

# *Analysis on the Relationship Between the Environment and Economy in the Three Gorges Area*

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**Abstract:** Three Gorges Project is one of the most famous project, this hydroelectric station is the most extensive in the world. After completion of this hydropower station, it also had a very large impact on the environment and economy of the Three Gorges area, directly changing the ecological environment and economic development of the area. This article analyzes the impact on the local environment since the completion of Three Gorges Dam, and the economic advance of Three Gorges region. Work on Three Gorges Dam began in 1994 and has been completed in 2020. Results show that the environment in Three Gorges region is relatively harsh, augment in water levels in Three Gorges has had a significant impact, many residents have had to move out of their long-lived land, and some wild fish populations have also been reduced because it is difficult to return upstream to spawn. Tourism should be developed to revitalize the local economy. There are also some suggestions can effectively alleviate these problems such as designate better tourism policies.

**Keywords:** the Three Gorges Dam, environmental economics, economic development

## 1. Introduction

There has always been a very close relationship between the environment and the economy. They depend on each other and have a very important impact on each other. Sometimes residents ignore environmental protection because of the need for economic development, which will cause big problems. Although the economy has developed greatly at the beginning and people's living standards have gradually improved, but because the environment has been greatly polluted and people's health has been greatly affected, they will unbearably leave that place. The final result is that not only the environment is not well protected, but also the economy is also not well developed. This paper analyzes the relationship between the environment and economy in the Three Gorges region. Three Gorges region is a very important region in China. It is situated in the center of China, having length 192 kilometers.

By introducing the situation in Three Gorges area and analyzing environment in Three Gorges area, it is proved that the pollution in Three Gorges area is much higher than that in other areas of China, and it is pointed out that the pollution preventing and controlling in Three Gorges region needs to be carried out from both source control and end treatment. Many scholars have done relevant research the influence of Three Gorges Dam on the ecosystem after its completion [1-3]. Analysis of the environmental and economic behavior characteristics of industries in the region pointed out that

the Three Gorges region is seriously polluted, and it is necessary to rectify this phenomenon and develop the economy of the Three Gorges region through other better methods [4].

## 2. Case Study on the Three Gorges Area

### 2.1. History of Three Gorges Dam

Three Gorges Dam's history can be traced back to over a hundred years ago, as shown below in Figure 1.

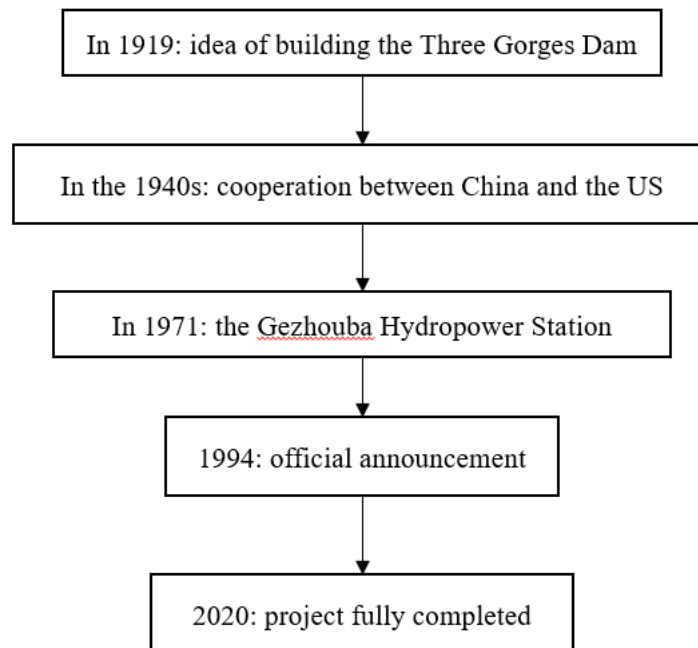


Figure 1: History of the Three Gorges Dam.

In 1919, Sun Yat-sen, the founding father of China at that time, had the idea of building the Three Gorges Dam. It has never been implemented. In the 1940s, the Chinese national government at that time wanted to cooperate with the United States to build a dam, but unfortunately due to the civil war between the Kuomintang and the Communist Party, this plan was not completed. After the People's Republic of China was established, Chinese President attached great importance to building the dam project in Three Gorges area, and decided to build Gezhou Dam first as an experimental project before the build Three Gorges Dam. Gezhouba was built in 1971 and was completed in 1988, which become China's largest power plant. With these important construction experiences, the Chinese government resubmitted the feasibility report of Three Gorges Project in 1983, and carried out preliminary project preparations [5]. Although some experts from the water conservancy department raised some doubts about the dam, for example, they were worried that the dam would break, but after discussion, the leaders of the Central Committee of China submitted it to the People's Congress for deliberation, and it was approved. Three Gorges Dam located in Three Gorges area was built in 1994 and completed in 2020 [6].

Three Gorges Dam has played enormous role in flood protection, water resources dispatching, water transportation and power generation. Before that, Yangtze River and its tributaries experienced frequent floods in the upper reaches, and the people were miserable. However, the dam's completion has resulted in a significant improvement in flood protection capacity in Yangtze River. [7]. There is also been huge improvement in shipping, because the current water velocity was relatively fast, which was known as a natural danger, and the shipping conditions were very difficult. However, after Three Gorges Dam was completed, the shipping conditions have been greatly improved, the waterway has been widened, and the water depth has deepened a lot, allowing more and larger ships to navigate. Although the establishment of the Three Gorges Dam has many benefits, there are also some controversies, such as environmental protection and economic development. Because of the rise of the water level, many residents along the coast need to relocate to other cities and towns. A lot of expenditure, pollution since the dam was completed, the pollution of Three Gorges area has been higher than the national average level, this is also a big problem [8].

## 2.2. Environmental Damage

Due to the geographical environment of Three Gorges region, it is situated in a mountainous and hilly area, which is not conducive to the development of agriculture, animal husbandry and industry [1]. This has caused great obstacles to economic development. At the same time, environmental pollution in the Three Gorges area is also a problem that cannot be ignored, among which water pollution is the most serious. For example, in 2003, when the Three Gorges Dam was just put into use, 184 million tons of industrial wastewater was discharged from the 54 major pollution sources directly discharged into Yangtze River in Three Gorges reservoir region, an increase of 27.8 percent over the previous year<sup>1</sup>, which is a very large number [2].

In addition, due to the sewage discharged from the Three Gorges area and the domestic garbage of residents are directly discharged into the Yangtze River without treatment, and Three Gorges Dam is built across Yangtze River, a water surface similar to a lake is formed upstream of the dam, and the water flow is relatively slowly, the water quality is seriously degraded [3]. Also, the reproduction of some fish has been greatly affected because of the completion of the Three Gorges Dam, some fish, such as the "four major fish" of the river and lake migratory type, blue, grass, silver carp, and bighead carp, cannot return to the upper reaches of Yangtze River to spawn since the completion of the dam. Therefore, the spawning scale in the middle reaches of the Yangtze River in 2007 was only 1% of what it was in 1986<sup>2</sup>. This is a huge gap. Not only did the local fishermen cause great economic losses due to the reduction in the number of fishes, but the biological chain in the Three Gorges area also had a huge impact.

## 2.3. Economics Development

The economic development of the Three Gorges area is also closely related to the local environment. Due to the relatively dense population, weak industrial base and fragile ecosystem in Three Gorges region, economic development has long lagged behind China's average level<sup>3</sup>. The economic development of the Three Gorges area is also closely related to the local environment. Due to the relatively dense population, weak industrial base and fragile ecosystem in Three Gorges area, the economic development has long lagged behind China's average level. The first is the local environmental problems. Since Three Gorges area belongs to junction of second and third ladders, there are many mountains and the ecological environment is very severe. There are many hidden

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<sup>1</sup> Source of information: <https://www.ctg.com.cn>

<sup>2</sup> Source of information: <https://chinadialogue.net/zh/6/68386/>

<sup>3</sup>Source of information: <https://www.ndrc.gov.cn/>

dangers of geological disasters such as landslides, collapses, and slope instability. The forest coverage rate is low, and soil erosion is serious, which makes economic development very difficult. Among them, road construction is extremely difficult. In many cases, roads are destroyed by landslides just after they are built. The inconvenience of road traffic has also directly led to difficulties in economic development.

In Three Gorges region, tourism is also a very important part of the local economy. The Three Gorges area is a very famous tourist area in China and even in the world. It attracts more than ten million tourists every year and has become a local pillar economic industry in Three Gorges region [9]. However, after completion of Three Gorges Dam, a large part of the scenic spots was submerged by water, for example, including Hanging Monk Stone, Phoenix Drinking Spring, Zhangfei Temple, Kongming Cup, Qu Yuan's Hometown, Qutang Gorge Kuimen and other scenic spots and historical sites the rapids and rapids of Xiling and other famous scenic spots. Although some scenic spots have not been submerged, they have lost their original ornamental value due to the rising water level, such as Fengxiang Gorge, Staggered Gorge, Golden Helmet and Silver Armor Gorge and other scenic spots and historical sites. But similarly, a number of new scenic spots have also formed in the Three Gorges area, which has been effectively improved. Due to Three Gorges Dam, the water depth in Three Gorges area has increased, allowing larger and more luxurious cruise ships to pass, making it easier for tourists to enter and exit, and it is more beneficial to the development of scenic spots.

### 3. Suggestion

In view of the above problems in the Three Gorges area, the following suggestions can effectively alleviate these problems. First of all, due to the high mountains and deep water in the Three Gorges area, such terrain is not conducive to the development of industry and agriculture. The government should vigorously encourage the development of tourism in Three Gorges area. Since Three Gorges Dam has been completed, water flow in Three Gorges of Yangtze River has become much smoother. The government should actively promote relevant tourism policies, intensify efforts in publicity, and improve the transportation industry in the Three Gorges area, so as to attract more tourists and contribute to the promotion of tourism in Three Gorges region and the advance of related economies [10]. However, at the same time, the local government should also pay attention to the protection of the environment, and should not ignore the environment because of the development of tourism. It is a combination of the two. The government should not only vigorously develop the tourism industry, but also do a good job in environmental protection.

### 4. Conclusion

In conclusion, Three Gorges region is located in junction of the middle parts of China, in transition zone between second and third steps in China. It has a very important geographical location. In addition, Three Gorges area has an important strategic position in the process of coordinated economic and social progress in China. Therefore, it is particularly important to study the ecological environment protection and economic progress in Three Gorges area. Ecological and environmental protection is an important part of the sustainable development of human society.

Improving the coordination between the human socioeconomic system and ecological system to achieve sustainable and high-quality economic development is an urgent need for human society. The geography of the Three Gorges area is not suitable for industrial and agricultural development because of its rough terrain and serious environmental pollution. The development of other tertiary industries should be promoted, the development of local tourism should be vigorously promoted, and local attractions should be effectively used to attract tourists. It is important to use tourism to promote local economic growth and drive the development of other industries.

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