

effectively in both regional and global markets in the near future and contribute towards a prosperous society.

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Chapter 5

Improving the Livelihoods of Herders through Promoting an Improved Pastoral Ecosystem in Tibet

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INTRODUCTION

This paper analyses the status of pastoral animal husbandry in the high and cold regions of Tibet. Guided by the objective of pursuing scientific development and by consideration of the development trends in international and national grassland and animal husbandry sciences, the paper proposes to establish a new grassland ecosystem in the high and cold region in order to improve production and thereby the living conditions of Tibetan herders.

The status of Tibetan grasslands and animal husbandry

Grassland animal husbandry is the basis and pillar industry of Tibet. Natural pastures and yaks, Tibetan sheep, goats, hogs, and poultry have always been the material bases of survival for Tibetan herders.

Since the establishment of China's reform and open policy, particularly since the Third Symposium held by the Central Committee of the Communist Party of China on the Work of Tibet, grassland animal husbandry has made significant progress. According to statistics, the number of livestock reached 22,660,000 in 2003 (whereas it was 9,740,000 in 1951). In the decades since 1951, the production value of grassland animal husbandry has amounted to 60% of the total agricultural production value in Tibet and to about 50% of the total industrial and agricultural production value. Grassland animal husbandry accounts for the largest proportion in agriculture, if compared with other provinces and regions in the country.

One of China's five major pastoral zones and one of the four major pastoral areas, Tibet is rich in pastoral resources. According to a survey carried out in 1987, Tibet has 17 types of natural pastures, covering an area of 82,070,000 ha, of which an area of 55,000,000 ha is usable

with an enclosed area of 1,100,000 ha (excluding the pastures in the Menyü area and the pastures that are difficult to use). Pastures in Tibet account for 20% of the total natural pastoral area in China, and it is unparalleled among the provinces and regions in the size of pastoral area. However, problems such as livestock overstocking have led to the desertification and degradation of natural pastures, livestock and poultry breed degeneration, unbalanced herd and species' structure, and reduction in pastoral productivity. All these pose an obstacle to the development of animal husbandry. According to relevant surveys in counties that are fully or partially dependent on animal husbandry, the annual average pasture stocking rate during cold seasons is around 40% and, in a few counties wholly dependent on animal husbandry, the rate is 20%. In the Tibetan pastoral area, the degraded pasture area amounts to 50% of the total pastoral area of the region, and the desertified pastoral area to around 17%. Grass-covered areas amount to 20-70% of the degraded pastoral area. The height of pasture plants has decreased by 20-60% and plant productivity by 20-50%. Pasture degradation can be attributed to damage by rodents, insect pests, diseases, and human activities. In northern Tibet, large areas are infested by rodents and their nesting holes and broken grass sods can be found everywhere. Plateau rodents such as conies and marmots are very active, well-fed, and bold. Damage done by human beings make up a very long list.

The consequence of quantity decrease and quality degradation in grassland resources and the sluggishness of development of grassland animal husbandry will eventually lead to a situation in which the production and living conditions of Tibetan herdsman cannot be improved. Quite a number of herdsman are still living a nomadic lifestyle, moving from place to place in search of water and grass. Secondly, the living conditions are basic, with poor housing and sanitary conditions. Thirdly, the diet is monotonous and nutritional levels relatively low. Fourthly, it is difficult to provide education for the children of the herdsman and thus there is a low literacy rate. Finally, medical care is poor and shortages of medicine and doctors are common. The average life expectancy in Tibet is lower than the national average. Measures have been taken by the government to improve the situation, but improvement is slow.

The importance of Tibetan natural pasture to the plateau ecosystem and agricultural and animal husbandry production

Natural pasture is one of the major ecosystems of the earth, covering one quarter of the globe. The role of such a huge ecosystem in the

biosphere of planet earth is invaluable. The modern pastoral industry mainly relies on pastures to exist and develop. Pastoral resources are essential for economic development, ecological conservation, and cultural transmission in Tibet and will be more and more important in terms of socioeconomic progress and environmental conservation. The pastureland of the high and cold plateau of Tibet is particularly unique and plays a regulatory role in the global environment, particularly the Asian ecological environment. This vast pasture is not only an essential part of the ecologic system, but also the main natural resource for the development of pastoral animal husbandry.

Like other provinces and regions in China, the fact that the natural pastures of the Tibetan Plateau are seriously degraded is undisputable, and this not only handicaps the development of animal husbandry but also affects the welfare of farmers and herdsman and threatens national ecological security. This situation can be attributed firstly to the fact that pastures have long been considered a 'natural object' and excluded from the agricultural ecosystem. Thus, since time immemorial in China, good pasturelands have been converted into agricultural farmlands. This was the case in Tibet during the 'Cultural Revolution' and for a period thereafter. Secondly, misled by the notion of equating wealth with the number of animals, the number of livestock in the animal husbandry area has drastically increased. Heavy grazing has led to the deterioration of pastoral resources and 90% of the pastures have been affected to different extents. Thirdly, mismanagement and lack of regulation and use of land for construction have also led to the drastic decrease in pastoral areas, increasing desertification and a gradual reduction in productivity. Therefore, the ecological balance is upset and wind, snow, and hailstorms occur frequently.

Confronted with this serious situation, the National People's Congress issued a Grassland Law in 1985, and this has played an unprecedented positive role in protecting pastureland. However, for various reasons, the natural pastures in Tibet being a vulnerable ecological environment, old problems persisted and new problems continuously arose. The revised grassland law issued on March 1st 2003, with a new understanding of the function of pastureland, stresses the idea of a pastoral agricultural ecosystem. Particularly worth mentioning is the inclusion of artificial pastures in the law. In Section II of Chapter I of the Law, it is explicitly stipulated that "the pasture referred to herein means both natural pasture and artificial pasture." This will be a link connecting the traditional farming area and animal husbandry area. It will be a breakthrough of the barriers between the two areas. It will also be a guarantee for a

new pastoral agricultural system, namely, an agricultural system with animal husbandry as a component. It is foreseen that the impact of the grassland law will go beyond pasture itself. Its importance will be shown in the readjustment of the agricultural structure. Only when crop farming and animal husbandry are properly combined can people be free from natural restrictions in livestock keeping and grass production. This should be the fundamental approach to the healthy development of a pastoral ecosystem.

To improve the ecological environment of the Tibetan Plateau in the shortest time possible is of utmost importance for a number of reasons. It will help maintain the beneficial cycle of the pastoral ecology and maintain the country's ecological security. It will provide the means of realising coordinated development between the economy, society, and ecologic environment, and thereby contribute towards promoting national unity, maintaining frontiers, and ensuring social stability in the region. To implement the grassland law and to establish a new grassland farming system in this high and cold region to improve production and the living conditions of Tibetan herdsmen are tasks for both the government and the academic circle.

Actions to be taken

The International Symposium on 'Sustainable Rural Development in Mountainous Regions with a Focus on Agriculture in the Tibet Autonomous Region' held in Lhasa provides us with an opportunity to discuss some of the issues and to recommend actions for improvement of the pastoral industry in Tibet. Based on the above analysis, the following action points can be suggested.

Establish a grassland conservation system

While Tibet has an expanse of natural pastures, the natural conditions are severe. The pure pastoral zones, in particular, are high and cold and lack oxygen. The population is sparsely scattered and transportation is difficult. Over many years, measures have been taken by the government to counteract the situation, but with little success. Under 'The Grassland Law', a basic grassland conservation system should first be established. Natural pastures, improved pastures, major pastoral lands, artificial grassland, and nature reserves should be designated as basic pastures to be closely protected. Secondly, a system with a balanced pasture-livestock ratio should be implemented. This can only be achieved by regulating the amount of livestock on hand in an area according to the pasture's production capacity within a particular period of time. Finally, a system of

rotational grazing based on division of areas and prohibition of grazing in some areas should be pursued.

Stabilise and raise pastoral productivity

On the basis of general experience, construction of the pastoral infrastructure should be strengthened, emphasising enclosure and conservation of water. Desertified land should be dealt with on a priority basis. Sticking to the policy of prevention first and prevention-treatment to be combined, work should be carried out to prevent and mitigate natural disasters on pasturelands and to raise the ability of herders to counter disasters.

Return farming land to pasture

In 2004, the project for returning farming land and grazing land to natural pasture is to be comprehensively executed in some prefectures and counties of the region. The scope and major areas of the project are to be designated first. In executing the project, ecological effects and benefits are to receive top priority, while the livelihoods of farmers and herdsmen and local economic development shall be equally considered. Such measures as providing food, cash, and pasture seed subsidies are to be taken to solve the problems brought about by the project to farmers and herdsmen.

Transform grassland agriculture

Pen-feeding or semi-pen-feeding with concentrated feed as supplementary feeding, wherever possible, is to be encouraged. The government will provide feed and cash subsidies. According to the principle of adjusting measures to local conditions and making full use of comparative advantages, the animal husbandry sector will be reformed and optimised, particularly in terms of herd and species' structure. The goal is to form a pattern of breeding on pasturelands and fattening in farming and semi-farming areas. In order to protect pastures, the amount of livestock on hand will be scientifically regulated together with schemes for pastoral improvement and improvement of animal breeding. Meanwhile herdsmen will be encouraged to cull and sell livestock to increase the off-take from pastures. Farmers and herdsmen will also be persuaded to raise less or no livestock that require long periods of grazing. Retired government officials and workers will be prohibited from raising livestock.

Promote the idea of scientific development, promote pastoral protection and advance science and technology

Animal husbandry and grassland research units will make particular efforts to study basic issues such as the mechanism of grassland degradation and the pattern of ecological evolution. Research and development in critical technologies, such as macroscopic regulation in grassland recovery and reconstruction and selective breeding of drought and cold-resistant pastoral plants, should be strengthened. New grassland management technology and new breeds of pastoral plants will be introduced with greater speed. Practical applicable technologies will be promoted through increased efforts. It is proposed that a grassland research institute for the region be established.

Put greater efforts into grassland conservation and construction

In consideration of the vast area of grassland in Tibet, a scientific protection and construction plan should be formulated and strictly executed. Funds can be collected through various channels, but should be used reasonably on major projects to attain good investment results.

Strengthen supervision, monitoring and forecasting

Presently, the region is weak in the areas of supervision, monitoring, and forecasting natural disasters. For instance, the locust plague in Aligar county in 2003 had taken place on a large scale a few years before. As a result of the lack of supervision, monitoring, and warning systems, the locust pest spread without the knowledge of the government. With the participation of the media, it was acted upon and controlled. Therefore, grassland supervision and management work should be strengthened and a complete supervision and management system should be set up to coordinate governments at different levels. The monitoring and forecasting work for grassland ecology should be conducted conscientiously with an emphasis on monitoring the grassland area, its productivity, the state of the ecological environment, grassland biological pests, and grassland conservation and construction effects.

Strengthen the administration of grassland conservation and construction

According to the actual conditions of the region, the people's government of the autonomous region should take overall responsibility for grassland conservation and construction, and the Ministry of Agriculture in the region should make plans for macro and micro projects. The responsibility

system for municipal and county governments should be implemented. It is suggested that grassland management bureaux be established in pure pastoral zones. According to the principle of long-term household operation, the household contracted responsibility system should be further pursued to clarify the rights and obligations in production, conservation, and construction and to provide farmers and herdsman with encouragement in the conservation and construction of grasslands.

Continue to promote projects on ecological migration, herdsman's settlement and drinking water

In recent years, in order to improve the productivity and living conditions of farmers and herdsman, the government has supported projects of ecological migration, herdsman's settlement, and drinking water supplies. The social, ecological, and economic effects and benefits of these projects are significant and applauded by farmers and herdsman. More efforts need to be put into such projects.

CONCLUSIONS

To be out of the plight of poverty and be affluent is the dream of human beings and the ongoing practice for pursuing justice and equality. Fighting poverty is the common duty of all countries in the international community. Today's symposium is focusing on the elimination of poverty among Tibetan farmers and herdsman and on leading them to affluence. The significance of this conference will not be confined to Tibet but will extend to regions similar to Tibet all over the world.