THROUGH LAKE AND SWAMP: URBANIZATION PROCESS OF BAIYANGDIAN WETLAND

AN ADAPTIVE WETLAND PRODUCTION TRANSFORMATION

Master Thesis-P5 Report

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METROPOLITAN ECOLOGIES OF PLACES SERIES

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Lastly, I would like to thank my family for the twenty-five years of unconditional love and support.

CONTENTS

西郊有密林

助君出重围

PREFACE

The plan for Xiong'an holds significant importance as a national project designed to shape the development of the Jing-Jin-Ji (Beijing-Tianjin-Hebei) megapolis area. It serves as a vital area for shifting Beijing's non-capital functions and acts as a demonstration zone for innovative development. Located near Baiyangdian Lake, one of North China's most significant wetlands, Xiong'an New Area is poised to undergo substantial changes and advancements.

However, the establishment of Xiong'an has inadvertently led to unemployment issues due to the gap between industrial updates and transformations. The rural labor force in the Xiong'an New Area primarily engages in agricultural production and traditional manufacturing industries. Unfortunately, the overall education level of the workforce is relatively low, and some individuals lack formal education, exacerbating the challenges of re-employment and transitioning to new industries.

Taking a closer look at the history of settlement in Baiyangdian wetland, we can observe a unique productive landscape that has evolved over thousands of years of cultivation. This landscape holds great potential for industrial transformation and urbanization.

In MEP studio, I aim to investigate how the productive landscape can contribute to the urbanization process and play a role in shaping sustainable development. By analyzing the historical context, cultural heritage, and ecological significance of the Baiyangdian wetland, I hope to uncover ways to leverage its productive capacity in the context of the Xiong'an New Area. This exploration will involve examining various aspects, including land use patterns, economic opportunities, and community engagement.

I recognize the complexity and challenges that lie ahead, such as balancing economic development with ecological preservation, ensuring equitable opportunities for local residents, and leveraging the potential of the productive landscape without compromising its integrity. These considerations will guide my research and design process to create a holistic and inclusive approach to urbanization in the Xiong'an New Area.

Ultimately, through the Metropolitan Ecology of Places studio, I aspire to contribute to the development of Xiong'an by proposing innovative strategies that integrate the productive landscape into urban planning. By doing so, I hope to support sustainable development practices, enhance job opportunities, and improve the overall well-being of the local community while preserving the cultural and ecological heritage of the Baiyangdian wetland.

从基层上看去，中国社会是乡土性的。…我们不妨先集中注意那些被称为土头土脑的乡下人。他们才是中国社会的基层。

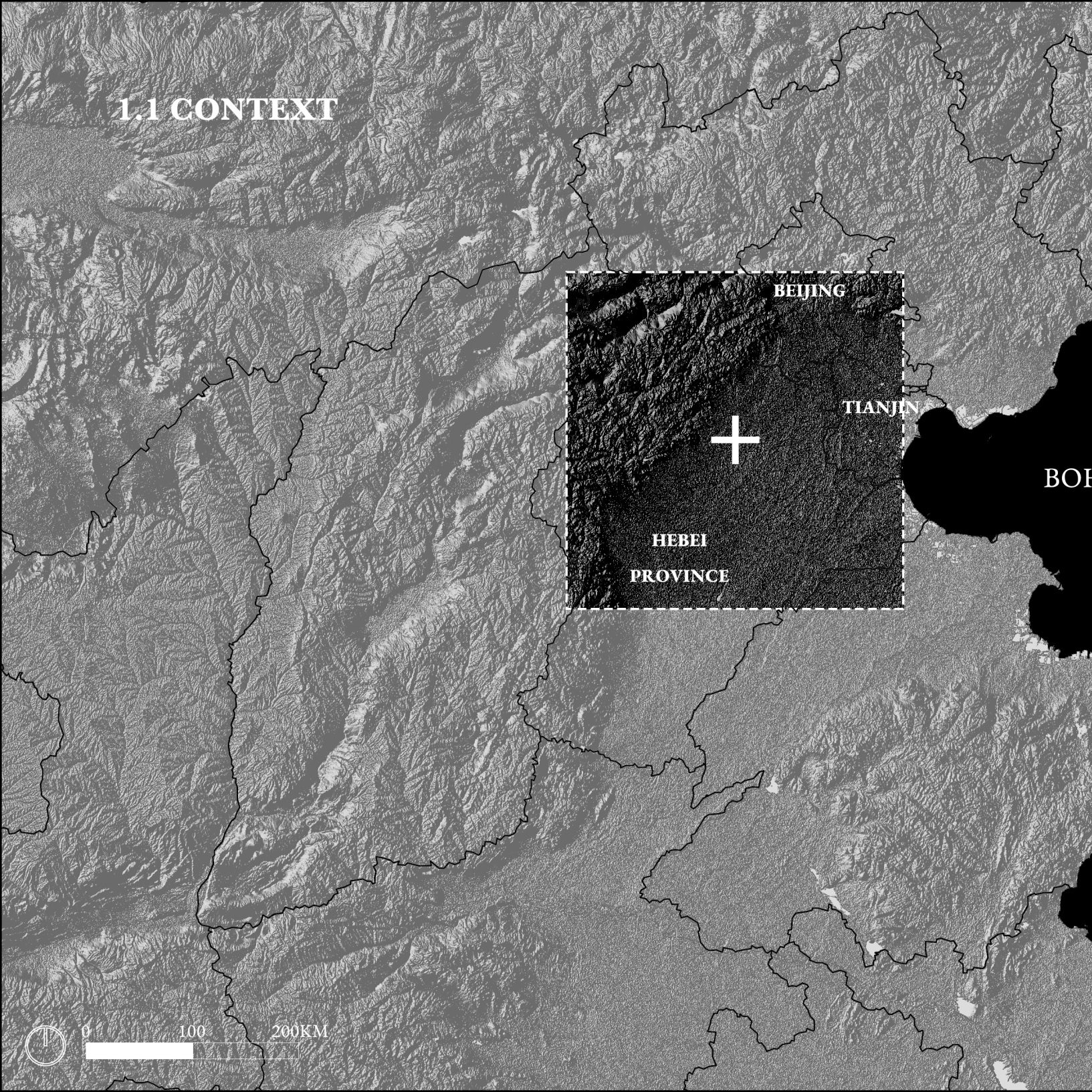
Chinese society is fundamentally rural. …(I) will concentrate exclusively on rural society and on those so-called hayseeds, the people living in the countryside. They are truly the foundation of Chinese society.

——《乡土中国》 费孝通

-- *From the soil*, Fei Hsiao-tùng

CHAPTER 1. INTRODUCTION

1.1 CONTEXT



Plain at the foot of Taihang Mountain

North China plain, located eastward at Mount Taihang, is an alluvial plain formed by the sediment of the Yellow River, Hai River, Huai River and Luan River. The terrain of the North China plain is low and flat, mostly below 50 meters above sea level. The southern part of the plain is the cradle of Chinese civilization. Being fertilized and flat, this is the main production area of grains and cotton in China and one of the most populated areas in China.

The history of cities in Hebei (Ji 冀)can be dated more than 3,000 years ago. However, located so close to nomadic people in the Mongolian plateau, the conflicts and wars lagged the prosperity. In the Ming Dynasty, Yongle Emperor moved the capital from Nanjing to Beijing, when Beijing turned from a remote border city to the political centre of China.

Tianjin天津 literally means “Emperor’s port”, became a garrison town and shipping station in Ming Dynasty. The booster came in the late Qing Dynasty after the Second Opium War when Tianjin was opened up by the British and French as a treaty port and foreign concession area. Since then, the tripartite situation of Beijing-Tianjin-Hebei, the so-called Jing-Jin-Ji(京津冀/JJJ as an abbreviation) area, is formed.

After the foundation of the PRC, while Beijing remained the capital and Tianjin became a municipality directly under Central Government, the statute of Hebei province declined. The siphonic effect of megacities is creating a significant gap between the three areas. In order to push the co-development between municipalities, in 2014, the integration of Beijing-Tianjin-Hebei became a national strategy.

Source: DEM dataset,2009

Urban-rural dichotomy in China

As a traditional agricultural country, for thousands of years, rural areas have housed China's largest population. Land and soil composite the root of Chinese civilization; foundationally, Chinese society is rural(Fei Xiaotong, 1992). With only 10% of the arable land in the world, China is feeding 20% population(Food and Agriculture Organization of the United Nations, 2019).

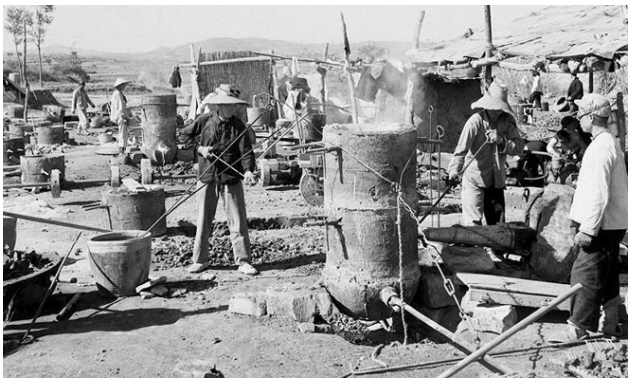
Reviewing the development history of rural and urban areas in China, we will find that cities and villages are seen as contrary until recent years. The history of cities became foreign concession areas since 1840, and CPC's revolution through rural force enhanced the "anti-urban" idea in the anterior half of the 20th century(Richard J.R. Kirkby, 1985). After the foundation of the PRC, urbanization in China experienced ups and downs. The first phase is 1949-1960.

Recovering from the long-lasting wars, the improvement of income, public health and the social environment see population growth of 20%. This

Figure 1 Jiefangbei Road, Tianjin, previous concession area of Britain and France.
Source: Xiaohongshu

is also a period when urbanization is accelerated. Developing heavy industry became a national strategy, and projects such as the first Five-year-plan set a foundation for the industrialization of China and provided an impetus for urban growth. It is then widely believed that industrialization is the ultimate solution to poverty and peasantry issues. Under this idea, China took the Soviet Union as a model to set the urban-rural dual economy system(Wu Zhiqiang, Li Dehua, 2010). Nevertheless, some of these projects, such as the Great Leap Forward, caused hidden danger for future development. The development of heavy industry sacrificed agricultural resources and the rural labour force, leading to the food shortage from 1959 to 1962.

Deurbanization started under political campaigns in the second phase from 1960-1978. Urban youths were sent to villages and border areas to "aiding construction". What is noteworthy is that urban growth is not entirely stagnated in this phase, but in a different way-growing with *"Danwei"* as a minimum unit. *"Danwei"* (单位) means "unit",



During the Great Leap Forward, people were encouraged to donate their farm tools to produce steel. This resulted in the loss of means of production, while the steel they produced didn't reach the standard at all.

Figure 2 People's Commune
http://www.gov.cn/zhuanti/2009-08/10/content_2752515.htm

Figure 3 China's residential compound is usually enclosed. This is a legacy of Danwei's compound.

and it is the bottommost unit of the Chinese urban economy and administration in the planned economy period. Correspondingly in rural areas, the People's Commune became the minimum unit for the rural economy. According to *Measures on Land Requisition for Construction (Amendment)* (<国家建设征用土地办法(修正)>) published in 1958.1.6, *Danwei* has the right to apply for land acquisition. After getting approved and paying compensation, construction can start. However, until 1989, there was no legislation for urban planning, which means land acquisition and construction mainly was done simultaneously and disorderedly(Quan Le,2015). This foreshadowed the patchwork expansion of China's urban and peri-urban areas.

After 1978, the Reform and Opening up impulsed urbanization at an unparalleled speed. Urban agglomeration arose quickly. Among the ten approved National Urban Aggoleration, the JJJ megaregion, Yangtze River Delta, and GBA Area are the three biggest ones. In 2008, the *Law of the People's Republic of China on Urban and Rural Planning* was first published, replacing the *Law of the People's Republic of China on Urban Planning*, indicating rural areas were seen as a comparative part of spatial planning as urban for the first time. In 2017, Rural Revitalization Project was put forward to promote rural development. In 2018, the Ministry of Natural Resources of the People's Republic of China was formed, taking the resposiblitity of managing and planning both urban and rural space, indecating that urban and rural intergration became emphasized.

Figure 4 Rural Revitalization project
Published byZhejiang Publishing United Group Digital Media Co., Ltd.

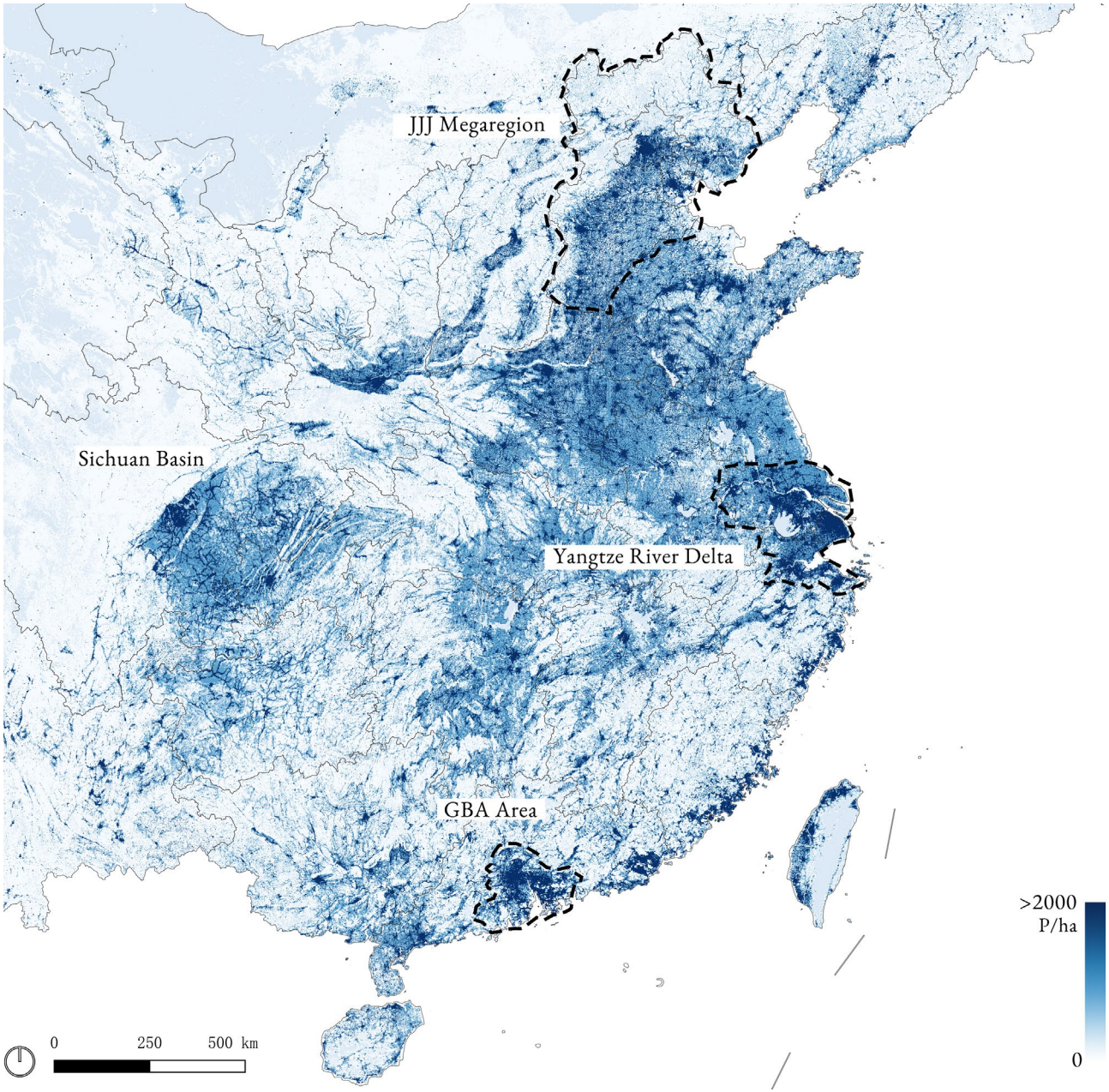


Figure 5 Population Desity in 2020
Source: Landscan dataset,2020

Industrial recession and enviromental problem

Air pollution, especially winter smog, became widely awarded in China in the 10s. As one of the most polluted areas, the government put much effort into improving the air quality in the JJJ area.

The cause of winter smog in the JJJ area is complex:

-The JJJ megaregion experienced rapid development after Reform and Opening up, and many high-polluted energy-dependent industries were located in this region. The consumption of fossil fuels, mainly coal, emits significant clouds of smoke.

-Winter is a period of intense fossil fuel usage for heating.

-The winter monsoon from West Siberia is blocked by Mount Taihang when reaching the JJJ area, causing stagnant, polluted air.*(Wu Yan, 2017)*

In the past two decades, Hebei province published many policies to optimize industry structure to meet the demand for carbon-neutral and air quality improvement. Take the "6643 projects" as an example; the aim is: By the end of 2017, steel production capacity will be cut by 60 million tons; By the end of 2017, using 2012 as a round figure, a net reduction of 40 million tons of coal consumption; During the 12th Five-Year Plan period, over 61 million tons of outdated cement production capacity and 36 million weight boxes of plate glass production capacity will be eliminated. According to official media, the target was exceeded in 2017.

Despite Hebei province's efforts, fossil fuel consumption is not obviously reduced, nor is the proportion of second industry (see fig. a). As early as the start of the 21st century, Beijing started to transfer the polluted industry out to prepare for the Olympics. As Municipalities directly under the Central Government, Beijing and Tianjin can effectively integrate and transform the industry. However, Hebei is continuously functioning as the loading area of the non-capital and low-wage industry. Thus the development lagged far behind. Mainly aiming at the protection of Beijing as the capital city while the benefit of Hebei is often ignored, the decentralization of city function is not a spontaneous economic behaviour but out of administrative power. Under this monocentric planning, the imbalance between Beijing, Tianjin and Hebei is exacerbated.

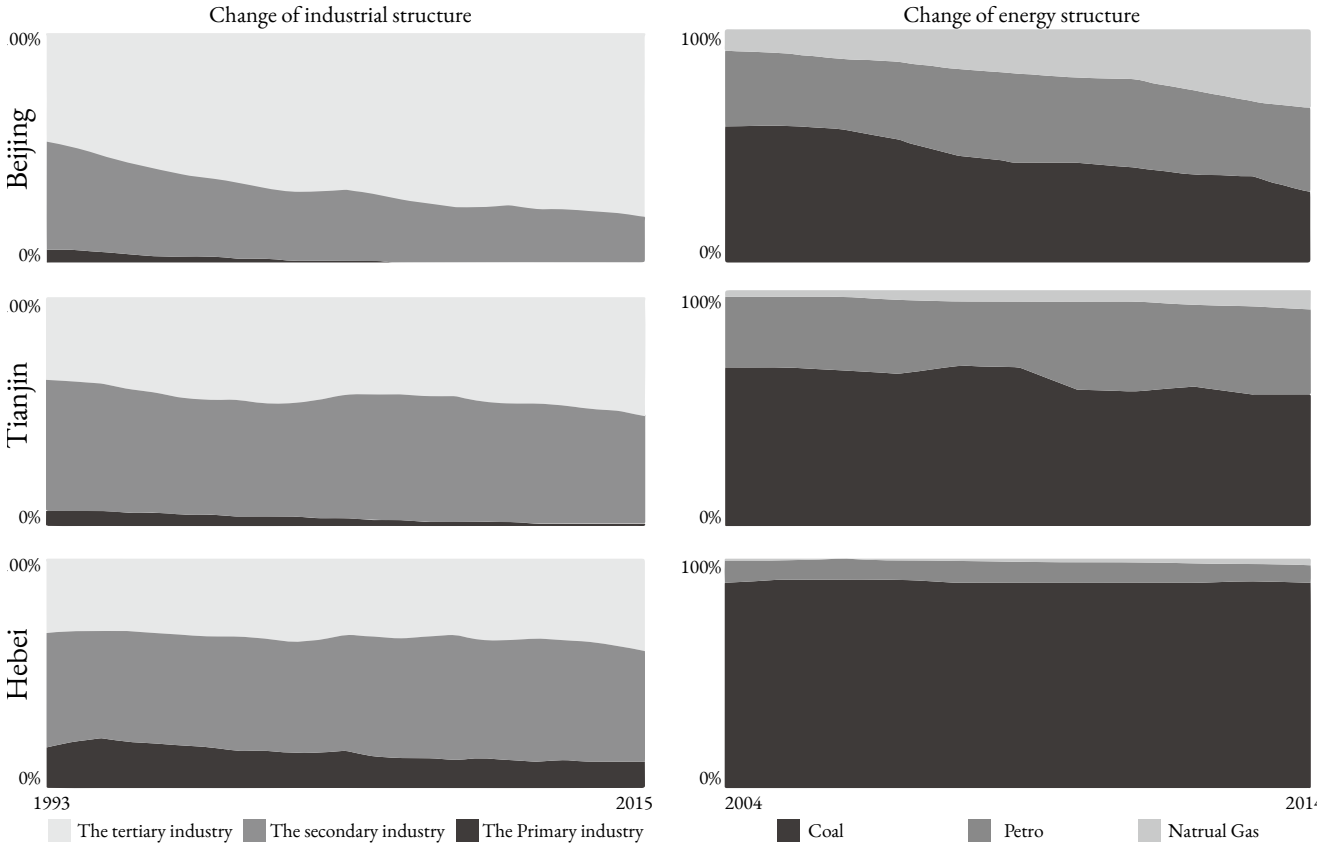


Figure 8 Change of industrial structure and energy structure of Hebei, Beijing and Tianjin
Source: Wu Yan.(2017).

Figure 6 Previous site of Shougang (Capital Steel and Iron Corporation), located in Shijingshan,Beijing, is now renovated as skiing course for Winter Olympic and opened to public.
https://news.cctv.com/2021/11/11/ARTI6F3RQOL2Qt5HMM9yETzb211111.shtml

Figure 7 New site of Shougang, located in Tangshan, Hebei, was put in service in 2019. Tangshan is one of the biggest steel and iron production hub in China since 60s last century.
http://www.xinhuanet.com/politics/2019-09/06/c_1124968927.htm

Water stress

The climate of North China plain is featured by intense rainfall in summer and very limited percipitation in winter and spring, which results in a historical water shortage in agriculture production. The saying " Spring rain is as dear as oil" describes the imbalance temporal distribution of percipitation. The rapid growth of population, the urban sprawl, the construction of resourvoirs and large amount of industrial water consumoption aggravated the water shortage.

The World Resources Institute scored the water risk with 13 indicators including water stress, water depletion, Interannual variability, seasonal variability, ground water table decline, riverine flood risk, coastal flood risk, drought risk, untreated connected wastewater, coastal eutrophication potential, drinking water, sanitation and peak reprisk country ESG risk index. Most basin in north China scored high risk or extremely high risk.*(WRI, 2020)*

In 2002, the construction of South-to-North Water Diversion Project started, aiming at transport water resources frmo wet area to dry area to relieve the water shortage. Both the middle route and east route pass North China plain. Until 2021, there are over 40 billion m^3 water transported through the South-to-North Water Diversion Project.

Figure 9 South-north water transfer project
Source: Office of the South-to-North Water Diversion Project Construction Committee, State Council, PRC.The South-to-North Water Diversion Project[J].Engineering,2016,2(3):265-267.

Figure 10 The dried Baiyangdian wetland(1996) Source:Xinhuashe
http://www.jjckb.cn/2019-05/31/c_138104434.htm

Figure 11 The dried Lotus pond(2007) Source: Xinhuashe
http://www.gov.cn/govweb/jrzg/2007-07/25/content_697166.htm

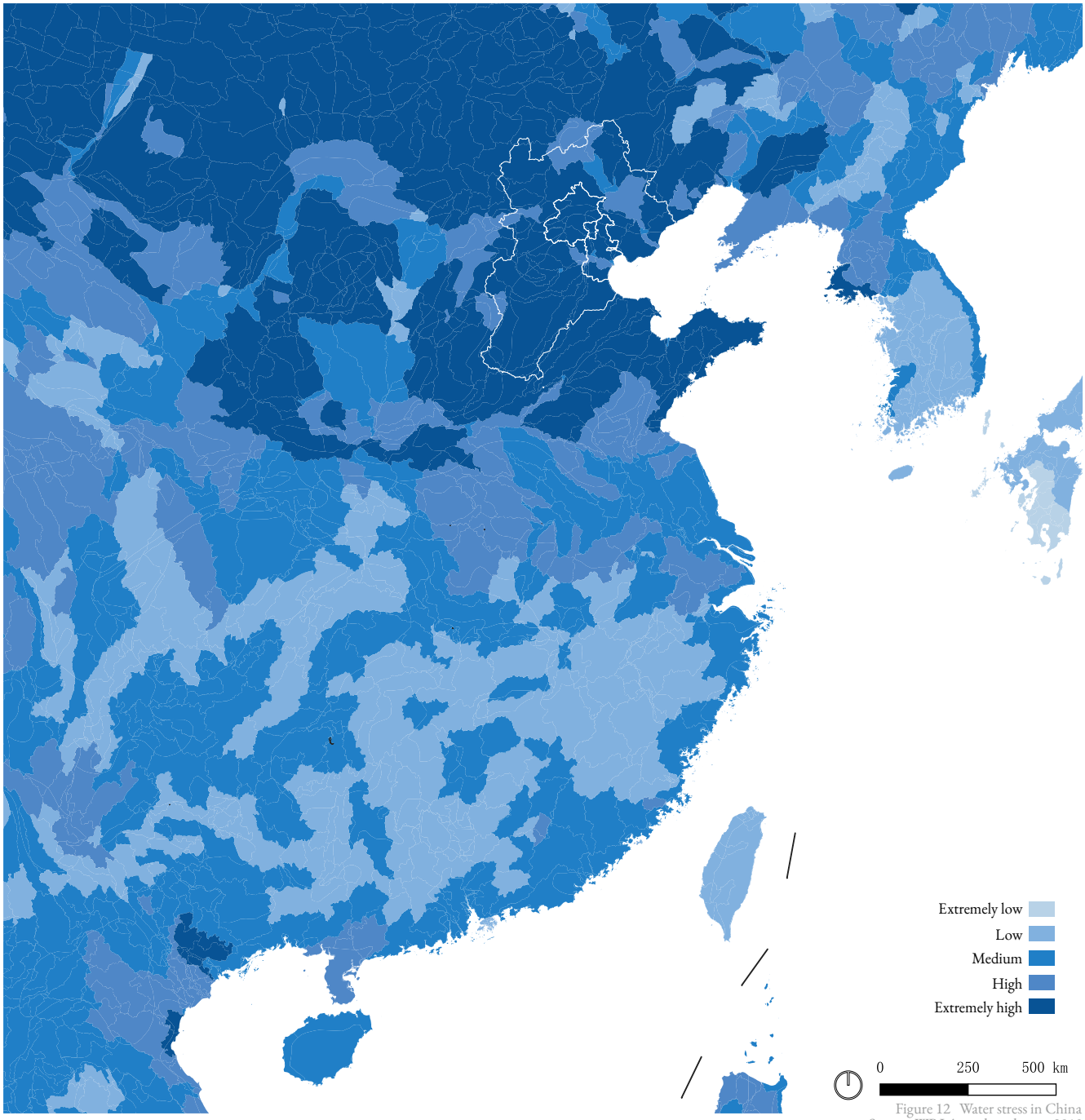


Figure 12 Water stress in China
Source: WRI Aqueduct dataset,2019

Baiyangdian Wetland and Xiong'an New Area

In 2017, The plan for Xiong'an New Area was published as one of the steering projects of Jing-Jin-Ji megaregion integration. The plan aims to "undertaking the relocation of non-capital functions in Beijing, identifying industrial development priorities, creating global innovation hubs, and improving the spatial distribution of industries" *(Interpretation of the planning outline of Xiong'an New Area,2018)*

Xiong'an was chosen because it is located in the middle area between Beijing, Tianjin and Shijiazhuang(the Capital of Hebei province). The adjacency provided a vision that the megaregion could be linked through this knot. Located in the centre of the New Area, the wetland was planned to be an Ecological reserved area.

However, under hundreds of years of cultivation, the Baiyangdian wetland is more than a wetland. It is highly participating in local production and is feeding the surrounding rural areas. Fishery and reed cultivation, two of the primary local industry, has supported the daily life of residents for hundreds of years, and their industrialized by-products such as reed mats, processed aquatic products, down jackets are already the backbone of the economy nowadays.

Therefore, loading those knowledge-based innovation industries brings a question: will they replace the current industries, or will they co-exist? If so, how?

The question is not answered yet in the current plan.

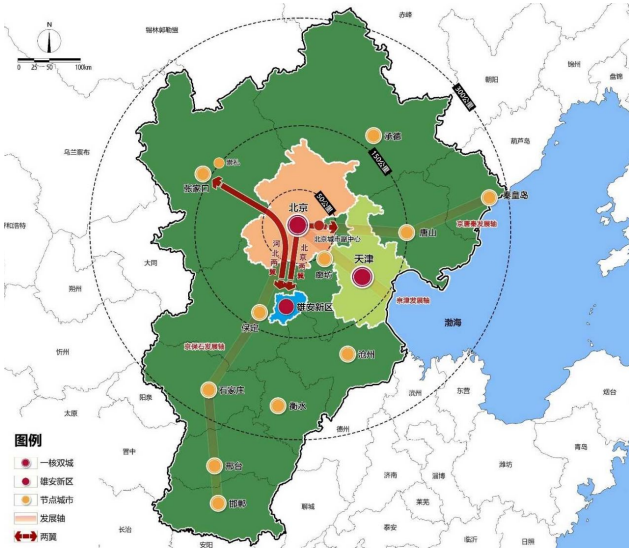


Figure 13 Plan of JJJ intergration. Source: Goverment information opening platform

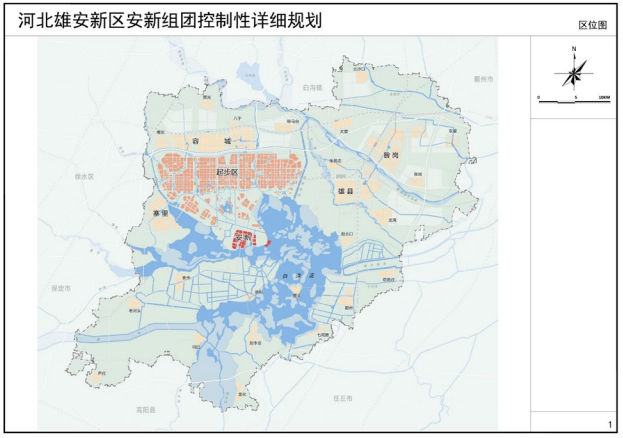


Figure 14 Plan of Xiong'an New Area.Source: Goverment information opening platform
http://www.xiongan.gov.cn/2021-07/15/c_1211241124.htm

Figure 15 Fishing in Baiyangdian
Source: Xiaohongshu@乐多

1.2 PROBLEMATIZATION

As mentioned above, urbanization in China, especially in North China, is not entirely a spontaneous economic phenomenon but is highly affected by political power. Monocentric planning creates the Siphon effect. The imbalanced source distribution results in the development gap between municipalities, and the development gap aggravated resource loss. High-quality education resources, healthcare resources and other services are not accessible to residents living outside the central cities.

While trying to load the functions released from the Capital, the traditional local production seems to lag far behind. In the plan of Xiong'an New Area, the Baiyangdian wetland is envisioned as a "green lung" of the city, providing a resilient area and ecological habitat, while the production function is ignored. However, the current condition of residents' education level and employment experience determines that most do not fit into advanced industries. More than 80% of local people think they are a risk of unemployment under the construction of Xiong'an New Area. *(YANG Ziye, etc,2022)*The planning and construction of Xiong'an New Area will inevitably lead to the adjustment and upgrading of the industrial structure, leading to the unemployment of the original manufacturing workers and land-lost farmers. This structural unemployment phenomenon is widespread and continuous.

Figure 16 Reed polders and fisherman. Source: Xinhuashe

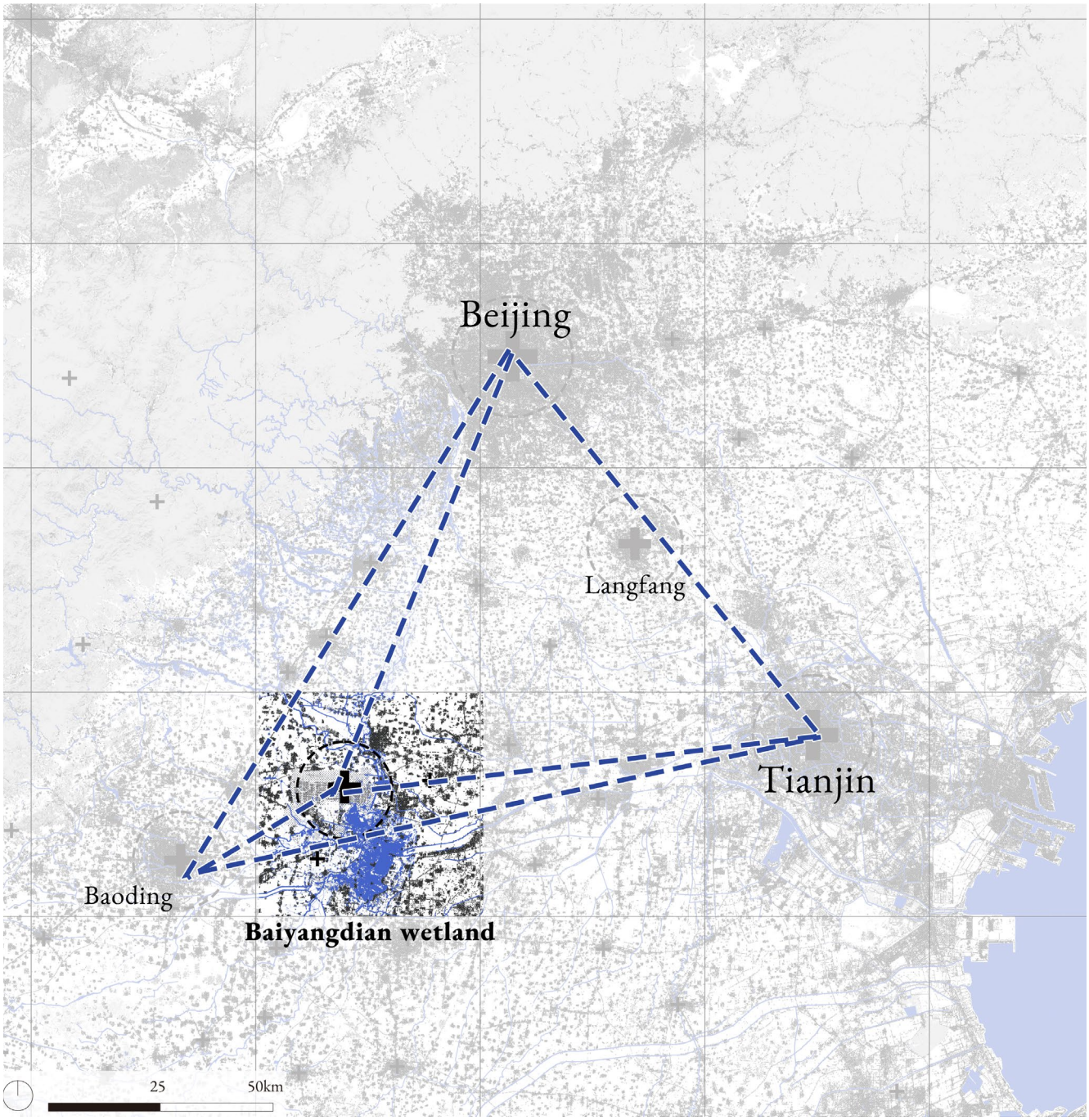


Figure 17 Spatial network of JJJ megaregion
Source: Landsat8 Dataset,2020

1.3 RESEARCH QUESTIONS

How can the productive water landscape of Baiyangdian be adapted to the rapid urbanization processes?

The research aims to investigate the urban-rural spectrum in the Jing-Jin-Ji megaregion, explore the potential of the traditional rural productive system as a participator in the urbanization process, and develop strategies for megaregion co-development in North China.

Sub-questions:

What is the water productive landscape in Baiyangdian area?

Interpret the natural condition and spatial quality of the wetland landscape; explain how local people cultivate the land; reveal the ecological and cultural value of the local wetland productive system.

What is the rural socio-economy structure in Baiyangdian area?

Contextualize the productive system; understand the market economic development of rural areas in modern times with the underpinning of Desakota; find potentials for industry upgradation and transformation.

What impact will the construction of the Xiong'an New Area have on the current rural development?

Investigate the current rural development policies and projects in China; investigate the construction conditions of the New Area and find the gaps between urban and rural areas.

What are the envisioned scenarios of agricultural transition in the Baiyangdian wetland area?

Explore the trends in an extreme way and evaluate the priority.

How can this transition be adapted to other areas in the Jing-Jin-Ji megaregion?

Develop a transferable mode for the megaregion.

上善若水，水善利万物而不争。

The highest good is like water, nourishing all things and not contending with them;

——《道德经》 老子

-- *Tao Te Ching*, Laozi

Source: Xiaohongshu @Rich's_Photograph

CHAPTER 2. METHDOLOGY

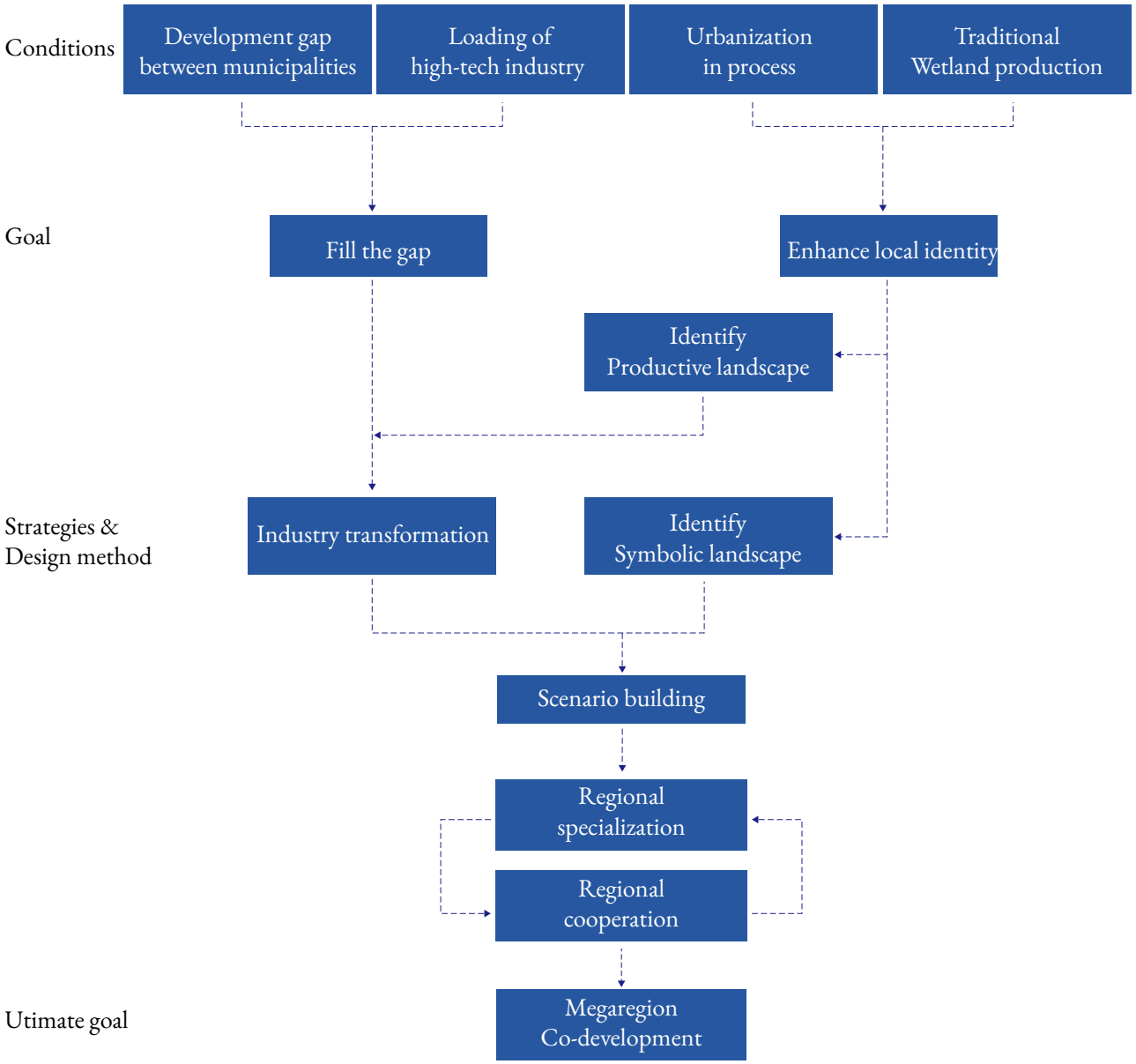
PROBLEM STATEMENT

Highly affected by The imbalanced source distribution results in the development gap between municipalities, and the development gap aggravated resource loss. *(WU Yan, 2017)*. The plan for Xiong'an New Area, as a steering project to promote the integrated development of the Jing-Jin-Ji megaregion, aims to "undertake the relocation of non-capital functions in Beijing, identifying industrial development priorities, creating global innovation hubs, and improving the spatial distribution of industries" *(Interpretation of the planning outline of Xiong'an New Area,2018)*.

However, under hundreds of years of cultivation, the Baiyangdian wetland is already highly participating in local production. Fishery and reed cultivation, two of the primary local industry, and their industrialized by-products are already the backbone of the local economy. The current condition of residents' education level and employment experience determines that most do not fit into advanced industries. The planning and construction of the Xiong'an New Area will inevitably lead to the adjustment and upgrading of the industrial structure, leading to the unemployment of the original manufacturing workers and land-lost farmers, and furthermore, create a hybrid area between the city and villages.

In the past several decades, such examples have been seen in China. The most well-known cases are the urban villages, where house renting turned villagers' living spaces into their "productive spaces" in urbanization. However, such transformation is a particular product of the game in a particular era when urban and rural were dichotomous*(Quan Le, 2015)*. A more adaptive and transferrable solution is needed for the in-between area. While Chinese urbanists became aware that urban and rural are interlocked, the "in-between area" definition is vague. Hence studies mainly focused on revealing the phenomenon instead of development strategies.

CONCEPTUAL FRAMEWORK



THEORATICAL FRAMEWORK

Rural foundation of China

As an agrarian civilization, Chinese society is highly attached to the soil*(Fei Xiaotong, 1992)*. Even in the time of urbanization, the spirit can still be found in modern society. Experienced an explosion of city expansion, Chinese urbanists is now seeking a balance between urban and rural development.

In sociology, Urbanity and Rurality are defined as a pair of opposite concepts. Urbanity usually refers to heterogeneity, high mobility and regionality. Rurality, in contrast, refers to homogeneity, immobility and consanguinity*(Fei Xiaotong, 1992)*. However, the distinction between urban and rural areas is becoming vague after the Reform and opening up. Villages are engaged in cities and affect the cities.

Productive landscape & Symbolic landscape

The Asian history of cultivation determines that rural and urban are physically and symbolically linked to water management.

In rural areas, hydrological projects such as irrigation techniques are the basis of agriculture works and, in turn, stimulate the worship of land and water*(Shannon,K. 1995)*. Naturally, the imitation and interpretation of nature became a heading philosophy in ancient east Asia. Manifested by intensive cultivation, the "idyllic scenery" is widely permeated into the landscape creation and even derived into the gardening style's main image and aesthetic taste*(ZHOU Weiquan,2008)*.

The principle of *Symbolizing and Modeling Heaven and Earth* (法天象地 Fa Tian Xiang Di) depicts how this philosophy is implied in ancient urban design*(Wang, R., & Hein, C. 2022)*. It has become one of the basic spirits of Chinese traditional culture after being enriched and systematized by philosophers of successive dynasties, and guided Chinese building environment towards the direction of symbolic landscape.

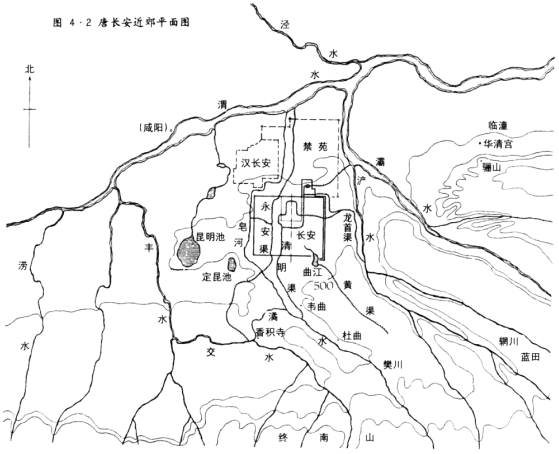


Figure 18 River map of Tang Chang'an city
Source:Wang, R., & Hein, C. 2022

Resilience

Resilience is the ability of a system to absorb disturbance and still retain its basic function and structure*(Walker and Salt, 2006)*. In the field of urban planning and design, resilience refers to not only landscape resilience, but also society and economy resilience. An adaptive approach is required for cities as a dynamic, self-organizing system*(Ahern, J,2013)*.

Desakota in North China

The idea of desakota, combined from Indonesian "desa"(village) and "kota"(city), was put forward by T.G. McGee in the 90s to describe the in-between area of urban and rural, specifically in the Asian context. Different from the Western paradigm of urbanization, the rural area in East Asia and Southeast Asia is usually highly densified, and multiple households usually group communities. The foundation of agrarian society in China decided that urban and rural are juxtaposed in terms of civilization, demographic density and industrial structure. Therefore, "the concept of 'urban transition' needs to be positioned within a broader paradigm of the transition in the space-economy of countries"*(McGee,1995)*, which is desakota.

In McGee's urban-rural paradigm, space was categorized into an urban-rural spectrum, from major central cities to remote hinterlands. Desakota is the area that extends along communication routes between cities and is characterized by intense labour force engagement in both agriculture and non-agriculture activities.

The dramatic economic growth in the past 40 years saw the desakota region of China majorly featured by a significant change in industrial structure. Take Anxin County as an example. The primary industry increased though the portion it takes in the total production value decreased.

Zooming in on the North China plain, the settlement structure presents a clear network: the flat terrain enabled the evenly distributed villages and chessboard-like infrastructures.

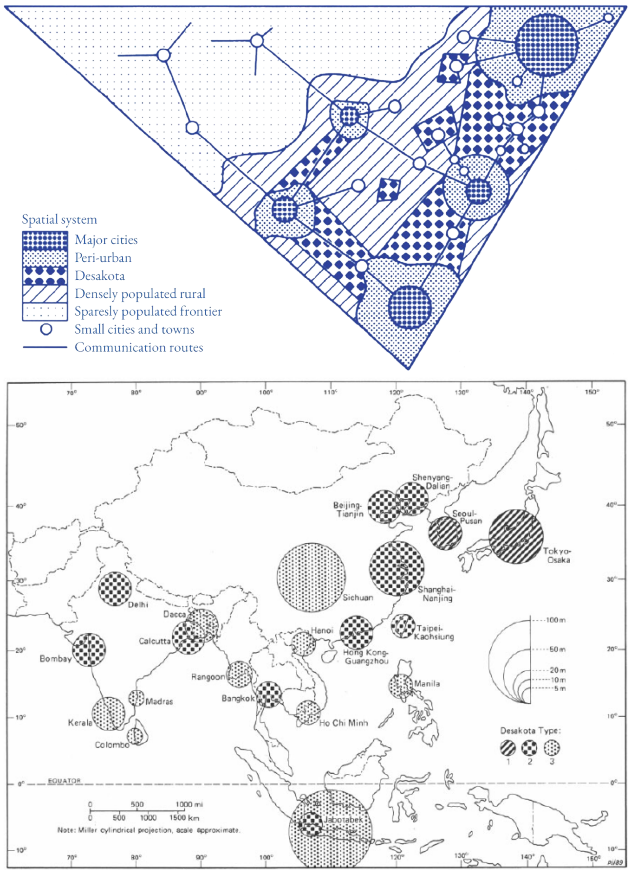


Figure 19 Desakota paradigm
Source: McGee, 1995

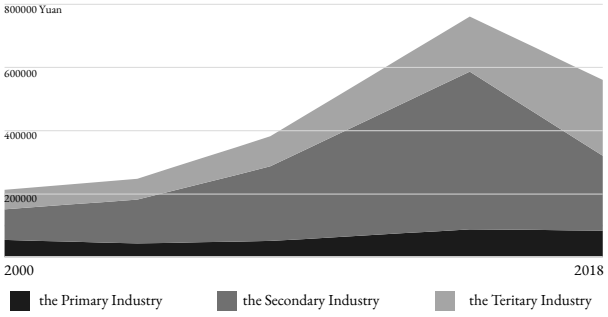


Figure 20 Gross production value of Anxin county
Source: Baoding economic yearbook

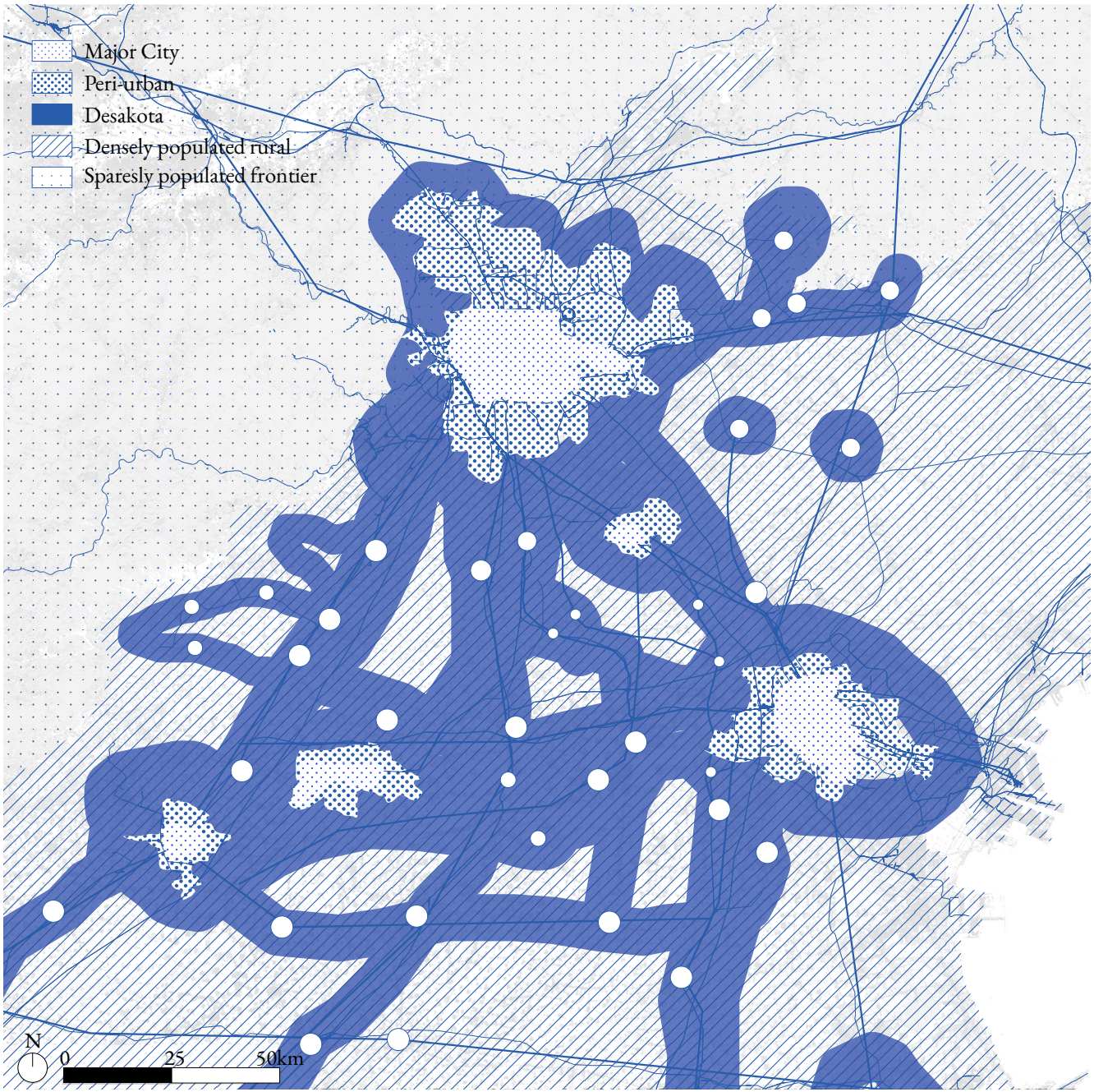


Figure 21 Desakota in North China Plain

RESEARCH METHOD

Mapping

Mapping is a method to define and represent the territory by bounding and visualizing*(James Corner,1999)*. It aims to understand the geology, landscape, settlement and production layer by layer, thereby building the spatial structure of ecology, society, economy and history and depicting the conflicts and potential. A holistic understanding of the system is possible by mapping through scales from macro to micro.

Most of the maps shown in the report are generated by the author in QGIS and ArcGIS. The database includes the National Cryosphere Desert Data Center; Geospatial Data Cloud site, Computer Network Information Center, Chinese Academy of Sciences; Open Street Map; Google Earth; etc. Mapping is done on the scale of macro(the JJJ megaregion), meso(the Baiyangdian wetland), and micro(Anxin county).

Fieldwork

Due to the covid in China, the on-site field trip will be finished after P2. Fieldtrip is a crucial method to build an intuitionistic understanding of the site in terms of scales, vegetation, local activities, etc. Also, it is the easiest way of making connections with local people.

Literature review

Literature includes articles, books, papers and policy reports.

Reviewing academic publications aims to frame the problems and current situations theoretically. Besides the urbanism and landscape architecture literature, sociology and economy work also help to build an understanding of the research topic.

Chronics and yearbooks are also important literature to depict the area's development. The primary source is the CNKI database.

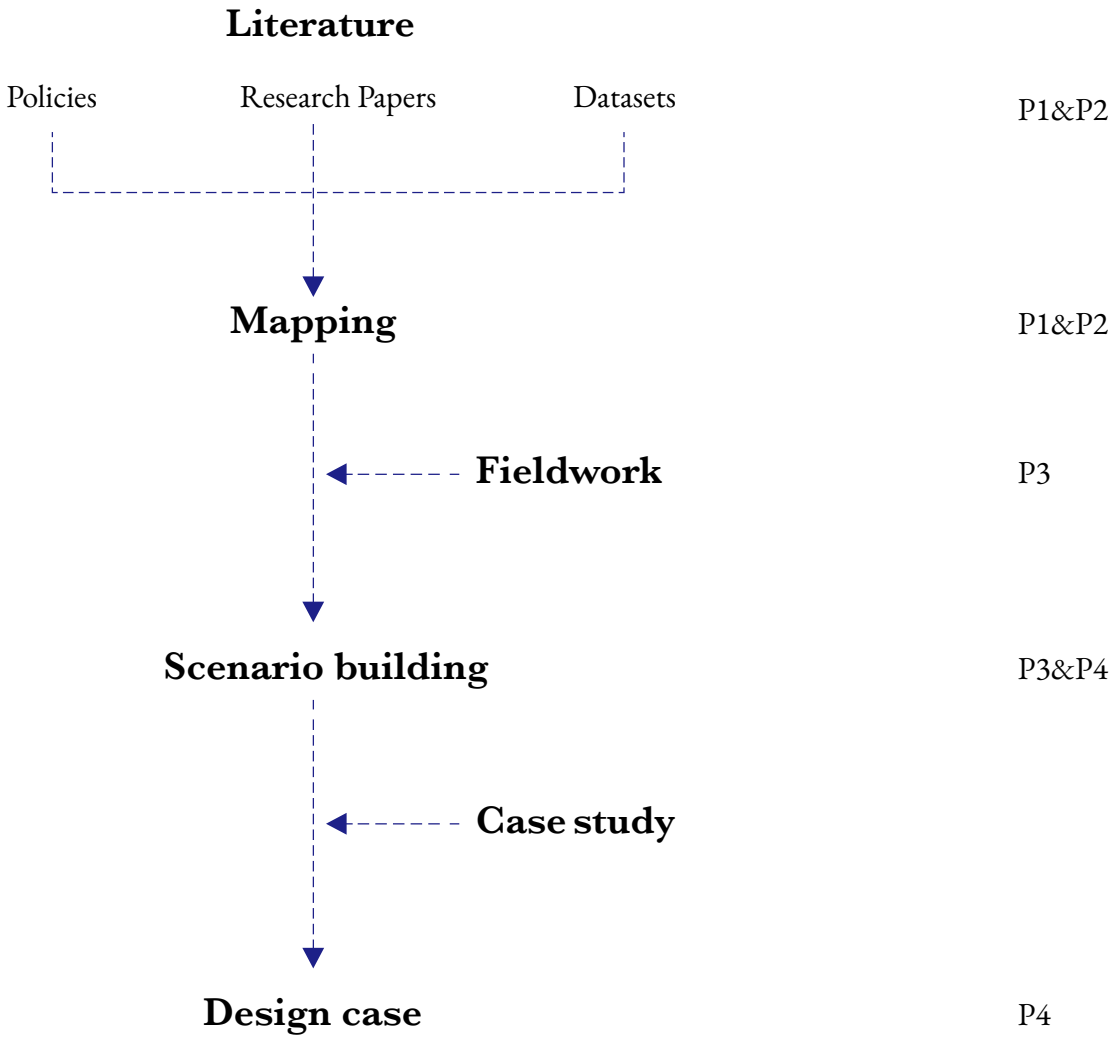
Reviewing the policy helps to link top-down planning and bottom-up designs. The main source of policies includes the Xiong'an government website, where regulatory plans are published.

Scenario building

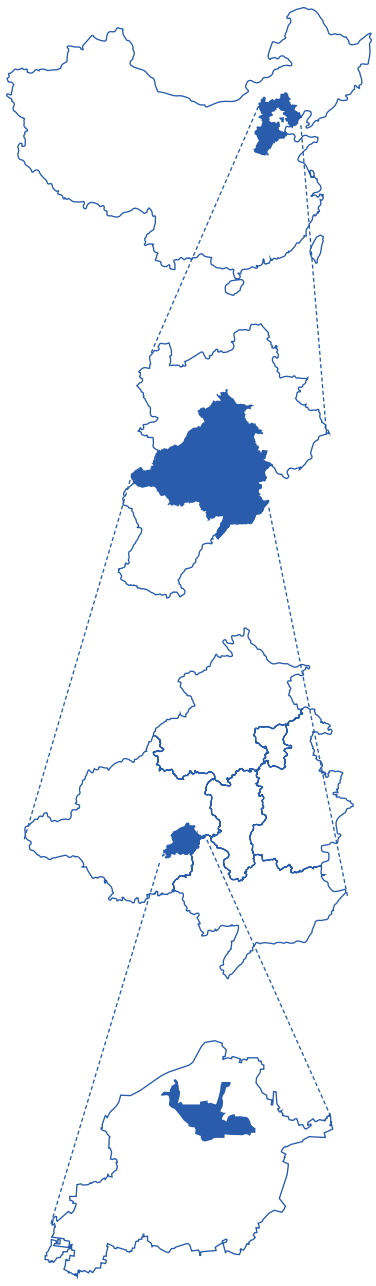
Scenario building is a method to investigate the potential outcomes of various hypothetical future scenarios. These outcomes arise from sequences, actions, and decisions occurring over different periods. As a research-by-design approach, scenario building prompts the exploration of "What if" scenarios to illustrate projected trends. In the context of the thesis, scenario building serves to formulate planning strategies and assess their adaptability. By envisioning and evaluating multiple scenarios, this method aids in understanding the potential implications of different choices and assists in shaping flexible and responsive planning approaches.

Case study

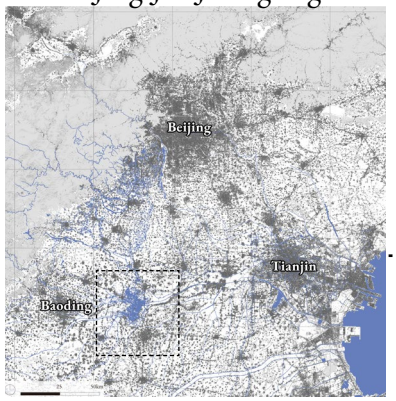
Before implementing the developed strategies in the final design, conducting case studies helps explore their adaptability within a broader context. Additionally, these studies enable the examination of the synergy and potential conflicts between the strategies. This comprehensive assessment ensures that the strategies align with the specific requirements and goals of the project, fostering a more informed and integrated design approach.


Literature
Policies
Research Papers
Datasets
P1&P2
Mapping
P1&P2
Fieldwork
P3
Scenario building
P3&P4
Case study
Design case
P4

Defining the scale

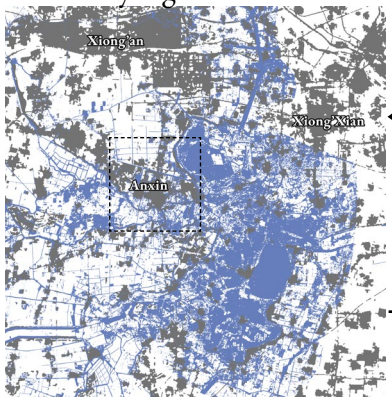


Macro Jing-Jin-Ji megaregion



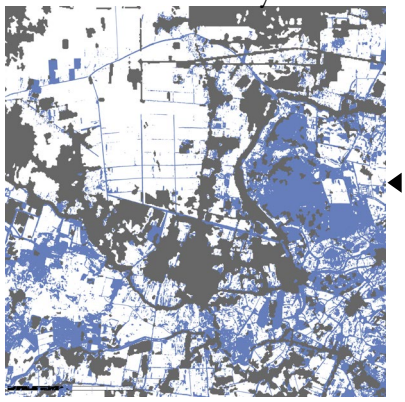
The research about Jing-Jin-Ji megaregion provide an understanding about the context in terms of policy, governance, culture and socio-economy. The triangle area between Beijing, Tianjin and Baoding is the central area of JJJ megaregion, the historical area of ecnomy network in North China plain, and the pilot area of new economy planning. Thus this is a suitble example for further exploration about the culture coherece and governmental seperation.

Meso Baiyangdian wetland



Baiyangdian wetland is the core conflicting area between planned new city and traditional agriculture production. The local reed-fishing production culture is highly impacted by the modernisation and urbanization, and the plan of Xiong'an new area seems both a threaten and an opportunity

Micro Anxin County



Anxin county is the representative area of wetland production. The fishery industry and other subsidiary industry take a large porpotion of local production value. Meanwhile, this is one of the intergrated county in Xiong'an New area.

Source: Landsat8 Dataset,2020

Relevance

Scientific relevance

The research about the Baiyangdian wetland mainly focuses on ecological security, including hydrodynamic research, eutrophication improvement solutions, flora and fauna distribution, etc. These researches provide a stable foundation for further research about building ecological-friendly urbanization.

Since the 90s, while Chinese urbanists and planners have been aware of the urban-rural dichotomy and Chinese culture gene in the built environment, most research concentrates on revealing and describing phenomena. Research focusing on strategy development is relatively insufficient.

Societal relevance

The villages (and the desakota area) are the foundation of Chinese society and have a critical role in China's urban-rural spectrum. Although China is already the second-largest economy in the world, rural residents are still vulnerable. The research about desakota explores the resilience of rural areas ecologically and economically and provides scope for urban-rural development in China.

自然赠予你

Nature gives you

树冠、微风、肩头的暴雨

crown, breeze, rainstorm on the shoulder;

片刻后生成

genarates later

平衡、忠诚、不息的身体

balanced, loyal, ceaseless body

——《山雀》万能青年旅店

-- *Titmouse*, Omnipotent Youth Society

Source: Xiaohongshu @Rich's_Photograph

CHAPTER 3.
READ THE WETLAND

3.1 Geological Formation

The Taihang Mountains are essential geographical boundary in eastern China. The North China Plain in the east is a deciduous broad-leaved forest zone, while the Loess Plateau in the west is a forest-steppe zone and steppe zone. The vegetation and soil vertical zone characteristics on both sides are significantly different. The vegetation is mostly shrub and summer green forest in low altitudes and coniferous forest or grassland in the middle and high altitudes.

Mountain Area

The alluviation from the Mountains creates a fertile plain favourable for crops. North China plain is one of the primary production areas of summer maize and winter wheat in China, while cash crops such as cotton, peanuts and tobacco are also widely cultivated. Crops are replacing most native vegetation, and the meadow vegetation of Gramineae, Compositae, Polygonaceae and Chenopodium dominate the field roadside in the vast plain.

Plain Area

As a sub-basin of the Hai River, the Baiyangdian wetland is located at the fan margin depression at the intersection of alluvial fans of Yongding River and Hutuo River in front of Taihang Mountain. Nine large rivers, such as Puhe River, Tang River and Caohe River, enter the lake from the north, west and south, and flow into the Daqing River through the spillway gate and overflow weir in the northeast of the lake.

Wetland Area

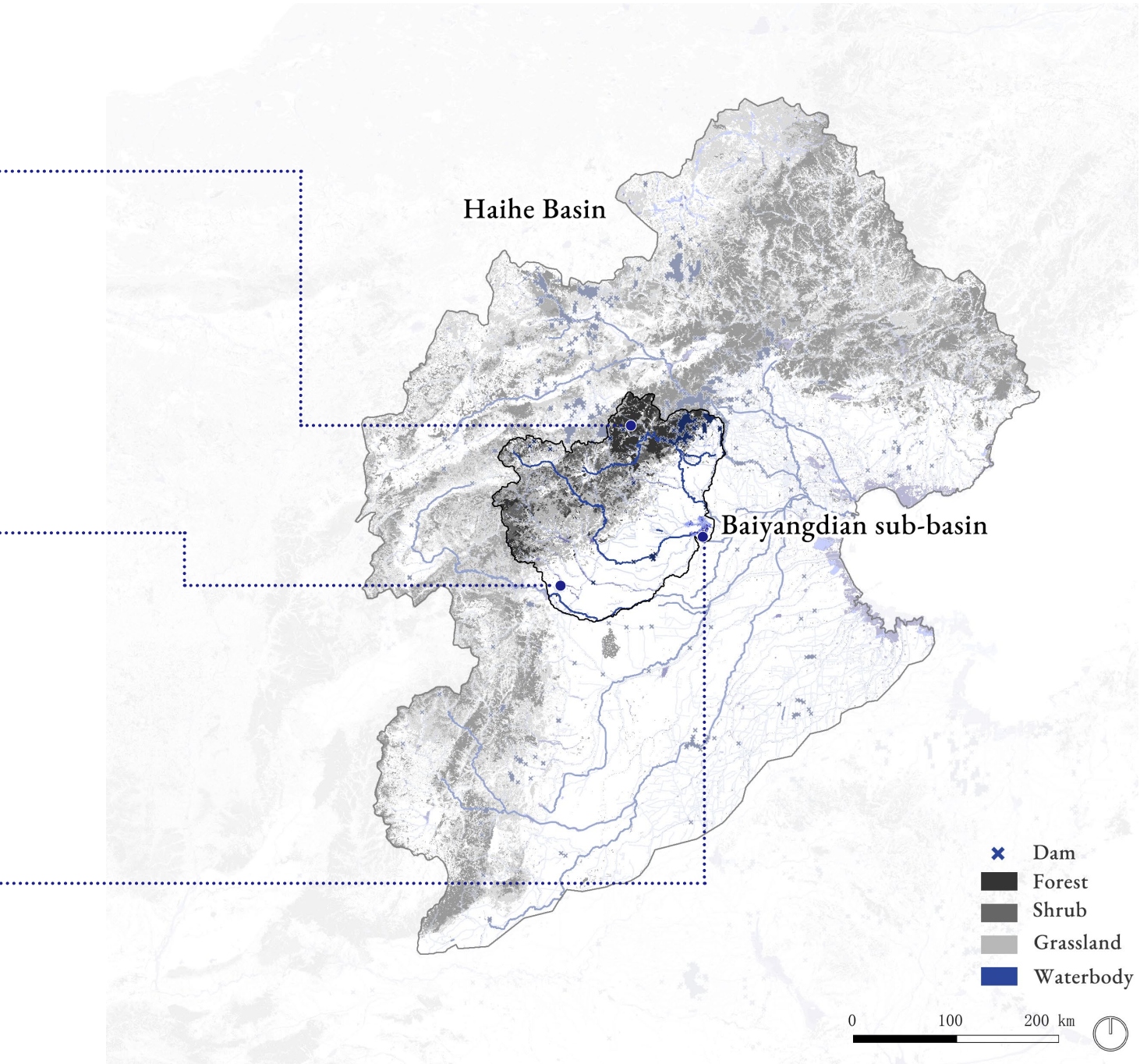


Figure 22 Geology of North China Plain
Source: Landsat8 Dataset,2020

In the late Early Holocene, the moist and hot air mass from the southeast increased rainfall in North China and caused the rise of lakes and wetlands. During the Middle Holocene, the Marine erosion in the eastern plain aggravated, resulting in the slow land slope and the significant expansion of the lake area. During the Late Holocene, the climate was cooler and drier, which led to the rapid shrinkage and disintegration of the lake, forming the Baiyangdian wetland and the surrounding lakes*(WANG Huichang,1983)*.

According to archaeological findings, human activities first appeared in the northern area of the lake and gradually migrated east, west and south as the lake shrank. In the Late Holocene, namely the Chun Qiu Zhan Guo Period in Chinese history(around BC 1000-BC 221), human beings settled in the North China Plain. Since the Qin and Han Dynasties, a large number of cities and military defence projects began to be constructed here. Human activities also caused vegetation destruction, soil erosion, sediment deposition and other consequences, further aggravating the disintegration and extinction of the lake and forming today's Baiyangdian wetland.

The percipitation in North China plain presents the charcter of spatiotemporal variation. The summer monsoon comes from southeast brings intense rainfall between June and August, sometimes results in flood in especially mountain foot area. The rainfall and heat occuring in the same period provide an advantage for the growth of summer crop such as maize *(Wang,W.Tang.S.,Han,H,& XuY, 2022)* Meanwhile the whole winter and spring shares a very limited percipitation. The winter monsoon comes from Mongolia pleatue is mostly blocked by Taihang mountain, creats a weak wind domained area in central plain.

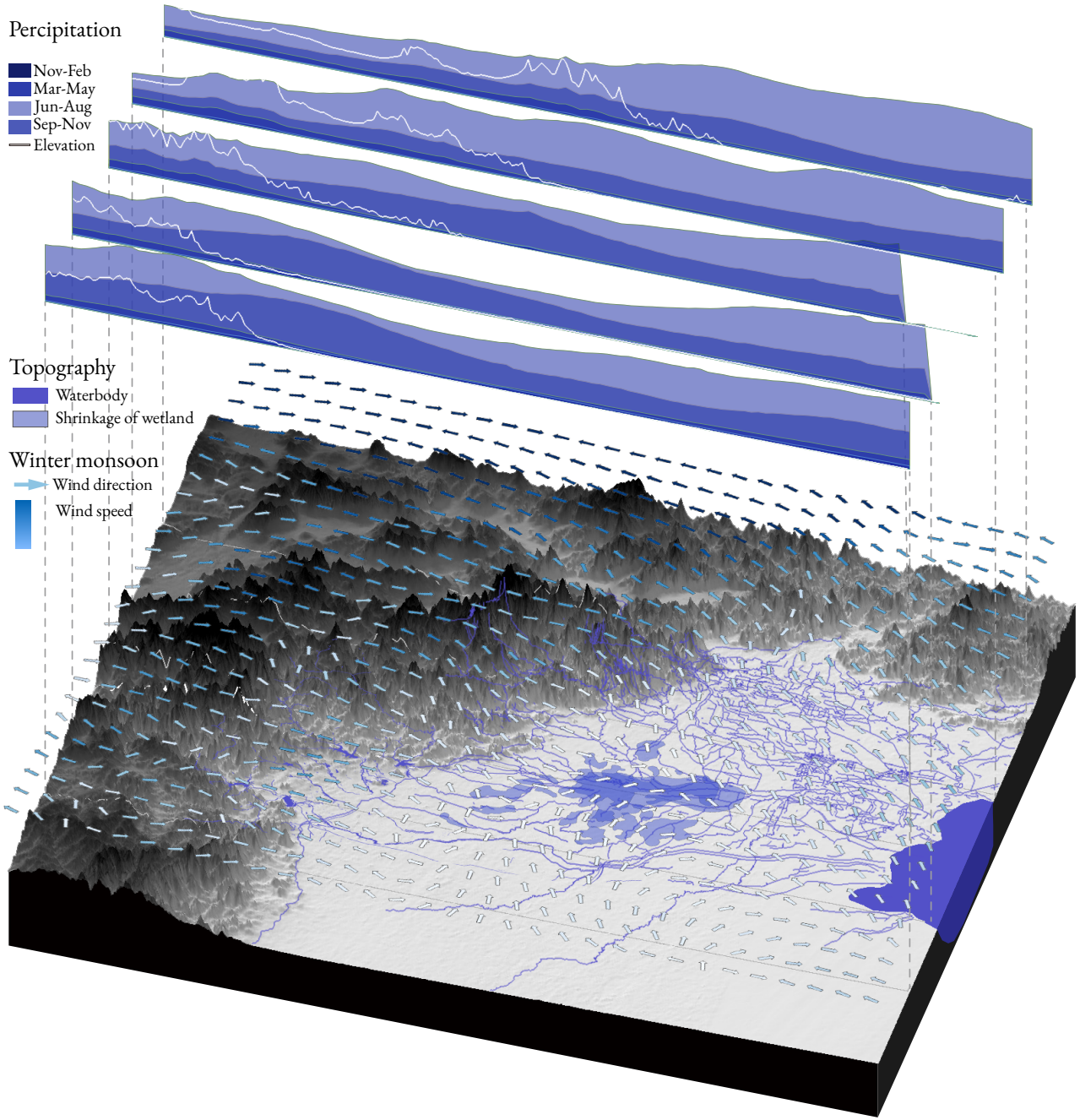


Figure 23 Climateof North China Plain
Source: DEM Dataset,2009;ERA5 Dataset,2022

3.2 Landscape system

The spatiotemporal variation of climate creates landscape change. Summer is the intense period for vegetation growth and animal breeding and also the most ecologically sensitive period (*LIU Yushan. etc, 2021).*

The natural vegetation of Baiyangdian Lake is mainly aquatic, including 371 species of seed plants and 39 species of aquatic plants. The seed plants included 396 angiosperms and two gymnosperms. The primary aquatic plants include reed, Polygonum Aquatica, small rush, etc. Various aquatic plants' intermingled and intercalated growth is widespread, without apparent boundaries. The phytoplankton is the dominant group of Chlorophyta*(Wang, F.. Wang, X.,& Zhao, Y.,2021).*

Lies on one of the migration routes of the East Asia-Australia migration zone, the wetland provides a wintering ground for many kinds of birds. In terms of bird residency, there include summer migratory birds(more than 34 species), winter migratory birds (more than 1 species) and sedentary birds(more than 20 species)*(WANG Yihong.etc, 2018).*

Since 2019, the fishing moratorium has been implemented in wetland areas and adjacent natural water body each year from May to July, during which time destructive fishing is forbidden.

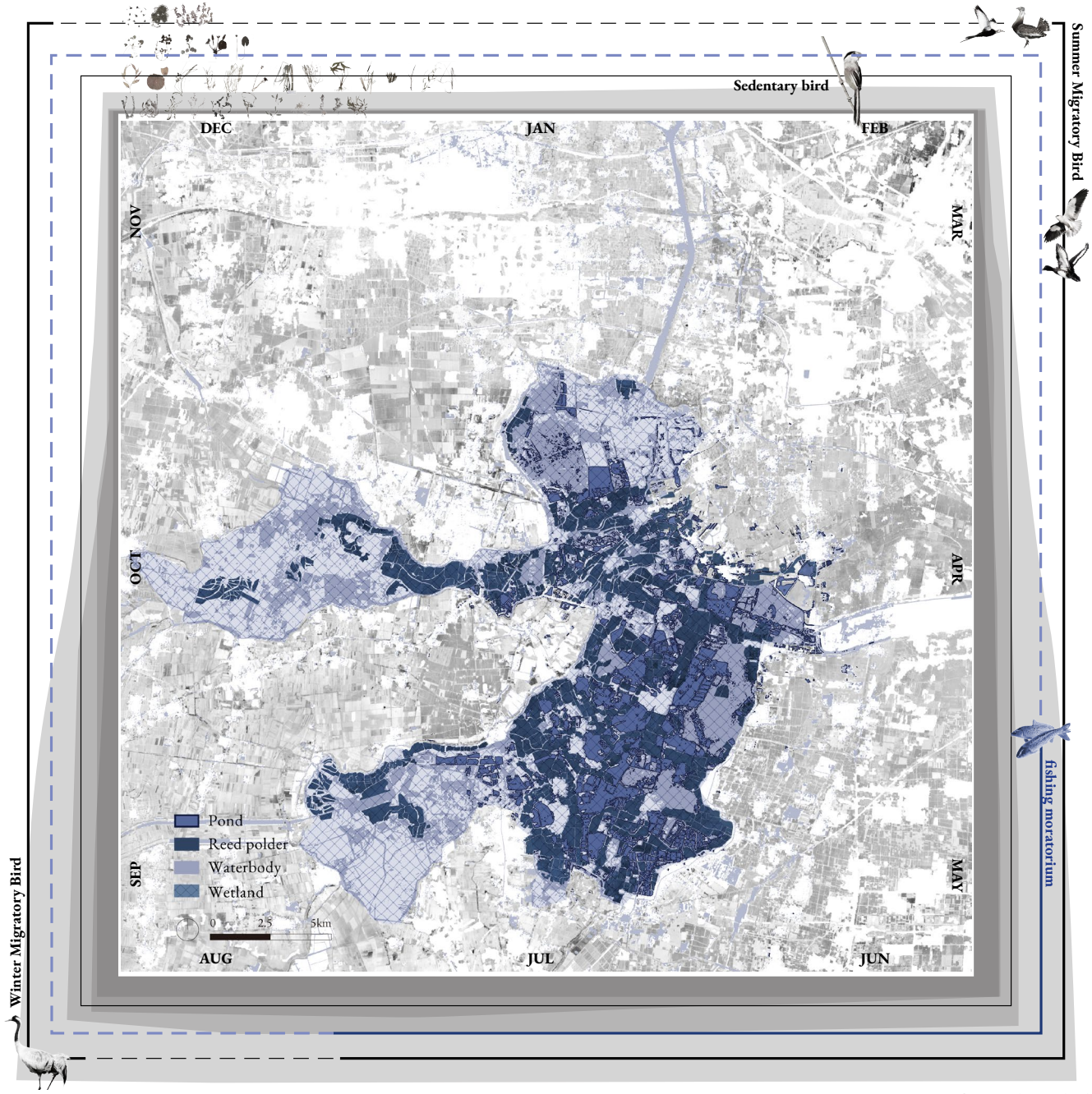


Figure 24 Eco system of Baiyangdian wetland
Source: Landsat 8 Dataset,2020;Google Satellite,2022

3.3 Wa Dian Settlements

Wā Diàn

洼 淀

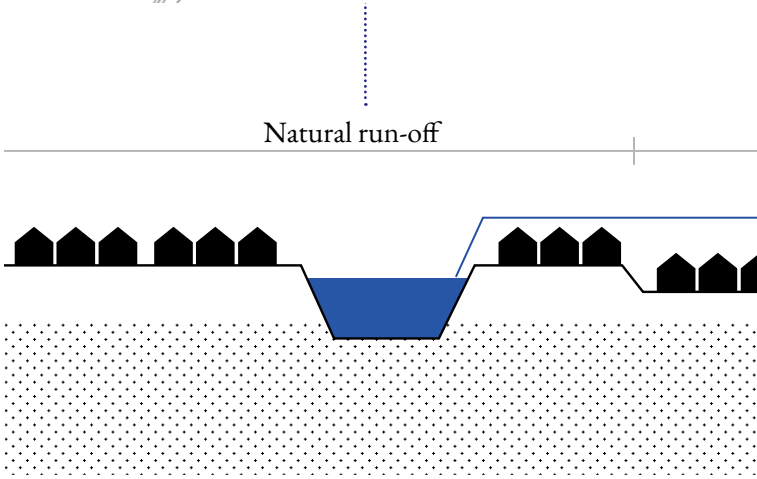
Depressions Marsh

洼*Wā* and 淀*Diàn* are both common words in the place name of North China, referring to the depression area with agglomeration of shallow lakes. The hydaulic engineering project in this area can be dated back to Qin Dynasty(around 200BC), and was extremely accelareted in Qing Dynasty(around 1700AD), in corresponding with the population boom*(GUO Fang, 2020)*. The dam divided the wetland into two kinds of landfrom in different elevation: water area and low land area*(HE Ding.etc, 2019)*.

The water area consist 37 shallow lakes and more than 3,000 ditches. Connected with other rivers, this is part of the water transportation network in North China and the base of fishery and reed economy as well.

The low land area is both farmland and flood discharging area. In normalcy people cultivated inside the dam, and in flooding time this area provide a buffer zone for retention and dischargement. This periodic change of flood and drought results in the salinazation of soil, thus sewage and irratation system is espcially emphaized.

The landform of Baiyangdian wetland is greatly changed because of hydaulic engineering and cultivation in Qing Dynasty. According to the historical record, the area of wetland reduced by 90% from Shunzhi period(1644AD) to Guangxu period(1881AD), due to th filling of the lake*(HE Ding. etc, 2019)*.



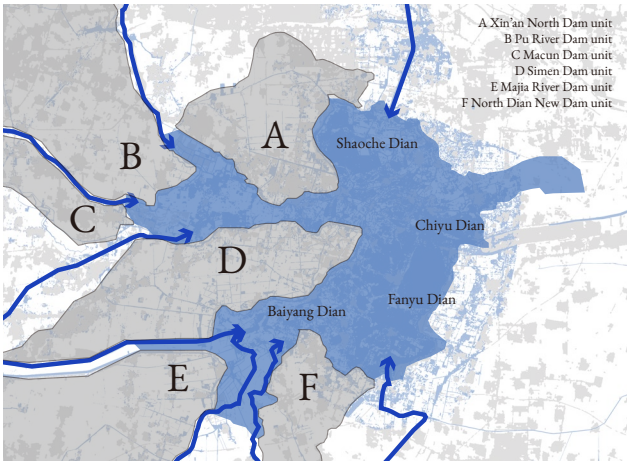


Figure 26 Low-lying land unit in Baiyangdian wetland
Adapted based on D.He,2019

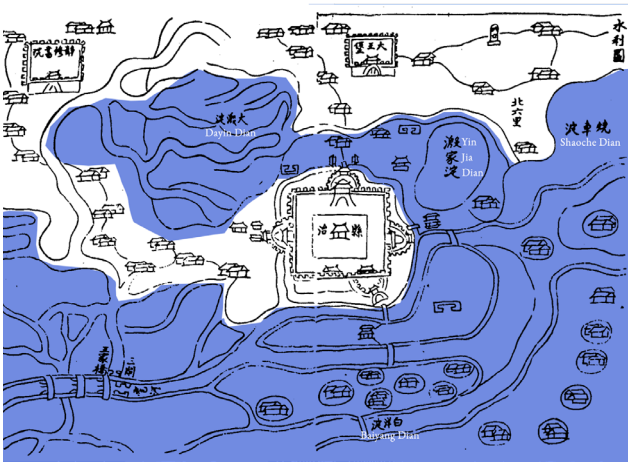
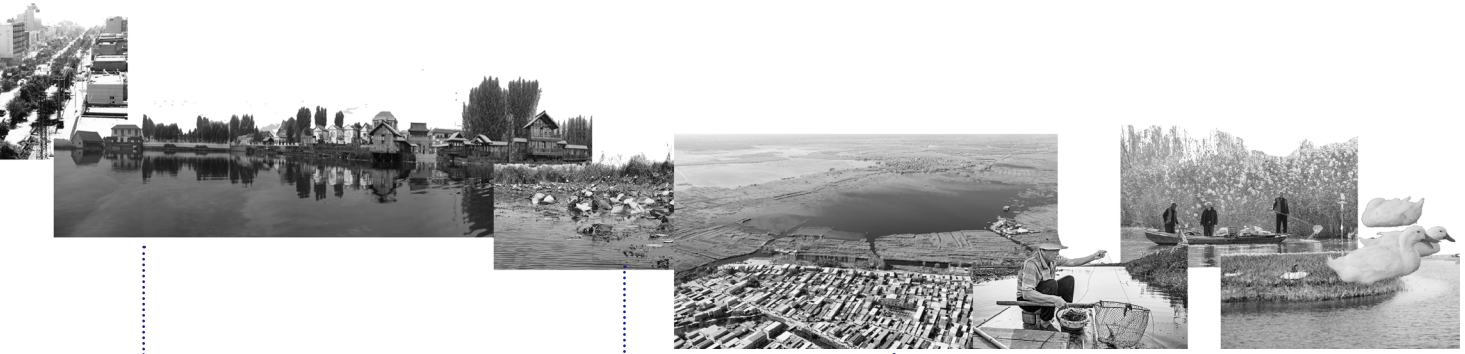


Figure 25 Hydaulic map in Qing Dynasty(adapted by the author)
Source: Chronicles of Anxin



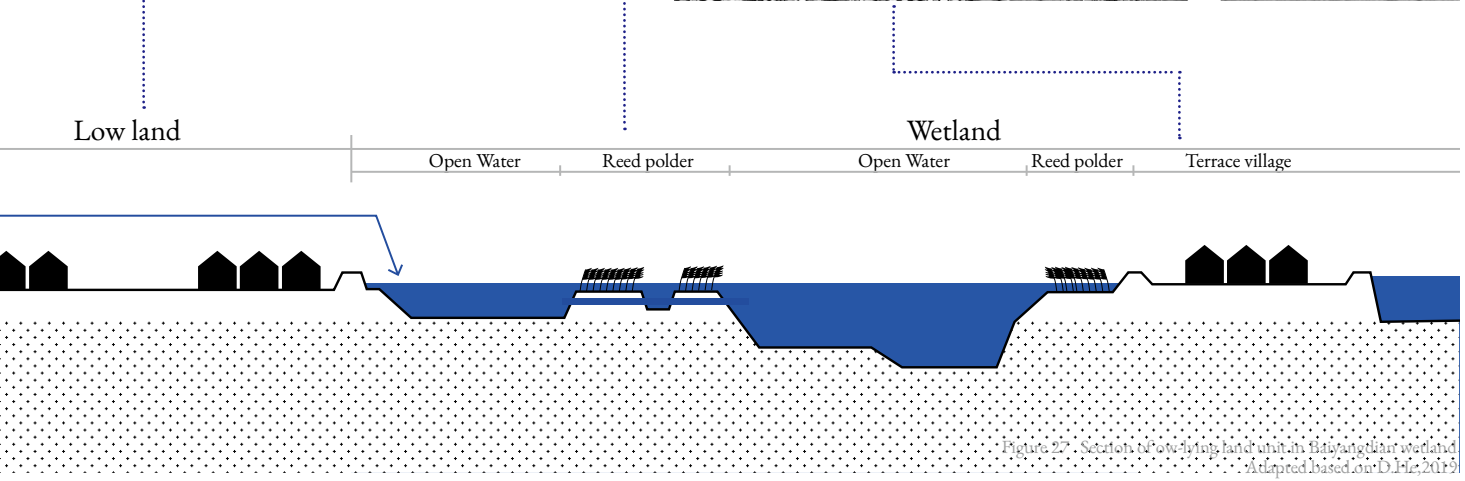


Figure 27 Section of low-lying land unit in Baiyangdian wetland
Adapted based on D.He,2019

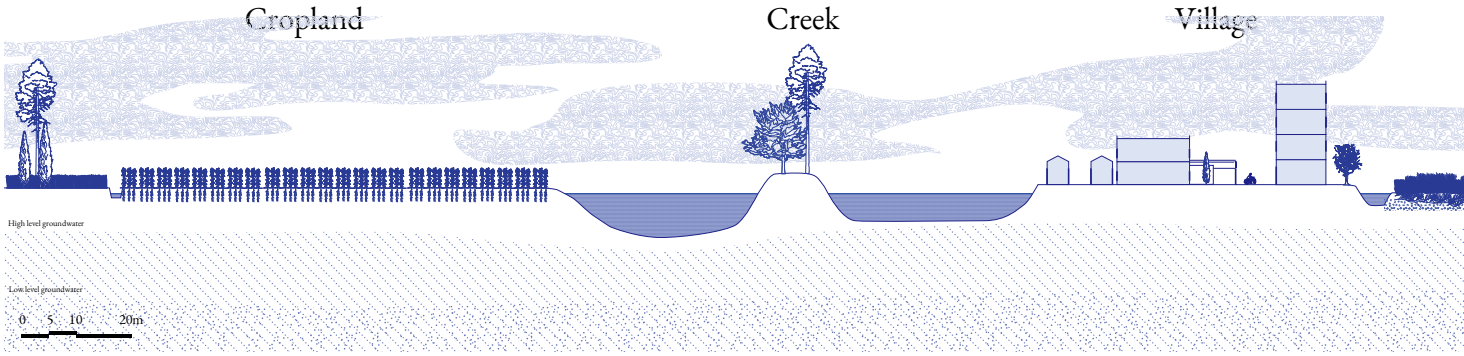
Primary Industry

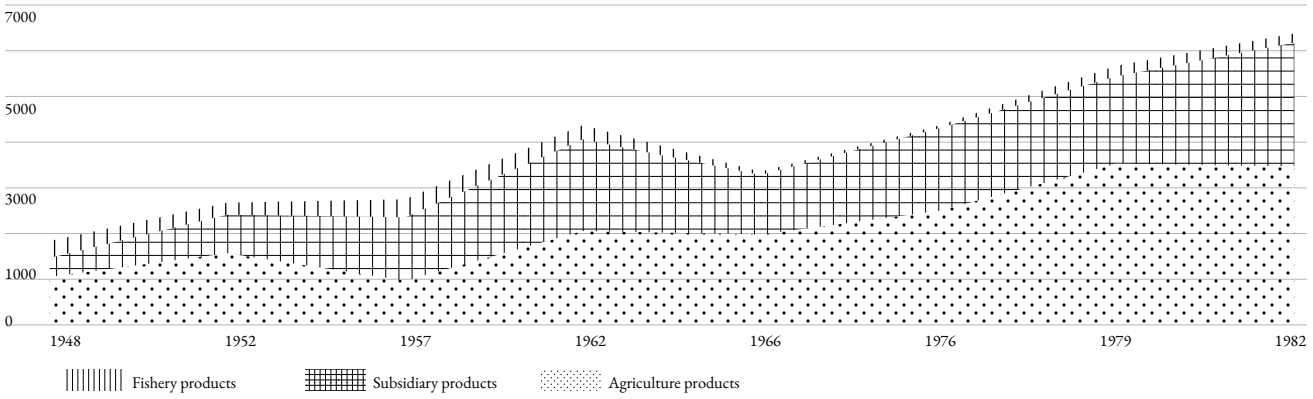
The primary industry in wetland areas consists of three primary components: agriculture, fisheries and subsidiary production.

Due to the frequent flood and drought, agricultural production in the wetland area was relatively backward compared to other areas in North China plain before the 80s, which is the main reason fishery-reed production became the economic backbone in the Baiyangdian area. Thanks to the construction of the hydraulic engineering project and the application of modern techniques, agricultural production snowballed.

Since Qing Dynasty, fisheries production in Baiyangdian wetland has been mainly fishing. Aquaculture took only a limited proportion. Before the Marco Polo Bridge Incident in 1937, during which Japan invaded Beijing, the fish exported to Beijing, Tianjin and Baoding counted as many as 7,500 kilos daily in peak season. The fishery development promoted the development of the regional economy. Several important fishing ports appeared, which are output hubs and important commodity distributing centres. The fishery development has also led to the prosperity of related industries, such as shipbuilding and weaving. The proportion of aquaculture raise since the 80s. Most of the water area is contracted to fishery households now; the public water area is limited.

Subsidiary products includes poultry raising, livestock raising, reed mat weaving, etc., among which reed mat weaving takes the most significant proportion in production value. The reed mat business was developed in Qing Dynasty and peaked in the late 19th century and early 20th century. At that time, it took more than two-thirds of the income of wetland residents*(SHU Wei, 2009)*. The reed mat in Baiyangdian serves the surrounding area and is sold to Beijing, Tianjin, northeast China, and far abroad. After the invasion of Japan on the 30th, production was affected. Currently in the Chinese market, more than 70% of reed mat comes from Baiyangdian*(GE Jing, 2013)*





Production Value of Primary Industry in Anxin County

Source: Xiao Hongsong, 2018

https://www.163.com/dy/article/GCR75PG00549B1WZ.html

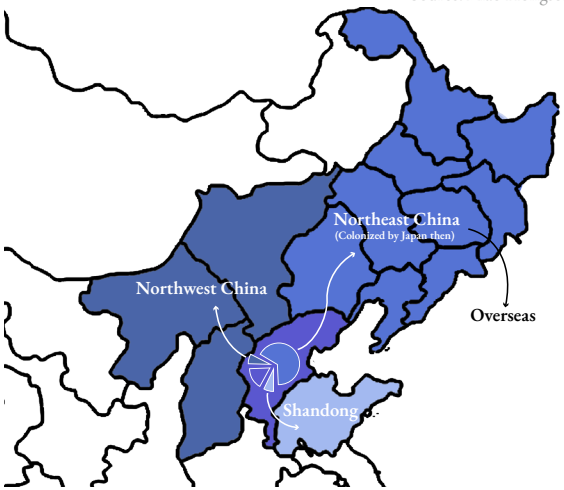
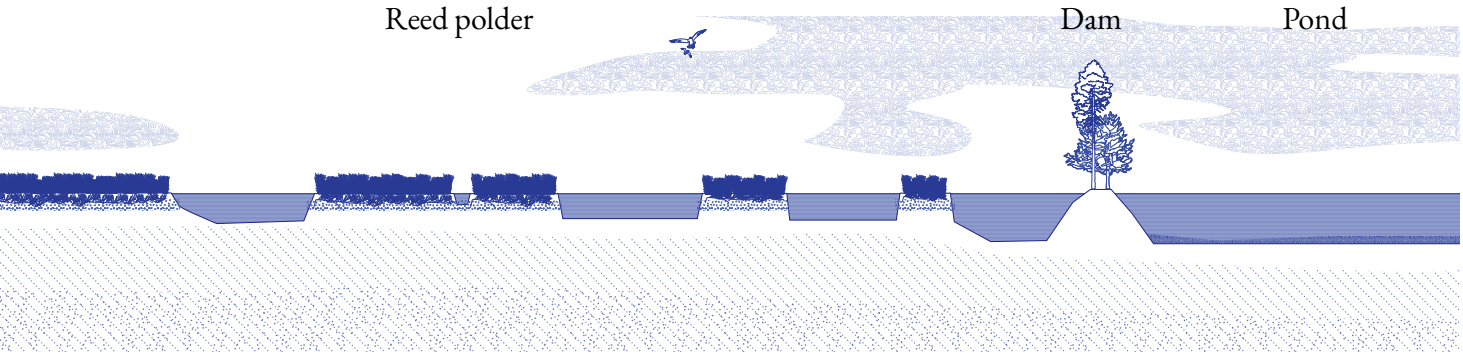


Figure 28 Outlet of reed mat in Republic of China
Source: Sui He, 2019



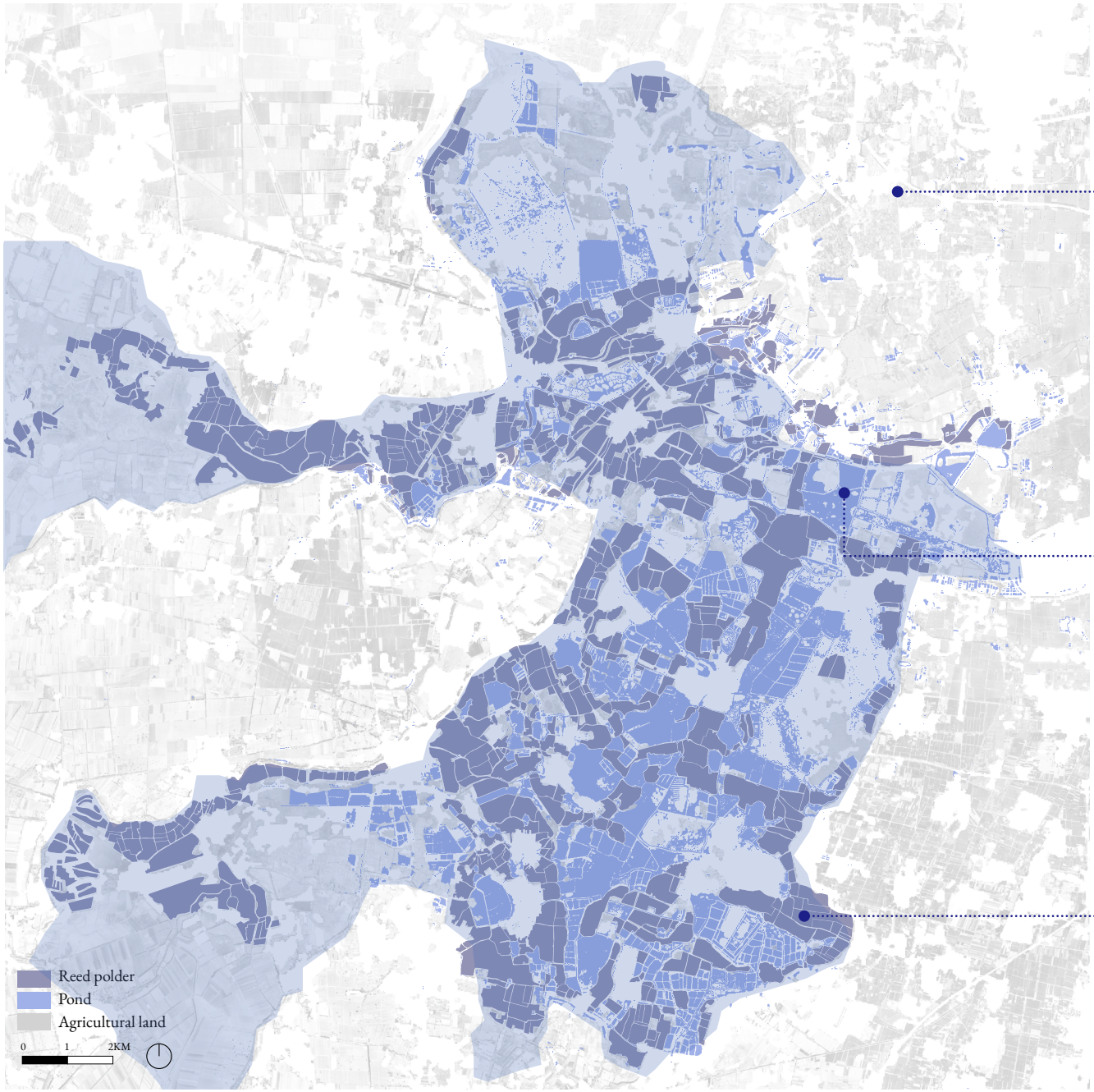


Figure 29 Primary industry typology in Baiyangdian wetland
Source: DEM Dataset,2009;Google Satellite, 2022

Cropland

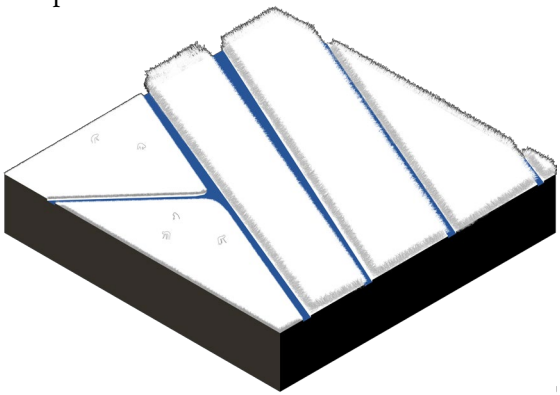


Figure 30 Cropland in Anxin county
Source: Xinhuashe https://english.news.cn/20220925/800ca6cd13ca49038a717a0402dd4f77/c.html

The primary crop planted in wetland area include wheat, corn, rice and so on.

Pond

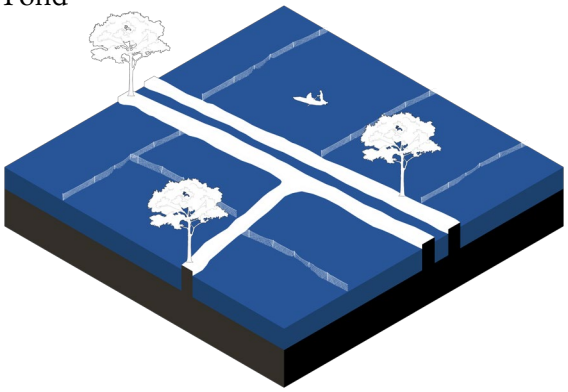


Figure 31 Fish pond in Baiyangdian wetland
https://www.ggzgc.com/anli/20191015/6283.html

The aquaculture includes enclosed dam farming, net farming and cage farming.

Reed polder

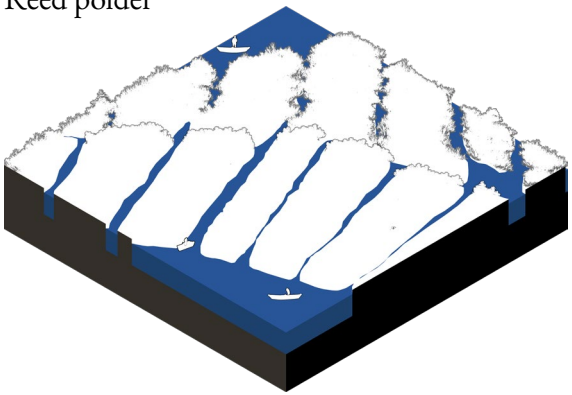


Figure 32 Reed polder
Source: Xiaohongshu@阿May

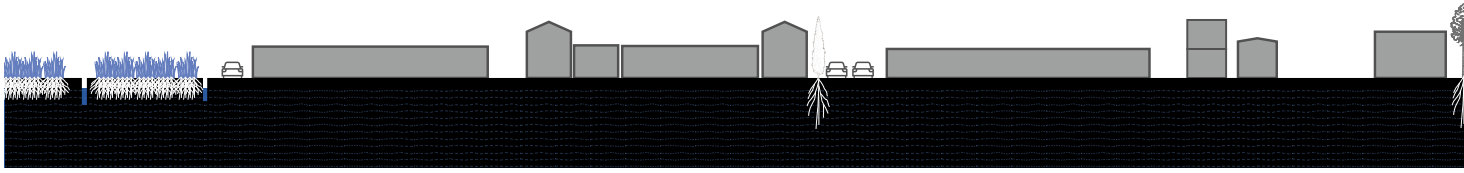
The quatity and quality of reed is highly affected by the maintanance of reed polder. In Baiyangdian area, polders are mostly maintained in an extensive way.

Manufacture and Handicraft

The prosperity of subsidiary production impulsed the development of handicrafts and manufacturing. Subsidiary production composed one-third of household income in the wetland area until the 80s. After Reform and Opening up, the development of the commodity market catalyzed manufacturing and gradually formed industry agglomeration in villages. Manufacturing includes the textile industry, clothing and shoe processing, food processing, paper-plastic processing, nonferrous metal processing, etc. The textile, clothing, and paper-plastic industries were mainly developed from family enterprises into large-scale enterprises.

Most of the secondary industry is labour-intense and high-polluted industries. After the publication of the Xiong'an New Area plan, the high-polluted industries began to be removed. Until 2022, nonferrous metal processing enterprises are all moved out. Traditional manufacturing, such as shoemaking and down processing, is partly moved out.

Around one-thirds residents engaged in secondary industries, there's no doubt that the removement will cause labour surplus and unemployment. Although the goverment provides vocational training for unemployeed residents, the participation is relatively low, and the training itself is not fit into the current situation. A more local-based proposal is needed.



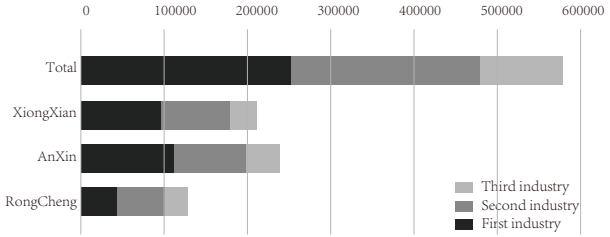


Figure 33 Engagement distribution of rural labour force in different industries(2017)
Source: Baoding Economy Statistical Yearbook: 2017

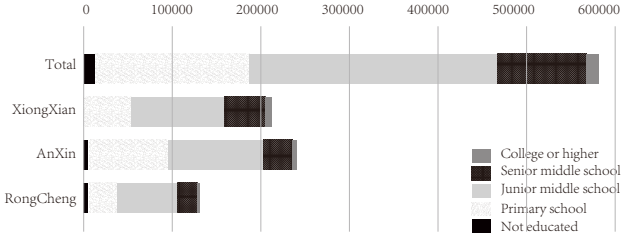


Figure 34 Education level ofrural labour force (2017)
Source: Baoding Economy Statistical Yearbook: 2017

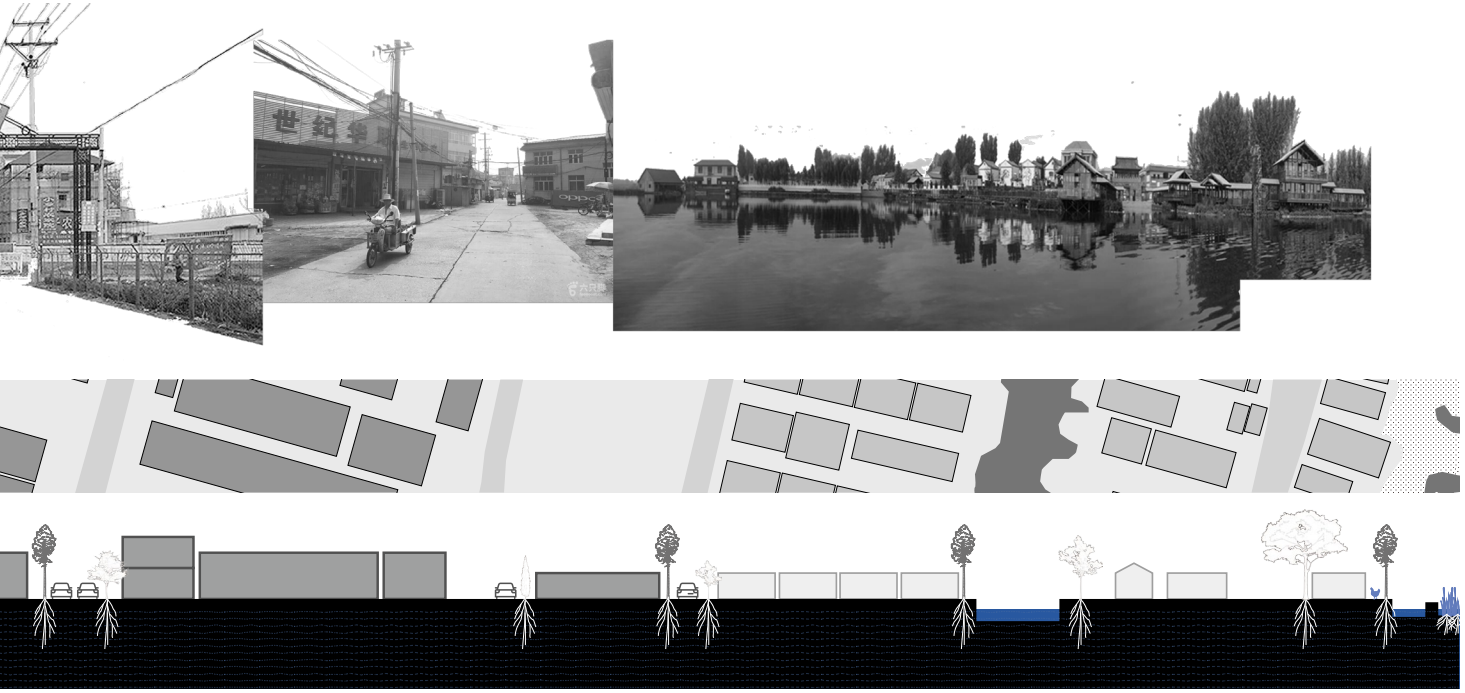


Figure 35 Section of Manufacture agglomaration

3.4 Urbanization in the wetland

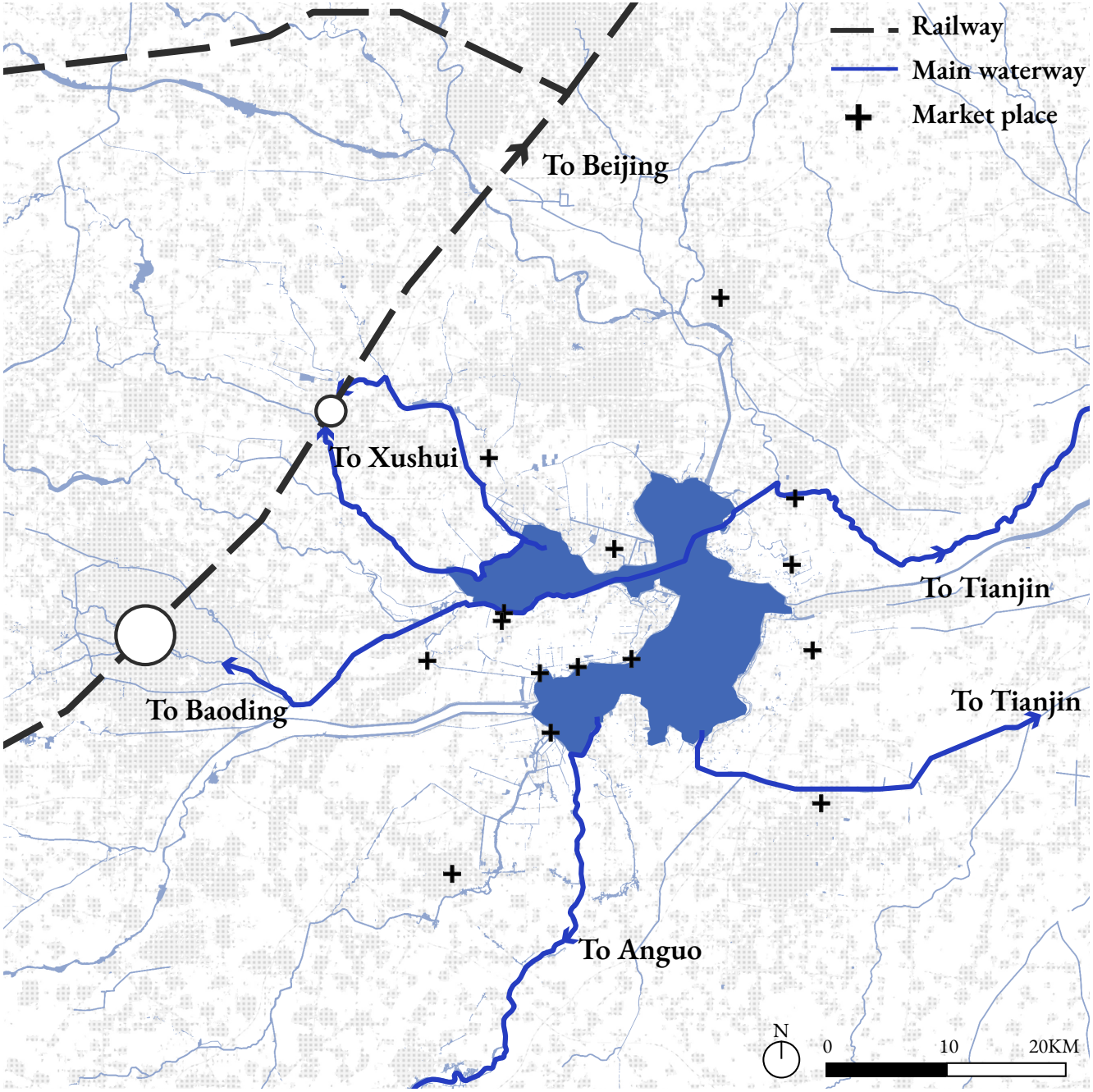


Figure 36 Infrastructure in 1920s
Source: Landsat 8 Dataset, 2019; OSM streetmap,2022

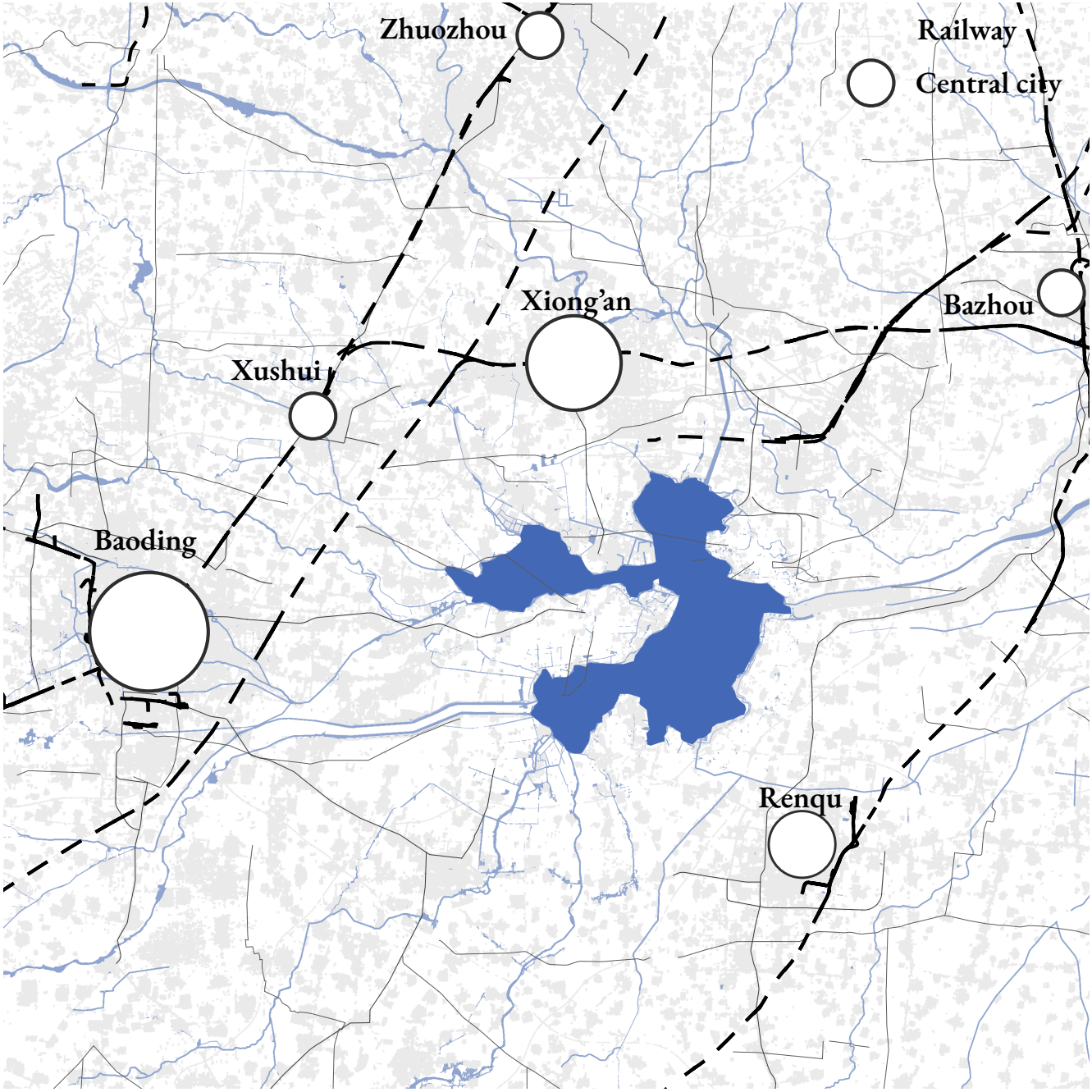
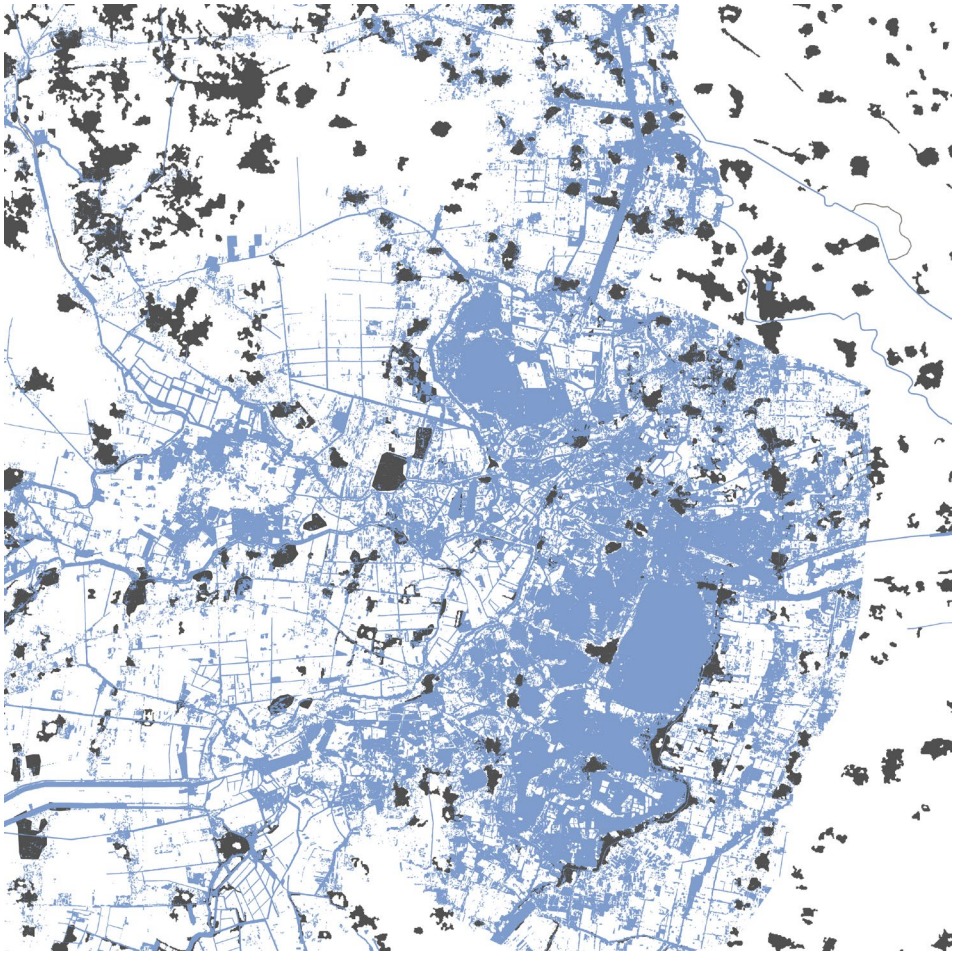
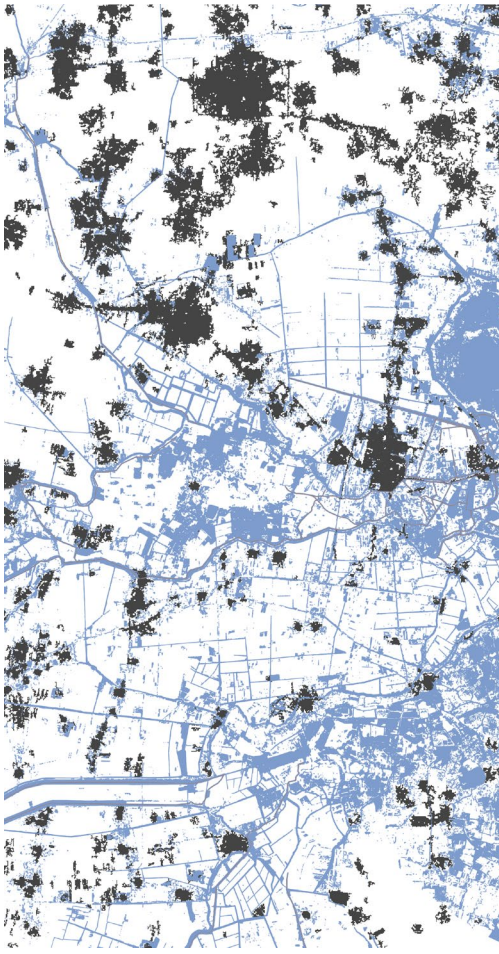


Figure 37 Infrastructure in 2020s
Source: Landsat 8 Dataset, 2019; OSM streetmap,2022



1984

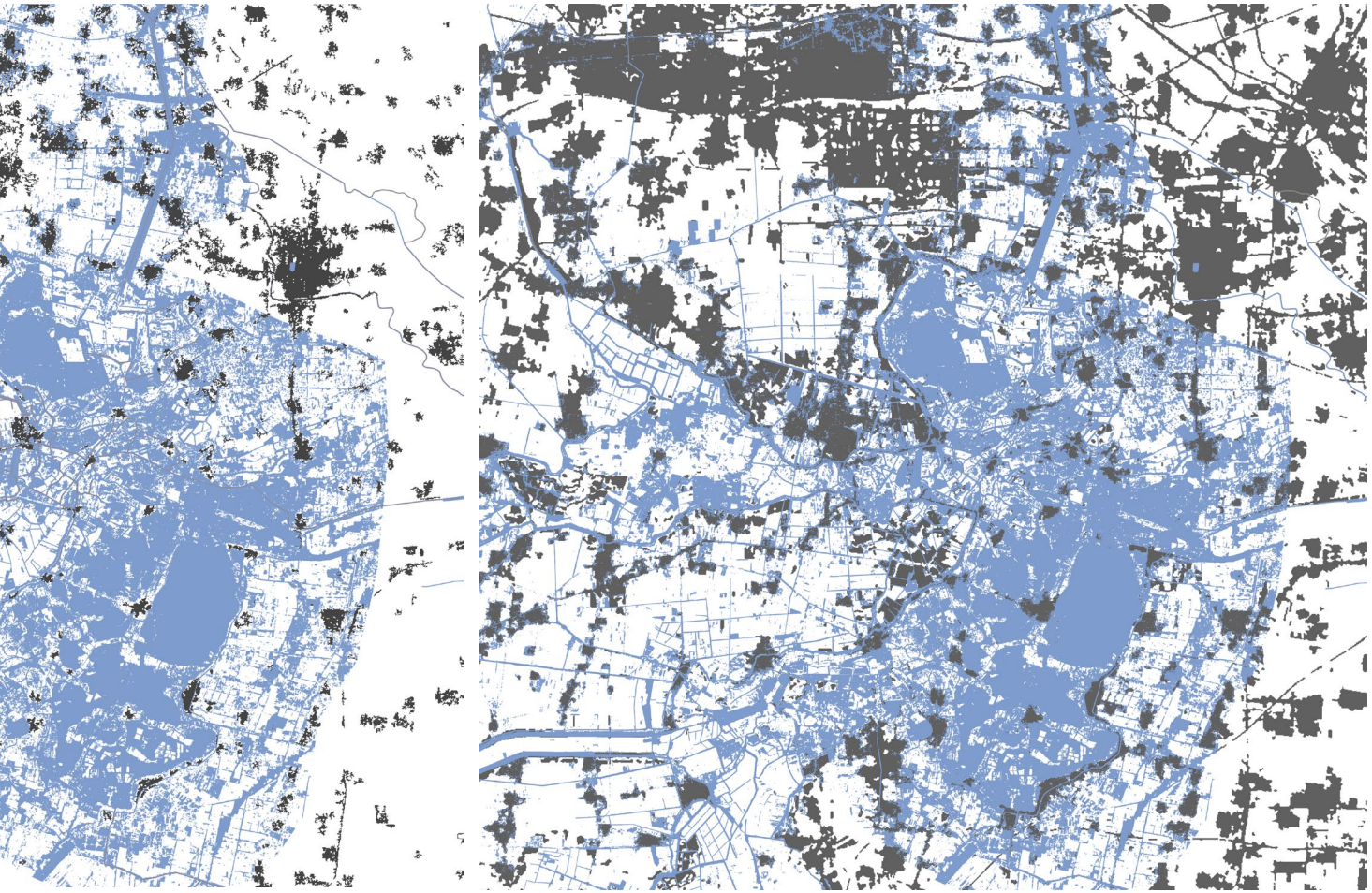
In 1984, the villages are still dispearsed ones, each enclosed by farmlands and water body.



2004

During the 90s, the fast development of
the expansion of built environment. A la
service facilities were buit Following the i

Figure 38 Urban expansion in the past 40 years
Source: Landsat 8 Dataset, 2019;



2021

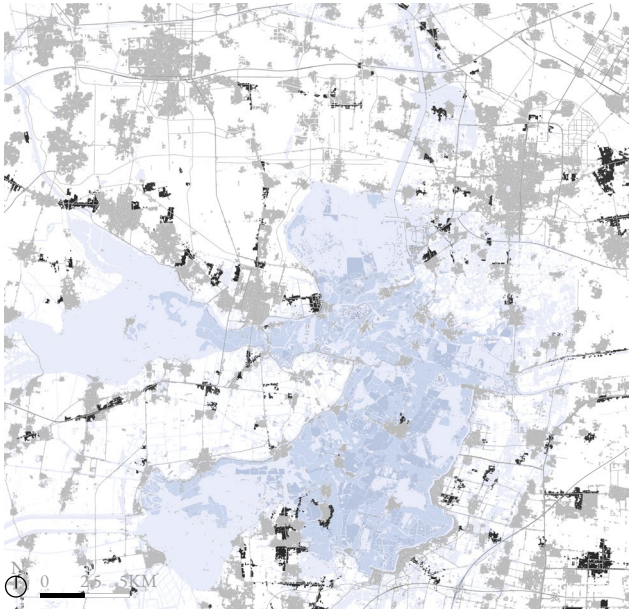
t of manufacturing greatly promoted
A large number of factories and other
the infrasturctures(mainly road).

The construction of Xiong'an New Area expanded the urban area in an comparative speed.

3.5 Synthetic conclusion

The traditional village tissue within Baiyangdian wetland area exhibits a distinct structural arrangement, characterized by a balanced distribution of villages, each occupying a specific portion of productive land. The presence of manufacturing clusters along the main road further strengthens the spatial network within the region. In the past hundreds years, the waterway network and on-land network played an important role in different times, together formed the juxtaposition of the wetland area.

The introduction of the Xiong'an New Area plan has had significant implications. Firstly, establishing a large-scale city exerts a dominant influence on the area's overall development, leading to a negative impact on surrounding villages and accelerating their decline. Secondly, the rapid shift in the industrial structure poses challenges related to unemployment among residents, exacerbating social disparities between different groups. Thirdly, the unique productive landscape within Baiyangdian wetland requires extensive maintenance to preserve its functionality. However, an increasing number of farmers abandoning the wetland due to low profitability contributes to its deterioration.



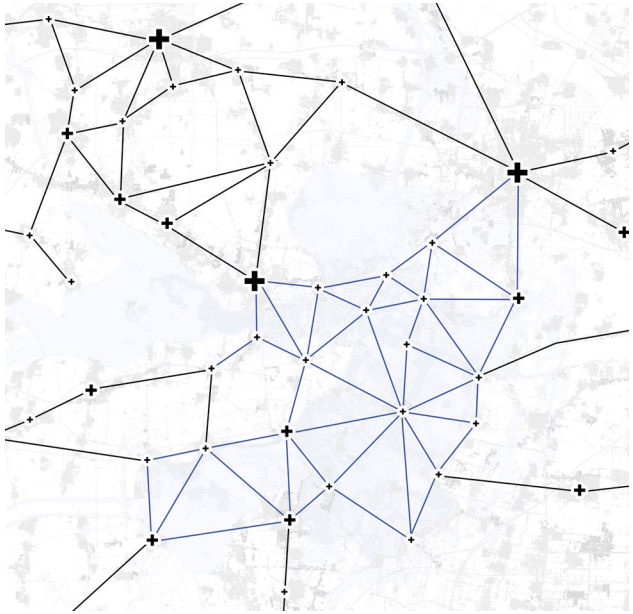


Figure 39 Spatial network of Baiyangdian wetland
Source: Landsat 8 Dataset, 2019; OSM streetmap,2022

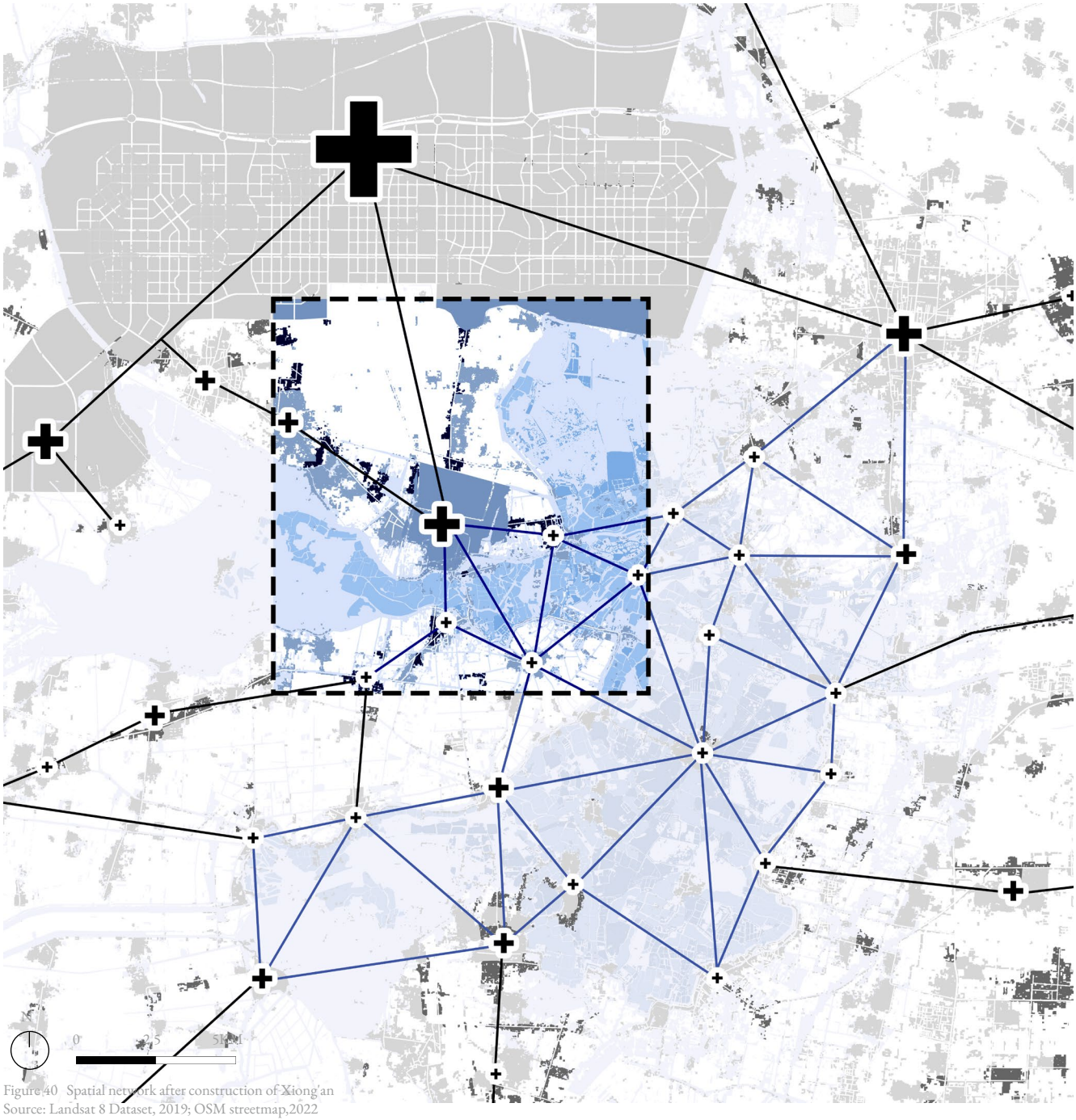


Figure 40 Spatial network after construction of Xiong'an
Source: Landsat 8 Dataset, 2019; OSM streetmap,2022

明日壮阔 就奋力托帆船

Tomorrow, with grandeur, we'll exert ourselves to lift the sailboat,

明日难测 就放任潮流划水道

Tomorrow, in uncertainty, we'll let the tides chart our course.

——《泥河》 万能青年旅店

-- *Muddy river*, Omnipotent Youth Society

CHAPTER 4.
SCENARIO BUILDING

4.1 Scenario 0

Current Factors

Xiong'an New area and JJJ intergration plan

Labour-intense and polluted enterprises cleared out

Influx of new immigrates

Deconstruction and relocation

Possibilities

Improve of wetland ecological performance

Recession of primary and secondary industry

Distingction between different social groups

Densified city center

In the context of the planning and integration plan of the Jing-Jin-Ji (JJJ) megaregion and the development of the Xiong'an New Area, Anxin County is positioned as an attached satellite town to Xiong'an. According to the current policies and plans, a scenario 0 where Anxin County undergoes development without further intervention is depicted.

Under this scenario, the landscape of Anxin County significantly changed. Many surrounding villages are deconstructed, and residents are relocated to the city center. The majority of the existing built areas and croplands are designated as ecological zones, emphasizing the preservation of natural ecosystems. Some areas are planned for urban renovation.

With a large influx of new immigrants from Beijing, the average education level in Anxin County is expected to increase. However, it remains a question whether these immigrants will have a positive impact on the local residents or if it will result in a widening gap between different social groups.

This scenario highlights the potential transformation of Anxin County as a result of the development plans and policies in place. It raises important considerations regarding the socioeconomic dynamics, potential benefits, and challenges associated with the inflow of new residents and the reshaping of the local community.

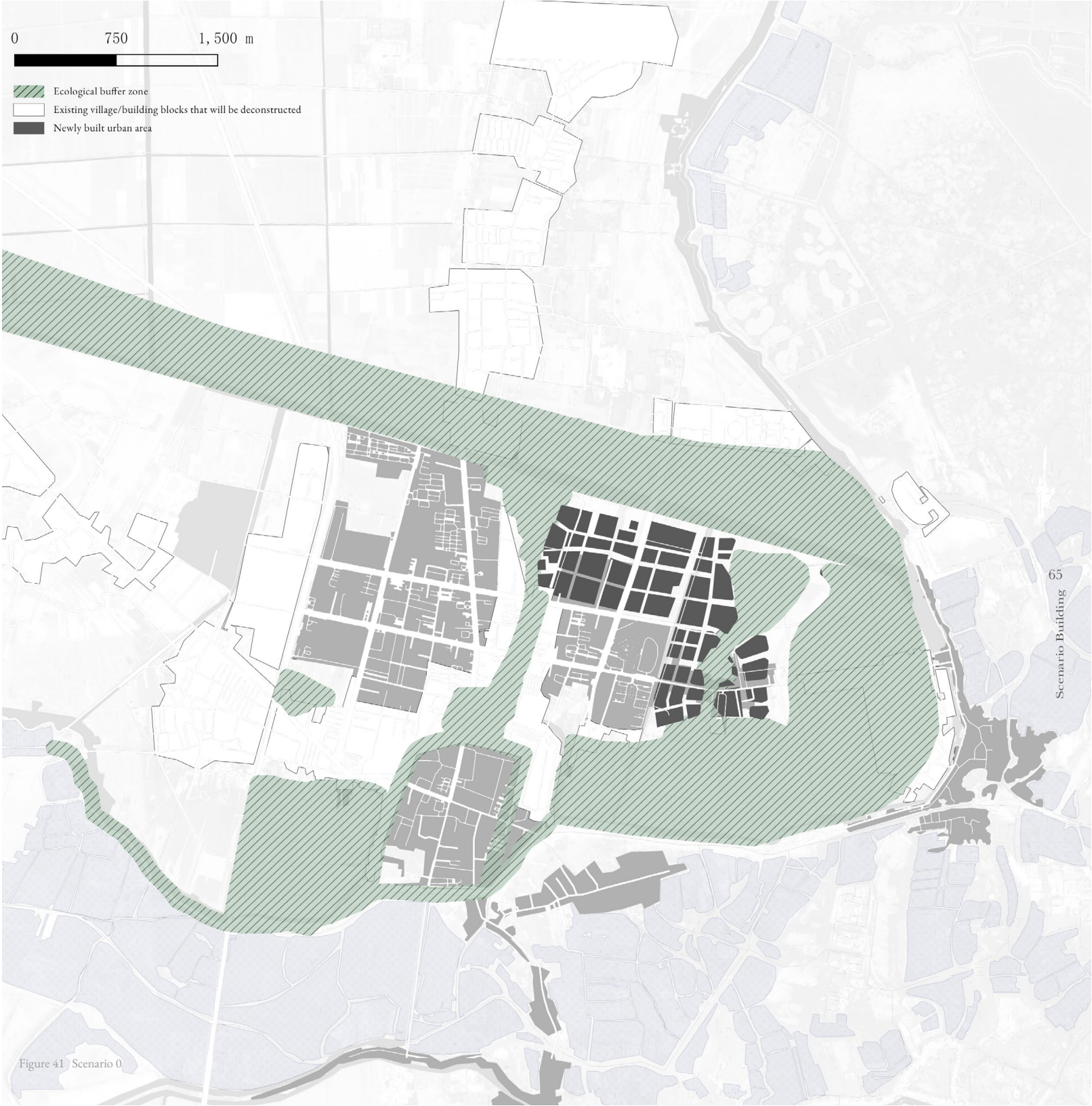


Figure 41 Scenario 0

4.2 Value choice

Based on the previous analysis, several possibilities are identified based on two key dimensions: Transformation-Preservation and Ecology-Production. These dimensions will be used to create four different scenarios that explore the extremes of planning assumptions. By examining these scenarios, we can better understand how the planning process can unfold under different value frameworks and assess their potential impacts on the environment, economy, and social aspects of the area. The aim is to evaluate the strengths and weaknesses of each scenario and identify the most suitable approach for sustainable development in the region.

Scenario: Nature

This scenario envisions the protection of the wetland as an ecological reserve, focusing on restoring its ecological function, biodiversity, and mitigating the negative impact of urban expansion. It also emphasizes the potential for educational and recreational activities within the protected area. By using wetland preservation projects as examples, the goal is to create a sustainable and interconnected ecological corridor, promoting a healthy environment for both humans and wildlife.

Scenario:Production

This scenario explores the potential outcomes if the current industries in the area are predominantly preserved and renovated. With a focus on the primary and secondary sectors, this scenario prioritizes the economic pillars of the region, particularly concerning food security and agricultural productivity. By maintaining and improving the existing industries, the scenario aims to ensure a stable and sustainable source of income, while also addressing the challenges and opportunities related to agricultural production in the area.

Scenario:Transformation

This scenario is positioned at the intersection of transformation and production, with a focus on engaging both the primary industry and the tertiary industry. Anxing county possesses abundant natural and cultural resources, providing a strong foundation for the development of tertiary industries. The objective is to harness the potential of these resources and create opportunities for the growth of sectors such as tourism, creative arts, and other service-oriented industries. By fostering the integration of primary and tertiary industries, this scenario seeks to promote economic diversification, job creation, and sustainable development. The goal is to leverage the area's unique assets to attract visitors, stimulate entrepreneurship, and enhance the overall economic vitality of the region.

Scenario: Heritage

This scenario focuses on preserving local heritage, including historical elements, relics, and landscapes, to create a vibrant living museum. By conserving the traditional lifestyle, it aims to trigger the creative industry and educate residents and youth. This approach attracts visitors, stimulates economic growth, and fosters a sense of pride and appreciation for the area's history. It recognizes heritage as a driver for cultural tourism, community engagement, and sustainable economies.

What if...

Transformation

we protect the wetland as ecological reserved area?

Crosswinds Marsh Wetland Interpretive Preserve by SmithGroup

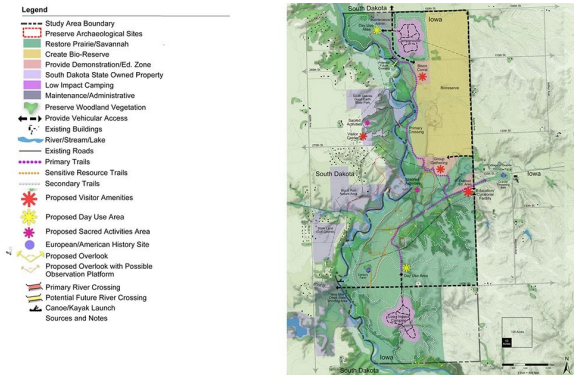
we engage the primary industry with other industries?

the Echigo-Tsumari Art Field, Japan

Ecology

Production

we protect the landscape as cultural heritage?



Iowa Blood Run Cultural Landscape Master Plan by Quinn Evans Architects

we keep the primary industry productive?

The Recovered Archeological Landscape of Chengtoushan, Hunan province By Turenscape

Preservation

The argument for extensive urbanism begins in the early 1970s, with Bookchin's eco-decentralism as one important piece of thinking. Imagining a limited government in which "the economy, society and ecology of any area are administered by the community as a whole" *(Bookchin, 1974)*, he provides a utopian vision of a self-regulated and eco-friendly society. Under this decentralisation idea, China is also promoting healthy and livable growth in all sizes of cities, aiming to increase the vitality of small cities and towns and optimise urban distribution. *(National new-type urbanisation Plan, 2014)* Concentrating more functions in a smaller-scale city without overgrowth requires an agenda of reduction.*(Jason Rebililot,2018)*

However, building an efficient, extensive territorial system on a small scale requires a highly organised social structure on a large scale to create resilient networks so that a single component would not collapse with unpredictable impact. Being specific in Chinese context which the most populated areas are all metropolitan interlocked, it is impossible for a single town to function independently.*(Zhou Yixing,1991)*Thus, enhancing each component's local identity becomes crucial to avoid homogeneity, create synergies and improve a sense of belonging for residents.

According to the theory of extensive urbanism, all the scenarios will be measured in three aspect: ecology service, productivity and local identity. Under each aspects there's different parameters, and the strategies will be evaluted by these parameters to show their applicability.

Ecology

Eco service volume

The indicator of ecosystem service volume includes the fragmentation of unbuilt areas and connectivity of ecological networks. Built-up areas and infrastructures contribute to fragmentation, impacting biodiversity. This reduction in habitat size creates isolated green spaces, hindering species movement and biodiversity. Additionally, the connectivity of ecological networks is crucial. Urban expansion disrupts these networks, impeding species' movement . Addressing these indicators is vital for sustainable urban planning and conservation efforts to preserve ecosystem services and biodiversity.

Eco service quality

Ecological areas offer varying levels of ecological services, with non-touched wetland areas exhibiting higher quality compared to crop fields. To assess the quality of ecological services, different types of areas are categorized, including built areas, croplands, sustainable croplands, and wetlands. Each category represents a distinct level of ecological functionality, with wetlands often being regarded as the most ecologically valuable. By understanding these distinctions, we can recognize the importance of protecting and preserving diverse ecological areas, while promoting sustainable practices in agricultural landscapes to enhance the provision of vital ecological services.

Socio-economy

Industrial productivity

For the past decades, primary and secondary industries have been the pillar of local economy. They are the most familiar production way for most residents. Keeping a certain level of productivity in the primary and secondary industries can increase local socio-economic resilience and enable the area to be integrated into a larger-scale socio-economic network structure.

Industrial update

Industrial update indicates to what extent the local socio-economy is resilient. A single-industry structure is in a risk of collapse, while an adaptable and composite industrial sturcture presents a better risk resistance. The update includes primary, secondary and teritory industry. For primary industry, the update refers to an automatic and technology-based production way. For secondary industry, the update refers to an environmental-friendly and sustainble transformation, such as using clean energy and limit pollution. For teritory industry, the update refers to a promotion of service industry such as tourism

Local identity

Cultural identity

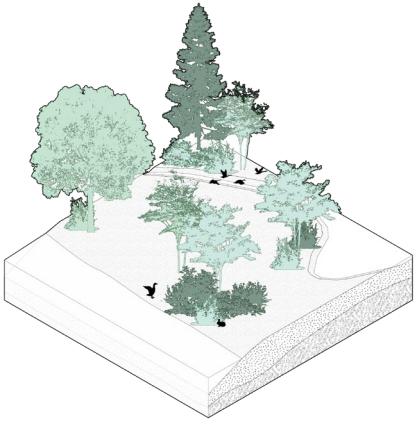
Regional identity is usually conceptlized as two dimesions: the identity of a region, namely the unique landscape, culture, dialects and so on; and the regional consciousness of residents, namely the collective memories and common socio identification of residents *(Paasi, 2002)*. Regional idenetity can be assessed by to what extented the tangible and intangible heritage is preserved.

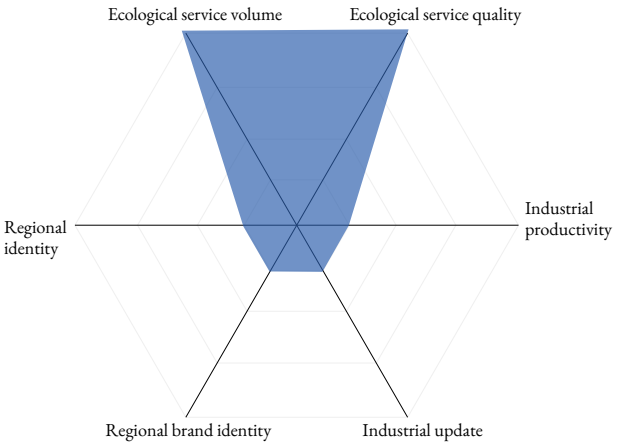
Brand identity

Different from 'cultural identity', brand identity refers to a common understanding of 'what the region represents as formulated by relevant government bodies'. *(Haiyan Lu, Martin de Jong, Yun Song, Miaoxi Zhao,2020)* With cultural identity as a background and context, brand identity presents how these cultural and heritage resources are interpreted and merged into a future-oriented planning. Scaling down to a town or village, brand identity is assess by how the strategy maximied the cultural brand and consistant with regional planning.

4.3 Scenario: nature

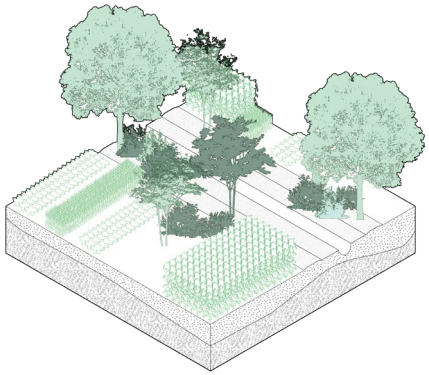
Buffer zone

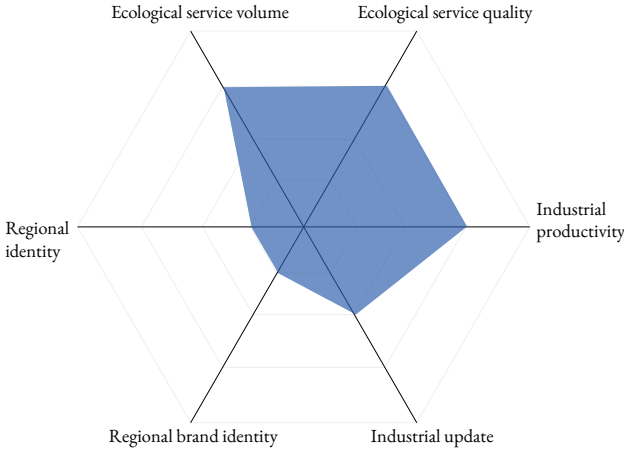




Buffer zones provide a transitional area between wetlands and cities, which has a positive effect on biodiversity and climate resilience.

Sustainable farming





Sustainable farming includes agroforestry, crop rotation, mixed farming and so on.Compared with traditional farming, sustainable farming decreased the homogenity of cropland, thus avoids land degration, water pollution and over-consumption of soil nutrients.

Figure 42 | Scenario Nature

The Scenario Nature prioritizes the ecological sensitivity and climate resilience of the area, with a particular focus on utilizing the wetland and water bodies as a foundation. The development strategy aims to create a green-blue network that connects the wetland, villages, and urban spaces. Key elements of this scenario include:

1.Preservation of Waterside Areas: All waterside areas are designated as buffer zones to protect and preserve the ecological integrity of the region.

2.Enhancement of Water Connectivity: Ditches will be dredged, and filled waterways will be restored to improve the overall water connectivity within the area.

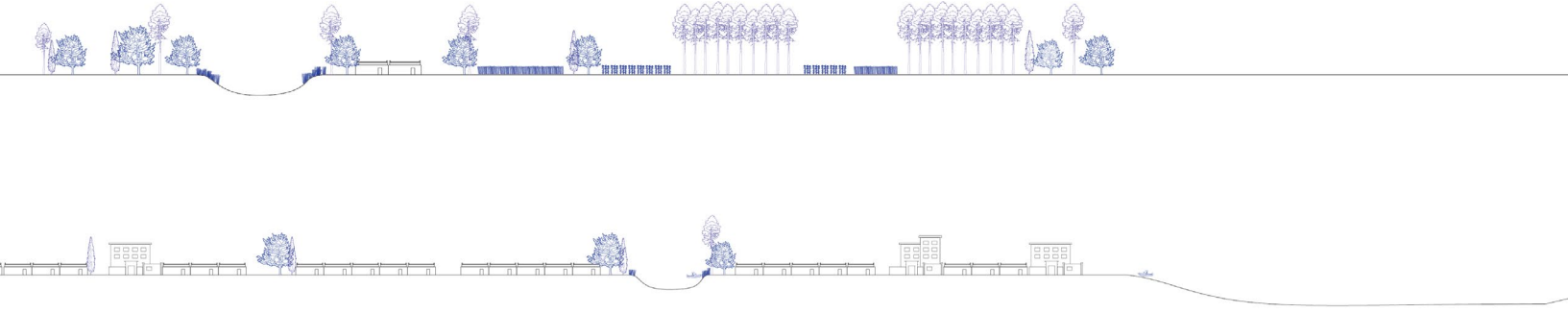
3.Addition of Green Spaces in Urban Areas: Urban areas will be enriched with green spaces, serving as stepping stones and contributing to the creation of a green-blue belt that enhances the overall ecological connectivity.

4.Promotion of Sustainable Farming: The scenario promotes sustainable farming practices as the primary form of agricultural production, fostering a harmonious relationship between agriculture and the environment.

However, it is important to acknowledge that this scenario involves trade-offs. While it prioritizes ecological considerations on a large scale, it may result in a decrease in productivity and economic vitality at the neighborhood level. Consequently, there might be a reduction in job opportunities, potentially leading to population loss and exacerbating the trend of centralization in main cities. Balancing the ecological and economic aspects is crucial to ensure the long-term sustainability and livability of the region.

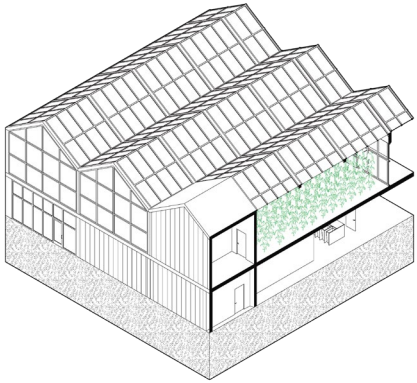
Figure 43 Section of Scenario Nature

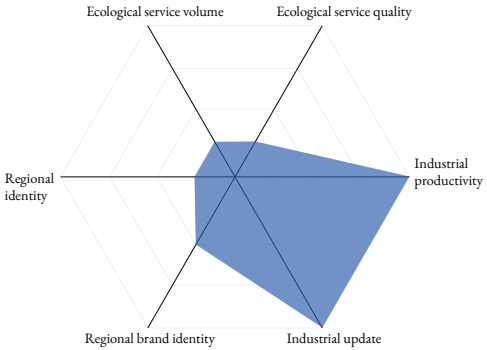

Green-blue belt
Reed Polder
Dike
Ecological Buffer Zone



4.3 Scenario : production

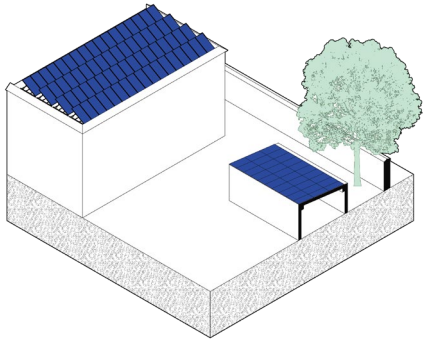
Intensive agriculture

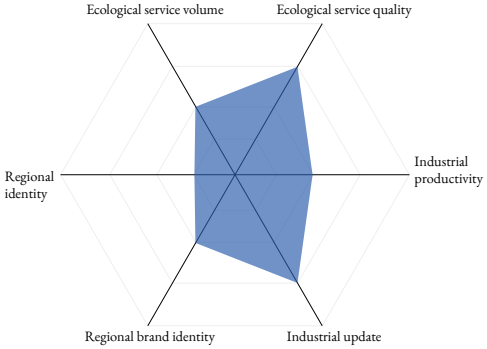




Intensive agriculture maximize the productivity of primary industry. Attached with monitoring center, the crop will be effectively planted.

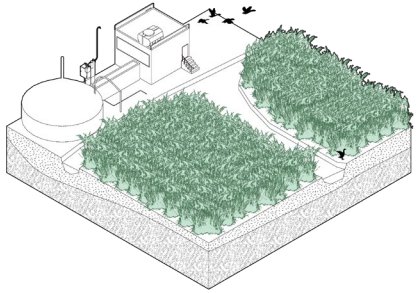
Solar

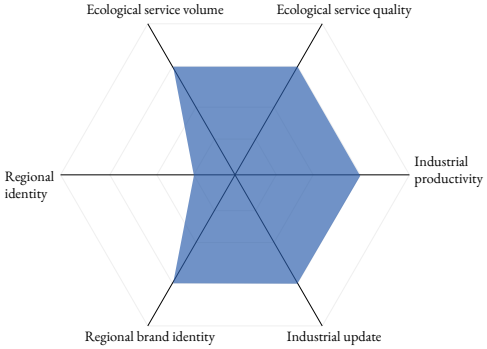




Solar panel is attached to residential buildings and other open space such as the dike surface.

Biofuel





Reed is an ideal material for bioduel. The rich resources in wetland area makes it possible to promote biofuel as a main energy resouree for household use and industrial use.

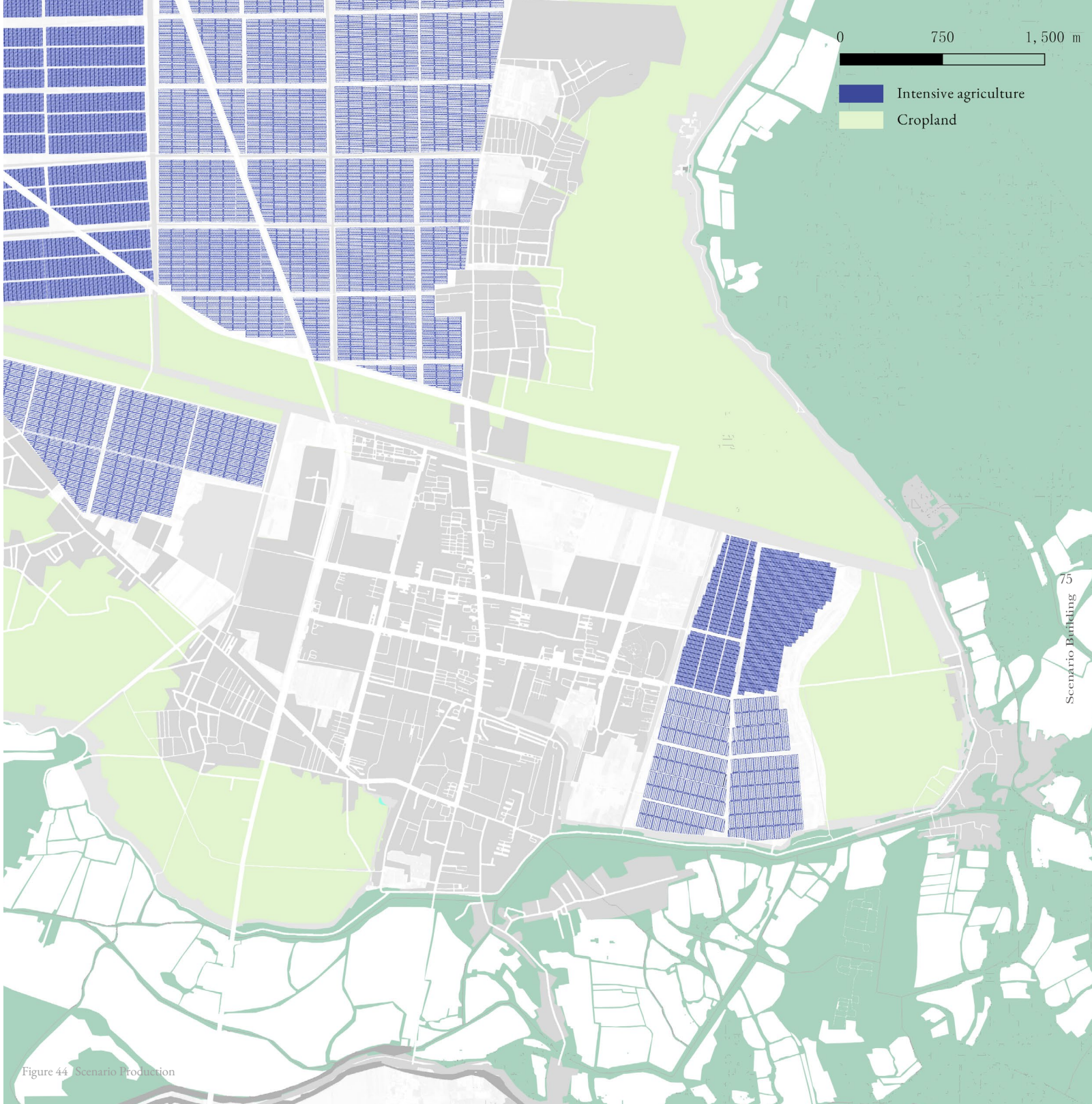


Figure 44 Scenario Production

The Scenario Production focuses on enhancing the productivity of the local primary and secondary industries while retaining and improving the existing industries towards a more sustainable way. The primary objective is to strengthen the local economy by emphasizing the following key aspects:

1.Preservation of Waterfront Area: The scenario aims to maintain the waterfront areas as productive crop fields to mitigate the risk of flooding and drought while ensuring sustainable agricultural practices.

2.Transformation of Inner Area: The inner area will undergo a transformation to promote intensive agriculture, maximizing the potential of the land for crop cultivation and increased yields.

3.Integration of Agricultural Product Processing Industry: To add value to the local agricultural products, the scenario includes the establishment of agricultural product processing industries, which will enhance the economic value chain and create additional employment opportunities.

4.Harnessing Renewable Energy: The scenario emphasizes the installation of solar panels on rooftops and dikes to generate clean energy, reducing dependence on non-renewable energy sources.

5.Utilization of Biomass Energy: Biomass energy, particularly derived from reed, will be utilized as an additional renewable energy source, contributing to a more sustainable and environmentally friendly energy mix.

While the Scenario Production aims to improve productivity and boost the local economy, it acknowledges potential drawbacks. The increased focus on productivity may compromise the ecological services provided by wetlands and cultivated land. There is a risk of increased Nitrogen/Phosphorus pollution and a potential decrease in ecological resilience. These trade-offs must be carefully considered and mitigated to ensure a balanced approach to economic development and environmental sustainability.

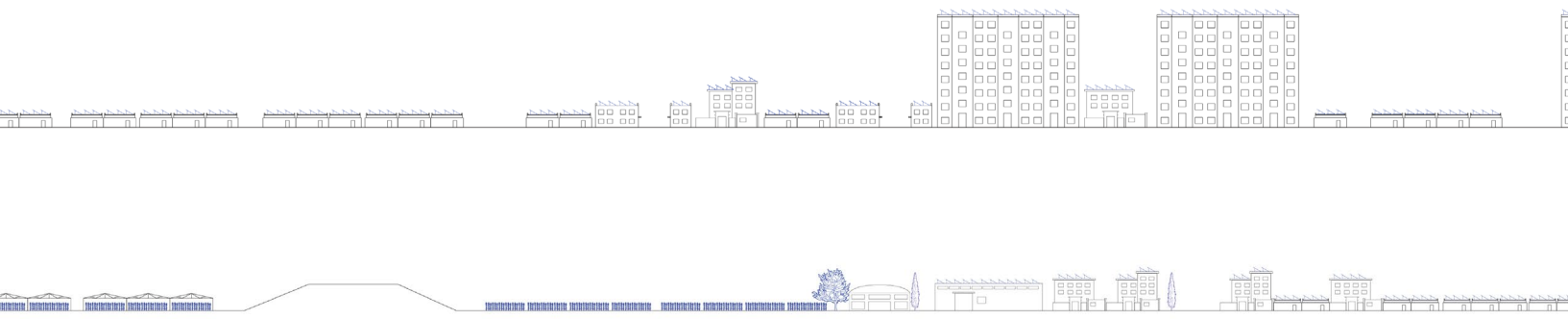
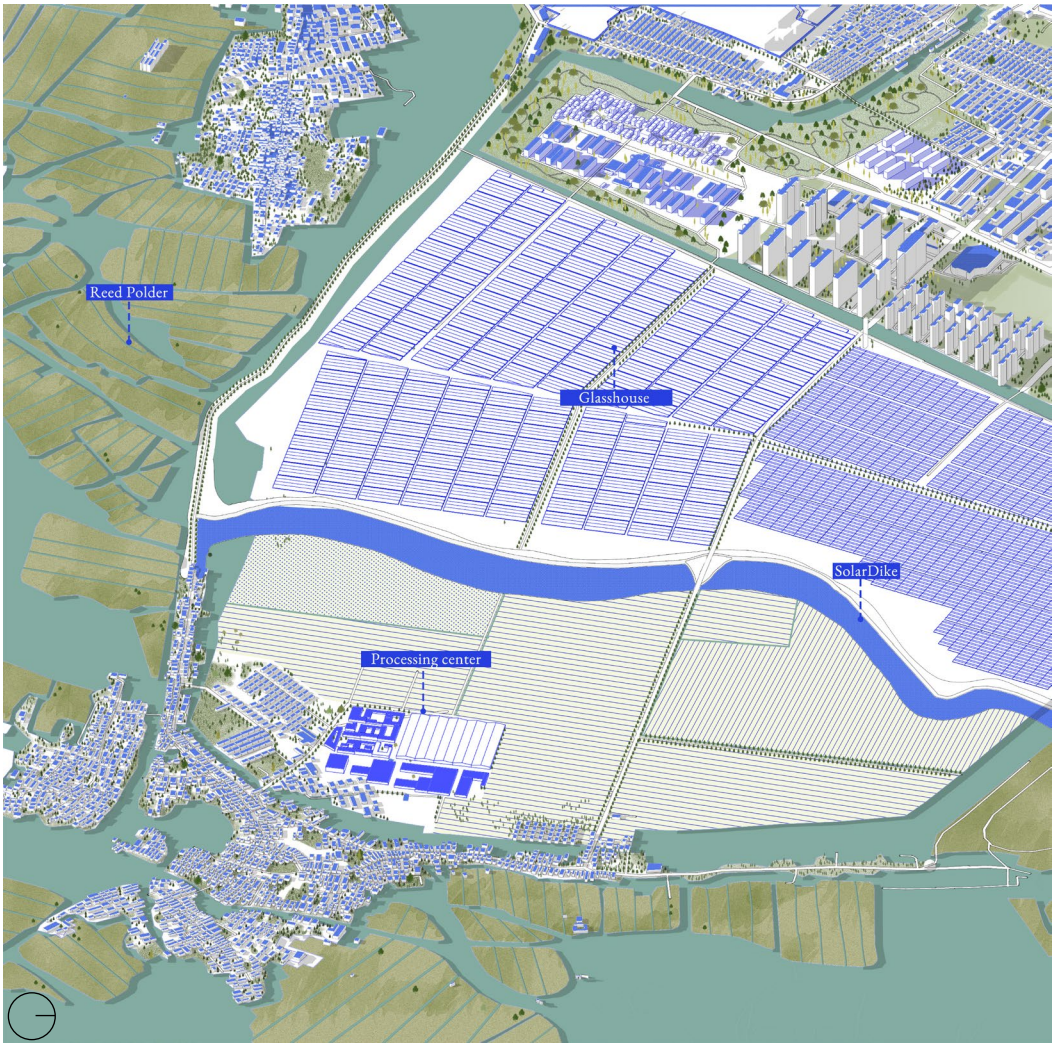
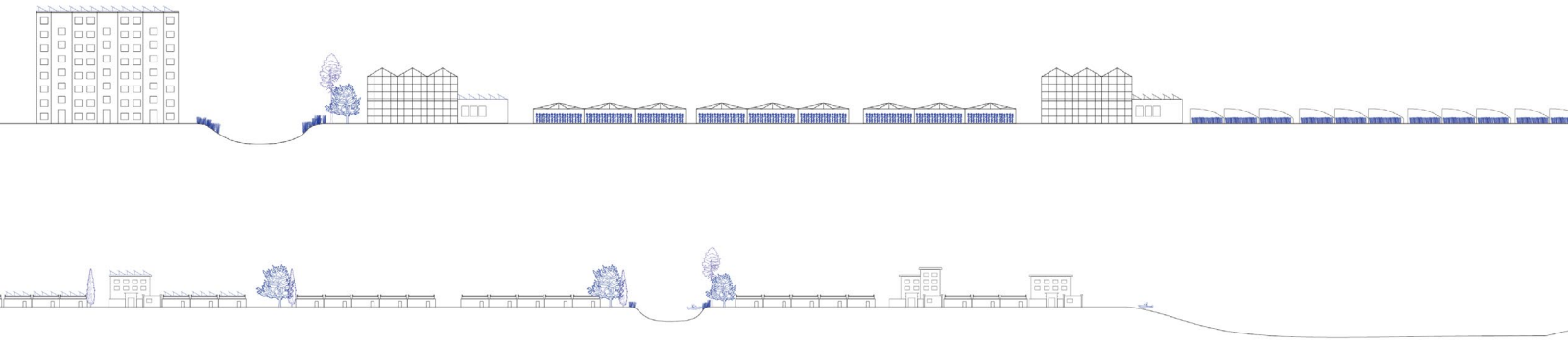


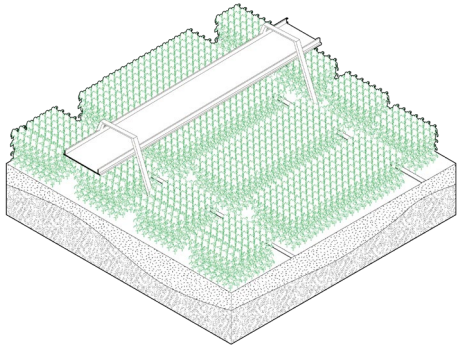
Figure 45 Section of Scenario Production

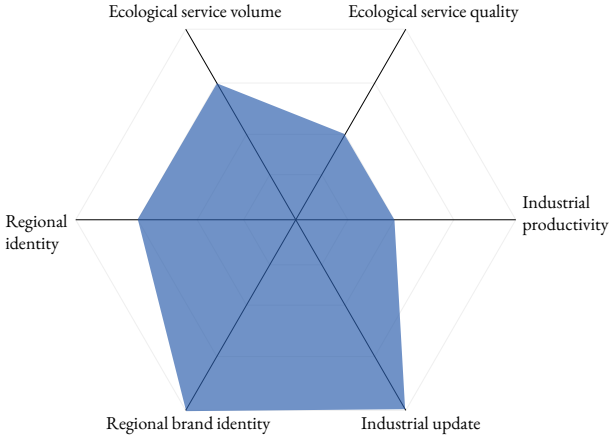

Reed Polder
Glasshouse
SolarDike
Processing center



4.3 Scenario : transformation

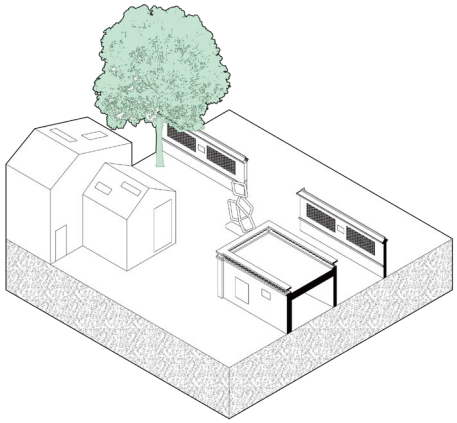
Tourism

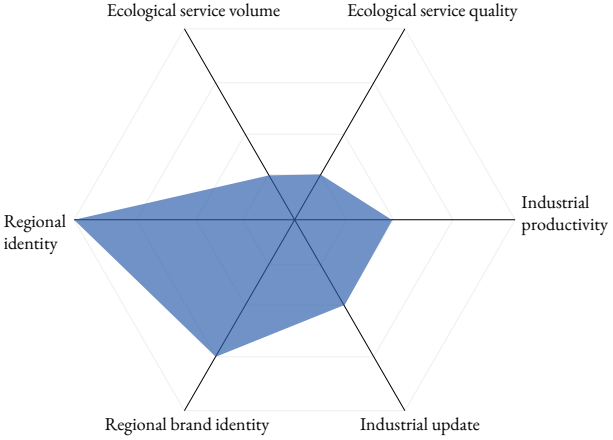




The rich natural resources in wetland is a great potential for tourism. Low-maintances programmes such as hiking trails and cruise route ensured the tourism can be developed without over-interupting the existing wetland or cropland.

Artecraft hub





The local handicraft industry provide a foundation to develop modern artecraft and fine art.

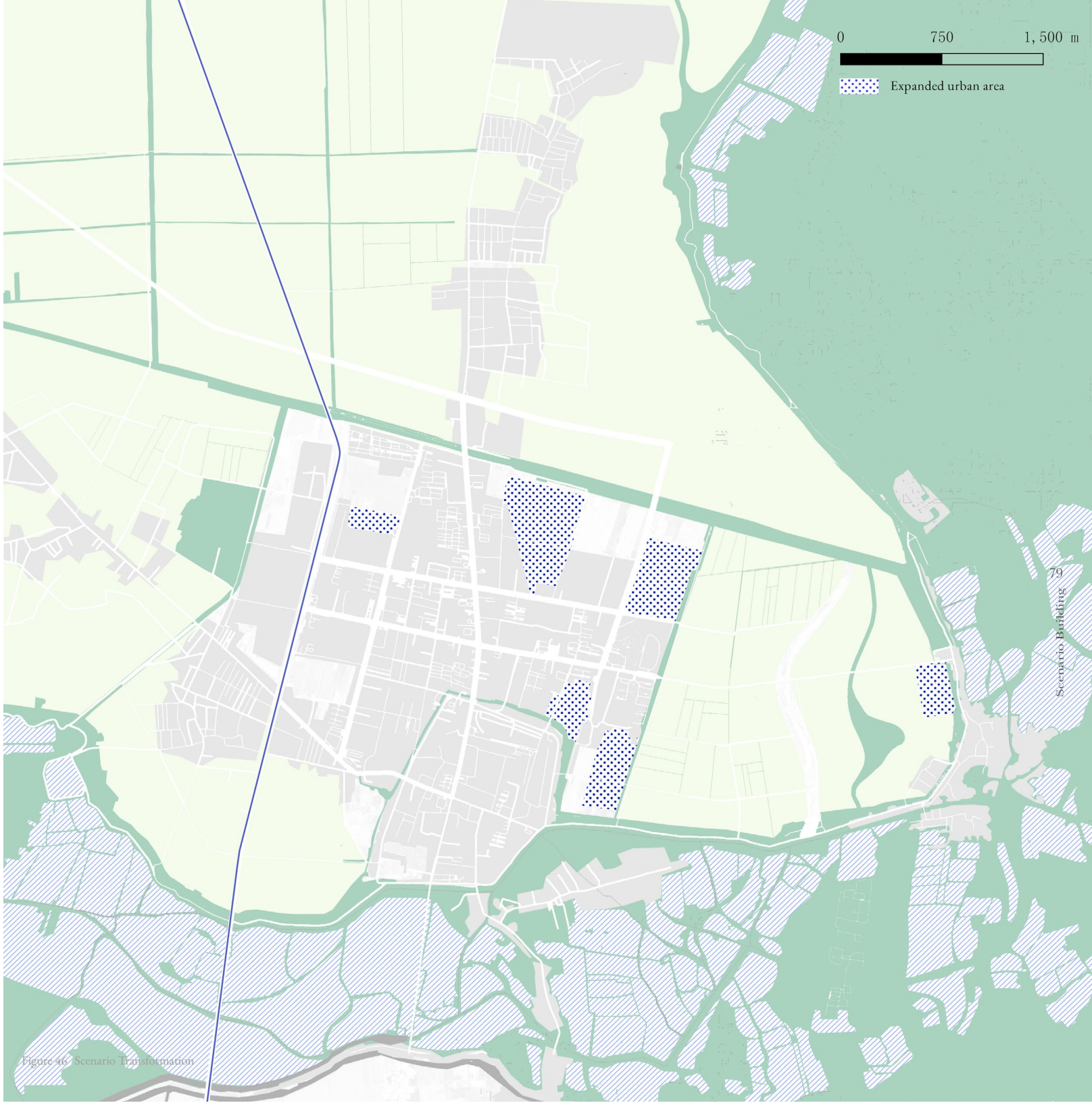


Figure 46 Scenario Transformation

The Scenario Transformation revolves around the promotion of the tertiary industry, with a particular emphasis on tourism and the educational sector. The following developments are proposed to support this transformation:

1.Establishment of Artecraft Centers: A network of artisan craft centers is created to protect and showcase local handicraft art. These centers not only serve as platforms for artists to display their work but also act as catalysts for nurturing artistic talent within the community.

2.Urban Renovation: Urban renovation projects are undertaken to accommodate the needs of the tertiary industry and promote densification. This involves revitalizing existing urban areas, improving infrastructure, and creating attractive spaces for businesses and visitors.

3.Promotion of Micro-Interventions: Micro-interventions, such as establishing a tourism trail, are implemented to enhance the tourist experience and encourage exploration of the area's cultural and natural attractions. These interventions may include signage, designated walking or cycling paths, and interpretive elements to guide visitors and highlight points of interest.

4.Collaboration and Partnerships: Collaboration between the local government, private sector, and educational institutions is crucial for the success of this scenario. Joint initiatives can be undertaken to develop educational programs, research opportunities, and industry collaborations that support the growth of the tertiary sector.

By focusing on the development of the tertiary industry, particularly tourism and education, the Scenario Transformation aims to diversify the local economy and create new opportunities for job creation and economic growth. However, it is important to consider the potential challenges and impacts of rapid development, such as the preservation of cultural and natural assets, the management of increased tourism, and the need for sustainable practices to ensure long-term success and the well-being of the local community.

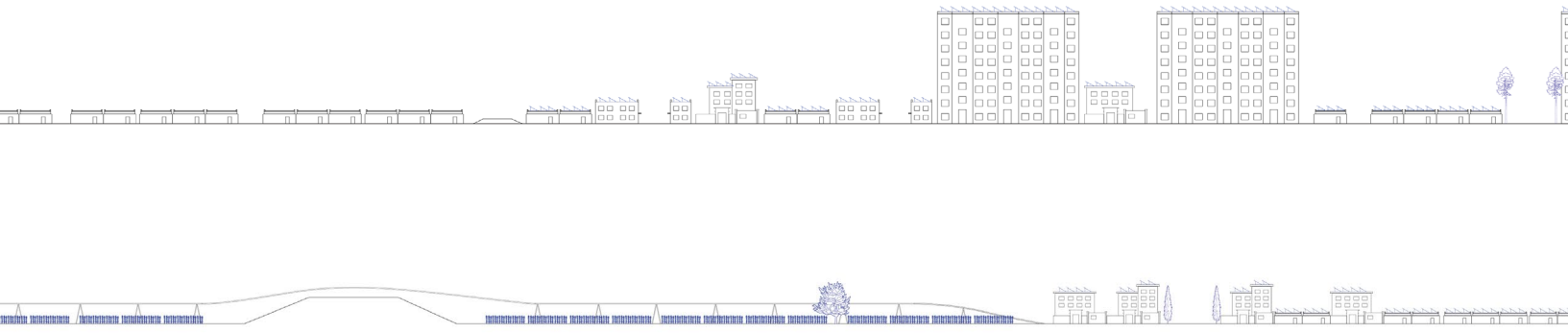
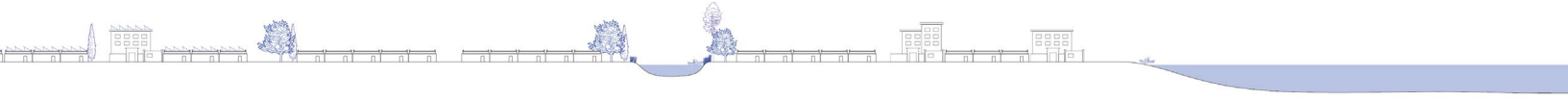


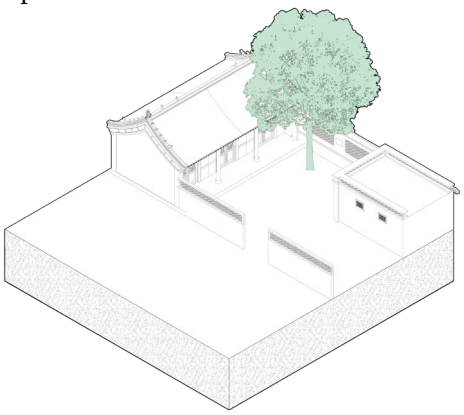
Figure 47 Section of Scenario Transformation

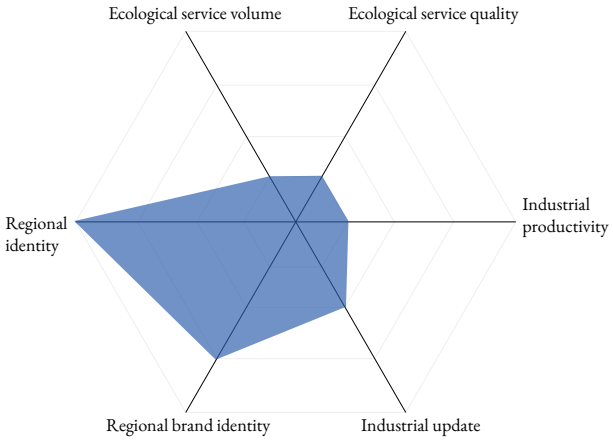

Sightseeing Path
Green-blue belt
Residential Area
Reed Polder
Sightseeing Path
Dike
Artecraft center
Fishing Dock
Biomass plant



4.3 Scenario : Heritage

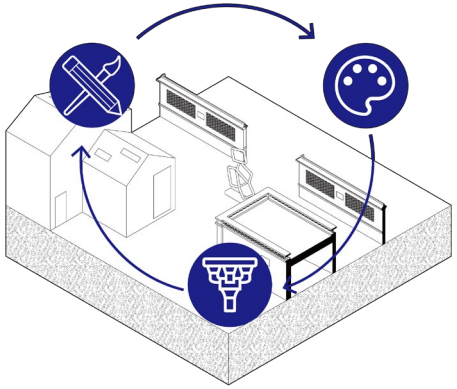
Repair

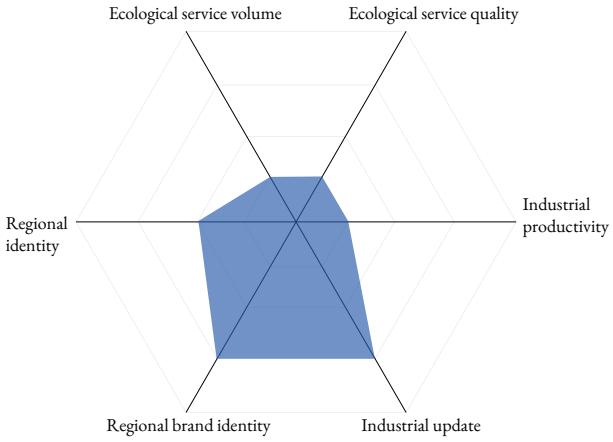




In this scenario, the identification, evaluation, and protection of existing historical remains are key actions. To facilitate the repair and preservation process, a comprehensive set of guidelines and policies will be formulated and published for reference and implementation. These measures aim to ensure the proper maintenance and safeguarding of historical sites.

Education programme





The tangible and intangible heritage within the area serves as a valuable resource for educational programs. These programs play a crucial role in increasing public awareness and understanding of cultural heritage, as well as fostering active participation in its preservation. By engaging the community through educational initiatives, we can cultivate a sense of responsibility and appreciation for our cultural heritage, ensuring its protection for future generations.

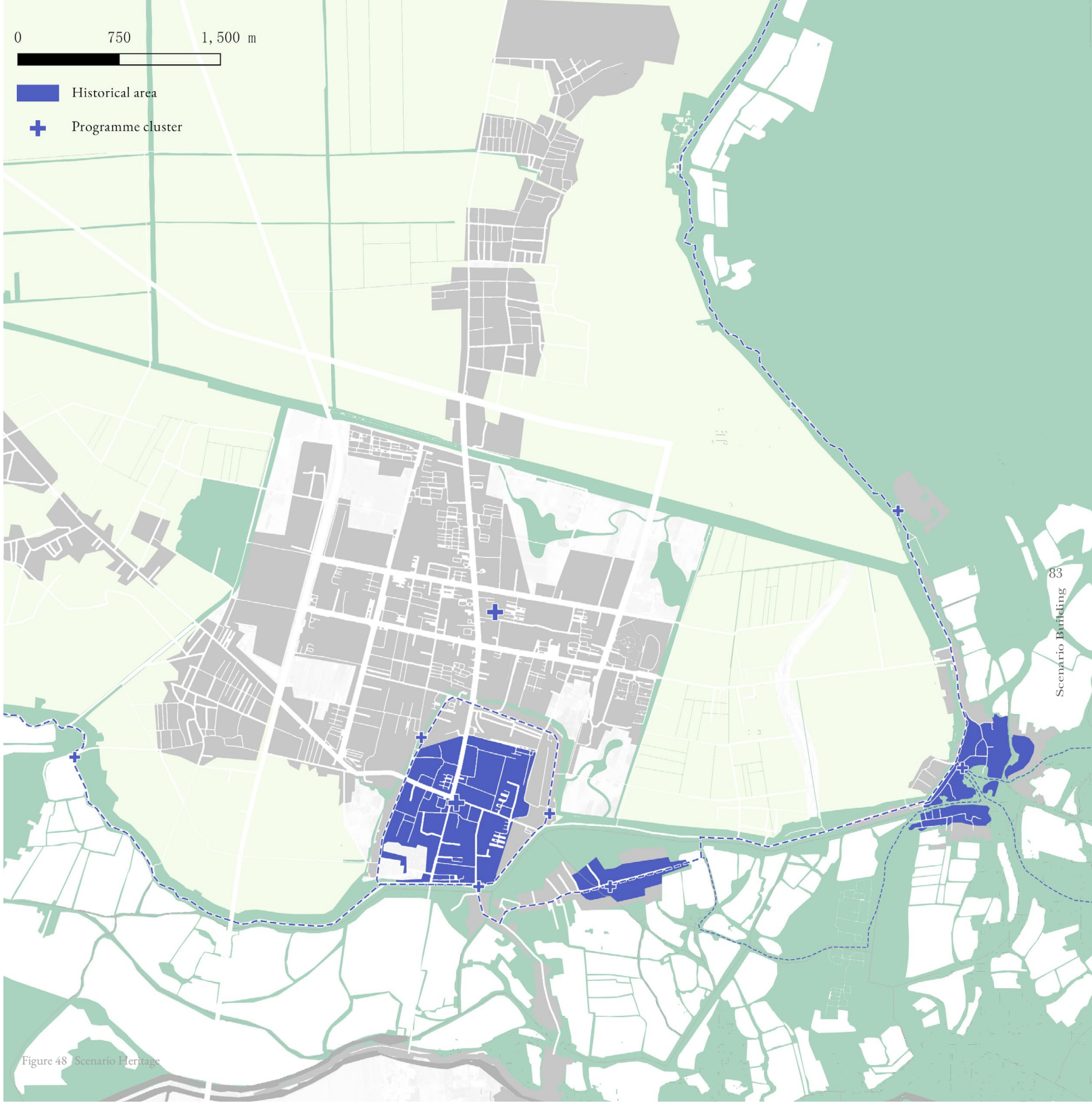


Figure 48 | Scenario Heritage

The Scenario Heritage focuses on the protection and preservation of the local tangible and intangible cultural heritage, encompassing historical remains, traditional buildings, the local life style and local production method. The restoration of historical docks and waterways is an integral part of this scenario, serving both tourism and educational purposes. Additionally, the preservation of city walls, the historical city center, and historical villages is emphasized. Key actions undertaken in this scenario include:

1.Identification and Assessment of Cultural Relics: Unmovable cultural relics are identified and assessed based on their level of preservation and cultural value. Appropriate preservation strategies are then implemented to safeguard these valuable heritage assets.

2.Development of Trails: Land and waterway trails are established to showcase and provide access to the cultural heritage sites, allowing visitors to immerse themselves in the rich history of the area.

3.Educational Programs and Artisanal Handicraft Promotion: Educational programs are organized as a means to preserve and promote local artisanal handicrafts, ensuring that traditional skills and knowledge are passed down to future generations.

4.Introduction of Museums, Workshops, and Art Galleries: Museums, workshops, and art galleries are introduced to revitalize the city center and villages, creating vibrant cultural spaces and fostering a sense of community pride.

However, it is important to note that the preservation of historical buildings requires a substantial amount of financial support, which Anxin County may not be able to fully cover on its own. Additionally, the maintenance and operation of the cultural and tourism industry necessitate a highly educated labor force, which may not be readily available among the local population. Addressing these challenges through collaborative efforts, partnerships, and resource allocation becomes crucial to ensure the successful implementation of the Scenario Heritage while balancing economic viability and cultural preservation.

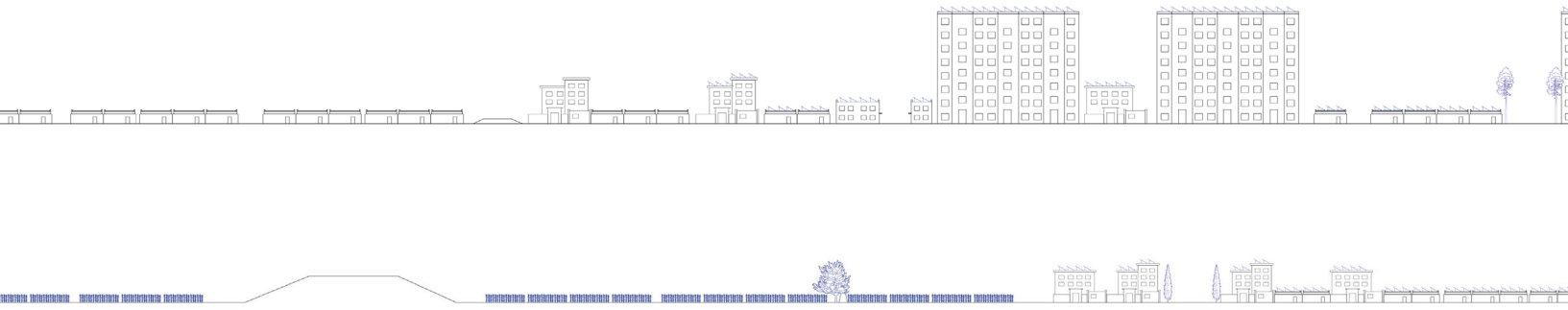
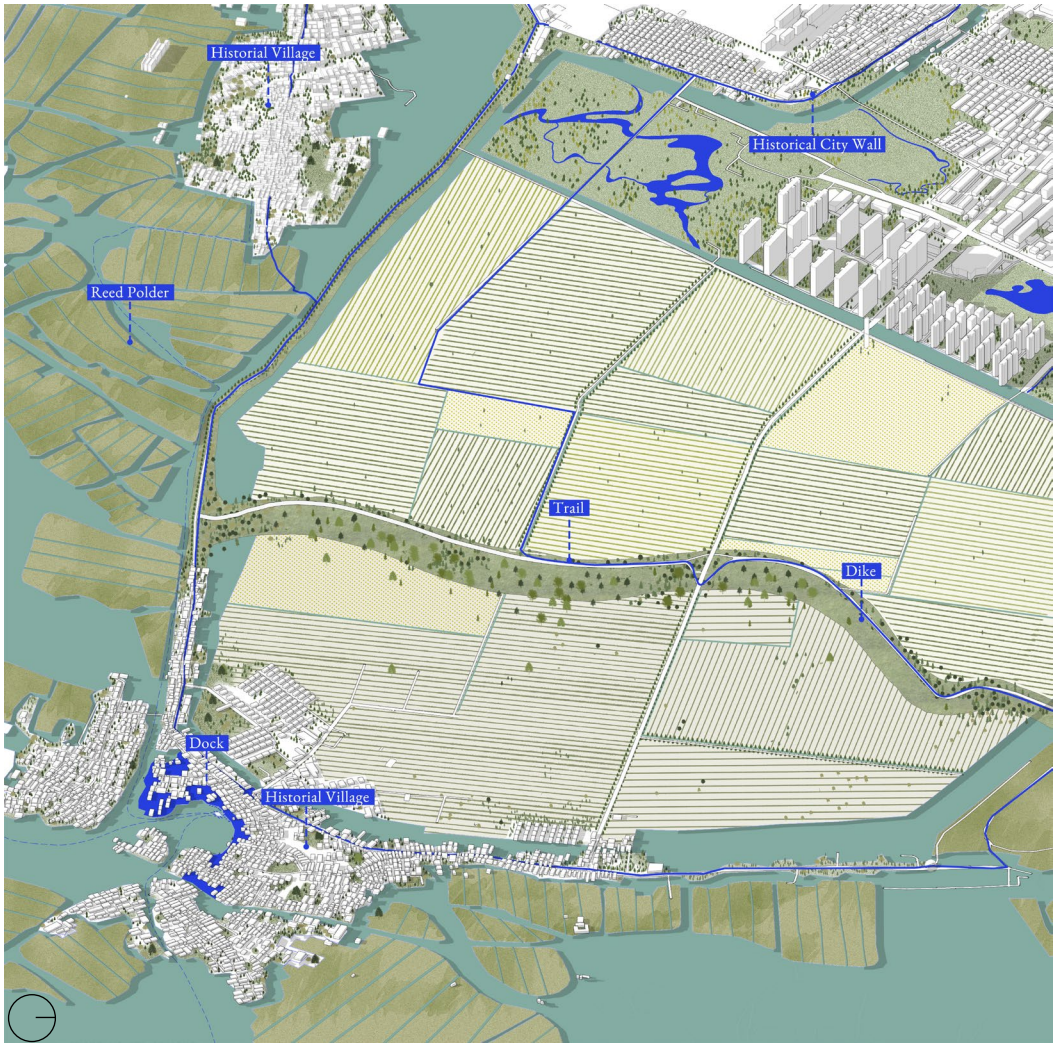
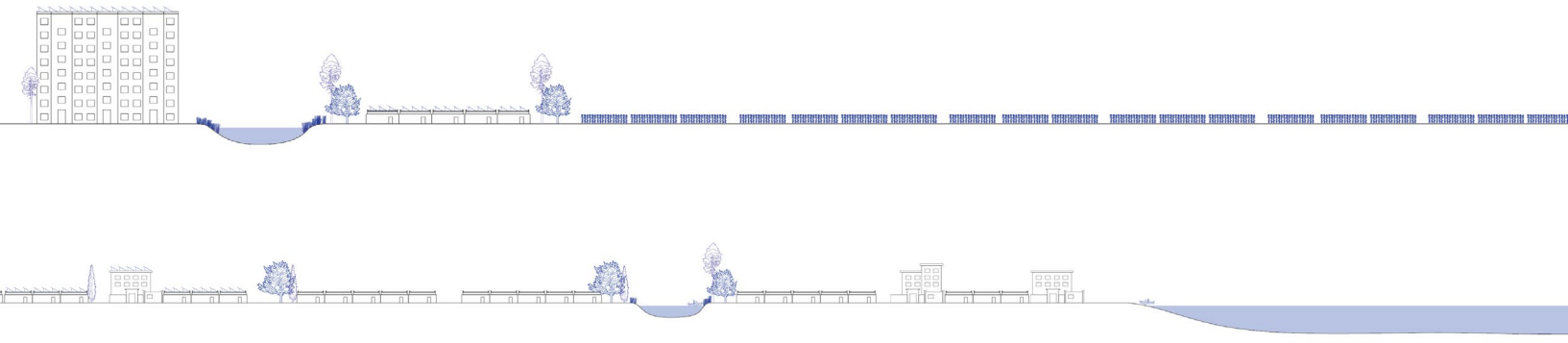


Figure 49 Section of Scenario Heritage


Historial Village
Historical City Wall
Reed Polder
Trail
Dike
Dock
Historial Village



4.4 Comparison

A comprehensive comparison will be conducted to evaluate the performance of each scenario in terms of ecological service, socio-economy, and local identity. By analyzing the outcomes and impacts of the scenarios within these dimensions, the comparison helps to draw an overall conclusion that assesses their effectiveness and suitability. This comparative analysis will provide valuable insights and inform decision-making processes, helping to identify the most favorable scenario for achieving sustainable development and meeting the needs of the community and the environment.

Ecosystem services

Wetland provides a key hydrological services that regulate and provision ecological services to human, such as water storage and flood attenuation. Generally, hydrological regime and topography are the most critical factors to maintain the wetland. *(Millennium Ecosystem Assessment ,2005)*

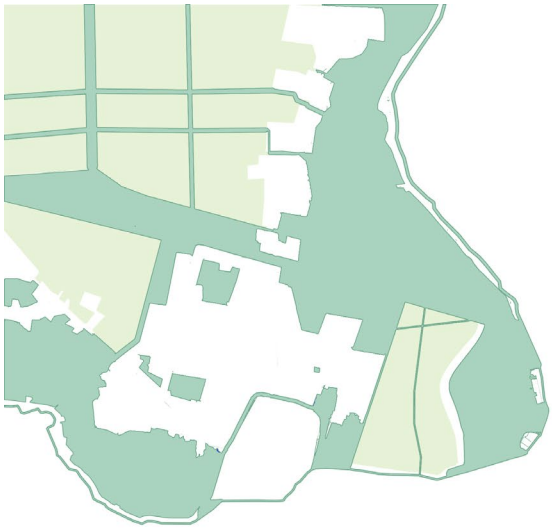
In terms of quality, a water-based buffer zone surrounding the wetland area is highly beneficial as it helps maintain water flow thus ranks as a high-quality feature. Sustainable farmland increases hydrological connectivity, placing it in the medium-quality range. Cropland, although containing shallow ditches, has limited water flow and biodiversity, resulting in a low-quality rating. The built area does not contribute to the continuity of ecological services.

Among all the scenarios, Scenario Nature prioritizes the provision of ecological services and performs the best. It includes a buffer zone along the wetland banks and waterways, while sustainable farming area enhance the ecological quality. Additionally, a green-blue belt and a set of urban greenery is established through urban areas, promoting the connectivity of ecological corridors.

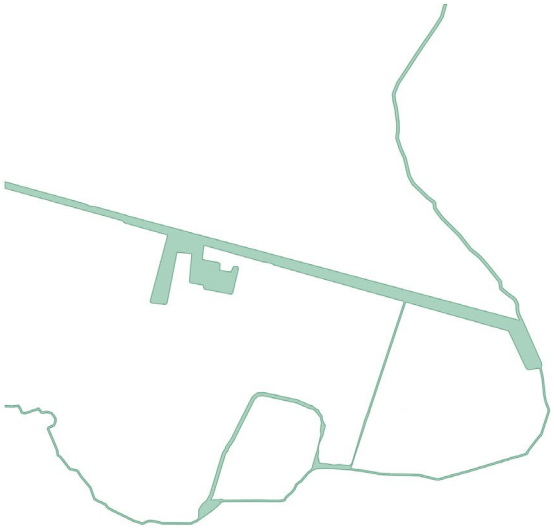
Scenario Production prioritizes the productivity of primary and secondary industries, thus sacrificing some ecological service functions. Only the waterway retains a limited ecological function in this scenario.

Both Scenario Transformation and Scenario Heritage maintain traditional cropland which ranks a low-quality in ecological performance, but the presence of a buffer zone along the wetland improves the ecological services. In terms of connecting ecological corridors, Scenario Heritage performs better due to the larger area of urban greenery which serves as stepping stones for biodiversity.

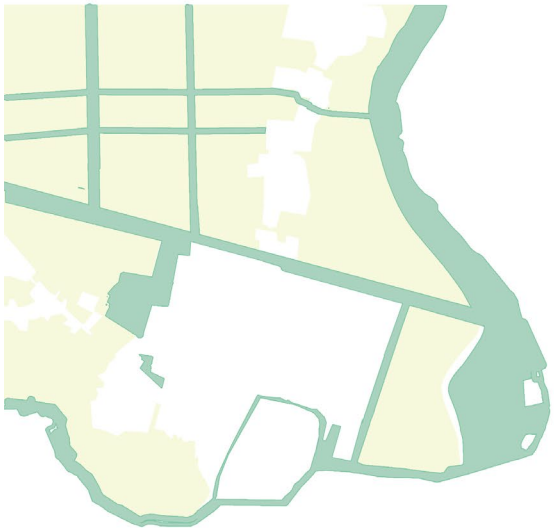
In conclusion, Scenario Nature emphasizes the conservation and enhancement of ecological services, therefor it is the most favorable scenario in terms of wetland preservation and the promotion of ecological service.



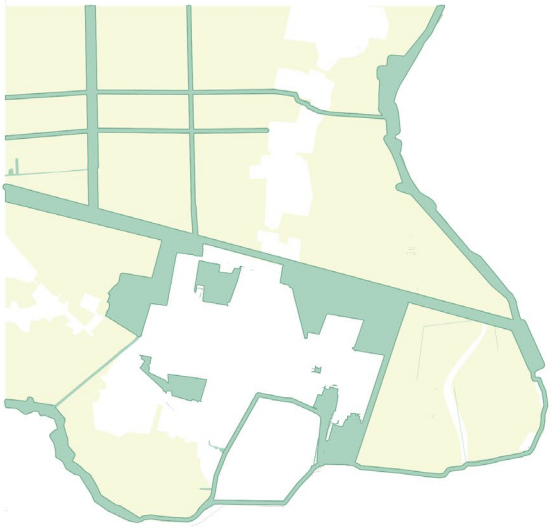
Scenario: Nature



Scenario: Production



Scenario: Transformation



Scenario: Heritage

Buffer zone Sustainable farming cropland

Figure 50 Comparision of ecological performance

Socio-economy

A comprehensive spatial analysis was conducted to evaluate the distinct spatial characteristics of each scenario, shedding light on their socio-economic structures.

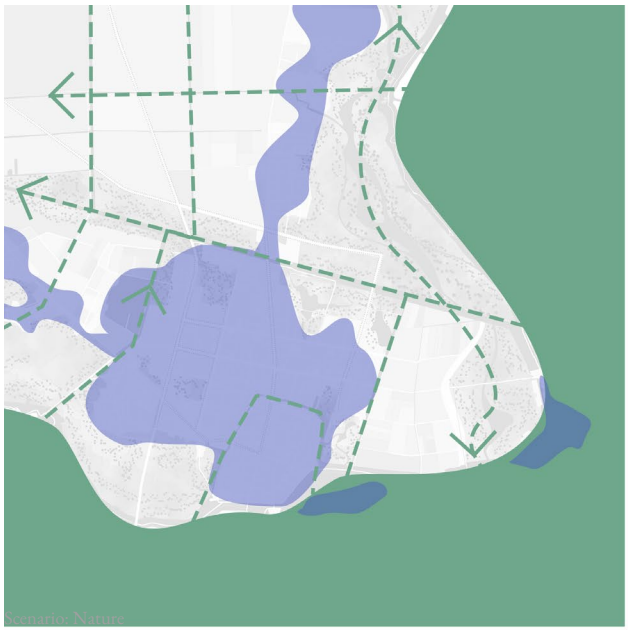
In Scenario Nature, the emphasis lies on ecology and nature, with a softened edge of the built area to facilitate the infiltration of ecological patches and the creation of interconnected ecological corridors. Water plays a central role in this scenario, forming the backbone of the entire structure.

In Scenario Production, intensive agriculture is the pillar of economic activity, resulting in a dominant village-centric structure. Each village specialises in a specific primary industry, accompanied by low-pollution secondary industries such as food processing and biomass plants strategically integrated within residential areas. The villages are interconnected through a well-developed network of infrastructures, forming the primary framework of this scenario.

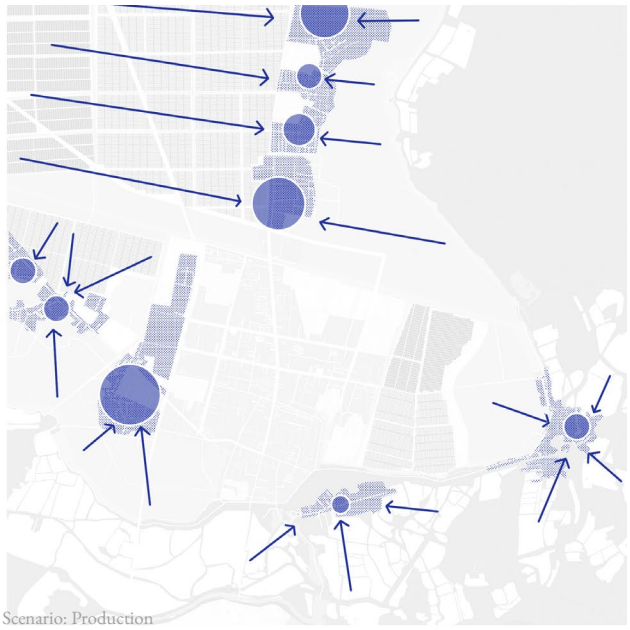
In Scenario Transformation, a relatively centralised structure emerges, with the tertiary industry serving as the economic backbone. Urban facilities and renovated areas act as central hubs, attracting economic activities and services, while other villages provide support through subsidiary services and functions.

Scenario Heritage focuses on preserving and utilising tangible and intangible heritage, placing significant emphasis on the villages and historical areas within the region. These elements form the vital foundation of this scenario's identity and development.

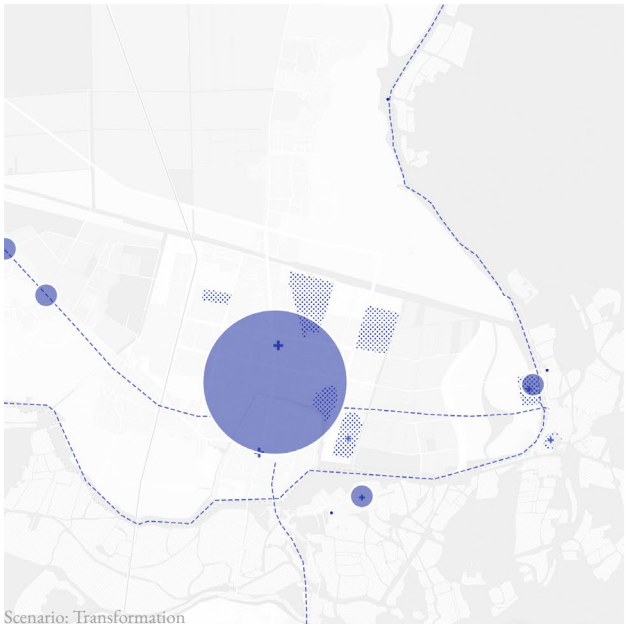
When comparing the scenarios based on the industrial productivity indicator, Scenario Production demonstrates the highest performance, followed by Scenario Transformation. Regarding the industry update indicator, both Scenario Production and Scenario Transformation showcase a composite industry structure. However, Scenario Transformation concentrates on developing the tertiary industry, while Scenario Production emphasises promoting existing primary and secondary industries. These findings provide valuable insights into each scenario's unique strengths and potential growth areas.



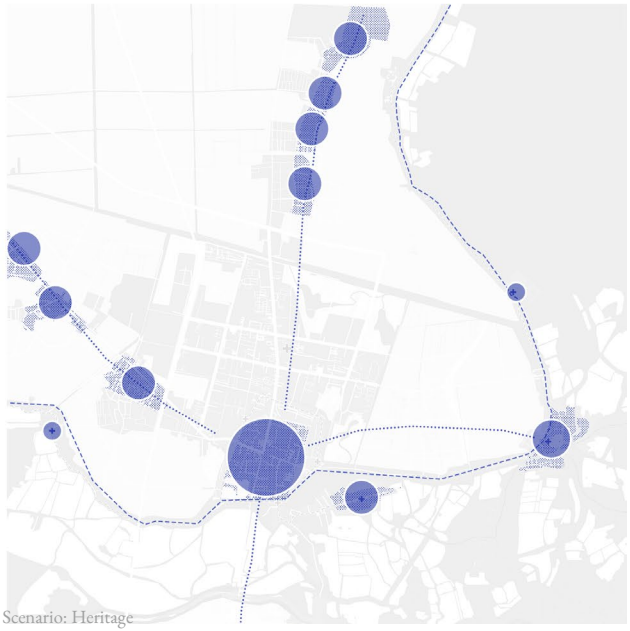
Scenario: Nature



Scenario: Production



Scenario: Transformation



Scenario: Heritage

Figure 52 Comparision of socio-economy performance

Local Identity

Local identity is compared by evaluating the agglomeration of heritage sites and particular industries or spatial characteristics that contribute to the city's brand identity. The presence of tangible and intangible heritage sites is marked with a plus sign, representing their spatial concentration.

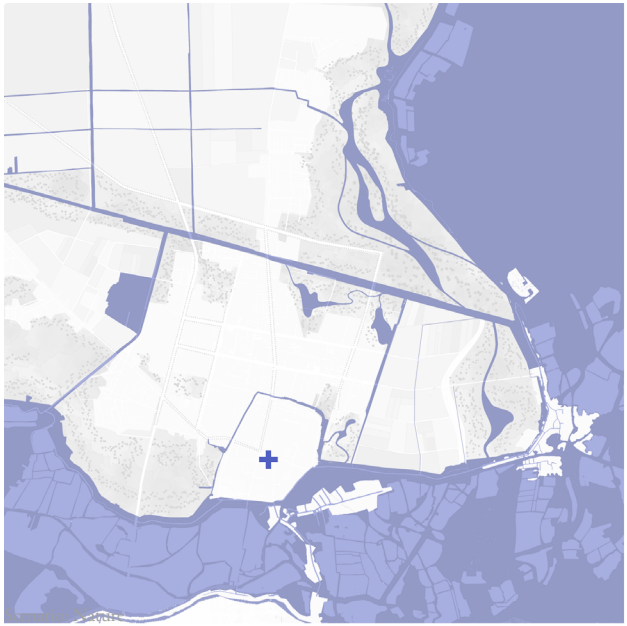
In Scenario Nature, significant efforts are made to protect the wetland area, aligning with larger regional planning goals. The unique wetland landscape of the region is enhanced. However, there is a potential risk of neglecting other forms of heritage, such as historical remains, residential buildings, and traditional production methods, which may diminish their significance over time.

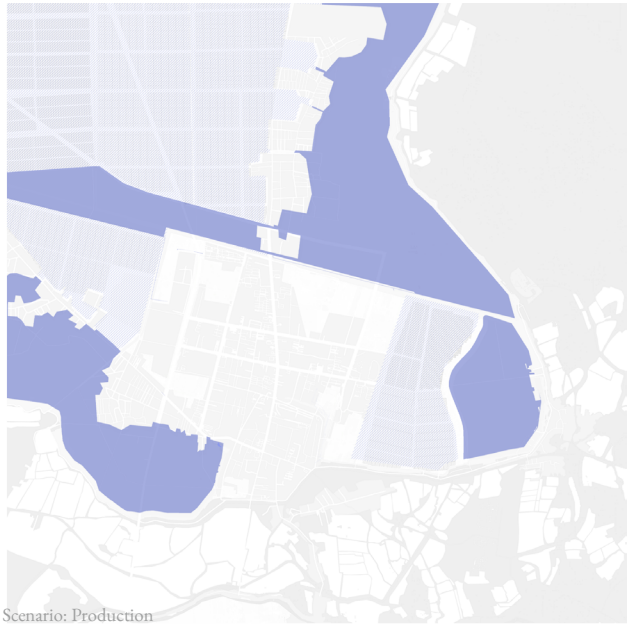
Scenario Production revolves around intensive agriculture and associated processing industries. In this scenario, the water-based identity of Anxin County is replaced by a strong focus on agricultural production, transforming the region's identity.

Scenario Transformation is characterized by a centralized urbanization approach, emphasizing the development and concentration of urban areas. This scenario envisions a significant transformation of the region into a more urbanized and interconnected landscape.

Scenario Heritage places utmost importance on protecting heritage sites and implements educational programs to promote cultural awareness. This scenario aims to maximize the cultural value of the region by preserving and celebrating its rich heritage.

Upon comparing the four scenarios, it is evident that Scenario Heritage performs exceptionally well in maintaining and promoting cultural identity. Its focus on heritage preservation and educational initiatives contributes significantly to the overall cultural value of the region.





Scenario: Production

Scenario: Transformation

Scenario: Heritage

Heritage agglomeration Brand identity

Figure 53 Comparision of local identity performance

... 最终解决中国土地问题的办法不在于紧缩农民的开支而应该增加农民的收入。因此，让我再重申一遍，恢复农村企业是根本的措施。

...A final solution of agrarian problems in China lies not so much in reduction of expenditure of the peasants but in increasing their income. Therefore, industrial recovery, let me repeat once more, is essential.

——《江村经济》费孝通

-- *Peasant life in China,* Fei Hsiao-tung

Source: Xiaohongshu @Rich's_Photograph

CHAPTER 5.
STRATEGIC DESIGN

5.1 Strategy choice

Flexiblity

Buffer zone

Buffer zones, requiring non-constructed areas with conditions such as ample water resources and unpolluted soil, can be implemented in wetland and mountain regions.

Sustainable farming

Sustainable farming, in comparison to traditional agriculture, requires more intensive maintenance and may provide relatively limited financial benefits. However, it can serve as a strategic approach to mitigate the negative impacts of intensive agriculture.

Intensive agriculture

The transition towards intensive agriculture necessitates mature technological support and a trained labor force. By providing comprehensive training and policy support, this universal strategy can be effectively implemented to enhance agricultural productivity and sustainability across not only the wetland areas but also the main agricultural production regions within the Jing-Jin-Ji megaregion.

Solar energy

The widespread adoption of solar energy as a renewable energy source to meet household and industrial energy needs is a universal strategy applicable in both urban and rural areas. By implementing supportive policies and incentives, solar energy can be widely utilized, contributing to a sustainable and clean energy transition.

Biofuel

The implementation of biofuel production relies on the availability of biomass feedstock. While reed is a viable resource in the Baiyangdian area, it may not be suitable for other rural regions. Therefore, it is necessary to assess and identify locally suitable biomass crops that can be sustainably cultivated for biofuel production.

Tourism

Tourism development relies on the availability of natural and cultural resources, along with effective promotional policies. In the Baiyangdian area, there is significant potential for tourism by exploring and integrating resources across towns and counties. Similarly, other regions in the Jing-Jin-Ji megaregion hold great potential for this strategy, considering their historical significance.

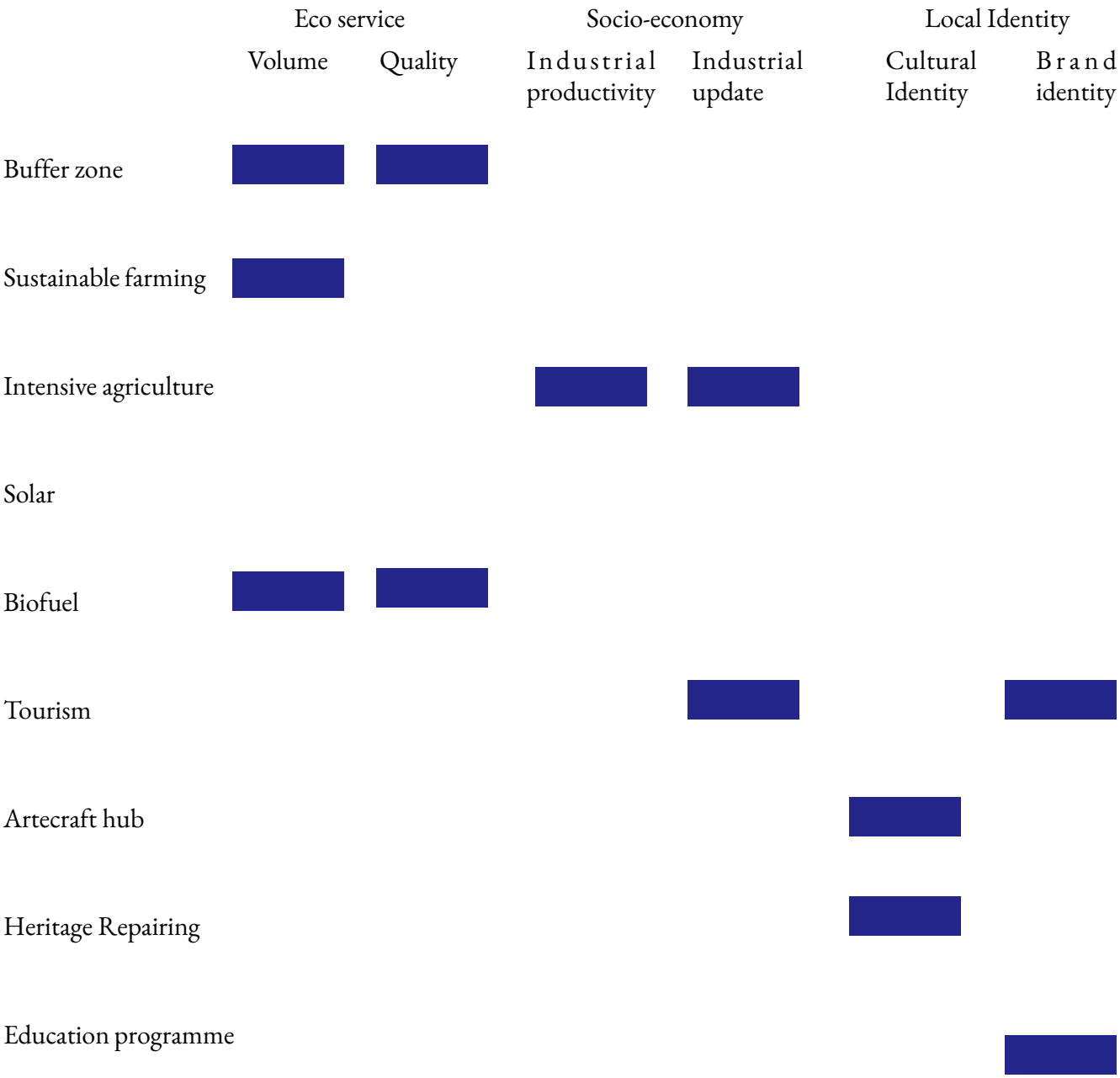
Artecraft hub

The development of artecraft as a strategy relies heavily on the traditional craftsmanship present in the wetland area. However, it is important to note that other areas within the region may also possess unique potential for industrialization and specialized crafts. By identifying and leveraging these specialized industries, it is possible to foster economic growth and preserve cultural heritage not only in the wetland area but also in other areas within the megaregion.

Heritage Repairing & Education programme

A robust financial support system is crucial for the practical implementation of heritage restoration projects, given their substantial resource requirements. Additionally, a strong social foundation is essential. Therefore, integrating heritage protection with the education and tourism industries creates a symbiotic relationship that fosters a healthy and long-term circularity.

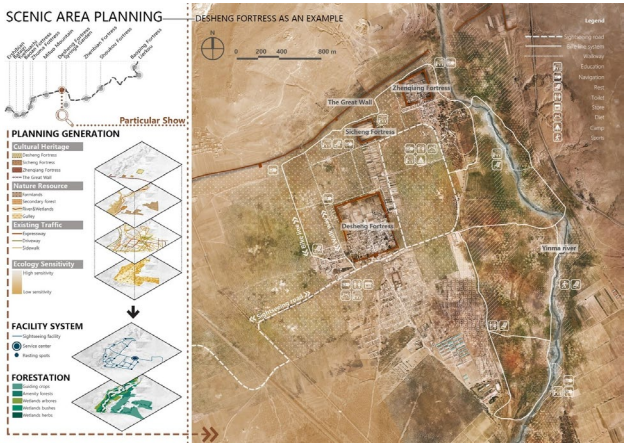
Assessment


Eco service
Socio-economy
Local Identity
Volume
Quality
Industrial productivity
Industrial update
Cultural Identity
Brand identity
Buffer zone
Sustainable farming
Intensive agriculture
Solar
Biofuel
Tourism
Artecraft hub
Heritage Repairing
Education programme

Case study

By conducting a comparative analysis of similar cases, the strategies employed in the project will be assessed within a broader framework to evaluate their adaptability and potential applicability in diverse contexts.

Datong Ancient Great Wall Cultural Heritage Corridor in Shanxi Province,China, BLLA and Beijing Forestry University



This project integrated ecological restoration and relic preservation, with a primary focus on the ancient Great Wall relic. Extensive efforts were dedicated to relic assessment, accompanied by the establishment of an ecological buffer area. Consequently, the implementation of these actions aims to revitalize the specific area through the protection and adaptable development of the Great Wall. However, it is important to acknowledge that the project predominantly follows a top-down planning approach, relying heavily on government financial allocations. From an economic sustainability and community development standpoint, there exist certain limitations.

The Recovered Archeological Landscape of Chengtoushan, Hunan province, Turenscape

This project aims to restore agricultural landscapes negatively impacted by inappropriate development after rediscovering an important archaeological site. The strategies implemented in this project focus on minimizing interventions to the archaeological site, rehabilitating the ecological system, and introducing low-impact sightseeing facilities. By employing these strategies, agricultural production can continue supporting the residents' income while offering tourism opportunities. This approach provides a promising way to introduce tertiary industries without compromising the primary sectors.

the Echigo-Tsumari Art Field, Japan, Fram Kitagawa

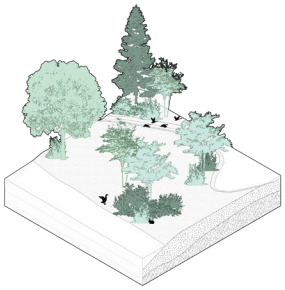
The Echigo-Tsumari Art Triennale is held in the Niigata region of Japan, which is grappling with challenges of aging and depopulation. Through the organization of art events and the engagement of artists to create works in the region, the project has demonstrated its efficacy in fostering commu-

nity development and stimulating the local economy. However, it is important to emphasize the significance of conducting comprehensive contextual surveys to ensure that the rural area genuinely benefits from the artistic endeavors, rather than being subjected to objectification or commodification by external forces.

The three abovementioned cases all happened in East Asia under an agrarian context. Coincidentally, all of them chose the tourism industry as a trigger to revitalize the rural area. These cases have demonstrated that, through effective marketing and management, tourism can stimulate economic activity and create a vibrant environment in rural areas. Consequently, tourism has become a widely adopted strategy in rural revitalization projects. In the context of the Jing-Jin-Ji megaregion, it is essential to consider that this area is a major agricultural region in China, and ensuring food security is paramount. Therefore, maintaining a solid primary industry sector should be the foundation for any industrial transformation within the Jing-Jin-Ji region. Building upon this foundation, upgrading energy infrastructure and renovating facilities can facilitate the transition towards a more diversified socio-economic landscape. Moreover, as highlighted in the previous chapters, the Baiyangdian wetland serves a crucial ecological function as a habitat. Therefore, preserving its ecological integrity should be considered in rural revitalization. Balancing the preservation of ecological function with economic development is essential to ensure a sustainable and harmonious approach to transforming the Baiyangdian wetland region.

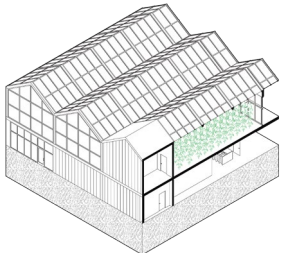
Principle

Based on the previous analyse, three strategies were chosen as the backbone: buffer zone, intensive agriculture and tourism, focusing on ecological preservation, primary industry restoration and economy resilience promotion. Other strategies could be combined with this three backbone to develop a set of detailed priciples and guide the planning.



Buffer zone

Set buffer zone along all the main waterway and the edge of wetland



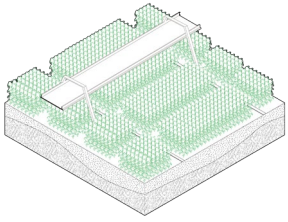
Intensive agriculture

+Sustainable farming

Intensive agriculture should be restrict at least 1KM away from buffer zone. The in-between area will become sustainable farming area.

+Biofuel

Biofuel plants should be build in each village to encorurage residents to maintain the reed polder



Tourism

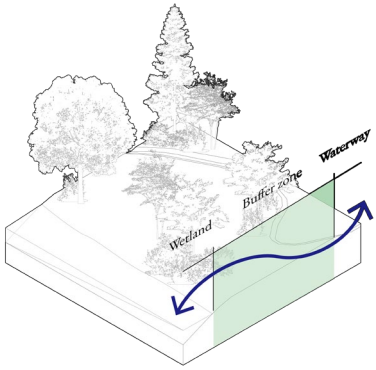
+Heritage Repairing

+Artecraft hub

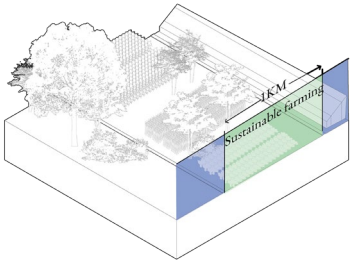
Selected heritage center should be protected as a district. Education programme and Artecraft hub will be attached to the selected heritage district

+Education programme

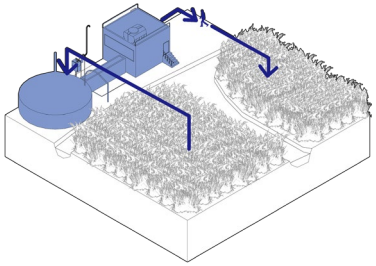
Low mobility travelling system and public transportation should be enhanced to increase the accessiblitity for all groups of people.



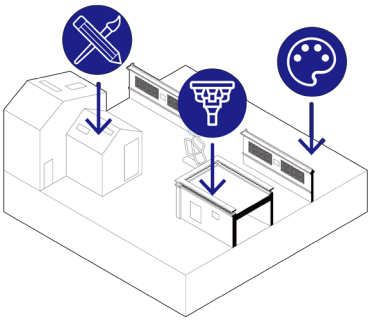
Set buffer zone along all the main waterway and the edge of wetland



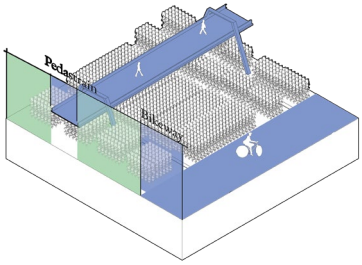
Intensive agriculture should be restrict at least 1KM away from buffer zone. The in-between area will become sustainable farming area.



Biofuel plants should be build in each village to encorurage residents to maintain the reed polder



Selected heritage center should be protected as a district. Education programme and Artecraft hub will be attached to the selected heritage district



Low mobility travelling system and public transportation should be enhanced to increase the accessiblitity for all groups of people.

5.2 Strategic map

Industrial Structure

The industrial structure is primarily composed of the wetland and agricultural sectors. Sustainable agriculture and intensive agriculture are the dominant activities within the inland areas. A significant axis extends from the wetland to the agricultural zones and passes through the main urban area, forming a vital connection between these sectors.

Infrastructure

An organized low-mobility system establishes connections between urban, village, and wetland areas, creating an integrated network that encompasses productive spaces, residential areas, and ecological functions.

Ecological structure

The ecological structure of the area is primarily formed by the buffer zone along the wetland and main waterway. Additionally, the establishment of a green-blue belt and the inclusion of urban greenery fill the gaps and provide necessary step-stones within the urban area. This enhances the overall ecological connectivity and promotes a balanced ecosystem.

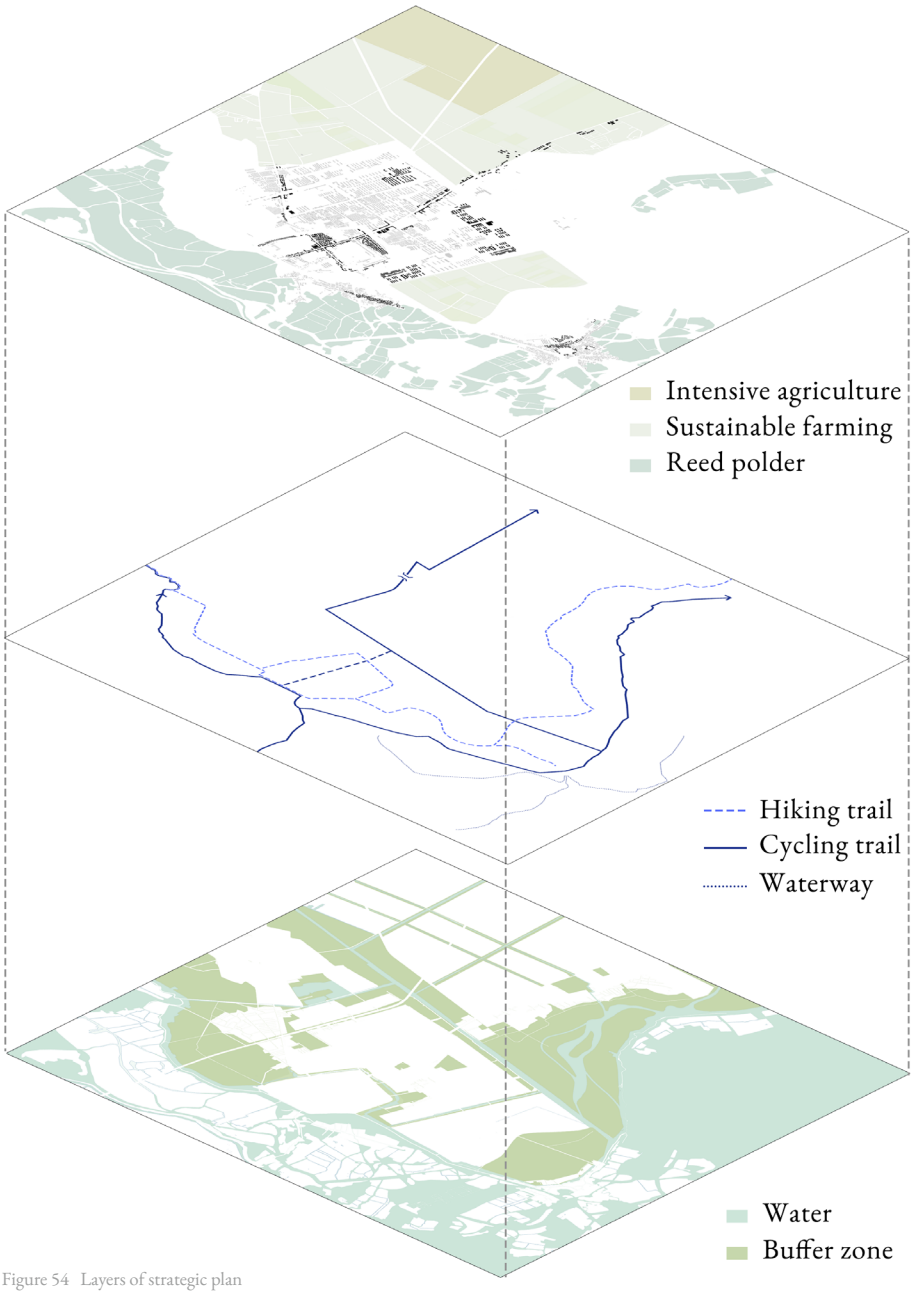
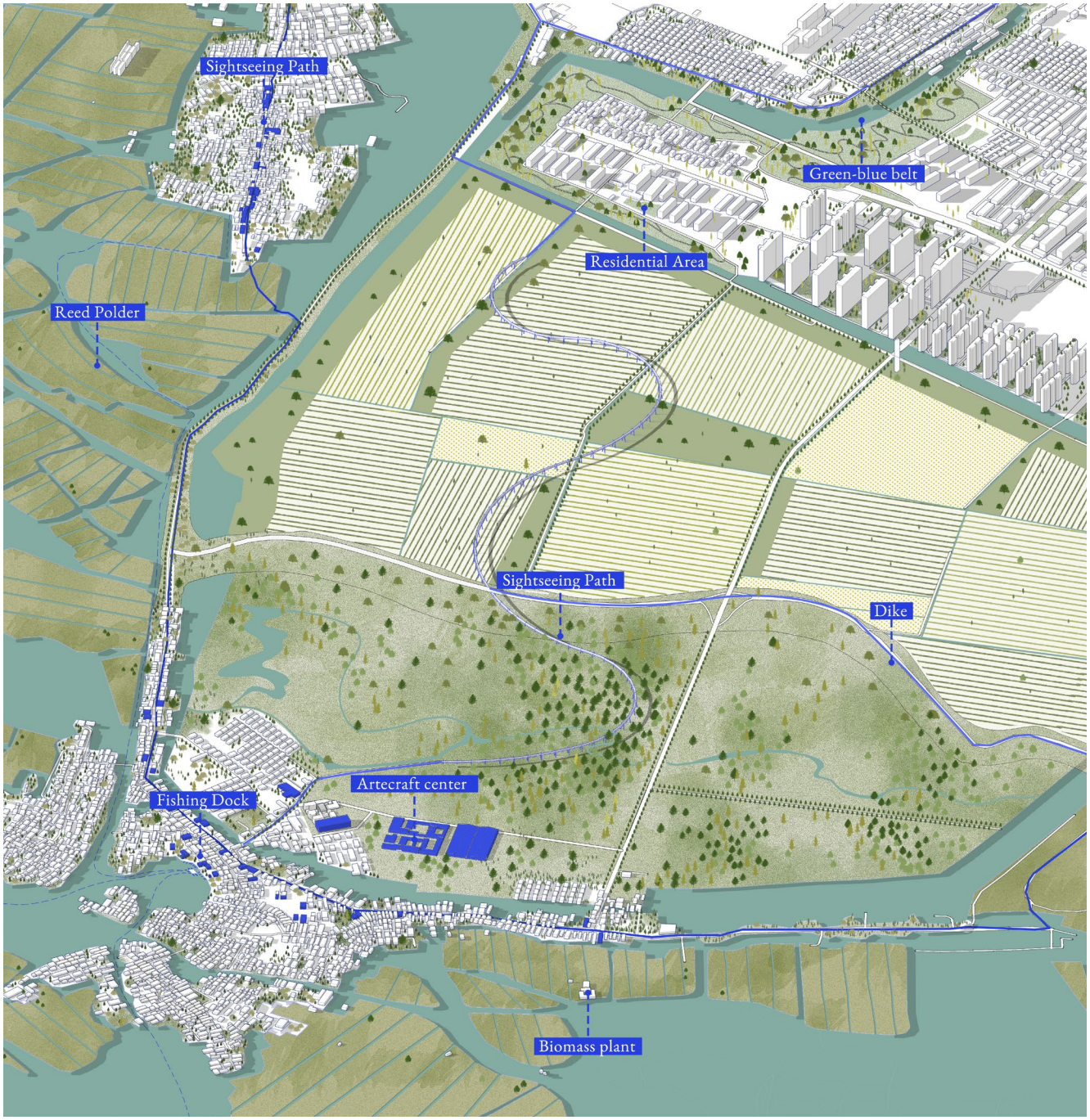


Figure 54 Layers of strategic plan

Figure 55 Strategic plan


Sightseeing Path
Green-blue belt
Residential Area
Reed Polder
Sightseeing Path
Dike
Artecraft center
Fishing Dock
Biomass plant

Timeline

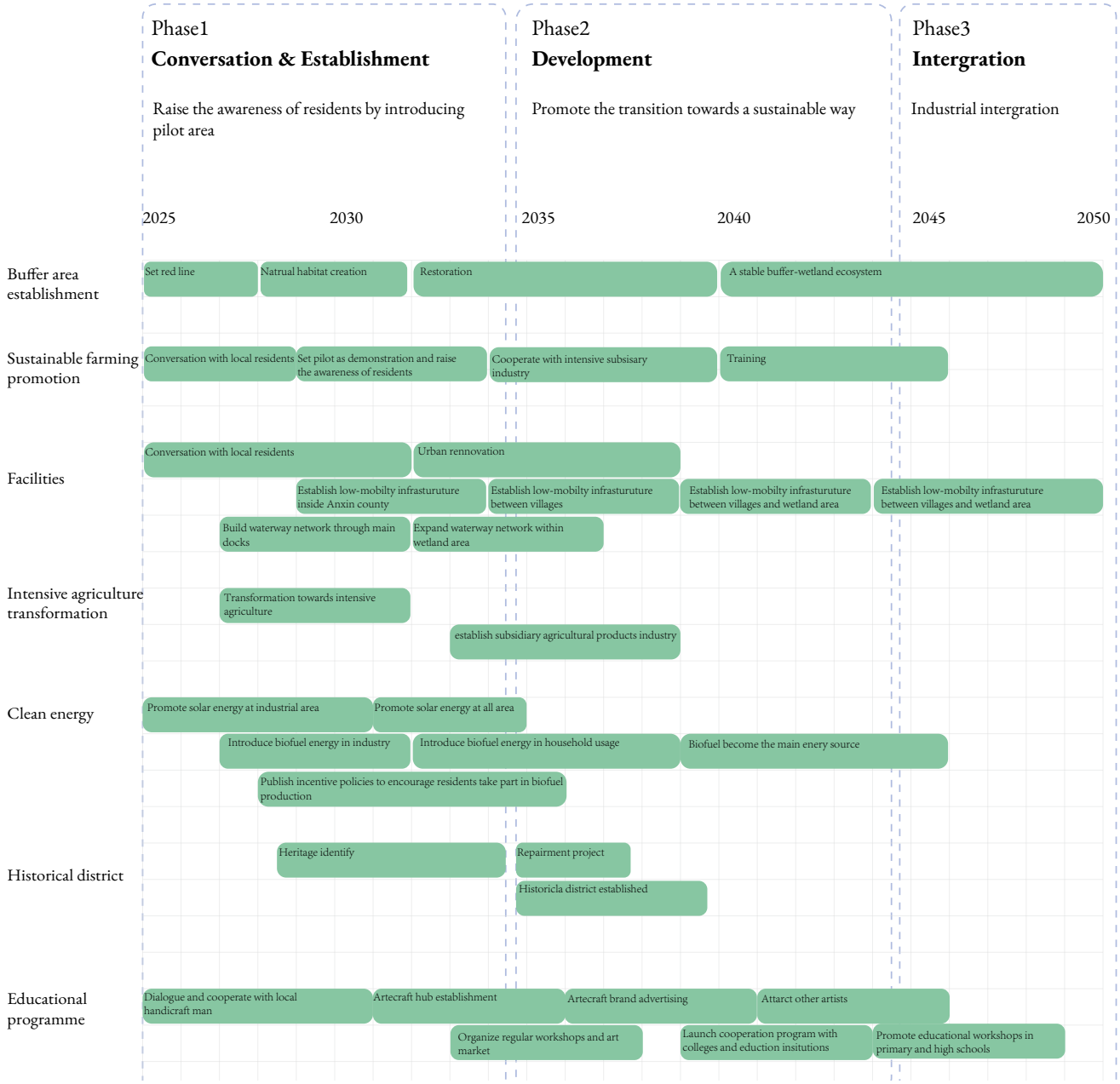


Figure 56 Timeline

5.3 Design cases

Design case:Dock

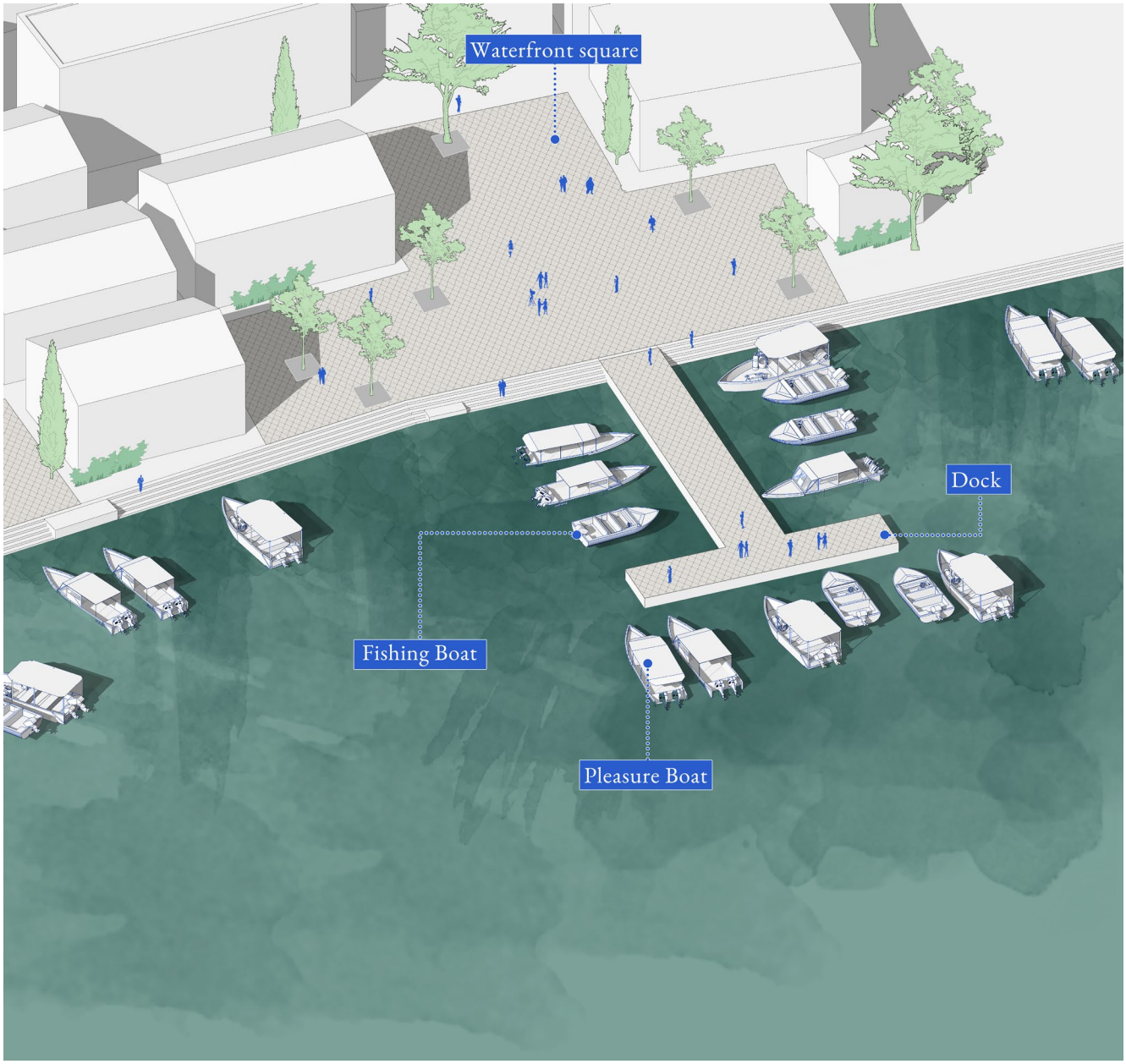


Figure 57 Axonometirc drawing of Dock

In the water villages of the Baiyangdian area, fishing docks serve as shared spaces. However, many of these docks have been constructed by residents without sufficient consideration for durability and flexibility. As a result, the current docks often deteriorate after a few years of use.

To address this issue, the design proposes a multi-functional dock that can accommodate fishing and pleasure boats. By incorporating flexible and durable materials, the new dock aims to withstand the challenges of water and weather conditions over a longer period. A waterfront square is also proposed to create an open public space where people can gather and pause, fostering community engagement and social interaction.

Furthermore, a waterside platform is introduced to enhance accessibility and allow individuals to have closer proximity to the water. This platform facilitates easier access to recreational activities and offers a unique vantage point to appreciate the surrounding natural beauty.

Current condition of the docks: cracked concrete elements and haphazardly hung fishing net

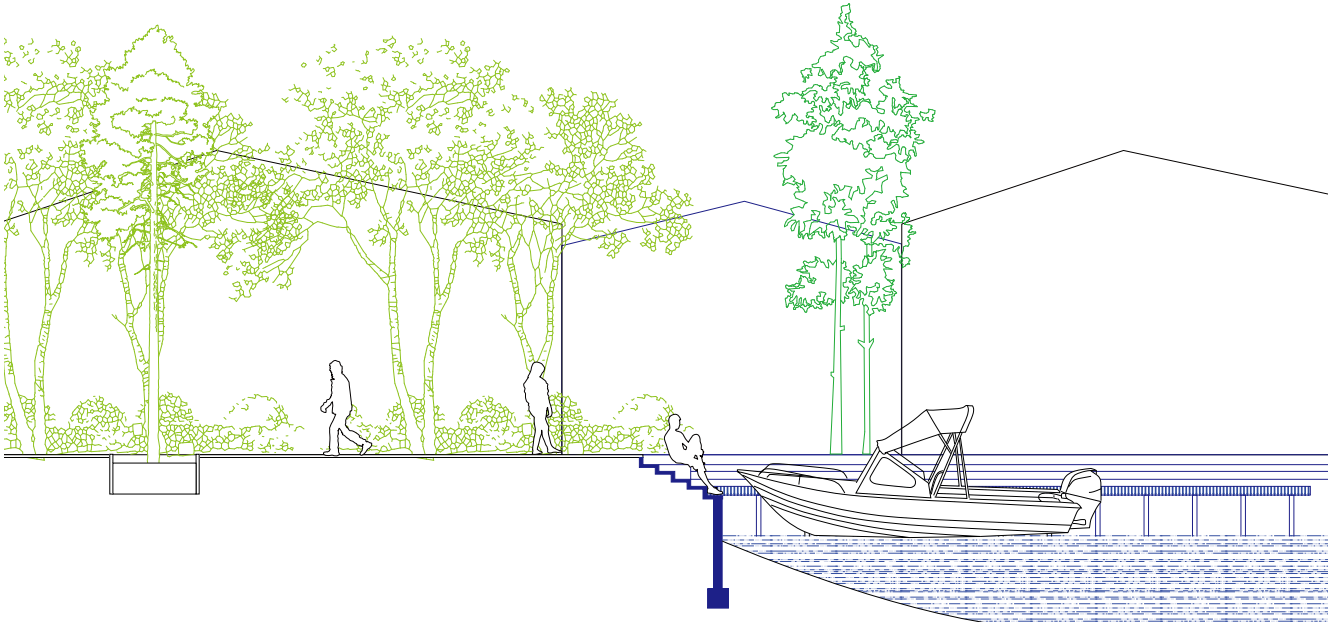


Figure 58 Section of the Dock

Figure 59 Current situation of waterside area

Unpaved revetment

Randomly parked boat

Piles of debris

Figure 60 Intervention of waterside area

Waterfront space

Collective dock for fishing and pleasure boat

Ecological revetment

Design case: Cyclist Trail

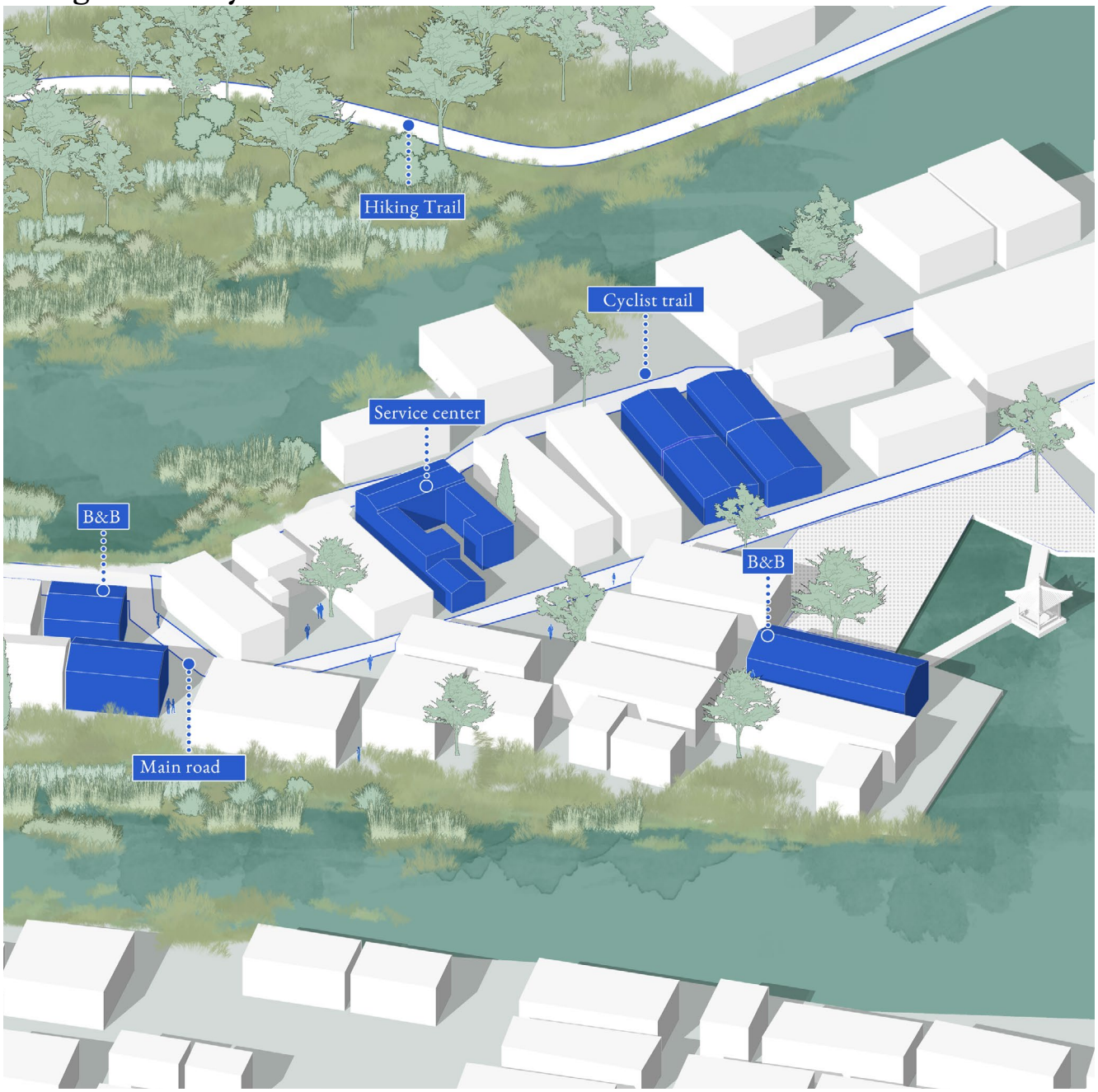


Figure 61 Axonometirc drawing of Trails

The village roads in the Baiyangdian area often lack a clear hierarchical structure, making it easy for non-local visitors to become disoriented. Additionally, the absence of clear divisions between motor vehicles and non-motor vehicles causes inconvenience for both locals and visitors. To address these issues and create a safer and more accessible environment, reorganising the traffic flow within the village is needed. Motor vehicles would be restricted to the main road, the primary connection between the village and other infrastructure. Dedicated cycling and hiking trails would be established to accommodate non-motorised transportation, running through less trafficked areas of the village to minimise the impact of visitors on residents' daily lives while providing them with safe and enjoyable routes for active transportation.

Unorganised traffic flow with randomly parked motor vehicles

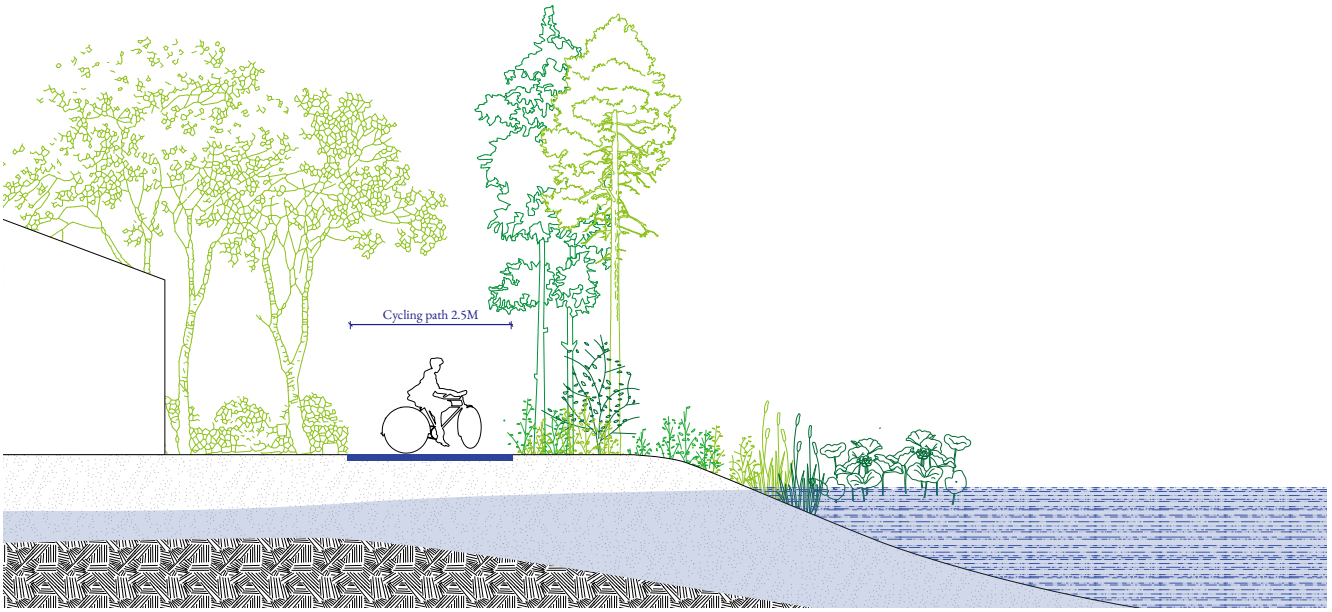


Figure 62 Section of Trails

Figure 63 Current situation of village

Naturally growing ri-
parian vegetation

Bridge: spontaneous constructed
by residents with a weak structure

Dock with stcaking debris

Cluttered electrical infrasture

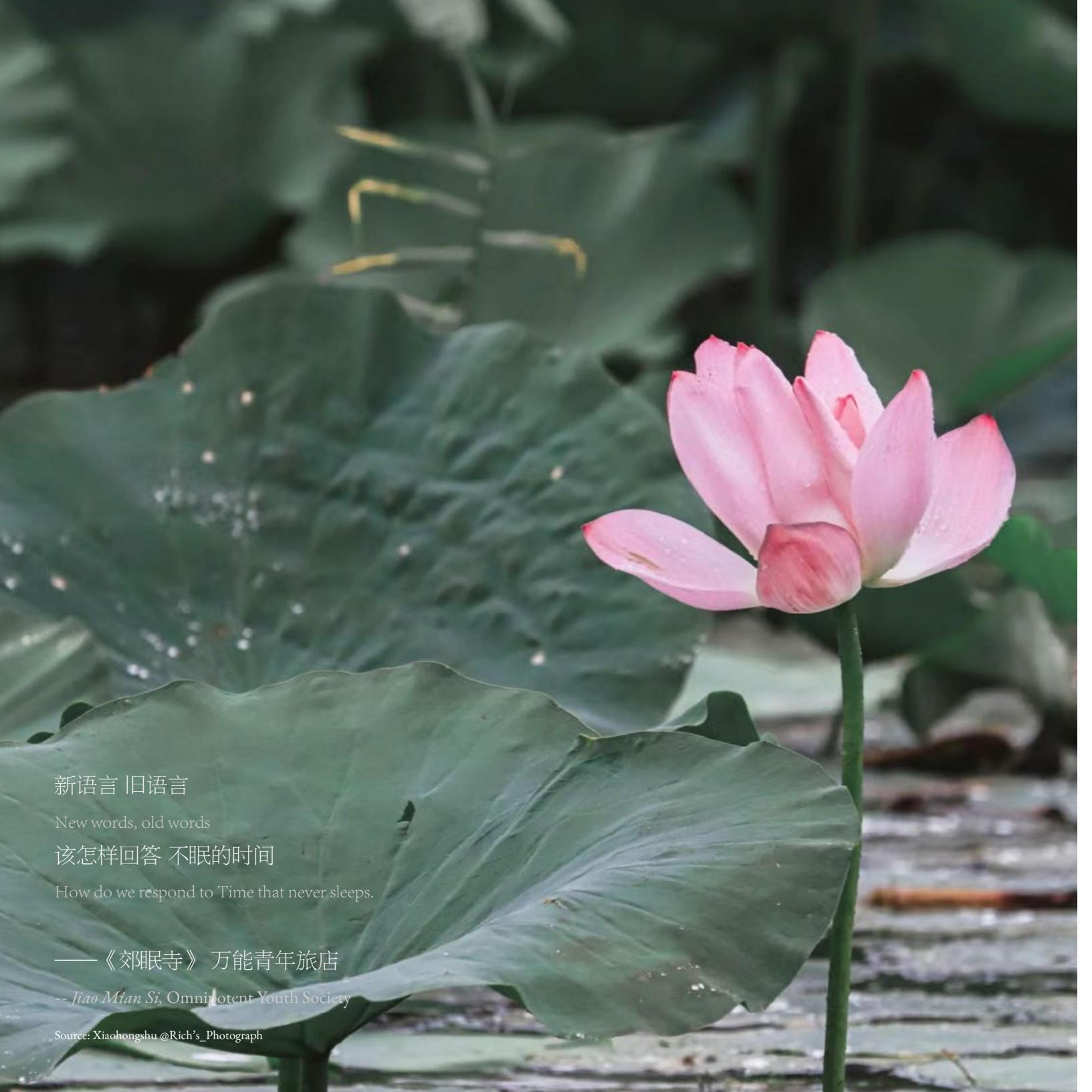
Figure 64 Intervention of village

Stably consturcted bridge

Pedestrian

Re-organised ecologi-cal revetment

Flexible household dock



新语言 旧语言

New words, old words

该怎样回答 不眠的时间

How do we respond to Time that never sleeps.

——《郊眠寺》 万能青年旅店

-- *Jiao Mian Si,* Omnipotent Youth Society

Source: Xiaohongshu @Rich's_Photograph

CHAPTER 6. CONCLUSION

6.1 Conclusion

6.2 Reflection

6.1 Conclusion

Answering the research question

1. What is the water productive landscape in Baiyangdian area?

The Baiyangdian area features a unique and interconnected productive landscape encompassing wetland production and traditional agriculture. This landscape has been sustained by the rich resources offered by the wetland, including reeds and fisheries, which have supported the local economy for centuries. Additionally, modern hydraulic engineering projects have facilitated agricultural production in the low-lying regions. Furthermore, the growth of the secondary industry following the Reform and Open up period has added to the economic diversity of the area.

The industrial activities in the Baiyangdian area have significantly influenced the landscape of the wetland. Large portions of the water body have been utilized for fishery and the cultivation of reeds, leading to reduced water flow and lower hydrodynamics. Consequently, water stagnation has become prevalent, negatively impacting biodiversity. Furthermore, the construction of reed polders has blurred the boundaries between the wetland and low-lying areas, altering the natural distinction between them.

Collectively, these industries have shaped the distinctive landscape of the Baiyangdian wetland, forming a cohesive and vibrant productive system.

2. What is the rural socio-economy structure in Baiyangdian area?

The rural area surrounding Baiyangdian wetland exemplifies the typical characteristics of an East-Asian Desakota region, where agriculture and secondary industries coexist.

The secondary industry tends to concentrate in close proximity to the villages, forming a coordinated network of towns and villages, each with its specific industry. Residents commonly engage in both industries; however, the declining value of agricultural products has led to a growing shift towards a greater emphasis on the secondary industry. This juxtaposition of primary and secondary industries highlights the potential for reformation and adaptation in the area.

In terms of the local secondary industry, it primarily consists of family-run enterprises. This operational mode does not require formal academic certification or advanced knowledge, which has discouraged youth from pursuing higher education. The overall low education level and simple industry structure have resulted in a fragile socio-economic structure. Consequently, when facing the wave of reformation, the adaptive capacity of the local population is relatively low, increasing the risk of significant unemployment.

3. What impact will the construction of the Xiong'an New Area have on the current rural development?

The Xiong'an New Area plan is focused on achieving a high-tech and sustainable form of urbanization. As part of this plan, the existing secondary industrial sector is mostly cleaned out because of their high-pollution and labour-intense proporty. Consequently, certain surrounding villages are envisioned to transition into providing service functions related to ecology, tourism, and other sectors. However, many other villages will undergo deconstruction, leading to the relocation of residents into urban areas.

This urban-centric spatial network will become the dominant feature of the Baiyangdian area, resulting in the merging of rural areas into the expanding urban landscape. At a regional scale, with some specific villages may exist because of their special role in the regional network, most of the rural or desakota area will inevitebly shrunk.

Currently the rural revitalization project in China is mainly guided by three kind of trajectories: tourism-based development, internet-based development, and creative industry-based development. However, none of these trajectories adequately emphasize the crucial aspect of building a self-sustaining rural network. By continuing along the existing path, villages risk remaining subordinate to central cities rather than achieving true autonomy and self-sufficiency.

4. What are the envisioned scenarios of agricultural transition in the Baiyangdian wetland area?

The project comprises four distinct scenarios: Nature, Productive, Transformation, and Heritage, representing different value choices.

The Nature scenario focuses on ecological sensitivity and climate resilience, preserving wetland functions and biodiversity. The Productive scenario aims to maintain and renovate existing industries, particularly in agriculture. The Transformation scenario promotes tertiary industries like tourism and education. The Heritage scenario prioritizes the preservation of cultural heritage while stimulating creative industries.

Through careful evaluation and compromise, a final strategic map is developed. It emphasizes the importance of balancing local industries and ecological preservation for sustainable development. The strategic map presents a feasible and balanced approach, integrating industry and ecology for long-term sustainability.

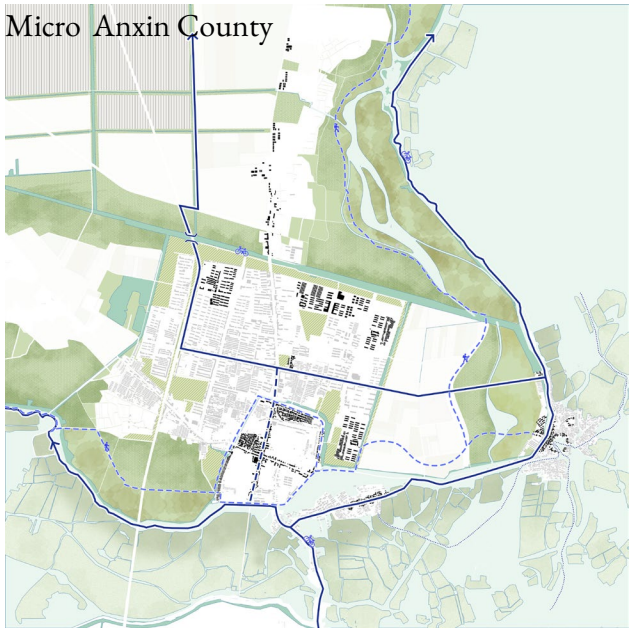
5. How can this transition be adapted to other areas in the Jing-Jin-Ji megaregion?

The design case presents a comprehensive approach at the micro scale, using Anxin County as an example. It encompasses three main elements: the development of an ecological corridor, the establishment of an industrial network, and the enhancement of infrastructure. These elements work in synergy to improve the ecological and social resilience of the area.

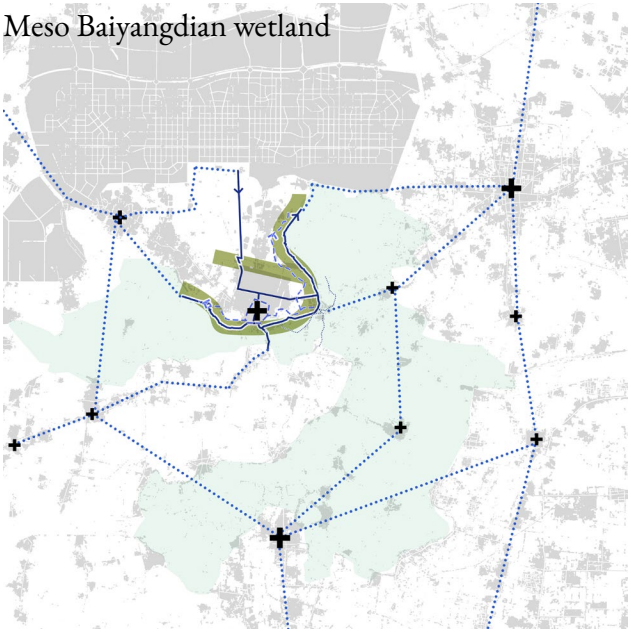
Expanding to a meso scale, the application of a village-based network surrounding Baiyangdian wetland offers promising opportunities for further enhancing ecological and social resilience. This network can foster closer connections between villages, promote local engagement, and support sustainable development.

Looking at a regional scale, the implications of this planning approach extend beyond Anxin County. The vast rural area encompassing Beijing, Tianjin, Baoding, and Xiong'an stands to benefit from the principles and strategies employed in this design case. By prioritizing ecological preservation and integrating local industries, the region can achieve comprehensive and sustainable development, transforming into a thriving and resilient landscape.

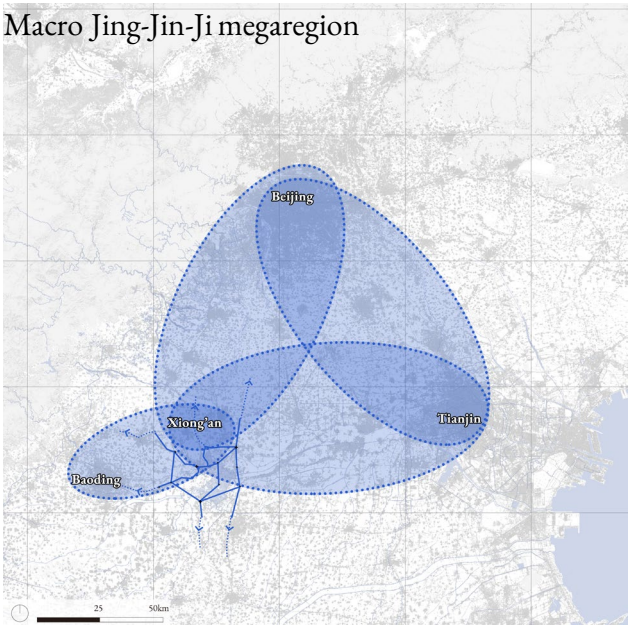
Overall, this design case exemplifies a holistic and scalable planning approach, offering insights and strategies that can be applied to other regions facing similar challenges and aspirations for sustainable development.



Meso Baiyangdian wetland



Macro Jing-Jin-Ji megaregion



6.2 Reflection

Throughout my two-year journey at TU Delft, I explored the intricate relationship between humans, cities, and nature. Reflecting on my motivation letter when applying to TU Delft, I expressed my desire to contribute to my hometown's urbanization process while delving into this connection. This is precisely why I chose to pursue my graduation project in the MEP studio. I firmly believe in the inseparable bond between humans, nature, and the built environment.

Looking back on the entire project, I am proud to say that it broadly aligns with my initial vision. However, there are some areas I wish I could have improved upon. At the outset, I was ambitious in developing a set of principles to guide town and village-scale planning in the Jing-Jin-Ji megaregion. To achieve this, I selected Baiyangdian wetland and Xiong'an new area, known for its top-down planning approaches and abundant local resources encompassing landscapes, culture, and productive identity.

During the research phase, I focused on unravelling the water-based production system around the Baiyangdian wetland, shedding light on the unique rural culture, society, and economy that had evolved within this framework. Employing mapping as my primary method, I meticulously uncovered the layers of geology, landscape, settlements, and production, identifying synergies and missing links along the way.

While my research provided a robust foundation for the design, certain limitations hindered a more comprehensive analysis. Due to the scarcity of geological data, a detailed assessment of soil conditions and ecosystems was unattainable, which could have significantly influenced the specific design choices. Additionally, the absence of building fabric data limited the possibility of executing spatial designs on a smaller scale. Meawhile, doing all the analysis in a mapping view results in a lack of human's perspective, which lead to an abstraction of the analysis.

To address these gaps, I embarked on fieldwork after the second phase, visiting my site and other villages and peri-urban areas within the Jing-Jin-Ji megaregion. This immersive experience provided invaluable multimedia materials and a deeper understanding of the megaregion, serving as a significant catalyst for shaping my final design. Moreover, as a resident of the area, I had previously taken certain aspects for granted. However, adopting an urbanist's perspective unveiled a more vibrant and promising city and village life, expanding my horizons.

After the field trip, I started the design with scenario building as my main method. I explore the possible development in different dimensions by building four extreme scenarios. After this, I choose one to go deeper. When building scenarios, I met some difficulties in narrowing down the possibilities. The site I was working on is facing unprecedented development, even faster than other areas in China. Such stretched speed brought more extensive and complex risks that must be pre-considered. Thus I chose to make my scenarios extreme and ignore the risks temporarily. After knowing the ultimate target, namely a well-depicted scenario, I can introduce the actual conditions and develop strategies to real-

ize the scenario step-by-step.

Throughout this process, I faced moments of self-doubt, questioning whether the future I envisioned as an urbanist truly addressed the area's genuine needs. I grappled with the realization that my values might not be inherently superior or more future-oriented. However, through discussions with my tutors, I ultimately focused on establishing a design process encompassing value selection, scenario building, and the construction of a final decision. This approach represents my response to the uncertainties inherent in the area, employing a bottom-up, local-based methodology that eschews definitive results in favour of adaptability.

Engaging in conversations with my peers, I explored China's rural revitalization projects, acknowledging that while some successful cases appear replicable, they often rely heavily on tourism or internet-based transitions. The sustainability of these models to support rural development as independent elements of society rather than subordinate entities to cities remains uncertain. As China has experienced remarkable urbanization in recent decades, exemplified by the rapid growth of city agglomerations like the Yangtze River Delta and the Greater Bay Area, duplicating the successes of cities such as Shenzhen or Shanghai Pudong in the current global context is no longer feasible. Consequently, there is a pressing need for solutions that connect rural and urban areas through indigenous socio-economic systems.

In the case of my project, the wetland-based production system serves as the focal point. Yet, the methodology of identifying such systems and initiating design should be transferable to other regions. The project provides a bottom-up perspective to investigate the relationship between humans, cities, and nature in the wetland area. It contributes to the planning approach in the Jing-Jin-Ji megaregion on a village-based scale. Regarding societal implications, my project emphasizes the importance of engaging local identity and using existing resources to feed back into the planning structure on a larger scale. By integrating these aspects, the project promotes sustainable development practices that can help mitigate the negative impacts of rapid urbanization. Ethically, the project considered the demands of residents and aimed to involve them as active participants in community development.

The project's transferability lies in its emphasis on understanding local systems, incorporating community engagement, and prioritizing ecological sustainability in urban planning. By sharing the project findings and methodologies, other regions can draw insights and adapt them to their unique circumstances, fostering sustainable development practices beyond the study area.

In conclusion, my graduation project at TU Delft allowed me to explore the intricate relationship between humans, cities, and nature. It aligned with my initial vision and contributed to understanding town and village-scale planning in the Jing-Jin-Ji megaregion. Overall, the project represents a step towards a more holistic and sustainable approach to urban planning and development.

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