

Lhasa land development planning based on Smart Growth Theory and UGB Theory

Zhuoqian Li

School of North China Electric Power University, Baoding 071000, China

1909935000@qq.com

Abstract: Sustainable urban development is a multi-factor comprehensive decision-making. With the rapid progress of urbanization process over the world, problems like continuing urban sprawl, the loss of farmland are still troubling countries that are in the procedure of implementing urbanization. Smart Growth pays attention to the coordinated development of the environment, society and economy, emphasizing the transformation of existing communities and full use of existing equipment, as well as the organic connection between quality of life and development, advocating a compact, centralized and efficient development model. That's to say, Smart Growth is aim to solve the problem of how to develop and how to use a more reasonable and more effective way to build the city, managing Urban land-use well. Similarly, it can be used in land planning and utilization. In this paper, combined with the existing planning background and the characteristics of the Lhasa region, the application of the Smart Growth Urban Growth Boundary in the direction of land use in Lhasa is described.

Keywords: Lhasa, Smart Growth, Urban Growth Boundary, Land Planning.

1. Introduction

1.1 Problems in the process of urbanization

The reform and opening-up policy, which was formulated by the Chinese government in 1978, greatly promoted the development of social productive forces. Over the past 40 years, social and economic exchanges and integration, the process of urbanization continues to accelerate, the modernization has entered a critical stage. However, due to the small number of people and the basic conditions of the country with the rapid expansion of the city, the area of arable land continues to shrink, the irrational use and development of various types of land and resources is to increase the difficulty of management and environmental issues. Implementation of the policy of the sustainable development of the economy and Social Economic Environment "three-in-one" is imperative. The overall land planning is the basis of national land control.

In 2000, the core content of the proposed smart growth concept in the United States was to strengthen the reconstruction of existing communities and re-develop functional sites to reduce the costs of infrastructure and blind expansion. Generally

speaking, it is through the improvement of land use rate makes the city to minimize the expansion , at the same time improve the pattern of country .The potential for sustainable development of a city, the vitality of the transformation and upgrading, to attract the charm of tourists, is the inherent requirement of urban development. So far, most of the "smart growth" theory is applied to the urban planning of big cities, such as Beijing, Shanghai and so on. However, in the small and medium-sized city popularity is low. In contrast, China's urbanization process, a large number of people from rural areas into the city, making small and medium-sized cities bear a lot of pressure. The rapid expansion of the lack of reasonable planning has brought many negative factors to these cities. Therefore, according to the Urban Growth Boundary and "smart growth" theory, author develop a few urban implications in the area of land planning, and then taking Lhasa city as an example, and puts forward some views combined with the problems of Land use .

1.2 Urban Growth Boundary

Urban Growth Boundary theory ,extending from the Smart Growth , refers to the urban construction land and non-construction dividing line. By consciously dividing each function area of the city, the city's natural resources and the ecological environment as the boundary control of city development, to guide the rational development of urban land and RE development purposes.

Data show that in 2000 -2010 years, the national urban built-up area expansion rate reached 64.45%^[3], far higher than the 45.9%^[3] growth rate of urban population.The expansion of urban areas means that arable land or natural resources have been cut and destroyed. Based on limiting the boundary of urban expansion, reconstruct regional distribution to improve the land utilization rate, reduce development cost, improve the citizen life happiness, so as to promote the sustainable development of the role.

2. Characteristics and development of Lhasa

2.1 Regional overview

Lhasa is the capital of Tibet autonomous region in China, with a plateau and ethnic characteristics of the international tourism city. Lhasa is located on the north side of the Himalaya mountains, more than sunny weather throughout the year, rainfall scarce. The total area of the city's administrative area of 29,518 square kilometers, accounting for 2.4% of the total area of the autonomous region's land, of which the urban area of about 530,000 square kilometers, the rest of the agricultural and pastoral area. Lhasa's agriculture and animal husbandry are in high level, which mainly plant barley, wheat and rape. There are rich in resources. Relative to other cities across the country and autonomous region, Lhasa has obvious advantages in resources.

In 2012, the city's GDP (GDP) reached 26 billion 4 million yuan, up 12.2% over the previous year. In 2012 the proportion of the three industries were 4.1%, 34.9%, 61%,

respectively, stimulating economic growth of 0.3 , 5.0 and 6.9 percentage points. Compared with the previous year, the proportion of primary industry decreased by 0.4 percentage points, the proportion of the second industry increased by 1 percentage points, the proportion of the third industry declined 0.6 percentage points^[3].

2.2 Characteristics and problems of Lash

Lhasa , the total land area of 29,500 square kilometers, of which 34.383 million mu of agricultural land, accounting for 77.7% of the city's land area; 22.19 million mu of construction land, accounting for 0.5% of the city's land area; 967.45 million mu of unused land, accounting for the city's land area of 21.8%. According to statistics, from 2005 to 2014, built area in Lhasa grew rapidly from 54.8 square kilometers to 67.7 square kilometers, the growth rate of 23.5%, the total length of urban roads increased by 86.9%, population density increased by 19.99%, the city's infrastructure investment from 524 million yuan to 19.885 billion yuan, residential investment from 784 million yuan to 5.07 billion yuan, annual tourism revenue from 1.2 billion yuan to 11.167 billion yuan^[4].

The above data shows that Lhasa in recent years, urbanization process continues to accelerate, urban infrastructure investment accounted for the proportion of the city's total investment increased year by year, rising from 8.12% to 43.67%. Rapid urbanization inevitably bring about some development problems, because Lhasa is located in the plateau, and the environment and the economic characteristics are different from the mainland. Therefore, in the development process, planning is bound to consider the intensive development, rational planning of urban patterns, while protecting the ecology of urbanization process.

① In Lhasa, city travel and tourism development inconvenience with more land and few people. Conventional public transport function modules can not play a very good role in most areas, and relatively large motor vehicle trips will damage their ecological environment. Lhasa covers an area of 236.7 square meters per capita, on the other hand, reflect the land use structure imbalance. If it use the "traffic zone, hierarchical planning" strategy, it will save resources, improve the popularity of public transportation and reduce traffic emissions.

② Existing agricultural land has great potential^[5]. According to the data, Lhasa is currently the average annual yield of 50 kilograms of low-yielding fields about 40,000 hectares, far below the domestic average yield per mu. Lhasa should further strengthen the transformation of farmland and the corresponding technical research and development, the realization of the popularization of modern farmland. If this part of the land use of reasonable economic and comprehensive benefits brought about by the potential is enormous.

③ In addition to building land, Lhasa land use includes arable land, protected areas, nomadic areas, mineral resources development areas and some areas can not be use. Pasture area is large. But because of unreasonable use, the amount of grass per unit area is low. On the other hand, uneven distribution of land resources caused unreasonable land use structure . For example, less land resources development and

utilization of unused area, which is about 7.94 acres of unused land, accounting for only 0.82%.

3. "smart growth" theory in the land use planning in Lhasa

"Smart growth" theory in nature is a kind of city planning theory, which use mixed land use and land structure compact design method to curb the city continued to spread and reduce the loss of farmland around the city center. Unlike the United States highly modernized city development model, Lhasa has its own unique development goals, and strive to achieve the goal of sustainable development proposed by the state. "Smart growth" theory can provide some theoretical guidance and reference principle for it. According to the regional characteristics of Lhasa and analysis of the existing advantages and disadvantages, setting reasonable planning and the practicality and rationality of the analysis is crucial.

3.1 Divide the land expansion boundary

From 2.2 in the third , the land structure of Lhasa is complicated. Lhasa achieve the balance between the city and the countryside, and complete the overall progress. The division of the land boundary is extended UGB in Lhasa, is the first step in urban planning. According to the distribution of resources in different areas, clear what areas of what to do, how to do, and what areas can not be used . The mineral rich region clear mining intensity and design the corresponding greening measures ,planting herbaceous plant for harsh environment , gradually changing the structure of land. Construction land must be clear to ensure that no blind expansion of urban areas.It can also be divided into protected areas, pasture areas and arable land areas to provide reasonable guidance for the future development of the city.

3.2 Compact urban pattern, mixed land use

The planning for the built area should be based on the theory of 3.1—dividing the city function area. Based on the characteristics of Lhasa, with much land and few people partition, divide the partition and construct "traffic zoning, classification management" pattern of the city, like a Pyramid. On the one hand, construction of public transport systems within the area and inter-regional long-distance transport systems can effectively reduce the environmental problems associated with motor vehicles and the inconvenience of inter-city traffic. On the other hand, cultivating the unique architectural design with compact, attractive community, not only can improve the residents' happiness, but also promote the communication and development of tourism and economy.

3.3 Adjust the structure of cultivated land and grassland

By analyzing existing farmland resources, priority is given to the use of productive land. By analyzing the reasons for the low yield of arable land and using modern planting techniques, such as greenhouse temperature and so on, increase its

productivity. For the grassland with low yield, it should be stipulated on a quarterly basis, with the second sowing method and the natural law should be used rationally to optimize the grassland structure

3.4 Hierarchical management of other land

53 kinds of minerals have been found in Lhasa, the existing 8 deposit large, medium-sized deposits 24, deposits of more than 200 (including ore and mineralization point).Copper, molybdenum, lead, geothermal, mineral water is currently available for the development and utilization of mineral resources in the area. The development and reclamation of the mineral resources area should be implemented simultaneously and the abandoned mine can be restored to cultivated land and the secondary use of the land. Meanwhile,The establishment of nature reserves, the protection of the ecological environment, but also as a business card in Lhasa city to promote the development of Tourism.

4. Conclusions

Sustainable development is an important step in the transformation of the city. Learning from the development experience of other city and combining with land and cultural characteristics of the urban planning can be reasonable to avoid meeting "governance after destruction, development after building reconstruction." Smart growth " theory and UGB theory advocate the development of intensive development, optimize the structure of land with Lhasa, has an important guiding significance and reference direction of urban planning.

5. References

- [1] Guangjun Shang, Qingxiang Meng, Yan Sun.The application of "smart growth" theory in land use planning of Luanchuan County[J]. Chinese Agricultural Science Bulletin,2009,(19):269-273.
- [2] Ma Mi. Study on ecological city construction of Lhasa in Tibet [D].Tianjin University,2009.
- [3] Information on <http://www.lasa.gov.cn/>
- [4] Information on <http://www.ls.xzgtt.gov.cn/>
- [5] Information on <https://wenku.baidu.com/view/8e5a651bff00bed5b9f31d87.html>