

Implementation and Management of Projects Linked to Increase and Decrease of Urban and Rural Construction Land

Tong Zhao

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

Abstract

In order to alleviate the contradiction between supply and demand of construction land, promote the construction of new rural areas, promote sustainable economic and social development, and achieve the goal of building a moderately prosperous society in an all-round way, the project of linking the increase and decrease of urban and rural construction land has been implemented. This paper analyzes the construction conditions, restrictive factors and project layout of the project area, and shows that the implementation of the increase and decrease linked projects can significantly improve the social, economic and ecological benefits of the project area.

Keywords

Increase and Decrease Linked Projects; Land Reclamation; Implementation; Planning and Design.

1. Introduction

The link between the increase and decrease of urban and rural construction land (hereinafter referred to as the increase and decrease link) refers to the combination of a number of rural construction land plots to be reclaimed and reclaimed into arable land and the land plots to be used for urban and rural construction according to the overall plan for land use. Blocks (that is, construction of new plots, including construction of new resettlement plots and construction of new reserved plots) together form a new construction and demolition project area (hereinafter referred to as the project area). On the basis of balancing the area of similar land, the goal of increasing the effective area of arable land, improving the quality of arable land, making economical and intensive use of construction land, and making the layout of urban and rural land more reasonable. The reclamation and construction of old villages is a major event that benefits the people by improving the living environment in rural areas, improving the quality of life of farmers, and enhancing the well-being of farmers.

Combined with the relevant requirements of Shaanxi Province for the reclamation of construction land, the CC Branch of Baoji Natural Resources and Planning Bureau established the development concept of innovation, coordination, greenness, openness and sharing, and linked the increase and decrease of urban and rural construction land for demolition and resettlement in CC District, Baoji City A field survey was conducted in the demolition area. According to the survey results, CC Branch of Baoji Municipal Bureau of Natural Resources and Planning selected Gong Town in County County for demolition and resettlement.

2. Project Area Overview

Chencang District is located in the west end of Guanzhong Plain in the west of Shaanxi Province and Baoji City, bordering the northern branch of Qinling Mountains, Guanshan Mountain and the low mountain area of Longshan Mountain, the middle and upper reaches of Weihe River and the lower reaches of Qianhe River. The geographic coordinates are between 106°18'24"-

107°34'58" east longitude and 34°07'36"-34°44'57" north latitude. Most of the buildings in the demolition area are in disrepair, with messy layout of homesteads and abandoned mining land. Most of them are idle land, and the land utilization rate is low. Moreover, the homestead has been seriously weathered, the construction quality is poor, the residential structure is unreasonable, and the practicability is poor, which seriously affects the overall appearance of the village. As most of the arable land around towns and along traffic lines determined in the plan is designated as permanent basic farmland, and the buffer space for construction land is insufficient, it is difficult for the plan to coordinate the adjustment and changes of various construction layouts, which objectively weakens the feasibility and operability of the plan.

3. Analysis of Project Construction Conditions

All plots in the project area are abandoned homesteads, or adjacent to the current homesteads in normal use. Due to the construction of urban and rural infrastructure over the years, all plots are connected or adjacent to rural cement roads, and the roads are well accessible. However, part of the project area is the demolition of homestead and mining land, which requires excavators and manual demolition. The roads in some plots are not smooth, which brings inconvenience to the implementation of the project. According to the survey, the average plot area of each project is about 0.15 hectares, the landform type is simple, the traffic volume and distance within the plot are very small, and the traffic elements basically have no impact on the project construction.

The project area is located in a mountainous area with no irrigation water source. According to the requirements of the project, the reclamation target is dry land, so no irrigation facilities will be designed. The terrain of the project area is relatively high, there is no groundwater overflow, and the local precipitation is below 750mm. The precipitation can only meet the needs of agricultural production. After land reclamation, the surface is leveled, and there is basically no surface runoff, so no drainage facilities are designed. According to the field investigation, the surrounding area of the project area is all dry land or forest land, without irrigation facilities, and the project area is abandoned homestead with no water conservancy facilities.

There are 10kv high-voltage and 380-volt rural grid circuits near the project area, which can reach villages with electricity, complete power facilities, and the lines and capacity can meet the needs of rural production and living electricity. There are no industrial facilities and no pollution in the project area. The surrounding vegetation conditions of the project area are relatively good, and the degree of soil erosion is relatively light. Most of the plots along the river course in the project area are protected by river embankments, which is conducive to controlling soil erosion, and the ecological environment is in good condition.

This project is mainly to reclaim the old demolition area of the demolition and resettlement urban and rural construction land in 2 towns including Gong Town, Chencang District, Baoji City, Village planning and construction conditions are better. Through land reclamation, the abandoned villages in the project area will be demolished and reclaimed into cultivated land with flat surface and high quality. The resettlement work in the whole area will be implemented, the local agricultural production conditions will be improved, and the living standards of local farmers will be improved.

4. Land Use Constraints

Low degree of land use intensification: The project area is dominated by farming, and the degree of intensification is low. The land use structure in the project area is unreasonable: the basic farmland per capita is low, and the irrigation rate and guaranteed yield rate of the existing farmland are low. Most of the terrain in the project area is mountainous, and most of the roads

in the fields are mountain roads, which seriously affects the enthusiasm of field farming and farmers' planting.

The relatively backward economy, insufficient investment, and lagging technology have seriously affected the full use of land. Because the farmland consolidation project is comprehensive and systematic, the investment is large, the period is long, and the effect is slow, which subjectively affects the enthusiasm of farmers to invest in reclamation; from an objective analysis, it is difficult for farmers to invest enough funds to invest in rehabilitation due to low income. Reclamation, resulting in a serious shortage of funds for farmland reclamation. The unsound science and technology extension system and the relatively low level of science and technology are also the main reasons that affect the utilization of farmland.

The agricultural production and operation mode in the project area is based on farmers, the per capita land area is small, the scale of agricultural production is small, and the degree of land use is not high. The agricultural production and operation methods in the project area are backward, and there is no large-scale operation and intensive operation. The farmers put more emphasis on planting and less maintenance, partial application of chemical fertilizers and less organic fertilizers, and do not pay attention to returning straw to the field. rate and economic output rate have a greater restrictive effect.

5. Engineering layout

The main construction contents of this land reclamation project include: building demolition and clearing and transportation engineering, land leveling engineering, field road engineering and farmland protection and ecological environment preservation engineering.

5.1. Building Demolition and Removal Works

The existing buildings in the project area will be demolished uniformly. The land that can be reached by machinery will be demolished mechanically, and the land that cannot be reached by machinery will be demolished manually. The buildings in the project area are mainly abandoned adobe houses and brick and wooden houses. Building demolition includes three parts: roof demolition, wall demolition and roof demolition. The construction waste from roof and roof demolition is buried nearby. The earthwork from wall demolition can be smashed and used for surface covering after construction waste landfill. Roof demolition The tiles and wood of the villagers can be recycled and reused, and the excess part of the excavated soil in the foundation pit of the construction waste can be used for backfilling of the soil for land leveling.

5.2. Land Formation Works

According to the requirements of the "Land Consolidation Project Planning and Design Specifications", the land leveling shall be carried out according to the terrain conditions of the project area, local agricultural production, social and economic development, crop planting structure, ground slope and other actual conditions, combined with the terrain and mechanical farming requirements.

①The principle of leveling

According to the scope and topography of the project area, the field design shall be carried out in accordance with the principle that the fields are roughly arranged along the contour line and the fields at the same level should be connected, and the elevation of the field shall be reasonably determined, so as to optimize the excavation and filling and the amount of earthwork; Uniform elevation in the leveling unit and leveling. After leveling, it should be easy to cultivate and save the land.

②Specification requirements

Taking the reclaimed plot as the unit, each plot is divided into one leveling unit, and the field leveling is carried out. About 5m; after leveling, the effective soil layer thickness of the field is not less than 50cm, the outer slope ratio of the field ridge is 1:0.5, and the slope thickness is 2m for compaction. A ridge is built on the outside of the field ridge, with a top width of 0.3m and a height of 0.4m above the field surface. The inner slope ratio is 1:1 and the outer slope ratio is 1:0.5.

The length and width of the field surface in the project area are determined according to factors such as terrain, slope, soil layer thickness, types of planted crops, labor force and degree of mechanization, and combined with local practical experience. There are five parts: backfilling of foreign soil, soil improvement and ploughing, and soil fertilization. In order to make the cultivated land reach the terraced fields with regular fields, flat fields and straight ridges suitable for mechanized farming.

5.3. Irrigation and Drainage Works

Since the project area is not in any irrigation area and has no ground irrigation water source, comprehensively considering the water resources status, natural conditions, local agricultural production level and crop planting structure, through on-the-spot investigation, combined with the actual local conditions, the project is all developed and sorted into dry land. Design irrigation works. But this time, a drainage ditch was built on the inner side of the field road by the soil slope to achieve the effect of soil and water conservation.

5.4. Field Road Engineering

On the basis of following the principles of facilitating residents' travel and farming and helping to improve the level of agricultural mechanization, new main roads, field roads and production roads will be built to form a transportation network connecting the project area with roads outside the area, and between residential areas and field work in the project area. , which is convenient for field operations and the transportation of agricultural materials. The main road mainly connects the whole project area. The field road leads to a branch road from the main road, leading to the field or connecting with the village, which is convenient for the transportation of agricultural machinery and the cultivation of the field. In addition to connecting the main road or the field road, the distribution of production roads should also extend towards the sloping farmland to ensure that small agricultural machinery can reach each field, making the cultivation of the farmland in the entire project area convenient and fast. The existing roads in the project area connect the residential area with the project area, but some plots have low-grade roads and poor road conditions, which are difficult to meet the needs of mechanized farming and external transportation after reclamation. By building new field roads and production roads, the fields in the project area are connected to facilitate mechanized farming of farmland.

5.5. Farmland Protection and Ecological Environment Maintenance Project

Based on the requirements of implementing ecological civilization construction, new requirements are put forward for the ecological construction of land development and consolidation projects, not only focusing on land leveling and the construction of supporting facilities, but also promoting farmland protection and ecological environment construction, adjusting and optimizing farmland structure layout Give play to the role of farmland landscape and ecological functions, and establish a sustainable farmland ecological environment.

The farmland protection and ecological environment conservation project is one of the important projects of the land development and consolidation project. It aims to protect the safety of land use within the project, maintain and improve ecological conditions, prevent and reduce natural disasters, and is a natural technology and social economy for land development and consolidation. The problem must have the concept of the whole, the overall situation and

the system, not only considering the land use and ignoring the adverse effects on other elements in the system and the surrounding environment. Therefore, it is necessary to intensify the construction of farmland protection and ecological environment conservation projects, improve the ecological environment conditions of the project area, and improve the land production capacity, so as to achieve a virtuous circle of ecology, society and economy, realize the comprehensive benefits of land development and consolidation, and promote land resources. sustainable use.

The existing woodland around the project area has a high canopy closure, which has a certain effect of preventing soil erosion and has a good ecological environment. After the land is leveled in this project, ridges and ridges will be built, alfalfa will be planted on the ridges, and a row of red-leaf plums will be planted on each side of the field road to improve the ecological environment and soil and water conservation.

6. Benefit Analysis

6.1. Improve Living Environment and Improve Living Standards

By linking the increase and decrease of urban and rural construction land, the demolition and reclamation of old housing sites can improve the living conditions of the people in 21 administrative villages, accelerate the pace of poverty alleviation, and have important practical significance for increasing the income of local farmers and improving people's living standards. After the implementation of the project, part of the surplus labor force can be absorbed, providing employment opportunities for the local surplus labor force, effectively reducing the employment pressure and contributing to the stability of the local society.

6.2. Increase the Area of Arable Land and Improve the Quality of Arable Land

Through the implementation of this project, the newly increased cultivated land area is 920.68 mu, and the proportion of newly increased cultivated land is 91.00%. According to the average yield per mu of 300kg, the grain output can be increased by 276.20t. According to the standard of per capita annual grain consumption of 400kg, it can solve the problem of 691 people per year. food ration issue. At the same time, through field leveling and field road facilities, it can improve land use conditions, improve the quality of cultivated land, increase the area of cultivated land, improve land production efficiency, drive the development of local economy, and promote the development of leading rural industries.

6.3. Ecological Benefit Analysis

By demolishing the buildings on the original land in the project area and ploughing, the soil structure can be improved, the soil fertility can be improved, the soil ploughing layer in the demolished area can be reconstructed, the soil quality can be improved, and normal and high-standard agricultural production can be guaranteed. By improving the farmland infrastructure, forming a farmland structure of "fields are formed into pieces and supporting roads", improving the growing environment of crops, promoting the stability of the ecosystem and the improvement of land productivity, it has laid a good ecological foundation for the establishment of modern agriculture.

6.4. Economic Benefit Analysis

After the demolition and reclamation of the demolition and demolition linked projects in County Gong Town and Zhouyuan Town, the economic benefits are shown as the economic benefits brought by the increase in output after land reclamation.

After demolition and reclamation of old plots, 920.68 mu of new cultivated land has been added. The crops planted are mainly winter wheat and spring corn, and the farming system is twice a year. According to the estimated crop yield after reclamation (250-300kg per mu of winter

wheat, 2.2 yuan/kg per mu, 300-350kg per mu of spring maize, 2.15 yuan/kg per mu), it can be calculated that the annual increase of the old land after demolition and reclamation can be increased. The direct economic benefit is RMB 1.1 million to RMB 1.3 million.

6.5. Quality Analysis of Newly-added Cultivated Land

The construction scale of the project area is 1011.78 mu, and 920.68 mu of cultivated land will be newly added after reclamation. According to the "Rules for Grading Agricultural Land Quality" (GB/T 28407-2012), combined with the actual situation of the project area, comprehensively consider the thickness of the effective soil layer, the texture of the surface soil, the degree of soil salinization, the content of soil organic matter, the irrigation guarantee rate, and the irrigation water source. and other factors, the quality of newly-added cultivated land in the project area can reach the same productivity level as the quality of surrounding cultivated land.

References

- [1] HAN Haiyan. Suitability Evaluation of Cultivated Land after Reclamation with the Increase and Decrease Connection Potential Project-A Case Study of Suide County[J]. Journal of Anhui Agricultural Sciences,2019, 47(22):71-72,110.
- [2] HE Zhenjia, LUO Lintao, DU Yichun. Analysis on the Suitability and Rationality of Developing Low Hill and Gentle Slope Land[J].Land and Resources Information,2021, (9):23-28.
- [3] Hu Qinfen.Feasibility Study on the Linkage Project of Increase and Decrease of Urban and Rural Construction Land in Guanzhong Region[J].South Agricultural Machinery,2022, 53(3):57-59.
- [4] QIAO Luyin,LIU Yansui.China's rural revitalization strategy and rural homestead system reform in the new period[J].Geographical Research,2019, 38(3):655-666.