

Thoughts on Village Planning, Design, and Construction in Rural Revitalization

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Abstract

China has repeatedly proposed to comprehensively promote rural revitalization, which has pointed out the direction for rural development in the new era. Rural revitalization is a major strategic task related to the comprehensive construction of a socialist modernized country, which is of great significance for ensuring national food security, promoting coordinated development between urban and rural areas, narrowing the urban-rural gap, and achieving common prosperity. This article focuses on the core content of village planning and construction in rural revitalization, explores its important role, principles to be followed, and main contents, and proposes countermeasures and suggestions for implementation guarantee.

Keywords

Rural revitalization Village planning; Construction; reflection.

1. Introduction

Rural areas were once a weakness in China's economic and social development, and insufficient rural development has hindered the modernization process. In recent years, with the comprehensive implementation of the rural revitalization strategy, the pace of agricultural modernization has accelerated, and the rural landscape has been rejuvenated. However, there is still a significant gap in development level between rural areas and cities, and infrastructure, public services, and living environment urgently need to be improved. In addition, due to the vast territory of our country and extremely uneven regional development, there are significant differences in the current situation and needs of village development in different regions. In response to these practical situations, it is necessary to develop scientifically reasonable village plans that are tailored to local conditions, and strictly follow the planning guidelines to promote village construction in an orderly manner.

2. The concept of rural revitalization strategy

The rural revitalization strategy originates from an important strategic deployment in China, aimed at promoting the modernization of agriculture and rural areas, achieving rural economic prosperity and rural civilization progress. This strategy has rich connotations, including multiple dimensions such as industrial revitalization, talent revitalization, cultural revitalization, ecological revitalization, and organizational revitalization. It is a major decision-making deployment related to the national economy and people's livelihood. Rural revitalization is not only related to rural development, but also to the overall modernization construction of the country. Its core lies in adhering to the priority development of agriculture and rural areas, in accordance with the overall requirements of prosperous industries, livable ecology, civilized rural customs, effective governance, and affluent living, solving the deep-seated contradictions and problems that restrict rural development, achieving organic connection between agricultural modernization and new rural construction, effectively

safeguarding national food security, promoting balanced development between urban and rural areas, continuously narrowing the urban-rural gap, and enabling the vast number of farmers to achieve common prosperity.

3. The role of village planning and construction in rural revitalization

3.1. Optimize the spatial layout of villages

Reasonable optimization of village spatial layout can maximize the utility of limited land resources, avoid waste of land resources, and lay a solid spatial foundation for the sustainable development of rural economy and society. Scientifically dividing the three functional zones of production, life, and ecology is not only beneficial for improving production efficiency, but also for improving the living environment and enhancing the quality of rural life. Based on the actual situation, optimize the layout of village space according to local conditions, form orderly residential areas, as well as reasonable natural protected areas such as farmland, forests, and water bodies, in order to create a good rural appearance that is livable, suitable for business, and suitable for tourism, laying a solid foundation for rural revitalization.

3.2. Guiding the rational development of industries

Scientifically formulating village industrial development plans and reasonably arranging the spatial layout of various industries can provide guidance and support for the integrated development of rural primary, secondary, and tertiary industries. The agricultural industry is laid out on a large scale according to the demand for intensive production, while reserving space for related processing industries; Rural tourism industry arranges reception and service facilities based on landscape resource conditions and coordinates with agriculture; The handicraft industry can also develop reasonably by combining unique cultural resources. Reasonable industrial development planning injects new impetus into the sustainable development of rural economy and opens up new avenues for farmers' employment and income generation, which is of great significance for implementing the rural revitalization strategy.

3.3. Protecting traditional cultural heritage

Traditional villages, folk customs, intangible cultural heritage and other elements are important carriers and foundations of rural culture. Incorporating its layout pattern into village planning and organically integrating it into construction can not only continue the local cultural genes, protect precious cultural resources, but also enhance cultural connotations and inject unique charm into rural areas. The protection and rational utilization of cultural heritage can provide unique endowments for the development of related industries such as rural tourism and handicrafts, and become an important support for the revitalization of rural culture. Therefore, emphasizing the protection of traditional cultural heritage in planning and construction plays an important role in highlighting the humanistic atmosphere of rural areas, promoting cultural inheritance and development, and achieving comprehensive rural revitalization.

4. The main content of village planning and construction in rural revitalization

4.1. Village layout planning

Production area planning is a key component of village layout planning, aimed at rationalizing the spatial layout of agricultural production activities and promoting the coordination and unity of agricultural development and ecological environment. Planning should fully consider factors such as local natural resource endowment, distribution of arable land, and transportation conditions, scientifically evaluate the carrying capacity of farmland, and

reasonably determine the scale and layout of agricultural production land. Based on the natural and economic conditions of different regions, classify and guide agricultural layout, concentrate suitable land for planting, and maintain necessary distance between the pollution source areas of animal husbandry and residential areas. Residential area planning should focus on optimizing spatial layout and creating a convenient and comfortable living environment for residents. The scale of residential land should be reasonably controlled to avoid excessive expansion. Adopting a relatively centralized residential layout is beneficial for improving the efficiency of infrastructure and public service coverage. Residential areas should be close to production areas to shorten commuting distances for residents. Reserve sufficient land for living service facilities to meet residents' needs for education, medical care, cultural and sports facilities, and commercial outlets. Reasonably plan the transportation system in residential areas and efficiently connect it with external main roads. Synchronize the planning of emergency shelter facilities to ensure the safety of life and property. The layout of residential areas is coordinated and orderly with functional zoning such as production areas and ecological landscape areas, achieving spatial integration and development. Overall, residential area planning should adhere to the principle of "people-oriented" and strive to improve the living environment and enhance the quality of life. Public facility planning is an important component of overall village layout planning, aimed at building a comprehensive public service system to meet the basic living and development needs of villagers. Reasonable calculation of the service radius and scale of public facilities should be carried out, and various facilities should be arranged in a coordinated manner to ensure equal service coverage. If educational facilities include preschool education, compulsory education, etc., they should be built nearby to meet the enrollment needs of children of different age groups. Medical and health facilities should be appropriately configured according to the size of the service population to ensure basic medical accessibility. Public facility land should be coordinated and connected with other functional zones such as residential areas, production areas, and ecological landscape areas.

4.2. Village spatial planning and design

Village landscape design should be based on local natural endowments and integrate local cultural elements. Reasonably layout natural and artificial landscapes to form a harmonious and unified overall landscape style. In terms of natural landscape, the original topography, water systems, vegetation, etc. should be maximally protected, and ecological restoration should be carried out in damaged areas to create a picturesque countryside with green mountains and clear waters. In terms of artificial landscapes, spatial forms and landscape elements such as buildings, courtyards, streets, and garden ornaments should be designed according to local conditions, and cleverly integrated with local landscape symbols such as wells, stone mills, and cultural walls to showcase unique charm. Architectural style design should inherit and develop local traditional architectural culture, highlighting a strong local flavor. New buildings are coordinated with traditional architecture in terms of volume, shape, color, materials, etc., forming a harmonious and unique architectural landscape that reflects the past and present. Traditional architecture should pay attention to protection and restoration, and continue its historical style. The architectural layout should conform to the terrain, integrate with the surrounding natural environment, and create a spatial atmosphere of "mountains and waters, staggered and orderly". Architectural design should draw on traditional architectural wisdom and reflect local architectural symbols and decorative elements in its form, such as eaves, ridges, carvings, etc; Using local materials such as bricks, tiles, wood, and stone to create a simple and friendly texture. Public space is an important place for villagers' daily communication, leisure and recreation. It should be reasonably arranged, optimized in spatial combination, and create a pleasant and comfortable environmental atmosphere. The square at the entrance of the village can be set with landscape markers with regional characteristics, such as memorial archway, sculpture, etc., to highlight the image of the

village. The cultural activity square should be located in the central area of the village, making it convenient for villagers to gather and hold festive events, and equipped with corresponding service facilities. Streets and alleys should respect the texture of the village, follow the design concept of humanization and moderate scale, and create a distinctive and interesting environment through paving, greening, lighting, etc. Riverside green spaces should protect the waterfront ecology, create natural scenery, and set up recreational facilities such as viewing platforms and trails for villagers to enjoy with water.

4.3. Infrastructure construction

The construction of transportation facilities should take rural roads as the backbone, build a well connected road network system, and smooth the transportation connections inside and outside the village. The construction of rural roads should be integrated with regional road network planning to improve the external transportation conditions of villages. The roads within the village should follow the principle of proximity and form a network layout, connecting production, living, and ecological functional areas through short paths. Road construction should consider disaster resilience to ensure uninterrupted traffic in adverse weather or emergency situations. The construction of transportation facilities should also be combined with the characteristics of terrain and land features, and necessary ancillary projects such as bridges, culverts, and drainage systems should be added. At key nodes such as village entrances and exits, transfer facilities such as parking lots and freight transfer stations can be set up to divert traffic flow. Construct a modern rural transportation network system that keeps pace with the times and has strong sustainability, taking into account the concepts of safety, efficiency, and convenience.

The construction of water and power supply facilities is related to the basic domestic water and electricity needs of villagers. Water supply facilities should be tailored to local conditions, and a centralized water supply system can be constructed by utilizing surface water, groundwater, or external water sources. The layout of the water supply network should cover water points such as residential areas, production areas, and public facilities, and reserve appropriate excess capacity. The construction of power supply facilities should be linked with the renovation of rural power grids to improve the reliability of power supply. Install power supply busbars such as substations at appropriate locations in the village to provide electricity for residents' daily life and production. The power grid wiring should adopt a combination of underground or overhead methods, and reserve room for expansion. Encourage the utilization of abundant renewable energy resources such as biomass and solar energy around villages, and build a distributed energy system to meet some of the electricity demand. The planning and layout of water and power supply facilities should be coordinated with the overall layout of the village to avoid cross interference.

5. Implementation guarantee of village planning and construction in rural revitalization

Policy support and financial investment are key to ensuring the smooth implementation of village planning and construction in rural revitalization. The government should formulate clear measures for village planning and construction management, establish and improve relevant policy and regulatory systems, and create a favorable environment for planning and construction. At the same time, efforts should be made to increase fiscal transfer payments, integrate agricultural related funds, and effectively tilt towards village planning and construction. Establish a diversified investment and financing mechanism led by the government and with social participation, encouraging and attracting social capital to enter rural infrastructure, public service facilities, and other fields. Provide policy and funding support for key projects in village planning and construction, and alleviate the funding

bottleneck constraints on rural development. By establishing a management system with clear rights and responsibilities, standardized procedures, and strong supervision, strengthening the constraint and supervision of fund use, and maximizing the effectiveness of funds.

In the process of village planning and construction implementation, a large number of professional and technical personnel are required to participate, including planners, architects, engineers, etc. We should strengthen the construction of talent teams in the field of rural planning and construction, and cultivate composite technical talents through vocational skills training, academic education, and other means. At the same time, actively introducing high-end talents in urban and rural planning, architectural design, ecological environment and other fields to provide intellectual support for village planning and construction. In the process of planning and construction, modern technological means such as geographic information systems, 3D modeling, virtual simulation, etc. should be widely used to improve the level of planning and construction. Through multi-faceted technical support and talent guarantee, we will surely gain solid assistance for rural revitalization.

6. Conclusion

In summary, village planning and construction in rural revitalization is a systematic and complex project that requires comprehensive consideration of multiple factors. Adhering to the principles of adapting measures to local conditions, respecting local culture, emphasizing ecological environmental protection, and paying attention to people's livelihood and well-being, scientifically formulating various plans for village layout, spatial design, infrastructure, characteristic industries, etc., and with multiple guarantees such as policy support, financial investment, technological support, and talent cultivation, we can effectively guide the revitalization of rural areas. The high-quality implementation of village planning and construction will optimize the spatial layout of rural areas, promote the modernization of industries and infrastructure, protect traditional cultural heritage, improve the living environment of rural areas, and thus achieve the organic connection between agricultural and rural modernization and new rural construction, creating a solid foundation for the comprehensive revitalization and common prosperity of rural areas. In the future, rural areas will attract more people with their unique charm, becoming an important carrier for the free flow of urban and rural factors and the optimization of resource allocation.

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References

- [1] Walmisley U ,Kinney V M ,Kiendrébéogo A J , et al.Any better? A follow-up content analysis of adolescent sexual and reproductive health inclusion in Global Financing Facility country planning documents.[J].Global health action,2024,17(1):2315644.
- [2] John C .Town and country planning in the Scottish borders: fringe activity or a beacon for rural regeneration?[J].Scottish Geographical Journal,2024,140(1-2):291-297.
- [3] John C .Town and country planning in the Scottish borders: fringe activity or a beacon for rural regeneration?[J].Scottish Geographical Journal,2024,140(1-2):291-297.
- [4] Anu S .Exploring Arctic housing and village planning based on Maslow's hierarchy of needs[J].International Planning Studies,2024,29(1):87-104.
- [5] Iqra S ,S. O A ,Budhi G .Achievement of SDGs Desa in Villages Planning and Budgeting Documents[J].IOP Conference Series: Earth and Environmental Science,2023,1211(1):