

WATER IN JIUZHAIGOU

Abstract

Located in Nanping County, Aba Tibetan-Qiang Autonomous¹ Prefecture, Jiuzhaigou Ravine stretches 80 kilometers in one direction and takes up an area of more than 60,000 hectares. The area consists of six scenic² spots——Changhai, Jianyan, Nuorilang, Shuzheng, Zharu and Heihai. It becomes a world renowned³ scenic spot because of its diversity in natural scenery which includes snowy peaks, double waterfalls, colorful forests and green sea. Furthermore, Tibetan customs are another attraction. It was listed as a world heritage site in 1992.

The Ravine boasts a number of unique features. The mountains, lakes, natural primeval forest, beautiful flowers all make Jiuzhaigou a fairyland. Mountains ranging from 1,980 to about 3,100 meters in height are covered by a variety of trees and plants such as green conifers, luxuriant broadleaf trees and colorful rare flowers and grasses. Scenes change according to the season and the area is particularly colorful in autumn when the wind makes kilometers of tree belt along the lake undulate like a sea wave. Waterfalls, lakes, springs, rivers and shoals add to color and the green trees, red leaves, snowy peaks and blue skies are reflected from lakes and rivers. Trees grow in the water and flowers blossom in the middle of lakes.

The Shuzheng Scenic Spot is one of the central points of Jiuzhaigou's landscape. With 40 lakes which extend five kilometers along a valley, the spot covers an area of three square kilometers. The lakes vary in color according to their depths, residues⁴ and scenery around them. Among which, Reed Lake is an ideal habitat of birds; Spark Lake appears to move while the jade-like Rhinoceros⁵ Lake is a good place for rowing, swimming and rafting. There are also the Shuzheng Waterfalls which have a backdrop of trees.

Nuorilang Scenic Area extends from the Nuorilang Waterfalls to Zhuhai, an area of three square kilometers. The 320-meter-wide Pearl Beach Waterfall and the Five-Color Lake have a richly colored underwater landscape.

Problems 1

1) Ecological fragility of scenic spots

Jiuzhaigou used to be an unknown mountain valley. The villages are scattered and most of them are in the lower reaches of the lake. Agriculture and animal husbandry are the mainstay. The agricultural land is reduced and the farming method is backward. Therefore, the original geological environment is maintained in the area before the opening up. The impact of human activities on the environment is very small. However, in the early stage of tourism development, the ecological environment of the scenic area was seriously damaged due to blind development without considering environmental problems. The geological environment in the area began to deteriorate, such as deforestation, sandstorm attacks, killing of birds and animals, industrial waste gas, polluted rivers, a large number of water polluted fish died, the groundwater level dropped, the external dynamic geological effects intensified, forest shrinkage and environmental pollution. With the continuous development of Jiuzhaigou scenic area, the man-made damage is particularly serious. There are not a few public reports of the

destruction of Jiuzhaigou's natural landscape, and the tourism and entertainment industries have particularly damaged its ecology..

(2) The scenic area has limited capacity

Jiuzhaigou scenic area has limited capacity. Jiuzhaigou scenic area is located in Jiuzhaigou Nature Reserve and is the core part of Jiuzhaigou scenic area. The scenic area is 90.275 km², accounting for about 1 / 12 of the total area of the nature reserve; The total area of lakes and waterways in the scenic area is 2.85 km², accounting for about 1 / 30 of the scenic area. According to the current scientific calculation, the best passenger capacity of the scenic spot is 12000 people per day and the maximum is 28000 people. The limited capacity of Jiuzhaigou scenic spot is not conducive to the sustainable development of Jiuzhaigou ecotourism. Too many tourists have accelerated the deterioration of the environment.

(3) Lack of awareness of sustainable development

Some foreign experts, including Bao Shi, believe that Jiuzhaigou may disappear in 20 years. Due to the lack of understanding of ecotourism, some tourism organizers have not yet understood the true connotation of ecotourism, confusing ecotourism with traditional mass tourism. Some enterprises deliberately distort the term "ecotourism" and operate under the guise of "green camouflage", taking it as a profitable means of market promotion. Unfortunately, due to the current lack of effective evaluation and certification schemes well known to the public, and the public's unfamiliar with the evaluation standards of ecotourism, the distortion of ecotourism has had a negative impact on ecotourism products.

(4) The number of tourists received is unreasonable

Since 1988, the number of tourists to Jiuzhaigou has increased rapidly, reaching 830000 in 2000. In 2001, the number of tourists quickly exceeded 1 million, setting a historical record of receiving 1.19 million people per year. The maximum number of tourists in the peak day increased to 30000! In this way, the rapid increase of tourists and the rapid development of the market have a serious contradiction with the limited infrastructure and lagging service facilities, and this contradiction is particularly prominent during the "Golden Week".

(5) The seasonal difference of tourist source is significant.

The value of Jiuzhaigou tourism resources varies with time and space, which determines that there are peak and low periods of tourism. In the peak period, the tourism service facilities may be overloaded, while in the low peak period, they may be idle. The determination of tourism environmental capacity has obvious seasonal characteristics, resulting in significant seasonal differences in tourist sources. At present, Jiuzhaigou tourism market is greatly affected by the season, and the tourists attracted by the winter market are less than 10% of the whole year.

(6) Single tourism highlight

Jiuzhaigou is a tributary of the Baishui River in the upper reaches of the Jialing River. It is named after nine Tibetan villages in the valley. The colorful Haizi, the rushing waterfall, the quiet and deep canyon, the green forest, the unique Tibetan customs and many rare animals and plants, together form an excellent natural landscape and cultural landscape and are famous at home and abroad. However, there are few facilities matching the unique natural

landscape of Jiuzhaigou, such as golf courses, ski resorts, high-end resorts, etc., which leads to a single tourism highlight in Jiuzhaigou and is not conducive to the sustainable development

of ecotourism.

Problems2

(1) Climate and geology

① introduction

The water in Jiuzhaigou is mainly composed of surface water and groundwater. The surface water comes from the snow on the surrounding mountains. After the snow melts, it forms a trickle and finally merges into a stream. The water source is continuously injected into the lake; Groundwater is the water seeping out from the stratum. In many lakes in Jiuzhaigou, people have found many spring holes. These spring holes seep out day and night, and become an important part of the lake water source.

However, both surface water and groundwater are closely related to the precipitation in the sky: part of the precipitation forms snow on the mountains around Jiuzhaigou, and the melted snow water forms the source of surface runoff in Jiuzhaigou, while the other part of the precipitation directly falls to the ground in the form of rain to supplement the surface runoff, or infiltrates into the ground to form rich groundwater.

The birth and growth of Jiuzhaigou is always accompanied by disasters and pains: 400 million years ago, it is a shallow sea, where a large number of ancient creatures lived and lived in peace and contentment from generation to generation; About 65 million years ago, a nightmare came. Under the collision of the Indian plate and the Eurasian plate, the Qinghai Tibet Plateau was violently uplifted, and the sea became a mulberry field. A plateau covered with thick carbonate rocks and gentle mountains was slowly raised, forming the rudiment of Jiuzhaigou; 2.6 million years ago, the ice age came and the temperature dropped sharply. This place was covered by large-scale glaciers. After the gentle crust of the peaks was eroded by the glaciers, the peaks began to become steep; 700000 years ago, the second ice age of a larger scale came back. The glacier cut more fiercely this time. The plateau was marked with high, deep and wide U-shaped valleys, which are the valleys we see in Jiuzhaigou scenic area today; 230000 years ago, the glaciers retreated and the snow melted. Under the action of earthquakes and gravity, collapses, landslides, mudslides and other disasters occurred frequently. These disasters finally created today's Jiuzhaigou. A large number of mountain deposits blocked the river channel and accumulated water into lakes, forming a barrier lake. This is the beautiful Haizi we see today. Other landslide materials stacked together to block the waterway, forming a magnificent waterfall group.

Therefore, the beauty of Jiuzhaigou comes from the "creation" of natural disasters. An earthquake cannot "destroy" its beauty. On the contrary, after the old landscape disappears, a new landscape is born. After the earthquake on August 8, 2017, a new landscape - shuanglonghai waterfall was born in Jiuzhaigou. The waterfall splashes out layer by layer along the stairs. At the bottom is the former "spark sea". Due to the earthquake, the "spark sea" is no longer a small lake, but a whole sea. In the middle of the waterfall, there are also various green vegetation, which form a reflection with the waterfall. The whole "shuanglonghai

waterfall" is like a realistic landscape painting.

② Problem interpretation

Q1: we all know that water is the soul of Jiuzhaigou. Without water, Jiuzhaigou will have no life. However, according to the observation data, since the 1980s, the water level of the lakes in Jiuzhaigou scenic area has been decreasing year by year.

What is the reason for the dynamic change of lake water level in Jiuzhaigou scenic area?

——- conjecture of four factors -——

01 leakage of groundwater

Some people think that the decline of the water level may be due to abnormal changes in the rock structure at the bottom of the lake, such as cracks, and the water seeps away along the cracks

A: The rock structure at the bottom of the lake is very stable, and the possibility of groundwater leakage is very small

02 water flow from the lake

Is there an artificial expansion of the water outlet area of the lake, resulting in an increase in the outflow of water and a decrease in the water level?

A: Jiuzhaigou is a national scenic spot. Every plant and tree in the scenic area is the key protected object. It is impossible to artificially expand the water outlet of the lake

03 increase in evaporation

Under the influence of global climate warming, the water evaporation in the lake is accelerated due to the increase of temperature, thus lowering the water level

A: Although the temperature in Jiuzhaigou region has increased by $0.11\text{ }^{\circ}\text{C}$ in the past 20 years, this change can be said to be insignificant in the climate scale. The increased evaporation is limited, and the contribution to the fluctuation of water level is small

04 change of precipitation in the sky

When the climate fluctuation leads to insufficient rain and snow, it affects the water supply of Jiuzhaigou, thus reducing the water volume in the lake and lowering the water level

Conjecture 4 is the mainstream explanation for the fluctuation of lake water in Jiuzhaigou

scenic area

The vegetation in Jiuzhaigou is fully developed, the groundwater supply is sufficient, the surface runoff is relatively stable, and the lowest water level in each Haizi is relatively constant, which indicates that the curve fluctuation of the highest water level is mainly caused by the change of air water resources, that is, the influence of atmospheric precipitation. In recent decades, the atmospheric precipitation in Jiuzhaigou has been decreasing year by year, and the "culprit" is the summer monsoon. The summer monsoon comes from the vast ocean. It is like a huge water pump, which continuously transports water vapor from the ocean to the land. Jiuzhaigou region is located in the inland, and the low-level air flow is difficult to reach directly. Therefore, the water vapor transport mainly depends on the great power of Summer Monsoon: in winter and spring, the water vapor in this region mainly comes from the wind and water vapor transport in the west of the mid latitude, while in summer and autumn, it mainly comes from the bay of Bengal, the South China Sea and the Western Pacific. However, the meteorological observation data show that in recent decades, the summer monsoon has changed abnormally, and its blowing to the northern boundary of the inland has deviated, which makes the water vapor from the south to the North weaken, thus causing the water vapor shortage in Jiuzhaigou region and the atmospheric precipitation decrease.

But is this the only reason? We know that the generation of atmospheric precipitation cannot be separated from the intersection of cold and warm air. If the warm and humid air is not stimulated by the cold air, it will not generate precipitation. Therefore, in a sense, the cold air from the north is like the "engine" of precipitation, and its frequent southward movement is an important factor of precipitation in Jiuzhaigou.

In recent decades, significant changes have taken place in the upper air circulation from the east of Balkash lake to the south of Baikal Lake. Especially in July, when the Jiuzhaigou region is in urgent need of precipitation, the atmospheric circulation has formed a raised "highland" here. The cold air is often forced to detour, which makes the cold air force reaching Jiuzhaigou region very weak and unable to compete with the warm and humid air, so it is difficult to form clouds and cause rain.

Q2: with the in-depth development of Jiuzhaigou tourism, the construction of a large number of tourism facilities and various tourism activities in the scenic area have begun, which has greatly affected the surface and soil. The construction of various tourist facilities in the scenic area has damaged the original structure of the soil, and the originally complete ecological area has been forcibly divided. The more prominent phenomenon is the reduction of the surface pavement and forest coverage, the reduction of the number of primitive biological species, and the continuous introduction of alien species. According to the long-term investigation and research of human beings, it is found that the physical properties of soil and the number of soil animals are very closely related, and human activities will also accelerate the impact on animal species and biomass. At present, the number of tourists in Jiuzhaigou scenic area is increasing. The accompanying picnics, trampling and other behaviors have accelerated the transformation of soil physical and chemical properties, making it difficult for surface plants to

grow, reducing the number and vitality of soil animals, which is a serious damage to the balance of the natural ecosystem. At the same time, the addition of garbage components will also make the soil hard and form natural disasters such as landslides, mudslides and soil erosion.

(2) Water pollution

At present, the water environment pollution in Jiuzhaigou mainly includes two major aspects, one is atmospheric water pollution, and the other is surface water

The air and water pollution in Jiuzhaigou scenic area is mainly caused by the influence of the whole environment of the earth's atmosphere. The whole environment of the earth's atmosphere is subject to secondary pollution of surface water and soil in the process of precipitation due to the entry of pollutants, and then flows into the lake from the natural slope to the downstream. There are also pollutants flowing into the lake from roads and trestles. Secondly, the surface water pollution of Jiuzhaigou scenic area is mainly caused by the increase of tourists, which brings a lot of domestic garbage, and makes the scenic area in a high load operation process. For example, the domestic sewage of the major hotels in Jiuzhaigou scenic area is directly discharged to the Baihe River without any treatment, which directly pollutes the water resources in the scenic area. Another example is the uncivilized behavior of some tourists, who directly pour the leftover drinks and snacks into the lake water. The pouring of the drinks and the additives contained therein will cause eutrophication of the water body and further pollute the water source.

(3) Wastewater treatment

① Tourism wastewater

tourism The discharge of wastewater from hotels and restaurants has a great impact on the ecological environment pollution of the water source area. At present, with the rapid development of tourism, the diversification of industries, the large and large differences of various raw materials, and the increasing variety of wastewater pollutants, the wastewater treatment is becoming more and more difficult. The main causes of wastewater pollution in the tourism industry are the low level of reuse and treatment of wastewater, the weak pertinence of enterprises to wastewater treatment, and the investment in wastewater treatment Inadequate and imperfect supervision and management system.

② Agricultural pollution

The Jiuzhaigou Nature Reserve has fully returned farmland to forests, and there is no agricultural wastewater. However, there are some agricultural wastewater outside the Jiuzhaigou Nature Reserve, and more attention should be paid to the treatment of this part of

wastewater. Agricultural water pollution sources are single, mainly pesticides, fertilizers and feeds, which are beneficial for targeted rectification. The causes of agricultural water pollution mainly include the large use of chemical fertilizers and pesticides, the lack of pollution treatment in agricultural breeding, and the lack of environmental protection awareness of residents. However, due to the large area and small population density in rural areas, most of the farmers live dispersedly, so the water pollution in rural areas is highly hidden, and it is difficult to detect the water pollution problem in a short time. Most of the rural residents have no awareness of reporting.

③ Domestic sewage of township residents

The main source of domestic sewage of township residents is the daily life of residents, and it is difficult to fundamentally control pollution. The domestic sewage of township residents usually contains a large amount of other substances, such as food residues or ordinary domestic garbage. The use of washing powder and washing liquid increases the nitrogen content and phosphorus content of domestic sewage, and it is easy to cause eutrophication of water with the discharge. There are problems in the treatment of domestic sewage, such as the lack of financial support for the construction of sewage treatment plants and the design of sewage pipe network for township residents.

solution

(1) Climate and geology

In order to prevent the water resources in Jiuzhaigou region from continuing to decrease, we must take effective measures to remedy the impact of climate change. Otherwise, one day, the beautiful paradise on earth will never return, and mankind will be left with melancholy and regret.

The most direct and effective way to solve the reduction of water resources is to change the physical structure of the clouds in the air through human activities, with the help of silver iodide, liquid nitrogen and other catalysts, so as to make it rain as much as possible, so as to achieve the goal of increasing the atmospheric precipitation in this area. However, in order to effectively increase the atmospheric precipitation in this area, small-scale precipitation enhancement is far from enough. Therefore, we must establish a management mechanism and business system for perennial artificial precipitation (snow) operation: reasonably arrange precipitation (snow) operation points in the scenic area and the windward side. In general drought years, vehicle mounted rockets and anti-aircraft guns are used to carry out artificial precipitation (snow) operation on the ground. In severe drought, aircraft must be dispatched to carry out large-scale precipitation (snow) operation to solve the problem.

In addition, water resources change monitoring systems must be established in Jiuzhaigou and Huanglong scenic areas to provide observation data for scientific research and protection measures. How to establish a comprehensive monitoring system in the scenic area? First, in order to better grasp the changes of air water resources, we can load monitoring equipment

on the aircraft, or use global positioning system (GPS) water vapor observation station and infrared observation equipment to establish observation of air water resources on the ground; Secondly, in order to grasp and understand the changes of surface water resources at any time, we have established a number of ground automatic meteorological observation stations in the scenic area to comprehensively collect data such as precipitation, temperature, wind direction and wind speed. At the same time, we have also established observation stations for water level, flow, runoff and snow line to conduct real-time monitoring of surface water; Finally, thanks to the development of science and technology, we have implemented aerial monitoring of water resources in the scenic area by combining the "thousand mile eye" of satellite with geographic information system (GIS). At present, the satellite remote sensing monitoring equipment of Sichuan meteorological bureau is relatively perfect, and the application research on the fixed-point monitoring of tourism water resources in scenic spots can be carried out.

In addition to using the scientific sword to curb the impact of climate change, strengthening the ecological environment protection of the scenic spot is also an important link. It is extremely urgent to vigorously renovate and protect the ecological environment and restore the local microclimate of the scenic spot through measures such as closing mountains for afforestation, artificial afforestation, improving grassland, returning grazing land to grassland, and controlling the number of tourists.

With the active efforts of people, the climate environment of Jiuzhaigou has been greatly improved. According to the meteorological observation data, the precipitation in Jiuzhaigou area is gradually increasing in recent years. We believe that the flowing water of life in the "paradise on earth" will be restored and rejuvenated!

(2) Suggestions on Ecotourism

① Establish the leading ideology of ecotourism and strengthen publicity and protection

Managers, tourists and local residents should establish the idea of eco-tourism. Managers should bring the protection, development and management into the track of legalization, and actively achieve the harmonious development of man and nature; Tourists should establish the idea of eco-tourism, enhance their sense of responsibility and environmental protection, truly understand and approach nature, and cultivate their sentiments. Local residents of Jiuzhaigou should establish a long-term vision, invest in management and service, and obtain economic benefits while protecting the environment.

② Establish characteristic tourism based on Protection

The ecological environment of Jiuzhaigou is fragile and the geological structure is complex. In the process of development and utilization, we must take ecological protection as the basis. First of all, we should establish an eco-tourism plan, define the ecological protection areas, and carry out different protection in different protection areas; Secondly, we should build eco-tourism related products according to the characteristics of Jiuzhaigou; Finally, we should

improve tourism services and related tourism supporting facilities, build Jiuzhaigou tourism complex, and make Jiuzhaigou truly an international strong brand.

③ Optimize environmental assessment system and strengthen management

We should increase investment in science and technology, comprehensively evaluate the natural and social environment of Jiuzhaigou, assess the environmental carrying capacity of Jiuzhaigou, and constantly adjust the evaluation system. We will also use professional technology to maximize the treatment of waste and save water resources.

④ Build a full coverage monitoring system and strengthen supervision and Implementation

We should select appropriate monitoring points, establish a sound full coverage monitoring system, monitor all functional areas of the scenic spot, focus on monitoring the changes of water quality and quantity, and limit the number of tourists per day. At the same time, we should constantly monitor the impact of tourists' behavior on the natural ecology, formulate reasonable rules and regulations, and strengthen the effectiveness of supervision.

⑤ Prevention and control of geological disasters

The geological background of Jiuzhaigou is complex, the neotectonic movement is strong, and the area belongs to the earthquake intensity area of magnitude 7. Therefore, when promoting eco-tourism, we must consider the prevention and control of geological disasters such as landslides, mudslides and earthquakes. First of all, the scenic spot should strengthen monitoring and forecasting to buy time for the people; Secondly, the scenic area should be planted with trees, and different types of shelter forests should be established at different altitudes.

PS. necessity of protection

The eco-tourism development of Jiuzhaigou is a sample of China's eco-tourism development, which represents the status quo of most natural scenic spots in China. Therefore, the ecological construction of Jiuzhaigou will affect the ecological construction of other landscapes in China. For scenic spots with fragile ecological environment, we must adhere to the sustainable development strategy, realize the coordinated development of ecology, economy and society, jointly promote the development of China's eco-tourism industry and protect China's ecological environment.

(3) Wastewater treatment scheme

① Wastewater treatment of tourism industry

First of all, we should ensure the investment of funds. Then, combined with the characteristics of garbage classification, targeted treatment measures were taken. For example, precipitation

filtration process, centrifugal separation process and enzymatic degradation process are often used in the treatment of catering wastewater; Hotels properly handle all kinds of garbage by garbage classification, such as hazardous garbage, recyclable garbage, wet garbage and dry garbage. In addition, in the practice of tourism wastewater treatment, we should actively promote the application of new facilities and technologies, and strengthen the supervision on the treatment and discharge of tourism wastewater by building a perfect detection system. As for wastewater treatment, special attention should be paid to the fact that most of the tourism wastewater comes from the toxic wastewater generated by improper garbage treatment, and toxic intermediate products may occur during the treatment process. Therefore, the tightness of the wastewater treatment system must be ensured during the wastewater treatment process to ensure that the wastewater that has not been properly treated will not pollute the external environment and cause secondary pollution.

②Agricultural wastewater

In order to rectify agricultural water pollution, we need to consider many aspects and take targeted rectification measures in combination with local conditions. First, the local government should strengthen the publicity of environmental protection in rural areas and the establishment of relevant facilities, and establish the reward and punishment system related to environmental protection in water source areas if conditions permit. On the other hand, the local government can organize relevant professionals to give scientific guidance to farmers' agricultural technology. The government that reduces pesticides and fertilizers can organize relevant professionals to give scientific guidance to farmers' agricultural technology, reduce the application of pesticides and fertilizers, encourage rural residents to plant green, develop ecological agriculture, and strengthen the construction of ecological agriculture similar to Sangji fish pond

Industry, gradually improve the agricultural production mode, and improve the rural social productivity while protecting the environment.

③ Domestic sewage of township residents

At present, for the domestic sewage treatment of township residents, the relevant departments should improve the water pollution treatment policies in the direction of low-carbon, energy-saving, green and efficient. In the future, local governments will improve the treatment of urban domestic sewage from the following aspects: appropriately expand the construction scale of sewage treatment plants to maximize the comprehensive efficiency and quality of sewage treatment; Appropriately increase the investment in sewage treatment, introduce new sewage treatment equipment, timely update and repair the main and secondary transfer pipelines of township residents' sewage, improve the construction standard of rainwater and sewage pipelines, improve the operation level of township residents' sewage pipe network, and reduce the main pollution of township sewage to the ecological environment of the water source area; Actively encourage social organizations to participate in the environmental treatment of the water source area and improve the

environmental protection awareness of the citizens.

Extension (IV) specific scheme for protection of Yangtze River system and Jialing River water source area

The water area of Jiuzhaigou is a tributary of the Yangtze River system and the source of Jiangling river. The Yangtze River economic belt covers 11 provinces and cities including Anhui, Jiangxi, Hubei, Hunan, Chongqing and Sichuan, covering an area of about 2.05 million square kilometers. The population and GPP both exceed 40% of the country. It is the main focus of China's economy and the vitality of social development. After years of development and construction, the Yangtze River economic belt has not fundamentally changed the traditional mode of economic development, and the ecological protection of the Yangtze River Basin and its surrounding water source areas is very severe. Looking at the typical cases of pollution in water source areas in recent years, the behaviors of destroying the ecological environment in the Yangtze River Basin and the Yellow River Basin have been repeatedly reported. For example, the waste water from the tailings pond is directly discharged into the Yangtze River.

The standard sewage is discharged into the river, the Yellow River is diverted to "artificial lake", the waste residue is illegally dumped, the water is taken illegally, and the wetland ecological protection is not effective.

For the ecological environment protection of Jialing River in the new period, the government should improve the management mechanism of Jialing River and implement the contract management system and the bidding system. Based on the Jialing River project management, an innovative construction management mode was explored.

Under the situation of bidding, it is necessary to select the best construction company to strengthen the treatment of Jialing River. In addition, relevant departments shall make effective use of the supervision system, improve the quality management on the construction site, and implement specific management instructions to ensure the improvement of construction quality. At the same time, the flood control standard of Jialing River shall be ensured to ensure the safety of people's property in a real sense. On the other hand, relevant departments should adhere to the governance mode of paying equal attention to governance and protection in the process of work, and at the same time adhere to the construction principle of using local materials. During the treatment process, the construction personnel shall avoid damage to the original vegetation on both sides of the river, especially the ancient and famous trees, and try to use local materials

Obtain the coating or other materials required for the project, and comprehensively build a low-carbon ecological revetment. In addition, the relevant functional departments of the government should introduce a sound and feasible water resources protection system for the work related to the ecological environment protection and pollution control in the water source area, so that the water resources protection can be effectively implemented and the ecological civilization construction can be orderly promoted. At the same time, the relevant departments have strengthened the publicity work of ecological civilization construction and

water resources protection, so that the masses can understand the importance of water resources protection, and constantly improve the subjective initiative of the masses to protect the ecological environment of the water source area, thus greatly improving the effect of ecological civilization construction and water resources protection.