SUB — URBAN. REINVENTING THE PERI-URBAN VILLAGE

ESTABLISH COORDINATING URBAN-RURAL DEVELOPMENT THROUGH VILLAGE TRANSFORMATION

P5 PRESENTATION | JIE ZHAO

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PART I

Methodology chapter

PART II

Analysis chapter

PART III

Strategy

PART V

Test design

PART V

Conclusion and reflection

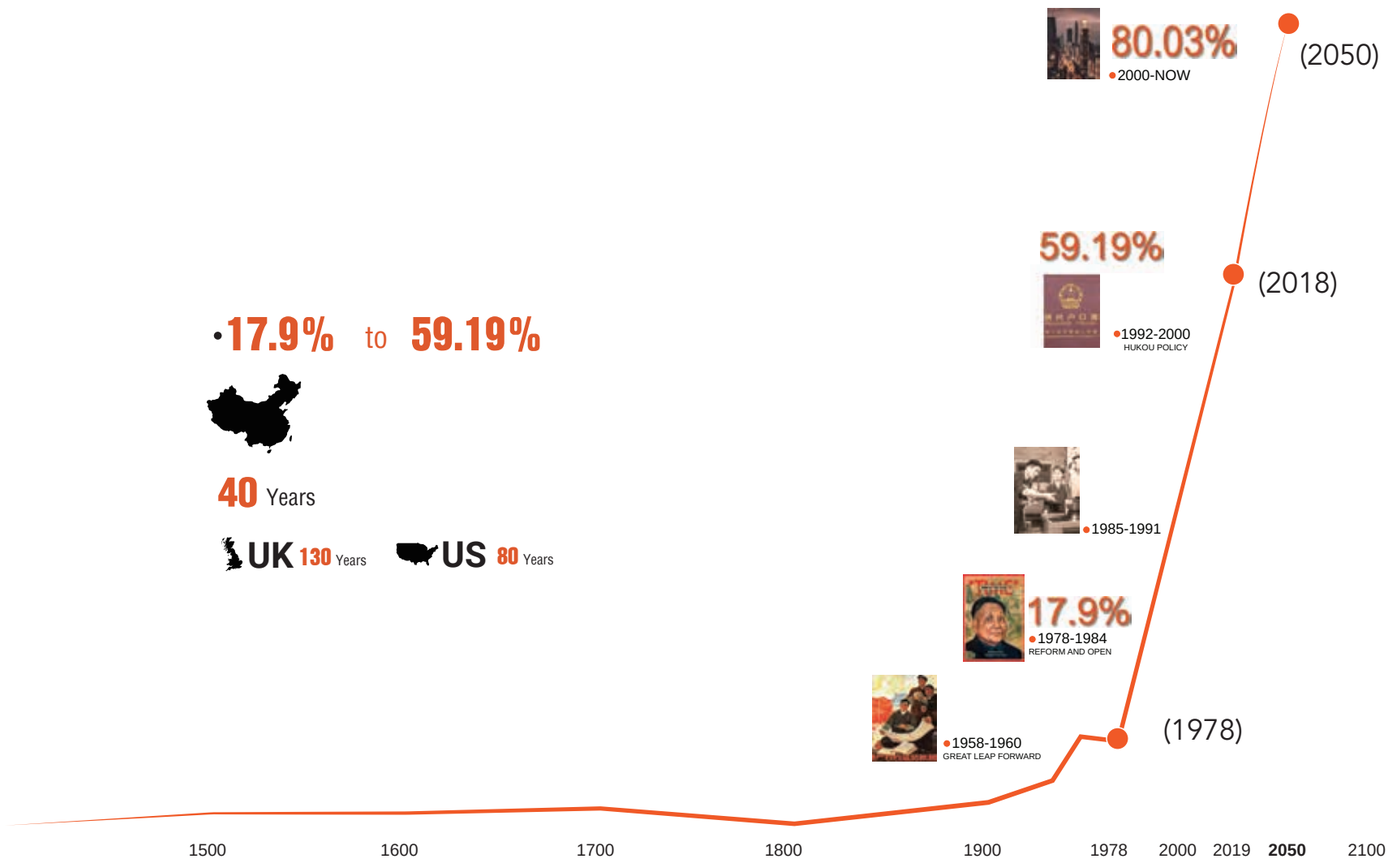
China Facts What is happening in China ?

Research context & probelm field

The **radical expansion of cities** and the process of i**ndustrialization** had a great impact on **China** —a **traditional agricultural country**

RAPID URBANIZATION IN CHINA

SINCE **REFORM AND OPING-UP** IN 1978



GOVERNMENT ORIENTED DEVELOPMENT

Big city pressure

Traffic congestion

massive popullation migrations

Inadequate education resources

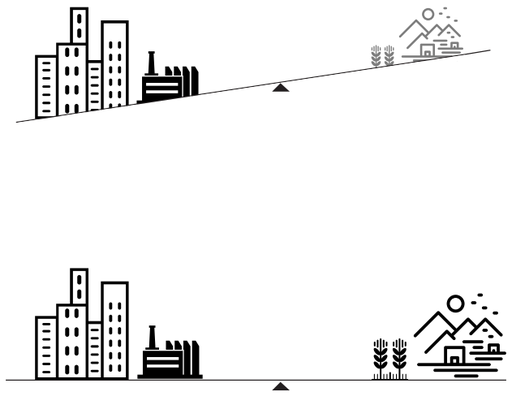
Long-term existence of **“three rural issues”** in China

leftover children & aging population

lost of traditional culture

empaty village

Coordinating urban - rural development model as the fundamental strategy of solving “three rural issues”



Choose peri-urban village as research subjects

Choose peri-urban village as research subjects

Why choose peri-urban villages as research subjects?

- It has great **potential** to become the **link** between urban and rural areas;
  the **carrier** of rural resources;
  the **platform** for absorbing rural surplus labor
- A **buffer** between city and nature
- The most **conflicting** region
- It has the **dual characteristic** of city and country
- Its own **strong demand** for development


PERI -URBAN VILLAGES IN DIAN BASIN, KUN MING

SITE LOCATION

China —— Yunnan province ———— Kunming city

Important industrial town in southwest China

MONO-CENTRIC DEVELOPMENT MODEL

1. Residential land

2. Urbanization level

3. Gross population

4. Enterprise distribution

5. Technology centre

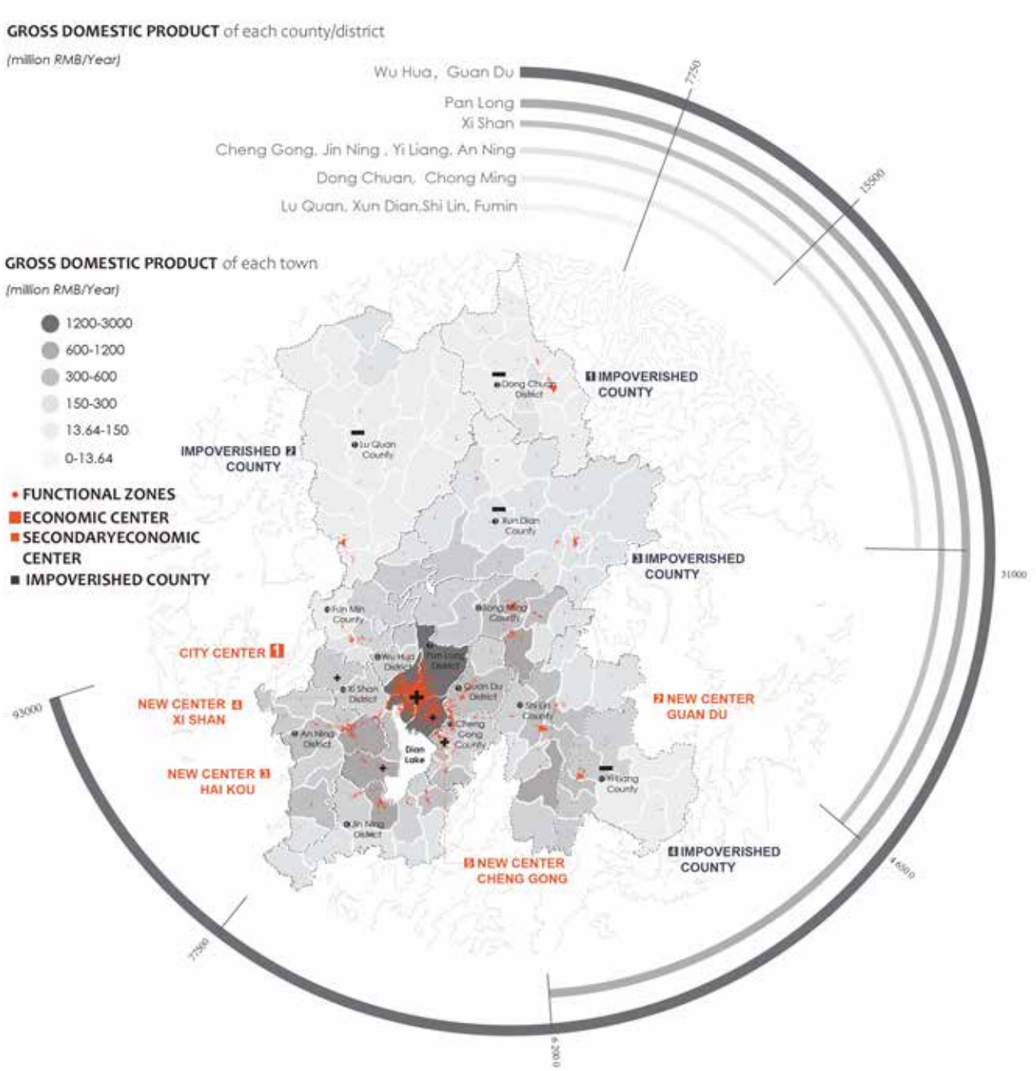
6. Education distribution

7. Business service facilities

8. Public service facilities

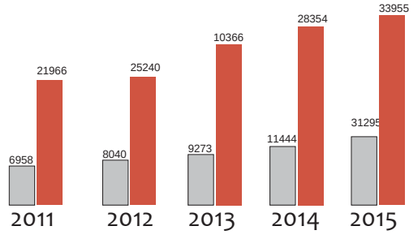
Loss of economic value

THE CHALLENGE 1
UNBALANCED ECONOMIC LEVEL
LOSS OF **ECONOMIC** VALUE



INCOME GAP

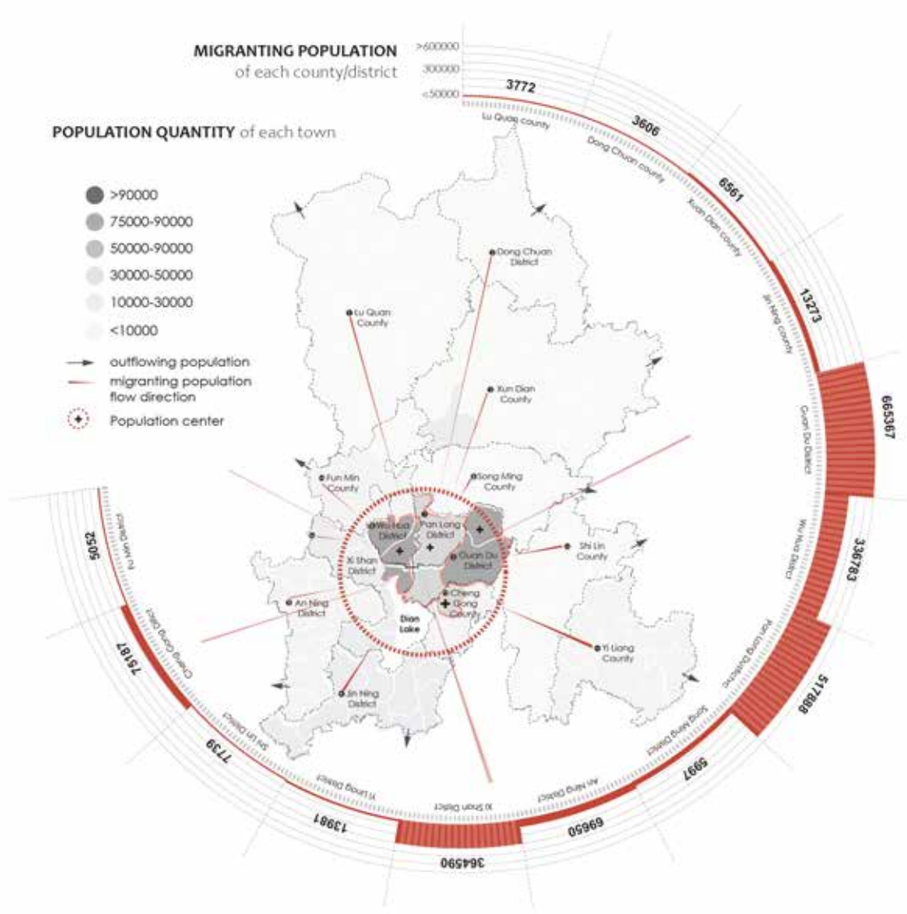
Urban- rural resedents *RMB/YEAR*

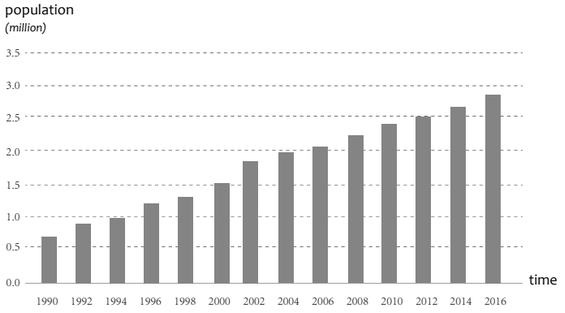


Loss of labor force capital

THE CHALLENGE 2

A MASS MIGRATION FROM RURAL TO THE URBAN
LOSS OF **LABOR FORCE CAPITAL**



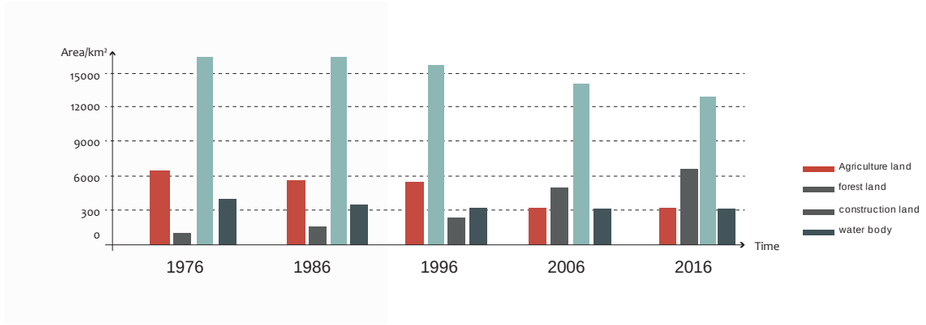


Loss of land capital

THE CHALLENGE 3

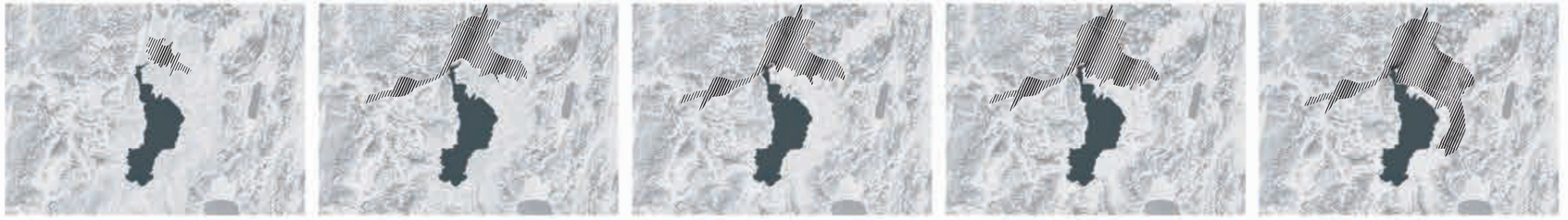
URBAN SPACE PRESENTS THE TREND OF SPRAWL

LOSS OF **LAND CAPITAL**

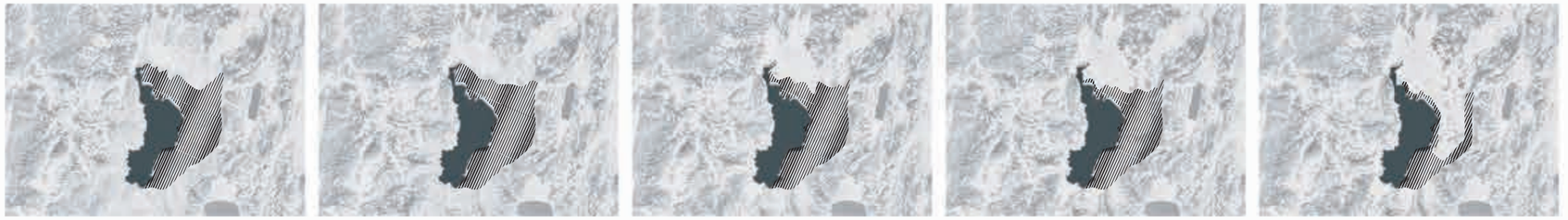


shrinking water body, decreasing woodland & farmland, expanding urban area

sprawl of urban area 87.53km² → **538.12km²**



shrinkage of farmland and wetland **517.93km²** → **251.36km²**



1976 **1986** **1996** **2006** **2016**

THE CHALLENGE 4
URBAN FUNCTION DIFUSSION & INDUSTRY RELOCATING
DEPRECIATION OF ECOLOGICAL CAPITAL

Industry park

Industry area

Depreciation of ecological capital

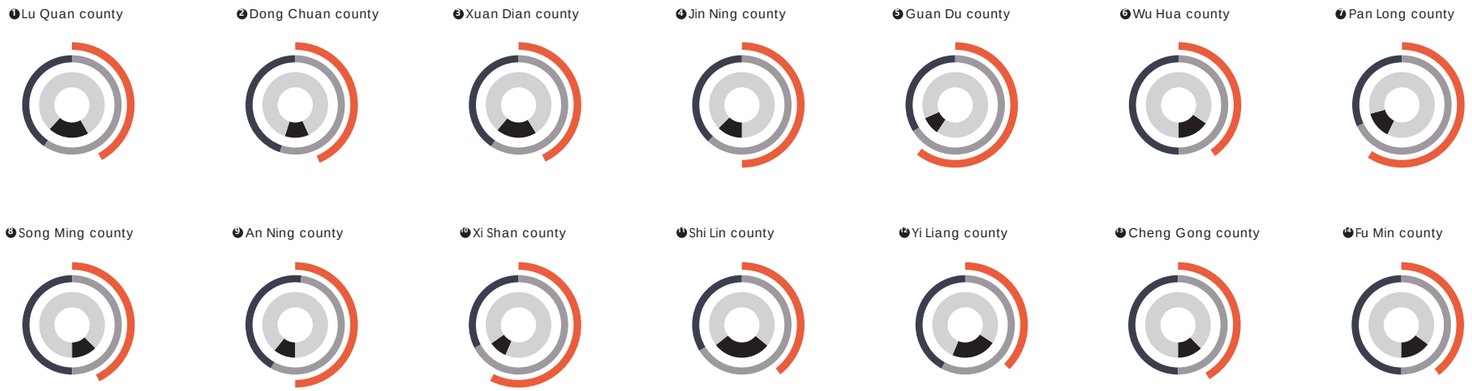
Main industry type of Kunming

Kunming's main pillar industrial product output in China's similar products rank

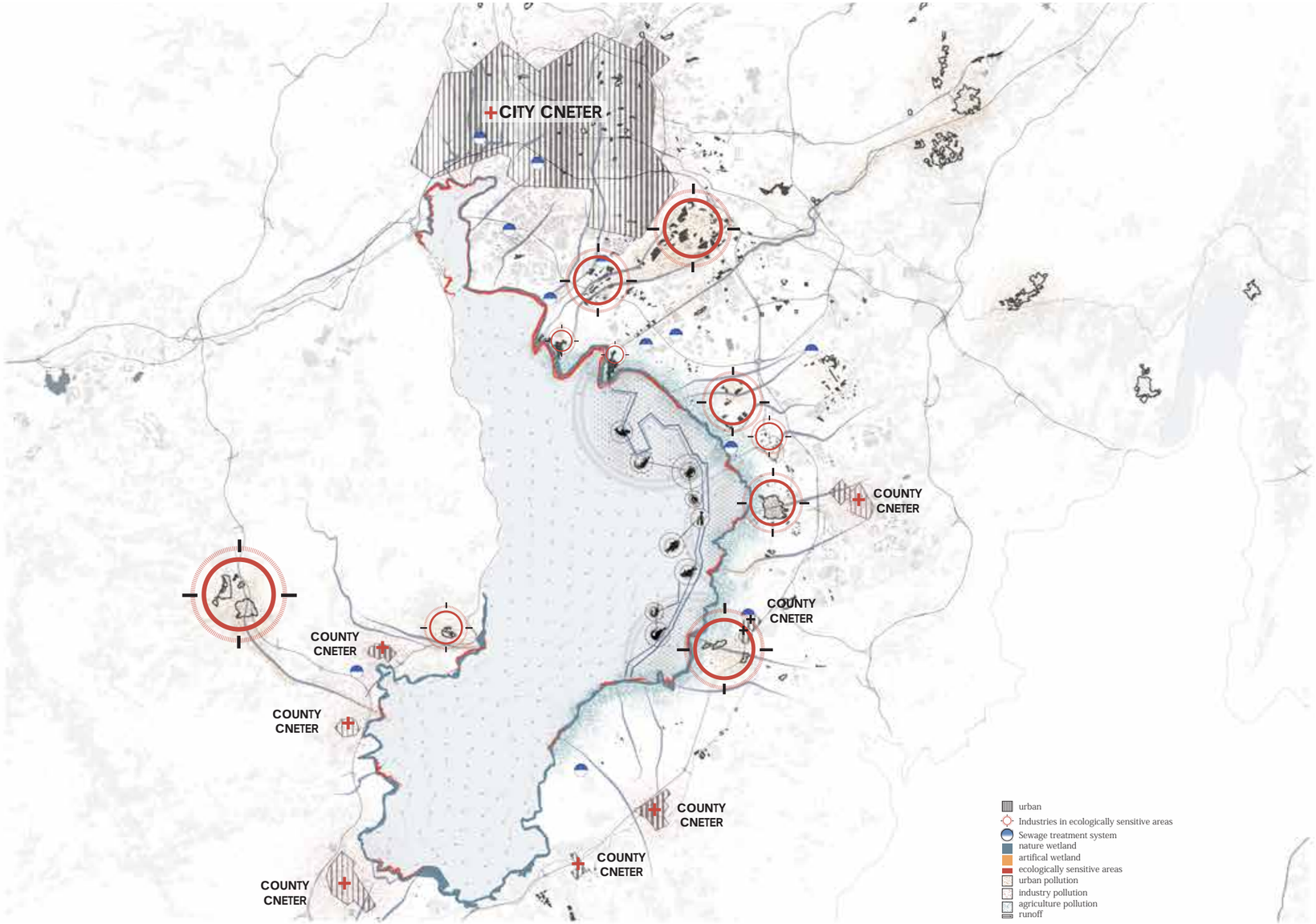
Industry type	cigarette manufacturing	Fertilizer manufacturing	non-ferrous metal metallurgy	Coal mining	Power generation	stell	Cement production	Sulfuric acid production
ranking	1	8	2	18	17	20	14	1

Chart.8 Industry ranking of Kunming

Industry structure of each county/district



Depreciation of ecological capital



PROBLEM STATEMENT

Peri-urban village Marginalization
The loss of peri-urban villages‘ value

Peri-urban villages are experiencing economic prosperity under the **"diffusion effect"** of city center, at the same time , they also bear the constraint of the **"polarization effect"**. The "polarization effect" of the city center is a resistance to the social and economic development of the urban periphery. The strong pulling power of city center has caused **labor and capital to flow out** of the rural area.

The homogeneity of urban industry diffussion resulted in the **single industrial structure** of the peri-urban villages and **low level of rural industry technology**. With the large number of **polluting industries** moving from urban to urban periphery, the **deterioration of the ecological environment** in peri-urban villages is particularly prominent, and the **ecological capital is devalued** seriously.

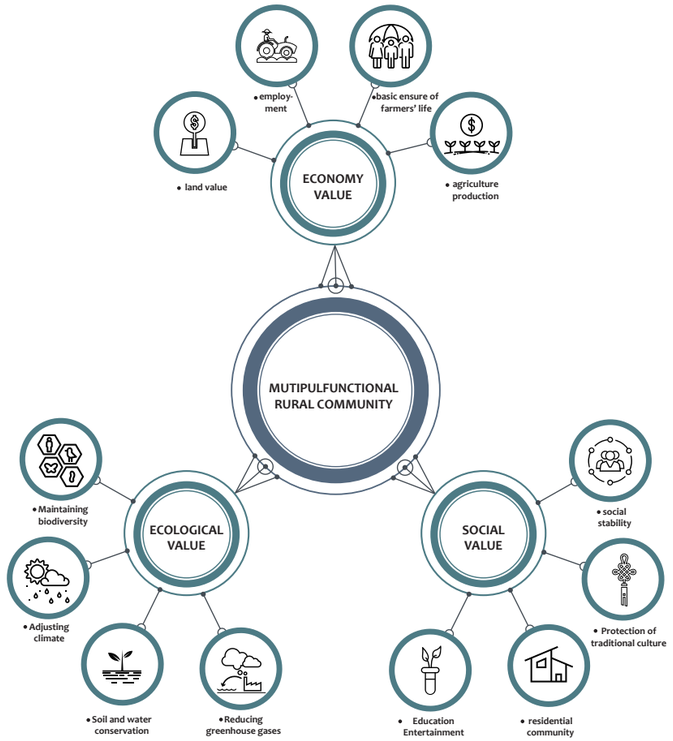
Due to the lack of scientific and standardized planning and corresponding governance systems, on one hand,rural land cannot be effectively integrated, which leads to a **decline in land use efficiency and benefits**. On another hand, as a major gathering place for immigrant populations, **social security problems** have long existed in many peri-urban villages due.

Per-urban villages in Kunming are faced with the pressure of industrial upgrading and the severe challenge of protecting the ecological environment during development.

The city's demand for the value of the peri-urban villages is rising

the role of peri-urban village is changing

in the period of ecological civilization



SODA Osamu-*Philosophy of Agricultural Science*, Year 2000

Agriculture refers to the broad concept of agriculture, which consists of **agriculture, rural areas and land**, not only the agriculture with industrial nature

Rural industry transformation is **driving force** for Coordinating urban-rural development

FLOWER INDUSTRY

as sunrise industry in China

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as sunrise industry in China

3.33% China's flower planting area has grown by an average of 3.33% annually since 2012

1630000km² of flower planting area in China(2019)

4190000 job positions of flower industry in China

50% Fresh cut flower sales in Yunnan account for about 50% of the national market

104100km² of flower planting area in Yunnan(2019)

180000 job positions of flower industry in Yun nan

10.39% Kun Ming's flower planting area has grown by an average of 10.39% annually

80% Fresh cut flower sales in Kun Ming account for about 50% of the Yunnan market

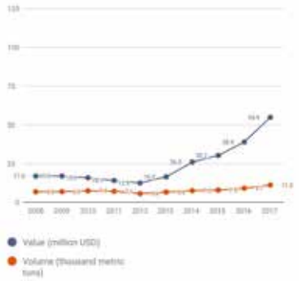
71030 job positions of flower industry in Kunming

78.8% Fresh cut flower sales in Yunnan account for about 78.8% of the provincial market

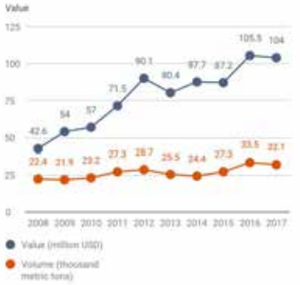
3.08km² of flower planting area in Dian basin (2019)

20000 job positions of flower industry in Dian basin

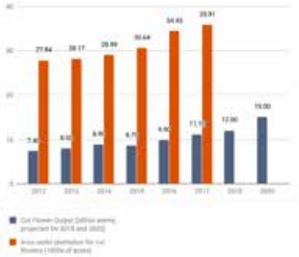
China Cut Flower consumption



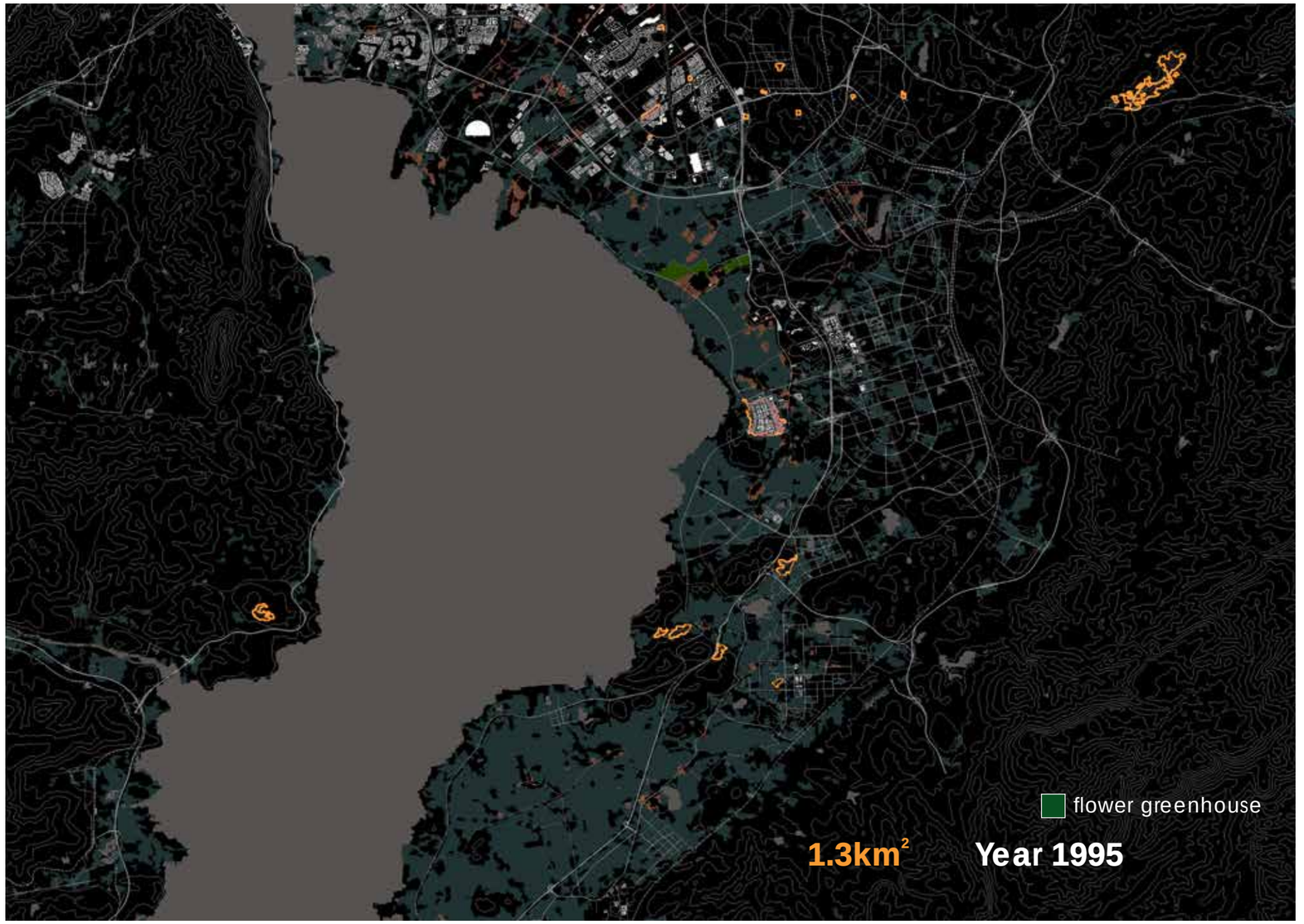
China Cut Flower export



Kunming Cut Flower Industry Plantation



Data source:Yunnan Flower Technical Training and Promotion Center


flower greenhouse
1.3km²
Year 1995

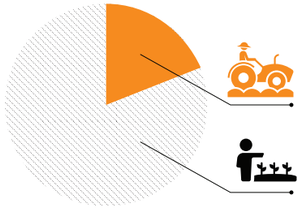

flower greenhouse
12.6km²
Year 2000


flower greenhouse
32.6km²
Year 2005


flower greenhouse
58.4km²
Year 2015

BUT

1.Family - based planting
cannot meet the standards of specialization



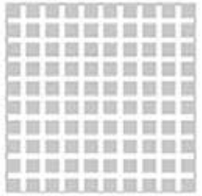
80% of the production is still carried out by individual households

2.The scattered flower producing areas
resulting in high logistics costs.

Comparison of **modern mechanical agriculture** and **traditional agriculture**

Traditional agriculture

AREA



LRR:100%

Labor Resource Requrement Ratio

Modern mechanized agriculture

AREA

LRR:42.5%

Labor Resource Requrement Ratio

LRR:57.5%

Surplus Labor Ratio

common and conflicts between **the goal of farmer** and **goal of mechanized agriculture**

KNOWLEDGE

AGGLOMORARTION AND CONVERGENCY

How to reinvent **peri-urban region** in Dianchi Basin by promoting **industrial upgrading** and **knowledge economy** in order to achieve the **coordinating urban-rural development ?**

Location of clusters

Locating the changes

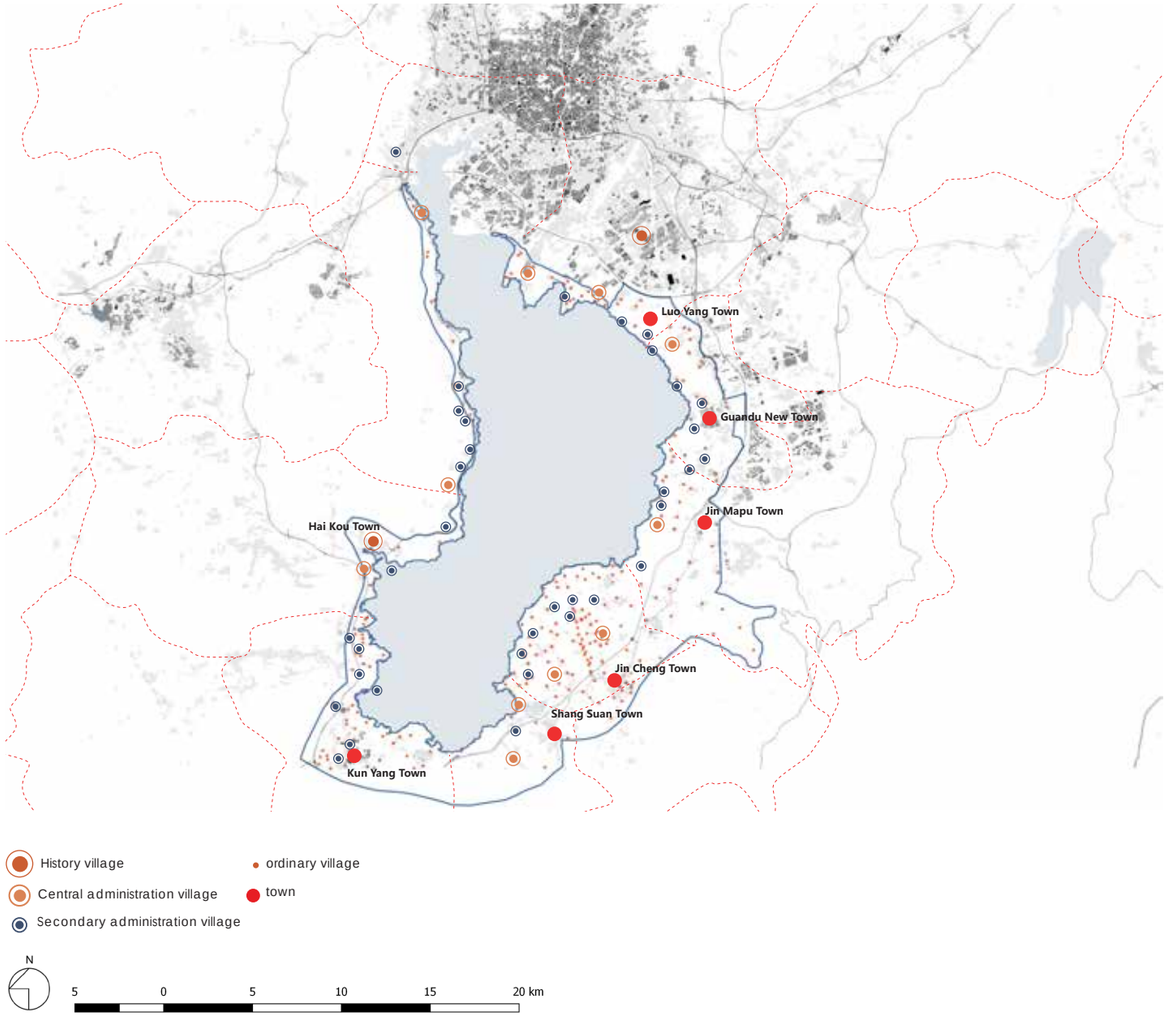
Township as the research scale of industry cluster

Develop industrial clusters around central towns/villages

county & district

town&township

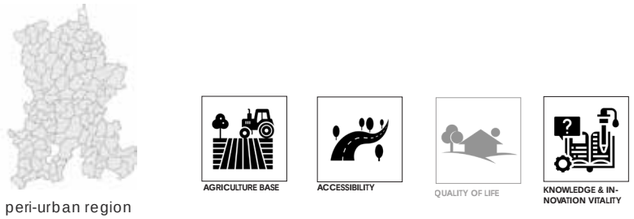
Develop industrial clusters around central towns/villages



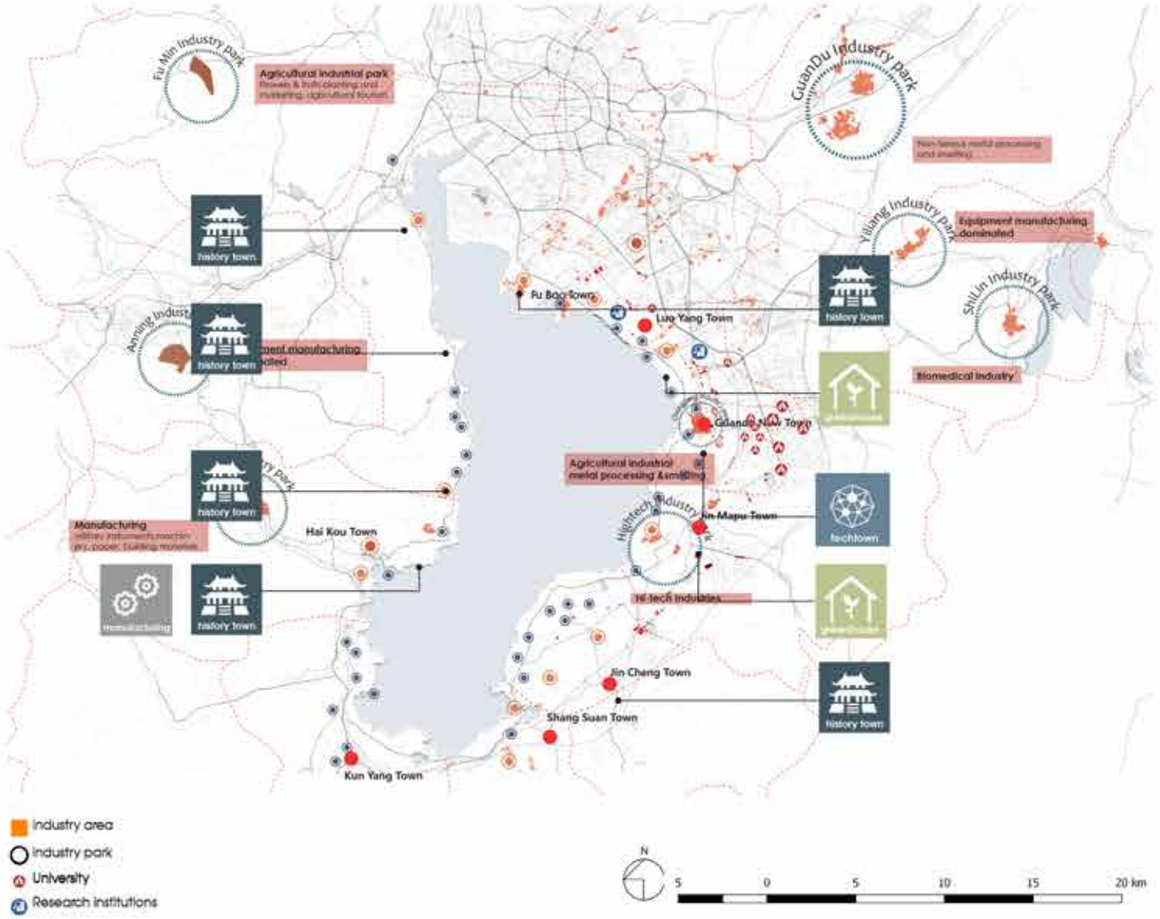
Knowledge base -Quality of life -Accessibility - Agriculture base

This will help to determine the potential of the peri-urban region of Kunming has a knowledge agriculture development base and will show its strengths and weaknesses in relation to knowledge-based development.

TWO MAIN RESEARCH SCALES



INDICATOR1: KNOWLEDGE AND INNOVATION VITALITY



WEEKNESS AND POTENTIAL

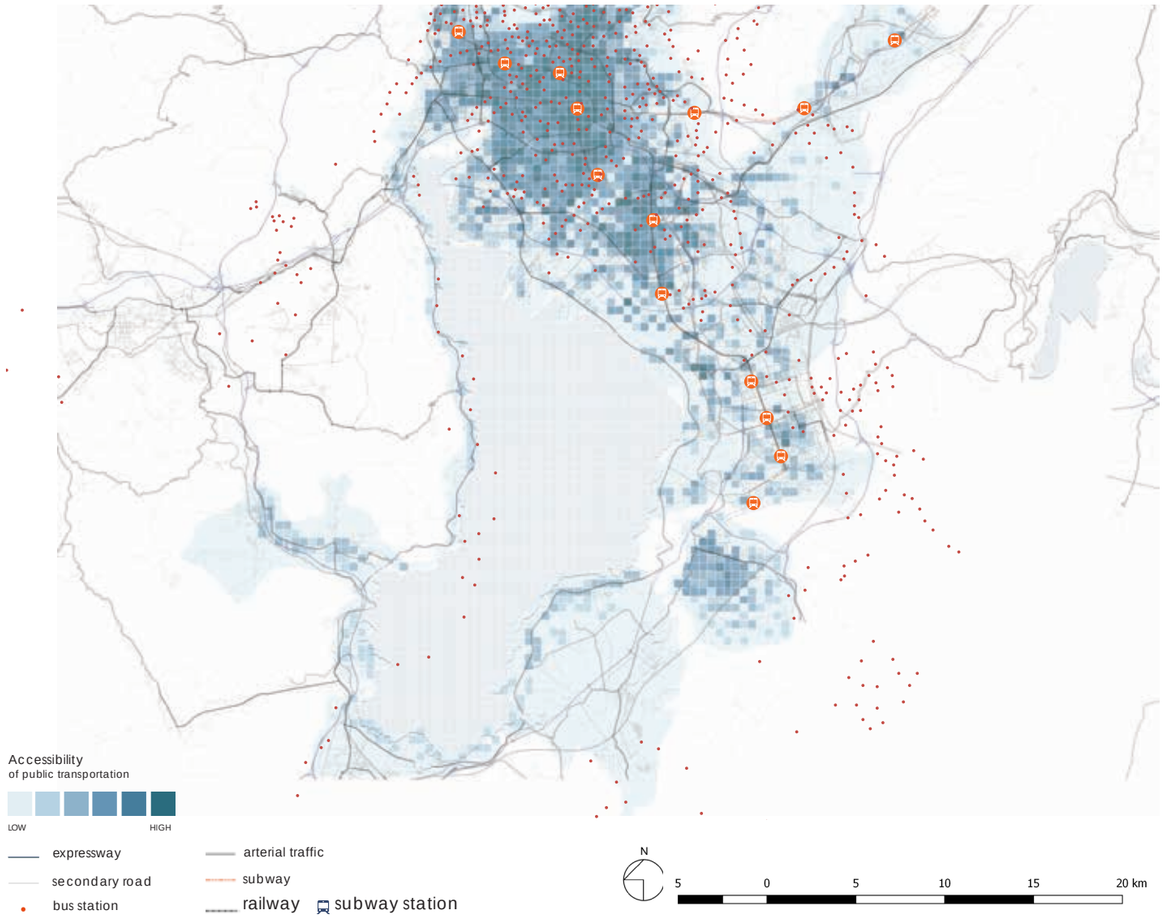
Near to the university town

Multipleknowledge institutions Innovative enterprises with R&D

Diversified town functions

Less benefits of clustering because of scattered facilities and functions

INDICATOR2: ACCESSIBILITY — TRANSPORTATION SYATEM ANALYSIS

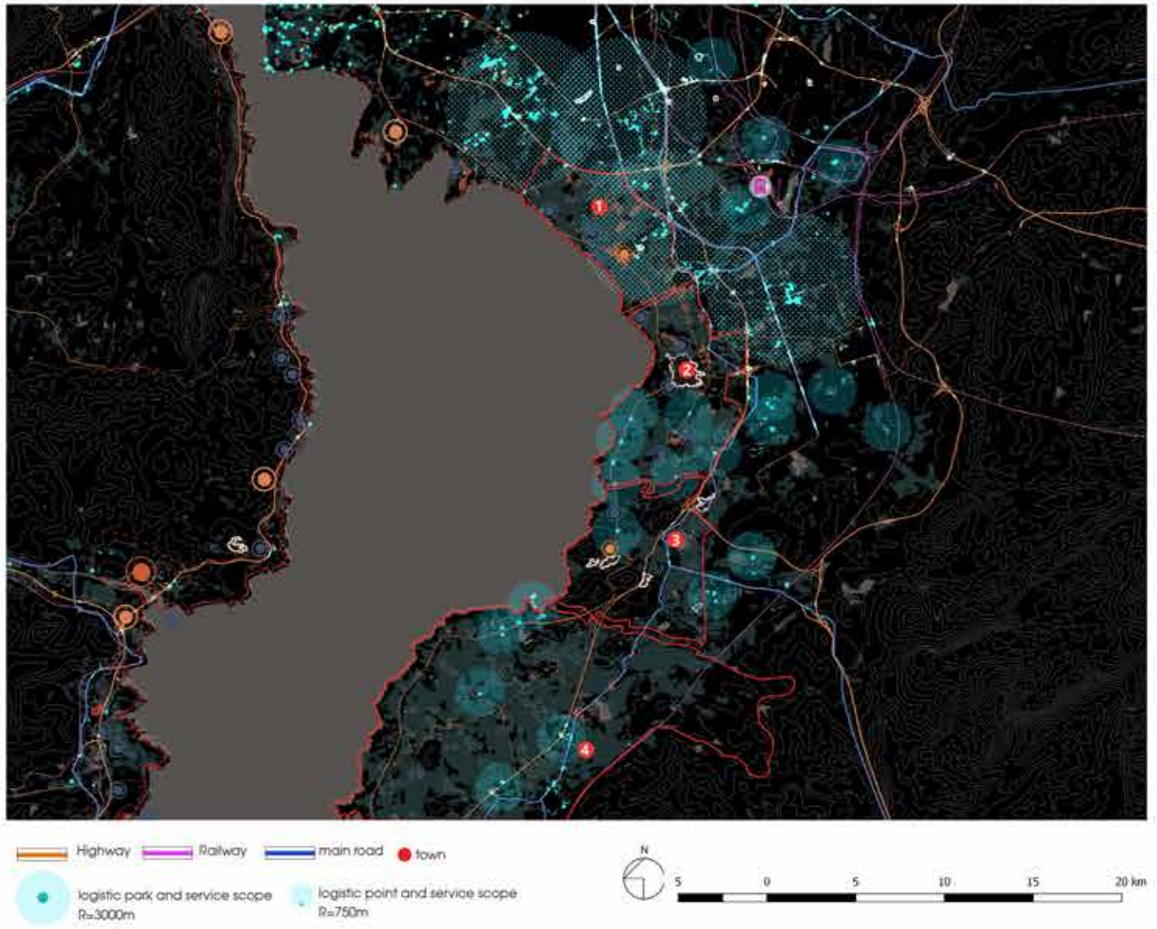


WEEKNESS AND POTENTIAL

The accessibility of northern villages and towns is relatively high, and the public transport coverage is relatively complete

The rural areas in the south have low accessibility

INDICATOR3: AGRICULTURE BASE-LOGISTIC



WEEKNESS AND POTENTIAL

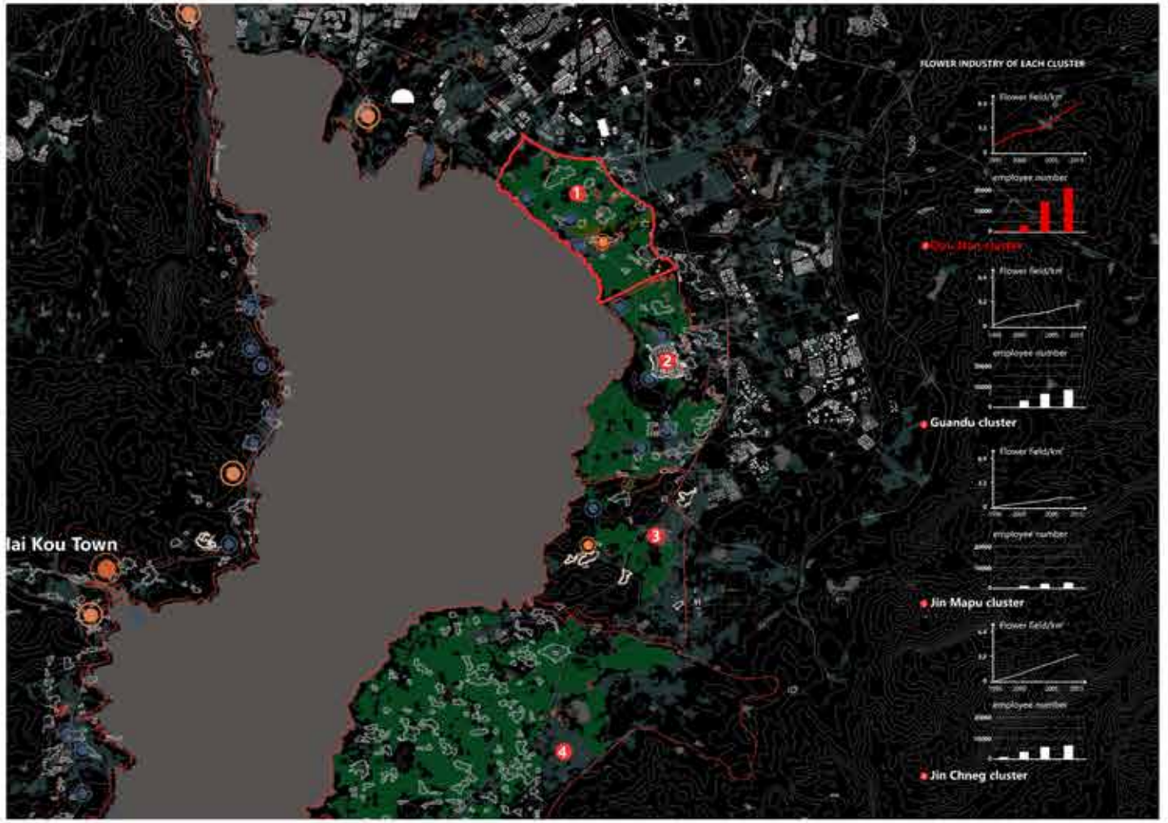
In the north, there are sufficient logistics service stations around the two clusters

the two clusters in the south are seriously lacking in logistics facilities

Take Dounan cluster as example

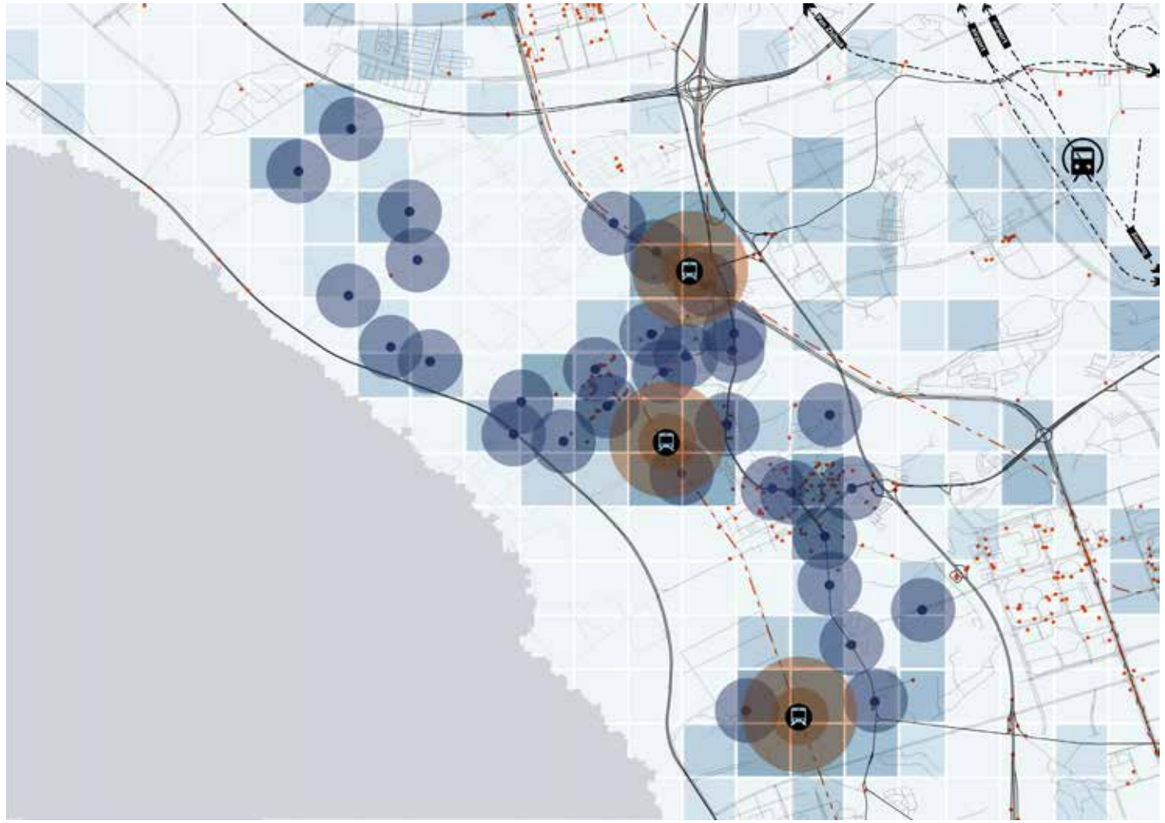
Dounan cluster —leading role of flower industry in Dianchi basin region

INDICATOR1: AGRICULTURE BASE



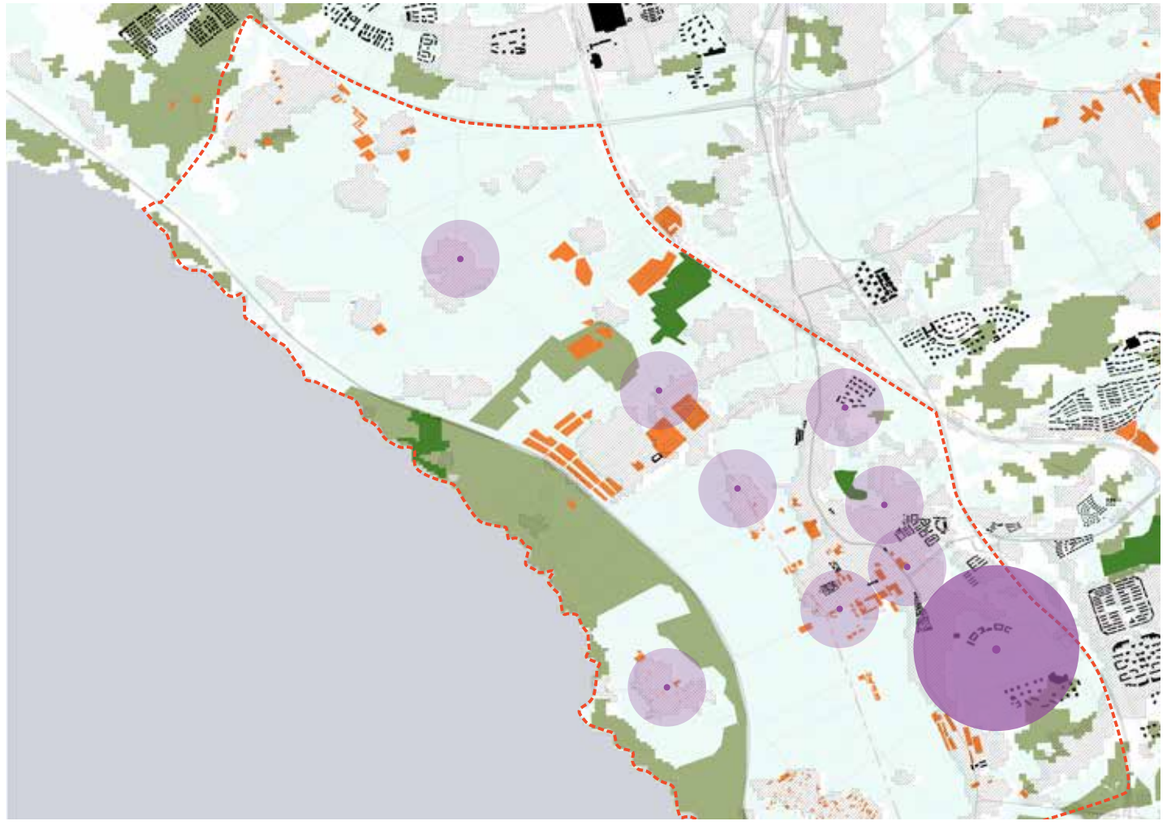
Biggest flower auction center in Asia

ACCESSIBILITY ANALYSIS IN BASIN AREA



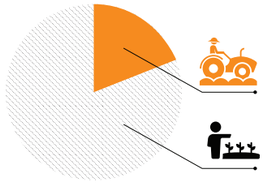
INDICATOR3: QUALITY OF LIFE
PUBLIC SPACE SERVICE RANGE OF DOUNAN CLUSTER

EDUCATION SERVICE RANGE OF DOUNAN CLUSTER



CONCLUSION- WEAKNESS

1.Family - based planting
cannot meet the standards of specialization



80% of the production is still carried out by individual households

2.The scattered flower producing areas
resulting in high logistics costs.

3. No professional cold chain logistics center in Yunnan province

4. Weak research ability and awareness
At least 20%~30% of the profit of the flower industry needs to be paid to the owner of new patent of flowers as a variety royalty, and most of the licensed

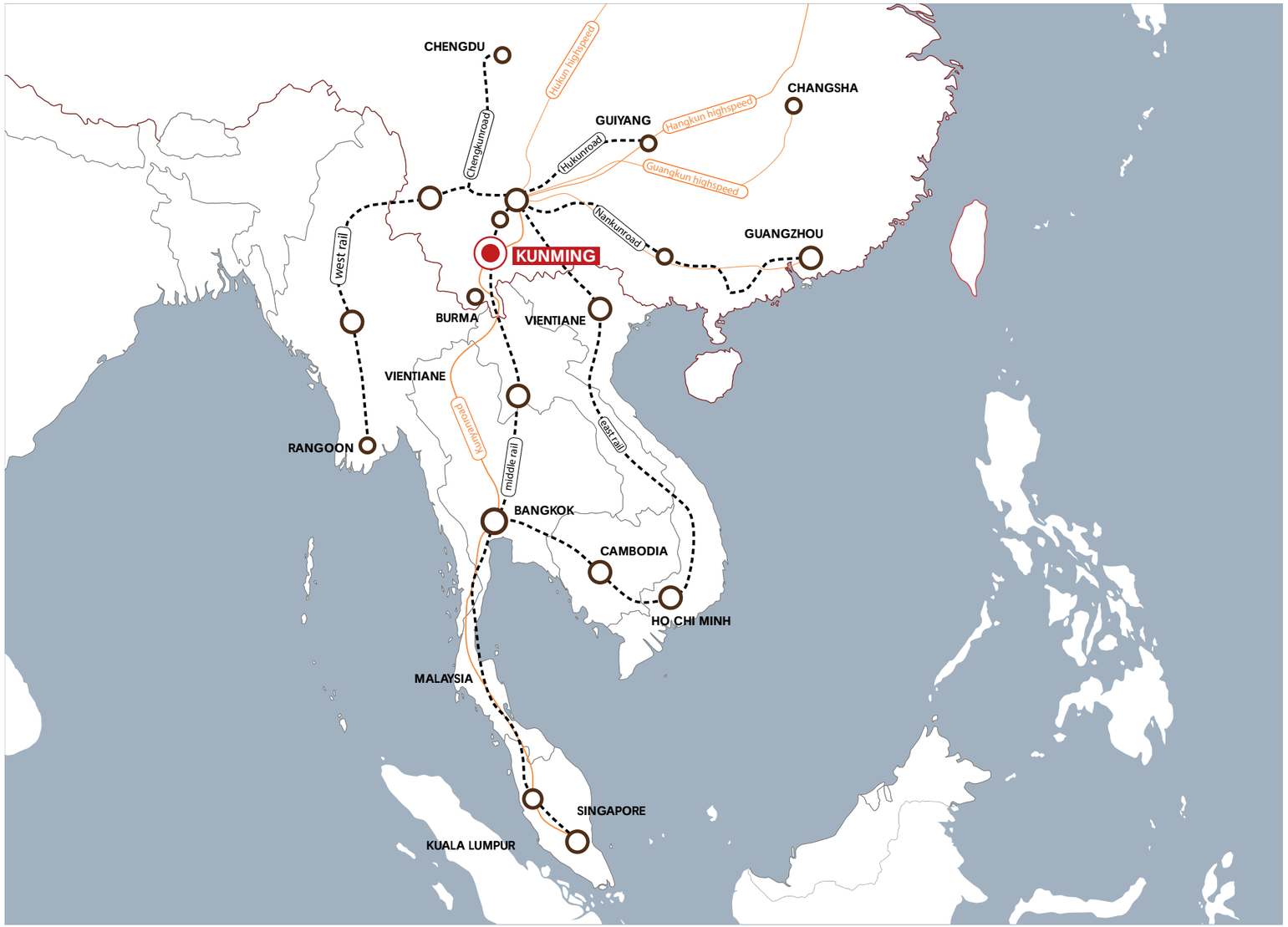
5. Lack of public facilities

6. low public transportation accessibility

7.There is no infrastructure for mechanized agriculture

Cooperate with countries with high level of flower planting

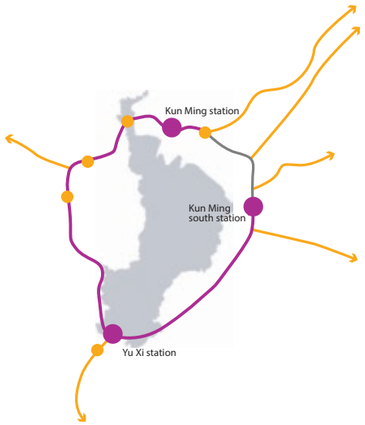
CONCLUSION- OPPORTUNITY



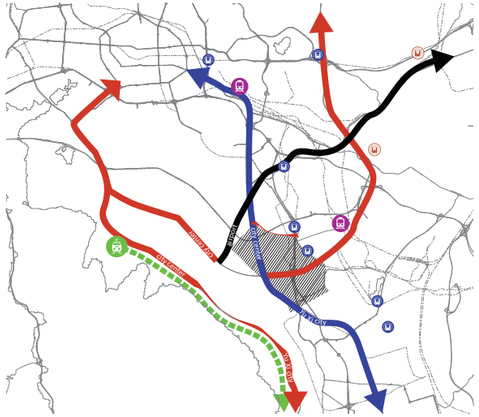
CONCLUSION- OPPORTUNITY

Asian scale

City scale



Cluster scale



A gateway region of China to southeast Asia

Towards a knowledge ecosystem

Competitiveness:
Reidentify the role of Peri-urban region;
Boosting the local economy

Diversity:
Improving the capability of accommodating a diverse built and social fabric

Sustainability:
Manage the ecological poverty;
Realize circular economy

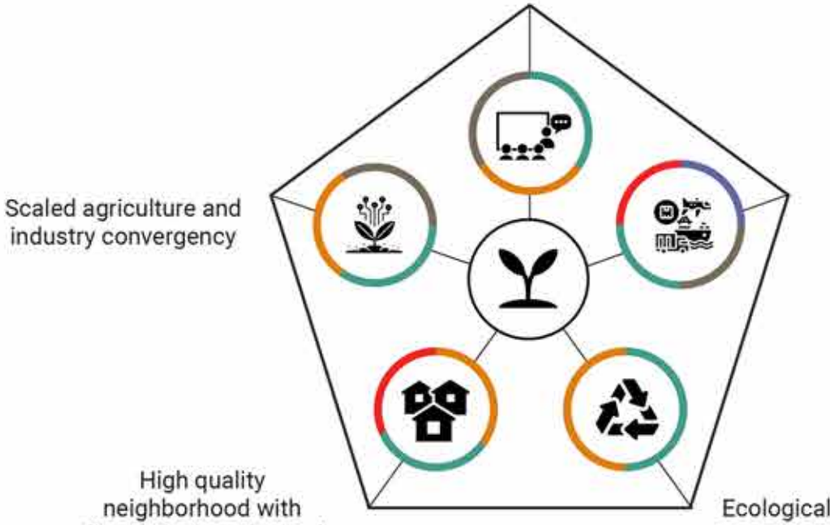
Livibility:
Creating a liveable and attractive peri-urban region

Adaptibility:
Improve the capacity of peri-urban region to respond to changing circumstances

The peri-urban region in Dianchi basin will be a environment sustainable region with high competitivness and diversity, consolidating itselft as a new growth pole of Kun Ming and promoting the coordinating rural-urban development.

THEORITICAL FRAMWORK

MAIN CONCEPT

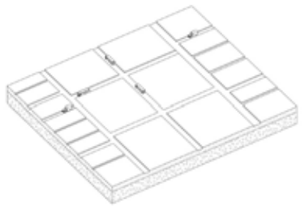


STRATEGY1: Improve infrustructure and amenity condition

1a Transportation system construction
land consolidation
Network with diverse means of transport
Improve logistic condition
1b Supplement of education facility
1c Supplement of agriculture facility

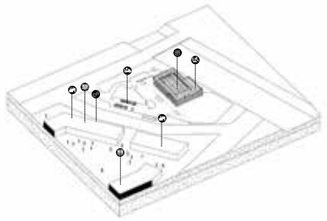
Implementations of strategy 1

1a Land consolidation



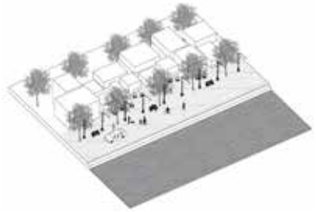
Scale of implementation: Peri-urban region
Time: Medium Term
Starting: in 2 years
Actor: Government, developer, villager

1a Improve logistic condition



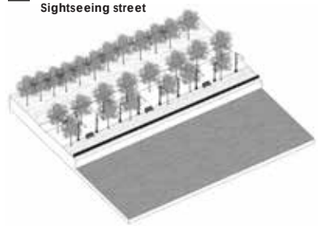
Scale of implementation: Town
Time: Medium Term
Starting: in 4 years
Actor: Government, developer

1a Network with diverse means of transport
Sharred street



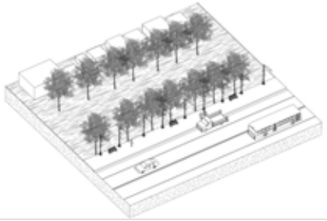
Scale of implementation: village
Time: Short Term
Starting: 2-4 years
Actor: villager, developer

1a Network with diverse means of transport
Sightseeing street



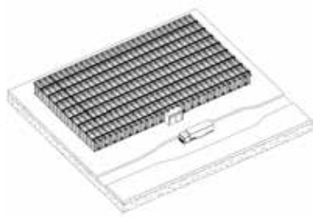
Scale of implementation: village
Time: Short Term
Starting: 2-4 years
Actor: villager, developer

1a Network with diverse means of transport
Motor way



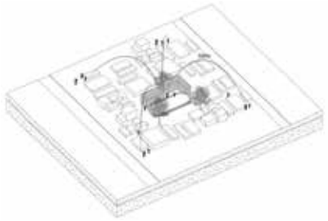
Scale of implementation: Town
Time: Short Term
Starting: in 2 years
Actor: Government, developer

1a Network with diverse means of transport
Road for greenhouse



Scale of implementation: Town
Time:n Short Term
Starting: in 2 years
Actor: Government, developer

1b Supplement of education facility
Primary school

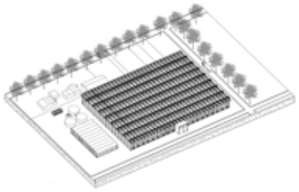


Scale of implementation: Village
Time: Short Term
Starting: in 4 years
Actor: Government, village commission

1b Supplement of education facility
Middle school

Scale of implementation: Town
Time: Short Term
Starting: 2-4 years
Actor: Government

1c Supplement of agriculture facility

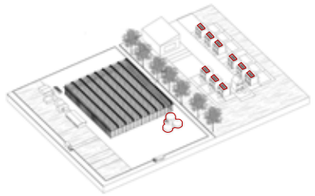


Scale of implementation: Town
Time: Short Term
Starting: 2-4 years
Actor: Government

STRATEGY2: Ecological security pattern

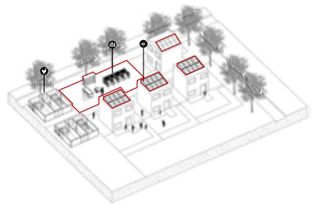
- 2a Energy landscape
- 2b Waste reuse
- 2c Emissions control
- 2d Habitat preservation
- 2e Water managment

2a Energy landscape



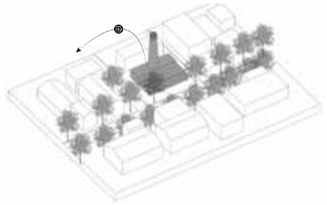
Scale of implementation: Town
Time: Medium Term
Starting: 4-8 years
Actor: developer, villager

2a Energy landscape



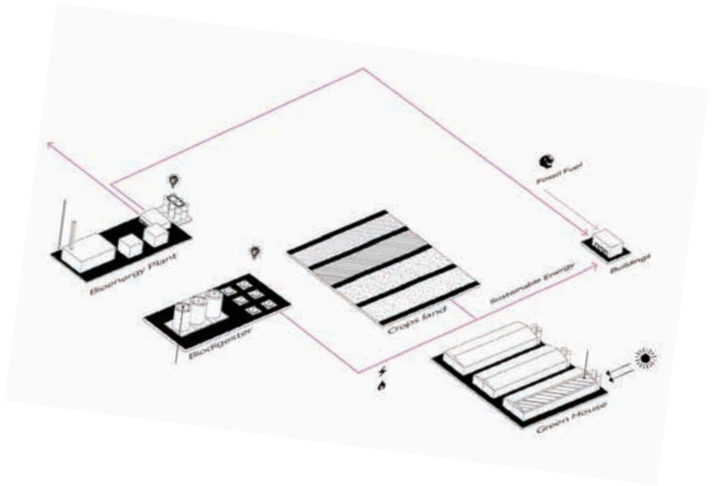
Scale of implementation: village
Time: Medium Term
Starting: 4-8 years
Actor: villager

2c Emissions control



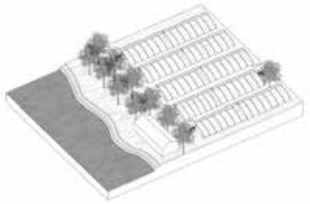
Scale of implementation: village
Time: Short Term
Starting: 2-4 years
Actor: villager, developer, government

2b Waste reuse
Energy circular



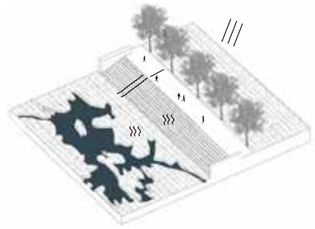
Scale of implementation: Village
Time: Short Term
Starting: In 5 years
Actor: Government, village commission

2d Habitat preservation



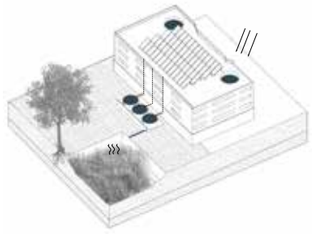
Scale of implementation: Peri-urban
Time: Long Term
Starting: in 2 years
Actor: Government, developer,villager

2e Flooding control
Filtering green stage



Scale of implementation: Town
Time:n Short Term
Starting: in 2 years
Actor: villager

2e Water managment

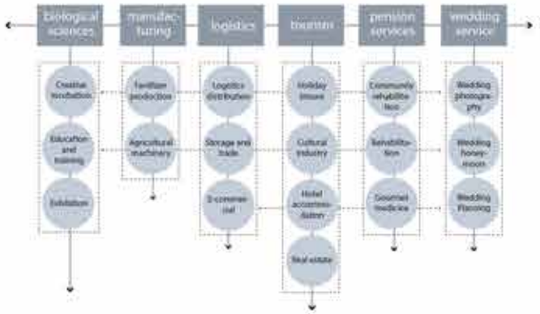


Scale of implementation: Village
Time: Short Term
Starting: 2-4 years
Actor: villager

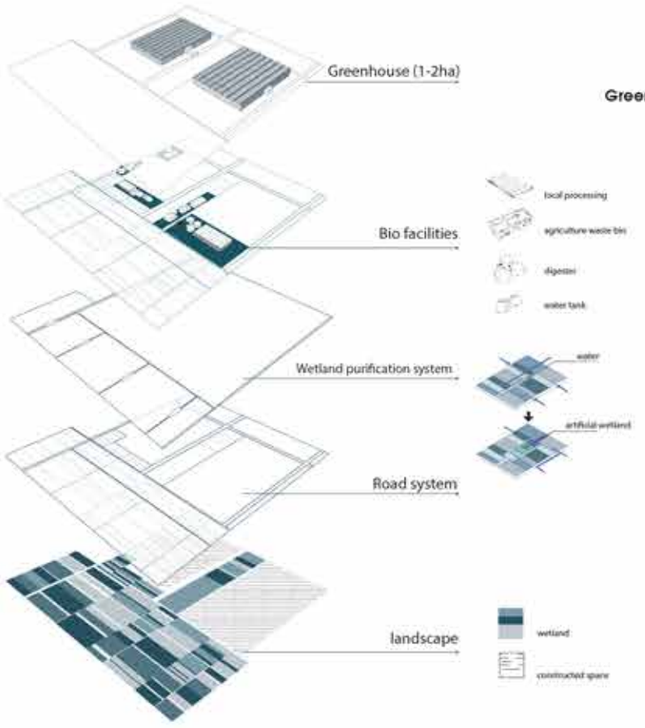
STRATEGY3: Scaled agriculture and industry convergency

3a industry agglomoration
land consolidation
Land circulation model
3b industry convergency
Industrial chain extension
3c branding
3d training

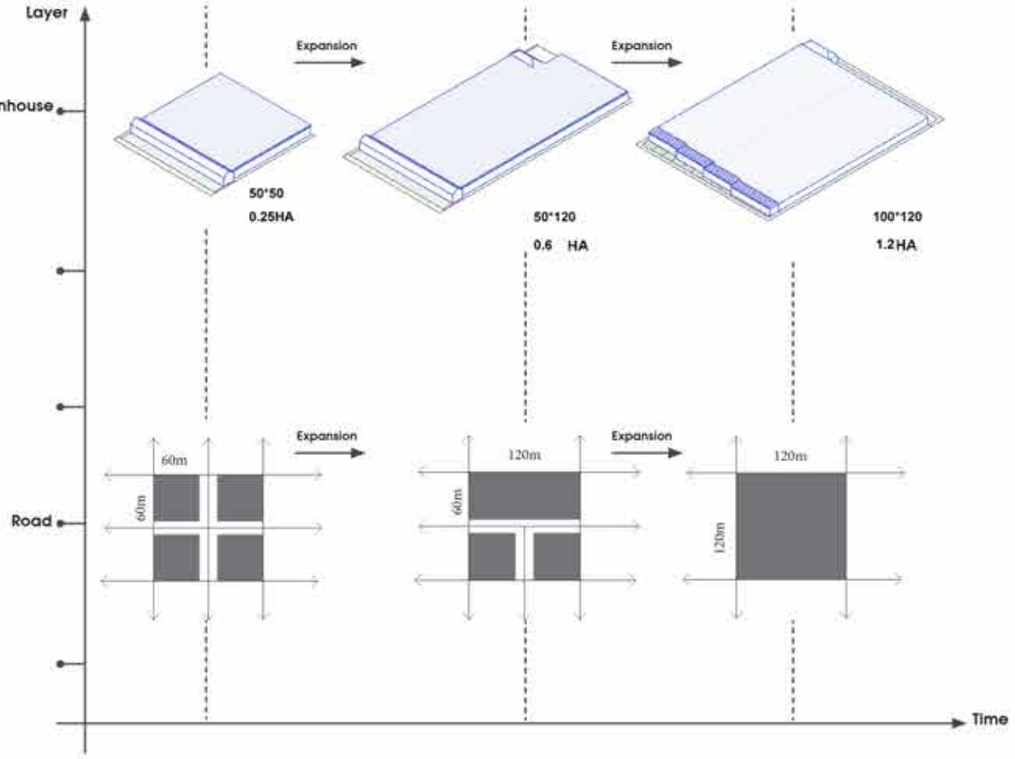
3b
Industry convergency



3a
Agriculture pattern



Adaptive infrastructure structure



High quality neighborhood with diverse built and social fabric

Encourage Knowledge and innovation activities

4a Rural industry renewal

4b Rural self-orgnised renewal

rural self-orgnised renewal

new block construction

5a Stimulate innovation activities

provide education facilities

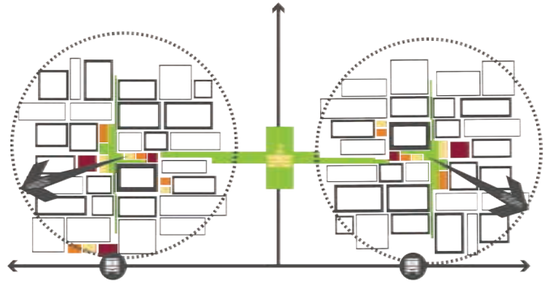
public event

5b policies

tax burden shift

cooperation & eliminating barriers

startsup company incubator



4a Rural building renewal

Scale of implementation: village
Time: Medium Term
Starting: 2-4 years
Actor: developer, villager

4b Open space forming

Scale of implementation: village
Time: short Term
Starting: 4-8 years
Actor: villager

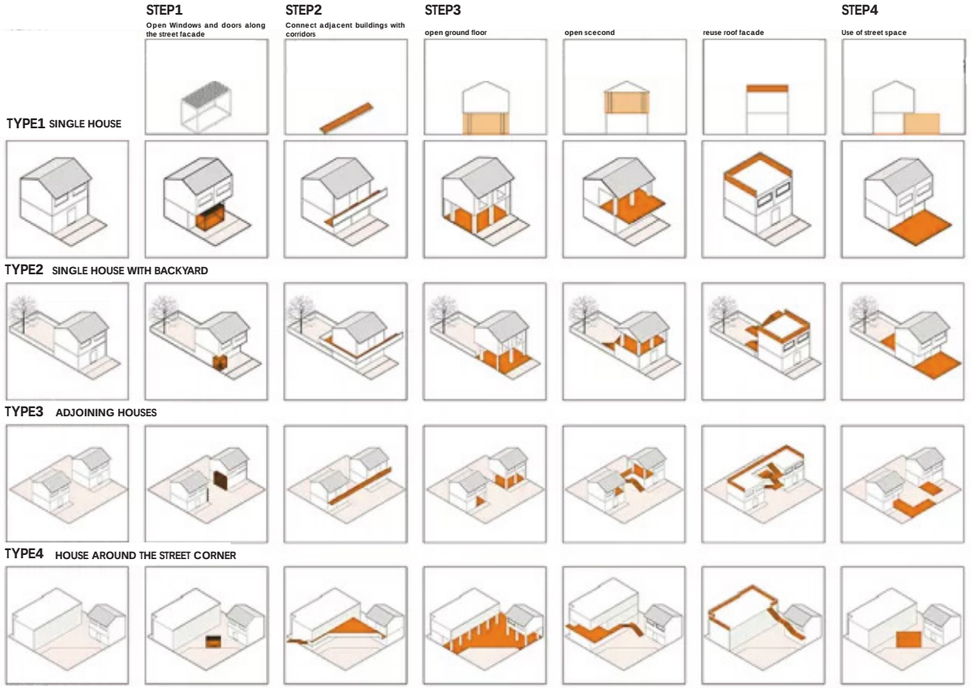
4b New housing

Scale of implementation: Peri-urban
Time: Long Term
Starting: short-6 years
Actor: Government, developer,villager

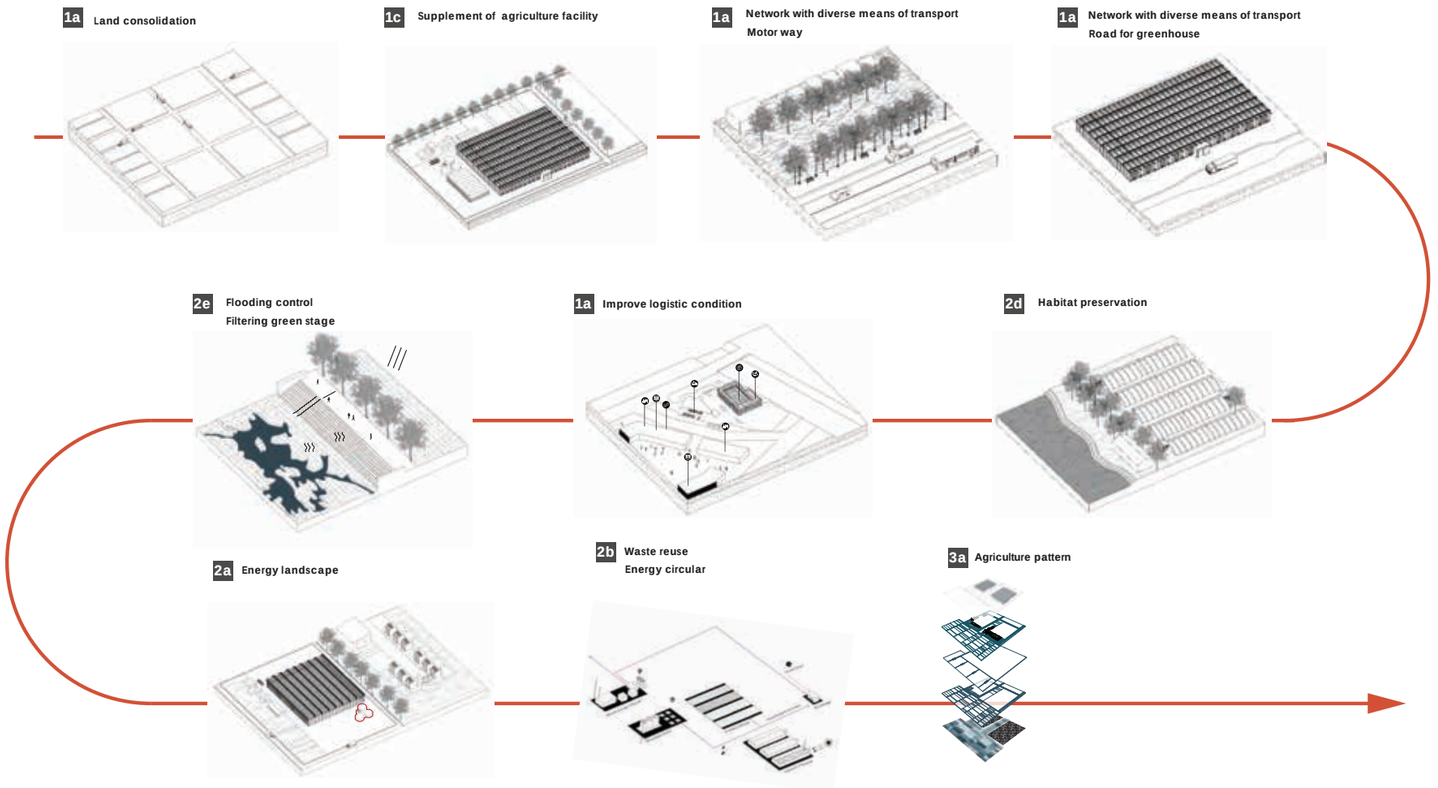
5a Vocational training space

Scale of implementation: village
Time: Short Term
Starting: 2-4 years
Actor: villager, company

TOOLKITS—how to renewal private building into publicfunction



ON CLUSTER SCALE



Dounan cluster

Tansportation system of Dounan cluster

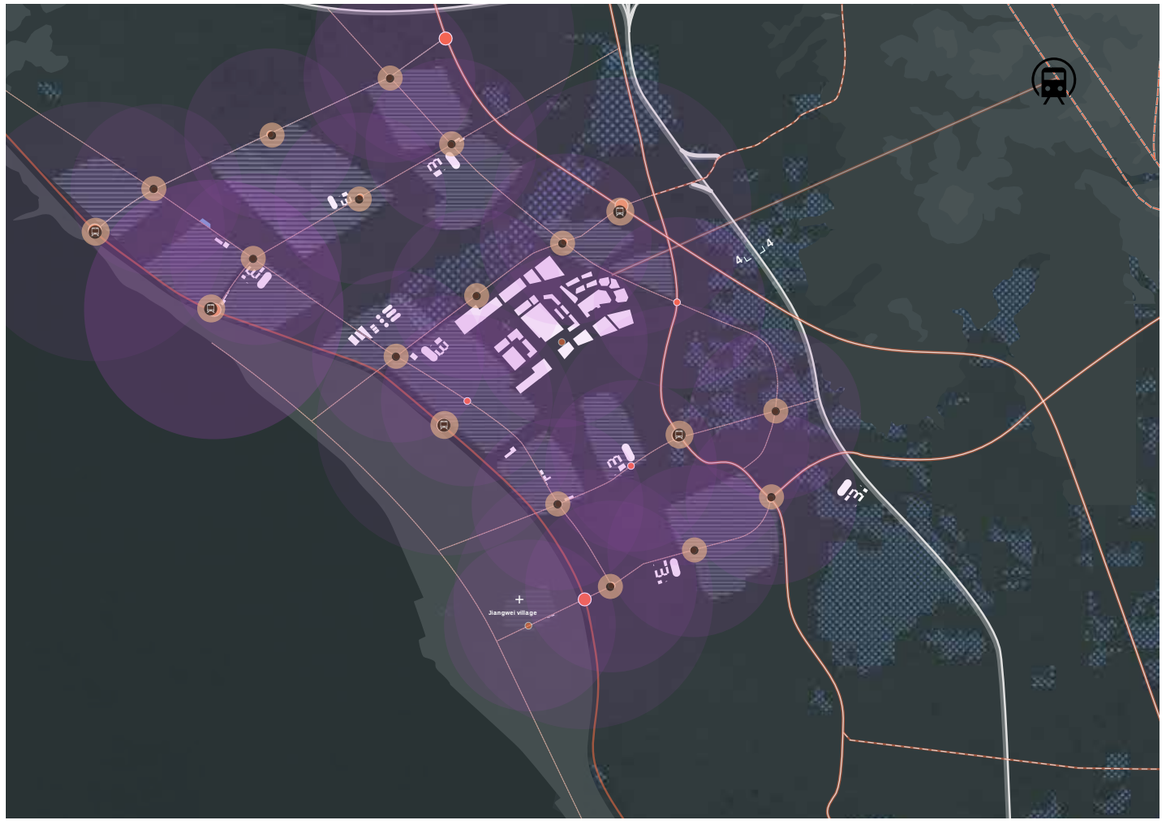
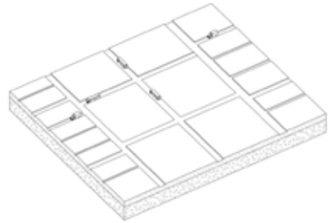


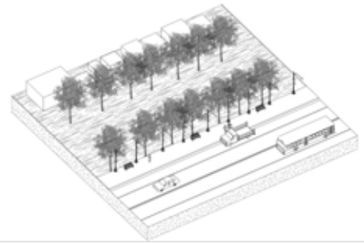
Figure 7.2 Transportation network of Dounan cluster

1a **Land consolidation**



Scale of implementation: Peri-urban region
Time: Medium Term
Starting: in 2 years
Actor: Government, developer, villager

1a **Network with diverse means of transport**
Motor way

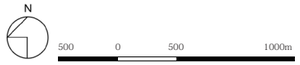


Scale of implementation: Town
Time: Short Term
Starting: in 2 years
Actor: Government, developer

EDUCATION FACILITIES OF DOUNAN CLUSTER

primary school R=500m

middle school R=800m



1b **Supplement of education facility**
Middle school

Scale of implementation: Town
Time: Short Term
Starting: 2-4 years
Actor: Government

ECOLOGY SYSTEM OF DOUNAN CLUSTER

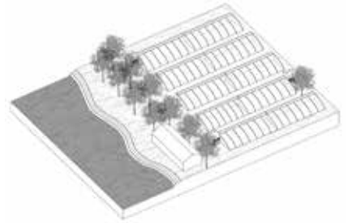
village commonity
public function
eco fragile area
builtup area
westland

N

500 0 500 1000m

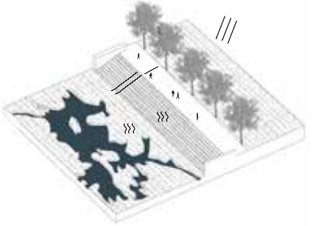
Figure 7.3 Ecological zone layout of Dounan cluster

2d **Habitat preservation**



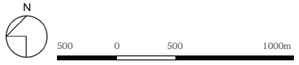
Scale of implementation: Peri-urban
Time: Long Term
Starting: in 2 years
Actor: Government, developer,villager

2e **Flooding control**
Filtering green stage



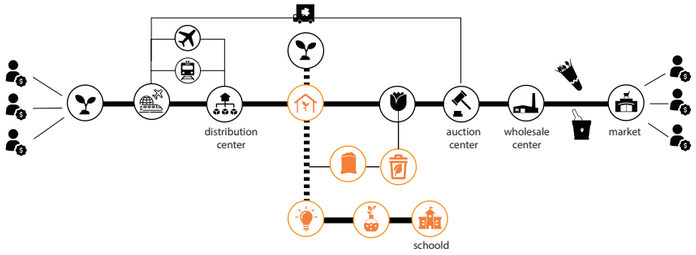
Scale of implementation: Town
Time:n Short Term
Starting: in 2 years
Actor: villager

Industry convergency in Dounan cluster

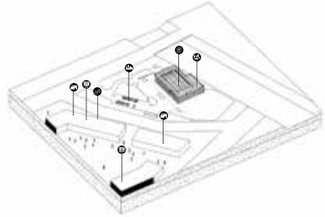


3b

Industry convergency



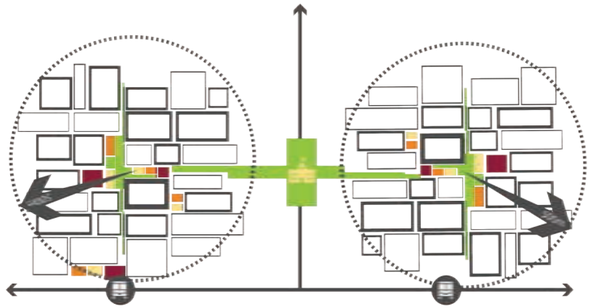
1a **Improve logistic condition**



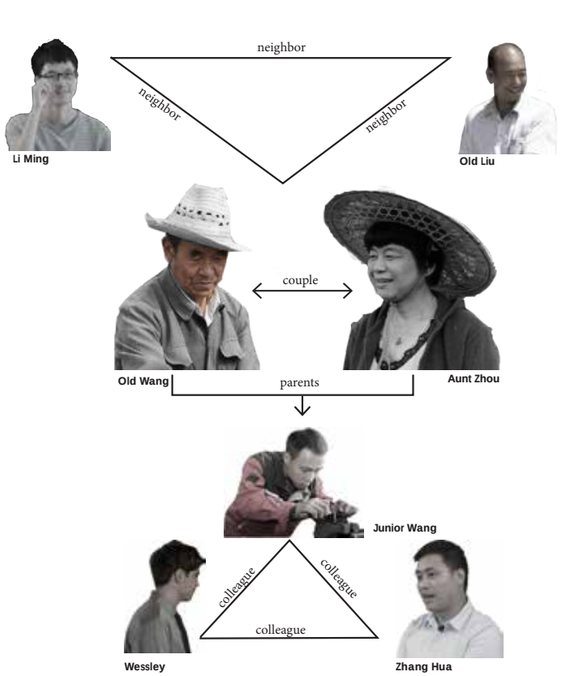
Scale of implementation: Town
Time: Medium Term
Starting: in 4 years
Actor: Government, developer

NEIGHBORHOOD AREA OF DOUNAN CLUSTER

Figure 7.5 Neighborhood layout of Dounan cluster



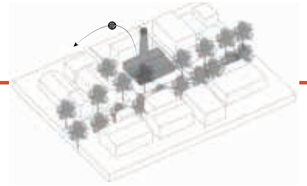
Jiangwei village



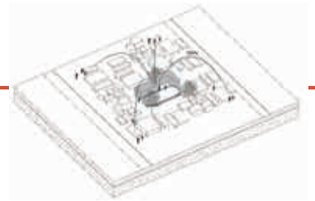
ON VILLAGE SCALE

BASE

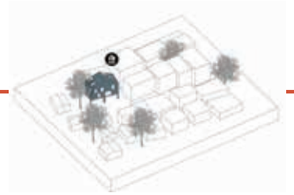
2c Emissions control



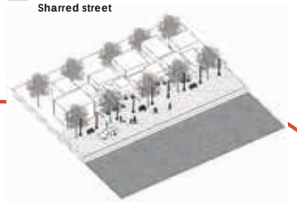
1b Supplement of education facility
Primary school



5a Vocational training space

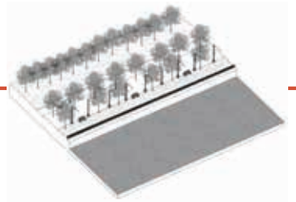


1a Network with diverse means of transport
Sharred street



QUALITY IMPROVING

1a Network with diverse means of transport
Sightseeing street

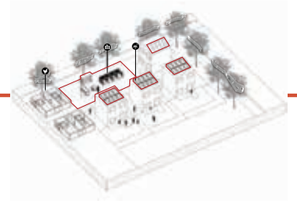


4b Open space forming

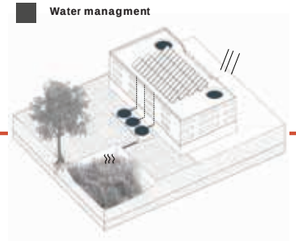
4a Rural building renewal

SUSTAINABILITY AND GROWING

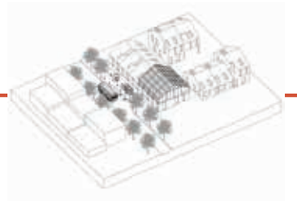
2a Energy landscape



Water managment

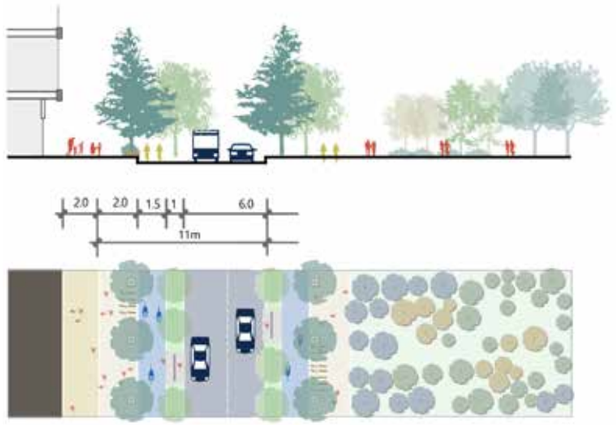


4b New housing

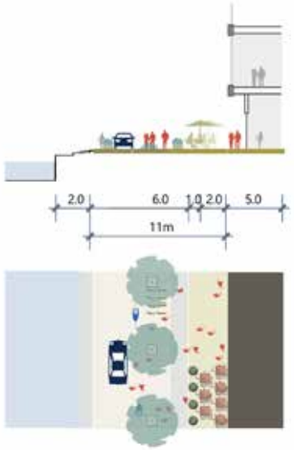


IMPLEMENTATION:
Improve infrustructure and amenity condition

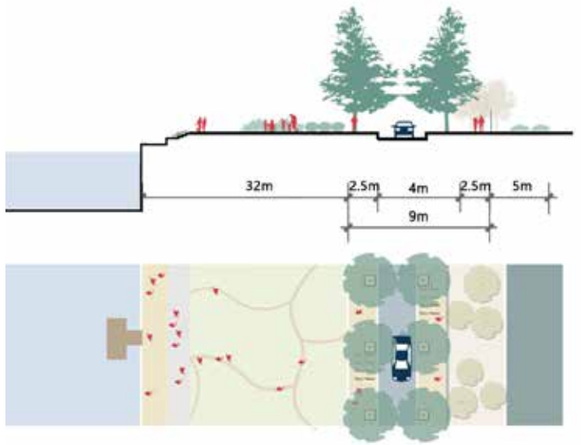
Section 1-1
Main motorway



Section 2-2
Bike road



Section 3-3
perdestrain way



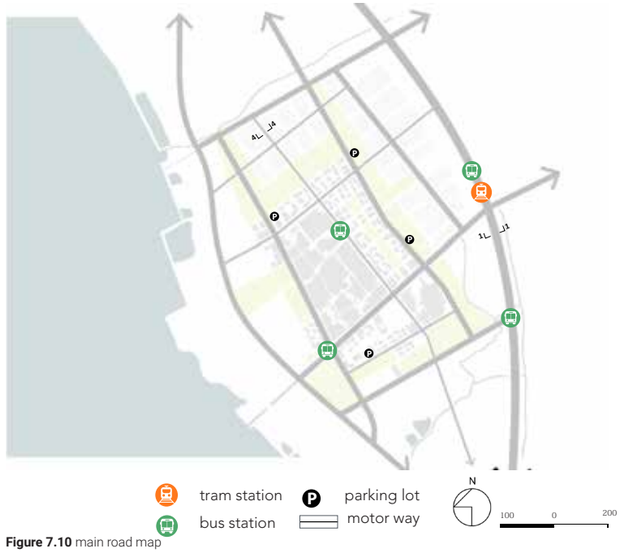
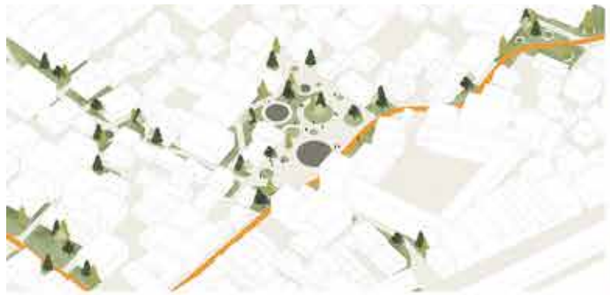


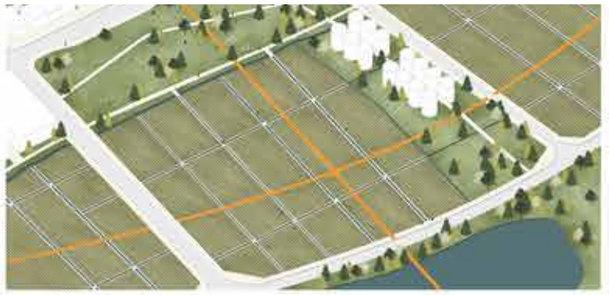
Figure 7.10 main road map

Figure 7.11 Bike road map

Figure 7.12 perdestrain road map

IMPLEMENTATION:
water managment and flooding control





LEVEL 1

Porous Paving
Roof drainage
Green space permeating
Rainwater pipeline

To block, and the community as the carrier, using Porous Paving and Green space design, avoid excessive accumulation of rainwater in block garden and Community Garden. Form a level I rainwater collection and management system, collect and transport rainwater through underground pipes to level II Cannal.

LEVEL 2

Cannals
Low elevation greenbelt
Bios-swale

The green space between the production area (greenhouse) and the living area is used as the carrier to construct the natural drainage system combined with the rainwater garden. The natural surface is used to collect surface rainwater into the continuous ecological cannal surrounding the village. Cannal will also receive rainwater from pipes in the community. Undertake regulation and storage function.

LEVEL 3

Channel grid
Flowe field

Large areas of Grid drainage systems combine with flower fields to form accumulative zones, and receive some of the rain from Cannal. The grid channel is used to increase the distance of stormwater runoff and reduce the runoff speed to alleviate the rapid rise of water level caused by huge precipitation. The rainwater is also used to irrigate farmland.

LEVEL 4

Waterland Ponds
Ecological waterland

Using the wetland topography of the lakeshore to construct a large area of ponds to store most of the rain water, avoid the burden of heavy rainfall on lakes caused by heavy rainfall over short periods of time or prolonged periods of continuous rainfall.

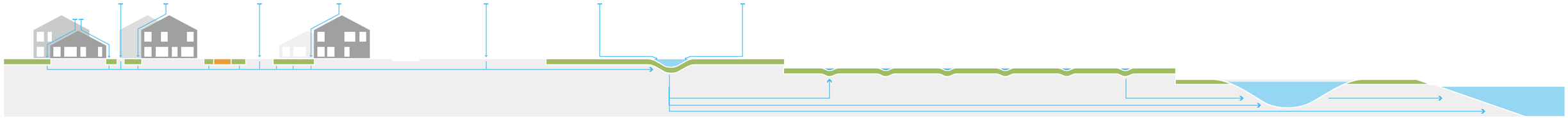


Figure 7.22 Water management of Dianglwei village

- **Year of 2022**

Our family has 2 acre of flower land, Last year we leased the land use rights to the village committee

Old Wang

Farmer

46 Years old

Aunt Zhou (Old Wang's wife)

Farmer

44 Years old

- **Year of 2022**

Zhang Hua
Yong entrepreneur

Old Liu
Village Committee representative

Road for greenhouse

Figure 7.13 road in greenhouse zone

Facility land

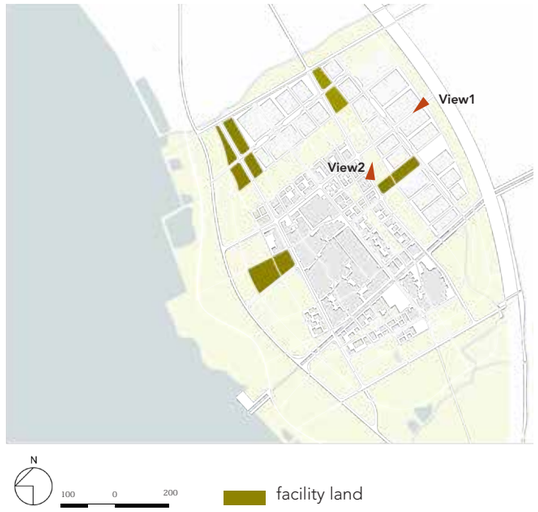


Figure 7.14 Facility layout map

section4-4 agriculture road

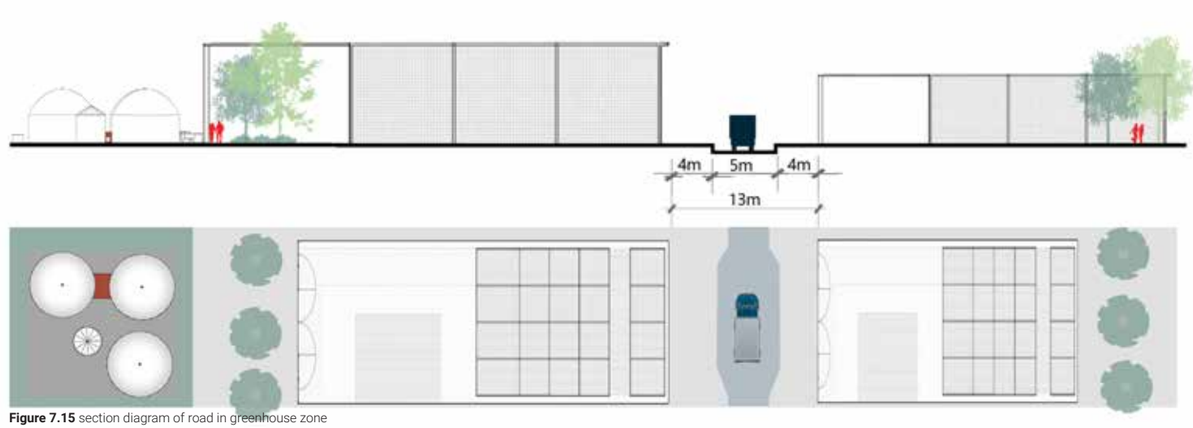


Figure 7.15 section diagram of road in greenhouse zone

● **Year of 2022**

Zhang Hua

Entrepreneur

Old Wang

Farmer

46 Years old

- **Year of 2022**

sometimes we were provided workshops to lear skill

Old Wang

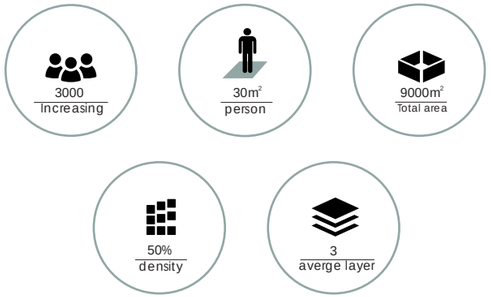
Farmer

46 Years old

Process of productive zones

New housing

What is the size of new community?



Who will live here?

Unpredictable popullation change

- **Year of 2035**

I work in the biological research institute of Dounan Town, which is far from the city, so I rent a house in Jiangwei Village.The environment here is very good, the rent is low, the life is very convenient.

Biotechnology Researcher

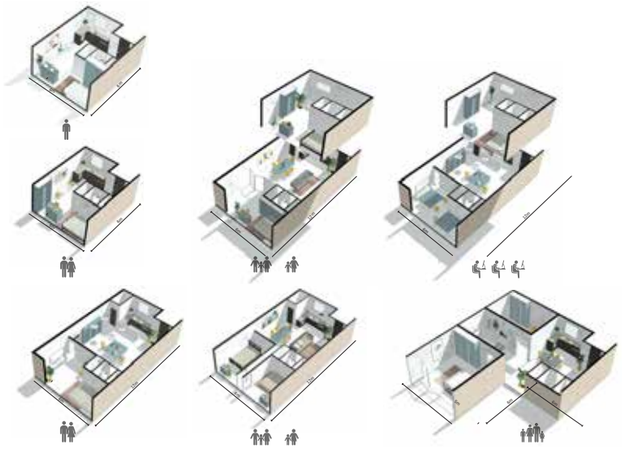
Li Ming

28 Years old

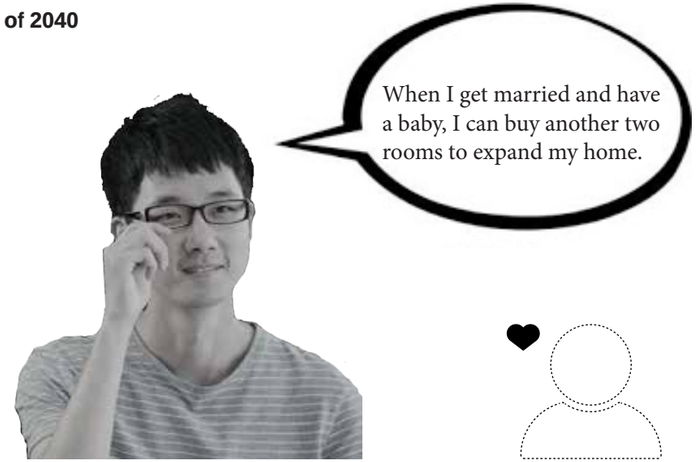
Prefabricated modules housing

What will your home look like?

apartment with flexibility to increase or decrease space



- **Year of 2040**

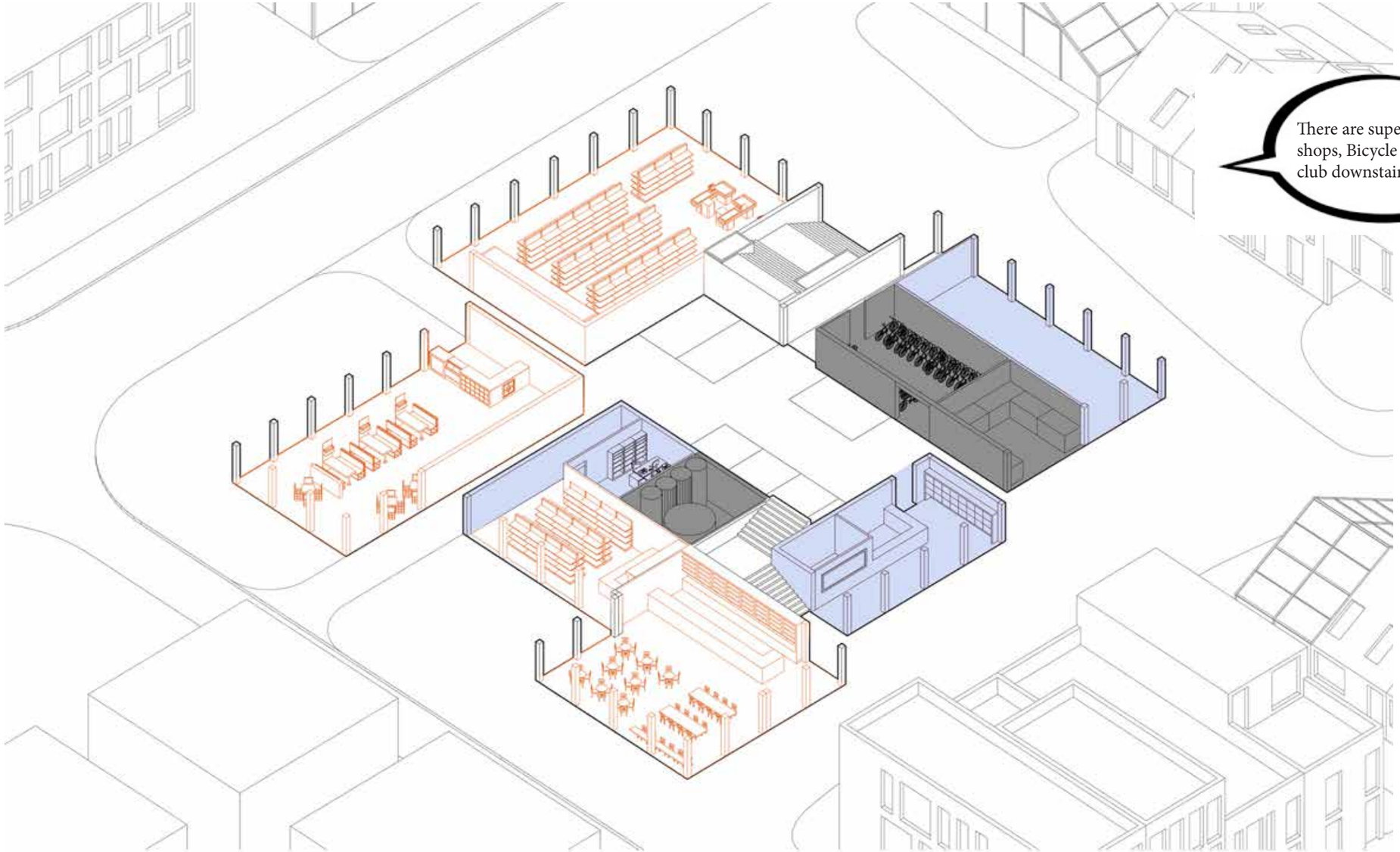


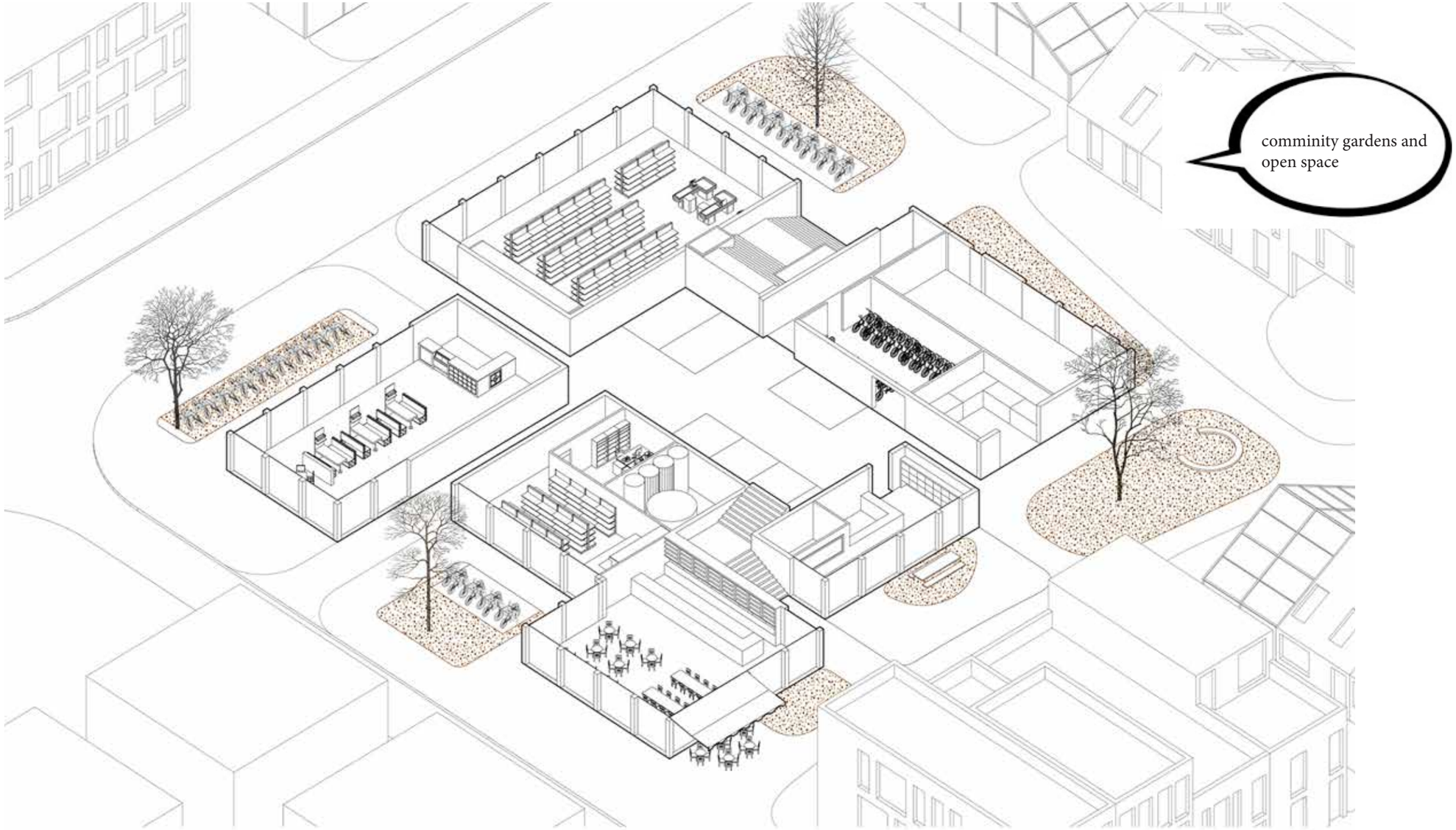
Biotechnology Researcher

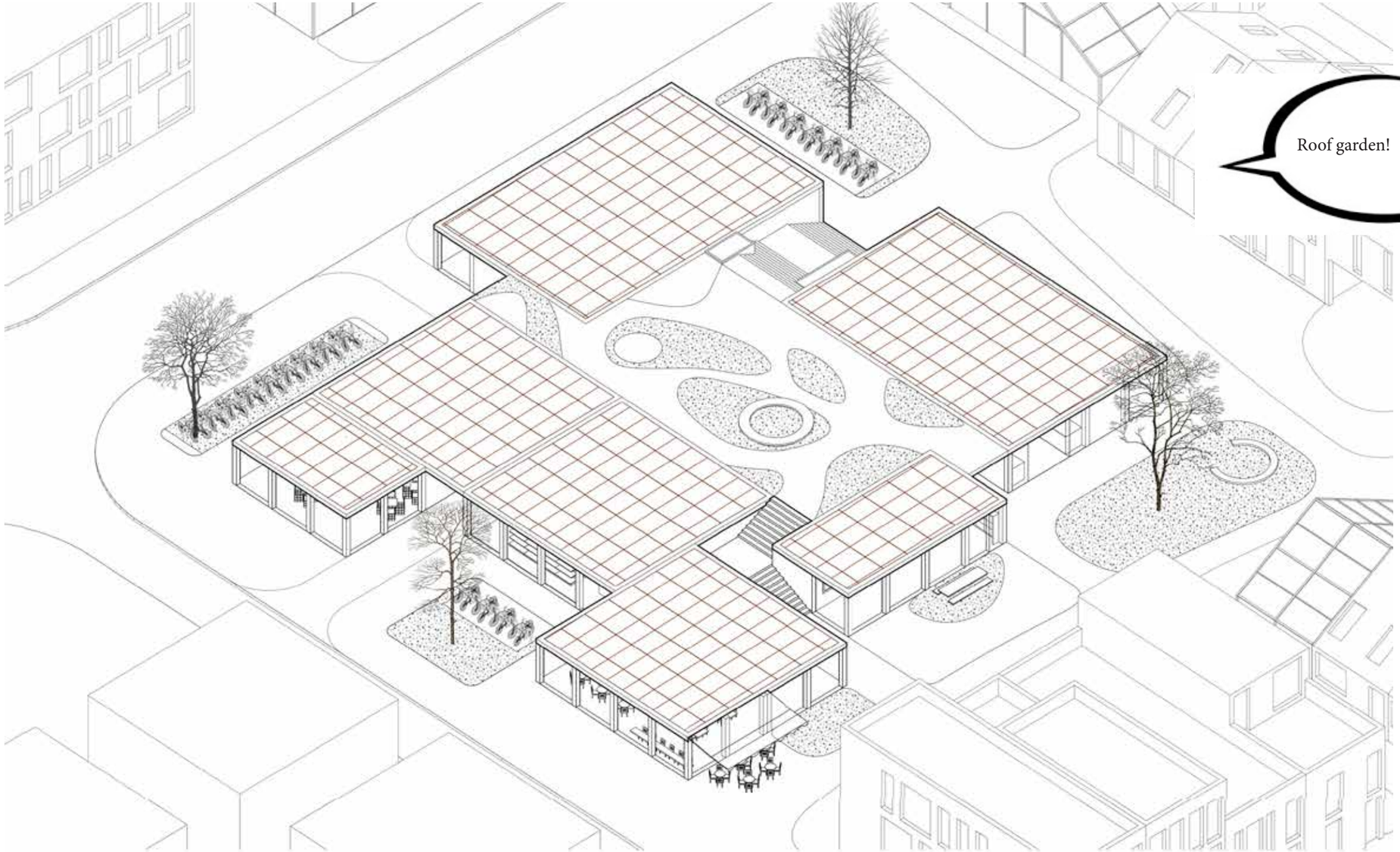
Lee

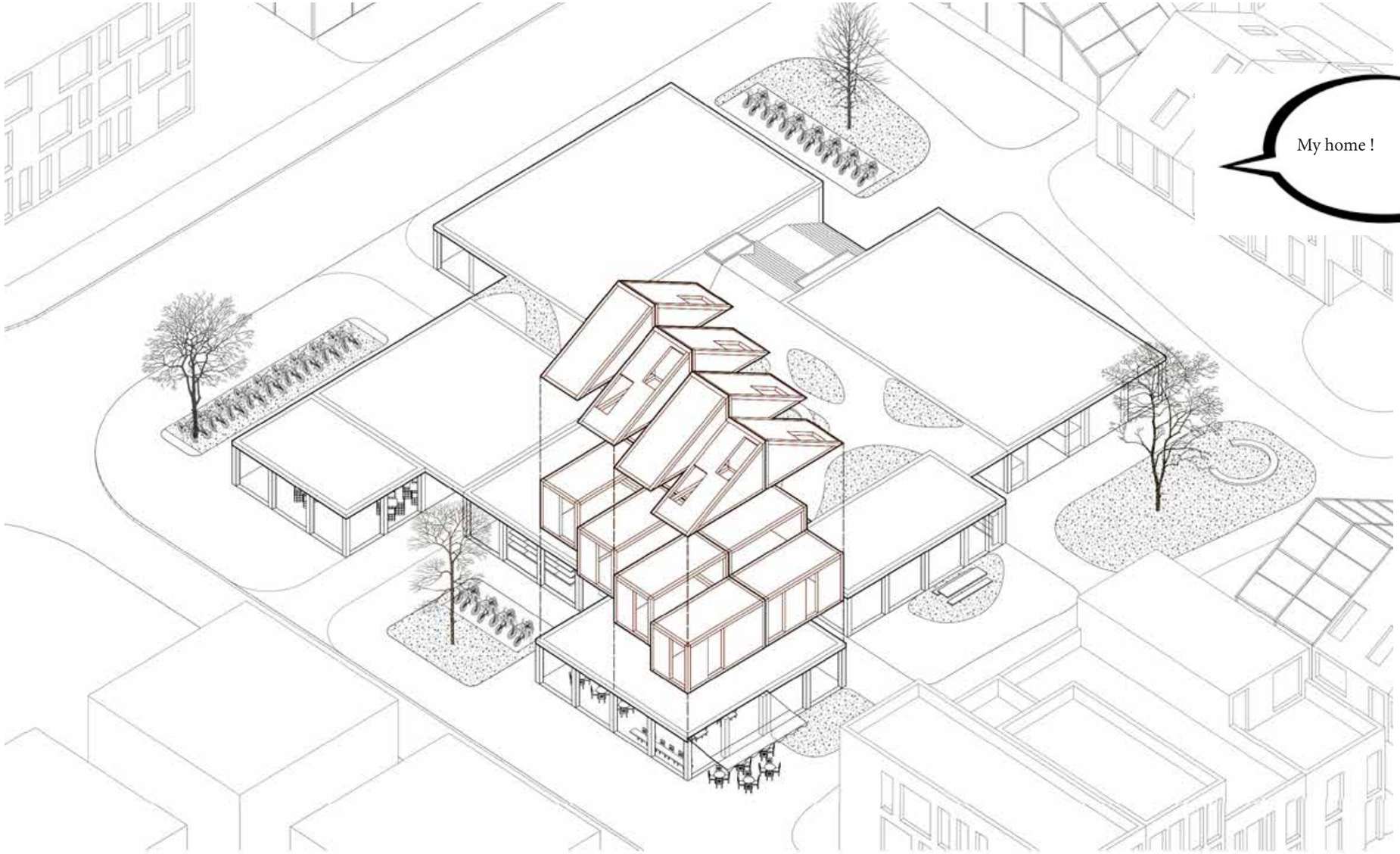
28 Years old

Where are the new blocks ?


There are supermarket, shops, Bicycle garage and club downstairs.


comminity gardens and
open space

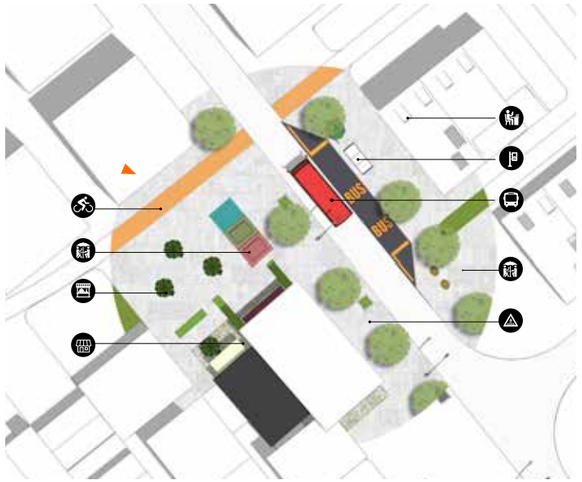

Roof garden!


My home !


Small greenhouse for growing vegatables and plants


It takes only 13 minutes to ride from my home to the company in town center.


sometimes it is raining, I can take the bus dowstairs. It is very convient!



● **Year of 2025**

This is my home, now we renewaled the first floor into a restaurant. I am running it with my daught-in-law

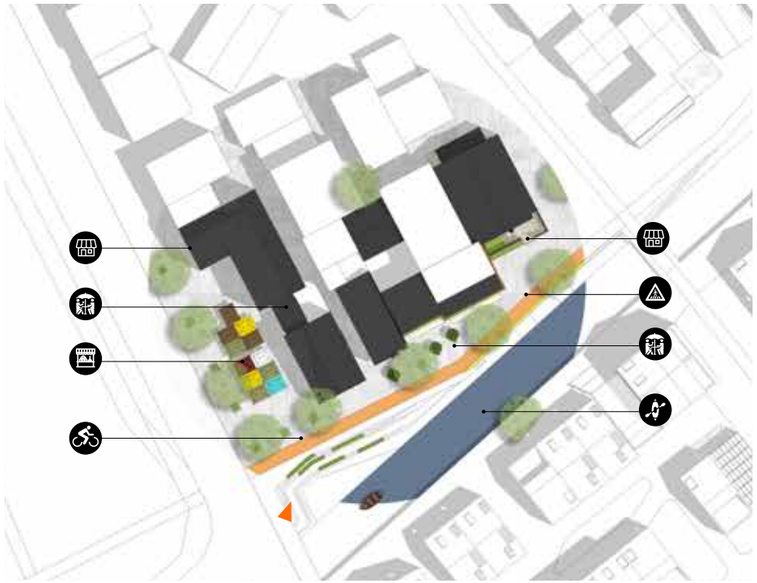
Zhou (Old Wang‘s wife)

Farmer

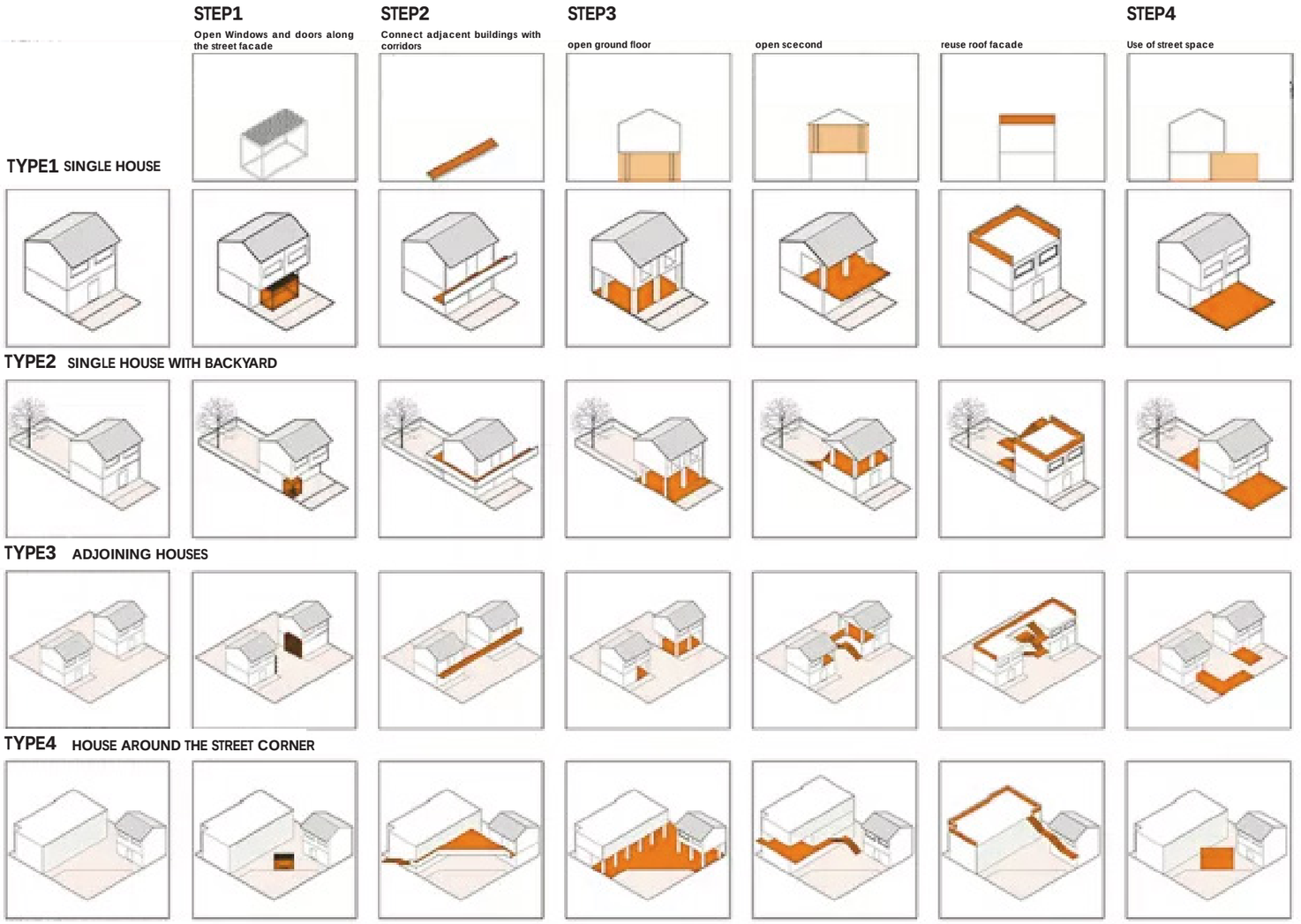
44 Years old


BUS
BUS


Example
node



TOOLKITS—how to renewal private building into publicfunction



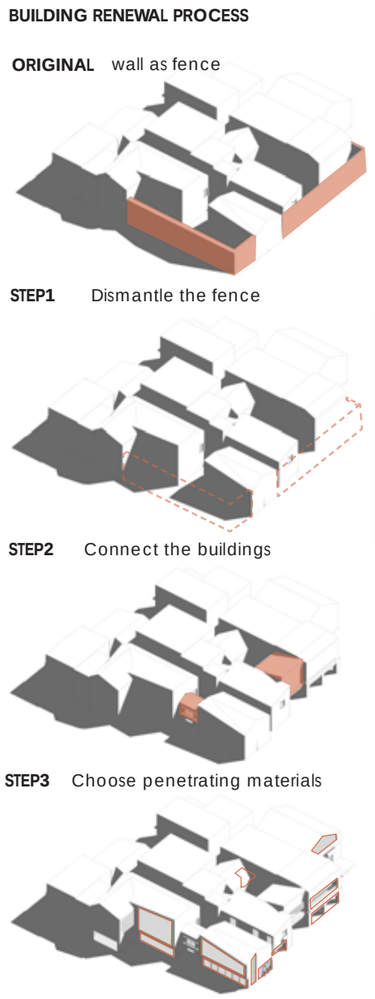


Figure 7.38 Building renewal process

- **Year of 2028**

Junior Wang
skillered worker & machinist
25 Years old

- **Year of 2042**

I have been on a business trip for two months and I like the environment and beautiful scenery with Chinese characteristics

Weslly

Expert

35 Years old


DOUNAN FLOWER

Indacator

infrustructure base

indacator: good logistic & facility condition

STAGE 1: The company settled in and the first phase of the greenhouse was gradually established.

indacator: polulation increasing

STAGE 2: Population growth brought new housing and the first community was built in the south.

indacator: polulation growth & Economy Profit

STAGE 3: As the population grew, a second community was established, while new public Spaces were created and a second batch of greenhouses were created.

indacator: polulation growth & Economy Profit

STAGE 4: The greenhouse and living area of the village are basically formed to improve the public activity space

indacator: population uplimitation

STAGE 5: The population tends to be stable, close to the planning upper limit, and the village basically taken shape.

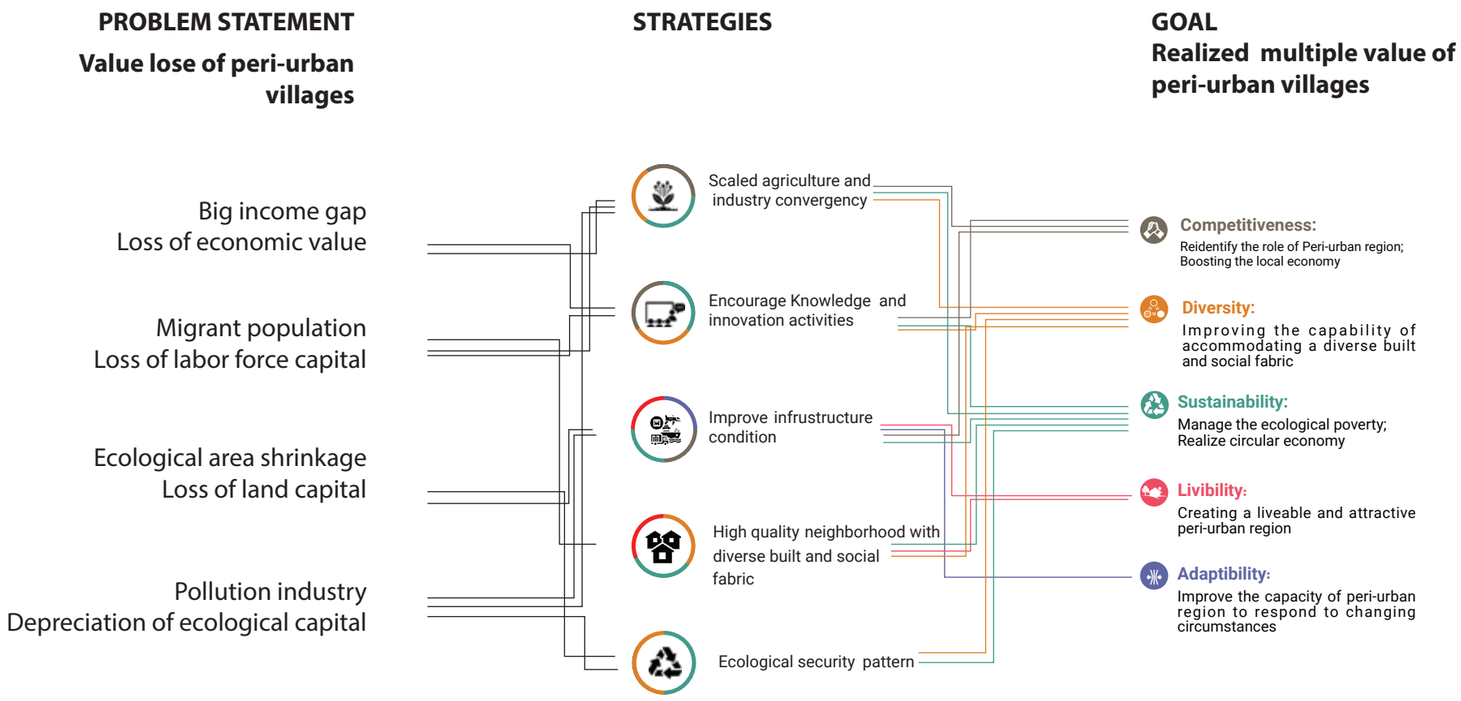
indacator: technology uograding & Economy Profit

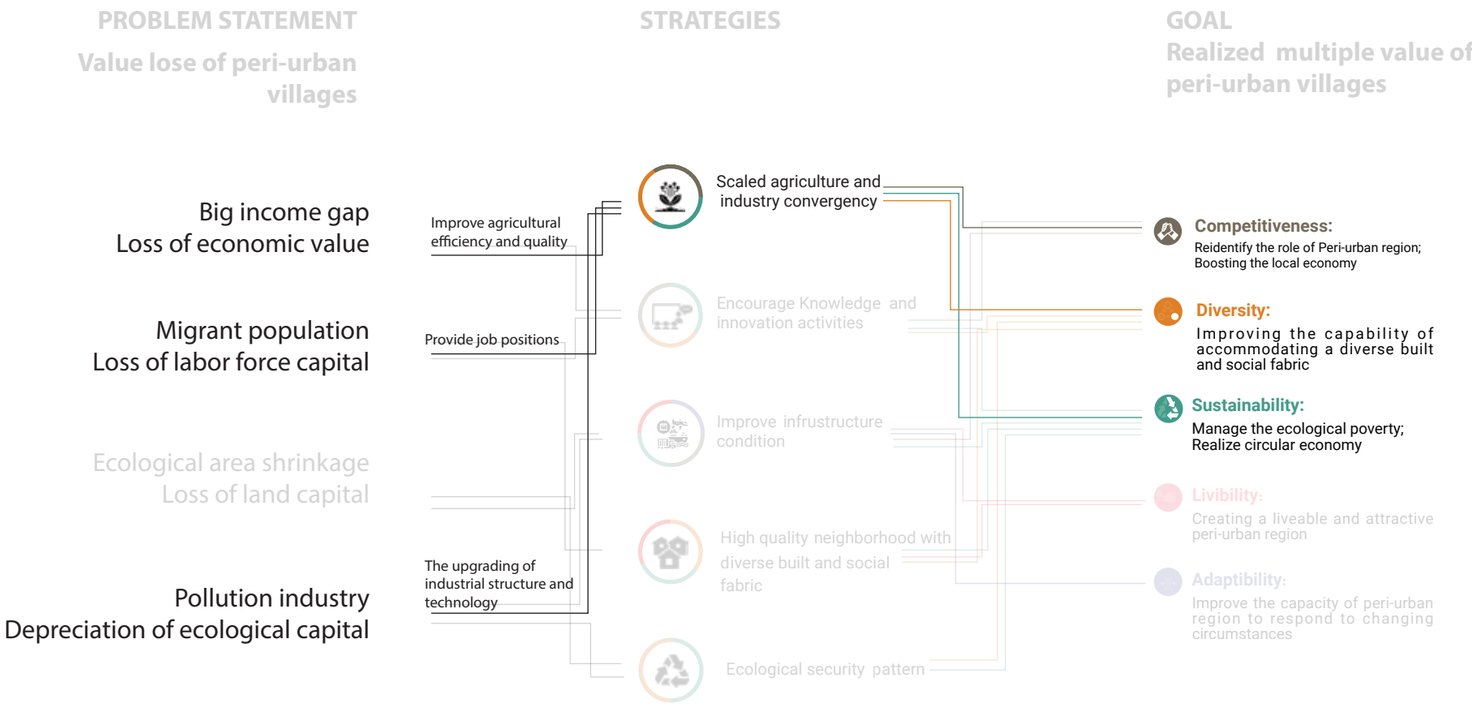
STAGE 6: According to the need of productivity growth, adjust the size of the greenhouse.

STRATEGY	GOALS	IMPLEMENTATION
STRATEGY1: Improve infrustructure and amenity condition 1a Transportation system construction Network with diverse means of transport Network with diverse means of transport Improve logistic condition 1b Supplement of education facility 1c Supplement of agriculture facility	Competitiveness · Livibility · Sustainability · Diversity · Adaptibility ● Introduce public transportion system and infrastruacture building strategy to broden social welfare and economic opporunities ● Prepare for the implementation of mechanized agriculture ● Guarantees the flowers quality by providing cold chain logistics ● Support current needs and future population growth by providing adequate educational institutions	1a +Provide vehicular roadway, bicycle lanes and sidewalks; +Give priority to public transport construction; +Set up Logistics distribution centers inside each cluster; +Widen the roads around the production space appropriately; 1b + Keep the village within the service of the school (500 m for primary and kindergarten, 1000 m for secondary school); 1c +Icrease the digester and compost for agriculture
Ecological security pattern 2a Energy landscape 2b Waste reuse 2c Emissions control 2d Habitat preservation 2e Water managment	● alleviate the contradiction of insufficient agricultural resources ● achieve sustainable economic growth with minimum resource consumption and minimum environmental cost ● Prevent ecological deterioration ● Conservation of biodiversity ● Improving living quality ● Increasing ecological capital	2a +Combine solar panels with a greenhouse 2b +Collect platycodon grandiflorum from cut flowers +Encourage the use of organic fertilizers instead of chemical fertilizers 2c + Assess the industries in the ecologically fragile areas, relocate and ban the polluted factories, +Control the discharge of waste gas and waste water 2d +Take agricultural land out of natural habitats 2e +Build buffer between production land and westland around Dian lake
Scaled agriculture and industry convergency 3a industry agglomoration land consolidation Land circulation model 3b industry convergency Industrial chain extension 3c branding 3d training	● Increase production efficiency ● Improve the quality of agricultural products ● Raise the level of mechanization and liberate the labor force ● Agglomoration effect, enhance competitiveness ● Share infrastructure and reduce investment	3a + Encourage farmers to transfer land use rights +Encourage farmers to cooperate with companies +Joint venture to purchase agricultural machinery to improve the level of mechanized planting
		3a + Tourism industry / Manufacturing / Biological sciences / Service industry
	● Improve the economic efficiency and output value of agriculture ● Enhance the competitiveness of agricultural scientific research ● Create more job opportunities ● Stimulate the integration and communication of different industries and social groups	3a + Media advertising +Brand logo is added to the building facade and printed on the products
		3d +Provide mechanized farming operations courses for farmers and workers +Provide vocational education facility，school，studio，library,ect.
STRATEGY4: High quality neighborhood with diverse built and social fabric 4a Rural industry renewal 4b Rural self-orgnised renewal rural self-orgnised renewal new block construction	● Enhance social equity and protect vulnerable groups through technical training and knowledge dissemination ● Encourage innovative enterprises with environmental protection and high technology level ● Stimulate the transformation of polluting enterprises	4a + Support emerging zero-pollution industry development + Encourage the transformation of potential rural industries + The reuse of equipment and facilities
		4b + Reasonable neighborhood scale (500m) + The style and scale of new building should be harmony between the new residence block and the village community +Provide guidlines and suggestions for local people's housing renewal
Encourage Knowledge and innovation activities 5a Stimulate innovation activities provide education facilities public event 5b policies tax burden shift cooperation & eliminating barriers startsup company incubator	● Enhance social equity and protect vulnerable groups through technical training and knowledge dissemination ● Encourage innovative enterprises with environmental protection and high technology level ● Stimulate the transformation of polluting enterprises	5a + coonstruct school, workshop,library,ect + Organise local cultural events or public welfare activities +Allowing the presence of the current informality economy on the street and provide them with better free trade zones
	● Raise the level of knowledge and skills of the workforce ● Conservation of traditional village culture heritage ● Brand culture promotion ● Attract knowledgeable group	5b + implemented the pigouvian tax +building affordable housing +Increase public spending and government funding on new machinery +Service industry

RESEARCH QUESTION:

How to reinvent **peri-urban region** in Dianchi Basin by promoting **industrial upgrading** and **knowledge economy** in order to achieve the **coordinating urban-rural development ?**




PROBLEM STATEMENT
Value lose of peri-urban villages
STRATEGIES
GOAL
Realized multiple value of peri-urban villages
Big income gap
Loss of economic value
Migrant population
Loss of labor force capital
Ecological area shrinkage
Loss of land capital
Pollution industry
Depreciation of ecological capital
Improve agricultural efficiency and quality
Provide job positions
The upgrading of industrial structure and technology
Scaled agriculture and industry convergency
Encourage Knowledge and innovation activities
Improve infrustructure condition
High quality neighborhood with diverse built and social fabric
Ecological security pattern
Competitiveness:
Reidentify the role of Peri-urban region; Boosting the local economy
Diversity:
Improving the capability of accommodating a diverse built and social fabric
Sustainability:
Manage the ecological poverty; Realize circular economy
Livibility:
Creating a liveable and attractive peri-urban region
Adaptibility:
Improve the capacity of peri-urban region to respond to changing circumstances

scenario planning

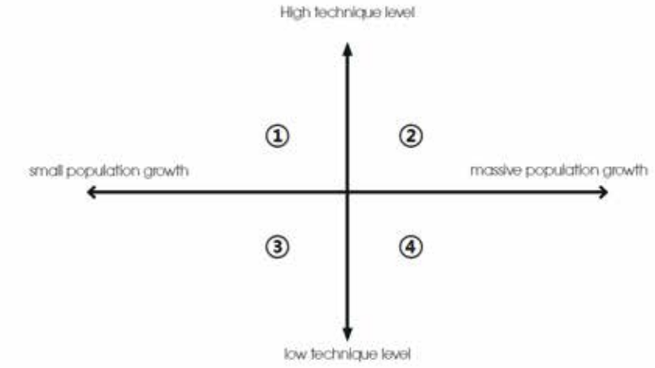
1.The key issues
Industry clusters promotion

2.Driving force
1.funding
2.policy
3.behaviour and willing of the citizens
4. change of population
5. Technique upgrading
6. Homogeneous competition
7. Construction of railway
8. Construction of Cheng Gong new town

Importance and uncertainty level of factors

level of uncertainty			importance
low	middle	high	
②	① ⑦	⑥ ④ ⑤	high
		⑧ ③	middle
			low

Four scenarios



Dou Nan cluster

as an example

SCENARIO I: low tech level / small population growing

SCENARIO 2: high tech level / large population

SCENARIO 3: low tech level / large population growing

SCENARIO 4: high tech level /small population growing

Dou Nan cluster- Jiangwei village

as an example

SCENARIO I: low tech level / small population growing

SCENARIO 2: high tech level /small population growing

SCENARIO 3: high tech level / large population

NOT PROMISING

SCENARIO 4: low tech level / large population growing

SCENARIO3

Dou Nan cluster- Jiangwei village

as an example

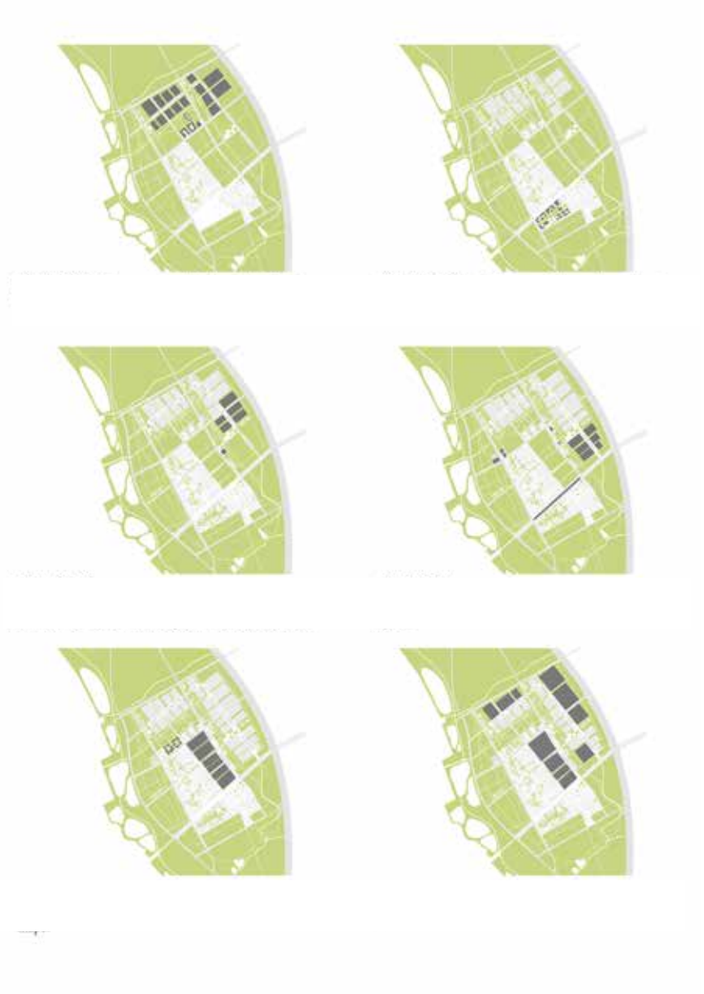
NOW

SCENARIO I: low tech level / small population growing

SCENARIO 2: high tech level /small population growing

WISHFUL FUTURE

SCENARIO 3: high tech level / large population
AUCTION & AGRI-TECH HUB



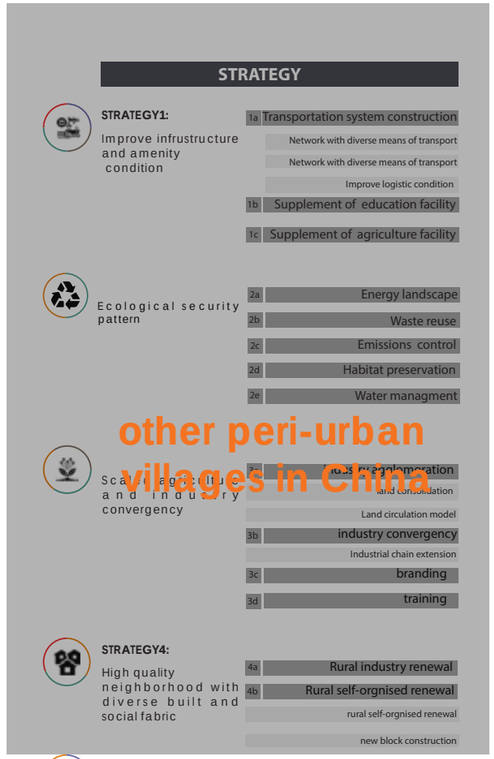
SCENARIO I: low tech level / small population growing

SCENARIO 2: high tech level /small population growing
PRODUCTIVE AGRICULTURE CENTER

SCENARIO 3: high tech level / large population
AUCTION CENTER & AGRI-TECH HUB TOWN

Thank you!

Transferability



GOALS

Competitiveness · Livibility · Sustainability · Diversity · Adaptibility

- Introduce public transportion system and infrastruacture building strategy to broden social welfare and economic opporunities
- Prepare for the implementation of mechanized agriculture
- Guarantees the flowers quality by providing cold chain logistics
- Support current needs and future population growth by providing adequate educational institutions

- alleviate the contradiction of insufficient agricultural resources
- achieve sustainable economic growth with minimum resource consumption and minimum environmental cost
- Prevent ecological deterioration
- Conservation of biodiversity
- Improving living quality
- Increasing ecological capital

- Increase production efficiency
- Improve the quality of agricultural products
- Raise the level of mechanization and liberate the labor force
- Agglomoration effect, enhance competitiveness
- Share infrastructure and reduce investment

- Improve the economic efficiency and output value of agriculture
- Enhance the competitiveness of agricultural scientific research
- Create more job opportunities
- Stimulate the integration and communication of different industries and social groups

- Enhance social equity and protect vulnerable groups through technical training and knowledge dissemination
- Encourage innovative enterprises with environmental protection and high technology level
- Stimulate the transformation of polluting enterprises

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- Encourage innovative enterprises with environmental protection and high technology level
- Stimulate the transformation of polluting enterprises

- Raise the level of knowledge and skills of the workforce
- Conservation of traditional village culture heritage
- Brand culture promotion
- Attract knowledgeable group

IMPLEMENTATION

1a +Provide vehicular roadway, bicycle lanes and sidewalks;
+Give priority to public transport construction;
+Set up Logistics distribution centers inside each cluster;
+Widen the roads around the production space appropriately;

1b + Keep the village within the service of the school (500 m for primary and kindergarten, 1000 m for secondary school);

1c +Icrease the digester and compost for agriculture

2a +Combine solar panels with a greenhouse

2b +Collect platycodon grandiflorum from cut flowers
+Encourage the use of organic fertilizers instead of chemical fertilizers

2c + Assess the industries in the ecologically fragile areas, relocate and ban the polluted factories,
+Control the discharge of waste gas and waste water

2d +Take agricultural land out of natural habitats

2e +Build buffer between production land and westland around Dian lake

3a + Encourage farmers to transfer land use rights
+Encourage farmers to cooperate with companies
+Joint venture to purchase agricultural machinery to improve the level of mechanized planting

3a + Tourism industry / Manufacturing / Biological sciences / Service industry

3a + Media advertising
+Brand logo is added to the building facade and printed on the products

3d +Provide mechanized farming operations courses for farmers and workers
+Provide vocational education facility，school，studio，library,ect.

4a + Support emerging zero-pollution industry development
+ Encourage the transformation of potential rural industries
+ The reuse of equipment and facilities

4b + Reasonable neighborhood scale (500m)
+ The style and scale of new building should be harmony between the new residence block and the village community
+Provide guidlines and suggestions for local people's housing renewal

5a + coonstruct school, workshop,library,ect
+ Organise local cultural events or public welfare activities
+Allowing the presence of the current informality economy on the street and provide them with better free trade zones

5b + implemented the pigouvian tax
+building affordable housing
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+Service industry

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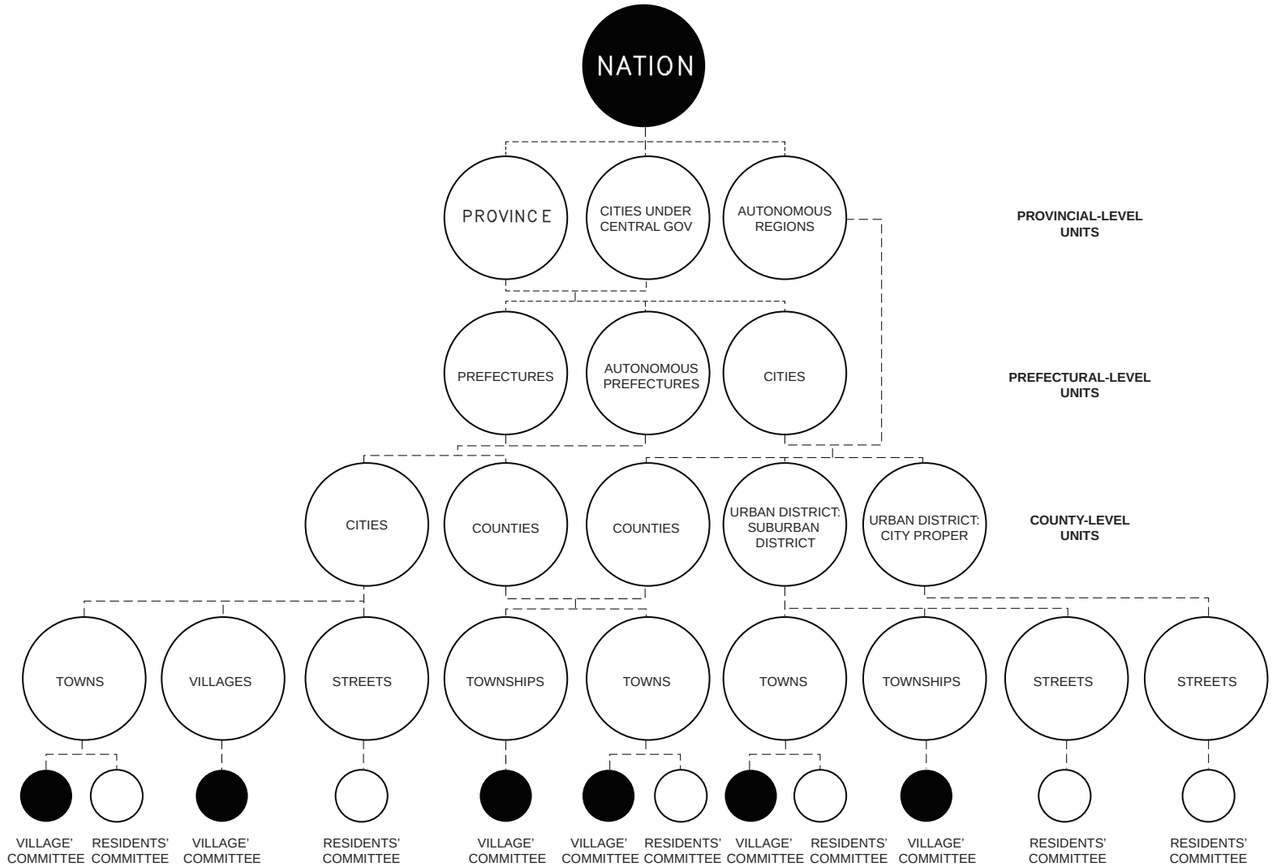
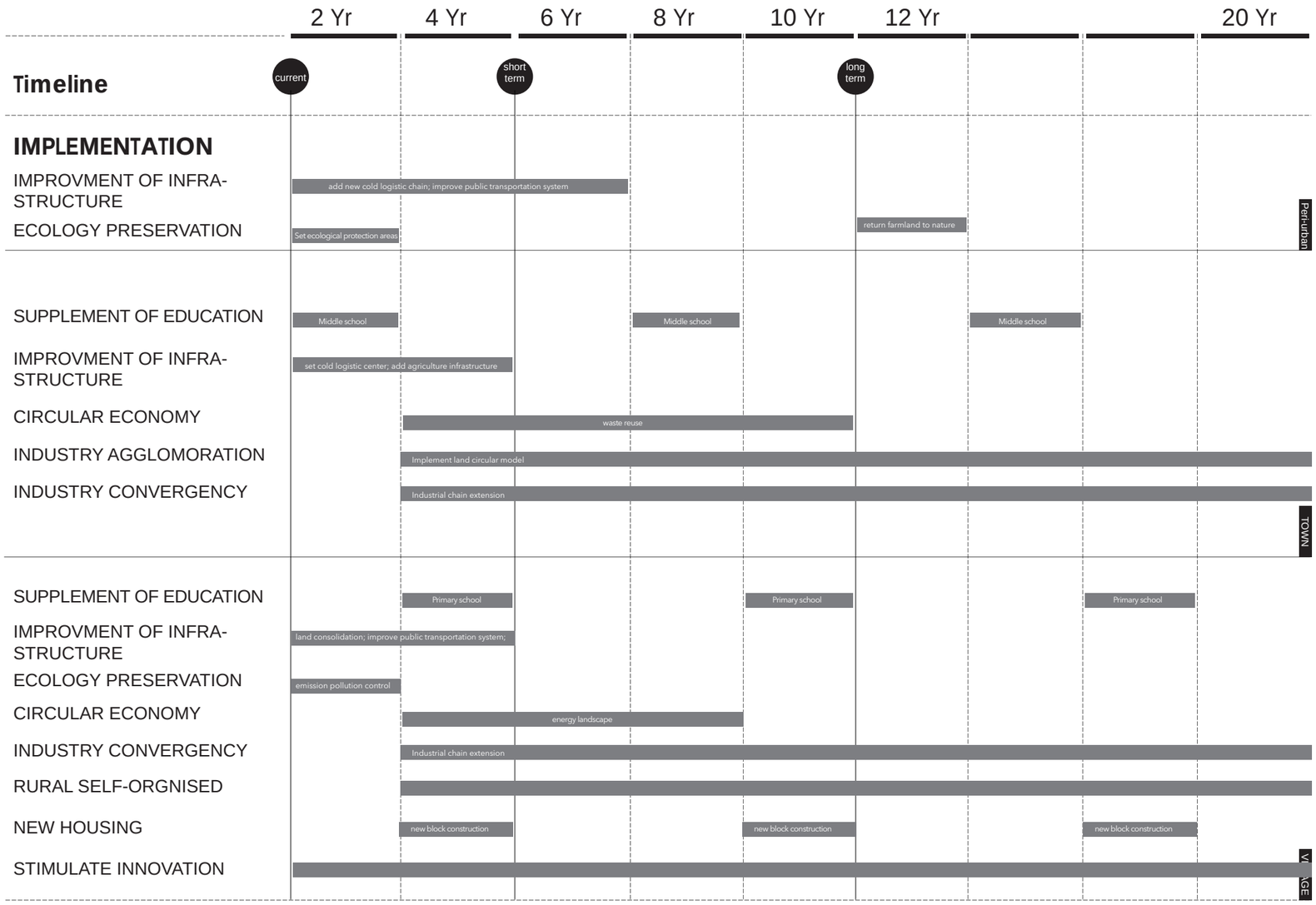
transformability



ADMINISTRATION HIERARCHY DIAGRAM


2 Yr
4 Yr
6 Yr
8 Yr
10 Yr
12 Yr
20 Yr
Timeline
current
short term
long term
IMPLEMENTATION
IMPROVMENT OF INFRA-STRUCTURE
add new cold logistic chain; improve public transportation system
ECOLOGY PRESERVATION
Set ecological protection areas
return farmland to nature
PeriUrban
SUPPLEMENT OF EDUCATION
Middle school
Middle school
Middle school
IMPROVMENT OF INFRA-STRUCTURE
set cold logistic center; add agriculture infrastructure
CIRCULAR ECONOMY
waste reuse
INDUSTRY AGGLOMORATION
Implement land circular model
INDUSTRY CONVERGENCY
Industrial chain extension
TOWN
SUPPLEMENT OF EDUCATION
Primary school
Primary school
Primary school
IMPROVMENT OF INFRA-STRUCTURE
land consolidation; improve public transportation system;
ECOLOGY PRESERVATION
emission pollution control
CIRCULAR ECONOMY
energy landscape
INDUSTRY CONVERGENCY
Industrial chain extension
RURAL SELF-ORGNISED
NEW HOUSING
new block construction
new block construction
new block construction
STIMULATE INNOVATION
VILLAGE