

# Development and Protection of Water and Land Resources in the Research Area on the West Bank of the Yellow River

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## Abstract

**The coast of the Yellow River, including beaches, is not only a cultivated land resource, but also an important landscape resource. It has functions such as ecological disaster prevention and biological corridors in regulating the ecological functions of the Yellow River coast. Eco-tourism and other planning, so as to build a landscape culture along the Yellow River, including beaches, help the sustainable development of the economy, ecology and culture along the Yellow River, and form a beautiful home in harmony with nature.**

## Keywords

**Yellow River, Beaches, Farmland, Harmony.**

## 1. Introduction

With the rapid development of the local economy, the acceleration of urbanization and infrastructure construction, the demand for construction land has increased year by year, and a large amount of cultivated land has to be occupied. The contradiction between man and land is very prominent, and the implementation of land improvement projects such as development and reclamation is urgently needed to supplement and increase the area of cultivated land to ensure the normal development of the local agricultural economy and the need for construction land.

## 2. Development and Utilization of Land Resources in the Study Area

In recent years, with the intensification of the westward migration of the Yellow River, frequent collapses of high banks and beaches have caused more and more serious damage, resulting in the collapse of large arable land and unused land into the river, which has destroyed more than 10,000 acres of land. The people along the Yellow River petitioned many times and strongly demanded to control the river regime, build embankments and repair dams, prevent the high bank beaches from collapsing, and restore the lost farmland and barren beaches to further protect the safety of villages and the people's lives and property.

In order to improve the river regime, prevent continuous collapse, curb river erosion, and protect villages and arable land along the river, this study uses engineering flood control to change and control the trend of the river, and then restore and control the beach along the line through comprehensive land improvement. The restoration to cultivated land will strongly change the ecology along the river and support local economic development and social stability. The specific engineering construction is as follows.

From dry farming to paddy field agriculture project: make full use of the rich water and soil resources in the area, and transform the existing 500,000 acres of arable land into paddy fields through the organic reconstruction of the soil body. Change the ecological type along the river, and create a paddy field demonstration area that integrates paddy fields, ecological sightseeing, and tourism and leisure.

River beach land treatment project: the unused beach land and saline-alkali land in the area will be constructed through soil reconstruction and supporting projects to build a lotus root, rice planting and wetland area, which can add about 150,000 acres of paddy fields to our province.

Sports track project: constructing a 10 km bicycle track, a 10 km motorcycle resistance track, a 50 km marathon sports track and supporting facilities in Niu Mao Bay and Huayuan, decorating the quicksand deserted beach as a sports track, accompanied by The development and promotion of various events can attract more people at home and abroad to "come in" to enjoy the natural scenery of the west bank of the Yellow River, feel the local customs and human history, and realize the organic combination of sports and the Yellow River culture.

Agricultural tourism project: Since the ancient times, the west bank of the Yellow River has been an important production area for crops such as grain and oilseeds in China. It is the epitome of thousands of years of China's agricultural reclamation history. The construction of an agricultural tourism project with a scale of 130,000 acres can not only be achieved through the construction of characteristic towns. , Ecological farmhouses, industrial demonstration parks, and agricultural and animal product processing bases, to achieve the organic integration of modern agriculture, wetland agriculture, leisure tourism agriculture, and to show the world a long history of the Yellow River civilization.

### 3. Water resources development and availability in the study area

According to the field survey and the "Yellow River Water Resources Bulletin", the total area of the Yellow River basin is 1265.6 km<sup>2</sup>, the total annual runoff is 124.5 million m<sup>3</sup>, and the total groundwater resources are about 170 million m<sup>3</sup>. The gravel aquifer group of the Yellow River beach is distributed in the flood plain of the Yellow River from Zhichuan to Yumenkou. The water level is buried at a depth of 1 to 1.5 m. It is a strong water-rich area and the groundwater level is high. In order to give full play to the advantages of abundant local water resources, the following projects have been studied and developed.

Water transportation project: make full use of the abundant shallow water resources of the Yellow River and beaches, construct a 220 km artificial waterway, and build 8 wharfs to form "Nine Curves and Eighteen Bends" water transportation along the Yellow River, connecting the ecological landscape, Modern agriculture and humanities and cultural sites.

Tourism development project (including air shipping): effectively combines the historical and cultural landscape of the local area, and integrates the historical records of the Yellow River Cultural Tourism Scenic Spot, Wei City Wall Relics Reserve, Xushuigou National Forest Park and Fengtu Yicang Site with the natural landscape of the Yellow River. The development and construction of 8 aprons and the development of air aviation tourism can not only overlook the landscape along the Yellow River, but also become the third air traffic along the Yellow River after land and water transportation, which will drive the development of tourism along the Yellow River.

Riverbank water resources superimposed utilization project: Using the original high river channel, the water of the Yellow River is filtered through the sandy land of the beachland through the principle of osmotic pressure of the water to transform it to meet the standards of drinking water sources for humans and animals, forming a clean water source of more than 10 million square meters, daily water supply The capacity can reach 400,000 to 800,000 m<sup>3</sup>.

Changing a single agricultural irrigation into a multi-channel water resource utilization mode for human and livestock drinking, shipping, and irrigation, which helped solve the problem of water supply and water sources for the urban population in Weinan.

#### **4. Protection of Water and Soil Resources in the Study Area**

The old cliff greening treatment project on the west bank of the Yellow River: within a range of 300 m westward from the old cliff on the west bank of the Yellow River, the treatment area is about 60,000 acres. Through engineering measures such as geological disaster (landslide) treatment, soil and water conservation, and greening, the landslide danger is eliminated, The purpose of preventing and controlling soil erosion, restoring vegetation, and restoring ecology.

#### **5. Wetland Ecosystem Protection in the Study Area**

Wetland park project: It is planned to build 4 wetland parks, covering an area of about 60,000 acres. Based on the existing wetlands, based on the display of wetland types, structures, and functions, it will build a water ecosystem that stores, holds water, and retains water. Set wetland protection and leisure tourism as one.

#### **6. Flood Control Engineering in Research Area**

Embankment project: A new system of construction and reinforcement is adopted to build a 137 km embankment project along the west bank of the Yellow River. The project mainly includes the construction of new guidance and control engineering and the reinforcement, elevation and widening of existing dikes and embankments.

Flood prevention and detention projects: The overall layout of flood prevention and detention in "One District and Five Districts" is adopted. A flood channel with a width of 30 to 70 m and a depth of 3 m is planned on the west bank of the original river bed. Storage capacity.

The implementation of the land ecological environment restoration and control project in the Weinan section of the west bank of the Yellow River has transformed the thinking of simply aiming at land remediation into a demonstration project for comprehensive, scientific, reasonable, and efficient land use. The project is huge and the results are remarkable. After the project is completed, it can realize the optimization of land resource allocation and diversified utilization, and achieve harmonious coexistence of water, land and humanities. The project directly invests more than 38 billion yuan, which can drive local agricultural and sideline product processing, logistics, and transportation to 100 billion yuan. The above has contributed to the optimal use of land resources in our province and the optimal allocation of water and land resources for the "Water Run Three Qins, Water Utilization Three Qins, and Water Xing Three Qins." Play a demonstration role.

Xiaojikou of Hancheng City is an advanced project of ecological environment comprehensive improvement project on the west bank of the Yellow River in Shaanxi, and it is also a demonstration project. Based on soil organic reconstruction, the Yellow River West Bank comprehensive land improvement technology research and engineering demonstration are the following research areas in the Qiaokou project area, from the general exploration before the project, to the selection of soil organic reconstruction materials and soil reconstruction Systematic research has been carried out in the formulation and implementation of technologies, dynamic monitoring and evaluation of reconstructed soil structures, ecological harmony, and rational use of regional resources, etc., and has made a good exploratory study to further improve the project implementation plan.

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