From rapid growth to sustainability: predicting China's future urban spatial growth policies by comparing with United Kingdom's

Abstract: Research of urban growth management started in western countries, and aimed to set up policies and reduce the negative effects of urban sprawl. It was introduced to China in the late 1990s. Empirically, the planned sizes of most future Chinese cities, especially small cities, are much larger than moderate scale they would need, while without explicit growth management strategies. That would lead to a waste of resources, and inequitable development between urban and rural.

With rapid urbanization, resource-conserving and environment-friendly society strategies in China, single-sided pattern of urban spatial growth is being transformed into an exterior-expand/interior-renewal mode. Therefore, new policy instruments, leading to sustainable development in transitional China, are required to meet the requirements of Urban Spatial Growth Management (USGM). According to present studies in China (Chen et al, 2009; Liu and Zhang, 2007; Wei and Wang, 2008), it is widely accepted that most developing Chinese cities need spatial growth management. However, since the technique of USGM has not been formulated in China, such research merely concerned with qualitative not quantitative analysis. Thus, the issue of USGM in China needs to be tackled from the perspectives of institutions, policies and techniques.

This paper answers the following research questions: a) what USGM policy tools are needed in China; b) what kind of USGM policy in the UK could be used for reference; c) how these tools are utilized. By reviewing researches of urban growth management in both China and the UK, the author recommends China's USGM research being proceeded by two main aspects: a) to set up environment-oriented system of USGM accompanied by Chinese characteristics, and b) to utilize modern techniques to examine the effectiveness of USGM.

Key words: urban spatial growth management; policy tool; sustainability

1 Introduction

According to the worldwide recession from 2007, Chinese government recognized the significance of urbanization development for driving the domestic economic growth. In 2010, the level of China's urbanization has already amounted to 46% with 1% of the annual average growth since the reform and opening-up policy (Zhang, 2009). However, with the increased level of urbanization, the rapid expansion of the urban construction land space results in substantial decline of agriculture area. In order to ensure the quantity of cultivated land, China's government has carried out strict land control policy.

At the mean time, the Chinese economics and social developments gradually became more resource-conserving and environment-friendly . Moreover, the current Chinese urbanization combines the extensive expansion and interior regeneration to bi-directional growth. Therefore, the urban spatial growth management (USGM) must adapt the economics growth for urban expansion. On the other hand, the need of economics structure adjustment for urban regeneration must be satisfied. In addition, the transformation of national strategy, for instance, the resource-conserving and environment-friendly society strategy, has a special requirements for USGM. It has been agreed by most researchers that USGM is the process guidance for controlling urban space（Chen, 2009）. Moreover, various political tools must be used to control and guide the urban spatial growth, in order to create an environment-oriented system of USGM.

This paper discusses the USGM in contrast to urban growth management (UGM) in China. It does not create a new concept but focuses more on spatial management， since the UGM's substance is to manage urban spatial growth and to maintain the sustainable development of the urban economy, community and environment, of which ultimate objective could be achieved by urban space. Furthermore, UGM was proposed to cope with urban sprawl, which is an issue of urban space. Thus, UGM could be better combined with urban planning with aspect of urban space. In this paper, the system of UGSM in the China is firstly summarized . Then, the problem of the current system and its causes are analyzed with respect to sustainable development. By studying the experiences of British growth containment system, this paper proposes some novel concepts of reconstructing the sustainable USGM system in China.

2 Literature Review

The original research on USGM was to deal with a series of problems of the economy, environment and the society in United States. After World War II, housing options in the United States increased considerably along the significant economics growth, elevated consumption, as well as the stimulus provided by the federal mortgage loan acts and the rise of the automobile. As the result, the rapid development of suburbs and the continual decline of downtown areas drove more and more people to the suburbs. This situation brought problems of traffic, infrastructure provision, public

services, conservation of natural resources, and damages to farmlands and forests. Consequently, these issues seriously impeded the planned developments in cities. Therefore, it is a major concern to adopt varied measures to respond to economic growth and environmental protection policies, and to accelerate the sustainable developments of cities for both State and local governments.

In the US, the current debates on UGM focus on several aspects, including the definitions, policy instruments, efficiency of policy instruments. UGM is generally defined as the management of urban developing capacities, circumstances, locations and characteristics. However, there has been no agreement on itsdefinition (John M. Levy, 2002). Benjamin (1990) indicated that growth management is not a simplex growth control. In his opinion, it is designed to maintain the dynamic balances between development & protection, development & supporting infrastructure, growth-generated public service demands & financial supply, and progress & fairness.

Bengston et al. (2004) deems that UGM policy tools can be classified into three categories: public acquisition of land, regulatory approaches, and incentive-based approaches. In addition, some researchers indicate that the government structure and electoral rules have a crucial impact on the selection of approaches, such as establishing service boundaries, incentive zoning, the transfer of development rights and so on (Feiock, et al, 2004).

From the technology index and policy rules, Nelson (1999) analyzed different states with or without UGM. He found that the states with employing UGM principles exhibited more reasonable development under certain conditions such as controlling urban sprawl, preserving farmland, providing more accessibility by car and other forms of transit, less energy consuming, and minimizing tax increases. Carruthers (2002) considered that only the states with mandatory and consistent requirements and strict operation mechanisms were successful in preventing urban sprawl. Otherwise, the sprawl might have become severe.

Comparing to the US, in 1970s, the agricultural area declined slightly as well as the urban area growth in the UK. Moreover, there seemed no urban sprawl problem in the UK, as the policy worked well by using brown land and improving density of occupancy (Bibby,2009). Although urban expansion does exist in British cities, the current situation shows that urban expansion could be managed to improve efficiency of city land-use by strict policy of UGM, which inhibits local development on the other hand(While et al, 2004). For instance, the growth crisis of Cambridge subregion growth, it caused by State’s reluctance to manage or redistribute in South East. Moreover, the growth crisis leads to localized pressures on housing markets, the land-use planning system, infrastructure, and the environment, intensifying struggles between progrowth and antigrowth in certain places. Overall, it has long been thought that the green belt is the key to manage the UGM (RTPI, 2002).

UGM was introduced to China in late 1990s. From available search indexes, the information indicates that some researchers focus on reviewing western UGM and mainly recommend its concepts and practice (Liu, 2005; Jiang, 2007; Lu, 2005; Zhang,

2002; Fang, 1999). In addition, other scholars have extended their perspective to integrate UGM with the unique conditions in China (Wei, 1998; Zhuang, 2005; Li, 2005; Zhu, 2006; Chen, 2006; Liu, 2007; Feng, 2008). They proposed that UGM in China should be concerned with the system of property rights, the system of land management, the legislation of UGM, and so on.

Chinese researchers suggested that UGM could be applied in China. Nevertheless, most researchers pointed out that UGM would be an essential measure to guide sustainable urban development or participate in regional competition.

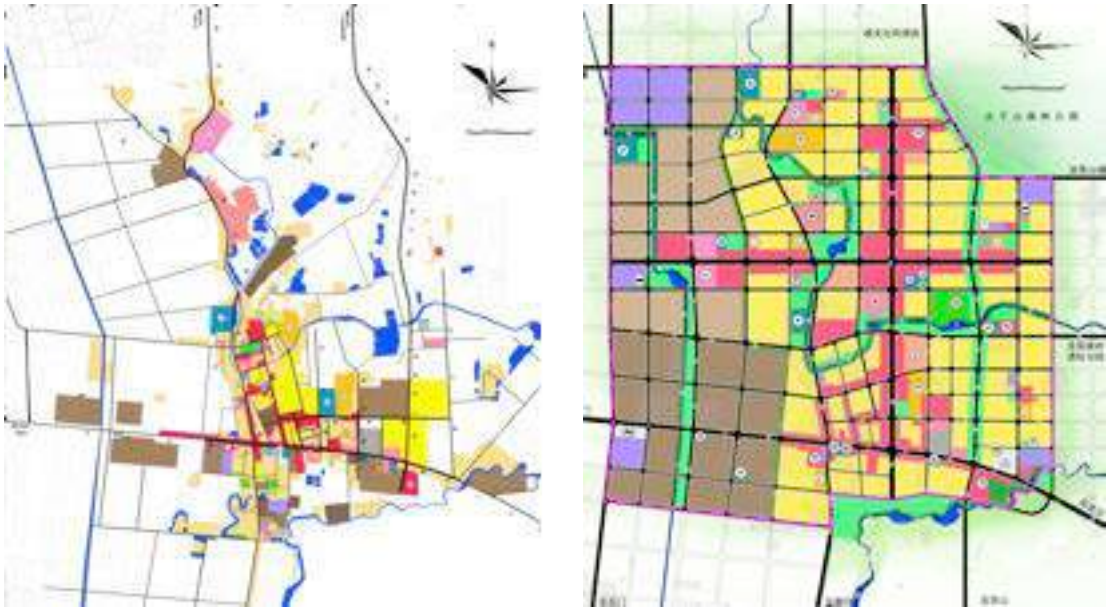
3 Recent China’s USGM System

Due to the unique regime, current Chinese USGM has to rely on local planning system to achieve USGM. More specifically, this system consists of a group of related departments, such as Development and Reform Commission (DRC), Land and Resources Bureau (LRB), and Urban Planning Bureau (UPB). In terms of structure, the planning system is formed by the State Economic Development Plan, the Land Use Plan, and the Urban Plan, which are drawn by DRC, LRB, and UPB respectively. Initially, the national target of social and economics developments are decided by the State Economic Development Plan. The Land Use Plan regulates sizes and ranges of land-use in agricultural developments and urban constructions. Additionally, the plan provides suggestions for expansion of urban construction while guaranteeing the agricultural lands are not affected. The Urban Plan organizes the urban construction with the other two Plans' functions. For Chinese USGM, the Land Use Plan and the Urban Plan could be used straightly because of direct relationship with urban space. From reform and opening-up in China, especially in the 1990s，the function of the Chinese USGM system was only to set the economic growth as the first purpose under rapid urban development. However, the problem seems to be exposed with the USGM system under the double pressures of social and economic transformation.

4 Disadvantages of China’s USGM and Experience in UK

Wang and Zhang (2010) presented that most of the Chinese large and medium scale cities were facing problems of urban sprawl by evaluations of thirty-five cities. Comparing to large and medium scale cities, the issues in small cities and towns were more critical. Empirically, the land-use scales of these cities, decided by planning, are consistently much larger than the moderate scales they would need. Particularly, a small city planning practice, in middle part of China, could be studied as an example for Chinese urban planning. According to the statistical results in 2010, the city’s population were 24461, and the occupied urban development lands were 3.42 square kilometers. However, according to the planning, by 2030, the population will increase to 120,000, and the scale of urban development land will become 13.20 square

kilometers (Figure 1). This analysis indicates that there is still space to improve. On the contrary, problems of the Chinese USGM do exist according to the data.



(a) (b)

Figure 1: (a) Current scale of urban used land, and (b) urban development land in 2030.

As previously mentioned, the Chinese USGM mostly relies on the Land Use Plan and the Urban Plan. Many researchers studied these two plans' problems, which are the inharmonious of law's foundation and executive methods, and conflicts of interest among the departments (Wei, 2011, Cao and Xu, 2004, Wang and Du, 2004).In conclusion, there are two main problems existing from the vision of building sustainable system of USGM.

Firstly, absurd land-use model, like examples above, connive low efficient usage of land resources due to lack of control measurements. Based on the system of the Chinese USGM, scale of the urban construction lands should be controlled by the Land Use Plan to maintain the size of agricultural land. Meanwhile, the Urban Plan should have coordinated with the Land Use Plan according to the City Planning Law of the Peoples Republic of China (2008). Moreover, due to the Chinese financial policies, local governments usually obtain development funds by selling land leases therefore extends the scales of urban development lands managed by the Urban Plan (Construction Plan). Therefore, size of urban construction lands is always out of the local government' control.

On the other hand, environment issue has already been ignored through the process of system's establishment from China's USGM. Furthermore, the Land Use Plan is to the primary control of the scale of urban developments. However its purpose is to control scopes of urban development spaces and protect the agricultural land exclusively. Therefore, it is necessary to build an appropriate mechanism for China's USGM to protect the environment entirely.

China’s USGM could not copy the UK’s totally due to differentiation of policy system and period of social development. However, sustainable concept and measurement of green belt in UK could be learned by China. As mentioned before, USGM appeared with urban sprawl in US. However, compared with US, there is no serious suburbanization existing in UK. Therefore, green belt is the core point of UK’s urban containment policy. Although the green belt policy is argued in reality, it does control the urban problem and protects environment, even leads to sustainable society(Hanley and Knight, 1992, Amati and Yokohari, 2006, Susannah, 2007, Thomas and Littlewood, 2010). Besides, planning policy statement 1 (1970), from process of UK’s established urban plan policy, expressed the intention of planning. In detail, Planning determines the places where people live and work and the country we live in and it conducts a main role in supporting the Government’s wider social, environmental and economic objectives and for sustainable communities. Moreover, concept of sustainable development and foundation of law would be introduced and understood well under the system. In comparison, China’s USGM and urban planning have not focus on sustainable development deeply while they pays more attention on economic development. Therefore, the ignorance of sustainable development in legislation and operational process brought the unsustainable act like former examples.

5 Recommendations on restructuring China’s USGM System

The basis of restructuring China’s USGM system is socialist public ownership of land under socialist market economy. Because of sustainable development’s problem, China’s USGM system has to be restricted with experience of UK’s urban control policy. Moreover, the reform should include four parts, which are fundamentals of law, organization structuring, control measures and supervised mechanism.

Fundamentals of law have to be improved firstly. The law needs to be legislated to protect the legal status of USGM in restructuring system. In addition, the concept of sustainable development must penetrate entire management system. With legal protection, USGM should be shown the nature of public policy mainly. This system should not have timing limitation and can be used for government, corporations and public, and even be the foundation of planning practice.

Secondly, related USGM departments’ function seems to coordinate mutually. Particularly, improving related functional organization could enhance the guide function of local governments. For local government, the functional combination of LRB and UPB ensure the efficiency of land use and planning management through concentrating land management and planning management. For related departments, financial tools, like taxation, would lead and coordinate local planning practice to promote the local departments’ own function and corporation. Nevertheless, departments’ decisions must be foreseeable, judgment and practicable on finance.

For control measures, containment policy, like green belt, should be introduced and conducted. In detail, green belt can be planned and controlled to improve the environmental sensitivity area protection under the foundation of protected agricultural land and eco-environmental protection. Overall, urban development model focused on creating compact and economize city by control measures.

Finally, it seems to be necessary to enhance inspection mechanism of special growth management with improving the strength of public participation, which is core part of implementation process. Moreover, all of parties' suggestion has to be considered for establishing each USGM's measures to avoid that the system is on behalf of single party's interest. Meanwhile, it is non-substitutable that all different parities and non-governmental organization supervise the results and correct unreasonable requirement during the implementation process of USGM system. Therefore, public participation is one of the most important forces to achieve the USGM.

6 Conclusion

In summary, China's USGM has individual methods, problems and measures, due to China's political system is different with western countries. In reality, urban sprawl has already appeared in Chinese cities, thus Chinese urban development needs USGM to guide the procedure (Wang and Zhang, 2010). However, there is a series of non-negligible problems, like absence of special management measures and eco-environmental concept, existing in current China's USGM system. In addition, these problems exist not only on operational level, but also bring furthering reflection. Particularly, capital shortage would affect urban development because of China's financial policy and government's examining standards always ignore the environmental notion.

According to experience from UK containment policy, China's restructuring USGM system should focus on sustainable development as a premise. At first, urban development activities should follow the USGM system through improving related legal system. Regarding the organization structuring, procedure of spatial planning management should be simplified. Moreover, duplicate administration could be avoided through combination of LRB and UPB. Subsequently, urban constructional land should be used efficiently by means of green belt. Specifically, green belt can be border of urban expansion forcibly to avoid urban sprawl. Finally, in aspect of supervised mechanism, environment impact assessment and public participation both should be used frequently to examine the USGM system and add concept of sustainable development to USGM. In the future, USGM research would pay more attention to supervised mechanism and local financial policy to distribute the financial power fundamentally.

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