BLEND BOUNDARIES

Planning For Shenzhen River Ecological Corridor

STATEMENT

Shenzhen River is the boundary river of Shenzhen - Hong Kong, which from the northeast of Wutong Mountain Niuwei Ridge to the southwest into Shenzhen Bay, the total length is 37km, the watershed area of 312.5k ㎡ , around 60% in Shenzhen (187.5k ㎡), 40% in Hong Kong (125k ㎡). More than half a century ago, the barbed wire fences erected along the river not only isolated the communication between the people of Shenzhen and Hong Kong, but also made the migration of animals hindered, and the homeland was divided into two. In recent years, with the growing cooperation between Shenzhen and Hong Kong, our team has been exploring the future of the Shenzhen River, taking advantage of the planning and construction of the Ecological Belt in northbank of Shenzhen River and the northern metropolis of Hong Kong.

Taking ecology and humanity as the entry point, this plan focuses on four aspects, water security, hinterland space, accessibility, and linkage, and proposes three basic strategies, including boundless ecology, urban convergence, and borderless experience, to promote the integration of both sides with the Shenzhen River as a link, providing a new interactive map for the future of Shenzhen and Hong Kong.

NARRATIVE

BACKGROUND

Shenzhen River is the boundary river between Shenzhen and Hong Kong, east-west connecting Dapeng Bay and Shenzhen Bay, with vast watersheds and superior natural resources. However, the fences isolate the resources, contrasting the undeveloped south side and the well-lit north side.

HISTORY

The word ‘Shenzhen’ in Chinese means ‘deep ditch beside a field’, and Shenzhen River has always been a vital water source for irrigation and livelihoods of the settlement historically. In 1951, the British and Chinese sides successively blocked the riverbanks and set up an exclusion zone, and villagers from both sides of the river, who were of the same origin has to be separated. The fences and exclusion zones still exist today, making the Shenzhen River a strange neighbor to residents on both sides.

CHALLENGES

Since the 1980s, efforts have been made to manage the Shenzhen River through the cooperation of Shenzhen and Hong Kong, resulting in some improvements in pollution and flooding.

NARRATIVE

However, challenges remain, leading to a negative situation where human activities are hindered, and biological habitats are affected.

One challenge is the over-hardening of the riverbanks, which limits their ecological nature and blocks the connection between the riverbanks and the hinterland along the river, which is not conducive to animal movement. There is also a negative impact on the self-purification capacity of water bodies.

The different landscapes on both sides of the river, caused by Shenzhen's reform and opening up, and Hong Kong's city center layout, also created a dramatic difference in hinterland space conditions between the north and the south bank.

The long fences and border management measures have made it difficult to access the interior of the Shenzhen River, and also hamper optimal use of the riverbank spaces and the connection of resources on both sides.

STRATEGIES

The greatest vision of this plan is to use the Shenzhen River as a link to promote the integrated development of Shenzhen and Hong Kong, and the following strategies are supported to these targets:

01 Boundless ecology

The Shenzhen River Basin is a key bird sanctuary and a crucial stopover for migratory birds. It is home to over 400 bird species, 19 fish species, and various small mammals. To establish a benign ecological environment, this plan helps to extend wildlife stopover points, clear migration routes, and reshape habitats for different species.

The existing barge on the north bank of the Shenzhen River mainly consists of hard concrete, lacking ecological value compared to the wetland of the GEI WAI fish pond on the south bank. In the Futian section, the north bank's barge can be categorized into three types: concrete retaining wall, concrete retaining wall with natural mudflat, and concrete retaining wall with gently sloping stone. This plan proposes ecological renovations for the north bank's barge, including building swales, retention ponds, and grass-plated mat barge to increase its ecological nature and hydrophilicity. On the south bank, by the Hong Kong North Metropolis, wetland conservation areas and buffer zones will be designated to enhance the ecological connection between the GEI WAI fish ponds, mangrove forests, and mudflats. This will create an entire ecological landscape shoreline that caters to the unique conditions of both the north and south shores.

One of the main sources of pollution in the Shenzhen River is surface source pollution. While measures such as flow expansion and an interception in the north bank and removal of livestock waste in the south bank have had a positive impact on water treatment, the water quality in the Shenzhen River estuary still falls short of its historical reputation, which was named "Mingxi" means "clear creek". To address this, a purification wetland will be established using the GEI WAI fish ponds, and also ecologising some of the outfalls. This will enhance the river's self-purification capacity and improve the water quality of Shenzhen River and its tributaries.

By implementing these strategies, the plan aims to create a favorable ecological habitat environment along the Shenzhen River. It will support the conservation of wildlife, improve the ecological value of the riverbanks, and enhance water quality, ensuring the sustainable development of the ecosystem.

02 Urban convergence

The north bank of the Shenzhen River connects the early-developed urban areas of Futian and Luohu in Shenzhen, which are the central areas of the city. The southern bank, emerging from Hong Kong North Metropolis, presents an opportunity for the interconnection and joint development of the cities on both sides of the river. Based on this, the plan identifies three major integration development areas between Shenzhen and Hong Kong. It establishes two major development axes in the Futian Loop and eight demonstration projects in Sha Tau Kok and Luohu, forming an inclusive urban system with the Shenzhen River integrated corridor as the main component.

The plan utilizes the Ecological Belt in northbank of Shenzhen River and the New Territories North Urban-Rural Greenway in Hong Kong, creating a slow-moving system on both the north and south sides of the river. It connects the landscape resources along the Shenzhen River in an east-west direction, forming

NARRATIVE

a water corridor. Additionally, it utilizes the tributaries and mountains to create five north-south ecological corridors with unique characteristics. The plan strengthens the construction of pedestrian systems for the main stem and tributaries, linking waterfront spaces with adjacent 5 nature reserves, 9 integrated parks, and other resources. This establishes an interwoven blue-green system that spans the Shenzhen River and connects Shenzhen and Hong Kong.

Border fences on both sides of the river hinder spatial connectivity. In Shenzhen, the blockade of the Shenzhen River resulted in the integrity of the spatial system along the river being crudely truncated, while in Hong Kong, the favorable natural environment of GEI WAI Fish Ponds has been concealed. The plan proposes a phased approach to opening the fences. Take the Futian section as an example, in the first phase, a booking system for open visits will be implemented, maintaining border characteristics. Strict regulations will limit people entering and exiting from their corresponding side. In phase 2, when the border characteristics are no longer relevant, the fences will be removed, fully opening the area to the public and integrating it into the urban public space system. Core conservation areas of important wetlands will remain protected.

03 Borderless experience

Based on the current conditions and actual needs, several IPs are deployed along the Shenzhen River to promote water culture, taking the Futian section in Shenzhen as an example, seven IPs are established to display the cultural history of the Shenzhen River and popularise ecological knowledge from the aspects of science popularisation, experience, sightseeing, nature education, and so on. At the same time, according to the demand, the idle buildings along the river are empowered to create a station and functional facilities in line with the overall spatial tone of the riverbank to meet the needs of cultural display, leisure, and sightseeing.

CONCLUSION

Through the planning and design of the blue-green system, urban space, and enrichment of the experience of riverfront leisure activities, the Shenzhen River Ecological Corridor will realise the benefits of the superposition of various functions such as ecological protection, leisure and recreation, and social activities. The whole can realise the connection between Shenzhen and Hong Kong in terms of ecology, space, and resources, which is conducive to stimulating the urban vitality of the negative space at the border, and is a high-quality practice to awaken the boundary river corridor and promote the integration of Shenzhen and Hong Kong. Currently, the demonstration section is under construction.

BACKGROUND

Location: The border between Shenzhen and Hong Kong

Shenzhen River, a water system in the Pearl River Delta, originates from Wutong Mountain, flows through Shenzhen City and Hong Kong, flows from northeast to southwest into Shenzhen Bay, and exits the Lingding Ocean. It is a river (middle and lower reaches) designated as the boundary between Hong Kong and mainland China. It is located between the Northern Metropolis of Hong Kong and Shenzhen City, Guangdong Province.

1 RIVERS ARE FORMED IN THE 2 CITIES : SHENZHEN&HONG KONG
THE 1 RIVERS ARE CONNECTED TO 2 BAYS:SHENZHEN BAY&DAPENG BAY

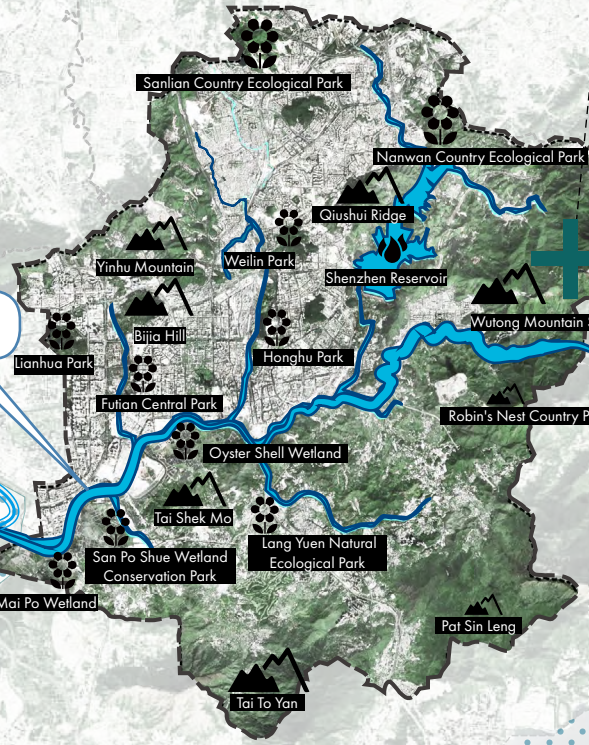
The total area of the basin : 312.5k ㎡
Shenzhen Part : 187.5k ㎡
Hong Kong Part : 125k ㎡

Mangroves
Wetland Ecosystem

Pearl River Estuary
Chinese White
Dolphin Nature
Reserve

SHENZHEN

Wutong Mountain



SHENZHEN RIVER

SHENZHEN BAY

DAPENG BAY

DAPENG BAY

HONG KONG

HISTORY OF SHENZHEN RIVER

BEFORE War

The villages along the Shenzhen River are usually from the same clan on the north and south sides, and both sides have fields on the other side.

BEFORE 1899

As Hong Kong became a British colony, the Shenzhen River was designated as the boundary river between China Mainland and Hong Kong in 1899.

1899-1951

Before 1949, Shenzhen and HongKong could cross the river for farming at will. After 1951, due to policy reasons, the two sides established restricted areas.

AFTER 1951

Due to the political turmoil in the world, since 1951, Guangdong and Hong Kong have introduced regulations to seal the borders and control the people into. Subsequently, the establishment of transit farming ports to facilitate the villagers who own field on the other side for their work.

SHENZHEN

HONGKONG

SHENZHEN BAY

DAPENG BAY

Shazui Transit Farming Port

Huanggang Transit Farming Port

Chiwei Transit Farming Port

Chiwei Village(Shezhen)

Chiwei Village(Hongkong)

Caiwu Village(Shezhen)

Caiwu Village(Hongkong)

Luofang Transit Farming Port

Changling Transit Farming Port

LiantangVillage(Shenzhen)

LiantangVillage(Hongkong)

Caifang Village(Shezhen)

Caifang Village(Hongkong)

Luohu Village(Shezhen)

Luohu Village(Hongkong)

BIG CHALLENGE

BOUNDARIES BLOCK RIVERFRONT SPACES, FORMING NEGATIVE ZONE

1 Water Security

80% Most water quality is below Category II, accounting for 80%.

75% The hardening ratio of both banks exceeds 75%.

2 Hinterland Space

10% Highly built-up urban area on the north bank, with only a small amount of hinterland space in the Wutong Hill area.

90% The Hong Kong area on the south bank is a rolling wilderness with plenty of hinterland space.

3 Accessibility

30KM The length of the border fence of the north side in Shenzhen exceeds 30km.

400HA The Hong Kong Border Closed Area on the south bank covers an area of 400 hectares.

4 Linkage

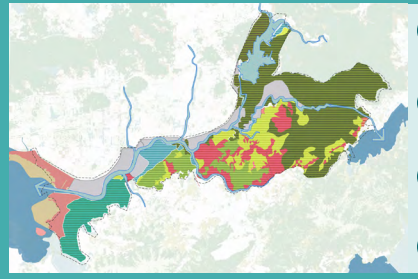
6 6 transit ports

95% The urban construction on the Shenzhen side has been completed at 95%, mostly with parks, industrial , residential , while the Hong Kong side is mainly farmland.

OVERALL STRATEGY

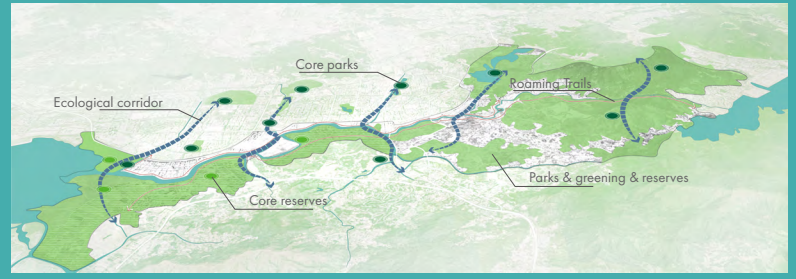
A River Leading Hong Kong-Shenzhen Communion

1 Boundless ecology

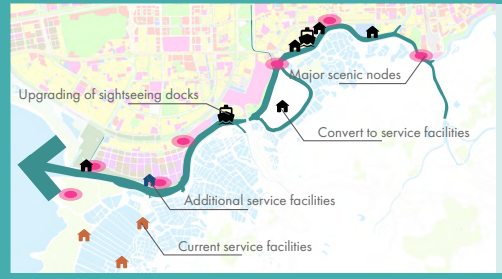


- 3 main categories of wildlife
- 5 different habitat types
- 6 wetland habitats
- 2 ecological compensation programmes

2 Urban convergence



3 Borderless experience



- 7 main major scenic nodes
- 9 service facilities
- 2 sightseeing docks

1 Boundless ecology

ECOLOGICAL EMBLEMS-WILDLIFE HABITATS

BIRD ECOLOGY

East Asia-Australia Flyway, an important resting place for migratory birds

>400 Species Of Birds Recorded

Including a large number of transiting and wintering waterbirds

Platalea minor

Ardea cinerea

Phalacrocoracidae

Recurvirostra avosetta

Recurvirostra avosetta

Ardea alba

Halcyon smyrnensis

Pycnonotus jocosus

Milvus migrans

Reservoir

Mountain

Mountain

Forest

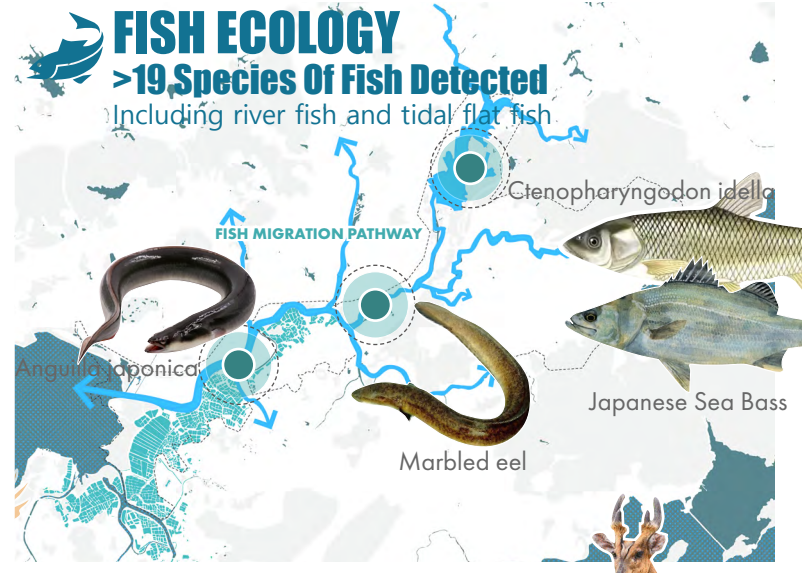
Wetlands

Fish Pond

FISH ECOLOGY

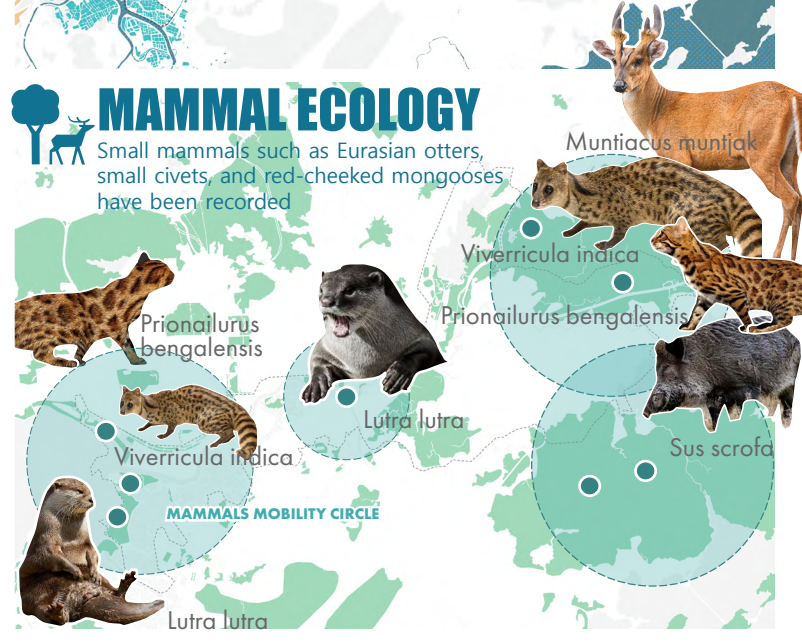
>19 Species Of Fish Detected

Including river fish and tidal flat fish



MAMMAL ECOLOGY

Small mammals such as Eurasian otters, small civets, and red-cheeked mongooses have been recorded



1 Boundless ecology
RESTORING SPECIES HABITATS

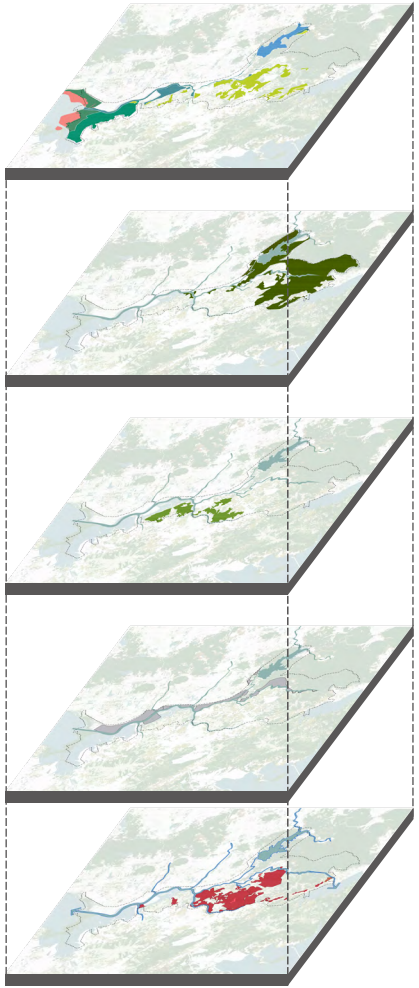
WETLAND 40%
Wetland habitats account for the largest proportion, including tidal flats, mangroves, fish ponds, river habitats, reservoirs, and farmland.

FOREST 34%
Mainly concentrated in the mountains on both sides of Shenzhen and Hong Kong

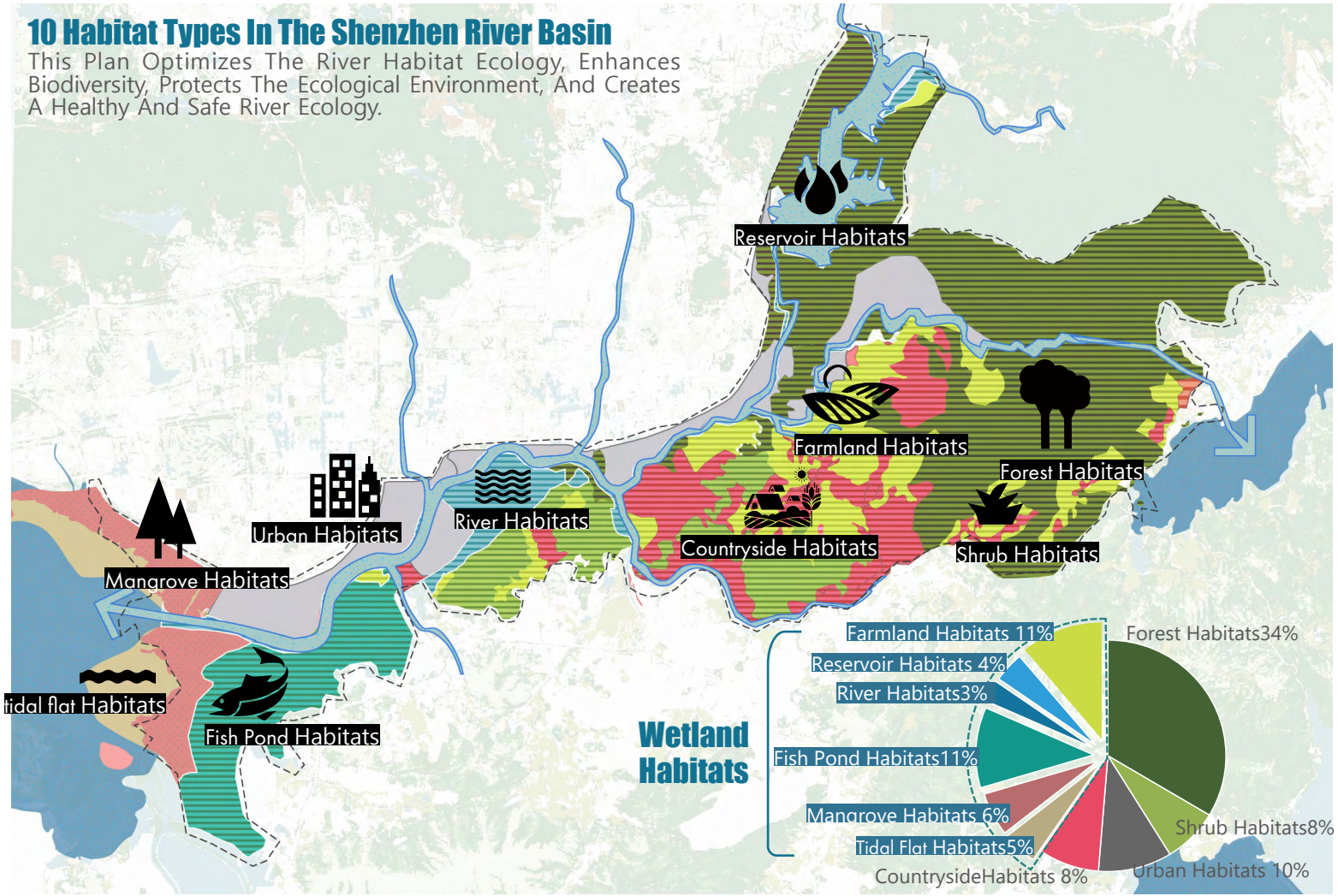
FARMLAND 8%
Mainly concentrated in farmland on the Hong Kong side

URBAN 10%
Shenzhen side has a high degree of urban construction

COUNTRYSIDE 8%
There are more villages on the Hong Kong side



10 Habitat Types In The Shenzhen River Basin
This Plan Optimizes The River Habitat Ecology, Enhances Biodiversity, Protects The Ecological Environment, And Creates A Healthy And Safe River Ecology.



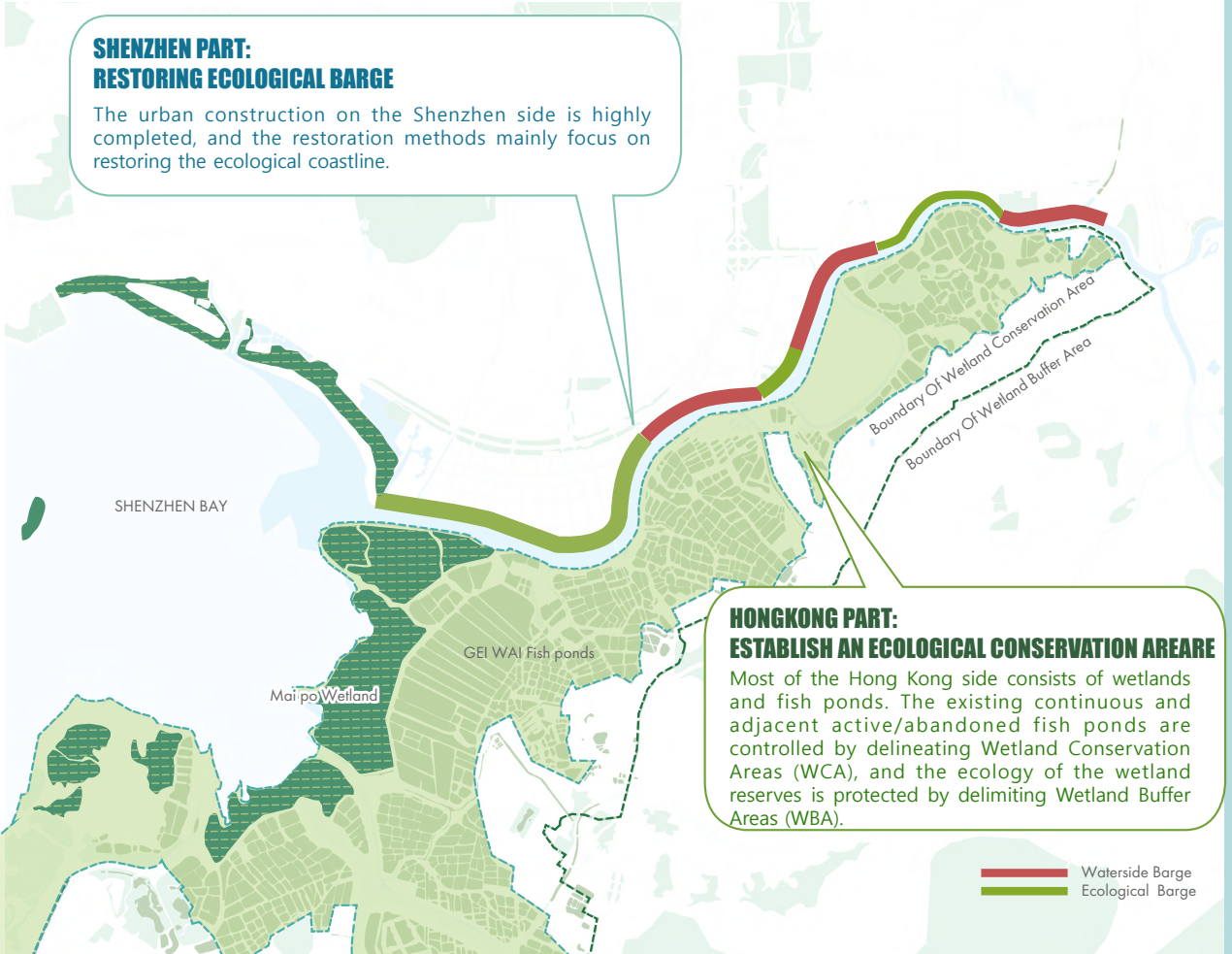
1 Boundless ecology

ECOLOGICAL BARGE AND SHORELINE

DEVELOP ECOLOGICAL RESTORATION STRATEGIES BASED ON THE CURRENT SITUATION ON BOTH SIDES

SHENZHEN PART:
RESTORING ECOLOGICAL BARGE

The urban construction on the Shenzhen side is highly completed, and the restoration methods mainly focus on restoring the ecological coastline.

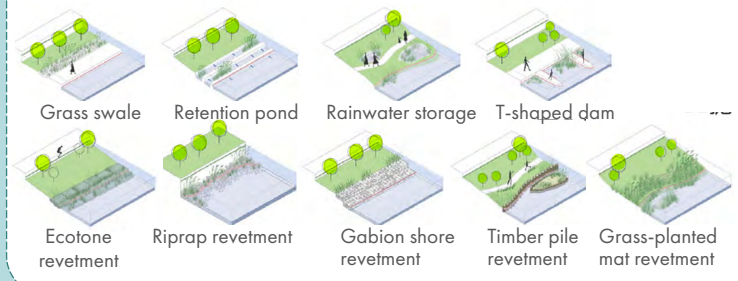


HONGKONG PART:
ESTABLISH AN ECOLOGICAL CONSERVATION AREARE

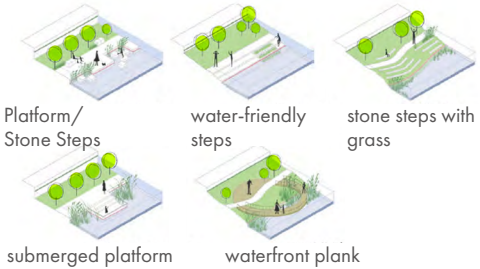
Most of the Hong Kong side consists of wetlands and fish ponds. The existing continuous and adjacent active/abandoned fish ponds are controlled by delineating Wetland Conservation Areas (WCA), and the ecology of the wetland reserves is protected by delimiting Wetland Buffer Areas (WBA).

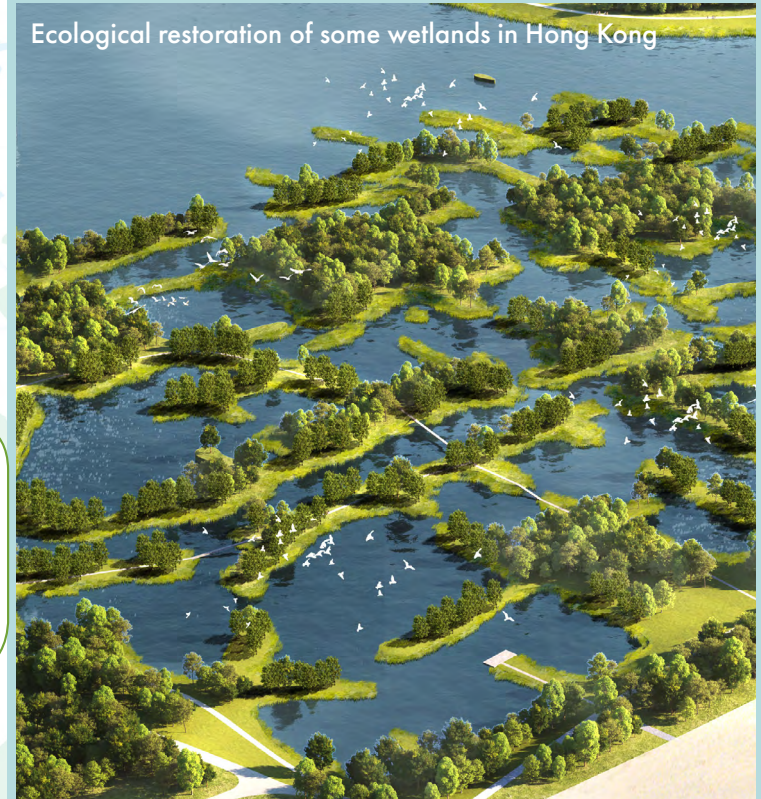
ECOLOGICAL RESTORATION TOOLBOX

01 ECOLOGICAL BARGE



02 WATERSIDE BARGE





1 Boundless ecology
ECOLOGICAL BARGE AND SHORELINE

Northbank

The original hard barge is modified and upgraded through ecological methods to form a landscape riverbank in symbiosis with nature.

Landscape Pavilion

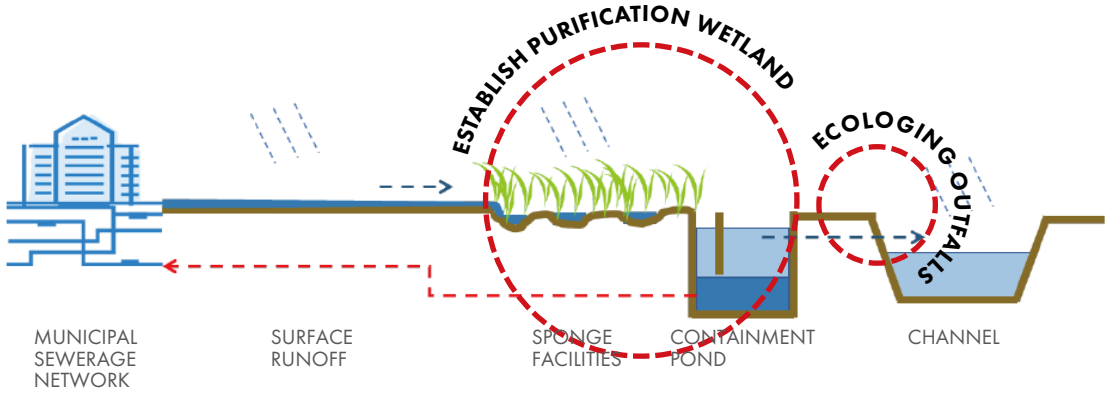
Ecological Barge

Submerged Platform

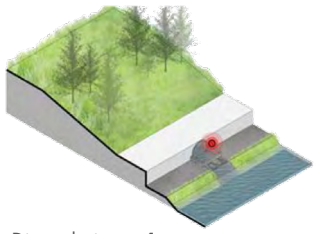
Waterfront Roaming Trail

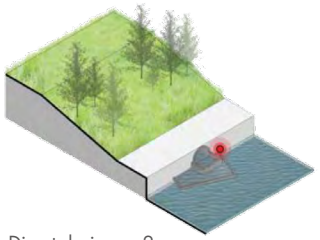
AFTER

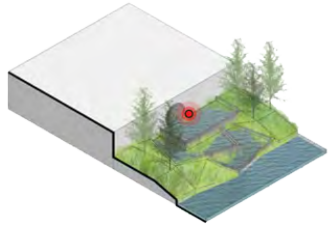
1 Boundless ecology
WATER PURIFICATION

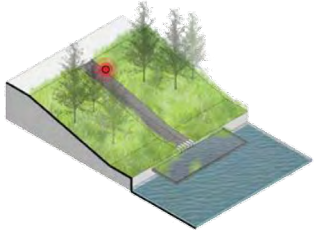


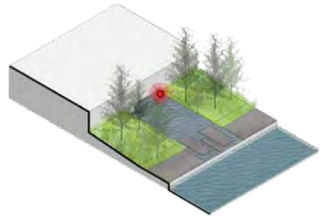
ECOLOGING OUTFALLS

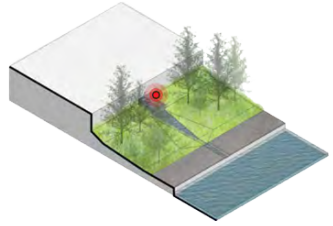

Direct drainage 1

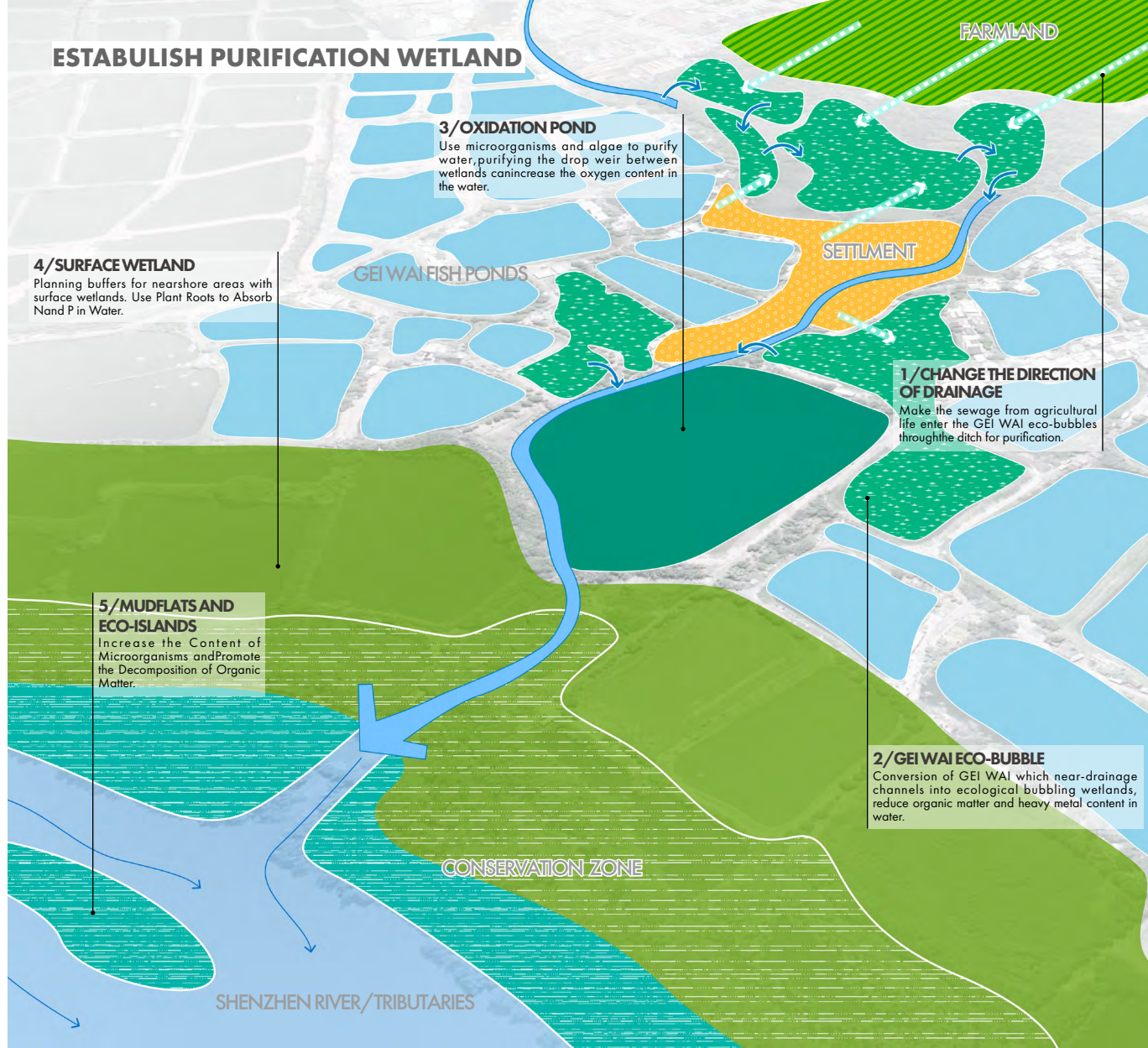

Direct drainage 2


Water purification plant drainage

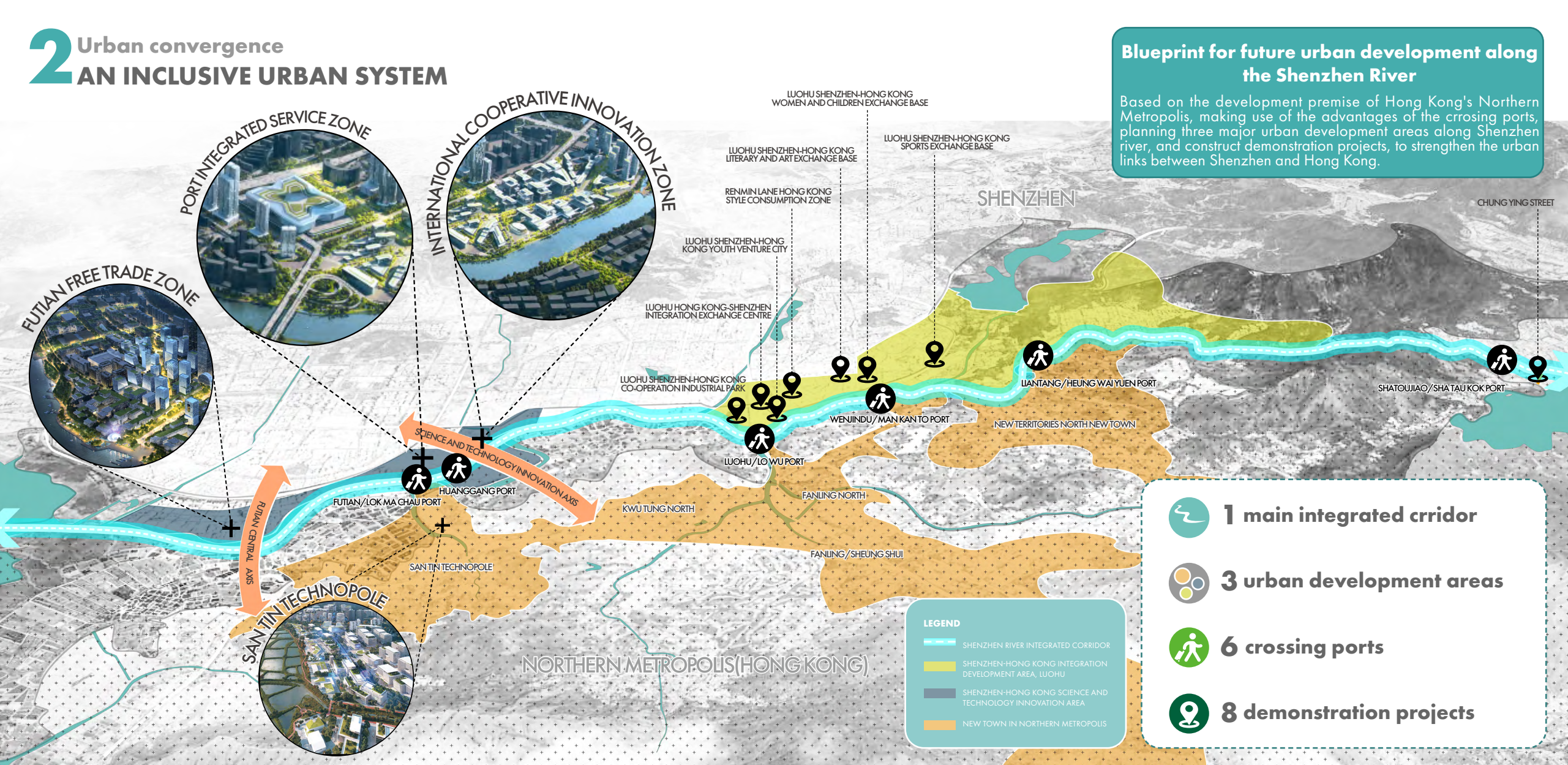

Drainage over box culvert 1


Drainage over box culvert 2


Drainage over box culvert 3



2 Urban convergence
AN INCLUSIVE URBAN SYSTEM



Blueprint for future urban development along the Shenzhen River

Based on the development premise of Hong Kong's Northern Metropolis, making use of the advantages of the crrosing ports, planning three major urban development areas along Shenzhen river, and construct demonstration projects, to strengthen the urban links between Shenzhen and Hong Kong.

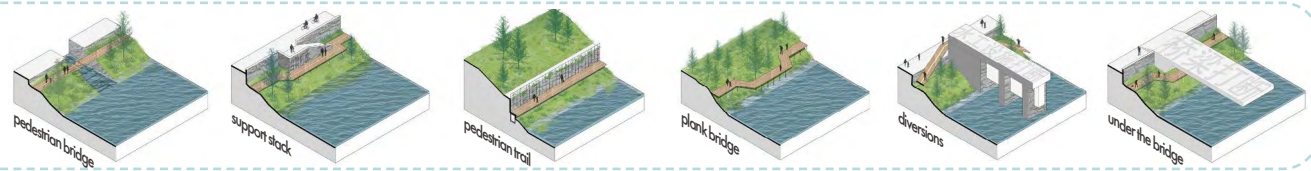
- **1** main integrated crridor
- **3** urban development areas
- **6** crossing ports
- **8** demonstration projects

2 Urban convergence
AN INTERWOVEN BLUE-GREEN SYSTEM

Integrating the water system and the characteristic resources along riversides

By adding trails along waterflow and connecting the roaming spaces on the banks, a multidimensional ecological space will be created to form a entire blue-green system connecting Shenzhen- Hong Kong that runs through Shenzhen River. At the same time, the trail system of the main and tributary streams will be strengthened, connecting the waterside space with the surrounding suburban parks and distinctive nature resources.

Roaming TRAILS LINKS



SHENZHEN

SHENZHEN RESERVIOR

WUTONGSHAN NATIONAL FORESET PARK

HONGHU PARK

BIJIASHAN PARK

LIANHUASHAN PARK

FUTIAN CENTER PARK

HUANGGANG PARK

FUTIAN MANGROVE NATURE RESERVE

FUTIAN MANGROVE WETLAND PARK

XINZHOU RIVER - MAI PO ECOLOGOCAL CORRIDOR

FUTIAN RIVER - SAN TIN RIVER ECOLOGOCAL CORRIDOR

BUJI RIVER - NG TUNG RIVER ECOLOGOCAL CORRIDOR

SHAWAN RIVER - CEDAR HILL ECOLOGOCAL CORRIDOR

WUTONGSHAN - ROBIN'S NEST ECOLOGOCAL CORRIDOR

ROBIN'S NEST COUNTRY PARK

NEW TERRITORIES NORTH URBAN-RURAL GREENWAY

ECOLOGICAL BELT IN NORTHBANK OF SHENZHEN RIVER

OYSTER SHELL WAI WETLAND CONSERVATION PARK

LONG VALLEY NATURE PARK

SAM PO SHUE WETLAND CONSERVATION PARK

MAI PO NATURE RESERVE

NORTHERN METROPOLIS(HONG KONG)

LEGEND

- DISTINCTIVE ROAMING TRAILS
- URBAN GREEN CORRIDOR
- CORE NATURE RESERVE
- CORE PARK & GREENING
- PARK & GREENING & RESERVE

1 main water corridor

5 featured ecological corridors

5 nature reserves

9 integrated parks

2 Urban convergence
AN INTERWOVEN BLUE-GREEN SYSTEM

Roaming Trails

A low-intervention approach is adopted to set up roaming paths along the river, connecting with the surrounding public space, the steel mesh material helps to build a sponge system for the barge and maintains the ecology while maximising the contact between people and nature.

2 Urban convergence
ACTIVATING URBAN STOCK SPACE

389ha

SHENZHEN 302ha + **HONG KOGN** 87ha

Shenzhen-Hong Kong Open Co-operation Pilot Zone

The stock renewal plan for the Loop is an opportunity for urban integration between Shenzhen and Hong Kong. The slow-moving bridges and crossing hubs connecting the two sides of the Shenzhen River physically link the urban spaces on both sides of the Loop, and the two major axes create unphysical view corridors.

Industrial Park Reuse

Ecological Riparian Shaping

Roaming Path Connection

Port Interchange

Village Upgrade

Wetland Protection

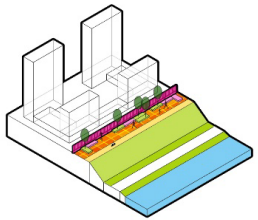
Abandoned Hospital Reuse

FUTIAN CENTRAL AXIS

SCIENCE AND TECHNOLOGY INNOVATION AXIS

2 Urban convergence
BORDER FENCE

BEFORE: FRONTIER DEFENCE ZONE

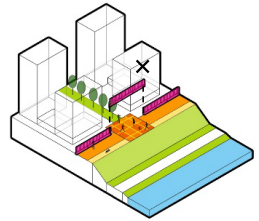


The fence block riverfront space

Shenzhen River, as the boundary river between Shenzhen and Hong Kong, has been inaccessible for a long time. The Shenzhen government has set up a border fence on the north bank, and there is also a border exclusion zone on the south bank demarcated by the Hong Kong side, which has made it a grey corridor in the city with no vitality, and it is not accessible even to the residents in the neighbourhood.

Taking the Futian section as an example, in Shenzhen, the blockade of the Shenzhen River has resulted in difficult access to part of the Futian Mangrove Wetland Park, while the integrity of the spatial system along the river has been crudely truncated; and in Hong Kong, the favourable natural environment of the GEI WAI Fish Ponds has been completely concealed.

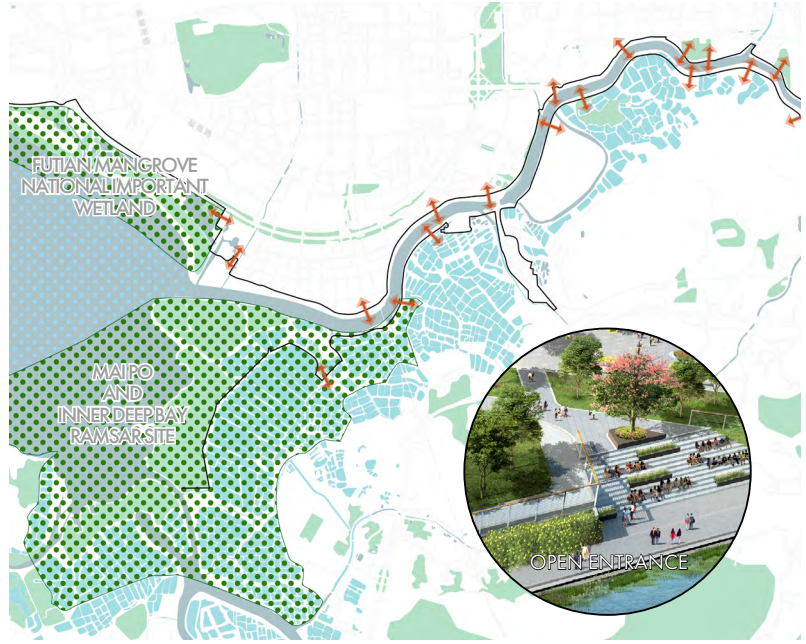
PHASE 1: OPEN BY APPOINTMENT



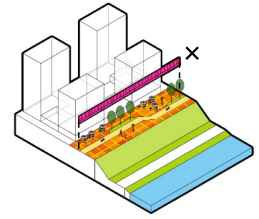
Increase the entrances of the fence

In this planning, there is a share zone along the Shenzhen River will be established in the near future. Through landscape approach, setting up entrances and exits to link up resources on both sides of the river, and the open spaces along the river will be considered in a coordinated manner and managed in a unified manner, strict implementation of 'the same side in and out' to ensure border defence requirements, through the use of the booking system for sightseeing and the issuance of the 'prohibited zone sightseeing permit', to enhance the universality of the Shenzhen River as an urban public space.

At this stage, the core protected zone of the Ramsar Site are still strictly limited to openings, and the reservation system is only for the visitable tour areas of the mangroves.



PHASE 2: COMPLETELY OPEN



Demolish the fence to open the riverfront space

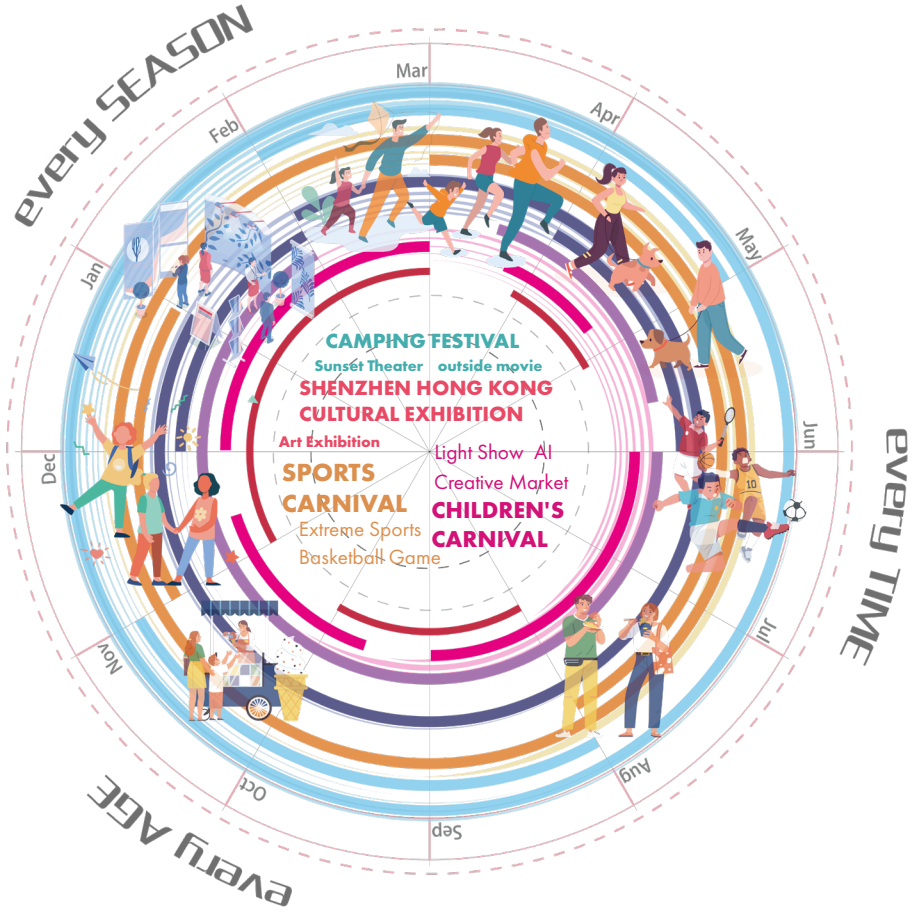
In the long term, it is planned that the boundary fence between Shenzhen and Hong Kong will be completely opened up, so that the Shenzhen River will become an open ecological corridor in the city, linking Futian and the northern metropolitan area, and will be integrated into the ecosystem of 'mudflat-mangrove-GEI WAI', so as to facilitate north-south migrations of animals and to enhance the exchanges of activities of the people on both sides of the river.

However, the mangrove protection zone of the Ramsar Site will continue to be subject to a strict appointment system to minimise the disturbance to the ecological environment caused by the upsurge in human activities.

3 Borderless experience

PLAN ACTIVITIES IN ZONES TO ACTIVATE THE SPACE

Combining various natural ecological elements and urban functional elements within the north bank of the Shenzhen River, and taking overall consideration of the Greenway implementation space and surrounding available urban green spaces, three sections of water-friendly themed waterfront will be created to form an open, water-friendly, and sequenced urban public space green corridor.



This section contains the old river boundary of Shenzhen River and the life of residents at the old port. By introducing historical and cultural elements into the leisure space, you can experience cultural and leisure riverside life and build it close to urban residents.

Located adjacent to the Mangrove Ecological Park and Hong Kong Mai Po Wetland, it has good ecological base conditions. Create a green ecological natural coastline and introduce pedestrian circulation into the waterfront space.

CULTURAL RIVERBANK

Cultural Experience

Riverside Party

Riverside Walk

Parent-Child Activities

INNOVATION AND VITALITY

Photograph

Healthy Lifestyle

Waterfront Concert

GREEN ECOLOGICAL

Grassland Theater

Leisure Space

Ecological Tour

The dual-port zone, the bridge connecting Shenzhen and Hong Kong, is the first stop for Hong Kong to enter Shenzhen and the inland areas, creating an open landscape park to integrate with Shenzhen's increasingly prosperous city skyline.

3 Borderless experience

NEAR TERM - MULTI-LAYERED PUBLIC SPACES IN MAJOR URBAN AREA

LEVERAGING THE GREENERY RESOURCES, ESTABLISH 7 MAJOR SCENIC NODES

1 MAI PO WETLAND EDUCATION PARK

Mai Po Wetland Park adopts a reservation system and carries out science education, sightseeing and other activities.

2 SHENZHEN RIVER MUSEUM

Shenzhen plans to build the Shenzhen River Museum to document and celebrate the historical and cultural development of both Shenzhen and Hong Kong.

3 TECH-ECOLOGY THEATER

To use the idle green spaces around high-tech office areas to create a tech-ecology park that integrates modern technology and natural ecology,combining leisure, environmental education, and technology displays.

4 BORDER-CROSSING LEISURE SPACE

The border crossing green space is planned to be designated as a leisure area, providing a comfortable public space for travelers.

Taking the Shenzhen River as a new starting point for development that will lead to the revitalization of the areas along the line in the future.

Comprehensive analysis of the value of land, ecology, culture, development and other aspects of the surrounding areas, taking into consideration both practical needs and urban pursuits, explores potential good resource points and key spaces along the Shenzhen River for transformation, optimization and upgrading, and initiates urban development and renewal.

5 FUTIAN ESTUARY

The planning of an observation platform at the eage of river aims to provide both tourists with an excellent natural beauty of Hong Kong.

6 CHILDREN PARK

The green space adjacent to the residential area is planned to be developed into a children's park themed around the river.

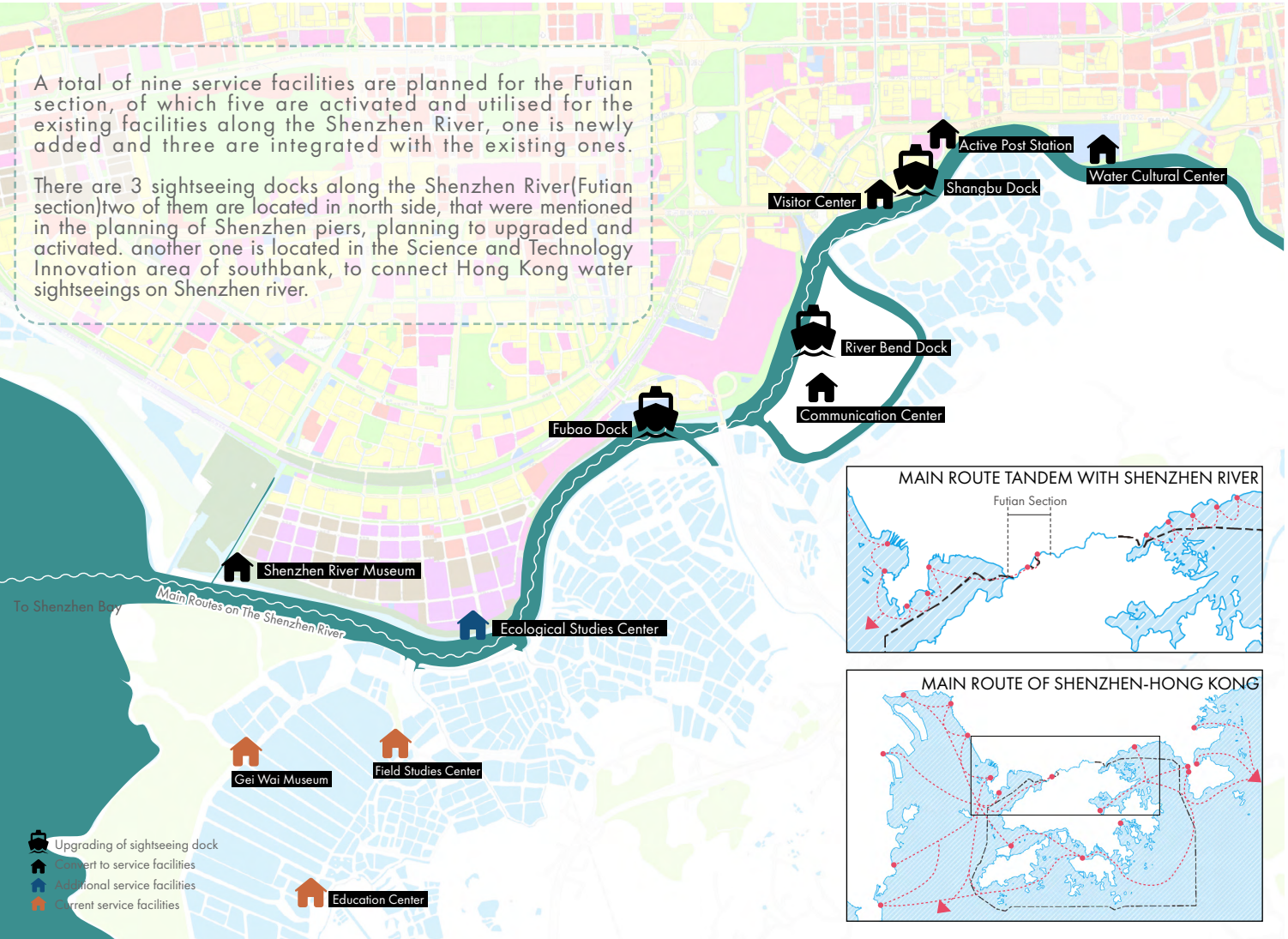
7 RIVERSIDE PARK

The Riverside Park is not only an integral part of the urban greenery but also a vital link connecting people with nature and fostering community harmony and development.

3 Borderless experience
POWERING SURROUNDING PROPERTIES

A total of nine service facilities are planned for the Futian section, of which five are activated and utilised for the existing facilities along the Shenzhen River, one is newly added and three are integrated with the existing ones.

There are 3 sightseeing docks along the Shenzhen River(Futian section)two of them are located in north side, that were mentioned in the planning of Shenzhen piers, planning to upgraded and activated. another one is located in the Science and Technology Innovation area of southbank, to connect Hong Kong water sightseeings on Shenzhen river.




Sightseeing routes on the Shenzhen River


Riverfront Facilities and Trails


Riverfront Facilities and Docks

3 Borderless experience
POWERING SURROUNDING PROPERTIES

Buildings and Docks

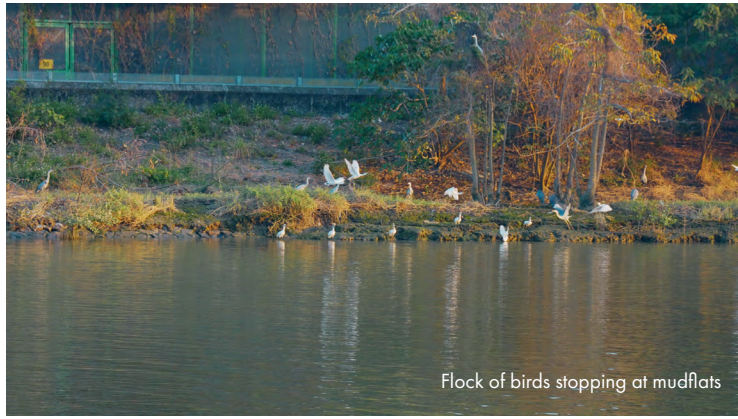
Landscape transformation of the existing docks and vacant buildings, and empowerment according to the actual needs of visitors, providing better experience and leisure services in the Shenzhen River corridor space.

POSTSCRIPT

The demonstration section has already begun to put into practice the concept of a river without boundaries, and it is believed that with the passage of time, this boundary river between Shenzhen and Hong Kong will be able to truly realise communion without boundaries.

Black-faced spoonbills flying over Shenzhen River

Black-faced spoonbills flying over Shenzhen River



Flock of birds stopping at mudflats

Mangroves outside the embankment of the demonstration section

Existing Large trees retained in space

Landscape pavilion in the shape of a boat dock