

Feasibility Study of High Standard Farmland Construction Project in DL County

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Abstract

Through the combination of irrigation and drainage, field roads, water-saving measures, farmland protection and ecological conservation projects, high-standard farmland construction projects can not only strengthen the construction of farmland infrastructure, improve the level of modern agricultural technology and equipment, but also strengthen the construction of the ecological environment and promote human development. Harmony with nature. The article analyzes the construction conditions of high-standard farmland in DL County, and analyzes the feasibility of the project, in order to provide ideas for better guiding the construction of the project.

Keywords

High-standard farmland; project implementation; status analysis; feasibility.

1. Introduction

As the basis of grain production, the quality of farmland not only affects the level of grain output, but also affects the quality of agricultural products and is the foundation of food security. At the same time, farmland is an important part of the ecosystem, and soil is an important carbon pool (carbon sink), which plays an important role in promoting the green and low-carbon development of agriculture and promoting the construction of agricultural and rural ecological civilization. According to Shaanxi Province's "Implementation Plan for Preventing "Non-grain Transformation" of Cultivated Land and Stabilizing Grain Production, we must resolutely hold the red line of cultivated land, focus on the goals and tasks of grain production, and follow the guidelines of "Strengthening Supervision, Stabilizing the Foundation". , increase production capacity, and ensure supply", implement the strictest cultivated land protection system, resolutely curb the "non-grain" increase of cultivated land, solidly promote the implementation of the "two Tibet" strategy, strengthen the construction of food production functional areas and high-standard farmland, strengthen Supported by scientific and technological equipment, the system of support and protection of grain production will be improved to ensure that grain planting area will not be reduced, production capacity will be increased, and output will not decline.

2. Project Overview

The project area is located between 34°36'~35°02' north latitude and 109°43'~110°19' east longitude. It is located at the southern edge of the Weibei Loess Plateau and the western end of Tiejia Mountain. It is a three-level plateau pattern, with an altitude of 530 meters. The project area is located in the eastern part of the Guanzhong Plain of Shaanxi Province, with superior natural conditions, a warm temperate semi-humid and semi-arid monsoon climate, four distinct seasons, an annual average temperature of 14.4°C, a large temperature difference at night, sufficient sunshine, a precipitation of 514mm, and a frost-free period of 214 days. The regional soil belongs to the aeolian loess in the Upper Pleistocene of the Quaternary system,

which is a layer of silty clay, sand and gravel. In the second-order area of Wei and Luohe in the central part, the surface is aeolian loess, rich in calcium carbonate and soluble salts. The formation and development of soil in this area is formed under the influence of unique parent material, geology, biology, climate, time and other natural and human factors.

3. Analysis of project construction conditions

The main factors affecting project construction include infrastructure construction conditions, land use constraints and public participation. Among them, the infrastructure construction conditions are mainly analyzed from the three aspects of transportation facilities, irrigation and drainage pipe network facilities and power facilities to judge the development status and usage status of infrastructure in the project area; land use constraints are from natural constraints, agricultural facilities constraints Factors and other restrictive factors are analyzed to determine the main factors restricting the development of high-standard farmland; public participation is based on the will of the people to understand the essence of the construction of the project area. Starting from these three types of directions, rationally analyze the status quo, find problems and find solutions, and provide a solid basis for the later high-standard farmland development and construction planning.

3.1. Infrastructure condition

The external traffic conditions in the project area are relatively good, and the transportation is convenient and fast. Village-level hardening is basically the same. The layout of the field road route is unreasonable, the route is curved with the bend, the slope is steep, the curve is sharp, and the road is narrow. The subgrade is a soil structure, and the width of the subgrade varies. Because the subgrade is seriously violated by the water flow, many parts of the subgrade are uneven, and the overall road damage is serious, which is not conducive to the operation of agricultural machinery in the field.

3.2. Status of field irrigation and drainage facilities

The current water source in the project area is relatively sufficient, but the irrigation facilities are not perfect, and the irrigation and drainage facilities in the field are relatively few. Drainage facilities, and some of the channels are damaged and the leakage loss of the soil channel during irrigation is relatively serious, and the water utilization coefficient is low.

3.3. Electricity facilities

The project area has been fully energized. Currently, there are high-voltage lines, low-voltage lines, power transmission and substations and other power facilities, which have been connected to all villages in the project area.

4. Land Use Constraints

4.1. Natural limiting factors

The project area has a sub-temperate continental semi-arid climate, with the characteristics of not cold in winter and not too hot in summer; precipitation is generally high, and the distribution of time and space is uneven, and groundwater resources are not effectively utilized, making water shortage a land use and land use problem. The main limiting factor for the development of agricultural production. By scientifically exploiting groundwater, rationally allocating water resources to develop water-saving irrigation, solving farmland irrigation water, regulating the spatial and temporal distribution of rainfall, and scientifically and rationally utilizing limited water resources in production and life are the main measures and fundamental solutions to solve the problem of water shortage.

Due to continuous cropping, unreasonable irrigation, heavy application of inorganic fertilizers and other reasons, agricultural production in the project area has resulted in imbalance of soil nutrients, damage to microbial populations, and enrichment of pesticide residues, thus reducing crop yield and quality, restricting land productivity. During the implementation of the project, the application of bio-organic fertilizers will improve soil conditions and increase the level of land production.

4.2. Field Infrastructure Constraints

There are relatively few irrigation and drainage facilities in the fields of the project area. During the wet season, the distribution of irrigation and drainage in each plot is uneven, and the difference is large. The supporting irrigation and drainage facilities are not reasonably allocated. Most of the well houses in the project area lack supporting facilities and have damaged irrigation channels, which cannot be used at present, resulting in a low water utilization coefficient. The layout of the field road route is unreasonable, the route is curved with the bend, the slope is steep, the curve is sharp, and the road is narrow. The subgrade is a soil structure, and the width of the subgrade varies. Because the subgrade is seriously violated by the water flow, many parts of the subgrade are uneven, and the overall road damage is serious, which is not conducive to the operation of agricultural machinery in the field.

4.3. Socioeconomic constraints

The project area has abundant labor resources, convenient transportation and abundant groundwater resources. In recent years, the economy of Dali County has developed rapidly, but the investment in agricultural development is not enough, the scale is small, and the standard is low, which cannot meet the needs of local social development. It is urgent to improve local agricultural development conditions through project investment. After the implementation of this project, the land quality will be greatly improved, which will stimulate the enthusiasm of farmers to invest in land funds.

5. Analysis of the productivity of arable land

This project is a high-standard farmland construction project. It aims to build high-standard basic farmland. According to the overall land use planning and land consolidation plan, it is carried out in key rural land consolidation areas and major projects, basic farmland protection areas, and basic farmland preparation areas. and through the construction of rural land remediation and construction of concentrated contiguous land, supporting facilities, high and stable yields, good ecology, and strong disaster resistance, to build basic farmland that is compatible with modern agricultural production and management methods. Therefore, through the implementation of the project, the quality of cultivated land has been improved, and the production conditions have been greatly improved, but there is no new source of cultivated land.

Through the comprehensive analysis of on-site reconnaissance and on-site survey combined with the on-site topographic map of the project area, it can be seen that the current cultivated land area of the project area is 238.9996hm², the used land area is 238.9996hm², the land reclamation rate is 100%, and the land utilization rate is 100%. %, the crops in the project area are twice a year, and the multiple cropping index of arable land is 200%. The land reclamation rate and land utilization rate in the project area are high, but some cultivated land is independently developed by farmers, the utilization rate of water resources in the project area is low, the supporting facilities are relatively imperfect, the output rate of cultivated land is low, and the quality of dry land is low. Therefore, in the follow-up planning and design, the land plots in the project area that need to improve supporting facilities should be designed and perfected, so as to increase the yield of cultivated land and improve the quality of cultivated land.

6. Benefit Analysis

After the project is completed, a relatively complete field road system and farmland irrigation and drainage system will be formed. The inconvenience of farming in the project area and the situation of relying on the sky for food will be completely changed, the quality of the cultivated land will be improved in an all-round way, and the cultivated land will meet the land standard of guaranteeing income under drought and flood. In addition, the agricultural production conditions in the project area have been improved, the land utilization rate and agricultural production efficiency have been improved, the agricultural foundation has been consolidated, and the development potential of comprehensive agricultural production capacity has been enhanced, laying a solid foundation for the adjustment of agricultural industrial structure and the increase of farmers' income.

After the implementation of the project, the farmland infrastructure will be more complete, and the productivity of arable land will gradually increase, which will help farmers to apply advanced production technology, improve the structure of agricultural production, increase production and improve the planting structure of agricultural products, develop diversified operations, and reduce production. Costs and risks, thereby increasing farmers' income, improving farmers' living conditions, narrowing the gap between the rich and the poor, and promoting the sustainable economic development of the town where the project area is located. The implementation of the project will provide and accumulate experience for the local comprehensive management of fields, water and roads; through land consolidation, the arable land in the project area will be concentrated and contiguous, which will lay a good foundation for the construction of high-yield farmland, and enable large-scale operation and mechanized operation in the future. The modern agricultural management method will greatly increase grain output, reduce agricultural production costs, and provide a significant demonstration role for large-scale agricultural production and operation in other regions. The work can be understood and supported, so as to promote the comprehensive, long-term, in-depth and smooth development of the land consolidation work.

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