Traditional Tibetan Livelihood and the Ecological Security in the Source Area of the Yellow River ——Based on the Field Work in Maduo County, Qinghai Province

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Abstract

In recent years, the ecological fragile link of the source area of the Yellow River has been impacted by the unreasonable resource utilization, and consequently a series of ecological catastrophe have been caused. Based on the case study of the first county in the source area of the Yellow River, Maduo county in Qinghai province, the paper studies the ecological environment and the traditional livelihood of the Tibetan from the view of ecology and anthropology. In July 2009 and August 2010, the research team of the institute of anthropology and ethnology from Jishou University went to Maduo. It is found out that the traditional Tibetan livelihood could effectively avoid the fragile link of the local ecosystem, and the Tibetan people could not only make the efficient use of the local ecosystem, but also carefully protect the environment. The permafrost underground is the key restrictive factor of plant growth in this area. The permafrost, humus horizon and peat horizon constitute the fragile link of the ecosystem. With long-term production experience, the Tibetan residents could realize the special function of the humus horizon and peat horizon. Once the fragile link was disturbed, the yield of grass would decline, land desertification would grow and even the whole ecosystem would degenerate completely. So, in the process of production, they seldom turn over the soil. For the ecological security of the source area of the Yellow River, the traditional livelihood of the Tibetan should particularly be protected and utilized.

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Key words

Tibetan; traditional livelihood; the source area of the Yellow River; ecological security; Maduo county.

In the 1970s, this county was one of the most affluent Tibetan pastoral areas in China. According to the memories of the old men, the local herdsmen were really rich in that days and even the cow dung as fuel were covered with a blanket. In recent years, the ecological fragile link of the source area of the Yellow River has been impacted by the unreasonable resource utilization, and consequently a series of ecological catastrophe have been caused. Maduo was faced with the worst ecological disaster for the first time ever, and consequently this area drew attention of many scholars and decision-making departments. Subsequently a variety of ecological-rescue mechanisms had been put into practice, but they were noneffective. The herdsmen who were once quite rich became the ecological migration or the ecological refugees. The deep reflection should be made for this ecological phenomenon.

In the process of investigation, besides the participant observation and interview, the field measurements were carried on, including the remains of Cao Ku Lun, the probe side of Eling Lake, the dilapidated meadow, and the layer thickness of the meadow. The data and text information of this paper are from both the fieldwork and text data provided by local villagers. It is found out that the traditional Tibetan livelihood could effectively avoid the fragile link of the local ecosystem, and the Tibetan people could not only make the efficient use of the local ecosystem, but also carefully protect the environment. If the importance of the traditional Tibetan livelihood was ignored, it should be difficult to establish a long-term effective mechanism of ecological restoration in the source area of the Yellow River.

1 Ecological research overview of the Yellow River source area

The source area of the Yellow River is quite important for the Chinese nation, and it is the main runoff generation and water conservation area of the Yellow River basin. It is also the important ecological protection for the sustainable development of the middle and lower reaches of the Yellow River. Due to the interference of the unreasonable resource utilization, the ecological fragile link of the source area of the Yellow River has been impacted, and consequently a series of ecological catastrophe have been caused, such as soil desertification, grassland degradation, the decline of

biological species, and the shrinking of lakes and wetlands. Since the 1990s, the water conservation function of the Yellow River source area drops, the volume of runoff of the Yellow River decreases, and the cutoff happens frequently. Between 1988 and1996, the water yield of the source region of the Yellow River is 23.2% less than normal year, which is 22.7 billion cu.

In recent years, there are more and more researches which pay attention to the ecological environment of the Yellow River source area. These studies have focused on two themes. One is the sharp decline of the water conservation capacity, and the other is the degradation of land resources. Natural science researchers dedicate to the application of GIS and remote sensing technology for resolving the change of the local ecological pattern, but the research conclusion is so wide, which is difficult to use. Social science workers also make in-depth exploration in this area. Compared with natural scientists, social scientists, especially ethnologists prefer the cultural analysis. In such research, some results have been achieved, especially about the relationship between the local ethnic traditional culture and the ecological security. But the traditional Tibetan wisdom is rarely involved, neither the relationship between the traditional Tibetan livelihood and the ecological security of the source area of the Yellow River.

The Tibetan could live in the plateau for thousands of years, because the traditional Tibetan livelihood could effectively avoid the fragile link of the local ecosystem. For the ecological restoration of the source area of the Yellow River, the traditional livelihood of the Tibetan should particularly be protected and utilized.

2 The coupling between the traditional Tibetan livelihood and the ecology in the source area of the Yellow River

Maduo locates in the plateau; the terrain tilts from northwest to southeast; and is between 4500-5000 meters above sea level. There are mainly montanic pastures in this area, and intermountainous are some grasslands, sands and marshes. Due to the severe cold climate, soil formation is slow and hypogenetic in this region. With long-term production experience, the Tibetan residents could realize the special function of the humus horizon and peat horizon. Once the fragile link was disturbed, the yield of grass would decline, land desertification would grow and even the whole ecosystem would degenerate completely. So, in the process of production, they seldom cultivate the humus and peat horizon. The traditional Tibetan livelihood could effectively avoid the fragile link of the local ecosystem, and the Tibetan people could

not only make the efficient use of the local ecosystem, but also carefully protect the environment. That's why they could survive and develop in this area for thousands of years.

1) Cultivation without turning over the soil

Traditional Tibetan residents keep the habit of cultivation without turning over the soil. For example, they seldom dig the soil, never sinking the well, and never burn the grasslands. At the altitude of 3500 meters or more extents, they generally do not grow crops, because the higher the altitude is, the much thinner the humus horizon is. Once the earth surface was destroyed, it should be quite difficult to repair. Some Tibetans also told us, they protect the fragile pasture surface carefully, just like looking after their children. They even always fill in the footprints left for gathering mushrooms or herbs.

2) Pastures changing and light grazing

Pastures in Maduo could be divided into two kinds. One kind is "winter pastures", where grass is relatively rich; the other kind is "summer pasture", where the grass yield is quite low. The grazing strategy of local people is following the seasonal transitions. The people who get into the winter pastures earlier than provision should be punished.

In the process of grazing, the herdsmen never indulge livestock eat up the grass, to leave some food for the next year.

3) Varieties of livestock

Traditional Tibetan herdsmen always graze varieties of livestock, which could not only fully develop the pasture productivity, but also be helpful for the sustainable utilization of the pastures.

4) Protection of the diversity of wildlife

There are varieties of wild animals living in Maduo region, including wild ass (commonly known as horse), antelope, the white-lipped deer, wolf, red fox, leopard, woodchucks, all kinds of birds, etc. For the belief of Tibetan Buddhism, the local residents protect the diversity of animals in many different ways.

3 The current ecological maintenance mechanism and its performance evaluation

The ecological crisis of Maduo not only causes the attention of the scholars, but also the government. In 2000, the national ecological construction project with a total investment of 12.9954 million yuan launched. During the project implementation, the artificial grass, afforestation, deinsectization, deratization, construction of water conservancy project were carried on. Such project implementation indeed changed the ecological environment of Yellow River source areas, and played a positive role in controlling water and soil loss for the whole Yellow River basin. But from the ecological perspective, not all of the measures were long-acting, and some even left a big hidden danger for the ecological restoration in this region.

1) Fence for nurture

From 2005, China has begun to implement "fence for nurture" policy, which means enclosing the serious degradation and desertification pastures with wire entanglement, where grazing should be banned for six years. Such policy has caused a huge controversy.

The supporters think the positive function of the fence is obvious. On one hand, it is advantageous for the pastures to recuperate. On the other hand, it could reduce the disputes caused by the mixed of livestock. The opponents emphasize that the negative influence is inevitable. First, it causes the economic pressure of the herdsmen. Second, the wire entanglement segments the transition way between winter and summer pastures. Third, it is dangerous for wild animals.

From the ecological perspective, the fence cut the pasture fragmented, while the integrity of the humus horizon and peat horizon has been severely damaged. The pasture has been divided as a living organism, and the self-healing ability and growing ability are also highly compressed. The hidden danger of the "fence for nurture" policy should cause enough attention.

2) Ecological migration

In 2004, Qinghai province tried to move the herdsmen in Zhalinghu village out of the pastures. After mobilization, 125 households moved out, and the remaining 190 households were reluctant to immigration. Therefore, the government expanded the immigration to Heihe village and Huanghe village, and 189 households moved out, and 535 households were left. It was found in the fieldwork that the migration were almost households with little livestock, which indicated that it was hardly to reduce the grazing capacity.

Even most herdsmen were successfully moved out of the pastures, it is also difficult to save the pastures. The move-in-towns of the Maduo migration are Dawu and Batan, which water supply also mainly comes from the underground runoff of the source area of the Yellow River. Once the water resource was overused, the water conservation would decline too. So the ecological migration could not solve the problem of ecological security in the source area of the Yellow River.

4 Discussions and suggestions

Firstly, according to the current ecological status of Maduo, the traditional Tibetan livelihood should be respected for the ecological security of the source area of the Yellow River. For example, the "winter pastures" should be protected, and the overload of the pastures would be relieved. Secondly, the anthropogenic interference must be severely punished, such as poaching, unrestrained mining, stealing the precious medicinal materials, etc. And the herdsmen should have the authority of supervision and complaint conferred by law. Thirdly, the scientific research of the ecological fragile link of the source area of the Yellow River should be started immediately, and the research report should be provided to the general and technical administration. Only in this way, the traditional Tibetan livelihood could be used effectively in the ecological restoration practices. Fourthly, the traditional knowledge should be combined with modern science and technology, and the policy protection should be put in to practice. For example, according to the characteristics of the local breeds and different grassland plants, the species of the livestock should be planned scientifically.

It is found out that the traditional Tibetan livelihood could effectively avoid the fragile link of the local ecosystem, and the Tibetan people could not only make the efficient use of the local ecosystem, but also carefully protect the environment. That’s why the Tibetan could live in the plateau section for thousands of years. For the ecological security of the source area of the Yellow River, the traditional livelihood of the Tibetan should particularly be protected and utilized. Therefore, the future research should focus on the traditional Tibetan livelihoods, and find the ecological wisdom of them. The traditional knowledge should also be combined with modern science and technology, and the harmonious new pattern between people and ecology which is the long-term effective could be created. This is not only the ecological success of the source area of the Yellow River, but also the fortune for the whole national people.

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