

# Research on the New Model of New-type Urbanization Construction

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## Abstract

Urbanization is the only way to modernization, which is China's biggest potential and driving force for domestic demand. The core of the new urbanization is the urbanization of people. The key is to improve the quality of urbanization, adopt a new path of intensive, intelligent, green and low-carbon development, and focus on improving the internal carrying capacity. With the development of urbanization, scientific system development has become an urgent problem to be solved. To solve this problem, this paper puts forward a new urbanization construction model that "the land security is the foundation, the ecological environment is the premise, the intelligent construction is the guarantee and the operation mode is the support". Taking Shichuan River comprehensive improvement project as an example, the implementation process of this model is introduced. Finally, based on the current situation, this paper analyzes the future work ideas and puts forward the next work plan to promote the high-quality and rapid development of the new urbanization.

## Keywords

New Urbanization; Shichuan River; Land Security; Ecological Environment.

## 1. Preface

As socialism with Chinese characteristics has entered a new era, the principal contradiction facing Chinese society has evolved. What we now face is the contradiction between unbalanced and inadequate development and the people's ever-growing needs for a better life. At present, the problem of food and clothing for the people has been basically solved. Their aspiration for a better life has shifted to more comfortable living conditions, a more beautiful environment, better education, more reliable social security and higher-level medical and health services. At present, a series of research and engineering projects have been carried out in the field of agricultural land governance, which has played a significant role in ensuring the national red line of cultivated land and food security. Land engineering should provide better land for people's clothing, food, housing and transportation. There are still issues such as the rational allocation of regional spatial resources, the coordination of regional infrastructure construction, and the improvement of the quality of the living environment. To better meet people's aspirations for a better life, on the basis of the existing work, we need to do more work in the living environment. This requires a healthy, sustainable and stable investment in construction land as a basic guarantee, and the new urbanization construction is the key to solving this problem [1-3].

## 2. Actively Promote the Construction of New Urbanization

### 2.1. Basic Situation of New Urbanization

The new type of urbanization is characterized by the integration of urban and rural areas, the unity of urban and rural areas, industrial interaction, conservation and intensification,

ecological livability and harmonious development. It is also an urbanization in which large, medium and small cities, small towns and new rural communities develop in coordination and promote each other[4,5]. The requirements of the new type of urbanization are to continuously enhance the quality and connotation of urbanization construction. Compared with the traditional approach, it places more emphasis on the overall improvement of internal quality. "New" refers to the renewal of concepts, institutional reform, and technological innovation. It is an ecological development process of new industrialization, regional urbanization, social informatization, and agricultural modernization. The term "type" refers to transformation, encompassing changes in industrial economy, urban transportation, construction land, and other aspects. Environmental protection should also shift from end-of-pipe treatment to a five-synchronous ecological civilization construction of "pollution prevention and control - clean production - ecological industry - ecological infrastructure - ecological administrative region"[6,7]. With the development of The Times, new urbanization has gradually become an important part of modern social development. The core is the urbanization of people, and the key is to improve the quality of urbanization, take a new path of intensification, intelligence, greenness and low carbon, and focus on enhancing the internal carrying capacity. Strengthen urban and regional ecological planning, achieve the integration of multiple plans, properly handle the ecological relationship between the immediate and long-term, as well as the local and the overall in urban construction, and pay attention to the construction of ecological infrastructure and livable ecological projects.

## **2.2. Science and Technology Break through the Bottlenecks in Urbanization Development**

With the rapid advancement of industrialization and urbanization, the bottlenecks of new urbanization have become increasingly prominent[8-11]. 1. The utilization of construction land is extensive and the quality problems are becoming increasingly prominent. From 2000 to 2010, the built-up areas of cities across the country continued to expand in an extensive way of land and energy use. Before the land was developed and utilized, the issue of land quality and health was not taken into account, resulting in the occurrence of "poisonous land" in many places, which endangered human health. The entire process was in a "sub-health" state. 2. Regional development is uncoordinated and there is a significant disparity in the living environment. Too many advantageous resources are concentrated in areas with better geographical conditions. The living standards of residents are constantly improving and the ecological environment is improving year by year. On the contrary, in some areas, the development investment is relatively small, the economic level is not high, and the surrounding environment is developing in a dirty, messy and poor trend. Coupled with the differences in policy systems and management systems, This has led to an increasingly wide gap in the quality of the human settlement ecological environment, as well as in supporting facilities such as education and medical care. This is also the core issue hindering the construction and development of new towns. 3. The urban functions are not complete and the design does not match the actual situation. In the early planning stage, relevant work was not carried out based on actual conditions, and scientific basis was not followed at all. A scientific attitude was not held, resulting in a disconnection between the development of urban infrastructure and the planning and development of land use. 4. Insufficient construction funds make it difficult to meet development demands. The funds for the construction of new urbanization mainly come from government fiscal expenditure. Due to the complex structure of government fiscal expenditure and the large number of investment projects, relying solely on fiscal expenditure is difficult to meet the development needs of new urbanization, resulting in insufficient investment in urban construction funds and the incomplete construction of urban infrastructure.

### 2.3. Market Potential in the Development of New Urbanization

Urbanization is an inherent part and fundamental strategy of modernization. China's urbanization began in 1949. Compared with developed countries, it started later and was at a lower level, but the pace was fast. By 2017, China's urbanization rate was 58.52%, 3.7 percentage points higher than the world average. However, compared with the average level of upper-middle-income countries at the same stage of development, it was nearly 7 percentage points lower, and the gap with high-income countries was even wider. There is still great potential for development. In March 2014, the "National New-Type Urbanization Plan (2014-2020)" was officially released. According to the timetable specified in the national comprehensive pilot program for new-type urbanization, the pilot program began before the end of 2014 and was continuously improved based on the situation. By 2017, each pilot task achieved phased results and formed replicable and promotable experiences. From 2018 to 2020, the successful experiences of the pilot regions will be gradually promoted nationwide. It is evident that China's new type of urbanization is undoubtedly the major direction.

According to the data from the Shaanxi Provincial Bureau of Statistics over the past decade or so, the urbanization rate in Shaanxi Province was lower than the national average from 2000 to 2018, but it gradually approached the national average, reaching 59.43% in 2019. As the birthplace and bridgehead of the Silk Road construction, Shaanxi Province has shown a strong economic development trend and huge potential in recent years. The process of its new urbanization is bound to promote the development of the provincial economy [12].

In the process of new urbanization construction, we should actively explore the integrated development path of new urbanization and beautiful countryside construction, seize the powerful opportunities of county-level economic development and urban construction throughout the province, and make new contributions to the new urbanization construction of Shaanxi Province.

## 3. New Urbanization Construction Model: Taking Shichuan River as an Example

The comprehensive improvement project of Shichuan River in Fuping County, Shaanxi Province, is a successful case of new urbanization construction. After the project was completed, it organically combined ecological construction with humanistic environment, achieving a win-win situation for all parties and fully meeting people's yearning for a better living environment.

### 3.1. Preliminary Governance

Land security is one of the most important conditions for ensuring the safety of human settlements. The primary task of the new urbanization construction is to carry out scientific research and technological breakthroughs in "land governance". In response to a series of problems existing in the construction area, such as fragile land quality, encirclement by domestic and construction waste, and severe land pollution, which gradually deteriorate the ecological environment, scientific means should be adopted to conduct preliminary investigations, technological research and development, problem governance, project implementation, and post-construction control. Comprehensive governance and maintenance of the polluted land within the region should be carried out to solve the problem of "sub-health" of the land from the root, thereby providing a solid foundation for a good ecological environment and regional improvement and construction.

### 3.2. Ecological Environment Construction

In the "National New-Type Urbanization Plan (2014-2020)", an unprecedented high regard has been given to the ecological environment, and numerous "ecological propositions" have been

put forward, which indicates that urbanization has been closely linked to the ecological environment at the national level. A benign and sustainable urbanization must take the ecological environment as the prerequisite for development. In the process of urban development, land resources, water resources, biological resources and climate resources, etc. should be comprehensively considered and utilized. The quality of urbanization and the ecological environment interact with each other. Only when the two develop in coordination can the healthy development of urbanization be comprehensively promoted.

Taking the Shichuan River in Fuping as an example, through technologies such as GIS, GPS, and RS, green infrastructure planning is implemented first, an ecological background is established, ecological regulation units are set up, and green infrastructure is regarded as the construction focus of the project development. Eventually, an ecological structure conducive to human survival and improving environmental quality is formed. In terms of the evaluation of microclimate improvement, the main ecological environment indicators including temperature, humidity, light and wind environment before and after the project were evaluated, and finally a set of ecological environment evaluation index system suitable for the urban fringe areas of medium and small-sized cities was formed. Research shows that this project has not only greatly improved the local microclimate of the Ishikawa River, but also effectively alleviated the urban heat island effect in Fuping County. Throughout the entire construction process, the "green space system" has been transformed into "green infrastructure", "open Spaces" have been created into "green corridors", and "urban districts" have been integrated into "ecological function zones". This has effectively laid a solid "ecological foundation" and "green roots" for the construction of new urbanization, and created a more suitable environment for human habitation and living.

### 3.3. Smart Habitat Construction

The development of science and technology leads to the transformation of The Times. Under the wave of the in-depth popularization of emerging technologies such as 5G, the Internet of Things, and big data, China's new urbanization construction is also gradually entering the era of intelligence. Some scholars have put forward the concept of smart cities, whose core is to fully apply the new generation of information technology in all industries of the city to achieve refined and dynamic management. Based on this, Shichuanhe proposed the concept of smart living. Relying on the improvement of information infrastructure, it innovatively developed a smart living community platform by taking smart home, smart community and smart elderly care as the entry points, and comprehensively built a community operation ecosystem featuring "interconnection of people and people, online business, intelligent data and network collaboration", ultimately achieving intelligent optimization of the living environment.

### 3.4. Innovation in Operation Mode

In terms of operation mode, an innovative comprehensive development and operation model centered on enhancing land value has been proposed. By having enterprises fully advance project costs, it has changed the model where the government guarantees loans from financial institutions, binding enterprise profits with project quality. This not only solves the problem of insufficient government capital but also ensures the project is completed on time and with quality, achieving a dual goal. It provides a feasible economic support method for the development and utilization of auxiliary functions in the construction of new urbanization. The Ishikawa River project adopted this model, driving the growth of economic benefits in the surrounding areas and attracting many well-known enterprises to invest.

## 4. Work Approach under the Background of New Urbanization

In the process of new urbanization, ecological and environmental protection should be given an important position. We should adhere to the path of giving priority to ecological conservation and pursuing green development, and pay more attention to the research and development of scientific and technological means for the systematic improvement of the living environment. To achieve comprehensive innovation, we should enhance all-round innovation in land consolidation, urban complex construction, land development research, and ecological governance of clean land. We should adopt a strategy of planning first and build a strategic blueprint for new urbanization from a high starting point. We should attach importance to the research and development and engineering application transformation of core technologies such as land consolidation and green building materials, and promote industrialization models. Through a highly standardized system composed of the same network (Internet of Things), the same platform (general functional platform), the same data (data system), the same efficiency (efficient operation data center), and the same system (institutional system), technology is integrated into the improvement of the construction environment, making the living environment more intelligent, and ultimately achieving the coordinated development of agricultural land consolidation and construction land development. To meet the people's aspiration for a better life to the greatest extent.

## 5. Suggestions for the Development of New Urbanization

### 5.1. Research and Development of New Materials, New Technologies and New Equipment Centered on Land Security

The primary task for the implementation of the new urbanization industry should take scientific research as the foundation to support the implementation and application of governance projects, ensuring the cleanliness and safety of the land. From a research perspective, efforts should first be made to develop new materials, new technologies and new equipment for soil purification, so as to ensure the long-term safety of the soil environment for human settlements and guarantee the sustainable and healthy development of new urbanization and the construction of beautiful villages.

### 5.2. Research and Development of New Methods and Technologies Oriented Towards Ecological Environment Construction

The ecological environment refers to the general term for the quantity and quality of water resources, land resources, biological resources and climate resources that affect human survival and development. It is a complex ecosystem related to the sustainable development of society and economy. Under the new urbanization, the construction of the ecological environment needs to comprehensively consider the following three aspects.

First, focus on the project area and carry out research on the assessment of the urban ecological environment. Second, in response to the typical problems of the urban ecological environment in Shaanxi Province, research and development of new technologies and materials for ecological environment construction should be carried out. The third is to conduct research on new methods and models for urban ecological environment control.

### 5.3. Research and Development of New Technologies and New Equipment for the Purpose of Smart Living

Deeply integrating advanced technologies such as 5G, cloud computing, the Internet of Things, big data, edge computing, and artificial intelligence, we will develop new technologies and equipment aimed at smart living. Through aspects such as information perception, intelligent

analysis, information interconnection, and management decision-making, we will build smart new towns that are livable and desirable for human life.

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