



# RIVERS WHISPER, LANDS RENEW

*Revitalizing Rural Landscapes with River-Centric Approach in the  
Jiulong River Upstream region*

Masters Graduation Thesis 2023-24  
Urbanism Track  
Planning Complex Cities Studio  
P5 presentation  
June, 2024

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5761921  
Jiheng Li

## ■ MOTIVATION



Baisha Village, Xinlong County, Longyan city

(VCG.COM, n.d.)

*Rivers are the arteries of our planet; they are lifelines in the truest sense.*

– Mark Angelo

## ■ CONTENT

CONTEXT OF CHINA

METHODOLOGY

CASE AREA ANALYSIS

STRATEGY FRAMEWORK

JIEBU VILLAGE REVITALIZATION

DEMONSTRATION OF DESIGN

UPSTREAM REVITALIZATION

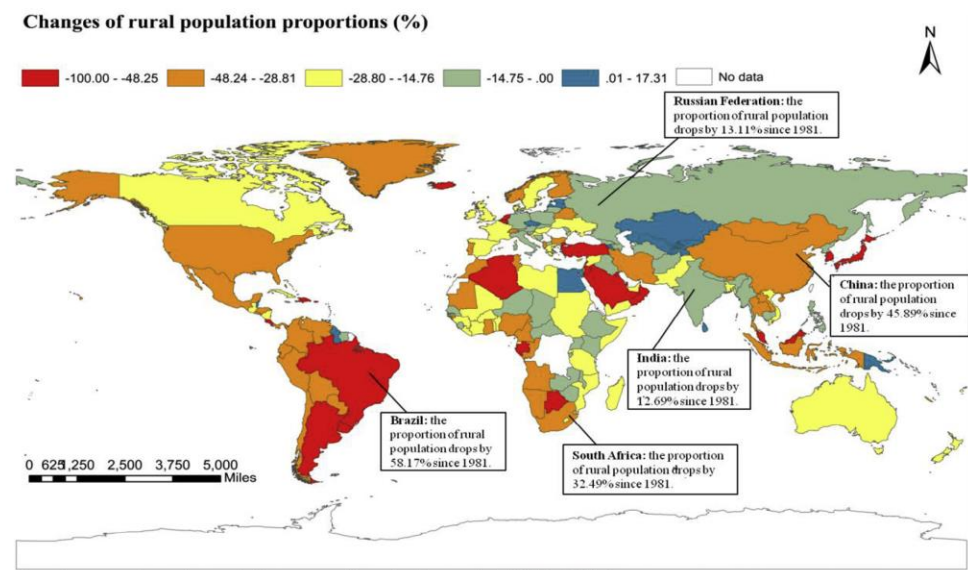
CONCLUSION & REFLECTION



# ■ CONTEXT OF CHINA

## ■ Rural issues

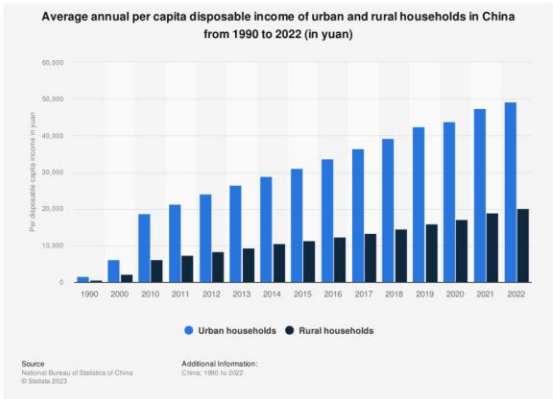
### Rural-urban dichotomy and rural marginalisation



The changes of rural population proportions in the world, 1981–2016.



Hukou system



Urban-rural income in China

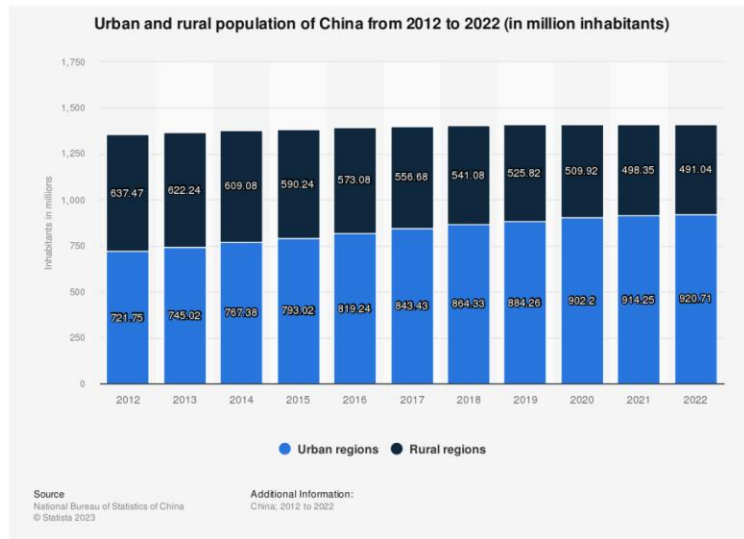
(Li et al., 2019)  
(X. Wang, 2010)  
(World bank, 2023)



## ■ CONTEXT OF CHINA

### ■ Rural issues

#### Rural hollowing-out



Urban-rural population in China



(World bank, 2023)  
 (Sina, n.d.) (Cheng Guoqiang, n.d.) (Li Jie, n.d.)  
 (Baijiahao, n.d.) (Baidu, n.d.)

## ■ CONTEXT OF CHINA

### ■ Rural issues

#### Rural hollowing-out



(World bank, 2023)  
(Sina, n.d.) (Cheng Guoqiang, n.d.) (Li Jie, n.d.)  
(Baijiahao, n.d.) (Baidu, n.d.)



## ■ CONTEXT OF CHINA

### ■ Rural issues

#### Rural hollowing-out

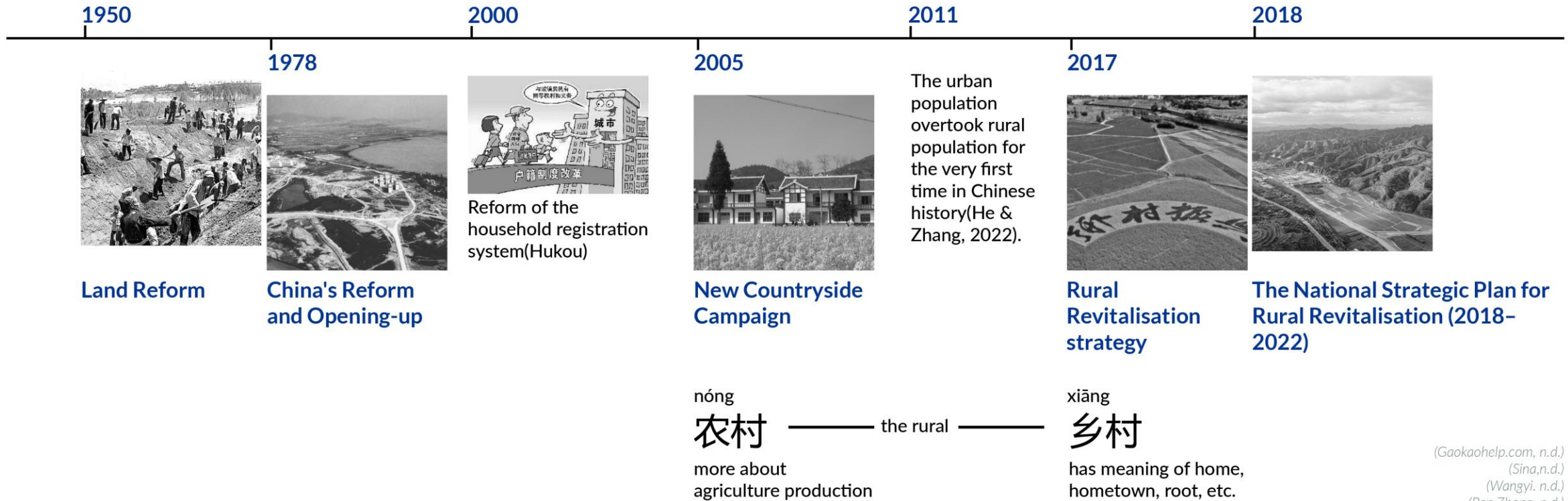


(World bank, 2023)  
(Sina, n.d.) (Cheng Guoqiang, n.d.) (Li Jie, n.d.)  
(Baijiahao, n.d.) (Baidu, n.d.)



## ■ CONTEXT OF CHINA

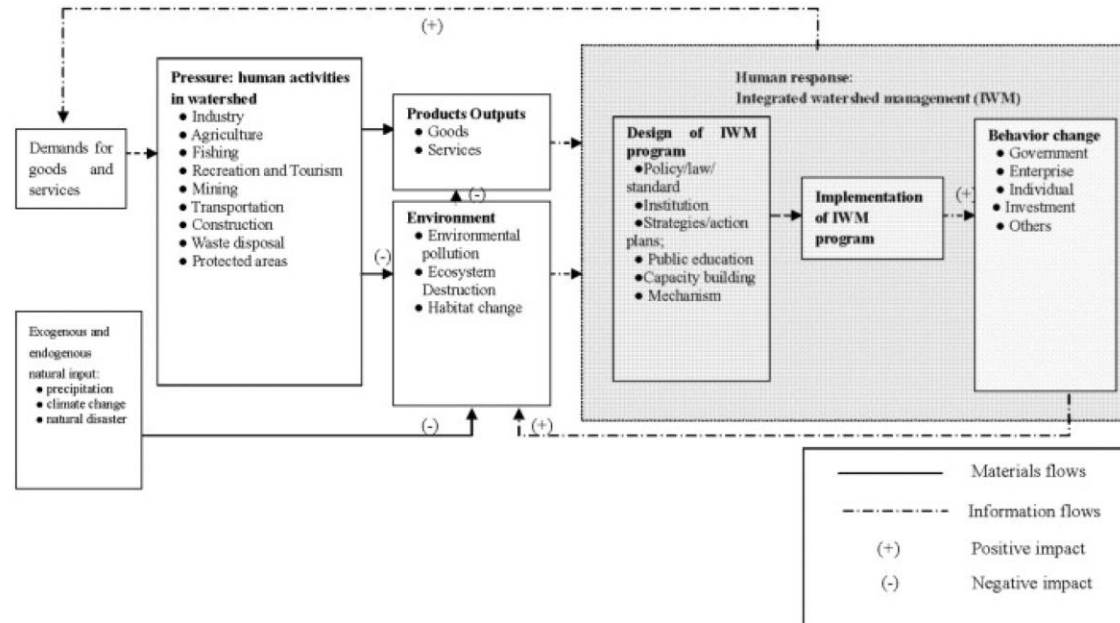
### ■ Rural revitalisation



(Gaokaohelp.com, n.d.)  
(Sina,n.d.)  
(Wangyi. n.d.)  
(Ren Zhong. n.d.)  
(Baidu, n.d.)  
(Sohu, n.d.)

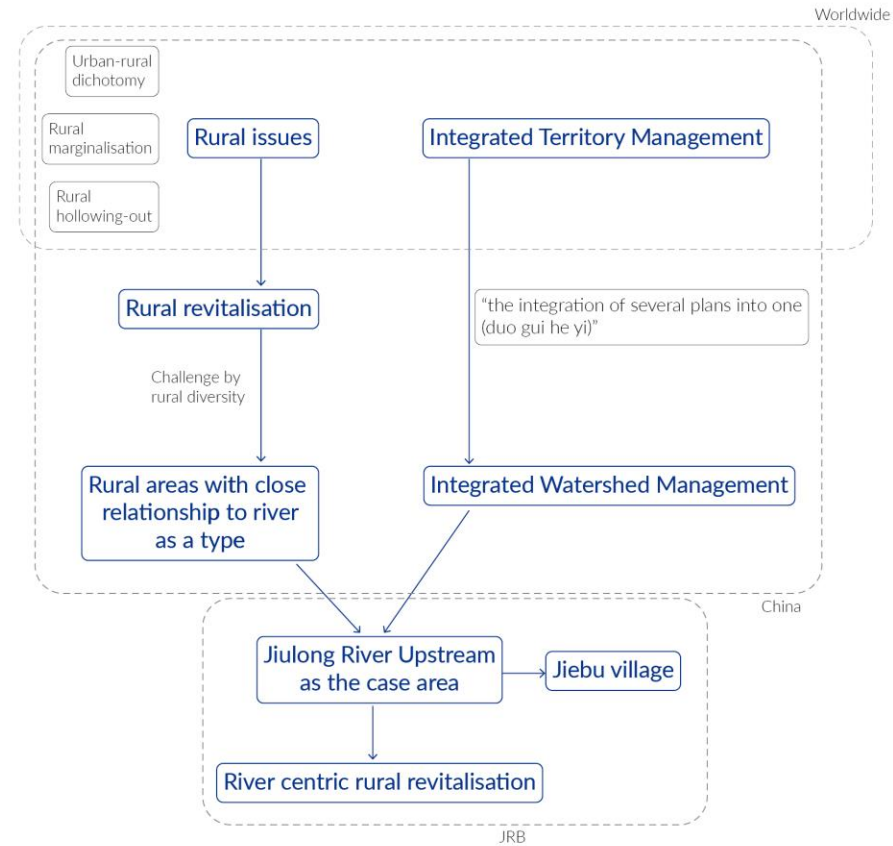
## ■ CONTEXT OF CHINA

### ■ Watershed management



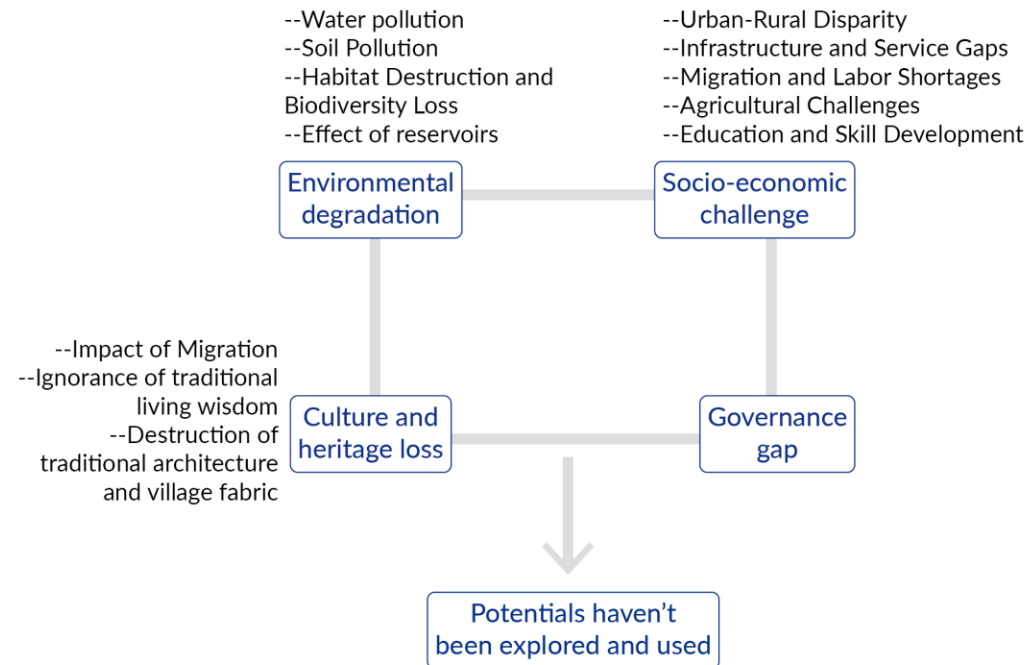
(Peng et al., 2013)

## ■ CONTEXT OF CHINA

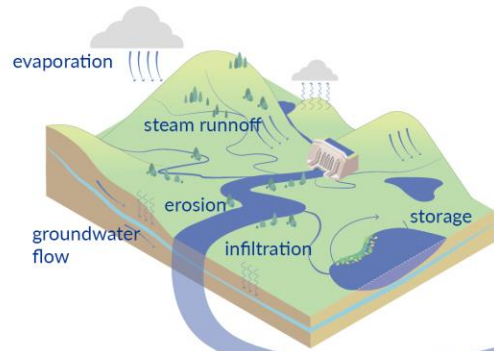




## ■ PROBLEM FIELD



## RIVER AS THE CENTRAL AXIS



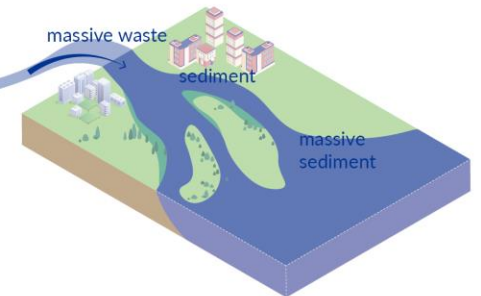
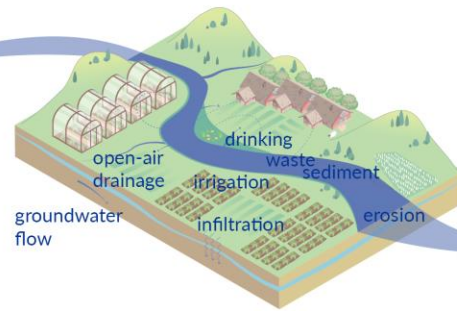
### River to ecological system:

- Nutrient cycle
- Water cycle
- Biodiveristy



### River to social system:

- Water supply
- Economic activities
- Culture significance

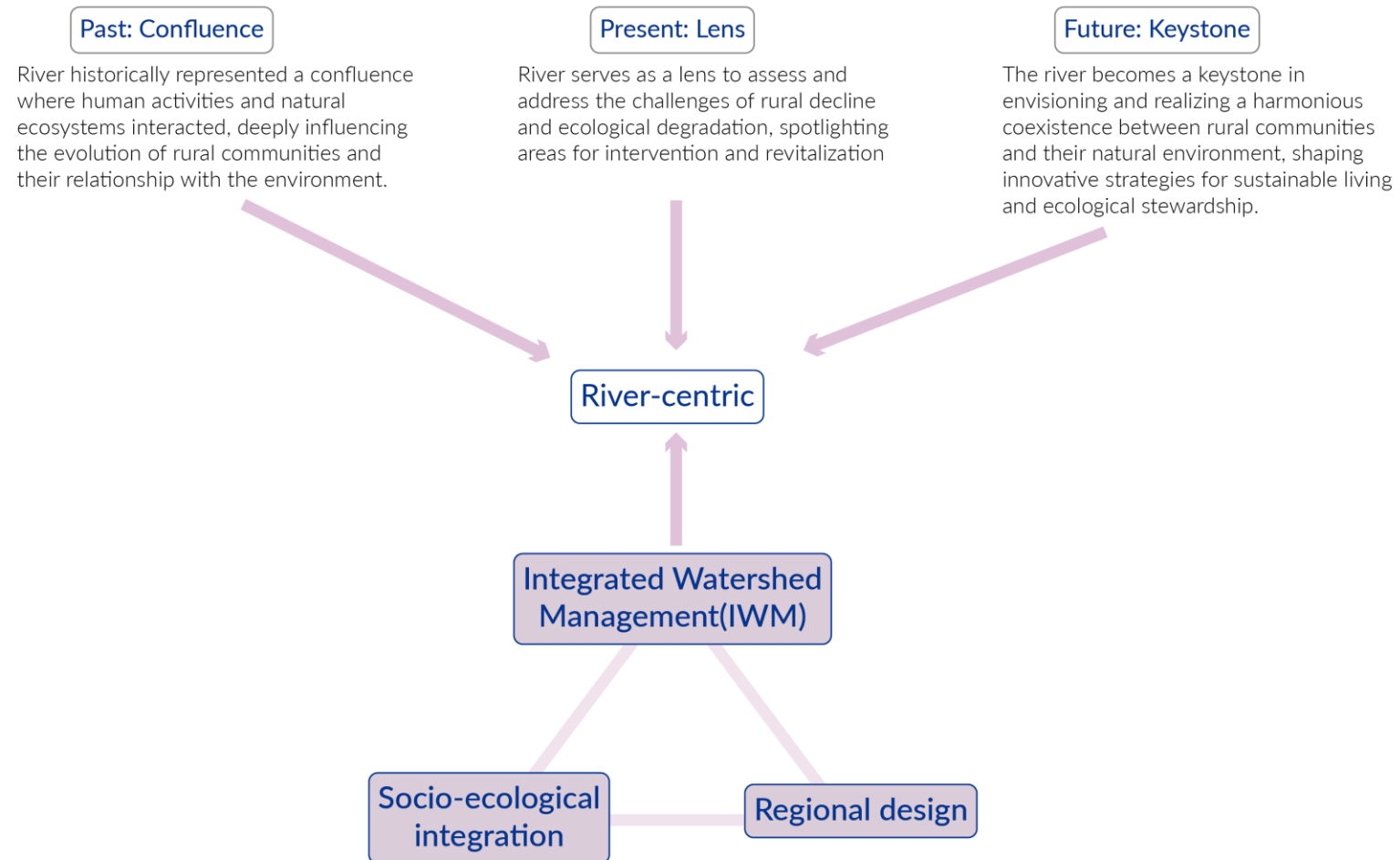


(Sohu, n.d.)



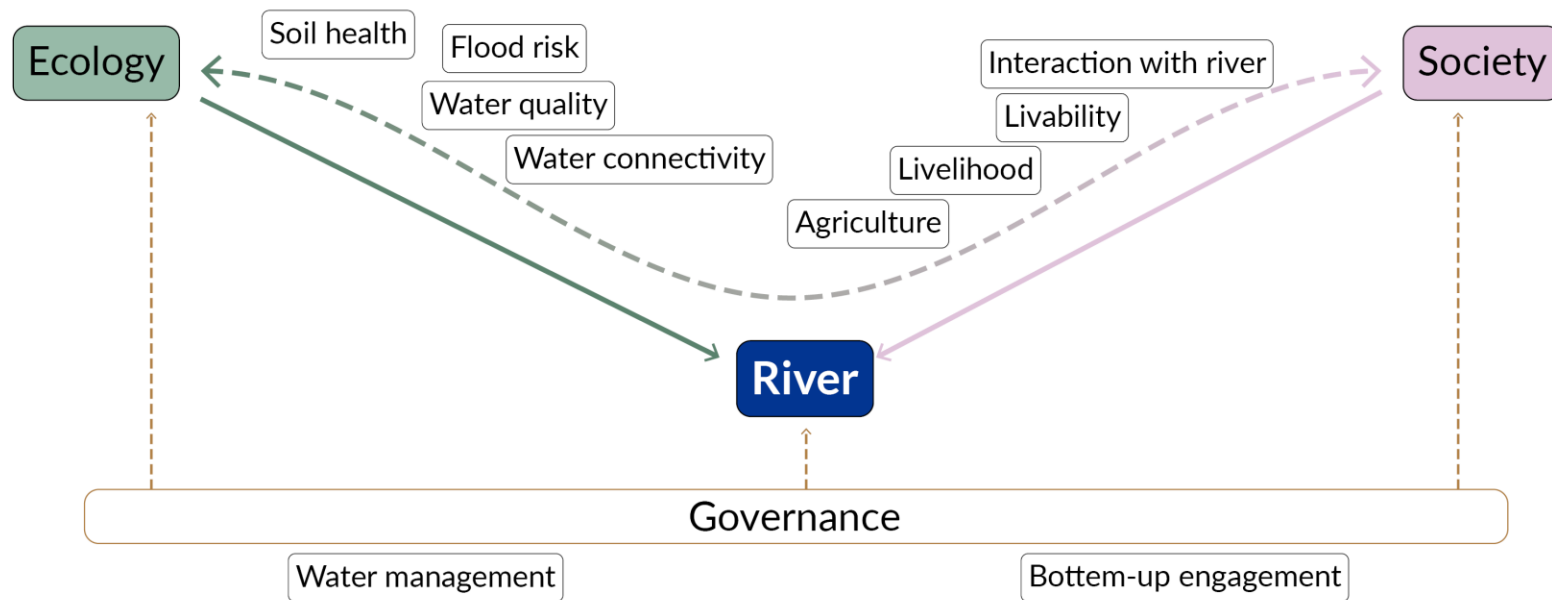
(Pengpai News, 2024)

## THEORETICAL FRAMEWORK





## ■ CONCEPTUAL FRAMEWORK

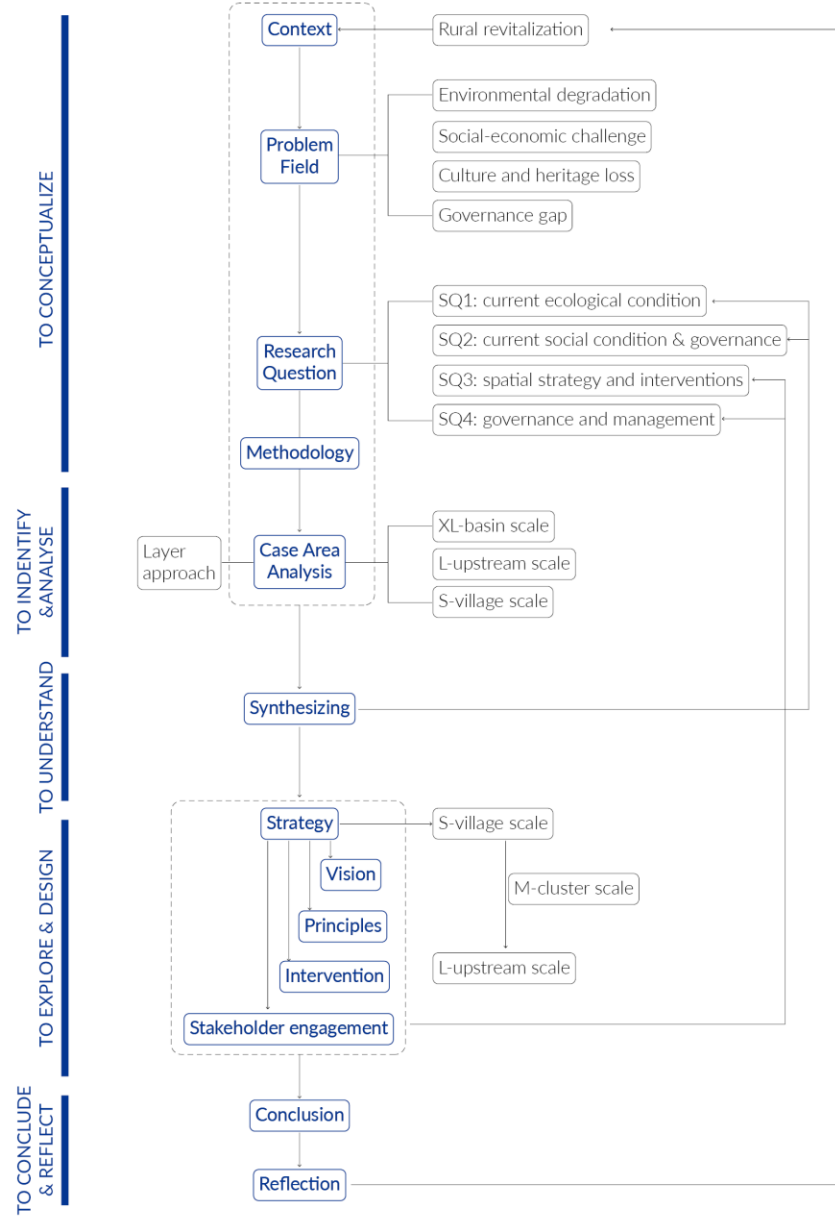


## ■ RESEARCH QUESTION

How can a river-centric design contribute to the sustainable rural revitalization of the Jiulong River Upstream region, fostering ecological integrity and socio-economic resilience?

1. What is the **current ecological status** of the Jiulong River Upstream, and what are the primary environmental challenges and potentials for enhancing ecosystem services and biodiversity?
2. What is the **current societal condition** and **governance** and how do they influence both the ecological integrity of the river and the socio-economic resilience of the rural communities?
3. What river-centric **spatial strategies** and **design principles** can be implemented to promote ecological conservation and enhance local livelihoods?
4. What **governance** and **management strategies** can be applied to optimize the sustainable use and conservation of the Jiulong River's resources?

## RESEARCH FRAMEWORK





## ■ JIULONG RIVER WATERSHED

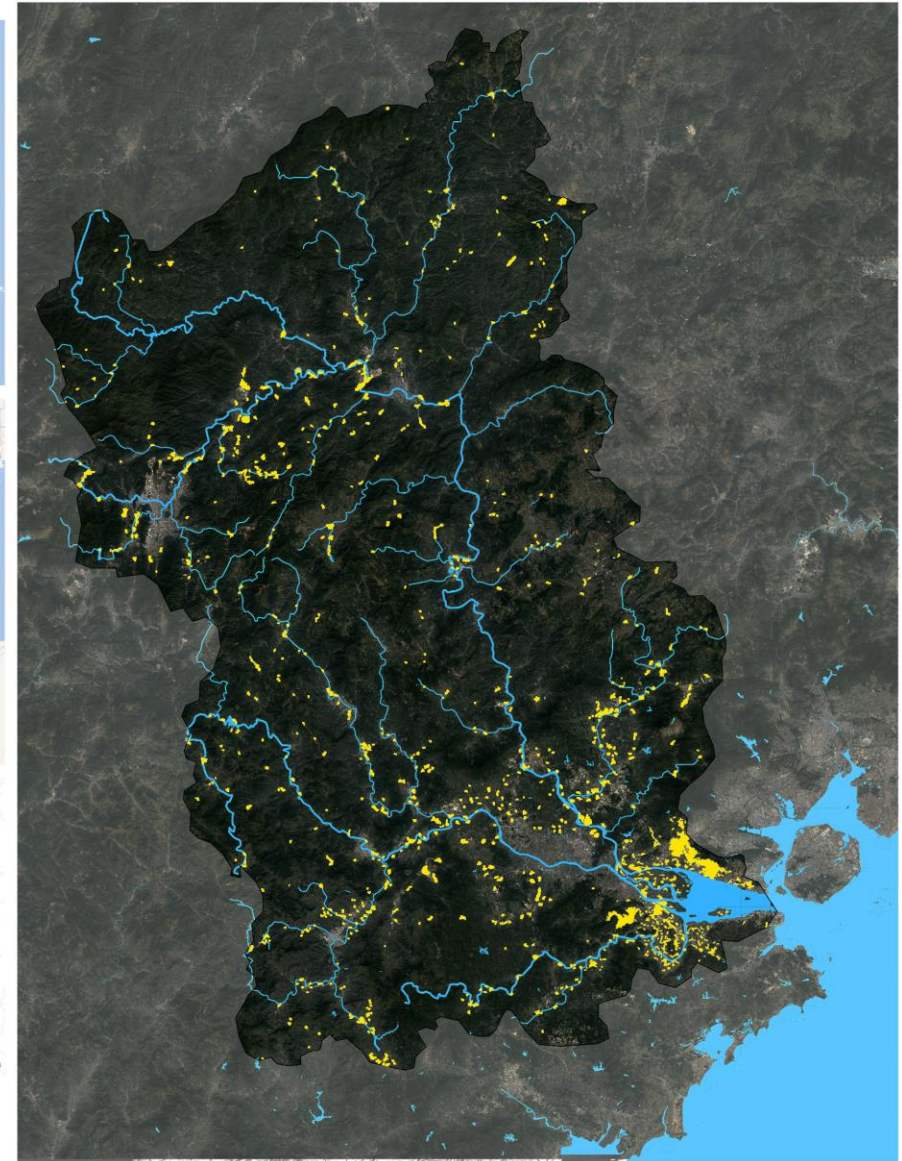
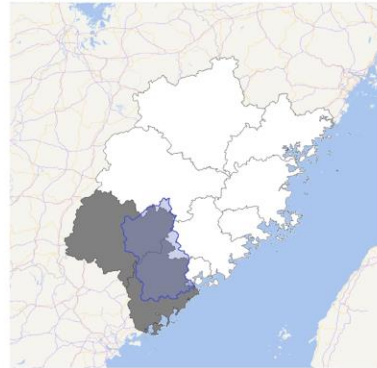
### Jiulong River

Basin size: 14741 km<sup>2</sup> ≈ 1/3 NL

Main stream length: 258km

Mainly cover 2 cities, 8 counties

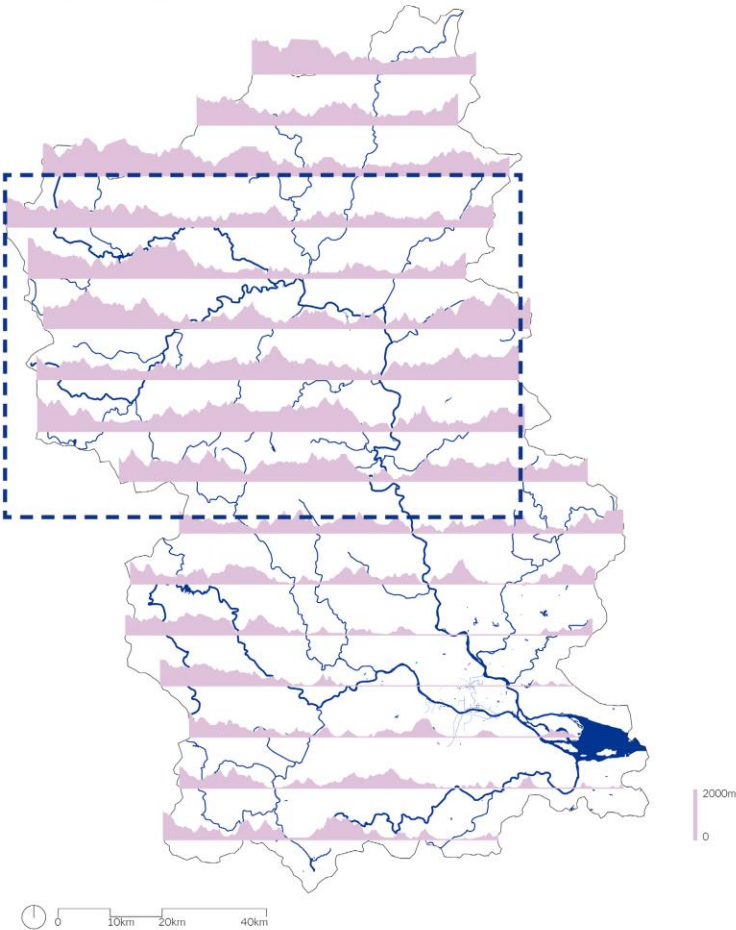
Cover 17% of Fujian Province Population  
≈7.1million



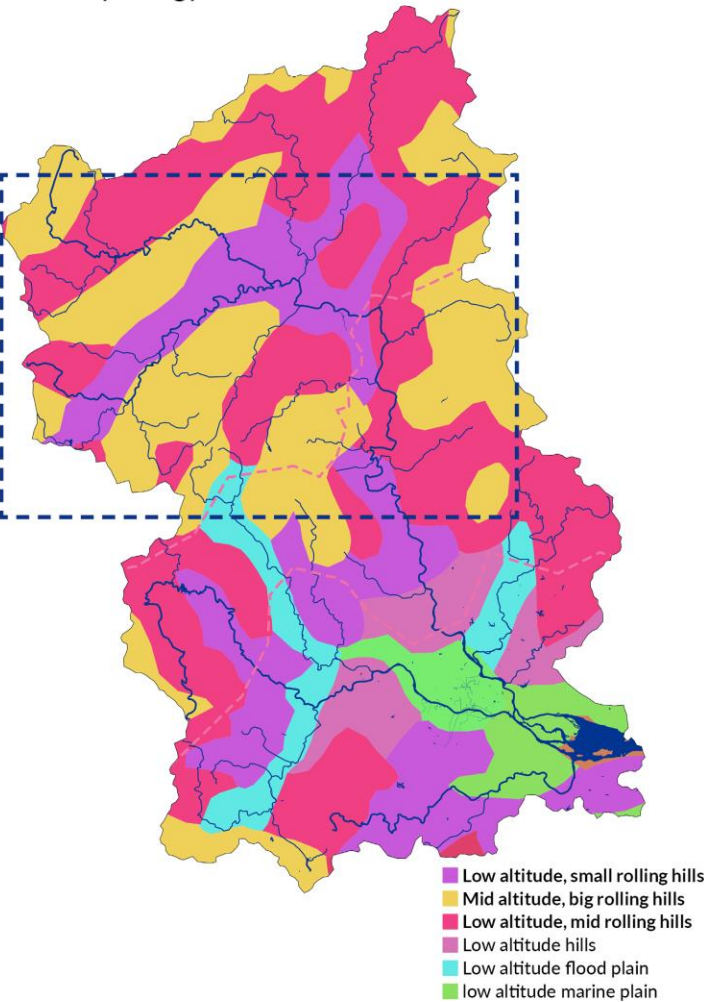


# ANALYSIS ON JIULONG RIVER WATERSHED

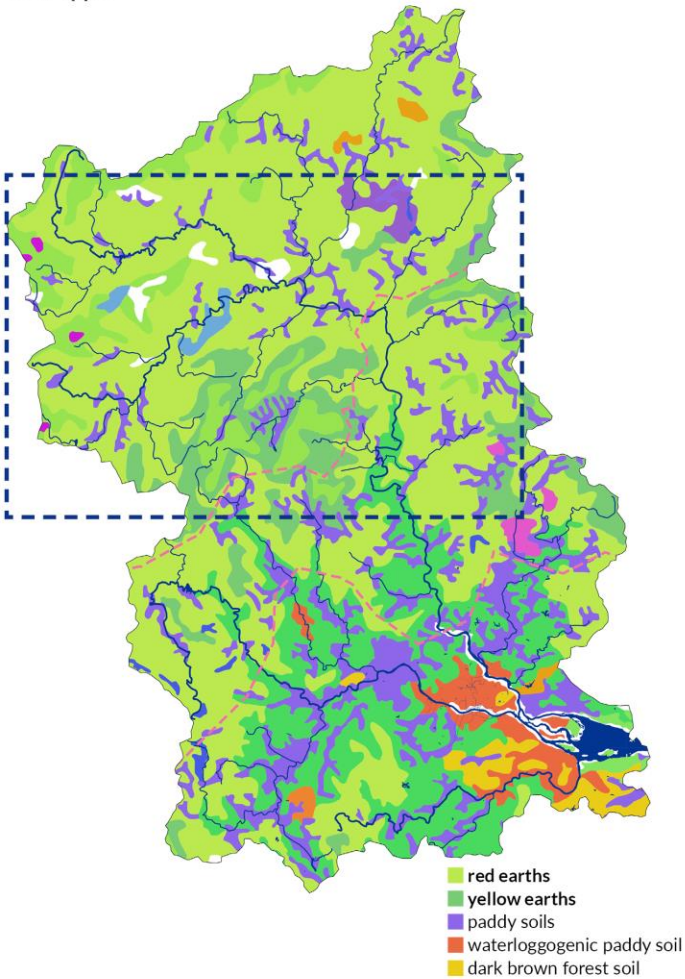
Elevation and sections



Geomorphology



Soil type

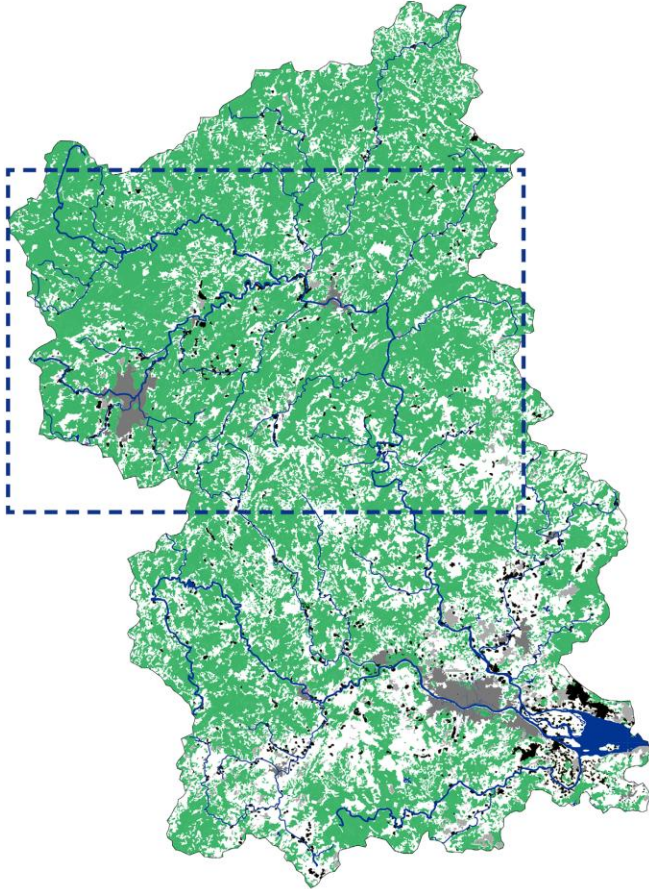


Upstream: high rolling hills, red earths& paddy soil

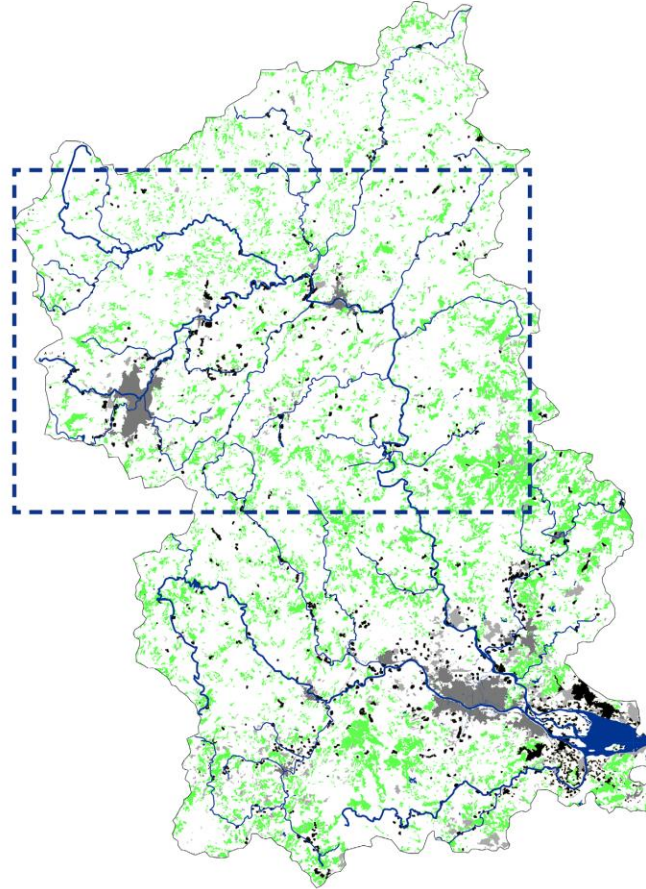


## ■ ANALYSIS ON JIULONG RIVER WATERSHED

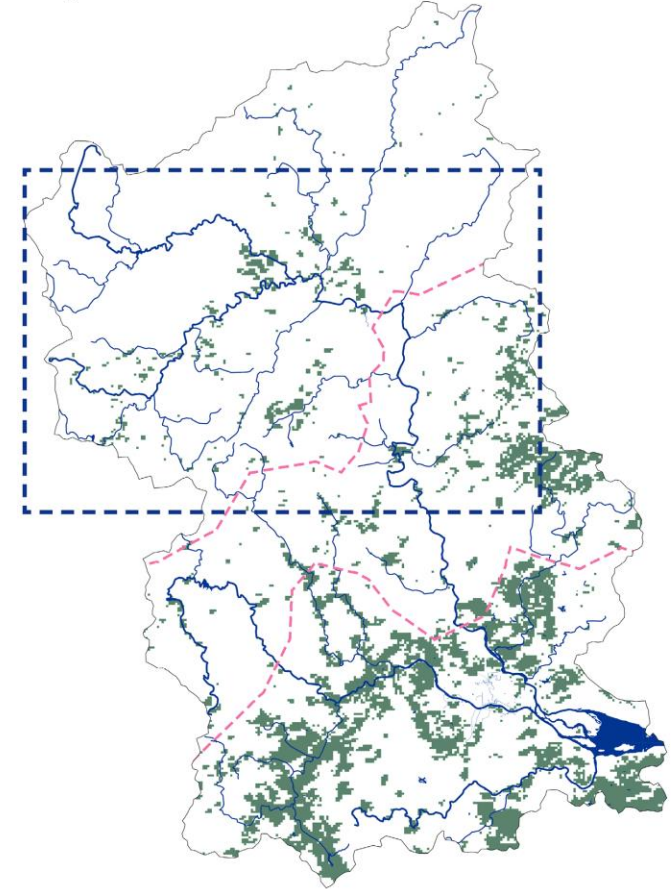
Woodland



Grassland



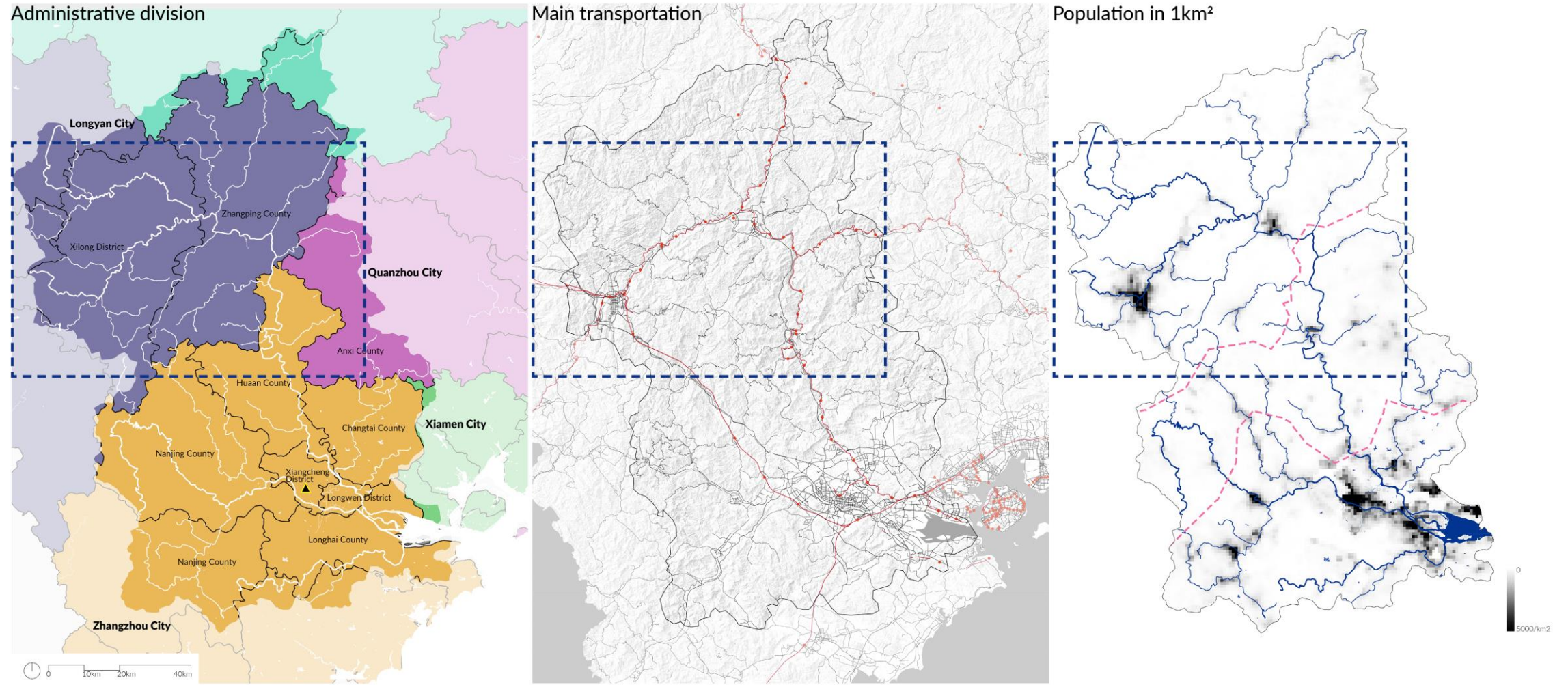
Cropland



Upstream: Woodlands, croplands are along the river



## ■ ANALYSIS ON JIULONG RIVER WATERSHED

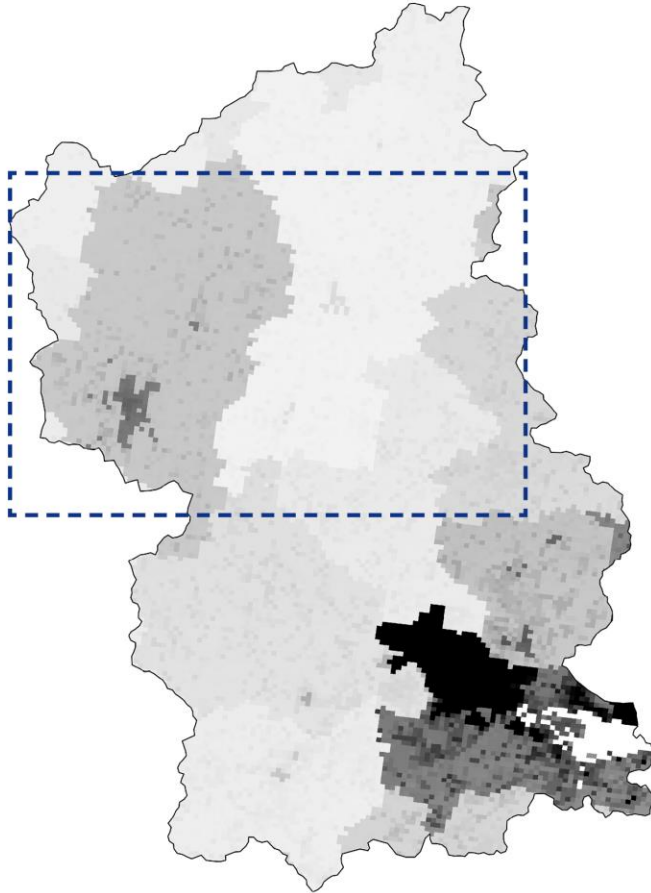


Upstream: Complicated subdivision, transportation along main stream, population centralization in main city

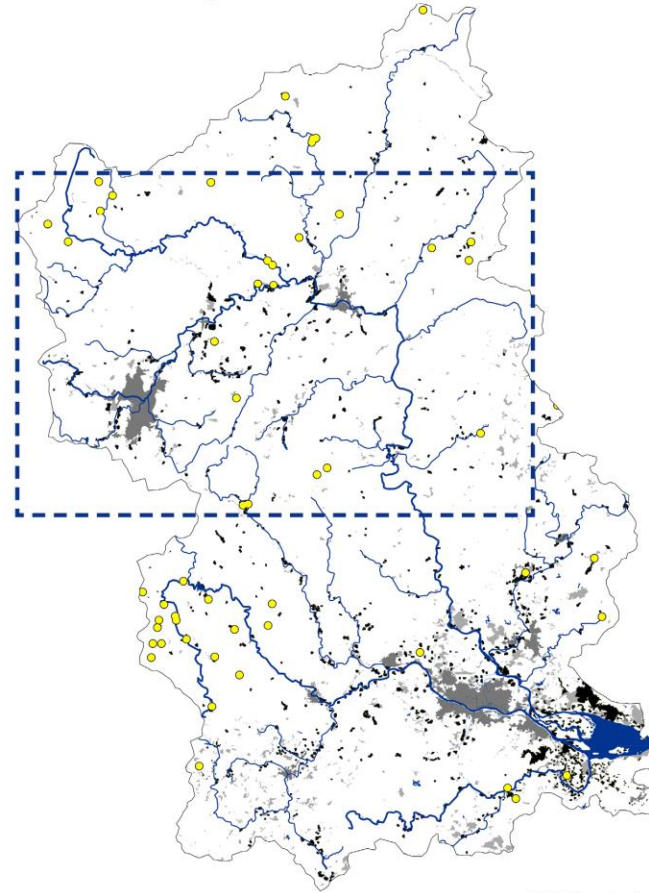


## ■ ANALYSIS ON JIULONG RIVER WATERSHED

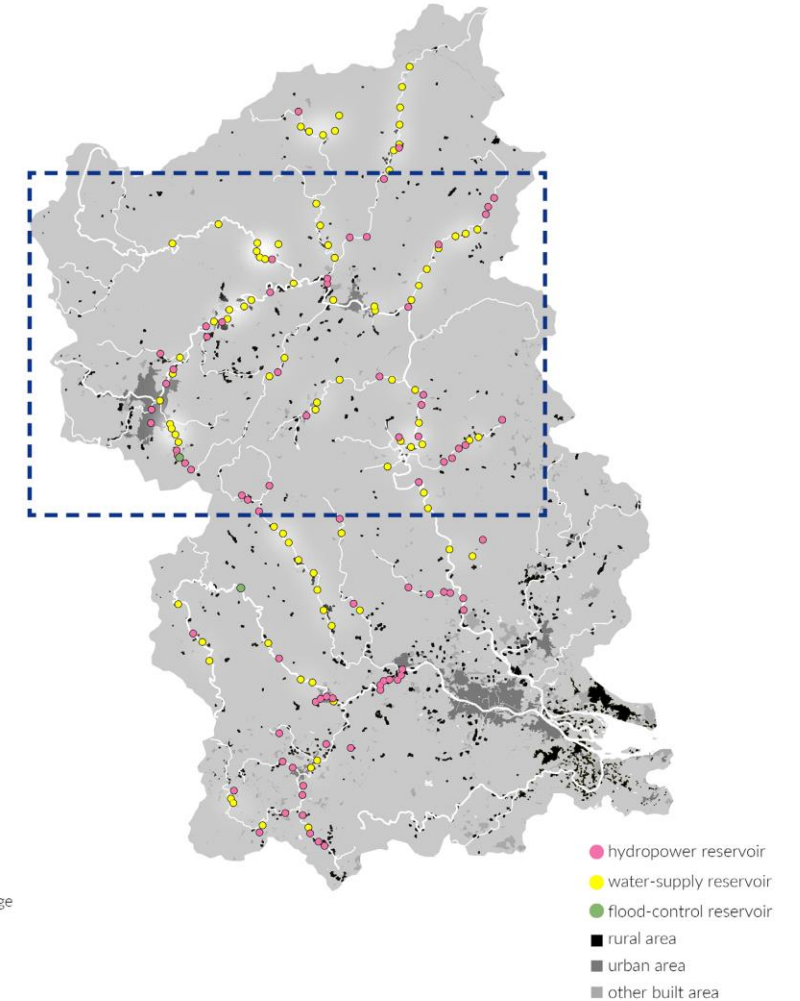
GDP in 1km<sup>2</sup>



Traditional village



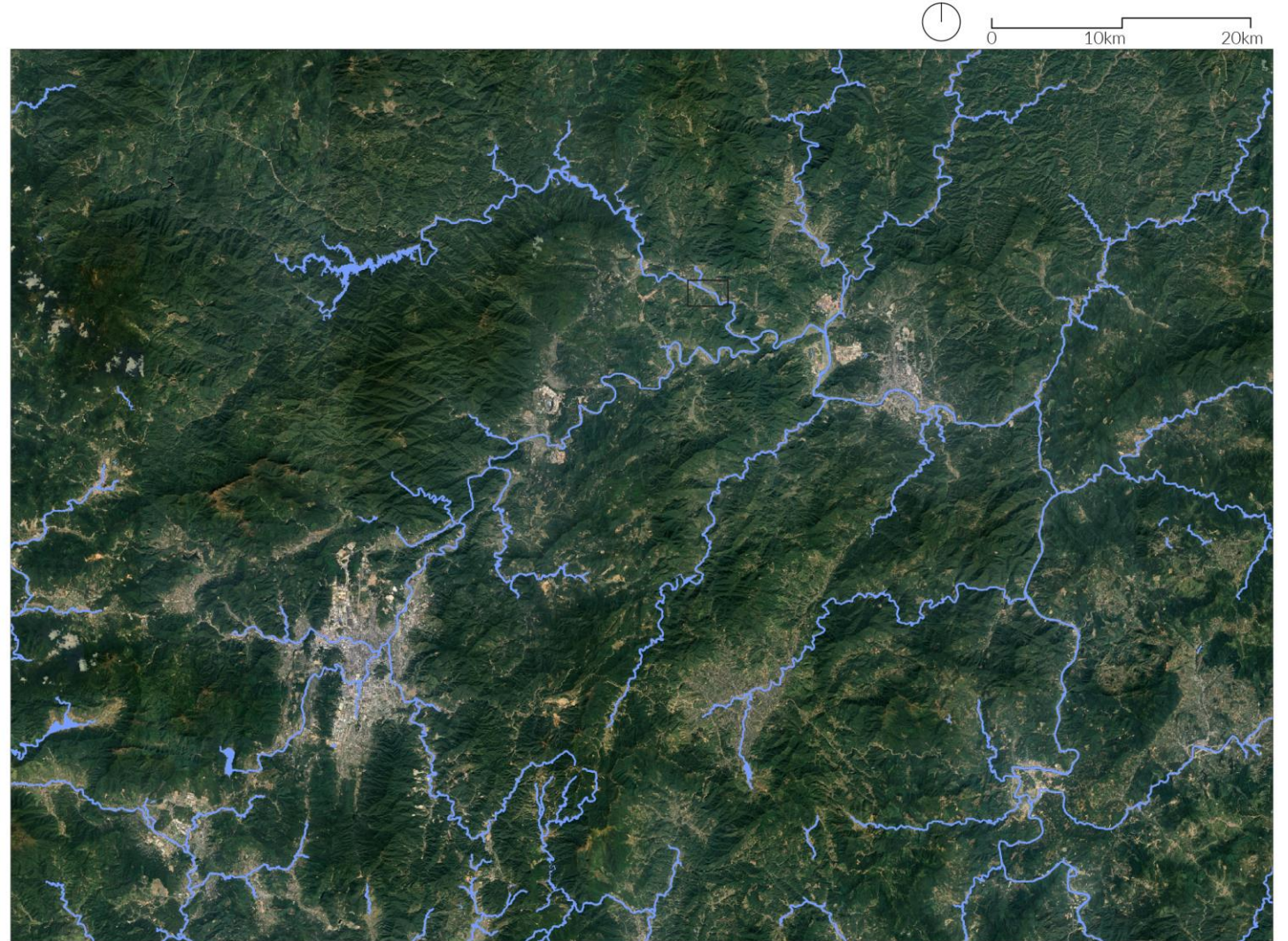
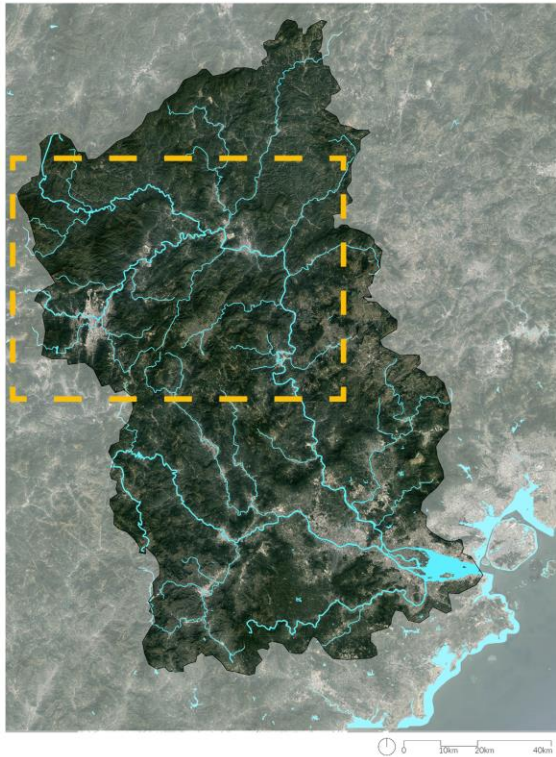
Reservoirs



**Upstream: Economic gap, scattered villages, massive hydropower reservoirs**



## ■ UPSTREAM REGION





## ■ THE IMPORTANCE OF UPSTREAM

### Upstream

- massive nature environment
- scattered rural settlements
- agriculture production
- highly urbanization

### Ecological importance:

- Source of freshwater
- Biodiversity hotspots
- Sediment and nutrient transport

### Hydrological importance:

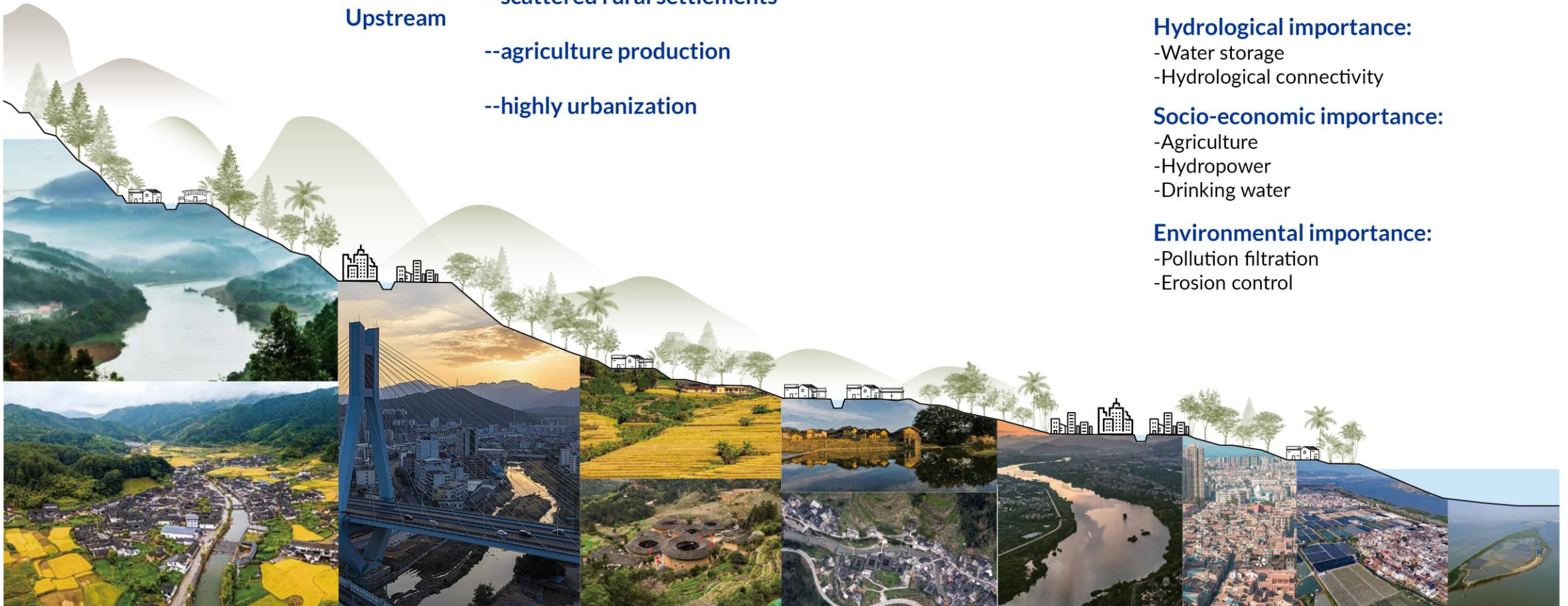
- Water storage
- Hydrological connectivity

### Socio-economic importance:

- Agriculture
- Hydropower
- Drinking water

### Environmental importance:

- Pollution filtration
- Erosion control





## ■ UPSTREAM REGION PROBLEM & POTENTIAL -ECOLOGICAL

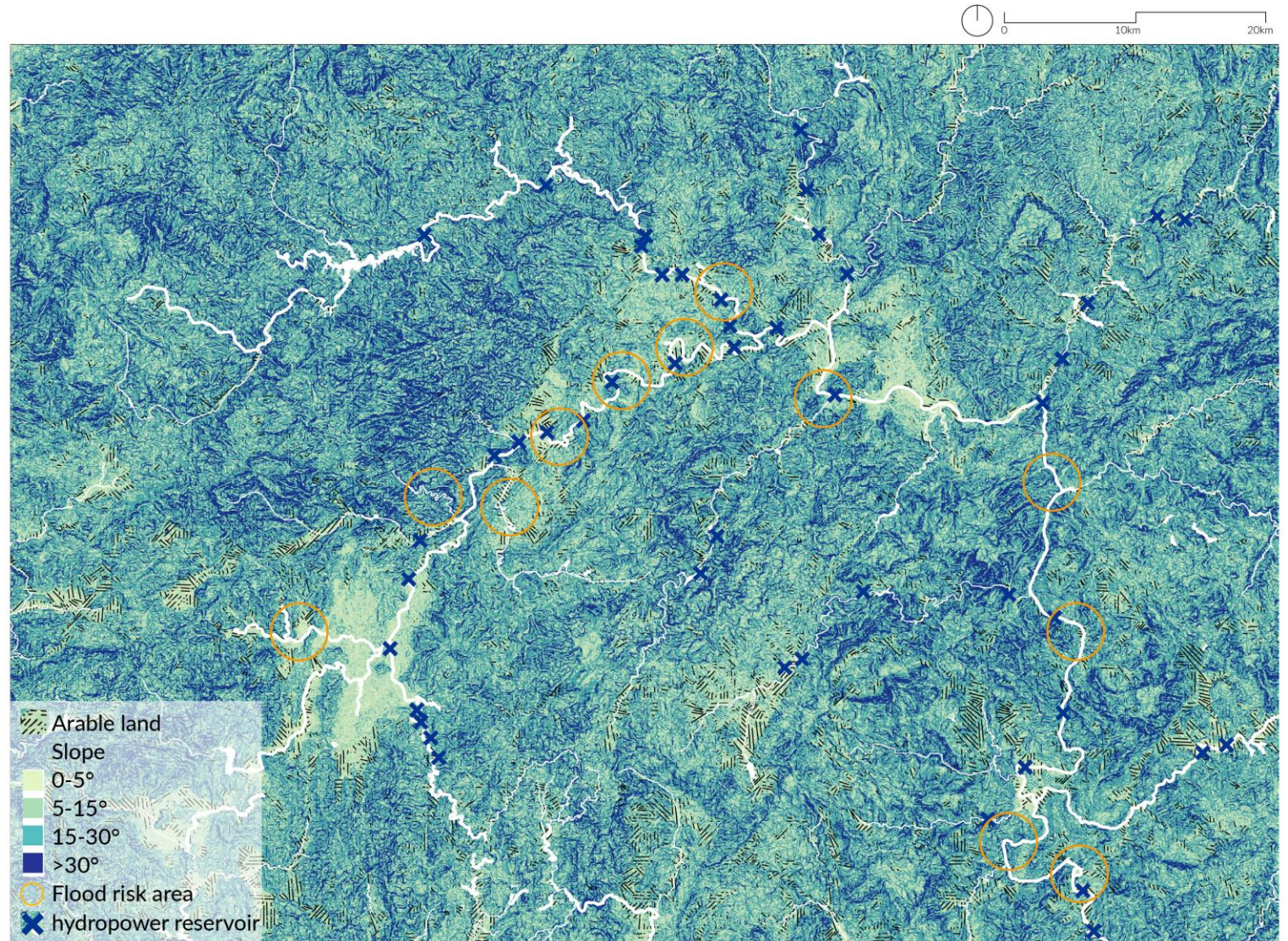
Segmentation of river system



Soil erosion



Flood risk



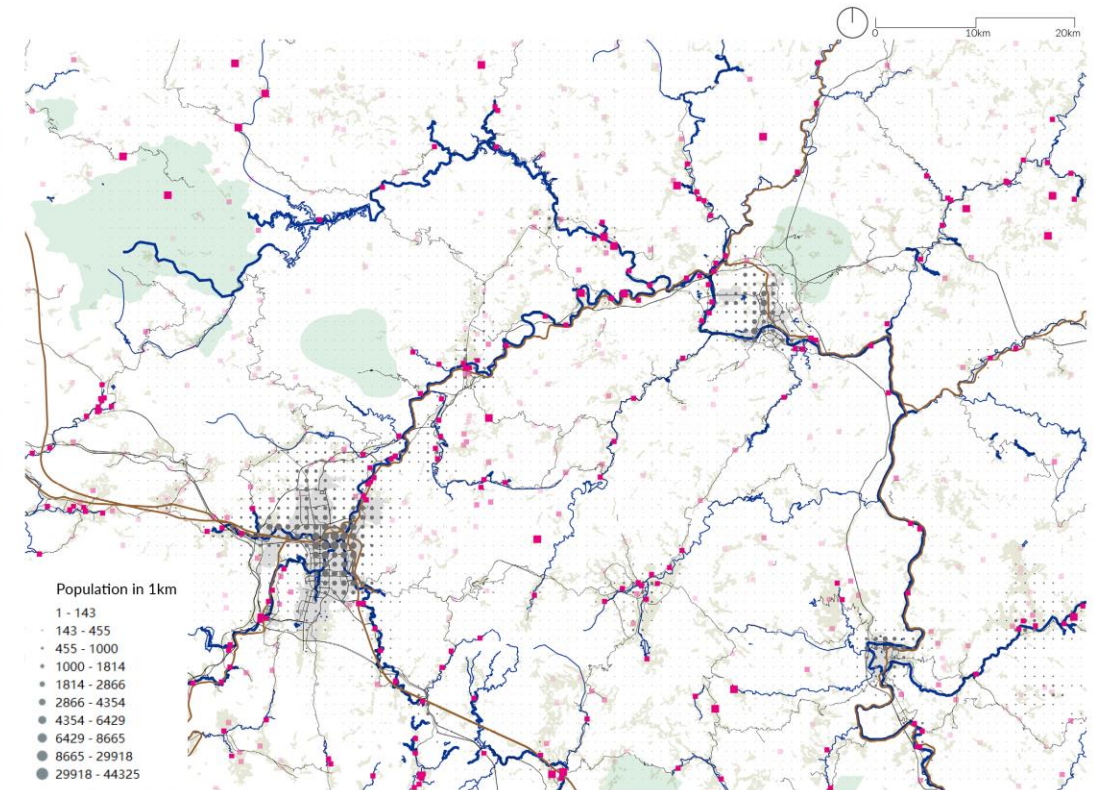


## ■ UPSTREAM REGION PROBLEM & POTENTIAL-SOCIETAL

### Underutilized economic opportunities

#### -Attraction of the villages

- Traditional village
- Village in 0.5km to river
- Village in 0.5-2km to river
- Village outside 2km to river





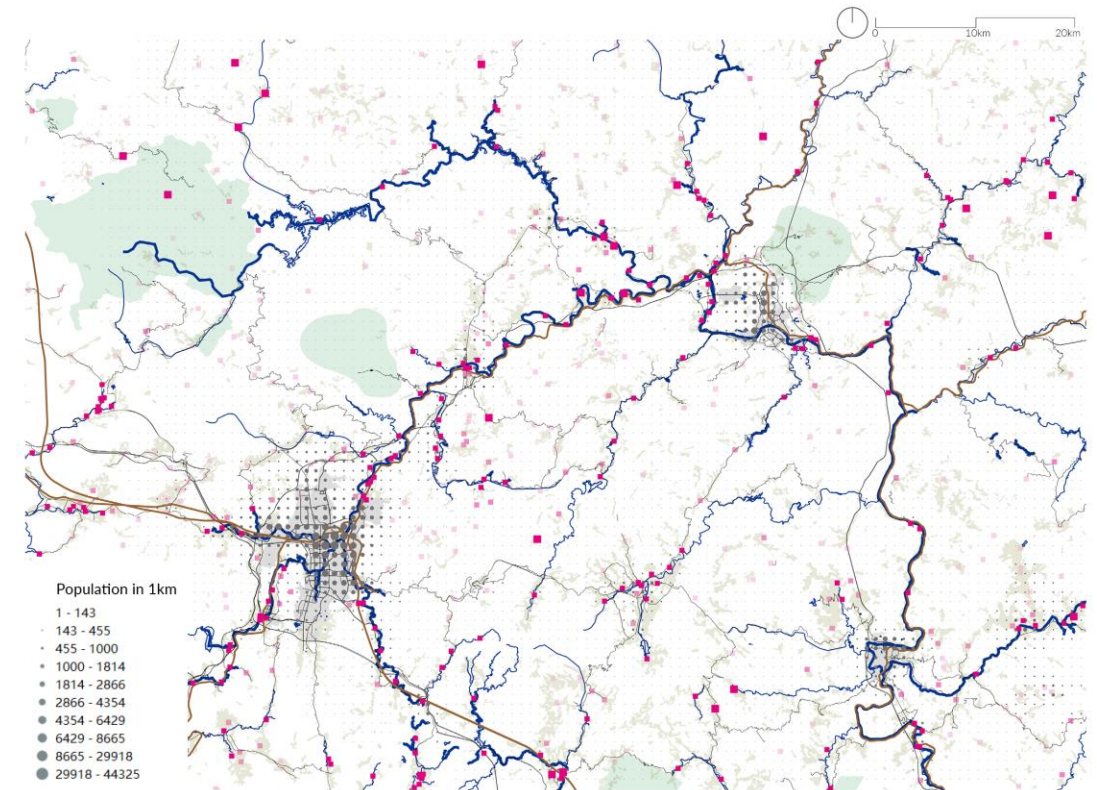
## ■ UPSTREAM REGION PROBLEM & POTENTIAL-SOCIETAL

### Underutilized economic opportunities

#### -Landscape diversity

arable land

national forest park

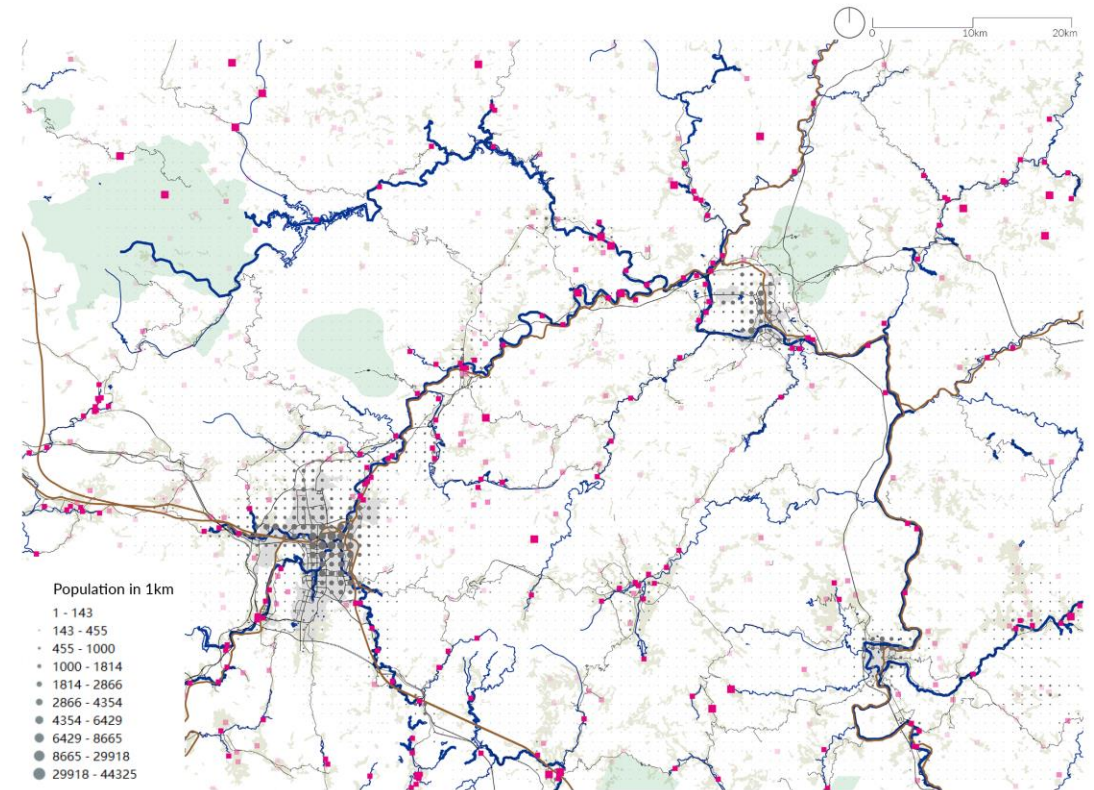
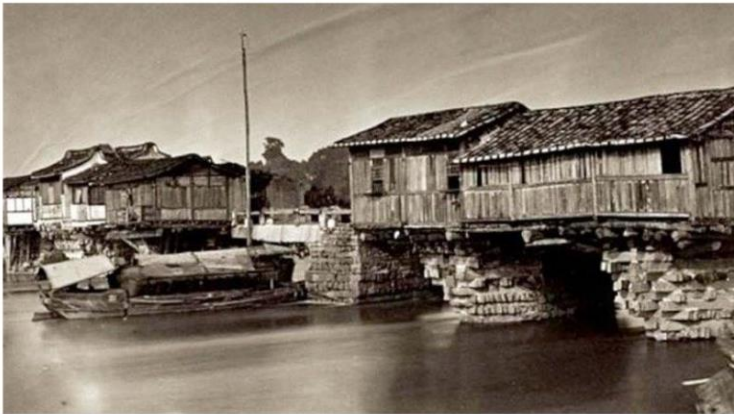


## ■ UPSTREAM REGION PROBLEM & POTENTIAL-SOCIETAL

### Underutilized economic opportunities

-Transportation and recreation potentials

- railway
- main road
- river transportation and recreation(disappeared)





## ■ UPSTREAM REGION PROBLEM & POTENTIAL-SOCIETAL

### Underutilized economic opportunities

- Governance potentials  
proposal for eco-tourism

### Low awareness of Ecosystem Services

#### 龙岩五大文旅品牌：休闲生态游

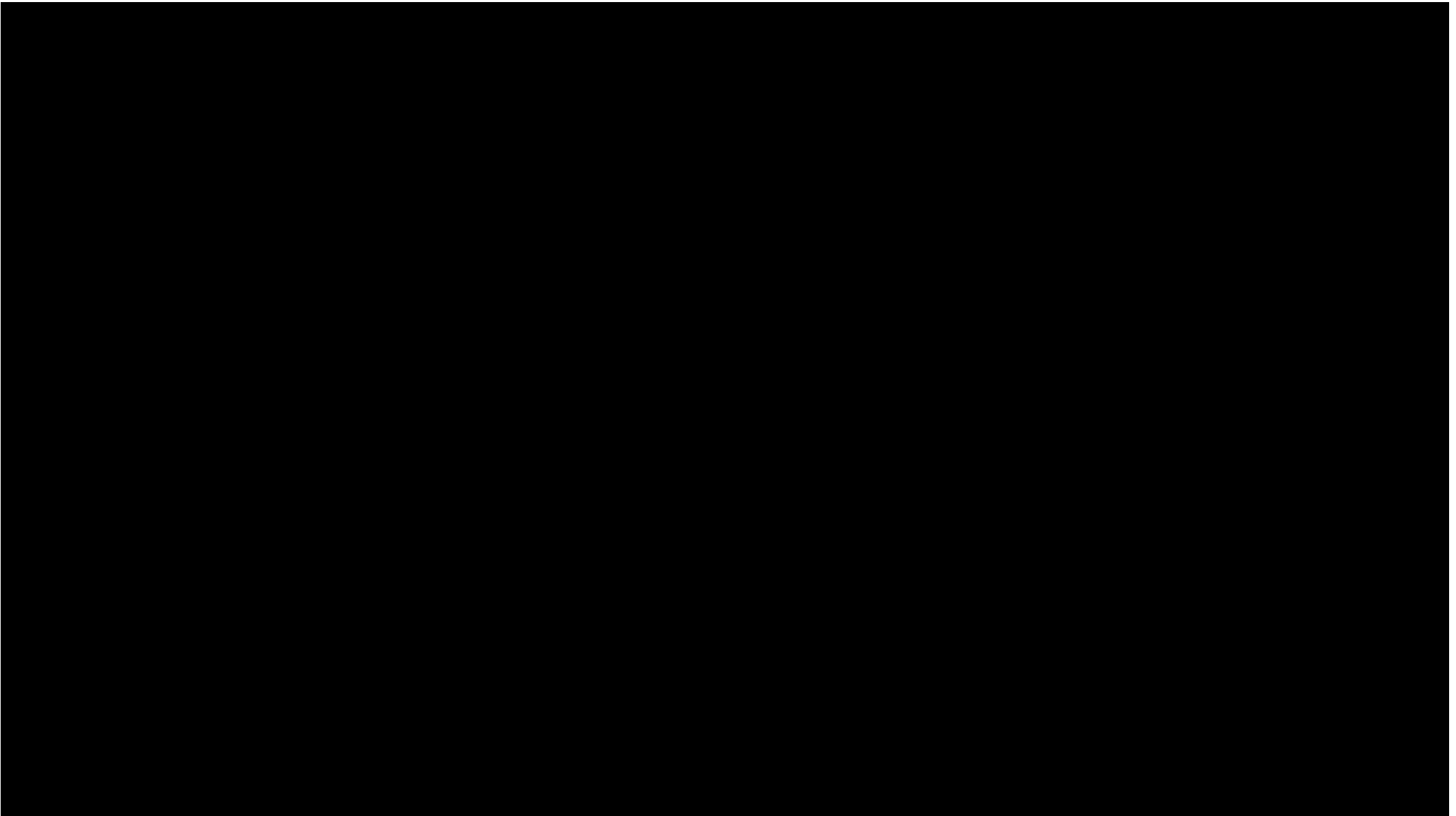
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## ■ PROBLEM & POTENTIAL OF THE VILLAGES IN UPSTREAM



## ■ PROBLEM & POTENTIAL OF THE VILLAGES IN UPSTREAM

### Meishan Village

Undesirable public space and living condition  
Unique village fabric, culture and nature





## ■ PROBLEM & POTENTIAL OF THE VILLAGES IN UPSTREAM

### Pinglin Village & Gekou Village

Untreated horticulture wastes  
Decline of traditional architecture  
Unique village fabric, culture





## ■ PROBLEM & POTENTIAL OF THE VILLAGES IN UPSTREAM

### Yanshi Township

River pollution  
Massive population





## ■ PROBLEM & POTENTIAL OF THE VILLAGES IN UPSTREAM

### Yongfu township

Heavy river pollution  
E-commerce of flowers  
Tea terracing attraction





## ■ PROBLEM & POTENTIAL OF THE VILLAGES IN UPSTREAM

Beihe Village



Dadi Tulou Cluster





## ■ PROBLEM & POTENTIAL OF THE VILLAGES IN UPSTREAM

### Guanshe Village



### Baisha Township





## ■ JIEBU VILLAGE

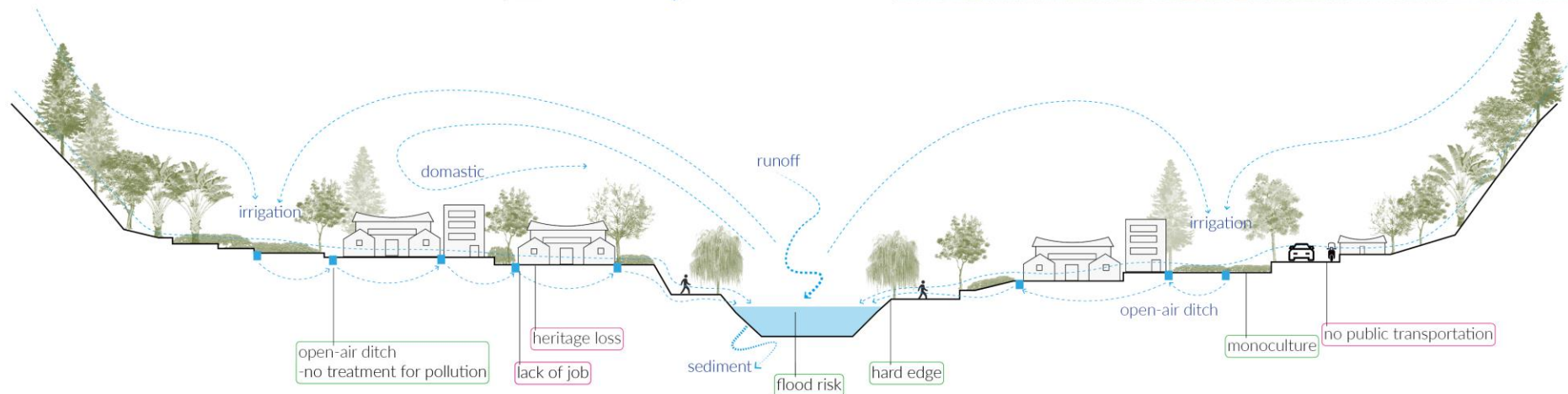
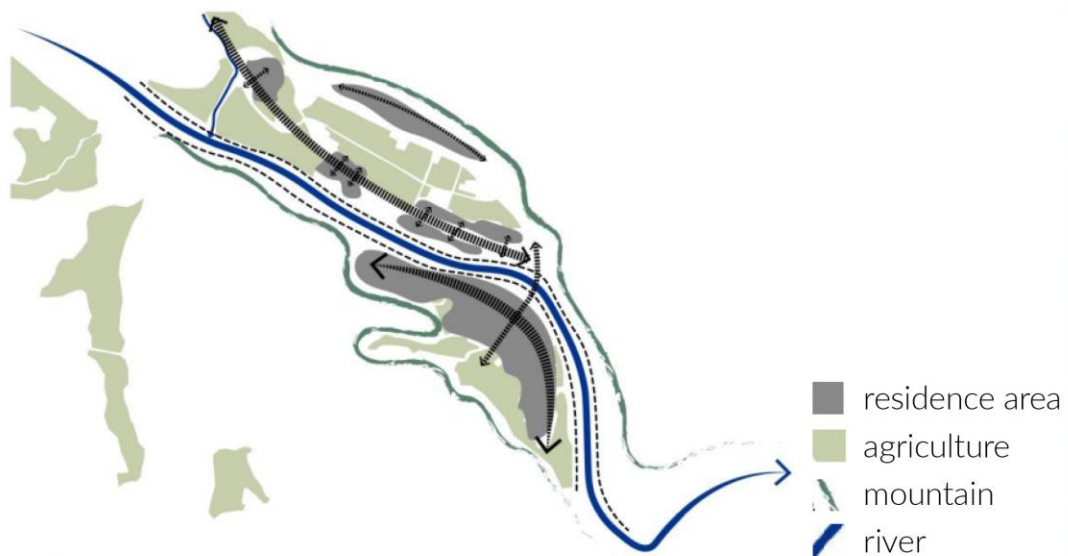
### History





## JIEBU VILLAGE

### Structure

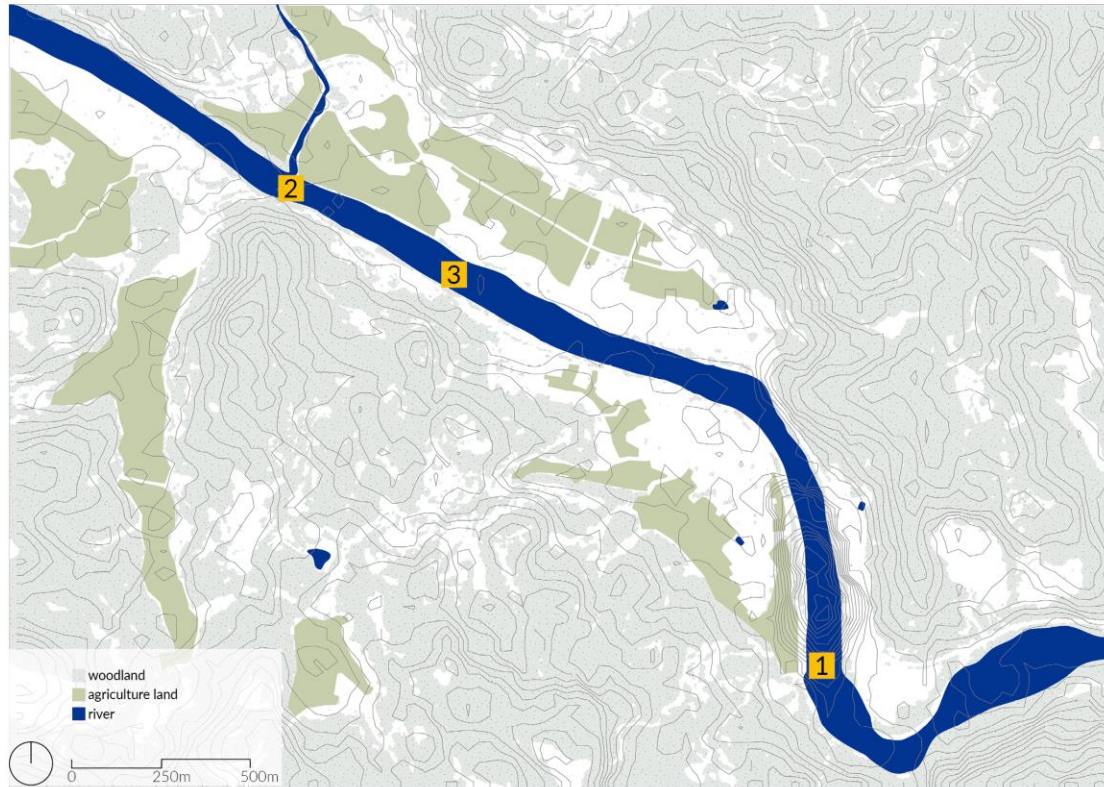




## JIEBU VILLAGE

### Substratum

Small plain inbetween the mountains

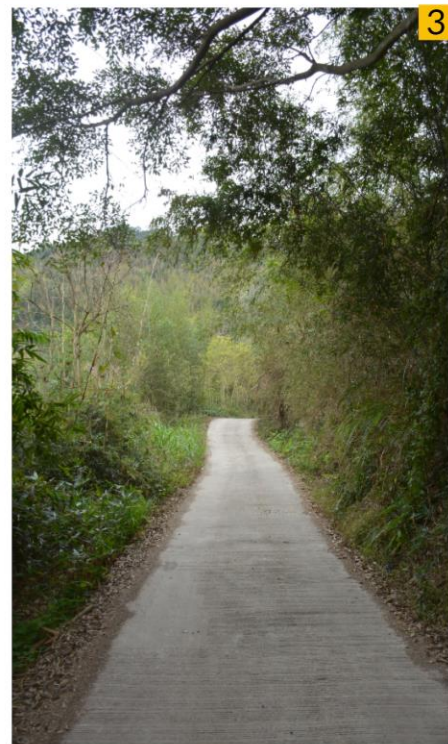
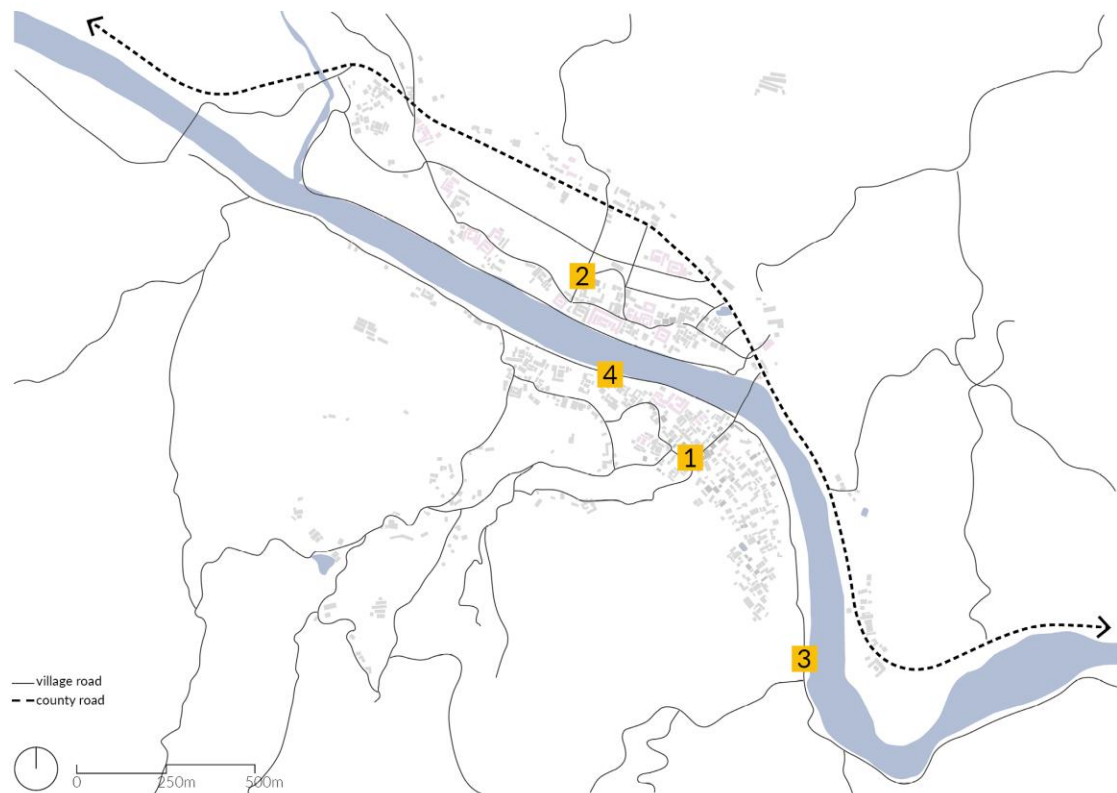




## JIEBU VILLAGE

### Transportation

No public transportation

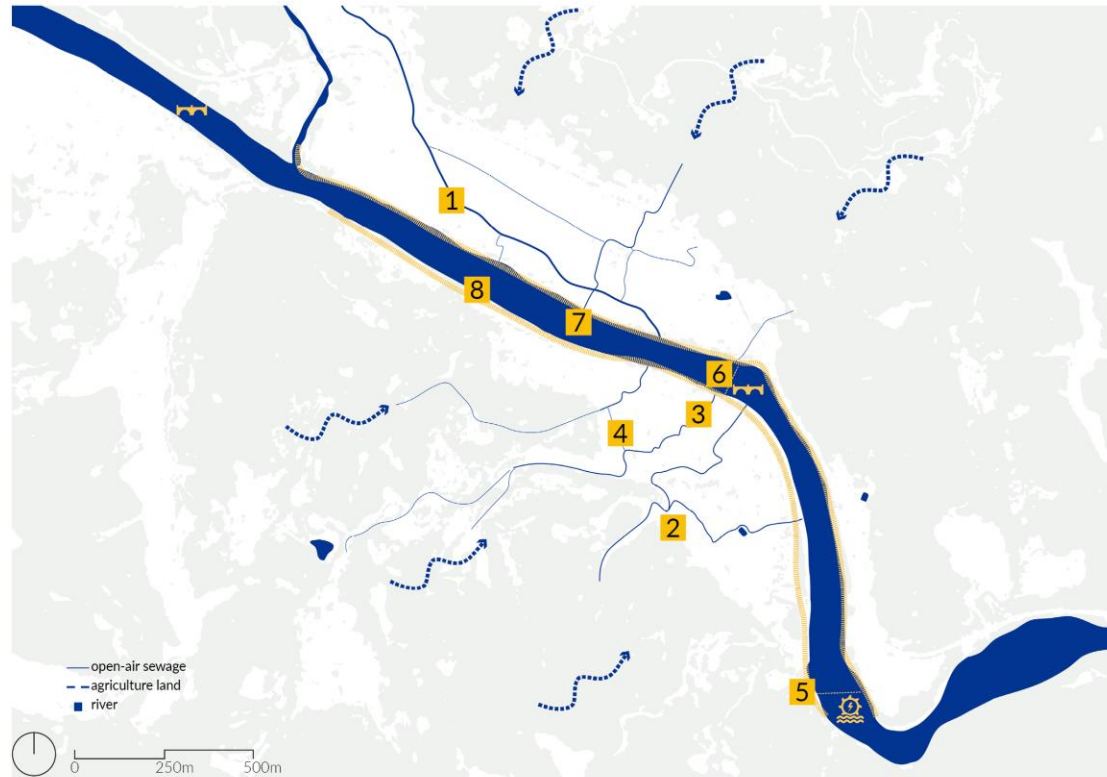




## JIEBU VILLAGE

### Water system

Open-air sewerage  
Hydropower station

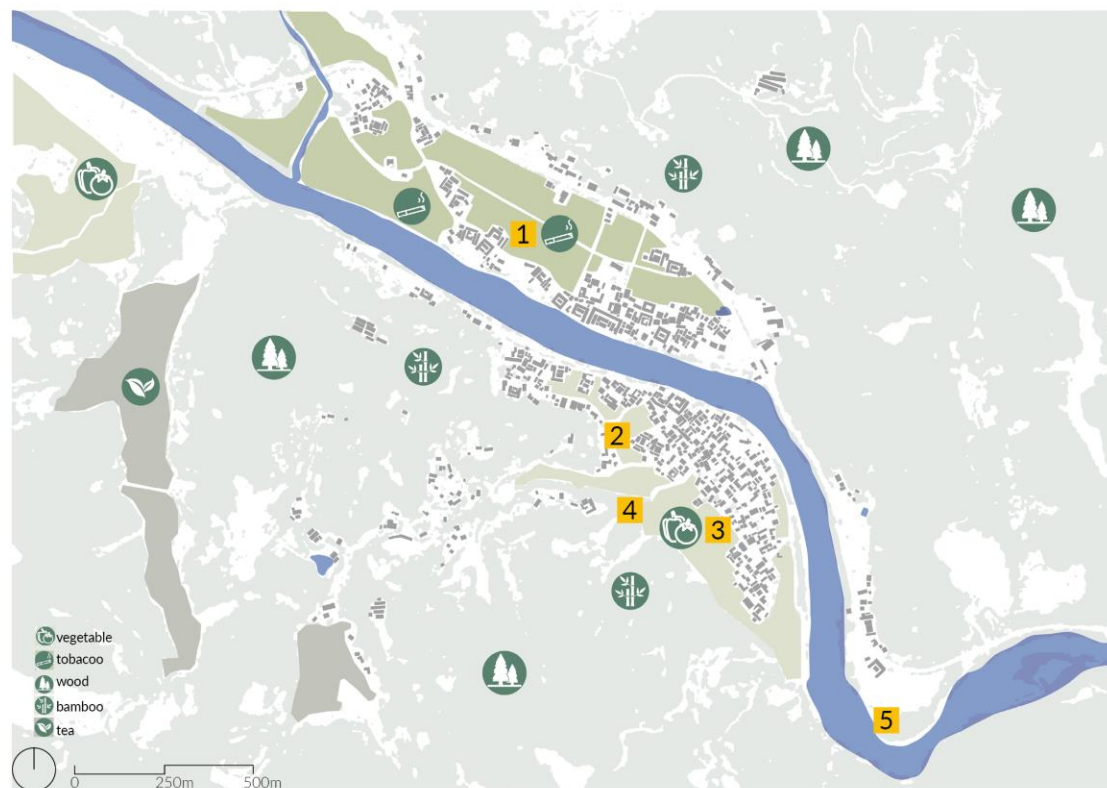




## JIEBU VILLAGE

### Agriculture

### Monoculture





## JIEBU VILLAGE

### Buildings

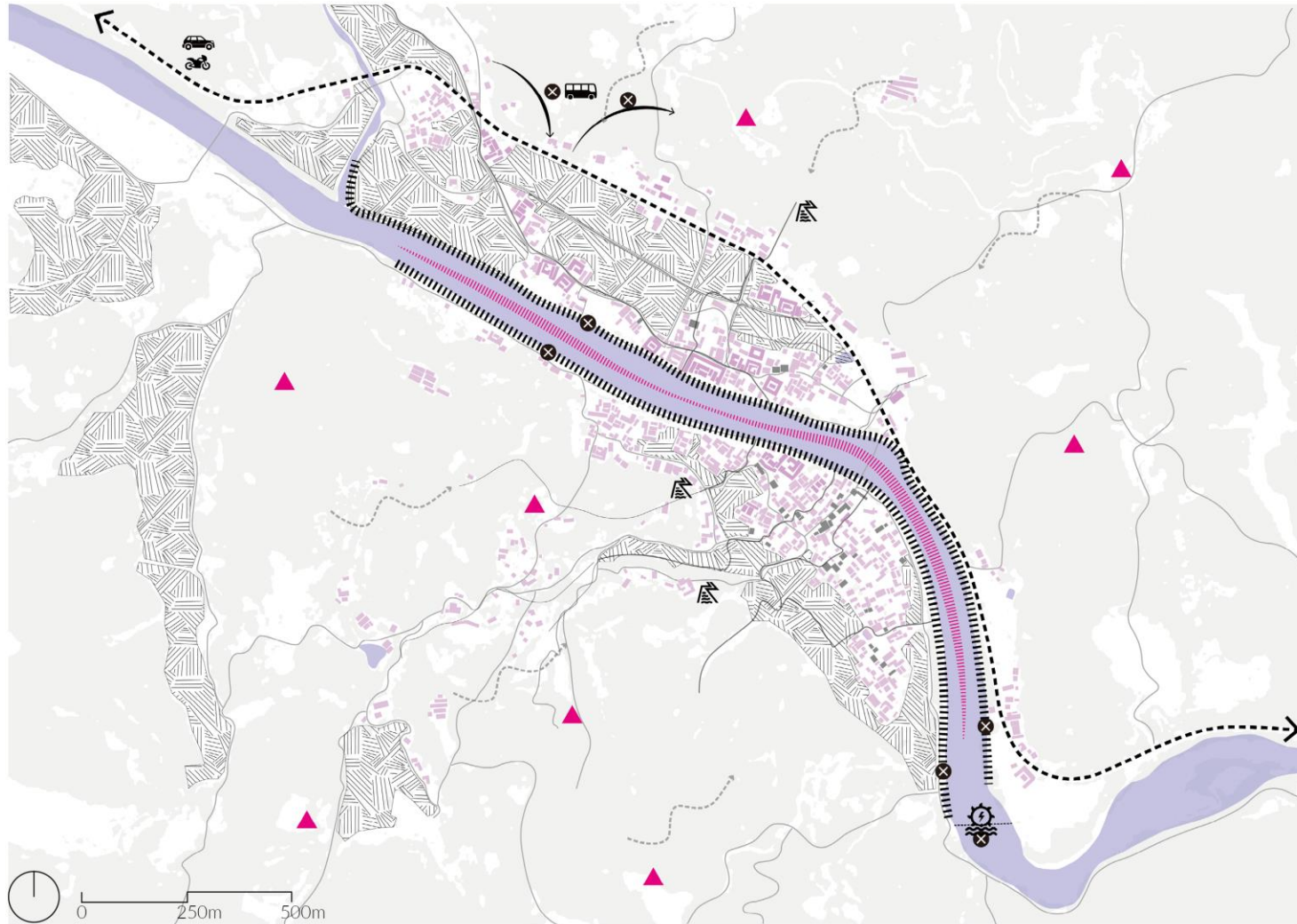
Traditional buildings are declining










## JIEBU VILLAGE






Problem and potential map



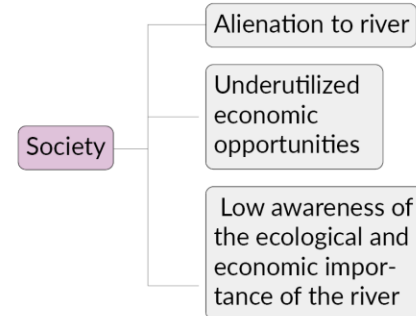
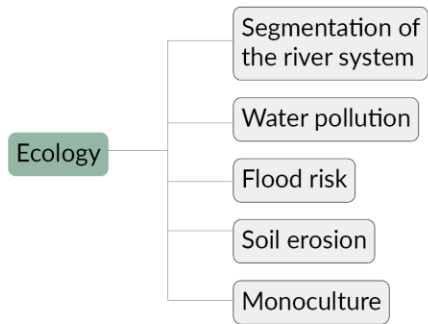
Problem:

-  Hydropower reservoir
-  Drainage pollution
-  Public transportation and services
-  Lack of interaction with water
-  monoculture

Potential:

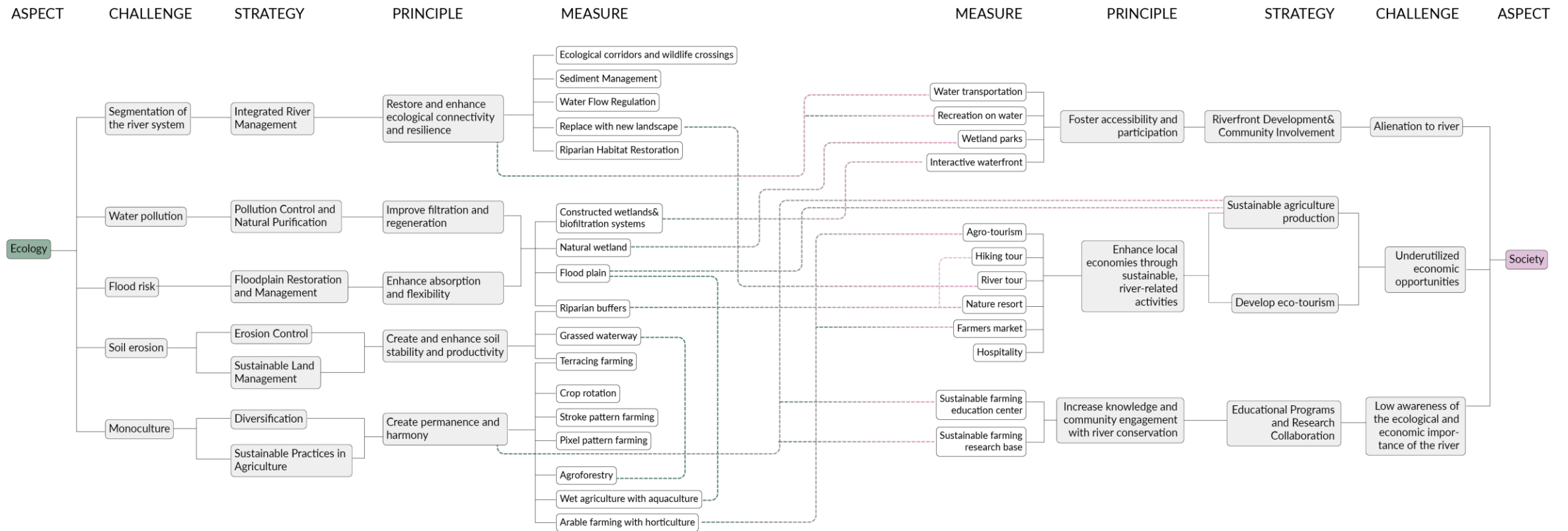
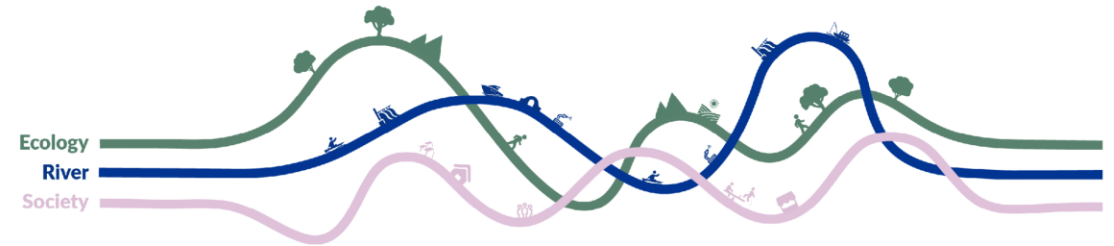
-  Traditional building
-  Agriculture land and knowledge
-  Hill view
-  Recreation on river
-  Eco-tourism

## ■ RIVER-RELATED CHALLENGES

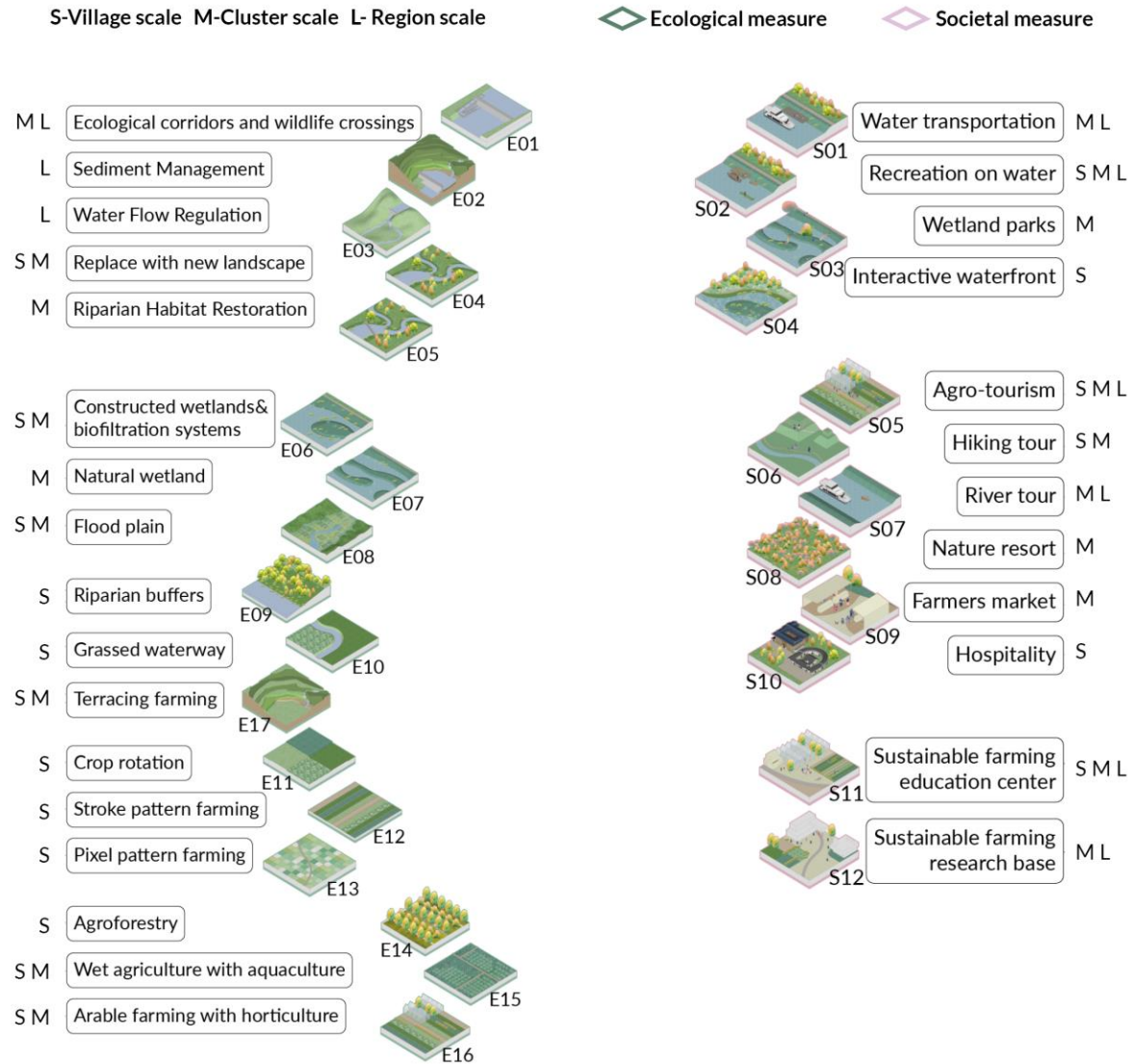




## STRATEGIC FRAMEWORK



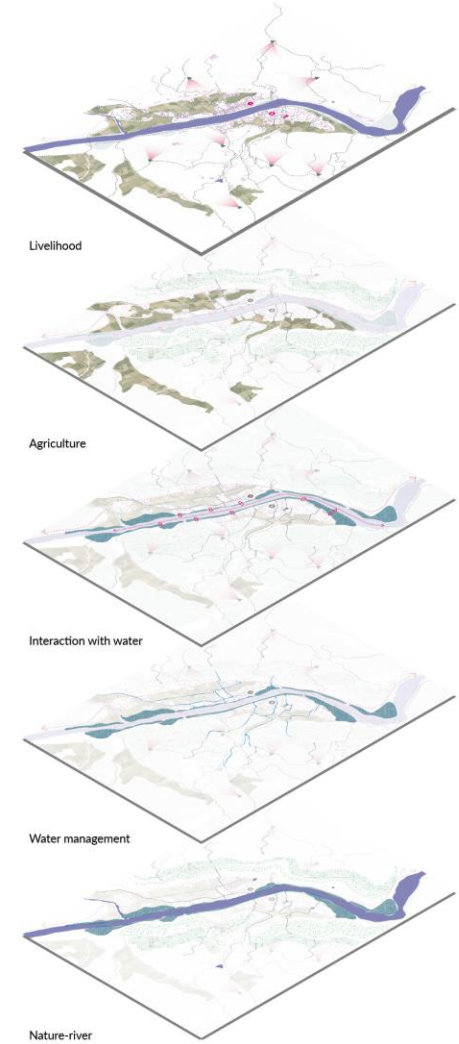
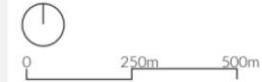
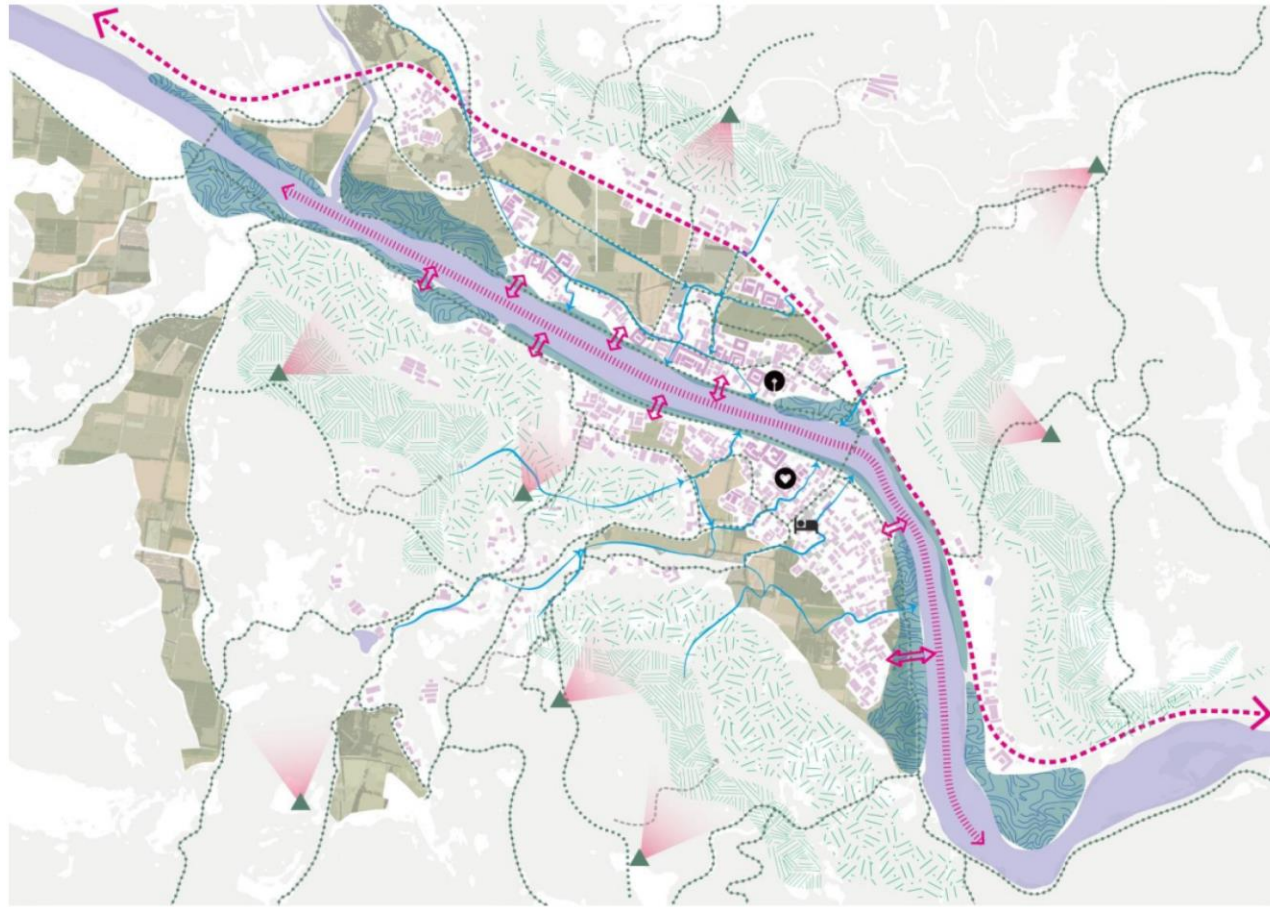
## MEASURES





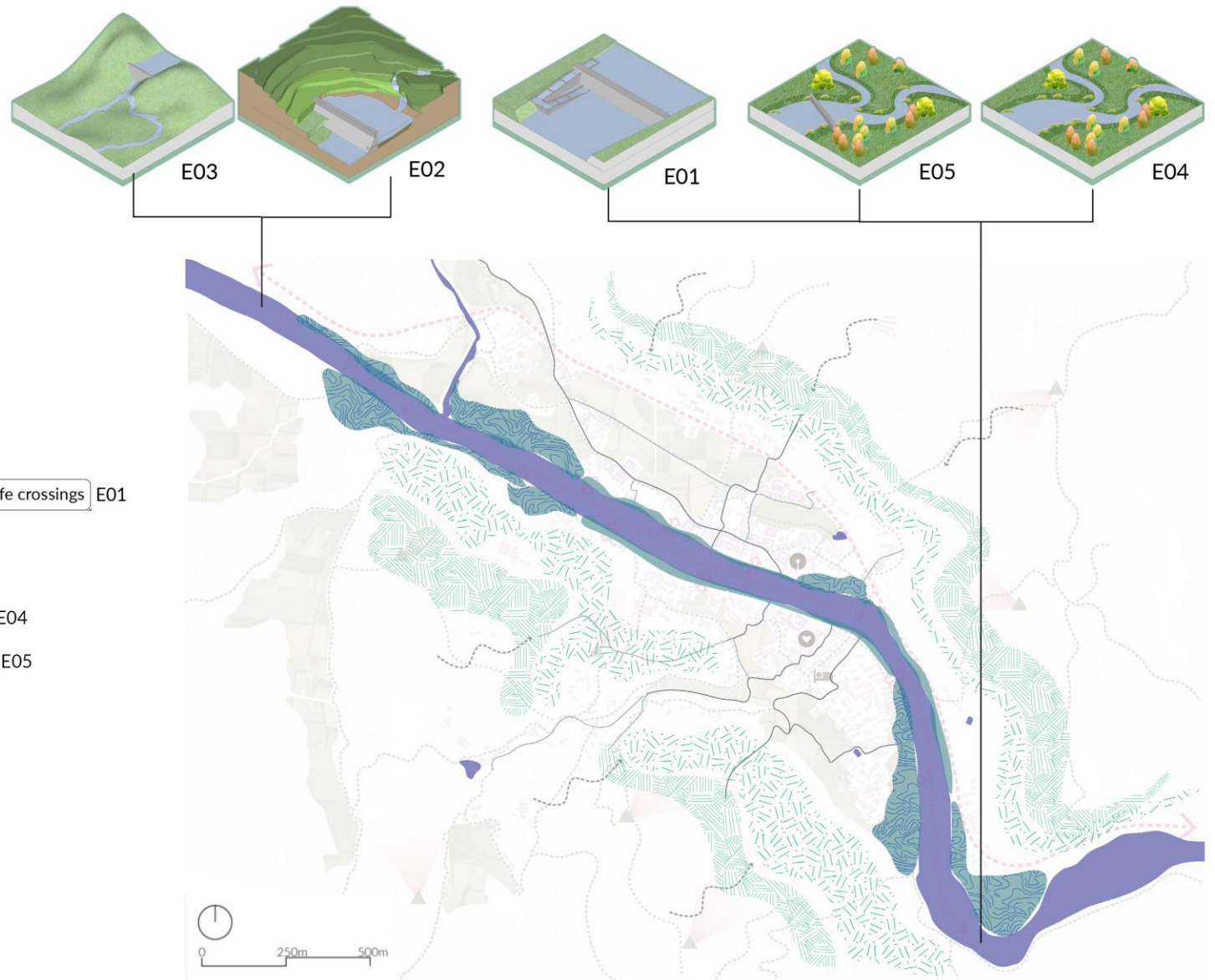
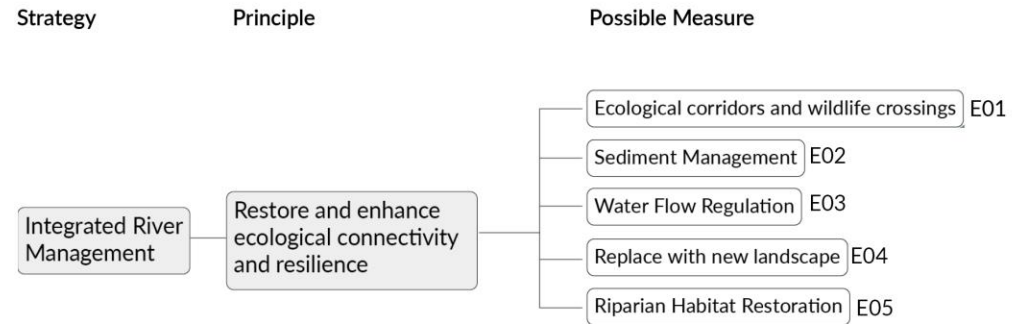
## JIEBU VILLAGE REVITALIZATION

### Vision map



## JIEBU VILLAGE VISION

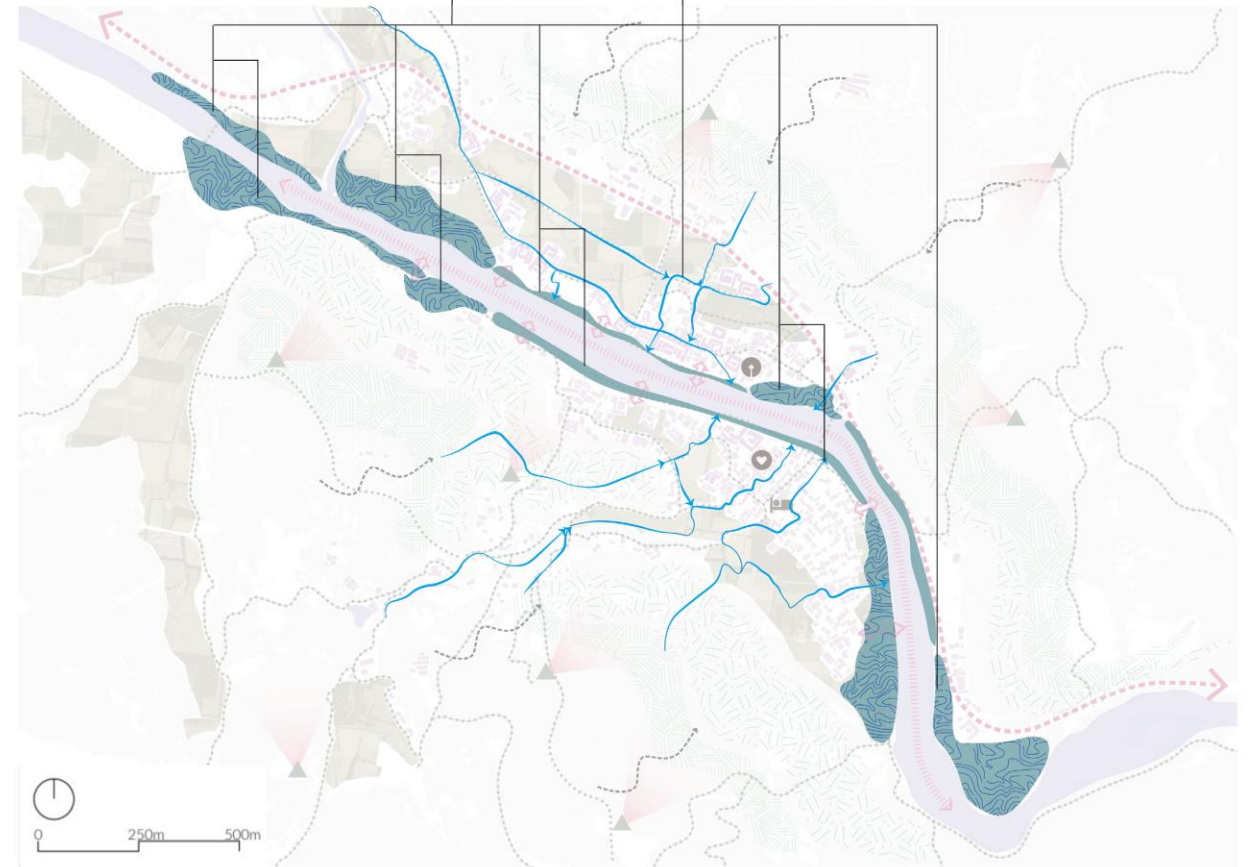
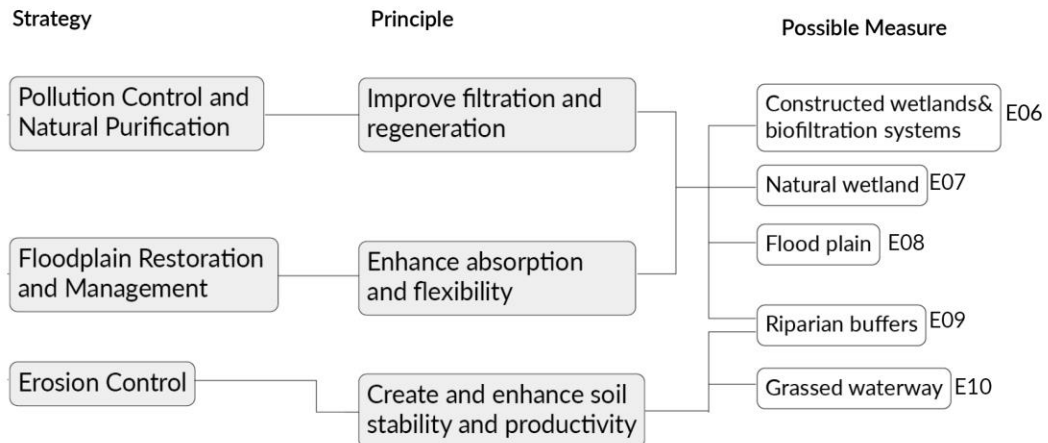
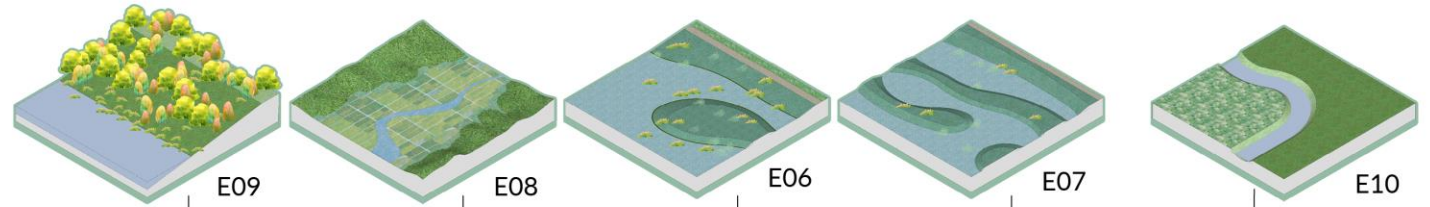
### Nature-river





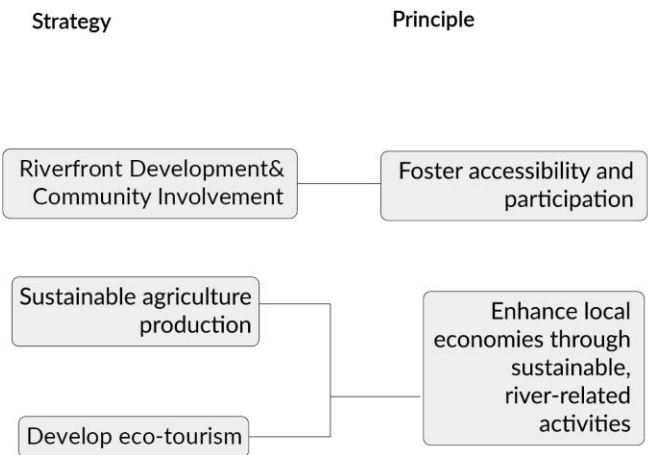
## JIEBU VILLAGE VISION

### Water system



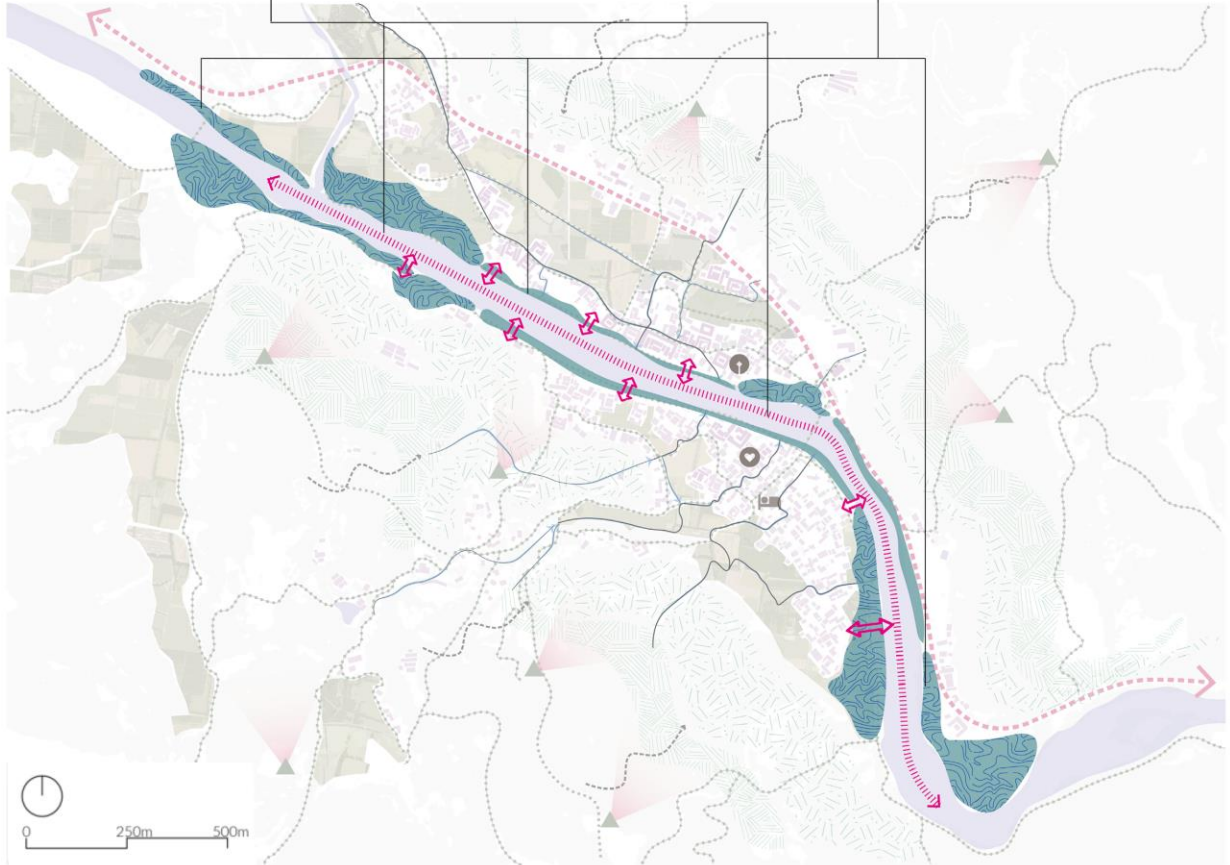
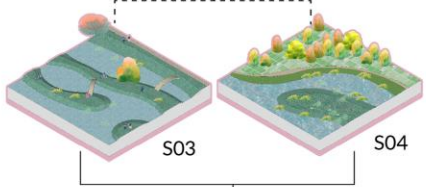
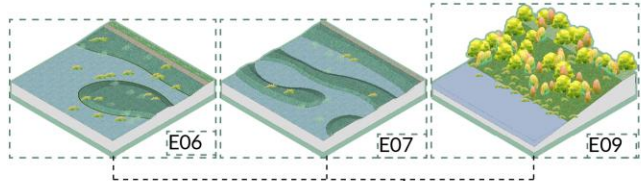
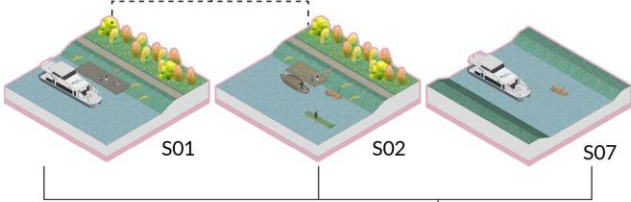
# JIEBU VILLAGE VISION

## Interaction with river



- Possible Measure
- Water transportation S01
  - Recreation on water S02
  - Wetland parks S03
  - Interactive waterfront S04
  - River tour S07

Integrated River Management





## JIEBU VILLAGE VISION

### Agriculture

Strategy

Principle

Possible Measure

Diversification

Sustainable Practices in Agriculture

Create permanence and harmony

Terracing farming E17

Crop rotation E11

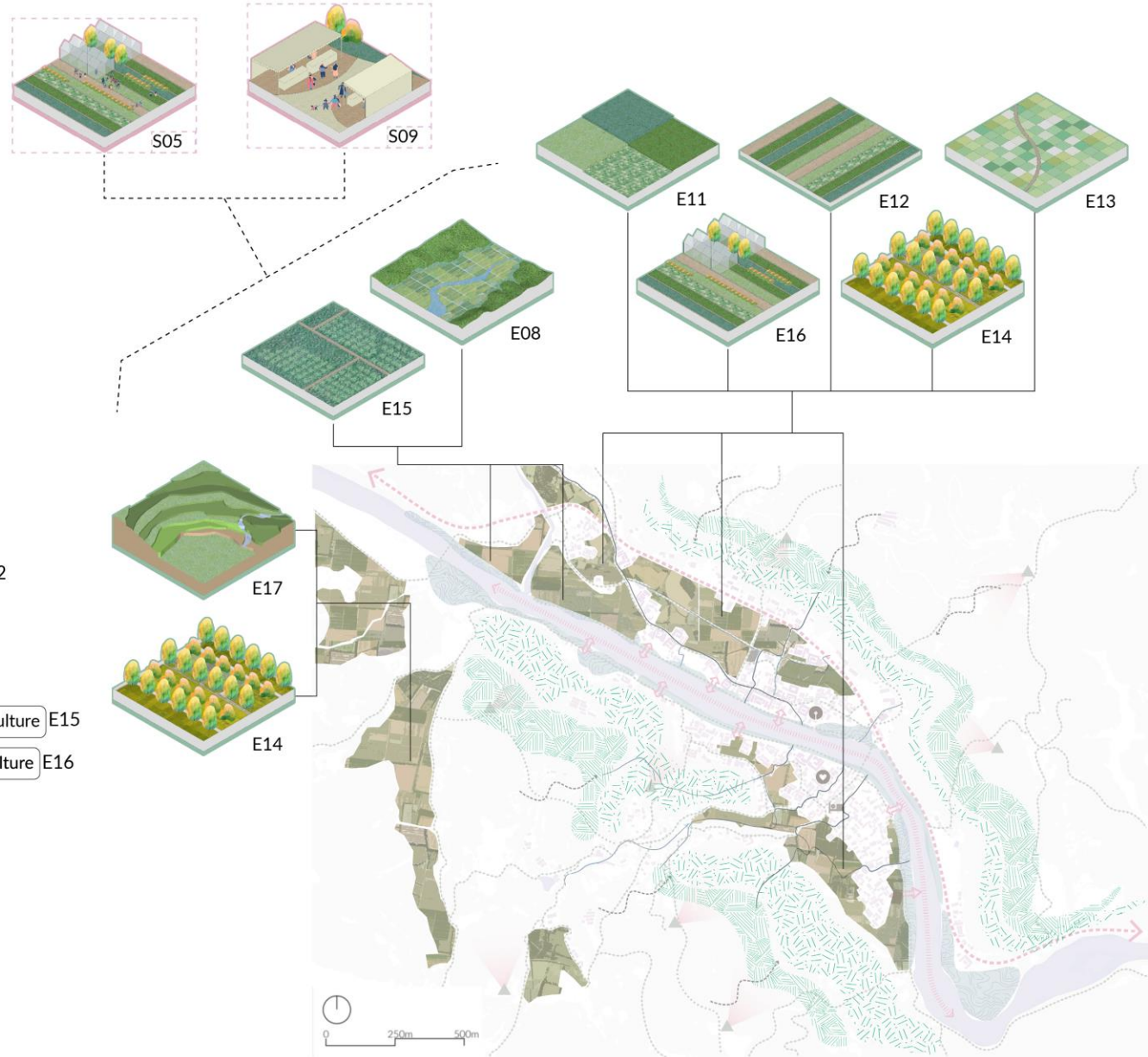
Stroke pattern farming E12

Pixel pattern farming E13

Agroforestry E14

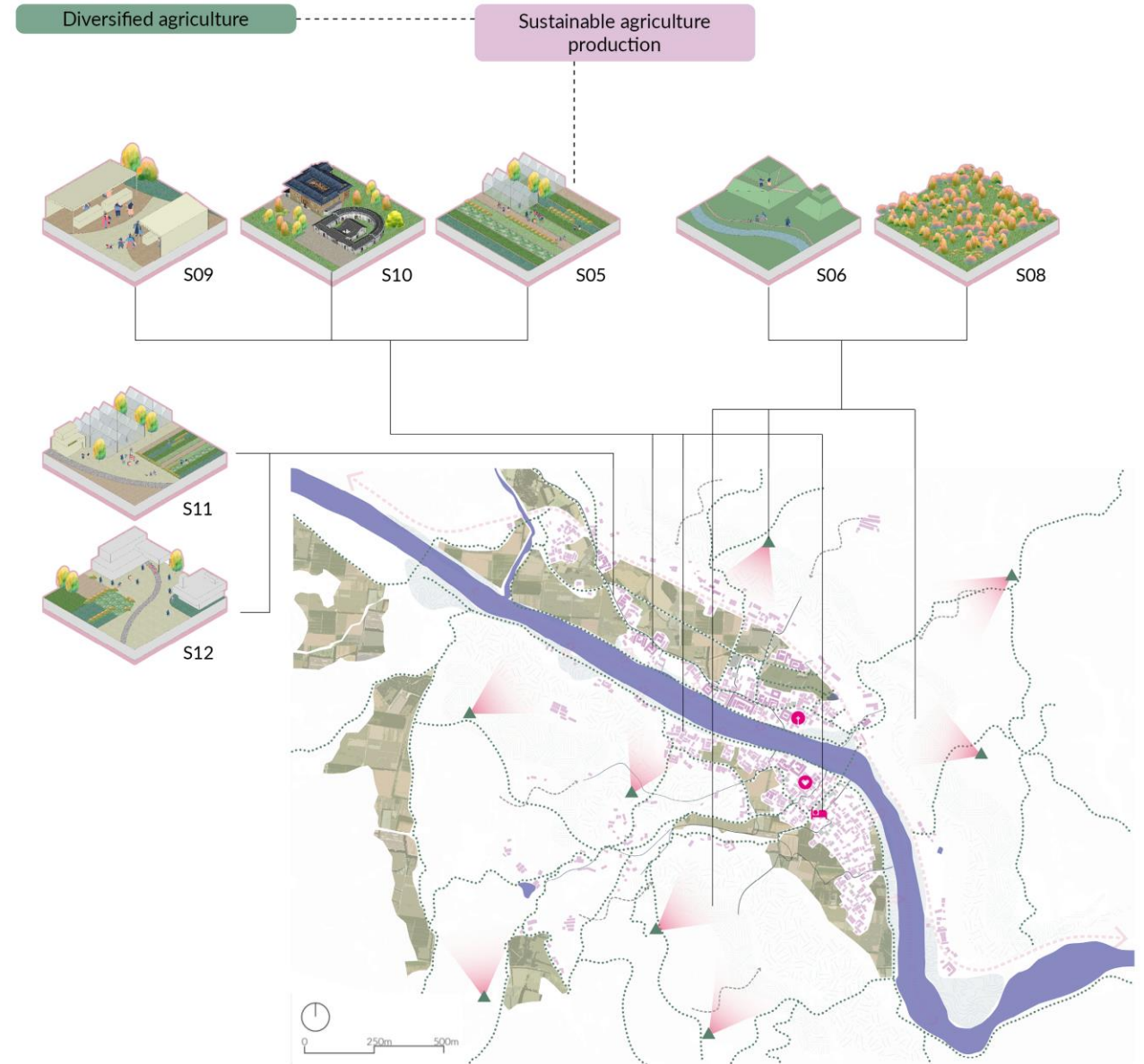
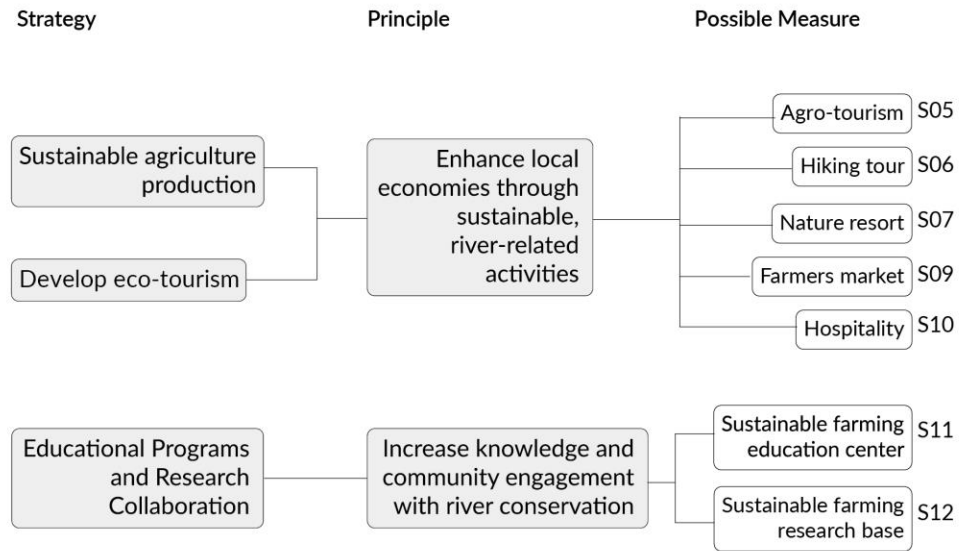
Wet agriculture with aquaculture E15

Arable farming with horticulture E16



## JIEBU VILLAGE VISION

### Livelihood

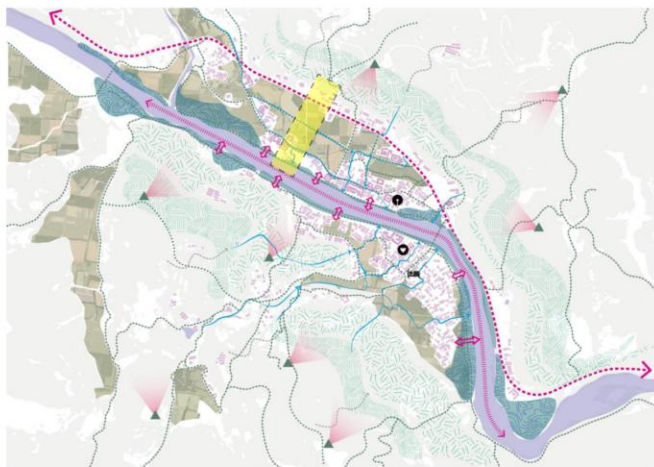




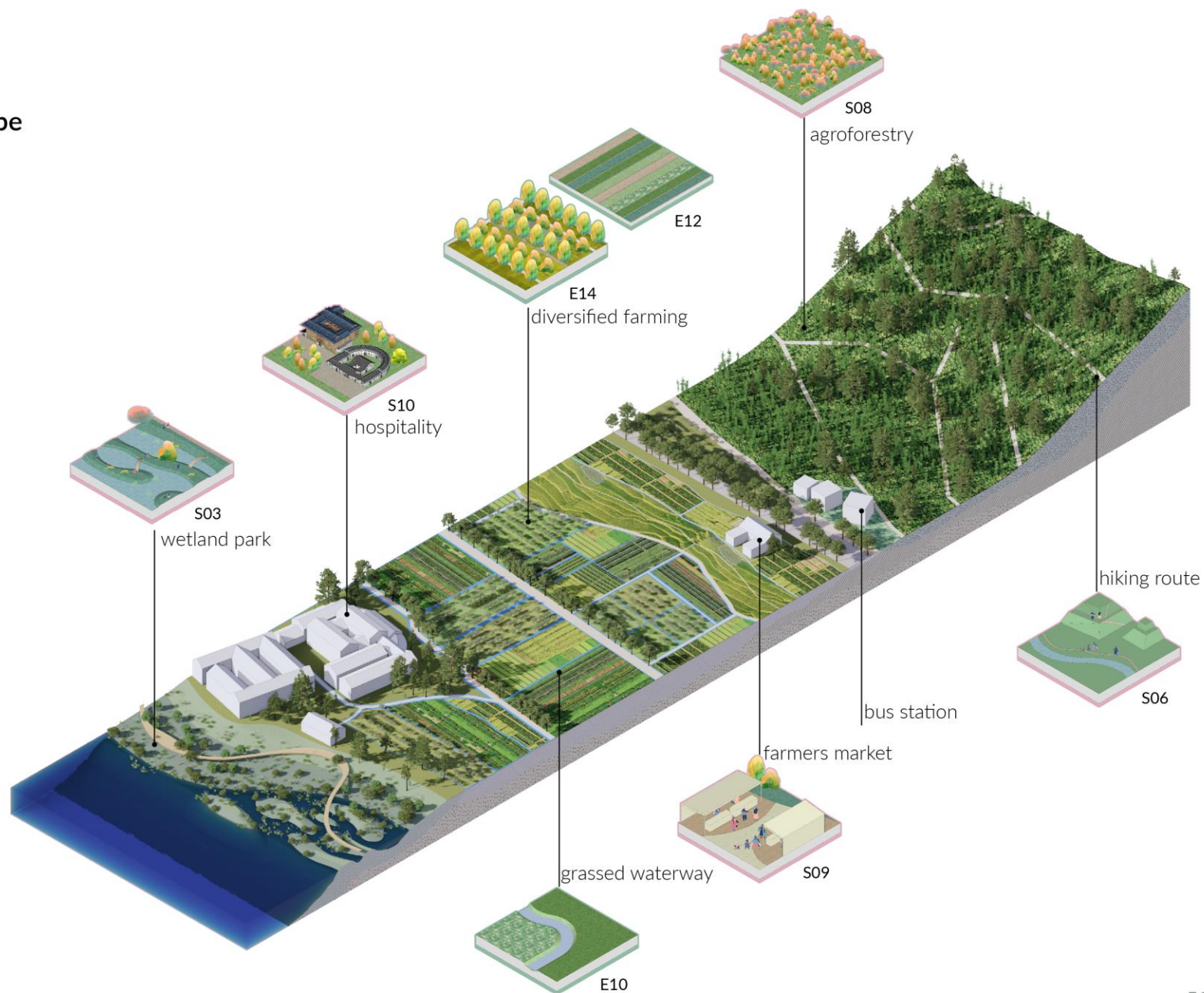
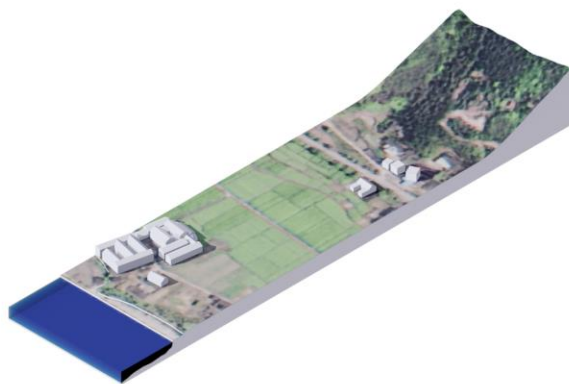
## ■ DEMONSTRATION OF DESIGN

Plot 1: Riverfront+ agriculture land+ hill slope

Synthesising possibility 1: Nature-oriented



Current

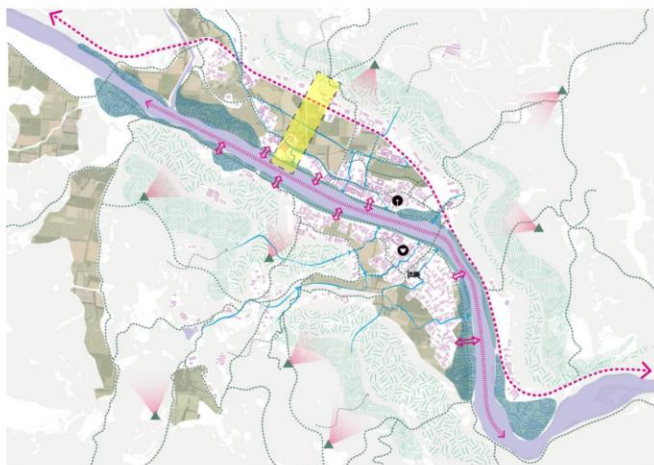




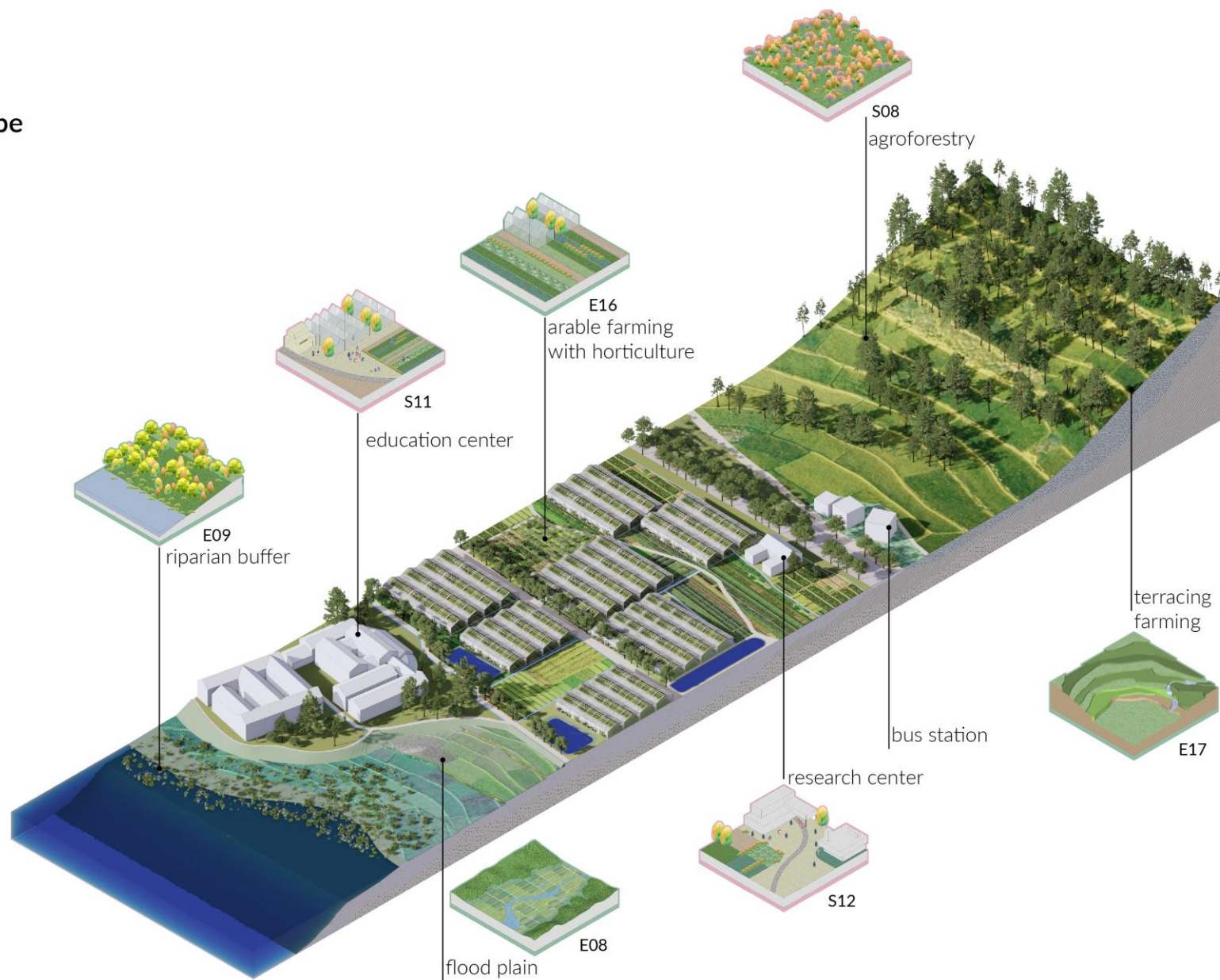
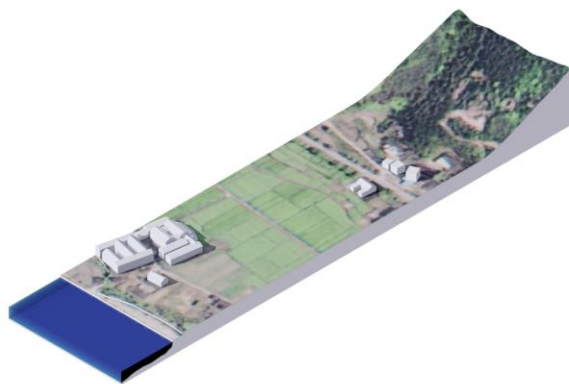
## ■ DEMONSTRATION OF DESIGN

Plot 1: Riverfront+ agriculture land+ hill slope

Synthesising possibility 2: Human-oriented



Current

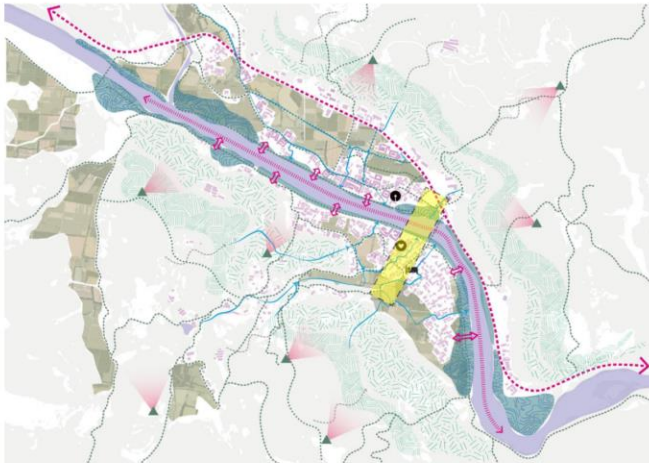




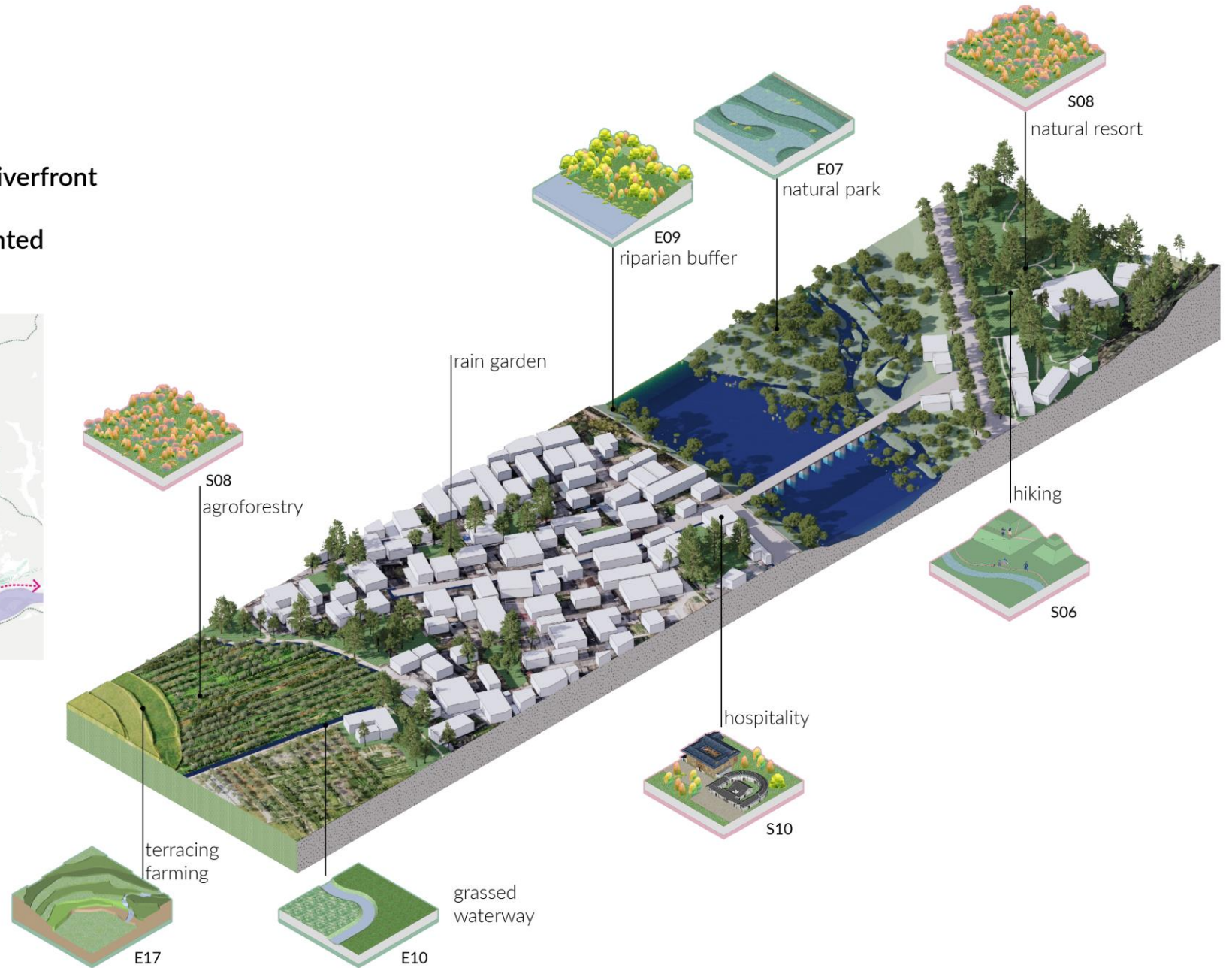
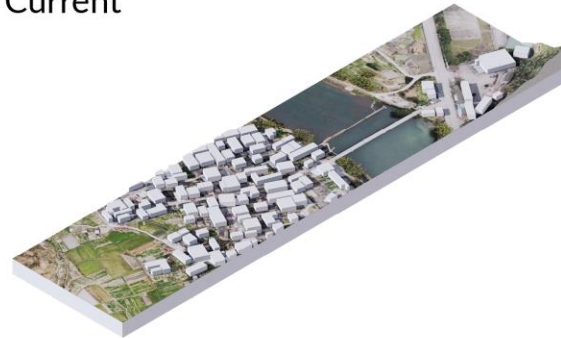
## ■ DEMONSTRATION OF DESIGN

Plot 2 - Residence area+ agriculture+ riverfront

Synthesising possibility 1: Nature-oriented



Current

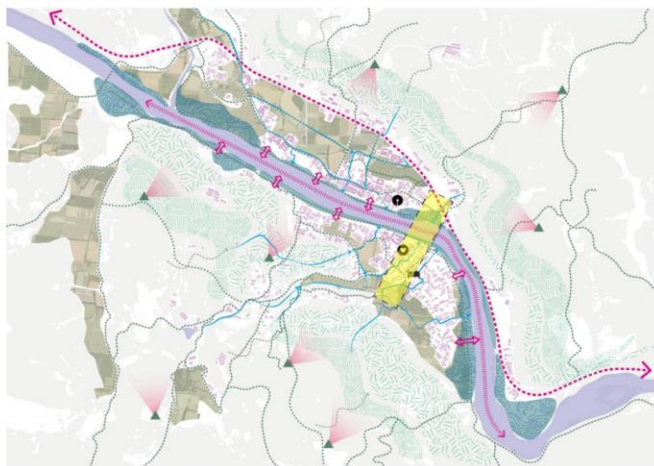




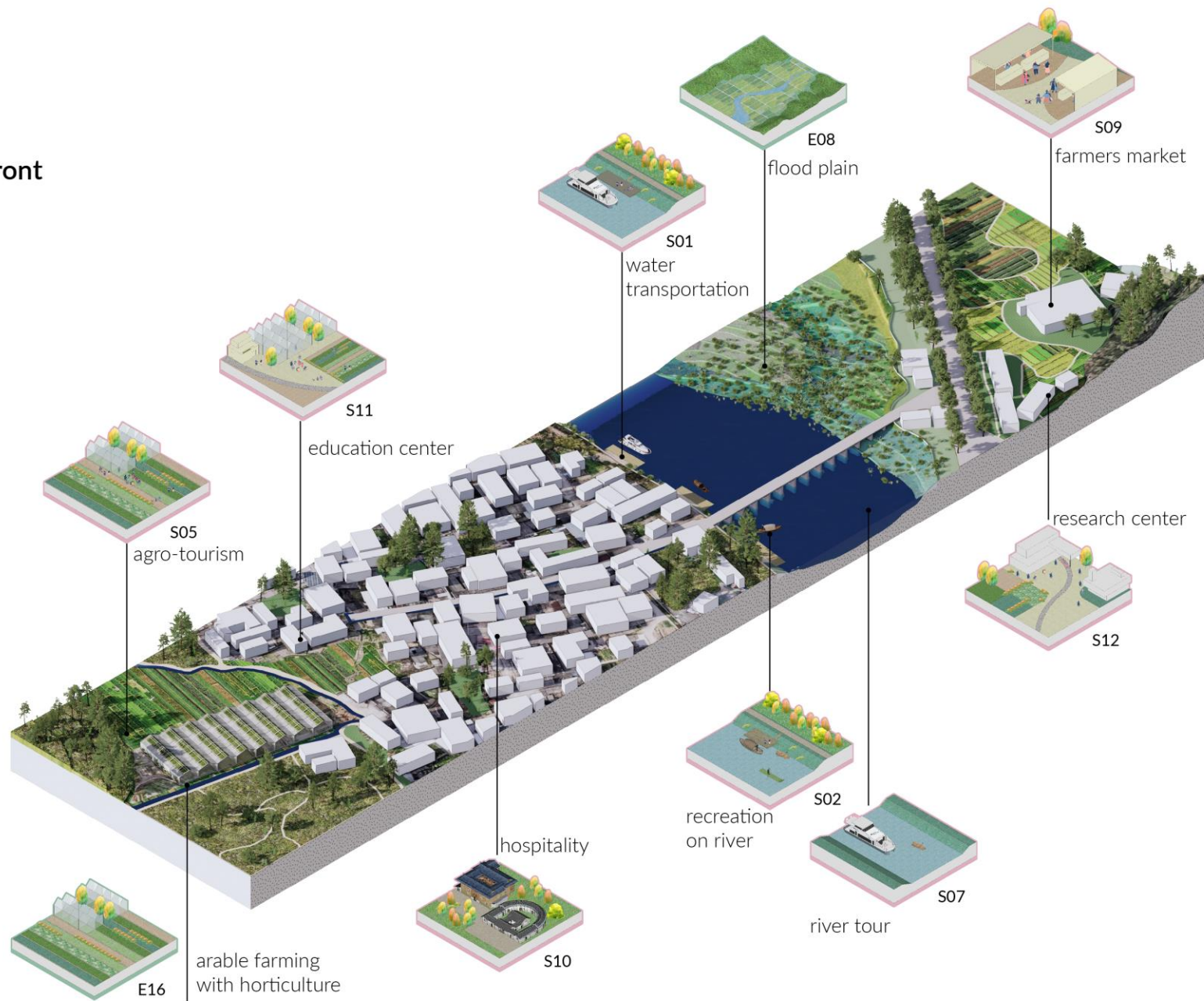
## ■ DEMONSTRATION OF DESIGN

### Plot 2 - Residence area+ agriculture+ riverfront

#### Synthesising possibility 1: Human-oriented

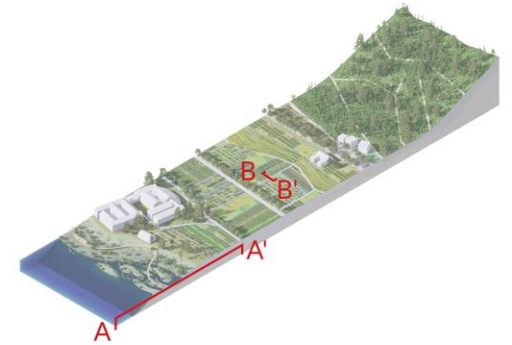


Current

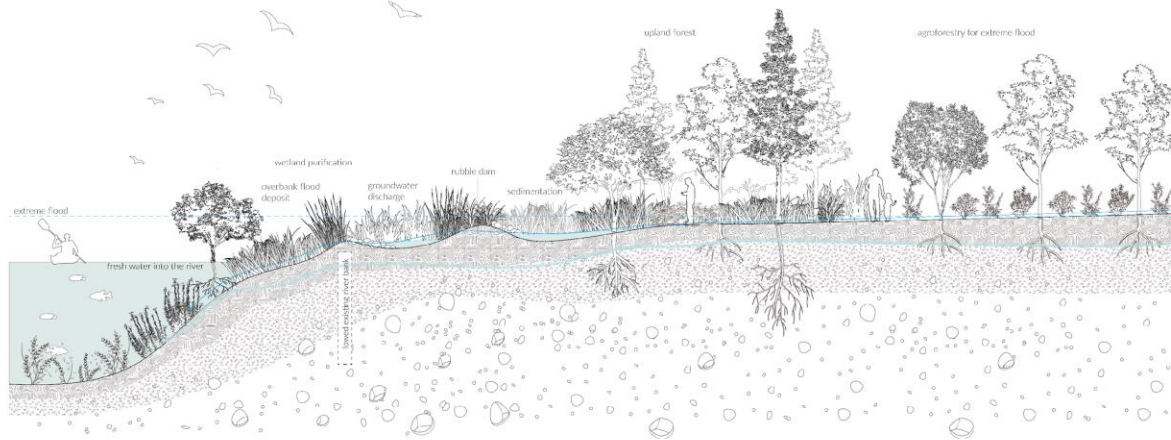




## ■ DEMONSTRATION OF DESIGN



A-A': Soft edge riverfront with flood plain section

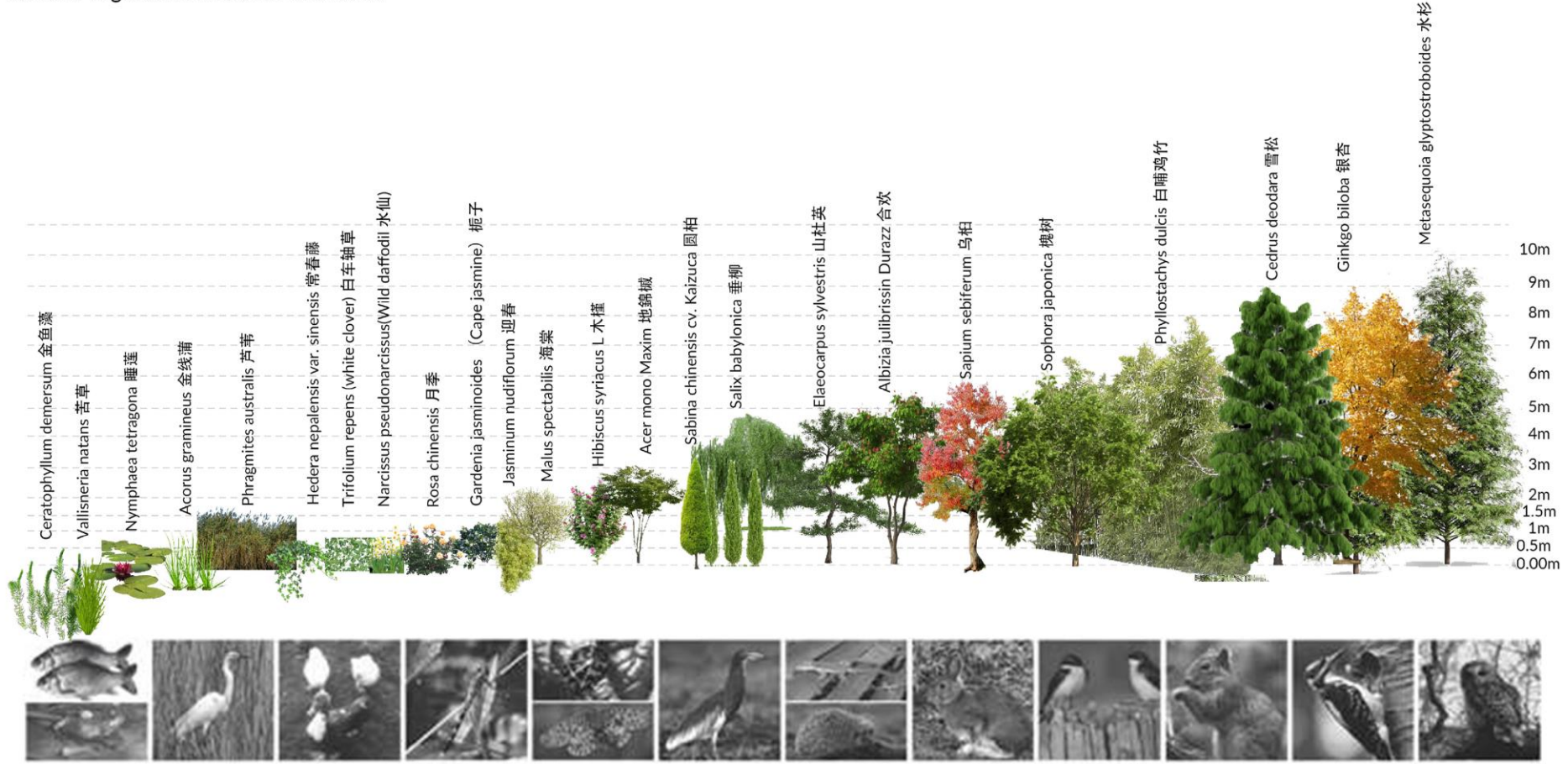


B-B': Grassed waterway with arable land section



## ■ DEMONSTRATION OF DESIGN

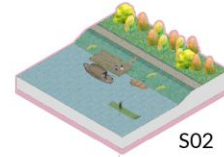
## Suitable vegetation reference and fauna



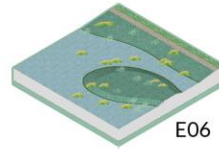


## ■ DEMONSTRATION OF DESIGN

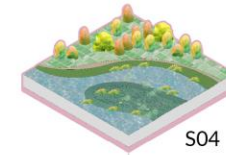
Riverfront



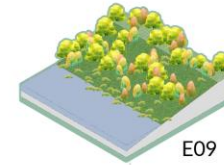
S02



E06



S04



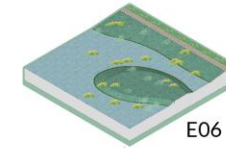
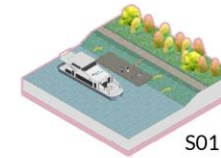
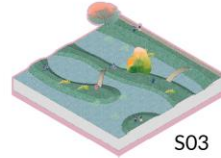
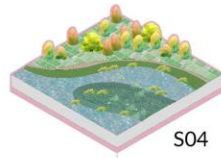
E09





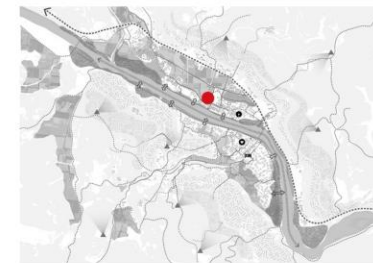
## ■ DEMONSTRATION OF DESIGN

Riverfront

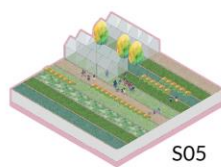




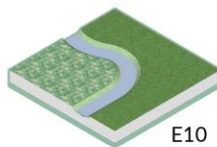
## ■ DEMONSTRATION OF DESIGN



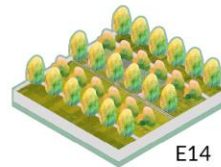
### Agriculture



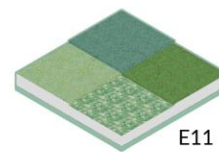
S05



E10



E14



E11



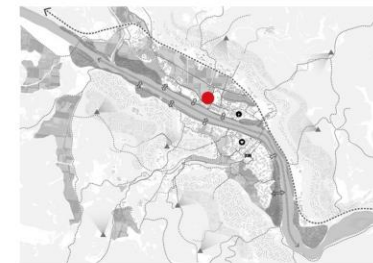
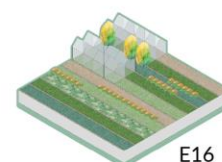
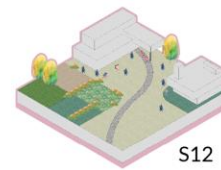
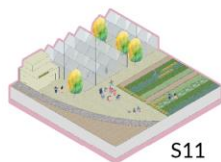
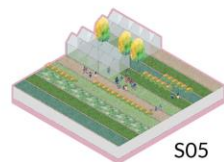
S10





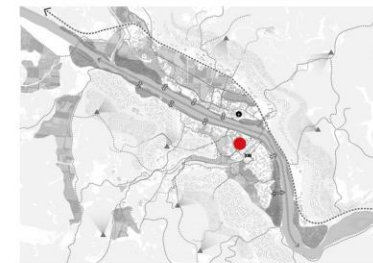
## ■ DEMONSTRATION OF DESIGN

### Agriculture





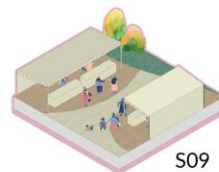
## ■ DEMONSTRATION OF DESIGN



### Farmer's market



S10



S09



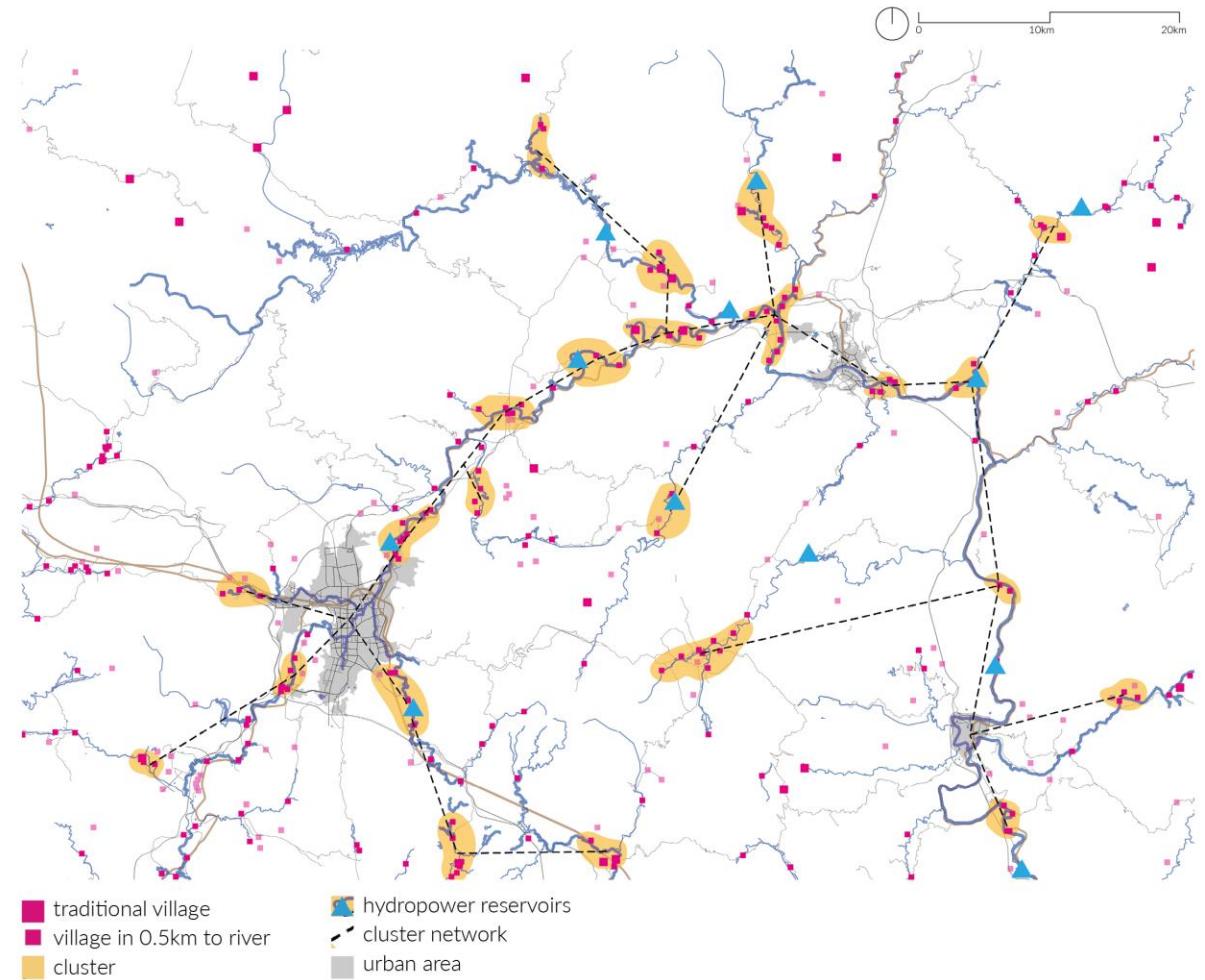
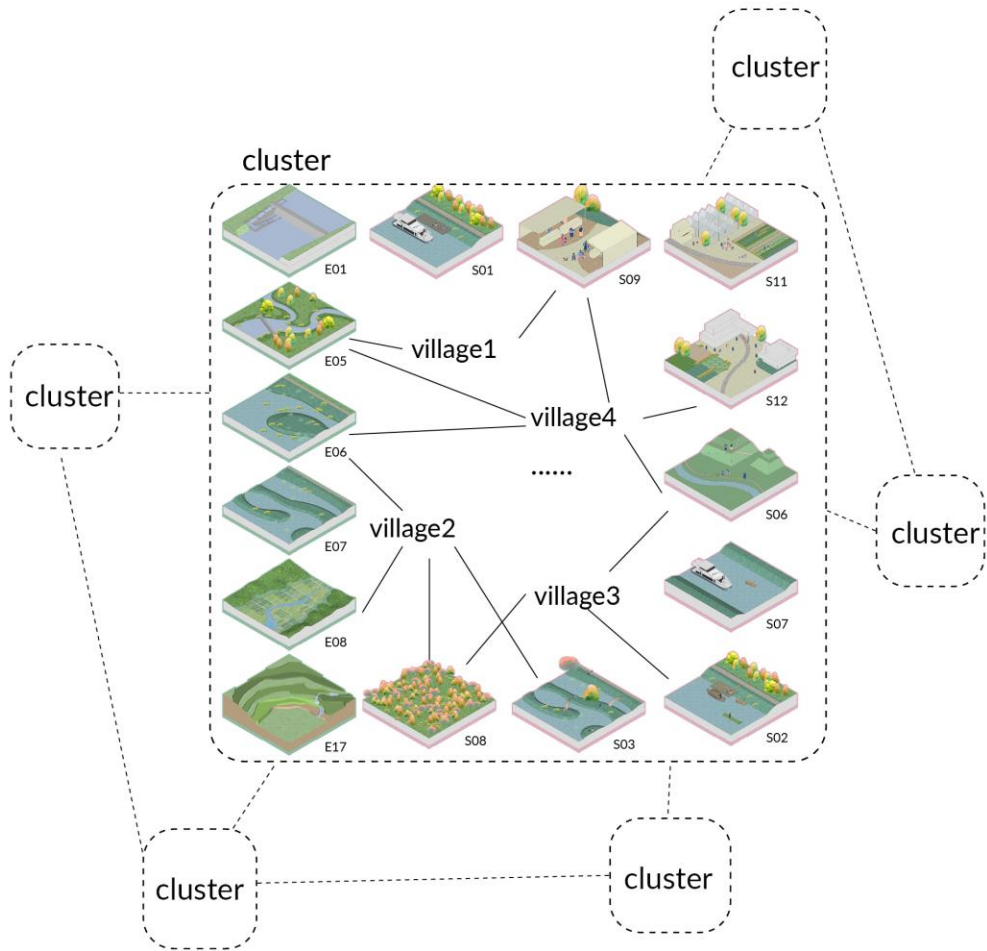
S12





## ■ UPSTREAM REVITALIZATION

### ■ Collaboration cluster

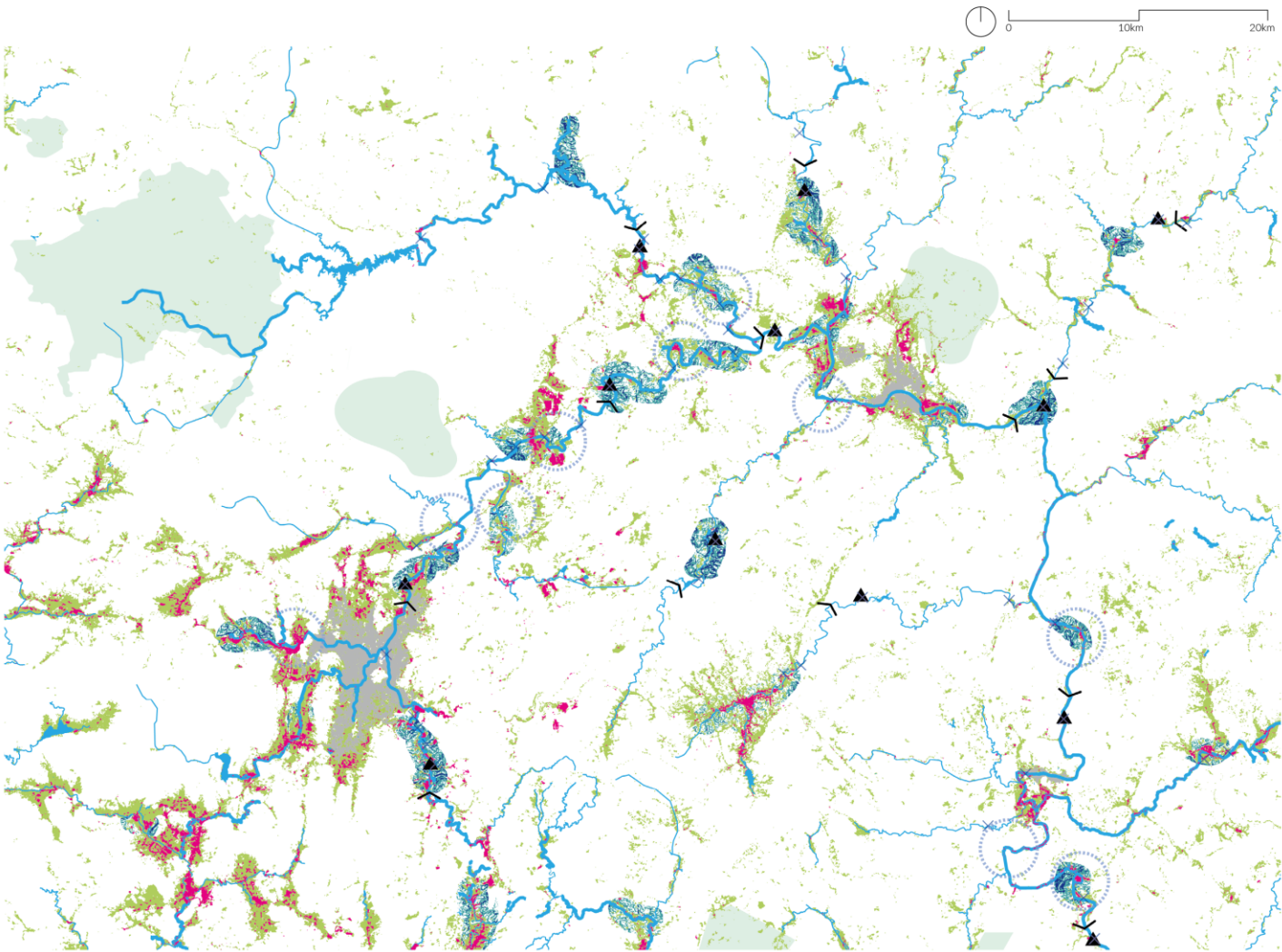




# UPSTREAM REVITALIZATION

## Ecological network

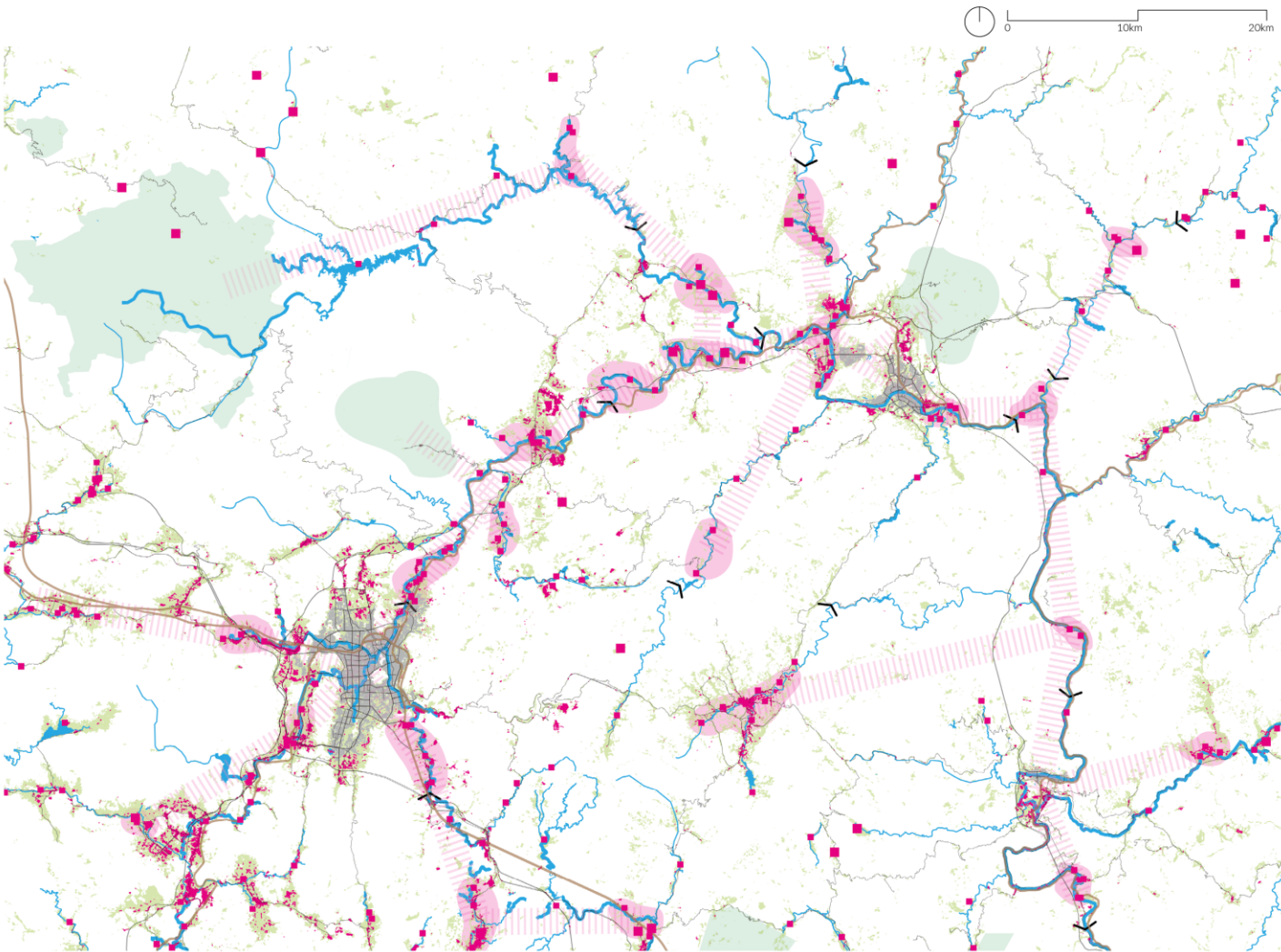
Legend	Strategy	Principle
<div></div> <div></div> <div></div>	Integrated River Management	Restore and enhance ecological connectivity and resilience
<div></div> <div></div>	Pollution Control and Natural Purification	Improve filtration and regeneration
<div></div>	Floodplain Restoration	Enhance absorption and flexibility
<div></div>	Diversifcation Sustainable Practices in Agriculture	Create permanence and harmony
<div></div> <div></div>	Erosion Control Sustainable Land Management	Create and enhance soistability and productivity
<div></div> <div></div> <div></div> <div></div>		



# UPSTREAM REVITALIZATION

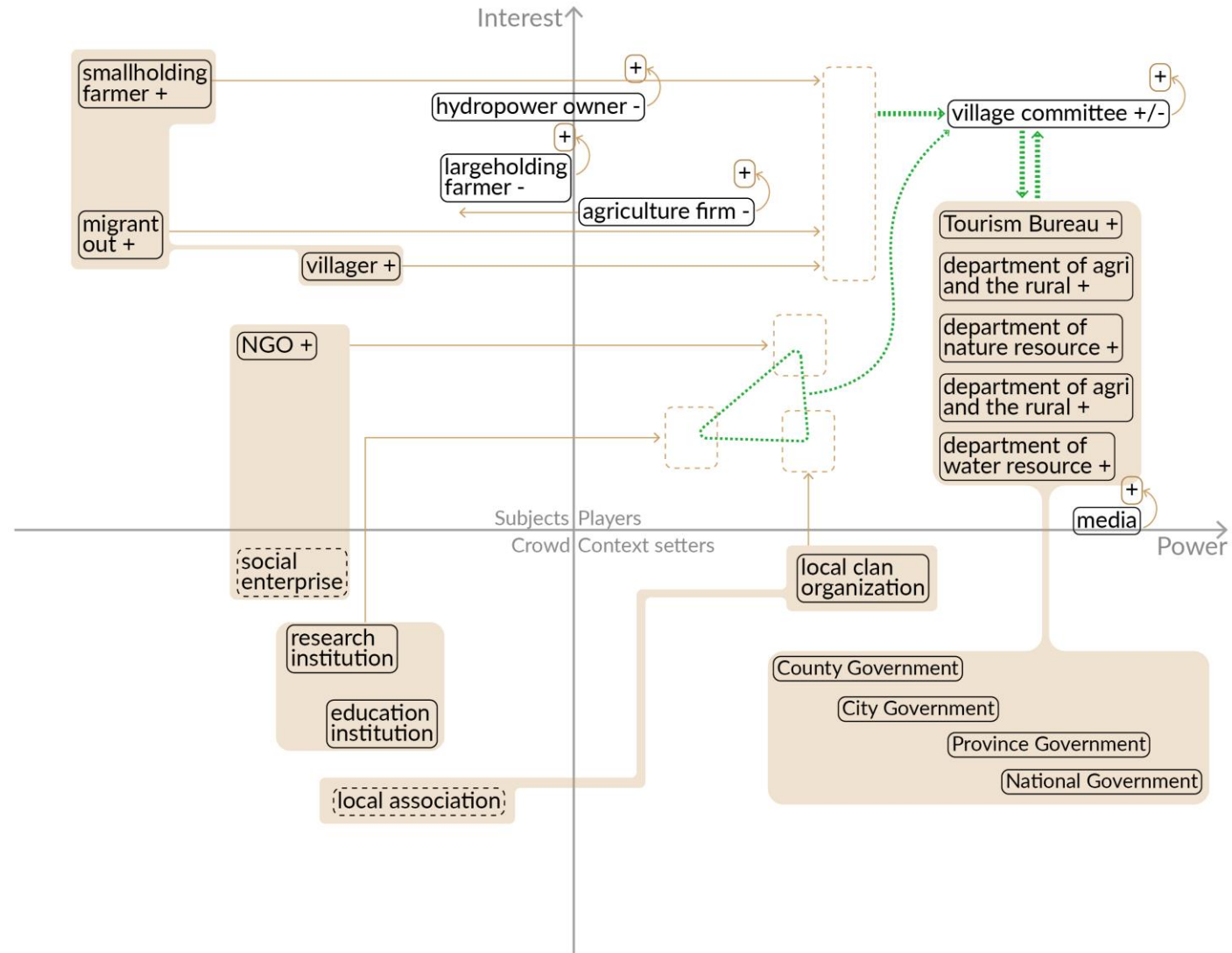
## Social network

Legend	Strategy	Principle
<div></div> waterway	Riverfront/riverline Development& Community Involvement	Foster accessibility and participation
<div></div> arable land	Sustainable agriculture production	Enhance local economies through sustainable, river-related activities
<div></div> collaboration cluster	Develop eco-tourism	
<div></div> traditional village		
<div></div> village in 0.5km to river		
<div></div> rural area	Educational Programs and Research Collaboration	Increase knowledge and community engagement with river conservation
<div></div> traditional village		
<div></div> national forest park		
<div></div> urban area		
<div></div> hydropower reservoir		
<div></div> railway		
<div></div> main road		

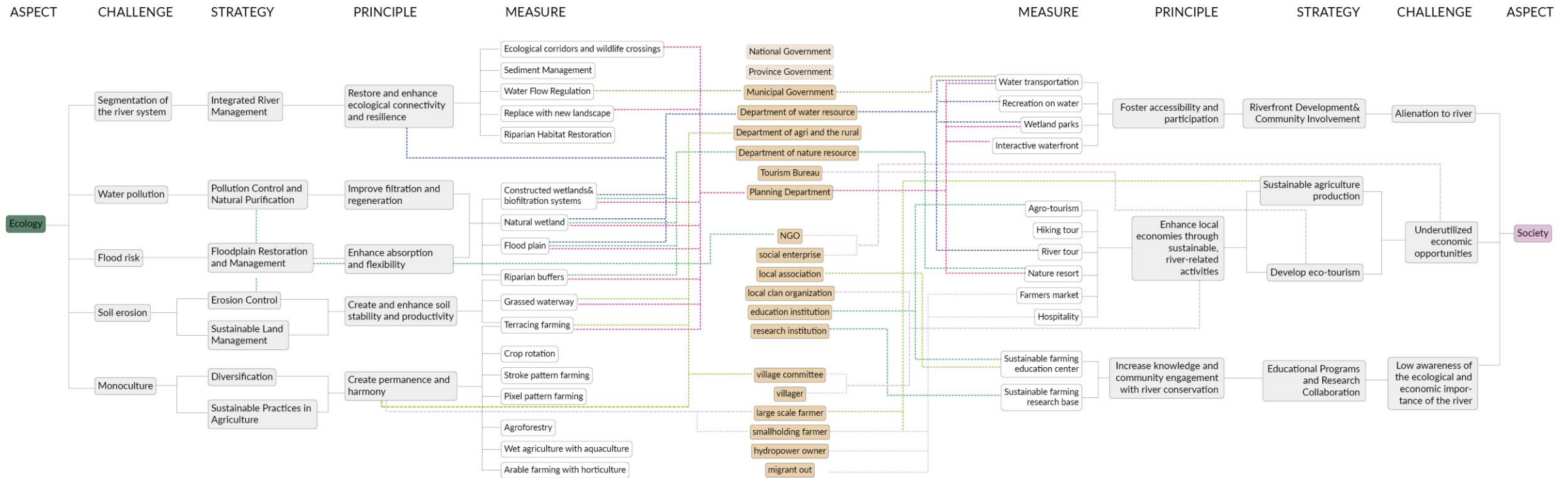




## ■ STAKEHOLDER ENGAGEMENT



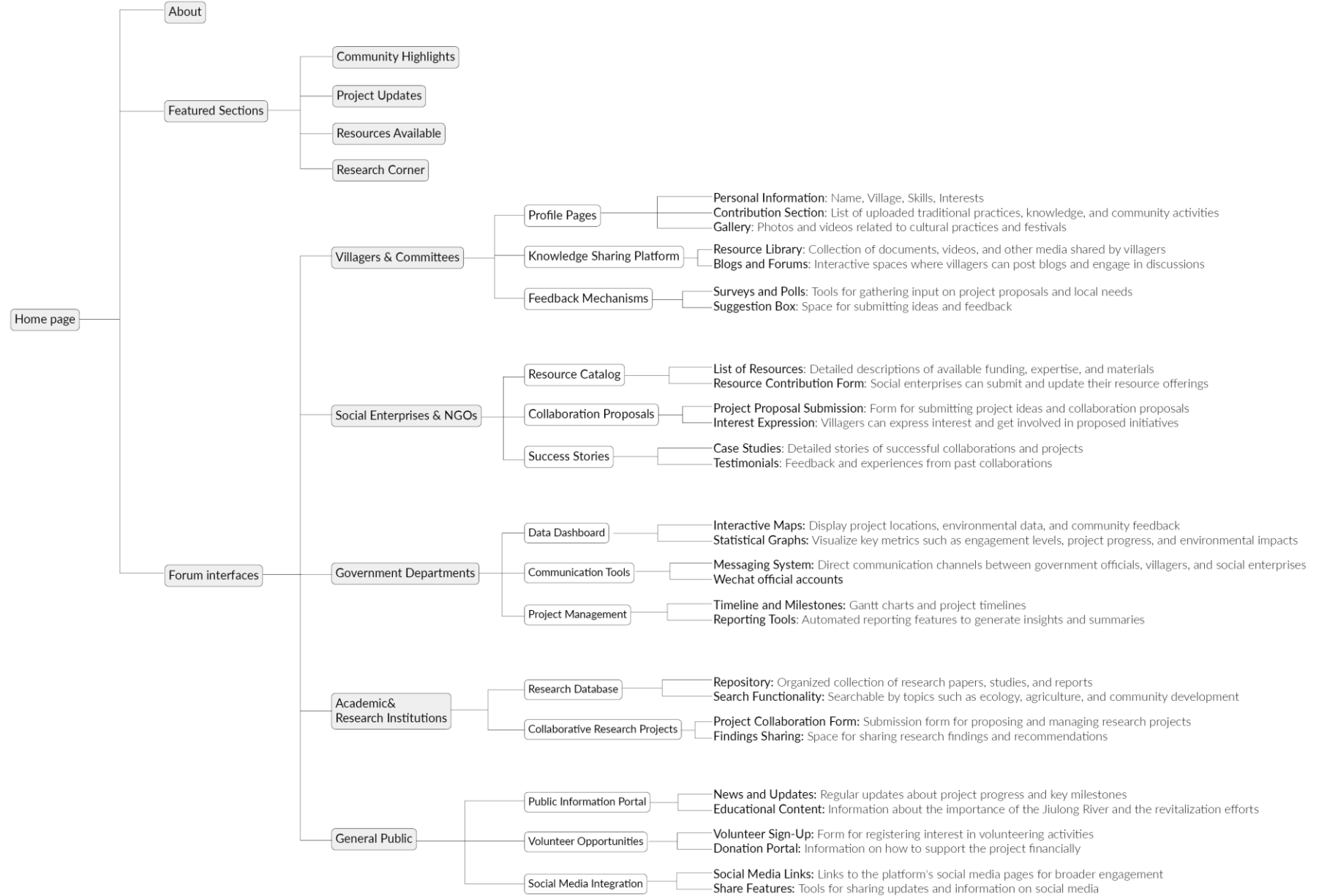
## STAKEHOLDER ENGAGEMENT





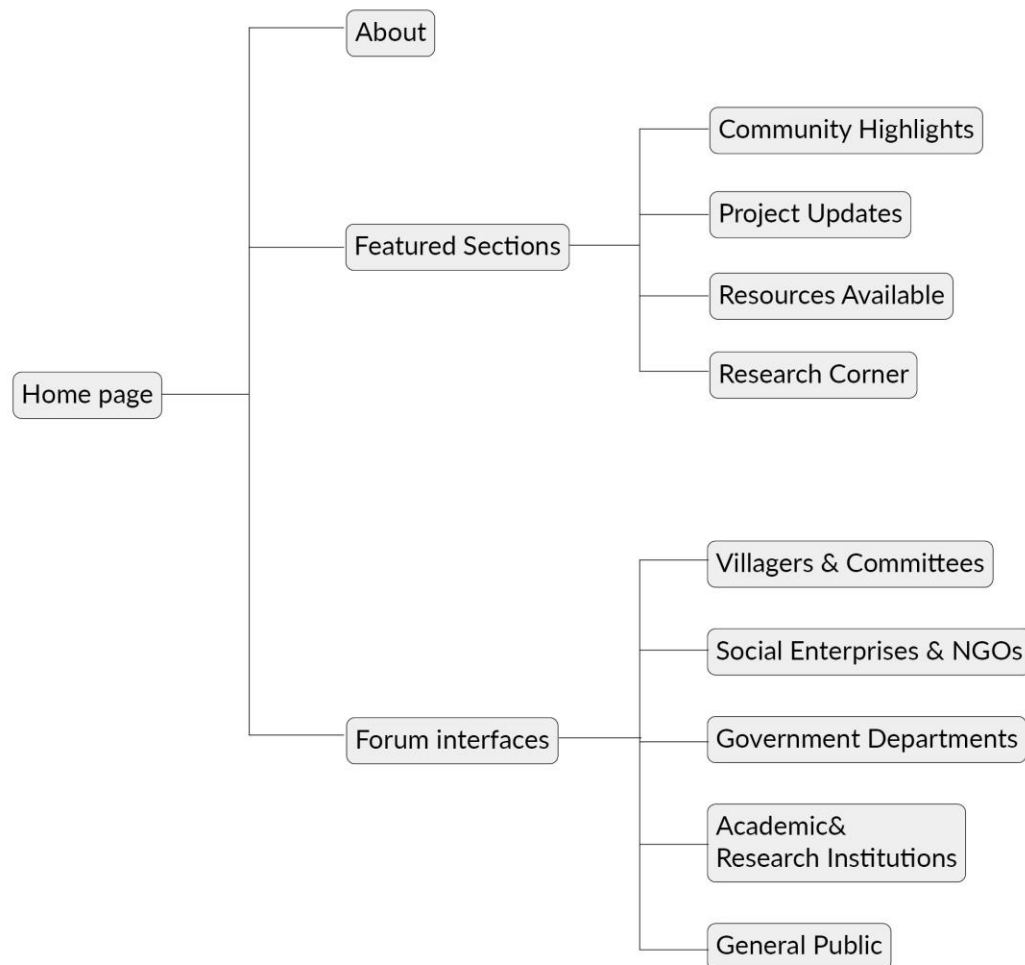
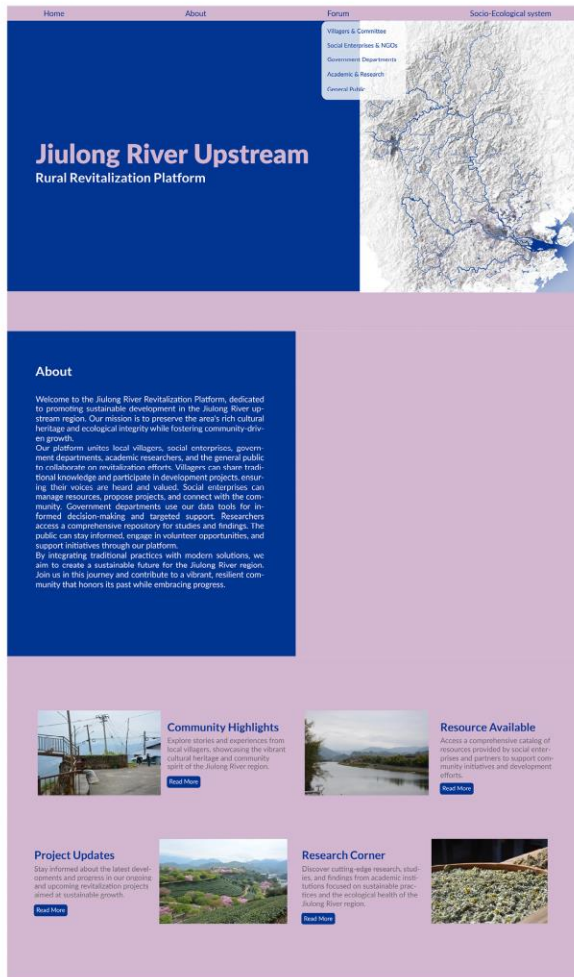
## E- PARTICIPATION

### ■ Prototype framework



## E- PARTICIPATION

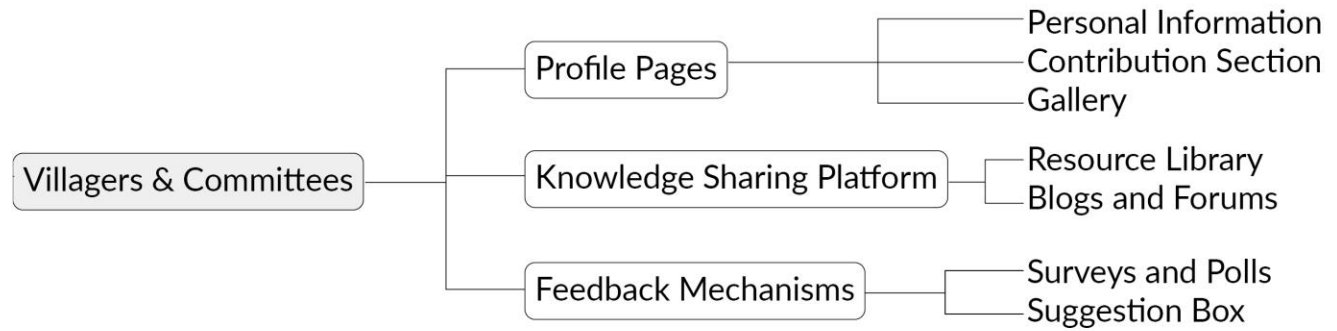
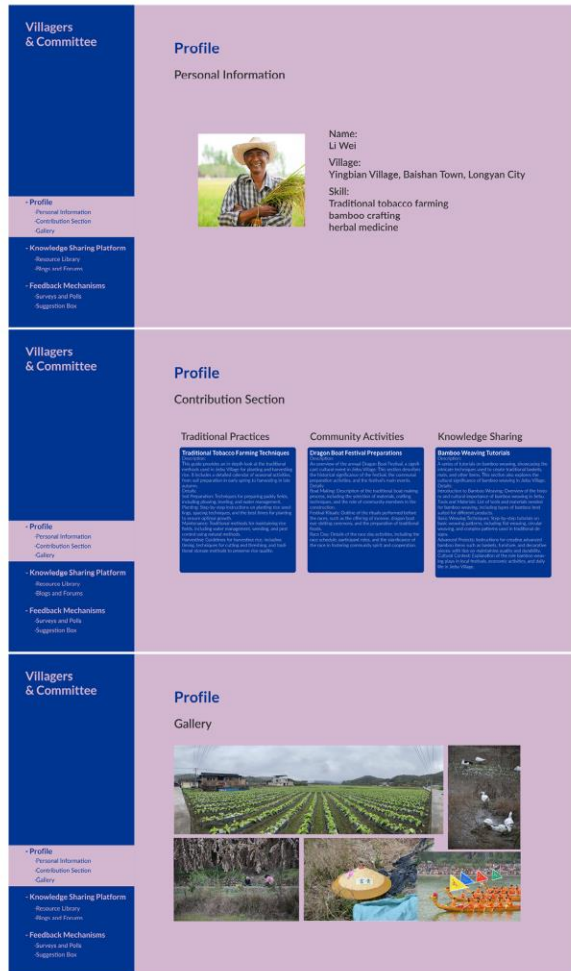
### Home page





## ■ E- PARTICIPATION

### ■ Forum interface- Villagers & Committee

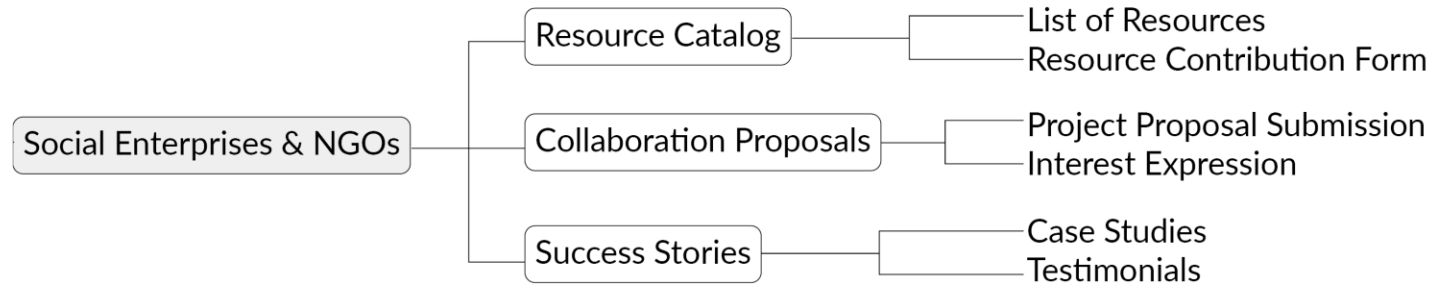


## E- PARTICIPATION

### Forum interface- Soical enterprises & NGOs

The image shows three stacked wireframe panels for a forum interface. Each panel has a blue sidebar on the left with the text 'Social Enterprises & NGOs' and a list of navigation links: 'Resource Catalog', 'Collaboration Proposals', and 'Success Stories'. The main content area of each panel has a title and a list of resources or a form for submission.

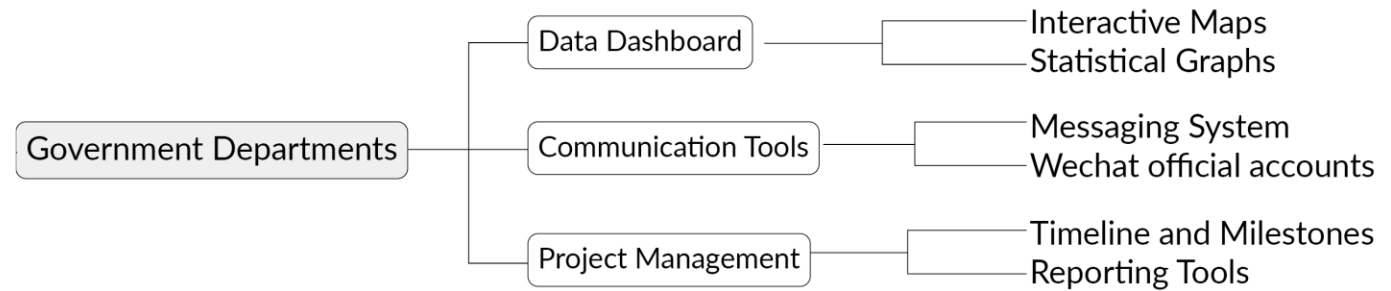
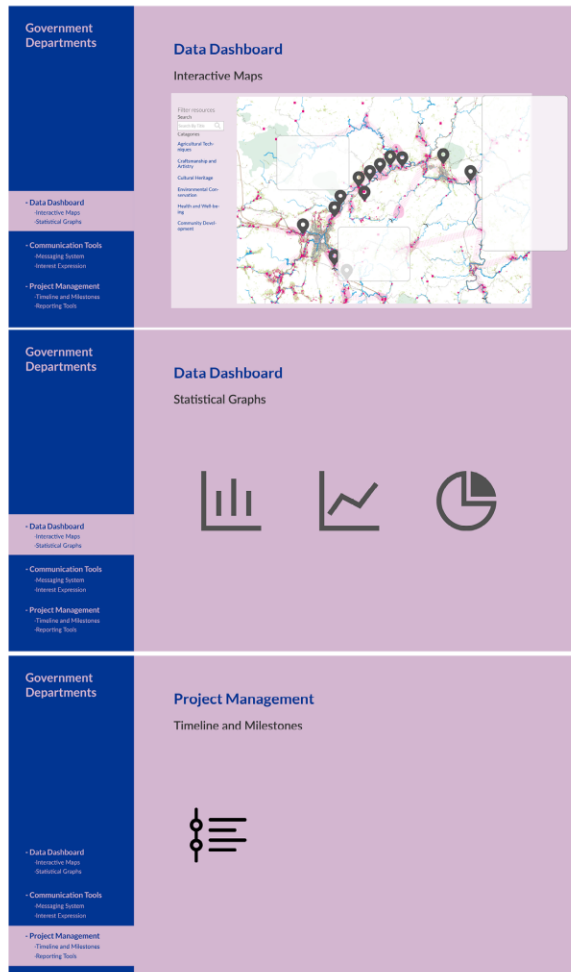
- Panel 1: Resource Catalog**
  - Title: Resource Catalog
  - Subtitle: List of Resources
  - Form: A list of five horizontal input fields.
- Panel 2: Collaboration Proposals**
  - Title: Collaboration Proposals
  - Subtitle: Project Proposal Submission
  - Form: A form with a large text area and several smaller input fields.
- Panel 3: Success Stories**
  - Title: Success Stories
  - Subtitle: Case Studies
  - Form: A form with a large text area and several smaller input fields.





## E- PARTICIPATION

### ■ Forum interface- Government departments



## ■ E- PARTICIPATION

### ■ Forum interface- Academic & research institutions



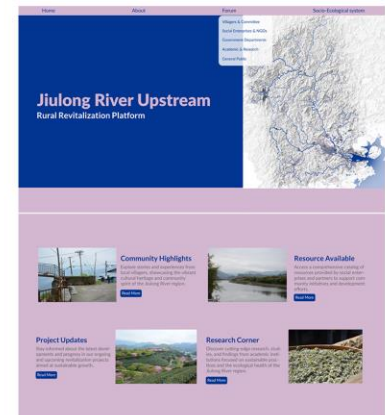
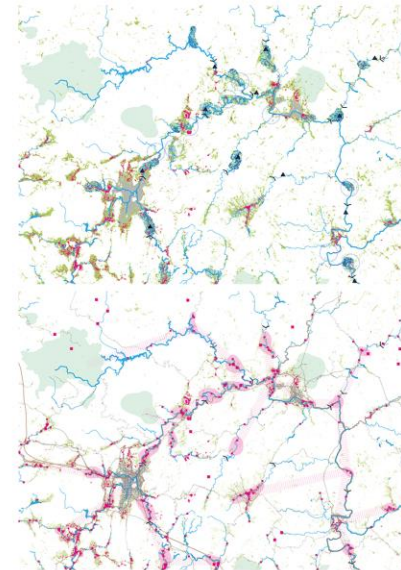
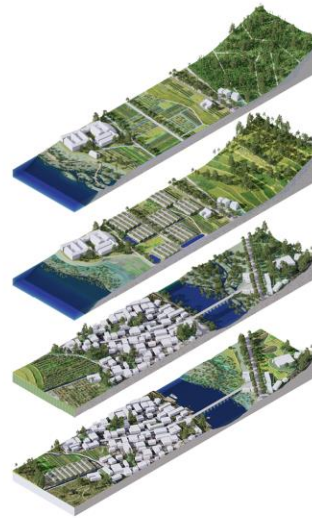
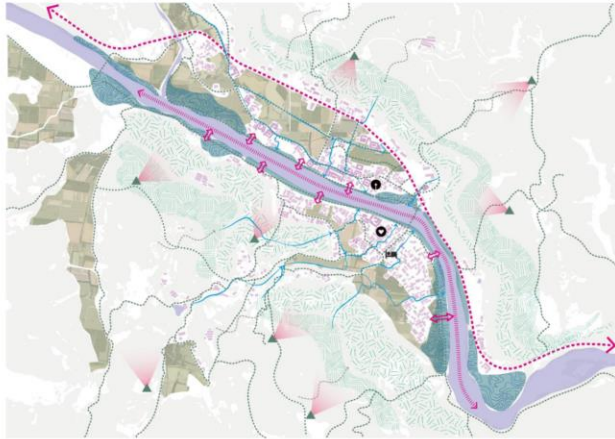
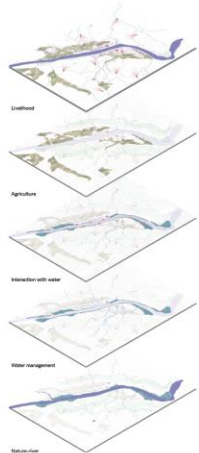
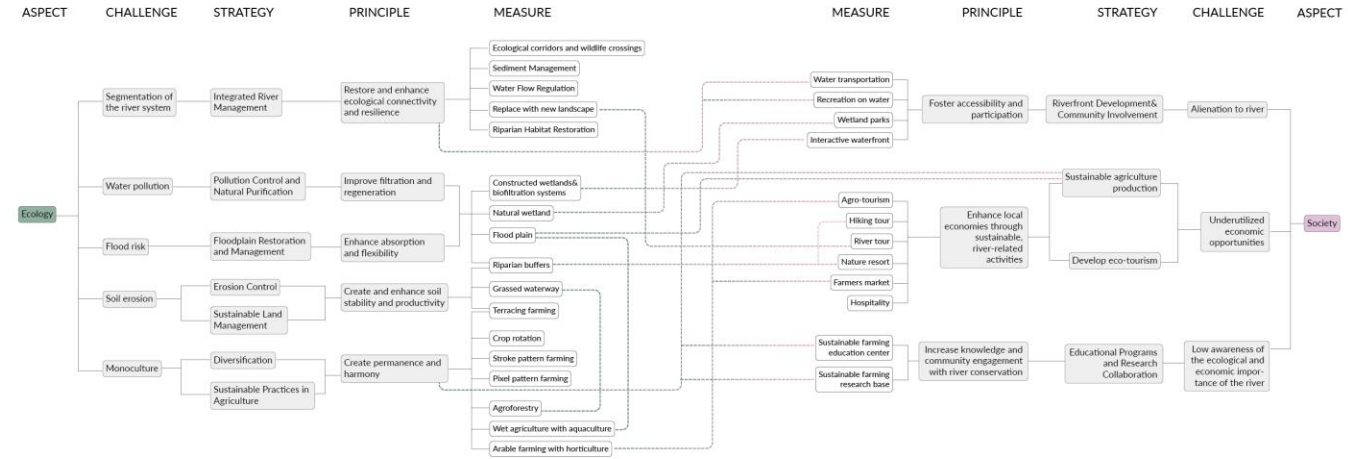
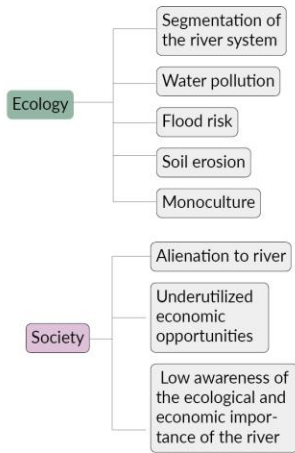


## ■ E- PARTICIPATION

### ■ Forum interface- General public



## CONCLUSION AND REFLECTION





TO SEE THE VR EFFECT



THANKS FOR LISTENING!