

Analysis of Ecological Construction in the Process of Land Consolidation

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Abstract: Ecological environment protection has become a hot spot in the process of land consolidation. Land consolidation is a process of breaking the original ecological environment system and then rebuilding a new system. However, the lack of development of arable land reserve resources, the uneven quality of human settlements, and the lack of ecosystem protection and restoration technologies are still outstanding problems in land remediation. Therefore, attaching importance to land ecological construction plays an important role in promoting the implementation of China's current ecological civilization construction policy. In this paper, the idea of ecological protection and ecological construction should be carried through the whole process of land consolidation, the economic, social and ecological benefits of land consolidation project construction should be considered comprehensively, and the ecological construction problems in the process of land consolidation should be analyzed, and the concrete measures for ecological construction of land consolidation should be proposed. The research results provide scientific theoretical basis for the ecological construction of land consolidation and the development of ecological civilization in China.

Keywords: Land consolidation, Ecological environment protection, Ecological construction problems, Measures; suggestion.

1. Introduction

With the rapid development of China's urbanization, a large amount of land and cultivated land have been occupied, leading to the contradiction between land supply and demand. However, land consolidation is the main measure to effectively alleviate this contradiction. It can increase the area of cultivated land, improve the efficiency of land use, promote the rational allocation and sustainable use of land resources, and most importantly, play a positive role in promoting the implementation of the national policy of balance between occupation and subsidy [1,2]. At present, the land consolidation work carried out in China is mainly aimed at increasing the quantity and improving the quality of cultivated land, and the awareness of land ecological environment protection and land ecological construction is still weak [3,4]. China's land consolidation has achieved remarkable results, playing an important role in ensuring national food security, promoting the construction of a new countryside and the integration of urban and rural areas, and promoting ecological progress. However, underexploitation of cultivated land reserve resources, uneven quality of human settlements, and lack of ecosystem protection and restoration technologies are still prominent problems in land consolidation work.

At present, with the improvement of people's material living standards, more and more attention has been paid to the construction of ecological civilization, and ecological environmental protection has become a hot topic concerned by scholars in the field of land consolidation engineering [5]. The aim of land consolidation project should be to shift from the traditional simple land consolidation to the combination of land and ecological protection, and attach importance to

the ecological construction of land, which has an important role in promoting the implementation of the current policy of ecological civilization construction. In the process of land consolidation, there will inevitably be many direct or indirect, beneficial or harmful impacts on water resources, water environment, soil, vegetation, atmosphere, organisms and other environmental elements and ecological processes in the land consolidation region and its background region [[6-8]. Therefore, this paper analyzes the influence of land consolidation on ecological environment, proposes the measure of comprehensive consideration of economic, social and ecological benefits in the process of land consolidation, and analyzes the ecological construction problem and suggestion in the process of land consolidation, this study provides theoretical support to promote the construction of ecological civilization.

2. Ecological Research Progress of Land Consolidation

At present, the world is increasingly concerned about ecological issues, and a series of laws and regulations have been issued to protect the environment and build ecological civilization[9]. The United States began ecological and environmental legislation in 1872. In the UK, "governance" was the guiding principle in the policies and regulations of ecological and environmental protection in the 19th century, and after the 1970s, "prevention" was the guiding principle. In July 2007, a new sustainable development index was promulgated [10]. In the 1990s, Germany amended its Basic Law twice to increase the content of environmental protection. France first put forward the concept of protecting the ecological environment and harmonious coexistence between man and nature in 1960. In 2005, the Environmental Charter

gave a constitutional interpretation and explanation of ecological protection and sustainable development [11]. In 1993, Japan promulgated and implemented the Environmental Basic Law, which included ecological and environmental protection [12]. The environmental and economic policies of the developed countries in the world include environmental tax, emission charge, ecological compensation, green finance and emission trading, etc., which have a great role in promoting the construction of ecological civilization. At present, ecological environment construction has been regarded as a key content in land consolidation work at home and abroad, and it is also the focus of academic discussion in this industry [13].

The research on ecological construction of land consolidation in China started late. There are few researches on land consolidation and ecological environment construction technology, and the technical support of ecological construction is very short in land consolidation practice. Our country urgently needs to construct the ecological construction technical support system of land comprehensive improvement from engineering, standardization, informatization and systematization [6]. In recent years, the core of land consolidation technology in China is landscape design and ecological consolidation technology. Land consolidation engineering technology is to solve the contradiction between the supply and demand of land and human beings, the use of engineering technology means to coordinate the relationship between people and land, research engineering measures, such as degraded land, saline-alkali land, wasteland, desert land and other unused and difficult to use land for comprehensive development, can be used by human land; The value and utilization of land resources will be improved through land consolidation engineering technology[3,14]. However, the protection and restoration of ecosystem in the process of land consolidation are the problems that must be considered in the construction of ecological environment.

Protecting the environment and building ecological civilization have become more and more hot topics in China. The concept and development strategy of ecological civilization construction were put forward in the reports of the 15th, 16th, 17th and 18th National Congresses of the Communist Party of China. In the report of the 18th National Congress, it was proposed for the first time that the future direction of China's ecological civilization development is to build a "beautiful China". The 19th Congress of the Communist Party of China further clarified the direction and connotation of ecological progress, that is, mankind must respect, adapt to and protect nature, establish and practice the idea that clear waters and lush mountains are invaluable assets, foster green development concepts and lifestyles, build a beautiful China, and contribute to global ecological security.

3. Impact of Land Consolidation on Ecological Environment

Land is closely connected with social and economic activities. Land consolidation and land development determine the combination of social and economic structures. The development of large tracts of farmland suitable for agriculture will not only bring changes in regional economic structure and increase economic benefits, but also bring changes in social employment structure, so that people who used to make a living from animal husbandry and forestry will

become farmers. The establishment of new cities will transform large areas of non-urban land into urban land, which will not only change the way of local land use and transform the local economic structure from the primary industry to the secondary and tertiary industries, but also transform the local social employment from rural to urban, and make a large number of farmers become workers or engage in the tertiary industry. The deep development of agricultural land often brings the improvement of productivity, which affects people's consumption level and consumption structure[15]. The development of construction land leads to the occupation of a large amount of cultivated land, which will have a certain impact on the quantity and structure of agricultural land. The redevelopment of the old city may affect the population structure, cultural structure and social structure of the area. No matter what form of land development, it will bring changes in regional social and economic structure [16].

The implementation of land consolidation has increased the per capita cultivated land area objectively, which is conducive to the realization of the dynamic balance of cultivated land. After the development of land consolidation, small fields were transformed into large fields, and scattered plots were organized and used. The previous corners and corners were transformed into cultivated land of good quality, and the field traffic conditions were greatly improved, which promoted the modernization of agriculture. The supporting ditches improved the ability of agriculture to drain waterlogging and resist drought, and completely eliminated the "promising fields". Since farm manure can be easily reached in the field, the use of chemical fertilizer is significantly reduced, which saves money and beautifies the environment. Through afforestation, the construction of farmland forest network, improve farmland ecological environment, improve ecological benefits[17]. The new fields are neat, the flatness of the fields has been greatly improved, and it looks very beautiful. The ploughing layer thickness has been greatly improved than before. All these have greatly improved the condition of the natural system in the finishing area.

Land consolidation is closely related to ecological civilization construction, and land ecological construction is the concrete embodiment of ecological civilization construction. Ecological civilization originated from land use, and the ancient Chinese thought of "the unity of nature and man" created a good foundation for ecological civilization. Land consolidation is the guarantee basis for ecological civilization construction and expands living space for human civilization [18]. There is no contradiction between ecological concept and land consolidation. On the one hand, land consolidation aims to increase the area of cultivated land and improve the quality of cultivated land. On the other hand, it is more important to regard land as a large ecological system to build the harmony and unity between human and nature. The economic, social and ecological benefits of land consolidation project construction are considered comprehensively. The forest network projects involved in the ecological construction of farmland mainly include the construction of ladder ridge and ridge shelter forest, farmland windbreak forest, road protection forest, bank protection forest and other ecological forests, which can guarantee the security of farmland ecosystem, improve the regional production environment, climate conditions and farmland ecological landscape, and beautify the ecological environment around farmland. More importantly, it plays an important role in

reducing regional soil erosion and natural disasters and other harmful environmental factors [19].

4. Suggestions on Ecological Land Construction

China's land problems mainly include land degradation, land desertification, land salinization, land pollution and soil erosion. To solve the above problems, it is necessary to implement ecological environment construction and biodiversity protection measures in the process of land consolidation to prevent the pollution of land, air and water environment caused by the construction process. At the same time, it is the ultimate goal of land engineering to control and restore the polluted land, ensure land security, food security and human settlement environment security. From the successful cases and experience of ecological construction of land consolidation at home and abroad, it is urgent for China to implement ecological construction of land consolidation, and effectively strengthen the ecological consideration in the construction of land consolidation projects. The construction of land consolidation projects should follow the principle of ecological priority, and the focus of land consolidation projects should be shifted to ecological protection with land as the core [20]. To achieve the goal of improving the permanent and sustainable production capacity of agricultural land, optimizing the ecological structure of agricultural land, protecting biological diversity and ecological balance. Land consolidation has been recognized and accepted by the society as an important way to supplement the cultivated land area, realize the balance of land occupation and compensation, improve production conditions and raise land productivity. In the face of increasing environmental problems and ecological degradation, strengthening ecological construction in the process of land consolidation has become an urgent need for the healthy and sustainable development of land consolidation.

Ecological construction of land consolidation must consider in the planning, design, construction, late control and other processes into the ecological factors and biological engineering measures, so as to field, water, road, forest, village and other comprehensive ecological consolidation, as far as possible to maintain the project area of water resources, soil, vegetation and other environmental elements of the background value of a good recovery state, not destroyed, the construction of biological channels, Maintain the original biological species to achieve regional biodiversity. The goal of ecological construction of land consolidation is to achieve the unified and harmonious development of economic, social and ecological benefits, taking the three factors into consideration. Therefore, while pursuing the economic and social benefits of the project construction, it is necessary to maintain and improve the local ecological environment conditions and prevent or reduce all kinds of pollution caused by the implementation of the project. Farmland protection and ecological environment preservation projects should be organically combined with fields, roads, canals, ditches, etc., and the protected farmland area should account for more than 90% of the total farmland area in the construction area [6,11,21].

However, from the perspective of the construction of land consolidation projects that have been carried out in China, most of them only pursue the economic and social benefits of the projects, and rarely consider the ecological environment

protection as a factor and content in the whole process of construction. Therefore, at present, the focus of ecological construction of land consolidation projects is comprehensive consideration from the perspective of ecology and sustainable development. Ecological ideas and biological protection measures should be integrated into sub-projects such as land leveling projects, farmland water conservancy projects, road projects, farmland protection projects, and biodiversity protection projects. Short-term economic and social benefits should not only be paid attention to. Pay more attention to long-term ecological benefits, maintain the diversity of rural landscape and the integrity of ecological process, and refine and standardize the planning, design and management content related to land consolidation engineering projects, which plays an important role in maintaining the structure and function of land ecosystem.

5. Conclusion

The most significant feature of land ecological remediation is to effectively cross and integrate different fields such as planning, design, new materials, new products, new processes, information, monitoring and standards. Through system integration and independent innovation, ecological concepts are integrated into the whole process of land remediation project construction. The future land consolidation engineering technology will take improving land quality and ecological environment as the main goal, and realize the transformation from the emphasis on quantity to quantity, quality, ecological management and protection.

Land consolidation, as a means of engineering on the road of civilization and progress of human society, must follow the basic law of sustainable development, must be implemented from the perspective of sustainable land utilization and ecological sustainable development, and operate within the permissible limits of ecological environment. Land consolidation should not change the natural ecology at will, still less should not be carried out by the force of construction machinery, and destroy the ecological system for the one-sided pursuit of economic benefits. Therefore, land consolidation will have an impact on the ecological environment of the region and even the biosphere, and a full understanding of these impacts will be conducive to the healthy, orderly and sustainable development of land consolidation. In order to truly achieve "protection in development, development in protection", we must adapt to local conditions, take the pursuit of ecological civilization as the ultimate goal, and the pursuit of production capacity must obey this goal.

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