

# **The Cattle Encountering the Rational Economic Man: Reflections on the Landscape Heritage of Hani Ethnic Terraces in Honghe Hani and Yi Autonomous Prefecture**

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*In the villages from the core area of the “Cultural Landscape of Honghe Hani Terraces”, a world cultural heritage, cattle of a single breed have been raised, the number of cattle raised reduced and there has been an unbalanced female-male ratio, which all resulted from the rational economic choice of villagers. The decrease in cattle is a representation of the crisis of the present farming cultural landscape. The replacement of cattle farming by tractor farming has greatly reduced the landscape value of terraces. The continuous growth of economic rationality does not necessarily lead to an all-round development of the society, and social governance aiming at improving the well-being of people in heritage sites has become indispensable. As the state is the main body responsible for declaring a world cultural heritage and protecting it, in order to realize its value fully and let its universal value be recognized by mankind, the relevant state departments should assume the responsibility of improving the quality of life of local people in an institutionalized manner.*

*Keywords: cattle, economic rationality, World Cultural Heritage, Hani Terraces*

## **INTRODUCTION**

Nicholas Gregory Mankiw (1998), a famous economist, posed a very interesting question: Definitely elephants killed are not as many as cattle slaughtered. Then what is the reason that the former is endangered while the latter is not? Because the large demand for beef ensures the adequate reproduction and species continuity of cattle, while the commercial value of ivory puts elephants in an endangered position. The premise is that cattle are personal belongings and elephants belong to no one. Ranchers profit by trying their best to maintain their number of cattle raised, while poachers profit by hunting elephants as much as possible. Economists use this story to illustrate the importance of property rights. However, the private ownership of cattle cannot guarantee that the number of cattle will not decrease, because the number of cattle is related to the opportunity cost of raising them. What has caused the decline of cattle in the Honghe Hani Terraces, a world cultural heritage? The reasons are: from the perspective of local villagers in the Hani terraces, it is the rationality of opportunity cost calculation that

leads to the decrease of cattle.<sup>1</sup> In other words, elephants decrease when they are not endowed with clear property rights, while cattle decrease when they encounter economic rationality.

The decrease of cattle directly threatens the integrity of Hani terraced cultural landscape heritage. The relationship between man and nature is related to people's livelihood and the formation of landscape. Domestication of plants and animals is a key step in the development of human civilization, and human beings keep a close relationship with nature through such domestication. The Nuer people make a living via cattle, and maintain a "segmenting" structural relationship with relatives and friends, with Nuers of the same tribe and of other tribes and also with the Dinka people. Nomadic economy dominated by cattle raising is the foundation of this political structure (Pritchard, 1940). The pigs killed by Melanesians for war serve as important substances for them to maintain relations with enemies and allies (Rappaport, 1984). *Sweetness and Power* reflects on the global expansion of capitalism from the production of sugar (Mintz, 1985). *Corn and Capitalism* reflects on the position of corn in the development of different countries from the global planting of corn necessitated by capitalism (Valman, 1988). In terms of the Honghe Hani Terraces, which is famous for its farming culture, the relationship between man and cattle is also a key element for understanding the local society and its changes.

During the long development of the agricultural society, the use of animal power has been a sign of the transformation from garden agriculture to intensive farming, and cattle have become part of the landscape of farming culture. Cattle represent the indispensable animal power factor for Hani terrace farming, and it can be said that, without cattle there would not be the Hani terraces. In this sense, the Hani terraces are also a result of thousands of years of continuous cultivation by cattle in the vast mountains. The reduction in the number of cattle, and even the change from cattle farming to machine farming, have unavoidably spoiled the landscape of the Hani terraces. Although the Hani terraced landscape is considered a treasured cultural heritage and a series of conservation and development measures have been carried out over the past 20 years, there has been a dramatic decline in the number and variety of cattle in the core villages. However, this change is a result of farmers' autonomous choice based on economic rationality—the income from working in cities is significantly higher than that from farming. At least the dramatic decline in the number of cattle has rapidly diminished the importance of terraces in the productive life of villagers. When the cultural landscape of the Hani terraces was recognized as a World Heritage Site of outstanding significance and universal value, people were confronted with unanswered questions: What kind of local governance would be required to protect and pass on the World Heritage Site? Will the entry into the World Heritage List change the ownership of the terraces? If the terraces are still the production means of the local villagers, the utility of the terraces and their social governance should be only the business of the local people. However, various regulations for the protection and preservation of the cultural heritage prevent villagers from switching to other cash crops, and even from abandoning the land, or building houses that exceed the specified height, all for the purpose of protecting the authenticity and integrity of the terraced landscape. If the terraces have been acknowledged as a public product of all humanity, how should the "whole humanity" that is not in that place participate in the process of preserving and transmitting the cultural landscape? Or in other words, how does the abstract "humanity as a whole" share the responsibility in the protection and transmission of a specific cultural item? When a cultural item has been listed as a World Cultural Heritage and thus brings honor to the country, scholars need to conduct more in-depth theoretical thinking and exploration in the respect, and the national authorities need to take more responsibility in the transmission of cultural heritage, which has become a realistic issue needing serious consideration in the future.

#### **"CAPITAL" WITH A WEAK PROLIFERATIVE ABILITY**

On June 22, 2013, the cultural landscape terraces of the Hani people in Honghe, China, were entered the UNESCO World Heritage List. Among the evaluation indicators given by UNESCO, the core feature of the Honghe Hani Terraces is the positive interaction between the whole society based on traditional cultivation culture and the ecological environment.<sup>2</sup> There is no doubt that cattle have been of great importance to Chinese cultivation culture. While the terraces are receiving increasing attention and praise

from the outside world, the number of cattle in the terrace area is decreasing, which means that the traditional nature of terrace production is being impacted and the cultural landscape very much affected too.

Located in the core area of the Hani terraces, Qingkou village is the first Hani folk village created by the government of Honghe Hani and Yi Autonomous Prefecture and also the government of Yuanyang County.<sup>3</sup> At the end of 2018, the village had 238 households, 1,008 people, 453 *mu* of paddy land and 404 *mu* of dry land, with the average household having 1.9 *mu* of paddy land and 0.45 *mu* of paddy land. According to the recollection of many villagers, there were about 200 buffalos and 100 yellow cattle in the village in the mid-1990s. After entering the 21st century, the number of cattle gradually declined. By 2000, 151 households in the village had 152 buffaloes, with an average of 1 per household, and yellow cattle had all disappeared (Ma, 2009). In December 2005, the village had 180 households with 132 buffaloes, with an average of 0.73 buffaloes per household (Sun, 2007). By the end of 2018, 238 households in the village had 42 buffaloes, with an average of 0.18 buffaloes per household, and only 32 buffaloes were able to plow the fields. The limited number of cattle can no longer meet the needs of plowing and harrowing the fields. At present, there are 5 micro-tillers in the village. According to the survey, in the past two years, 30 households used micro farming machines. About 57 *mu* of paddy fields, accounting for about 13% of all fields, are plowed with micro farming machines. Twenty-five households, not having cattle and not wanting to hire hands to plow their fields, used hoes and nail harrows to level their terraced fields and then plant rice seedlings, accounting for 11% of the village's approximately 48 *mu* of paddy fields. In other words, 105 *mu* of the paddy fields don't need oxen, which means that one-fifth of the village's land are no longer cultivated by traditional methods.

Unlike people from the outside, who only see the terraces as a landscape, the locals certainly see them as a means of production and as their first and foremost property. Driving oxen to plow the fields is labor rather than sightseeing, and has nothing to do with nostalgia or romance. Oxen constitute animal power and capital, for plowing the fields and also for gaining in wealth. In the Hani language, the word "zeiq" means both "livestock" and "property", and "zeiqhhaq" means both "animal power" and "financial power" (Che & Han, 378). Under the condition that land area and production are fixed, "livestock" can be multiplied and thus become synonymous with "property" and even "capital". The Western meaning of capital also evolved from the idea that livestock, representing wealth, could proliferate, and there was a cross-cultural consensus that large livestock, such as oxen, were considered wealth and capital. So oxen were a form of capital that could be multiplied.

Fundamentally, oxen are wealth and even value that can bring surplus value. Then, the increase of oxen is closely related to whether it can bring an increase in wealth or not. Both yellow cattle and buffalo can be understood as wealth and capital in this sense. In contrast to buffaloes, which are mainly used for farming, yellow cattle are more directly capitalized because they are mainly sold as beef for money. The relationship between the increase in yellow cattle and the increase in wealth is also influenced by factors such as opportunity costs. The yellow cattle have a strong tolerance of cold, which is very important for villagers living in the mountainous areas above 1,700 meters in altitude. A villager said, "The yellow cattle are cold-hardy, adapting to the alpine meadow climate, and even the newly born calves can in the snowy weather graze in the mountains and will not be frozen to death." The breeding cycle of yellow cattle is short, since an adult female usually gives birth to one calf a year, which is shorter than the three-year cycle of a buffalo giving birth to two calves. Yellow cattle meat is better than buffalo's, and the unit price is higher. Villagers still remember that during the People's Commune period, each production team would raise 20 to 30 yellow cattle. Before the 20th century, the main reason for raising them was to increase cash income. Now raising yellow cattle can certainly earn money, but it requires labor and a farm site. The large number of laborers going out of the countryside inevitably increases the opportunity cost of raising cattle, and who will graze the cattle becomes a problem. Traditional cattle grazing sites are being converted to more economically profitable sites, further increasing the cost of cattle raising.

Villagers believe that one laborer can raise four yellow cattle. It takes about three years for cattle to grow from a young calf to being ready for fencing. Roughly speaking, one or two cattle can be slaughtered each year. Selling cattle can generate an income of about 8,000 yuan. This means that a

laborer can earn up to 16,000 yuan a year by raising cattle. The reason why young and strong laborers basically do not want the latter option is that the income from working outside of home is much higher than that from raising cattle.

The gradual absence of the yellow cattle is also related to the fact that they are very active and like to wander around and easily get lost in grazing. A person younger than 15 or 16 years old is not able to herd yellow cattle. The villagers who have done herding will say that the cattle are “very naughty”. Losing yellow cattle happens frequently: almost every family has had this problem and asked their neighbors and friends to go around and look for them. With a large number of young and strong laborers out of town, almost all of the oxherds in the village are over 60 years old, and they are losing their grip on managing yellow cattle. “The cattle run so fast that it's hard for older people to catch up with them.” Now, it is only possible to raise buffaloes.

Although buffalo raising is less exhausting, it is also constrained by the reduced labor force. Since most of the young and middle-aged laborers have gone out to work, a significant number of elderly people cannot go out to graze cattle because they have to stay home and take care of their grandchildren. Although some healthy people in their 60s and 70s can still do the job, the returns from raising buffalo are often very low. As for raising bulls or females, villagers would choose the latter, because an adult female buffalo can plow the fields and also give birth to two calves in three years. But female buffaloes do not give birth to calves until they are 5 to 6 years old. In general, an elderly person can only take care of one female buffalo and 1~2 calves. The income from raising a female buffalo mainly includes: 2 calves in 3 years, and the 2-year-old calf can be sold for about 4,000 yuan; plus the income from outside rent in plowing and harrowing the fields, which amounts to about 3,000 to 5,000 yuan per year. Most of the old people in the village know very well that “there is very little money in raising cattle. The approximate income for doing this is only a dozen or twenty yuan a day.”

Harsh climate and cattle-borne diseases constitute risky and ecologically vulnerable factors that would determine the level of cultural adaptation of the Nuer (Yang, 2007, 79-84). Relatively speaking, buffaloes rarely get sick in the Hani terraces due to the high altitude and low summer temperatures, but cold winters can be a severe test for them. For example, during the cold winter from the end of 2017 to the beginning of 2018, a heavy snow fell in the core area of the terraces, and two buffaloes from two neighboring households in the old village of Pugao were frozen to death. The villagers have accumulated rich experience in raising cattle, such as: on the one hand, they try to avoid releasing cattle to the mountains in extremely cold weather, and, on the other hand, they feed them with dry straw because there is little to graze in winter and the animals are not easily fed. However, due to the large proportion of outflow of young and strong laborers, older people cannot carry too much cereal straw home; also, for with a new breed of straw it would be hard to increase the production, because the cattle would not like to eat it. There are other risks in the breeding process, such as the possibility of abortion if pregnant cattle are not properly taken care of or needed to plows the field. In addition, some cattle are able to nurse their young well but some are not. A 10-year-old female buffalo in the village has had four calves, but only two survived. In recent years, with the increasing convenience of transportation, cattle rustling has occurred, and the village of Qingkou, which is close to the provincial road, has been the first to bear the brunt. Some of the traditional grazing sites have been converted to other uses, thus also making it more difficult to raise cattle. The two hundred acres of forest to the southeast of the village were originally available for cattle grazing, but due to the local government's “Hani Town” project, fewer places are left for this purpose. Other villages in the vicinity have not seen much reduction in cattle grazing and yellow cattle can be seen occasionally, but it is a common situation that yellow cattle tend to disappear and the number of buffaloes in these villages is decreasing too!

## **WATER BUFFALOES OR MINI-TILLERS**

When it came to choosing the animal power for terrace work, villagers generally preferred buffaloes. They said: “In plowing, yellow cattle seem sluggish because the water here is too deep”. Commonly known as “Da Gu Zi”, the well trained adult bull can be competent for plowing and harrowing work, but

compared to the gentle buffaloes, the former seems much more irritable and not easy to rein in. The declining value of terrace farming as a share of household income has also led to a decline in the value of animal power. In comparison with working outside for quick money, it is not economical to raise yellow cattle, which are not as good as buffaloes for plowing, and it is inevitable that they will disappear in the terraced areas. However, the number of buffaloes is also decreasing due to the increasing opportunity cost of terrace production.

Nowadays, villagers also pay attention to rational calculation when raising buffaloes, which not only causes a decrease in the number of buffaloes, but also an imbalance in their male to female ratio. In terms of plowing and harrowing, female buffaloes are inferior to male buffaloes, but villagers have far more female buffaloes than male ones, and the sex ratio of adult buffaloes is roughly 10:1. The villagers explain that the male buffaloes prefer to run farther and fight more than the females during grazing, putting a heavier burden on the herd. Although female buffaloes are not as strong as adult males, they are also capable of plowing and harrowing the fields. However, females cannot work in the early stages of pregnancy or during the waiting period, in fear of miscarriage. Yes, female buffaloes do not work as well as male buffaloes, but they produce calves that can sell for money, thus generating a “surplus” value to the owner. Another important factor that makes villagers more willing to keep females is that the mothers and their calves are more likely to form a “herd”. In addition to being able to plow fields and do other tasks, females are able to produce calves at a rate of two in three years, which reduces the marginal cost of cattle grazing and thus increases the marginal benefit. Nowadays, the majority of cattle raisers in the village have adopted the model of raising one adult female buffalo and one to two calves to form a small herd. By the time when a female buffalo is ready to have her third calf, the first calf will be five years old and ready for sale. However, this approach, which minimizes management costs and suits the capacity of the cattlemen, also poses some problems: the drastic decrease in bulls makes it difficult to find healthy bulls for breeding, and some old or not fully grown bulls may be used as breeding stock, which obviously does not meet the requirements of good breeding.

When a small number of villagers went out to work and did not have the energy to take care of terrace production, their fields were rented out to other villagers, and when more people started to go out to work, rent-free practice became a matter of course, and now when more people go out to work, it is inevitable to pay someone to cultivate the fields for them in order not to let them go to waste. The changes in these three stages are a concrete reflection of the decreasing ratio of income from terrace farming to income from urban employment. According to a survey, the cost of growing one *mu* of land needs two persons to plow and harrow for 500 yuan, five to plant rice for 400 yuan, five to harvest the grain for 500 yuan, one to repair the ridge for 150 yuan, and an extra 100 yuan for carrying home the grain. In other words, a total of 1,650 yuan is needed to manage one *mu* of terraced rice field. A *mu* of rice field can yield about 350 kilograms of rice, which can be sold at a market price of 1,225 yuan, thus not able to cover the expenditure. In addition, the 1,650 yuan does not take into account other inputs such as fertilizer, pesticides and seeds, and the labor required to check the water storage and ridge stability of the terraces every one to three days to prevent the ridge from collapsing. The cost of hiring someone to plow one *mu* of land is now about 600 yuan. The income from the sale of grain is 1,225 yuan plus the fee of 600 yuan for plowing, which produces a total income of 1,825 yuan for one *mu* of land. After deducting the total expenses of 1,650 yuan and about 150 yuan for fertilizer, pesticides and seeds, the plowman's annual income is very limited.

As the number of buffalo in the village continues to decrease and the overall price of labor in the market rises, the price of a “cattle worker” has also increased in recent years. Villagers cannot recall the exact year when they started paying for cattle labor, except that the daily unit price was 20 yuan, which gradually rose to 50, 80, 100, 120, 150, 200 and 250 or even 300 yuan by early 2018. Such a rapid increase in the unit price of cattle workers has greatly increased the income of cattle farmers and encouraged them to persist in raising buffaloes. For example, Lu Jianzhong, from the village of Qingkou, earned 5,100 yuan by helping people plow and harrow their fields after the autumn harvest in 2017. When he talks about it, he looks very proud and honored. In 2019, another villager Li Oushou rented his cattle to plow and harrow the fields of several other villagers during the spring plowing period, and he plowed

more than 20 mu in more than 20 days, earning nearly 7,000 yuan, but he didn't have the time and strength to plow his own 6 mu of fields later. Although it is “planting other people's fields and abandoning our own land”, the income from such plowing is not bad, and not planting one's own fields also saves the labor of field management afterwards. The income from plowing for others, plus the income from odd jobs outside, would be higher than the income from self-planting. However, the price growth momentum of cattle workers has been challenged by mini-tillers.

In 2008, Li Xuehua, a villager from Qingkou, bought the first mini-tiller in the village for 3,650 yuan, which has 12 horsepower and is a large model that requires four people to lift it to the field. From 2015 to 2016, encouraged by the government's benefit planting policy, Li Shaoyun, the current accountant of Qingkou village, and Li Mousha, a villager, each bought an 8-horsepower mini-tiller, whose original price was 3,200 yuan, for only 2,400 yuan after deducting the government's 800 yuan agricultural subsidy. The mini-tiller is small enough for two people to carry to the field. Villagers are satisfied and more and more are accepting the use of mini-tillers. In spring farming in 2017, in addition to his own use, Li Xuehua loaned his machine to seven villagers, and Li Shaoyun loaned his machine to eight villagers. In 2018, two more villagers purchased mini-tillers. In addition to their own use, they also lent them to other villagers. The diesel used in the farming machine is usually bought by those who rent it. When a mini-tiller is used to plow and harrow, the diesel costs 40 yuan per mu and the labor 100 per mu, a total of 140 yuan, which is 360 yuan cheaper than the 500 yuan per mu for plowing and harrowing with cattle. Of course, some small terraces and those that are not easily accessible with mini-tillers still need to be plowed and harrowed by cattle. The advent of mini-tillers has kept the price of animal power down. Villagers believe that using a mini-tiller has many advantages over raising cattle. First of all, maintenance and use are labor- and cost-saving. Cattle raising require almost daily grazing, but cattle plowing and harrowing is only for half a month. The owners of the mini-tiller only need to use the fuel a few times a year to maintain the machine against rust. Second, high efficiency. The mini-tiller is 1.5 to 2 times more efficient than the cattle. Third, the labor burden is light. Because the machine is designed to plow and harrow at the same time, different from using oxen: instead of plowing the fields immediately after the autumn harvest as is customary, plowing and harrowing are done together when the rice is about to be planted next year, thus reducing the original labor burden of plowing and harrowing twice or three times a year, once in winter and once in spring. Given the convenience of using mini-tillers, villagers who have purchased them are more reluctant to raise cattle. In 2013, due to a lack of labor in his family, a villager from Qingkou was introduced to a villager from Chenan as a “cattle in-law”. He was responsible for buying the cattle and the other family for raising them. Except for a few days of work each year when cattle are used to plow and harrow, the income from the rental cattle and calves born to be sold goes to another person. But after buying a mini-tiller, the villager no longer felt the need to keep cattle. In 2017, he went to the “cattle in-law” and sold the cattle, with the proceeds going to him and calves belong to the “cattle in-law”. This story is an example of how mini-tillers may finally replace cattle.

Cattle in the landscape of the Hani Terraces, a World Heritage Site, also play a role in supporting the villagers' performance of farming culture. Whether the local government holds folklore festivals to attract tourists, such as the “seeding opening ceremony”, or some TV stations coming to film the cultural landscape of the terraces, villagers always rent their cattle to perform plowing and harrowing. One villager said, “The TV station asked me to take the cattle to plow and harrow the fields for about three hours, and gave me 100 yuan for the video.” Obviously, mini-tillers are not used to perform such farming activities, and it is only when peasants and cattle are together that the nostalgia of tourists' imagination for farming activities is fulfilled. However, such performances are limited in number throughout the year, so it is unlikely that they will bring any big income to the villagers.

On the surface, the advent of mini-tillers has suppressed the rise in the price of cattle farming, but in essence, the increase in opportunities for out-of-town development brought about by the development of the market economy has reduced the competitiveness of traditional farming methods, resulting in a reduction in the number of cattle closely tied to traditional farming. Some terraces not suitable for mini-tillers still have to be cultivated by animal power, thus ensuring that buffaloes will still be kept for a considerable period of time. However, it is very difficult to raise cattle for direct economic income or to

increase the output of the terraces through hard work, and the decreasing number of buffalo is also inevitable, resulting in an incomplete cultural landscape of the Hani terraces, which is a real problem needing urgent attention.

## THE IMPULSE OF ECONOMIC “DE-EMBEDDING” AND ITS CONSEQUENCES

In traditional ways of life, the economy is always embedded in the society. Evans Pritchard finds that cattle are always a central topic in Nuer life, not only because of their great economic value to the people, but also because they are the link between them in a large number of social relationships. The Nuer have a tendency to define all social processes and relationships in terms of cattle. Their social customs are an idiom for cattle (Pritchard, 1940). Althusser (1965) noted that “we can understand the essence of the economy only if we are clear about the place that the economic sphere occupies in an overall structure, about the connections that exist between this and other spheres, and about the extent to which other spheres appear in the economic sphere itself.” According to Polanyi (2001), “in general, man's economic behavior is always submerged in his social relations. Man's actions are motivated by the preservation of his social status, his social rights and his social assets, not by the preservation and possession of material wealth to secure his personal interests. He values this material wealth only if it serves this purpose.... The operation of any economic system requires non-economic motives to drive it.” In the development of the market economy, the impulse of dis-embedding the economy in society inevitably leads to changes in the economic activity itself and to the loosening of traditional social relations, as well as the dissolution of the meaning of many traditional cultural matters.

For an agricultural society, there is no doubt that the significance of cattle in social life is extraordinary.<sup>4</sup> The significance of the cattle in Hani traditional culture can be seen in its creation myth. The genesis mythology “Osei Mise” of the Hani people says that, in the time of the primitive universe, the heavenly king sent someone to slaughter a Long cattle to create the universe. He made the pillars of the earth out of the legs of the cattle, the sky from the skin of the cattle, the beams and rafters from the bones, the sun from its left eye and the moon its right eye, the terraces from its ribs, and the heavenly king made the teeth into stars, the beef into land, the hair into trees and flowers, the tongue into lightning, the blood into rivers, the intestines into pipes, the tripe into ponds, the liver into rainbows, the wheezing of the cattle into wind, the tears of the cattle into rain, etc. (Liu 1980). As Li Zixian (1991) pointed out, the Hani ancestors “regarded the cattle as the mother of all things and the beginning of life, and they took the cattle a the symbol of sex and harvest, and even as a symbol of wealth.” In ancient Hani songs, the deities refer to the “earth cattle”, which rolled in a muddy pool, as a spirit that replenishes the vitality of the universe (1992, 53-60).

Kuqzaqzaq (June Festival), which is an annual prayer for a good harvest, is one of the most important festivals in the village. The whole village would contribute to buy cattle or a strong bull buffalo, which is regarded as an ideal sacrifice. To pray for the prosperity of man, abundance of grain and prosperity of animals, the villagers would slaughter cattle to offer sacrifices to the deities. Beef sharing is an important activity to strengthen the collective consciousness, and the prosperity of cattle predicts that of the people. In addition, according to the tradition, after the death of an elderly family member, children and relatives are required to sacrifice an ox or cow for the dead. According to the Hani, “In funeral customs, the cattle is the intermediary of ‘receiving good fortune’ and ‘passing on blessings’, which is also the guardian of the spirits of the dead (Li 1991).” By sacrificing cattle, people can better understand the relationship between life and death.

There is another local legend, also very meaningful. It is said that in ancient times, the cattle was one of the deity Apimeiyian's most loved animals. One day, Apimeiyian sent a cow to the world with a message: “Men, eat once every three days.” However, the cow said, “Men, eat three times a day.” The deity let the cow deliver the message: “Grass needs to be cultivated, and rice can grow everywhere”, but the cow said: “Rice needs to be cultivated, and grass can grow everywhere”. Therefore, people have to work hard for food. Apimeiyian was very angry when he got to know this, so cattle were punished by being sent to the people to pull the plow and harrow the fields for them (1990, 18). In fact, this legend

does not just explain why cattle are used for farming. It also makes abundantly clear that the difficulties with traditional livelihood activities are universal.

When the villagers' economic life changed dramatically, their cultural concept would change too. The cultural significance of cattle has been weakened under economic rationality, which is directly manifested by the decrease in the number of cattle. Since few bulls are kept in the village, healthy bulls are even harder to find. Nowadays, villagers often have to go to the local cattle fair or even the neighboring county of Jianshui to buy them. When the function of cattle in a funeral are changed from an intermediary for "receiving good fortune" and "passing on good fortune" to a tool for gaining fame, it is possible for a well-off family to slaughter more than ten cattle at a funeral. In 2015, the local government issued a document prohibiting the slaughter of too many cattle at funerals in order to protect them for cultivated land. Now, some villages have begun to specify in their rules that no family is allowed to slaughter more than two cattle per funeral. These measures are clearly intended to maintain herd sizes, but if cattle are kept for purposes unrelated to culturally significant production, the decline in their number remains difficult to address.

Although villagers are less motivated to raise cattle due to the high cost, their importance in various rituals has not completely disappeared, and the need for them has to be met through fair purchases. More and more villagers, when they need cattle, will go to the fair of Niujiashai, the largest in Yuanyang County, to buy them. When it's "tiger day", "horse" day or "dog day", there will be a fair in Niujiashai Village, and on every fair day's the deal number of cows is around 40. About 60% of the cattle at the fair are transported from Jianshui County and Honghe County. Large-scale farms in Yuanyang County have also grown significantly in recent years. All seven farms were set up after 2014, except for the Yuan Yang Xinda cattle farm with a breeding stock of 100 calves able to produce 50 calves annually, which was established in 2007. In October 2014, Lihoo Shanggang Chong cattle and sheep breeding farmers' cooperative society built a plant at Nansha Town in Yuan Yang County, with a designed stocking capacity of 1,000, and an annual slaughter scale of 500. In May 2015, a cattle farm was built in Shuitang of Yuanyang County, with a designed stocking capacity of 100 cattle and annual slaughter scale of 50; in May 2015, a cattle farm was built in Hulshan, with a designed stocking capacity of 100 and annual slaughter scale of 50 cattle. In February 2016, the Yuanyang County Kunyuan Animal Husbandry Development Co. LTD was established, with a designed stock of 1000 animals and annual slaughter scale of 500. In March 2016, the Yuanyang County Zhigang Cattle Development Co. LTD was established, with a designed stock of 200, and annual slaughter scale is 100. In April 2017, The Yuanyang County Hongyuan Animal Husbandry Farm was established, with a designed stock capacity of 500 and annual output scale of 300. In January 2018, The Yuanyang County Hefeng Agriculture and Animal Husbandry Co., Ltd. was established, with a designed stock of 100 and annual slaughter scale of 50. The total designed stock of the county's large-scale farms is 3100, and the total designed annual slaughter scale 1600.<sup>5</sup> The cattle raised in these farms are basically beef cattle, with Brahman cattle being the most numerous, followed by Simmental cattle, and then crossbred calves. The buffalo breeds commonly raised by local villagers in southeast Yunnan are not found on these farms. The rapid growth of large-scale cattle farms, mainly for meat, in recent years is directly related to the decrease in the number of cattle raised by local villagers.

In the traditional farming model, the cultural meanings attached to cattle are linked to the social relations between people via cattle. As new modes of production emerge and take on an increasing importance, not only do the cultural meanings associated with cattle change, so do the social relationships established through them. If the value of cattle breeding is viewed only from an economic perspective, and if the economic rationale for terraced farming is considered, people will inevitably cease to be enthusiastic about cattle breeding. As the number of cattle in daily life decreases, the relationship between people and cattle, and the social relationship between people constructed from the premise of both, will no longer be strong, and the profound cultural connotations of these relationships will change. Accordingly, the deconstruction of deeper cultural meanings closely related to terrace farming and changes in social relations are the ultimate reasons for the gradual deterioration of the terrace landscape.



As social beings, people strengthen their social ties is an important way to solve problems. Traditional Hani villages are commonly characterized by the volunteering and customary practice of helping and exchanging labor for each other (2008, 102). The “cattle exchange” between villagers are concrete expressions of the maintenance and strengthening of their social ties. According to Zhang Mingsheng, a villager from Qingkou, in the 1980s and 1990s, every family in the village had cattle. If their own cows could not plow the fields because of pregnancy, villagers could borrow cattle from relatives and neighbors to plow the fields without paying the latter. It is a common practice to use someone else’s cattle and then go to the cattle exchange for help. However, in the past ten years or so, such practice has become rare, and the “cattle exchange” has gradually been “commoditized” away from the original reciprocal behavior, with relatives and neighbors paying the same for cattle workers. One villager said, “I raise cattle all year round, but you don’t help me for a day. Even if we are family, I cannot work for you for nothing.”

There are two ways to hire cattle workers. The more common is to hire the farm cattle and their owners to plow the fields. The other is to “hire the farm cattle without owners”, because they themselves have the labor and the skills to plow and rake the fields. One villager said, “If I don’t go with him and just let him take the farm cattle to work, they might keep the farm cattle working all day until dark. If I plow the field, I usually let the farm cattle rest at two or three in the afternoon. If they do it like that, they’ll work the cattle to death. If I plow the field, I will feed my farm cow grass and corn, but I don’t know whether they feed it or not. If they don’t feed the animal grass and corn, what can I do?” When it comes to the “cattle in-law”, that is, someone buys cattle and hires others to raise them, he only uses the cattle when he plows his fields. Some villagers said: “The ‘cattle in-law’ is very well indeed, but if the cattle breeder is not careful and the cattle die, the ‘cattle in-laws’ will only say that the cattle has died of illness, which cannot be clearly proved.” With the deepening of the “commercialized” degree of interpersonal relations in villages, the rational calculation component in interpersonal communication has been significantly improved, and especially when “trust” can be converted into certain economic benefits, the trust degree of traditional interpersonal communication model begins to decline.

The change from the traditional “three plows and three rakes” (plow for three times and rake for three times) to the present “one plow and one rake” shows an obvious decline in the value of cattle as “capital” and as means of production. The changes in the relationship between man and cattle, and that between man and man formed through the relationship between man and cattle, are clearly seen here. The terraced landscape has become inferior due to a drastic decrease of cattle, which is a reflection of the dilemma faced by the cultural landscape of the Hani terraces, in terms of transmission due to changes in social relations and the dissolution of the meaning of traditional culture.

It is possible for the economy to become socially embedded, or at least for the loosening of traditional socio-economic relations to allow for a release of economic dynamism and thus an increase in overall social productivity. However, the loosening of traditional social relations inevitably leads to the decline or even disappearance of traditional village festivals based on collective consciousness. Since 2014, due to the death of little Migu, who assisted the folk religious headman to preside over the ceremony, eligible villagers have not been willing to serve as little Migu, resulting in the failure to carry out the two most important village festivals of the Hani nationality, i.e. “Hhaqma Tu” (worship of the village god) and “Kuqzaqzaq” (June Festival). An important foundation for the preservation and transmission of the world's cultural landscape heritage lies in the preservation and transmission of traditional livelihoods and their deep cultural meanings. It is a challenging issue to make social governance in the process of economic development so that new socio-economic integration can be achieved while the meanings of traditional culture can be innovatively developed in the new era.

## CONCLUSION

The Universal Declaration on Cultural Diversity issued in 2001 holds that cultural diversity is the commonwealth of mankind, while cultural landscape is “the last repository of biodiversity”. “Cultural landscape” also includes the cultural and natural resources of “geographical areas with cultural or aesthetic value”, as well as wild animals or poultry and livestock (Shan, 2010). Cultural landscape

heritage “is not only evidence reflecting the history and relics of human land use in the past, but also a model for sustainable human land use (Shan, 2010).” The so-called model here is hardly created purely from the perspective of economic benefits. It mainly refers to a way that people can live in harmony with others and the nature for a long time in sustainable land use, which has many enlightening meanings for today's development. Local people with world cultural heritage and relevant state department offices working for this need to undertake the responsibility of social governance to protect and to pass on this commonwealth of mankind.

Honghe Hani Terraces became famous because it was declared a World Cultural Heritage and finally entered the World Cultural Heritage List. “The Hani Terraces have increasingly become a cultural symbol that the world stares at in modern society, and its landscape value lies in meeting the needs of others from outside to know the new features and the new cultural system. This landscape heritage is actually a concrete embodiment of the local ecological and cultural system, which must be based on rich social culture (Ma & Luo, 2019).” The Hani Terrace Cultural Landscape has become a world cultural heritage, meaning that, while it has won worldwide honors, its social and cultural space has also become a space representing national culture and even presenting the significance of masterworks of human culture. When the local people and the places to which the World Heritage Site belongs have such honors, they also represent the responsibility for inheriting and protecting the heritage project. When a national cultural event can become a world cultural heritage project, which means that a country's culture is rich and diverse, it will inevitably bring high honor to the country and even have a positive impact on the internal cohesion of the country, so much so that the countries concerned need to bear more important responsibilities in the protection and inheritance.

Obviously, the identification of cultural heritage is not based on the fact that this way of livelihood is higher in economic efficiency than a modern mode of production, but it is difficult for people entering modern society to improve their life quality simply by sticking to the traditional way of livelihood. Simply mandatory requirements to “protect” the landscape will not bring about economic and social development, for the work of landscape protection in this manner will become very passive. If the landscape itself cannot bring the villagers a realization of goals such as improving the value of local products and land, its protection and inheritance will certainly have problems. If the farmers do not creatively integrate themselves into this process, they will probably throw away the tradition as a result. Inheriting traditional culture creatively and transforming these cultural resources need to be creatively realized in the development of socialist market economy. However, the market will not realize social progress spontaneously. As Polanyi (2001) said: “The belief in spontaneous progress will inevitably lead to ignoring the role of the government in economic life.”

The change in the livelihood mode of a World Heritage results in changes in the social relations of villagers, and also changes in relations between villagers and terraces and cattle. The near disappearance of yellow cattle, the decrease of buffalo population and the imbalance of male-female ratio of buffaloes will have direct impact on the landscape heritage, and a deeper problem is that the low income of farming will also lead to the younger generation's contempt for traditional terraced work--they are unwilling and rarely have the opportunity to learn traditional farming techniques, which leads to intergenerational faults in the inheritance of technology and the fracture of cultural inheritance. To deal with this phenomenon is now an urgent task in protecting and inheriting the cultural landscape project of the Honghe Hani Terraces. Thus the relevant state departments, local governments and villagers need to assume the responsibility of governance.

Social governance involves many aspects, but fundamentally speaking, “what governance deals with is actually persons, but persons are associated and intertwined with wealth, resources, materials and territory. They are people of customs, habits, behaviors and ways of thinking (Foucault, 1978).” The purpose of social governance is to improve people's well-being. If the purpose of declaring world cultural heritage is to inherit the essence of and present the diversity of human culture, then the improvement of local people's well-being in this process should be a basic premise in achieving this purpose. If the holders of local culture have to choose between leaving the terraces for better income and staying to make

a living under economic pressures, it will be empty talk to emphasize the important value of the terrace culture to human beings at any level.

Entrance in the World Cultural Heritage List brings opportunities for local social and economic development. For poor mountainous areas with a weak economic foundation, the driving force for development is more exogenous, and the process of transforming traditional agriculture into modern agriculture is even longer due to the need to protect the traditional culture. After years of field investigation by the personnel of Hani Culture Research Base, we can see that both the relevant state departments and local government have made great efforts in protecting and inheriting the cultural landscape of the Honghe Hani Terraces, a world cultural heritage. In recent years, the local government has been making greater efforts to promote the local social and economic development by building the “Red Rice” brand of rice terraces planting and production, promoting the “rice, fish and duck” model on the basis of incorporating the local knowledge of terraces and building a sales network platform for terrace products. The development of tourism has also injected vitality into the economic development of local people. However, for Yuanyang, a poor county, these efforts are not adequate to really solve the problem. Judging from the current situation, it is difficult for the economic income of most villagers to be equal to that of working outside the home, be it tourism development or efforts to enhance brand influence. It is very urgent for the county to establish a protection mechanism for the core area of the Hani terraces.

At the national level, when deciding to declare a world cultural heritage, it should consider the responsibility of protection and inheritance in advance. When deciding to declare the cultural matters of a certain place as a world cultural heritage, it should consider that, after the entrance into the cultural heritage list, the development of the region will become a microcosm of development in China. In order not to let the development level of heritage areas lag behind other areas, the state must consider the establishment of a compensation mechanism simultaneously. In order to improve the ecological environment of the whole country, many ecological compensation measures could have achieved good results, and the implementation of various policies to enrich the people and promote the border areas for the purpose of making those areas to develop harmoniously has contributed to the stability and prosperity of the whole country. We hope that the compensation measures for villagers who are willing to cultivate in the traditional production methods in the core areas of the heritage can be introduced in time, so that their income will not be lower than that of people working outside the home. Although the formulation and implementation of policies need more detailed and arduous preparatory work, these tasks are very necessary and urgent, considering the great significance of protecting and inheriting world cultural heritage. The formulation and implementation of such institutionalized policies and measures will become a concrete manifestation of solving the contradiction between people's growing needs for a better life and the unbalanced and insufficient development in their places.

In order to realize the rural revitalization purpose of “prosperous industry, ecological livability, civilized rural customs, effective governance and affluent life”,<sup>6</sup> the relevant state departments and local governments need to formulate more special policies to effectively protect and inherit the production and life of villagers where a cultural heritage is located. As far as the Honghe Hani Terraces are concerned, terraces, cattle, villagers and their terraced farming landscape, traditional lifestyle and good relationship between man and environment are an original trinity not to be separable from each other. The absence of any link or a breaking of the balance among the three will bring about an overall destruction of landscape heritage. Undoubtedly, the cost that the country needs to pay is huge. However, if we can realize that these efforts are to “make people’s happiness a national utility and a national strength”, then these institutionalized measures would be a manifestation of social rationality and a really effective strategy by the country.

## ENDNOTES

1. There have been many academic discussions about whether peasants are economically rational. See also: J. H. Boeke. *Economics and Economic Policy of Dual Societies as Exemplified by Indonesia*, New York:

- Institute of Pacific Relations, 1953; James C. Scott. *The Moral Economy of the Peasant: Rebellion and Subsistence in Southeast Asia*, New Heaven and London: Yale University Press, 1976; Samuel L. Popkin. *The Rational Peasant: the Political Economy of Rural Society in Vietnam*, Berkeley: University of California Press, 1979; A. Chayanov, *Economic Organization of Peasants*, translated by Xiao Zhenghong, Beijing: Central Compilation and Translation Press, 1996; Theodore W. Schultz, *Transforming Traditional Agriculture*, translated by Liang Xiaomin, Beijing: Business Press, 2006.
2. UNESCO's evaluation indicator for the Honghe Hani Terraces states: "Criterion (iii): The Honghe Hani Terraces are a striking reflection of the careful interplay between agricultural, forestry and water systems, which are reinforced by long-standing and unique socio-economic-religious systems." UNESCO website: <http://whc.unesco.org/en/list/?search=hani+terrace&order=country>.
  3. In 2004, Yunnan University built a Hani cultural research base in Qingkou Village, Yuanyang County. One of the authors, Ma Chongwei, is the base's director. For fifteen years, the base researchers have observed the village for at least two months each year. The interviews and data in this paper, which are not noted here, are from fieldwork conducted by the base researchers, mainly from January-February 2018, August-September 2018, and March-April 2019, specifically for cattle raising.
  4. See: Li Zixian, *An Exploration of the Symbolic Meaning of the Cattle: The Cattle in Hani Mythology and Religious Rituals*, *Folklore Research*, No. 3, (1991); Rao Hengjiu, *The connection between cattle and Zhou culture from the Shi Jing*, *Journal of Ningxia University (Social Science Edition)*, No. 1, (1994); Zhang Aibing, *The Cultural Control of the Ox and Its Motives*, *Southeast Culture*, No. 11, (2002); Chen Ping, *The Cultural Analysis of the Ox*, *Journal of Chongqing Three Gorges College*, No. 6, (2005); Yang Zhuhui, *The Ox: A Perspective on the Social Culture of Southwest China's Ethnic Groups*, *Guangxi Ethnic Studies*, No. 4, (2014); Wang Mingming, "Niu Ren", *Folklore Research*, No. 1, (2006); Wang Mingming, *From "Tribe without Ruler" to "Theater State"*, *Northwest Ethnic Studies*, No. 3, (2010).
  5. Data on the cattle stock and output of farms in Yuanyang County were provided by the Bureau of Animal Husbandry of Yuanyang County and made available on July 5, 2019.
  6. Opinions of the State Council of the Central Committee of the Communist Party of China on the Implementation of Rural Revitalization Strategy. Website of the Central People's Government of the People's Republic of China: [http://www.gov.cn/zhengce/2018-02/04/content\\_5263807.htm](http://www.gov.cn/zhengce/2018-02/04/content_5263807.htm). Accessed on March 31, 2023.

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