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**Summary:**

Given the complexity and urgency of the post-quake reconstruction, planning emphasized the adoption of a technical approach of six synergies: innovative ideas and applicable measures; planning strategy with planning construction, sector planning with engineering construction, planning regulation and construction management, government intention with resident expectation, and spatial layout with urban design. The planning also explored an implementation mechanism within the context of a rapidly urbanizing China and especially urgent reconstruction: a single "funnel" for filtering technical responsibilities and a single "tap" for streamlining implementation. The technical approach and the implementation mechanism formed the "Beichuan Mode" that features efficient and quick reconstruction.

## Project Description:

Beichuan County, located in the mountainous region of northern Sichuan province, is the only Qiang-ethnic autonomous county in China. The Sichuan earthquake on May 12, 2008 turned Beichuan's old county town (which includes the county government seat) into rubbles ( Figure1 ) . Through extensive field investigation and consultation with residents, China Academy of Urban Planning and Design (CAUPD) proposed to relocate the county town for reconstruction. After conducting comprehensive evaluation on several alternative sites in terms of their geological safety, future regional development conditions, revitalization of Qiang-ethnic culture and the possibility of administrative boundary adjustment, a piece of river valley flatland 23 kilometers away from the old county town was proposed to be the new location for Beichuan, which later received approval from the central government and consent from the local residents (Figure2).



Figure1: Location of Beichuan; photos of Beichuanold county town after the earthquake

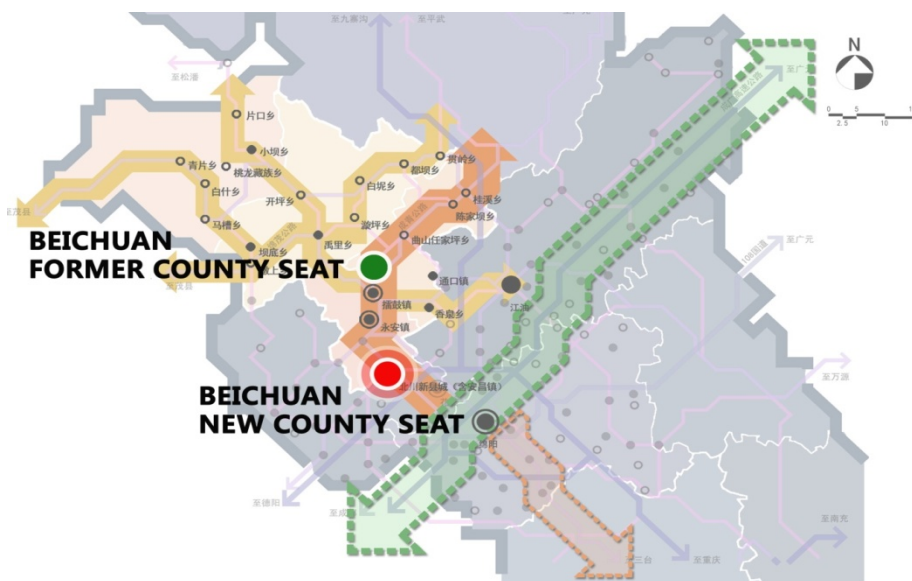


Figure2: Beichuan county regional plan

In China, there is a mechanism of partnership which ties a wealthy province with the disaster-hit area for quick reconstruction. The plan for Beichuan New Town follows the central government's guidance to build Beichuan as a landmark of urban construction, anti-disaster spirit and cultural heritage in coordination with the Shandong-province partner. Under the goal of building a "safe, livable, prosperous, distinctive, modern and harmonious" town, CAUPD devised a number of planning approaches to accommodate quick reconstruction that integrated advanced concepts, applicable technologies and implementation measures with reconstruction projects, local development, public inputs and construction stages.

Planners from CAUPD performed extensive fieldwork in the Qiang-ethnic settlement areas and disaster-affected areas to investigate ethnic features and local characteristics. They also consulted the affected population on site relocation, spatial planning, townscape design, housing design and village resettlement. During various planning and design stages, a wide range of measures were taken such as planning exhibition, billboards and public events in the temporary settlement areas to collect public opinions and advertise planning schemes, and to integrate public desires with long-term government visions in the reconstruction process.

Beichuan New Town comprises a central district, an industrial park in the south, a leisure district in the hilly north and an area reserved for future development in the west. Reconstruction projects are clustered in the east bank of the Anchang River, encompassing five square kilometers of construction land for short-term resettlement of 35,000 people (including survivors from the old county town) with a long-term plan of settling 50,000 people ( Figure3) .



Figure3: Functional Structure

As a benefit of the planned compact urban form, the daily trips of the majority of residents are within walking distance, which also increases the service efficiency of public facilities and infrastructure. The compact urban form not only spares the

disruption of the original landscape, but also reduces the difficulty and duration of infrastructure development.(Figure4) .

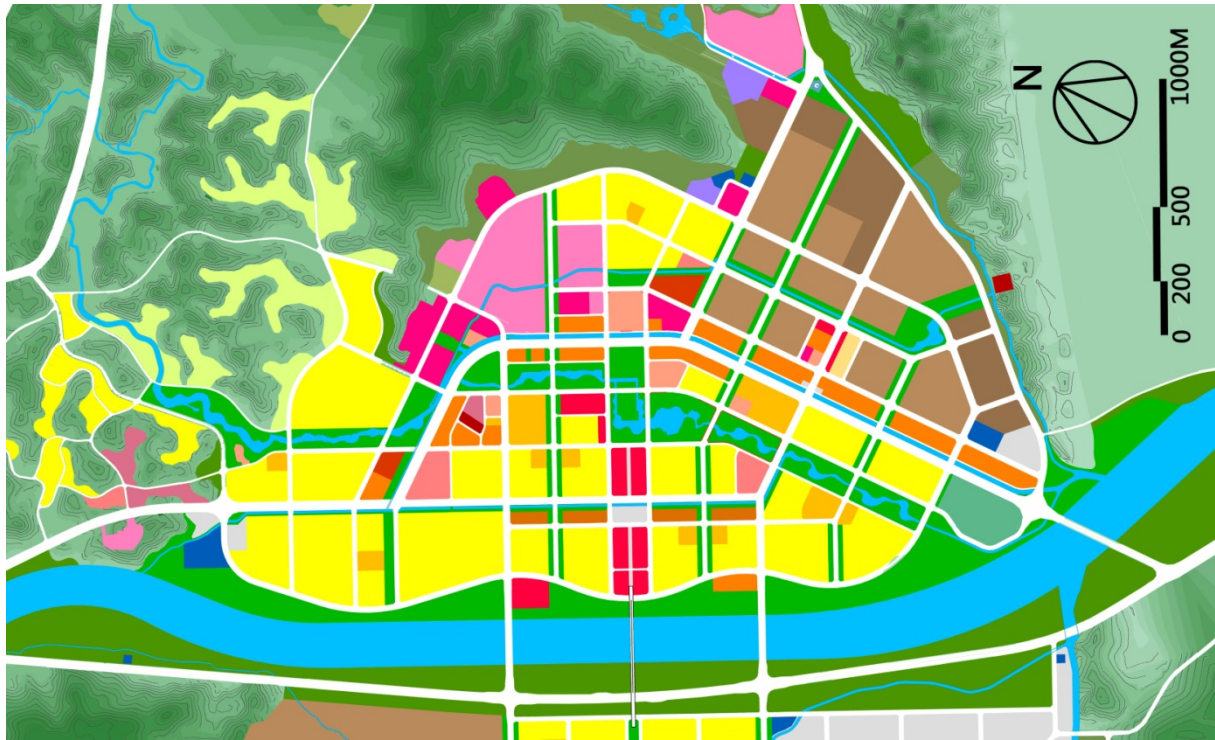


Figure4: Land Use Plan

The short-term construction area on the east river bank forms a functional structure composed of an ecological corridor, a leisure belt, a facility chain and a cultural landscape axis. This provides a clear, hierarchical and efficient urban spatial pattern for quick reconstruction.

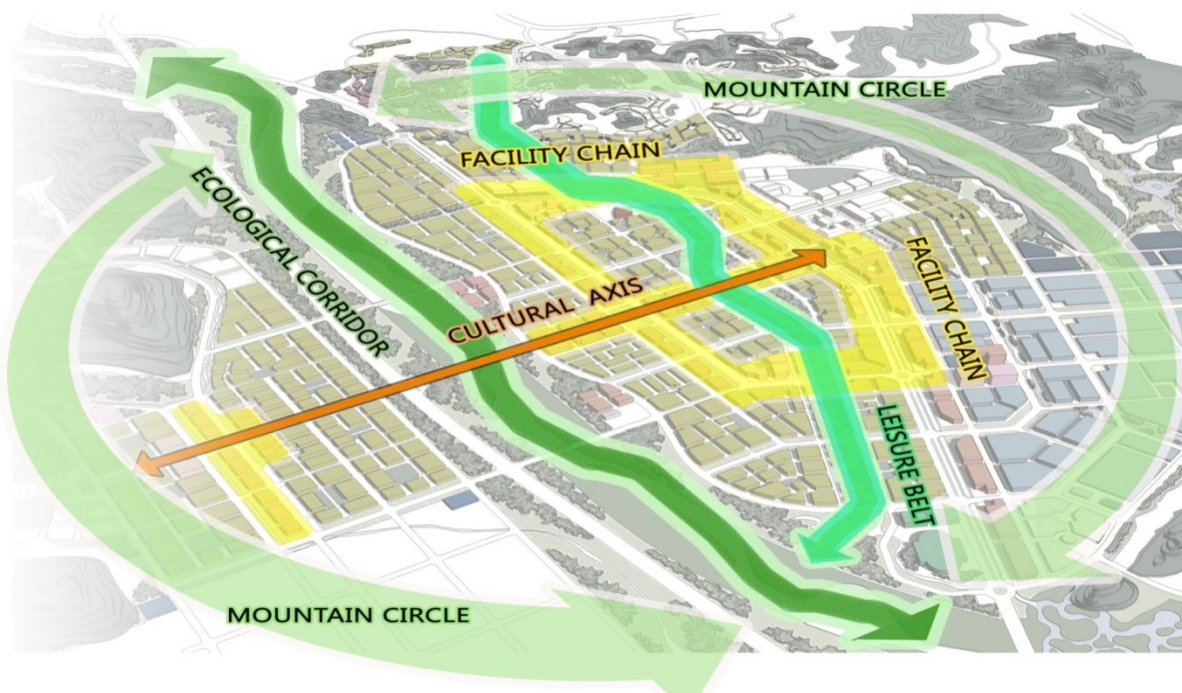


Figure5: Spatial pattern

The riverbanks of the Anchang River form an important ecological corridor that can improve the built environment and maintain the microclimate quality of such a high-frequency static wind area. It's also an important leisure and body exercise space for citizens. The leisure belt is designed based on the existing water courses which organically weaves together historical sites and memorial park with leisure activities along the waterfront green space. The linear green space has dual functions of improving the built environment and providing convenient resident access within 300 meters.(Figure6).



Figure6: Ecological corridor and leisure belt

The plan takes advantage of the surrounding terrain and establishes an urban cultural landscape axis, which connects the Cultural Center, the Memorial Park, and the Pedestrian Street and Bridge(Figure7). It is not only an important urban pedestrian passage but also a symbol of revitalization of the Qiang-ethnic culture.



Figure7: Cultural landscape axis

The new town features mid to low-rise buildings with a smooth skyline. (Figure8).



Figure8: Beichuan New Town's skyline

The densely distributed small streets and alleys provide a human scale for residents to enjoy face-to-face interaction and beautiful landscapes(Figure9).



Figure9: Photo of Beichuan New Town's street

The clustered neighborhoods provide residents with the convenience of visiting their relatives and friends, which helps to maintain a sense of belonging and higher-standard community service while having lower property management costs(Figure10). The Administrative Hall, the Cultural Center, the Library, the Qiang-ethnic Folk Museum and the Performing Arts Center are located along the major avenues. The hospitals and the retail shops are located along the trunk roads. These two spatial alignments form a service facility chain that provides great convenience for residents.(Figure11).

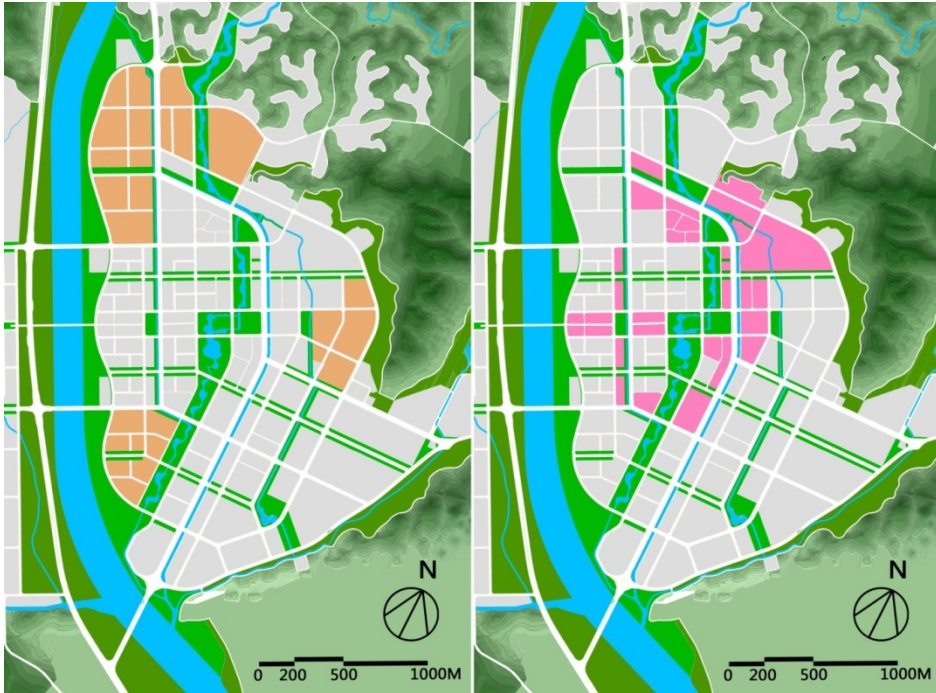


Figure10: Clustered neighborhoods Figure11:Service facilities chain

Shops in the Pedestrian Street and factories in the industrial park provide about 10,000 jobs. Their proximity to the residential areas also lowers travel cost for the residents (Figure12). Some land space is reserved in the central district and the northern hills to cater to future development opportunities.(Figure13).

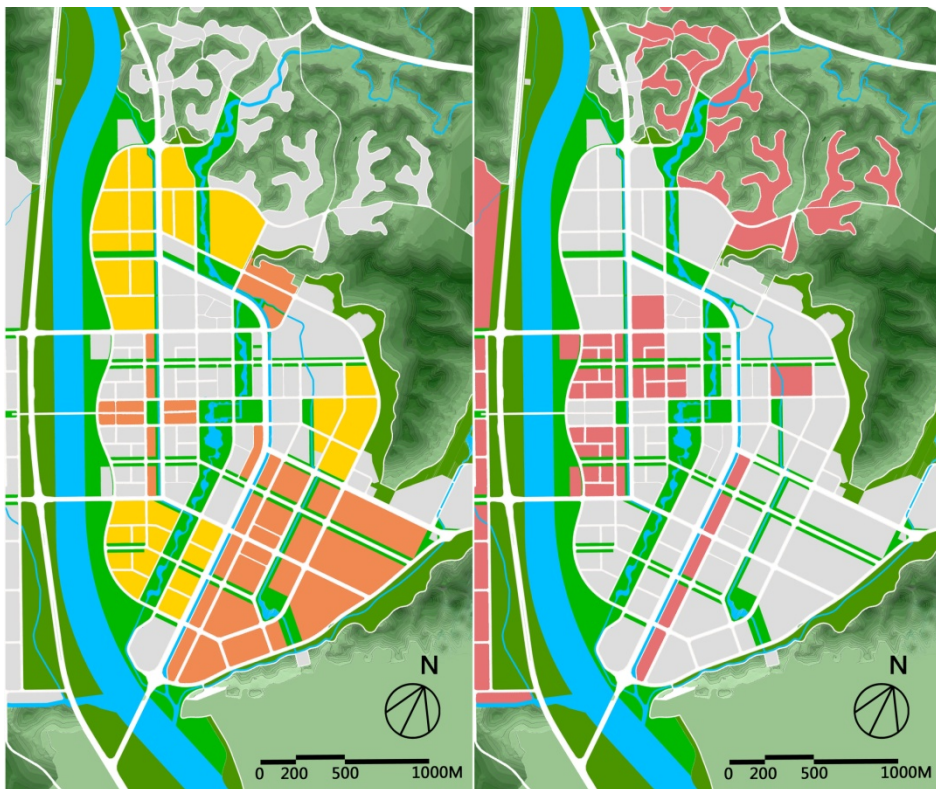


Figure12: Job-housing balance

Figure13:Future development opportunities

In accordance with the requirement of revitalizing Qiang-ethnic culture, the plan sets out strategies to control architectural design and achieve an orderly layout of original, adapted and modern Qiang style to unify the overall Qiang-ethnic features while preserving a variety of building styles (Figure14).

The new town's roads inherited the names of the roads in the old county town to preserve local memories.



Figure14: Guidelines of architectural design

The plan emphasizes traffic-calming design to create a friendly environment for pedestrians and bicycles (Figure9).

Municipal utility design adopts applicable technologies such as storm-water collection and infiltration, smart grid, and LED energy-saving lights. Architectural design follows strictly the national green building standards.

In order to meet the stringent reconstruction schedule, CAUPD, Beichuan County and the Shandong-province partner collectively established a planning implementation mechanism with CAUPD being the single “funnel” for filtering technical responsibilities and the single “tap” for streamlining project implementation. Planners from CAUPD were sent to work in the “Commanding Headquarter for New

Town Planning” in Beichuan to supervise project site selection and planning and design implementation. It has shifted the planning approach from “plan-led” to “plan-monitored” to ensure that the entire plan and design is fully implemented.

The so-called “six synergies” proposed by CAUPD ensured more targeted and efficient planning and design performance. The “one funnel and one tap” planning and implementation model was then widely recognized and introduced to other post-quake reconstruction projects.

Over the two-year period of arduous work, CAUPD invested 230 planners and 13,000 working days, supervised the construction of over 1.8 million square meters of floor space, 65 kilometers of road, over 54 kilometers of municipal pipes and 200 hectares of green space. Now a modern county town enriched with Qiang-ethnic style stands, with full realization of the principles of “constructing the basic framework, achieving the basic functions and exhibiting the basic image” of post-quake reconstruction (Figure15).



Figure15: Photo of Beichuan New Town

## Selection Criteria:

### Content

Given the complex situation after the Sichuan earthquake and based on comprehensive examination on geological safety, long-term regional development and minority-ethnic revitalization, CAUPD prudently proposed site relocation for constructing the new county town.

The entire planning process put much emphasis on respecting public desires and conducted a number of community engagement activities in the processes of site identification, spatial planning, townscape designing, housing provision and resettlement of affected farmers. It also followed technical principles such as creating compact urban form and hierarchical spatial layout, keeping job-housing balance, respecting minority ethnic features, promoting healthy commuting, and using adaptive technology in order to build Beichuan as an exemplary model of urban construction, anti-disaster spirit and culture heritage.

Incorporating urban design as a prominent feature of the planning process enhanced the existing planning system and the planning implementation mechanism of “one funnel and one tap” ensured the completion of reconstruction in a two-year period and the realization of “constructing the basic framework, achieving the basic function and exhibiting the basic image” of post-quake reconstruction.

### Process

In order to efficiently push forward the new town development, CAUPD, as the "funnel" and the "tap" in the technical control mechanism, used urban design in the planning process as a platform to integrate the implementation of varies levels and types of plans and development projects. Opinions and suggestions were collected from various levels of governments, sponsors and developers, property owners, the experts and the general public in order to adapt the plans to meet the needs of all parties. Through project site identification, design control, public exhibition and outreach and construction monitoring, planning intentions were efficiently and fully implemented.

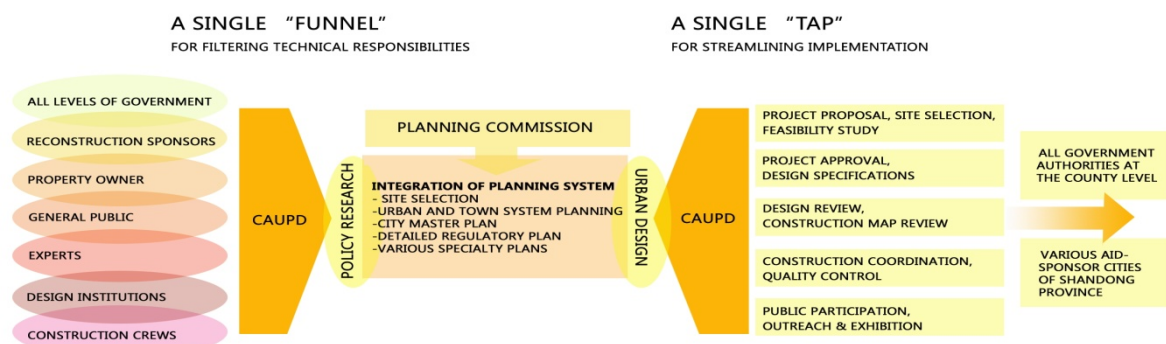


Figure1: Beichuan New Town Planning and implementation Mechanism

The whole process of public participation, by extensively collecting public opinions, constructed an easy environment for making major planning decisions and implementing planning schemes. In order to facilitate better communication and interaction among all the stakeholders, various approaches such as field interviews, questionnaire surveys, dissemination of printed materials and holding public events were adopted. A variety of media such as rendered maps, models, and multimedia animations were also used to engage the public.



Figure2: public participation

### **Innovation**

**Revitalization of Ethnic Cultures:** Based on researching unique spatial layout of Qiang-ethnic villages and traditional residential houses in Sichuan, significant efforts were made to explore the continuous and creative use of traditional features in shaping modern urban landscapes. Through providing guidelines on architectural design and creating human-scaled spaces, the planning objective is to build an exemplary new town that shows both cultural traditions and local features in order to promote the revitalization of local ethnic culture.



Figure3: View of Beichuan New Town

**Creative Mechanism of Planning Implementation:** Due to the specialty of this new town construction, a mechanism of “one funnel and one tap” centered by CAUPD was established to effectively coordinate the planning and implementation process. CAUPD was not only responsible for generating efficient technical solutions but also for providing policy advice, streamlining development projects, clarifying construction phases, organizing expert discussions, encouraging public participation, reviewing design schemes, improving construction organization and supervising the quality of construction.