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Analysis of Sustainable Urban Development in China and Japan

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Abstract: By studying and comparing the urban planning of China and Japan, this paper discusses the main problems in building sustainable urban development in China and gives some corresponding solutions. In terms of general planning, China's green space indicators are too simplistic and quantitative, lacking in multi-dimensionality and perspective. The layout planning of green spaces is not scientific enough. At the management level, urban planning and greening in China are very passive. Despite the creation of large areas of green space, the quality of these green spaces is not guaranteed. In the absence of relevant laws and regulations, these green spaces are not sustainable and can easily be threatened with demolition. In order to combat these problems, a more effective urban management system should be established, and modern technology should be used to assist in the management of green spaces, with more input from the public in the planning process.

Keywords: urban planning system, problems, China, Japan

1. Introduction

More than half of the world's population lives in cities. Cities are engines of economic growth and innovation, but they also consume huge amounts of resources. The way cities are designed and managed affects the quality of life for billions of people. In today's rapidly growing world economy and globalised economy, the demand for urban infrastructure and natural resources is growing rapidly. And the question of how to promote sustainable urban development has become a common global concern. In this regard, China and Japan are both densely populated Asian countries, but their levels of sustainable urban development and infrastructure differ to a large extent. The more advanced urban green planning system in Japan is a valuable reference for China at this stage of development. This paper will discuss what sustainable development and sustainable cities are and explain the rationale for building sustainable cities. It will also introduce the differences between the urban green planning systems of Japan and China, and list the shortcomings of China and what it can learn from Japan.

2. Introduction to Sustainable Cities

There are many definitions of sustainable development. According to World Commission on Environment and Development, it is a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional changes are

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made consistent with future as well as present needs [1]. Berke and Manta consider it to be a dynamic process connecting local and global concerns, as well as linking local social, economic, and ecological issues, to fairly cater for the current and future generations' needs [2]. After that, it was summarised as meeting the needs of the present without compromising the ability of future generations to meet their own needs [3-8]. The UN Sustainable Development Goal 11 defines sustainable cities as those that are dedicated to achieving green sustainability, social sustainability, and economic sustainability [9]. From these definitions which are representative, it can be seen that the aim of building sustainable cities is to ensure the life quality of people in the future. At least they need to have a similar living standard like what we have right now. Building sustainable cities covers plenty of areas, not only about protecting the environment, but also about reducing crime rates, improving social stability, and giving a city or even a country a good economic and political environment. One point to emphasise here is that there is no exact standard for a sustainable city, such as how much green space a city must have. Location, climate- there are so many factors that can make cities different. Therefore, building sustainable cities needs to be tailored to the local conditions, not just simply copying other cities' plans.

3. Analysis of Urban Planning Systems in China and Japan

3.1. Japanese Urban Planning System

Before analysing the differences and gaps in planning and sustainable development between China and Tokyo, it is important to understand the respective urban planning systems of Japan and China. For Japan, the City Planning Act of 1968 forms the basis for city planning. Areas within a city were designated as 'urbanization promotion areas' and 'urbanization control areas' depending on the degree of urbanization. A development permission system was also introduced to provide a sufficient level of infrastructure for the development of building land. Secondly, with rapid economic development, improved motor ways and other factors, 'functional city planning areas' were designated, integrating multiple municipalities into single planning units. This created a shared framework in which a prefectural governor can develop plans that involve multiple municipalities. Subsequently, the responsibility for city planning was handed over to prefectural governors, allowing local authorities with better knowledge of the area to manage the city [10]. Figure 1 is the hierarchy of green system planning in Japan. The diagram shows that planning in Japan takes place at three levels: national, regional, and local. The central government only needs to provide guidelines for green space policy, and detailed planning is carried out by various local departments. Once a plan is implemented by the local government, the national government reviews and evaluates it, making adjustments as necessary before moving on to the next plan. The feedback and input of residents are also collected and considered during the implementation process.

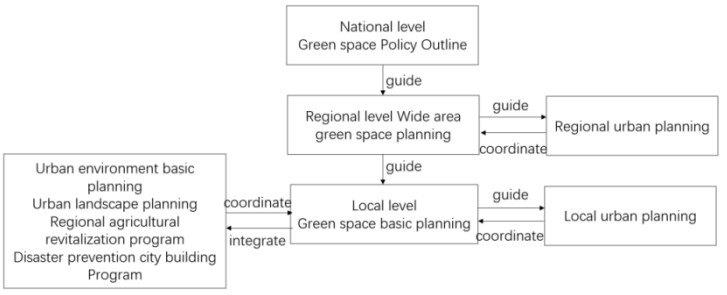

Figure 1: The hierarchy of green system planning in Japan [10].

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3.2. Chinese Urban Planning System

The first urban planning related law in China after the founding of the country, the City Planning Act, was introduced in 1989. It provides two planning stages, the first being the general plan and the second being the detailed plan. The general plan covers the entire urban planning area, while the detailed plan is a plan for localised areas of the city, making the general plan more specific. Planning in China occurs at three levels: national, provincial and municipal. The urban planning authorities at each level are responsible to the government at the same level, and the higher urban planning authorities provide operational guidance and supervision to the lower levels. After the government has completed the draft, it is also made public for comments from experts and the general public. However, despite the general trend of urban planning towards more democratic leadership in urban governance since the 1960s [11]. In China, state planning control is still a powerful force in the allocation of resources. Local cadres, as remnants of the central planning system, have a decisive say in the plan-making process. The formation, implementation, and management of a plan are often determined by the strategies of political leaders. These plans include not only detailed development control plans, but also long-term 20-year plans approved by higher levels of government. Although these actions by local leaders are strictly illegal under the Town Planning Act, they are often ignored by higher authorities because local development actions fall under the category of GDP growth [12].

3.3. Issues of China's Urban Planning System

Compared to Japan, China's urban planning system is very imperfect and immature, especially in terms of institutional deficiencies and inadequacies. There are four main issues with China's urban planning system. First, China's indicators for green space are too simplistic and quantitative, lacking multiple dimensions and perspectives. Secondly, there is insufficient scientific planning in the layout of green spaces. Also, at the management level, urban planning and greening in China have a very passive approach. Although large areas of green space can be created in a short period of time, the quality of these green spaces cannot be guaranteed. What is more, these green spaces are also not sustainable and can easily be removed and other buildings constructed also lack relevant laws and regulations.

The primary issue with Chinese cities is that the green space indicator system tends to be oversimplified and focused solely on quantitative measurements, which is because China has traditionally used a system of quantitative indicators that places less emphasis on the quality and function of green space. This gives rise to the problem of the unequal distribution of green spaces and inadequate open space in urban areas. However, the unscientific arrangement of green spaces cannot be attributed solely to this problem. China's approach to planning urban green spaces follows the "point, line, and surface" model, with the aim of achieving a balanced and harmonious environment. This model involves distributing parks, squares, and other green spaces in a manner that aligns with their respective service radii, ensuring that they are well-distributed across the built-up area. However, this planning approach does not fully respect the city's own land use and green space characteristics. While the green spaces within the built-up areas of the city are highly valued, those on the outskirts of the city are often ignored. Additionally, due to strict administrative boundaries, the spatial layout of green space systems has become fragmented and irrational. The timeline for urban development planning is often not synchronized with the timeline of ecological cycles. At the specialized planning level, the spatial structure and green space layout requirements for balancing urban development and natural ecological environments are often ignored as well [13].

The planning of green space systems in China is predominantly passive, driven by political performance objectives or to fulfil the criteria of the garden city construction scheme. This approach often neglects the practical considerations and contextual nuances of the urban environment.

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Although implementing predetermined criteria under political incentives may yield a rapid increase in the greening rate in the short term, the resulting outcomes are frequently unsound from a scientific perspective. Another significant challenge in green space system planning in China is the absence of a comprehensive legal and regulatory framework. Inadequate management and implementation of China's urban green space planning system, combined with the absence of legal protection, make green areas very vulnerable to transformation and occupation, i.e., being used for commercial purposes during construction activities. Furthermore, the absence of guiding documents in the planning process can result in unclear responsibilities and insufficient communication between various departments. Public participation in planning is also lacking, with the majority of engagement occurring after-the-fact and being compulsory in nature. Moreover, the superficial nature of public participation suggests a general lack of concern for these activities.

4. Actions that China can Take to Develop Sustainable Urban Planning System

To address the challenges facing green space system planning in China, several steps need to be taken. Firstly, the establishment of a comprehensive legal framework that includes additional indicators beyond just the greening rate would be necessary. This framework should also provide a clear delineation of responsibilities and powers to various departments. Additionally, decentralization of decision-making to local governments, who possess better understanding of the specific needs of their regions, could prove beneficial.

Developing a scientifically-validated and efficient planning system is of utmost importance. Firstly, the government should conduct thorough research and analysis to identify the best locations for green spaces based on practical factors such as population density, environmental conditions, and community needs. Additionally, the government should collaborate with research institutes in the fields of urban planning and green space design to create a comprehensive framework for green space layout that prioritizes the natural environment, social infrastructure, and quality of economy.

Furthermore, the government could adopt modern technology and data-driven approaches to optimize the design and placement of green spaces. This could involve the use of geographic information systems to analyze and identify the best locations for green spaces, while at the same time monitoring the health and growth of green spaces. Finally, to increase public participation, the government could distribute questionnaires to citizens and offer incentives to those who contribute their opinions and suggestions. This approach would help ensure that the planning process is more inclusive and reflective of the needs and desires of the community.

5. Conclusion

In conclusion, in today's world where environmental issues are becoming increasingly severe, constructing sustainable cities is significantly important for not only a country, and the world as a whole. Although greening plays a large role in building sustainable cities, constructing sustainable cities is not simply about increasing the level of greenery in an area. It also includes addressing social issues such as reducing crime rates and improving social stability. China and Japan are both densely populated Asian countries with some similarities, and their close geographic proximity provides an opportunity for China to learn from Japan's urban development planning system. In comparison with Japan, it is clear that China's green space indicator system is too simplistic, the layout of green spaces is not scientific enough, urban planning and green development are too passive, and there are insufficient regulations and protection for green spaces. To address these issues, a new and more efficient urban planning system can be designed, and modern technology can be used to assist in green space management. When designing planning systems and making related decisions in the future, not only the government but also the opinions of the public should be taken into account.

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However, there is no fixed criterion for defining a sustainable city, such as a required percentage of green spaces, which means that each city must adopt a tailored approach based on its distinct characteristics. This essay only mentions the differences between the planning systems of China and Japan, and the general directions in which changes should be made in China, without more detailed studies and examples for different regions. Further research should be carried out in the future on Chinese and Japanese cities to design more appropriate solutions according to the characteristics of different cities according to local conditions.

References

[1] *WCED. (1987). Our common future. London: Oxford University Press, 46. Institute of Land policy (Working Paper), 3.*

[2] *Berke, P., Manta, M. (1999). Planning for sustainable development: Measuring progress in plans. Lincoln Institute of Land policy (Working Paper), 3.*

[3] *Kadir, S. A., & Jamaludin, M. (2013). Universal design as a significant component for sustainable life and social development. Procedia-Social and Behavioral Sciences, 85, 179-190.*

[4] *Burnett, J. (2007). City buildings-Eco-labels and shades of green! Landscape and Urban Planning, 83, 29.*

[5] *Egger, S. (2006). Determining a sustainable city model. Environmental Modelling and Software, 21, 1236.*

[6] *Komnitsas, K. A. (2011). Potential of geopolymer technology towards green buildings and sustainable cities. Procedia Engineering, 21, 1023.*

[7] *Premalatha, M., Tauseef, S. M., Abbasi, T., et al. (2013). The promise and the performance of the world's first two zero carbon eco-cities. Renewable and Sustainable Energy Reviews, 25, 660–669.*

[8] *Rai, P. T. (2012). Townships for sustainable cities. Procedia—Social and Behavioral Sciences, 37, 419.*

[9] *United Nations. (2017). Resolution adopted by the General Assembly on 6 July 2017, Work of the Statistical Commission pertaining to the 2030 Agenda for Sustainable Development. Available at: https://documents-dds-ny.un.org/doc/UNDOC/GEN/N17/207/63/PDF/N1720763.pdf?OpenElement.*

[10] *Lu, L. (2020). Urban Green Space System Planning in Japan. Zhejiang A&F University. DOI: 10.27756/d.cnki.gzjlx.2020.000005.*

[11] *Balducci, A. and Calvaresi, C. (2005). Participation and leadership in planning theory and practices, in M. Haus, H. Heinelt and M. Stewart (eds), Urban Governance and Democracy: Leadership and Community Involvement, London, Routledge, 234–52.*

[12] *Zhao, P. (2015). The evolution of the urban planning system in contemporary China: an institutional approach. International Development Planning Review.*

[13] *Wang, X.L. (2009). Analysis of problems in urban green space system planning in China. Journal of Forestry Research. 79−82.*