

Urban Planning Research Considering the Influence of Natural Environment

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Abstract. The current urban natural environment has been included in the urban planning assessment indicators, and the theory of hollowing out urban planning has risen to the height of the combination of urban and ecological. Starting from the theory of urban sustainable development, the theoretical model of “ecological city” was initially established, which fully considered the three major systems of urban people's spatial living demand hierarchy theory, urban development status and ecological environment development status, maintaining nature and city, and people. Balance with the needs of nature, people and society. Through the introduction of the three major elements of nature, society and time, the whole is the theory and practice of urban planning, and points out the direction for the development of urban science.

Keywords: Natural environment; Urban planning; Harmonious development; Urban space residential demand.

1. Introduction

Urban planning incorporates the construction of the natural environment into the assessment indicators, and it is necessary to look at the development of urban planning on the level of ecological thinking. In essence, ecological thinking, the most important thing is to consider the coordination between man and nature, consider the coordination of people and resources, and consider the coordination between human development and the quality of natural ecosystems to sustain human development. The ecological thinking of urban planning should obviously refer to the basic principles of ecology as the guide in the various tasks of urban planning, and regard the city as a complex ecosystem with both natural and artificial features, focusing on urban humans and nature. Coordination, focusing on the coordination of urban humans and resources, focusing on the coordination between urban human development and the quality of natural ecosystems to sustain human development. In all aspects of urban planning, considering the impact of urban development on human living environment The impact of various aspects of urban planning must fully consider the capacity of urban ecological environment, the succession of urban ecological environment, the quality of urban ecological environment, etc., and seek the unification of economic, social and ecological benefits.



2. The origin and development background of ecological urban planning theory in the natural environment

2.1. The origin of theory

After the mid-1980s, with the advent of the new public health era, the healthy development of human health and the ecological environment is seen as a capability or resource, and the impact of social and economic development on health is increasingly valued by humans [1]. Modern urban planning needs include the following six aspects: (1) the decisive role of social capital, social and physical environment in lifestyle; 2 all health-threatening problems (chronic diseases, mental health and environmental sustainability, etc.); 3 a fair social environment; 4 community participation; 5 comprehensive understanding of health (disease prevention and health promotion); 6 cross-sector cooperation mechanism. These needs have re-emphasized natural environmental issues in the urban planning arena. Urban planning has a key impact on urban material and social environment through the allocation management of space resources and the design of the site environment, which in turn affects people's health. It can be seen that there is a certain connection between urban planning and the natural environment [2], so it is necessary for urban planning to cooperate closely with the natural environment [3].

2.2. Theoretical background

Based on the ecological perspective, the natural environment affects human health, and health is a state of human beings, which is closely related to the biological, chemical, physical and social environment in which human beings are located; based on the perspective of health promotion, health can be considered as an individual's potential and A positive response to the challenges of everyday life is a kind of capital for individual life, not a goal or standard that needs to be achieved . Health is determined not only by the physical and psychological conditions of the individual, but also by the social environment and collective relationships in which the individual is located. The determinants include “almost all relevant factors from DNA to climate change” [4]. Specifically, health determinants relate to lifestyle and behavioral patterns (diet, exercise, smoking, etc.), physical environment (housing, pollution, etc.), sociocultural environment (education, socioeconomic status, etc.), endogenous personal attributes (genes, acquired Living habits, etc.) and health care (including primary, secondary, tertiary prevention) [5].

In the context of urban systems, the interaction between urban planning and the natural environment can be explained by a model of the relationship between health and environmental factors. The model emphasizes that external factors affecting individuals will have an impact on planning policies. For example, individual lifestyles will be affected by the availability, safety and quality of urban facilities; urban renewal will lead to changes in social networks, which may make people feel Frustration or increase the incidence of chronic diseases; the quality of work and living conditions and the more widespread environmental factors (air, water, soil, etc.) are essential to health, and these factors are affected by planning policies, etc. [6].

On this basis, Barton proposes a more comprehensive health model of settlements, which believes that people-centered, lifestyle, community, local economy, daily activities, built environment, natural environment and global ecosystem will all be human (Individuals and collectives have an impact. It can be seen that many factors in the urban system have direct or indirect effects on human health. Human health determinants have multidimensional and multilevel characteristics. Therefore, it is necessary to integrate different disciplines to study health determinants and decision mechanisms.

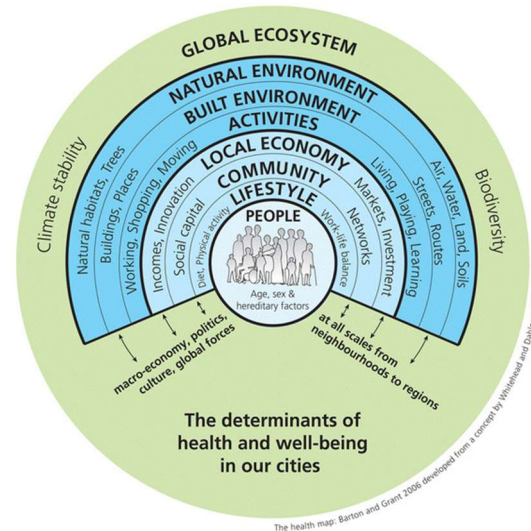


Fig.1 Schematic diagram of human settlement health model

3. Urban planning model considering the impact of natural environment

3.1. Urban Sustainable Development Model

Urban planning should firmly grasp the basic point of space design and add livability to the triangular model of sustainable cities, thus establishing a perpetual pyramid model of urban planning. Based on the sustainable development of cities and livable cities, the perpetual pyramid model successfully integrates the main goals and conflicts faced in urban planning, and realizes the return of the core research object of urban planning discipline to space. Urban planning work is understood as the coordination of the relationship between the three pillars of space design and sustainable development. This model also explains how the theories of collaborative planning, consensus building, new disturbance, and smart growth in Western urban planning can be placed under a holistic theoretical framework rather than being separated from one another [7].

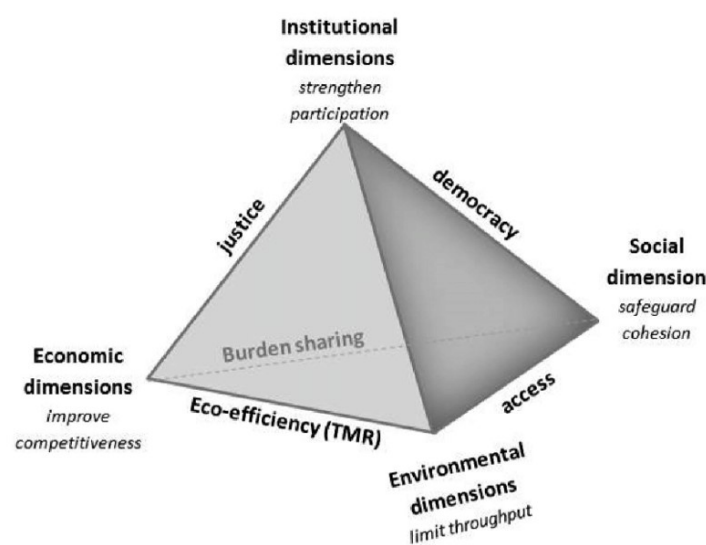


Fig. 2 Perpetual pyramid model for sustainable urban development

The model can take the natural environment and human needs into consideration in urban planning to a certain extent, emphasizing the conflict between different goals, and emphasizes that the planner realizes itself through traditional methods such as rational planning and urban design in the process of coordinating conflicts. The dominant position in the process of sustainable development. At the same time, based on the theory of collaborative planning, this planning theory proposes that planners should have an accurate understanding of the value orientations and potential alliances of different interest groups, so that they can be used more effectively to realize the city's sustainable development. In fact, in the decision-making arena, even without various spontaneous interest groups, different government departments and non-government organizations hold different views on urban development, that is, there are always regular supporters and opponents. Using these relationships will help improve the professional influence of urban planning. This idea not only has practical guiding significance for the development of urban planning in Western countries, but also has important reference significance for how to better promote the improvement of planning performance in China's urban planning community in complex decision-making environment.

There are certain deficiencies in this model. The theory of sustainable development lacks a clear statement about "human beings are the main body of development". The lack of people as the main body of development actually leads to the lack of evaluation criteria for the concept of sustainable development, which makes it difficult to use. In explaining and guiding practice, when the need to scientifically describe the state of sustainable urban life, human needs are blurred. If the development of the city is not aimed at people's needs, then the persistence and responsibility of the entire urban planning discipline for a hundred years is meaningless [8].

3.2. *Urban Planning Research Integrating Natural Environment*

The main content of the urban planning regulation of the balance between the artificial environment and the natural environment is: a reasonable assessment of the impact of the city on the natural environment in the process of spatial development, analysis of the ability of the natural environment to accept changes, on this basis To repair the urban people's space needs to maintain balance, and propose measures to reduce the impact of urban development environment or increase environmental benefits, so as to improve people's space requirements without causing natural systems to recover, such as planning location theory, The theory of regional spatial structure and the theory of ecological carrying capacity are mainly aimed at this equilibrium relationship.

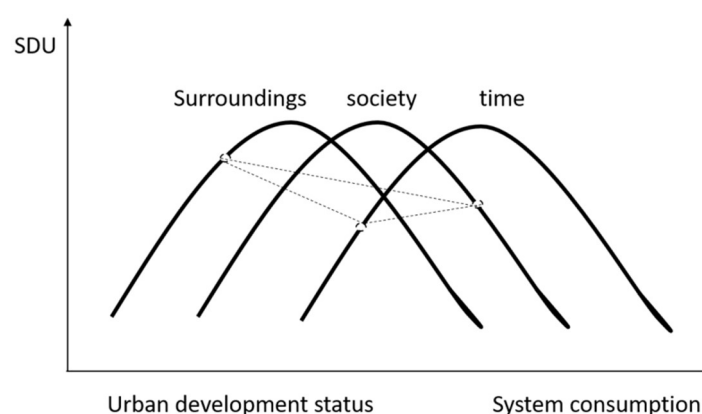


Fig.3 Shows the relationship between the three major balances

According to the previous analysis, it is possible to summarize the relationship between the urban people's space demand satisfaction and each system's own consumption as an inverted U-type relationship. In a certain city's development state (center of gravity), the urban people's space needs are met. Different systems correspond to different system assumptions. The theory explains that cities

consume people's quality of life by consuming nature, but excessive destruction of nature may lead to a decline in the quality of life; urban inequality may increase economic efficiency within a certain range, but excessive inequality may hurt economic security; The pursuit of high-speed development will also damage the blessings of the city. When the system consumes the lowest, the urban people's space needs are the highest, which can be considered as the most desirable urban development status. This is also the goal of urban planning. By judging the location and trend of different systems, it is possible to adjust the state of each system to improve the overall space of urban people, or to adjust the position of the curve by using new techniques and new methods.

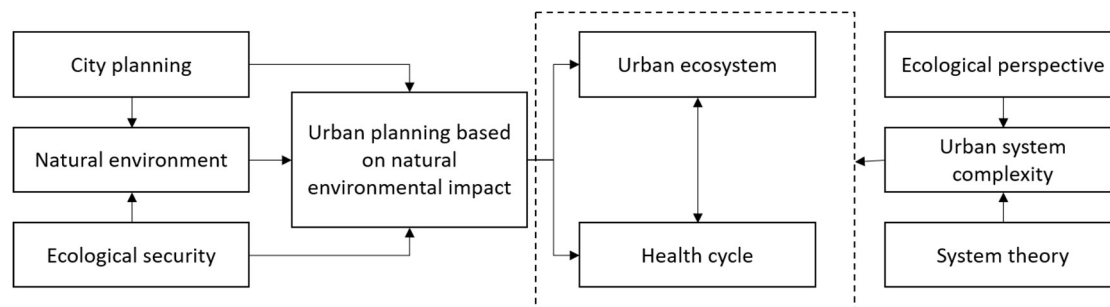


Fig. 4 Urban planning theory under the influence of natural environment

4. Principles of urban planning based on natural environment

4.1. Respect for nature

In the long history of urban planning and development, there are many examples of the unique harmony of the natural environment and the unique personality and charm of the city. Care should be taken to avoid the tendency to have no respect or even damage to the connections between living things in the natural system when designing in the city. It should be recognized that in nature, the connections between organisms are universal, from the smallest cells and single-celled organisms to the ecosystems, to the biological regions, to the entire planet, with unexpected connections. It is also this connection that the evolution of biology is based on, the ability of the creature to proliferate, the existence of nature and the long-term survival of mankind become a reality. Urban design and the accompanying urban construction have the responsibility to maintain this connection.

4.2. Reflecting regional environmental characteristics

As an important part of human civilization, cities are also closely related to the environmental characteristics of their regions. From the perspective of the niche principle, each city has a different ecological factor combination and ecological conditions than other regions, and the geographical differences between ecological factors and ecological conditions, resulting in differences in the ecological niche of each region. The big world. Urban ecological design should emphasize and utilize the environmental characteristics of the urban area, maintain and maintain the uniqueness of the specific regional environment and niche, and create a city's living environment with different niches.

4.3. Renewable energy as a fundamental factor in design

The use of renewable energy sources such as solar energy, photostatic energy, wind energy, water conservancy energy, and energy-saving lifestyles are two major issues that cannot be delayed. The use of solar energy is one of the ways for cities to save non-renewable energy. Considering energy conservation in building design is the most popular aspect. After all, urban architecture is the most common energy-consuming entity in cities. The most effective way to save energy in building design is to reduce the loss of heating heat; here, the density of the house, the combination of the units, the orientation of the building, the structure and volume of the building, and the thermal insulation of the building's exterior walls. It is a factor to be considered; the type of material, the thickness of the wall,

the area of the window, and the construction of the door and window joints cannot be ignored. In addition, the overall layout of the city, including the interrelationship of various types of land in the city, the layout of the urban road transportation system, etc., also plays an important role in reducing energy consumption.

4.4. *Revitalizing nature, restoring nature*

Urban design can not only destroy the urban environment, but also deprive the natural environment of the urban area. It can also maximize or even revitalize the natural environment of the region. Among them, whether the design concept is advanced and whether the work is pragmatic determines the nature of the result. If we can notice the improvement of the natural environment in urban design and urban construction, it will be twice the result with half the effort; combining urban construction with restoring nature and improving nature will definitely achieve great results.

5. Conclusion

Inheritance and change are a complex relationship of dynamic dialectic, and different time and space will have different convolutions. In theory, the inner core values and concepts and methods of urban planning are always worthy of inheritance, development and manifestation; and the peripheral values and their concepts and methods attached to the institutional environment of the times need to keep pace with the times. Change, revision and improvement. But no matter how urban planning is passed down and transformed, its ultimate refusal is to better meet people's needs. This is derived from the purpose of urban development - the development of the city, fundamentally for the all-round development of human beings; it is also determined by the background of the current era.

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