ISSN: 2688-8645

The Practical Path of Comprehensive Land Consolidation in Supporting Rural Revitalization

Jian Gao

Shaanxi Provincial Land Engineering Construction Group Co., Ltd., Xi 'an, Shaanxi 710075, China

Abstract

National rejuvenation requires rural revitalization. Through rural revitalization, we will promote the comprehensive upgrading of agriculture, the comprehensive progress of rural areas, and the comprehensive development of farmers, and advance the modernization of the rural governance system and governance capacity. Adhere to overall planning, promote the integration and common development of urban and rural areas in planning layout, element allocation, industrial development, public services, ecological protection, and other aspects.

Keywords

Comprehensive Land Consolidation Across the Entire Region; Rural Revitalization Implementation Path; Ecological Restoration.

1. Introduction

The comprehensive land consolidation project, as an important entry point for implementing the rural revitalization strategy, can effectively solve problems such as fragmented and disorderly rural farmland, idle and inefficient use of rural construction land, environmental damage and ecological degradation, and slow and scattered rural development. It provides a platform for achieving integrated innovation in spatial form, industrial development, infrastructure, living environment, rural civilization, rural governance, and ecological environment. How to achieve comprehensive land consolidation to support rural revitalization and explore effective practical paths has become a question that practitioners need to consider. Actively carry out comprehensive land consolidation in the whole area, based on the concept of integrated protection and systematic governance of mountains, waters, forests, fields, lakes, grasses, and sands, aiming at comprehensive planning, design, and consolidation of rural areas, achieving rational allocation of rural land resources, exploring new paths for rural revitalization and new ideas for urban-rural integration development. This article aims to explore the practical path of comprehensive land consolidation in promoting rural revitalization through the analysis of domestic and foreign cases.

2. Current Situation and Analysis at Home and Abroad

By analyzing the experience of rural land consolidation at home and abroad, insights are drawn into the relevant strategies for comprehensive land consolidation in the entire region. The rural land consolidation and village renewal in Germany can be divided into four stages. Firstly, the rational planning of agricultural land, idle construction land, and wasteland in rural areas can be achieved through the integration of small and large plots of land to achieve intensive land use, improve efficiency and yield; The second is to enhance rural infrastructure and public service facilities, explore rural characteristics and advantages, and create a high-quality life; Thirdly, we attach great importance to the protection of the ecological environment; The fourth is to comprehensively consider the sustainable development of urban and rural areas. The rural

ISSN: 2688-8645

land consolidation and village renewal in Germany drive the upgrading of agricultural industries and enhance the value of rural land through intensive land use, ecological environment protection, village renewal, and cultural value extraction.

The comprehensive land consolidation in the UK aims to improve the quality of agricultural land through quality monitoring, evaluation, and construction optimization; The second is to raise funds for land pollution remediation through waste collection and taxation, land registration transaction fees, and auctions of polluted land; Thirdly, for mining wastelands, ecological technologies should be adopted to effectively promote reclamation and reuse; The fourth is to create ecological agriculture, build pastoral estates, enhance the beauty of rural settlements, and realize diverse values in agriculture, ecology, society, and other aspects; The fifth is to continuously improve land management policies and coordinate land development and construction with environmental protection.

The New Village Movement in South Korea mainly targets the dilapidated infrastructure in rural areas. The government actively builds public roads, underground pipelines, supporting facilities, etc., in order to improve the rural transportation environment and enhance the living standards of farmers.

In order to implement the "Thousand Village Demonstration and Ten Thousand Village Improvement Project" and practice the rural revitalization strategy, comprehensive land improvement across the country has become an important way to accelerate agricultural and rural reform, fill the gaps in rural development, and optimize urban and rural development space.

3. Practice Path of Comprehensive Land Consolidation in the Whole Area

Exploring the practical path of comprehensive land consolidation to support rural revitalization requires consideration from multiple perspectives, including agricultural land consolidation and rural construction land consolidation related to production, beautiful river and lake construction and mining ecological restoration related to ecology, beautiful and clean countryside construction related to daily life, improvement of rural living environment, construction of "Four Good Rural Roads", and construction of rural sewage pipelines. Explore a comprehensive land consolidation practice path that integrates production, ecology, and daily life through various aspects of construction. Through comprehensive rectification, optimize agricultural production, rural ecology, and construction spatial layout, achieve total factor rectification, and build a new image of rural areas.

3.1. Agricultural Land Consolidation Project

Strictly implement the results of permanent basic farmland delineation, based on the characteristics of land resources, take agricultural land consolidation as the starting point, coordinate the development of reserve arable land resources, vigorously carry out high standard farmland construction, and improve the quality of arable land. Incorporate the current agricultural land and scattered construction land around Yongnong into the basic farmland preparation area and carry out contiguous consolidation; Those who meet the standards for permanent agriculture will be included in the management of the permanent agriculture reserve and used as a source for future permanent agriculture occupation compensation or dynamic optimization. The agricultural land consolidation project mainly includes land leveling, soil improvement, irrigation and drainage, field roads, farmland protection, and ecological environment maintenance. Based on the relevant planning, terrain conditions, land suitability evaluation results, comprehensive socio-economic development, and requirements for agricultural mechanization operations in the project area, select suitable remediation areas with suitable terrain and transportation conditions. To improve farming

ISSN: 2688-8645

conditions through leveling. Connect with the main roads outside, reasonably layout field roads and production roads, and meet transportation and production needs. Reasonably layout irrigation and drainage projects based on water source conditions, field distribution, and catchment area of hills.

3.2. Rural Construction Land Consolidation Project

Provide land security for rural revitalization through the consolidation of rural construction land. According to the principle of "reducing and gathering" the total amount of construction land, scattered or abandoned homesteads and other construction land will be demolished, removed and reclaimed to reduce the waste of village construction land and conserve and intensively use land; Through reasonable planning guidance, remote villages with limited transportation, infrastructure, and public service facilities will be clustered towards central villages with convenient transportation and complete supporting facilities.

By optimizing the layout of construction land in towns and villages, promoting the reduction of rural construction land, and linking it with the improvement of living environment and the increase or decrease of urban and rural construction land, we can achieve efficient and intensive land use and promote coordinated urban-rural development.

By implementing the reclamation of rural construction land, abandoned industrial and mining land, and adjusting and optimizing the layout of construction land and agricultural land, the number of cultivated land has increased, the total amount of construction land has decreased, the layout of towns and villages has been optimized, and the rural environment has been improved.Application Analysis of Sprinkler Irrigation Technology

In the practical application process of sprinkler irrigation water-saving technology, the main working principle is to use the driving force of water pressure combined with pipeline nozzles and other facilities to achieve average spraying of water resources, ensuring that water resources can be evenly sprayed to complete the irrigation operation. This technology can ensure that all areas of farmland can receive equal spoon irrigation in practical application, effectively ensuring the irrigation effect. At the same time, this technology can greatly save manpower and achieve high water resource utilization efficiency in practical applications, requiring only a small amount of water to irrigate various terrains. However, in practical operation, relevant personnel need to closely monitor the wind direction and wind force. If the wind force is too strong, irrigation needs to be stopped in a timely manner to avoid adverse effects on the range and uniformity of sprinkler irrigation due to excessive wind force. Sprinkler irrigation can be carried out during periods with low wind force or at night, which can effectively avoid excessive water evaporation and achieve maximum utilization of water resources. Sprinkler irrigation technology requires a large amount of investment in the early stages, which requires relevant personnel to choose this technology based on the actual situation.

3.3. Mine Ecological Restoration Project

Mine ecological restoration is the ecological restoration of abandoned land to achieve sustainable use of land resources. Leveling and leveling the surface terrain, cleaning tailings and waste rocks, covering soil with greenery, improving greening standards, improving surface drainage engineering, and constructing supporting flood discharge facilities, irrigation and other management and protection facilities, as well as pollution monitoring facilities; Treat the acidic wastewater accumulated at the bottom of the mining pit, improve the water environment, backfill the mining pit, and seal the site for greening; Governance of underground goaf and surface subsidence areas, comprehensive geological environment management of high and steep slopes in mining pits, and elimination of geological hazards; Dispose of solid waste from

ISSN: 2688-8645

mines, surrounding areas, and wastewater tanks, and dispose of exposed solid waste in cultivated land areas; Manage industrial and cultivated land areas. Concluding remarks

In summary, in the process of constructing high standard farmland, relevant personnel must actively apply efficient water-saving irrigation technology. Only in this way can the problem of water resource waste in farmland irrigation be effectively solved, ensuring that the effectiveness of farmland irrigation can be gradually improved. This plays an important role in improving the quality and level of high standard farmland construction. Building high standard farmland can provide a good guarantee for the modernization of agriculture in China.

3.4. Rural Living Environment Improvement Project

From the aspects of environmental sanitation facilities, renovation of back streets and alleys, renovation of basic and supporting facilities, renovation of agricultural markets, renovation of strong and weak electricity, beautification of building facades, and creation of demonstration points for beautiful rural areas, we aim to create beautiful rural areas and enrich the implementation of comprehensive land consolidation in the entire area. Construct environmental sanitation facilities, orderly collect garbage, establish a sound garbage treatment and transportation system, and carry out rural household garbage classification and resource utilization. Add and repair rural public toilets, carry out rural toilet renovation, and achieve harmless treatment and resource utilization of manure. The renovation of back streets and alleys includes greening, road surface renovation and repair of bridges and railings, underground pipeline installation, addition of street lights, improvement of transportation facilities, etc. At the same time, cultural elements are integrated to make back streets and alleys more urban and cultural. Infrastructure and supporting facilities renovation. Revamp pipelines, renovate public spaces such as green spaces and squares, and ensure smooth access to fire exits; Reasonably add parking spaces, accessible pathways, charging stations, sports equipment and other facilities; Build entertainment venues and improve rural functions.

4. Benefit Analysis

Social benefit analysis. Through the comprehensive land consolidation project, we explore the concept of "land consolidation+", with the aim of improving the living environment and building beautiful rural areas. We aim to construct a socialist new countryside that is ecologically livable, effectively governed, and democratically prosperous, and contribute to rural revitalization.

Ecological benefit analysis. Comprehensive land consolidation in the whole area optimizes crop planting structure through biological and engineering measures, which can conserve water sources, control soil erosion, store fertilizers and water, improve farmland quality, and enhance ecological landscape. The cultivated land can be concentrated and contiguous to showcase the pastoral scenery. It can achieve centralized utilization of rural construction land and enhance the rural landscape. Ecological restoration can effectively control water and soil pollution. Its benefits are reflected in the improvement of the environment and the enhancement of villagers' happiness.Economic benefit analysis. Direct economic benefits: By implementing comprehensive land consolidation across the entire area, improving production conditions, increasing output, and increasing farmers' income; Build a multiple income model of "planting+homestay, farmhouse entertainment+sightseeing and picking+land transfer and equity dividends". Simultaneously generate indicator income, which can be used for the construction of village infrastructure and supporting facilities for industrial development. Implementing the land transfer system can directly benefit farmers. Liberated farmers work nearby to expand their sources of income.

ISSN: 2688-8645

Indirect economic benefits: promoting industrial restructuring, improving the comprehensive economic strength of rural areas, increasing the income of villagers, and improving their living standards. Circular agriculture promotes economic development, saves resources, and generates economic benefits through the construction of environmental pollution control and remediation projects.

5. Conclusion

Comprehensive land consolidation across the entire region contributes to rural revitalization from multiple aspects. One is agricultural land consolidation, which improves the quality of arable land through contiguous consolidation, early land conversion to paddy fields, and sporadic construction land reclamation, vigorously promotes the construction of high standard farmland, and helps rural revitalization. The second is the consolidation of rural construction land, by optimizing the layout of town and village construction land, achieving efficient and intensive land use, and providing land security for rural revitalization. The third is the construction of beautiful rivers and lakes, which improves the ecological environment, enhances the quality of living environment, and creates ecologically livable beautiful villages through dredging and dredging, riverbank protection projects, riverbank landscape greening, standardized river management, and the establishment of smart platforms. The fourth is the ecological restoration of mines, which aims to achieve sustainable use of land resources through ecological restoration and pollution control. The fifth is the construction of beautiful and clean countryside. Through the overall landscape construction of the town's countryside, a beautiful countryside with complete facilities, clean production, reasonable layout, and industrial integration will be created, which will effectively improve the agricultural production environment. The sixth is to improve the living environment in rural areas, by supplementing and improving living and cultural infrastructure, and building ecologically livable and beautiful villages with distinctive features. The seventh is the construction of "Four Good Rural Roads", which aims to improve the regional road network and transportation facilities, enhance the transportation environment, improve the level of transportation services to serve beautiful rural areas, and support the realization of the rural revitalization strategy. Eighth, the construction of rural sewage pipeline network, implementing water environment governance from the source, effectively solving sewage collection and treatment problems, improving rural environment, and assisting rural revitalization. This article provides relevant strategies to assist in the implementation of rural revitalization through the practical path of comprehensive land consolidation.

References

[1] Dongli Z, Lihong Y ,Wenxiong W .Promoting Effect of Whole-Region Comprehensive Land Consolidation on Rural Revitalization from the Perspective of Farm Households: A China Study[J]. Land, 2022,11(10):1854-1854.

[2] Luo X, Jin X ,Liu X , et al.Examining the pathway and mechanism of comprehensive land consolidation through the lens of rural neo-endogenous development[J].Journal of Geographical Sciences,2024,34(9):1739-1760.

[3] Cui Y, Wang W, Meng Y, et al. Impact of structural dependence on the formation of multi-subject collaborative network for comprehensive land consolidation[J].Land Use Policy,2024,145107284-107284.

[4] Chen B, Huang Z, He W, et al. Comprehensive Land Consolidation as a Development Strategy for Rural Revitalization: The Political Ecology Mechanisms and Benefits of the Pastoral Complex[J]. Land, 2024,13(6):897-897.