

# Cultivating Commons

**Reclaiming the Dike-fishponds for People and Ecology  
in Pearl river delta area**

P5 presentation  
26th June, 2025

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**MSc Landscape Architecture, 2023-2025**

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# Content

## *Part I*

**Introduction: Sangyuanwei, A production landscape based on water system**

## *Part II*

**Problem and research:**

**Challenges of the monoculture fishing industry developed on traditional production landscape**

## *Part III*

**Design: Reclaiming dike-fish ponds landscape for people and ecology**



*Part I*

**Introduction: Sangyuanwei, A production landscape based on water system**

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**Design: Reclaiming dike-fish ponds landscape for people and ecology**





**Birdview of Dike-fish ponds, 2023**

provided by Foshan Municipal Bureau of Water Resource



**Photo of Dike-fish ponds, 2024**

Wang, 2022





**Eel Harvest in Dike-fish ponds**

Image from 珠江商报, 2018



We won't eat again

**Water pollution in Dike-fish ponds**  
Foshan, 2024

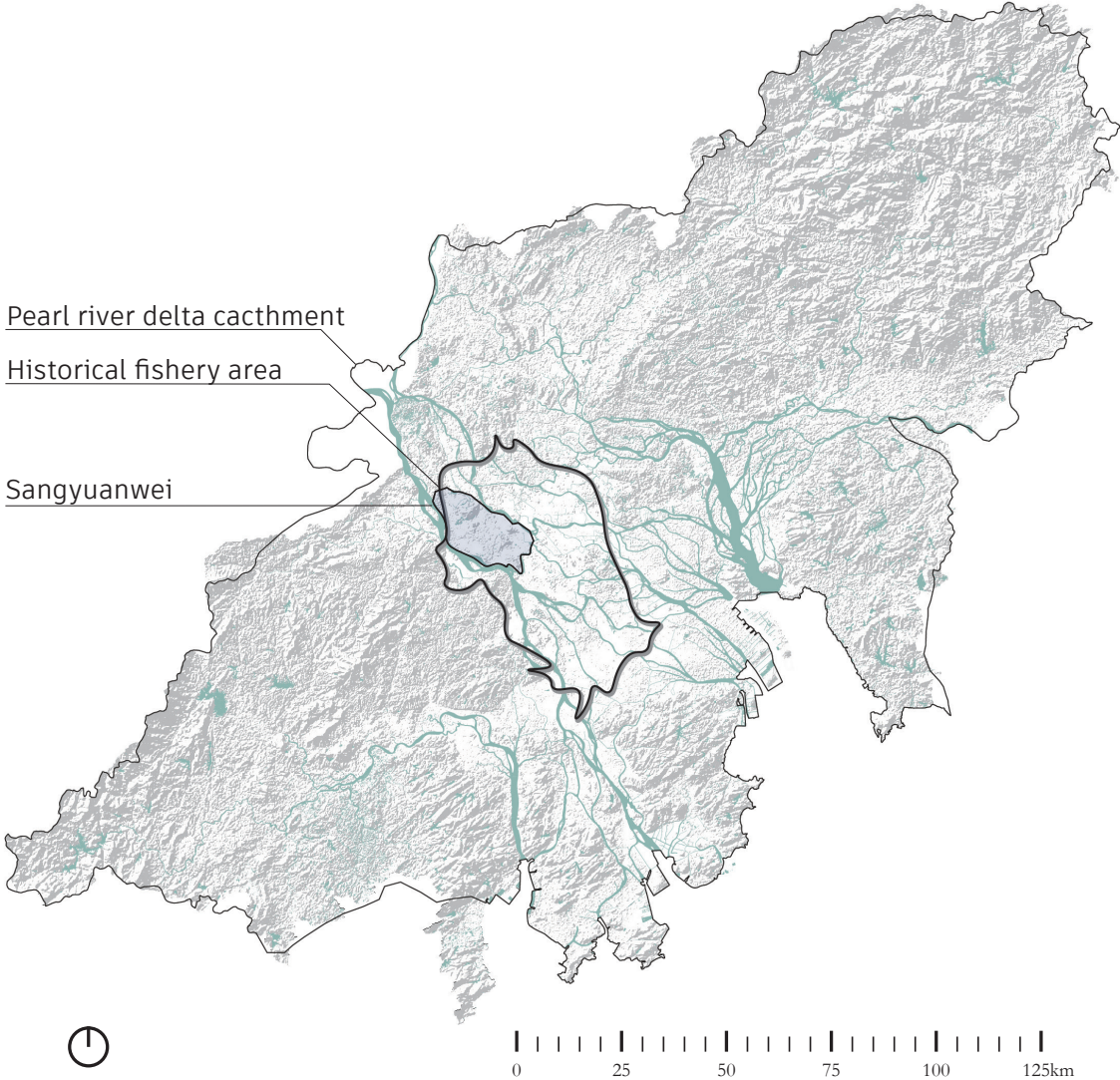
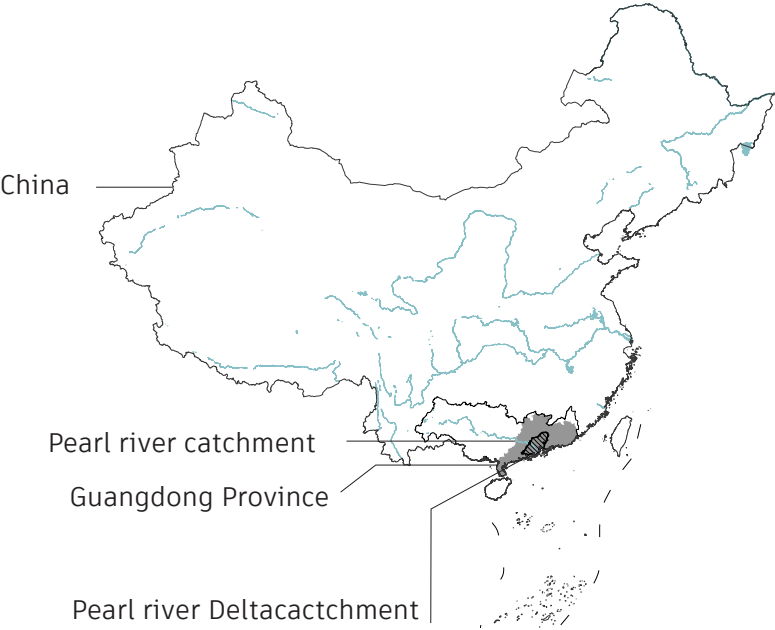


**Water pollution in Dike-fish ponds**

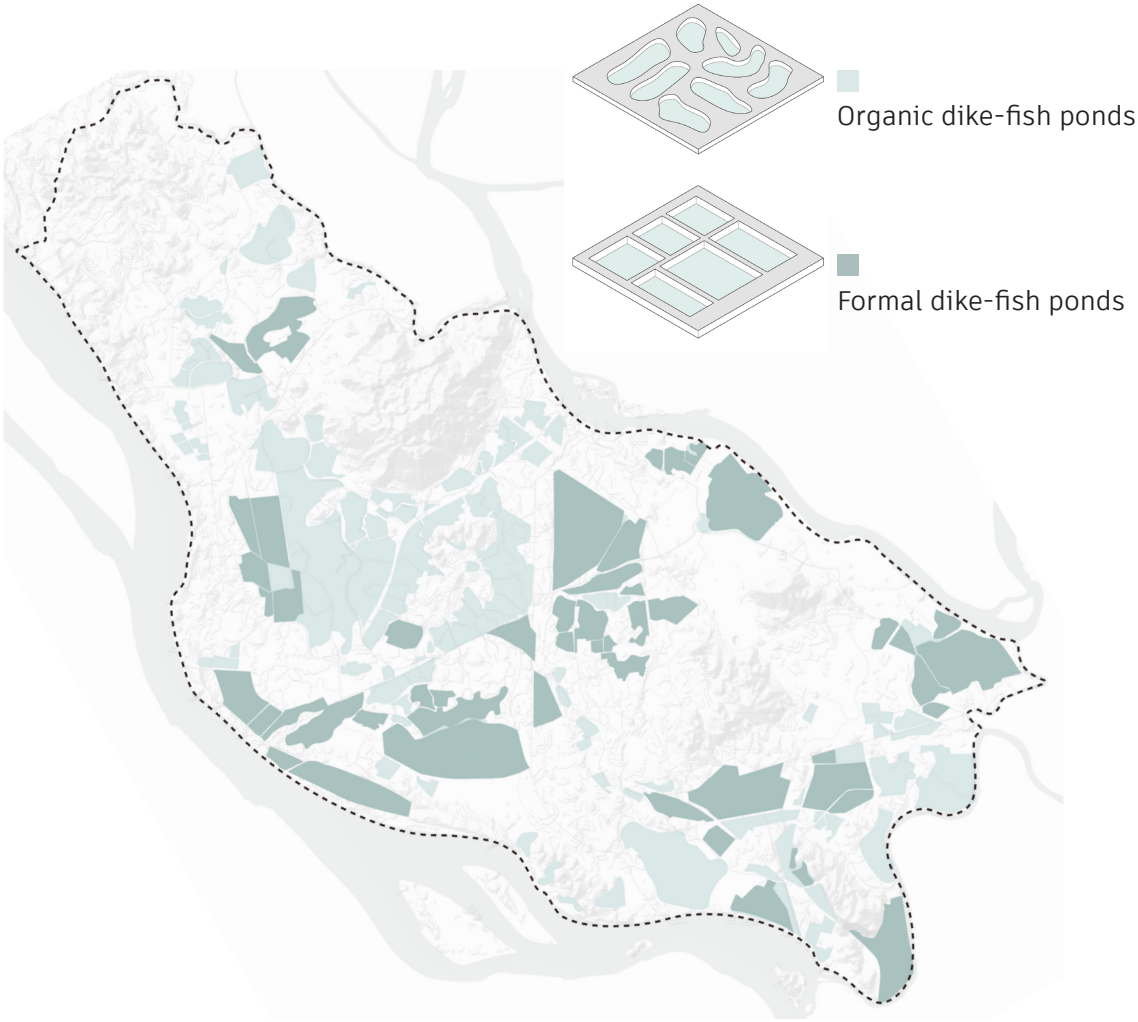
Image from 中新网, 2018



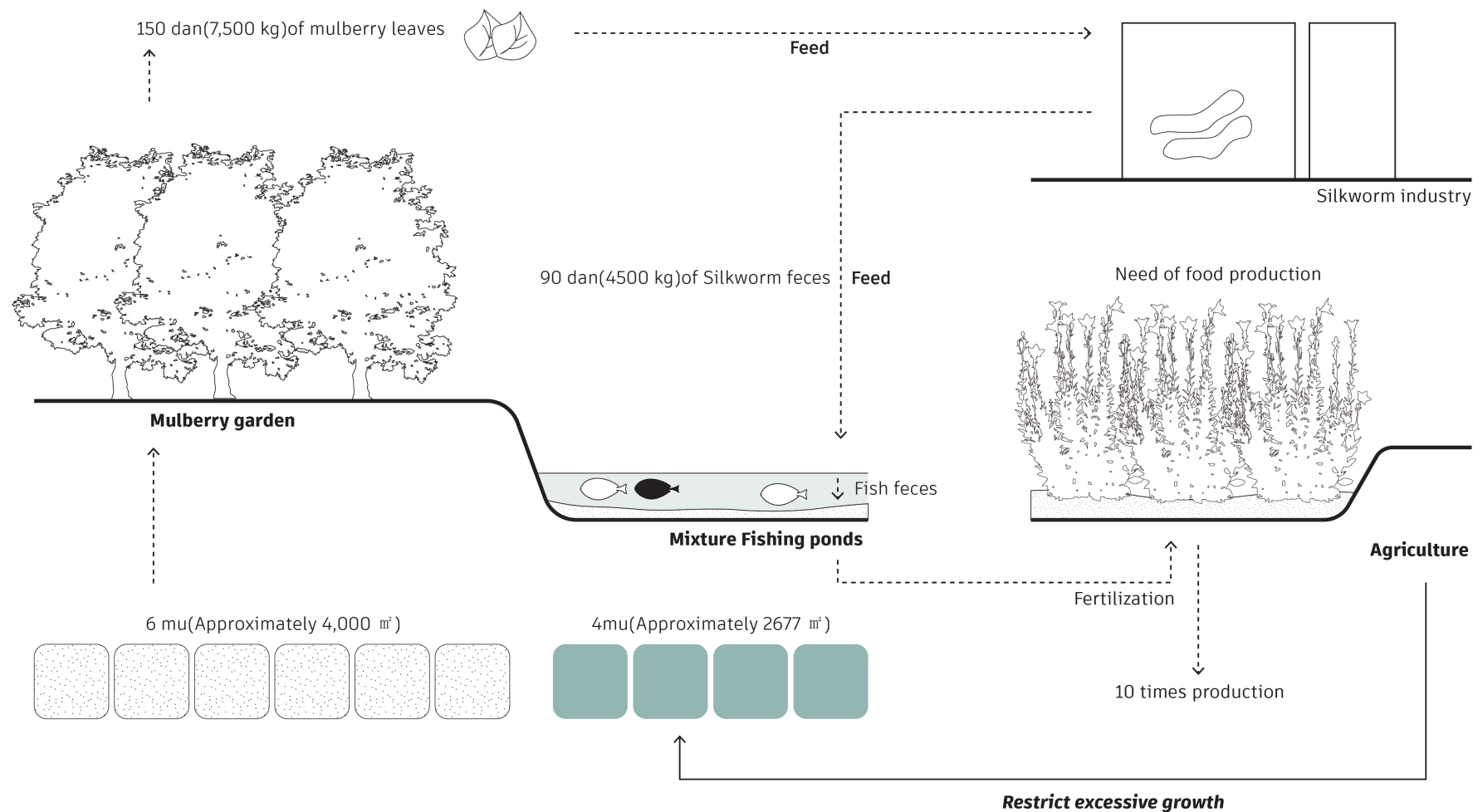
Site location



Site location



# Sustainable production cycle

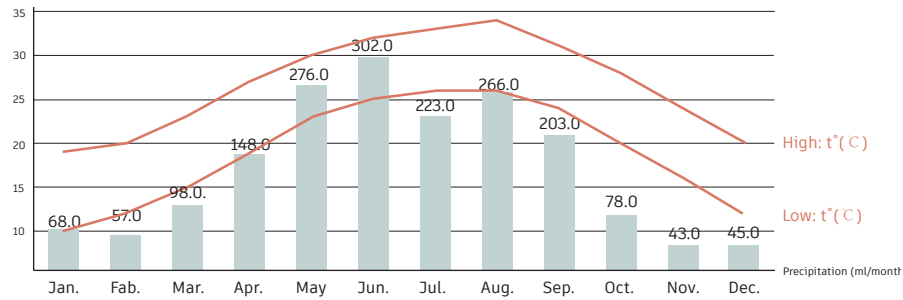




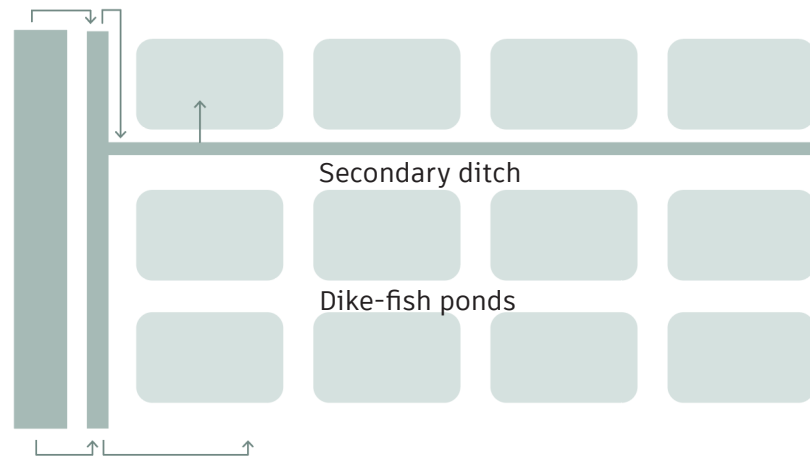
This circularity system is deeply rooted in local participation, relying on the knowledge, labor, and daily practices of the community to sustain ecological and productive cycles.



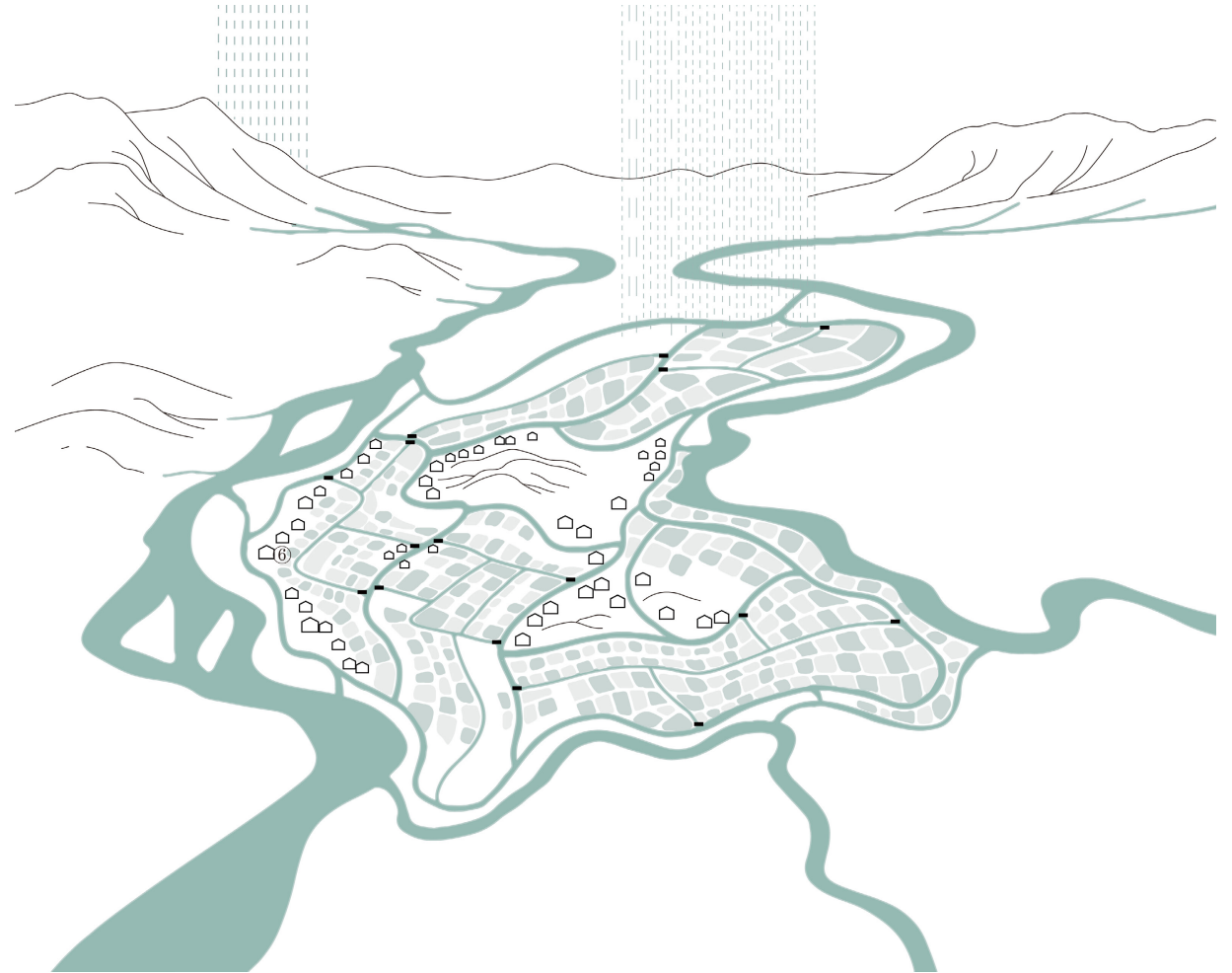
# Water system



Outside water



Primary ditch



*Part I*

Introduction: Sangyuanwei, A production landscape based on water system

*Part II*

**Problem and research: Challenges of the monoculture fishing industry developed on traditional production landscape**

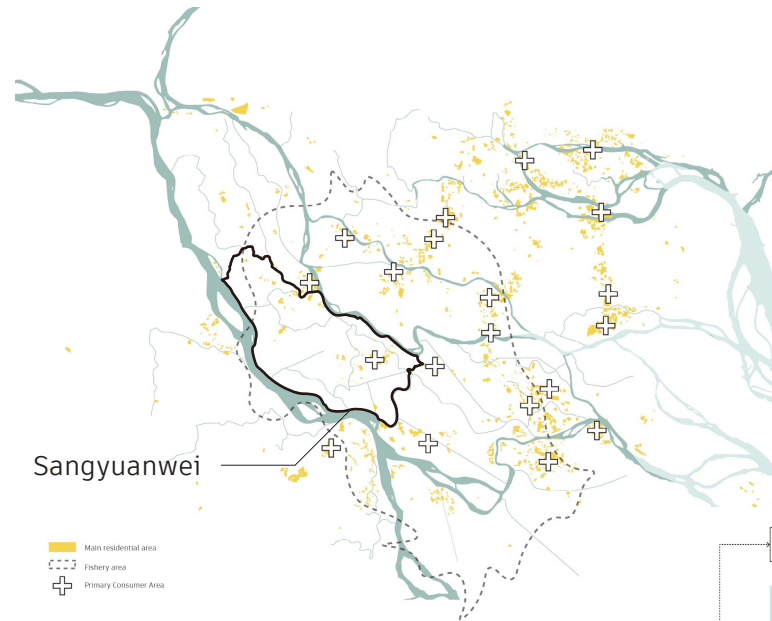
*Part III*

Design: Reclaiming dike-fish ponds landscape for people and ecology

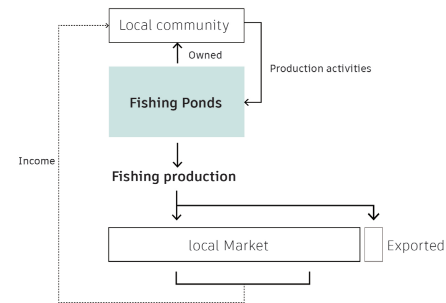
# Transformation of fishery

From small-scale local fishery to centralized fishing industry

## Traditional fishery



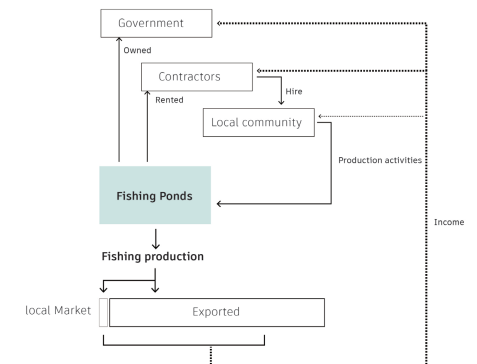
A small scale, Self-sufficient production model, mainly managed by local community



## Current intensive fishing industry

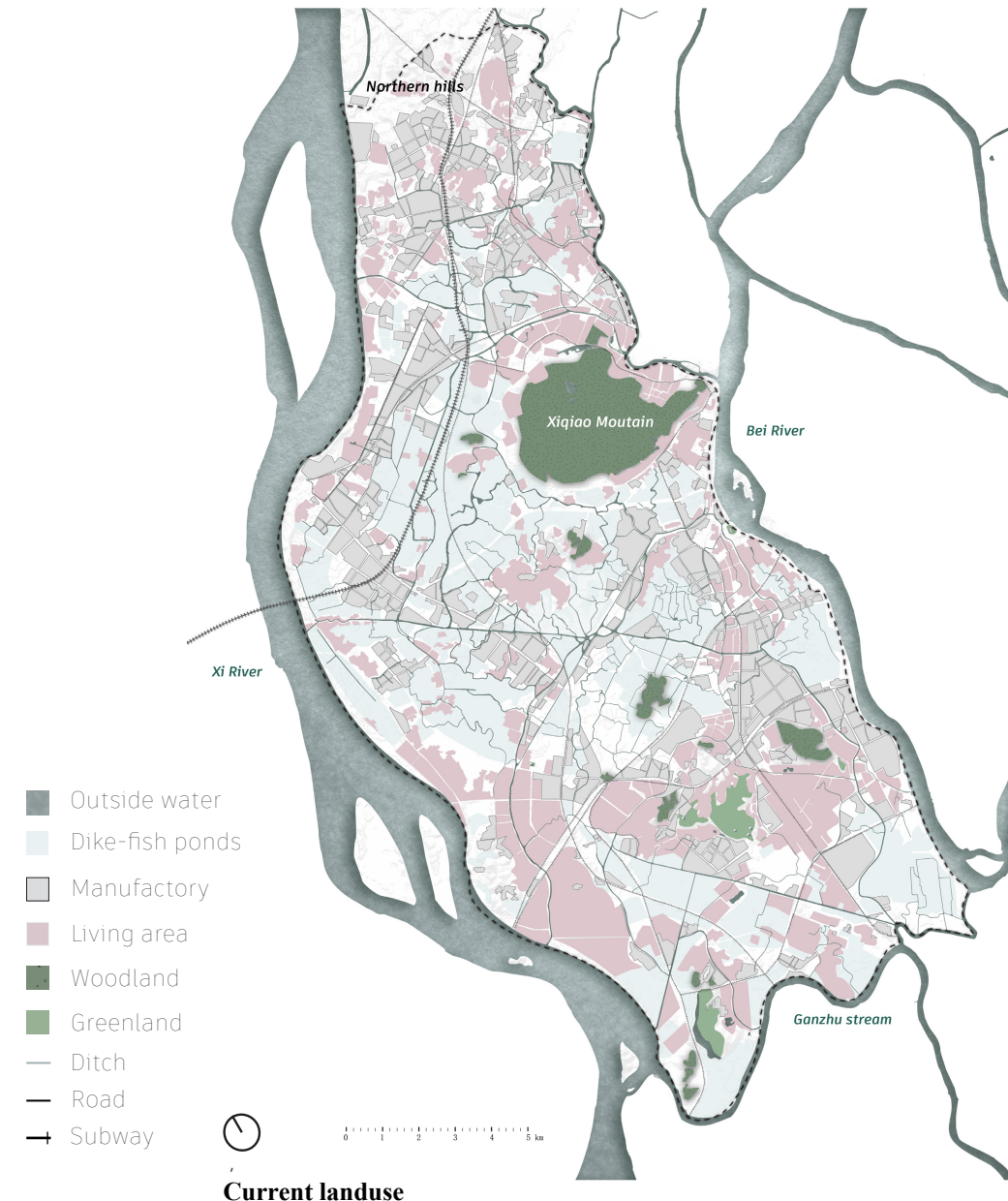
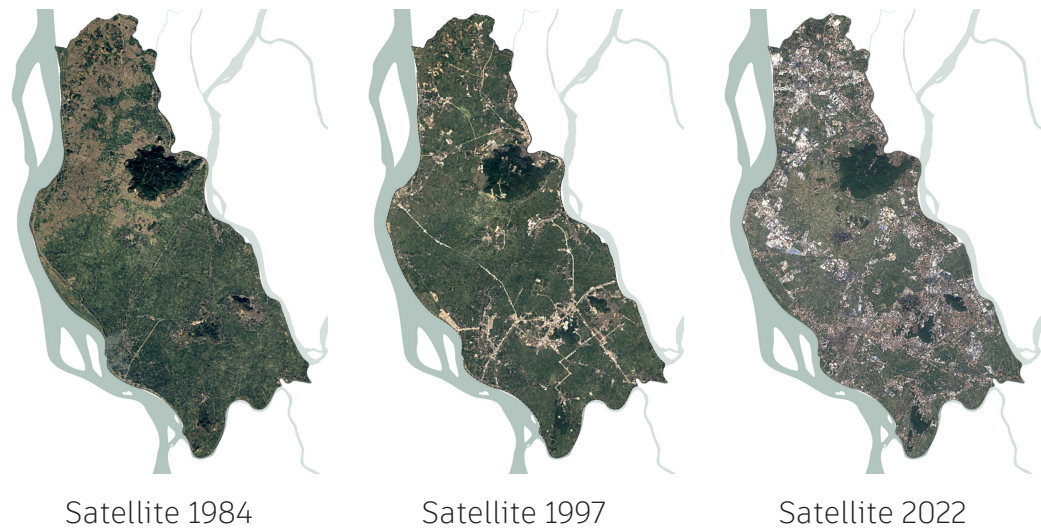


A large scale, High productivity production model, mainly managed by non-local contractors

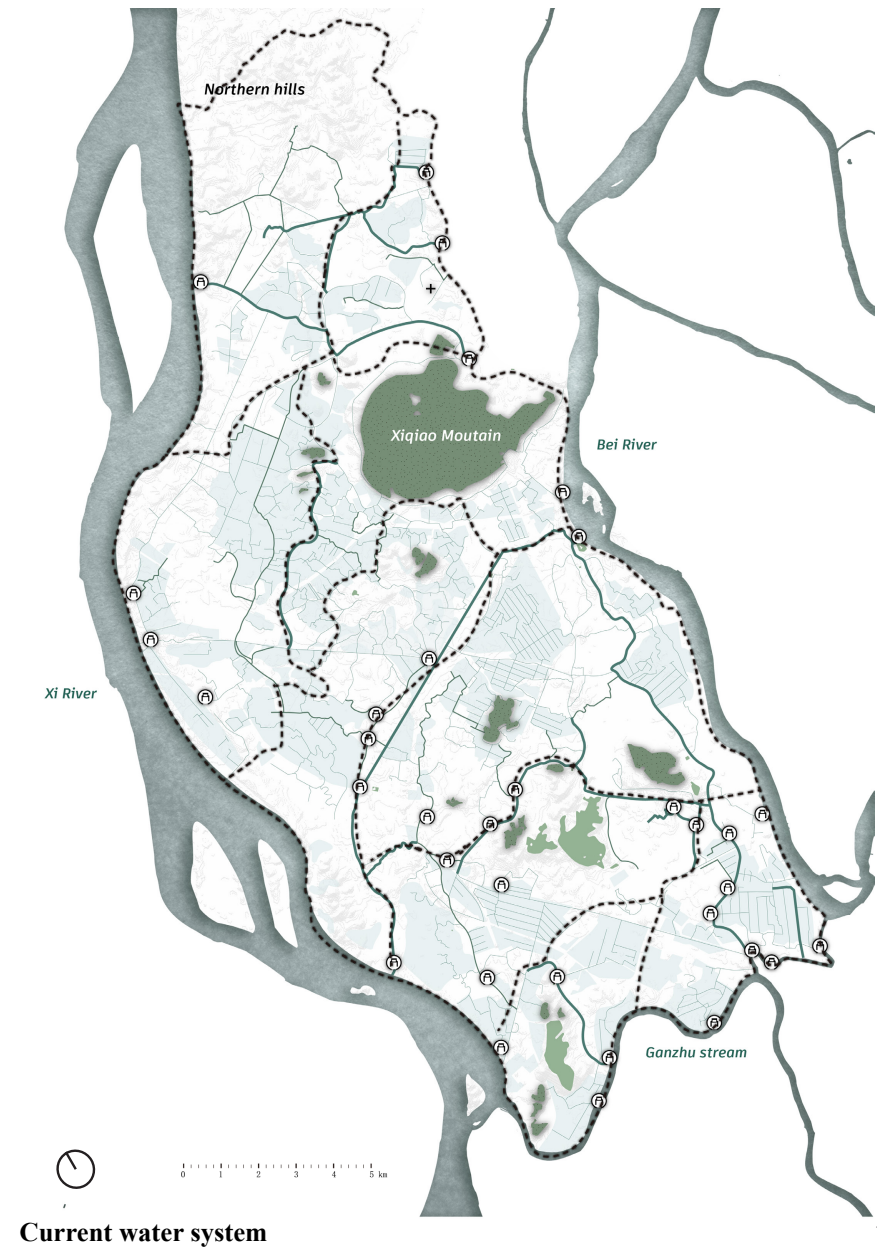
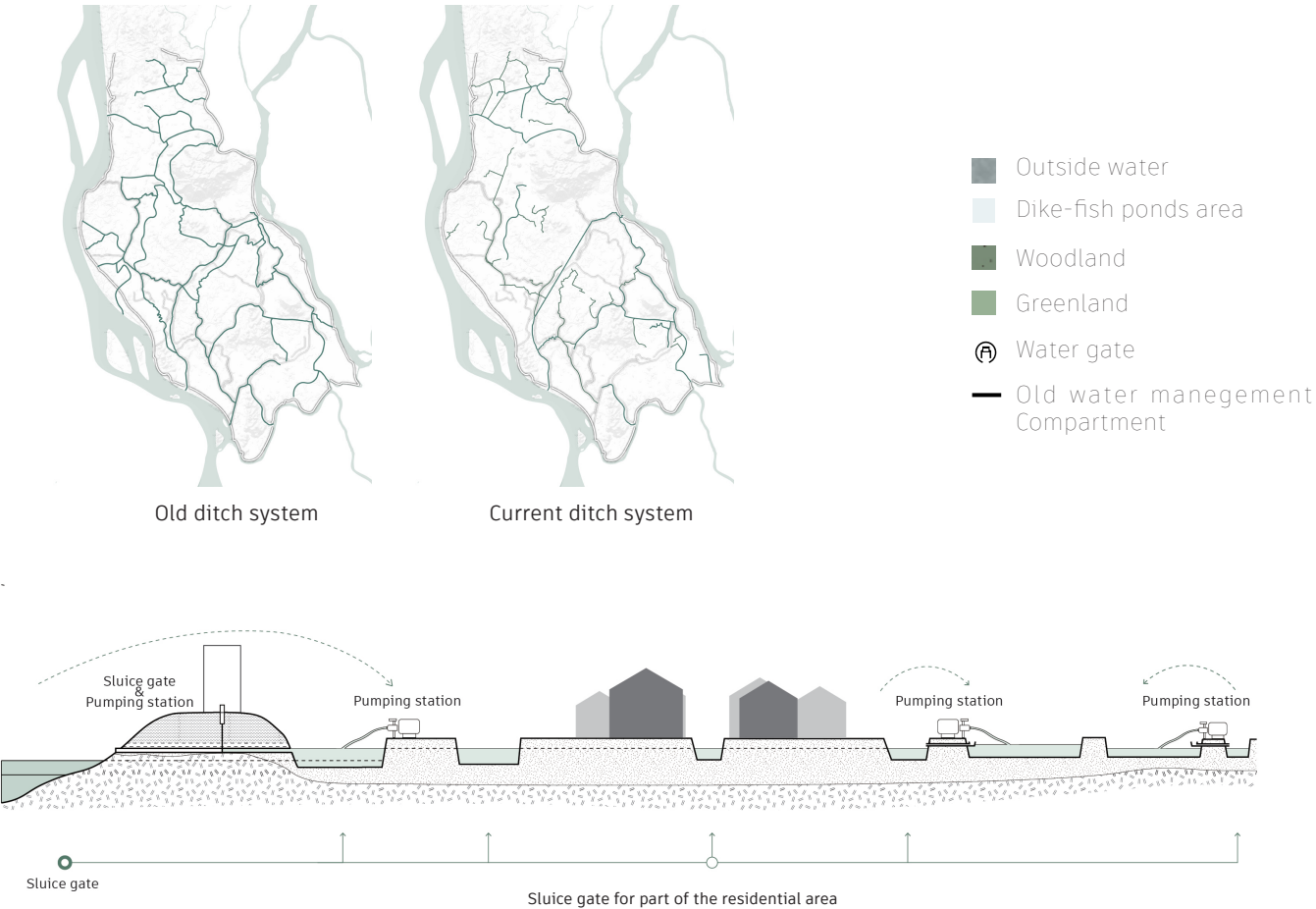




**Problem statement:**  
**Production landscape degradation**



**Problem statement:**  
**Water system Degradation**

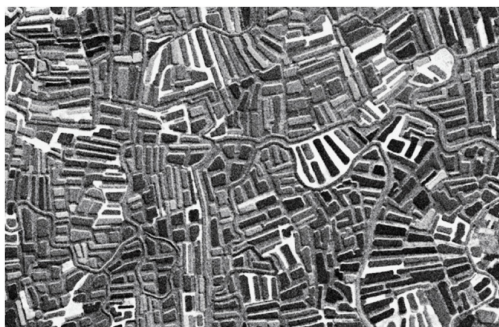


# Problem statement:

## Imbalance between the dike and ponds

Mulberry gadren dike-fish ponds:  
Fishing industry in 19th(Figure)  
Current intensive fishing industry:

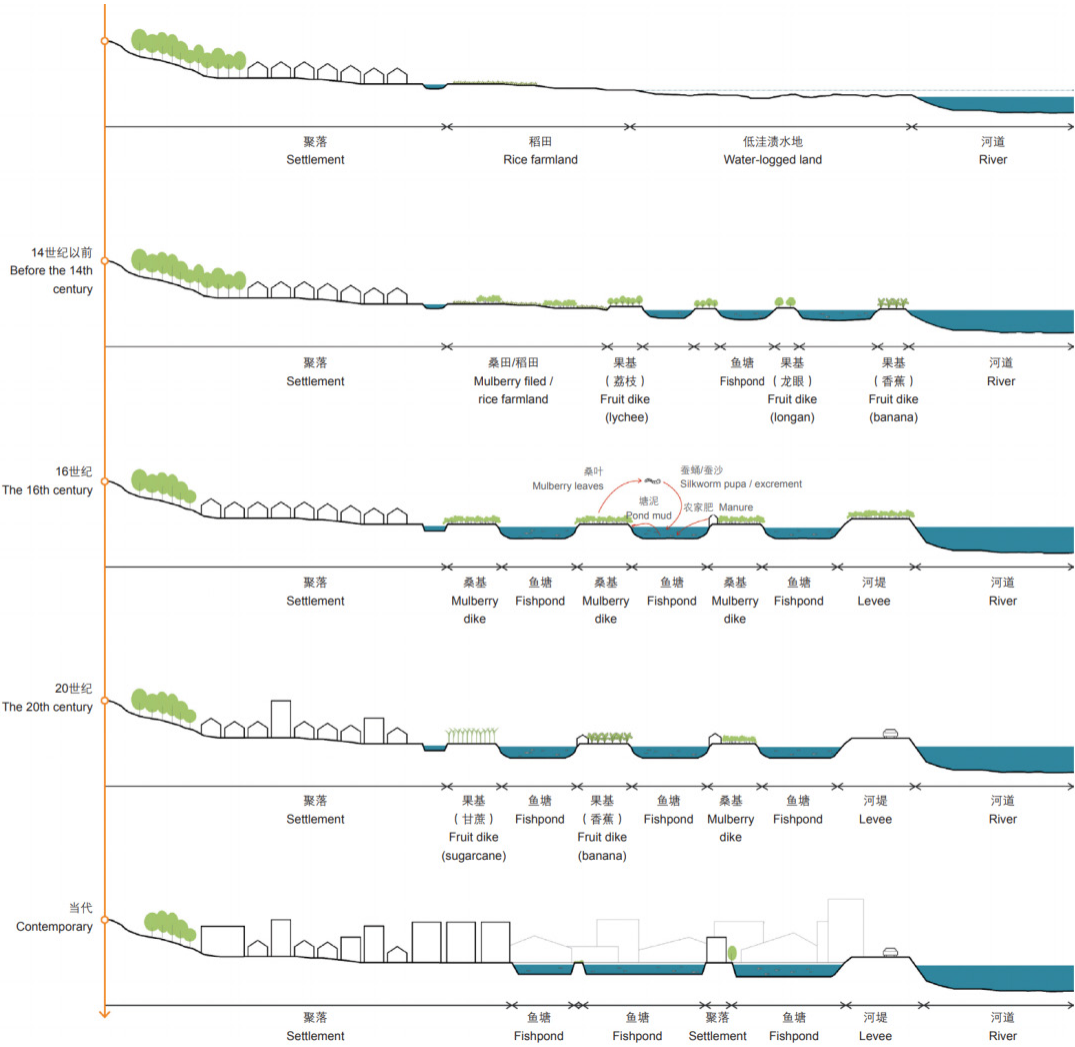
Dike	:	Ponds
6		4
3		7
1		9



1980



2014

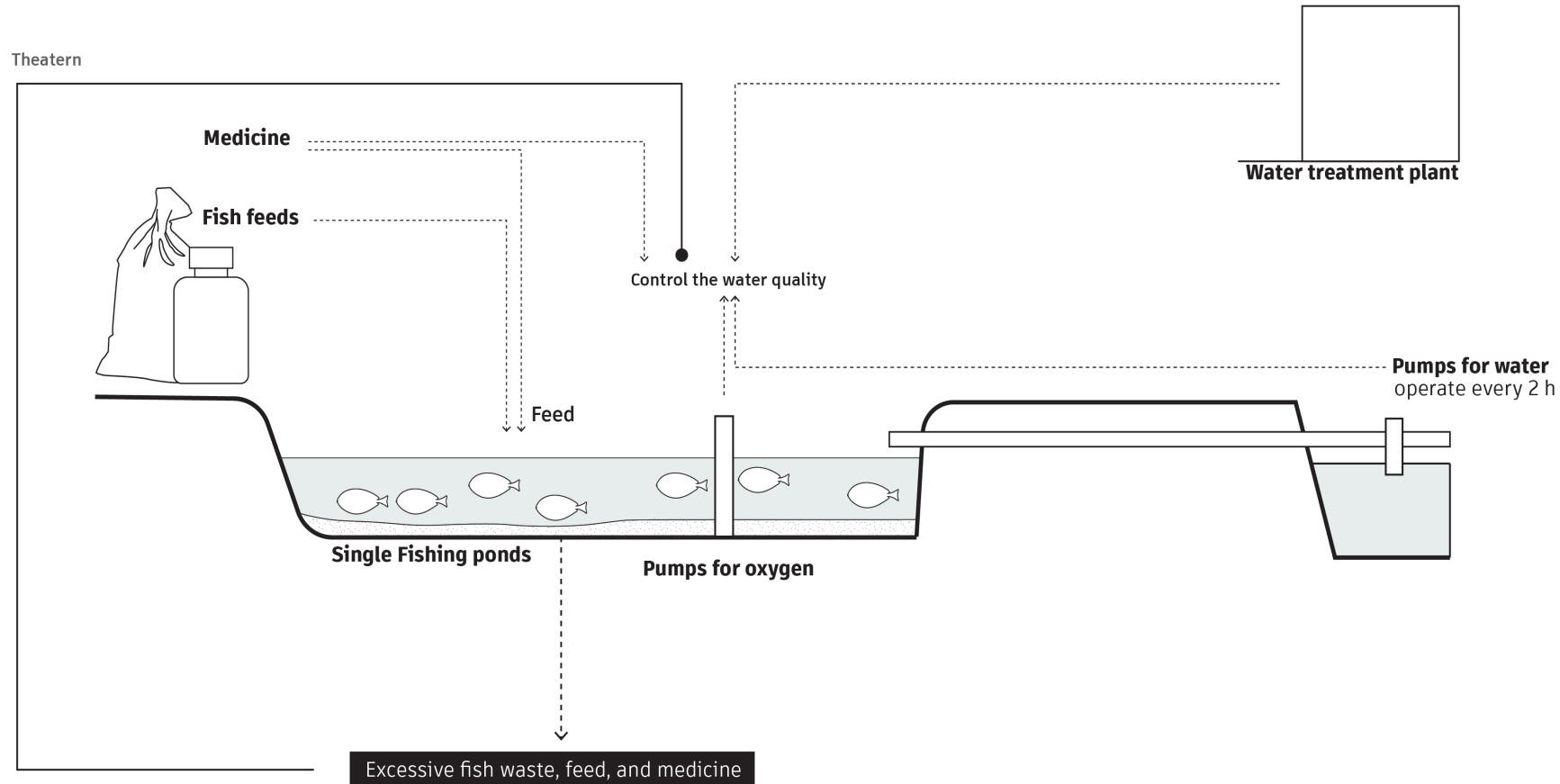


Dike-fish ponds ratio changes (Tian, 2019)



## Problem statement:

### A bad cycle in today's production model



A disrupted system:  
Single spatial use  
and linear resource  
consumption in modern  
fishing industry

## Problem statement

Once a landscape of intertwined ecology, production, and community life, dike-pond water system is now being fragmented by urban-industrial expansion and technology-driven aquaculture, leading to ecological degradation, mess water management and low quality of production, which have bring a bad livelihood of local residents.



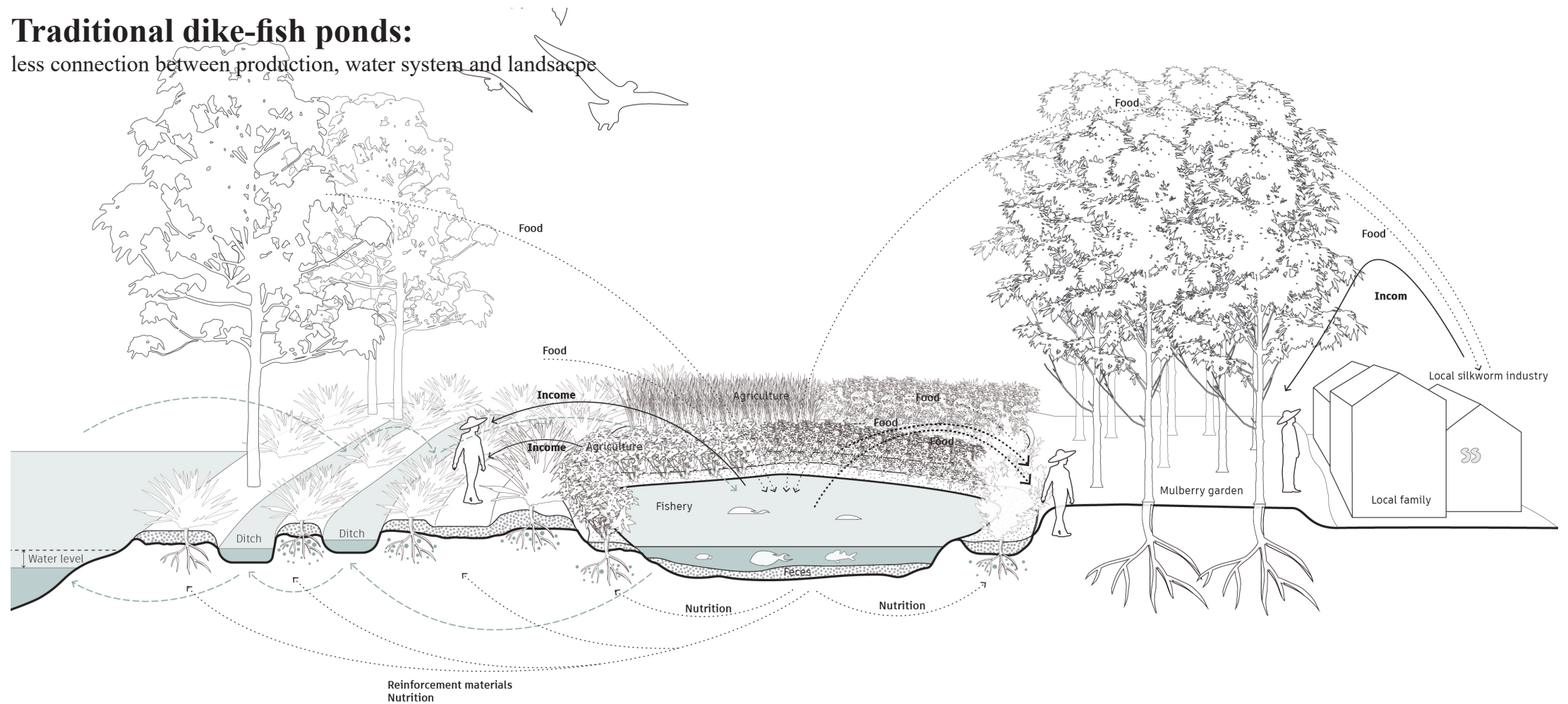
*“What is of interest is not merely the pump, but rather the articulation between the pump, the water, the river, the land, and farmers – as a socio-natural assemblage. Similarly, in developing a concept of ‘natural infrastructure’, and in asking how we might theorize infrastructure ecologically.....”*

*——Karen Bakker, 2012*



# Traditional dike-fish ponds:

less connection between production, water system and landscape

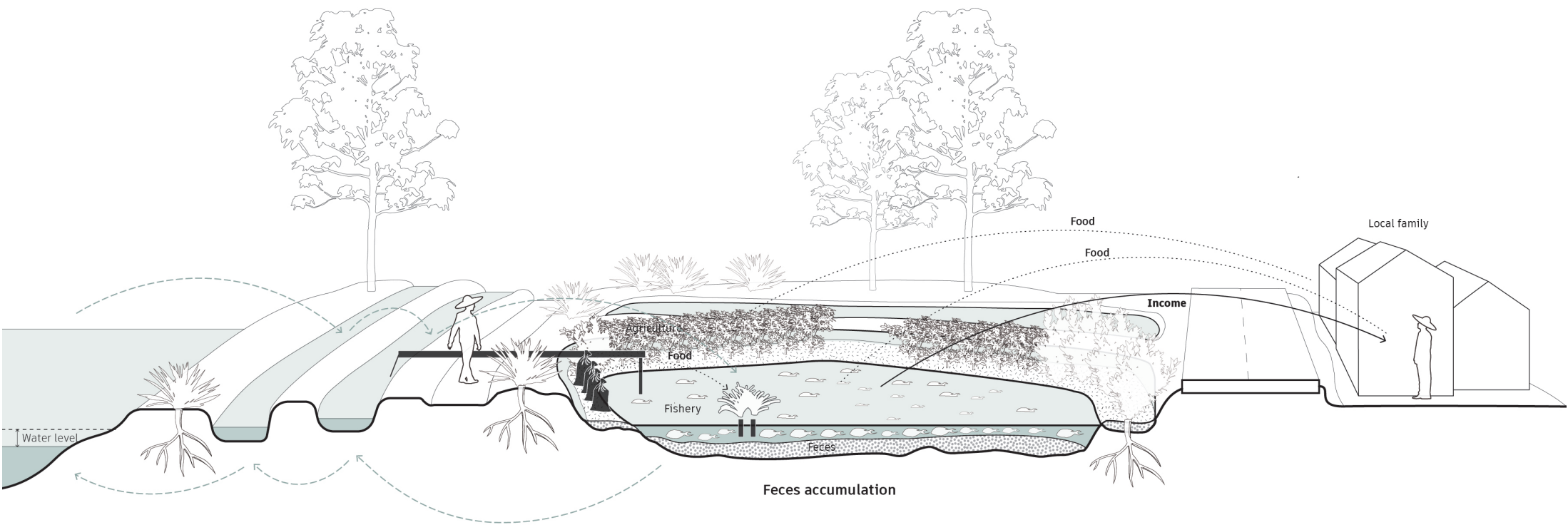


Clean water recycle

More dike and agriculture

# Organic dike-fish ponds

less connection between production, water system and landscape



- Pumping station
- Pumps
- Foods and chemical medicine

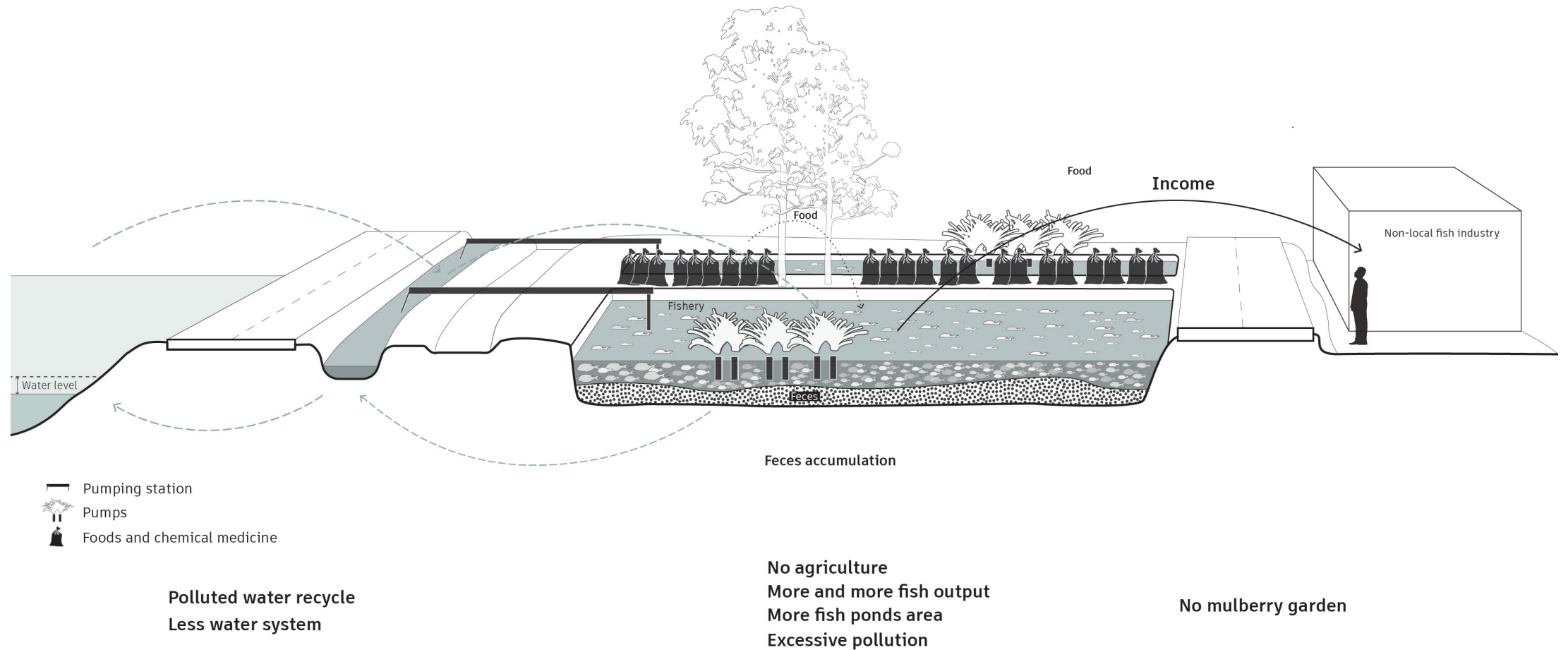
Polluted water recycle

Less agriculture  
More fish output  
More fish ponds  
little pollution

No mulberry garden

## Formal dike-fish ponds

A landscape prioritizes production, but disconnect from people—especially the local communities once rooted in the landscape.



**How can a landscape approach mitigate the negative impacts of the fish industry, enhance local livelihoods, and create a healthier, more sustainable, and visually attractive landscape through local participation ?**

*Part I*

**Introduction:** Sangyuanwei, A production landscape based on water system

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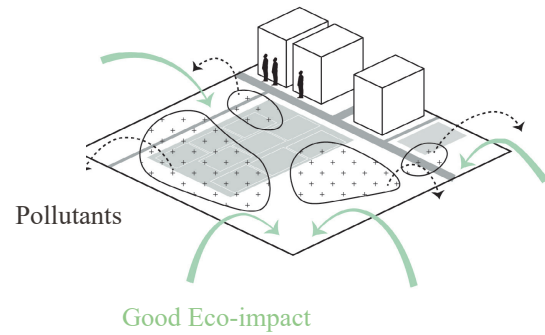
*Part III*

**Design:** Reclaiming dike-fish ponds landscape for people and ecology

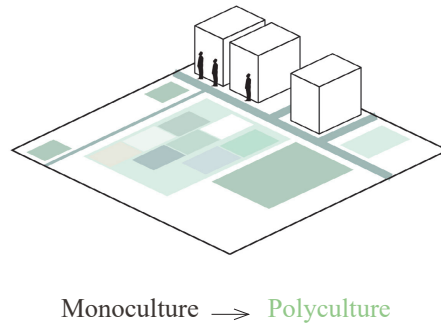


# Design principle

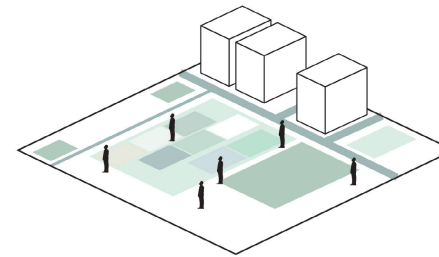
## Enhancing Ecological Resilience



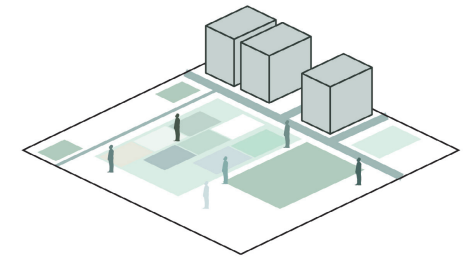
## Diversifying Industries and Supporting Livelihoods

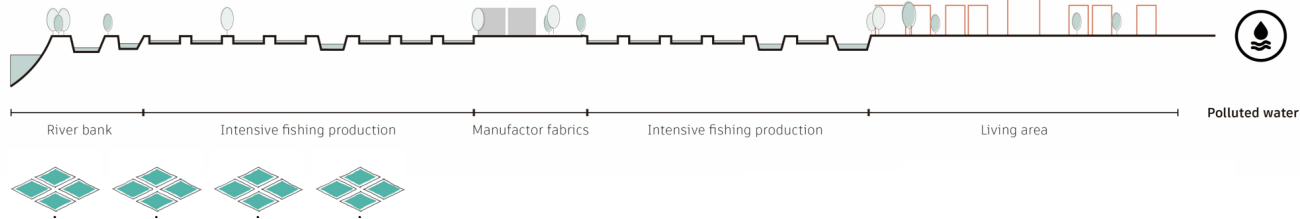


## Rebuilding Public Green Spaces for Community Use

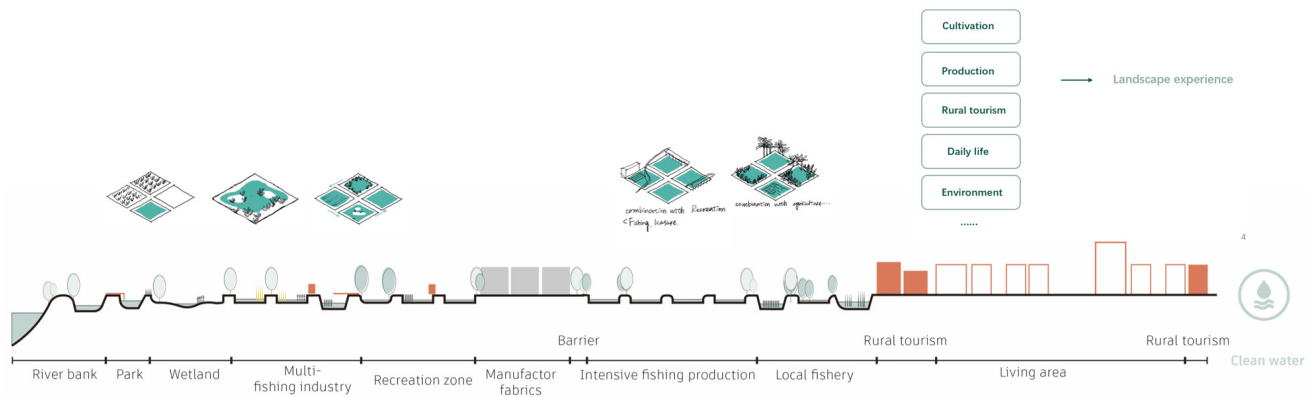


## Reviving Water Culture and Human–Water Relationships

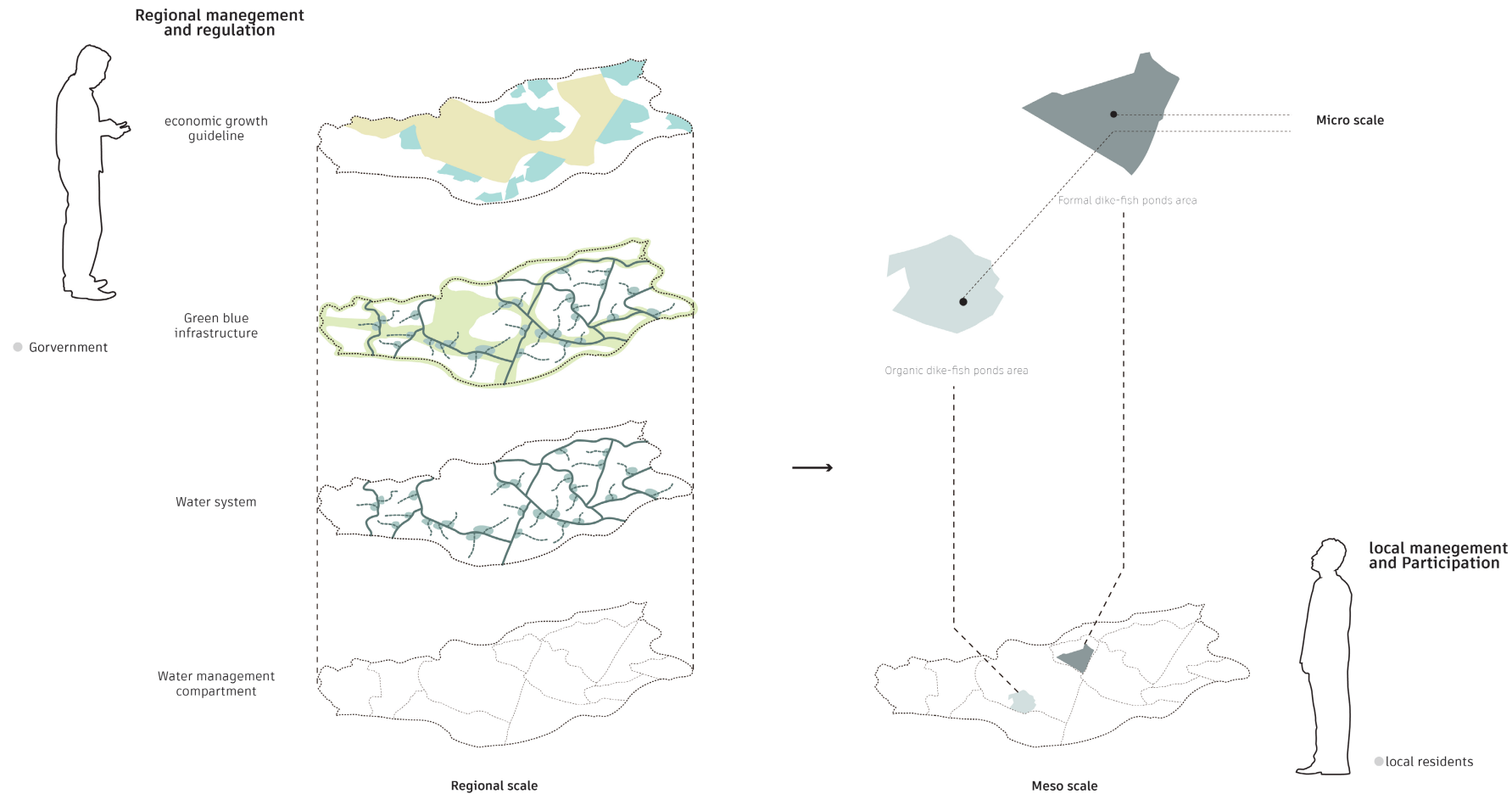




## Design strategy: From monoculture to diversified landscape



# Multi-scale Design framework



# Regional scale Water system

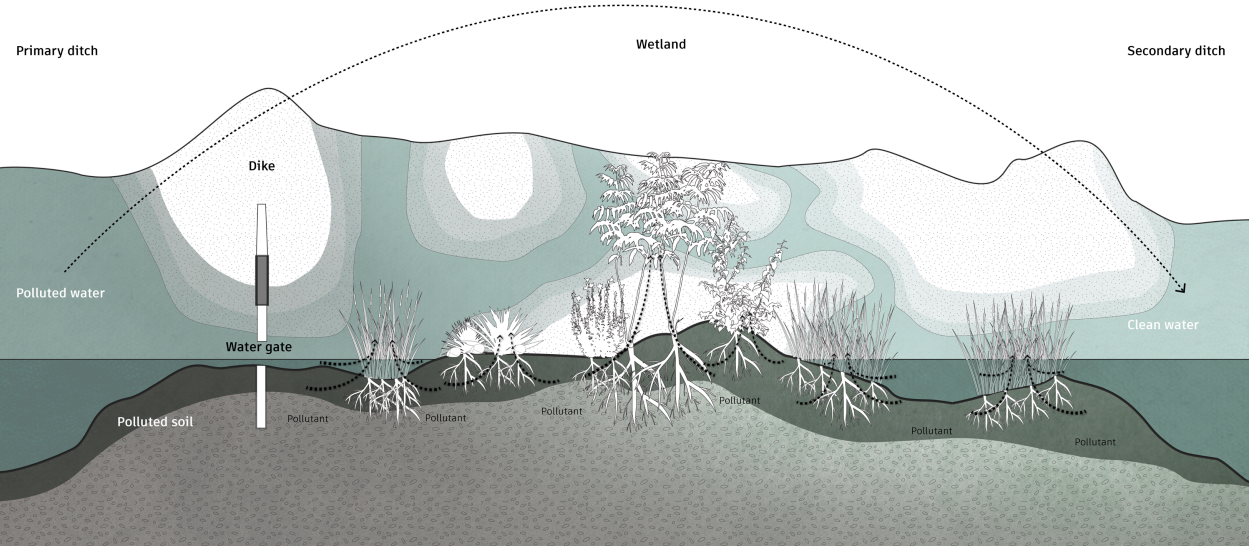
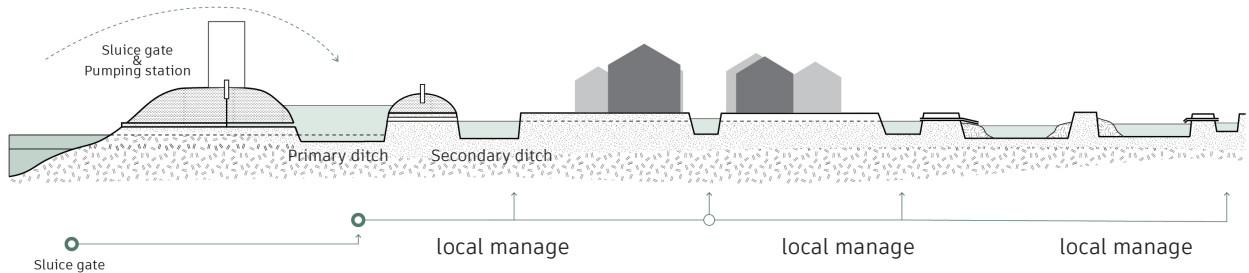


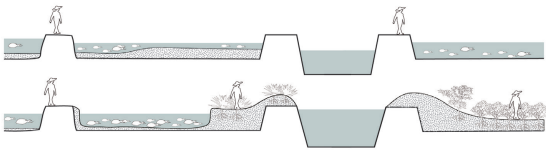
Figure.26 Purification wetland section



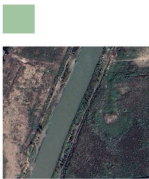
Figure.27 Purification wetland allocation



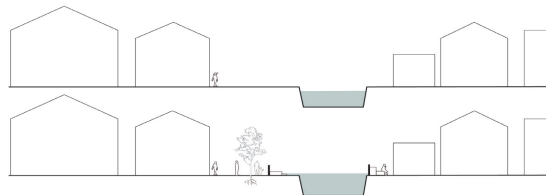
# Regional scale Water system



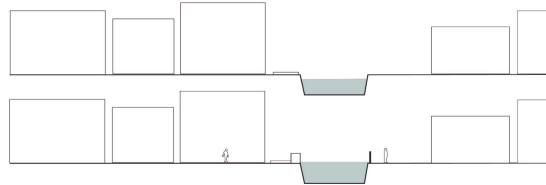
Agriculture



Agriculture



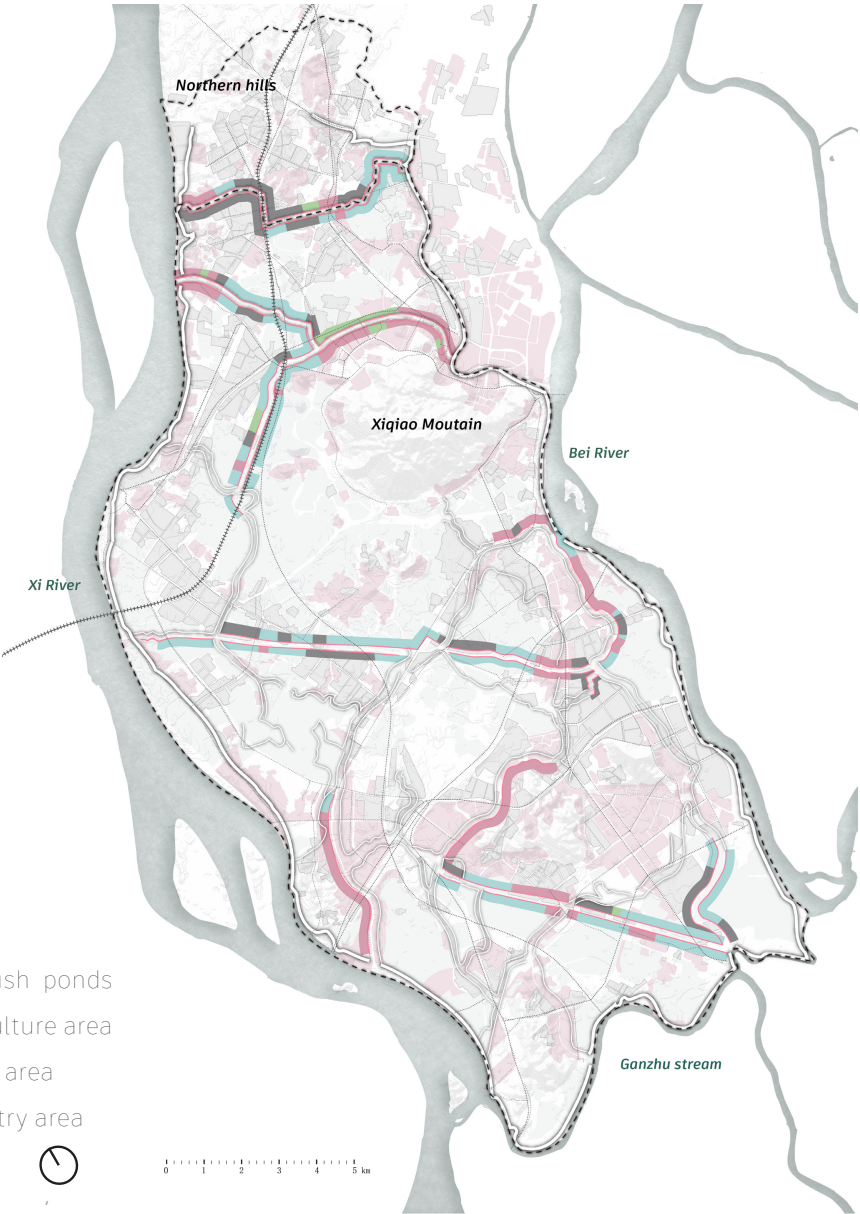
Recreation



Barrier

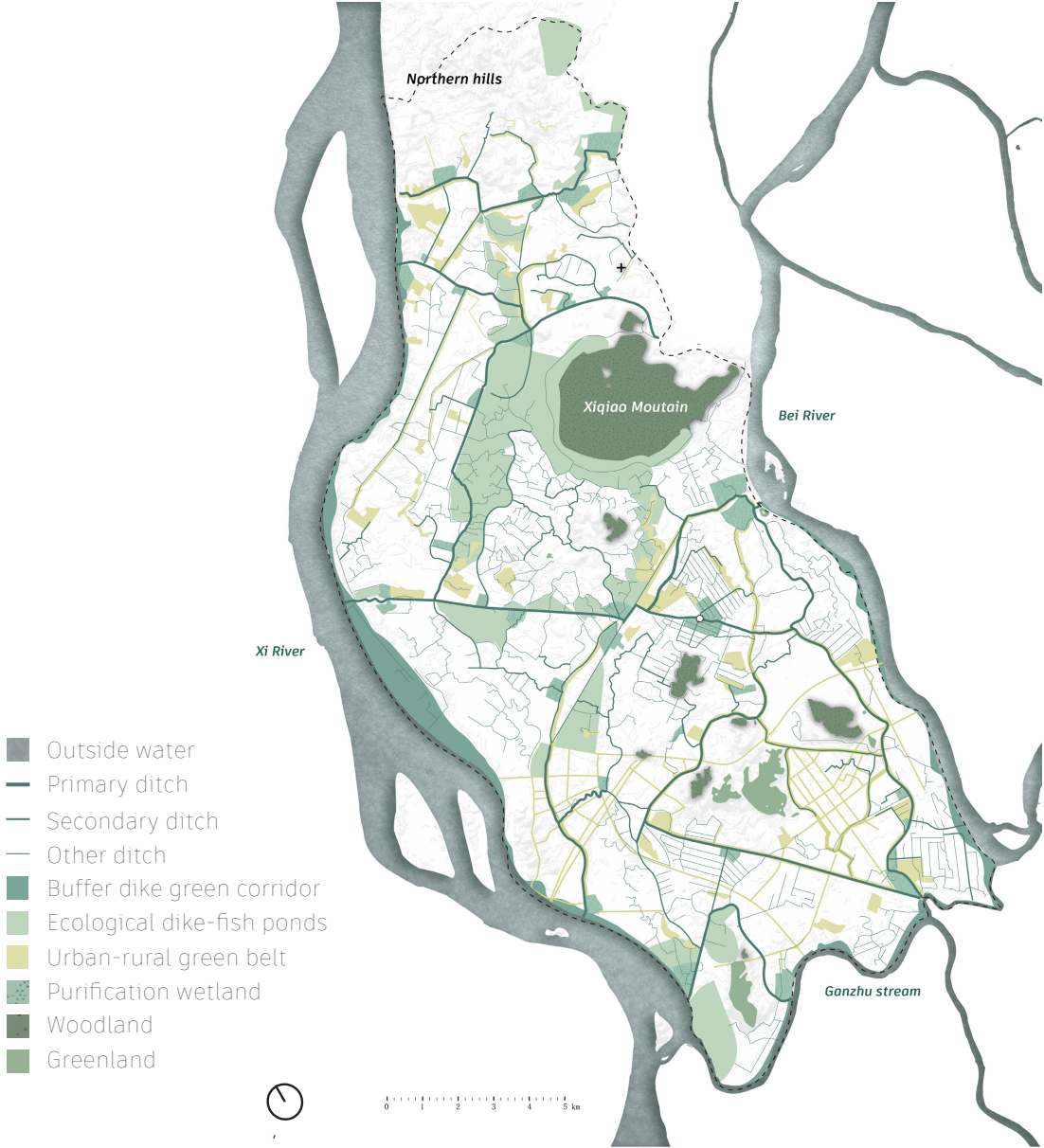
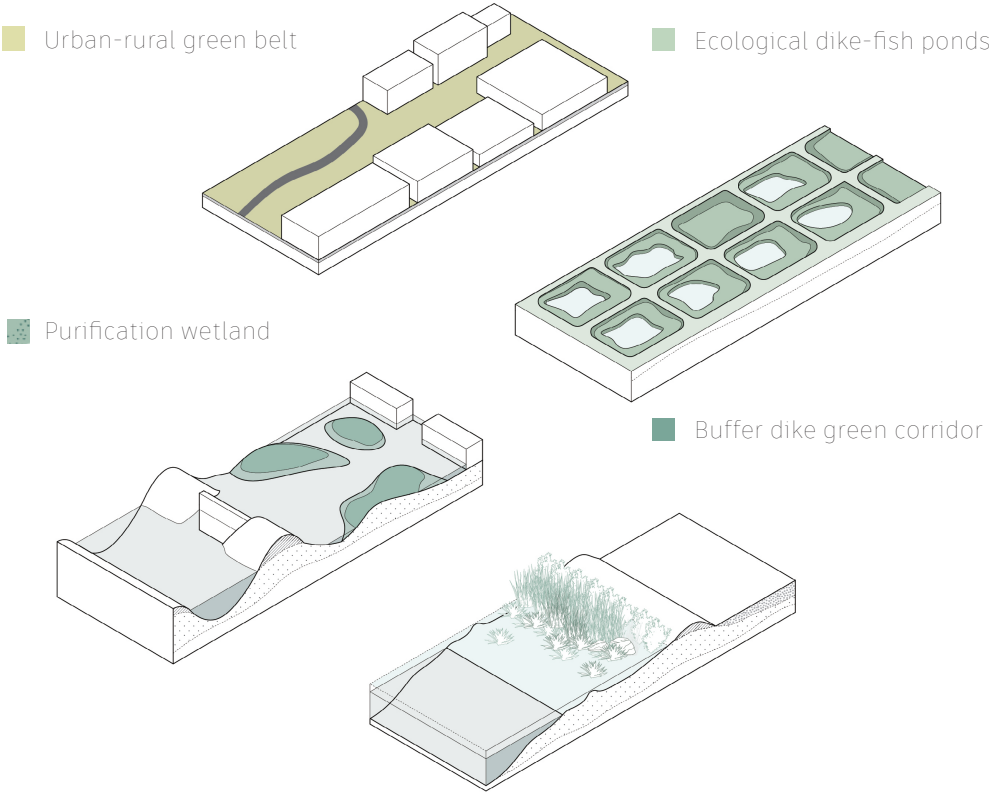
- Outside water
- Dike-fish ponds
- Old dike

- New dike in dike-fish ponds
- New dike in Agriculture area
- New dike in Living area
- New dike in Industry area



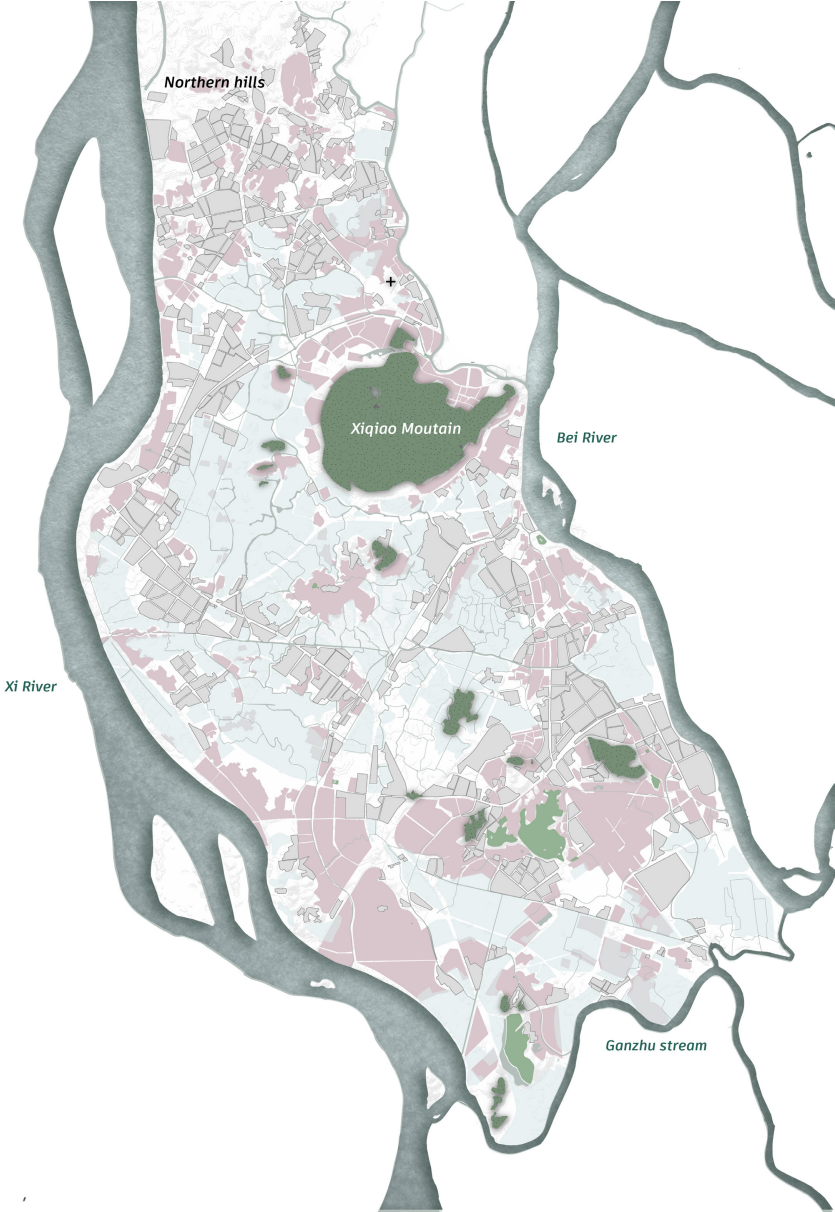


# Regional scale Green-blue infrastructure



**Regional scale**  
**Green-blue infrastructure**

- Outside water
- Primary ditch
- Secondary ditch
- Other ditch
- Buffer dike green corridor
- Ecological dike-fish ponds
- Urban-rural green belt
- Purification wetland
- Woodland
- Greenland
- Dike-fish ponds
- Manufactory
- Living area



**Current blue-green infrastructure**

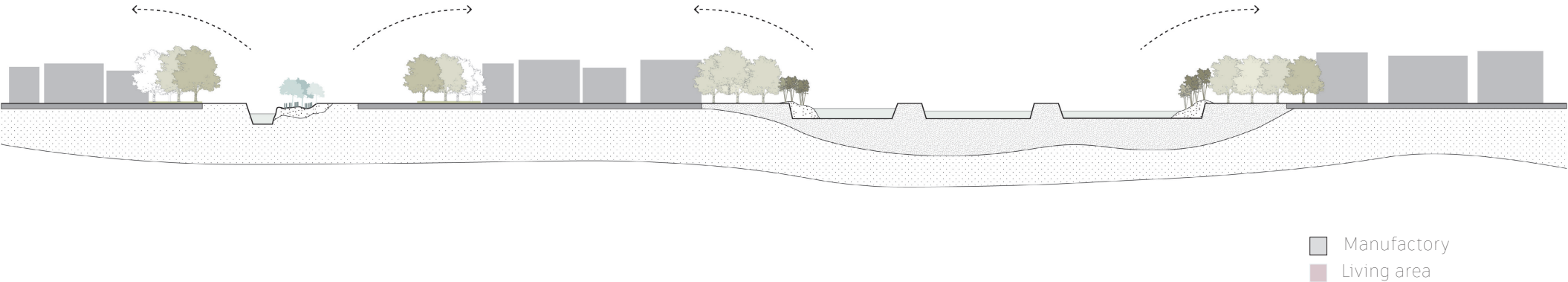


0 1 2 3 4 5 km

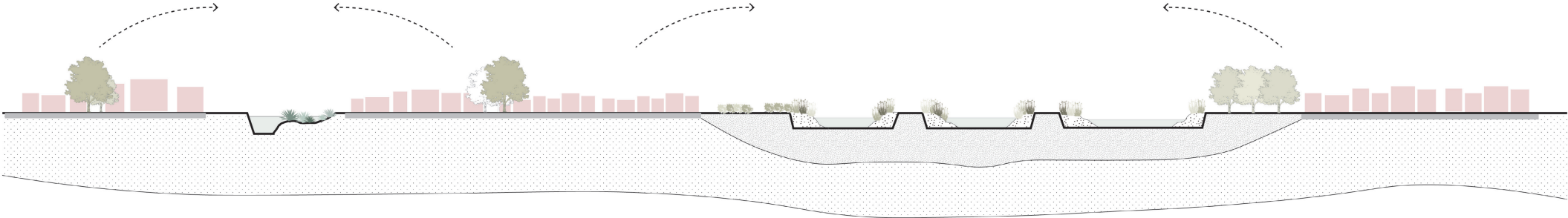
**Future blue-green infrastructure**

**Regional scale**  
**Green-blue infrastructure**

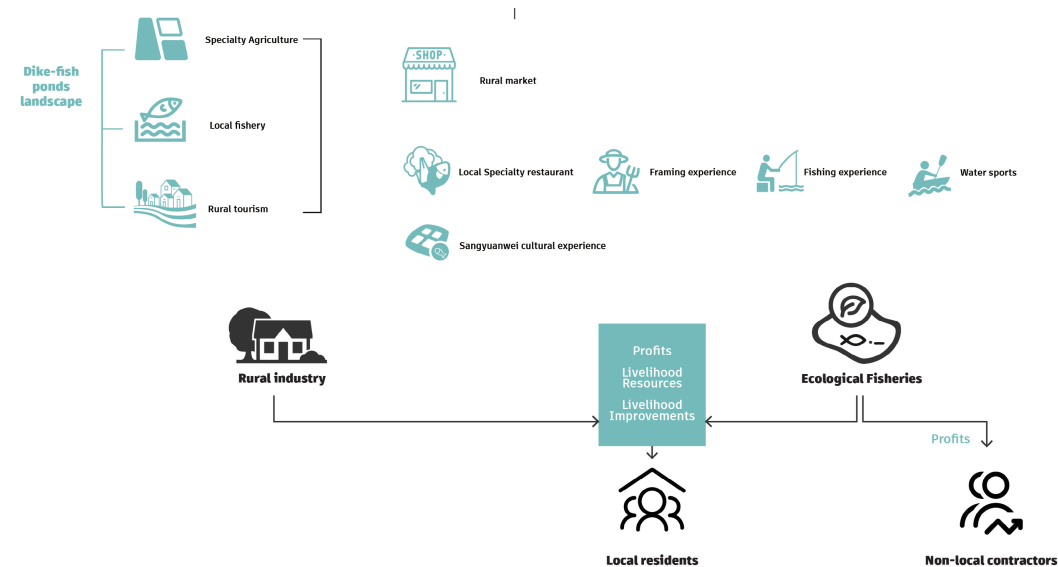
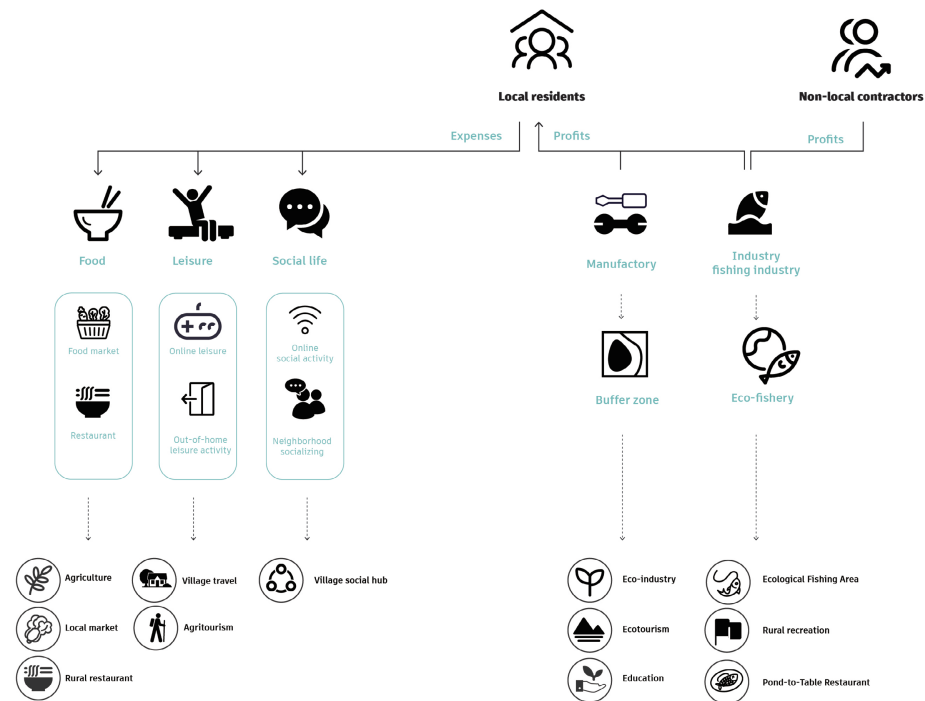
**Ecological barrier**



**Encourage residents to interact with nature**



# Regional scale industry guideline





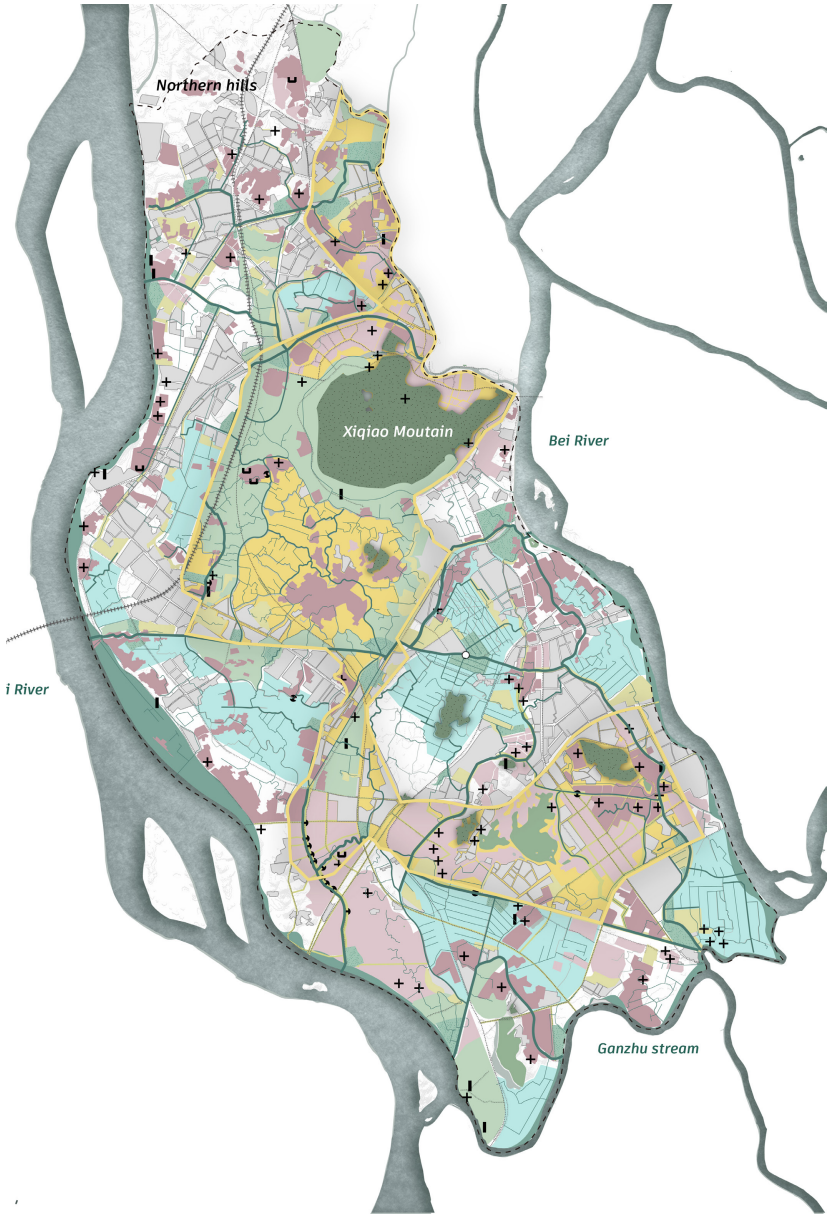
# Regional scale

- Outside water
- Primary ditch
- Secondary ditch
- Other ditch
- Living area
- Local Dike-fish ponds
- Non-Local Dike-fish ponds
- Manufactory
- Woodland
- Greenland

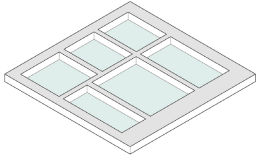
- Traditional village
- Well
- Water gate
- Temple/Ancestral Hal
- Stone tablet
- Bridge
- Eco-fishrey
- Rural tourism
- Buffer dike green corridor
- Ecological dike-fish ponds
- Urban-rural green belt
- Purification wetland



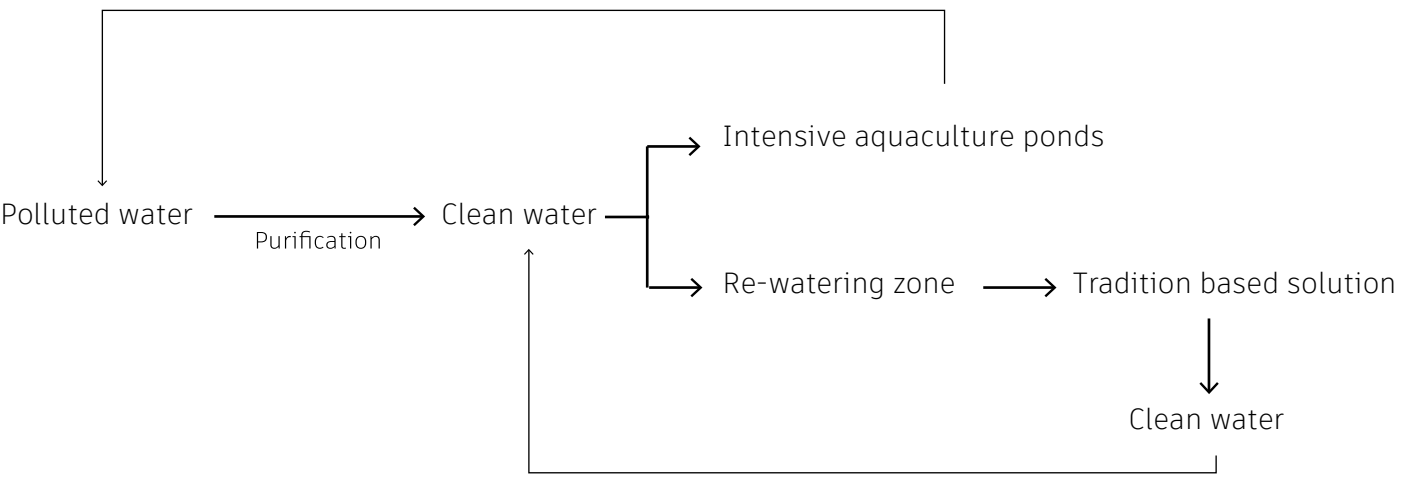
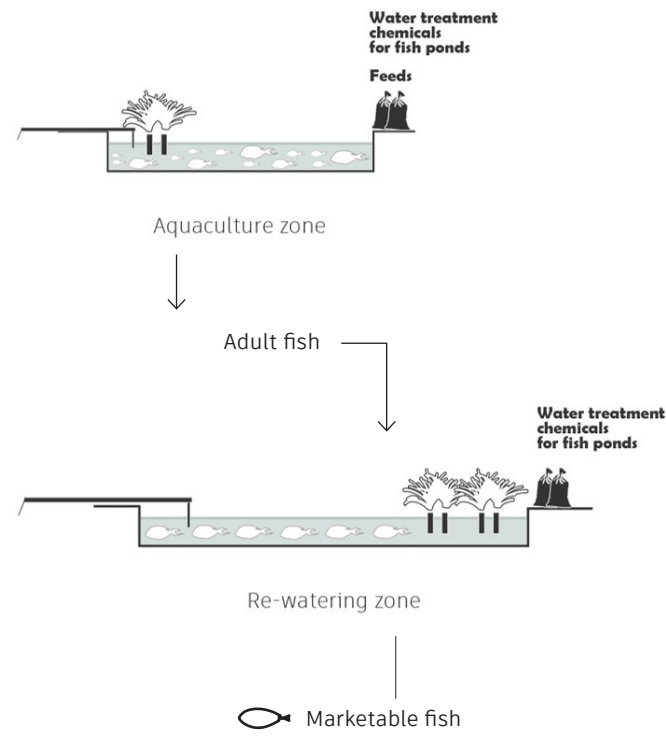
Current landuse



Future landuse



# Meso scale Solution for formal dike-fish ponds

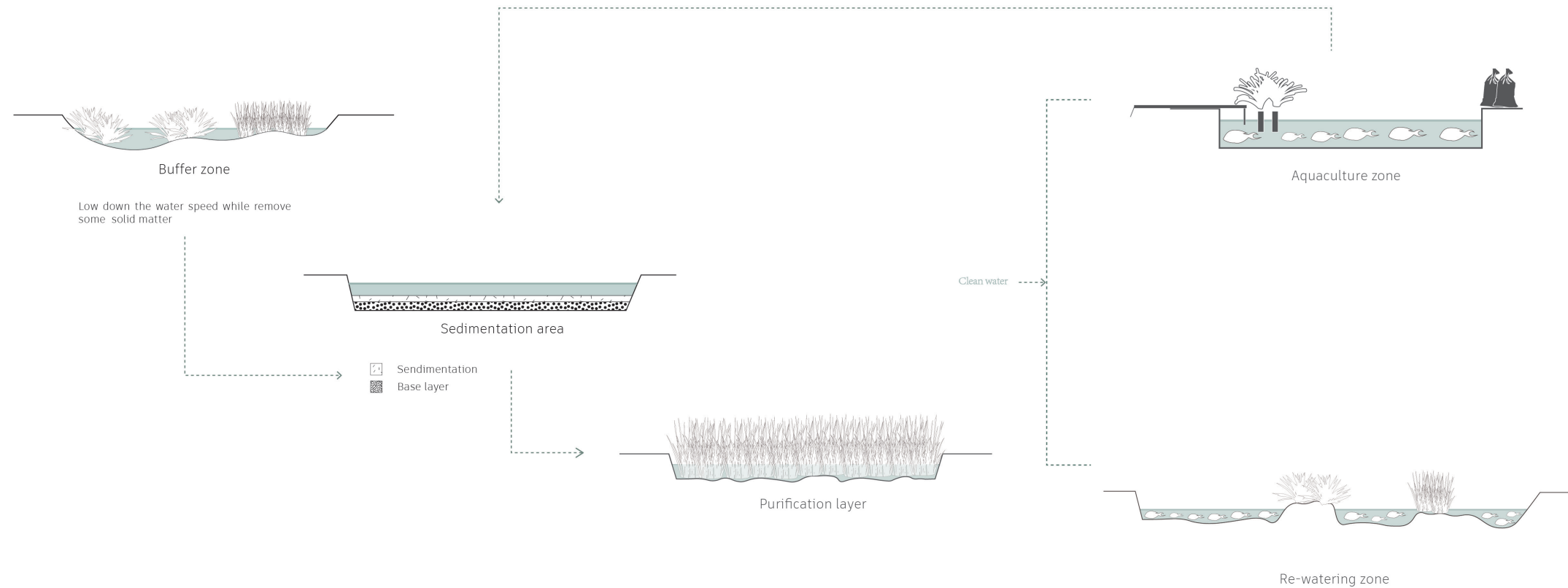


## Re watering fish

It involves purchasing adult fish at a low price and raising them without feeding, only ensuring sufficient dissolved oxygen in the water. The purpose of this practice is to expel waste from the fish's body and intestines, which will cause pollution to the water. **Polluted water sources** and the accumulation of **fish waste** that is not cleaned in time are the main sources of pollution.

# Meso scale

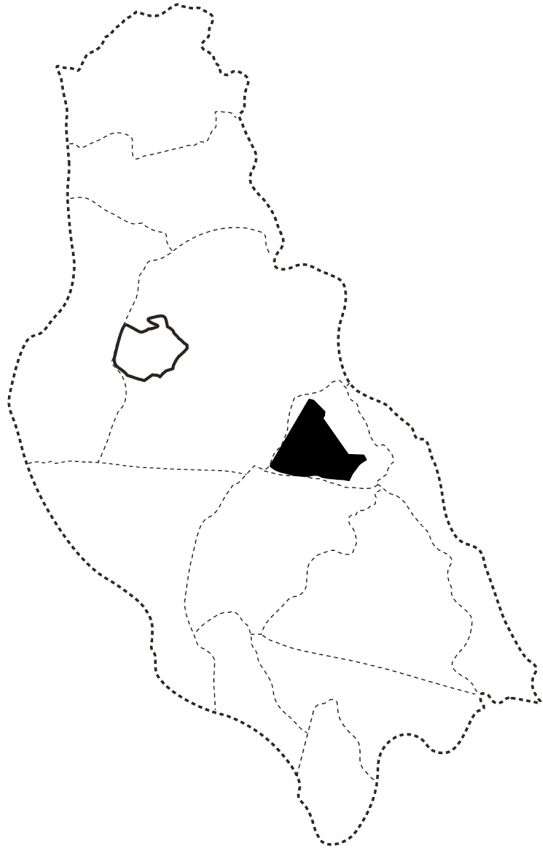
## Solution for formal dike-fish ponds





## Meso scale

Site 1





Meso scale  
Site 1-plan



- Buffer zone
- sedimentation ponds
- Connection area
- Purification wetland
- Re-watering fish ponds



- Green barrier
- Clean water
- Polluted water

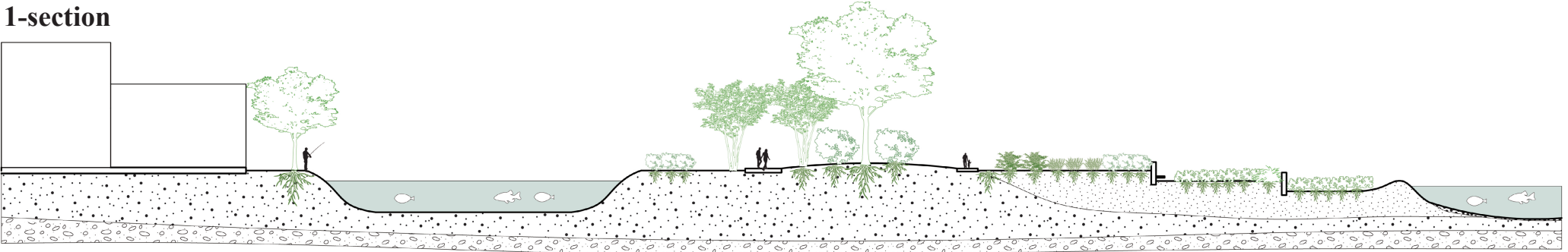




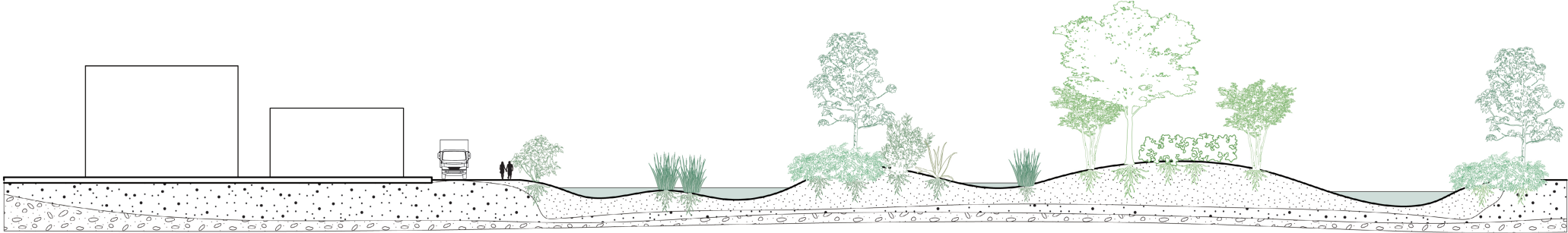
**Meso scale**  
**Site 1**



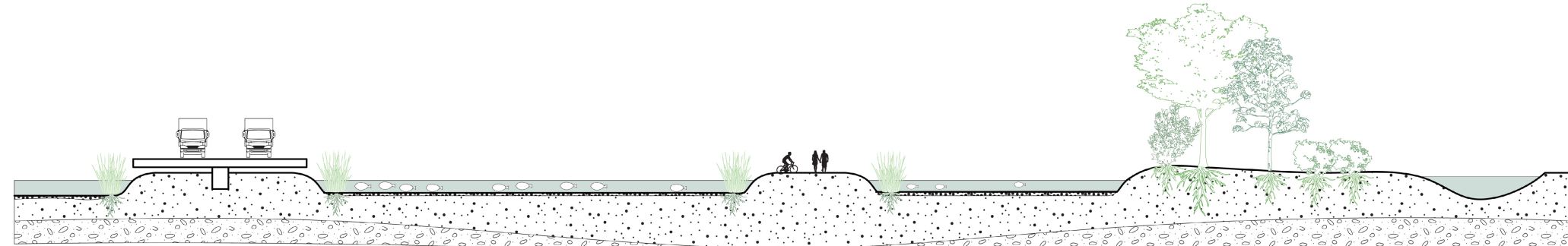
Meso scale  
Site 1-section



Section D-D



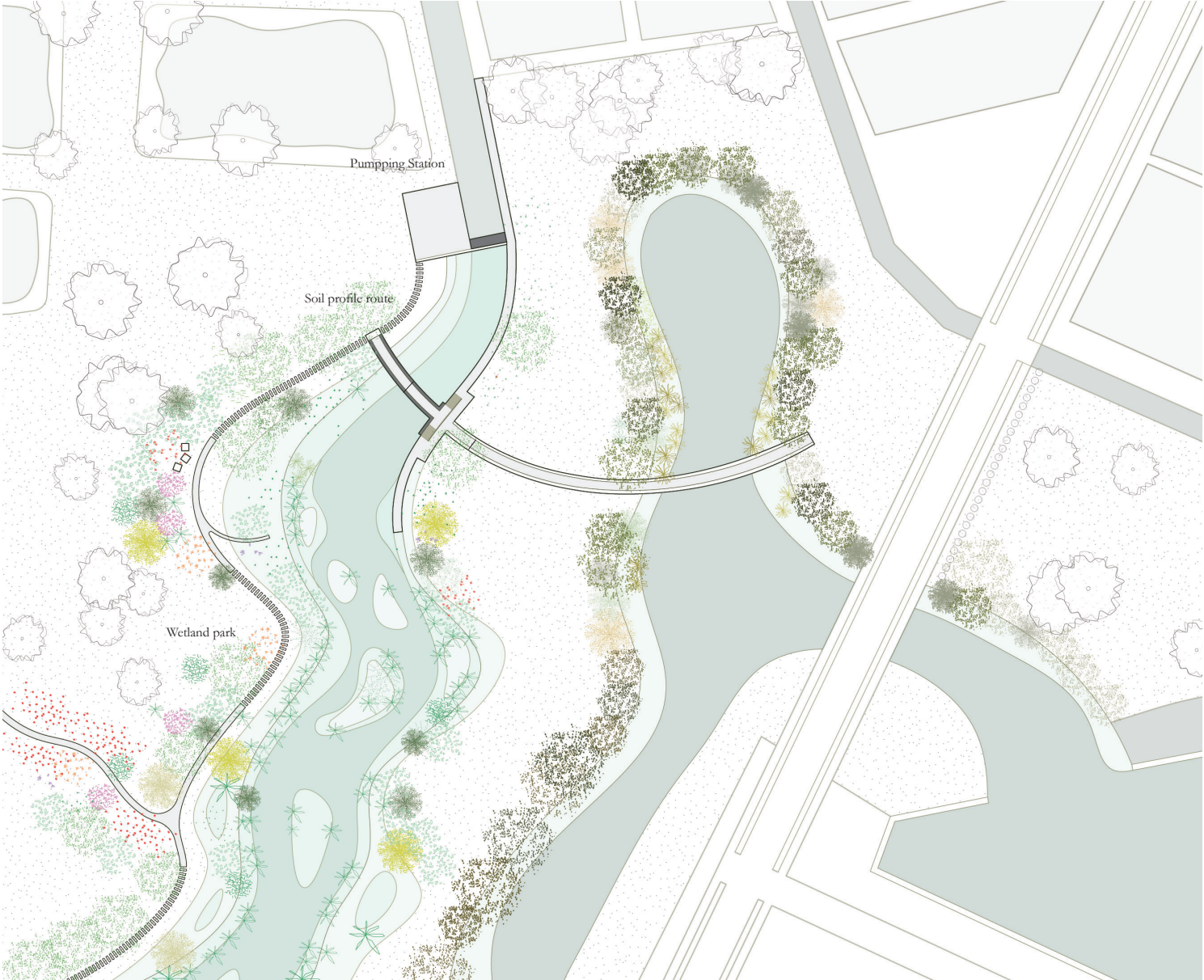
Section E-E



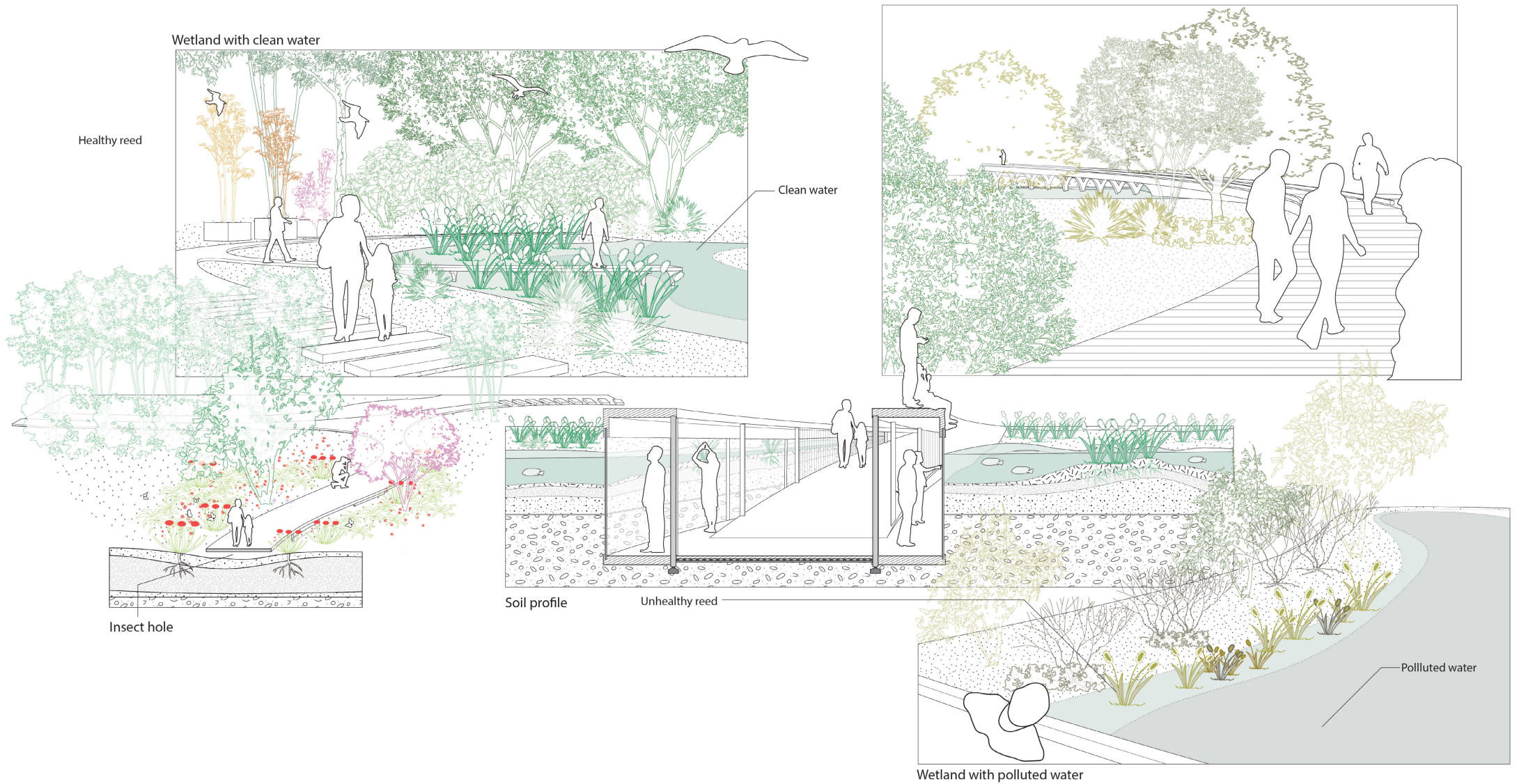
Section F-F



Meso scale  
Site 1-Water quality park

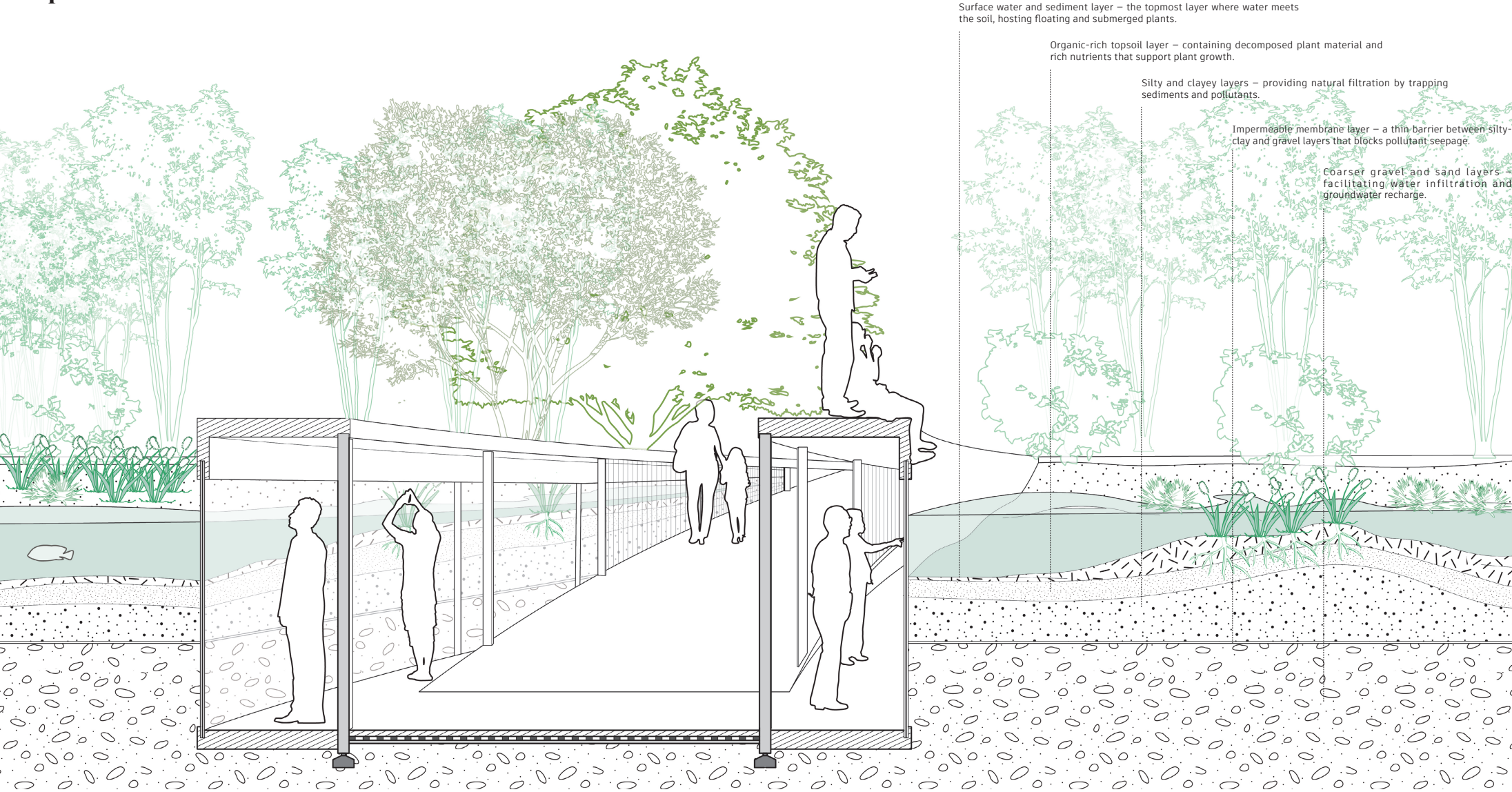








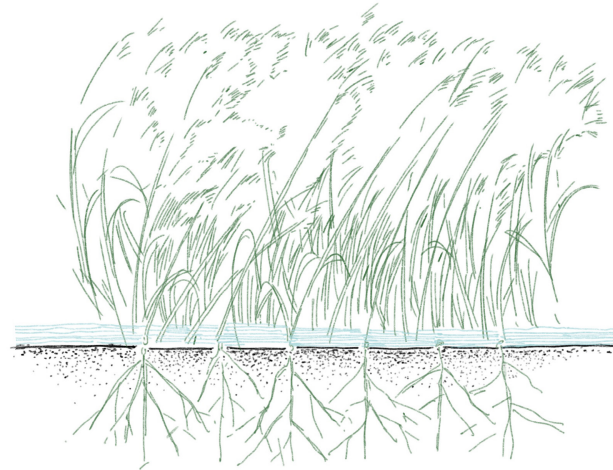
# Soil profile route



## Landscape in clean and polluted water quality area



Open spaces towards the clean water



In clean water , reeds grow sparsely but healthily, with upright stems and well-developed root systems.

The good water quality enables reeds to facilitate oxygen exchange in the water, helping maintain ecological balance.



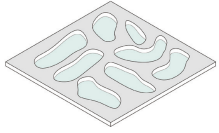
Closed spaces towards the polluted water



In polluted or eutrophic water bodies, reeds tend to grow more densely and sometimes excessively.

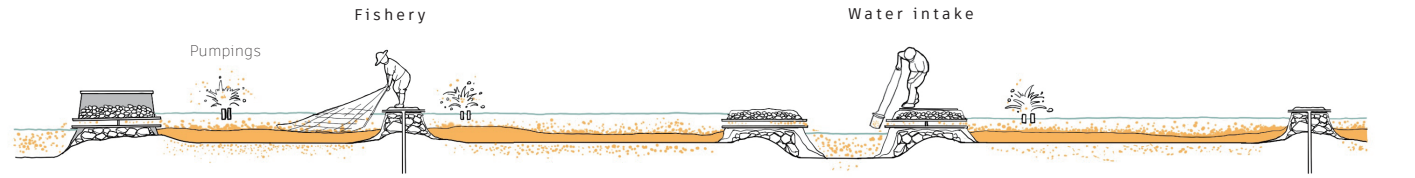
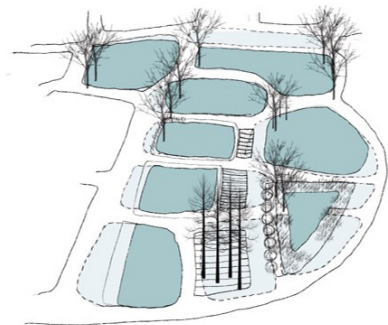
They absorb excess nutrients such as nitrogen and phosphorus, playing an important role in purifying contaminated water.





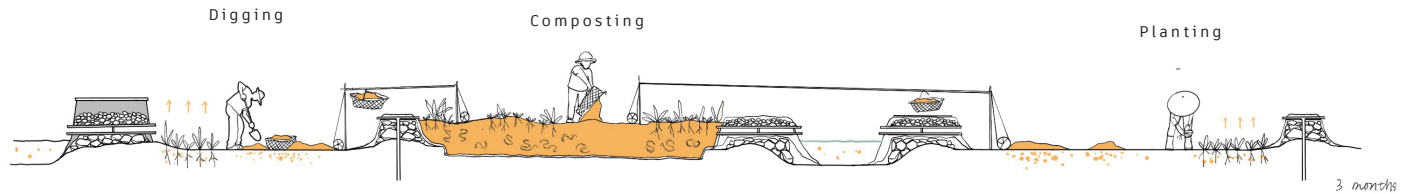
# Strategy for Organic dike-fish ponds

small fishponds component



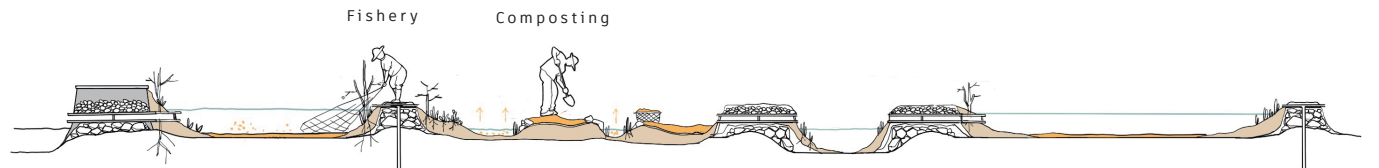
Excessive feces from the intensive fishing industry has accumulated in the dike-fish ponds, causing soil pollution and water pollution among the whole region

Nsw



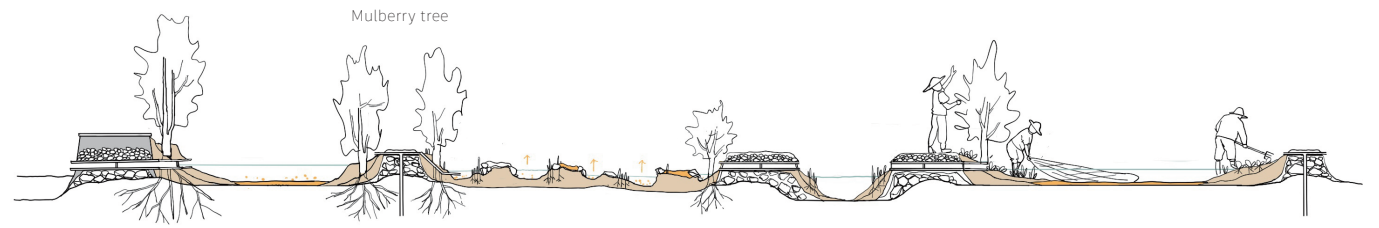
Collecting the toxic sedimentation and using plantation to absorb pollution is the first step to control the pollution from the intensive fishing industry

Composting is a process which help to transfer toxic sendimentation into organic soil, and the soil can be used in next stage



Using organic soil to rebulid landscape. A more healthier production could be introduced into the region

1 year



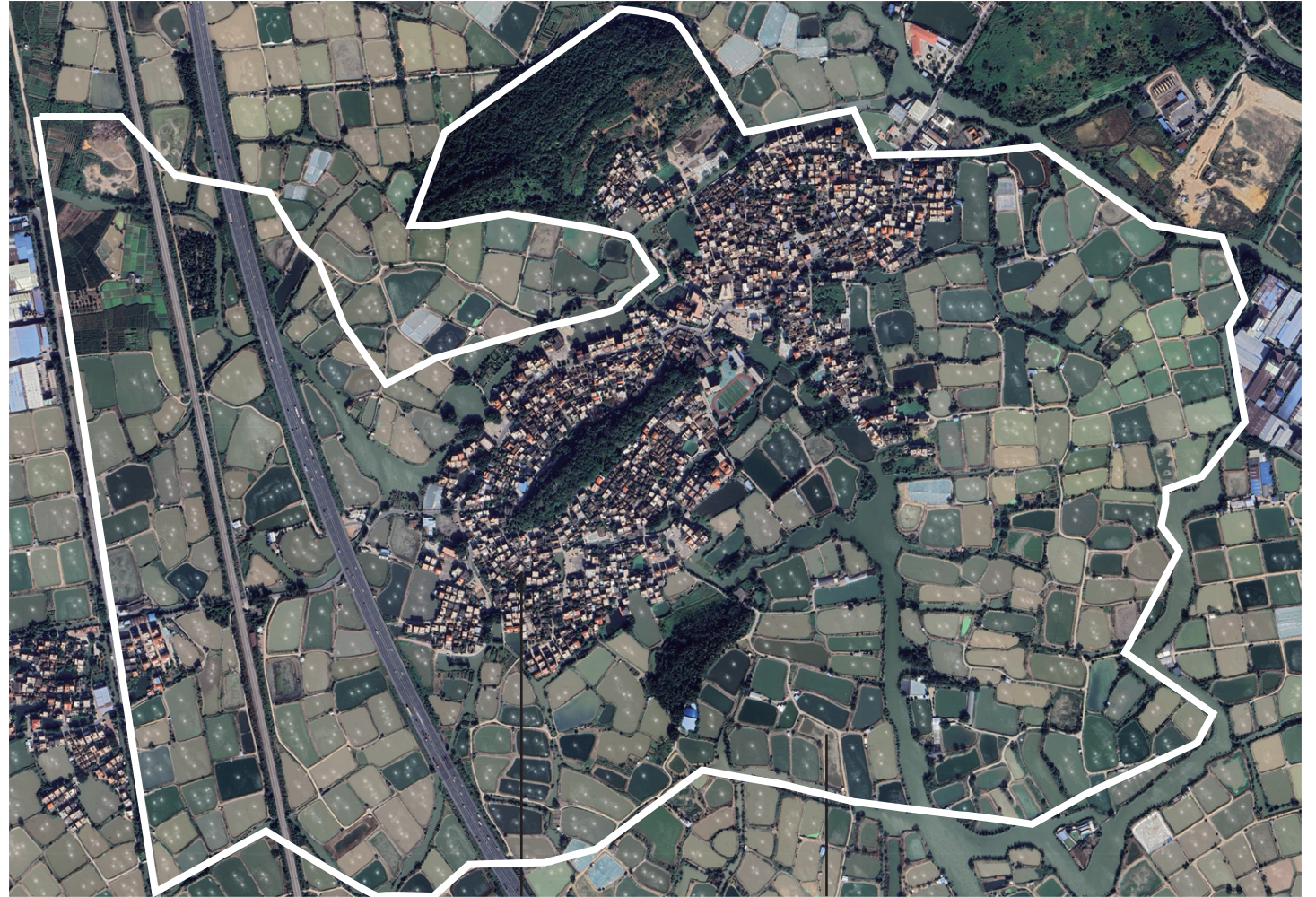
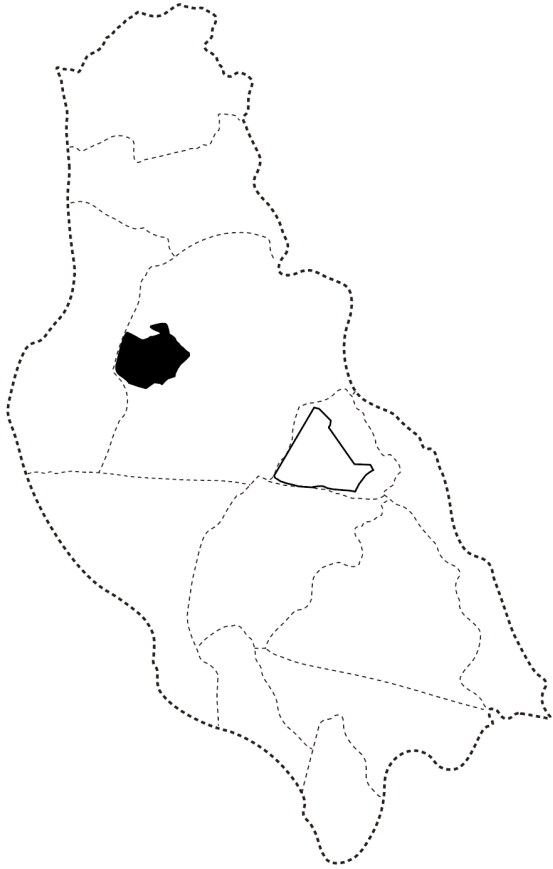
A sustainable and self-cleaning water system will be use for the fishing industry, which combine the green buffer (Natural purification wetland) agriculture and silkworm industry

10 year



## Meso scale

Site 2

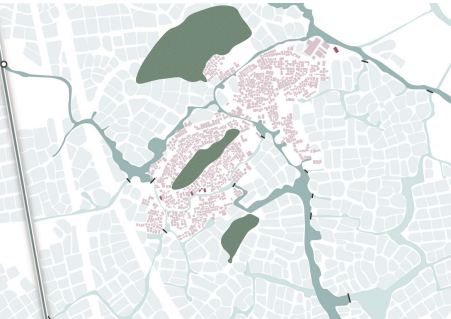


**Ruxi Village**

**Local management dike-fish ponds**



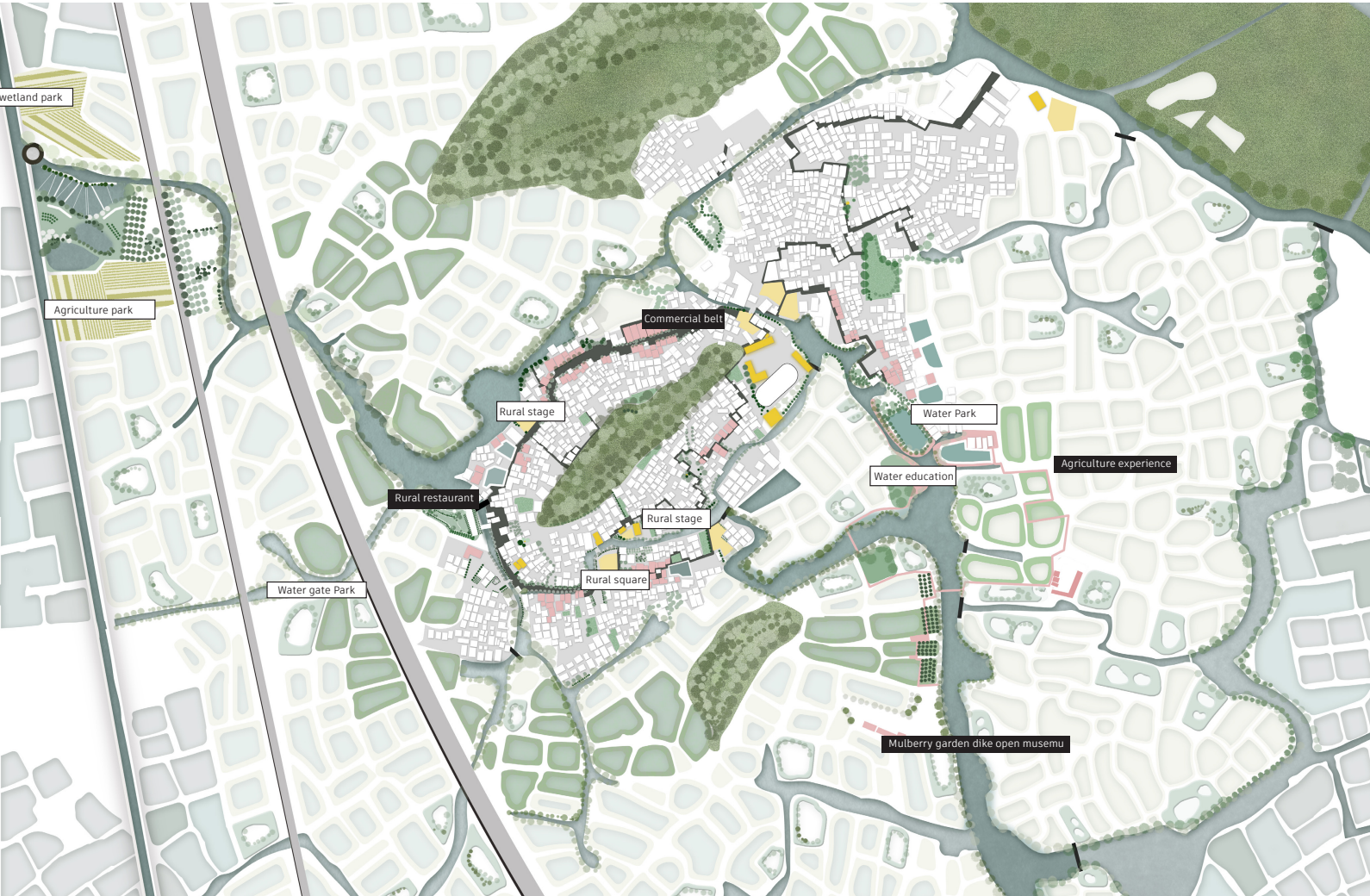
Meso scale  
Site 2



- Third water gate
- Secondary ditch
- Other ditch
- Traditional building
- Public building
- Green Land

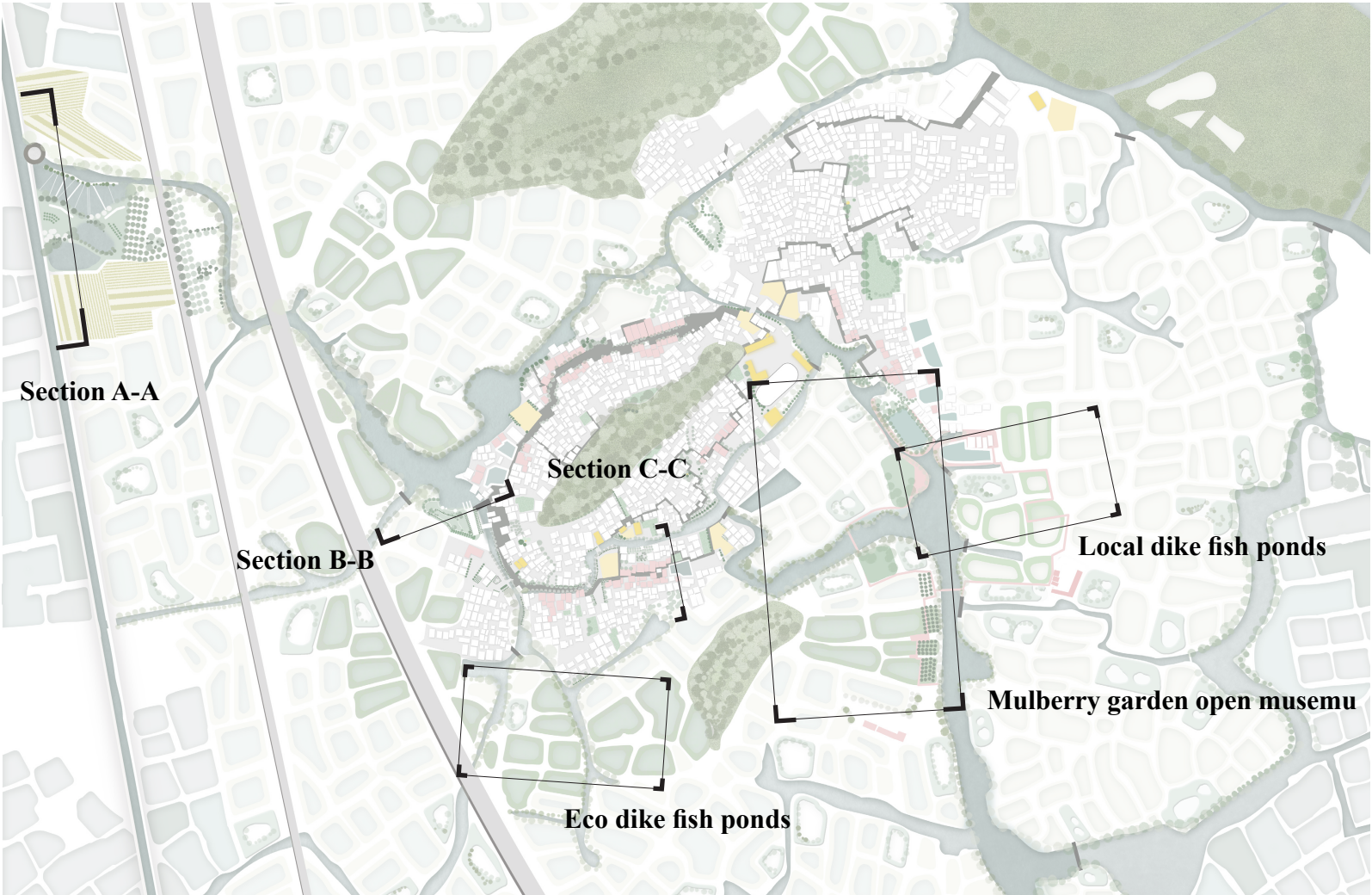


- Eco-production dike-fish ponds
- TourismLocal dike-fish ponds
- Eco dike-fish ponds





**Meso scale**  
**Site 2-Plan**

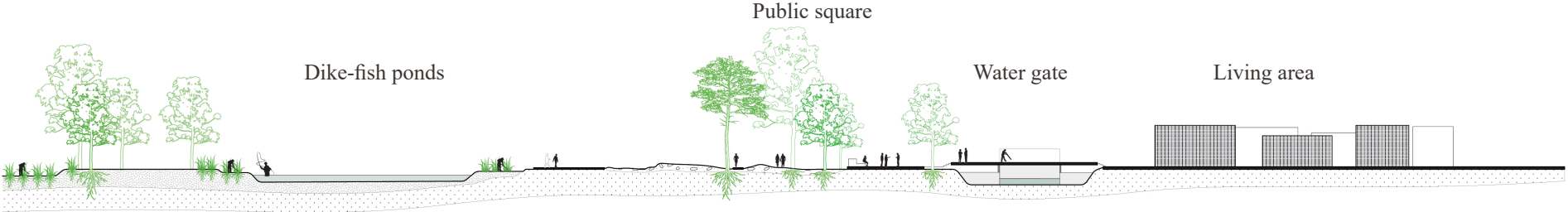


Meso scale  
Site 2-Section



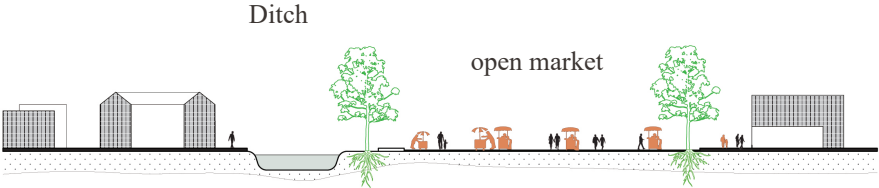
Purification wetland park

Section A-A



Water gate park

Section B-B



Public square



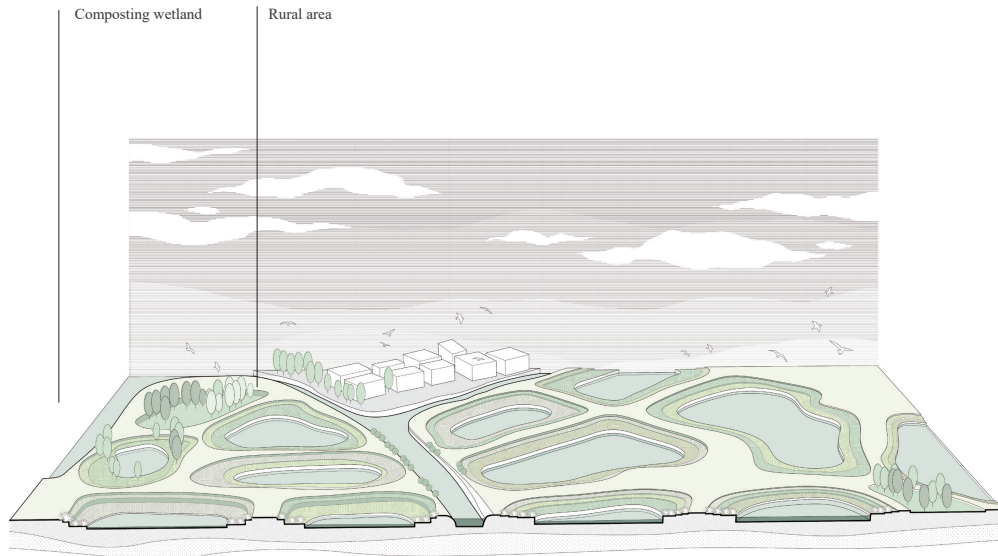
Section C-C



# Meso scale

## Site 2-Ponds typology

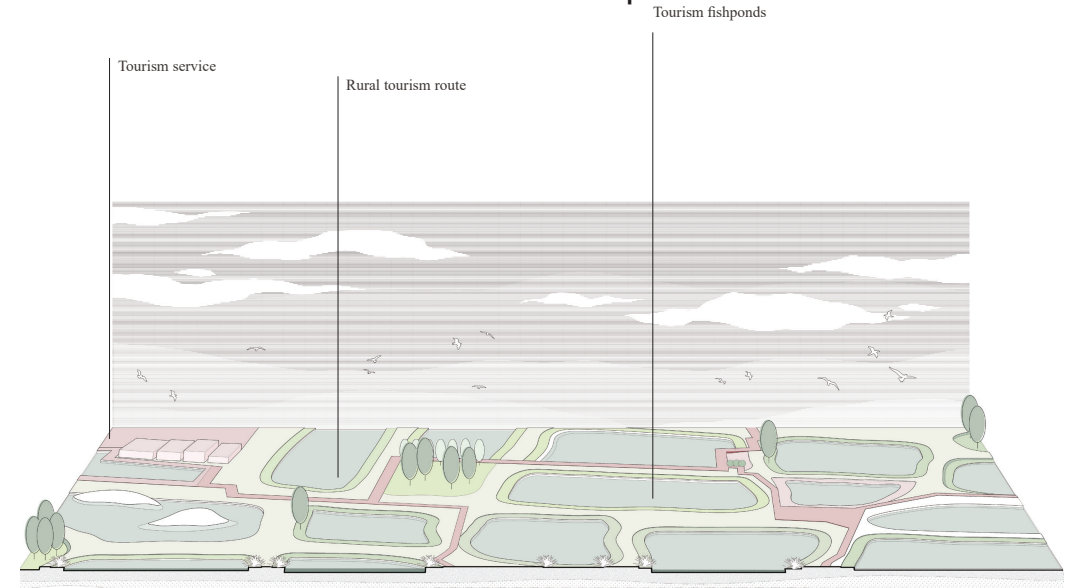
### Eco dike-fish ponds



**Dike-to-pond ratio : 4:6 to 5:5**

Eco dike-fish ponds represent a sustainable, small-scale agro-ecological system that integrates traditional knowledge with ecological farming, balancing aquaculture and agriculture to enhance biodiversity, productivity, and rural resilience.

### Tourism-Local dike-fish ponds

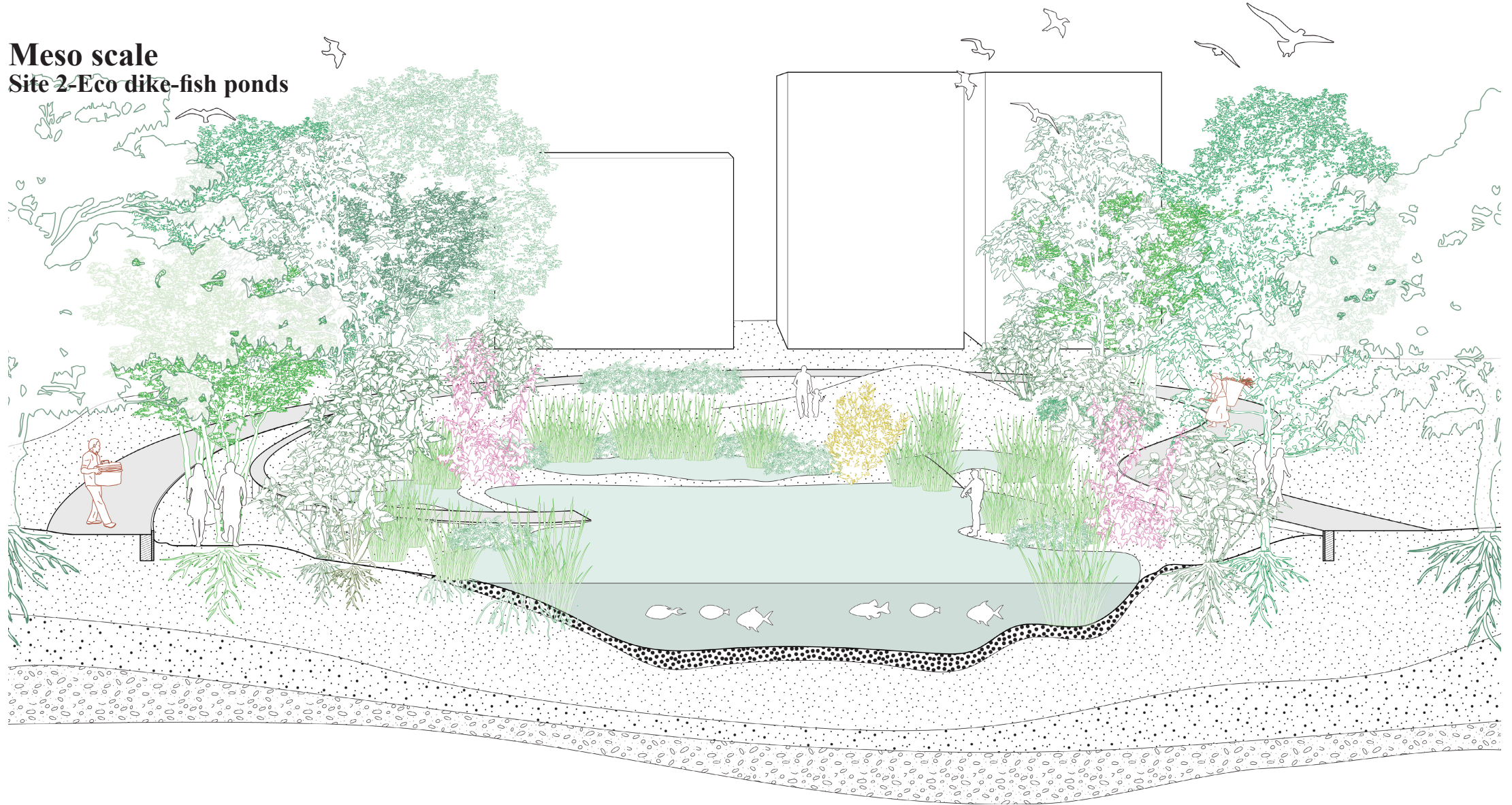


**Dike-to-pond ratio : 4:6 to 3:7**

Tourism-local dike-fish ponds are multifunctional rural landscapes that integrate ecology, agriculture, and cultural tourism, creating a balanced system that supports biodiversity, enhances economic value, and revitalizes rural development.

## Meso scale

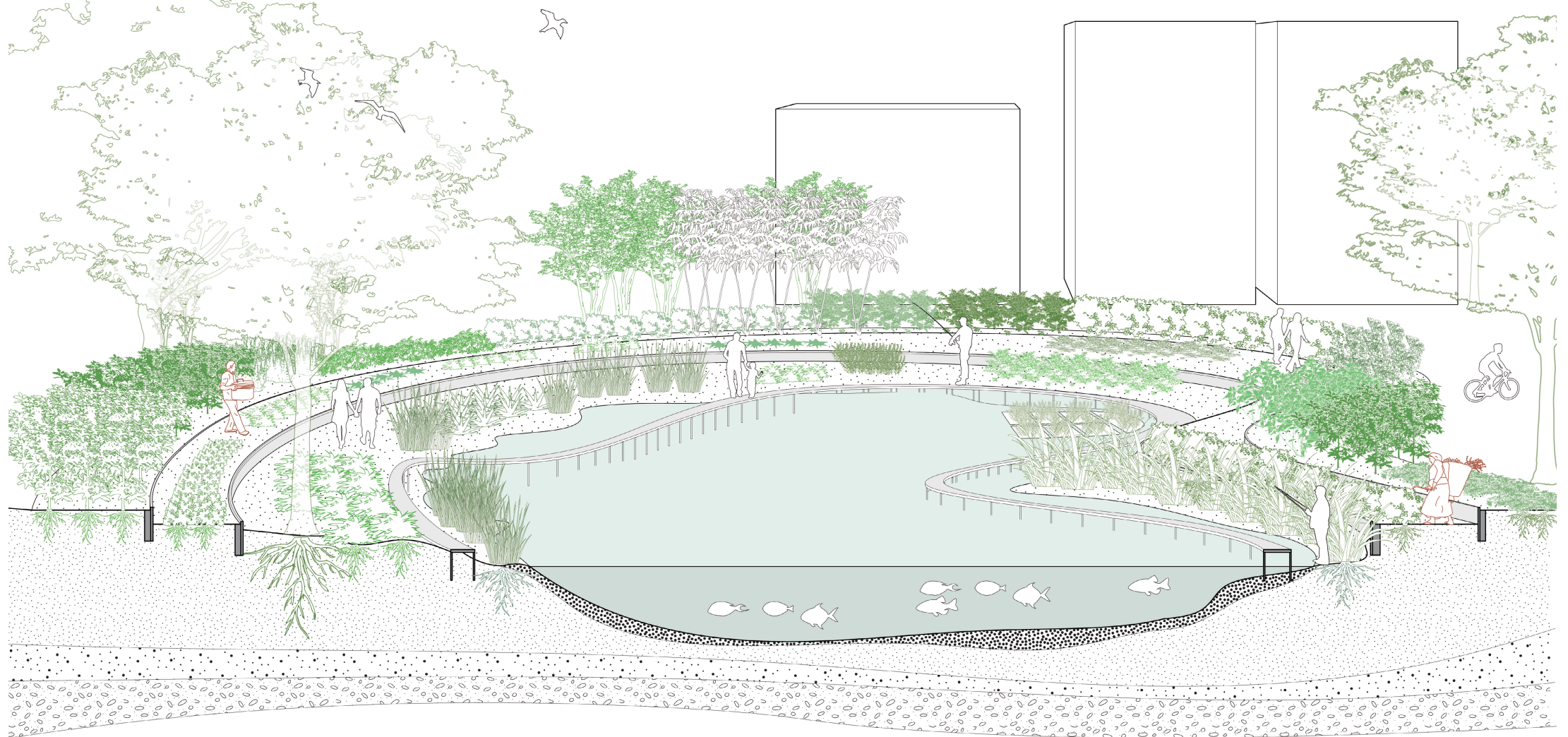
### Site 2-Eco dike-fish ponds





## Meso scale

### Site 2-Tourism-local dike-fish ponds

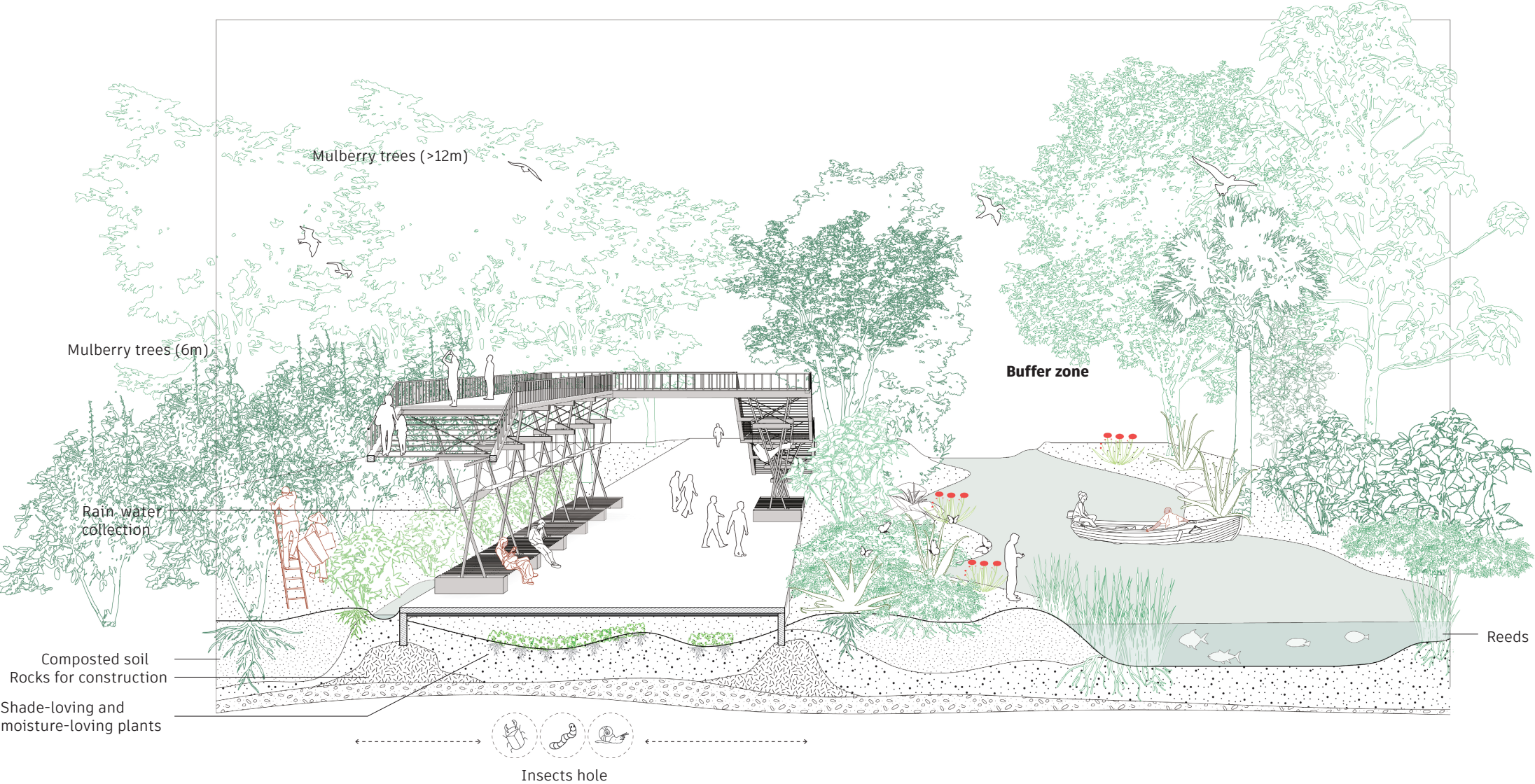


## Site 2-Mulberry garden open musemu



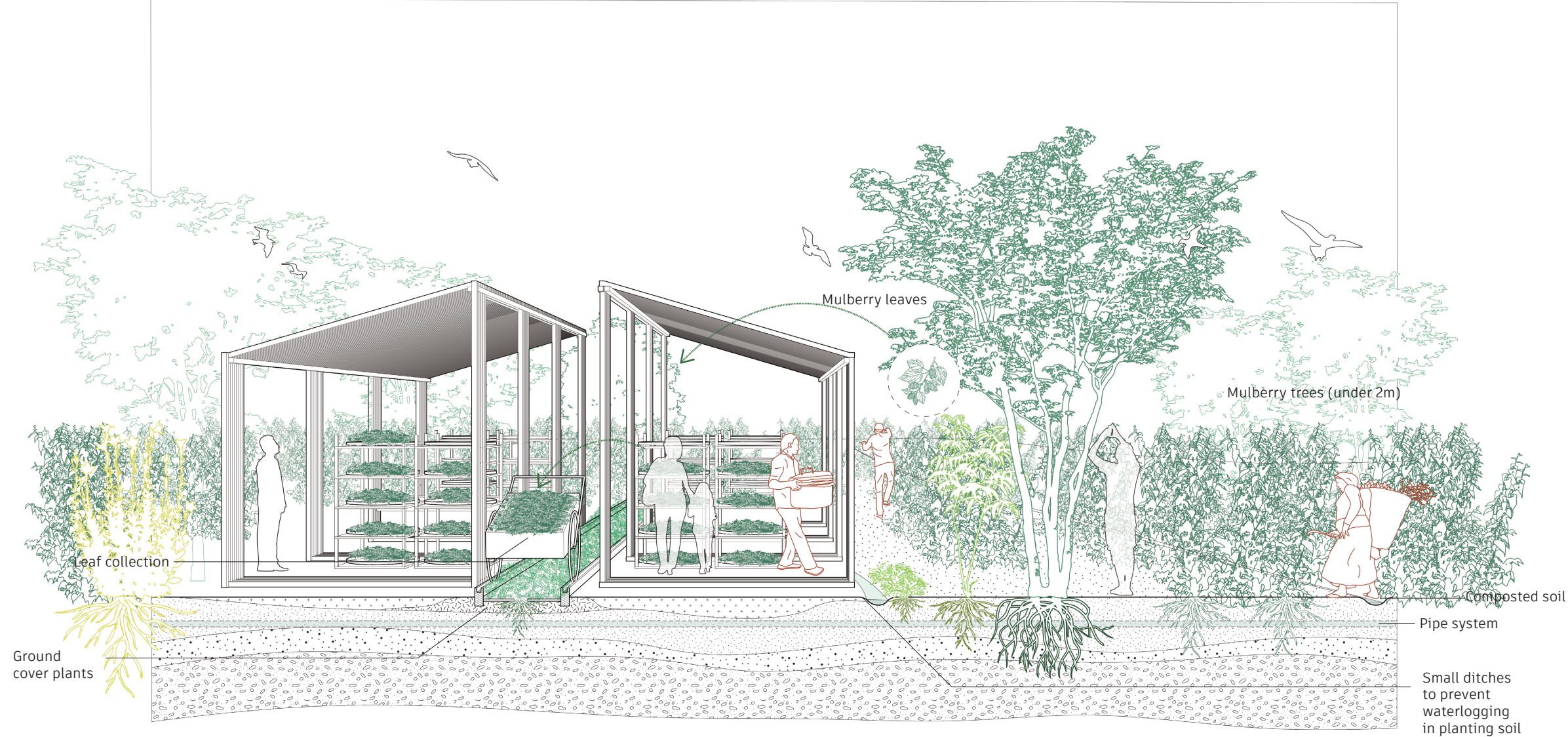


Site 2-Mulberry garden open musemu



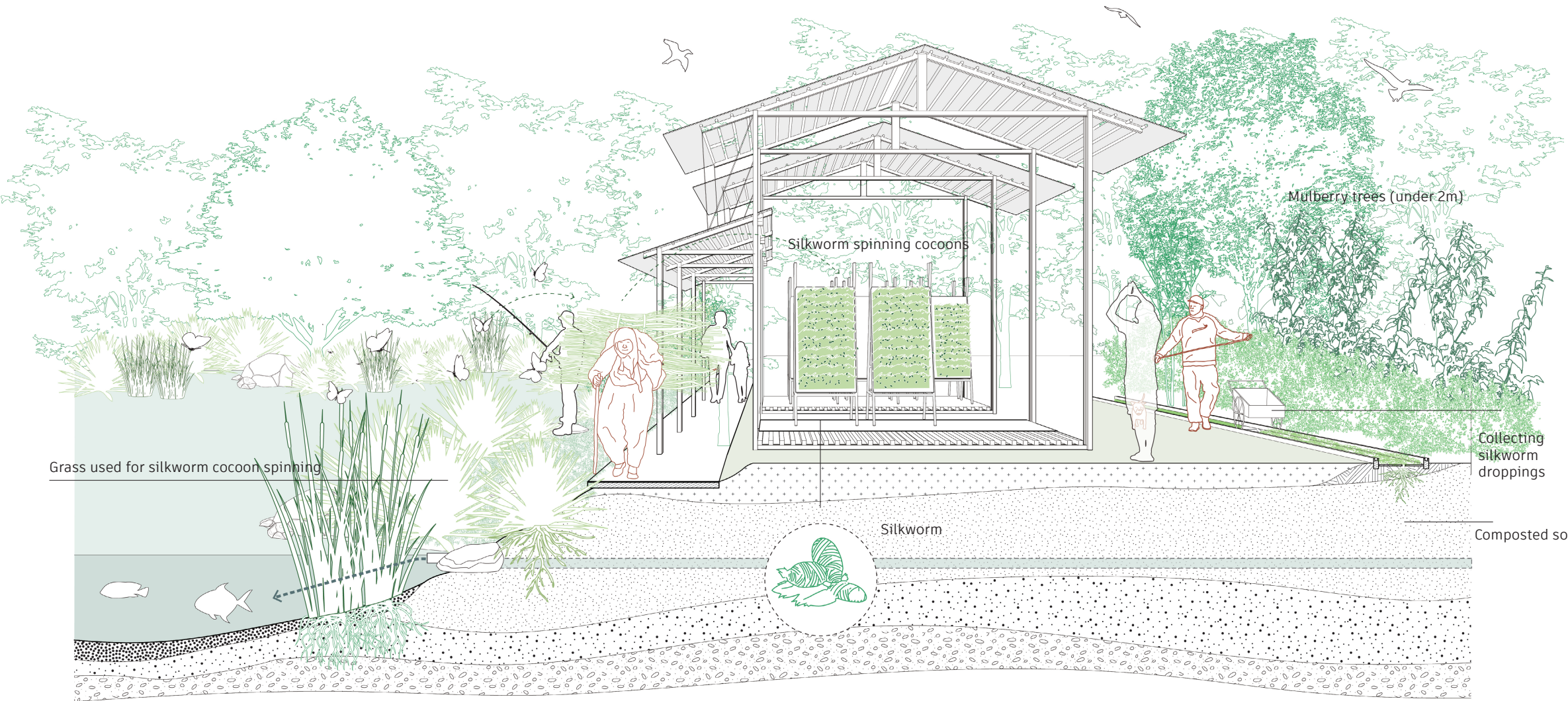


Site 2-Mulberry garden open musemu





Site 2-Mulberry garden open musemu



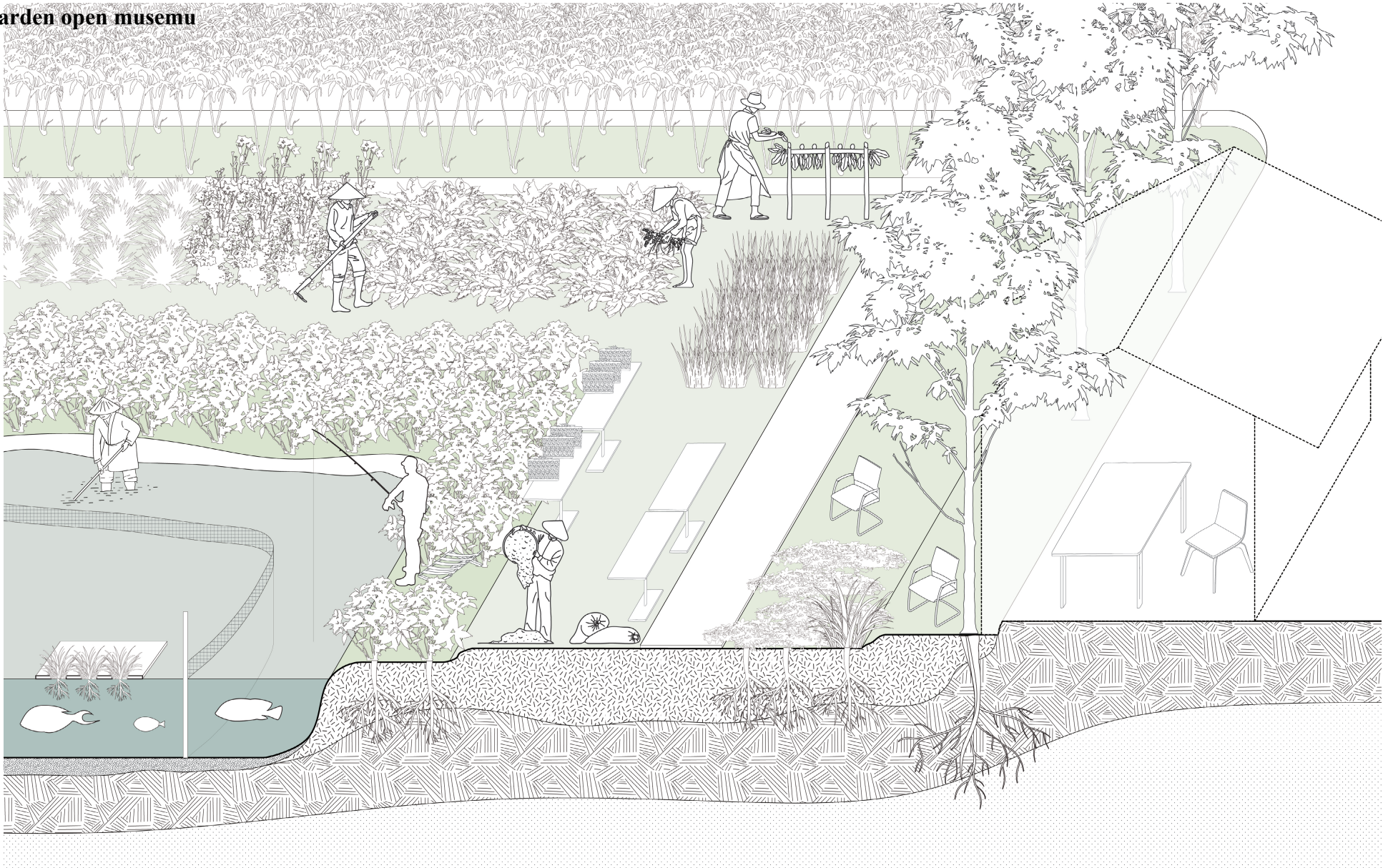


Site 2-Mulberry garden open musemu



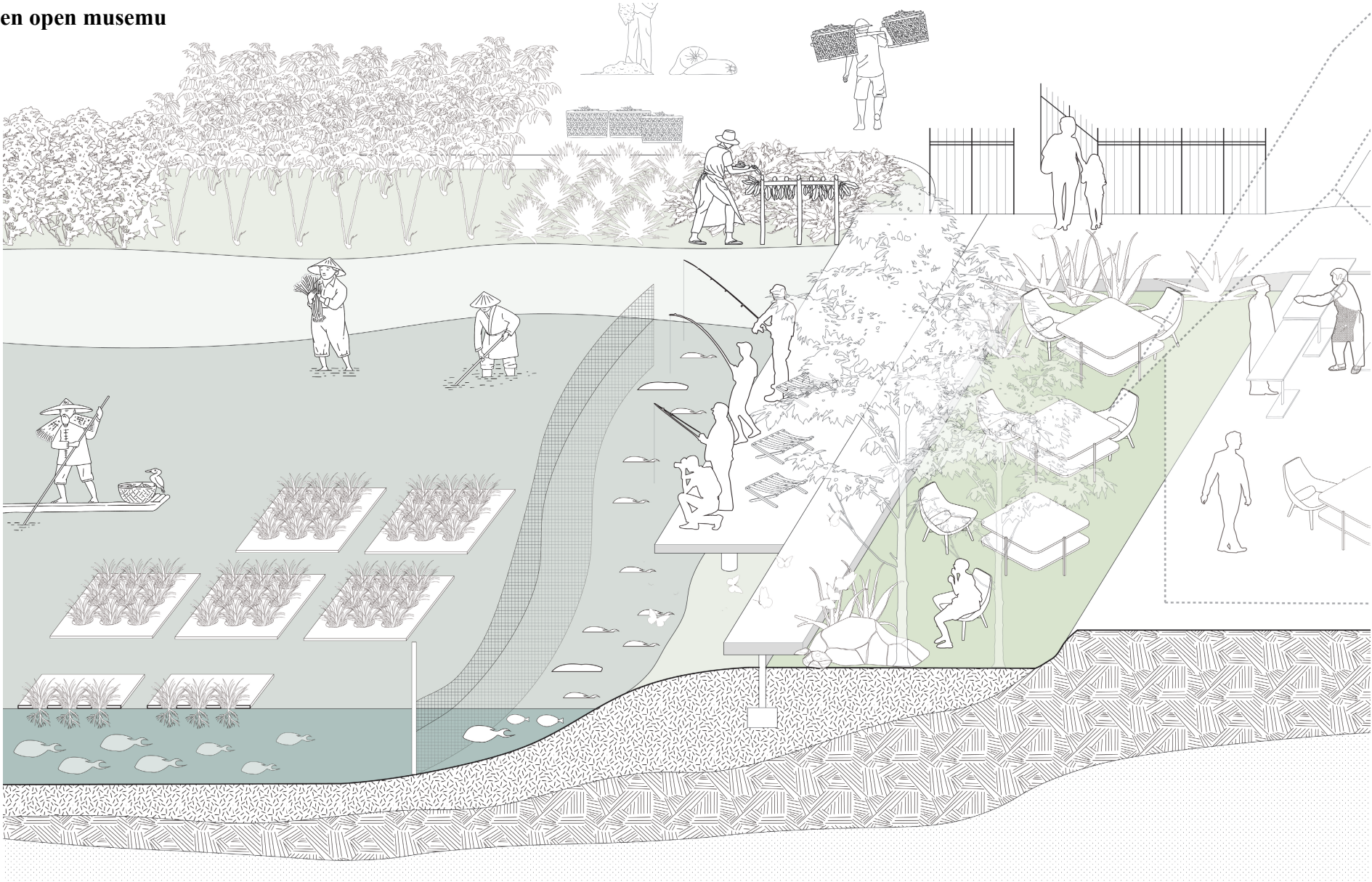


Site 2-Mulberry garden open musemu





Site 2-Mulberry garden open musemu

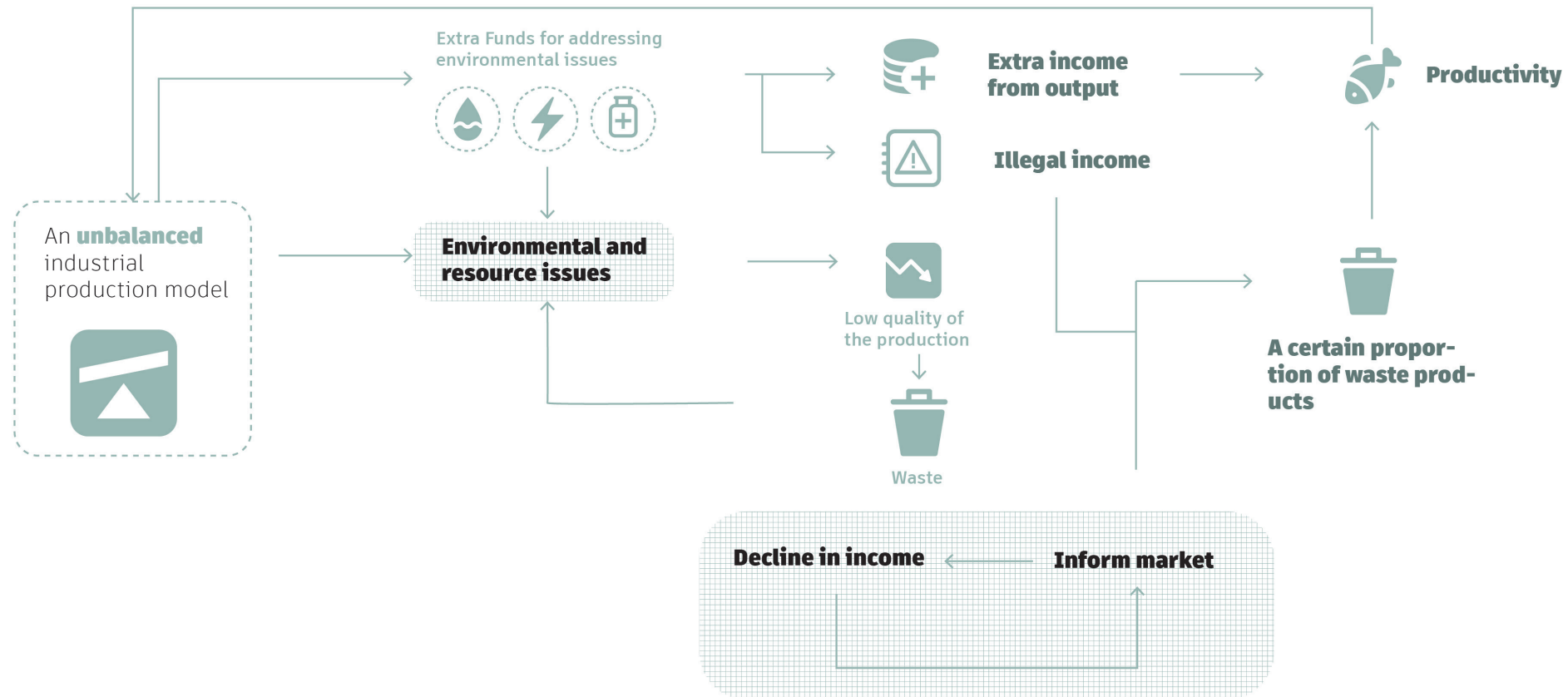




## Arguing for a Layered Implementation

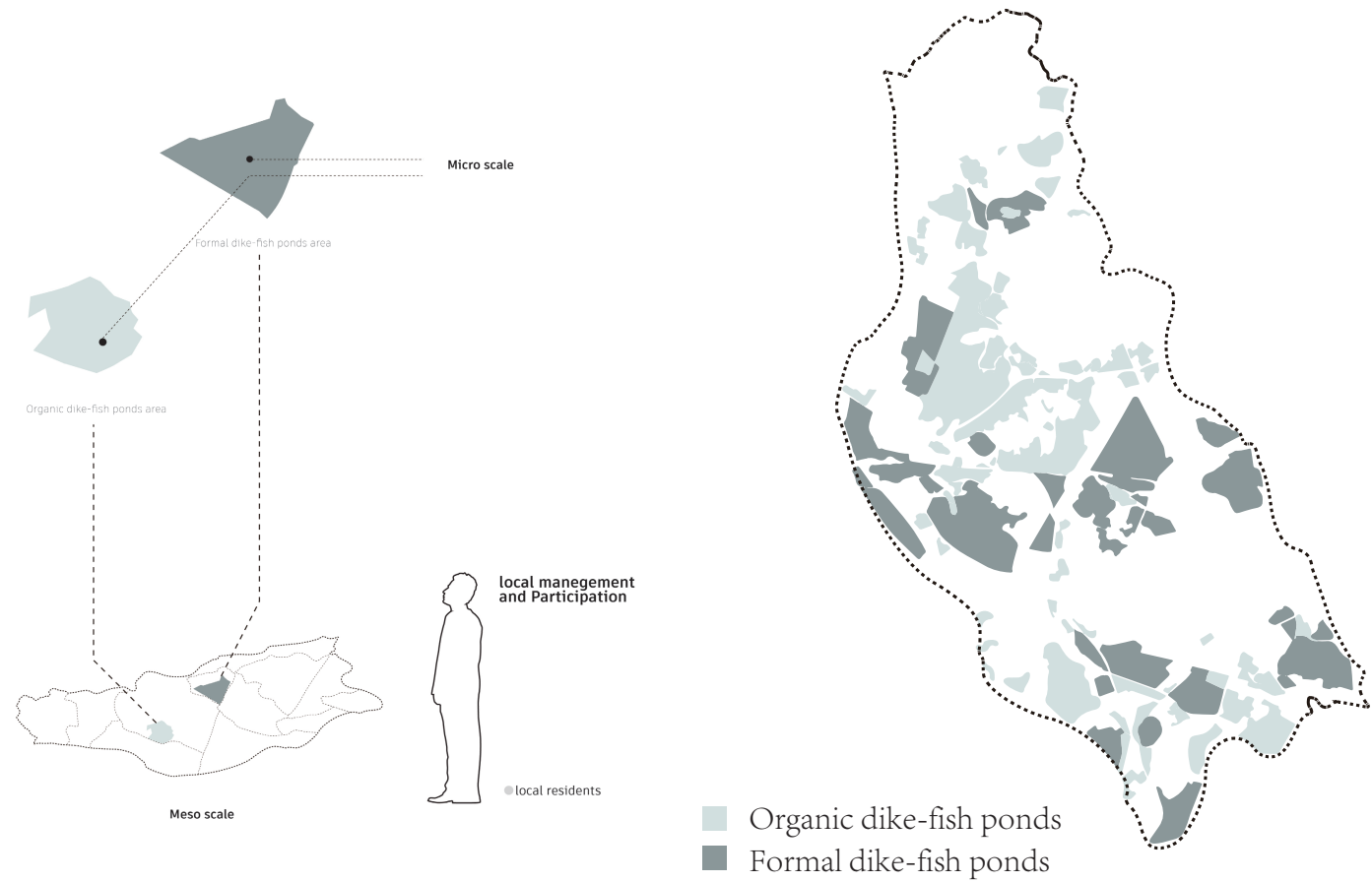
### An ongoing vicious cycle

Intensive fish industry runs on pumps, generators, and constant antibiotic dosing, making it overwhelmingly energy- and chemical-hungry. Chasing ever-higher yields to cover these costs traps farmers in a vicious cycle that drives pollution, heightens disease and food-safety risks, and ultimately undermines the industry's long-term viability.



# Arguing for a Layered Implementation

## Local power



Private agriculture

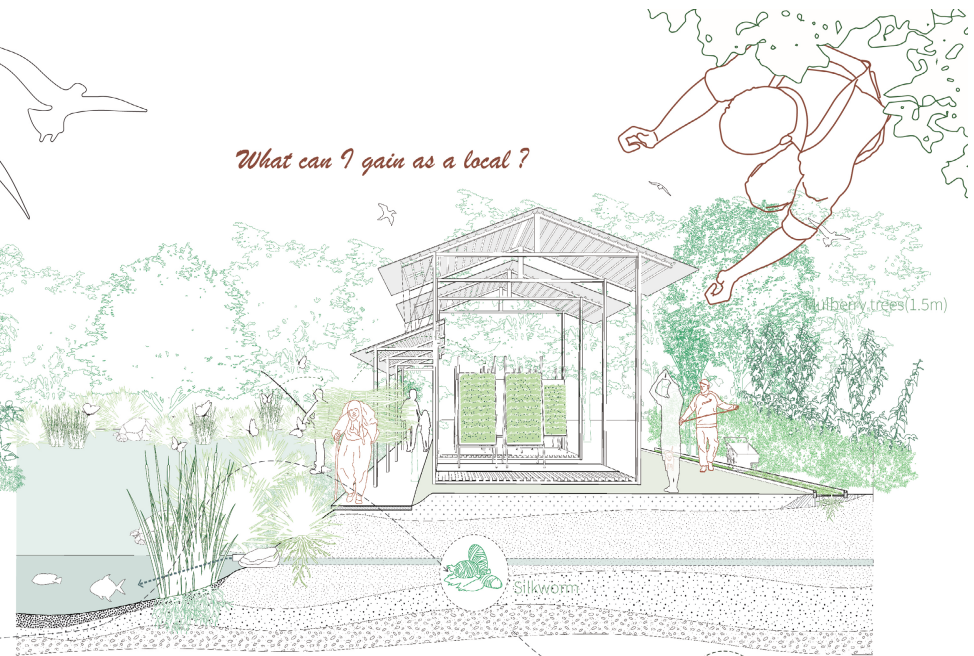


Natural power

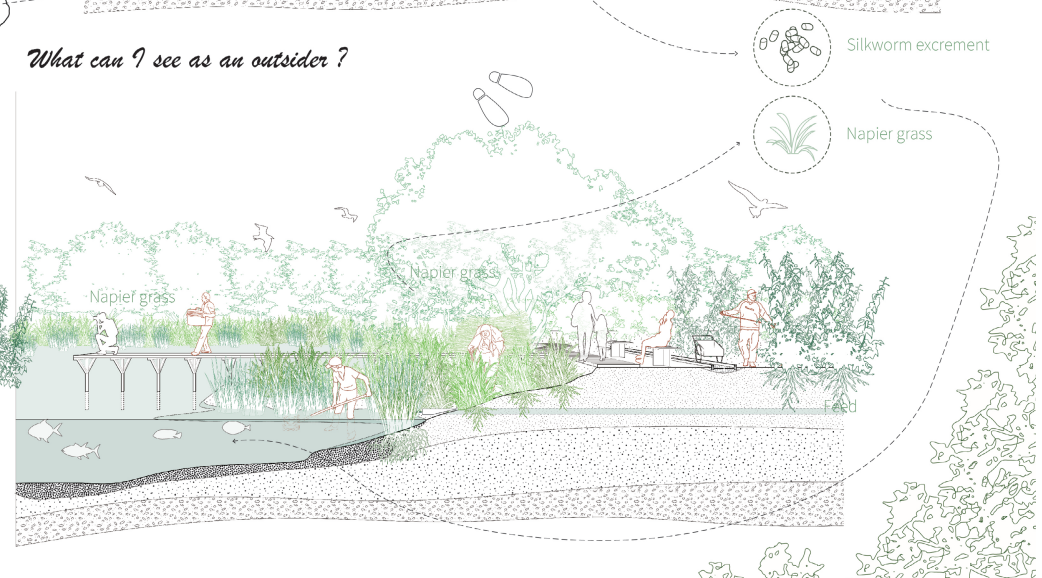
*What benefits can the ecosystem receive ?*



*What can I gain as a local ?*



*What can I see as an outsider ?*





**Thank you**