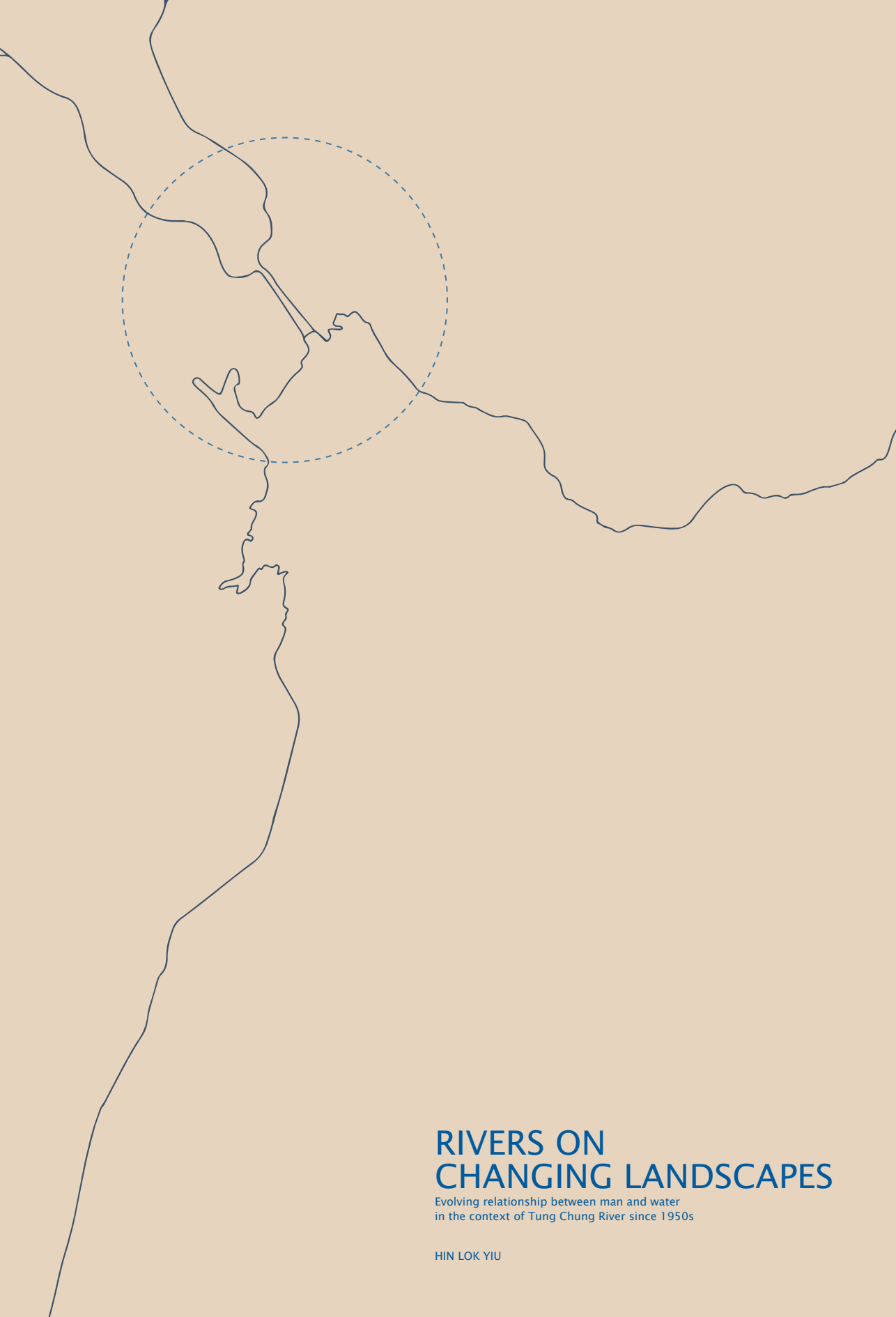




RIVERS ON CHANGING LANDSCAPES

Evolving relationship between man and water
in the context of Tung Chung River since 1950s

HIN LOK YIU

Rivers on Changing Landscapes

**Evolving relationship between man and water in the context of
Tung Chung River since 1950s**

École polytechnique fédérale de Lausanne (EPFL)
énoncé théorique de master en architecture 2023-2024

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22 January 2024

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Acknowledgements

I would like to express my deepest gratitude to my tutor Marcela Delgado Velasco for her time, knowledge and encouragement throughout the process of this research. I would also like to extend my gratitude to Andrea Palmioli and Sylvie Nguyen who assisted this thesis.

Thank you to my family and friends.

Finally I would like to thank Jeffrey Huang for reading and Paola Viganò for providing incredible patience and guidance.



2024, Hin Lok Yiu

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**“Men travel far to see a city,
but few seem curious about
a river. Every rivers has,
nevertheless, its individuality,
its great silent interest. Every
river has, moreover, its
influence over the people
who pass their lives within
sight of its waters.”**

(Merriman, 1906)

Preface

relationship between man and water

Historically, rivers were crucial to human life, serving as vital resources for agriculture and industrial development. However, from the 19th century onward, water's role in urbanism diminished, overshadowed by the construction of buildings and roads.

Today, water is not predominantly seen as a resource for food and energy production, but rather as an additional layer of value, offering leisure and entertainment to urban populations. This shift suggests that the potential of river landscapes in urban settings remains largely untapped and ripe for exploration.

In the context of Hong Kong, specific rural areas have been designated as new towns to meet the growing housing and population needs. In the land use planning for these new towns, rivers in rural areas often do not receive comprehensive attention from urban planners. Looking at Tung Chung Valley, situated in a transitional phase from developing to a developed new town, we can learn from other developed new towns example to project the future of this evolving rural landscape. It is important to investigate the value of the valley from various perspectives, not just in terms of meeting current human needs but also in preparing for future trends where territories are increasingly viewed as integral parts of infrastructure. This broader perspective may reveal new opportunities and values in integrating river landscapes more thoughtfully into urban development.



Fig. 1

Tung Chung Village and Chek Lap Kok Island in 1989

Research Question

evolving relationship

The research begins by exploring the evolution of the Tung Chung River within the broader context of Lantau Island. It traces the river's transformation from a remote community lifeline to a hub of economic and logistical significance. The river's role is viewed through four distinct temporal stages. Initially, before the 1960s, the river was an essential agricultural resource, particularly vital for the survival of the isolated Tung Chung community. The second stage marks a shift following the completion of the Shek Pik reservoir in 1963, which led to the diversion of the river's water. This event, coupled with urbanization in areas like Kowloon and Hong Kong Island, resulted in demographic changes, with residents relocating in search of better living standards and job opportunities. Those who remained in Tung Chung adapted to new livelihoods, reducing their reliance on the river. This period also allowed for ecological recuperation of the river, contrasting with the fate of other urban and newly developed areas where rivers suffered modifications like channelization of Shing Mun River in Shatin in 1970s. It is a phenomenon to be explored later in the context of new town development in Hong Kong as a response to housing challenges. The third stage, the present scenario, sees the Tung Chung River largely unaffected by the initial phase of new town development, preserving its natural wildlife. However, new infrastructural developments and housing policies have led to unplanned expansion in the river valley, disrupting the landscape and weakening the connection between the community and the river. The announcement of Tung Chung's second development phase in 2017 introduced further challenges, including environmental degradation. Looking ahead, in the fourth stage, the Tung Chung River is set to become Hong Kong's first river park, envisioned as a key leisure and entertainment site for local residents. This future development underscores the need for a balance between ecological preservation and accommodating an influx of new residents.

The research aims to explore how the natural ecological dimension react to the urbanization, with a particular focus on the evolving relationship between human and river environment. The research then explores the current pressures on the Tung Chung River due to its location at the urban fringe, where ongoing major developments represent a hybrid of urban infrastructure and rural landscape. This study aims to understand how these factors impact the river's natural ecology. Drawing from this analysis of the Tung Chung River's identity, value, and future development plans, the thesis seeks to examine the impact of government policies and development plans on traditional villages, often leading to a form of "colonization." It critically evaluates the standard urban development framework and its consequent disconnection from the natural landscape. The objective of this research is to propose a new perspective on river landscapes, aiming to foster a deeper empathy and understanding for these fragile ecosystems and rethink the futures of villages in Tung Chung valley by re-examining the historical trace and value, in contribution to the identity for the newcomers.



Part Three:

Island Perspective

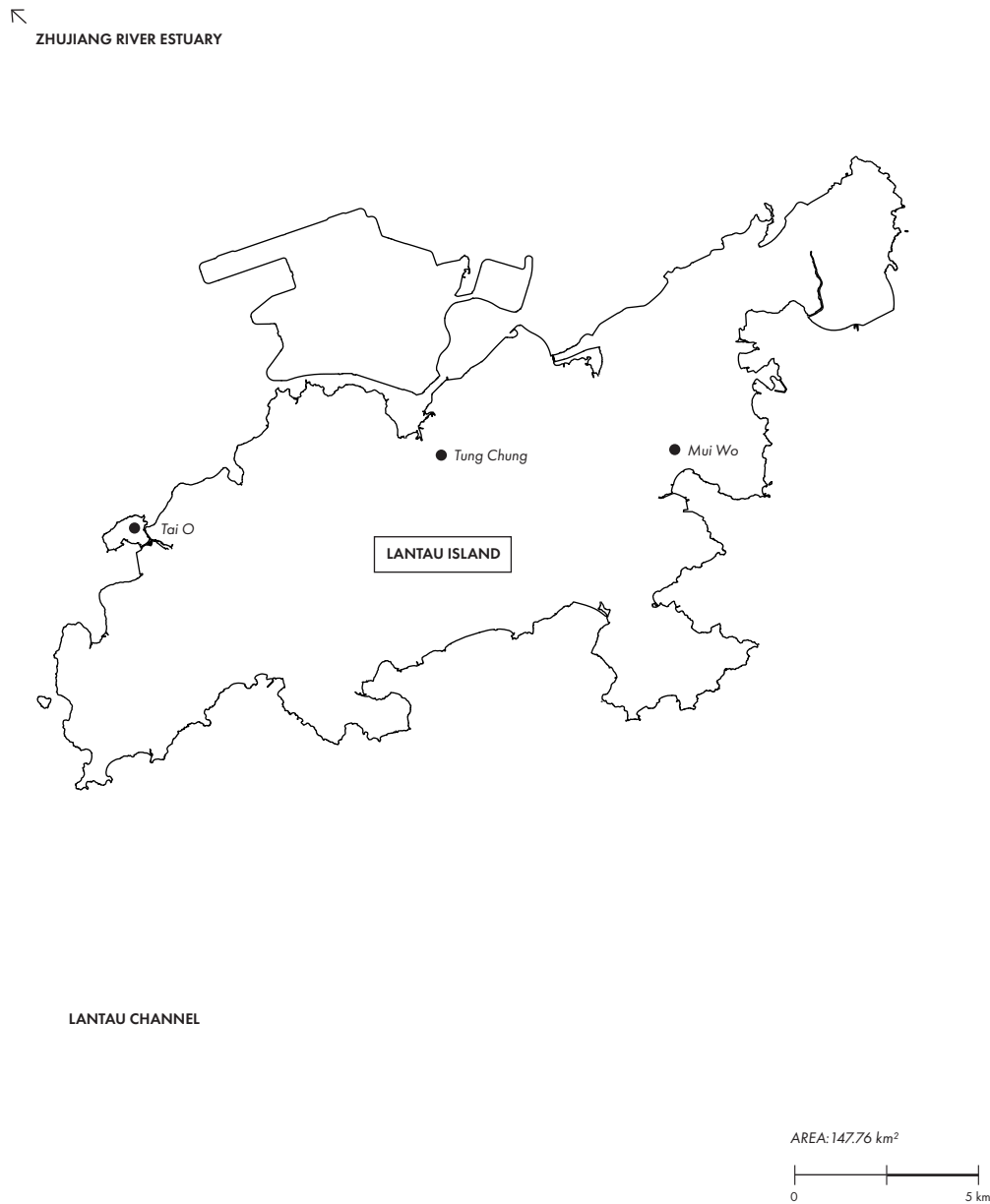


Fig. 3

Overview of Lantau Island

Island Perspective

Lantau Island

We can better understand Lantau Island by studying the meanings of its place names. Examining the toponyms of various locations on the island provides insights into their geographical and historical characteristics. For instance, the term 'Chung' in Tung Chung (東涌) (Fig. 4) refers to an area near the mouth of river where water flows into the sea. Similarly, the 'O' in Tai O (大澳) (Fig. 5) signifies a region that has been carved inward along the coastline to create a sheltered harbor for ships. It can also be area where water run through mountains. Lastly, the 'Wo' of Mui Wo (梅窩) (Fig. 6) denotes a small basin surrounded by hills.¹ These three places were some of the first settlements on the island, dating back to the 17th century.

Lantau Island primarily consists of mountainous terrain. Lantau Peak, 934 metres, is the highest point of the island. It is the second highest in Hong Kong. Other mountains including Sunset Peak, Lin Fa Shan, Nei Lak Shan and Yi Tung Shan endows Lantau Island with its distinction as “the lungs of Hong Kong”, due to its abundance of indigenous forest. This stark contrast is evident when comparing high-rise residential developments and commercial towers that characterize the urban areas of Hong Kong. Shek Pik Reservoir is the third largest freshwater reservoir in Hong Kong. It is completed in 1963, with a capacity of 24,500,000 m³. It was initiated to address the pressing issue of water scarcity, arising from the rapid population growth since the 1950s.² About 10 million cubic metres of water from Tung Chung River is transferred to the reservoir annually, accounting for around 40% of the total capacity of the reservoir. Once the upper reaches of Tung Chung River were intercepted to boost freshwater supplies, water flow at the lower reaches was substantially reduced, creating a negative impact on the river's ecology and agricultural activities.³

The “convergence of land and water cultures” is a major cultural and historical feature of Lantau Island, which is reflected in the naturally occurring settlements, architecture, religious beliefs, handicrafts and economic production, as well as culinary culture of the region. The following are some examples of the water and land cultural elements in the cultural life of the region.⁴



Fig. 4
View to Tung Chung from Ngong Ping

	Aquatic Cultural Elements	Inland Cultural Elements
Settlement	Traditional Fishing Village	Traditional and post-war villages and markets
Population	Boat Dwellers	Local, Hakka
Architecture	Stilt Houses	Chinese style houses, village style houses
Religion	Tin Hau (the guardian of the sea and weather) and Hung Shing (God of the South Sea) , and more specifically to the King of Fish Heads (the god of fish nets) and Chu Tai Sin (a deity of medicine for fishermen)	Mainly dedicated to Kwan Tai (the god of Loyalty and courage), earth god, Pak Kung (the grandparent of the soil) and Tai Wong Yeh (the great lord, to keep the plague away)
Handicrafts, economic production and food culture	Fishing, shrimp fishing; salted fish, shrimp paste, shrimp paste, dried shrimp, fish maw	Farming, bee-keeping, tea cake, herbal cake, popped rice
Economic activities	Fisheries	Agriculture, Commercial

In some local coastal villages, although the villagers mainly engage in farming, they also go fishing from time to time. In the past, when land transport was inconvenient, they would also make use of the waterways to travel to and from their villages. Therefore, the living cultures of the land and water inhabitants are not completely separated and cannot be simply distinguished between water and land cultures. The convergence of land and water inhabitants and their mutual cultural influences have not only preserved their own characteristics, but also formed a kind of cultural colour that blends land and water. ⁵

Lantau Island situated to the west of Hong Kong Island and the Kowloon Peninsula, is the largest island within the Hong Kong territory. Historically characterized by fishing villages, before the announcement of Hong Kong Airport Core Programme in 1989, Tung Chung and Chek Lap Kok were still deserted. Its transformation commenced in the latter part of the 20th century, marked notably by the establishment of Tung Chung New Town along its north-western shoreline and the completion of various significant infrastructure projects (Fig. 7 & 8). In the 1990s, the British Hong Kong Government carried out massive reclamation on North Lantau, transforming Tung Chung from a quiet fishing village into a modern city. The Airport Core Program consisted of a number of infrastructure initiatives that centred on the construction of the Hong Kong International Airport in the early 1990s. It formed part of the Port and Airport Development Strategy, which is commonly referred to as the Rose Garden Project. ⁶ The chain events on Lantau Island mainly initiated by the Airport Core Project shifted the economic centre



Fig. 5
Tai O fishing village



Fig. 6
Mui Wo

from south to north. Tung Chung, nestled in the North Lantau, rousing it from years of isolation from other parts of the island. Lantau Island will offer fertile ground for future economic development and safeguard its valuable natural and cultural assets for conservation. (Fig. 9)

1st period

2nd period

3rd period

4th period

Event \ Year	1950	1960	1970	1980	1990	2000	2010	2020	By 2040
Social Background	+ Increase of population due to war in China	+ Industrial development	● 1959 Commencement of new towns programme	+ Financial centre in Asia	● 1989 Mass migration wave due to political instability in China	● 1997 Handover of Hong Kong from UK to China	● 2007 Lehman Shock ● 2007 Completion of 9 new towns	● 2019 COVID	
Development of Lantau Island	● Before 1990s, Tai O and Mui Wo were the economic centres on Lantau Island				● 1989 Announcement of Airport Core Programme ● 1990 First phase of reclamation in North Lantau	● 2004 Lantau Development Task Force ● 2005 Hong Kong Disneyland ● 2006 Ngong Ping 360 gondola lift	● 2012 Plan to transform Tung Chung as a tourism consumption area ● 2017 Publication of Sustainable Lantau Blueprint ● 2017 Second phase of reclamation in North Lantau	● Proposed North-east Lantau Tourism Gateway ● Proposed East Lantau Metropolis ● Proposed North Commercial District on Airport Island ● Proposed Island Marine Park	
Settlement Distribution		● 1960-1970 People started to move from Lantau to the city for job opportunities		● 1982 Discovery Bay - First large scale residential development on Lantau Island	● 1996 First phase of Tung Chung New Town ● 1997 First public estate in Tung Chung		● 2009 Completion of social facilities for public estates	● 2018 Second phase of Tung Chung New Town	
Infrastructure and Transportation	● 1950 Silvermine Bay Ferry Pier ● 1957 South Lantau Road	● 1966 Keung Shan Road ● 1966 Tung Chung Road	● 1971 Tai O Road		● 1997 Tsing Ma Bridge ● 1997 Kap Shui Mun Bridge ● 1997 Lantau Link ● 1997 North Lantau Expressway ● 1998 Hong Kong International Airport ● 1998 Airport Railway ● 1998 MTR Tung Ching Line ● 1998 Airport Road		● 2018 Hong Kong-Zhuhai-Macau Bridge ● 2020 Tuen Mun - Chek Lap Kok Tunnel	● 2030 Oyster Bay Station ● 2030 Tung Chung East Station ● 2030 Tung Chung West Station ● 2030 Tung Chung River Park	
Roles and Economic Activities	+ Salt Industry + Fishing + Agriculture		+ Local retreat		+ Logistic + Aviation	+ Tourism		+ Conservation	

03

ISLAND PERSPECTIVE

Fig. 7
Chains of Events on Lantau Island from 1950

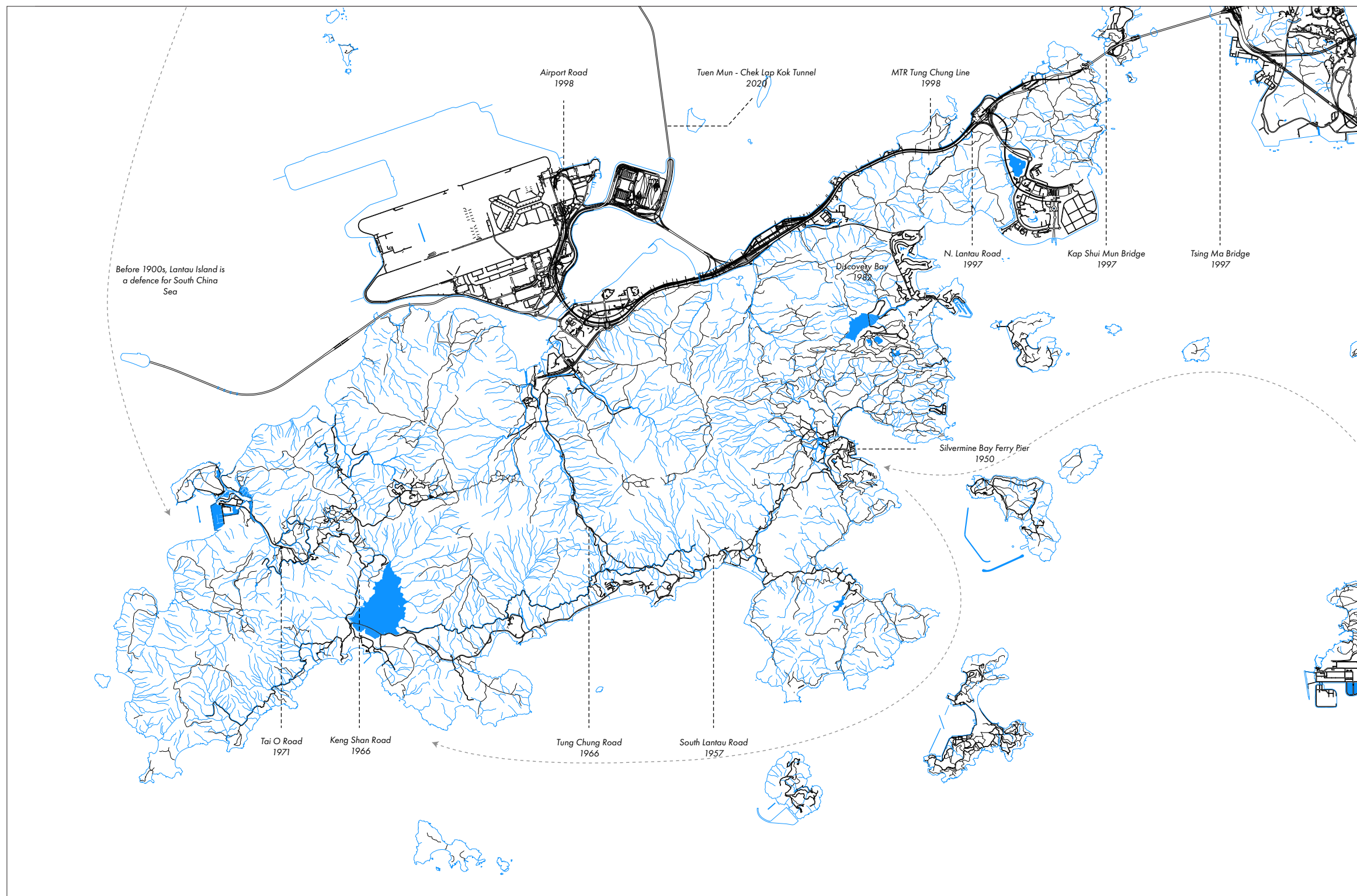


Fig. 8

Stages of Urban Takeover. Since 1990s, due to the construction of new airport, infrastructure and highways were built in north Lantau Island, a drastic change to this remote island and economic centre shift from south to north.

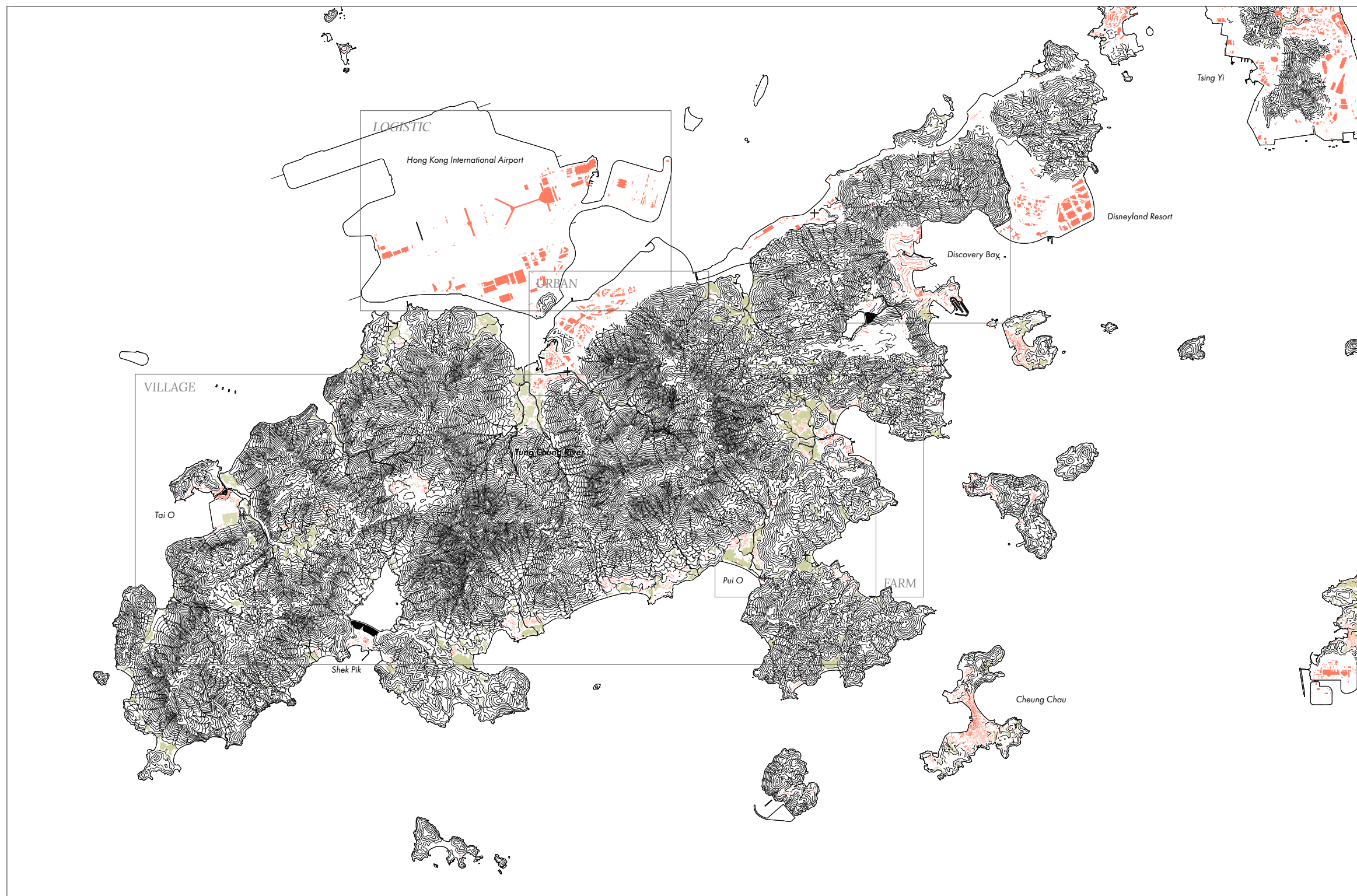
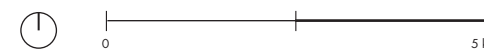


Fig. 9
Stages of Urban Takeover - Settlements and Economic Activities

+ rituals - Tin Hau Temple, guardian god of the sea
 built fabric
 cultivation landscape





Part Four:

Tung Chung River

The value and identity of Tung Chung River and the future development plan, which is deeply intertwined with history, research, government policy and theoretical reading on urban expansion and water system development, often leading to a form of "colonization".



Fig. 11
Tung Chung New Town

River Overview

Unique River Landscape

According to the map published by James F. Imray F.R.G.S in 1885, settlements in Tung Chung were firstly recorded in 1885, surrounding the river mouth of Tung Chung river and some on the side of west stream. It was picturesque scenery: paddy fields and vernacular village clusters nestled between the sea and mountains in the lowlands sea and mountains in the lowlands, with the sprawling Tung Chung valley surrounding them.

Tung Chung River is located in the southwest of the current Tung Chung New Town on Lantau. It consists of two primary branches: the west stream, originates from the northern slope of Lantau Peak; and the "East Stream," begins from the west of Sunset Peak. These two streams, constituting a 5th-order river, drain an approximately 11 km² catchment area. They traverse several lowland villages, converge near Ngau Au at the end of the valley, and ultimately discharge into Tung Chung Bay. Tung Chung River is short and steep, with a horizontal length of 4.31km and an average gradient of 1:4.90. The river catchment is about 11.09km².⁷

Known as the "last remaining large-scale natural river in Hong Kong," Tung Chung River maintains its pristine condition from its sources to its estuary and bay. The only exception is a 600-meter section along the lowest reach of the East Stream, which was channelized for flood prevention. The East and West Streams display high biodiversity, with designated Ecologically Important Stream (no. 27) sections by the Agriculture, Fisheries, and Conservation Department (AFCD)⁸. Along with the estuary, various segments of Tung Chung River serve as habitats for numerous important species, contributing to its recognition as the second richest in freshwater fish diversity within the territory, the first being Tai Ho Stream (Chong & Dudgeon 1992). Notably, the water quality of Tung Chung River earned an "Excellent" rating from 1999 to 2021, under the Water Quality Index (WQI) established by the Environmental Protection Department (EPD 2022)⁹.

Situated in a remote location and designated as a water gathering ground by the Water Supplies Department, Tung Chung River maintains its natural landscape due to minimal channelization—making it one of the few local rivers spared from extensive alteration. In the Ming Dynasty, the fertile soil and ample water supply in the middle and lower courses supported cultivation activities, which ceased in the 1960s with the decline of local agriculture amid economic changes. Tung Chung River plays a crucial role as a major water source for Shek Pik Reservoir. The river water is collected via underground tunnels and transferred to the reservoir through an underground pipe between Ngong Ping and Lantau Peak.¹⁰

As part of the second phase of the Tung Chung New Town development, drainage works include the channelization of a 650m section of Tung Chung River north of Shek Lau Po. In the Tung Chung New Town Extension project, this river section will be transformed into a river park for public recreation and to foster a "water-friendly" culture. The construction of Tung Chung River Park and revitalization

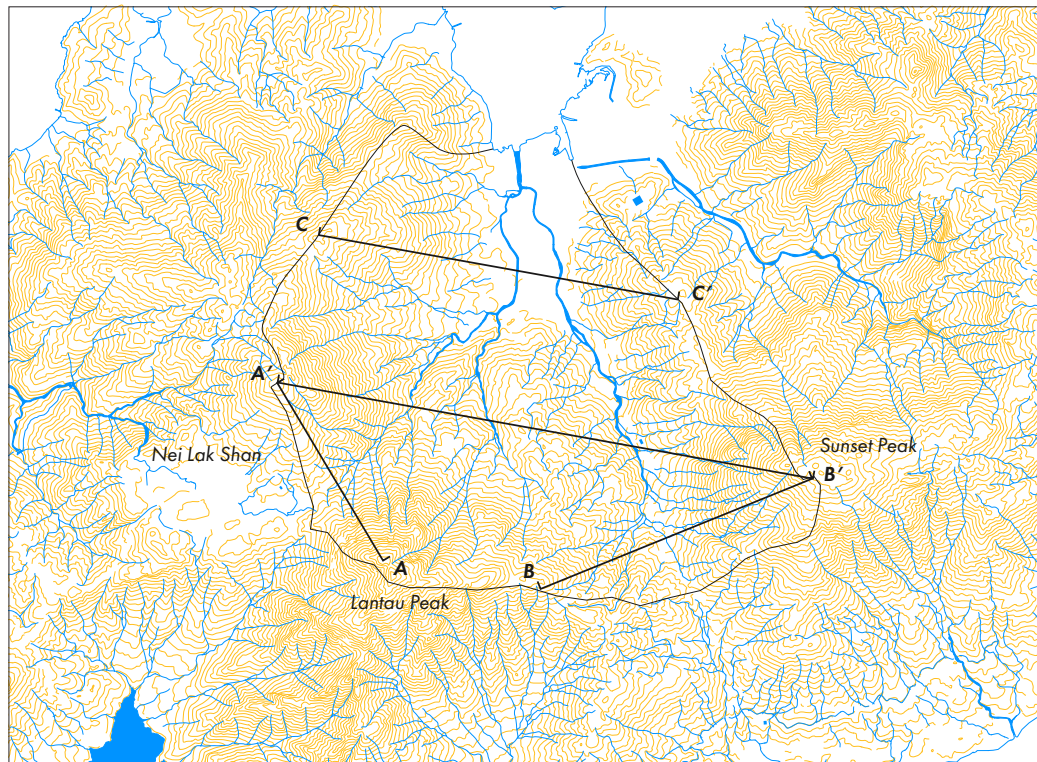
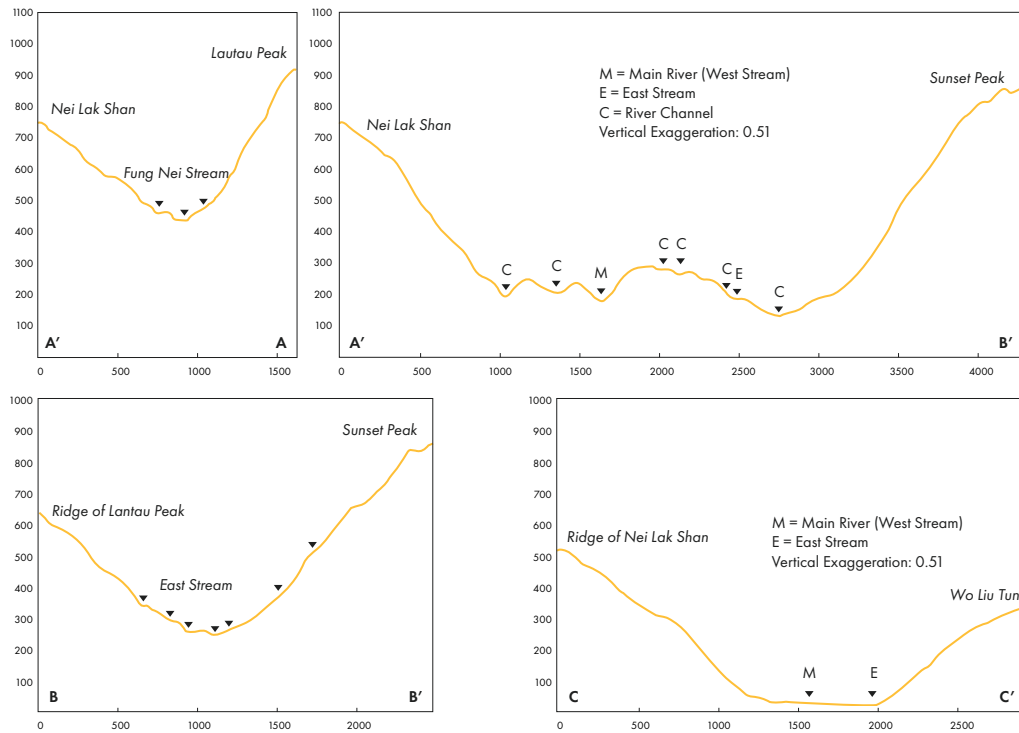
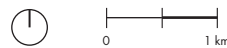


Fig. 12
River Catchment and section of Tung Chung River



works began in 2021.

The palimpsest of Tung Chung valley recorded the changes of landscape, built fabric, production landscape and roads in the recent 40 years. In 1963, the population in the Tung Chung valley areas was 1158.¹¹ The population in Tung Chung new town, including the present has been 116000 according to population census. The area experienced a drastic expansion after the completion of airport in 1998 along with the first phase of reclamation of east Tung Chung. Upon the construction of airport railway, it significantly shortened the communal time between Tung Chung and city centre, large scale of residential towers arrived with highways and roads to accommodate sudden increase of traffic. Production landscape was further reduced and scattered, releasing space for village house near to the Tung Chung River. Hybrid system is observed, while urban infrastructure is taking over the east Tung Chung, villagers next to the Tung Chung River is “recolonising” the landscape with new style of village house to satisfy their housing needs. The connection between river and human environment is weakened.

The following section will explain the evolved relationship between river and human settlement within the context of Tung Chung River. This research will be structured into four stages, from the 1950s to the present, and extending into future developmental projections.

This section aims to identify when and why the connection between the river and the community started to weaken. It will look at the different factors that have caused these changes over the years. By understanding the historical and current importance of the Tung Chung River's landscape, it aims to review the river from another perspective with understanding the historical context of the river as a guide to possibly revitalized and enhance the landscape. The last section will discuss the upcoming development plans for Tung Chung valley, highlighting concerns and posing questions about the high-dense planning strategies of the government on the east stream of Tung Chung River which aims to accommodate 20000 new residents in the area.

The goal is to maximize the landscape's potential, fostering a renewed and sustainable relationship between the river and the communities it supports. This approach is aimed at facilitating a deeper appreciation and understanding of the Tung Chung River's role within the urban ecosystem, advocating for strategies that sustain the connection with the river with urban development needs.

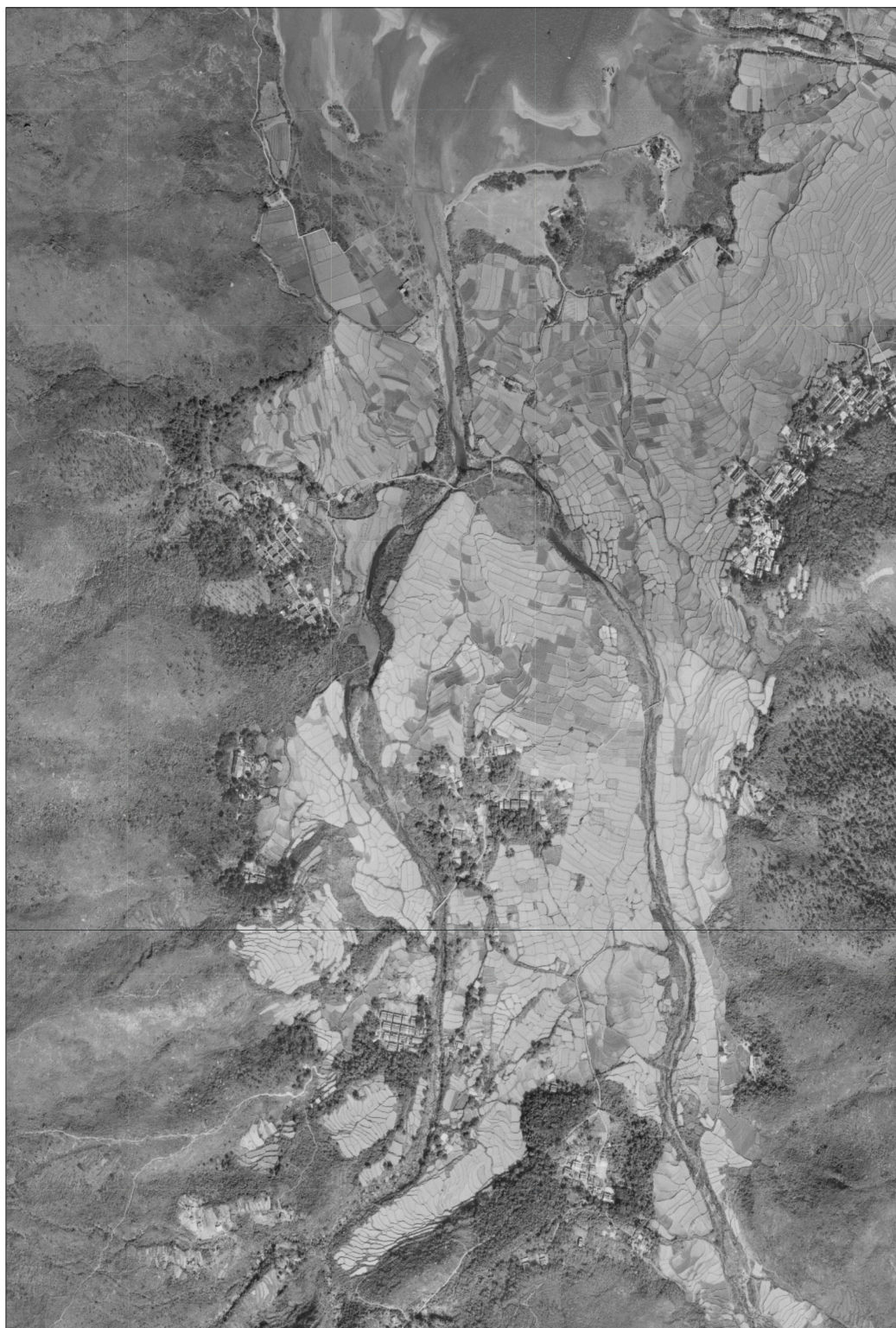


Fig. 13
Historical satellite image of Tung Chung Valley in 1963



Before 1970s, river as a lifeline of the people

Tung Chung as a secluded community on Lantau Island

Tung Chung valley was surrounded by hills to the east, south, and west, creating a natural barrier from other parts of Lantau. Before transportation improvements in the 1960s, the journey between Tung Chung and other districts on Lantau Island required a two to three-hour roundtrip on foot which involved navigating muddy paths over mountains or along the shoreline. Communication with areas beyond Lantau was even more challenging. The rural character of the area remained mostly unchanged for 150 years after Britain leased it in 1898. Development was minimal until the 1960s when plans for reclamation and resettlement were initiated.¹² The remoteness from developed areas allowed Tung Chung to preserve traditional ways of living.

Tung Chung's residents, grappling with geographic isolation and inadequate transportation, relied heavily on agriculture for sustenance. They cultivated crops such as rice, sweet potatoes, taro, peanuts, and red onions. In the past, a portion of their harvest was dedicated to rent-in-kind arrangements. Boats were used to transport red onions and a small quantity of rice to the West Point market in Hong Kong for sale. To meet daily needs, villagers diversified their income through secondary activities like raising chickens and gathering firewood. Occasionally, the collected wood was taken to the Tat O market for additional income. Despite a century passing, Tung Chung struggled to evolve into a market town due to its remote location.¹³ To supplement the modest earnings from farming, many men sought employment beyond the area, often becoming sailors in their late teens. Older generation of the community noted that, traditionally, men in their society would go sailing while women tended to the farm and gathered firewood at home.

Hakka People

The influence of Hakka culture in Tung Chung has historically shaped the role of women, particularly in agriculture. Stewart Lockhart's survey from 1898 highlights that nearly all villages in Tung Chung, except for Ling Pei, were Hakka communities.¹⁴ This cultural dominance was still evident in the mid-20th century, as the Hong Kong Gazetteer in the 1950s reported that 97% of Tung Chung's population were Hakkas.¹⁵ Today some elderly folks can still remember a number of Hakka folksongs which, according to their custom, used to be sung in the field during or after work.¹⁶ Hakka women were known for their hard work and thrift in managing both the family land and household chores. Generally, women earned half of the family's income from farming, while men earned the other half by working as sailors.¹⁷

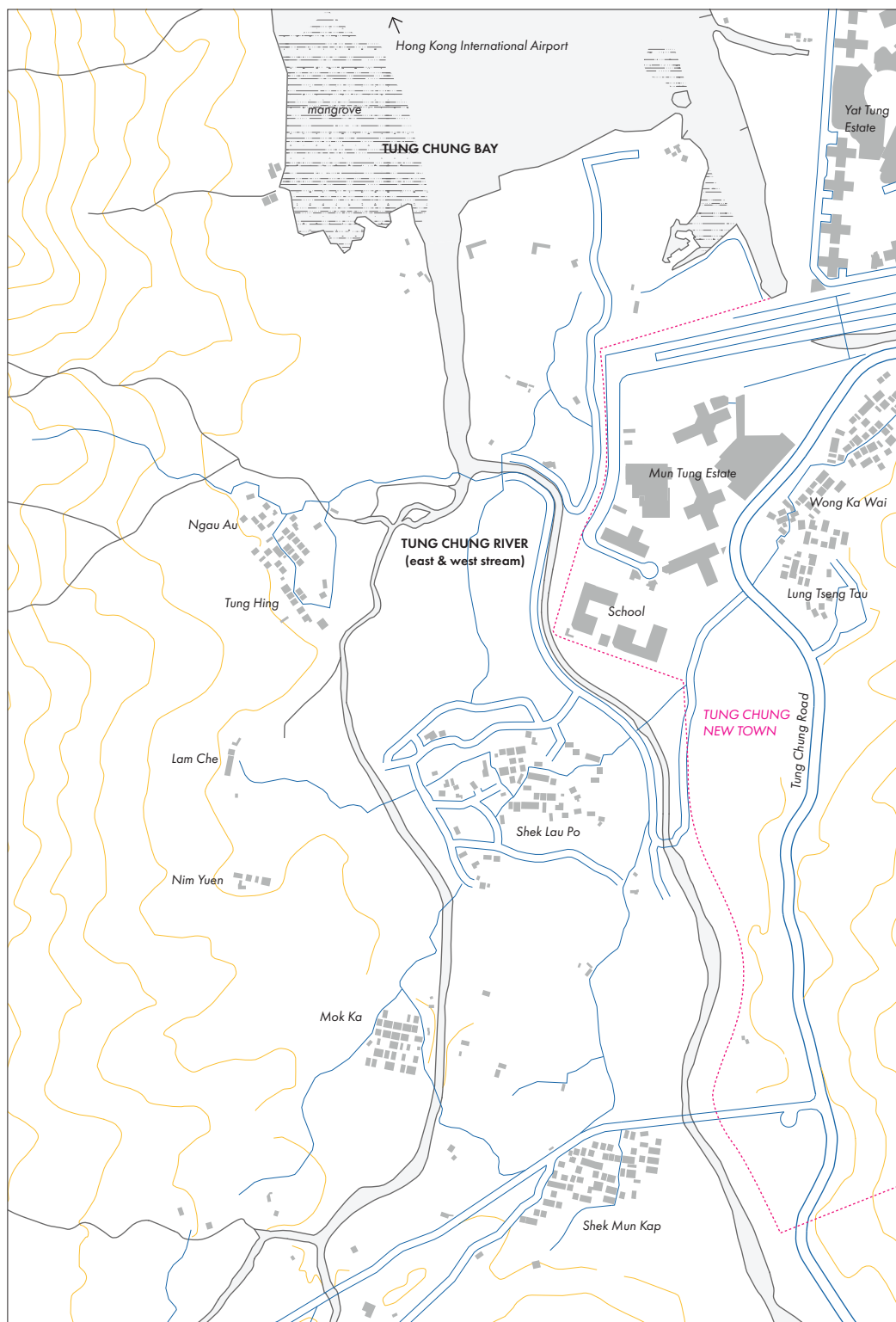


Fig. 14
Overview of Tung Chung Valley

built fabric
contour line (5m)
roads and pathway

0 200 m

Common drainage system as alliance membership

Modest economic conditions and geographical isolation reinforced a strong sense of mutual reliance among the villagers of Tung Chung. While Tung Chung was isolated from other districts, its villages had to rely on each other for basic needs and sharing resources. For example, they shared the water from two streams, the East Stream and the West Stream of the Tung Chung River, which were the lifelines of agriculture on the valley. Joint efforts were needed to ensure a normal water supply for this agricultural community. Participation in a common drainage system, as suggested by John Brim, may have been an important determinant of membership of a village association in the New Territories.¹⁸ As early as 1900, Lockhart observed that villages with a shared irrigation source tended to have a closer association.¹⁹

Village Relations and Rituals

In rural areas of Hong Kong, an ancestral hall usually acts as the socio-political centre for villages traditionally associated with a single surname. However, the Tung Chung village alliance deviates from this norm, comprising communities with multiple surnames without ancestral halls. Tung Chung was characterized as a trans-village community. Inter-village association is important for the pooling of economic resources to support collective social functions that would otherwise be too much of a burden for individual village with limited surplus funds especially in a secluded community like Tung Chung. Emphasizing the concept of territory through local temples, Faure suggests that these temples, as centres of collective worship and communal ritual performance, symbolize territorial unity.²⁰ According to his observations, the villagers perceive their territorial organization in terms of gods, shrines, and temples. This conceptual system is central to the village world, where spiritual and communal elements intertwine. The shared management and upkeep of these temples further reinforce the territorial identity and dominance of these village neighborhoods. In Tung Chung, this communal approach to spirituality and territory management reflects a distinctive social structure, differing from the more common ancestral hall-centered villages in rural Hong Kong.

The Houwang Temple holds a central place in the cultural and social life of the Tung Chung valley. As the primary local shrine, it is dedicated to the deity Houwang, serving as a focal point for the folk religious practices of the area. Evidence of the temple's significance to the community can be found in a tablet from 1910, which records a reconstruction project of the temple and lists the donors who contributed financially to this effort.²¹ This tablet not only highlights the community's commitment to maintaining the temple but also reflects the practice of joint village worship. For years, the worship of Houwang has been a popular cultural and social force that has helped to unite this secluded

community. This celebration brings together both boat people and land dwellers of the Tung Chung Heung Yeuk, fostering a sense of community and shared tradition. The Hauwong Birthday stands out as one of the few large-scale festivals in Hong Kong that celebrate the birthdays of deities. Its cultural significance is further recognized by its inclusion in the “Intangible Cultural Heritage Inventory of Hong Kong.”²²

The worship of Houwang in Tung Chung goes beyond family ties, uniting both old and new settlers and thus fostering a strong village coalition. This multi-lineage community supports Judith Strauch's view that mixed-surname settlements can thrive on economic and ritual cooperation, rather than conflict. It also aligns with Burton Pasternak's concept of villages where families of different surnames unite for survival. Welcoming newcomers helps Tung Chung address resource shortages, demonstrating the benefits of inclusive community practices.²³

In Tung Chung, the Chiao ceremony is another key inter-village event alongside the Houwang Birthday. Featuring puppet shows, communal meals, and a parade, especially the free vegetarian feasts. Held annually in the 11th lunar month, Shek Mun Kap village often hosts this event, being the oldest village in the area. According to an old villager, the village became a local venue of social and economic activities after some shops were established there. The ceremony's highlight is the hsing-hsiang parade, which passes through all villages, symbolizing blessings and unity. This parade is not just a ritualistic practice but also a powerful affirmation of the community's territorial identity. It publicly reinforces the unity and identity of the villages in the neighborhood, showcasing the strong sense of community and shared cultural heritage in Tung Chung.²⁴

In Tung Chung, in addition to the annual celebrations of Hauwang Birthday and the Chiao ceremony, there is also regular, small-scale worship of the earth god. This deity, often symbolized by a rock in an open-air shrine or an old banyan tree as shown in Fig. 15, represents the spirit of the village where it's located. Known by names like Ta-wang (great king) or Po-kung (lord or paternal great-uncle), the earth god is typically positioned at the entrance or rear of a village, serving as a guardian deity. As a protector at the most fundamental level of village organization, the deity helps to define and mark the territorial boundaries between villages. Through this symbolic guardianship, the earth god plays a crucial role in maintaining the identity and integrity of individual villages within the larger rural landscape of Tung Chung.

Feng Shui elements in Tung Chung villages

Patrick Hase, a former District Officer, was asked by the government to carry out an investigation of history and social tradition of Tung Chung, he studied from a Feng Shui, geomancy perspective. As he believed that fung shui was an important

factor affecting the traditional society.²⁵ What is needed to understand the beliefs and practices of the villagers and to see what the villagers believe about the perceived fung shui systems around them, and how this has affected their life and the development of their society. He argues that the site of the Hau Wong Temple at Tung Chung is one of the most spectacular and complex fung shui sites in the New Territories.

Elements of Feng Shui also particularly appear in villages in Tung Chung. For example, Shek Mun Kap village is safeguarded by a Feng Shui screen at the entrance of the village. There is a Feng Shui wood on the east side of Shek Mun Kap Village and Mok Ka Village. Apart from that, villagers in Mok Ka also has a practice of keeping Feng Shui fish along the west stream, for good fortune and protection of the village. Therefore, the biodiversity of the river in that area is particularly rich.²⁶ Since Mok Ka Village is located next to the river, flooding always happens during rainy days. There is a Ping On Bridge, which means Safe bridge across the river leading to the entrance of the Mok Ka Village to wish for safety of crossing the river.

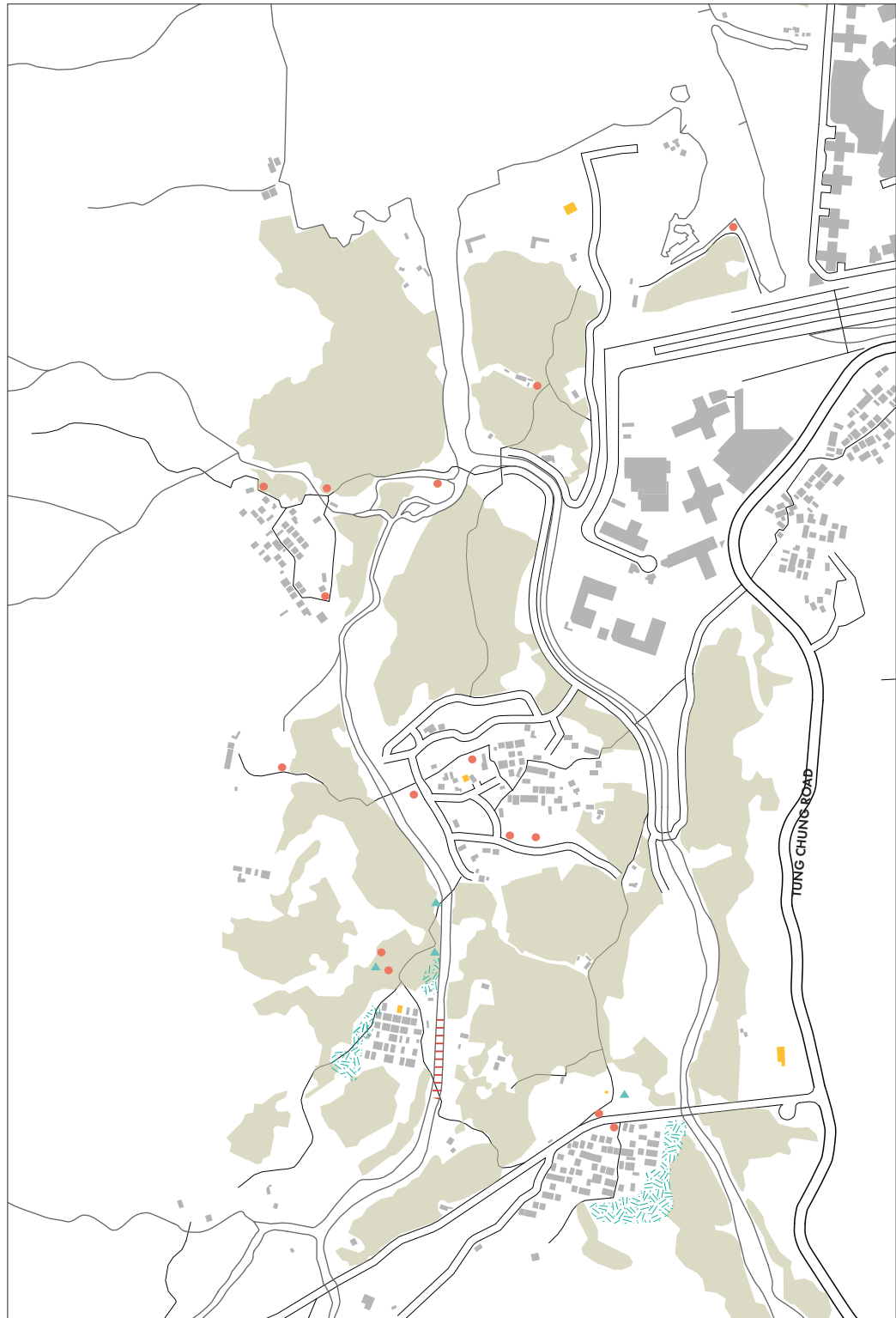
The connection between Fung Shui woods and rural settlements is inseparable. The arrangement of fung shui woods mirrors the distribution and overall progress of villages. A typical fung shui wood is bordered by agricultural fields in the front and backed by hills. Tree felling is a fung shui taboo. Old trees are believed to be closely linked to the fortune and development of a village, so they should not be chopped down casually. It is for this reason that Fung Shui woods behind rural villages are carefully preserved. Under the care and protection of villagers, forests matured and flourished over the years to form natural woods of great species diversity, so that in the rural parts of Hong Kong, despite relentless human disturbance for more than a century, mature and unique Fung Shui woods with high ecological value deserve a sustainable existence.²⁷

Rural setting in New Territories

Until urban expansion from Hong Kong Island and Kowloon Peninsula reached the New Territories in the 1960s, the physical setting of the New Territories had remained largely unchanged as it had been throughout the Ming and Qing dynasties. In the book, *A Tale of Two Villages* (Lee and DiStefano 2002: 83), the authors note that,

“... villages in the New Territories homogenously consisted of traditional Southern-Chinese style village houses with mud- or clay-brick walls and tiled roofs. Many such village houses dated back to the Qing dynasty (1616-1911), and some even to the Ming dynasty (1368-1644).”

The traditional architecture in the New Territories played a significant role in



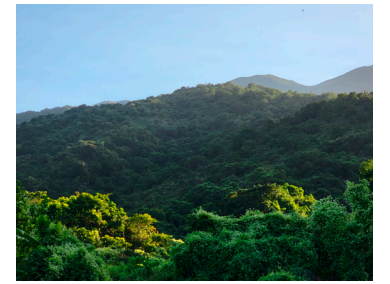
feng shui wood
 feng shui fish
 temple / ancestral hall
 earth god shrine
 feng shui screen

0 200 m

Fig. 15
Ritual landscape in Tung Chung Valley



1



2



3



4



5



6

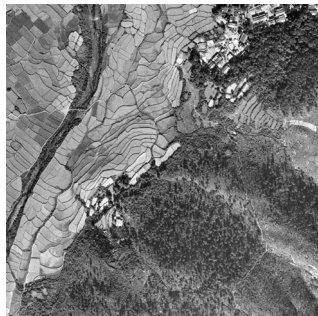
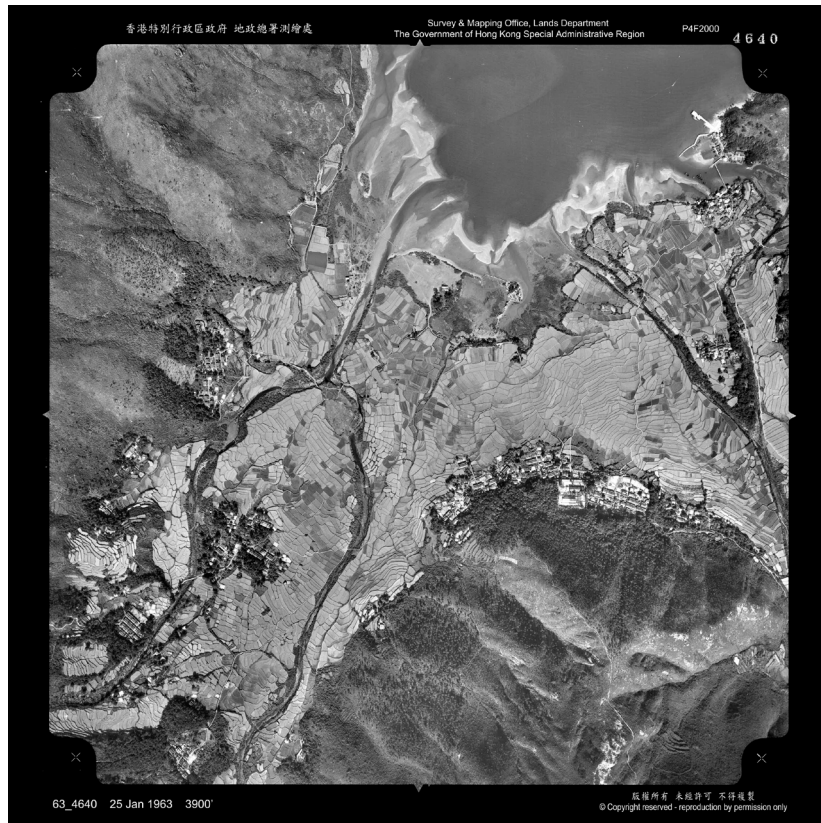


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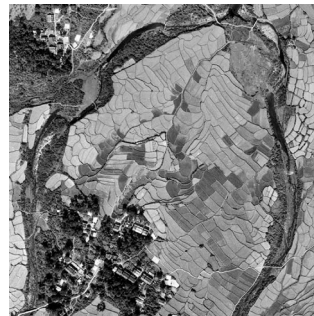
1. Great Lord shrine - Shek Mun Kap Village
2. Fung Shui Wood next to Shek Mun Kap Village
3. Tung Chung Houwang Temple (side)
4. Earth god shrine - Shek Mun Kap Village
5. Tung Chung Houwang Temple (front)
6. Mo you sheng fang Ancestral Hall - Mok Ka Village
7. Lo-yu-chang fang Ancestral Hall - Shek Lau Po
8. Hsuan-fan Temple - Shek Mun Kap Village



1



2



3

Fig. 16
Field pattern in relation to relief at Tung Chung from the aerial photo in 1963
1. Apron type, 2. Coastal type, 3. Interfluvial type

shaping its historical physical environment. However, even more crucial was the social framework of a traditional southern Chinese agricultural society, centered around rice farming. This societal structure was visibly represented by the paddy fields, which essentially defined the landscape's character. This is further elaborated in the same source (ibid: 80).

“... in 1953, paddy fields in the New Territories consisted of 9,466 hectares, which was some 70% of the total farmland in Hong Kong.”

The traditional Chinese village house, surrounded by vast paddy fields, have remained unchanged until the mid-20th century. This combination of physical and social setting has become the perceived “rural” setting of New Territories.²⁸

Agriculture and landscape

In Tung Chung valley, three types of field patterns are commonly found observed from the satellite image in 1968 based on the topographic location. (Fig. 16)²⁹

Apron type, is usually found on slope area, area near to the Mok Ka Village and Ngau Au village. It is fairly regular and mainly longitudinal. The fields are week terraced along the contours. Since village settlements usually appear at the periphery of arable land. This type of field can be commonly found in front of the village. The output of these fields are generally higher than other fields as they have constant supply of night soil for fertilizing. They are usually used for vegetation production and home consumption. Interfluvial type, is found In between the tributaries of the Tung Chung river on the valley floor, mostly located at the villages on flatland, such as Shek Lau Po village, Shek Mun Kap village. The smallest size among the three types of field. The size and the shape of the field are irregular, and mainly used for rice or sweet potatoes production. Coastal type, is located at the river mouth and the largest in size. The shape is more geometrical. Due to the coastal location, the soil is sandy and the production of rice is poor.³⁰ There are also small areas of river deposits at various levels along the river courses, probably marking the series of terraces or benches. This is how the terraced farmland was originally created.³¹ Fig. 17 shows the arable land use in Tung Chung in 1960s, which demonstrated great potential of land value. Nowadays, only few areas remain to be active farmland, the rest only perform agricultural function in smaller scale, such as fruit tree planting.³² Tung Chung River locates in the peripheral rural areas where the effects of urbanization are beginning to take hold.

To summarize, in the secluded community of Tung Chung, where people rely on shared resources for livelihood, festivals and rituals play a crucial role. Unlike single-surname villages in the New Territories, these cultural practices in Tung Chung are vital for maintaining cohesion among multi-surname villages. They help

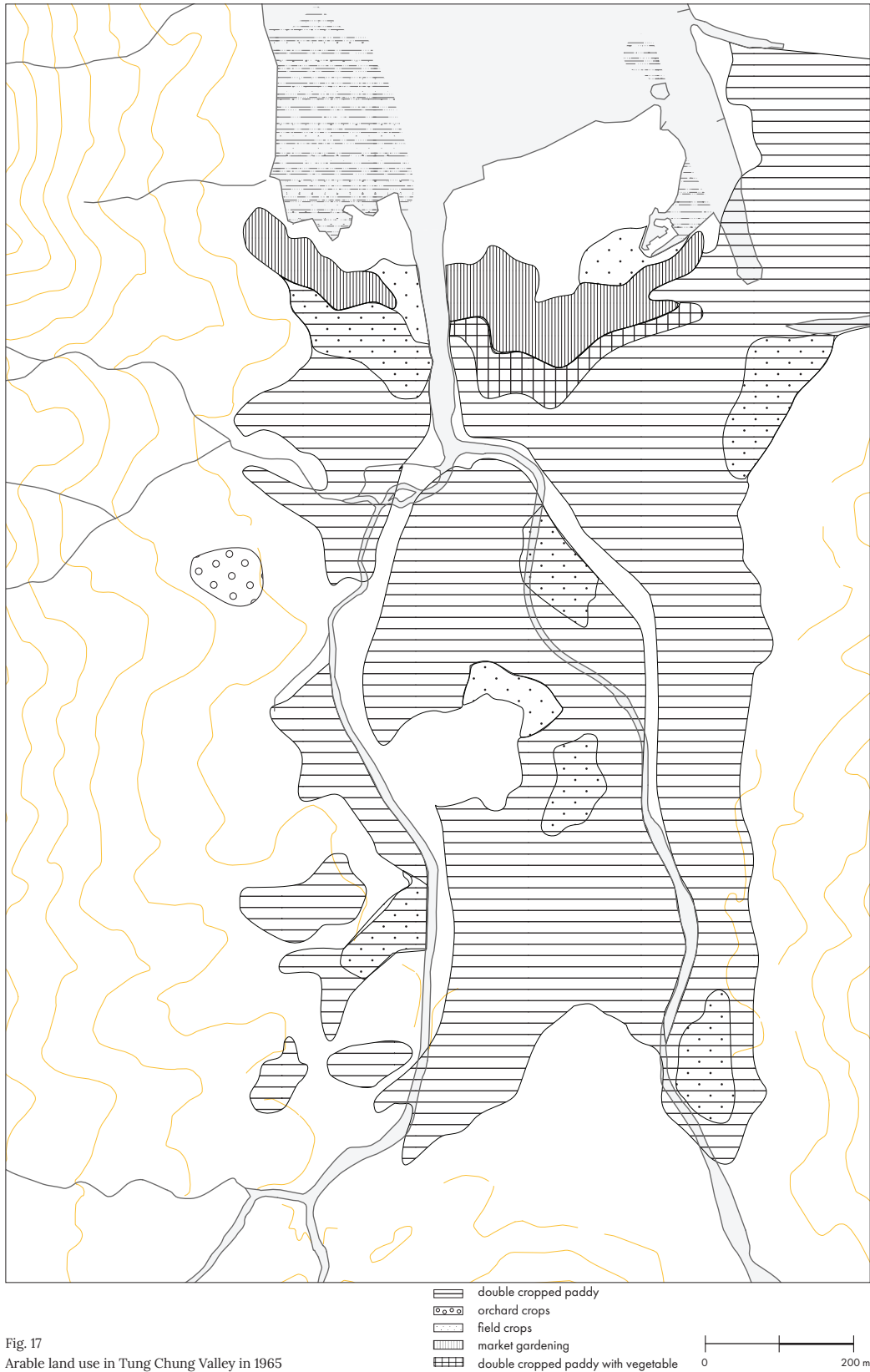


Fig. 17
Arable land use in Tung Chung Valley in 1965

rejuvenate cultural patterns and celebrate local pride and tradition. Annual events facilitate the integration of newcomers, fostering unity in the neighborhood. This is an important element that new urban areas lack of. Local shrines, marking territorial boundaries, also define the identity of individual villages. Ancestral halls and shrines along the river symbolize lineage and are integral to village identity. These elements highlight the importance of maintaining a close connection with the Tung Chung River, which holds deep cultural significance for the villagers. The building up of a identity, the performing of collective memorial rituals, and the construction of monuments, are strongly related to the narration of historical memory.



Fig. 18
Tung Chung villages in new town

From 1970 to 1998

Building Typologies in Tung Chung

Starting from the 1970s, the urbanization of Kowloon and Hong Kong Island led to a mass migration to the cities, which further weakened the already fragile lineage organizations in Tung Chung. As a result, agricultural practices in the area began to decline. Meanwhile, Lantau Island, with its natural forests, became a popular retreat for city dwellers seeking an escape from urban life.

The building typology (Fig. 19 – 22) in the Tung Chung area reflects the influence of various factors as described by Paul Oliver. He noted how landscape capacity, materials, topography, and climate contribute to vernacular styles of subsistence farming and village formation.³³ Therefore, understanding the building typology of Tung Chung Valley also provides how the relationship between man and river shift over time.

Traditional houses in Tung Chung typically have an internal courtyard, combined with the use of brick and granite in their construction. Given the abundance of granite in the surrounding areas, villagers from Nam Che, who worked as stone miners, constructed most of the houses in the Tung Chung Valley.³⁴ Ancestral halls in Tung Chung also serve as important social facilities, such as village office. They typically have a large public space in front, used for festivals or as a gathering spot for villagers.

Houses mostly constructed during the period are with concrete and brick, the older ones usually surrounded by gate and a courtyard. However, newer constructions, influenced by the small house policy introduced in 1972 (to be discussed in the next chapter), typically lack courtyards. Residents often use the space in front of their houses for parking and placing garden tables. Instead of private courtyards, ground floor spaces are decorated with potted plants. This change in spatial arrangement from older houses not only indicates a shift in living patterns but also contributes to the development of an organic road system and the scattered infrastructure in the village area.

Traditional House

Constructed in 18th century, usually with brick and granite. Villagers in Nam Che Village worked as stone miners and constructed most of the houses in the Tung Chung Valley back in the days. The typical house usually has an enclosed internal courtyard and house at the back.

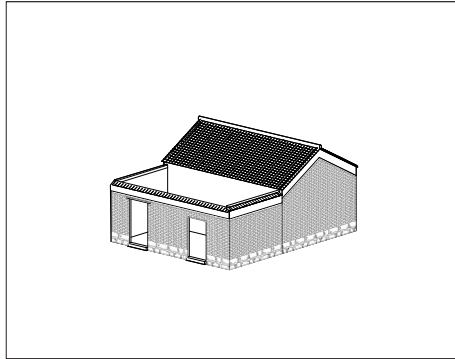


Fig. 19
Building typology of villages - traditional houses

Village Office

Most were rebuilt in 1980s, usually decorated with colour tiles. Village office also performed as village schools, welfare office and social gathering space, usually located near to the entrance of the village, with large public space for social events or festival.

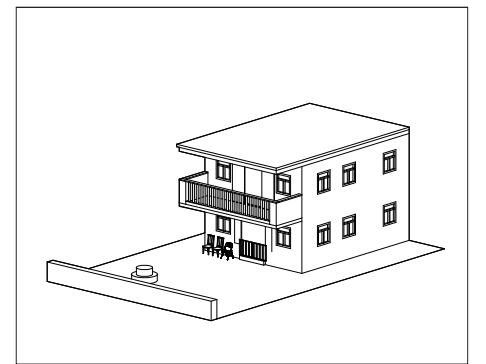
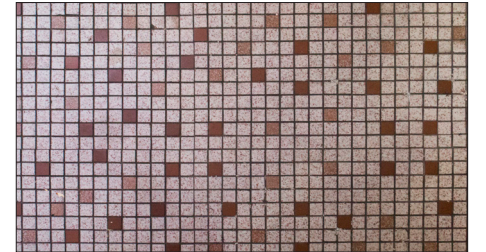


Fig. 20
Building typology of villages - village office

Modern House 1.0

Mostly constructed in 1980s with concrete and brick, the first generation of modern houses are usually surrounded by gate and a courtyard. The courtyard functions as family gathering place, small farming, clothes drying and usually decorated with plants.

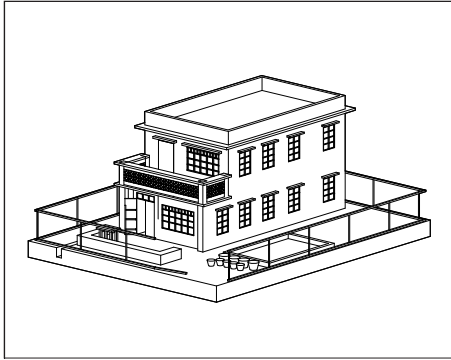


Fig. 21
Building typology of villages - modern houses 1.0

Modern House 2.0

The size and shape of the second generation of modern houses are constrained by the Small House Policy, there is not usually a courtyard and residents usually park the car and place the garden tables in front of the house. Instead of private courtyard, people decorate the ground floor space with potted plants in between houses. The spatial arrangement is different from the old one and is also another reason that create organic road system and scattered infrastructure in the village area.

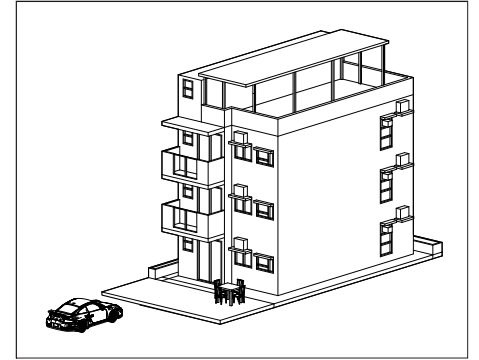
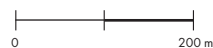


Fig. 22
Building typology of villages - modern houses 2.0



Fig. 23
Satellite image of Tung Chung Valley in 2013



Current matters, from 1998 to present when things started to go wrong

The government commenced the new town development in North Lantau, the area of Tung Chung, in 1996, to facilitate the connection to the new airport, Hong Kong International Airport, on the island opposite to Tung Chung. Infrastructures including highways, railways and residential towers were completed in April 2003. Majority land of eastern part of Tung Chung was obtained by reclamation. Upon more than 10 important infrastructures completed on a remote island being secluded for centuries, this rapid urbanization overload the capacity of the rural landscape. The economic momentum in Hong Kong acted as a driving force for significant alterations in the physical landscape of the New Territories, characterized by rapid urbanization accompanied by extensive development of supporting infrastructure.³⁵ Tung Chung River, a natural river adjacent to the boundary of the new town development, the surrounding area has experienced a drastic change from 1998 until now.

Any new investigation produces original maps. In other words, there is no invention of a research object in the field of architecture and urbanism without cartographic exploration and innovation.³⁶ In addition to the analogy between an object and its representation, there emerges another parallel: that between mapping and writing, or between a map and a text. This concept, described by Harley in 1989, views maps as "thick texts." This perspective suggests that we engage with maps in a manner similar to how we read a book or an article. Just as we read and interpret text, we "read" a map or an atlas, deciphering and making sense of the visual information it presents. This analogy underscores the idea that maps are not just simple representations of geographical data, but complex narratives that convey a depth of information and context, much like a written document.³⁷ The method palimpsest provides a reading of the map by investigating, revealing, comparing and ultimately unfolding a specific urban condition. (Fig. 24-26)

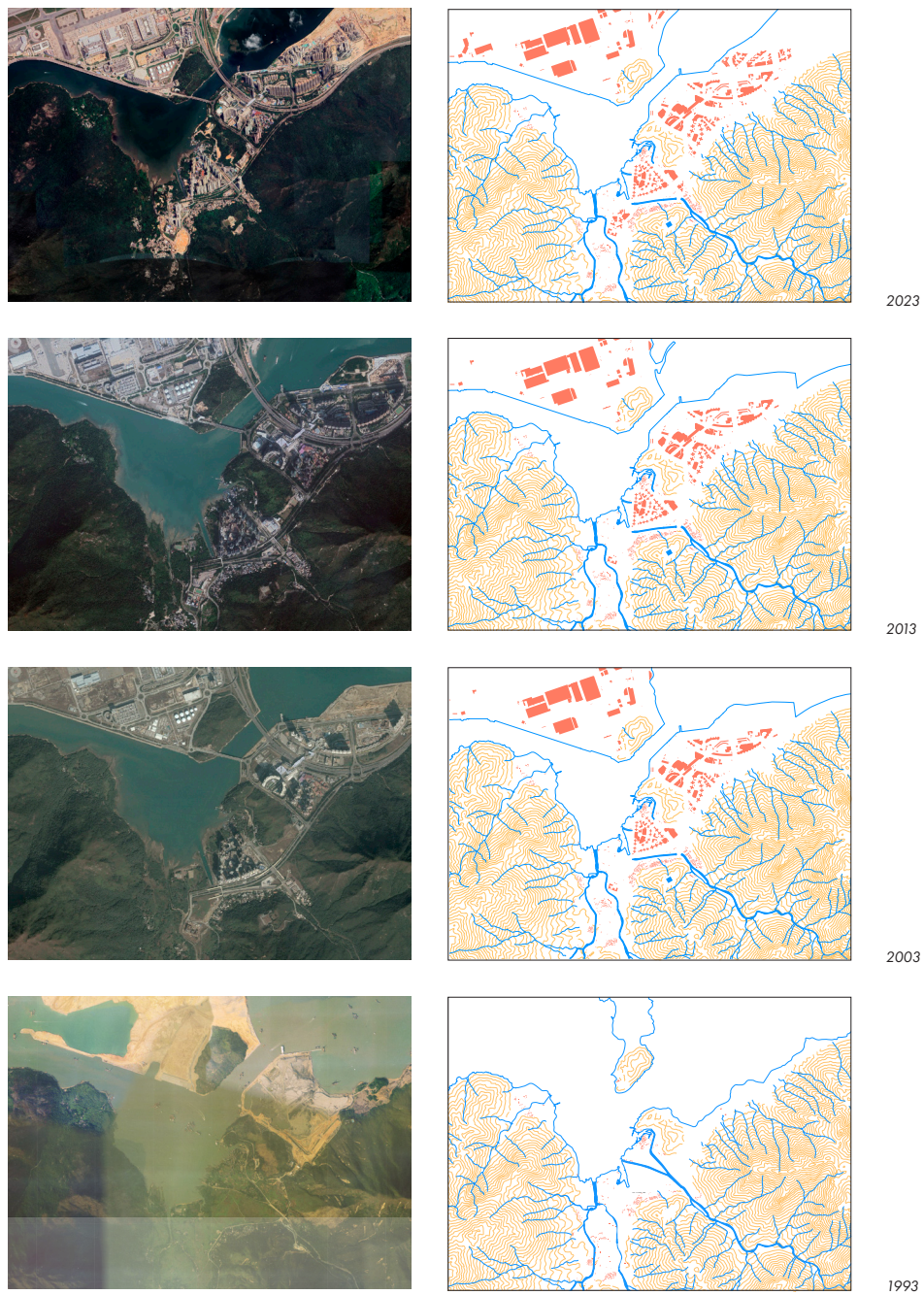


Fig. 24
Palimpsest of Tung Chung - aerial images and built fabric

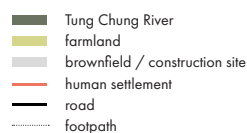


Fig. 25
Palimpsest of Tung Chung - production landscape and roads



Fig. 26

Palimpsest of villages around Tung Chung River from 1968 to 2023



Observation 1: distribution of settlement

The settlement patterns of villages in New Territories have been influenced by southern Chinese agrarian society based on a rice-farming socio-economy. The river draws people living together as in areas like Mok Ka village. This gated community has remained relatively unchanged due to its relief and regular distribution of houses, with a large communal space at the front. The compact structures within the village foster a densely-knit network of resident interactions, in contrast to the large, modernist mega-blocks in Tung Chung East. (Fig. 27) These villages offer a spatially diverse and pedestrian-friendly environment, providing an alternative to the repetitive and monolithic modernist planning approach that is prevalent in many other new towns across Hong Kong. This variation in urban layout not only enhances community engagement but also contributes to a more dynamic and human-centric living space.³⁸ Shek Mun Kap village, once an economic center of the area, experienced a decline in its traditional village houses as residents moved out to the city during 1970s. However, similar to Shek Lau Po village, there was a resurgence with new village houses replacing the old ones observed in 1998. To accommodate a growing community, Shek Mun Kap adopted a linear arrangement like Mok Ka, though its expansion was limited by the terrain. In contrast, Shek Lau Po village in the middle underwent significant changes. Without the constraints of relief, village boundaries, and ancestral connections, there is no limits to its expansion. Being close to development areas, brownfields, and new village houses emerged for better urban connectivity. With the river no longer a central resource for economic development, the original rationale for settlement faded. The developing Tung Chung New Town became the new focal point, indicating that the urban system might soon surpass the rural system if current trends continue.

Observation 2: From Water to Roads

Before 1990s, river was the spine of the landscape, connecting people and villages with a network of footpaths providing access to water resources for farmland. However, the network began to fade with decline of farming practices in 1998. (Fig. 27) The development of Tung Chung in 1998 marked a significant shift due to arrival of urbanization, as main roads started to dominate, leading to a hybrid system of transportation. Over time, this new road system gradually replaced the old footpath network. Traces of the past footpaths still exist, but they remain disjointed and disconnected from the current infrastructure. Alongside Tung Chung Road, new footpaths have emerged and parallel to it.

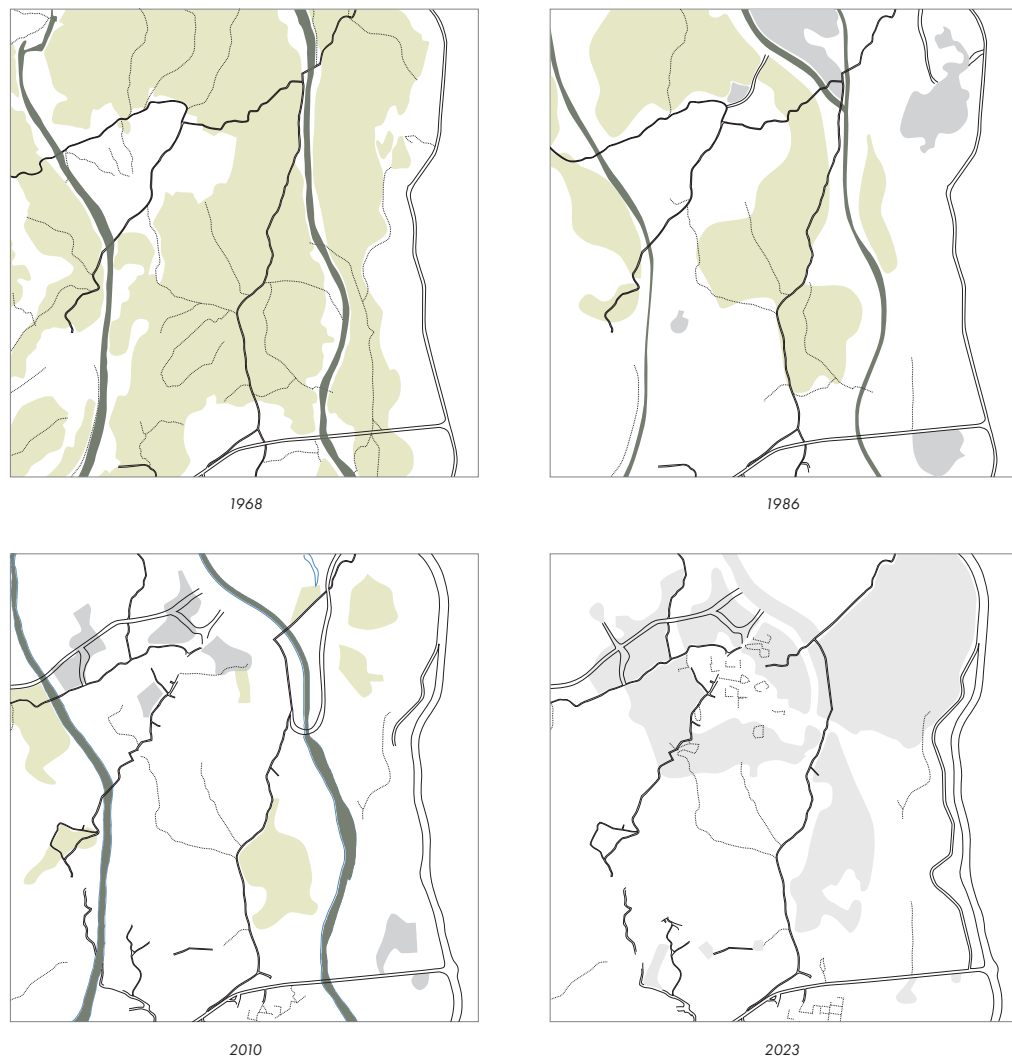


Fig. 27

From Water to Roads: Shifting Axes of Community Life

0 200 m

Observation 3: 2010, the turning point of transformation

Brownfields first appeared in 1998, a time also with the least amount of settlement in the area. A significant change occurred in 2010 when these brownfields expanded and new village house emerged in Shek Lau Po Village (Fig. 28) without any organized planning, leading to old footpath system gradually disappeared. Living conditions in Shek Lau Po Village deteriorated due to being surrounded by the brownfields as landfill for construction waste, private carpark and open storage. This might due to relaxation of traffic restriction of Tung Chung Road in 2007, allowing unrestricted vehicle access to the lower Tung Chung River catchment via the northern part of Tung Chung Road. Environmental group, Green Power, observed that non-green areas —many filled with construction wastes—have tripled within a decade. Notably, the expansion of new village houses and brownfields, known sources of water pollutants, has continued over the years.³⁹ The spread of brownfield to the left of the east stream suggests a similar, if not worse, situation, particularly as it is adjacent to the river. Inside the Shek Mun Kap village, diagonal road was constructed solely to serve the new village house, reflecting a transition from traditional, organized layouts to a more spontaneous urban landscape.

Observation 4: shifting relationship appears

Brownfield emerged with new paths and connection to main roads, it tended to spread to adjacent farmlands. Unlike the regular housing plots in Mok Ka village, new village houses were directly constructed over original farmlands. The scattered land ownership of these farmlands is a likely factor contributing to the disorganized built fabric and the organic expansion of new village housing. New houses in these areas often require additional parking spaces and modern domestic water systems, which the old villages weren't equipped for. It leads to unplanned road development. These roads are typically created for construction purposes. The process involves transforming farmland into brownfield, overlaying new paths, spreading organic building structures, and then connecting them to the main road network, often resulting in a loss of connectivity with the original layout. It also marks the shifting relationship between built fabric and the river.

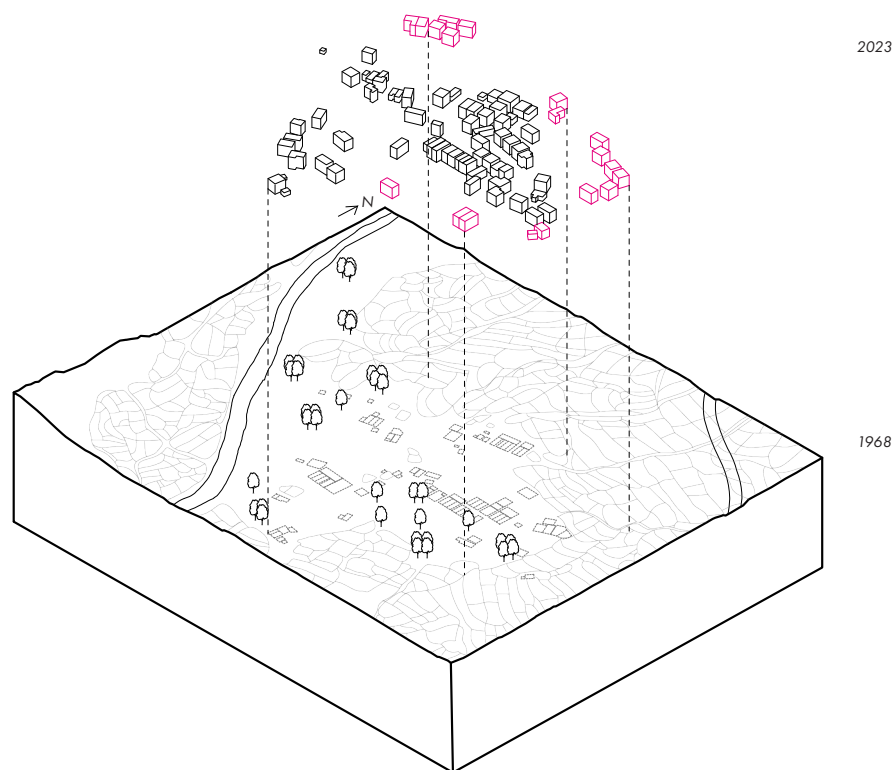


Fig. 28

The settlement of Shek Lau Po Village over time (pink highlights new village houses built on farmland)

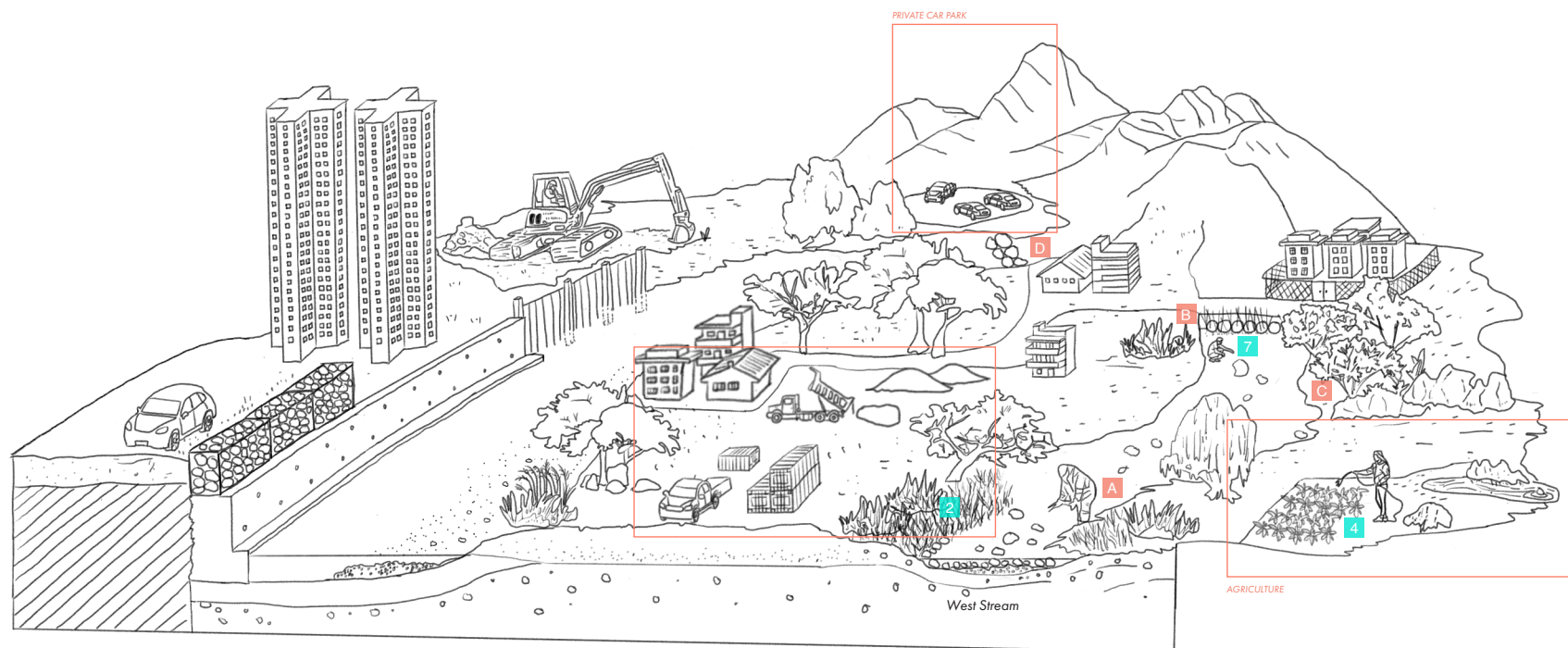
Water Quality

To further look at the current situation of Tung Chung river now, Fig. 29 illustrated a range of ongoing potential threats to the river's ecosystem. The following sections will explore and discuss these issues, focusing specifically on the factors that impact the river's water quality and ecological health.

In a water quality study conducted in 2023 by an environmental group in Hong Kong, Green Power, revealed the upper course of the East and West Streams consistently have good water quality, while the quality deteriorates in the lower course of Tung Chung River. However, the lower course of the Tung Chung River, despite being among the most ecologically important areas, are impacted by human activities. The water quality in these sections deviates significantly from the natural characteristics. The stream water close to human settlements in the lower catchment displayed reduced levels of dissolved oxygen, elevated specific conductance and nitrates, and abnormal pH levels. Stream sections with modified channel environments were observed to be higher in stream water temperatures. Sewage outfalls were identified near two villages, Shek Mun Kap and Ngau Au, indicating alarming levels of pollutants.⁴⁰

Potential threats that worsen water quality are observed from different human activities along the river. Expansion of village houses might intensify water pollution stress associated with the population increase. Agricultural activities along the west stream contribute to the contamination, with sewage leakage from farmlands and the excessive use of fertilizers in leading to increased algae growth in streams, reduction of dissolved oxygen levels, and alterations in pH levels. Furthermore, urban development, including large-scale projects along the east stream and the transformation of natural landscapes by site formation work, has resulted in increased runoff, sewage discharge, and a rise in stream temperatures due to over-widened concrete channels and lack of riparian vegetation. These combined factors not only degrade water quality but also pose significant public health risks and challenge the ecological balance of the area.

To mitigate the environmental impact in the Tung Chung River area, environmental group, Green Power, also suggested measures that includes stringent control and elimination of pollution sources, such as rectifying leakage from septic tank systems through mandatory licensing, regular inspections, and close monitoring of outfalls. Addressing the expansion of land uses like brownfields and village houses is critical, particularly with the anticipated population increase intensifying pollution. The existing sewage treatment systems, primarily septic tanks, have been ineffective, especially in floodplains and areas with high water tables, it is necessary to improve treatment of surface runoff from urban and village areas. At the same time, minimizing impervious surface coverage, careful design and management of Sustainable Urban Drainage



1. overly wide channel
2. invasion of non-native species
3. streams with low canopy coverage
4. sewage from active farmland, village and urban
5. polluted surface runoff from large-scale development projects
6. increasing impervious surface
7. Feng Shui fish

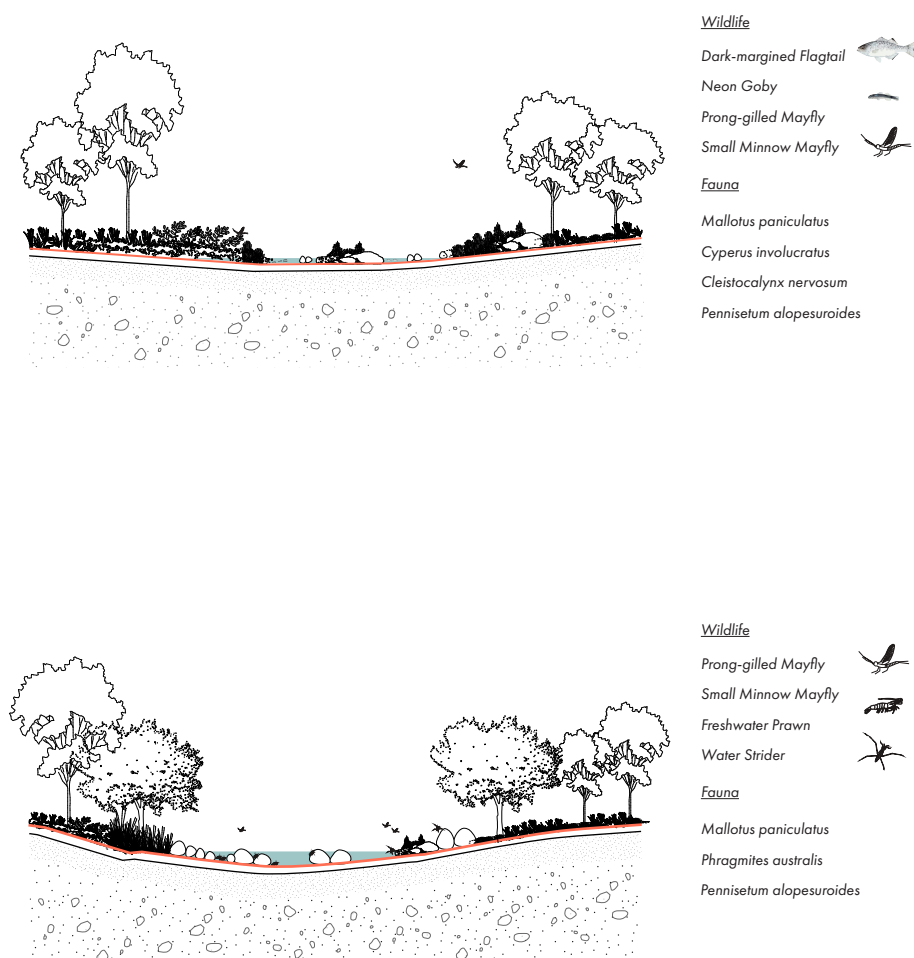


Fig. 30
Detail sections of lower west stream (above) and upper east stream of Tung Chung River (below)
The habitat of the Tung Chung River is favourable for the growth of wildlife and fauna especially with the presence of larger size of rocks on the river bed

Systems, regular maintenance of treatment wetlands and attenuation ponds, and a thorough review of water quality standards are essential. Given the insufficiency of stormwater treatment facilities alone, an integrated approach is required, focusing on controlling impervious cover areas, land grading, eliminating pollution sources, and protecting riparian vegetation to ensure the health of freshwater systems during ongoing urbanization.⁴¹

Ecology

Tung Chung River has been listed as one of the Ecologically Important Streams in Hong Kong by the Agriculture, Fisheries and Conservation Department. 66 freshwater fishes, 15 amphibians, 17 reptiles, 55 dragonflies and 360 vascular plants native to Hong Kong were recorded. According to the ecological baseline study of Tung Chung River Catchment by Green Power in 2023⁴², a total of 16 amphibian and 21 reptile species were documented in the Tung Chung River during the study period. Among the 16 amphibians, six species are of conservation concern. Regarding reptiles, seven species of conservation concern were identified when excluding exotic species. Additionally, five exotic species were recorded. In terms of plant species, a total of 429 plant species were documented. Seventeen species of conservation concern were identified. Additionally, 69 exotic species were recorded during the study period. The following table documented the list of species.

When considering only native species, the Tung Chung River revealed a rich biodiversity, with a total of 65 freshwater fishes (43% of Hong Kong's total), 15 amphibians (approximately 68% of Hong Kong's total), 17 reptiles (about 21% of Hong Kong's total), 55 odonates (around 43% of Hong Kong's total), and 360 vascular plants (approximately 17% of Hong Kong's total) recorded during the period between 2018-2022. Among these, more than 55 species are of conservation concern, utilizing all surveyed areas within the catchment. These results emphasize the significance of Tung Chung River as one of the most important biodiversity sites within the territory, despite the ongoing and rapidly deteriorating environmental conditions expected to worsen under the large-scale development scheme.

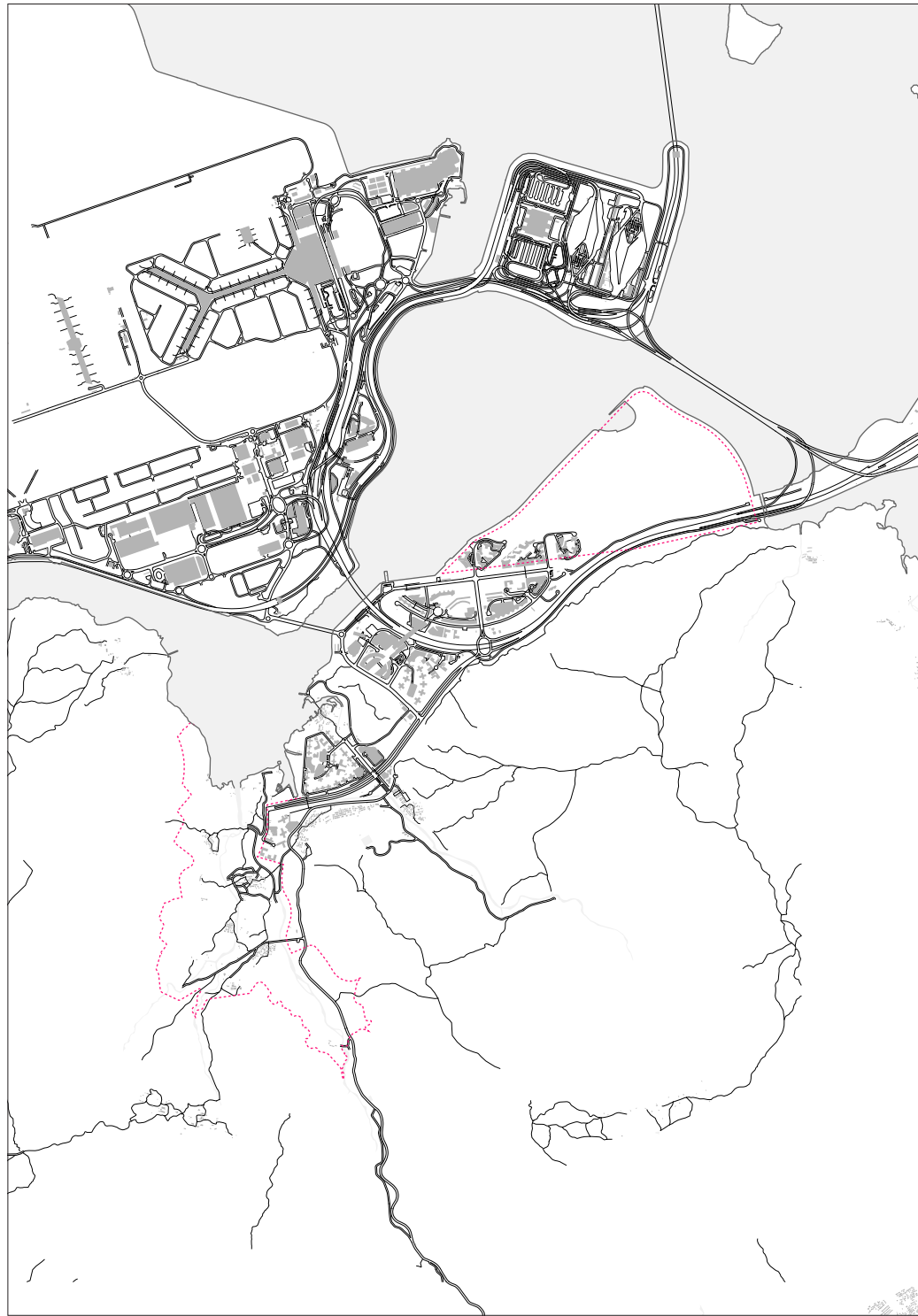
In the interview with Henry Lui, Senior Conservation Manager at Green Power, highlighted that a key factor contributing to the rich biodiversity of the Tung Chung River is its natural river bed and largely unaltered river channel, with the exception of a small section of the east stream. It plays an important role in maintaining the river's wildlife habitat. The river valley's steepness leads to the presence of rocks in the lower course, which is uncommon in most rivers. (Fig. 30) These rocks provide an excellent habitat for small animals. Historically, the Tung Chung River experienced frequent flooding, especially before water diversion to the nearby Shek Pik reservoir in 1950s. This also explains the importance and



Fig. 31
Character Mapping - Tung Chung River is undergoing rapid development after announcement from the Development Bureau about the extension of New Town development in Tung Chung West.

necessity of site formation work in construction projects near the river. The future development plans for the Tung Chung River also include polder as a buffer zone to manage water overflow during heavy rainfall.

Along the Tung Chung River, there are human activities observed that might pose several threats to biodiversity. Illegal roads and bridges along the East and West Streams obstruct the migration routes of diadromous fishes, disrupting their movement between freshwater and marine environments. Urbanization of the catchment floor has led to habitat destruction, increased surface runoff, and intensified pollution, resulting in altered stream morphology, reduced vegetation, and damage to stream communities. This includes the loss of woodland areas crucial for species like Romer's Tree Frog and the Hong Kong Newt. Extensive and indiscriminate weeding observed along the lower course of Tung Chung River damages plants in natural streams and their riparian areas, with protected species like the Ladies Treeses being affected. With construction of new roads and widening existing roads in the development scheme, new crossings over the natural stream, especially a new major road along the edge of the River Park, increased traffic and population might interrupt the ecological corridor in the area. The diversion of water to Shek Pik Reservoir reduces river flow, or even complete drying out of sections immediately downstream of these water intake facilities, particularly during dry seasons. To preserve habitats for aquatic flora and fauna in the stream channel and reestablish the ecological connection between upstream and downstream sections of Tung Chung River, restoring adequate of water flows in the river is needed. Lastly, the invasion of non-native species, such as exotic fish and Chinese Bullfrogs, introduced for various reasons, such as as fung shui fishes or for ornamental purposes by Mok Ka villagers and frogs, often raised on farms, these species would compete with and threatens native species, altering the ecological balance.⁴³

AREA OF TUNG CHUNG NEW TOWN: 7.6 km²

0 1500 m

Fig. 32

66 Tung Chung new town extension area (pink)

The future, from now to 2040

new role of Tung Chung River

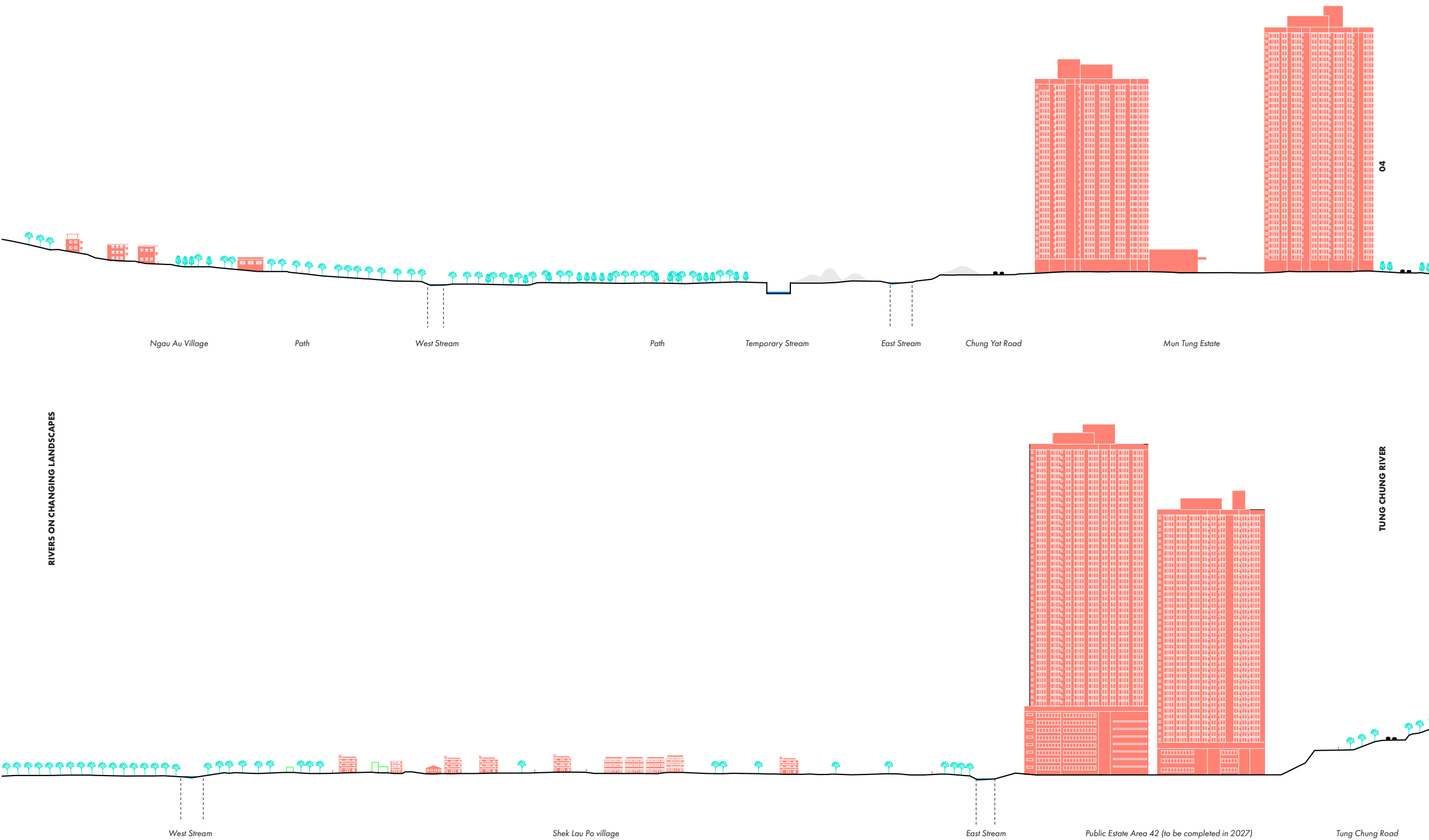
The Tung Chung area currently has a population of around 116,000.⁴⁴ The government plans to expand the new town area with a larger population capacity and adequate local and regional community facilities. The plan was officially announced in 2018. This expansion includes the reclamation of 130 hectares of land in Tung Chung East. The extension will span both the eastern and western parts of the existing Tung Chung new town. Approximately 62,100 residential units will be built, accommodating around 184,000 people. Additionally, specific zones will be designated for office and hotel development to boost the economy and tourism. In Tung Chung West, a section of the Tung Chung River near Shek Lau Po, extending upstream to Shek Mun Kap Road, will be transformed into a river park. This park aims to enhance recreational activities and promote water-friendly culture. After the new town extension is complete, Tung Chung's total population is expected to rise to about 310,000, which is more than double its current size.

Land use and development

The 'Sustainable Lantau Blueprint' outlines a plan for Lantau's development and conservation.⁴⁵ According to this plan, the northern and eastern regions of Lantau will focus on economic development, housing, and entertainment, while the rest of the area will be dedicated to conservation and sustainable leisure and recreational activities. The Tung Chung River, located between these two areas, serves as a crucial link between the urban and natural environments. The Town Planning Board has announced the outline zoning plan for the Tung Chung River in 2017. Two strategies have been adopted for the two streams of the river. Along the east stream, there are ongoing site formation works for the riverside park and seven social housing residential towers (Fig. 33). These towers will accommodate more than 20,000 people by the end of 2028.⁴⁶ In contrast, the outline zoning plan (OZP) along the west stream includes village-type developments and residential type C, which covers all the existing villages. The proposed zoning along Tung Chung River by the government aims to meet the housing demand while preserving the river through the development of the riverside park.

From the satellite image and palimpsest in the previous part, it is evident that certain areas have transformed into brownfields and Small Houses (will be explained in the next chapter) have been constructed in the past decade. The overlay of brownfield areas onto the outline zoning plan of Tung Chung valley reveals interesting insights. (Fig. 34) These brownfields, currently serving as private car parks, logistics, and storage spaces, are distributed differently across the zoning areas. Smaller plots of brownfields are mostly located in the "village type development" zone, while one large brownfield on the west bank of the east stream falls under the "residential type C" zone.

According to the explanatory note of the outline zoning plan, landowners in the "village type development" zone have several permitted uses for their land. These



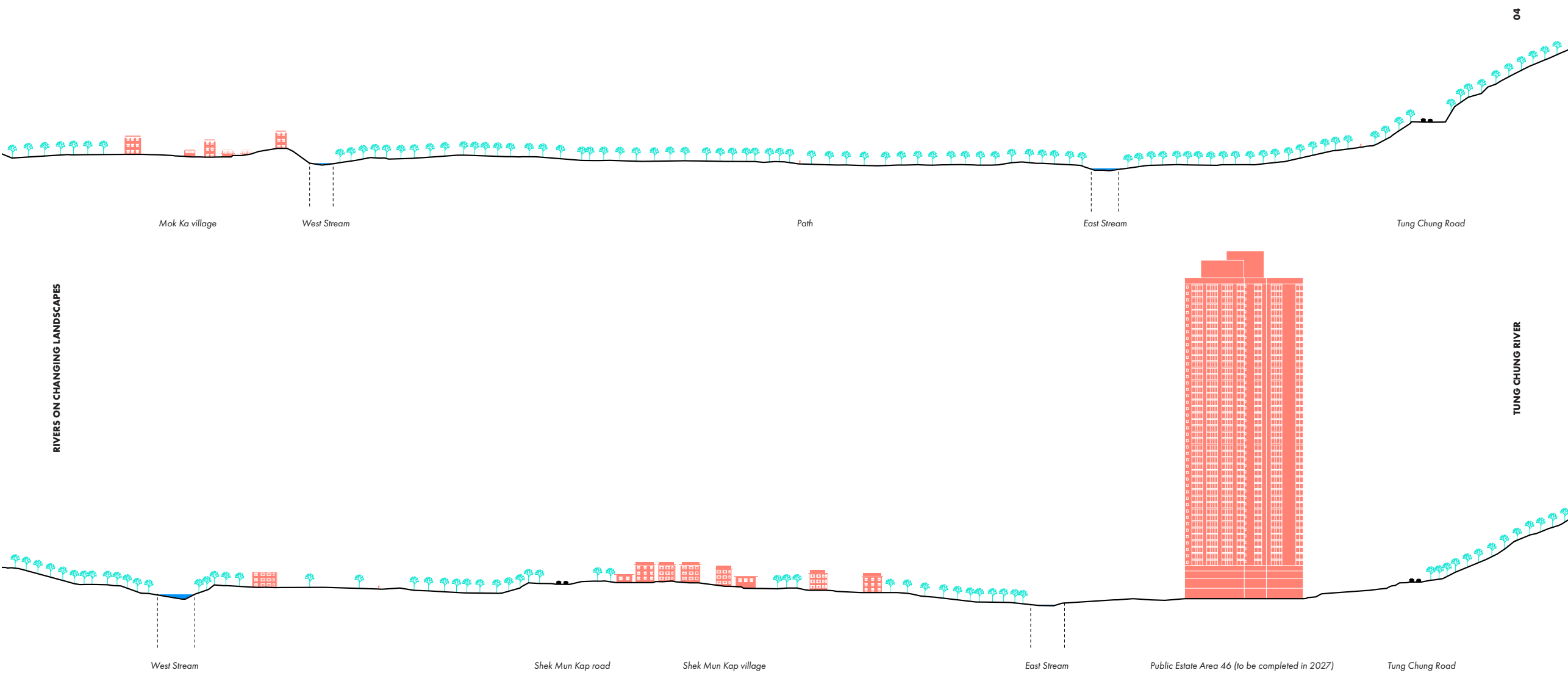


Fig. 33
Sections of Tung Chung River. Tung Chung River is undergoing rapid development after announcement from the Development Bureau about the second phase of New Town in Tung Chung West.

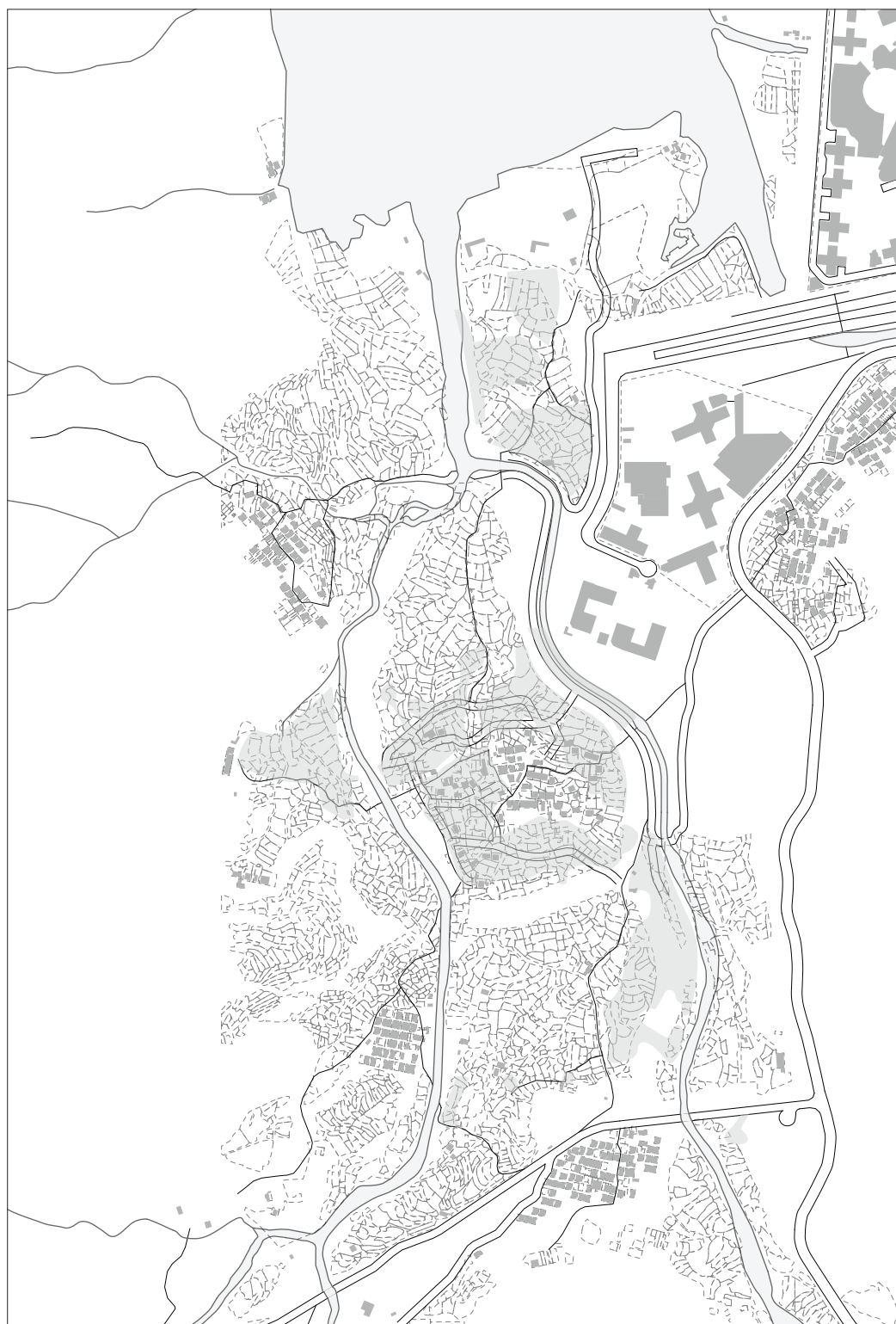


Fig. 34
Lot boundaries and extension of brownfields

built fabric
brownfield

0 200 m

include agricultural activities, the construction of Small Houses (which will be further discussed in the next chapter), building on-farm domestic structures, as well as religious institutions or village offices. And, landowners within the "residential type C" zone are allowed to use their land primarily for residential purposes or for government-related uses. The plan provides landowners with guidelines and opportunities for land redevelopment.

In the late 1970s, increased commercial flow between Hong Kong and China resulted in huge demand of storage area. Many plots of vacant farmland in the New Territories, which were of no economic value except for the development of Small House, suddenly became as they were converted into open storage spaces for cargo containers and related facilities like garages, auto junkyards, and car parks.⁴⁷ The widespread emergence of such open storage areas can primarily be attributed to inadequate planning controls in parts of the New Territories. This lack of stringent planning regulations allowed for the rapid and often unregulated transformation of agricultural or vacant lands into storage and industrial facilities.⁴⁸ The situation in the Tung Chung Valley mirrors a common phenomenon observed in other parts of the New Territories. There, a prevalent practice among landowners is to build houses on their land and then sell or rent these properties for profit. This approach has contributed to the changing landscape and land use patterns in the New Territories, reflecting both the economic shifts in the region and the impacts of planning policies.

Upon the announcement of new town extension, the outline zoning plan (Fig. 35) prepared by Town Planning Board will determine the land use and approximate value of each plot of land. This plan has significant implications for existing farmlands in remote areas like the Tung Chung Valley. What was once vacant and decaying land is now seen as an opportunity for profit, thanks to the possibilities outlined in the zoning plan. Options include selling to private developers for residential developments or constructing Small Houses for personal use or rental purposes. In areas where land ownership is fragmented, a common scenario in village settings due to the division of farmland, landowners with multiple plots may choose to consolidate their land. They can then apply to the Town Planning Board for a change in land use, aligning with the new opportunities presented by the zoning plan.⁴⁹ Ultimately, as the land around the Tung Chung River aligns with the zoning plan's designated land uses, areas other than the polder region and the Tung Chung River itself are set to transform. Most parts of the valley, especially those surrounding the Tung Chung River in the "village type development" and "residential type C" zones, are likely to evolve into a new town. This transformation will be driven primarily by housing needs, marking a significant shift in the landscape and utilization of the land in Tung Chung Valley. The announcement of land use zoning in Tung Chung Valley not only accelerates the urbanization process by catalyzing changes in brownfield, but also highlights the importance of considering land ownership boundaries alongside the proposed

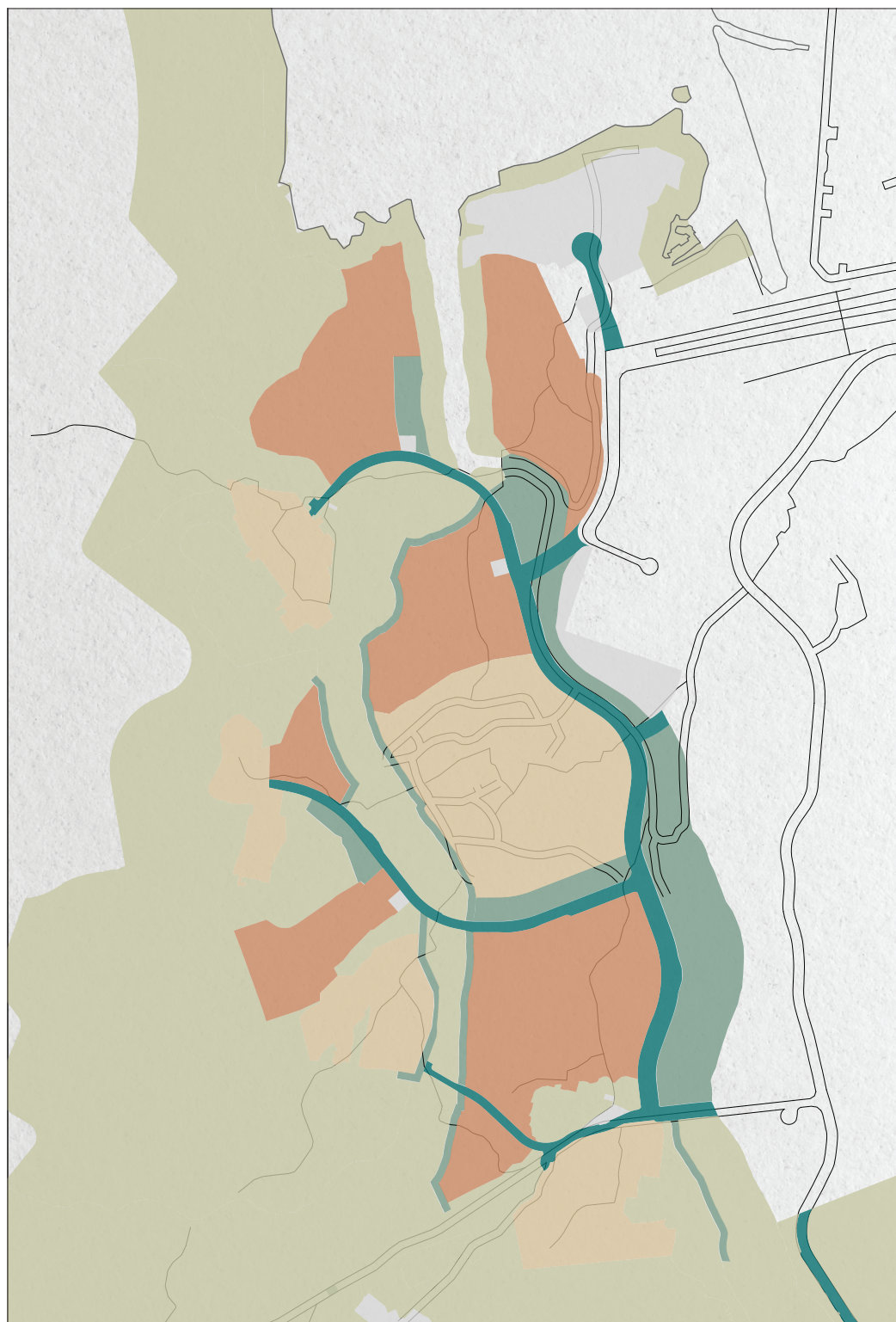


Fig. 35
Outline Zoning Plan of Tung Chung Valley
announced in 2017

river park and polders
main road and junction
government or open space
residential development
village type development
conservation area

0 200 m

development scheme. Unlike the existing new town areas, which are mostly built on mega plot of land for public housing or private residential development, land ownership in Tung Chung Valley is notably fragmented. This pattern is likely a remnant of historical farmland ownership. “The land ownerships at Tung Chung were scattered and this contributed to the more vigorous changes in the valley as compared to other agricultural district in Hong Kong.”⁵⁰ When traditional village house is no longer needed, landowners in areas with easy access to urban centers, like Shek Lau Po, are increasingly inclined to repurpose their vacant land for other uses. However, this fragmented land ownership, coupled with a lack of comprehensive road planning from the government, suggests that the existing disjointed road system will persist. This could result in a continued disconnection between the villages and the surrounding urban areas in the future. Ultimately, the unique landscape and community network of Tung Chung Valley, historically intertwined with the river, may become fragmented due to the new development. Land use planning and engineering feasibility studies, focusing primarily on new town development, might overlook the distinct characteristics of the Tung Chung Valley. This could lead to development plans that do not fully consider the valley's unique landscape and community fabric, potentially altering the area's traditional setting and connections with Tung Chung River.

The evolution of Tung Chung Valley, particularly its relationship with the river, reflects a significant shift in the community's lifestyle and economic focus over time. Originally, the shared water resources were central to the agricultural practices in this secluded community. Rituals established along the river served not only to protect this vital lifeline but also to foster cohesion among the multi-surname villages, symbolizing the unity and mutual reliance on water. However, by the 1970s, changes began to unfold. Urbanization led to the decline of agriculture-based economic activities. Villages no longer relied on the river for their agricultural needs, yet the water quality remained excellent, thanks to the protection by villages. The transformation accelerated in 1998 with the announcement of new town development plans. These plans began suburbanizing the area, as it is situated on the urban fringe. This shift marked the beginning of significant changes for Tung Chung Valley. By 2017, the announcement of the Outline Zoning Plan further revealed the urbanization plan for the area. The future of Tung Chung Valley became increasingly driven by housing demands from city dwellers. Local villagers, motivated by these changes, began transforming their vacant land into residential housing. As a result, the zoning plan seemed to override the land's potential in Tung Chung Valley, shifting the relationship with the river from one that connected the economy and people to a leisure-oriented focus, envisioning the river as a park for newcomers. This transition highlights the dynamic nature of urban development and its impact on traditional communities and their relationship with natural resources. The river, once a cornerstone of agricultural and economic life, is now becoming a recreational space, reflecting broader changes in the region's social and economic landscape.



Part Five:

The case of Shing Mun River and related policy studies

To understand the evolving connection with the river, and the way it reshapes the residents' identity in relation to the river landscape. River could be an important agent to connect the community.

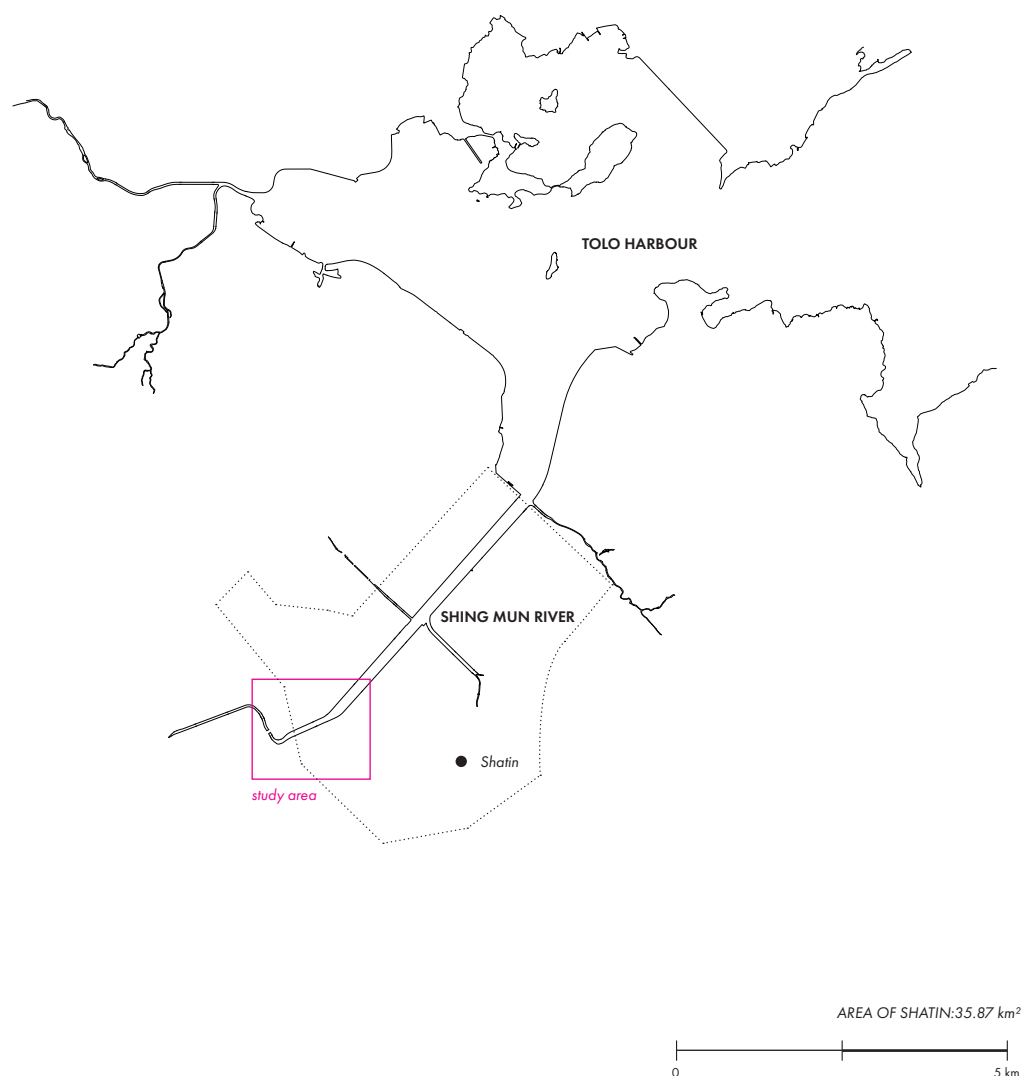


Fig. 37

New town development

the origin of high-densed public housings in Hong Kong

Tung Chung River is included in the second phase of Tung Chung new town development. This development will significantly impact the existing landscape and villages due to the influx of residents from the planned social housing projects. Since the 1950s, Hong Kong has established a total of 9 new towns, mostly in rural areas, with new roads or highway connecting to urban centers. In the following example of Shatin new town, which was started in the 1970, Shing Mun River was an important water resource for the Shatin valley before the development, it runs through the middle of the town. Over 30 years, Shatin underwent a dramatic transformation in its relationship with the river, population dynamics, and land use. This example serves as a valuable reference or forecast for the development process of new towns, offering insights into what might occur in the Tung Chung valley as it becomes part of the new town development area.

The concept of new town originated from the idea of Ebenezer Howard, Garden Cities of Tomorrow. The idea of Garden City was a response to the industrialization and rapid urbanization of the nineteenth century. The garden city is designed to make possible the full measure of social life surrounded by a rural belt—all of the lands being in public ownership or held in trust for the community. (Galantay, 1975) New towns are the modern examples of planned towns or communities. They are limited to population size, and developed under the direction of a development agency as a total unit which contains housing, community services, and amenities. They also include sufficient employment opportunities to sustain a socially and economically varied population.⁵¹

The concept of new town development dates back to the 1950s, initiated as a solution to the overcrowded urban living conditions caused by rapid population growth. This growth was primarily due to a substantial influx of refugees from China following the 1949 revolution, and there was also a need to allocate land for industrial expansion. The government intervention and establishment of social housing started during the period of massive squatter clearance and resettlement programme after the Shek Kip Mei Squatter Fire in 1953. The housing situation at that time was far from satisfactory. The newly appointed Governor, Sir Murray MacLehose, expressed his dissatisfaction on insufficient and scarcity of the public housing in 1972. “the community can no longer afford to carry out the fire, health risk, and threat to public order and prestige which the squatter areas represent.” (Commissioner for Resettlement Annual Report, 1955, p.46). He initiated the pioneering Ten Years Housing Programme (1973–1983) the first of its kind project, to replace the adhoc and fragmented intervention by a continuous and well-planned approach in the provision of public housing.⁵² The objective of the programme was to eradicate all squatter areas and supply permanent, self-contained housing to 1.5 million people, approximately 33,000 flats annually.⁵³ Due to the limited availability of urban land and institutional policies prioritizing quantity over quality, public housing programs have historically focused on high-density construction. The following table shows the average density of each public



Fig. 38
Public space in Kwong Yuen Estate, Shatin

housing block in Shatin. To fulfil the daily needs of residents, shops are usually located on the ground floor and later with the first few floors transforming into shopping mall. Commercial complex and social centres were set up in the public housing estates. Illegal extension of shops onto the footpath would be seen as the cause of hygienic and sanitation problem within the estates.⁵⁴ To further achieve the quantitative goals for public housing, large land parcels were only available in rural areas and therefore later started the new town programme in 1973. Shatin was chosen as one of the initial sites for this new town development.⁵⁵ Consequently, these new town developments were carried out in rural areas, it is necessary to plan the construction works of social housing and related infrastructure over a decade. (Bristow, 1989)

Shatin New town development in 1970s

Shatin New Town, situated in a valley at the southern end of Tolo Harbour, has a history of agriculture dating back to the Ming Dynasty. It was not only as an agricultural settlement area but also as a hub for traders and merchants. Before the 1970s, Shatin was relatively underpopulated. This changed in 1972 when the government initiated new town development in Shatin. 13 public housing estate were completed in Shatin between 1975-1989 accommodating more than 45000 household units. The overall public housing estate density was planned at 2470 people per hectare.⁵⁶ These include rental housing estates, Home Ownership Scheme estates, and estates built under the Private Sector Participation Scheme. The majority of Shatin's residents now live in these estates, particularly in public rental housing. The current population of Shatin has surged to over 659,000.⁵⁷

Public Housing Estate	Year of Completion	Population	Number of blocks	Population density (person per block)
Sun Chui Estate	1985	17475	8	2184
Chun Shek Estate	1984	5324	8	665
Sun Tin Wai Estate	1982	8826	8	1103
Jat Min Estate	1982	9577	3	3192



Fig. 39
Satellite image of Shing Mun River and development of Shatin New Town in 1963 (above) and 1973 (below)

The historical satellite images (Fig 39 – 40) provide a zoom in study in the changes of landscape around the Shing Mun River in 30 years of time. The study area chose to observe the changes at the edge of Shatin new town development with river running in between. The following are the observations and analysis on the development sequence of a new town in Hong Kong and how the relationship with the river changes over time.

Observation 1 : hybrid road system

Before the development, Shatin railway station provides connection to China since 1910. In 1973, at the beginning of the new town development, major transportation infrastructure like the Lion Rock Tunnel Road and Tai Po Road was built. These highways and roads linked the then-remote new town to the city centers and facilitated the transportation of construction materials to the area. These new roads were significantly larger in scale compared to the original pathways, leading to a division of farmland plots and posing challenges to farming practices. This development also resulted in the isolation of villages that depended on nearby farming for their livelihood. In 1973 satellite image, a hybrid road system is observed, the new highway overlaying existing village roads and footpaths. Some footpaths abruptly lead to dead ends. By 1983, the urban road network had completely overtaken the area. The substantial parcel of land designated for public housing development was secured after the completion of the surrounding roads and highways, illustrating the strategic planning behind the urban expansion.

Observation 2 : public estates and villages

Huge influx of residents also generates pressure to river and nearby villages. New shops, social facilities and industrial buildings. Villages in Shatin were surrounded by high rise public housings. The village no longer consist of the picturesque farm on Shatin valley, but of high-rises so close to one another that they create dark shadow casting on the small alley, with only small strip of daylight. These villages become urban village that have been engulfed by the city or pushing at the urban fringes. “urban village” is an urbanized version of a village. Literally “villages within the city”. Parallel with the surrounding urbanization, these villages also become “urban”, with highway and roads splitting the communities. These villages were the remnants of the agricultural communities that once dominated the territory surrounding Shatin’s relatively small urban core. When the government acquired their farmland to start the new town development in Shatin, the city expanded around these villages, leaving them trapped inside their new boundaries.⁵⁸ On the other hand, public housings are highly concentrated in blocks. While these housings have erased the historical trace of the landscape, the architectural design of the initial phase of public housing by the colonial government created a distinctive cityscape with intention of fostering a new sense of community belonging at that time.

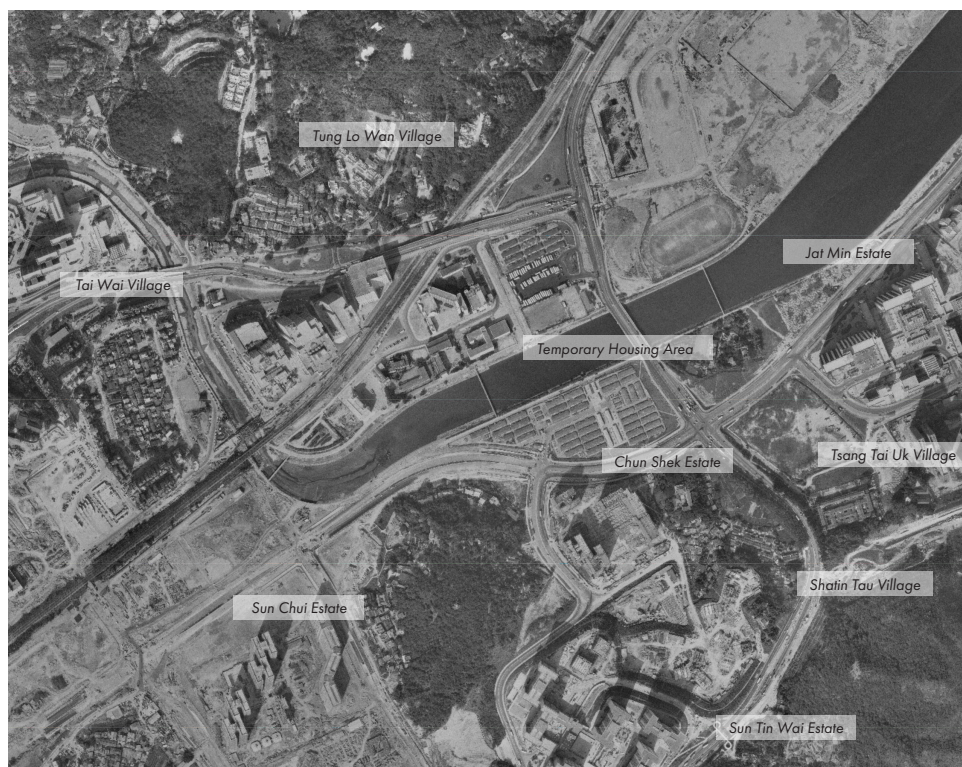


Fig. 40
Satellite image of Shing Mun River and development of Shatin New Town in 1982 (above) and 1993 (below)

Observation 3 : the roles of river evolved over time

Before the development, thanks to the fertile soil around the Shing Mun river, villagers mainly practice rice and vegetable farming, agarwood cultivation and commercial flower growing. However, the relief of the region limited the scale of these agricultural practices, making them smaller in comparison to other areas in Hong Kong. Recorded by the native resident in Shatin, Mok Kam Kwai, he recorded his childhood around the river “It was the happiest time, there were no roads, everywhere was our playground, we could climb trees, catch insects, and run around. When I was hungry, I would go to the fields to pick vegetables to eat, the water quality was not polluted back then, and there were wild goji berries along the way that I would pick and eat as I walked, and I also liked to catch river shrimps, and in winter I would bring a flashlight with me at night to look for freshwater crabs. I miss these scenes and life very much.”⁵⁹ The memories of Shatin native residents are intimately tied to the river and its surrounding landscape. Since 1970s, Shing Mun has been channelized to accommodate development projects and mitigate frequent flooding, this also segregates south and north part of Shatin. Adjacent farmlands were converted into industrial estates capitalizing on the river's water as a crucial resource for factory operations, and in turn, providing employment opportunities for newcomers in this emerging town. The original landscape gave a way as the economic activities shifted. In the 1980s, the Shing Mun River faced significant pollution challenges due to sewage discharge from nearby industrial zones and residential areas, and the water was completely unsuitable for the survival of any living organisms. At the end of 1980s, the government started to retore the water quality.⁶⁰ By the late 1980s, efforts to restore the river's water quality began. In 1993, the development of public parks and recreational spaces around the river further enhanced its role in community life. Starting in 1986, the Shatin Festival began taking place along Shing Mun River, aimed at fostering a stronger community bond by bringing new residents together and connecting them with the river. By 1996, the Shing Mun River had evolved into the host site for the Hong Kong International Dragon Boat Regatta, and later, it became a favoured location for a variety of water sports activities. Over time, through the efforts of both the authorities and the local residents, a new place attachment and the sense of “Shatin identity” was shaped.

The study of Shatin's new town development from the 1970s to the 1990s reveals a transformation of the Shatin valley into an infrastructural territory to meet the societal demands at that time. From domination of extensive public housings and industrial buildings along the river, then it eventually leads to the river's transformation into a recreational space and laying the foundation for the new “Shatin identity”.

The initial process of development has some resemblance to the situation with the Tung Chung River. Following the river's channelization, highways and roads

“Realizing this pre-constructed image of the countryside resulted in weakening the connection between the indigenous village community to their ancestral land”

accelerated the expansion of the urban road network, further fragmenting the landscape. The planned construction of new public housing blocks along the eastern stream of Tung Chung River is likely to generate additional pressure on the landscape, as social facilities and infrastructure will follow the completion of these housing units. The Tung Chung River Park initiative, a government effort to safeguard the river habitat amidst development, represents a positive step towards preserving river and the identity of residents. Working towards Modernist visions, the Shatin new town implemented a top-down planning overlaying the previously rural areas. Ideas of countryside shifted from the traditional rural-ink drawing landscape to view of a leisure area or nature reserve for new residents. However, realizing this pre-constructed image of the countryside resulted in weakening the connection between the indigenous village community to their ancestral land. The villages along Tung Chung River face a less controllable challenge: the issue of brownfields and small house policy. This situation results in an uncertain future for the Tung Chung River, potentially leading to challenges ahead.⁶¹

Brownfield and Small House policy colonising rural landscape

Referring to discussion on the palimpsest of Tung Chung river in the previous chapter, it is observed that brownfields began emerging in 1998 and currently almost completely cover the Shek Lau Po village area. After studying analysis of satellite imagery from Shatin for the projection of future of new town development, brownfield is also a growing concern particular to the area.

In Hong Kong, the definition of brownfield sites can refer to “agricultural land converted into various operations and uses, including open storage, warehouse, workshop, logistics and freight operation, container storage, vehicle parking, vehicle repair yard and vehicle body building yard in New Territories”. The activities on brownfield sites are generally low efficiency in land utilization, resulting in conflicts with surrounding land uses, as well as environmental and traffic-related challenges.⁶² Similar to other brownfield sites in New Territories in Hong Kong, majority of brownfield in Tung Chung Valley is on private land, and mainly for open storage and private car park due to low rent in remote area. The brownfield zone extends southward, reaching up to Shek Mun Kap village. Beyond this point, a section of Tung Chung Road, after Shek Mun Kap village, is a restricted zone for private vehicles, allowing only public transport access with speed limit. Viewing the land ownership of brownfield areas, it is expected the scattered situation will continue or even intensify due to new extension road in the south of Shek Lau Po Village. The brownfield would lower the existing efficiency of the fertile soil around Tung Chung River. The scattered and irregular size also limits the possibility of different land use. Brownfield could be a negative impact in integrating the Tung Chung valley as a whole.

On the other hand, “small house” on the proposed village type development area could be another threat in erasing the historical trace and identity of the people in Tung Chung valley. Small House Policy was introduced in 1972. The aim of this policy was to enhance the living standards in the rural areas of New Territories and also as a bargain in exchange for the support of new town development in rural areas. Under the policy, every indigenous male villagers (regardless of their place of birth), it allowed them, upon reaching 18 years of age, to build a house in their ancestral village. However, this policy has been open to misuse. A typical “small house” is not more than 3 storeys, with height of not more than 8.23 m, and maximum 700 square feet each floor.⁶³ For many years, there was a lack of enforcement regarding the gradual increase in the number of small village houses, approximately 43,000 small houses have been built in Hong Kong under the policy by 2020. Majority of the older traditional village house has been demolished and replaced by the modern style “small house”. This becomes the dominant architectural typology in the New Territories. In recent years, the consequences of this policy have beyond control, leading to widespread and illegal developments in rural areas. These developments often border country parks and, in cases where villages are near the coast, pose significant threats to marine parks and rivers as well. It is estimated that the Government’s failure to reform the Small House Policy

over the decades could result in the construction of over 10,000 additional small houses within the country park enclaves in the next decade. Small houses are considered the most environmentally damaging form of local development due to their lack of regulation. Referring to the 1986 palimpsest of villages along the Tung Chung River, it is observed that most villages, with the exception of the gated Mok Ka village, have demolished the majority of traditional village houses in exchange for new three-story “small houses”, disrupting the original village network. On one hand, the design of the traditional village house, which was in harmony with agricultural living, became incompatible with the housing needs of non-farming inhabitants who are from urban environments.⁶⁴

“Small House” separates and disconnects the community from its intimate relationship to the river and soil. It poses threat to the ecology and water quality of the river. The challenge is created by the scattered private land ownership. If the small house policy remains unchanged, protecting the future of the Tung Chung River becomes increasingly difficult. Consequently, the principle of infrastructural development seen in new town projects on the east stream is likely to expand to the west stream of the Tung Chung River, potentially overlooking and altering the unique characteristics of the landscape.

The above analysis reviews the government policies relevant to the future development of the Tung Chung River. Drawing insights from the Shatin new town example, we can understand the typical progress of new town developments in Hong Kong, the evolving connection with the river, and the way it reshapes the residents’ identity in relation to the river landscape. River could be an important agent to connect the community. As increasing population in New Town and their infrastructure and support facilities extended beyond their boundaries, the surrounding village lands transformed into suburban areas, aiding in meeting the relentless demand for housing. Consequently, it’s plausible to argue that the New Towns played a central role in diminishing the rural landscape by suburbanizing their adjacent rural areas, particularly as urban dwellers moved into new towns seeking more affordable and spacious living options. Particular to Tung Chung River, issues about brownfield sites and village development also represent two significant land policy challenges in Hong Kong which hinder the integration and growth of new communities in rural areas. Therefore, it is crucial for the government to consider the river in its development plans as a whole, aiming to address future needs in a sustainable way.



Part Six:

Discussion and Theoretical Discourse

Given the rapidly evolving and unpredictable future needs, there is an urgent call for a paradigm shift in how new urban developments are conceived and executed.

"It is poignant that Chinese city planners, desperately pondering ways to infuse identity into their newly built homogeneous cities, overlook the urban villages. Their unique urbanisms, histories, spatial experience, culture, and cosmopolitanism could bring a more diverse texture to the future of the city."

(Ai, 2014)

Rural and Urban Hong Kong

a call for paradigm shift in how urban environments are conceived

New Territories, including the Lantau Island, counting for more than 86 percent area of Hong Kong, has been a target to transform the landscape serving a working rural community to becoming a deconstructed countryside with urban development and crumbling rural institutions. The great divide of rural and urban Hong Kong started in the 1960s, driven by the need to accommodate a increasing population and rampant urbanization within the rural landscape. The policy underlying this transformation conceived the idea of a network of country parks, crafting an image of the countryside primarily to serve the urban core of Hong Kong rather than its rural inhabitants. The policy also advocates the creation of a system of rural parks, recreation areas and reserves in the territory. Lee Talbot, International Commission on National Parks, was consulted and pointed out that 'The more urbanized and industrialized a country becomes, the greater need of its inhabitants to find open space for recreation, away from the high pressure, artificial worlds they have created... People needed recreation areas and wild open spaces to rest and contemplate, where they could hike, camp, climb, bird watch or just enjoy the nature.'⁶⁵ In the Sustainable Lantau Blueprint, Lantau Island will become a "regional gateway" facilitating direct transit between Hong Kong and other cities in China and a nature conservation area, providing an "urban escape" for urban dwellers and supporting local tourism.⁶⁶ For the new communities in Tung Chung Valley, Tung Chung River fill up the open space missing in the first phase of Tung Chung new town development in the East Tung Chung.

The scenario unfolding in Tung Chung Valley and Shatin of the New Territories in Hong Kong illustrates a common challenge in the face of urbanization. The government's vision for these areas often appears as an idealized concept, somewhat detached from the ground realities. The minimal policy intervention in rural areas has left indigenous villages vulnerable to the impacts of uncontrolled urban expansion. This expansion disrupts established social ties and institutional networks that were essential in maintaining traditional concepts of responsibility and ownership within the rural landscape.

The transformations in Shatin new town and recent changes in Tung Chung River highlight a globally significant issue. Elizabeth Lominska Johnson's study of Tsuen Wan, the first rural area in Hong Kong to undergo such transformation, offers valuable insights. She observed how the distinctiveness of original natives faded with the influx of newcomers, a process that original residents often described as a 'simplification' in response to the complexities of contemporary life in Hong Kong and beyond.⁶⁷ It raises key questions about how to design and develop rural landscapes with rapid urbanization, while preserving the unique character and heritage of the original native communities. This research highlights the challenges in balancing urban growth with the preservation and adaptation of rural communities and environments from the context of Tung Chung River, and the shifting relationship with the river.⁶⁸

Due to the uncertain development on the private land, it appears only the conservation area, outlined by the government and guided by the preconceived idea of the countryside, that provide a form of resistance to the high pressure of urban development with their status as a protected urban wilderness network.⁶⁹ The approach of the rural serving the needs of the urban has altered social and cultural ties to the lands, which in turn been neglected, leading to the deconstruction of the landscape.

Colonial planners and modernist designers of new towns often ignored old network of villages and their environmental register.⁷⁰ Dabid Grahame Shane commented that modern urban planners often preferred a tabula rasa with no village settlements.⁷¹ Examples such as traditional villages in Tsuen Wan, gave the name to the first Hong Kong new town in the 1960s, was dismantled. The government relocated the inhabitants who lived on the boats in the bay to large modern public housing estates. Shatin, mentioned in the previous chapter, preserved existing villages within the new town development, treating the villages as historic conservation sites inside the Los Angeles-style megablocks of the new automobile based city, Milton Keynes, the last British new town developed in the early 1970s.

Terry McGee, a geographer, also started questioning the Modernist tabularasa mega block, and highlighted the tradition of migration and exchange between city and countryside of *desakota* in Indonesia. The dutch colonialists at that time mixed fertile rice paddies and fish farms surrounding the capital city, Jakarta, which is the hybrid system that continues until now.⁷² He described, "The emergence of a new form of city as an expanded field of multiple villages widely distributed across a peri-urban territory."⁷³

Villagers in Tung Chung valley had successfully established a self-sustained neighbourhood before 1970s. The land demonstrated huge potential in generating great value for the new communities. However, when developing new towns, planners often overlooked the unique characteristics of these rural areas, including Shatin and Tsuen Wan, opting instead to clear the landscape to make way for housing. There is a concern that this approach has persisted unchanged for over 60 years. Given the rapidly evolving and unpredictable future needs, there is an urgent call for a paradigm shift in how new urban developments are conceived and executed.

Citizenship and Infrastructure

creating new identity with the basis of origin as support

Infrastructure is often a key driver of urbanization, facilitating the movement of goods, raw materials and labour; however, it can also disrupt more local forms of connection, bisecting farmland and dividing villages. Charlotte Lemanski suggested we should consider both infrastructure and citizenship as fundamentally inter-connected in shaping urban life at multiple scales.⁷⁴ "social citizenship" (Taylor-Gooby 2008; Dwyer 2010) would give a more implicit understanding. Apart from legalistic rights, such as voting, citizenship should include the spaces of everyday life in the city.

"Splintering Urbanism" is a concept that describes the exclusionary and fragmenting effects that result from the privatization of infrastructure provision in urban areas. This concept highlights how the development and distribution of infrastructure, driven by market rationalities, can lead to a divided city, both spatially and socially. For example new train lines connect wealthy residential areas and commercial zones (but ignore poorer parts of the city) This prioritization creates a physical and social divide within the city. Well-connected areas, typically wealthier parts of the city, enjoy better access to services and opportunities. In contrast, under-connected zones, often poorer areas, are left with inadequate infrastructure, impacting the quality of life and economic prospects of their residents. This also happened in the early stage of new town development in Tung Chung. Since Tung Chung River is located at the urban fringe, it is worried that inequality and marginalisation would appear that are intrinsically connected to citizen's right and politics of the city.⁷⁵

Kyle Shelton analysed strategies of mobilisation against highway construction by Houston residents' in 1970s and demonstrated how the residents argue their local streets and home have equal value as major highways and urban regeneration projects by highlighting their infrastructural citizenship. Thus, urban infrastructure should not override on the existing road network and infrastructure.⁷⁶ At the same time, Shelton pointed out that the effects of highway construction on urban areas can be long-lasting for years and would alter character and functioning of the neighbourhood. In response, some communities may isolate themselves, resembling gated communities, which leads to a sense of segregation and distinct identity from newcomers in the area.⁷⁷ Therefore, infrastructural citizenship of existing villagers should be included in the consideration of road infrastructure, in supporting the idea of creating new identity with the basis of origin as support.

The ongoing tension in Tung Chung Valley reflects a broader issue in urban development: the conflict between government efforts to meet housing demand through high-density public housing and the villagers' desire to redevelop land for financial gain. This tension, though it is significant in the current context, is rooted in a temporary perspective of land value, primarily based on the selling or rental price of properties developed on the land. In urban settings, land value

is often driven by location and proximity to main roads. However, this approach does not account for the sustainable, long-term value of the land. Factors such as history, cultural rituals, distinctive local identity, and the potential for agricultural production connected to the river in Tung Chung Valley offer a more holistic understanding of land value. These aspects are crucial for creating a future community that is not just another collection of repetitive residential towers lacking character. Over time, neglecting these deeper values can lead to new towns that eventually fall into decay, losing their unique identity and sense of community. Not only does it erase the unique historical and cultural traces of the village, the redevelopment can put pressure on the surrounding infrastructure and is also expensive.

Urban villages benefits of small grain villages

Villages close to the new town area studied in the previous chapter represent an unintended consequence of the metacity and megacity in Asia. MVRDV proposed a new model of “vertical village”, based on unregulated urban villages observed in China, villages are trapped inside the new boundaries inside the new town. The phenomenon can be observed in Shatin and is projected to occur in Tung Chung River. It is the consequence of rapid urbanization that has resulted from land reform, the dual urban and rural land ownership and management system, and the large influx of an underprivileged migrant population.⁷⁸ When the government could only achieve partial land acquisition in the countryside, as it is too costly to compensate and relocate the original villagers, the government could only transform areas surrounding the villages into housing. Now, with the changes of economic activities, villagers no longer practice farming, the Tung Chung valley will become a territory of infrastructure to satisfy the future needs of incoming 20000 residents, which is 20 times more compared to 1963.⁷⁹

"It is poignant that Chinese city planners, desperately pondering ways to infuse identity into their newly built homogeneous cities, overlook the urban villages. Their unique urbanisms, histories, spatial experience, culture, and cosmopolitanism could bring a more diverse texture to the future of the city."⁸⁰

The social housings in Tung Chung new town are densely packed and lack the diverse, smaller-scale urban elements that add variety to the larger, uniform city layout. Instead of continuing to build these repetitive public estate, developing smaller lots could create opportunities for smaller businesses. Most new developments, including the residential towers on the east side of the Tung Chung river, feature shopping malls on their lower floors to meet residents' daily needs, like markets, clinics, or elderly centers. Exploring other options, such as spreading out residential housing less densely, could also benefit smaller businesses. This approach would enable businesses to operate beyond the confines of shopping malls located in public estates.⁸¹ When urbanisation processes interact with such areas, the rural does not immediately give way to the urban and instead a hybrid rural-urban typology emerges. Sometimes dubbed *desakota* landscapes (Indonesian for ‘village’ and ‘city’), they are neither strictly urban nor rural in character, but a mixture of both.⁸² There is still the possibility of changing the urban values and recognizing that villages can become active agents in the development of the region. It is not only conceivable but likely that planners, officials, villagers, and the city residents will reexamine the past and present circumstances of urbanizing villages and it is hoped, rethink their futures.⁸³



Part Seven:

Understanding in New Perspectives

To explore innovative strategies in adapting river landscapes to urban growth and to rethink the future of villages for bridging communities, both old and new

“Water reappears as a focus of urbanist. In a certain way, the reappearance of water as a focus of urbanist concerns is not uncalled for. Rather, its disappearance during the heydays of urbanism in the 19th and 20th century is remarkable.”

(Shannon, 2008)

Understanding in new perspective

water as the focus

The research attempts to depict the uniqueness of the river landscape of Tung Chung river, the human-scale, the ritual and historical trace, all the elements that make up a good city in building up identity to new communities settling on changing river landscapes.⁸⁴ The following study on Vigano's “The project of Isotropy” and “Horizontal Metropolis” and Shannon's “Water Urbanism” aims to provide insights into the future of river landscapes in changing environments, particularly in the face of urbanization, aiming to provide innovative approaches to preserve and value fragile ecosystems of rivers, and to rethink the futures of villages next to the river by re-examining the historical trace and value, in contribution to the identity for the newcomers.

Water Urbanism

Water is increasingly becoming a central topic in contemporary urban planning discussions. This renewed focus is not surprising, given the frequent reminders of global warming's impact, including rising sea levels, the uneven distribution of scarce water resources, altered terrains and affected watersheds, pollution issues, and the challenges surrounding water storage, harvesting, and flood protection. These varied and significant concerns highlight the growing importance of water management and conservation in the context of urban development and environmental sustainability. (Swyngedouw 2004)

Water management is becoming a critical aspect of urban planning in Asia, amid rapid urbanization and evolving landscapes. Various speculative projects are exploring ways to reconstruct ecologies and reimagine water-based urbanism. For instance, a case study in the Tapyuan Area in Taiwan demonstrates the potential of repurposing agricultural water ponds to manage the region's dynamic and dispersed urbanization process. This involves reclaiming both natural and artificial water structures and utilizing them as frameworks for urban renewal strategies. Another case study from the Catapilco River in Chile seeks to go beyond the traditional consumptive use of waterscapes. This project aims to develop a redevelopment plan for Chile's Central Littoral, which the productive potential of the water system of city and river is highlighted.

From many case studies, it is hoped that urbanism that make use of the structuring capacity of water systems, such that urbanism take advantages of the deviation, sophistications and the like that water offers urbanisms.⁸⁵ The hope is that today's and tomorrow's water challenges, despite their complexity and difficulty, will provide unique opportunities to overcome outdated practices inherited from the 19th and 20th centuries. This new paradigm seeks to integrate water management innovatively into urbanism, addressing both current needs and future challenges.

Horizontal Metropolis - urban landscape of resilience

In 2013, Vigano advocated 'Horizontal Metropolis' – a vision of urban development characterized by the even distribution of highly differentiated, small-town or village-like urban clusters. This approach promotes the formation of a more hopeful and resilient urban landscape, spreading across an extended field that is shaped by both the natural topography and existing infrastructure. The idea is to move away from concentrated urban centers and instead develop a series of smaller, distinct communities that are interconnected yet retain their unique characteristics, fostering diversity and resilience in the urban fabric. It can be achieved by enhancing coexistence, novel relations, and synergies between humans and between human and non-human agencies. It represents a multi-layered territorial structure where agricultural and non-agricultural economic activities converge to create an original mix. This concept moves beyond the traditional notions of "suburban" and "peri-urban" spaces. Instead, it highlights the intricate interconnections and co-dependence between rural and urban areas. It encompasses not just the physical spaces but also the intertwined systems of communication, transport, and economics.⁸⁶ Horizontal Metropolis can be read as, for example, including long term territorial supports of infrastructural construction with different nodes,⁸⁷ a decentralized organization for new spatial hybrid or the revolution in land use that provide new role of open space in structuring and feeding the Horizontal Metropolis, where the possibility of "a highly productive sustainable agriculture" developed inside an urban and metropolitan network is increasingly realistic (Smeets, 2010).⁸⁸

The project of Isotropy - ambiguity of meaning

In *Cities in Evolution* (1915), the biologist Patrick Geddes drew a 'Valley Section' diagram stretching from mountain source to delta estuary, describing the geography of villages, towns and cities in relation to the occupants' trades, resources and skills, seeing the whole topographical territory as a regional entity.⁸⁹

"A territory can present itself as strongly hierarchized on a vast scale and substantially isotropic on a local scale, or vice versa; a territory with an isotropic infrastructure network may correspond to a settlement system that does not have analogous characteristics. And it is interesting to study what happens in an isotropic territory when policies of its hierarchization are introduced, or opposite applies." (Secchi, 2016)⁹⁰ He also highlights that the structure of a city is not solely determined by its transport networks. It emphasizes the unique spatial arrangement and characteristics of diffuse cities. A "diffuse city" is mentioned as having a recognizable form, despite not being a compact urban area. This type of city is characterized by a mix of built-up spaces (like buildings and roads) and non-built-up spaces (like agricultural land). In a diffuse city, the relationship between urban areas (the city) and rural areas (the countryside) is not oppositional. Unlike

in more traditional urban models where there's a clear distinction and separation between city and countryside, in a diffuse city, these areas intermingle and coexist more fluidly.⁹¹

Responding to the usual practice that the government usually announce the zoning plan in the process of urban development. He also provides an alternative and comment to such concept, "selecting a function while excluding another reduces the complexity of a given space to remove any ambiguity from its configuration."⁹² From an ecological perspective, this implies the resilience of ecosystem will be reduced and the ability to adapt to react to disturbance will be diminished. (Pickett et al. 1999) This will result in a more brittle and loss of biodiversity in areas that are highly hierarchical and monofunctional, especially areas with river landscapes.

Also, with the use of corridor, this can act as a spatial device that has an ambiguous meaning to segment spaces for continuity of flows. At the same time, the series of object can also be disintegrated into individual elements which marks discontinuity as well. Such ambiguity character is important, a constituent duality appears to be individual but also continuity enabling flow. Ambiguity of meaning, to be both a place that welcomes, but also excludes.⁹³

Regarding abandoned agricultural space due to economic shift and urbanization, the value of agricultural activities in urban areas is usually underestimated and not necessarily perceive to be negative. Farming space in urban areas, such as in the "citta diffusa" (Ferrario 2007), is increasingly meeting a diverse range of contemporary societal needs, and in the future, it may be called upon to fulfill even more varied demands. Currently, beyond traditional roles like fodder and food production, these spaces serve multiple functions including leisure, education, and tourism. For instance, the Veneto Region in Italy is notable for its agritourism, ranking third in the country. Additionally, farming areas contribute to energy production and can provide critical safety functions, such as serving as emergency flood zones during heavy rains. From an environmental perspective, these spaces are crucial in linking ecological networks between mountains and coastal wet areas, like lagoons. This multifunctional role of farming spaces underscores their evolving importance in urban settings, far beyond traditional agriculture. Farming spaces often appeared in river landscapes, on changing environments, agricultural areas can serve as a barrier against urban expansion, and farming practices can play a public role, closely tied to the needs of the urban population.⁹⁴

Conclusion

River is increasingly central in urban discussions due environmental challenges. In Asia, rapid urbanization needs innovative water management strategies and a paradigm shift in understanding potential of river landscapes in urban settings, and rivers are not just for consumption but for fostering biodiversity, community resilience and citizenship. To design and develop the river landscape, planners and architects must weave back the lost threads of connection and responsibility into the fabric of these landscapes. This can be achieved by integrating cultural references and implementing well-informed governance of spatial structures. It is hoped that to create spaces where people can once again find their stories intertwined with the land, rekindling a bond that time and change have strained. This narrative of regeneration and reconnection is not just a task of design, it is a journey towards rediscovering and redefining the relationship with our land.

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