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Case Report: Development of New County of Beichuan

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I. Introduction to the Planning of Beichuan New County

II. Urban Plan Evaluation in the post-earthquake reconstruction period

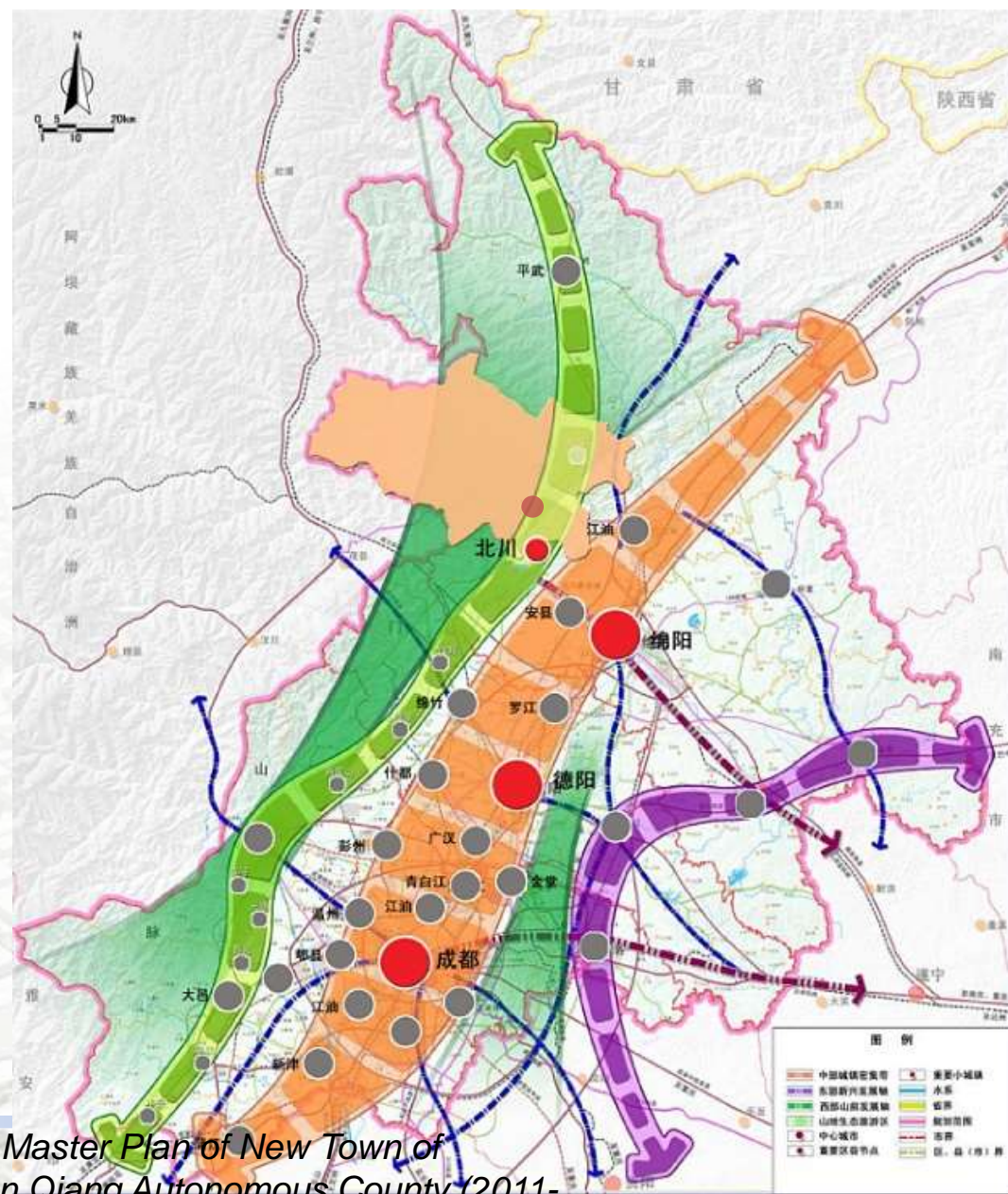
III. Master Plan of Reconstruction

A faint, light-colored background map of Beichuan New County is visible behind the text. The map shows a grid-like urban layout with various blocks, roads, and green spaces. A river or water body is also depicted, winding through the lower part of the map. The overall tone is light and professional.

01 INTRODUCTION TO THE PLANNING OF BEICHUAN NEW COUNTY

LOCATION AND OVERVIEW

- ① Located in northwestern Sichuan Basin, about 42km away from Mianyang City and 160km to the capital city of Chengdu
- ② The county seat of Beichuan was moved to Yongchang Town from Qushan Town in 2008.
- ③ 6 towns, 16 townships and 1 ethnic township in the county
- ④ With a regional GDP of 3.17 billion yuan, 15,835 Yuan per capita in 2012
- ⑤ 2012 Industrial Structure 25 : 42 : 33
- ⑥ With total population of 241,000 by the end of 2012, 78,000 of which are nonagricultural population, accounting for 32.4%



Source: Master Plan of New Town of Beichuan-Qiang Autonomous County (2011-2030)

Construction areas are along the valleys.

- ① Focal area of reconstruction: 368 reconstruction projects with a total investment of 8 billion yuan, accounting to respectively 42.40% and 36.15% of the entire Beichuan County
- ② A steady local population before and after the earthquake: with a population of 115,000 in 2007, about 49% of total number of Beichuan; 118,000 in 2009, about 50% of Beichuan
- ③ Leading Industries before the earthquake: hydropower, building materials and minerals, agricultural products and tourism
- ④ Leading Industries after the earthquake: agricultural products and commodity, cultural tourism;

Local tourism: ruins and site of the old county, contemporary cultural heritage of the new county

Source: Master Plan of New Town of Beichuan Qiang Autonomous County (2011-2030)



Planning Objective of the New Beichuan County

reconstruction model

安全

safe

繁荣

prosperous

特色

characteristic

宜居

livable

和谐

Harmonious

文明

Advanced

Planning of Beichuang New County



Designated Function

Political, economic and cultural hub of Beichuan

**Tourist service base in western
Sichuan and industrial base for the
Mianxi City area**

Modern cultural city of Qiang ethnic group and ecological garden city

Size of City

**Planned area of construction land:
40,000 square kilometers with a
population of 35,000 in the short
term and 70,000 square kilometers
with a population of 70,000 in the
long term**

Source: *Post-earthquake Reconstruction plan of New Town of Beichuan Qiang Autonomous County (2008-2020)*



Principle 1 : compact layout



——optimal utilization of land :

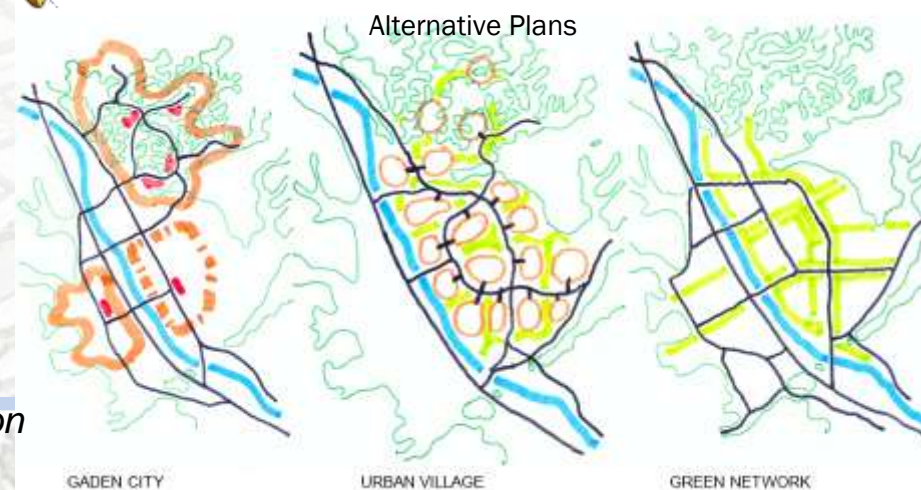
The development land per capita shall not exceed 105 m² per person (GBJ137-90: 150m² per person for ethnic minority regions)

——convenient transportation :

most facilities within walking distance of residents;
facilitate the utilization of public facilities and the improvement of service, as well as the commercial development in the future

——project timeline management :

To reduce development difficulty, follow the cycle of construction

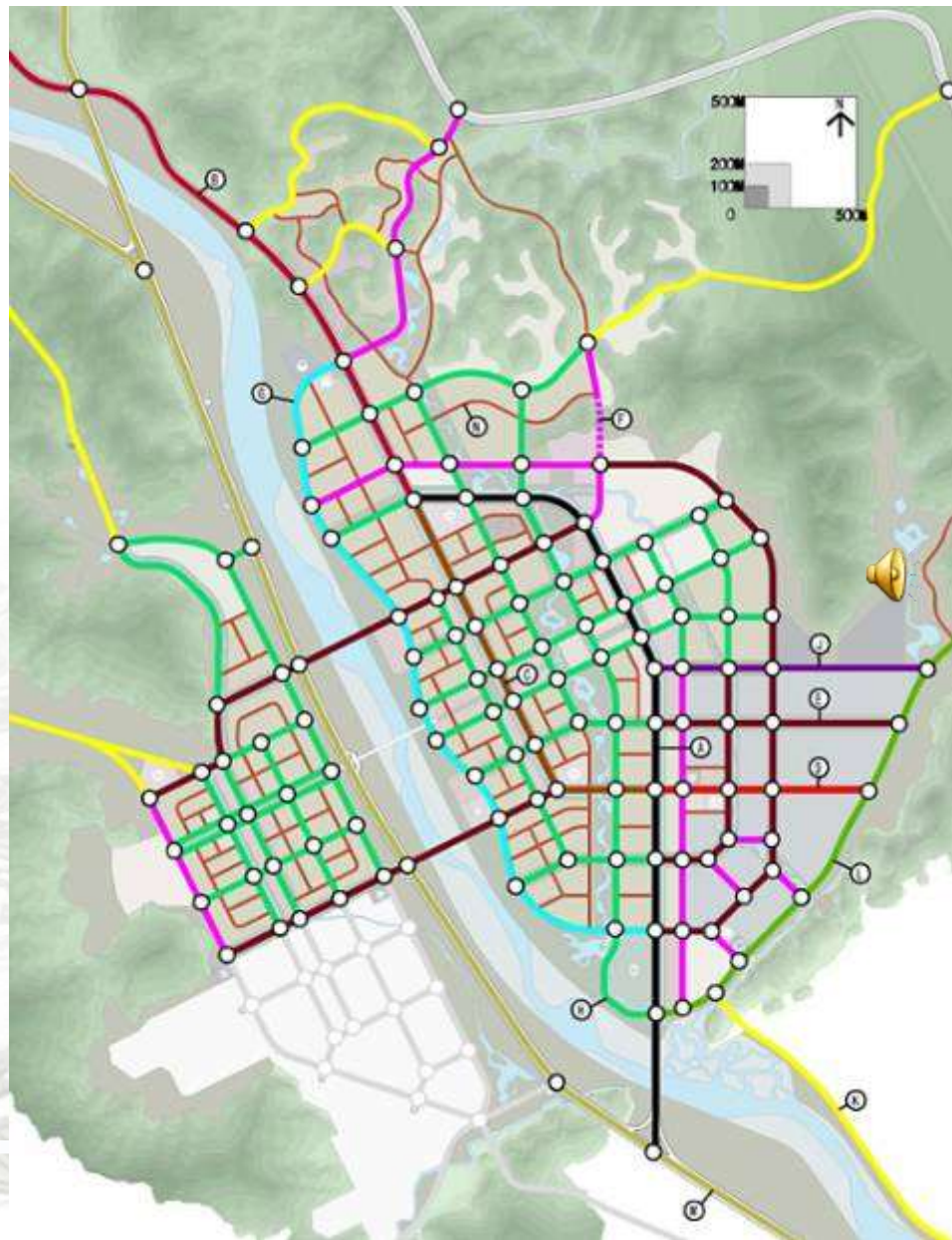


Principle 2 : strip-shaped open space and green belts (ecological corridors and leisure space)



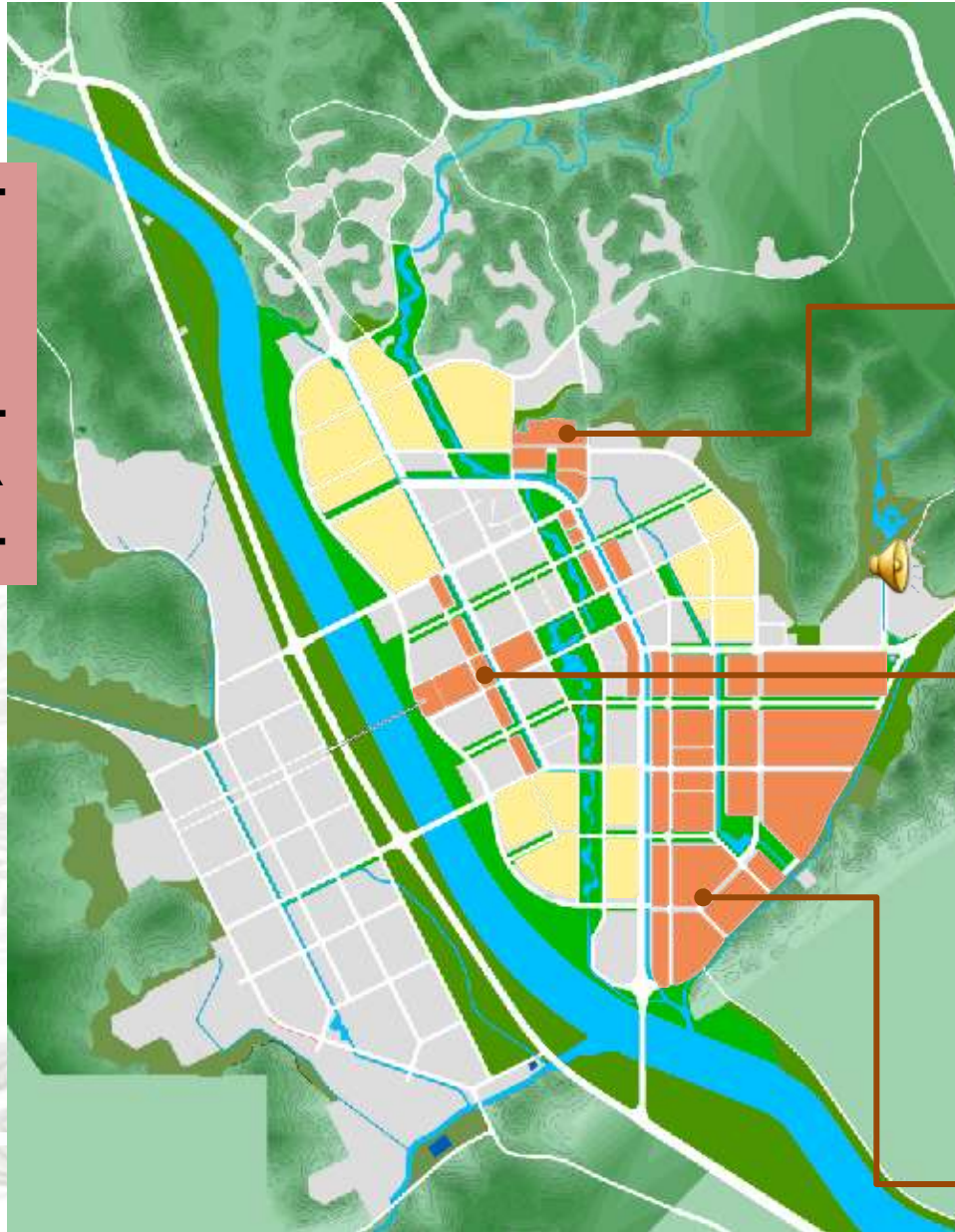
Source: *Post-earthquake Reconstruction plan of New Town of Beichuan Qiang Autonomous County (2008-2020)*

Principle 3 : small-scale streets



Principle 4 : Balance between work and living space

human-oriented



Principle 5 : continuity of traditions —— new Qiang Style

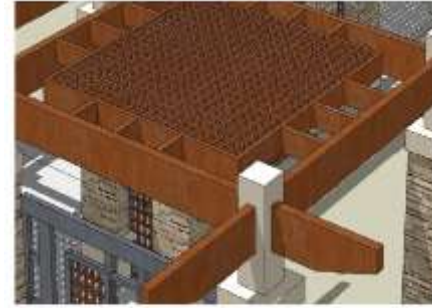
Cultural transmission , ethnic features



Source:
Post-earthquake Reconstruction plan of New Town of Beichuan Qiang Autonomous County (2008-2020)
Building a New Beichuan, China Architecture and Building Press, 2011

Design Technique	Style	positioning
Recreation	Original	main buildings
Adaptation	Aadapted	setting
Modernization	Modern	Main buildings





公建重于居住



边角重于内部



底顶重于中段



小品重于建筑



Source:

Post-earthquake Reconstruction plan of New Town of Beichuan Qiang Autonomous County (2008-2020)
Building a New Beichuan, China Architecture and Building Press, 2011

Principle 6 : green and low-carbon

- ❑ Technology of rainwater filtration, smart grids, integrated communication networks are used to protect the environment and to avoid repeating construction
- ❑ More than 70% of the roads are equipped with LED lighting; architectures comply with national standard for green buildings, reaching a level of modern construction
- ❑ Green pedestrian system

low-carbon, energy-efficient, emission reduction

Construction image



Source:
Building a New Beichuan, China Architecture
and Building Press, 2011



Source:
Building a New Beichuan, China Architecture
 and Building Press, 2011





Source:
Building a New Beichuan, China
Architecture and Building Press, 2011





摄影 廖世龙

Source:
Building a New Beichuan, China Architecture and
Building Press, 2011



02 URBAN PLAN EVALUATION IN THE POST-EARTHQUAKE RECONSTRUCTION PERIOD

Evaluation 1 : reflection of contemporary cultural heritage

- ❑ Advanced ideas of planning and design
- ❑ Boundless love and power when facing the disaster
- ❑ Collaboration of domestic masters
- ❑ Architectures of modern Qiang ethnic style

Source:

Building a New Beichuan, China Architecture and Building Press, 2011



Plan Evaluation 2 : a “cool” beauty

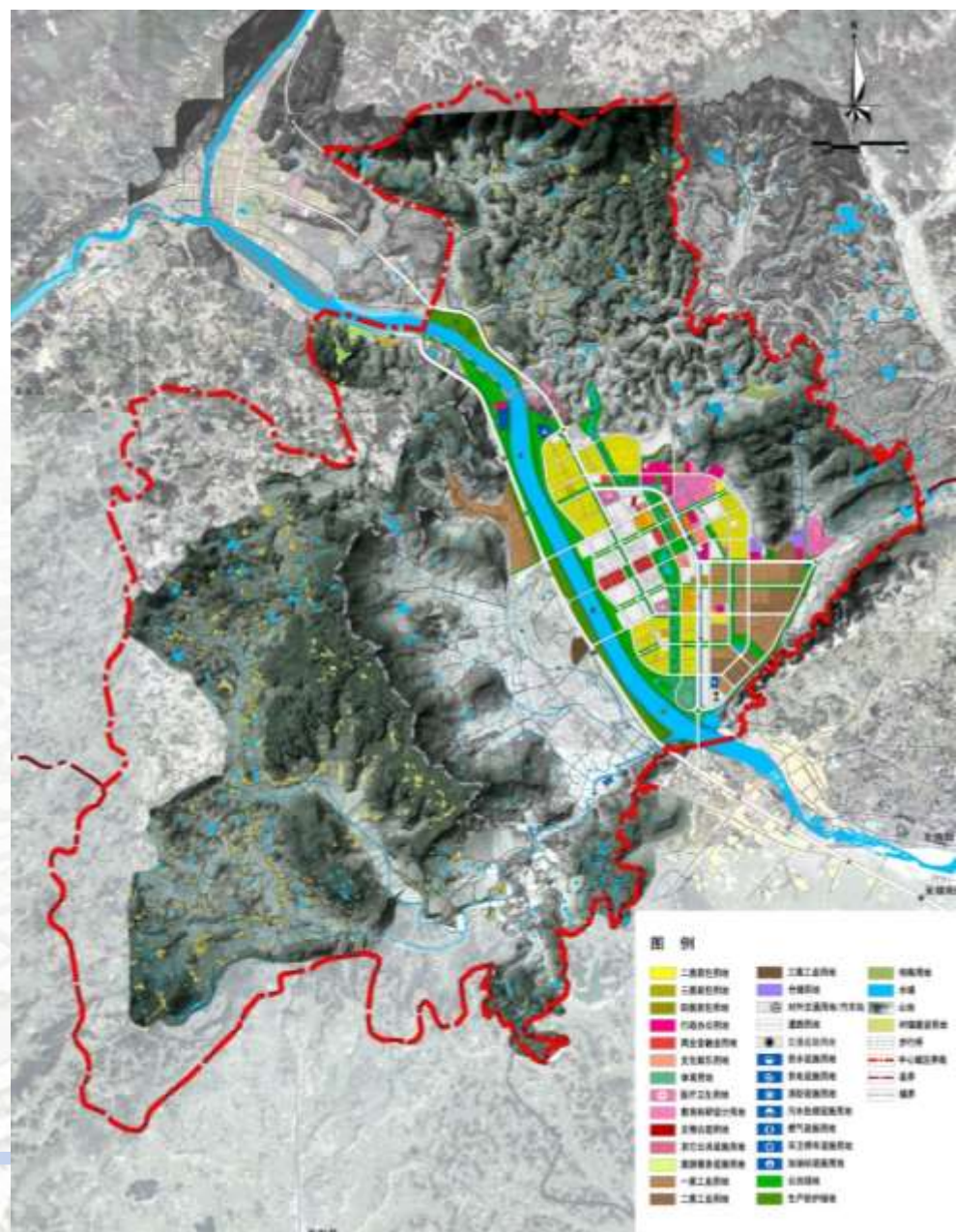
**Safe, livable, prosperous,
Characteristic,
advanced ,harmonious**

The area in the east of the river has been completed (covering an area of 4.59 km² for 26,000 people), but were left empty or deserted due to a low popularity.

reasons :

- 1) small population ;
- 2) slow economy and less competitive industry

Source: *Master Plan of New Town of Beichuan Qiang Autonomous County (2011-2030)*



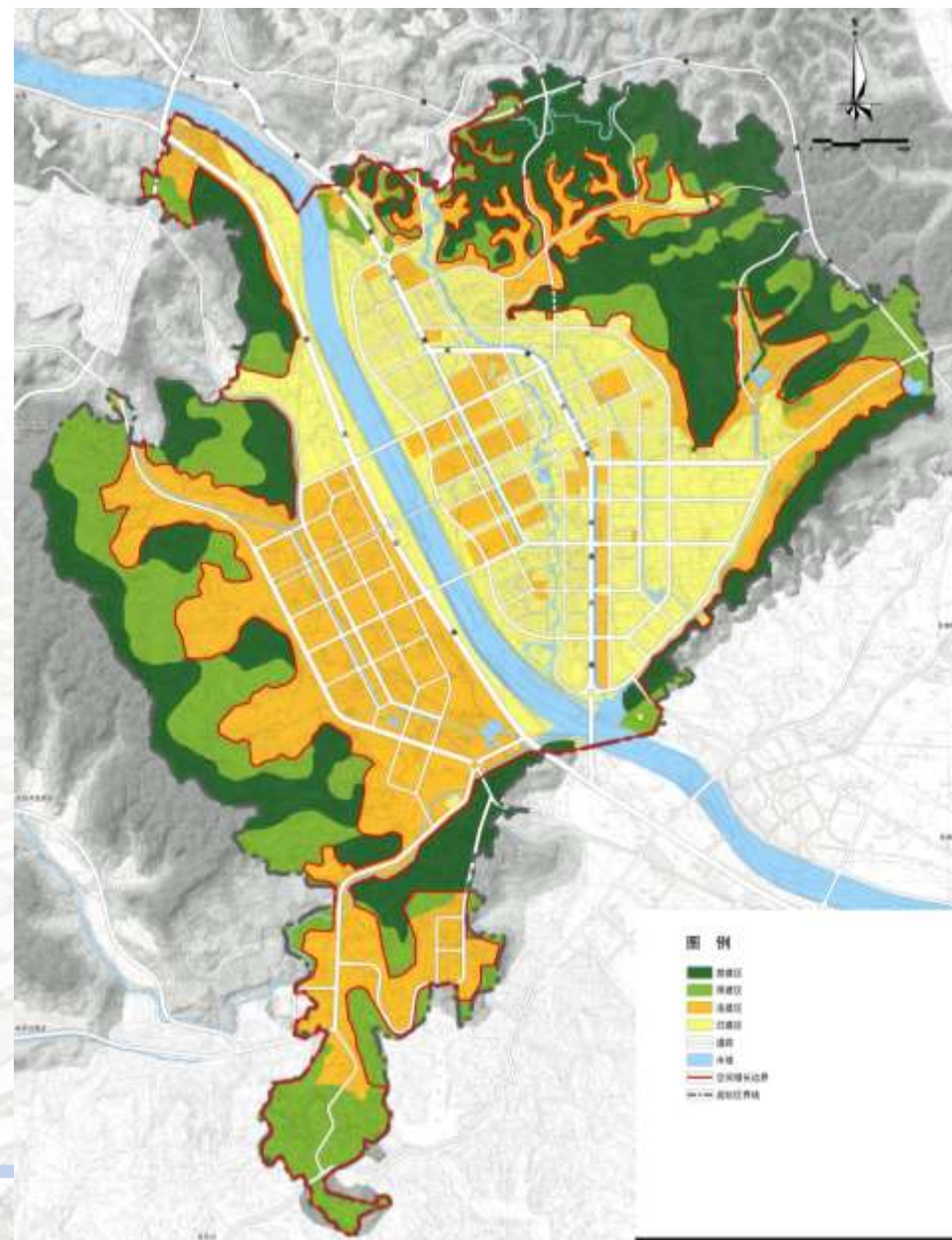
(1) less favorable land and ecological condition for a large-scale industrial park

- Beichuan is located in a national ecological reserve.

- Limited land in central area

type	Area (hectare)	ratio (%)
Construction area	1086	49
Restricted construction area	471	21
Prohibited construction area	504	23
waters	141	6
合计	2202	100

- Unfavorable to the development of a large-scale industrial park

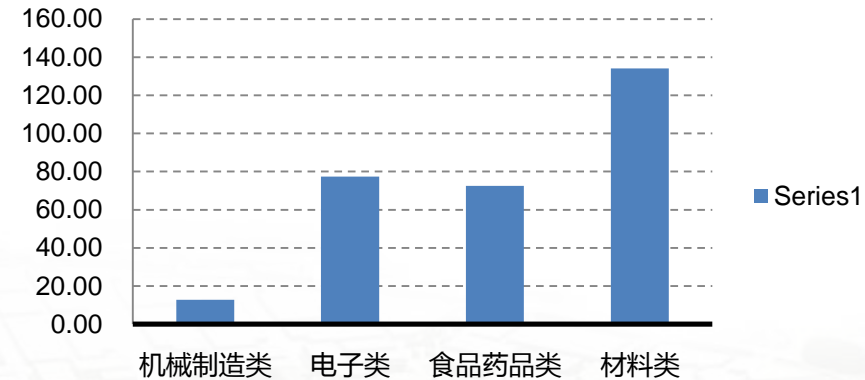


Source: *Master Plan of New Town of Beichuan Qiang Autonomous County (2011-2030)*

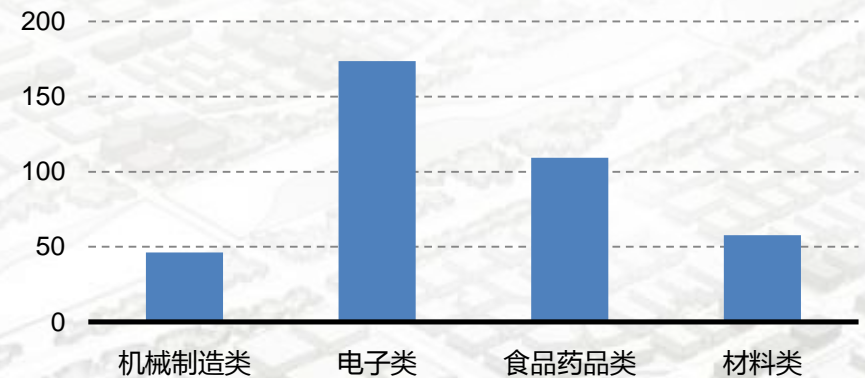
(2) External enterprises running under their capacity VS. great development potentials for local manufacturers

- 33 park-based enterprises including 24 from Shandong Province, with only 16 in operation and the 9 local ones not started yet
- External enterprises : machinery
 - 8 enterprises , 6 in operation , with a relatively low GDP per unit area of 13,000 yuan/mu
- Local enterprises : electronics
 - 5 enterprise , 3 in operation , labor-intensive companies with collaboration with big groups like Changhong.
- Enterprises based on local resources : food and drug
 - 12 enterprises , 4 in operation , labor intensive
- Enterprises based on local market : materials
 - 6 enterprises , 3 in operation , high GDP contribution per unit area

2011 Beichuan Shandong Industrial Park GDP per Unit Area (10,000yuan/mu)



2011 Beichuan Shandong Industrial Park Average Employees

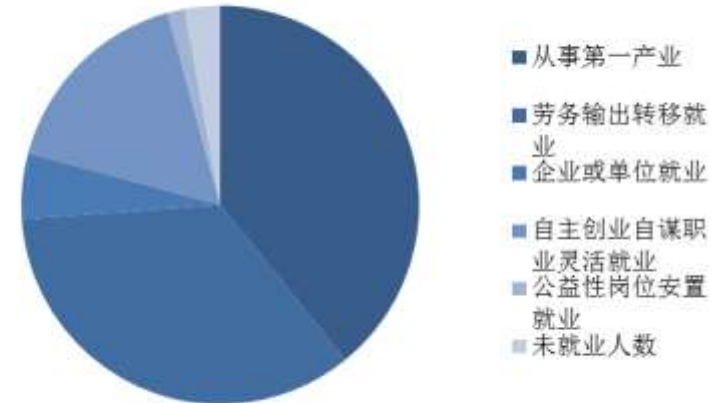


Source: survey on Beichuan by the author

(3) Lack of Job Opportunities

- ❑ Insufficient jobs in the new county
- 1408 employees in the industrial park in 2011
- 12 jobs from each business unit on average
- A lack of employment and its simple types continue to restrict the local job market.
- ❑ Large proportion of out-going Migrant Workers
- The number of out-going migrant workers in the whole county accounts for 35.7% of the total employment.
- 77.3% of the employment are out-going workers in the new county seat, with most people working in other cities in Sichuan Province.
- A necessity to quickly gather popularity by creating more jobs in manufacturing and tourism.

2011年北川全县劳动力就业情况



资料来源：关于北川羌族自治县劳动者就业情况的报告

2011年北川新县城劳动力就业情况



资料来源：关于北川羌族自治县劳动者就业情况的报告

Source: survey on Beichuan by the author

(4) Low development intensity of lands for residential use

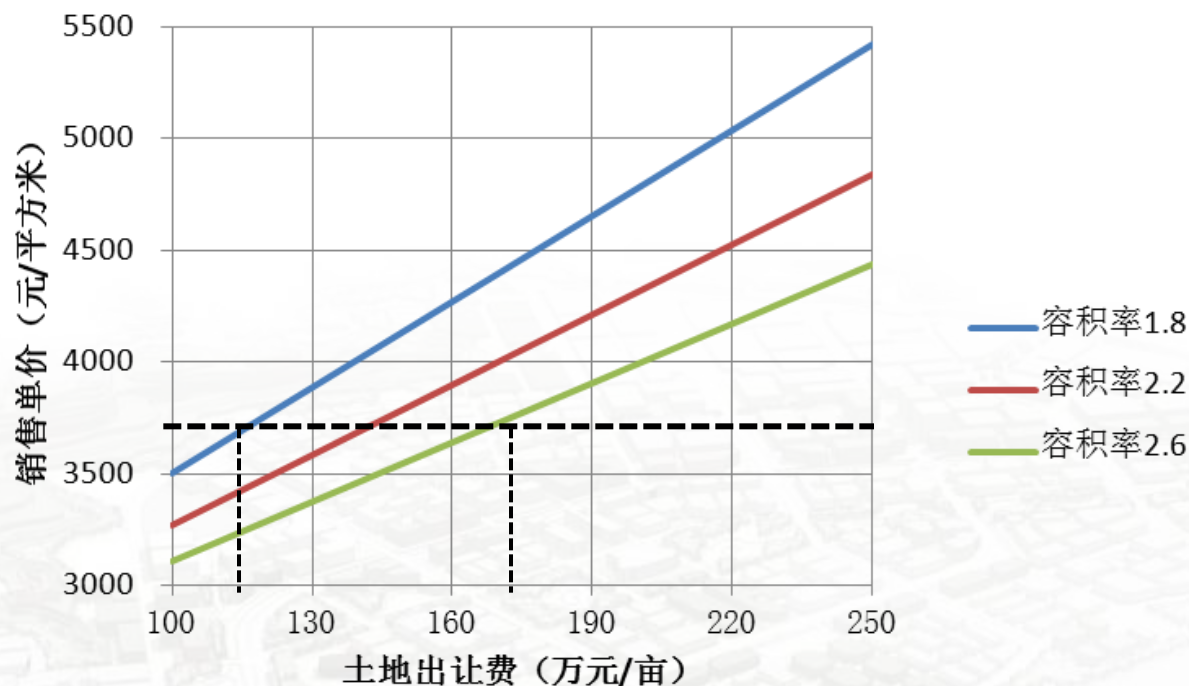
- maximum plot ratio upon the current height limits of multi-storey constructions

	area (ha)	Plot ratio	Building density
Baiyangping	17.13	1.47	
Hongqi	21.87	1.49	30
Phase 1 Wenquan	28.42	1.48	31.46
Phase 2 Wenquan	20.75	1.39	31.46

- Calculated by 25%-30% of residential land proportion and 1.5 of its plot ratio, the 10.8 km² central area could only accommodate a population of 50,000 to 85,000.



Low development intensity, low government revenue, and a small population

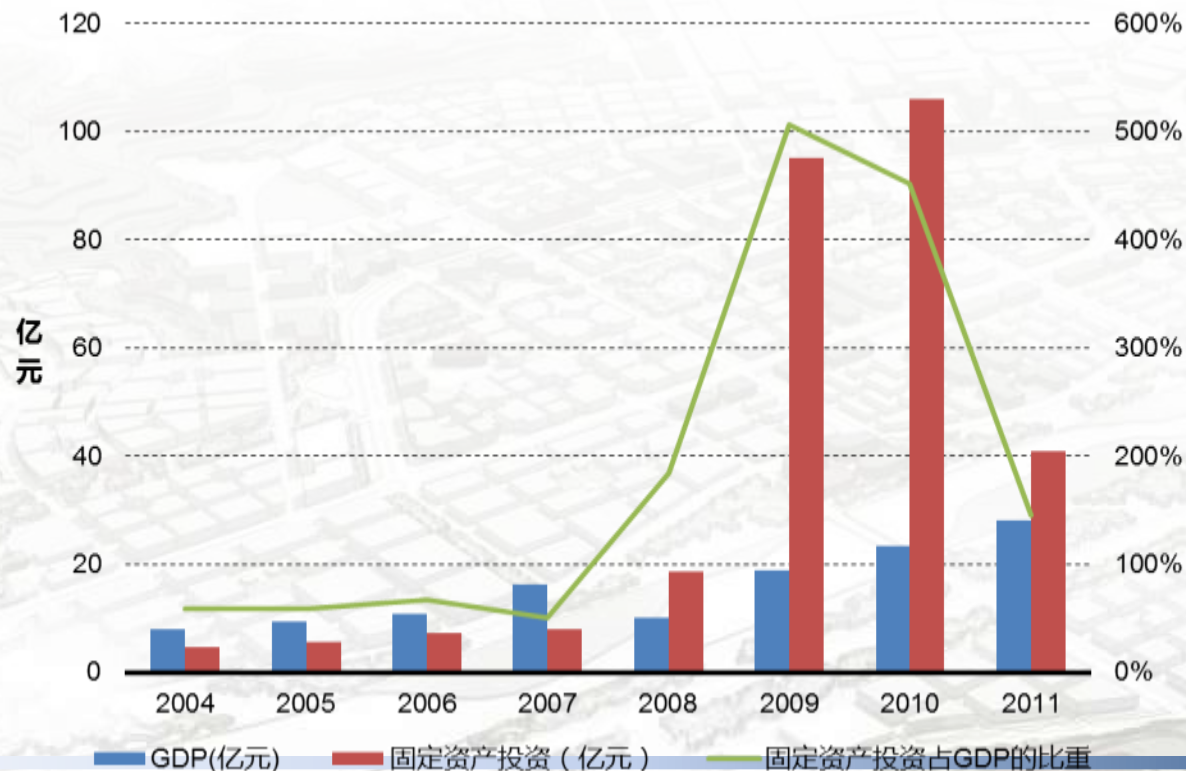


- With a given and fixed sale price, the lower floor area ratio is, the lower transfer price for the government
- The housing price of Anxian County is 3300-3400 yuan/m² and the land transfer price is 2 million yuan/mu, while the price in Beichuan area falls to about 1 million yuan/mu.

Source: survey on Beichuan by the author

Decreasing Investment

- The fixed asset investment before the earthquake is close to 50-70% of GDP, while the percentage increased to 500%, 450% and 150% respectively in 2009, 2010 and 2011, but an estimated decrease is ongoing in 2012 and the afterwards.

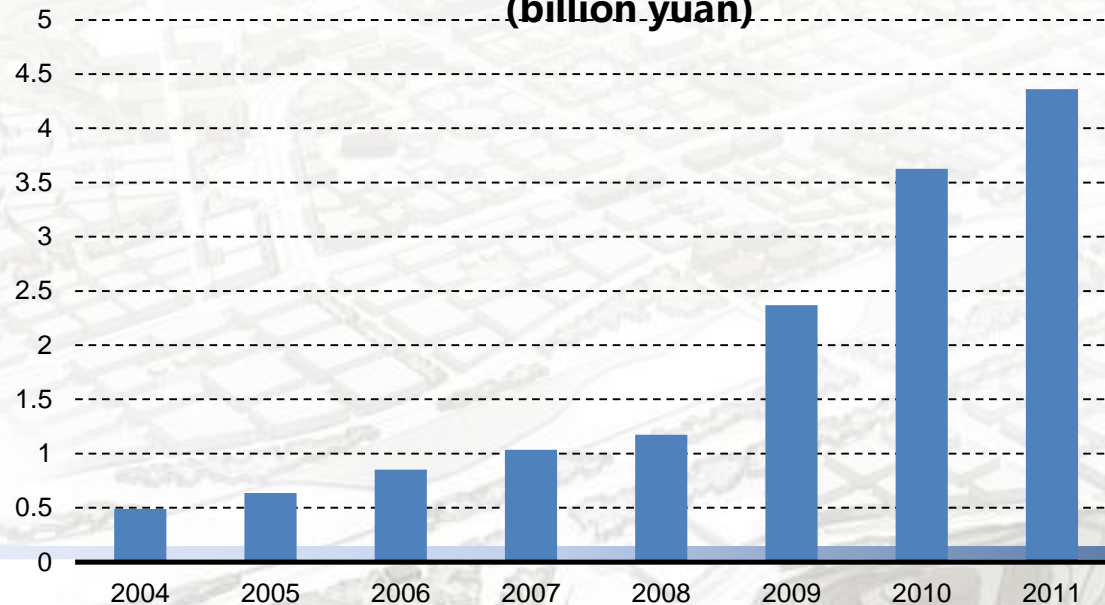


Source: organized by the author according to statistical data

Government Debt

- The debt of local government increases to 10 billion yuan compared with its revenue of 0.31 billion in 2010 and 0.44 billion in 2011.
- With the completion of local reconstructions, aid/assistance projects will decline and investment will play a smaller role in local economic development. It is possible that Beichuan will experience a, which requires a new engine to sustain its economic growth

2004-2011 Government Revenue of Beichuan
(billion yuan)



Source: organized by the author according to statistical data

The Theory of Valley-Effect

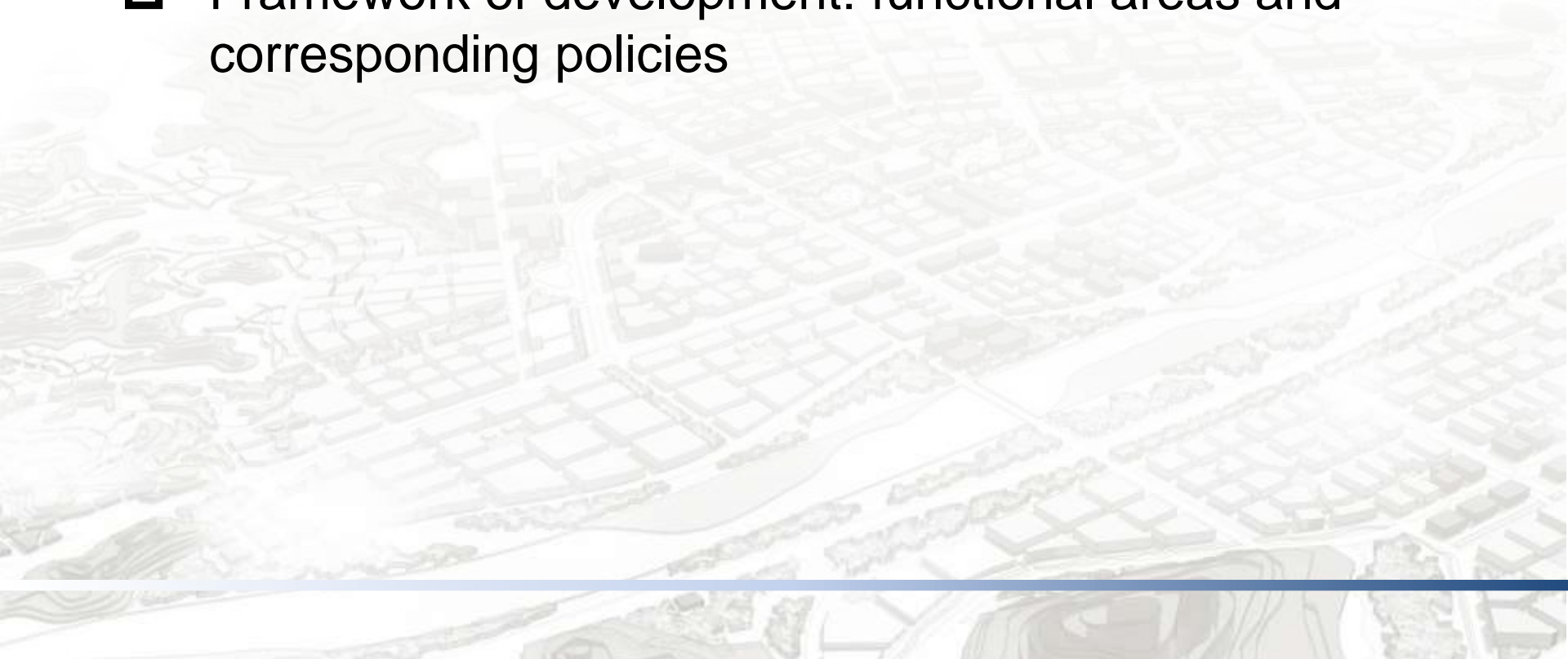
- ❑ **Low Investment Efficiency:** (GDP/fixed asset) because of a huge number of investment in infrastructures (which has spent the money of next five years), the follow-up investment will decrease.
- ❑ **Long pay-back period of Investment:** the period to recover the investment is the duration of the valley effect .
- ❑ To unleash the good effects of investment and to sustain the development by engines other than investment

03 Master Plan of Reconstruction

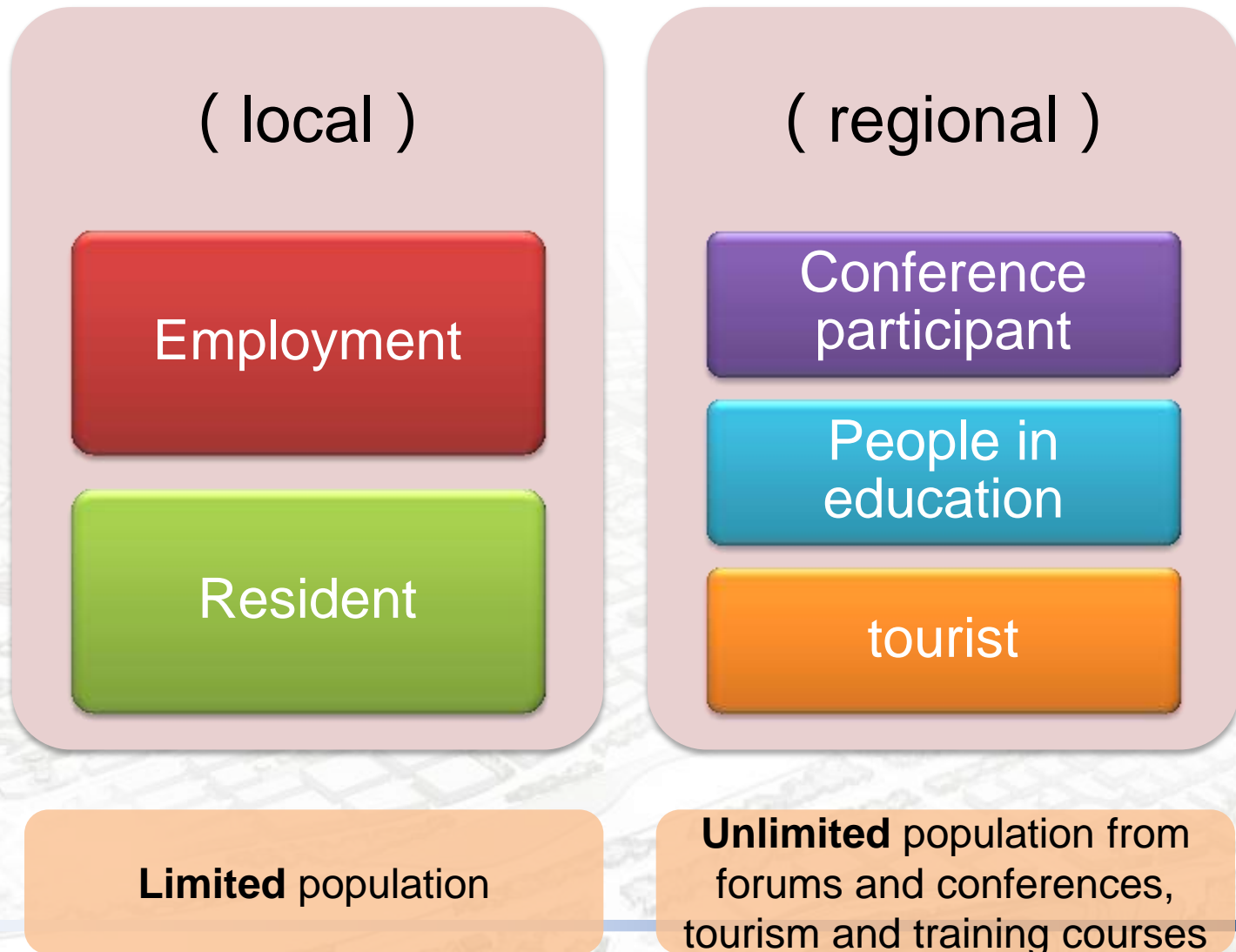


Focus on :

- ❑ Objective: sustainable prosperity and development ;
- ❑ Path of development: regional industries;
- ❑ Framework of development: functional areas and corresponding policies



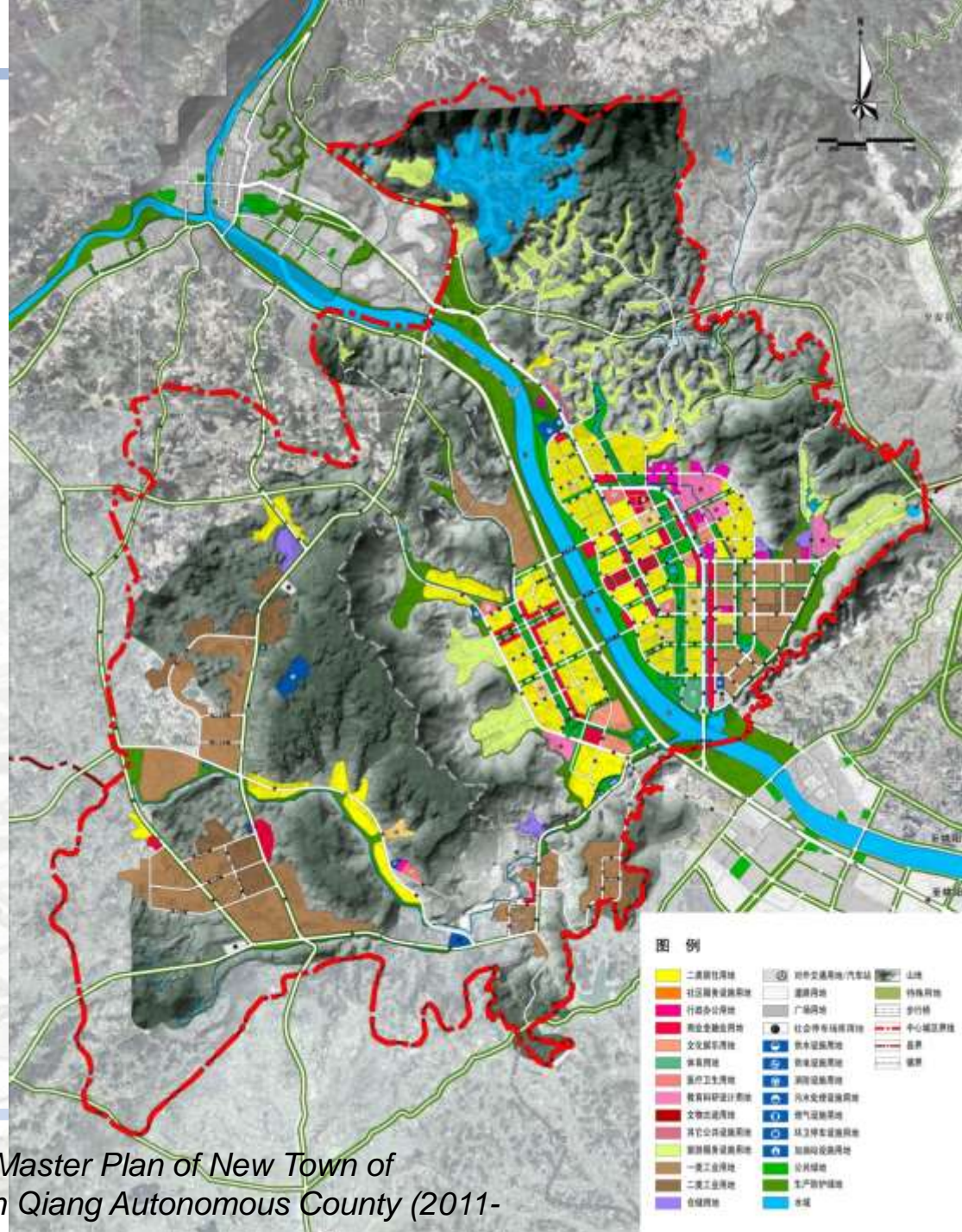
Local industry vs. regional industry



New Framework:

■ Four Functional Areas:

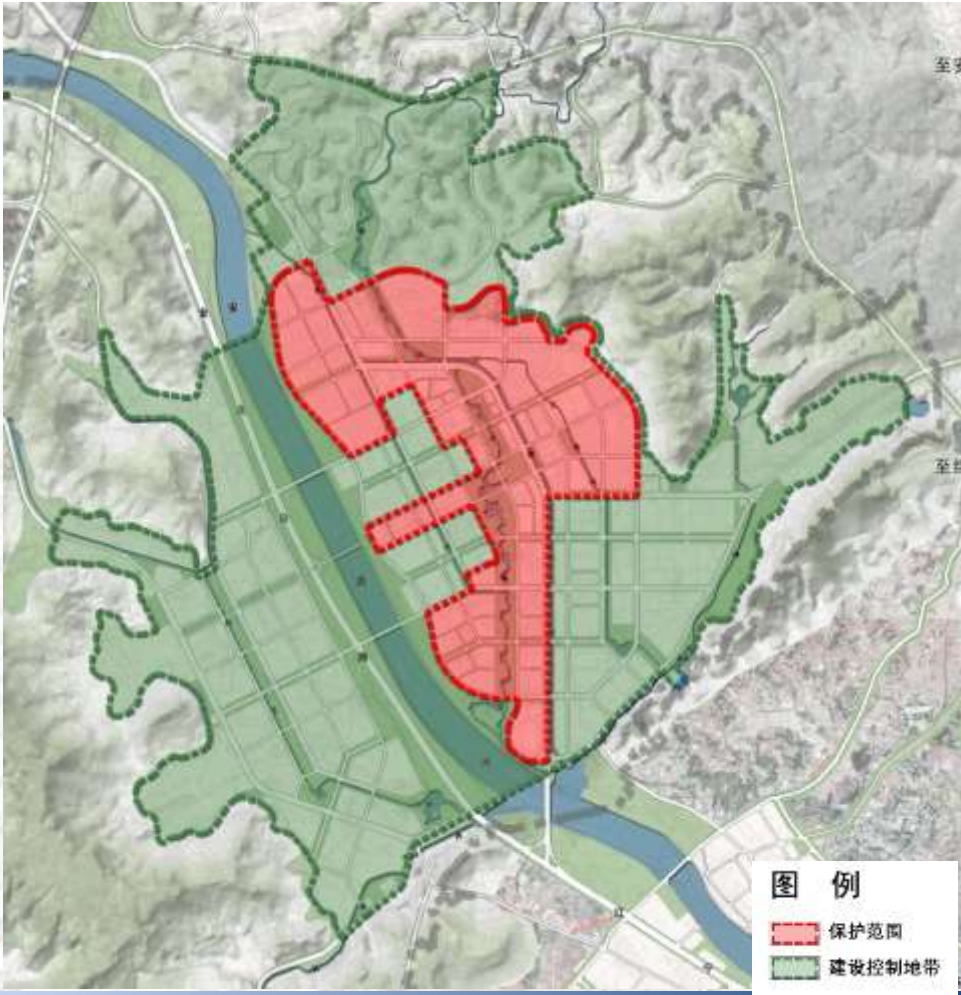
- Eastern Side : contemporary cultural heritage
- Western Side : livable new area
- Northern part : tourist resort
- Western part : economic development area
- Prosperous development
- Flexible tourism
- Industry cluster



Source: *Master Plan of New Town of Beichuan Qiang Autonomous County (2011-2030)*

1.1 Eastern Side: protection of contemporary cultural heritage

	scope	content
Scope of conservation	Built area in the eastern side of river (except Beichuan-Shandong Industrial Park)	Conservation of an integrated layouts of mountains and waters, ecological corridors, leisure areas, facility belts and landscape axis Conservation of a flexible and orderly special texture Conservation of Qiang style buildings Conservation of a green layout featuring one circle and two strips Conservation of the street network
Restricted construction area	Eastern and Western side areas and tourist resort in the south	Conservation of the forests and eco-environment; the style, height, structure of newly-built buildings shall be harmonious with those in the protected area; structures or buildings inconsistent with Qiang Style or blocking the visual corridor of mountains are prohibited.



Source: Master Plan of New Town of Beichuan Qiang Autonomous County (2011-2020)

1.1 Eastern Side: upgrading of industrial park

Current situation :

Most of 33 enterprises in the park have not been completed or put into operation, occupying land resources but with a low out-put.

Transformation and upgrading of local industries

Adjustment of the enterprises along the east side of Yunpan South Road

Office belts along Yongchang Avenue

Production, exhibition and experience areas along the Yunpan River

Source: *Master Plan of New Town of Beichuan Qiang Autonomous County (2011-2030)*



1.2 Western Side: Livable New Area

Planned construction area of 289 hectares with a population of 55,000

Continuation to the landscape axis of the eastern side

central green belts with business distributed on both sides;

30% increase in the building height from the regular level to highlight an axis-shaped layout;

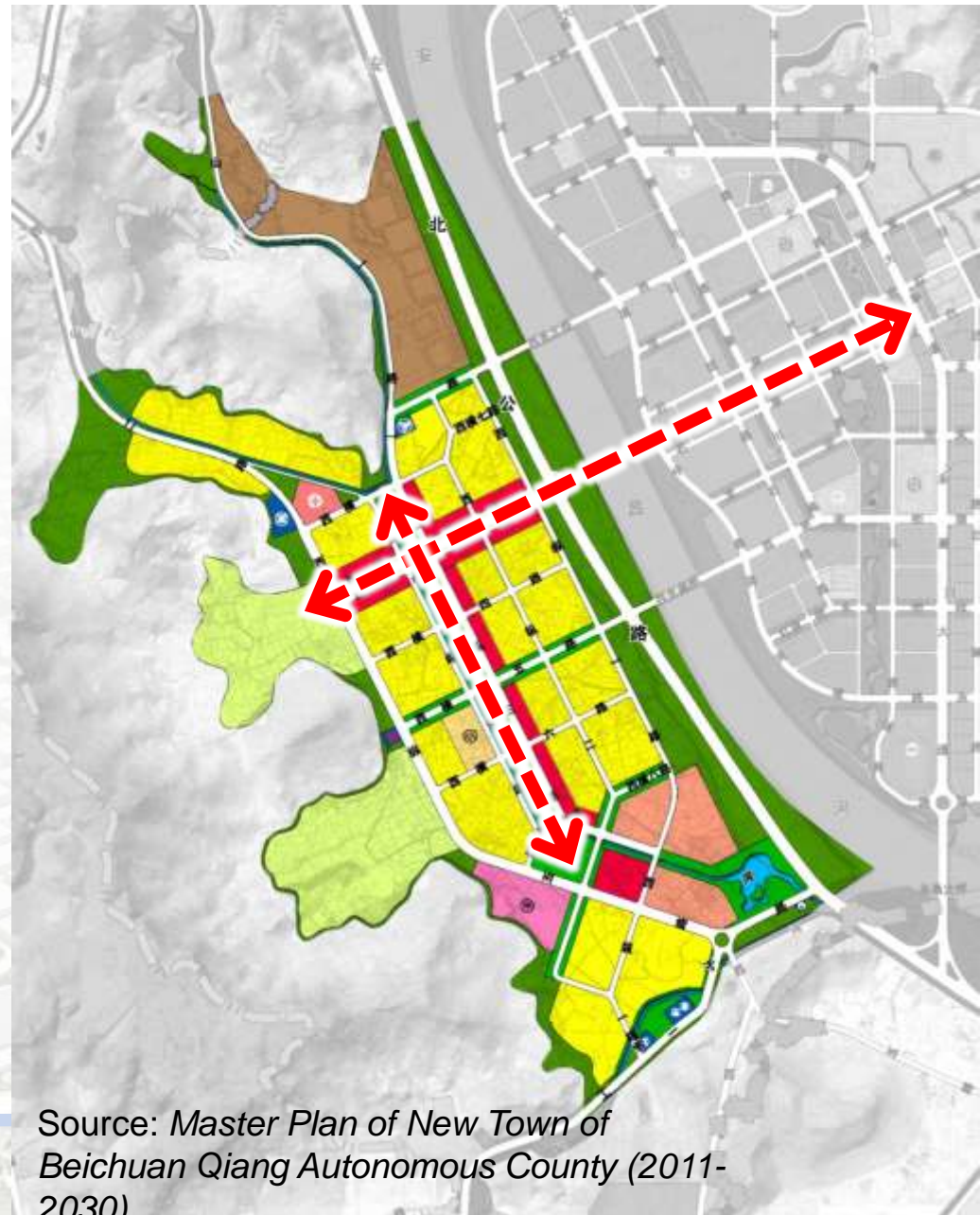
High-end tourist facilities at the end of the landscape axis;

Green commercial streets along water

Green belts along Guihua river and the west side of Xizongsan Road as public space;

Commercial facilities along the east side of Xizongsan Road for local residents and tourists;

A park at the crossing site with the conference center



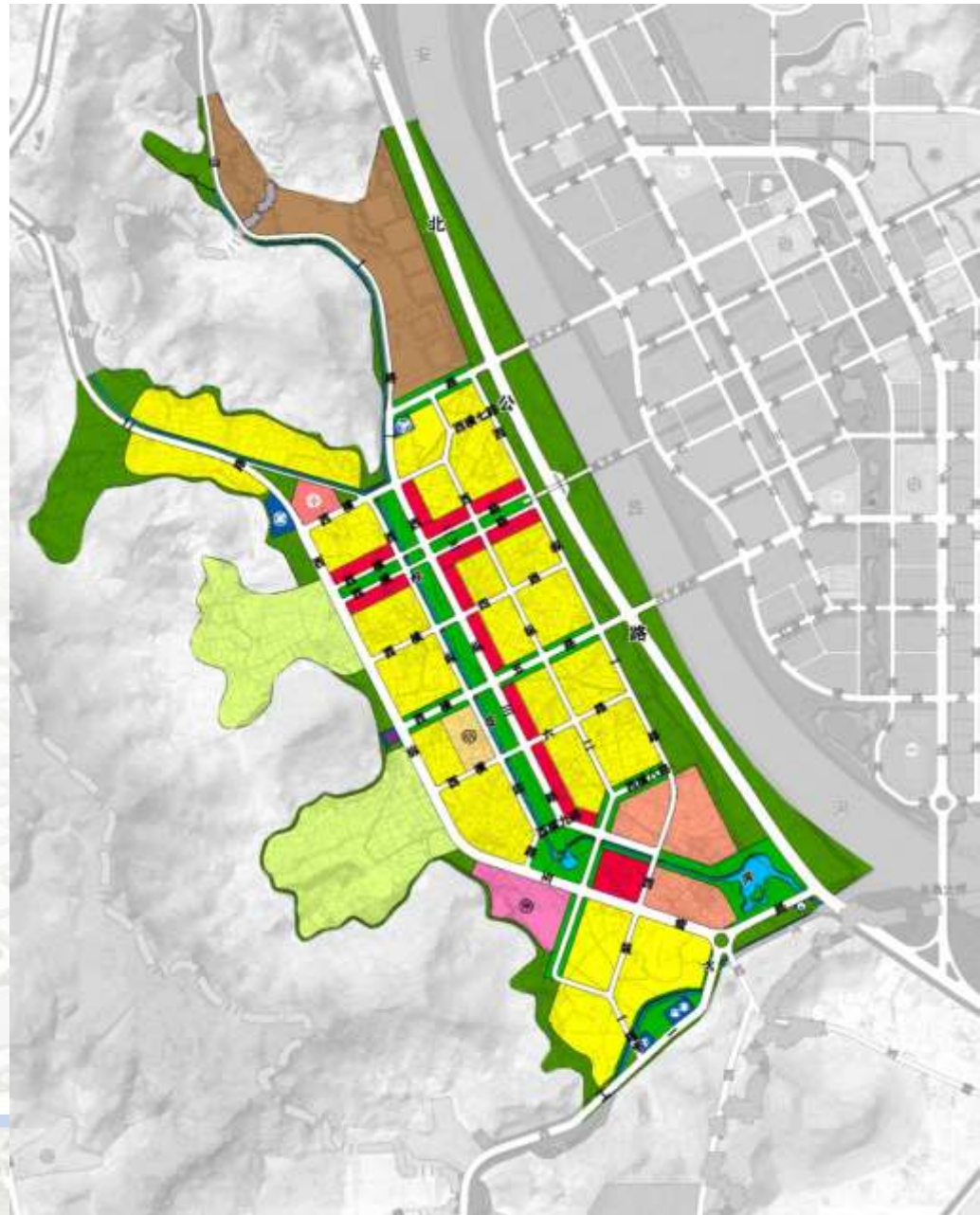
Source: *Master Plan of New Town of Beichuan Qiang Autonomous County (2011-2030)*

1.2 Western Side: Livable New Area

Four multi-storey (mainly 6-12 floors) residential blocks, with a floor area ratio of 1.8-2.5,

One medium-low density community with buildings of 2 floors less than 15 meters in height

One middle school, one primary school, one hospital



1.2 Western Side: Regional Conference Center

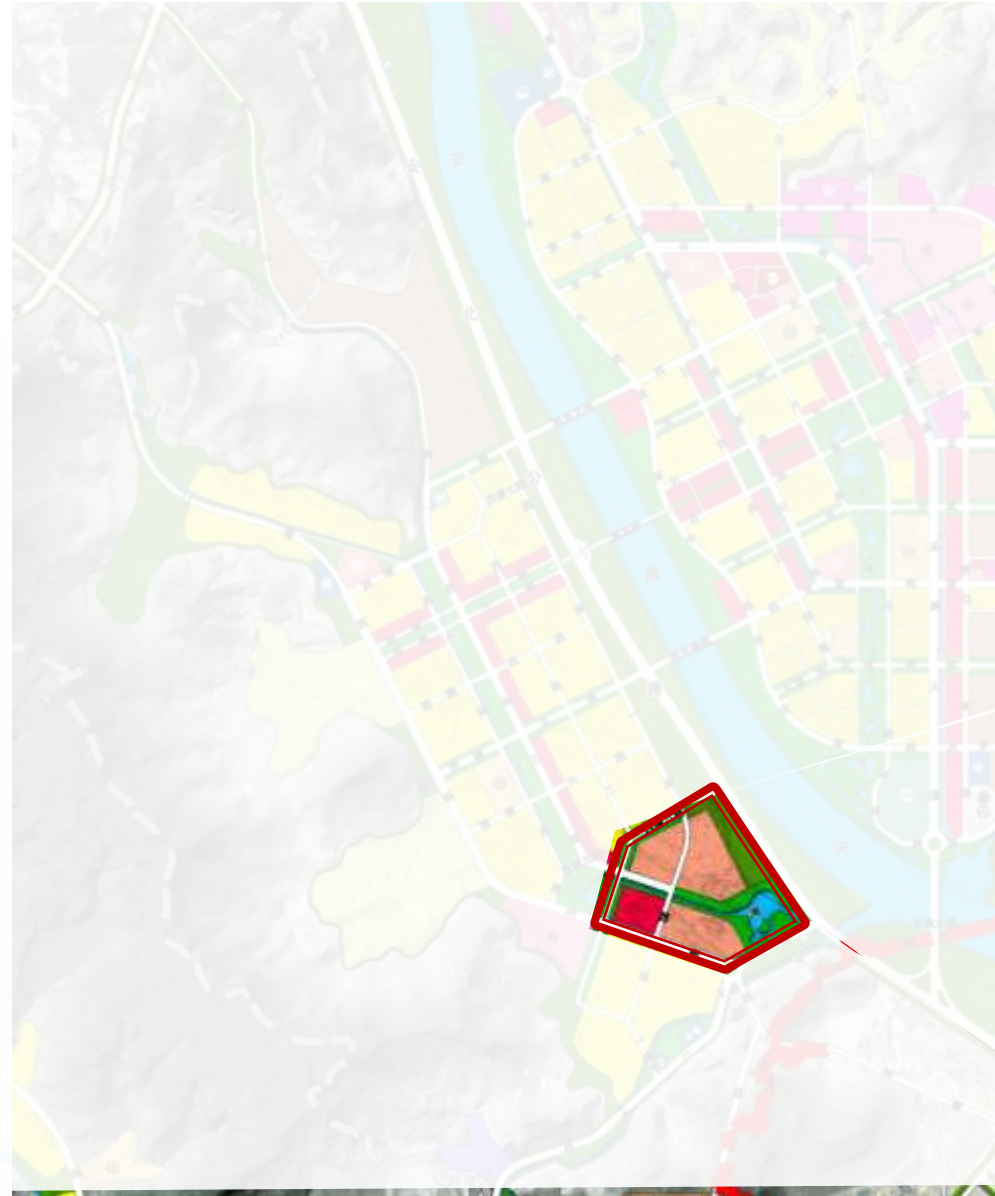
To adapt to the needs of an increasing conference held in Beichuan

To promote and fulfill the regional function

Located at the entrance of the new county seat, the center covers an area of 27.7 hectares, at the joint of all facilities to bring along the development in the south part of the western side.

Multi-functional complex of Qiang ethnic style

Development with flexibility, grab the opportunity



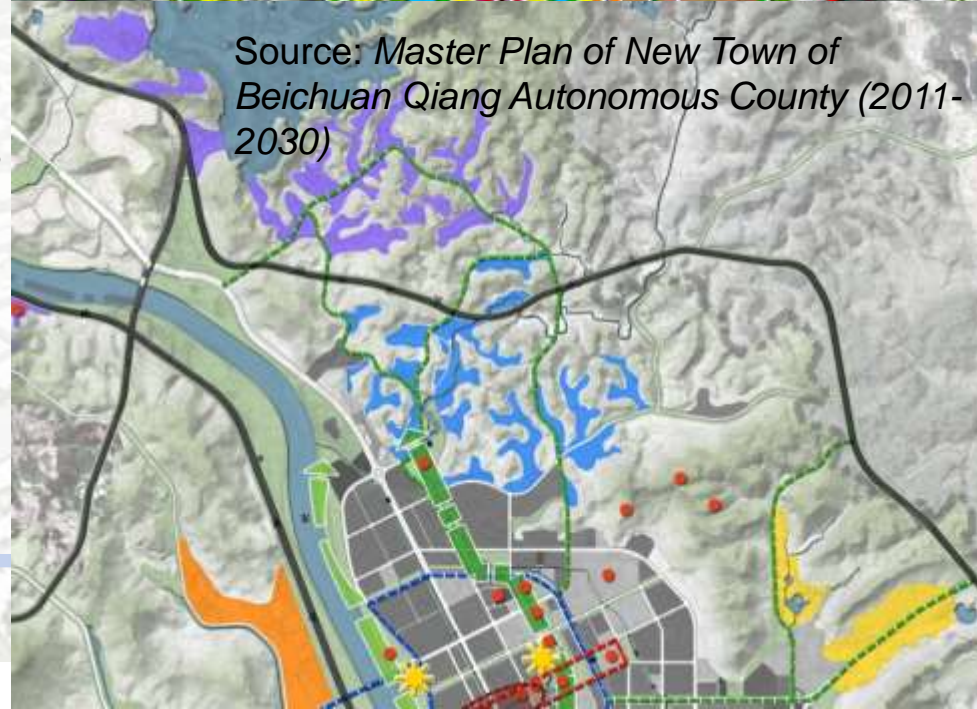
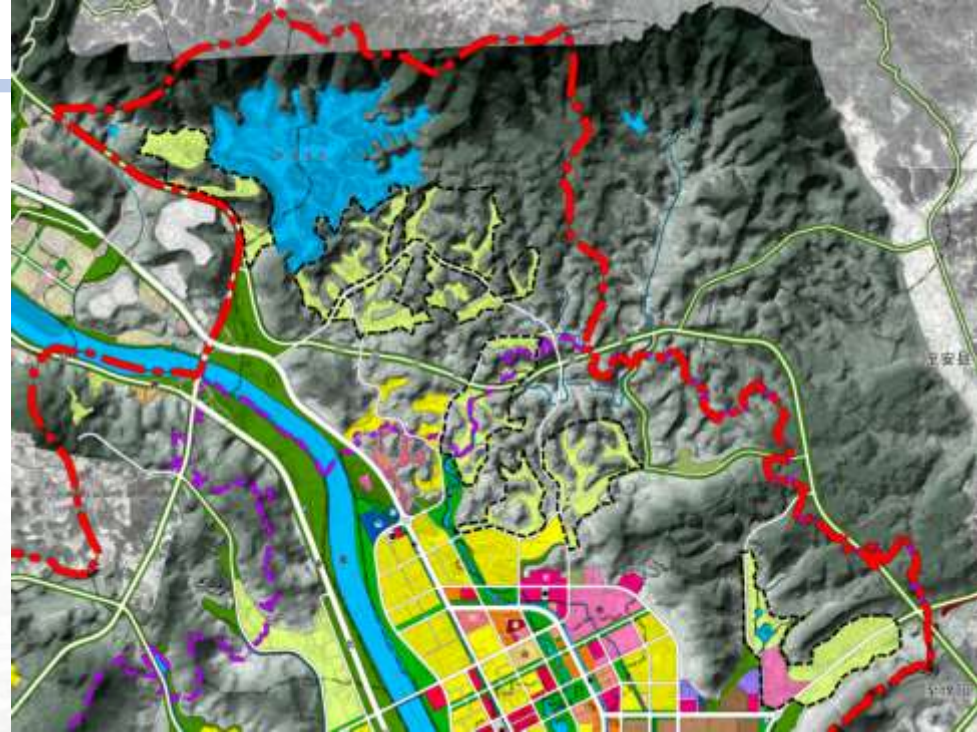
1.3 Kaimao Tourist Resort

An area of 192.39 hectares for tourist use, 145.74 of which in the eastern side of the river

Flexible Development : project-oriented, consultation with experts, control the overall layout of tourism

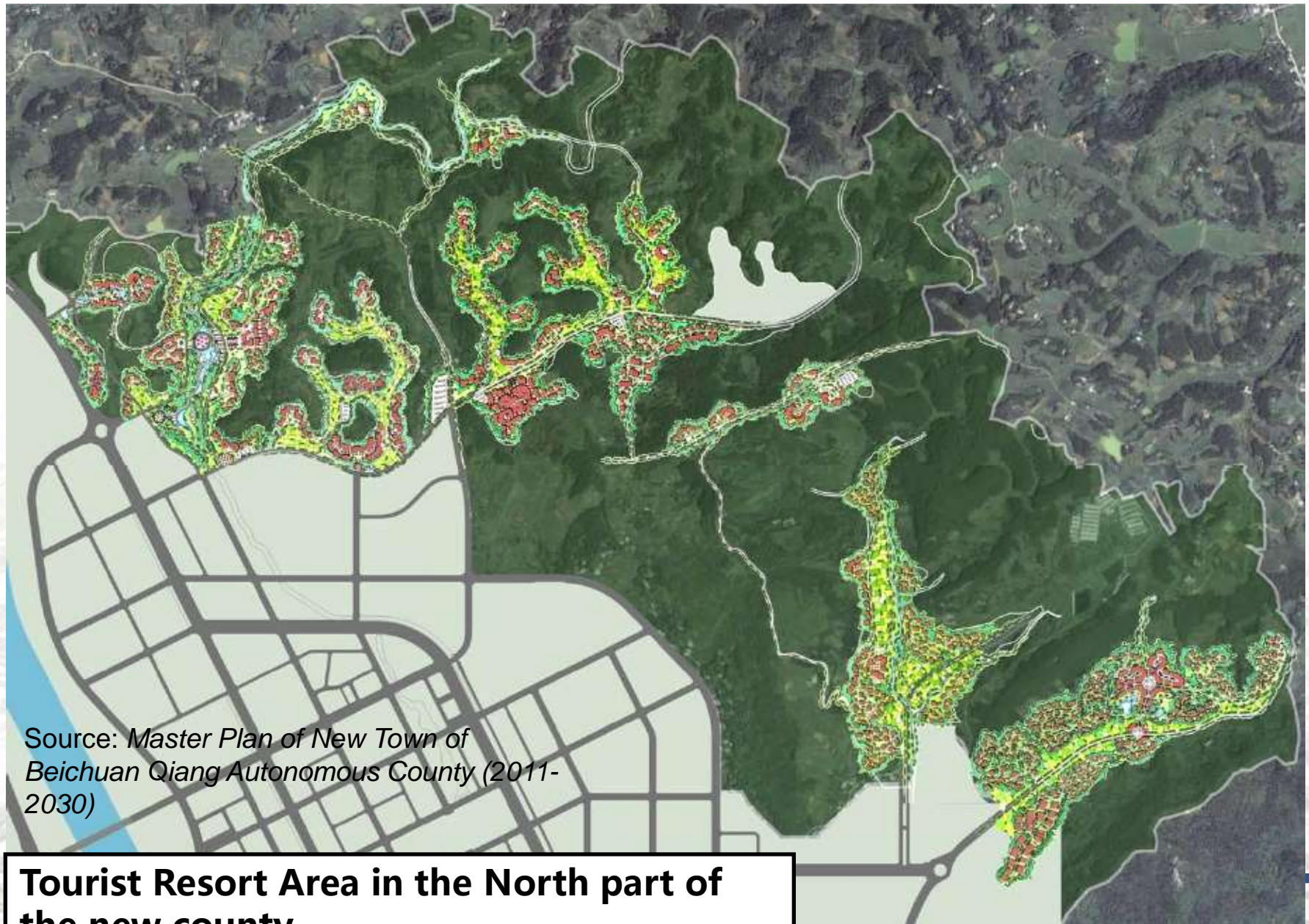
Overall Development : to divide the area into 8 units by the stem roads, each of 10-20 ha, and to implement the unit development

- Areas around reservoir : theme of leisure ecological farmhouse, resort town, star-class hotels
- Areas along the Shuiyi River : theme of resort Small resort facilities, agricultural tourism, spa, business property
- The east of Yunpan Mountain: theme of culture Hotels, cultural and entertainment facilities, arts center and creative cultural facilities
- The western side : high-end facilities for recreation and tourism



Source: *Master Plan of New Town of Beichuan Qiang Autonomous County (2011-2030)*

1.3 Kaimao Tourist Resort



Source: *Master Plan of New Town of Beichuan Qiang Autonomous County (2011-2030)*

Tourist Resort Area in the North part of the new county

1.4 West Part of the Economic Development Area: construction by stages

The planned construction area of Beichuan Economic Development Area(EDA) is 570 hectares, 114ha of which are in the east part and 456 in the west, including 359.02 ha industrial land, with 66.5 ha in the east and 277.28 in the west

Construction by stages

2011-2015 : industrial park in the south part of the Western side

2015-2020 : south part of the west EDA

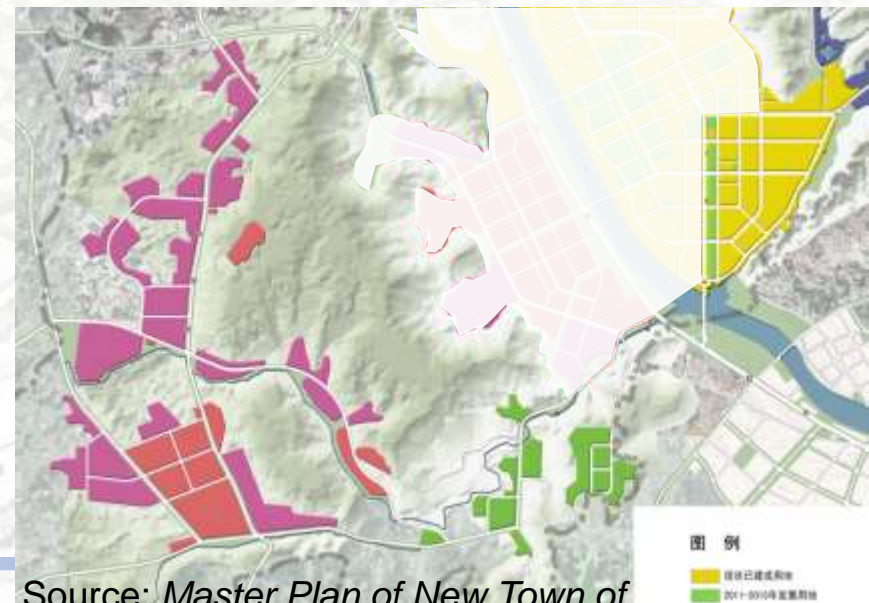
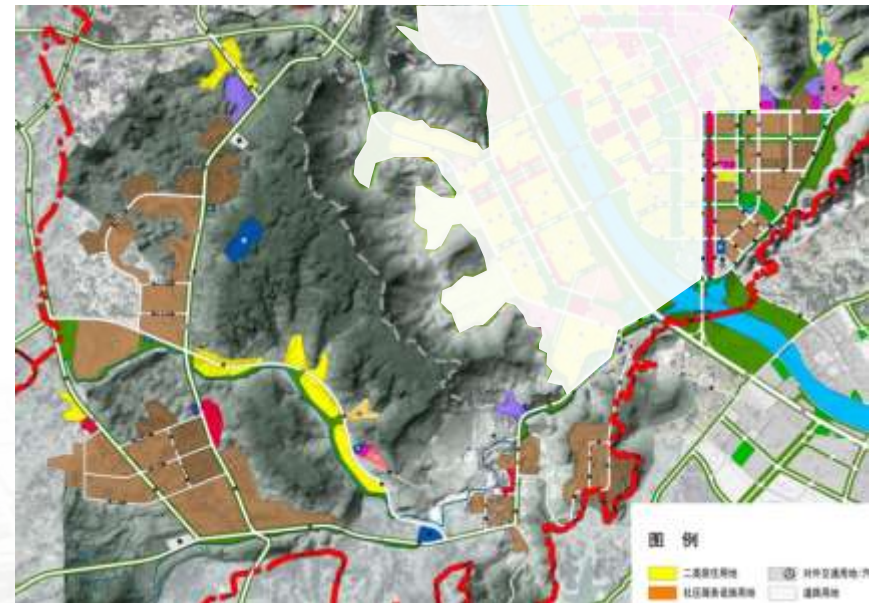
2021-2030 : south part of the west EDA

characteristics

Adapted to local market and resources;

Processing industry of agricultural products and cultural tourism products;

Energy-intensive industries occupying a large area and with adverse effects to the environment are prohibited.



Source: *Master Plan of New Town of Beichuan Qiang Autonomous County (2011-2030)*



Urban Construction
Bravery and courage
Cultural heritage

Safe, livable, prosper,
characteristic,
advanced, harmonious

- **There are debates over Beichuan and its planning;**
- **We are looking into the future while working on the practical sphere ;**
- **We are in search of our own goals, path, framework, style and scale in a rational manner.**

*Source: Post-earthquake
 Reconstruction plan of New
 Town of Beichuan Qiang
 Autonomous County (2008-
 2020)*