

# Core Issues in Design of Tibetan Grassland Ecological Compensation Mechanism

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**Abstract** Scientific grassland ecological compensation mechanism is favorable for improving the grassland ecological environment and promote the sustainable development of animal husbandry. Combined with actual situations of Tibet, this paper discussed core issues in the design of grassland ecological compensation mechanism, including compensation purpose, compensation subject, compensation object, compensation standard, and compensation method. It pointed out that the design of mechanism is a complex and systematic project. Each issue is complex and varied. The government at all levels should be cautious and make scientific treatment, and should not apply a single solution for all issues.

**Key words** Grassland ecological compensation, Compensation mechanism, Core issues, Tibet

## 1 Introduction

The exploration of ecological compensation system started as early as in the 1920s<sup>[1]</sup>, but few researches have been carried out on the ecological compensation of grassland<sup>[2-3]</sup>. In recent years, it has gradually become the focus of attention in academic circle and practice. Combined with the research achievements of early scholars and the ecological compensation practice of Tibetan grassland, we hold that the design of grassland ecological compensation mechanism should focus on the five core issues: compensation purpose, compensation subject, compensation object, compensation standard, and compensation method.

## 2 Compensation purpose

The purpose of grassland ecological compensation is the expected result of compensation subject through compensation actions. It concerns other core issues such as compensation subject, object, standard and method. Besides, it concerns success of design of grassland ecological compensation mechanism. Therefore, the purpose of grassland ecological compensation is the core and primary issue in the design of grassland ecological compensation mechanism.

Grassland ecological compensation is caused largely by grassland degradation and other ecological and environmental problems, the purpose of grassland ecological compensation is to maintain and improve the balance of grassland ecosystem, so the pursuit of grassland ecological benefits should be the first purpose of grassland ecological compensation. In the process of maintaining and improving the ecological environment of grassland, the herdsmen abandon the use of grassland and sacrifice the economic benefit. The economic benefit of herdsmen should be the second purpose of

compensation. Therefore, the purpose of grassland ecological compensation should be at least the combination of ecological benefit and economic benefit, especially in the important areas concerning national ecological security, and Tibetan areas with vulnerable ecological environment. Besides, local government should be compensated for their efforts in coordinating ecological and economic benefits, and opportunities they give up for local economic development. Therefore, grassland ecological compensation also needs considering social benefits. In other words, grassland ecological compensation needs to coordinate the relation between ecological, economic and social benefits.

Tibet has vast territory and diverse and rich grassland types. Different regions and different combinations of purpose should be designed with different compensation mechanisms. At present, the Tibetan grassland ecological compensation cares more about the ecological benefits of grassland and economic benefits of herdsmen, but less about the contribution of local government, in other words, it cares little about social benefits. Taking into account the long-term and complexity of compensation, the purpose of compensation can be divided into several stages from simple to complex. At different stages, there are different compensation subjects, objects and standards. At the same time, it is required to consider the difference between different regions in Tibet. And focus of different compensation purposes should be different. In specific implementation process, it is necessary for government at all levels to implement measures step by step and summarize experience through exploration, instead of imposing a single solution for all problems.

## 3 Compensation subjects

In essence, the mechanism of ecological compensation is to coordinate the interests and conflicts of different subjects<sup>[4]</sup>. The grassland ecological compensation refers to compensation of grassland users or beneficiaries in the legal use of grassland resources for grassland owners or those who make expenses in protection of

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grassland ecological environment. Obviously, the user or the beneficiary is the grassland ecological compensation subject and belongs to the indemnifying party, while the owner or the protector is the grassland ecological compensation object and belongs to the indemnified party. Theoretically, on the principle that "the beneficiary party should make compensation", the indemnifying party should make compensation for the indemnified party.

In the Tibetan grassland ecological compensation mechanism, according to the theory of public economics, grassland ecological safety is an important part of national security, the country has obtained grassland ecological security, so the central government should become the ecological compensation subject; groups outside the area and residents within the area obtain grassland ecological rights and interests, and some trans-regional groups also obtain the environmental rights and interests. All of these should be the compensation subjects. The large number of compensation subjects leads to the high transaction costs, the government as representative of the public interest should assume the common compensation subject. Therefore, it is necessary for both central government and Tibetan government to become representatives of the interests of the public. Just for this, grassland ecological compensation is a government-sponsored undertaking from the start, and government becomes the government-led ecological compensation subject. This type of compensation subject enjoys the environmental rights and interests (ecological benefits), and the government should undertake the common responsibility for compensation.

Another type of compensation subject enjoys the economic benefits, and it needs to be compensated by the individual or the enterprise. For example, some economic development subjects (such as enterprises) in the grassland mining, oil production, development of tourism to obtain economic benefits, to some extent, damage or use grassland resources, they need to pay reasonable economic compensation, and thus become grassland ecological compensation subject. There are some compensation subjects difficult to determine. They use grassland resources for grazing or excavate *Cordyceps sinensis* (Berk.) Sacc. to obtain economic income, thus they also should be the compensation subjects. However, it is necessary to distinguish the grassland use rights. Under the premise of clear grassland property rights, if grassland nature reserves are owned by the state, to prohibit the development of this region, the production and management in this region should be fined. If grasslands are collectively owned or used, or contracted to households, herdsman as users will enjoy the rights of management and income. According to the analysis of externality effect, it is necessary to measure how much of their operating costs are assumed by themselves and how much is transferred to the society. The portion transferred to the society should be converted into the cost of herdsman, and become herdsman's compensation, accordingly herdsman should become the compensation subjects. Nevertheless, it is difficult to measure the costs transferred by herdsman, and most Tibetan herdsman are poverty-stricken. Therefore, from the anthropological perspective, it is not appropriate to make

them become compensation subjects. In practice, there are two types of charging measures which have certain nature of compensation. One is collecting the overgrazing compensation fees from overgrazing herdsman on the principle of grass and livestock balance, and the other is to collect certain management fees from herdsman who excavate *Cordyceps sinensis* (Berk.) Sacc. according to theory of externality. The compensation of grassland between herdsman will be made through the market intervention.

In sum, the compensation subjects include the central government, the Tibetan local governments at all levels, economic development entities other than herdsman, and some herdsman. In practice, how to negotiate and allocate compensation funds among the various subjects is a very complicated and specific problem. It is necessary to distinguish the short-term and long-term evolution process, need to consider financial resources of Tibetan local government and strength of herdsman, and also to consider unbalance within Tibet. At least in the short term, the compensation subjects should be concentrated in the central government and other economic development entities; in the long term, it needs to consider the trans-regional compensation within the Tibet and the externalities in the operation of herdsman.

#### 4 Compensation objects

According to the grassland law, the grassland is owned by the state or collectively, and the state-owned grassland can be used by units owned by the whole people and collective economic organizations. In practice, the grassland in Tibet is basically divided into unused grasslands, nature reserves and collective-owned grasslands. According to the reform plan of Tibetan grassland contractual system, the collective owned grassland is used by herdsman through contract. Unused grasslands and nature reserves are managed by Tibet local government or environmental protection organizations, so they should obtain corresponding financial compensation from central government or local government and become compensation objects. For collective-owned grasslands, herdsman enjoy the use right, income right and distribution right. If herdsman reduce pastoral area for ecological benefits of grassland, they sacrifice their survival right and development right to a certain extent, contribute excellent ecological environment, and generate positive externality, so they should be compensated. In sum, compensation objects should include herdsman, grassland pastoral area government, and environmental protection organizations or enterprises that have made contribution to grassland ecological construction.

Definite but accurate compensation objects concern allocation and implementation of compensation funds. It is relatively easy to recognize the compensation objects from the macroscopic perspective, but it is very complicated to distinguish the compensation objects from the microscopic perspective. From the above analysis, we can know that grassland pastoral area government may be the compensation subject and also the compensation object. Theoretically, it can be balanced according to income or loss. However, it may be a multilateral game process. How to combine the theory

and practice is a long process. For herdsmen, the core issue of compensation lies in confirmation of grassland property right. In 2005, Tibet proposed contracting the grassland to the household, but there is conflict between historic boundary and administrative boundary of grassland, uneven grassland fertility, and competition of *Cordyceps sinensis* (Berk.) Sacc. These key issues concern whether the compensation objects can really obtain the compensation and enjoy the fairness of compensation. If these problems are not handled properly, it will ultimately lead to social conflicts and stability problems. Therefore, proper handling of grassland property rights is of utmost importance and needs to be carried out in a step-by-step manner, and imposing uniformity without examination is worth discussing.

## 5 Compensation standards

The compensation standard is the core content in design of the grassland ecological compensation mechanism. It is the adjustment results of benefits of indemnifying party and indemnified party. The excessive compensation and insufficient compensation will directly affect the feasibility of compensation and the effect of ecological improvement.

Theoretically, there is still no uniform formula and model for the basis and standard of grassland ecological compensation<sup>[5]</sup>. On the basis of actual situations of Inner Mongolia, from the perspective of cost or value range, Gong Fang *et al.* concluded that Inner Mongolia grassland ecological compensation standard includes three parts; direct cost, opportunity cost, Inner Mongolia grassland ecological service function value; from the dynamic change and development perspective, the compensation standard can be divided into five gradual stages, Inner Mongolia grassland ecological compensation remains at the second and third stage. In this study, from the perspective of compensation object, the grassland ecological compensation standard should reflect the positive contribution made by the pastoral grassland ecological government to maintain grassland ecological benefits and improve the grassland ecosystem, and should reflect the direct losses incurred by herdsmen in reducing pastoral area and livestock number for grassland ecological benefits and the opportunity cost for their giving up production expansion, and also should consider the input and opportunity cost loss of grassland ecological protectors, and consider the direct loss and restoration cost for damage of grassland ecology. These are the fundamental requirements. From the perspective of development, we should also consider the service value of the grassland ecosystem, consider the development gap between the herdsmen and the whole national people, namely, consider the stage changes in the compensation standard.

In practice, the subsidy for grazing prohibition in Tibet is 90 yuan per ha annually; the subsidy for balance of grass and livestock is 22.5 yuan per ha annually; the subsidy for fine grass seed is 150 yuan per ha annually; the subsidy for the production of diesel and fodder grass is 500 yuan per household annually. The uniformity grassland ecological compensation standard does not re-

flect the regional differences and individual differences, greatly weakens the incentive effect of ecological compensation, and dampens the enthusiasm of farmers and herdsmen for participation and support of ecological construction. Tibet is vast in territory, diverse in grassland types, and varied in self-recovery capabilities. For example, the southeast of Tibet has the problem of low elevation, high self-recovery capability, and the degree of damage is very small, and there is no problem of returning grazing to grassland or grazing rest and rotation grazing; by contrast, the vegetation in Naqu and Ali has very weak restoration ability, it is required to implement grazing rest, rotation grazing, or even grazing prohibition. If regional differences are not considered, it may result in new poverty or widen the gap between the rich and the poor due to compensation problems. At the operation level, we can determine the compensation standard by investigating and considering the compensation intention of the indemnifying party and the indemnified party, as well as the influencing factors.

## 6 Compensation methods

The compensation method is the general name of concrete approach, specific means and the payment method of grassland ecological compensation. According to the purpose of compensation, the compensation subjects, the compensation objects and regional differences, the purpose of grassland ecological compensation needs to take following approaches. Diversified compensation can greatly enhance the adaptability, flexibility and elasticity of compensation, and thus greatly enhance the pertinence and effectiveness of compensation to facilitate the compensation activities at any time, anywhere in a smooth manner by large scale<sup>[6]</sup>. In the context of the complex regional differences of Tibetan grasslands, a single compensation method can not solve the grassland ecological environment problem fundamentally and systematically, and it may even be futile and ineffective. Therefore, it is of great practical significance to construct a multi-level and compound grassland ecological compensation method.

According to the leading of compensation, the grassland ecological compensation can be divided into government-led compensation and market-oriented compensation. The ecological compensation of grassland in Tibet should take the government-led compensation mode, supplemented by market compensation. In the government-led compensation, the government may protect the grassland ecological security and the regional coordinated development through financial subsidy, policy inclination, project implementation, transfer payment and talent technology investment. The source of funds mainly relies on financial transfer payment, and it is necessary to actively seek compensation funds from social organizations. Market compensation is compensation made by market transaction entities by economic means through market actions in the framework of various laws and regulations and ecological and environmental standards, and it is made mainly between economic development entities and herdsmen.

In accordance with the compensation input elements, grass-

land ecological compensation can be divided into physical compensation, monetary compensation, intellectual compensation, technical compensation, and employment compensation. Now, it basically applies the simple monetary compensation, but the disadvantage is that it is easy to generate the thought of reliance, and when the grassland area is greater than 666.7 ha, it is difficult to control the huge amount of compensation and accordingly lead to social problems. Therefore, it is necessary to actively develop other compensation methods, such as the physical compensation of forage distribution, technical compensation of improving grassland productivity, intellectual compensation of providing education and training for herdsmen, and employment compensation of labor transfer. These can reduce grassland ecological pressure, really play the great role of restoring grassland vegetation and improving the grassland ecology.

According to the compensation condition, grassland ecological compensation can be divided into unconditional compensation and conditional compensation. Unconditional compensation is based on pastoral area of grassland property rights and the number of existing livestock of herdsmen. Compensation funds are directly allocated to compensation objects in accordance with the established compensation standards. Conditional compensation is to compensate the objects with some restrictive conditions. If the requirements are not satisfied, less or no compensation will be provided. Comparatively, the latter compensation is more effective in ecological restoration, but there is supervision or assessment cost. Therefore, it is proposed to gradually change the current unconditional and purely economic compensation to conditional and oriented compensation, to promote change in grassland use mode, to promote changes through compensation, and promote construction through compensation, and guide herdsmen to combine the developed production, well-off life and civilized ecological civilization<sup>[3]</sup>. In addition, it is feasible to carry out pilot unconditional compensation for the unconditional investment, change the compensation into investment. The investment can be launched in two aspects: one is grassland ecological construction investment, in-

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forest resources in Yanbian. These areas can take advantage of the preferential policies and barren hills to develop eco-tourism, and the future direction of development should focus on artificial raw material forest base construction. For Yanbian's southern regions, Helong and Antu have concentrated forest resources and two wood-based panel production lines. They should develop medium density fiberboard and chipboard industry clusters, and gradually extend the industrial chain to high value-added products, to finally form laminate flooring and plate furniture production base. It is necessary to give full play to the advantages of Changbai Mountain and border ports, to build Yanbian forest eco-tourism brand. For Yanbian's northern regions, due to decades of over-exploitation, low level of equipment and weak economic foundation in Wangqing, it is necessary to avoid re-investment in the project con-

cluding fine grass seed investment and grassland irrigation investment, and the other is the transfer of employment investment, guiding herdsmen to develop other industries to realize the transfer employment.

## 7 Conclusions

The design of grassland ecological compensation is a complex theoretical problem, and also a complicated systematic project. All areas should design practical compensation mechanisms in accordance with respective actual situations. In the design of ecological compensation mechanism for the Tibetan grassland, any issue is a complicated and varied problem and has characteristics of historical stage and regional differences. We should not deal with these issues in a simple way and should not impose uniformity without examination. Besides, it is necessary for the governments at all levels, especially the government of Tibet Autonomous Region, to make a cautious analysis and scientific treatment.

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struction, use the original small scale enterprises to offer supporting processing for specialized products, and establish forest product raw material base with Wangqing as the core.

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