

# The Gelo's Wisdom on Water Ecology from the Ecological Concept of "Shield and Sustain"

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**Abstract.** The Gelo's living environment and worship of nature breeds its ecological concept of "shield and sustain", self-consciousness of water ecology, water protection behavior custom and rules, and superior hydro-ecology wisdom based adequate protection and utilization of water resources. With today's commitment to holding and carrying forward Gelos' traditional wisdom of water protection, it is recommended to popularize and apply the modern water conservancy science and technology and the Gelos' traditional wisdom of water protection in a parallel or integrated way, which is of far-reaching significance to boosting the rural revitalization of the Gelo ethnic group and even promoting the domestic construction of modern ecological civilization.

**Keywords:** ecological concept of "shield and sustain"; wisdom of water ecology; contemporary spread of ancient wisdom

The Gelo is one of the oldest ethnic minorities in Guizhou, and is mainly distributed in the northern part of Qianjiang in the Wujiang River Basin. "The Gelos have fully realized 'the unity of themselves and nature' in the process of survival and reproduction in this closed mountain area." [1] Influenced by the four religious beliefs of Buddhism, Confucianism, Taoism and Witchcraft, the Gelos worship nature, revere nature, and attach importance to the shield and sustainable utilization of natural resources. The ecological concept of "shield and sustain" permeates into the daily production and life of the Gelos, and so far it still plays an important role and has a continuous impact.

## 1 The Gelo's ecological concept of "shield and sustain"

"shield and sustain" is the representative ecological concept and survival rule of the

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Gelos, which means "protecting environment and sustainable development". The Gelos live in a closed environment with steep hillsides, the production level of their settlement is low and the economy is backward. Fortunately, nature has given the Gelos all their life. Therefore, they think that all things have spirit and sacrifice to them will bring blessings. So, they take good care of nature with a good command and understanding. The Gelo's primitive religion based on the thought of animism was formed, which became their important spiritual pillar, standardized their behavior and gave birth to their consciousness of environmental ecology. Later, influenced by Taoism, Confucianism and Buddhism, The Gelo's ideology of "Heaven and Man" was strengthened, and they believed that man and nature were closely related to each other, hoping to achieve the harmonious coexistence of man and nature by shield and sustain everything.

In essence, the concept of "shield and sustain" is the basis of the Gelos' primitive religious thought, the product of the integration of other religious cultures, and the concrete embodiment of the thought of "Heaven and Man".

influenced by this concept, all things keep the natural growth, the species diversity is guaranteed, the ecological environment is protected. At the same time, it can meet the needs of the Gelos to realize self survival by using natural species sustainably. For example, in the utilization of land resources, the Gelos plant or manage dozens of crops and wild plants on a piece of cultivated land, they carefully maintain each plant, maximize their value, and achieve sustainable and effective balanced utilization. the Gelos have a systematic thinking in the utilization of water resources. They not only pay attention to the water resources themselves, but also consider the natural factors that affect the water resources, and protect the water ecology to obtain the sustainable utilization. For example, the Gelos pay attention to the protection of fish and shrimps in rivers and ponds. In order to protect the water ecological environment, various regions have issued a ban on poisoning fish and shrimps. A stone monument dated the 12th year of Emperor Guangxu's reign (A.D. 1900) was discovered on the bank of the Triangle Pond in the Town of Liudu in the upper and middle valley of Furong river. The inscription on it indicated that profit making through net fishing was strictly prohibited by the Qing government, and any violator, if caught red-handed or reported to the authorities, would be severely punished. The ecological concept of "shield and sustain" permeates every aspect of the Gelos' life, which is implied in the utilization of land, water and other resources.

The ecological concept of "shield and sustain" has led the Gelos to form a good sense of ecological and environmental protecting rules. It has standardized the natural ecological protecting behavior of the Gelos to a certain extent. The ecological ethical value of respecting nature, loving nature and living harmoniously with nature has become a conscious action and spiritual pursuit of the Gelos.

## **2 The formation of customary law of water resources based on the ecological concept of "shield and sustain"**

The Gelos especially worship the Water God. Water is regarded as a treasure. They believe that water is sacred and can only live with water. They pay attention to the existing relationship between water and people, and preserve water resources to seek the harmonious coexistence of human and water.

The Gelos respect the rain and the continuous springs, rivers and streams. With the guidance of the ecological concept of "shield and sustain", the Gelos have a strong sense of protection and utilization of water resources, and gradually formed the customary law of water resources. In the early years, the Gelos built round or square water wells with stones according to the characteristics of terrain. Every year, they would bring sacrifices to these water wells, burn incense and paper to worship the Water God, so as to make the mountain

spring flow continuously. At the first day of the new year, in addition to burning incense and paper to worship the Water God, every Gelao man will go to the well to pick up "gold and silver water", which means: carry gold and silver treasures into the house, and make profits all the year. If you want to drink the water in the well when you are thirsty, you should take three pieces of grass to buy water from God. Otherwise, drinking water will cause abdominal pain. The Gelos have reached a unified consensus on the use of well water: people are not allowed to stay and play around the well at ordinary times, and they are not allowed to cross the well head, and dirty things are not allowed to get washed in the well, so as not to cause well water pollution. Who offend the Water God would be punished. "It has been said that awe is the feeler of the origin of civilization, and human's thinking about fear of survival has led the ancients to gradually move from barbarism to civilization." [2] In the wild times, the Gelos have the heart of awe and placed their good wishes of seeking benefits and avoiding harm on the Water God. It exists in the life of the Gelos in the form of folk customs, myths and legends, which gave birth to the formation of water ecological civilization of the Gelos.

With the change of life style and the development of population, the water consumption is increasing gradually. Customs and myths with educational function can't regulate the water use behavior of local people. Therefore, the Gelos discussed the mechanism of punishment to regulate the water use behavior in the form of documents and monuments. "In the first year of Xuantong (1909 AD), the Qingquan well in Anchang Town of Zheng'an County, erected a monument, stipulating that it is not allowed to wash clothes and vegetables in the public water well. If the violator fails to do so, he will be fined." [3] During the period of the Republic of China, the well shield and sustain stele of the Toudaoku well in Zhengan County stipulated that the well should be divided into three pools, which were used for drinking, washing clothes and vegetables. Who abused and mixed the well water would be punished. These water use behavior norms are more restrictive compared with the water use custom, and they are more mature water resource protecting habits and rules of the Gelos. They are also the value scale of the collective unconsciousness characteristics of the Gelos. Today, they still have a sustained impact and plays an important role in promoting the "shield and sustain" of water resources and the construction of water ecological civilization.

### **3 The Gelo's water ecological wisdom**

Due to the influence of the concept of "shield and sustain", the Gelos has formed a good sense of behavior and rules of water ecological protection, and constantly generated new water ecological wisdom in the process of water utilization. The water conservation of stone dike terrace, the water retention of mixed planting, and water storage in stone wells can best reflect the water ecological wisdom of the Gelos.

#### **3.1 Water conservation of stone dike terrace**

the Gelos is located in the eastern part of Yungui Plateau. Its karst features are remarkable, its topography undulates terribly with great high-low differences, and the elevation difference is about 1500 meters. Although it is a subtropical monsoon climate with abundant rainfall, liquid water resources, driven by gravity, flow downhill into small depressions or dams between the hills, or penetrate underground, and the farmland on the slopes is difficult to be effectively irrigated. But to the surprise of others, the Gelos led by their "shield and sustain" ecological concept, could solve the problem well and make rational use of liquid water resources.

Along the contour line, the Gelos built step by step or wave breaking section farmland on the hillside with high gradient, which can effectively retain and store atmospheric precipitation to satisfy the water demand of rice, tea, fruit trees and other crops or economic crops at different altitudes. These farmland can also be used for poultry, duck, fish and other livestock. the Gelos not only use soil to build terraces, but also use local materials, such as stones, which forms a spectacular picture of humanity. There are many karst landforms in the Gelos' inhabited areas, and the phenomenon of stone desertification occurs frequently. So, the Gelos took the seemingly useless stones as materials and built a large number of stone dike terrace to alleviate the drought caused by the loss of surface water flow. It not only protects the soil and water of farmland effectively, but also promotes the sustainable utilization of soil and water resources. The seasonal excessive precipitation causes soil layer loss in some mountainous areas with the poor soil and thin soil layer. Therefore, they build stone dike terrace and covering with new soil to retain water so as to maximize the use of cultivated land. The exposed rate of bedrock is 26% in Wuchuan area where the population of Gelao race is one third. the Gelos in Wuchuan turned the exposed bedrock into treasure. They use stone as the building material of stone dike terraces to build terraces on the surface of thin soil, and cover it with new soil to increases the area of cultivated land effectively.

Rock ridge terrace is a three-dimensional wetland ecosystem constructed by man-made transformation of available materials to nature in order to maintain the rational use of water and soil resources. It contains the Gelos' ecological concept of the "shield and sustain".

### **3.2 The water retention of mixed planting**

Because there are many karst landforms in the Gelo ethnic group, the surface water often permeates, and the underground flow and karst cave crisscross. Most of the precious water resources are buried underground. The earth and stone are mixed and overlapped, the dry ditch and the steep rock are lack of water. Such surface environment can not produce the function of interception, purification and regeneration of atmospheric water. the Gelos successfully solved the geological defects in this area with the water ecological wisdom of mixed planting.

Plant mixing is one of the manifestations of the Gelos' ecological concept of "shield and sustain", and also a representative of water ecological wisdom. They don't have the concept of weeds and don't cut the grass and root. Instead, they protect the naturally growing weeds or mix all kinds of plants and crops on the land to make balanced and effective use of the plants growing on each inch of land. The wisdom of mixed planting is to ensure the diversification and maximum sustainable utilization of land functions, and to realize the recycling and regeneration of surface water, soil and atmospheric water. They are good at shading the surface with the mixture of raw crops and non-agricultural plants, covering the exposed rocks to the maximum extent, and avoiding direct sunlight exposure. Then, the rock can grow a thick layer of moss, and the bedrock and gravel which do not have the function of water storage can partially replace the soil to play the role of water resources interception and storage. On the other hand, the mixed plants are promoted to grow vigorously, and the spring and well water will not dry up in the dry season. The water ecological wisdom of mixed planting plays the role of effective fixation of water and soil, and the recycling and regeneration of atmospheric water now.

### **3.3 Water storage in stone well**

Building stone wells to store water is another manifestation of the Gelos' water wisdom. The Gelos is located in the karst landform, The surface of the earth is often dry due to the

constant infiltration of surface water, especially in the dry season every year, the production and living water of the Gelos is even less. They take measures according to local conditions and the terrain characteristics to build stone wells with round or square shapes at the holes where groundwater overflows to intercept and store water for their life. According to the size of the stone well, the amount of water storage, the number of users, the scope of supply and other specific conditions, the Gelos discusses the rules for the use of each stone well in order to reasonably protect and utilize the water storage resources of the stone well and make it sustainable for them to use in the season of water shortage.

## **4 Carry forward the wisdom of protecting water now**

Affected by the tide of migrant workers, the population of the Gelos is greatly reduced, and the water consumption for production and living is sharply reduced. In addition, with the impact of modern water conservancy technology, the local governments ignored the affirmation and promotion of the Gelos's traditional ecological thought and water wisdom. They only relies on engineering technology in water resource management and utilization. As a result, the ecological consciousness of the Gelos are weakened. The water conservancy facilities are not maintained, some traditional and modern water conservancy facilities are damaged to varying degrees. The construction of ecological civilization has lost the participation of the Gelos, which is a warning signal worthy of our attention. It may be the only way for the construction of ecological civilization and the development of social economy to carry forward the the Gelos' wisdom of traditional water ecological concept and develop it in combination with modern water conservancy technology.

### **4.1 Tap the modern value of "shield and sustain" and rekindle the light of water wisdom**

The wisdom implied in the traditional livelihood of the Gelos should not be underestimated, The careful maintenance and efficient utilization of the local water resources have been achieved, which proves the correctness of their ecological concept of "shield and sustain". The government should take measures to further activate the Gelo's wisdom. The first, the local governments can explore and adopt the the Gelos' ecological concept of "shield and sustain" and make the water ecological wisdom to consistent with the application and promotion of modern water conservancy science and technology, the dilemma of "water shortage" in some areas of the Gelos will be alleviated. The second, they can promote the transformation of modern production and life of the Gelos from "simple dependence" on modern water conservancy projects to "multiple supply", and maximize the value of water resources on the basis of harmonious and unified water resources maintenance and utilization. The third, they can pay attention to the geological and geomorphic features, hydrological characteristics, production and living water conditions of the villages in the Gelo residence and excavate the modern value of "shield and sustain" ecological concept from many aspects to rekindle the light of "shield and sustain" water wisdom of the Gelos.

### **4.2 Carry forward the ecological concept of "shield and sustain" and lead the trend of human water harmony**

The Gelos have a simple and unsophisticated custom. They treat all things in nature with enthusiasm and kindness, and they never get greedy from nature. The ecological concept of "shield and sustain" has been passed down from generation to generation, which

has penetrated into their bone marrow and fused with the blood gene of the Gelos. Their villages are full of beautiful rural scenery, they are quiet and elegant, with pleasant ecology. Today, with the great development, we should vigorously carry forward the ecological concept of "shield and sustain" to deal with the contradiction between national development and ecological civilization effectively. Take the traditional water ecological wisdom penetrate into every link of modern construction and people's living to create a good water ecological environment and lead the harmonious fashion of human and water.

### **4.3 Inheriting the power of "shield and sustain" water ecology and help the Gelos realize rural revitalization**

The ecological concept of "shield and sustain" is not only a kind of thought, but also a kind of spiritual power, which needs to be inherited, carried forward, explored and developed to ensure that this kind of thought keeps pace with the times and that this kind of spiritual power can be greatly strengthened. the Gelos' traditional ecological view of "shield and sustain" coincides with the core of ecological civilization construction. Under the background of the double drive of ecological civilization construction and rural revitalization, we should inherit the ecological thought of the Gelos, develop the water ecological wisdom, gather the water ecological power of "shield and sustain", and help the coordinated development of economy and environment in the strategy of rural revitalization of the Gelos.

## **5 Conclusion**

"The lack of ecology consciousness in domestic citizens is the deep-level cause of the modern ecological crisis." [4] The eco-crises and the increasingly serious situation of "water shortage" confronting our country brings forward a question of how to enhance citizens' ecology consciousness and promote the construction of ecological civilization, the answer to which may lie in the water protection and utilization wisdom of the Gelo ethnic group, which is of enlightenment and reference value to the fight against serious domestic water shortage". The ecological concept of "shield and sustain" enriches the connotation of ecological civilization in our country, and the water ecology wisdom evolved from it gives a new train of thought to our country's modern science and utilization of water resource management and protection.

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