Urban spatial transformation in Sichuan Tibetan region

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Abstract. The transformation of Tibetan towns in Sichuan is playing an important role in the smooth realization of China's overall well-off society. Connected the elements of urban planning, this paper made a quantitative analysis of urban spatial elements in Sichuan Tibetan region. Addition to this, it put forward the realization mechanism based on the principles, advantages, directions and guarantees of urban spatial transformation in Sichuan Tibetan region.

1. Introduction

Urban transformation is an important stage in the process of urbanization in the world. China's urbanization is entering the stage of transformation and upgrading age. The eastern region and the northeast region are moving towards the mature stage of urbanization, while the central and western regions are still in the stage of rapid development. Therefore, there is a huge income gap between west and east in China. It is not only an urgent economic problem but also a major political problem to promote the urban transformation in Sichuan Tibetan region.

2. Literature review

2.1 Core edge theory

After the urban system formed, there are always core areas and marginal areas, which is the basic framework of urban spatial layout. In the year of 1966, Freedman's core edge theory explained the theory of interaction and diffusion of urban space. The model takes core and edge as basic structural elements. The core region generally refers to the city or urban agglomeration area, which characterized by advanced industry, high technical level, capital concentration, dense population and rapid economic growth. However, the marginal region is a relatively backward region in domestic economy. The core area and the fringe area together constitute a complete spatial system. The driving force behind the development of a spatial system is the core area produces a large number of innovations, which spread from the core to the outside, affecting the economic activities, social and cultural structures, power organizations and settlement types of the marginal areas.

The core of core edge theory emphasizes that regional economic growth will inevitably accompanied by changes in economic spatial structure. With the development of social economy, the change of economic spatial structure can divide into four stages. First stage—the pre-industrialization stage, the inter-regional economic ties are not closely, the emergence and development of towns are slowly, and the urban hierarchy system is incompletely. Second stage—early industrialization stage, cities began to take shape and the imbalance between the development of core and marginal regions was further widen. Third stage—mature industrialization stage, the rapid industrialization stage and the resource elements of the core area began to flow back to the fringe area and the industrial clusters in the fringe area began to cluster. Fourth stage—post-industrialization stage, in the relative equilibrium stage of space, the whole region becomes a functionally interconnected urban system, forming a large-scale urbanization region. Sichuan Tibetan region is in the early stage of industrialization. There are great differences between the development of central cities and marginal cities. The closer to the central cities, the faster the regional development, the easier to form market
town clusters. The farther away from the central city, the slower the growth and development of cities and towns.

2.2 Urban growth theory

The transformation of urban space is the transform process of urban geographical space, which means the change of urban material space. According to the urban growth theory of Peter Hall, the evolution process of urban spatial form in developed countries has experienced four stages: urbanization, suburbanization, reverse urbanization and re-urbanization.

The Tibetan region in Sichuan is still in the initial stage of urbanization, and urban agglomeration and centralized development are the characteristics of urban transformation. Based on this situation, the three-level urbanization system of villages, towns, market towns and counties should be established in the spatial transformation of towns and cities in such areas to realize urban capacity expansion and function optimization.

3. Research question

What principles should Sichuan Tibetan region follow for urban spatial transformation?

4. Methodology

In order to find answers to the research question, I collected some secondary data to make a better understanding of urban spatial transformation. Addition to this, I also made a quantitative analysis of the spatial elements, such as the elements of urban planning and the characteristics, which provides different weights to guide the spatial transformation of Sichuan Tibetan region.

5. Conclusion

In planning the layout of towns and cities in Sichuan Tibetan region, we should take sustainable urban development as the principle, build a comprehensive market town system, focus on the development of small towns, follow the green and intensive urbanization development model, in order to realize the transformation of towns and cities.

5.1 The principle of urban spatial transformation in Sichuan Tibetan region—sustainability

5.1.1 Highlight Tibetan characteristics

Most residents in Sichuan Tibetan region believe in Buddhism. In the existing towns, many of them gradually formed by religious activities centering on temples, which is the result of the temple economic development. In the existing urban space, religious buildings, which are influenced by religious culture, can be seen everywhere. The spatial form fully reflects the high unity of faith and nature.

Temples are generally located on the top of mountains and dominate the whole town space, forming a centripetal spatial layout. The buildings in the city are clear religious buildings, shops and houses influenced by Tibetan culture, while the white tower and prayer stone seen in the suburbs occasionally. With the development of the town in recent years, old buildings and new built buildings mixture in the urban space design, which will lost the speical culture in such area. Therefore, we should take the old buildings as the support, preserve and maintain the city's historic sites and carry out the development and design of new urban areas under the background of local cultural heritage.

5.1.2 Integrate into the modern dimension

The development of cities and towns is a process of adapting to modern civilization, which consists with the development of information society, science and technology. The urban spatial layout of Sichuan Tibetan areas should take into account the modern dimensions of urban development, such as intensive, intelligent, green and low-carbon dimensions. Addition to this, it should transform the urban spatial structure with the development concepts of "three-dimensional city", "smart city", "...
"green city" and "sponge city". Intensive development is the foundation of new type urbanization, which requires continuous improvement of labor productivity in the utilization of human resources.

Green development is the core of the new type of urbanization. Under the constraints of ecological environment capacity and resource carrying capacity, environmental protection should regard as an important pillar to achieve sustainable development. The Sichuan Tibetan regions have rich natural resource and beautiful enviroment but easy to be polluted. Low-carbon development is the key to a new type of urbanization. The Sichuan Tibetan regions should optimize the industrial structure, industrial transformation, new energy development, innovation of technology, and improve the system to take a balance between modern and traditional Tibetan life style. It also need adopt environment-friendly design to reduce carbon emissions and prevent urban ecological problems.

5.1.3 Respect history and culture
The urban transformation planning of Sichuan Tibetan region should abandon the stereotypical layout high-rise buildings because these designs are not suit for nature and nuture environment in such place. They should integrate local cultural elements, highlight local customs, and lay out towns and cities in the inheritance and protection of historical culture to reflect diverse local cultures.

People in Tibetan areas have unique Tibetan culture. We should integrate folk customs into urban development and guide the spatial layout of towns and cities in Sichuan Tibetan region. Religious culture is one of the characteristic culture of Tibetan areas. There is an old saying that "Where there is a temple, there is a city" in Tibetan history. The relics and historic sites of old towns can provide material support for the spatial transformation of towns. While protecting the relics, we should also strengthen the propaganda and dissemination of cultural heritage and connect Tibetan culture with the outside world.

5.2 Advantages of urban spatial transformation in Sichuan Tibetan region—policy support
The more economically backward areas, the more government's leadership and participation should take during the urban development progress. The urban development of Sichuan Tibetan regions must follow the national and Sichuan provincial strategic planning for urban development, complete the top-level design of the region, formulate the urban regional planning, management system, and follow the model of government-led and market operation.

The 13th five-year plan for the development of characteristic small towns in Sichuan province proposes to vigorously cultivate and develop about 200 characteristic small towns with diverse types, vitality and charm during the planning period from 2016 to 2020. The selected characteristic small towns will receive more financial and policy support. The layout and construction of small towns with characteristics shall guide in accordance with the main functional orientation of each region. The Sichuan Tibetan region belongs to the key ecological functional area. Sichuan province should develop Tibetan towns and cities based on tourism and leisure industry. The planned towns and cities account for the vast majority of the tourism and leisure cities in Sichuan province.

5.3 Guarantee of urban spatial transformation in Sichuan Tibetan region—equalization of basic public services
The equalization of basic public services means that the government should provide basic public goods and services to social members, which are connect with the level of economic and social development. It will help reflect the principle of social fairness and justice. One of the reasons for the backward development of cities and towns in Sichuan Tibetan region is the backward implementation of public services, especially the backward construction of urban infrastructure, becasuse lack of communication, exchange channel and brain drain, which makes the Tibetan area not well connected with the outside world. The absence of social welfare guarantees such as education, health care and culture cannot provide residents with a complete public service system, which makes the city low competitiveness and unattractive.

The equalization of basic public services should first improve the infrastructure and urban functions of cities and towns in Sichuan Tibetan region. It also should promote the agglomeration of production factors to small towns, and comprehensively expand the development space of cities and towns. We should focus on state investment and raise funds through various channels to improve
county public service facilities. Increased investment should in the construction of necessary infrastructure such as gas passage, domestic waste treatment, sewage treatment, urban greening coverage, urban road construction area, water supply pipeline coverage area and residential domestic water use. For example, the reconstruction of water works, sewage treatment plants and major hospitals in Ganzi County have improved the living conditions of urban and rural residents in the county. Addition to this, we should improve the internal and urban traffic environment in Tibet, build a developed network of road, bridge and transportation facilities, connect new roads and rebuild old urban roads. By improving the infrastructure of cities and towns to promote the development of county economy, expand the space for regional development, expand the radiation area of cities and towns.

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