

Institutional innovations of the grassland household-contract-responsibility system : a study of the household-allied operation system of Xilinguole League , Inner Mongolia

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Key points : In the past 30 years , the HCRS (household-contract responsibility system) has made a great contribution to the development of China . Although it is a successful practice in rural areas , it has its defects , especially in pastoral areas . This system leads to grassland fragmentation and possibly results in degradations of grassland ecosystem . This paper analyses a new practice , which is an institutional innovation of HCRS by herdsmen : household-allied operation system (HAOS) . HAOS encourage herdsmen to cooperate for grassland use and management . Under this system , the productivity is improved , human resources are developed , herdsmen's per capita income is increased , and , more importantly , it results in rotational grazing that protects the ecosystem of grassland .

Key words : institutional innovation , household-contract responsibility system , grassland , household-allied operation system

Introduction

The household-contract responsibility system (HCRS) of rural areas , as a symbol of China's Reforming and Opening-up policy , has not only increased farmers' working enthusiasm and initiative , but also improved agricultural productivity . HCRS solved China's food security problems and made a great contribution to the development of rural areas . HCRS is the fundamental institutional arrangement and provides the institutional foundation of other rural policies . This system was gradually adopted in the pastoral areas in the late 1980s in China . There exist many arguments about this system . This study analyzes five separate cases in Xilinguole League , Inner Mongolia , of the institutional performance and effectiveness of an innovative institution of household-allied operation system (HAOS) . The historical evolution of the grassland household-contract management system is reviewed and the problems are discussed , and five cases are studied to illustrate the effectiveness of HAOS . Finally the conclusion is reached that under the framework of HCRS , the grasslands are possibly overgrazed and degenerated , but adoption of HAOS can help to solve the problem of degradation and protect the ecosystem of pastoral areas .

Historical process of grassland HCRS

Before 1949 , most pastoral areas in China were operated under a feudal system where most of the grasslands were owned by the tribe . Under this condition , few lords had the property rights and tribal members , instead of owning the land , could just use the grassland . Since the 1950s , the commune system has been put into practice where grasslands were owned by the state and operated collectively . Since the beginning of the reform in 1978 , the household-contract responsibility system has successfully spread in China . Nowadays , grassland ownership is based on the HCRS , which means grassland is owned by the community and is contracted to the herdsman households to use . This process evolved over three stages : (1) from the early to the end of the 1980s , only livestock were given to herdsmen by contract ; (2) from the end of the 1980s to the mid 1990s , most of the grasslands were contracted to a group in the village ; (3) from mid 1990s to now , grasslands were contracted to households (Awangjiancuo , 2004) . There are four steps in the dispensing process : the first is surveying to clarify the boundary of the grassland among different villages ; the second is developing household contract scenarios and dispensing the grassland to the households after the plan has been approved by herdsmen's convention ; the third is signing contracts with each household ; the final step is issuing certification to the households .

Different weights are given to the number of livestock owned by households and number of people in the households in allocation of grasslands . There exist two types : 40% weights for livestock number and 60% for number of people , or 30% weights for livestock and 70% for people . The duration of a contract is between 30 and 50 years . Archives of the contract are kept by the grassland supervising organization or the agri-animal husbandry bureau of local governments . So far , total areas of contracted grassland in China are more than 200 million hectares . Inner Mongolia Autonomous Region (IMAR) is one of the most successful provinces regarding this . From 1982 to the end of 2006 , the household contracted grassland reached 53 million hectares , nearly 80% of the grassland usable in Inner Mongolia .

Problems faced by grassland household-contract responsibility system

Grassland HCRS , on one hand , promotes the development of livestock husbandry of pastoral areas . On the other hand , it can lead to heavy grassland degradation . It has been found to negatively affect the grassland ecosystem (Ao Renqi , 2004) . There exist three problems with this system : First , it leads to grassland fragmentation and heavy environmental degradations . After dispensing grasslands to households , grasslands were segmented into small pieces with each household grazing on only a very

small area . Therefore , this system makes it difficult to conduct rotational grazing and accelerates grassland degradation . Second , the function of communities can not be realized . After the reform , herdsmen worked on their own grassland separately and the relationship among them was looser . This negatively affected the communities' supervision function . It is difficult to extend new grazing technologies because of less cooperation among households after the reform . Furthermore , some of the herdsmen rent out their grasslands and it is difficult to restrict the renters' overgrazing behavior . Third , it leads to high production costs and low incomes of herdsmen . The small scale of grassland makes it difficult to allocate the human resources optimally . Roughly 90% of domestic usable natural grasslands have been degraded , including 57% light degraded , 31% medium degraded and 12% heavy degraded (Yang Li , 2006) .

Some researchers think that the reasons for the above problems are the limitations and defects of the grassland household-contract responsibility system , and they provide a solution of " grassland as stock share " management system (Ao Renqi , 1989 , 200) . Bao Yushan claimed to use a collective system (2003) : the village has the rights to make contracts regarding management practices , and resume nomadic grazing at the same time . Yang Li (2006) believes it is important to encourage herdsmen to cooperate in grassland use after the initial allocation of grassland property rights . Experiences from other countries suggest that it is impossible to realize sustainable development of grasslands without development of a comprehensive property rights institution (Fernandez Gimenez , M . E . , 2001 , 2002 , 2004 ; Casimir , M . J . 1992 ; Mearns , R . J . 1996) .

We believe that the current grassland HCRS really has some defects , however , herdsmen have found some solutions in practice . This paper , based on five cases in the Xilinguole League Inner Mongolia Autonomous Region , analyzes the development of a household-allied operation system and its characteristics . This analysis casts new insights on the institutional innovation of HCRS .

Case Studies

Case 1 : Saiyin Baolige Haote , Xianghuang Banner of Xilinguole League , Inner Mongolia

There were originally seven households in the area . Since serious degradation and low possibility of increasing income from livestock husbandry , two households moved to urban areas after renting out grassland to their neighbors . The other five households , 24 people in total , grazing on less than 1000 hectares of grassland chose HAOS for management . There are in total 600 head of livestock in this area . The amount of livestock that each household can raise is determined by the capacity of their grassland and the magnitude of grassland they have contracted . The grassland has been separated into winter grazing area , summer grazing area and collective grass harvesting area , which is used for hay stockpiling for winter time feeding . Now , rotational grazing has been realized in this area . The average income per capita in the village has increased by 1000 Chinese Yuan .

Case 2 : Benhong guole Gacha , Xianghuang Banner of Xilinguole League , Inner Mongolia

There are six households and 900 hectares of grassland in this group . Most of the grasslands are highland and desertification grassland . Since the higher fence input cost and lower grassland area per capita after HCRS , local people made the decision to adopt HAOS after 1995 . Thereafter , they constructed fences for the grassland area of the whole group rather than for each family . The amount of livestock each household can raise is determined by the capacity of grassland and the area of grassland contracted . The grassland was divided into winter grazing areas and summer grazing areas . Now , grass mowing and grazing are operated collectively , and forage production , stud stock purchasing are operated separately by households . Herdsmen purchase production facilities together and use them as common property . Grazing heads of each household are supervised both by official department and by other households in the community . As a result , grassland desertification has been prevented gradually . At the same time , cooperation among households has led to labor saving , surplus labor has moved to urban areas to make money , and per capita income has been greatly increased .

Case 3 : Baiyinxile Haote , Xianghuang Banner of Xilinguole League , Inner Mongolia

There are six households , 23 people , more than 800 head of livestock and 800 hectares grassland in this Haote . From early 2006 , HAOS has been put into use in this area , and it only needs one person to manage the grassland . The other herdsmen moved to the city to find jobs . This increased income by 1500 RMB per capita per year . From the beginning of 2008 , the local people are planning to use rotational grazing to protect grassland .

Case 4 : Zhenbulinyin Gacha , East Wuzhumuqin Banner of Xilinguole League , Inner Mongolia

There are 44 households , 47 ,800 hectares of grassland including 8 ,700 hectares grassland without water resources in this village . In 1984 , grasslands were dispensed to households . From then on , grasslands started to be degraded heavily . From June of 2005 , all of the households agreed to fence and use the 8 ,700 hectares of grasslands without water resources as common mowing grassland . It can be used as the source of hay and it has saved more than 500 RMB for grass cost in the winter time .

The use of the common mowing area is supervised by each family and each household can only raise a certain number of animals that their grassland can support . Households will receive fines if overgrazing of grassland is detected . This style of household cooperation not only decreased the grazing cost but also helped the ecosystem recover in pastoral areas .

Case 5 : Shutu Gacha , West Wuzhumuqin Banner of Xilinguole League , Inner Mongolia

The initiator of the HAOS in this Gacha is Batu . At the beginning , he cooperated with his neighbors for grassland management and grazing because he had only a small amount of labor and grassland . In 2006 , two other households entered into a cooperation group . There are 2 000 head of livestock in this group . In order to save labor cost , they chose two people from their group to supervise the grazing . The HAOS reduced labor and production costs . It also resulted in rotational grazing that prevented the grassland from being overgrazed .

However , this cooperation group was disbanded . The reasons are as follows : firstly , there was no written contract among the households in the cooperation group ; secondly , since it was hard to divide the work clearly for livestock husbandry production , households always argued about their production cost and benefit allocation ; thirdly , it was not easy to find an available distribution system that made each household satisfied .

Main characteristics of Household-allied Operation System

Through the above cases we can conclude that HAOS means at least two households reach agreement , based on HCRS , to use grassland , labor and production facilities cooperatively . The main characteristics for HAOS are as follows :

The core foundation of Household-allied operation system is HCRS Policy .

From 30 years of experience , HCRS has proved to be a successful institution with low exchange fees and clear property rights . Under this system , the benefits of herdsmen can be guaranteed . Grassland , as a natural resource , was believed to be a resource that could be used forever before the reform . However , after HCRS herdsmen received their certificate of grassland usufruct , they started to realize that there is no possibility to augment the area of their grasslands in the following 30 years . Grassland , instead of being a public good , became private property , just like their livestock . After HAOS , in order to protect their contracted grassland , each household has the incentive to restrict their head of livestock . It is easy to make a conclusion that certificate of grassland usufruct (clarified property rights) is the most important institution for grassland protection and benefit allocation .

The main tie of HAOS is geo-relationship and kin-relationship .

In the above five cases , nearly all of the cooperation groups of HAOS were combined with several neighbors or families . Under this circumstance , it is easy for households to communicate and the bargaining cost is lower . Therefore , geo-relationship and kin-relationship are the most important preconditions of HAOS .

The main principle of HAOS is willingness , equality and mutual benefit .

Households can enter the HAOS if they can reach agreement with their members ; no one has the right to force them . Each household in the cooperation group has equal rights and it is an organization mutual benefit .

The key point of sustainable development of HAOS is clear definition of rights , the responsibilities , and the benefits for each cooperator .

In the production of livestock husbandry , some of the production factors are more suitable for using and managing collectively and some are more suitable to be used separately . In case 2 , herdsmen use grassland collectively and raise their livestock separately . Grass reaping and grazing are more efficient if collectively operated , and stud stock purchasing and animal feeding are more efficient individually . On the contrary , the reason of HAOS failure in case 5 is lack of clear responsibilities and benefit allocation systems . It can be concluded that the key point of sustainable development of HAOS is clear definition of rights , responsibilities and the benefit allocation for each cooperator .

The main purpose of HAOS is using the grassland scientifically .

Rotational grazing is a method that reduces desertification and realizes a balance of capacity of grassland and number of livestock . It can not only improve the benign interactions between the livestock and ecosystem , but also make the value of output of one closed system greater than its input . The above cases proved that HAOS can make the fragmental grasslands be used collectively , and realize rotational grazing . Thus , HAOS is a scientific institution for ecosystem improvements in pastoral areas .

Effectiveness of Household-allied Operation System

We can make a conclusion from the above case analysis , that HAOS can not only protect ecosystem by solving the paradox of livestock and grassland , but also save labor resources and provide an opportunity to increase per capita income .

HAOS is the essential method to protect ecosystem and increase income of local people

Firstly , this system protected the ecosystem by using the grassland resources scientifically . HAOS provided a way to improve the environment by realizing rotational grazing on the combined small pieces of grasslands by using them collectively . In addition , an overload of livestock can be controlled by supervision by the herdsmen who enrolled in the HAOS . It solved the paradox between livestock and grassland and held back the tendency , to some extent , of degradation of grassland . Furthermore , the population on grassland can be reduced because HAOS saved labor resources and led more pastoral residents to move to cities .

Secondly , some of the labor can be released from the livestock husbandry to pursue work in other industries to increase their income . The production cost , by using HAOS , was also reduced since the fence and production facilities come into common use and their cost was shared by households in the cooperation group .

Thirdly , the livestock husbandry management transformed from traditional style to specialized and industrialized modules . Grassland is used collectively by the members of HAOS , which is easier for the adoption of new technologies . At the same time , rotational grazing specialized production for forages and industrialized management for livestock husbandry can be realized .

Herdsmen's quality and ability could be improved and social benefit could be increased by adopting HAOS .

In order to help the surplus labor of pastoral areas move out to find work , the government provided training courses for them . Herdsmen's quality and the local residents' income have been improved . Furthermore , HAOS reduced the transaction costs during the management and production processes and increased the social welfare for all .

Conclusions

Although the household-contract responsibility system of grassland cannot guarantee equality in pastoral areas , it will possibly lead to grassland degradation at the same time . The household-allied operation system , as an institutional innovation of HCRS , can solve the problem of grassland degradation with the practice of " number of grazing animal up to capacity of grassland " , but the precondition is HCRS . It is believed the government should adopt the HAOS based on HCRS .

Our first recommendation to the government is to develop detailed models of HAOS based on HCRS for different areas ; secondly , reinforce the development of HAOS institutions in the pastoral areas ; thirdly , reinforce the farmers' vocational training in the pastoral areas and , finally , strengthen the community supervision function of grassland use .

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