes, the bigger one is the Lake Tai. It is located the near the border of Jiangsu and Zhejiang provinces, in the center of the ancient Chinese "land of fish and rice". It covers 2,420 square kilometers and originally was a part of the ocean but nowadays is filled with freshwater. Lake Tai (Taihu in Chinese) traditionally was used together with the canals to move goods to Shanghai and other places in the Yangtze River Delta. As described by Marco Polo, on either side of the Grand Canal there were wide embankment roads, which benefitted Water towns and villages born along its length to exploit the passage of the grain fleets. Cities along the Grand Canal have been always prosperous, home to rich merchants, painters, poets and scholars. One of the most strategic location became the junction where the Grand Canal meets Yangtze River. Two great cities were born there: Zhenjiang and Yangzhou.

[119] George Babcock Cressey (1896-1963).

The first is on the south bank of the river and the second one is in the northern side. Entire communities depended on the commerce along the Grand Canal and the Yangtze delta's canals. Chinese Water Towns (Fig. 150) are mainly located in Yangtze River Delta, rich with vernacular buildings with their traditional courtyards. Transition from north to south created a change in the size of courtyards. A transition is clearly visible in the patio-type or Sky-well houses in Huai'an and Yangzhou, located in the Yangtze River Delta. Chinese Water Towns[120] are globally known for their vernacular dwellings, canals, bridges and rivers. The Jiangnan area, that includes Jiangsu, Zhejiang and Shanghai areas demonstrate a harmonious relationship between the residents and the nature (Fig. 151). Recently besides the vernacular buildings of these ancient towns contemporary buildings started to emerge with a traditional style due to the growth of tourism. Water towns represent a window to the Chinese past, between the 13th and 19th centuries hundreds of Water towns were built in Yangtze Delta. Since the mid of 1980s professor Ruan Yisan promoted the conservation of these unique towns. Water towns are closely linked to configuration of land, as their development was based mainly on agricultural economy. Their history is closely connected to the Grand Canal, as a link between big commercial route and the secondary canals. Water towns are known for their slow-living style

[120] Water Towns, also called Canal towns (水乡)

even if nowadays they are no longer closely related to countryside or even small towns. Industrial districts grew around these historic water towns thus clearly canceling the relationship with the countryside due to the rate of urbanization process since the economic reform in 1978 favoring destruction of small towns for redevelopment purposes. Only in 1982 the first law was enacted on the “protection of Cultural Relics”: the preservation started from “monuments and sites” to a broader scale in the law’s revisions in 1991 protecting “historical traditional street districts”. Recently, in 2008, the preservation was extended to the entire built environment, introducing a new category “Historic and cultural cities, towns and villages”.[121] The evolution of urban conservation in China is shown through the List of precious Historic Cities introduced in 1982, that started with 24 cities and gradually grew up to 125 in 2014. In the beginning these cities were selected based on historic buildings that needed to be protected. Then, in 2008, it was followed by the Regulation on the Protection of Famous Historical and Cultural Cities, Towns and Villages. The aim of these laws is to “sustain and preserve traditional characteristics with appropriate urban development” with a unique approach based on simultaneous support between conservation and development. The urban conservation is based on small body of research on the Chinese urban history from a theoretical point of view as part of the Chinese attempt to preserve heritage sites. This limitation of studies favored an expansion of Western methods such as typo-morphological approach studied in this thesis. Professor Ruan Yisan was the first to focus his studies on protection and planning of ancient Water towns. His aim is to renovate and develop tourism inside Water towns to help local economies and improve people’s living standards. He planned many Water towns, including Zhouzhuang, Tongli and Wuzhen. His studies were conducted over a dozens of Water towns in Yangtze River Delta (Fig. 152) between 1980s and 1990s.

“The large-scale conservation planning of the historic water towns at the mouth of the Yangtze River sets an important milestone in the protection of living cultural landscapes. The comprehensive approach adopted by the project allows for thorough understanding and interpretation of the area’s natural and cultural heritage at both the local and regional levels. Operating with an overall conservation masterplan, a clear policy framework, and sound methodology, the project restores the authentic significance and function of the towns’ waterways and historic settlements, while accommodating modern needs and anticipated growth. Major investments by the government for public works and by residents for individual structures creates a commendable model of sustainable long-term public–private partnership. The ambitious scope of the project promises to have a major impact on shaping future developments in the towns as well as conservation practice throughout China”.[122]

His conservation plans for Water towns were based on five aspects to follow: Raise awareness of local people, Protection through development, Different situations require different response, Mapping existing towns to plan their protection, Development of tourism.

[121] Heleni Porfyriou, Urban Heritage Conservation of China’s Historic Water Towns and the Role of Professor Ruan Yisan: Nanxun, Tongli, and Wuzhen. 2019.

[122] Heleni Porfyriou, Urban Heritage Conservation of China’s Historic Water Towns and the Role of Professor Ruan Yisan: Nanxun, Tongli, and Wuzhen. 2019.

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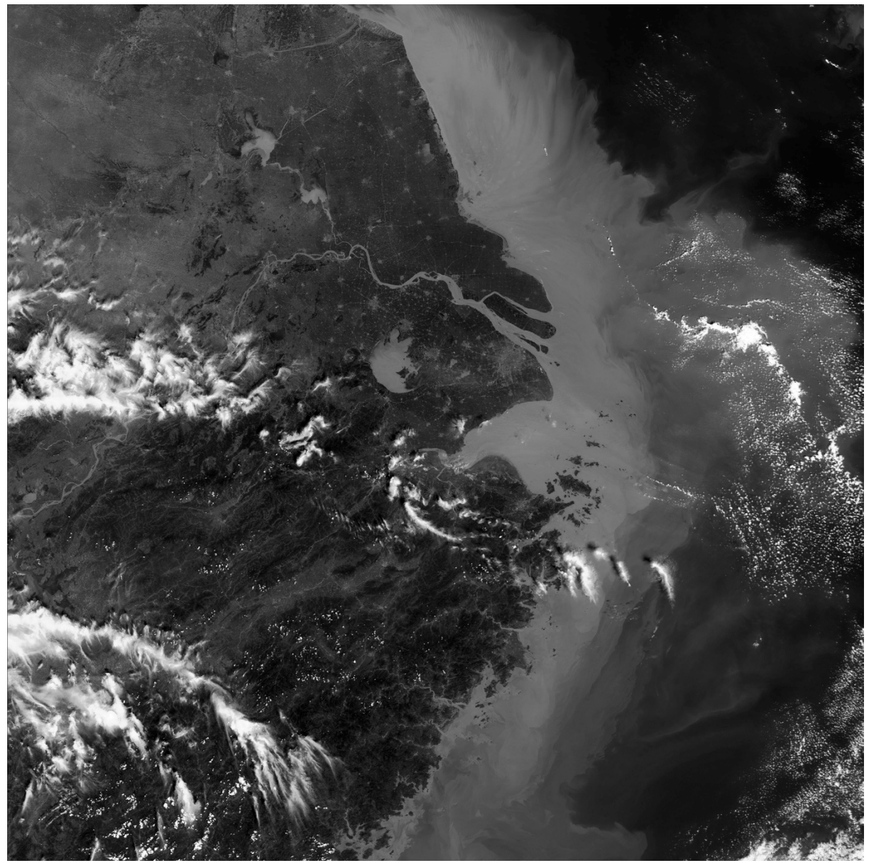
151. Rice fields, Yangtze River Delta, 1920



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152. Yangtze River Delta

Fig. 153

5 // TERRITORIAL DIAGNOSIS

_Grand Canal

5.2 The Grand Canal (Fig. 154) is the longest ancient men-made canal in the world, begun in 540 BC and completed in 1327 AD. It is 1794 kilometres long and mainly excavated by hand by a huge work force described as “million people with teaspoons”. The Grand Canal (Fig. 155) flows through 35 cities and at its peak it connected Xian and Beijing with Shanghai, and linked the four great rivers: Yangtze, Yellow, Huai and Qiantang. The Grand Canal became part of the UNESCO World Heritage Site in 2014. The still-working sections of the Grand Canal are mainly used as water-diversion conduits in case of floods or to irrigate fields.

“Grand Canal was a major conduit for grain, salt, and other important commodities. Any taxes that were paid in kind were paid in grain, which was shipped along the Grand Canal. Thus, control of the Grand Canal was of critical importance to the government. To a certain extent, the state itself facilitated the movement of goods to market by locating Beijing, its capital, far to the north, away from the rich and prosperous rice growing areas of Southern China. This resulted in a natural market for the demand of goods in the North, if for no other reason than to feed the imperial household and court. This was one of the reasons why it was so important to keep the Grand Canal working”.[123]

As written by Le Comte in “Nouveau mémoire sur l’état présent de la Chine” after his religious mission in China, about the Grand Canal he said:

“These water-passages, as they call them, are necessary for the transportation of grains and stuffs, which they fetch from the southern provinces to Peking. There are, if we may give credit to the Chinese, a thousand barques, from eighty to a hundred tons, that make a voyage once a year, all of them freighted for the emperor, without counting those of particular persons, whose number is infinite. When these prodigious fleets set out, one would think that they carry

[123] Asia for Educators, Columbia University, Madeleine Zelin.

all the tribute of all the kingdoms of the East".[124]

Two of the major Chinese rivers, the Yangtze River and the Yellow River, run from Tibetan Plateau in the west to the eastern populated seaboard. The Grand Canal connect these rivers from south to North forming a vast network of waterways (Fig. 156), adopted in ancient times to transport goods. The Grand Canal was built in different sections by different kingdoms starting 25 centuries ago. The king of Wu, Fuchai started to dig the first segment named Hangou connecting Huai to Yangtze river for a length of 300 li (150km) Primitive canals were built since ancient times before Han Dynasty (206 BC - 220 AD) then during the Sui Dynasty (589-618 AD) different sections were linked together and began the construction of the Grand Canal connecting six different provinces: Beijing, Tianjin, Hebei, Shandong, Jiangsu and Zhejiang. The Grand Canal had a central role in the development of unified China, facilitating transport of goods, people and soldiers during war times. Most extensive works were executed during the Sui Dynasty. The emperor Sui Wendi ordered the construction of the Grand Canal in order to facilitate shipping of grain and materials from the south to the capital Xi'an. After the order by emperor Sui Yangdi to move the capital to Luoyang in 605 AD, the Grand Canal was enlarged and royal roads were built along the banks of the canal. Two million workers died during the excavation of the Grand Canal.[125] This and heavy taxes led to the downfall of the Sui Dynasty. The works ended in 610 AD after six years during which 5.5 million workers dug the canal. During the Tang Dynasty (which succeeded Sui Dynasty) long strings of barges were able to carry 100,000 tons of grain each year from the South to the North along the Grand Canal. In 984 AD the first double-gate in the world has been built by Chhiao Wei-Yo in the northern end of the section Shan-yang Yun-Tao in order to adjust water levels in the different sections. The Grand Canal didn't only facilitate the transportation and the cultural exchange between north and south but also played an important role in the water conservation, flood control and irrigation. Many important cities, like Beijing, Tianjin, Jining, Yangzhou. Wuxi, Suzhou and Hangzhou are located along the Canal and most of them were created because of it. In 1279 the Mongol leader Kublai Khan extended the Grand canal of 215 kilometres to north so rice could arrive to the new capital: Beijing. Beijing was built by the materials transported along the water canal during the Yuan Dynasty (1298-1368) and Ming Dynasty (1368-1644). While traveling along the Grand Canal in the 13th century, Marco Polo wrote about porcelain and silk and rice-made wine. "There are very great merchants who do great trade...they have silk beyond measure." For a pittance you could buy "the most beautiful vessels of porcelain large and small."

[124] Le Comte, Nouveau mémoire sur l'état présent de la Chine, Paris, 1696.

[125] Wu Shunmin: Da Yun He, Huang Shan Shu She, 2013, p.40.

Describing how grain-carrying barges and junks were pulled northward by horses tethered to long harnesses, he wrote, "The magnificent work is deserving of admiration; and not so much from manner in which it is conducted through the country, or its vast extent, as from its utility and the benefit it produces to those cities which lie in its course." During its development peak in the 13th century under the Yuan Dynasty the length of the Grand Canal arrived to 2,000 kilometers, linking most important rivers in China and providing a unified inland navigation network. The Grand Canal was created by connecting together a series of small canals, over centuries new sections were added, others were abandoned or rebuilt. It played an important role in stability of the Chinese economy and ensured economic prosperity of the cities along its borders and the entire China. The canal was originally built for many reasons: to move the troops from north to south and to transport food from the rich southern areas to the overpopulated northern ones. Merchants using the canal avoided the risk of storms and pirates in the high seas. Marco Polo[126] was amazed by Chinese waterways during the Yuan Dynasty, he also wrote about the Khubilai Klan:

"The Great Khan has made very great channels, both broad and deep, from one river to the other and from one lake to the other; and makes the water go through the channels so that they seem to be a great river; and quite large ships go there with the said grain loaded from this city of Caigu up to the city of Cambaluc (actually Beijing) in Cathay."

During the reign of Khubilai Klan many renovations were made along the Grand Canal, during the Song Dynasty many sections of the Canal suffered from neglect and the transport of grain and goods was slower than during the Tang Dynasty. During the seventeenth century, as written by Le Comte, a good riverboat can cover a distance between fifteen to twenty-five kilometres. The lives of water merchants and captains of the Imperial grain vessels were a constant procession of Water towns, as portrayed by Zhang Zeduan in his scroll painting "Along the River during the QingMing Festival." In the mid nineteenth century the Qing government abandoned its work of the management of the Yellow River, famous for its floods. The Grand Canal fell in disuse and the commerce along the Canal shifted towards the sea route. In the same period, with the construction of Railroads in China the Grand Canal was no longer necessary for the transport of goods. Many sections fell in disuse: some were blocked by sand during flooding while others were blocked by dams. Nowadays only a third of what was open in the 1960s is still open today, only half of the Grand Canal between Beijing and Hangzhou is navigable after the spring and summer rains. Sections between Beijing and

[126] Marco Polo (1254-1324) was a Venetian merchant, explorer and writer who travel in Asia along the Silk Road between 1271 and 1295.

Tianjin are all silted over and in other sections the water is not deep enough to accommodate boats. The Grand Canal has fuelled the economy along the river having impact on cultural heritage. Many cultural and historical heritage sites are located along the Grand Canal, the cultural corridor of ancient China. There is a huge number of cultural relics and historic sites Along the Li Canal (a section of the Grand Canal) which run between Huai'an and Yangzhou, where culture from the north and from the south meet. there is a huge number of cultural relics and historic sites. Huai'an and Yangzhou shared the same history with the Canal, they prospered since the creation of the Canal and declined with its abandonment. Historically these cities were the water transport hubs for grain and salt. There rich merchants built elegant private courtyards houses, made of grey bricks and gray tiles, simple functional elements characterized by the firmness of the northern style and the delicate elegance of the Jiangnan style. Different cultures and climate brought different architectural elements into the buildings mixing layout, structural form, façade styles and construction approaches. A unique style of dwellings has been created in the transition process of the northern and southern styles in Huai'an and Yangzhou. These two cities are located between two rivers, the Yangtze and Huaihe that traditionally served as the demarcation line between north and south China. The unique architectural style of these two cities is due to their location which contributed greatly to their cultural development; traditional dwelling styles from north and south interacted through the canal in a favourable geographic position. The birth and development of ancient Chinese cities are based on the central role played by water, used not only for the life but also as defence and for the production and urban transport. Huai'an and Yangzhou became the centre of water transportation of grain and salt. The development of these cities was usually along only one side of the Canal, (using the Canal as defence). Private dwellings were built at a certain distance from the canal for safety reason for the vessels and the dwellings itself as the Canals were used also for the flood control and the level of water could grow. Many different buildings were built along the Grand Canal, like vernacular dwellings, courtyard buildings, academies, guild halls, all built for the physical or spiritual needs of workers whose were involved in commerce, construction or maintenance of the Grand Canal. Over centuries bridges, ports, hotels, government offices, tax and post offices and the administrative offices for the authorities involved into the control of the shipping of goods along the Water Canal. Many religious buildings were built along the Grand Canal due to the high risks of water transport at that time. Many workers were looking for new ways to obtain the blessings and protection of the gods and goddesses. Riverside buildings couldn't be too far from the canal bank as they provided services for workers and merchants. The linear development of these cities couldn't be too long, creating a dense population in these riverside towns and cities. In 2008 the Grand Canal was included in the List of six Key examples of the cultural heritage of China; The legal protection and the following request to be listed as UNESCO World heritage site is thanks to a Hangzhou artist Mr. Luo and a fellow activist Zhen Xiaojie who wrote in late 2005 an open letter to the 18 major cities along the Grand Canal calling for their support in seeking World Heritage listing. In March 2006 the central government identify the Grand Canal as an important site and coordinate a plan for its preservation. As said by Mr. Luo:

"The cultural content of the Grand Canal is very rich; we should not consider it simply as a canal. If you just see it as a canal, it is not very interesting."[127]

To improve the Grand Canal transportation capacity, between Hangzhou and Jining, Shandong, Zhejiang and Jiangsu provinces decided to invest 20 billion yuan ($2.56 billion) to dredge the Canal to allow the passage of more vessels as this part of the canal. It connects major coal bases and is essential to the fast developing of Yangtze River Delta. As a great masterpiece of hydraulic engineering in the history of mankind, its ancient origins, its vast scale and its continuous development and adaption along the centuries it has been recognized in 2014 as an UNESCO World Heritage Site.

[127] Hangzhou Journal, On an Ancient Canal, Grunge Gives Way to Grandeur, The New York Times, 2007.

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154. Beijing-Hangzhou Grand Canal, 1970
155. Beijing-Hangzhou Grand Canal, Today

156

156. Map of the Grand Canal

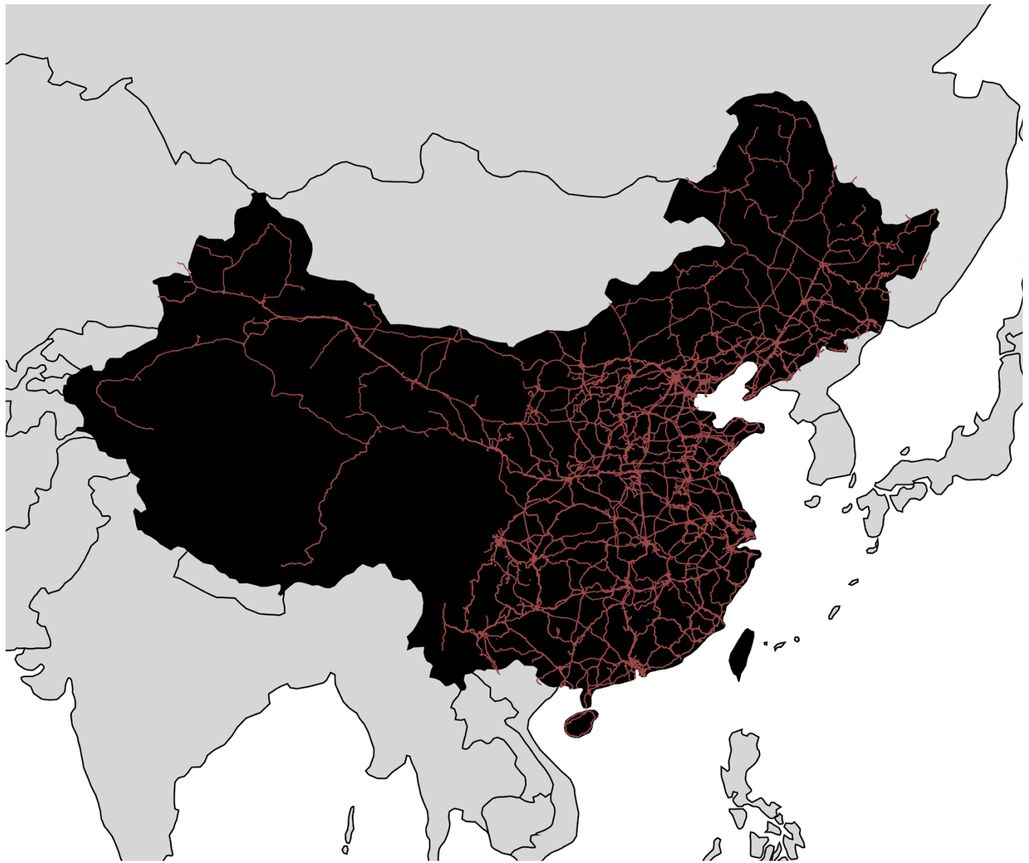

Fig. 157

5 // TERRITORIAL DIAGNOSIS

_Railway System

5.3 The advent of high speed trains, but even before with the construction of the first train lines it wasn't no longer necessary to take a slow boat in the Yangtze Delta or in the Grand Canal to travel. Many cities along the Grand Canal and its secondary canals or rivers like Beijing, Nanjing, Shanghai, Hangzhou, Suzhou, Wuxi, Yangzhou, Tianjin and Jining are all interconnected by the railway. The history of China's railways can be divided in four different periods: during the Imperial China, during the Republic of China and two phases during the People's Republic of China (before and after 1978).

First phase 1876-1911

The first railway constructed in China connected Wusong to Shanghai, long 14.5 km was built and run by British in 1876. A year later the Qing Dynasty bought the railway. In 1877 the line was dismantled and all components sent to Taiwan. There was a political and ideological problem reflecting the Chinese resistance to the foreign invasion that foreign countries could build train lines on the Chinese territory. In 1881 the first line built by Qing Dynasty was completed, Tangshan-Xugezhuang was built by China independently and run for 9.7 km and was used to transport coal. In 1888 this line reached also the city of Tianjing, in 1894 China has 287.3 km of railways lines, including the famous Beijing-Hankou line. After the Sino-Japanese War (1894-1895) the control of the railways network passed to foreign powers. Foreign territories located on the east coast with their harbour from which departure trains to inland. By the end of the Qing Dynasty in 1911 the length of train lines reached 9400 km, which 41% had been constructed by foreign powers, another 39% was controlled indirectly by foreign countries. This first phase of railway development is characterized by a fast construction, an average of 800km per year between 1899 and 1905. Due to their private purposes all these lines were rarely interconnected and making impossible the crea-

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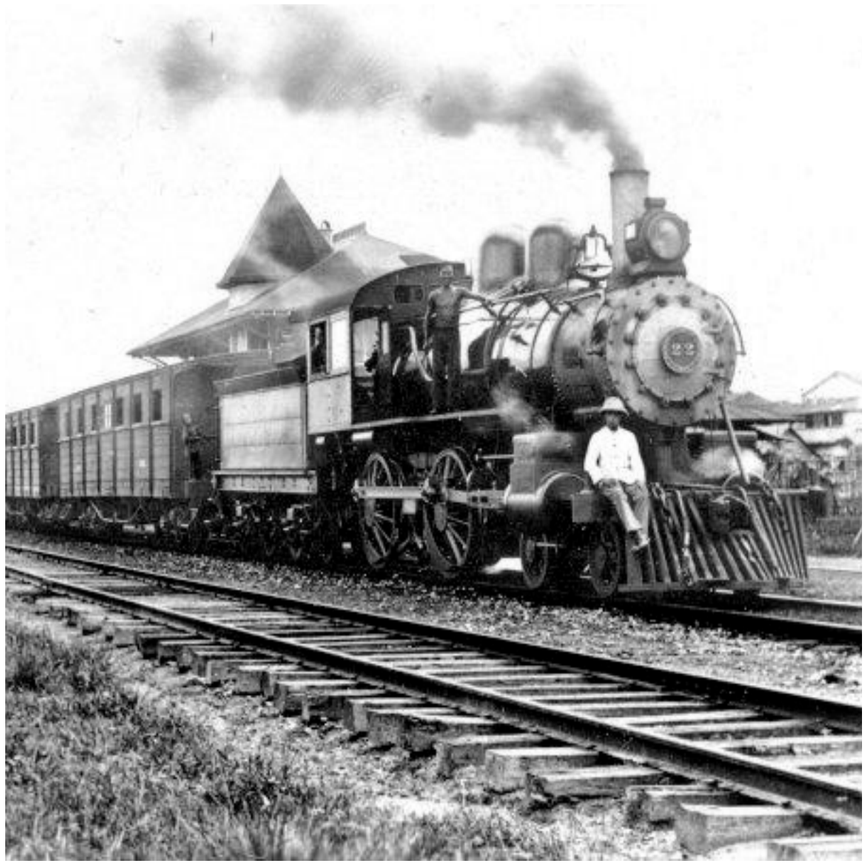
159

158. Suzhou station, Shanghai-Nanjing railway line
159. Chengdu-Chongqing railway opening ceremony



160

160. Steam locomotive, Guangzhou 1910

tion of a national railway network. In the Yangtze River Delta between 1905 and 1908 was built by British the Shanghai-Nanjing railway (Fig. 158). Many foreign investors built their railway lines in this period: Americans, British, French, German, Russian, Japanese and Belgian.

Second phase 1911-1949

During the Republic of China many wars took place on the Chinese territory including a Civil War and the Sino-Japanese War. In 1915 during the First World War, Japan forced to firm the famous "twenty-one demands" permitting Japan to have more influence in China, new railway lines were finished thanks to Japanese money. Thanks to new railway line the military presence of Japan became stronger in the Chinese territory especially in Manchuria.[128] Between 1912 and 1931 in China 5070 km of railway tracks were constructed (Fig. 161), a half in the north-east. The Independence of Manchuria in 1932 gave to Japan the possibility to control all Manchurian railways, in 1935 Japan bought the Chinese Eastern Railway, between 1932 and 1937 were constructed a total of 6539 km of railway. Japanese Empire viewed the control of railways as strategic. The outbreak of the Sino-Japanese War in 1937 the importance of the railway system became strategic; in facts major battles were fought along railway lines. The success or the failure of a battle was strictly related to control of railway lines. Between 1937 and 1945 were built 2800 km of railway lines for servicing the war. During the Civil war widespread destruction of railway lines took place across China, during the Republican era the railway network reached the length of 21810 km but at the end of the Civil War only 11000 km were still usable. The entire network was seriously damaged and the serviceable lines were over for the 65 % in the North-East of China.

Third phase 1949-1978

With the establishment of the People's Republic of China is possible to demarcate a new phase for the development of the railway system in China. During the first period main works along railways lines were to reconstruct damaged lines and to create a better distribution of railways tracks, especially in the inland areas. Many trunk lines were developed between 1949 and 1965 like the Tianshui-Lanzhou and the Lanzhou-Xinjiang, an east-west artery for the railway network. At the same time another trunk line was completed, the Beijing-Guangzhou line (Fig. 160), becoming in 1962 the first double-tracked railway line in China. Another project during this period was the construction of the south-west railway, connecting cities of Chengdu, Chongqing, Guiyang and Kunming (Fig. 159). The construction of an integrated railway network was one of the main target focused on by the Central Government. By the end of 1978 all railway lines in China were integrated into a single system, all provinces were connected except for Tibet. The total length of railways lines arrived to 49000 km.

Fourth phase 1978-1997

This last phase (Fig. 162) is characterized by a period of modernization, in 1978 the government decided to focus its attention on the economic development. During this period the focus was no longer on the quantity of kilometres constructed but on their quality. The main objectives of this phase were to increase the speed of trains, increase the number of passengers and extend the double track and electrifying and improving existing lines. Heavy-haul trains started to carry up to 10000 tons of coal, more than double than in the past thanks to the improvements to trains and railway lines. During the 1990s China developed intermodal rail transportation for international traffic connecting Chinese railway network to Russia and creating a new Eurasia Continental Bridge. From 1993 the priority of the Chinese Government moved back to the railway system and began an unprecedented construction of railway lines. Since 1994 China increased the speed and freight of trains, the railway's line between Guangzhou and Shenzhen was the first segment of a quasi-high speed train with a maximum speed of 160km/h. At the end of 1997 the railway network was 65000km long, including about 18400 km of double tracks lines and 10500km of electrified lines.

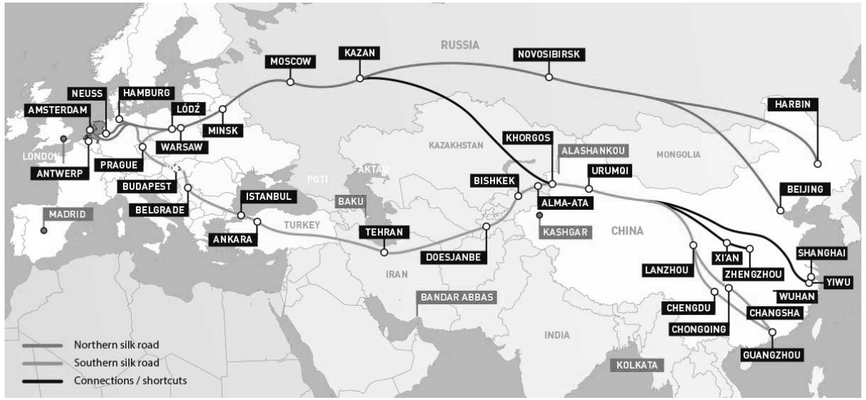
Nowadays

There are two main train lines in China, one from north to south (Harbin-Beijing-Guangzhou) and the other one from east to west (Beijing-Lanzhou-Urumqi). In 2006 the railway to Tibet has been completed and opened for public use, railway lines connect nowadays all Chinese provinces. High-speed trains were introduced in China in 2007 runing on dedicated high-speed lines on upgraded conventional lines allowing a speed up to 350 km/h. In China trains are mainly used for long distance trips with an average distance of 500 km. In 2020 China Railway Corporation (中国铁路) announced its plan to expand the railway network by 33 %, connecting by rail all cities with a population of 200'000 inhabitants and with high-speed trains cities with a population over 500'000 inhabitants. Nowadays there is a train that leaves Shanghai every 10 minutes to Beijing, the two extremity of the Grand Canal, becoming the favourite way to transport goods and people in China.

The Silk road Project[129] (Fig. 163), an ambitious Chinese international development project is a railroad trade network that involves Asia, Africa and Europe, more than 70 countries. Named as ancient Silk Road, is an overland route of 12'000 kilometers connecting China and Europe. Xi'an has transformed from the starting point of the

[128] Manchuria is located in Northeast China, home of several minorities besides the Manchus, this region includes Heilongjiang, Jilin and Liaoning provinces, and the Inner Mongolian prefectures of Hulunbuir, Hinggan, Tongliao and Chifeng.

[129] Known also as Belt and Road Initiative.



161 162

163

161. Railway in China in 1911, 1949 and 1978
162. Railway in China, 1998
163. New Silk Road Railway

ancient Silk Road to the first station of the China-Europe freight train. It is a shorter alternative to the Trans-Siberian Railway, completed in 1916 that's run parallel to the new silk road. For centuries along the ancient silk road silk, porcelain, spices and gunpowder were transported. The new silk road based on the railway is an ambitious project launched in 2013 and completed in 2016 by President Xi Jinping. The Belt and Road Initiative is a set as a project paid for by the Beijing government and aimed at the construction or enhancement of commercial infrastructures - roads, ports, bridges, railways, airports - and plants for the production and distribution of energy and for communication. All this to facilitate and give further impetus to exchange and commercial relations between Chinese companies and the rest of the world.

Fig. 164

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5 // TERRITORIAL DIAGNOSIS

_List of Figures

6 // TONGLI

The ancient town of Tongli is estimated to be 0.70 square kilometres in size, while the city of Suzhou is 20 km away and it's linked nowadays by a Metro line. Tongli was famous since ancient times for its famous Confucians and notables who had to study in the city and passed imperial examinations. The name Tongli, that means "copper city" appeared during the Tang Dynasty, before it was called Futu "rich land". The city became accessible by car only in the 1980s maintaining an isolation that preserved its morphology. Its traditional dwellings dated back to Qing and Ming Dynasties. Tongli's street network is still well preserved, paved with pebble stones and characterized by numerous bridges that connect two sides of the town. Ruan Yisan created the city's conservation plan in the end of 1980s, at that time traditional buildings of Ming and Qing dynasties were covering 40'000 square meters. Many buildings were "restored" during the 1990s and became accessible to tourists. For example, the Tuisi residence and its garden after its reconstruction and renovation were nominated as a UNESCO world heritage site in 2000. Due to the heavy renovation works it was not possible to describe the interventions as "restoration" due to the cancellation of all the transformations that happened to the building during its Socialist past. It served as a transistor factory, a chemical warehouse, a canteen, a school, a cotton mill and even a dormitory after the requisition by local government in 1949. Many medium and large size residences of wealthy families or merchants were expropriated during 1950s and subdivided between several poor families. These houses have been brought back to their original shape now.

166

166. Tongli, Full Spaces

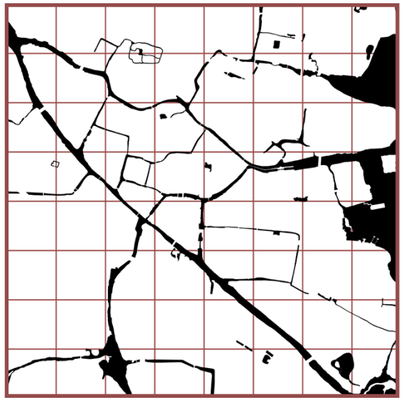
250 m

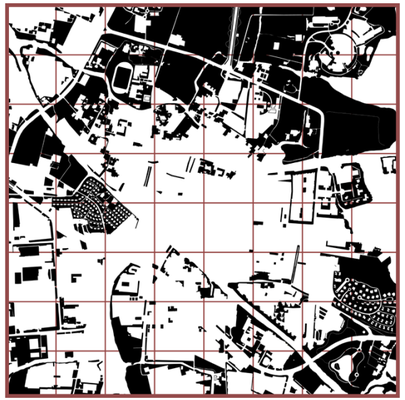
167

167. Tongli, Empty Spaces

250 m

168





169 170

171 172

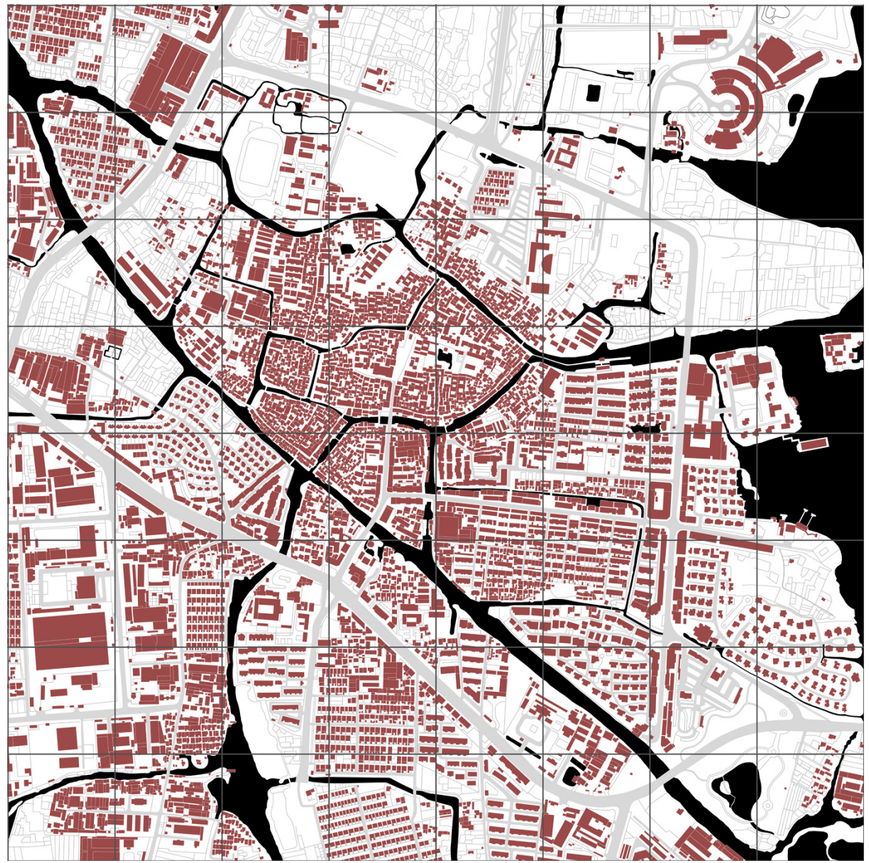
168. Satellite View of Tongli
169. Buildings
170. Streets
171. Water canals
172. Green spaces

250 m

173

173. Hypothetical reconstruction of Tongli, 1911

250 m



174

174. Tongli, 2021

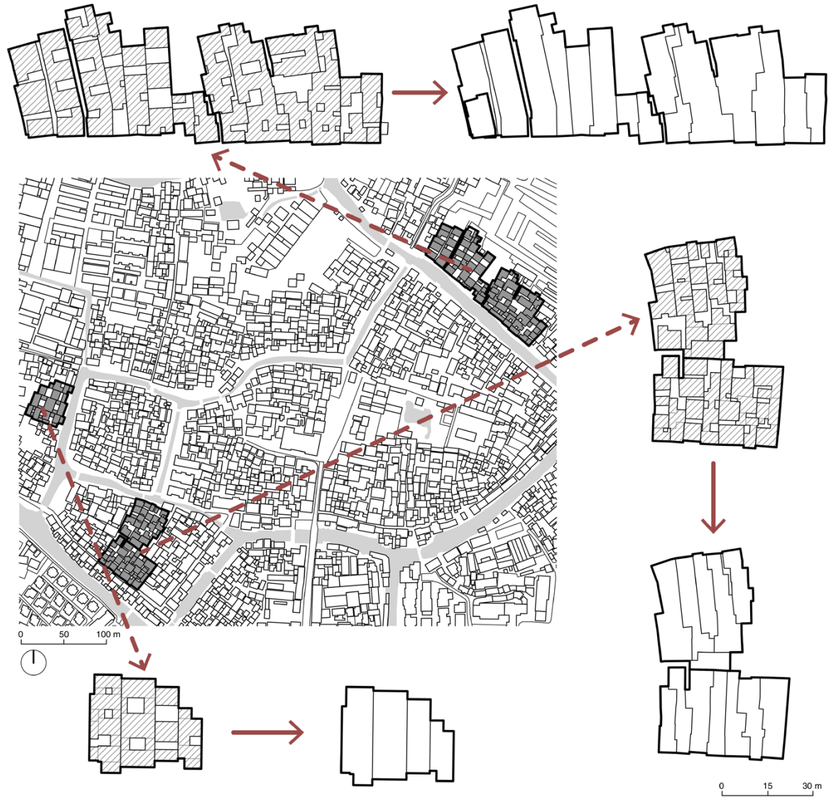
250 m

175 176

177 178

175. Tongli, Qing Dynasty - 1911
176. Tongli, Republic of China 1912 - 1948
177. Tongli, 1949 - 1999
178. Tongli, 2000 - nowadays

250 m



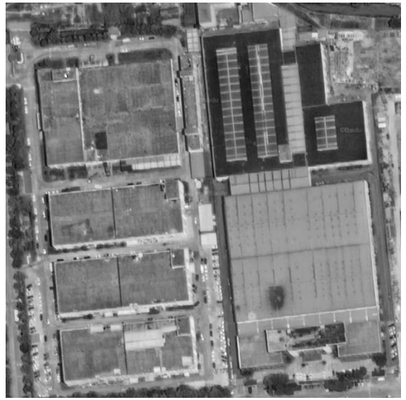
179

179. Tongli, Combination of dwellings into groups

180 181

182 183

180. Isolated industries
181. Villas compound
182. Industries and residential buildings
183. Interrupted real estate complex



184 185

186 187

184. Low income housing
185. High income housing
186. Large scale hotel
187. Industrial District

Fig. 188

6 // TONGLI

_Conclusion

It is possible to divide urban development of this water town into 4 different phases. The first is the historic centre of the town built up by the end of the Qing dynasty in 1911, rich with of waterways that have influenced the shape of the city. Traditional Jiangnan courtyard dwellings are homogeneously arranged, flanked by narrow streets that are located along the water canals. Buildings are placed on both sides creating two continuous façades. The second phase was during the Republic of China (1912-1948), when small industries were placed along the canals on the southern and western borders of the town. The alignment of the buildings with the waterways suggests that the latter still played an important role in transport of goods. The disposition of the industrial buildings is orthogonal and compact, while irregular residential neighbourhoods developed around them. The third phase coincides with the establishment of the People's Republic of China and spans up to the end of the century (1949-1999). Thanks to Deng Xiaoping's economic reforms the city began to expand considerably. Between the 80s and 90s new residential districts were built, i.e. an infinite amount of small residential buildings of 3 floors arranged on a regular grid that housed workers of local industries. Since 2000 the town grew exponentially. Large-scale industrial production has led to the urban growth of the city. New residential complexes have been built, including multi-storey parallel building blocks, and a new series of compact 3 floors residential buildings arranged on a grid. This latest phase of development is characterized by the construction of walled neighbourhoods notable for their private villas of wealthy Chinese families surrounded by private green gardens. The modern development of the city follows an orderly grid formed by streets rather than waterways. With the growth of tourism on a national and international scale, huge hotel complexes have been developed on the outskirts of the city, such as the semi-circular one to the north-east of the city.

Fig. 189

6 // TONGLI

_List of Figures

7 // WU ZHEN

Wu zhen has been founded in 872 A.D., during its long history the city maintained its original name spanning 1,200 years. The town is about 80 kilometers away from the cities of Hangzhou and Suzhou. Wu Zhen was famous not only as a silk town but also for its dye houses and wine producers. During the Qing Dynasty the city was important for its developed agriculture and for its large scale commercial activities. The ancient town measures 1.3 square kilometers, has rich built heritage dating back to Song and Qing Dynasties. This Water town going along the Hangzhou-Beijing Grand Canal, is crossed by many canals and is characterized by stone bridges. The houses facing the water canals are built on log piles or stone pillars. Professor Ruan Yisan in 1999 made a conservation plan for the city and established the “Wu zhen Protection and Tourism Developments Administrative Committee”. Wu zhen is the home town of a famous writer Mao Dun and an important poet Xu Zhimo. Wu zhen literally means “Black Town” referring to the grey tiles and black bricks that contrast with the white walls which characterize the city. Streets run alongside the water canals. The western part of the town, called Xizha opened to the public in 2007 after it has been completely reconstructed. Dongzha is rich with original buildings dating back to the Ming and Qing dynasties. The last two districts of the city, Nanzha and Beizha are less developed than the others two and are less visited by tourists maintaining a more authentic look. In 2008 the town was nominated as a UNESCO world heritage site. Wu zhen is called “the Venice of the East” characterized by a network of waterways and old Chinese houses.

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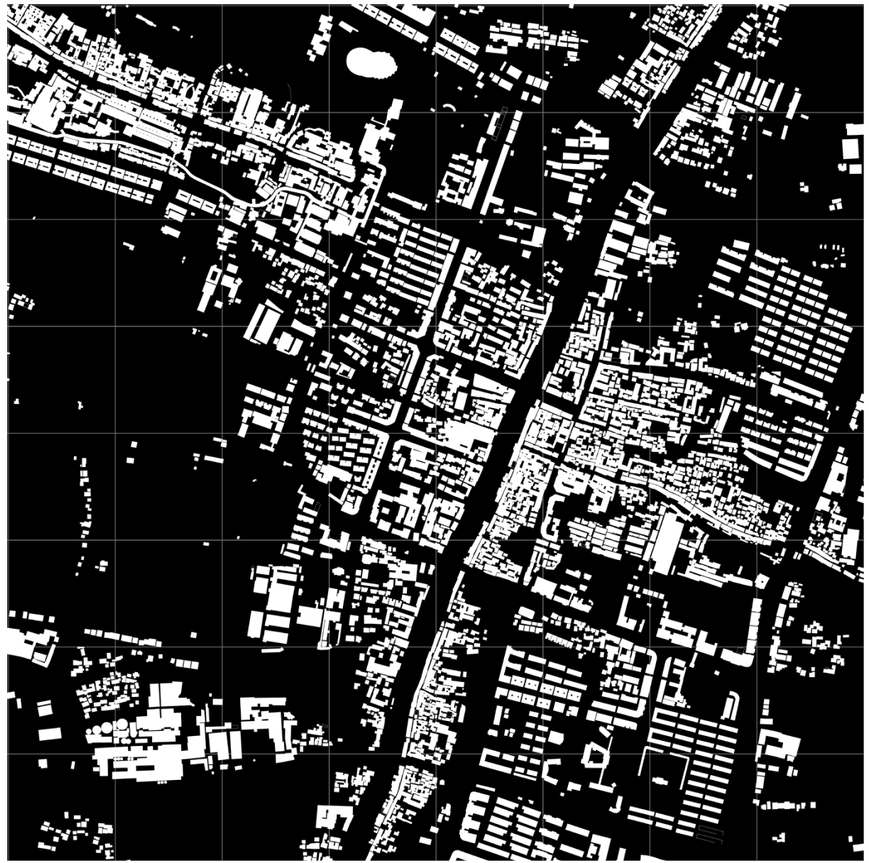
191. Wu zhen, Full Spaces

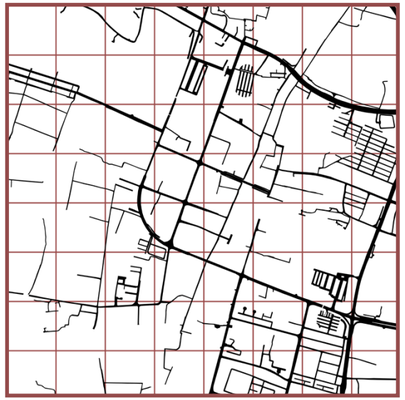
250 m



192

192. Wu zhen, Empty Spaces

250 m



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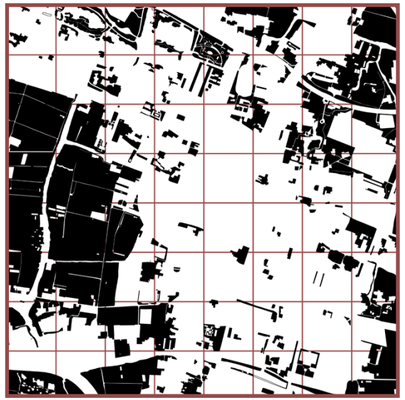

194 195

196 197

193. Satellite View of Wu zhen
194. Buildings
195. Streets
196. Water canals
197. Green spaces

250 m

198

198. Hypothetical reconstruction of Wu zhen, 1911

250 m

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199. Wu zhen, 2021

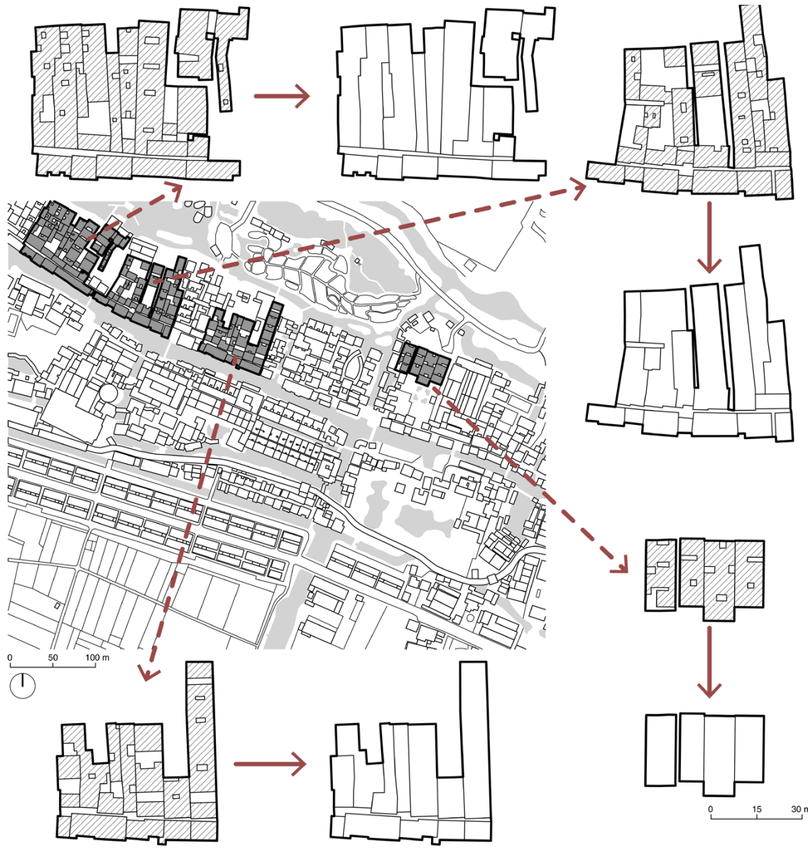
250 m

200 201

202 203

200. Wu zhen, Qing Dynasty - 1911
201. Wu zhen, Republic of China 1912 - 1948
202. Wu zhen, 1949 - 1999
203. Wu zhen, 2000 - nowadays

250 m



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204. Wu zhen, Combination of dwellings into groups

205 206

207 208

205. Outlying village
206. Interrupted real estate complex
207. Industries and residential buildings
208. Commercial and Residential buildings parallel to the street

209 210

211 212

209. High income housing
210. Abandoned industries
211. Large scale hotel
212. Industrial District

Fig. 213

7 // WU ZHEN

_Conclusion

The presence of the Grand Canal has strongly influenced the urban development of the town. The ancient part of Wu zhen develops on a waterway that joins the Grand Canal to the secondary branch of the Canal. Wu zhen is located in the upper left corner of the map and. It remained intact up to 2000s. The ancient part of the town is rich with of the traditional Jiangnan courtyard houses, placed perpendicular to the waterway and the main street of the town. After the end of the Qing Dynasty (1911) a period of urban expansion took place in the secondary nucleus of the city, along the secondary canal where small industries were located arranged in a regular pattern. During 1980s and 1990s many medium-size industries appeared along the secondary canal where the goods were presumably transported and where one can still see the barges passing by today. During this phase of expansion streets started to play an important role in the urban development of the city. In fact, the classic parallel building blocks and buildings along the borders of the neighbourhoods start to appear defined by the streets. The town is immersed in the Chinese countryside, with small villages of about twenty blocks of flats evenly distributed among the fields and water canals. Since 2000s the last phase of urban expansion started characterized by parallel building blocks located near industrial areas on the eastern and southern sides of the city. This rapid process of urbanization has led to the incompleteness of some residential districts. A peculiarity of Wu zhen are the two parallel building block neighbourhoods, each one-kilometre-long arising on both sides of the traditional town. With the rise of tourism, attracted by the intact charm of Wu zhen, vast hotels in traditional building style were built adjacent to the town.

Fig. 214

7 // WU ZHEN

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8 // ZHOUZHUANG

Zhouzhuang is literally surrounded by water, therefore, in the past the only way to reach the city was to do it by boat, in 1989 has been built the Jishuigang Bridge. The town has a long history spanning over 900 years with more than 100 dwellings with courtyards and majority of which has arched entrances made from carved bricks. Thanks to its inaccessibility Zhouzhuang remained well preserved. The city became famous in China during the 1980s when a New York gallery owner gifted president Deng Xiaoping a painting of the town. Zhouzhuang was founded in 1086, and became a rich city while a business center during the mid of Yuan Dynasty. After the connecting Jishui River with the Grand Canal, during the 12th century, the town became a socio-economic center. The city was famous for the cotton, fishery and for its cultivated fields. Large houses with big courtyards were built by rich merchants thanks to its strategic position inside a well-developed watercourse system. The town became famous thanks to its attractive role for writers, poets and scholars. Its economy was water-based, a center for handicraftsmen and a commercial center of goods coming from the rural areas around Suzhou. Listed as an UNESCO World Heritage site since 2008 it is considered to be a half-urban and half-rural town. Since the ancient times its residents live in a harmonious way with the nature. The town's symbol is represented by the Shuang qiao "Double Bridges" built during the Ming dynasty over 500 years ago, these two bridges cross the two crisscross rivers. The Shenting House is the bigger dwelling of the town, with more than 100 rooms and numerous courtyards was built during the Ming Dynasty for the first millionaire of Jiangnan: Shen Wansan.

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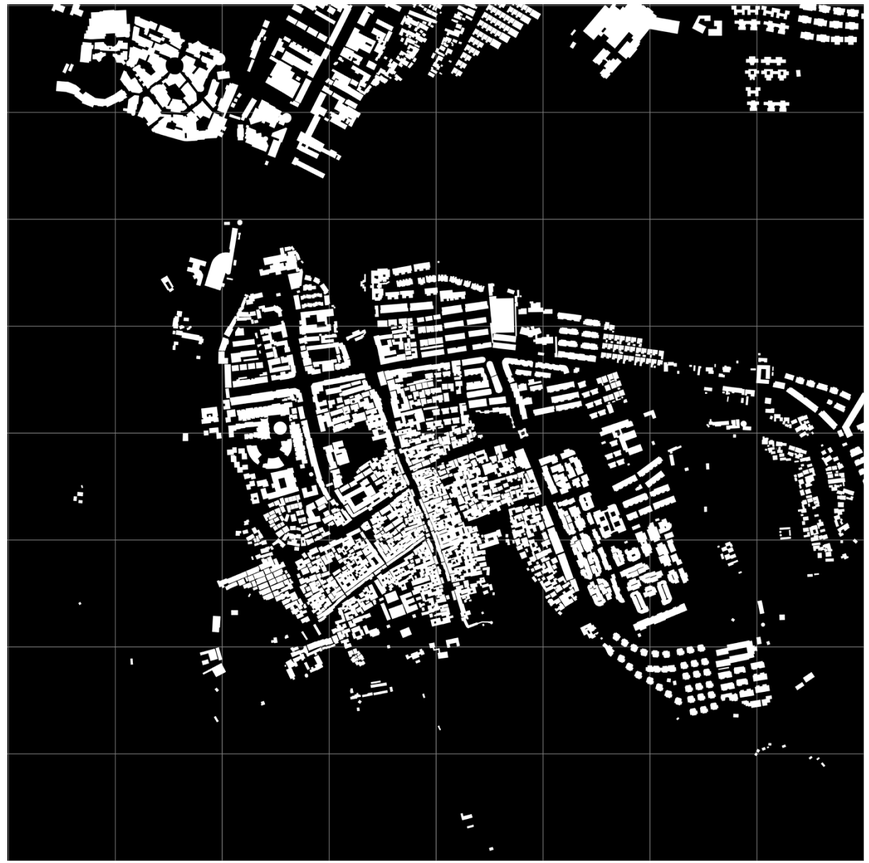
216. Zhouzhuang, Full Spaces

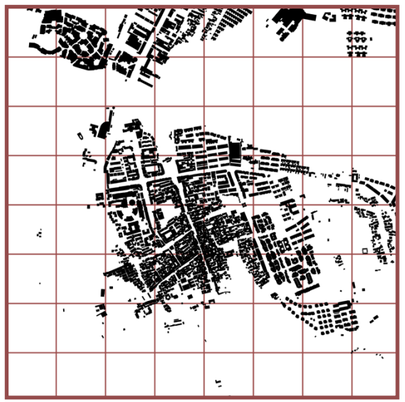
250 m

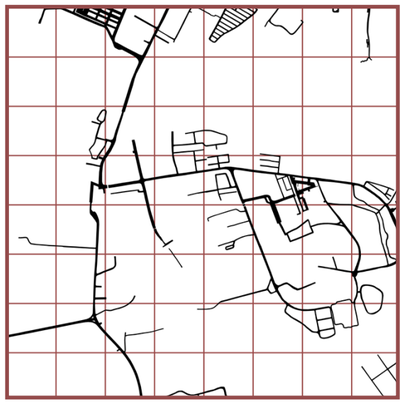


217

217. Zhouzhuang, Empty Spaces

250 m





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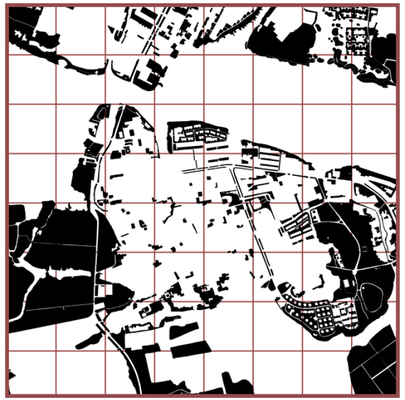

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218. Satellite View of Zhouzhuang
219. Buildings
220. Streets
221. Water canals
222. Green spaces

250 m

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223. Hypothetical reconstruction of Zhouzhuang, 1911

250 m

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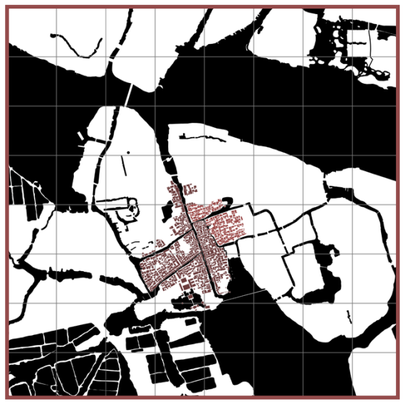
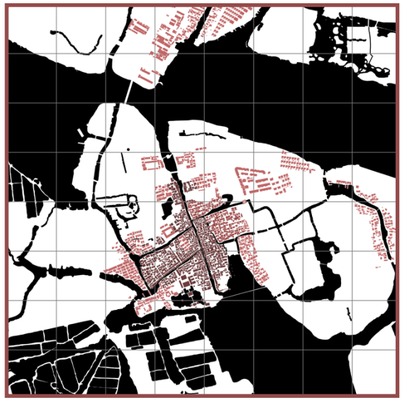
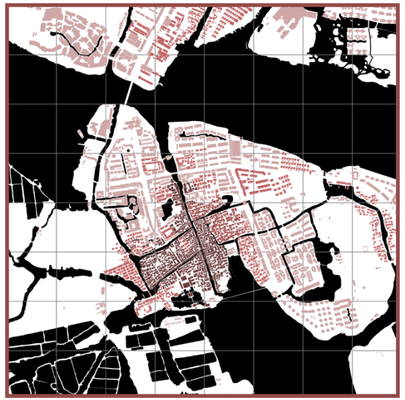
224. Zhouzhuang, 2021

250 m





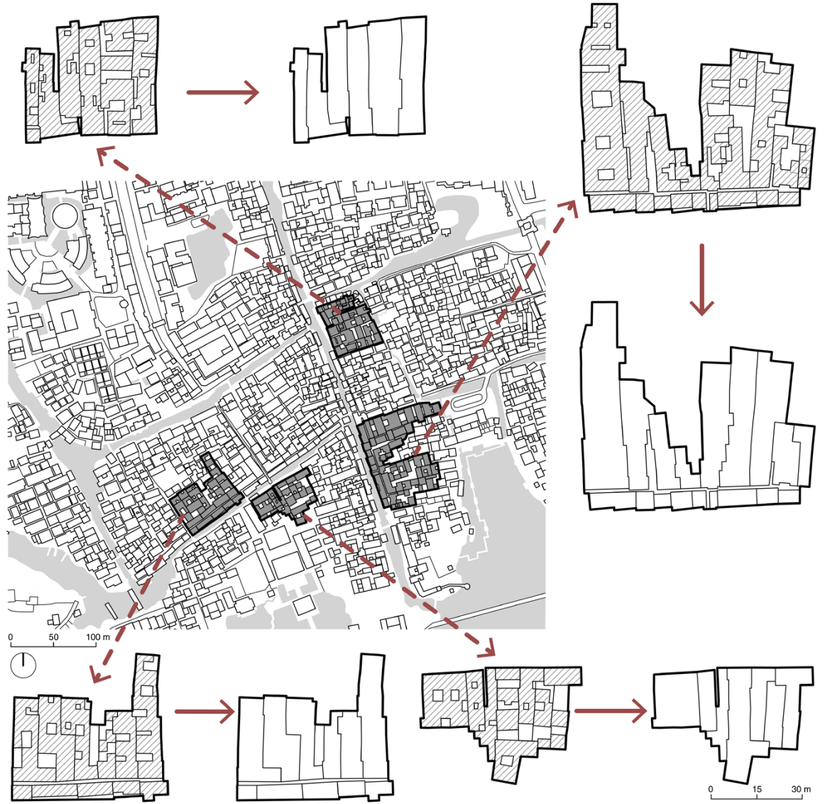


225 226

227 228

225. Zhouzhuang, Qing Dynasty - 1911
226. Zhouzhuang, Republic of China 1912 - 1948
227. Zhouzhuang, 1949 - 1999
228. Zhouzhuang, 2000 - nowadays

250 m



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229. Zhouzhuang, Combination of dwellings into groups

230 231

232 233

230. Parallel building blocks
231. Housing and insdustry
232. Interrupted real estate complex
233. Isolated industries

234 235

236 237

234. Low income housing
235. High income housing
236. Large scale hotel
237. Outlying villages

Fig. 238

8 // ZHOUZHUANG

_Conclusion

Zhouzhuang has been surrounded by water since ancient times even more than the previous Water towns. which This has preserved the city from uncontrolled urban expansion. From the morphological point of view the town has developed along the canals that divide it into islets. By the end of the Qing dynasty the city appears to be compact and dense, in order to leave as much space as possible for the arable fields around it. The city developed along two main intersecting streets, flanked by buildings on both sides. and as for the previous Water towns, Zhouzhuang is rich with the typical Jiangnan courtyard houses. During the Republic of China (1912-1948) the town grew mainly in the north-eastern area, this urban expansion still seems to be due to trade given by its strategic position along the Grand Canal rather than for industrial reasons since no industrial buildings emerge on the outskirts of the city. Zhouzhuang was connected to other cities in the area only by boats up to the 1980s, the first road bridge was built in 1989. In fact the bridge has shaped the urban development of the city. In the 90s houses were built for low-income workers and the first factories on the opposite side of the city, in the 90s. In the last 20 years, urban development has been more intense, the industrial district has grown together with parallel building blocks and large scale hotels around the ancient part of the town. In the southern part of the city arable fields still remain while the northern part has undergone major urban changes. Rice fields are dotted with small villages, that developed along for short stretches along the waterways. Tourism and industry are the two engines of the urban development of this town. These two key sectors have allowed an enrichment of the city and its inhabitants, as evidenced by the construction of villas surrounded by vast green spaces, very rare in the Chinese context.

Fig. 239

8 // ZHOUZHUANG

_List of Figures

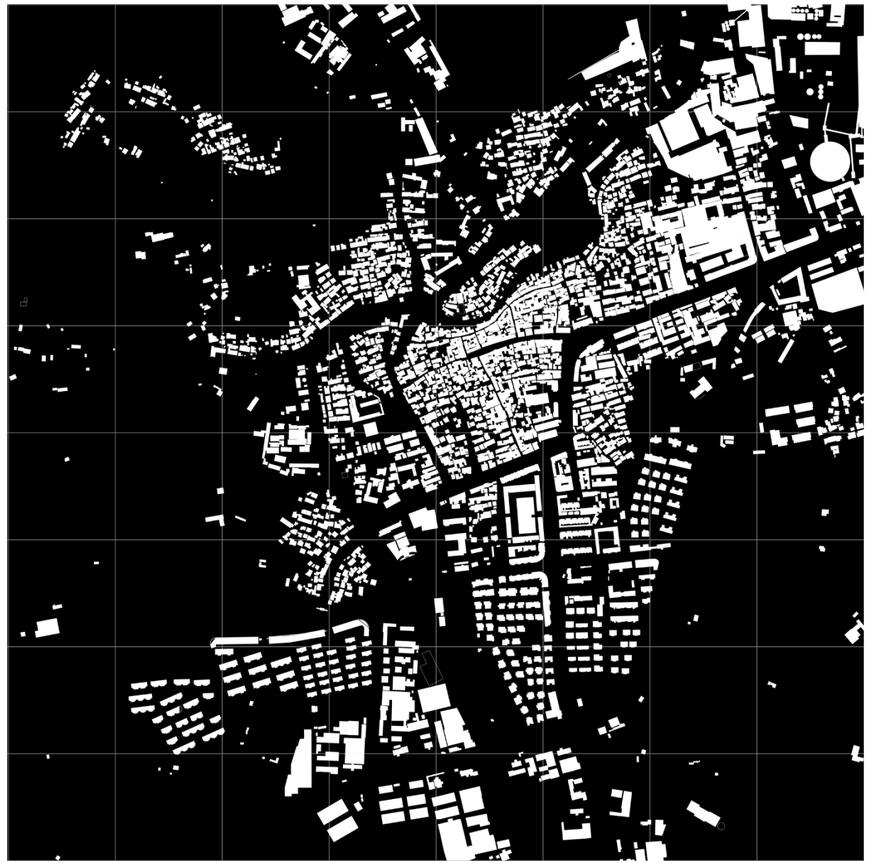
9 // HUFU ZHEN

Hufu zhen is located on the west coast of the Tai Hu lake, the town is connected to the lake through the river alongside which it was founded. During the Qin and Han dynasties the town was called Yangxian. The town is located on the intersection of Jiangsu, Zhejiang and Anhui provinces; the town is in the center of the Shanghai-Nanjing-Hangzhou triangle. The town is crossed by the Hua Xihe river that connects a dam and its artificial water basin built upstream of the city to the Tai Hu lake. On the eastern side of Hufu zhen is located its industrial area characterized by a foundry and a quarry of limestone and clay that allowed the town to grow during the last century. The town is surrounded by crops and rice fields and is connected to Yixing, the nearest city which is 20 kilometers away from it. The agricultural industry is based on flower seedling cultivation such as lily, hanging melon, medicinal materials, bayberry, early garden bamboo and tea. Hufu zhen can be considered as a countryside town, its isolation preserved the town's center where it's still possible to see an environment not contaminated by mass tourism; its ancient buildings date back to Qing dynasty. Traditional one or two storey houses are densely packed in the town center. The original settlement nucleus develops along a road that runs parallel and winding along the river as in any classic Water town. In common with other water towns, the town has developed on one side of the waterway only. Hufu Zhen still has the characteristics of an ancient Chinese town, such as gray tiled roofs and white house walls.

241

241. Hufu zhen, Full Spaces

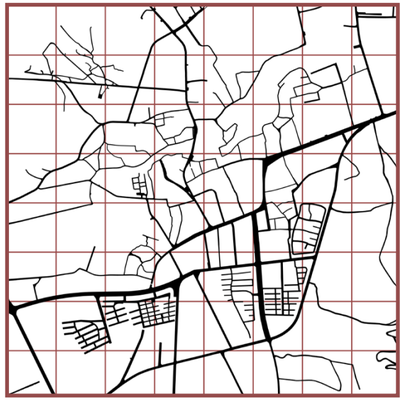
250 m



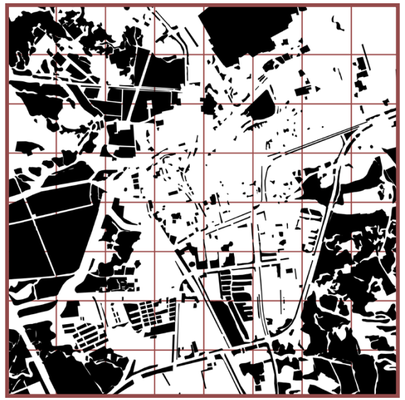
242

242. Hufu zhen, Empty Spaces

250 m



243



244 245

246 247

243. Satellite View of Hufu Zhen
244. Buildings
245. Streets
246. Water canals
247. Green spaces

250 m

248

248. Hypothetical reconstruction of Hufu zhen, 1911

250 m

249

249. Hufu zhen, 2021

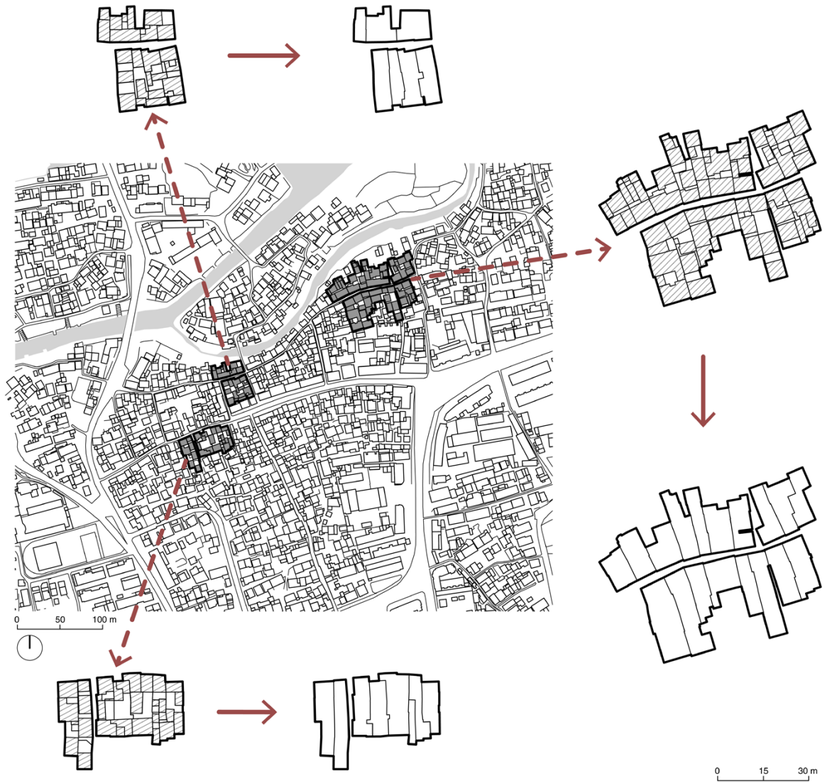
250 m

250 | 251

252 | 253

250. Hufu zhen, Qing Dynasty - 1911
251. Hufu zhen, Republic of China 1912 - 1948
252. Hufu zhen, 1949 - 1999
253. Hufu zhen, 2000 - nowadays

250 m



254

254. Hufu zhen, Combination of dwellings into groups

255 256

257 258

255. Urban farms
256. Outlying villages
257. Large-scale industry
258. Industrial District

259 260

261 262

259. Low income housing
260. High income housing
261. Parallel building blocks
262. Industry and housing

Fig. 263

9 // HUFU ZHEN

_Conclusion

Waterways played an important role in the growth of Hufu zhen since its begin. Its urban development follows the classic water towns, even if at smaller scale, in fact its settlement follows a road parallel to the river that leads to Lake Tai Hu. At the end of the Qing dynasty Hufu was nothing more than a peasant village, only a few courtyard houses could be distinguished along the main road, and smaller than those identifiable in the bigger Water towns. The buildings create two continuous fronts on both sides of the street. During the period of the Republic of China the town has grown thanks to the establishment of some industries along the river while the town developed along a road perpendicular to the river. A third phase of urban development can be identified with the economic reforms under Deng Xiaoping's rule. New factories arose to the north-east of the town and along the two canals in the north and south of the city, resulting in an increase in the population migration from the countryside to the city. As a result, many houses were built in a chaotic way in the vicinity of the factories and on the outskirts of the town. During these years one of the main streets has undergone an enlargement process characterized by the replacement of buildings that faced the street with multi-storey linear buildings. This attempt to cross the heart of the city, instead of going around it, stopped halfway and left the second half unchanged. As for all Chinese towns, an exponential phase of urban growth has taken place since 2000, thanks to the growth of local industries, even on a large scale, it has led to the growth of the workforce, thus appearing the classic urban rationalization: parallel buildings blocks and some high rise buildings were built in the southern outskirt of the city. The city seems to be bordered as in ancient times by the river on its northern side. Still up to today Hufu zhen maintains its close relationship with the countryside. In fact the town is surrounded by cultivated fields and secondary peasant villages.

Fig. 264

9 // HUFU ZHEN

_List of Figures

DESIGN PRACTICE

10 // DESIGN PRACTICE

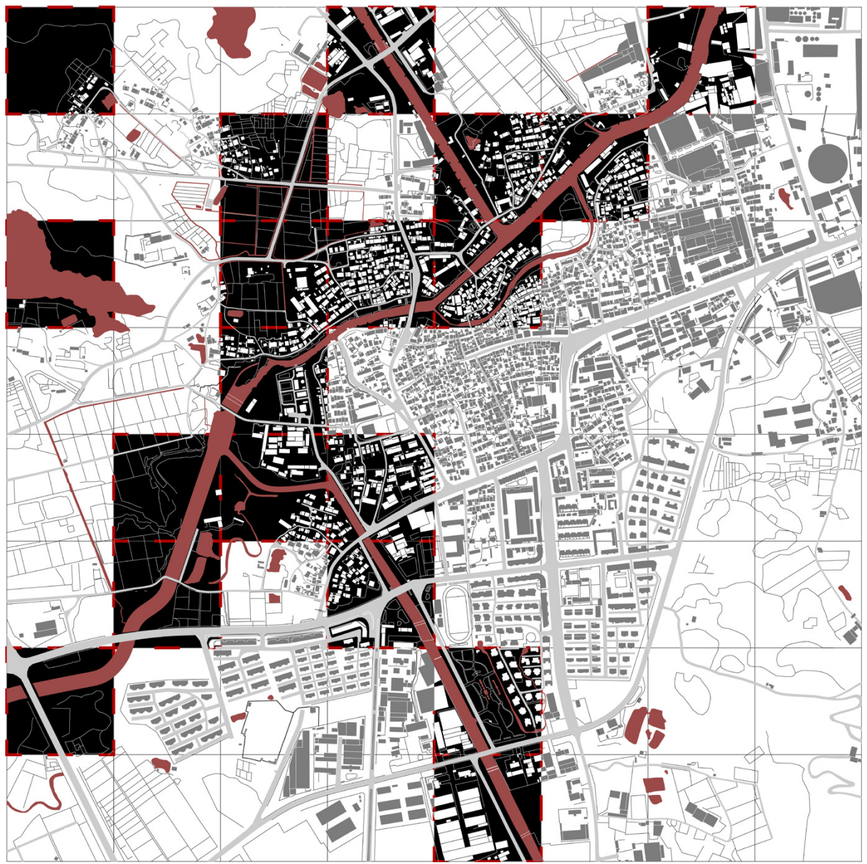
_Territorial Analysis

Hufu zhèn is a small town located in Jiangsu Province (China). It is home to about 20,000 inhabitants with a population density of 209 inhabitants for square kilometre, and an area of about 98.6 square kilometres. This small town is governed by the district of the city of Yixing and is under the prefecture of Wuxi at the governmental level.
Hufu zhèn has a purely rural origin, which has recently undergone rapid development due to rural urbanisation, consequently transitioning it from being a rural village to a town with a mixed character.The large-scale urban development has also led to the strengthening of a dense infrastructure system connecting the small town to larger surrounding cities, likes Yixing, Wuxi, but also Suzhou and Shanghai. This dense infrastructural network makes it easy to move from small towns to the big cities. People can live in a rural context such as Hufu zhèn and work in modern cities far from home.The town is part of a province strongly shaped by is water system and is located near the banks of Lake Tai hu, crossed by a river, and marked by a dense network of canals used mainly for field irrigation. The oldest part of Hufu is arranged in relationship with the main watercourse, according to traditional Chinese human settlement development (Figure V-VI). The recent morphological urban development, on the other hand, doesn't communicate with the water ways (Figure VII-VIII).
Despite the strong urbanization that affected Jiangsu Province and the areas that include Hufu zhen, it is still possible to identify large-scale green areas that surround the town. Focusing on the town of Hufu itself, we can see that green areas predominate, especially in the peripheral areas, as overgrown vegetation, woods and mostly cultivated fields. The latter denotes the rural and agricultural origin of the town. Inside the town, on the other hand, urban greenery does not find much space except for a few tree-lined avenues and flowerbeds which are often used to grow vegetables for self-sufficiency. Therefore, the morphological layout as a whole renders the town very compact in its building forms, which are embraced by the surrounding greenery in its various forms.

I

I. Water system, Yangtze river delta

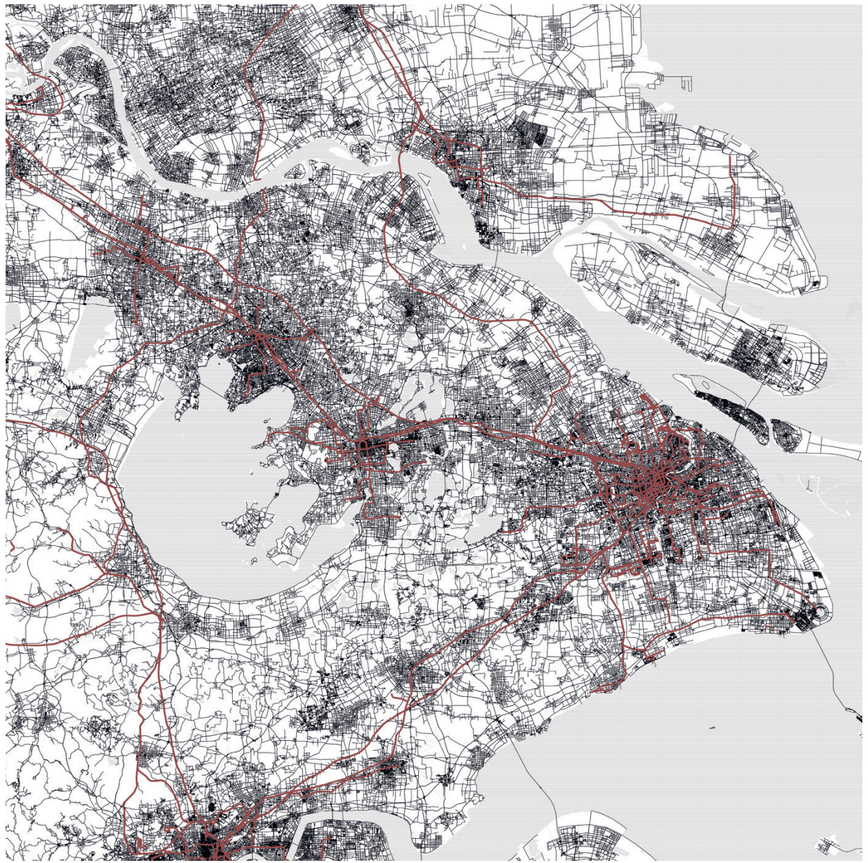
35 km



II

II. Water canal system in Hufu zhen

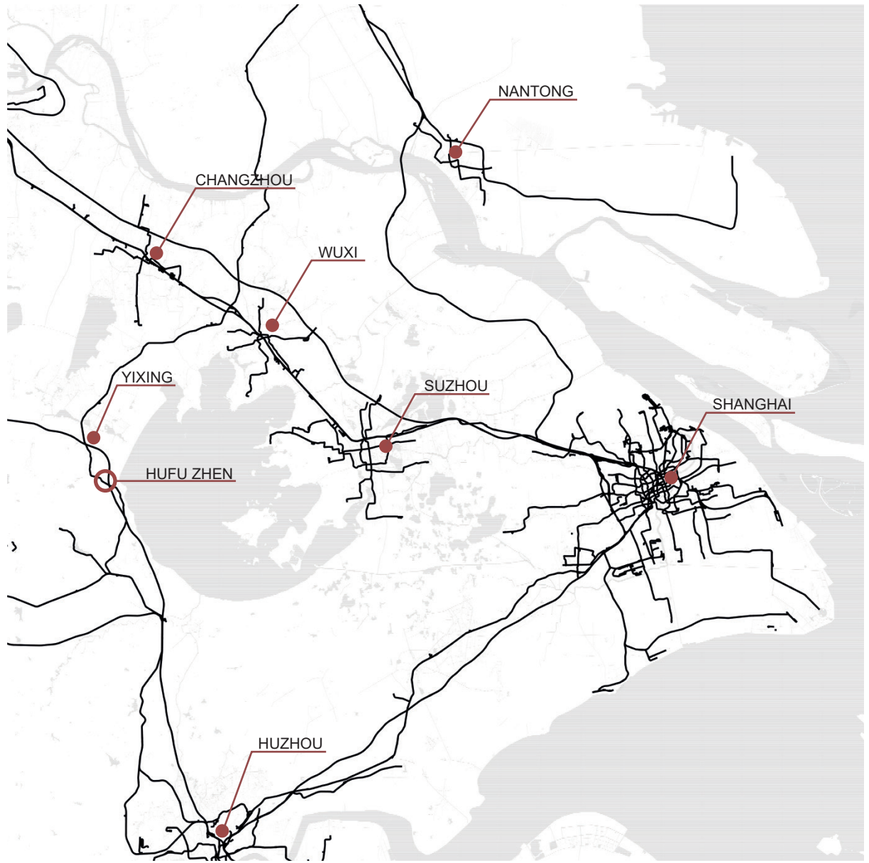
250 m



III

III. Railroad system

30 km



IV

IV. Networked cities

30 km

V

V. Water canal system_Zoom 1

125 m

VI

VI. Water canal system_Zoom 2

125 m

VII

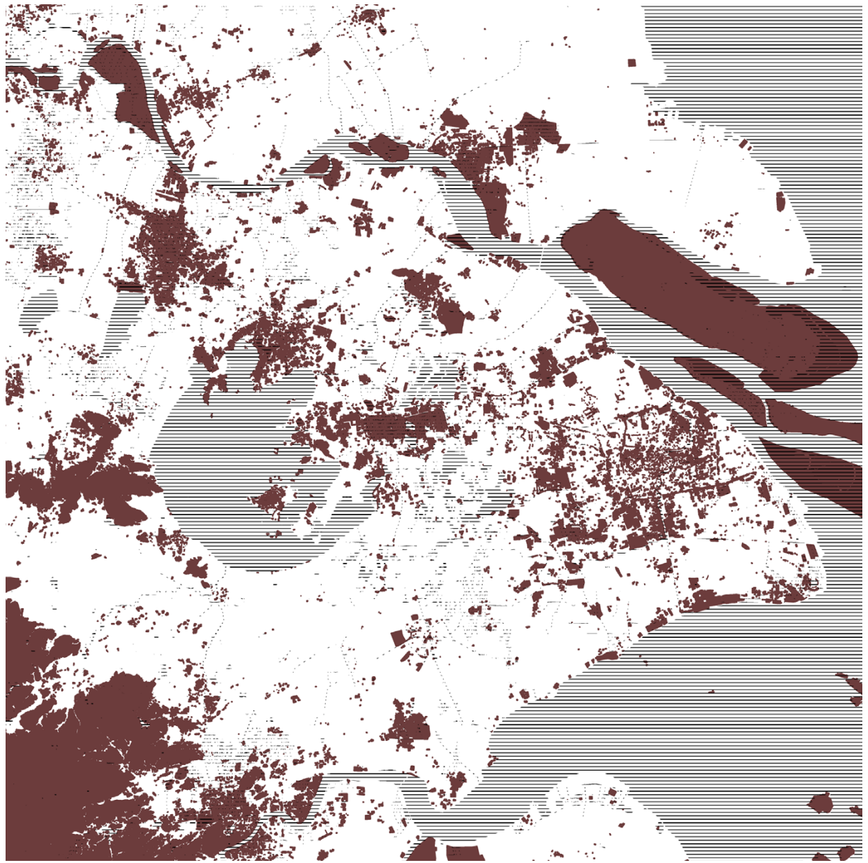
VII. Water canal system_Zoom 3

125 m

VIII

VIII. Water canal system_Zoom 4

125 m



A
B

A. Vegetation
B. Water

IX

IX. Green system, Yangtze river delta

35 km

1
2
3
4

1. Overgrown vegetation
2. Woods
3. Agricultural green
4. Urban green

X

X. Green spaces, Hufu zhen

250 m

XI

XI. Project area in Hufu Zhen

250 m

XII

XII. Project area

125 m

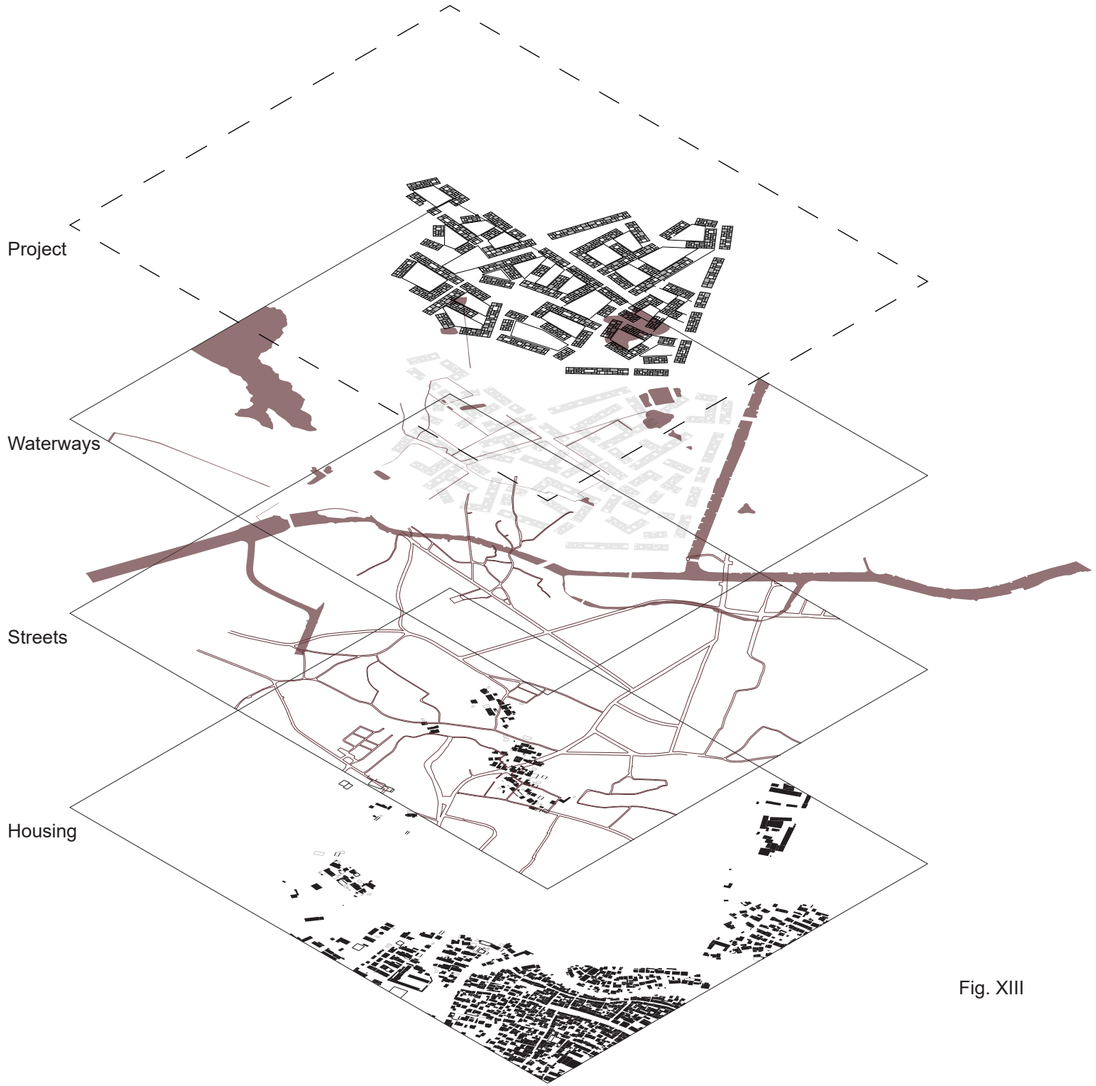


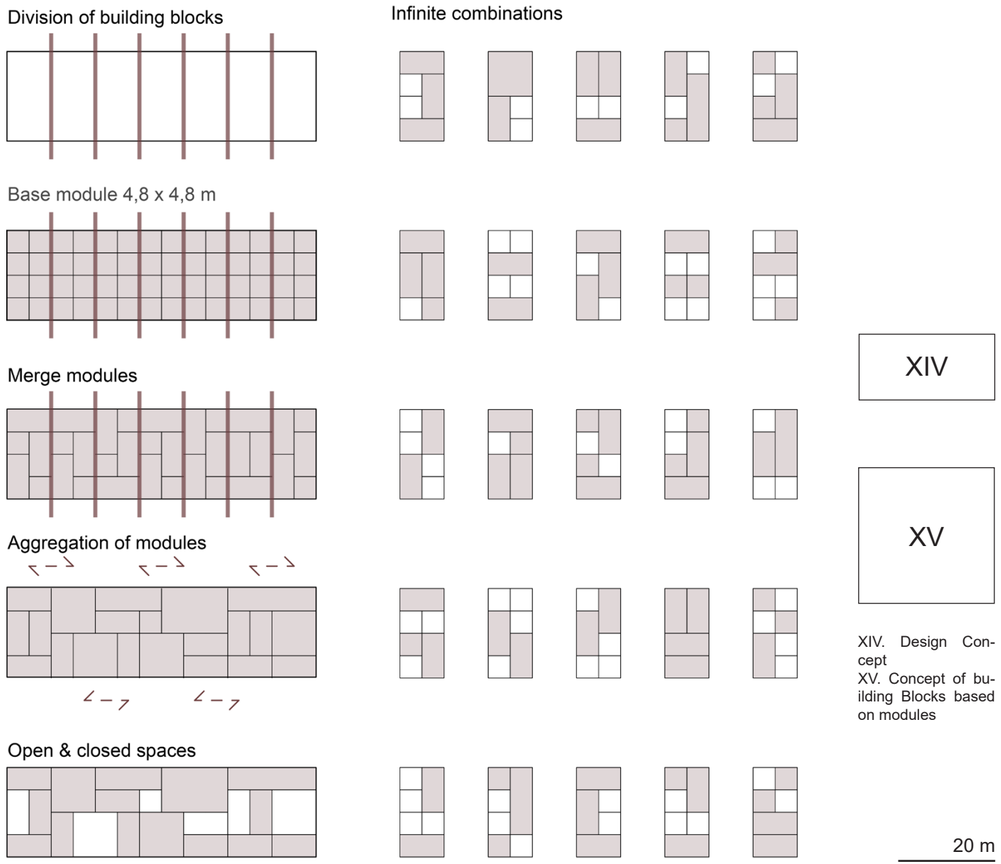
Fig. XIII

10 // DESIGN PRACTICE

_Design Proposal

The project proposal stems from the recent issue involving the more affluent classes in contemporary China. Nowadays more and more families want to move away from the chaotic reality of the city to simpler places with more connections to the countryside in search of a healthier lifestyle.
The project aims to find a new method for the future development of the existing rural villages and towns in the Chinese countryside, which specifically applies to the town of Hufu.
For this reason, the project area is located outside the existing built environment. We chose the northern area of the town due to its diametrically opposing position to the southern part of the town, which has undergone recent urban development. The project is therefore intended as an alternative and a critique of the regular morphological pattern adopted in the southern part of Hufu.
The new typo-morphological approach applied in Hufu is based on local settlements and architectural principles. Modular buildings are studied to be repeated and assembled according to necessities to revisit the traditional typology of the Chinese courtyard house. The assembly of the modules allows to create private internal courtyards for private dwellings. Modular buildings are then inserted in the local context following both the pre-existing water and road systems. The layout of these blocks refers also to the traditional layout of Chinese human settlements along watercourses: generating a series of large courtyards with open spaces for community and agricultural livelihood activities. The result is a system of courtyards within bigger courtyards, where balanced relationships exists between full and empty spaces, built fabric and resilient soil, public and private spaces, always pursuing a continuity between past and present.

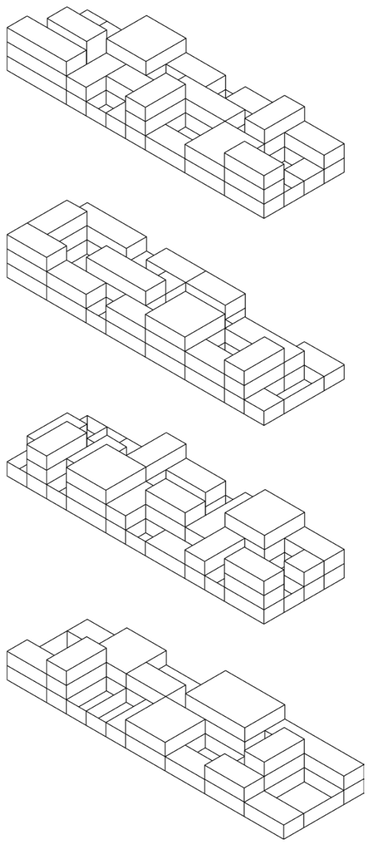

WATER CANALS
CONCEPT
DENSITY
TRADITIONAL MORPHOLOGY
HUFUZHEN
TRADITIONAL
MODERN
WATER TOWN



XIV

XV

XIV. Design Concept
XV. Concept of building Blocks based on modules



Building Blocks

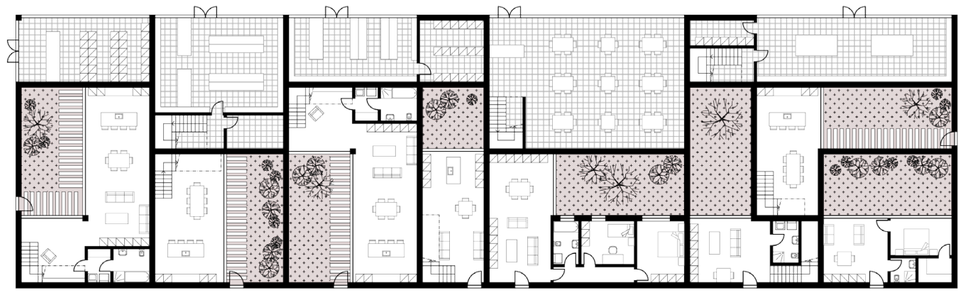
The different combinations of residential, commercial and crafts modules create four different building blocks: Dwelling & commerce, Dwelling & co-working, Dwelling & crafts and Mixed configurations of the previous blocks. Modules are based on a grid of 4,8 x 4,8 m, creating infinite possible combinations of full and empty spaces. Inner courtyards, called sky-well or light-well in the Chinese architectural tradition permit the lighting of inner buildings of the block. The structure and organization of inner courtyards, arranged alternately with the buildings, takes its origins from the traditional Chinese courtyard houses of the Yangtze River Delta.

The regular size of the modules also comes from the Chinese architectural tradition. The square module in the project originates from the square bay that is the space between 4 columns in ancient buildings. The buildings height is variable, but it never exceeds three floors in height as in ancient towns, to have a harmonious relationship with the landscape, favouring a horizontal rather than a vertical development. The orientation of the buildings follows existing roads and water canals in order to respect the local urban morphology.

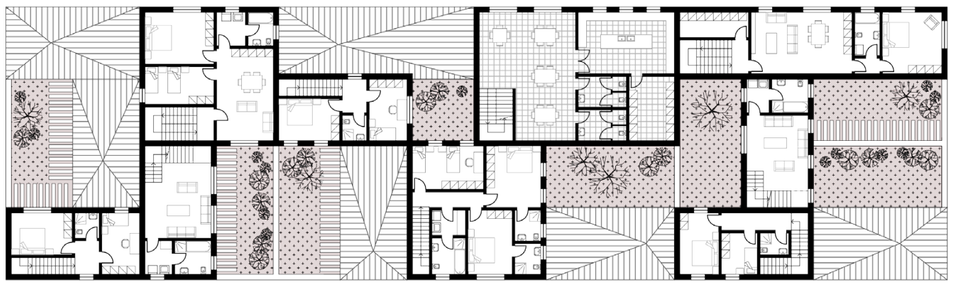
XVI

XVI. Building blocks

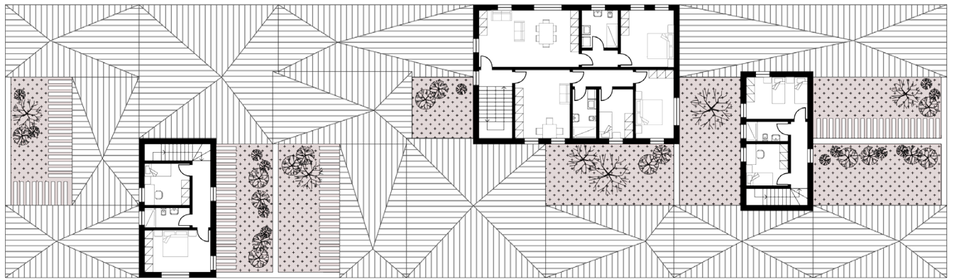
//CONCEPT OF BUILDING BLOCKS



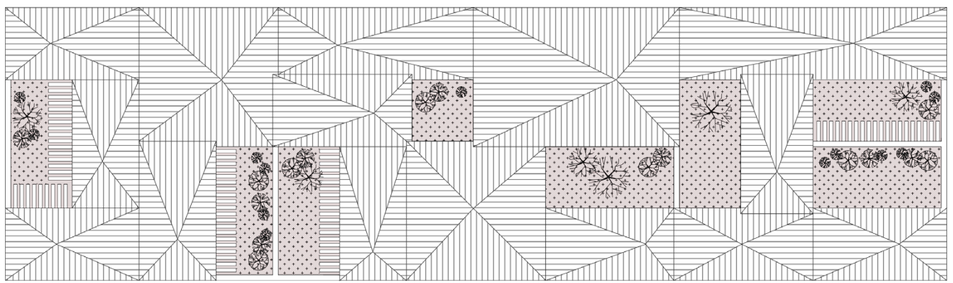
Ground Floor Plan



First Floor Plan



Second Floor Plan



Roof Floor Plan

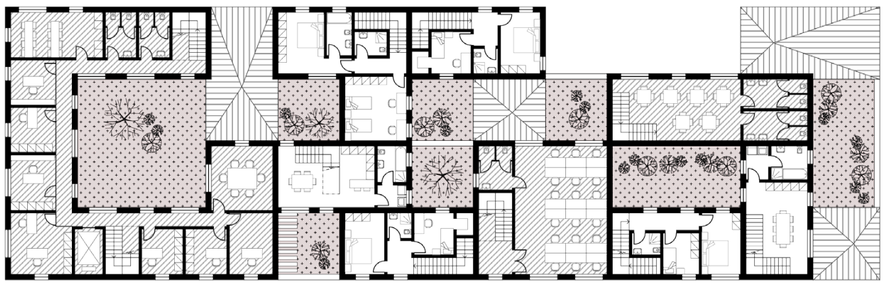
Residential Commercial Co-working Crafts

10 m

10 m

[1] // DWELLING & COMMERCE BLOCK

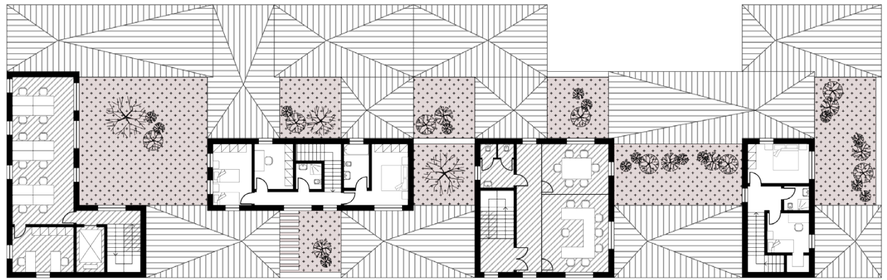
Ground Floor Plan



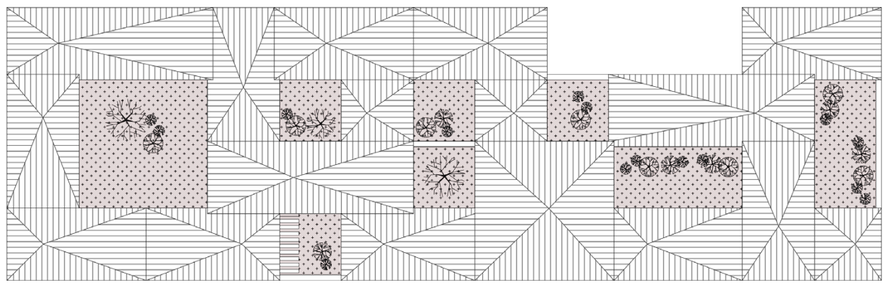
First Floor Plan

Residential Commercial Co-working Crafts

10 m



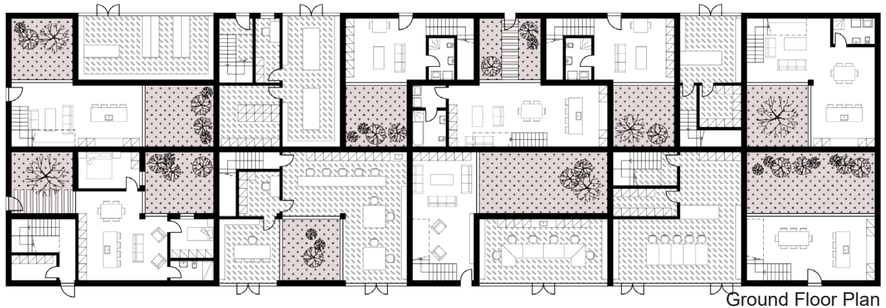
Second Floor Plan



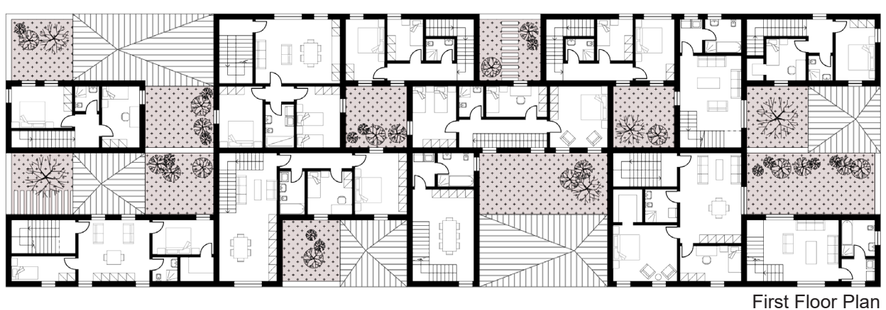
Roof Floor Plan

10 m

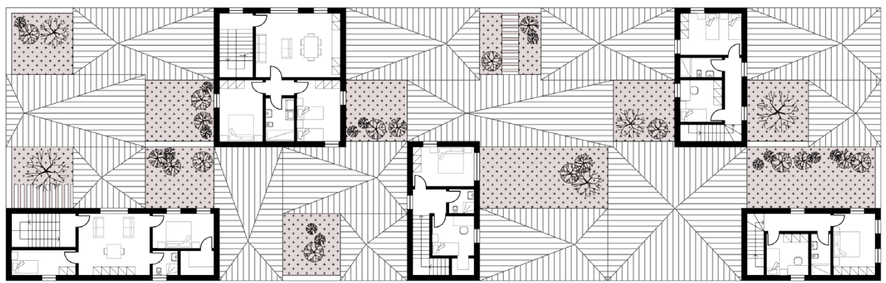
[2] // DWELLING & CO-WORKING BLOCK



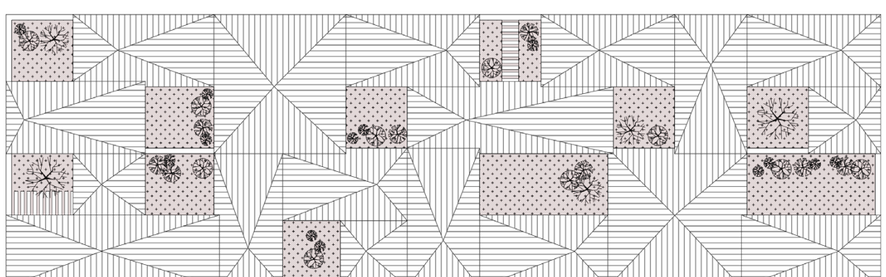
Ground Floor Plan



First Floor Plan



Second Floor Plan



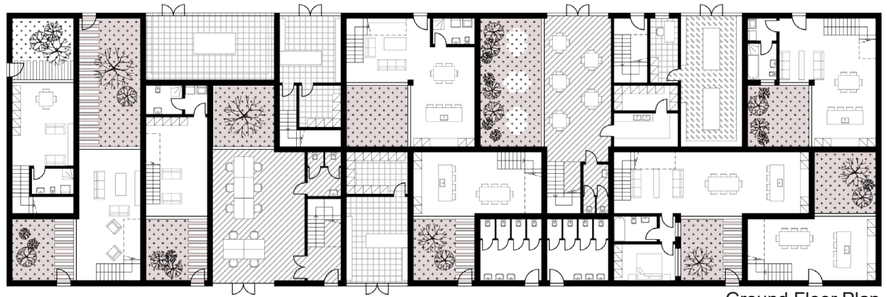
Roof Floor Plan

Residential Commercial Co-working Crafts

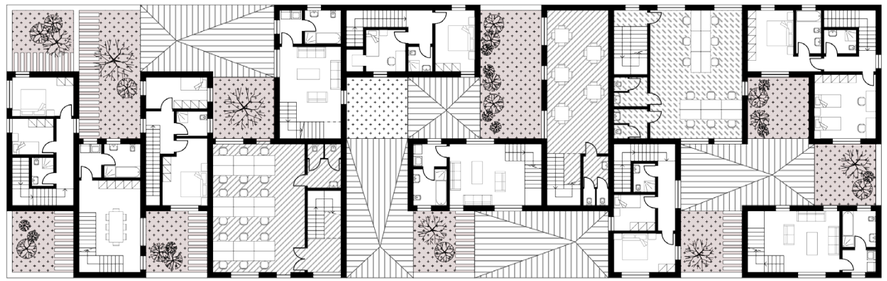
10 m

10 m

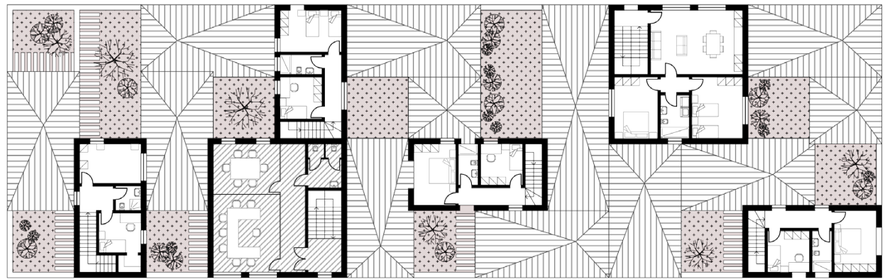
[3] // DWELLING & CRAFTS BLOCK



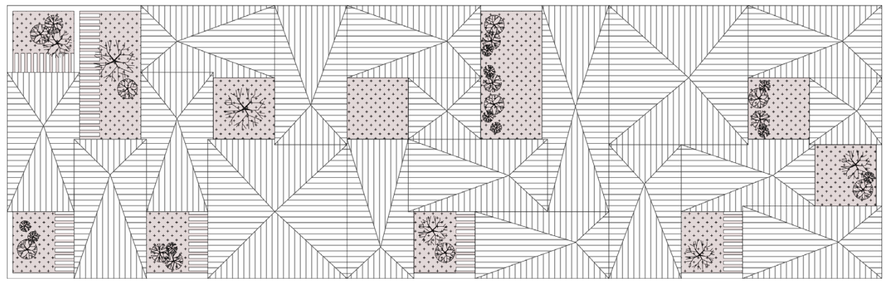
Ground Floor Plan



First Floor Plan



Second Floor Plan



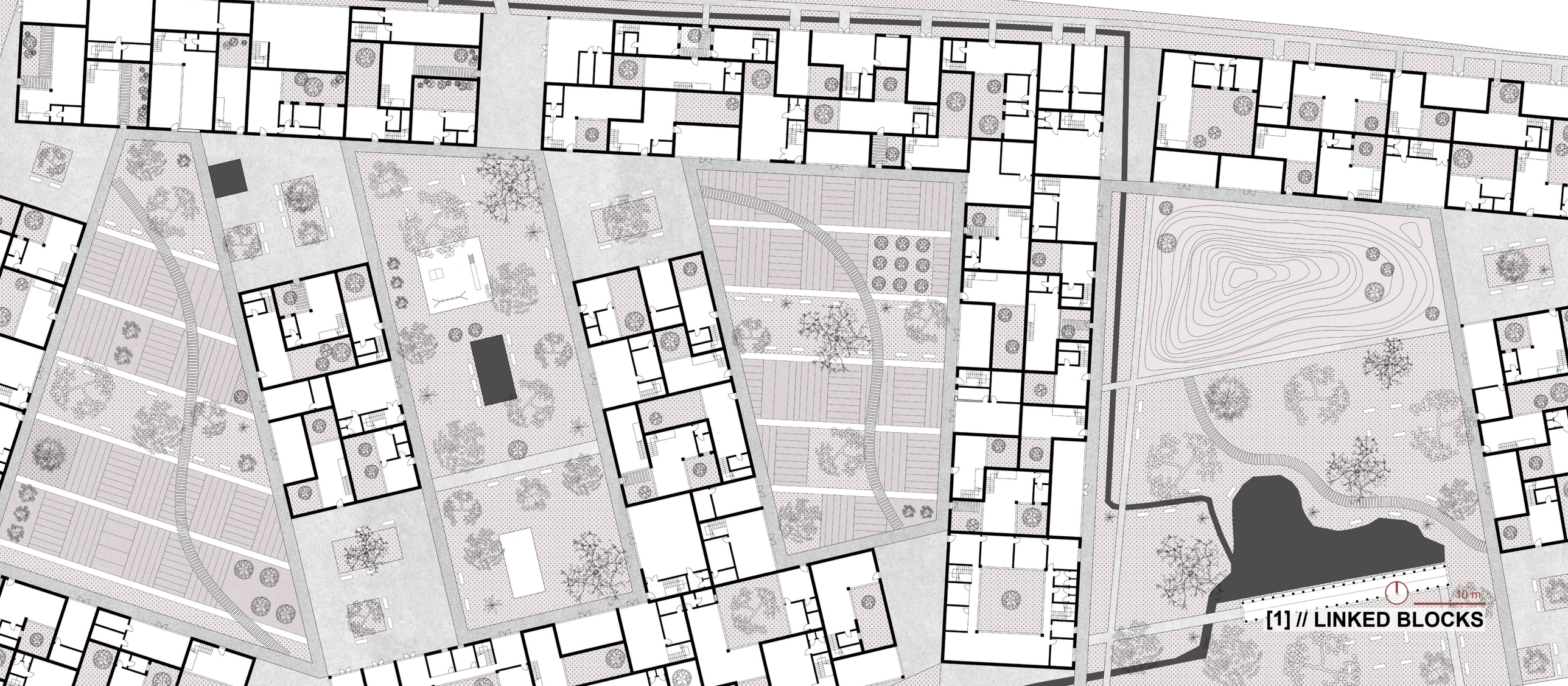
Roof Floor Plan

Residential Commercial Co-working Crafts

10 m

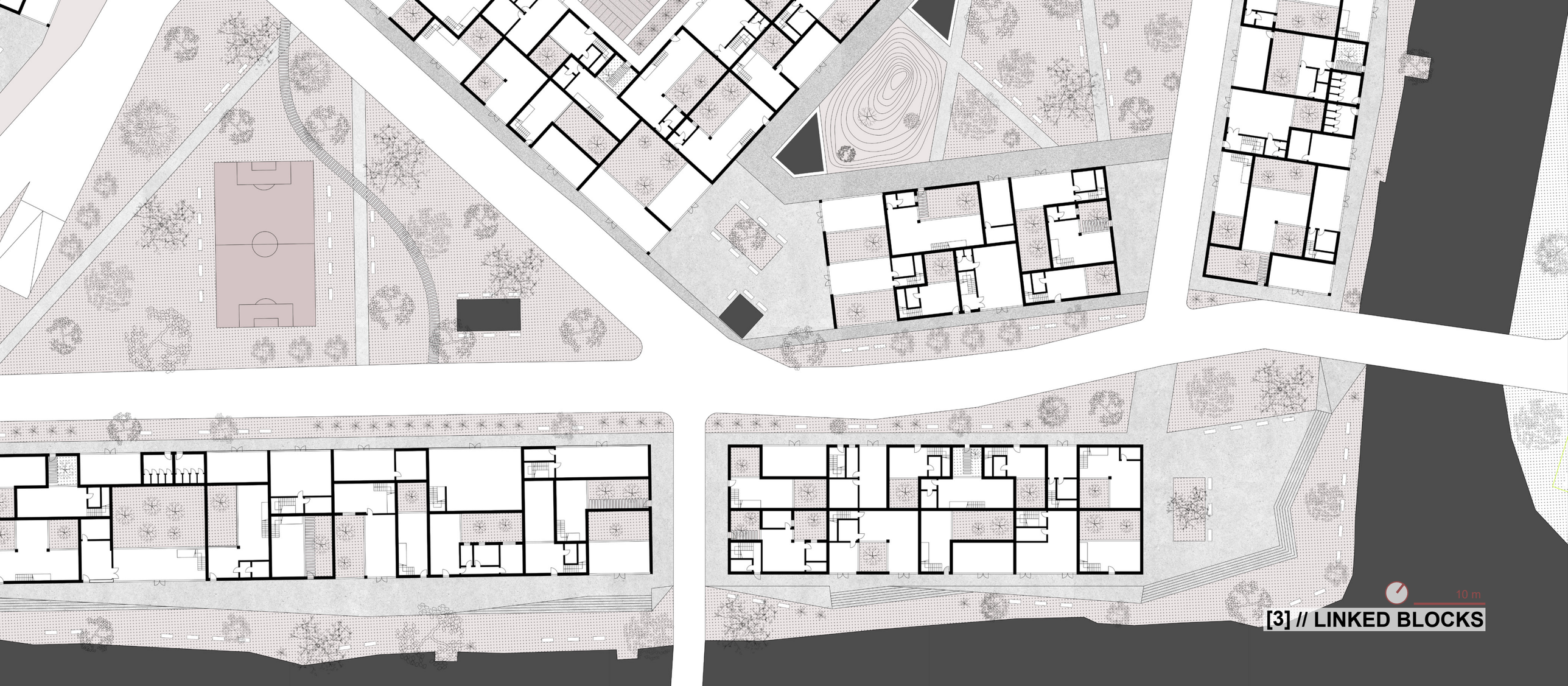
10 m

[4] // MIXED CONFIGURATION BLOCK

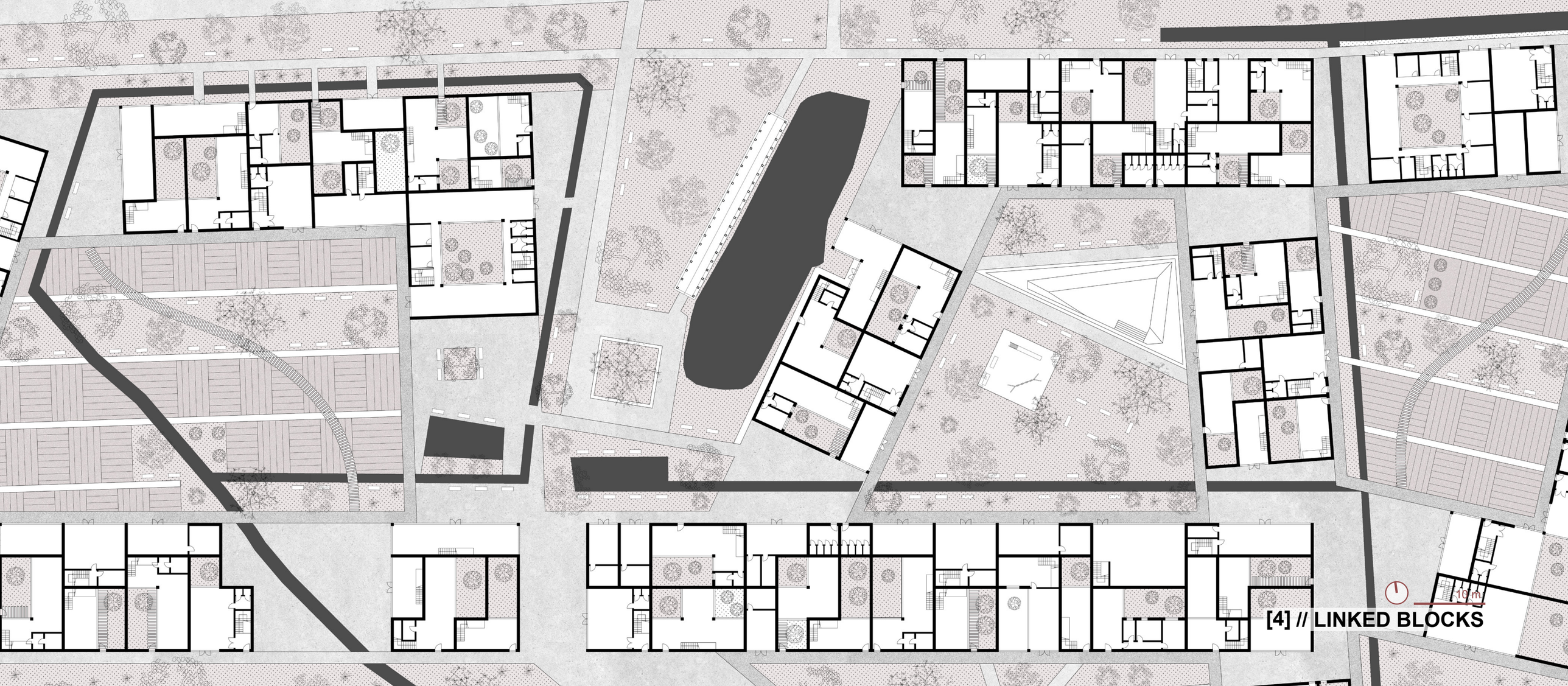


[1] // LINKED BLOCKS

[2] // LINKED BLOCKS

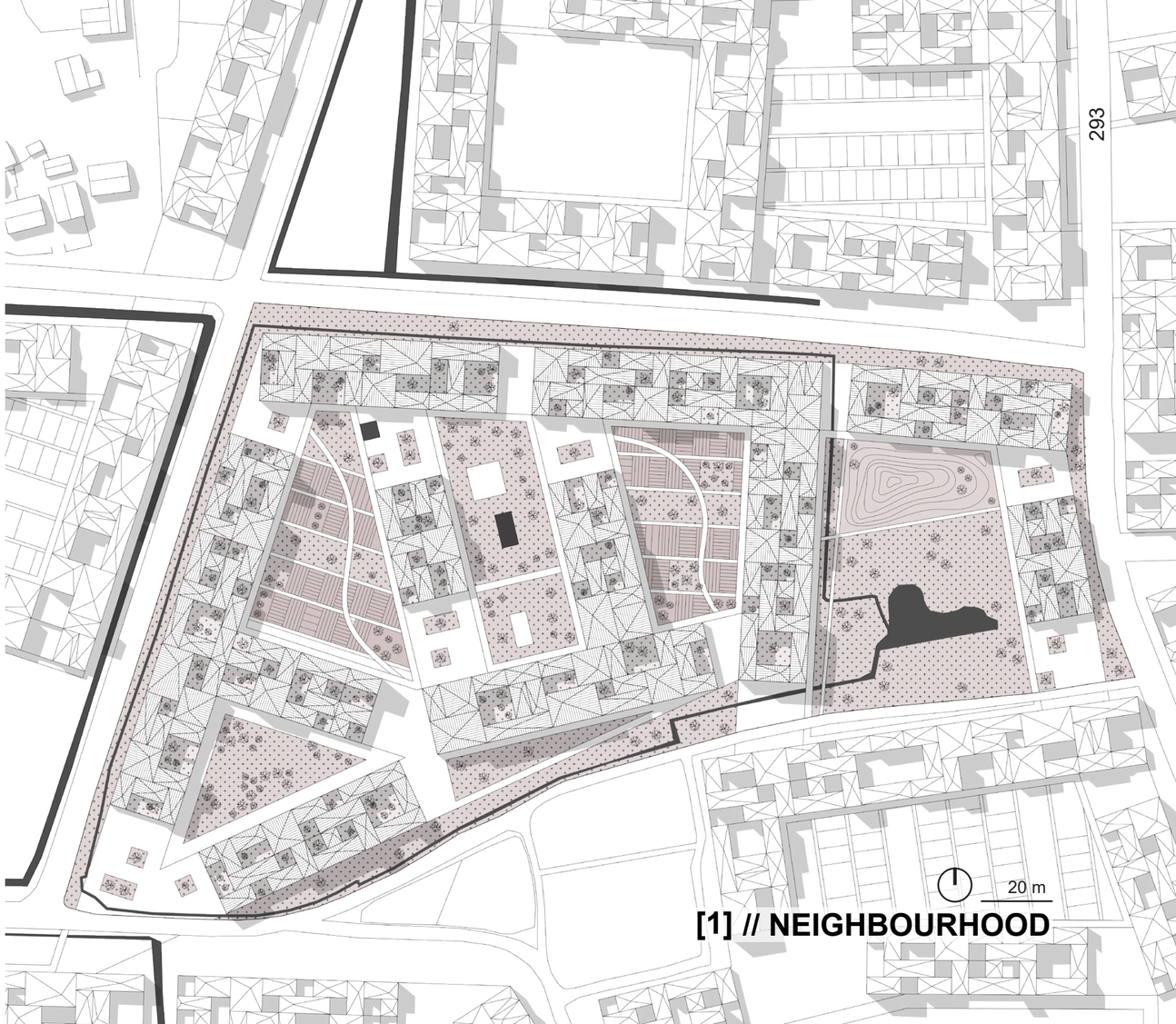


[3] // LINKED BLOCKS



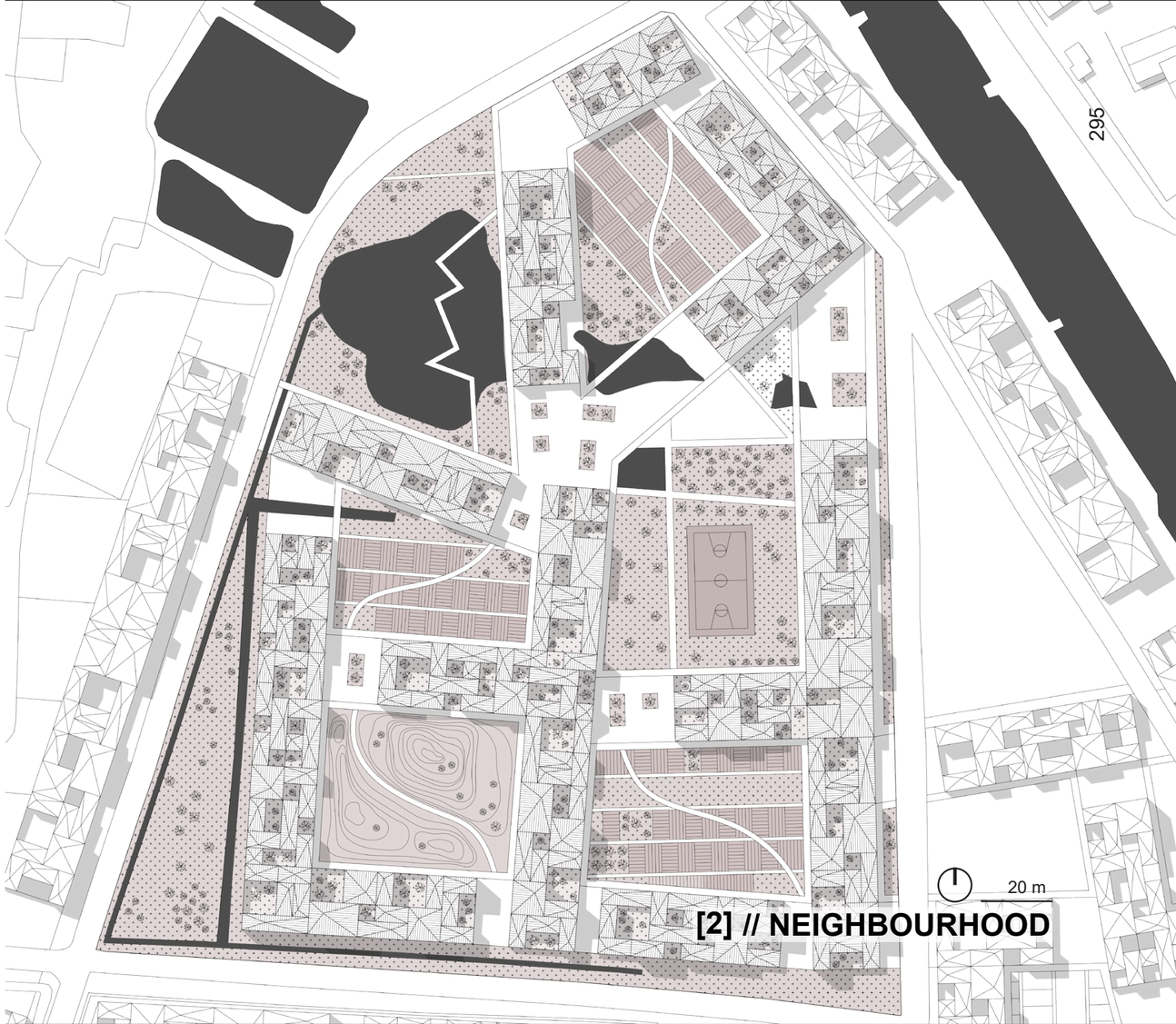
[4] // LINKED BLOCKS

[1] // PRE-EXISTENCE



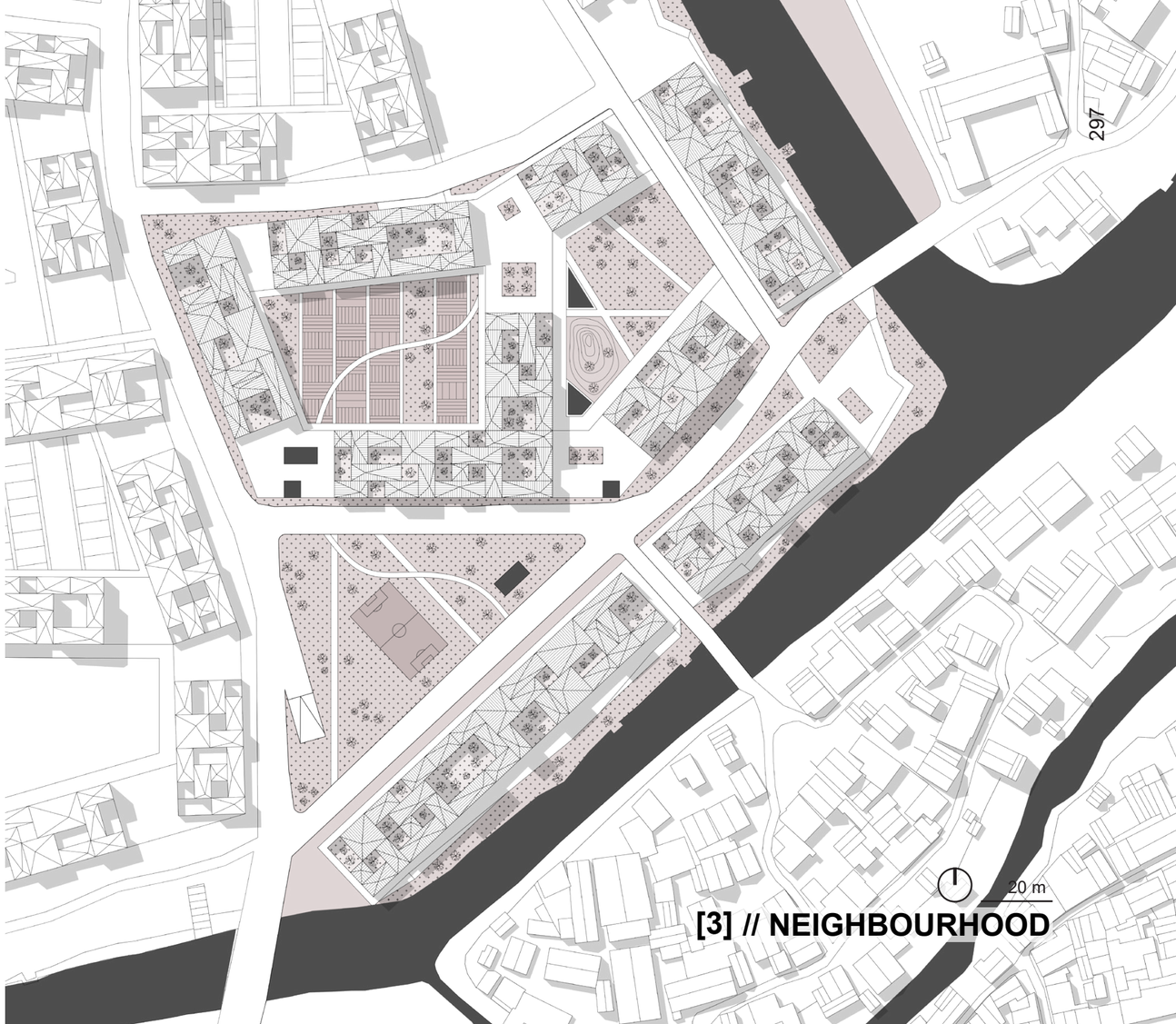
[1] // NEIGHBOURHOOD

[2] // PRE-EXISTENCE



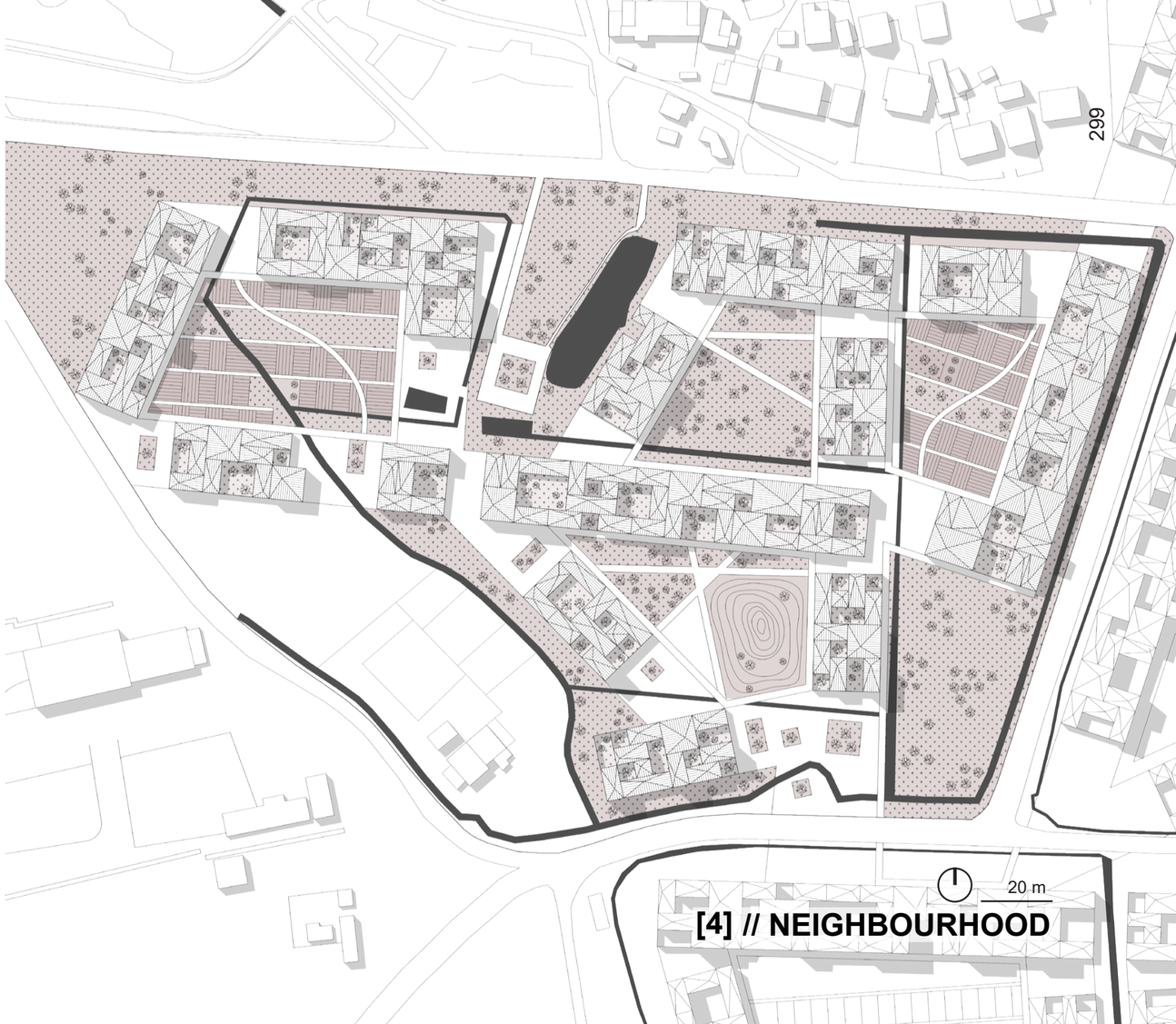
[2] // NEIGHBOURHOOD

[3] // PRE-EXISTENCE



[3] // NEIGHBOURHOOD

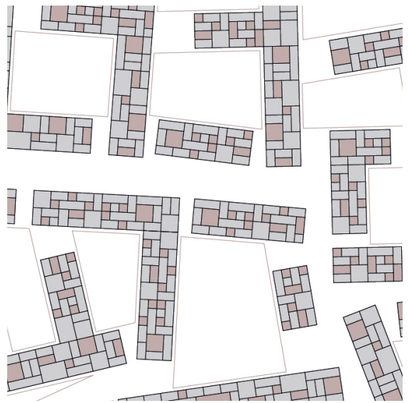
[4] // PRE-EXISTENCE



[4] // NEIGHBOURHOOD

[1] // STRUGGLING FOR BALANCE

[1] // COURTYARD IN COURTYARD



Courtyards

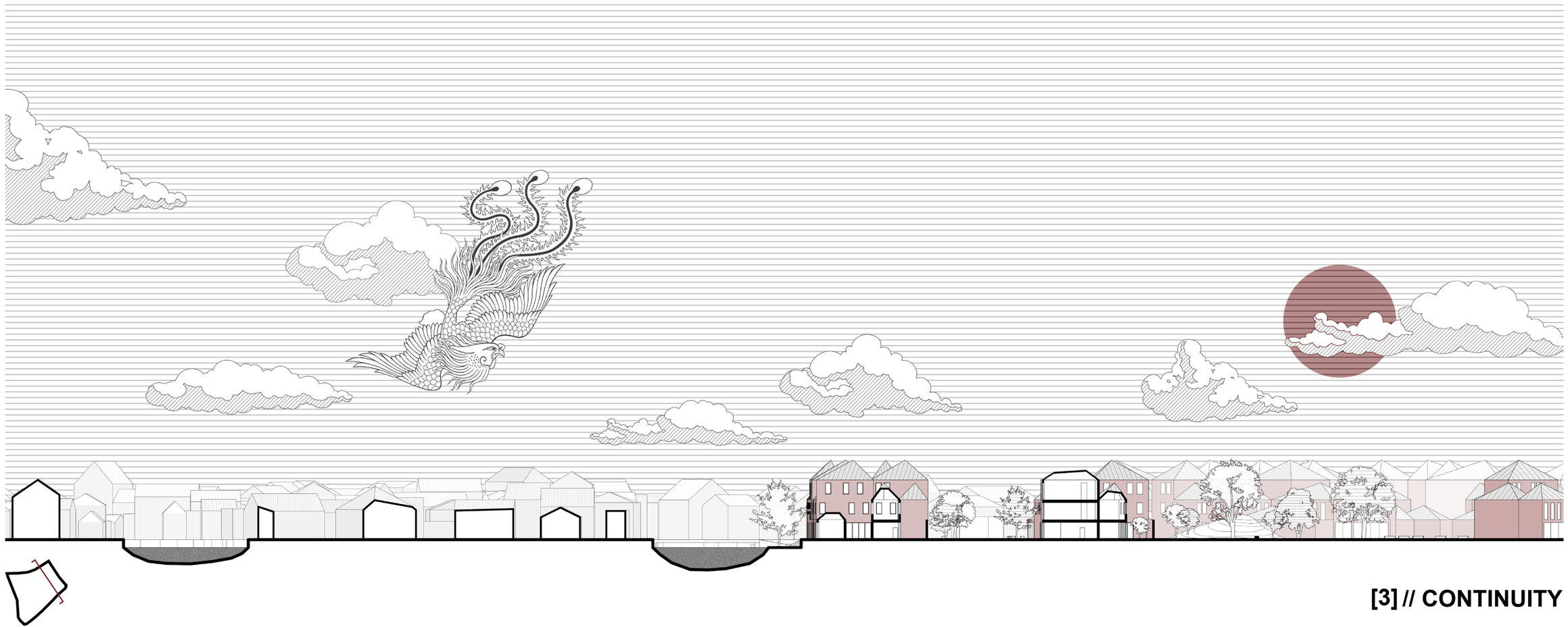
As introduced previously, courtyards play an important role within this project proposal. Courtyard houses were widely spread in ancient China and were an important building typology in the Jiangnan Region. Traditionally, big courtyard houses in the Yangtze River Delta were characterized by small inner courtyards between buildings and bigger gardens in the rear part of the dwelling. This project serves as a modern reinterpretation of this traditional building typology. As can be seen from the urban sections and from the master plans, it is possible to identify two different types of courtyards: the ones internal to building blocks are private, and the bigger ones created by building blocks allow public access.

The project can be considered as an extension of the rural landscape instead of the classic placeless urban scenario that is nowadays spreading everywhere in China. Large courtyards host public functions such as urban vegetable gardens, playgrounds for children, sports fields, and forests. While inner private courtyards are used as private gardens, light-wells or private patios for restaurants or co-working offices.

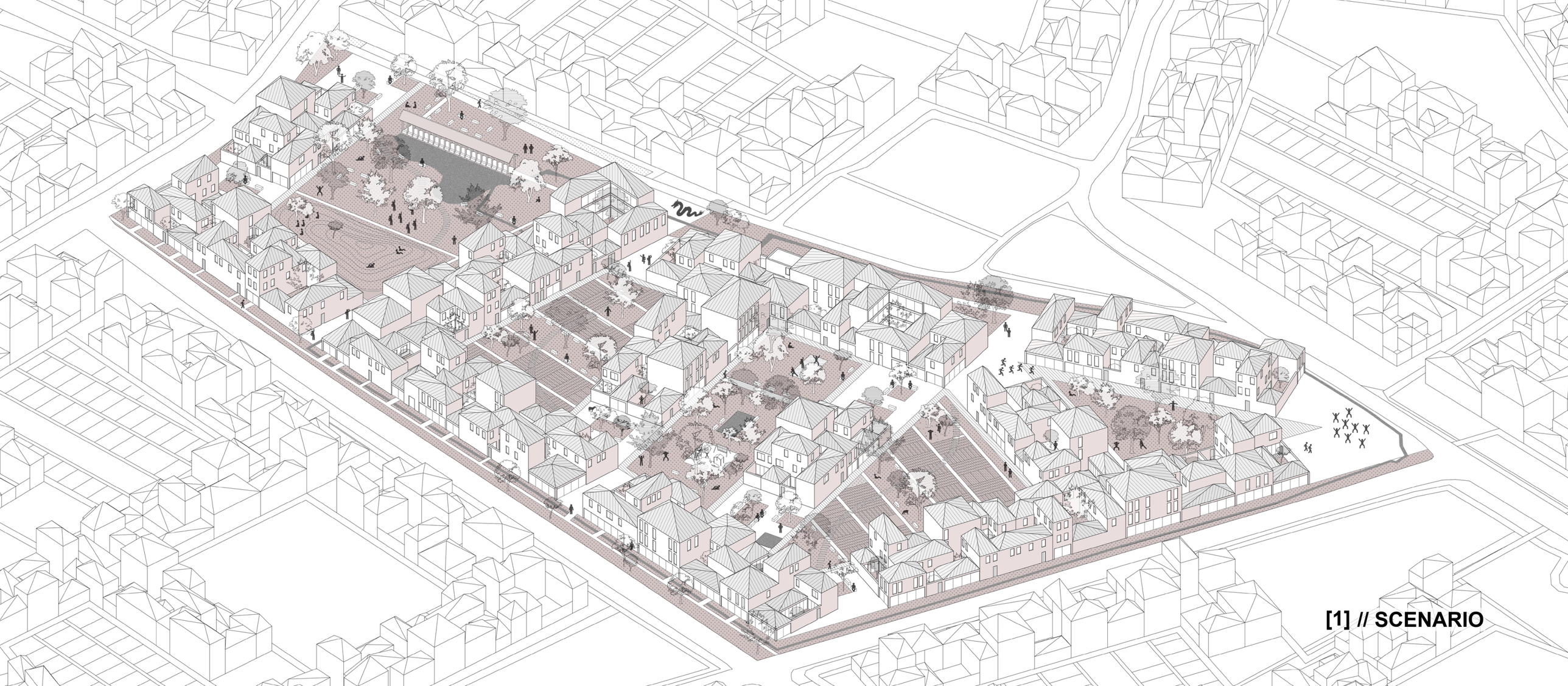
XXXV

XXVII. Courtyards

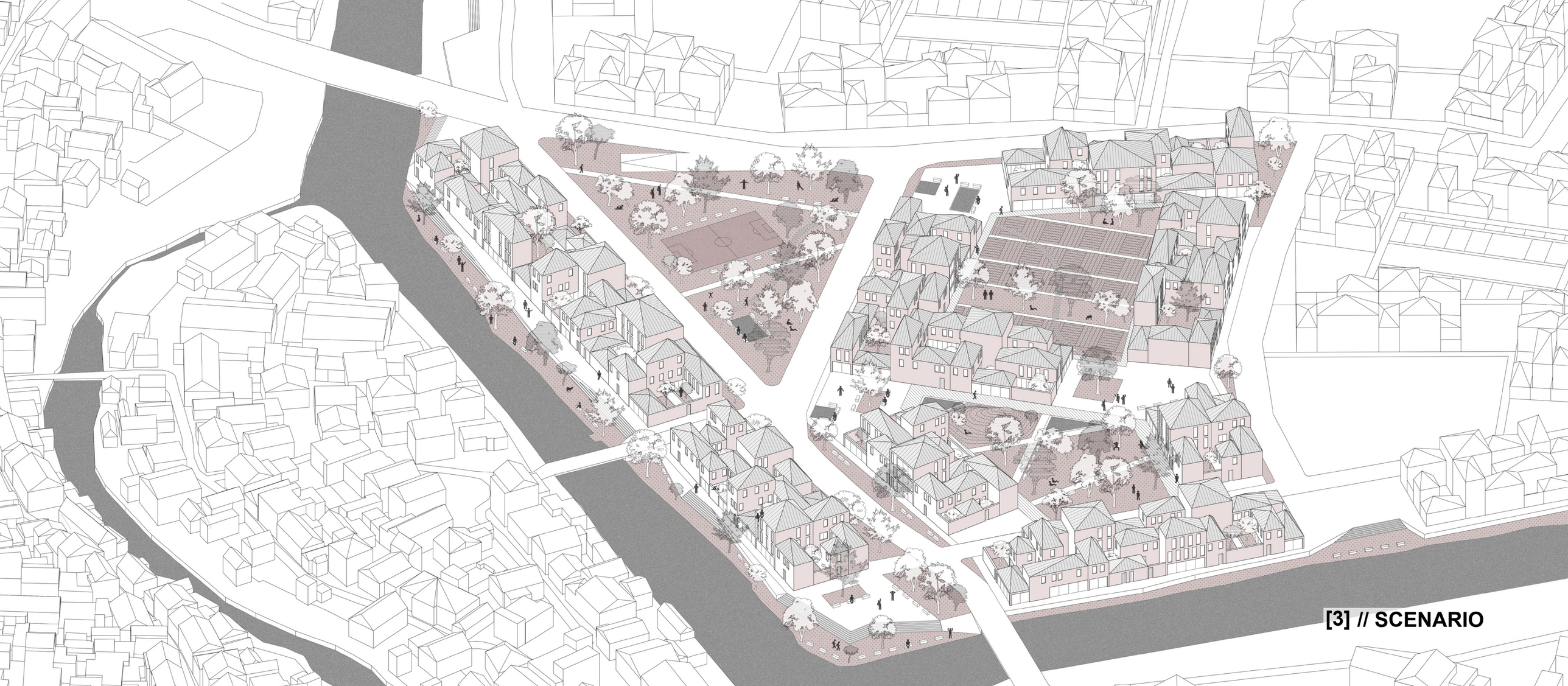
// COURTYARDS



[3] // CONTINUITY



[1] // SCENARIO



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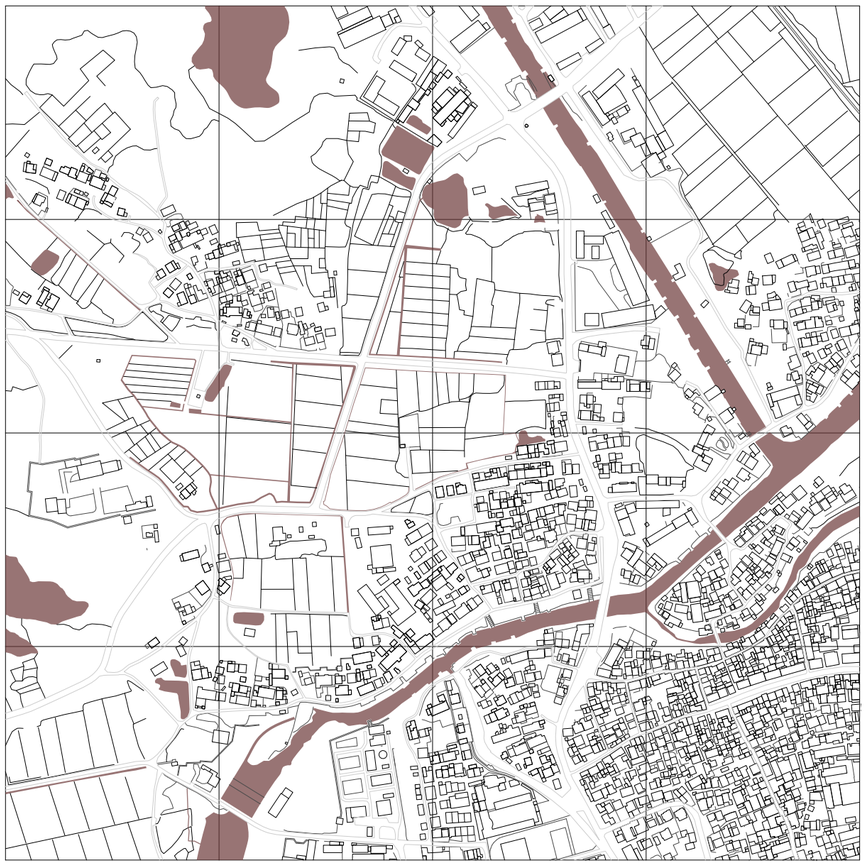


XXXIX

XXXIX. Pre-existence: canal and road systems

125 m

// PRE-EXISTENCE

XL

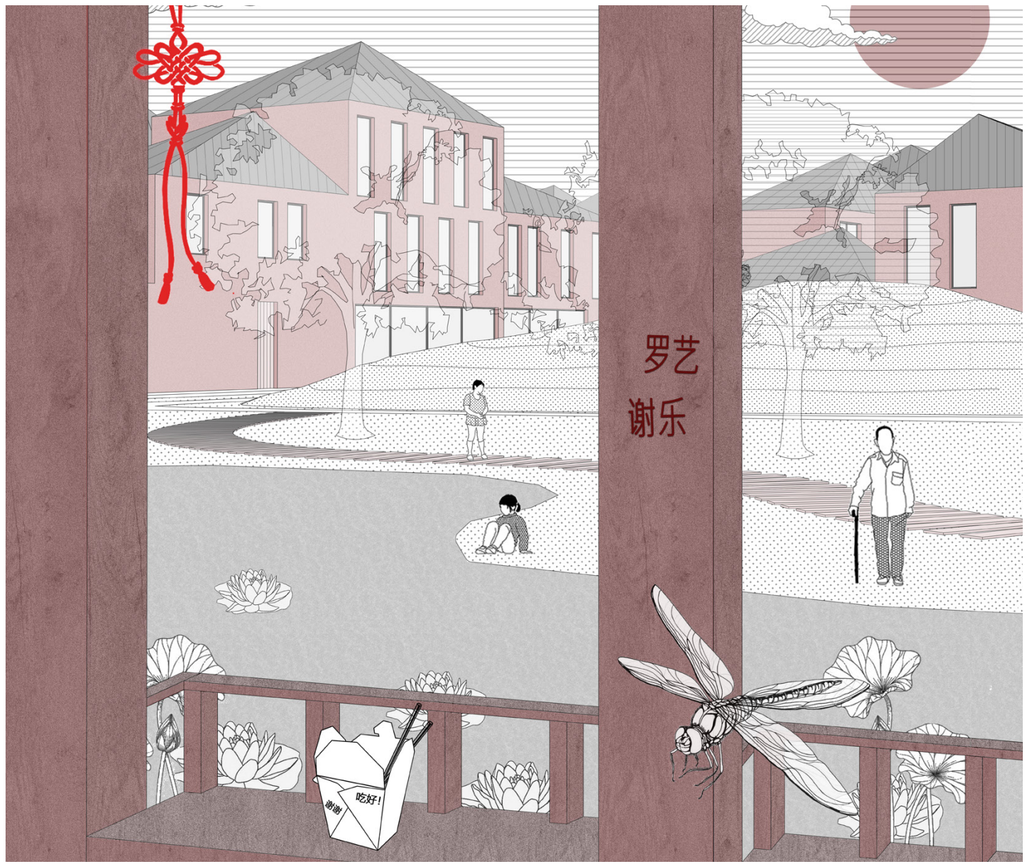
XL. Masterplan 1:1500

125 m

// MASTERPLAN

// ALONG THE RIVER

// THE KITCHEN GARDEN



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10 // DESIGN PRACTICE

_Final Conclusions

The design proposal is the result of long research carried out from great distance and without ever physically visiting Hufu zhèn. For this reason, guidelines have been identified to support the project. They are linked to the morphological, typological, social and cultural context in which the town is located.
These guidelines are based on the reinterpretation of the Chinese courtyard house typology which traditionally is arranged in the landscape following the pre-existing water and street systems. The new Typo-morphological design proposal is based on prototypes of building blocks formed by the combination of modules that can be assembled in infinite combinations. Mixed-use blocks are generated merging residential blocks with small commercial or crafts activities and co-working spaces. The repeatability of these blocks makes it possible to create new settlement spaces in a short time, adapting itself to local traditions. It responds to a new need of many Chinese citizens to move to healthier places like the countryside in the new rural-urban continuum scenario.
This approach is flexible and adaptable in different contexts as it is based on the Chinese traditional settlements. Moreover, the arrangement of blocks makes it possible to propose this approach in other contexts: blocks can be modified and architecturally interpreted according to the cultural context in which they are inserted, and can be arranged according to the existing layout of the landscape.
The results represent a new way to develop portions of cities in close contact with the countryside. This methodology differs from the common way that residential neighbourhoods are built in Chinese suburbs. The outcome of these studies are spaces that are never the same and never monotonous, where there is a generated balance between full and empty spaces, built and resilient land, and particularly between city and countryside. In the future it would be interesting to be able to visit Hufu zhèn and experience this reality first hand to be able to communicate with the locals so as to enrich the design proposal with information from inside the community of Hufu zhèn itself.

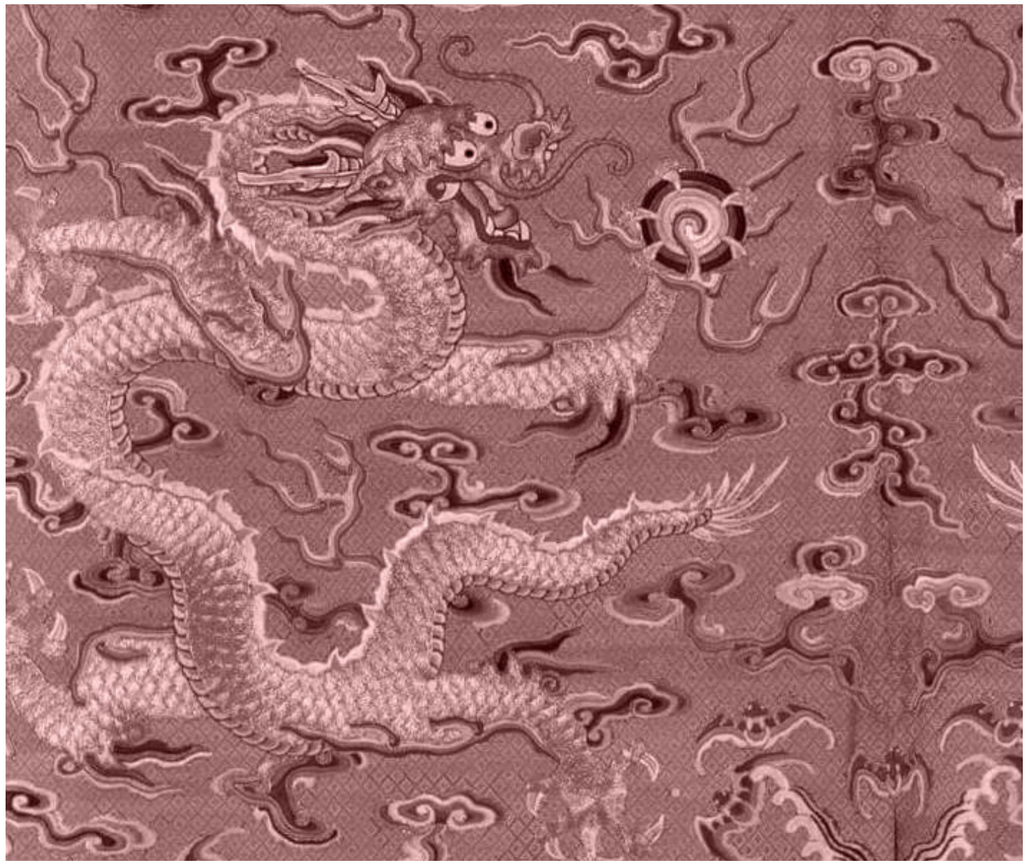

Fig. XLIV

10 // DESIGN PRACTICE

_List of Figures

All drawings in the chapter were jointly drawn up by Michele Tabellini and Chiara Loi

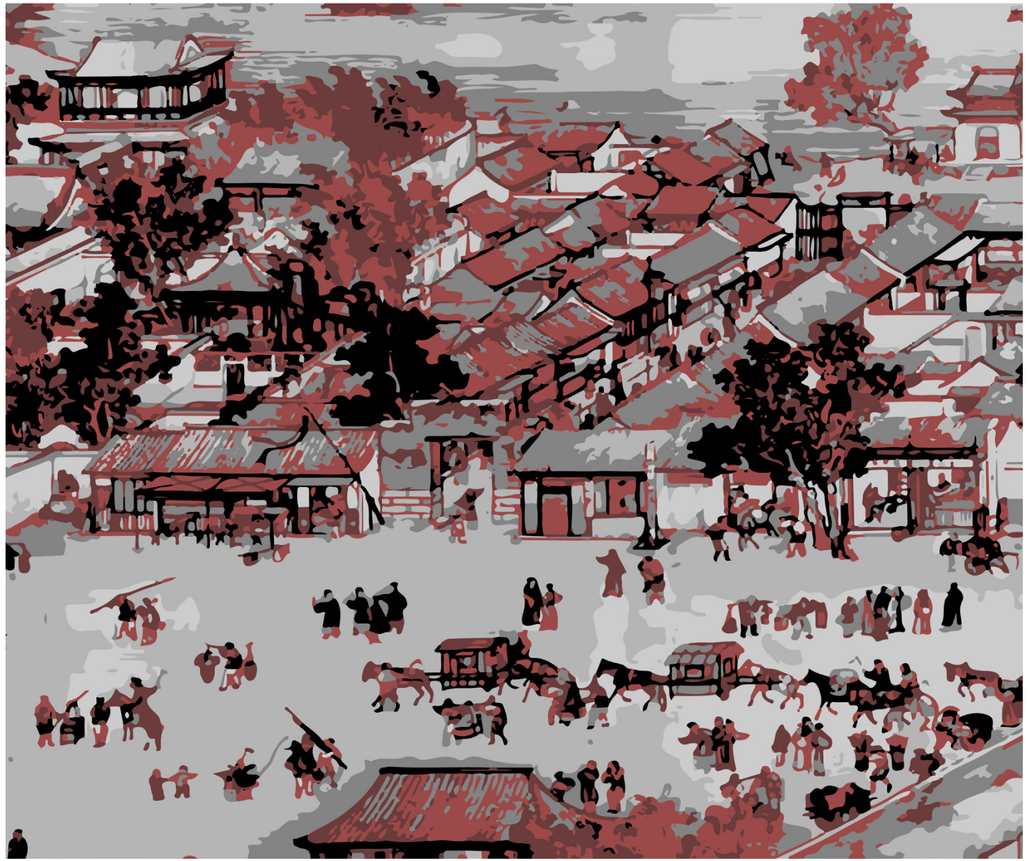

Fig. XLV

11 // ACKNOWLEDGMENTS

Writing this thesis signifies an end of a 6-year journey, which led to my temporary transfer to China where I met different people and cultures. For that, I feel obliged to thank not only all the people who actively contributed to the development of this thesis but also the people I who accompanied me during my university years.

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To all of you, Thanks.
Michele