Research on the Effectiveness and Operability of Urban and Rural Planning Implementation Evaluation Based on Ecological Environment

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Abstract. At present, the implementation evaluation of urban and rural planning has some problems, such as poor standardization, insufficient subjective cognition, and lack of methodology, which make it difficult to carry out effectively. This paper discusses how to improve the effectiveness and operability of the implementation evaluation of urban and rural planning from three aspects: the evaluation content system, the evaluation organization and method, and the result judgment. Based on the basic concepts of urban and rural planning management and urban ecological environment, this paper analyzes the existing problems of urban ecological environment and urban and rural planning management, as well as the relationship between planning management and urban ecological environment. On this basis, the connotation of eco-city was discussed, and the idea of implementing steps for building eco-city and countryside planning was put forward, so as to promote the development of eco-city and countryside planning and eco-city and countryside construction in China.

1. Introduction
The modern industrial revolution has driven the rapid development of world science and technology, and this development can be considered to be based on the premise of slowly endangering the world ecosystem, especially now, the increasingly serious environmental problems are bothering everyone [1]. Urban and rural planning is an important means to achieve the goal of economic and social development in urban and rural areas. It is also an important basis for the government to protect the ecological and natural environment, make rational use of resources, make overall arrangements for the spatial layout of urban and rural development and construction, and safeguard justice and fairness in the process of urban construction [2]. Environmental planning is responsible for the research and resolution of environmental issues in terms of overall, strategic and overall planning, and plays a very important role in the smooth implementation of sustainable development strategies. At the same time, along with the rapid development of urbanization in the world, people feel the rich material and spiritual life brought by urbanization, but they have to sigh for the increasingly severe ecological environment, and shout, "ecology The crisis has become a “bottleneck” for the sustainable development of human society in urban areas [3]. Implementation evaluation plays a very important role in the detection and supervision of the effect of urban and rural planning and construction. However, there are many difficulties in the implementation evaluation of urban and rural planning in China. Therefore, people need to pay more attention to the implementation evaluation, take effective measures to solve some problems in the implementation evaluation, and truly improve the effectiveness and operability of the implementation evaluation of urban and rural planning.
2. Concept of Eco-environmental Urban and Rural Planning

Eco-environmental urban and rural planning is to make rational use of different geographical conditions between cities and villages to determine the specific layout of different construction functional areas and the layout of various elements, and to make rational use of every resource to the maximum extent to build a harmonious development between urban and rural areas [4]. Urban and rural planning is an overall, comprehensive and strategic work involving politics, economy, culture and social life. How to build a harmonious, vivid and reasonable space system is a very hot topic in the planning and construction [5]. The purpose of urban environmental planning is to regulate human activities in the city, reduce pollution and prevent resource damage, so as to protect the urban environment, which is the foundation of the sustainable and stable development of urban residents' life and work, economy and society.

According to the current technical specifications of air quality daily report in China, the monitoring data of SO2, NO2 and inhalable particles are used to evaluate the air quality in the form of air pollution index (API). The Air Quality Daily API grading standards are shown in Tables 1 and 2.

| Air pollution index | Pollutant concentration (mg/m3) |
|---------------------|---------------------------------|
| SO2 | NO2 | PM10 |
| 50 | 0.050 | 0.080 | 0.050 |
| 100 | 0.150 | 0.120 | 0.150 |
| 200 | 1.600 | 0.280 | 0.350 |

| Air pollution index | Air pollution level | Air quality condition | Impact on health | Suggested measures |
|---------------------|---------------------|-----------------------|------------------|--------------------|
| 0-50                | Stair               | Excellent             | Normal activity  | -                  |
| 51-100              | Second level        | Good                  | -                | -                  |
| 101-150             | Third class         | Slight pollution      | Symptoms of susceptible population are slightly aggravated, and irritant symptoms appear in healthy population. | Patients with heart and respiratory diseases should reduce physical exertion and outdoor activities |

In order to keep the development between urban and rural areas under control, the first thing to do is to ensure that all the constructive activities in the urban and rural areas can be carried out within the appropriate planning scope, and the relevant management units also need to carry out reasonable site planning and guidance for these construction, so as to guide the urban and rural construction towards the most perfect layout [6]. The ecological development model is the result of people's profound reflection on the road that human beings have taken since entering industrial civilization. This is a historic turning point in the evolution of human civilization and an important milestone for human beings to change the traditional development mode and develop new civilizations.

3. Basic Characteristics of Urban and Rural Environmental Planning

Regional. The regional characteristics of environmental problems are very obvious. Therefore, environmental planning must focus on the policy of "adjusting measures to local conditions". Due to the difference of the city's spatial geographic location, terrain conditions, meteorological conditions and natural environment, different urban environmental spatial forms are formed, providing the environmental spatial characteristics of each city different from other cities [7]. Because city managers think that this belongs to the category of rural management, while rural managers always think that this
is the duty of city managers, therefore, it often leads to some urban-rural border areas becoming what people call "three no-care zones", especially confusion, which requires the attention of relevant managers in particular. The time and place corrections of parameters and coefficients in various environmental models are different, and the technical conditions and basic data conditions of different places are also different. Environmental ecologization shows that development is based on the protection of nature, coordinated with the carrying capacity of the environment, the natural environment and its evolution process are protected to the maximum extent, all natural resources are rationally utilized and life support systems are protected, and development and construction activities are always kept within the carrying capacity of the environment [8]. Therefore, the standard is a summary of scientific, technical and practical experience. It should be based on verified and correct information data, with the aim of promoting the best common economic efficiency and economic benefits, and it should be in the form of rules, guidelines, technical specifications defining characteristics or other precise criteria.

Comprehensive. The comprehensiveness of environmental planning is reflected in its wide range of fields, numerous influencing factors, comprehensive countermeasures and complex coordination among departments [9]. With the improvement of people's understanding of environmental protection and the accumulation of practical experience, the comprehensiveness and integration of environmental planning have been significantly strengthened. Social ecologization shows that people have conscious ecological awareness and environmental values, the quality of life, population quality and health level are compatible with social progress and economic development, and there is a social environment that guarantees equality, freedom, education, human rights and freedom from violence for all [10]. Therefore, the goal of urban and rural planning and management should be multi-objective, multi-attribute, not unique and one-way, one-sided pursuit of economic growth goals or environmental quality goals, a single goal management, must be at the expense of other benefits. An important task of urban and rural planning is to fully understand the natural landscape elements of the city, such as mountains, water, forests and scenic spots, explore, protect, utilize, develop and transform the spatial characteristics of the natural environment, find out the individuality in the commonness, and build the characteristic city around the individuality. At the same time, we should also pay attention to the strategy of ecological harmony and sustainable development.

Dynamism. Environmental planning has strong timeliness. Both environmental problems and socio-economic conditions are changing unpredictably over time. Environmental planning based on certain conditions, with the change of socio-economic development direction, development policy, development speed and actual environmental conditions, will inevitably require the ability of rapid response and update of environmental planning work [11]. Only by realizing ecology, integrating the concept of ecology into urban planning, construction, production, life and other activities, making the artificial environment and natural environment coexist, not only having modern facilities, but also integrating with nature, creating a suitable living environment for people, can we truly realize the paradise of "tourism, shopping, living, knowledge seeking and entrepreneurship" [12]. Therefore, focusing on ecological urban and rural planning and management should not be a single decision, but rather should weigh the pros and cons in a dazzling space. The target of choice is not only one rhyme, but also one interval or whole. Environmental ecologization shows that development is based on the protection of nature, coordinated with the carrying capacity of the environment, and the natural environment and its evolution process are protected to the maximum extent. To sum up, the development of ecological urban and rural areas is the inevitable choice for people's progress. The development of ecological urban and rural areas is the inevitable choice for people's progress. It is a human residential area with respect for and maintenance of ecological environment as its main theme, sustainable development as its basis, sustainable development of human beings as its starting point, harmony of natural system, harmony between human beings and nature as its basis, natural ecological virtuous circle, economic efficiency and social harmony.
4. Problems in Evaluation of Urban and Rural Planning Implementation

The value standard has multiplicity. One of the most important problems to be solved in the process of urban and rural planning is to coordinate the spatial interests. The selection of values can reflect the scientific nature of urban and rural planning to a certain extent, as well as the implementation of evaluation. However, it is difficult to effectively carry out the evaluation of the implementation of urban and rural planning in our country at present for various reasons. For example, some planners belittle this issue because they pursue the ultimate ideal, while others misunderstand that evaluation will affect the authority of planning and thus avoid it artificially. With economic globalization and urban internationalization, the core elements of urban economic and social development have given way to intellectual factors from natural factors, and innovation capabilities have become the decisive force for urban development. Planning implementation evaluation is an important part of the planning system and an indispensable part of the urban and rural planning process (Figure 1).

Cities must focus on enhancing innovation. However, the difference in value concept will lead to differences between different institutions, different classes, different groups and different individuals. This will lead to different attitudes faced by different people in facing urban and rural planning related policies, and various problems will arise. The object of urban environmental planning is a complex. It is more practical to carry out urban environmental planning with the method of system theory. Only by taking the research of urban environmental planning as a subsystem and establishing extensive contact and coordination with higher-level large-scale system, can the purpose of protecting and improving environmental quality be achieved.

It is difficult to carry out standardized evaluation on planning performance. In the process of carrying out the evaluation, people need to formulate various qualitative and quantitative indicators, so as to realize the objective reflection of the results and processes in urban and rural planning. Through the evaluation, we can see that there is a big error between the actual value and the predicted value in urban and rural planning. The selection of evaluation object, the selection of value standard and even the determination of evaluation grade are all interfered by many factors. Therefore, there are many results in the practice of planning implementation evaluation. There is a close relationship between environment and economy. Economic development needs to consume environmental resources, discharge pollutants into the environment, and produce environmental problems. China is a developing country. Compared with developed countries, there is a big gap in comprehensive national strength, scientific and technological level, population quality and ideology. All these factors will affect the ecological development of cities. Self-evaluation usually gives good news but not bad news, often attributing the problems of urban and rural planning management and implementation to "insufficient space" and "insufficient land". People's ideas and problems in actual operation are also different. Based on this situation, it can be seen that no matter what the evaluation results are, they cannot fairly and fairly reflect the real performance of urban and rural planning.

Lack of methodology, lack of systematic evaluation. At present, most urban and rural planning implementation evaluations exist as the premise and basic work of the next round of planning revision, and are regarded as the hard rules of laws and regulations and have to be carried out. Urban environmental planning generally only has a comprehensive remediation plan, and unlike urban and rural planning, it has a deep system consisting of multiple levels such as overall planning, zoning planning, controlled detailed planning, and constructive detailed planning. Regardless of whether it is
ecological construction or ecological planning, it emphasizes the overall benefits of the macro. The pursuit of not only the improvement of the ecological environment benefits of local areas, but also the increase of benefits in one aspect of the economy, society and environment. In order to realize the ecological development of the city, we must first publicize and popularize the ecological consciousness, advocate the ecological values, make the public, especially the leaders and decision makers, change their ideas, and establish the ecological values of harmony between people and nature. The theoretical circle of urban and rural planning in China has not yet formed a clear methodology system, nor has it established a systematic evaluation system and method, resulting in a lack of full understanding of many problems such as the main body of urban and rural planning organization, the entrusted organization unit and the society on the process organization, method content and value judgment of evaluation.

5. The Key to the Construction of Evaluation System
Give full play to the value of public policies. Urban and rural planning is essentially a public policy, which will greatly affect the specific management and development of the whole city, and is a clear goal for the city to develop in the future. In order to achieve this goal, different ways are provided to coordinate various contradictions in the process of urban development and to manage and standardize specific construction behaviors. The aim is to maximize public interests. As a policy tool to coordinate development goals with resources and environmental carrying capacity, and to coordinate social and economic development with environmental protection goals, the implementation of planning environmental impact assessment in China is not only facing the difficulties of insufficient theoretical research and lack of practical experience. Although the public also has certain rights, there are still many restrictions. Especially in the urban and rural planning process, many times the citizens’ rights cannot be guaranteed. This requires the implementation of evaluation content to play a public policy role. Therefore, urban environmental planning should have a certain hierarchical structure, and different levels of planning should open the distance in the spatial scope and time span to form a sequence set with distinct and phased completion. The system of environmental planning should add conceptual planning on top of integrated planning and increase zoning planning under integrated planning.

Focus on the evaluation of the recent construction. In general, the process of urban and rural planning is a very long process. If the content of design and planning has a very strong integrity and specificity, the planning cycle can be as long as 20 years or more. Therefore, one of the key points of urban and rural planning implementation evaluation should be to evaluate the effectiveness of planning as a public policy, and consider whether the planning can effectively solve public problems and realize public interests. The determination of the construction goal of the technical standard system of planning environmental impact assessment depends on how to view the basic attributes of planning environmental impact assessment, how to define the connotation of planning environmental impact assessment, and how to understand the scope of regulation and standardization of planning environmental impact assessment technical standards. Formulate long-term strategic countermeasures for environmental protection.

The evaluation of the implementation of different levels and content has its own focus and characteristics, but in terms of its process, it generally includes three parts: systematic method research, planning implementation evaluation practice and feedback to the plan (Figure 2).
Zoning planning is mainly proposed in conjunction with the revision of the revised model to reduce the disturbance of local adjustments to the overall concept and plan of the plan. Establishing a comprehensive system of laws and regulations that adapts to the ecological development of cities, making the urban ecologicalization legalization and institutionalization is an effective way to ensure the smooth implementation of its strategies and policies, so that the ecological development of the city is guaranteed by law and there are laws to follow. The background of urban development will also be affected to a certain extent. This deviation will show a growing gap with the passage of time. If the background development cannot be scientifically compared, the overall progress of urban and rural planning will be destroyed. The practical operation of planning implementation evaluation mainly includes planning implementation evaluation and evaluation result analysis. Specific feedback suggestions and measures should be put forward for feedback on planning.

Optimizing Urban Space. In the evaluation of the implementation of urban and rural planning, many cities will regard the economic development of the region as an important evaluation content, although economic growth will inevitably be reflected in the process of urban development, which can be used as an indicator to carry out quantitative and comparative evaluation work. Of course, economic growth is an important part of the city's comprehensive development, and it is easy to quantify and compare. A plan and its environmental impact assessment can only work indirectly through social and economic systems. If you want to promote the implementation of the planning and its environmental impact assessment, you should have a deep understanding of the social and economic construction system where the planning object is located. Environmental planning is an important part of the national economic and social development planning system, and it is a general term for a multi-level and multi-time special environmental planning. In the various institutions of the city, the implementation of the urban ecological development strategy can be organized, coordinated and supervised by jointly establishing a comprehensive and cross-sectoral ecological development management decision-making body. Because green can not only improve people's living environment but also provide high ornamental value, it can also contribute to the improvement of regional economic construction; therefore, it is necessary to optimize urban space as an important evaluation content when carrying out urban and rural planning evaluation work. It combines the urban function, spatial structure and spatial layout of urban and rural planning to optimize space management and management.

6. Discussion on Evaluation Organization and Methods
Planning implementation evaluation has gradually changed from self-evaluation to third-party-led and multi-party participation evaluation. Planning and implementation is a long-term and dynamic process involving many variable factors. The dynamic evaluation of planning implementation is a process of summing up advantages and disadvantages and providing basis for the next revision. When considering the effect of planning implementation, we can timely judge some problems existing in urban and rural planning and their effectiveness, so as to provide implementers with some basis for modification in the first place. Dedicated standards should evolve with the innovation of planning EIA theory and
methodology, and belong to the level that encourages the combination of standardization and technological innovation. The urban master plan is a comprehensive deployment to determine the city's nature, scale, and development direction, and to achieve urban economic and social development goals through rational use of urban land, coordination of urban spatial layout, and various municipal facilities. As the basis for adjusting the planning objectives during the revision of the plan. The preparation unit is entrusted by the government to undertake both the planning and preparation work and the evaluation of the planning implementation.

The implementation evaluation of urban and rural master plan involves many contents, which are summarized. The implementation evaluation should focus on the implementation of planning objectives, spatial development and implementation, public participation, and implementation and guarantee of planning measures (Figure 3).

![Figure 3. Evaluation content system of urban and rural master plan implementation](image)

The development goal of eco city is to realize the harmony between human and nature, in which the harmony between natural system and human and nature is pursued. Among them, the general standard of environmental factor evaluation should clarify the main contents, basic procedures and general rules of environmental factor evaluation. The main objective is to maintain or create a clean, beautiful, quiet and comfortable urban environment conducive to the life and work of urban residents. It is a deeper and higher level economic and social development plan, and contains pollution source control and pollution control facilities construction and operation not included in the overall urban planning.

Evaluation of planning implementation should focus on combining qualitative analysis with quantitative analysis. Qualitative analysis method is mainly used to study the changes of things and answer the "yes" and "no" questions. It can better summarize the trend and tendency of urban development caused by the implementation of the planning. It can be used to measure the indicators such as urban spatial structure, functional layout, and the evaluation of the degree of public participation and satisfaction in the planning. Detailed planning includes farmland planning, transportation land planning, water conservancy project implementation land planning, urban land planning, etc. Environmental carrying capacity will have different forms of expression and may have different conclusion values depending on the level and content of human social and economic development activities. Therefore, correctly expressing and understanding human economic development behavior is the premise for conducting environmental carrying capacity research. The evaluation results obtained by the former are more abstract, subjective, and cannot express the specific quantitative relationship between planning, implementation and urban development. The essence of eco-city is to realize the harmony of human-natural. This is the value orientation of eco-city. Only when people's social relations and cultural awareness reach a certain level can they be realized. Thereby protecting natural resources, protecting human health and the living environment, and minimizing the harm of waste to the environment and humans.

Combination of target evaluation and process detection. There are many reasons for the deviation in the implementation results of the plan. In addition to planning, the planning management and planning implementation process are subject to a large number of main and objective factors. The methodological standards for planning EIAs stipulate the main technical methods in the planning EIA, such as the
evaluation index system, the environment and resource carrying capacity analysis method, and the cumulative impact analysis method. It provides a comprehensive guiding ideology for regional environmental planning and breaks through the framework of economically constrained environmental planning, so that the content of environmental planning is no longer limited to the quality control of environmental units such as atmosphere, water and solid waste, and the prevention and control of pollutants; In order to improve urban and rural greening to the greatest extent, a green space system should be formed in the green area, which combines arbor, shrub, flower and grass, and links points, lines, surfaces and each other. In addition, the landscape structure of the area should be improved. Eco city is guided by the idea of sustainable development, taking into account different time and space, reasonably allocating resources, and fairly meeting the needs of modern and future generations in development and environment. At the same time, it also studies the process of planning implementation management, and analyzes the impact of subjective cognition, objective situation, policy factors, social background and other factors on planning implementation.

7. Summary
The effective implementation of urban and rural planning evaluation depends on the deepening of theoretical research and the accumulation of practical experience. The biggest problem faced by Chinese planning EIA is still "the relative lag of basic theoretical research, the lack of relevant practice, and the lack of summary and theoretical improvement of practical experience." At the present stage, both theoretical research and practical experience, planning implementation evaluation work is far behind other links such as urban and rural planning formulation and management. In terms of management and operation mechanism, attention should also be paid to legal management, public participation management, prevention and guidance management and other mechanisms. At the same time, a good operation and coordination system should be taken as a guarantee. In several stages of planning, management and operation, such as decision-making, implementation and supervision, they should each have corresponding management countermeasures. Facing the new century, mankind's orientation and choice must be ecological. The ecological development of the city and the construction of an ecological city are the inevitable trend of historical development. Urban and rural planning is scientific and rigorous. It is a topic worthy of deep thinking in the construction of modern cities in China. What kind of living atmosphere will be left in the future and what kind of efforts will be made for sustainable development. Paying attention to urban and rural planning is what every designer should do and the efforts of our generation and even generations.

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References
[1] Liu Yixin, Zhao Shikui. Analysis of the relationship between ecological environment protection and urban and rural planning [J]. Shanxi Agricultural Economics, 2017(1):68-68.
[2] Wang Hongying. Analysis of Ecological Environment Planning for Computer Information Technology Development [J]. Shanxi Architecture, 2017(20):192-193.
[3] and, Zhao Fang, Zhao Yiwei. Strengthening Follow-up Evaluation to Further Promote Implementation of Planning Environmental Impact Assessment [J]. Environment and Sustainable Development, 2018, 43(06):91-93.
[4] Huang Lihua. Preliminary Study on Evaluation Methods for Implementation of Overall Land Use Planning [J]. Managers, 2017(15):300.
[5] Wang Nail, Shi Wentao. Study on Evaluation Index System of Environmental Planning Implementation [J]. Environmental Science and Management, 2017(8):190-194.
[6] Yu Dongyuan. Study on Strategic Environmental Assessment of Urban and Rural Master
Planning [J]. Energy Conservation and Environmental Protection, 2018, 294(12):44-45.
[7] Chloe Wang. Study on Environmental Impact Assessment of Land Planning Based on Ecological Service Value [J]. Environment and Development, 2019, 31(01):27-29.
[8] Shi Junfeng. Urban Ecological Planning and Ecological Environment Protection [J]. Engineering Construction and Design, 2017(10):139-140.
[9] Cheng Jinhua, Dai Sheng, Wang Ran. Construction and Application of County Ecological Civilization Evaluation Index System [J]. Environmental and Economic Research, 2017(4):107-122.
[10] Dong Yuhong, Liu Shiliang, Zhang Yueqiu, et al. Application and Problems of Big Data in Ecological Environment Monitoring and Evaluation in China [J]. Scientific Research Informatization Technology and Application, 2017(03):20-28.
[11] Duan Kun. Application of Ecological Suitability Analysis in Environmental Impact Assessment of Urban Planning [J]. Green Building Materials, 2017(5):227.
[12] Xue Jinmin. Application of Ecological Footprint in Environmental Assessment of Urban Planning [J]. Science and Technology Wind, 2019, 374(06):121.