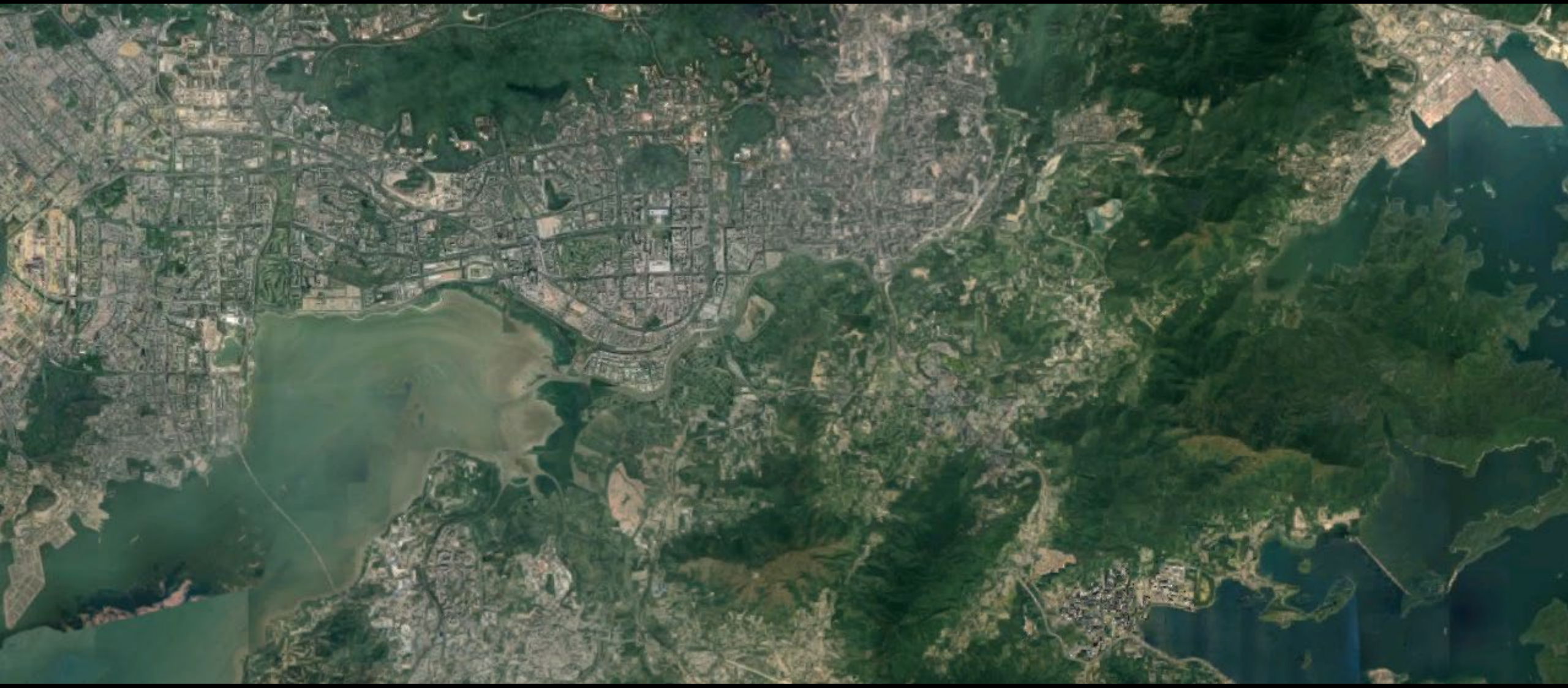
NORTHERN METROPOLIS 3.0
DLA5395 Sustainable Landscape Design Studio (S2024)
Reconceptualising the San Tin Technopole in terms of ecological urbanism and cultural landscapes
可持續地境設計工作室：從生態及文化角度重塑新田科技城

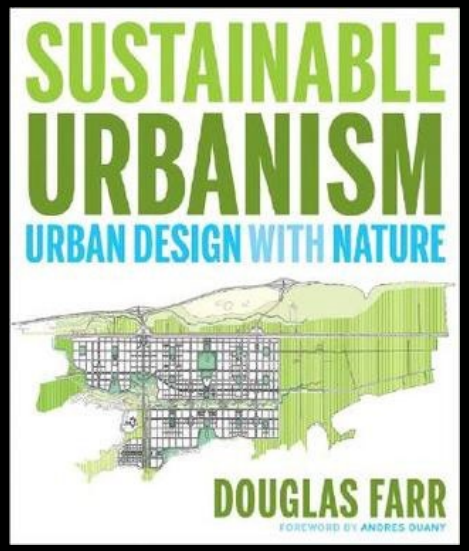
Dr Yin-Lun Chan, Yoyo Lai, and Ryan Yan
Landscape Architecture, Department of Design & Architecture, THEi

2 November 2024

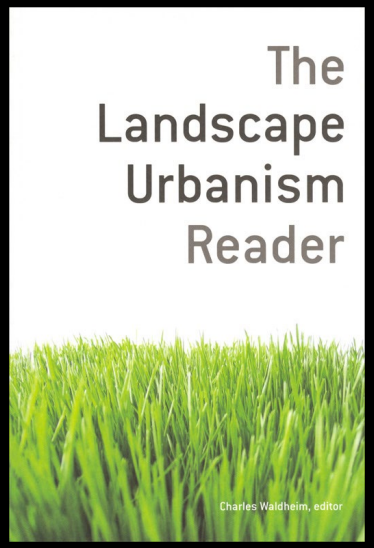


Google Map captured April 2023

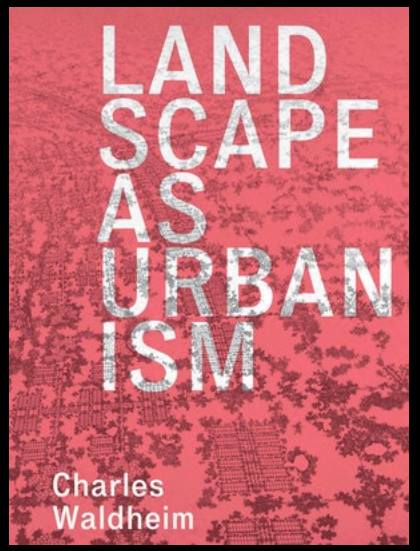
From Sustainable Development to Landscape Urbanism to Ecological Urbanism to Resilient Design
由可持續發展，到地景都市主義，到生態都市主義，到韌性城市設計



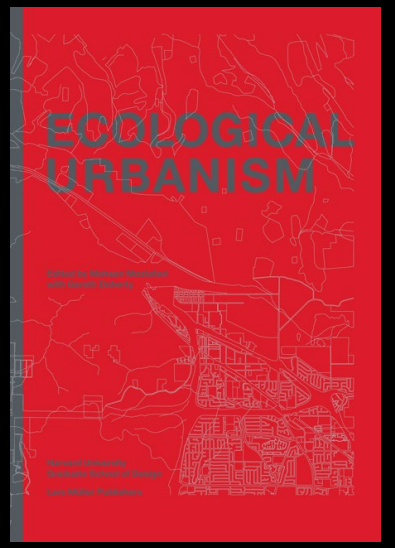
Farr
Sustainable Urbanism
2007



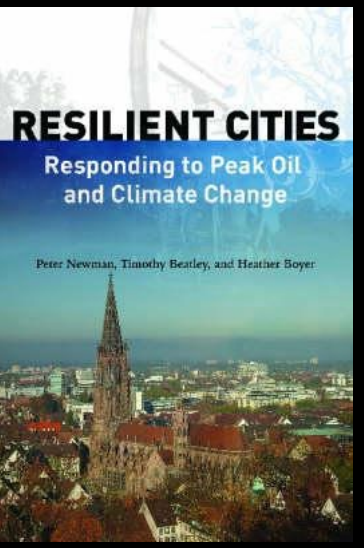
Waldheim (ed)
The Landscape Urbanism Reader
2006



Waldheim
Landscape As Urbanism
2016

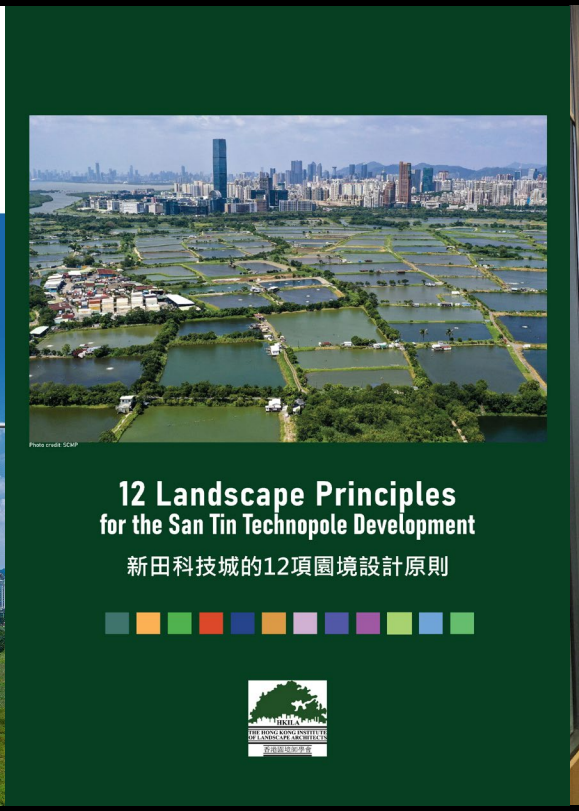


Mostafavi & Doherty (eds)
Ecological Urbanism
2010



Newman, Beatley, Boyer (eds)
Resilient Cities
2009

Northern Metropolis: HK/SZ Ecological and Environmental Symposium
Co-organised by the HKILA and THEi
北部都会区：港深环境及生态论坛



12 Landscape Principles for the San Tin Technopole Development
新田科技城的12項地景設計原則

1. Consideration of natural topography and hydrological systems
2. Opportunities to improve cultural, economic, and ecological conditions
3. Development based on landscape ecology principles
4. Integration of interrelated systems
5. Dynamic and phased approach to development
6. Planning of actively evolving cultural landscapes
7. Gradual transitions of development intensity
8. Site planning in response to climate change and sea level rise
9. Resilient design and coastal defense strategies
10. Circular cities and local self-sufficiency
11. Wetland Conservation Area and Wetland Buffer Area
12. Wildlife Conservation

1. 考慮地形及水文系統
2. 將發展看成改善文化、經濟、生態狀況的契機
3. 跟從地景生態原則
4. 綜合考慮場地上的各個系統
5. 循序漸進的分階段發展
6. 規劃有生命力的文化地景
7. 在過渡區域適當地轉變開發強度
8. 按照氣候變化及海水上漲的推測考慮規劃選址
9. 用韌性手法制定海堤設計策略
10. 循環天然資源，滿足區域自主
11. 濕地保育區及濕地緩衝區
12. 野生動物保育

Guiding Landscape Principles

地景設計傳統

1. A tradition stemming from Ian McHarg's *Design with Nature*, spanning ideas from sustainable development, landscape urbanism, ecological urbanism, and more recently ideas of sponge cities and resilient design in response to global climate change, the foregrounding of landscape ecology and watershed planning in the urban development process has become a global practice.

以生態、水文、文化連接地域

2. Therefore, if we consider the Hong Kong and Shenzhen border in terms of the two watersheds of the Deep Bay (Shenzhen Bay) and the Starling Inlet (Mirs Bay) and the mountain ranges that define them, we would come up with rather different sets of urban analysis then with a traditional developmentalist lens. Rather than simply seeing the potential for synthesis at the level of 'traditional' urban development, there is also much desire and opportunity in improving and enhancing the ecological infrastructure and framework of one of the most important conurbation of the region.

Guiding Landscape Principles

合適的發展密度與城市形態

3. From the landscape and ecological perspective, there are a good number of alternative approaches to high density urban development. These alternative visions based on ecological principles are at the heart of much academic discussions to provide balanced approaches to development and the improvement of land from both the human and environmental points of view that achieve the goals of sustainable, healthy, and resilient communities, at the social, cultural, economic, ecological, and environmental levels.

4. Therefore, the application of a landscape design method based on

地景設計手法:

- **繪制地圖**
- **有序發展**
- **濕地城市**
- **靈活韌性**

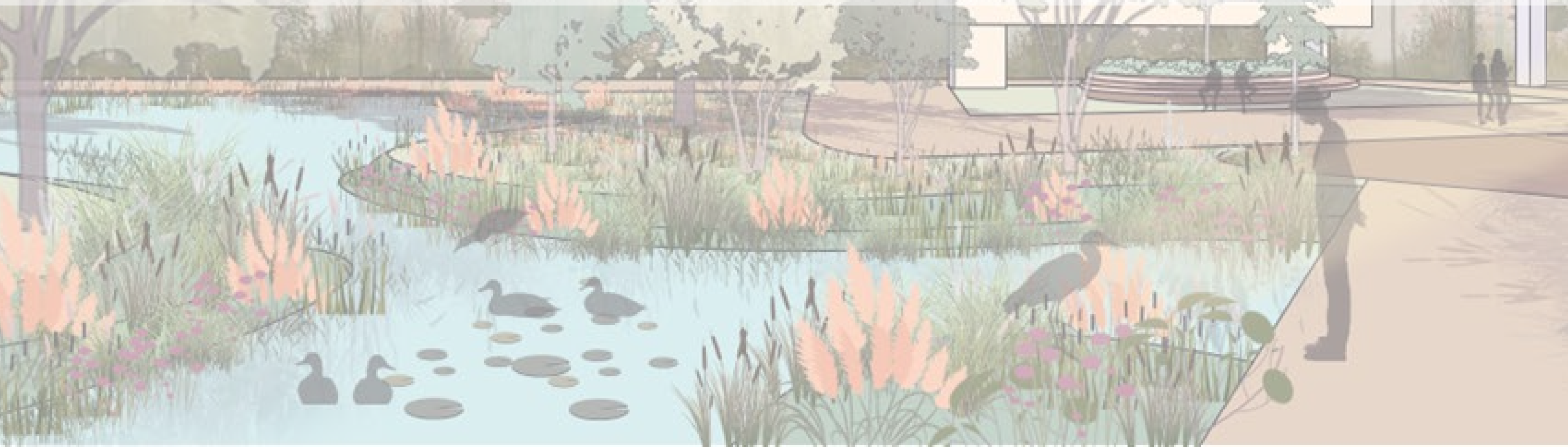
- Mapping as a scientific base;
- Successional (phased) approach;
- Appropriate urban forms;
- Creation of “wetland city” identity;
- Adaptiveness and resilience to future change

Are crucial to the success of the development of the San Tin Technopole and by extension the larger Northern Metropolis and Shenzhen-Hong Kong border region, and the Greater Bay Area.

Eco-technology town

Yoyo Lai

Technological and Higher Education Institute of Hong Kong

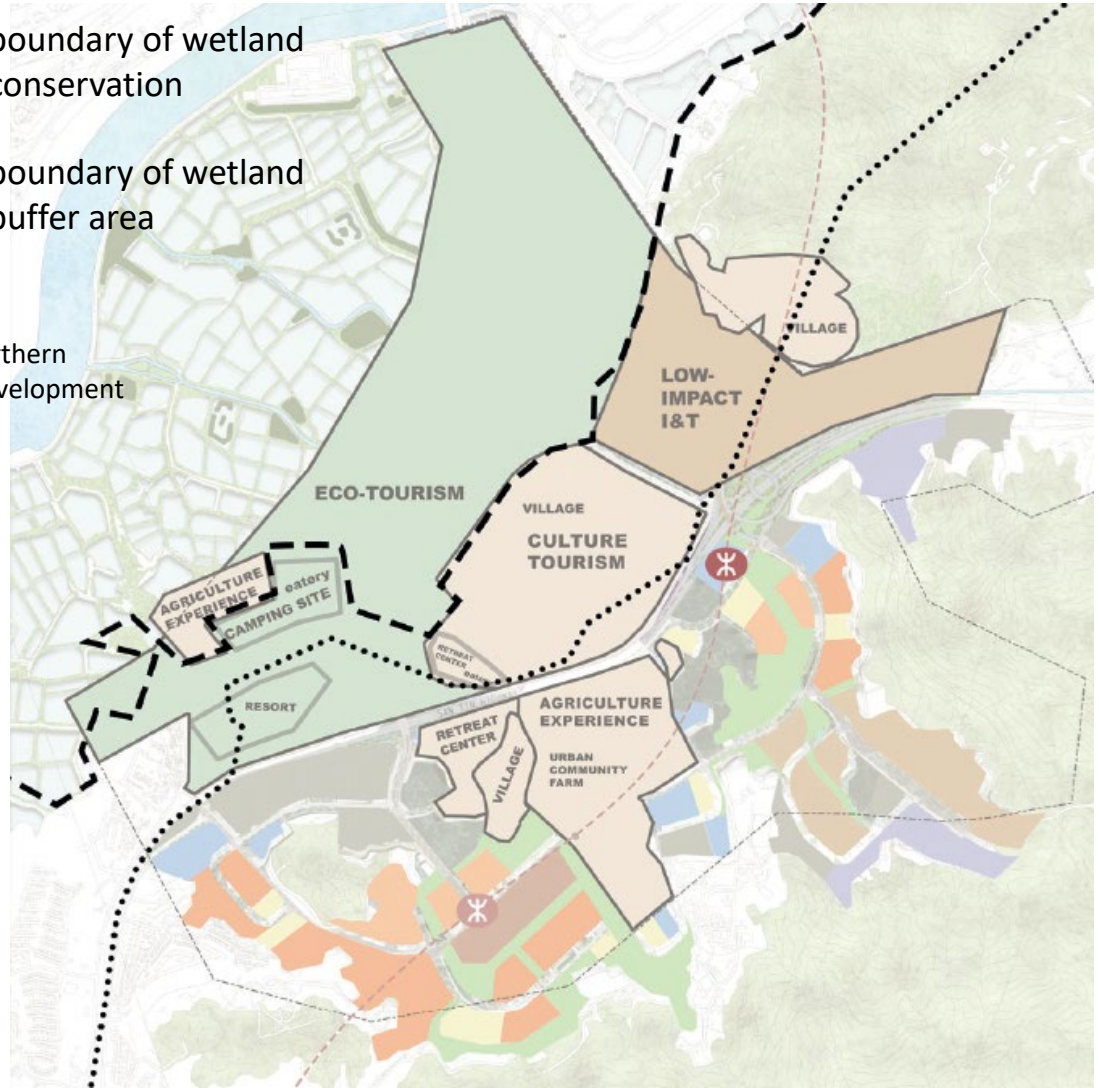


PROGRAM & PLAN

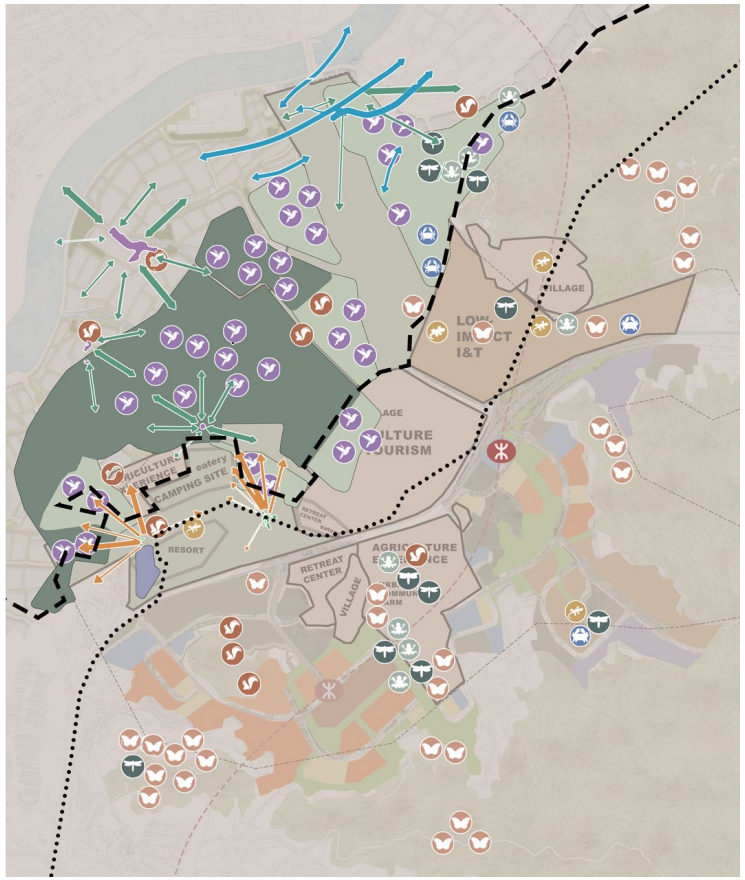
boundary of wetland conservation

boundary of wetland buffer area

from 2014 Northern Metropolis Development Strategy

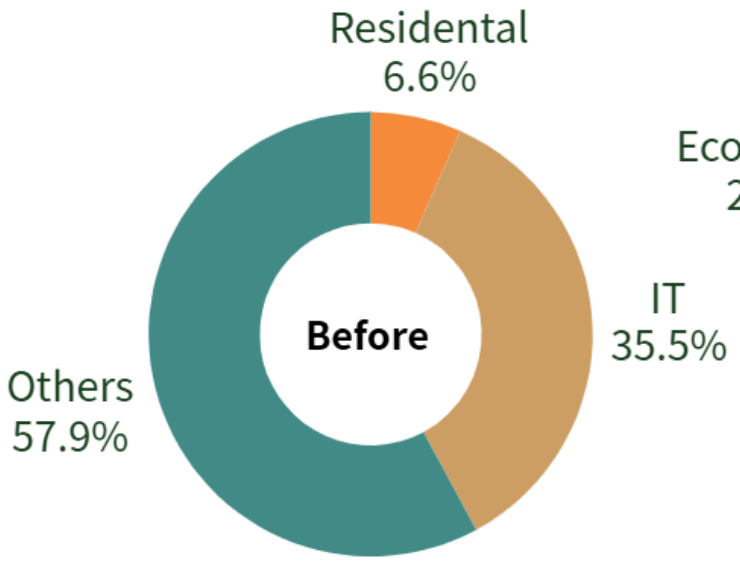


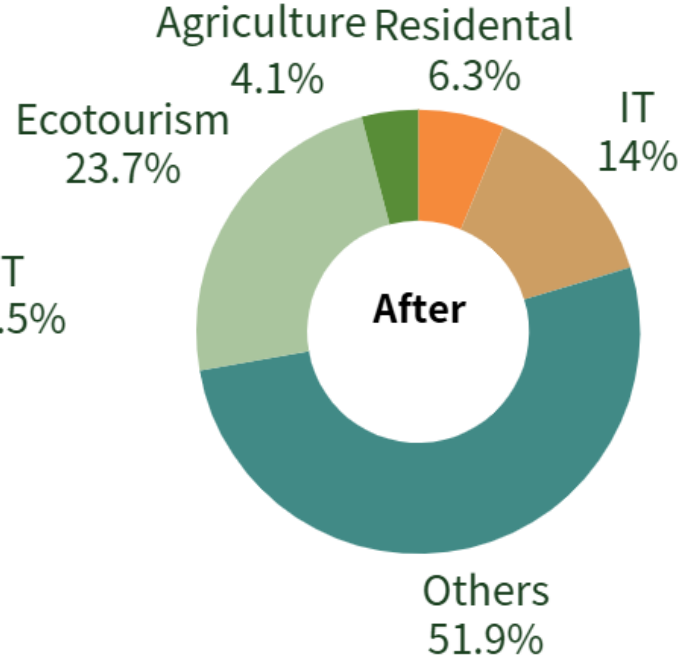
CHANGE IN LAND USE



ECOLOGY

- The rich species of birds and historical background here provide potential for San Tin to have a tourism economy
- opportunity to develop a more attractive office area





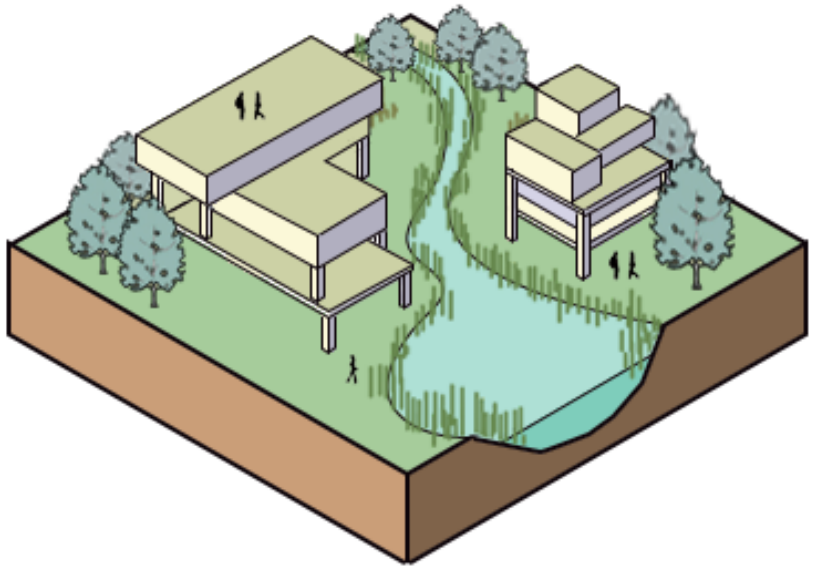
LOW IMPACT OFFICE AREA

Hide buildings in wetland habitat

LOW IMPACT OFFICE AREA

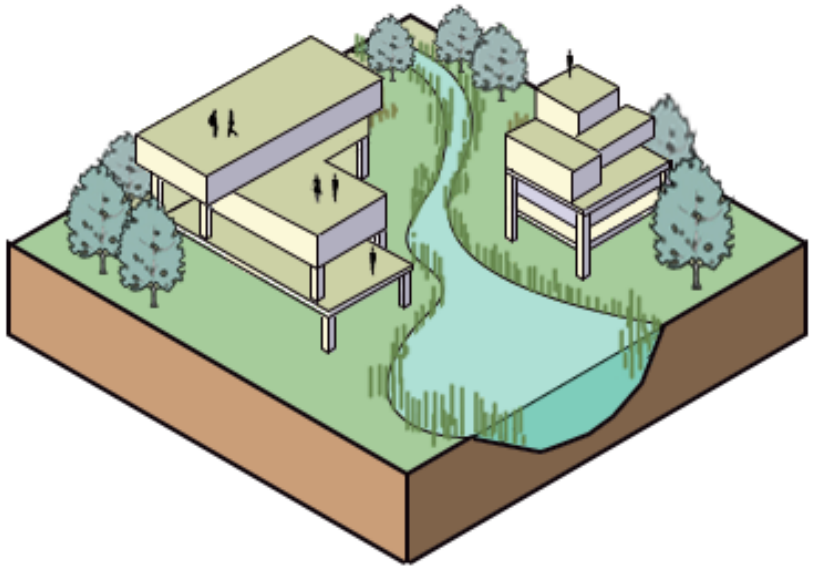
FUTURE SCENARIO

Now



50 year later:

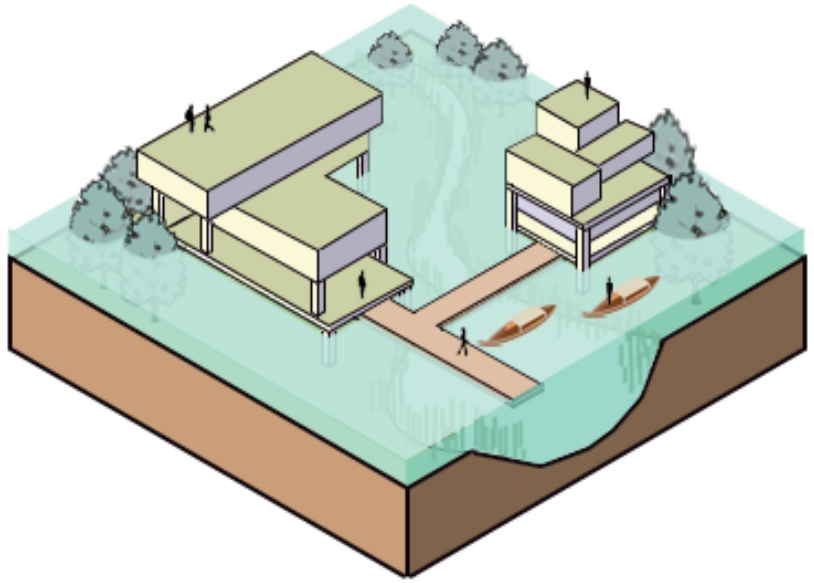
Sea level rise 1.5m



flood the whole riverbank

100 year later:

Sea level rise 3m



flood the ground floor

LOW IMPACT OFFICE AREA

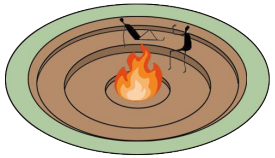
OFFICE AREA EMBED IN WETLAND

LOW IMPACT OFFICE AREA

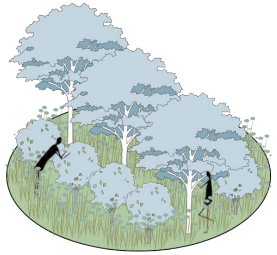
OFFICE AREA EMBED IN WETLAND

ECOTOURISM AREA

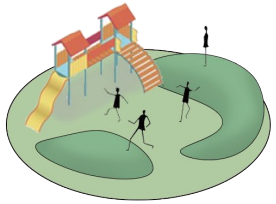
Develop low impact tourism infrastructure



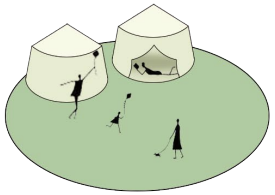
Campfire & barbecue



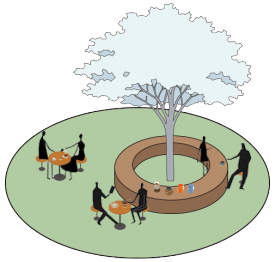
Farming experience



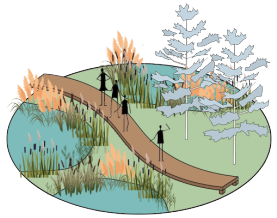
Playground



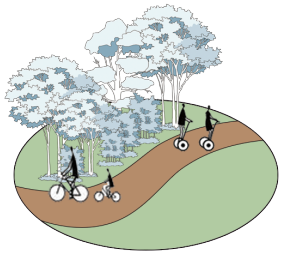
Leisure



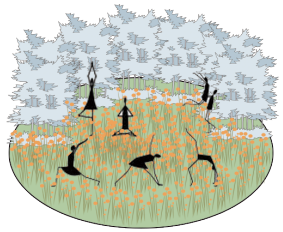
Outdoor dining



Birding tours



Cycling



Meditation

CULTURE TOURISM AREA

Village culture & agriculture experience

- Preservation of farming culture-community farm
- Appreciation of Architecture & History of the Man’s family
- Traditional Snacks Workshop of Indigenous Village-Chau Tau Tsuen
- Farm retreat Center

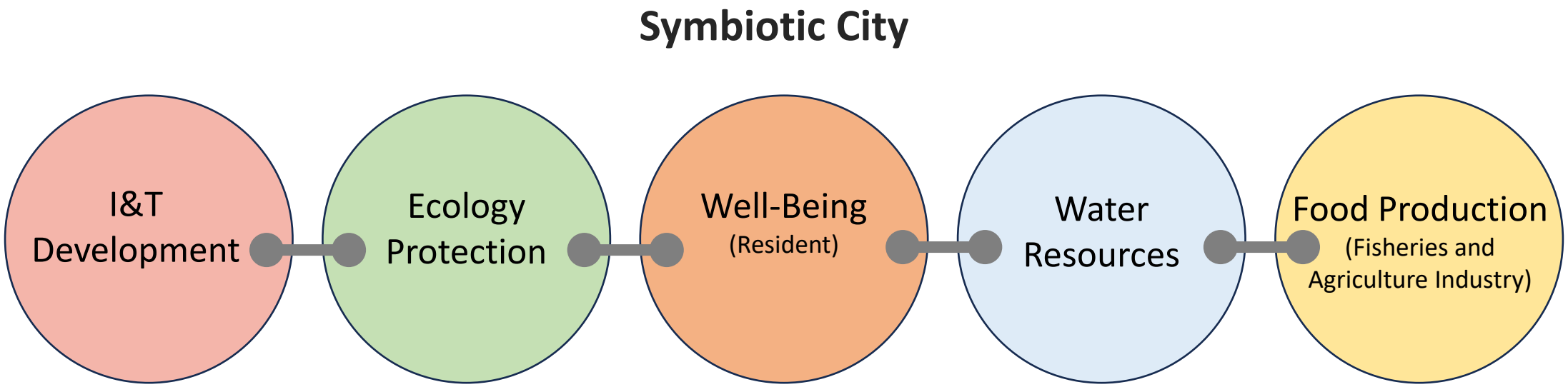
San Tin Symbiotic City

Ryan Chak-Fung YAN

BA (Hons) Landscape Architecture, THEi

Project Objectives

1. Balance the I&T development with habitat protection
2. Embrace and integrate into villages
3. Water resources control and reduce water waste
4. Fisheries and agriculture Industry upgrade



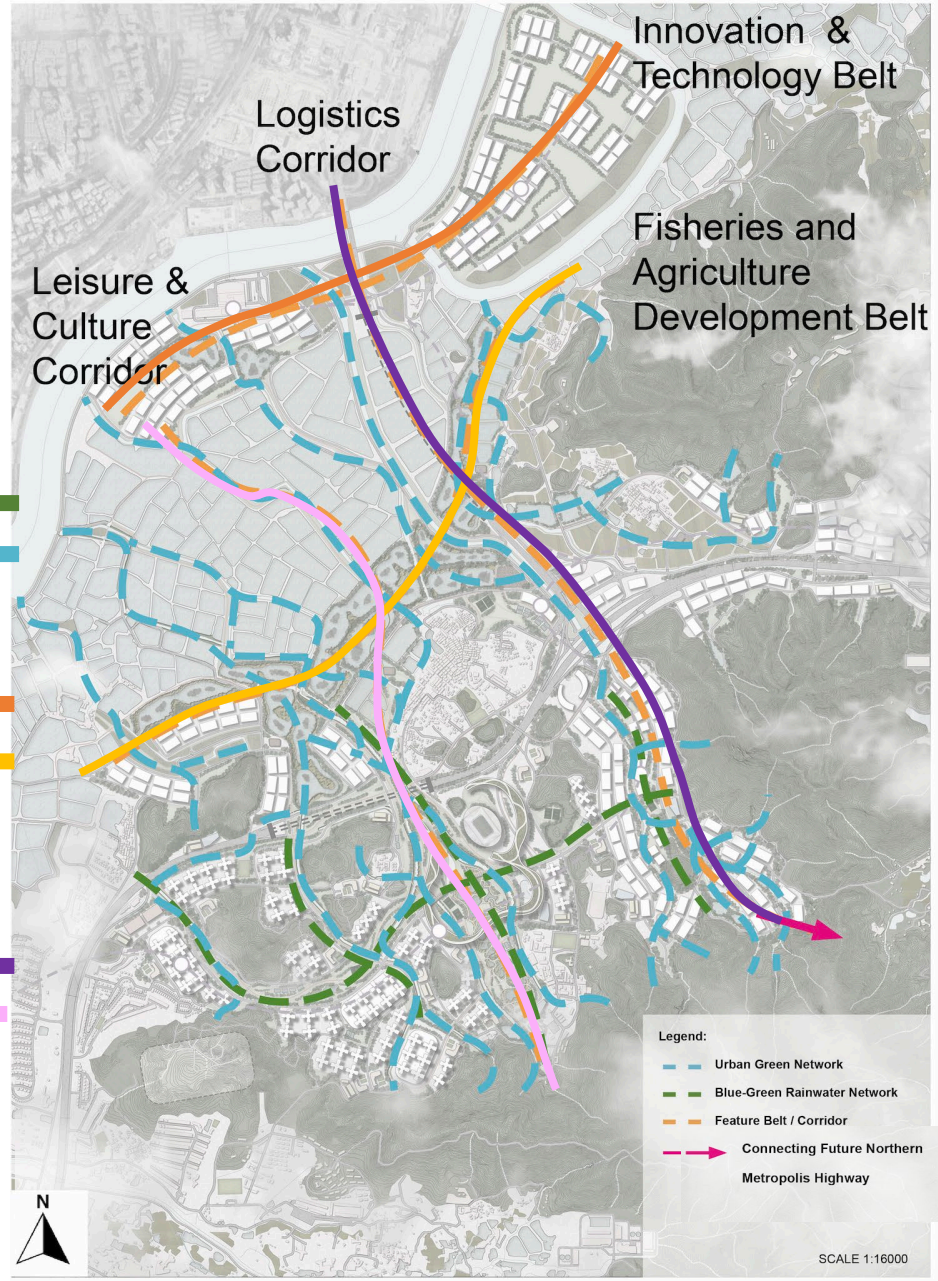
Design Strategy

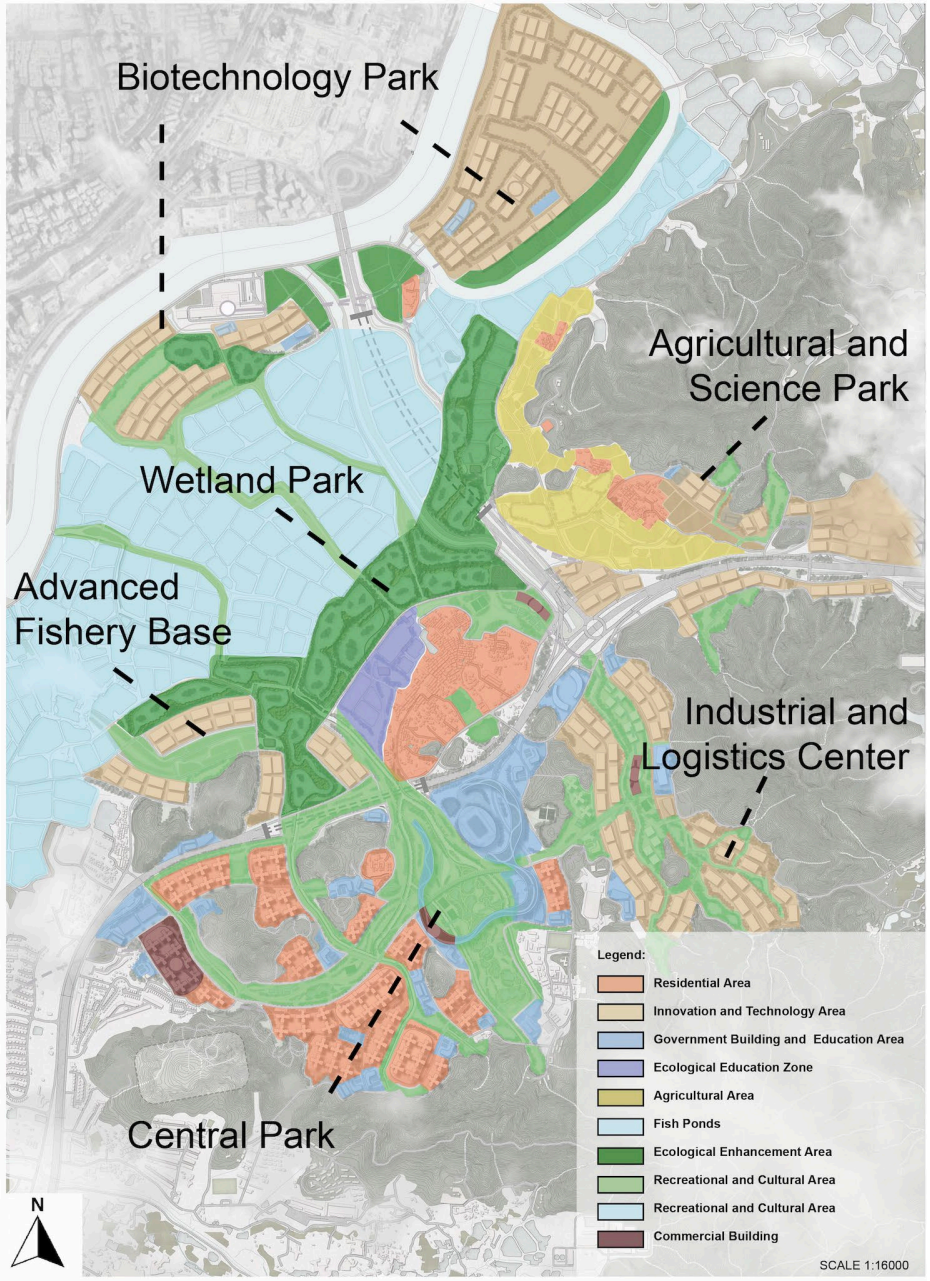
"2-2-2" model

Two Networks
- Urban Greenway Network
- Blue Rainwater Network

Two Industry Development Belts
- Innovation Technology Belt
- Fisheries and Agriculture Development Belt

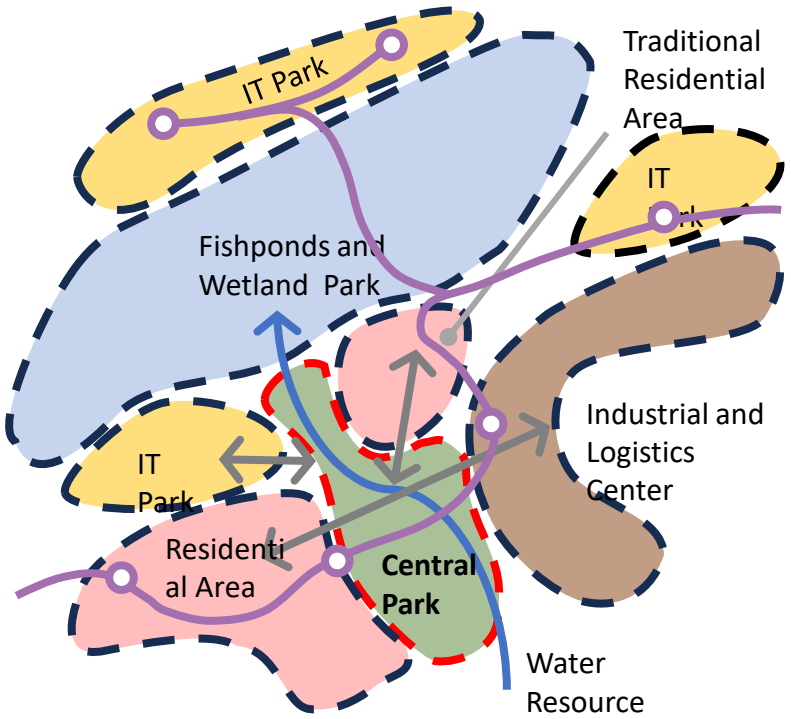
Two Corridors
- Logistics Corridor
- Leisure & Cultural Corridors

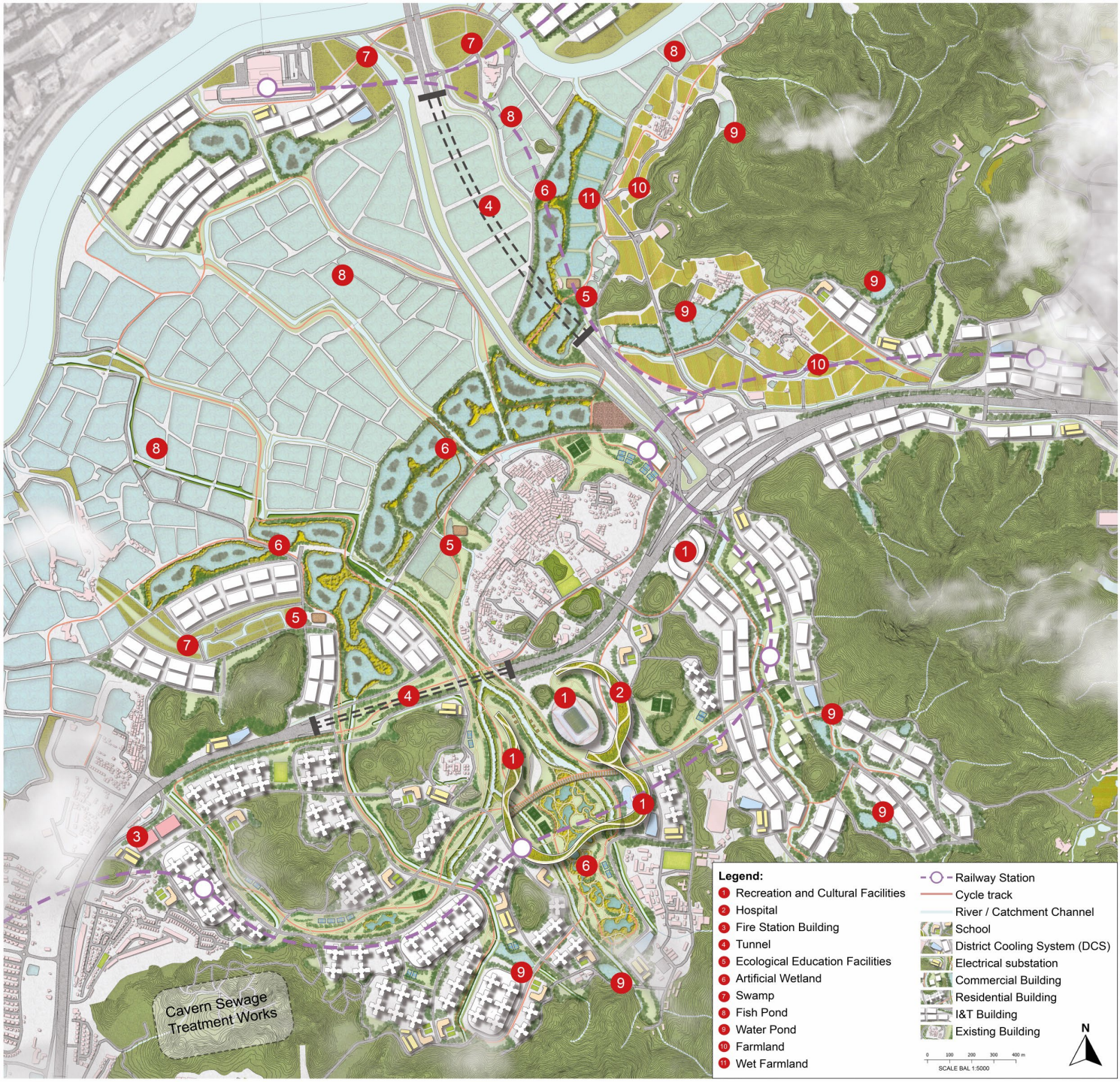




Central Park Position

- Central Park becomes the landmark of San Tin
- A core area for transportation, life, recreation, culture, water circulation

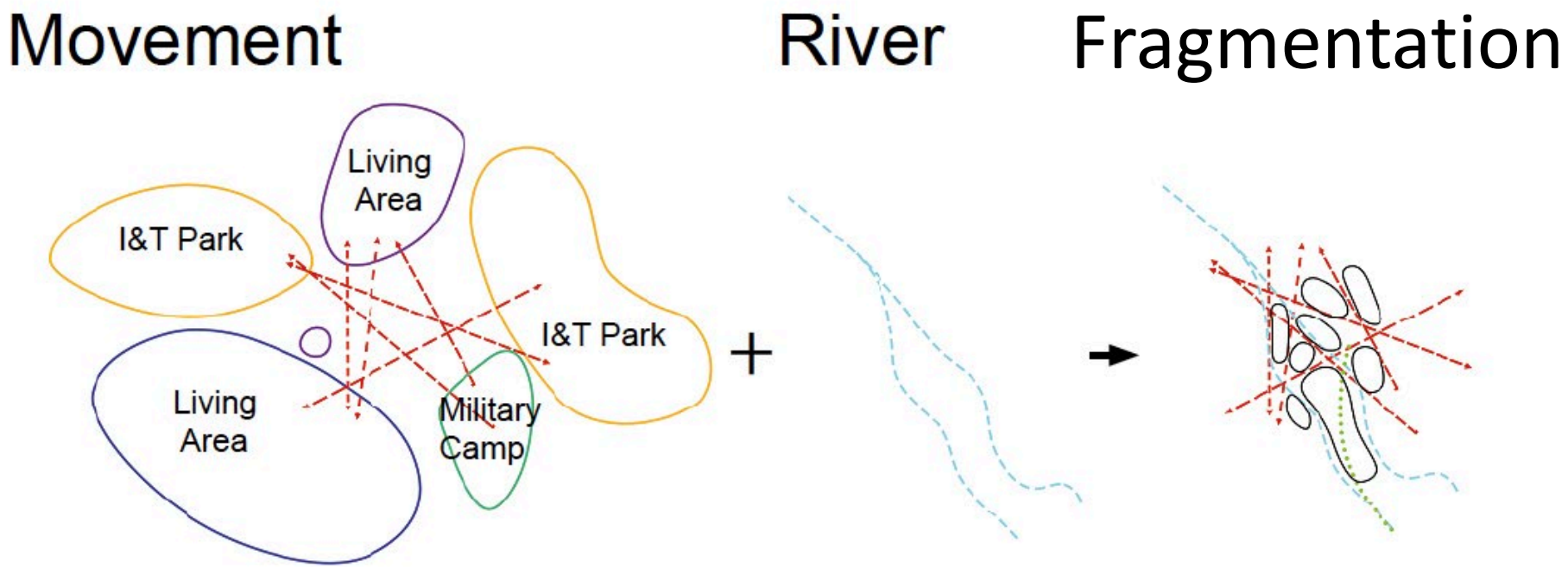




Central Park Concept

- Inspiration from ancient China concepts of "氣 Qi”
- Widely used idea in ancient China
- "氣 Qi” stands for the flow characteristic
- Better development is achieved and human integration to nature is encouraged through proper flow.

Design Layout



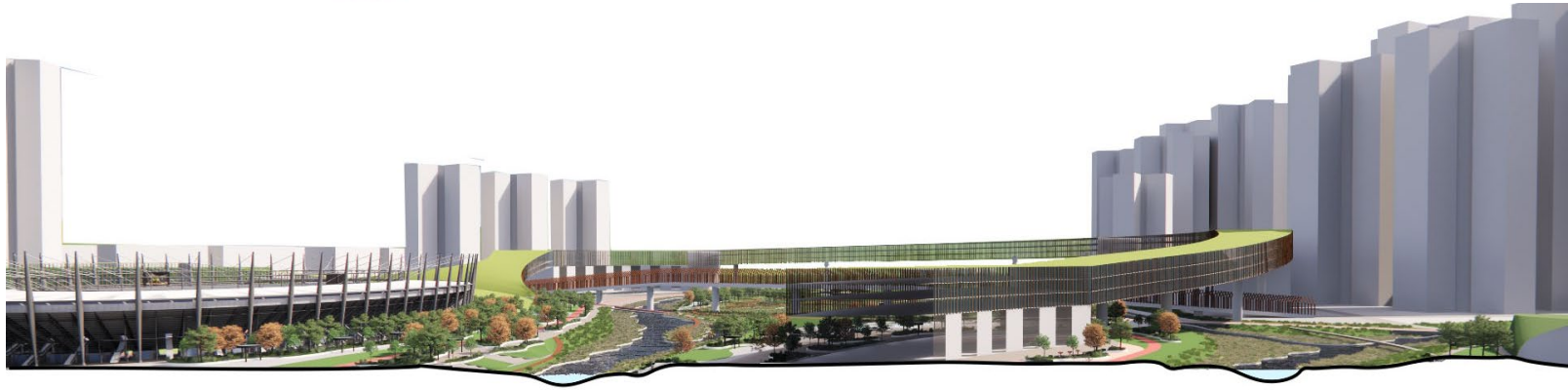
Hybrid Building With City Center

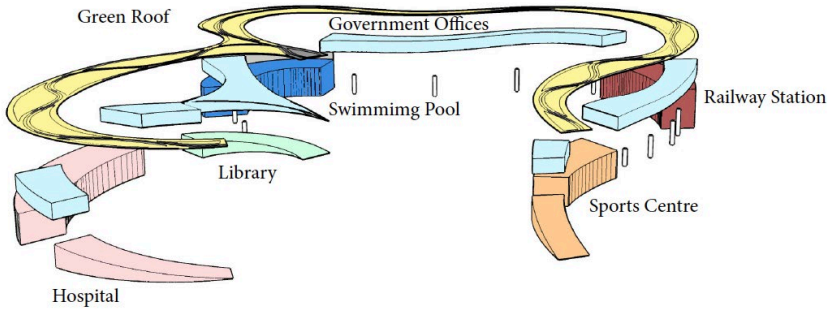
The hybrid building is a mixed-use government building

Divided into three level

- Gorund level for recreational, spoorts and culture, transportation and medical purposes.
- Mid level for government offices, using bridge design.
- Roof level is the green rooftop, citizens can walk from ground to rooftop comfortable.

Design three entrances can walk to rooftop, create better circulation.



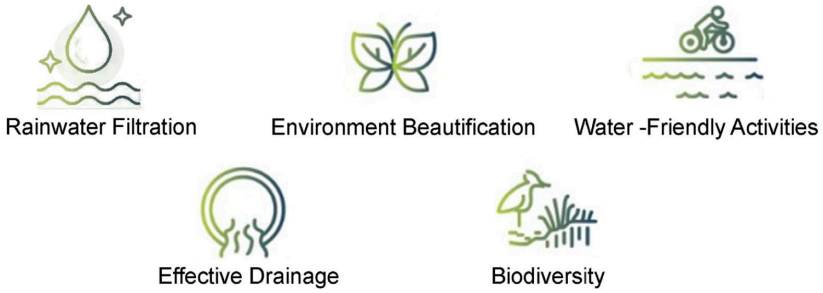


Habitat Restoration

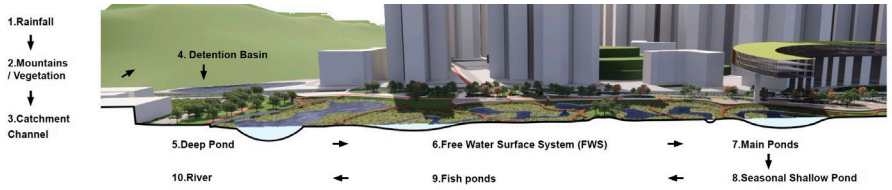
Constructed Wetland Design

1. Collecting rainwater from the mountains and urban aera
2. Transported and stored in the wetland
3. Filter by plants and absorbs nutrients
4. flow back to the fish ponds or river

Function



Rainwater Circulation System



Well-Being Community

Beside the river

- Multi-purpose plaza for hosting cultural and traditional events
- Eco-friendly water area, providing water play and educational activities
- Rest area, set up a platform with higher privacy for resting
- Cycling trails, providing more travel and exercise options