

# THE DILEMMA OF CONSERVING RANGELAND BY MEANS OF DEVELOPMENT: EXPLORING ECOLOGICAL RESETTLEMENT IN A PASTORAL TOWNSHIP OF INNER MONGOLIA

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## Abstract

In the last decade environmental policies, particularly ecological resettlement, have changed China's pastoral areas. This paper explores the difficulty in conserving rangeland through ecological resettlement. The paper focuses on how ecological resettlement policy has been translated into practice, and how the affected people responded with migration decisions. Empirical findings in a pastoral township in Inner Mongolia demonstrate that local politicians have used the projects to stress economic restructuring, promotion of non-farming activities and urbanization. Meanwhile, affected households have used migration strategies to adapt to the changing economic and social environments rather than the changing natural environment. The difficulty of conserving rangelands and the marginalization of environmental concerns is a result of locally defined modernization development interests and the affected households' adaptive behaviours.

**Keywords:** ecological resettlement, pastoralists, development, migration strategies, Inner Mongolia

## Introduction

In the last decade, environmental policies have become the strongest driving force to change China's pastoral areas. Ecological resettlement, as one of the policy measures, has compensated, subsidized and organized pastoralists to stop using their contracted rangelands and to move away from the rural pastoral areas to newly constructed neighbourhoods in small towns and cities. In the Inner Mongolia Autonomous Region (IMAR), more than 6,000 people were resettled in the pilot phase between 1998 and 2001, and it was planned to resettle nearly 650,000 rural dwellers between 2002 and 2008 (Chu and Meng 2005). Ecological resettlement constitutes a part of the state-directed efforts to rescue the severely degraded environment (Yeh 2009): the central government launched a number of large-scale environmental projects and disbursed a large amount of financial and technical support to regional governments. Narratives across governmental policies highlight an 'ecological construction' (*shengtai jianshe*) approach and an 'ecological restoration' aim.

In the pastoral context, ecological resettlement is intended to address the grassland degradation and desertification problem, and one of the objectives is to stop (or reduce) the occurrence of dust-storms. Grassland degradation and desertification is nothing new. Scientists started to research it in the 1970s, but so far there are highly contested views on its distribution, scale, rates and causes (Banks 2003, Harris 2010, Humphrey and Sneath 1996, Longworth and Williamson 1993, Williams 1996, Li 2009, Li and Zhang 2009). Prevalent narratives across government documents and in the media identify inappropriate production practices such as overgrazing as the key driver (China National Committee For the Implementation of the UN Convention to Combat Desertification 1996). For a long time, the state's major concern about the problem was its impact on local production and economy. At the turn of the century, however, the focus shifted to the environment, when intensified dust-storms attacked Beijing, swept the wider East Asia and even reached the United States (Chen and Tang 2005, Kar and Takeuchi 2004). Together with the major flooding of the Yangtze River in 1998, dust-storms are thought to manifest a serious ecological crisis caused by desertification and deforestation in Western China, and are claimed to threaten not only the ecological security of the region itself but also the country (Shen 2004) or even beyond. This environmental concern has thus repositioned the pastoral areas in the state's regional interests.

The policy assumption of ecological resettlement envisions a win-win scenario between environment and human beings: preserved from grazing, rangelands recover, while resettled pastoralists become better off by taking up new livelihoods. However, the reality does not look hopeful. Although government narratives focus on positive aspects such as the improvement of range vegetation (National Grassland Monitoring Report 2009) and improved living conditions, findings of empirical studies present more of the negative consequences and challenges. On the one hand, it is contested whether the grassland has improved. Researchers doubt that grazing bans are strictly enforced at the local level due to socio-economic factors (Gegengaowa 2006) and lack of political incentives (Xun and Bao 2008). More critical views challenge the effectiveness of the grazing-ban method for grassland health (Dalintai 2003). Given the complex causes of grassland degradation and desertification involving more than overgrazing, it is argued that, even if positive vegetation change has occurred, it might be due to other causes such as favourable climate change and the interactions between multiple factors (Yeh 2009). At the same time, a series of post-resettlement problems are identified, suggesting long-term economic, social and cultural challenges. They include the difficulties of adopting new ways of production and livelihoods, social adaptation, cultural adjustments, societal integration, psychological problems and identity crises (Shi et al. 2007). In some cases, return migration also occurred some time after resettlement, implying a failure to settle down in the destinations (Du 2009, Qi 2006).

The problems and challenges, however, do not undermine the government's confidence in ecological resettlement as a win-win solution (Song et al. 2009). Its reflections are rather limited to blaming inappropriate or inadequate planning or insufficient investment, and assuming these can be improved with more experience and practice. Nevertheless, a common feature across existing research, which has yet to be explored, is that the difficulties of projects in different places are actually very similar. This paper is intended to explore a general but under-investigated question: why is it difficult to conserve rangeland by means of development through ecological resettlement? I hypothesize that there are some common causes behind the common outcomes. Drawing insights and inspirations from studies on political ecology and micro-politics, I investigate the empirical processes of ecological resettlement highlighting two issues: contextualization and agency of the affected people. The paper focuses on examining two aspects: how ecological resettlement policy has been translated into practice, and how the affected people responded to the projects with migration decisions and actions.

This paper is based on empirical data collected through online research and during three fieldwork visits between 2008 and 2009 in Sumu M (pastoral township) in Xilingol League (prefecture) of Inner Mongolia. Official documents were collected both from different levels of government websites and from local administrative agencies. During the fieldwork, participatory observation and in-depth interviews were used to collect data from sixty-five affected households including migrants, non-migrants and returnees. The interviewed households were from three places: the home pastoral villages, the destination resettlement village 'Q', and city 'S'. All the names of the places and interviewees have been anonymized.

The next section motivates the theoretical approaches used in this paper. It is followed by a presentation of the study area and methodology. Afterwards, I analyse how ecological resettlement policies are translated into the practices of two ecological resettlement projects in the study area in light of the regional and national development contexts. The following section on the migration motives is structured by the interviewees' narratives. The intention is to reveal the diverse factors shaping their migration decisions and actions. A discussion section afterwards summarizes and reflects upon the combined effects of the local government's implementation approach and the affected pastoralists' strategies. Finally, the paper concludes that a political ecology approach contributes new insights to understanding the consequences of ecological resettlement and the difficulty of achieving simultaneous improvements in the environment and human life with such an approach.

## **Theoretical Approaches**

Ecological resettlement is still a rather new subject of study. Having been preoccupied with empirical descriptions, early ecological resettlement studies are

ambiguous and less developed in theory (Chu and Meng 2005, Gegengaowa 2006, Xinjiletu 2005). Later studies attempt to apply concepts and theoretical approaches from relevant studies to ecological resettlement, such as the participatory development approach of poverty alleviation studies (Liu 2009), environmental sociology (Liu 2009, Yan 2005), and concepts and theories on involuntary resettlement (Dickinson and Webber 2007, Rogers and Wang 2006). Most studies (Chu and Meng 2005, Shi et al. 2007) are of the inward-looking and managerialist type, focusing on proposing economic and technical solutions. Although they have identified causes such as improper planning and failures of implementation, they have not examined why planning turned out to be inappropriate or why implementation could fail. Their analyses of empirical cases do not go beyond the local scale and thus rarely relate to the wider context. In addition, analyses are limited to serving policymakers' objectives and ignore actors other than the governments. To answer the research question of this paper, I argue that there is a need to go beyond the technical and managerialist approach – and political ecology is a way to do so. As Neumann indicates, the main premise of political ecology is 'that ecological problems were at their core social and political problems, not technical or managerial, and demanded a theoretical foundation to analyse the complex social, economic and political relations in which environmental change is embedded' (Neumann 2005: 5). Political ecology has been developed in studying relations between humans and the environment, particularly in the context of the third world (Bryant and Bailey 1997). The key questions of this approach are: what is the role of power relationships, and how do the actors shape the processes (Bassett 1988, Kinlund 1996).

Two recent studies (Xun and Bao 2008, Yeh 2009) giving insights into the problems of ecological resettlement are conceptually close to political ecology and draw attention to the different interests and the centrality of power in shaping ecological resettlement. Xun and Bao (2008) suggest that in their empirical case study the failure was determined by the monopoly position of local governments, the top-down policy approach and political structure. Yeh (2009) thinks that problems in environmental projects are manifestations of a mismatch between the desires of the affected people and the state's desired outcome. Xun and Bao (2008) highlight the central role of local governments in practice, while Yeh (2009) emphasizes the growing governing power of the central government, in particular through policy discourses. As is revealed by early studies on environmental politics, although the state plays the undisputed dominant role in producing grand policies, programmes and discourses, they are fundamentally constrained by 'fragmented authoritarianism' (Lieberthal 1997) when they go through the complicated bureaucratic political system to reach the ground level, and this process impedes the alignment of environmental practices with the intended goals. Furthermore, local governments have very different incentives for implementing environmental policies from the central government (Xun and Bao 2008), a manifestation of the relations between centre and periphery (Zhou 2006).

This paper agrees that, like other environmental issues, policies and practices of ecological resettlement are basically framed by the characteristics of Chinese environmental politics. It further emphasizes that policies and practices must be contextualized in terms of time and space. An insight derived from political ecology is that the processes at the ground level are linked to the broader context through interactions between actors with different powers at different scales. The temporal context is that China is in a phase of modernization development, and this directs the objectives and paths of ecological resettlement projects. The spatial context is that ecological resettlement is a policy targeting the ‘ecologically significant areas, ecologically vulnerable areas and areas losing basic subsistence conditions’ (State Council of China 2002: Item 22). By defining certain areas and livelihoods as needing environmental improvement and restoration, it subjects the landscape, people and their livelihoods to significant changes. Those defined areas are generally in western and poor rural areas of China, where many ethnic minority groups are dependent on nomadism or pastoralism. Pastoralism has long been considered backward by the government, while it is increasingly romanticized as sacred culture instead of some people’s everyday life. Rangeland management policies are generally framed in terms of land tenure and carrying capacity, based on the dominant assumptions of the ‘Tragedy of the Commons’ and equilibrium ecosystems (Zhang 2012). To put ecological resettlement in a pastoral context further puts the examination of ecological resettlement projects at the head of rangeland management policies.

The other focus of the local empirical study is on the responses of the affected people. Previous studies generally imply that resettled people are victims and passive recipients of ecological resettlement. They are usually studied as the object instead of subject of resettlement projects, and rarely as the shapers of processes. Do the affected really have no agency in the processes? Such an assumption has been rejected by critical development studies with a bottom-up approach and from a local perspective. Microlevel studies around the world show that people strive to influence their worlds on a daily basis. In rural China, peasants developed different strategies and means to renegotiate state policies (Wang 2006, Wang 2009, Wang and Qu 2009). Hilhorst (2001) finds in development projects in the Philippines that there is usually room for local actors to manoeuvre and to renegotiate development discourses and practices. Scott reveals how peasants in Malaysia, despite their disadvantaged power position, could take everyday forms of resistance to ‘mitigate or deny claims made by superordinate classes or to advance claims vis-a-vis superordinate classes’ (Scott 1985: 32). Long’s actor-oriented approach argues that though local actors are affected by top-down policies, at the same time they ‘inhabit(ing), experience(ing) and transform(ing) the contours and details of the social landscape’ (Long 2001: 4). He argues that people attempt to solve problems, learn how to intervene in the flow of social events around them and take note of the various contingent circumstances. The agency of the people thus refers to their knowledge and

capability to process social experiences. Although little research on ecological resettlement has been done to study the agency of the affected people, Rogers and Wang's (2006) work shows that, contrary to the assumed social risk of disarticulation, the resettlers have recreated a living and functioning community that provides many aspects of support for its inhabitants after resettlement.

This study explores the agency of the affected people through examining their migration decisions and actions as responses to ecological resettlement projects. To move and to migrate is a big decision for any individual or household, especially if they did not have a (rural-to-urban) migration history. Few studies on ecological resettlement have been done from a migration perspective, like traditional approaches in involuntary resettlement. But on the other hand, more and more studies draw attention to the migration aspect: return migration is addressed as the manifestation of post-resettlement problems (Qi 2006, Du 2009), and livelihoods within the households and between households are reorganized across space between the home areas and the destinations (Tang et al. 2005), while more widely among resettlement projects, resettled people swing between the origins and destinations (Wang 2011). A migration perspective is not only relevant to understanding the effects of resettlement projects, but also first of all the processes. Tang et al. (2005) find in four voluntary resettlement projects for poverty alleviation that the resettled households were not the poorest ones but those with better economic conditions. They argue that, in the selective process of resettlement, on one hand, economic, human and social capital conditions households' migration decisions, and on the other, local governments set up qualification criteria to select villagers for resettlement. Therefore, resettlement is more complex than a top-down order. Given that voluntariness has become a guiding principle of ecological resettlement, the affected people have more freedom to choose whether to go and when to go, and the forms of resettlement have become more varied regarding the number of people to move, the choice of destinations and the period of resettlement. Investigating what factors shape the affected people's migration decisions and actions is a way to unpack the implementation process and better understand their role in shaping the outcomes.

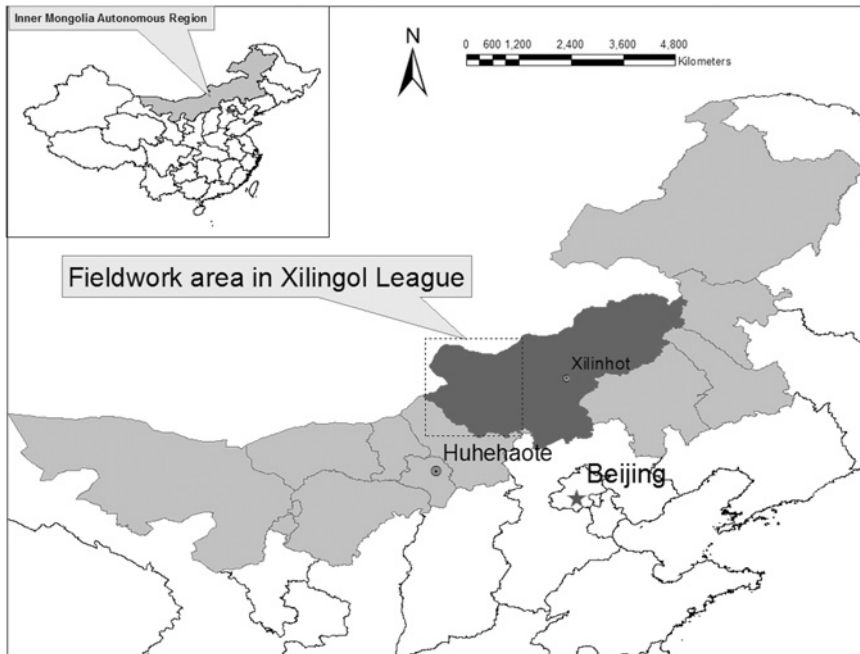
## **The Study Area and Methodology**

Attempts at ecological resettlement are complicated and are contingent on contexts at several levels. A case study approach is appropriate in acquiring specific and contextual understanding of the processes and dynamics. The case study area, Sumu M, is located in the central part of Xilingol League in Inner Mongolia. Xilingol League is a suitable region for studying ecological resettlement for its characteristics. Xilingol grassland is one of the main natural pastures of Inner Mongolia and is a representative area of traditional Mongolian pastoralism, with a high proportion of natural grassland and of Mongolian population.<sup>1</sup> Its

geographic proximity to Beijing up to the north assigns it a significant environmental role. Xilingol League was the first and one of the major prefectures in Inner Mongolia to implement ecological resettlement.

Sumu M is located on the typical arid grassland with an elevation nearly 1,000 metres above sea level (see Map 1). It is administrated by a nearby county-level city, Q, and consists of four gachas (pastoral villages) A, B, C and D, and one ecological resettlement village, S. Within Sumu M's administrative area of 3,848 sq km, 649 households comprising 1,828 people (916 male, 912 female) are registered, of which 519 households, with 1,543 people, are pastoral. The population is mainly composed of ethnic Mongolians (more than 95 per cent). The Han Chinese are mostly descendants of people who migrated to the area in the 1960s.

Climate in the area is typically temperate continental, with a short summer and long winter. The average annual precipitation is only around 140 mm and the distribution is very uneven, both throughout the year and between years. Evaporation is high and windy days are frequent. Dust-storms often occur in spring (in April and May) and autumn (in September and October). The primary natural hazard in this area is drought. Snow disasters are infrequent but usually cause severe losses to pastoralists when they do occur. Several natural hazards



**Figure 1.** *The case study area.*

occurred in this area at the turn of the last century, including snow disaster in 1999, drought in 2000 and 2001, and dust-storms in 2000, 2001 and 2002.

This study examines ecological resettlement in a pastoral context. Being largely natural grassland,<sup>2</sup> vast areas in Inner Mongolia have been used for mobile pastoralism by nomadic peoples since the dawn of history. Mongolian nomads developed characteristic forms of pastureland and livestock management (Wang 2001). The tradition of keeping a combination of five types of livestock – sheep, goat, cow, camel and horse – and making extensive use of pastures based on seasons, water sources and topography has been important, though more and more constraints prevent the practices. Although large-scale migration of Han peasants and reclamation of rangelands since the end of the nineteenth century have fundamentally transformed both the demography and landscapes of Inner Mongolia, livestock herding nowadays remains the main livelihood for around 7.2 per cent of the region's total population, or 13.6 per cent of its rural population. The major differences between the present practice of pastoralism and the traditional one are the decreasing types and numbers of livestock,<sup>3</sup> and the greatly reduced mobility in land use due to current rangeland and animal husbandry management policy (Zhang 2006). Upon de-collectivization in the 1980s as a part of the national economic reform, both livestock and land were distributed to individual households in Sumu M under the terms of the Household Production Responsibility System (HPRS), as in most other parts of rural China (both agricultural and pastoral).

Ecological resettlement projects should be understood to work on top of the previous measures towards managing pastoralism. The household is the primary unit for joining a resettlement project and land tenure is the essential condition for joining. In Sumu M, rangelands were allocated to households in two rounds, in 1984 and 1996. After the first round in 1984, pastures were still generally used in common as in the commune period. The second round of allocation in 1996 was intended to re-clarify and assure land tenure for thirty years. It was in the second round that rangelands in all the gachas were allocated to individual households, and the locations and boundaries of household rangelands were documented. A certificate of land tenure was issued to each household, giving it legal rights to the rangelands.

Empirical materials were collected both through fieldwork and online. Information on the local ecological resettlement policy and practice was collected in the form of local administrative institutions' news, announcements and reports from the local government's website. Participant observation and in-depth interviews were used to collect data from the affected pastoral households during three field trips in April–July 2008, January 2009 and July 2009. In-depth interviews were conducted with sixty-five pastoral households (over 16 per cent of the total), including migrants, non-migrants and returnees in the four pastoral villages (gachas A, B, C and D), resettlement village S, and city Q (see Table 1). The unit of interview is counted as the household, because in several cases the



interviews were conducted with at least two household members at the same time, or different members of the same household were interviewed at different times. I also returned to some of the interviewed households at different times for second and third interviews.

Migration decisions and actions were not framed as direct questions at the beginning of interviews. Instead, I had extensive discussions with the interviewees about their families, their past and present livelihoods, their perceptions of local environmental changes and their plans for the future. Incentives, decision making, strategies, conflicts and compromises in the resettlement processes gradually emerged out of our conversations and their narratives were usually constructed around daily and specific events and life stories. The biggest limitation of the method is that it very much depends on interviewees' memories to recall their decision making and actions when the resettlement project started. This is more of a challenge for the first resettlement project in 2002. Ambiguities in memories and biases due to households' situations at the time of interviews require more careful interpretation of the narratives. One way to control the accountability of the interviews is by revisiting for a second interview and comparing interviews done at different times. The other way is to use other interviewees to verify one interviewee's account.

## **Framing Ecological Resettlement in Pastoralism and Modernization Development**

A large-scale environmental programme focusing on protecting Beijing and its vicinity against sandstorms, called 'Beijing-Tianjin Sandstorm Source Control', was approved in June 2000 for a first ten-year phase (2001–2010) in addition to the previous afforestation programme, the 'Three North Forest Programme'. The action was also driven by the commitment to a green Olympics in Beijing in 2008. Ecological resettlement was one of the adopted measures and it was planned to resettle 180,000 people from 2001 to 2010.<sup>4</sup> Focusing on rehabilitating the environment of the identified sources of dust-storms affecting Beijing, the programme covers two provinces (Hebei and Shanxi), two municipalities (Beijing and Tianjin) and one autonomous region (Inner Mongolia) surrounding it and to its north. Inner Mongolia takes the biggest share of the programme's geographic coverage, and Xilingol League (prefecture) in the middle part of Inner Mongolia and to the north of Beijing takes the biggest share of Inner Mongolia.

In line with the Sandstorm Source Control Programme, Xilingol League developed its regional strategy Weifeng Zhuanyi Zhanlue (XLCAO 2001). The administrative territory of Xilingol League was divided into four zones, four belts and twelve basic points with different measures for ecological protection and treatment.<sup>5</sup> Ecological resettlement is a measure taken in the 'grazing ban zones' which are identified as extremely deteriorated desert and semi-desert grassland

**Table 1.** *Distribution of interviewed households and comparison with the total numbers of households*

Origin	Non-migrant		Migrant to village S		Migrant to city Q		Total	Interviewed
	Total	Interviewed	Total	Interviewed	Total	Interviewed		
A	31	7 (2RS)	3	2	39	6 (2S+1RQ)	75	15
B	46	10 (4RS)	15	0	31	1 (1S)	96	11
C	55	7 (2RS)	9	2	42	7 (2S)	109	16
D	57	18 (3RS)	12	2	31	3	114	23
Total	189	42 (11RS)	39	6	143	17 (4S+1RQ)	394	65

Source: *The totals are according to statistics of city Q's Ecological Office 2007.*

Note: *The government classified the pastoral households into three types – non-migrants, migrants to resettlement village S, and migrants to city Q – according to the type of resettlement contracts the household had signed. This table is made according to the origins of the interviewed households and the official migrant types. But there were differences between the official migrant type and where people lived.*

*I have annotated three types: RS = households returned from resettlement village S; RQ = households returned from city Q; S = households signed the resettlement contract but stayed.*

areas. Xilingol League set aside 8 per cent of its grasslands for ecological resettlement (Brown et al. 2008: 248) and 49,283 rural people were resettled between 2003 and 2010 (XLDR 2011). The strategy aims to control land degradation and desertification through systematic land use restriction, change of production modes and economic restructuring. According to the strategy, in areas where barn feeding of livestock based on fodder plantation is impossible, ecological resettlement would be implemented and people would be moved to places near towns with 'five accesses' for developing barn feeding or working in the secondary and tertiary sectors.

City Q has become one of the key monitoring spots of dust-storms, and the administrative area is identified as a source of dust-storms due to severe rangeland degradation. According to the assessment data in 2006 from the County Grassland Monitoring Station, this area was environmentally fragile and the rangeland quality was degraded with 59.96 per cent severely degraded, 29.98 per cent medially degraded, and 10.06 per cent lightly degraded. Due to this severe ecological degradation, the area was classified into 'grazing ban zones'. Upon its administrative area being included in the Sand Source Control Programme, a large amount of money was transferred from the state to city Q.<sup>6</sup> Two ecological resettlement projects were implemented in Sumu M, each with a five-year time span, in 2001 and 2006.

The two projects have nearly the same policy rationale to mobilize pastoralists to move: households which choose to sign resettlement agreements for five years are obliged not to use their rangelands during the agreement period, and in return receive monetary compensation, subsidies, favourable policies and support from the government in various forms. The main conditions and rights are summarized in Table 2. In both projects, the standard procedure of implementation is that officers from the sumu government go to visit pastoral households and present policies to them; interested households fill in application forms; the sumu government decides which applications to accept; and finally, the selected households are offered resettlement agreements to sign.

The first ecological resettlement project started to move pastoral households to resettlement village S near a small town in 2001. Through one year, 158 households comprising 526 people gradually moved into the village – most from four gachas of Sumu M but around 20 households from another neighbouring gacha. The project was a typical model of ecological resettlement in the first phase (2001–2006) in Xilingol League. It was constructed according to the standards of small town development, with 'five accesses'. Each household was allocated one detached or semi-detached brick house of about 30 sq m, one warm barn, one silage cellar and a piece of land of 20 *mu*<sup>7</sup> for cultivating fodder. Incoming households were supported to do intensive barn feeding of productive animal species. They were also subsidized with loans to purchase the animals. Households usually paid 20 per cent of the costs, and the rest was financed by loans. Free fodder was also provided by the government in the first year.

**Table 2.** *Main terms and conditions of the two ecological resettlement projects***To resettlement village S (2001)**

- Five years' agreement with grazing ban on household rangeland
- One-time compensation of RMB5,000
- Subsidized loans to purchase milk cows
- 20 *mu* land per household for cultivating silage and free silage for the first 1 year (low price for purchase after 2004)
- Technical training for raising milk cows

**Renewal of resettlement agreement in resettlement village S (2006)**

- Ownership of a semi-attached house and a warm livestock barn
- Rangeland compensation of 0.80 yuan per *mu* per year

**To city Q (2006)**

- Five-year agreement with grazing ban on household rangeland
- A flat (70 sq m). Ownership entitled upon renewing the agreement for another five years
- Compensation of 0.80 yuan per *mu* per year (1.20 yuan if do not live in the flat; 1 yuan if stay in the pastoral villages)
- Facilitation in job seeking and professional skill training
- Exemption of administrative fees in starting business
- Subsidized loans to entrepreneurs of up to 20,000 yuan for three years
- Reimbursement of kindergarten fee
- Exemption of school fees, book fees and accommodation fee up to upper secondary school
- Subsidy to student living expenses, and awards of 1,000–2,000 yuan to students enrolled in higher education
- Rangeland certificate exchange for urban *Hukou*\*

Note: *Hukou* is the population registration system in China. The background of the policy is to differentiate rural and urban citizens. An urban *Hukou* generally gives one more rights to social welfare and services.

According to interviewee Siqin (female, in her fifties, with a husband and three children) who moved to the village in 2003 and whose household was one of the most successful in dairy farming by the time of my last visit in 2009, the resettlement village had gone through rapid changes in two years. She told me that twenty houses were first built on the settlement in 2000, and some households moved in to raise different kinds of livestock such as rabbits, sheep and beef cattle. However, some quickly dropped the business and moved to city Q to make a living. The rest of the houses were built in 2001, and most households moved in 2002. Milk cows became the only type of livestock in the village. Resettlement planners assume that dairy farming is an advanced intensive mode of agriculture which can quickly generate cash income, and barn feeding does not damage the neighbouring land. The 'company + peasant' model (Xun and Bao 2008) was once strongly promoted by the local government through integrating small-scale

dairy farmers into the supply chain of big dairy companies such as Mengniu and Yili. In this resettlement village, there was a milk station owned by a private Han businessman from another county. People drove their cows to the station for milking twice a day and had the quantity of milk recorded. They also took feedstuff from the milk station on account. At the end of a month, they could get the balance of cash back. Nevertheless, it also often happened that people could not get their money on time. Many pastoral households could not stay in the business after 2003, when free support from the government such as fodder was withdrawn. Interviewees also ascribed the difficulties of dairy farming to reasons such as the low quality of milk cows, the high costs and risks that were involved, the low price of milk, and their lack of technical knowledge and skills in dairy farming and fodder cultivation.

Many households moved back to their homes in the pastoral area and resumed herding livestock. Although return migration and use of their pastures were obvious violations of the resettlement contracts, nobody was punished. Several interviewees said that due to a change in Sumu M's administration affiliation, they were forgotten by the government and left to themselves to solve their difficulties. Loans for purchasing milk cows were also not required to be repaid. Some of them kept milk cows and restocked herds in the pastoral homes at the same time. Labour was coordinated through cooperation with friends and relatives. On the other hand, reports from the local government show that the sumu government had made follow-up efforts with the intention to sustain or revitalize the dairy village. According to the sumu government's annual report in 2008, the government had invested nearly 160,000 yuan on each household. However, the situation has not improved.

The second ecological resettlement project, that started in 2006, aimed to move all pastoralists to city Q within five years. According to the order from the Autonomous Region government, 200 households comprising 800 people were moved in 2004 and 2005, with a national investment of 4 million yuan. The most important lesson that the local government learnt from the first ecological resettlement is that 'ecological resettlement cannot transfer population from one type to another within the first (agricultural) sector' but instead 'a one-shot move is to move population to the city'. Therefore, the second resettlement project in 2006 chose to resettle the pastoralists to city Q. Compared to the vast pastoral area surrounding it, city Q is very small but it has grown rapidly in the past fifteen years both in terms of economy and population, with a large proportion of migrants both from Inner Mongolia and other provinces of China. Most migrants work in the construction and service sectors. A separate neighbourhood with two five-floor buildings was built to accommodate the resettled households. Each household was allocated a flat of 70 sq m, with two bedrooms and a living room. Resettled pastoralists were encouraged to take on new livelihoods and lifestyles in the city. Resettled households received an amount of compensation each month based on the size of their previous enclosed household rangeland. They

were also given job training and helped with job hunting and starting small businesses. Children of resettled households were exempted from any school fees up to upper secondary school, and were given free accommodation at boarding schools and monthly subsidies. In addition, pastoral households could also change their *Hukou* from a rural to an urban one on condition of giving up the use right of their contracted rangelands. However, it was found during the fieldwork that only 30 of the 196 households who signed resettlement contracts had moved into the neighbourhood from December 2006 to 2009, and some of those had sublet their flats. The majority of the resettled households chose to rent and live in small rooms in private one-storey housing in other neighbourhoods. Interviewees said this was mainly due to a difference in compensation. Most resettled households chose not to live in the flats in order to get a higher level of compensation. Migrant interviewees also complained about the poor quality of the flats and the high living costs involved, such as winter heating.

Pastoralists also learned lessons from the first ecological resettlement. Nearly all interviewed pastoralists remaining in the pastoral villages referred to the failure of the first resettlement as one of the reasons why they had no interest in moving to the city with the second ecological resettlement project. Migrant interviewees in the city had different reasons for joining the second ecological resettlement project. The government's planning rationale was intended to transform the pastoralists into new urban citizens, who would have better living conditions – housing with access to tap water and electricity, and work in industry and the service sectors. Nevertheless, interviewees seemed to be more realistic and less concerned with the government's goals.

According to the resettlement plans, all pastoralists were expected to be moved out of the pastoral areas within five years from 2006. Nevertheless, the majority population of the sumu still stayed in the pastoral areas. The sumu government's statistics show that there were 180 households (46 per cent of total) comprising 580 people (44 per cent of total) who signed the resettlement contracts to enclose 47 per cent of the total rangelands by 2007.

Both the interviewees' narratives and the official documents show that some households are targeted to move in ecological resettlement projects. Most informants agreed that poor households with no or few animals moved first because of the compensation offered. This opinion was confirmed by the village head of Gacha A (male, in his fifties). He said all of the eleven households living below the national poverty line in the village were very willing to move to the city because they could sustain their lives with the compensation. Another targeted group is the households with fewer members and larger areas of rangeland, because economically it is better to live with compensation.

## Narrating Migration Motives

This section focuses on unpacking the processes of implementing the ecological resettlement projects. The interviewees' narratives answered three main questions: (1) Why did you, or did you not, move with the resettlement projects? (2) Why do you think people moved with resettlement projects (question to the non-migrants)? (3) What do you think of the future? Are you going to move further/stay/return? These questions were intended to find out how the interviewees reflect upon their migration decisions and their migratory behaviours.

The selected narratives are intended to highlight the diverse situations and responses rather than representative patterns. I argue that individual and household choices, responses and strategies in the processes were contingent, both conditioned by their assets, resources and capital, and structured by the embedded social and political power relations.

### *Moving to the Milk Cow Village S: 'We were promised to get rich'*

From my first visit in 2009, most of the houses in village S were empty. Siqin told me that many households could not keep up the dairy business and so had moved back to the pastoral villages. This was later confirmed by all return migrant interviewees in the pastoral villages. The few successful households remaining, such as Siqin's, were those owning more than ten milk cows. But at the same time, it was much harder work compared to the herders. Almost all interviewees, stayers or returnees, were motivated by the same reason for joining the first resettlement project – to get rich: 'We were promised we would get rich but obviously we were cheated'. Interviewee Taogesi (male, 25 years old), whose family did not join either of the resettlement projects, nevertheless commented that despite people complaining about the first resettlement project, the villagers were actually competing to go to resettlement village S with the dream of becoming rich. Not every household application would be accepted, and the households with stronger relations with the leaders tended to have a better chance.

### *No Future but Staying in the Pastoral Area – A Failure of Negotiation?*

Gaowa is a 55-year-old woman, half-Han and half-Mongolian. Her husband is Han and she has two sons and a daughter. The eldest son lives with his wife and little boy in a Mongolian yurt in front of Gaowa's old house made of tamped earth. Her youngest son serves in the army while her daughter runs a small tailor shop with her husband. She commented:

[Their lives] are not easy. They work hard throughout the year but could only save 10,000 yuan. It is very easy to earn 40,000 to 50,000 by herding in a normal year. ... Urban life is not suitable for old people. My uncle joined the resettlement project and moved to the city. They rent a small flat to live but with the little earnings from temporary jobs they can

hardly sustain their lives in the city. Pastoralists can only herd animals. We cannot do anything else. Without herding, how can we live?

She was very negative towards life in the city though her home is only twenty minutes' drive from the city.

In spite of the negative attitude, she told me that her family applied to move with both the resettlement projects but neither succeeded. The first application to village S was turned down. When the second resettlement project came, she said she would like to join if she could trade their rangeland for three apartments, one for each child in the family. She explained that it would be the trend to move to the city. Her youngest son would also work in the city when he retires from the army. Therefore, she would like to make such a deal. Unfortunately the result of her negotiations was that she would at most be given two. She refused. 'We will not move to the city until it is not allowed to live here any more', she said.

When I asked her if she was concerned about the rangeland degradation problem, she said:

Of course, we must not have too many animals. We control the quantity according to the stocking rate standard now. The municipal Animal and Husbandry Bureau comes to check frequently and fines heavily if it is above (the stocking limit). We also did according to the seasonal grazing ban in the past two years though the subsidy has not been paid yet. For the state, to make some contribution, for the Olympic Games, for the recovery of the grassland, we can sacrifice to raise fewer animals.

In conversations with the pastoralists, such mixed rhetorics are common.

### *Resettled without Moving: Negotiating the Place of Ecological Resettlement*

Joining the resettlement project does not necessarily mean that people would move to and live in the proposed destinations. It was found that several households joined the second resettlement project without moving to city Q. None of them had the intention to move to the city but all of them for different reasons had had to join the resettlement programme. To them, joining the resettlement project was only for getting the compensation. Below I present the first of three stories about three pastoral households.

Suhe (male, 53 years old) is an ex-village head, a position he had held for more than twenty years. I interviewed him for the first time in one of the three Mongolian yurts where his family lived. However, they were not on their own pasture but on that of his son-in-law. When I asked him why he did not move to the city with the resettlement project, he said: 'I moved once as a model to the resettlement village with the first ecological resettlement project. This time I was again asked to be a model to move to the city but I refused. I have learned a big enough lesson from the first time's failure.' Nevertheless, his household was still part of the ecological resettlement project although he still stayed in the pastoral area. He told me that trucks going to the rock quarry yard crossed his pasture



every day and severely damaged it. He could not stop them. He turned to the grassland monitoring bureau but got no help. He joined the ecological resettlement project in 2007 because it had become difficult to herd as he used to, so that at least he would receive compensation for five years, although his rangeland was still trampled on a daily basis. He also had the plan to move back to his own pasture so that his family would not move to the city. Although he got compensation at a lower standard (1 yuan per *mu* per year), his household could continue staying in the pastoral area. He rented his son-in-law's pasture to continue herding.

Village heads have often been pressured to move so as to be a model for common pastoralists. An appeal to ideology has also been a major tool for mobilizing families with party members. Nevertheless, this has limited influence when people perceive a high risk involved. In the resettlement process, we can observe the paradoxical role of the village heads. They are, on the one hand, a part of the political system and so they have to obey orders from above and be active in promoting resettlement schemes while, on the other hand, their livelihoods are heavily dependent on pastoralism, and so they make their own cautious decisions whether to move. Some cases show that village heads have several advantages in the resettlement process. Being partly within the political system, they have better access to information, better understanding of uncodified political rules, closer relationships with superiors and more knowledge of the political system, and thus they know better how to cope with the policies.

#### *Moving without Enclosing Land*

There are also better-off elites among resettled pastoralists. Their livelihoods seem to thrive in the city but at the same time they usually keep herds in the pastoral area.

I met Batu (male, 40 years old, half-Han and half-Mongolian) in Baolidao's home. He is the youngest brother of Baolidao. Unlike Baolidao, Batu was dressed like a businessman. He lives in the new building for resettled pastoralists. He has two children, one in high school and the other has found a temporary job the police force. As the person with the highest education in his generation, a high school graduate, he questioned me on my research theme first. I told him it was about the livelihoods of resettled pastoralists. He said their livelihoods were not good because pastoralists are short of education and skills, and they are too lazy to take demanding jobs. Even when jobs are arranged for them, they break rules and are quickly fired. When his brother mentioned that he was being rather successful in the city as a construction contractor, he was very humble at the comment. 'I have been longing to move to the city. There is no future to be a herder. We are provided with such an opportunity (for being resettled) and we should grasp it.' Later his brother told me that Batu inherited his father's contracted rangeland of more than five hundred hectares, and his family has more than thirteen hundred hectares of rangeland in contiguous plots.

When joining the ecological resettlement project, he signed a grazing ban contract for his own area of rangeland. However, the inherited rangeland was not a part of the contract and he kept his herds on that land. In fact, animals went to graze on his own land as usual because there were no fences between the two pieces of land. A similar smart arrangement for continuous use of rangeland was also found with another village head. These arrangements are not secret but known among the pastoralists. They also think the relevant regulating institution such as the grassland monitoring station is aware of their existence. Why do the institutions not intervene? Most interviewees implied there are unknown relationships or deals between the pastoral households and the local officials.

People understand the dual roles of the local government very well. They think the profit-seeking role has been so overwhelming that nothing is based on an administrative role any more. They have good evidence of local government's rent-seeking incentive in ecological resettlement projects, such as the poor quality of the buildings for resettled pastoralists and the failure of the dairy village project. As people are disappointed with and distrust the local government, they at the same time develop their own strategies to take advantage of the system.

*City Migrant: Swear to Return when the Time Comes*

Resettled pastoralists in the post-resettlement phase are usually unhappy with their present lives. I have chosen one household to present below, not because it is entirely representative but because it brings up the complexity of reasons for the impoverishment situation.

Interviews with Baolidao (male, 45 years old, half-Han and half-Mongolian) were conducted in his home, a small flat with a 20 sq m living room and a small backroom together with the kitchen. He looks much older than his years. He has a seventeen-year-old daughter in high school and a ten-year-old son in primary school. He moved to the city mainly for two conveniences. His wife has a serious disease of the spine and needs to visit the hospital from time to time, and his two children are at school in the city. However, he also mentioned that he would like to let his pasture rest because it was in really bad condition after continuous droughts for a few years.

He expected it would be easy to find a stable job in the city but this was wrong. Nevertheless, he always tried to find some temporary jobs. When I visited him for the first time, he was working on a construction site in the daytime and as a factory guard every night until 3 A.M. However, by the time I visited him again six months later, I found he had lost the job on the construction site three months before because there had not been enough work. The job as a night-watchman had also come to an end. He had worked for a heating supply company for a few months but the salary of more than 10,000 yuan had still not been paid. He said it is hard to find a job because there are too many migrant workers. He had also considered getting into the sheep trading business, but it proved to be difficult.

His family had spent most of their money on treating his wife's and daughter's diseases. Although they had joined the medical insurance scheme, only 1,200 yuan of their expenses had been repaid by then. He said they had been rich when they first moved to the city because he had sold his sheep for more than 100,000 yuan, but most of the money had been spent on medical care for his wife and daughter over the past three years. Because of illness, his wife could not do any heavy work and so he was the only one able to earn money.

Baolidao's discontent with the ecological resettlement project came first out of the unfulfilled resettlement policies such as school fee exemption and trampling on his rangeland. His anger also came from being ignored by the leaders. 'The leaders have never been to my home. I dare to say that, they do not know where I live. They have no idea of our situation at all', he claimed. His experience with governmental institutions was also frustrating. Assistance was dependent upon luck. He expressed his gratefulness to one kind lady working in the municipal Bureau of Civil Affairs, who is the wife of an officer in the Ecological Resettlement Office. 'She is such a nice person. She helped us to submit an application for some subsidy.' When I asked if he got any assistance from his brother as the village head, he denied it and said: 'He cannot help us at all. Instead, we were not given three tons of coal, a benefit to all members of our village, because my brother thought that other villagers would think it is unfair since we have moved to the city.'

He was once again agitated when he complained about the trampled rangeland. His rangeland is around 16,000 *mu* and borders his sister (interviewee) Gaowa's rangeland. His sister's herds often move to graze on his rangeland and his rangeland has been destroyed. He complained to his sister once but she did not think it was a problem since it is impossible to control the movement of animals. Afterwards, he turned to the county Grassland Station for a solution. 'What is the purpose of ecological resettlement? The state says that it is for the rehabilitation of the rangeland. I asked the officers if they will regulate or not [the invasion by my sisters' animals].' However, the officer suggested that he had better negotiate with his sister or else should catch the invasion activities in the field and then call them to come. 'How can I get the time to watch in the field every day? Is that not their job?' He had no plan to set up fences because it was rather costly.

When people have little room to improve their conditions, they rely on daily actions to justify their behaviours. At the end of our first interview, Baolidao took up the 'weapon of threatening', saying 'I would move back to my rangeland and restart herding if it continues to happen'. Nevertheless, by the second time I interviewed him, he was still in the city and such trampling kept on happening. The conflict seemed to escalate. He warned his sister that he would turn to a lawyer for help if the situation continued. His younger brother's herds also went onto his rangeland from time to time. His younger brother said it is difficult to control the movement of animals but he tried to reduce the frequency to once or twice a month. It is difficult to test if he can keep the promise but he seemed to

be satisfied with such an attitude. It is interesting to hear another version of the same story from Gaowa. During my interview with Gaowa just a few days after my first interview with Baolidao, I asked her if their animals went into her resettled brother's rangeland, and she said it was normal and he would not mind.

When I asked for his plan after the expiration of the five-year agreement, he said he would definitely move back to the pastoral area if the resettlement policies were the same.

### *City Migrant: Swinging between the City and the Country*

To reach the goal of resettling more people, the local government has some room for negotiating the terms dependent upon conditions. With insufficient compensation and difficulty in finding jobs, many resettled pastoralists have turned to the pastoral area for their livelihood. I was told that nine households had moved back to the pastoral area in Gacha A. They were living on neighbours' rangelands but herding animals on their own rangelands. If monitoring officers came, they would say the animals were the neighbours'. There may be some fines for overstocking. However, the incomes are much better than earnings in the city. A more common practice among resettled pastoralists is to keep some animals in a pastoral household which is not resettled. Although Baolidao was in an argument with Gaowa over rangeland use, he still kept a few sheep with Gaowa's herds. Nevertheless, in the autumn when the county Animal Husbandry Bureau started to do the annual herd survey, his sister anxiously phoned him to ask what to do. He then turned to informant C, the village leader, who said it would be alright just to notify the officers. Even if they insist on fining, each lamb incurs only 30 yuan, which is nothing compared to the price of a sheep for 600 yuan. He also even considered moving back to live on his sister's rangeland so as to restart herding, but his sister refused. New arrangements which evolve in resettlement processes are firmly embedded in social ties but at the same time the social networks are complex in different contexts.

## **Development? Environment? The Concerns and Choices**

The above examples show that the affected households' migration decisions and actions are generally structured by the agenda of the local implementation of ecological resettlement projects. The local government-managed ecological resettlement was focusing on two figures: the number of resettled households and the area of enclosed rangelands. Economic incentives including compensation and facilitation of entrepreneurship, and social incentives such as education are the main leverage used to attract households to move. At the same time, the government relied on its administrative capacity to restrict the use of rangelands. These policies and rules exist through the concrete practice of human agents who reproduce social life through their routinized day-to-day encounters: the local

officials interpret and implement ecological resettlement according to their interests, and the pastoralists cooperate with, adapt to, or resist the policies with their justifiable acts and discourses. Nevertheless, their conduct produces both intended and unintended consequences, which all feed back into their further activities. For example, monitoring of enclosed rangelands is rather weak and punishment of violations is very arbitrary. Therefore, the environmental goals of ecological resettlement become uncertain, and are at least undermined in implementation.

Different households and individuals are affected in different ways by ecological resettlement and they have different capacities to negotiate, depending on social, political and cultural factors. As the examples show, the affected people also have their agency in mediating their situations in ecological resettlement. On the one hand, it is embedded in the long-term interactions between people and the local government. On the other hand, it is intertwined with the social and political relationships. At the same time, each case demonstrates a different interplay of actors and power relations. The strong role of the state in determining the direction and means of development is reflected in the pastoralists' uncertainty about the future and their ability to control their future. Given the situation, different responses and strategies emerged. Resistance is manifested in the action of persistently staying in the pastoral area, but also verbally, in complaints and vows to return. Weapons of the weak are usually informal and concerned with immediate, *de facto* gains. There are also inconsistencies, paradoxes and even contradictions between people's narratives and actions. It is less important to identify what is true or not than to understand why they are inconsistent, paradoxical and even contradictory. Social ties and norms remain crucial in mediating rural life. Thus while households related to leaders may benefit from the ecological resettlement projects, they are also challenged by the new situations and problems, for example, in rangeland use, which instead have to be solved through administrative agencies.

Compensation was the most important economic factor in the short run, but at the same time most interviewees had plans to return to the pastoral homes after five years. Through follow-up interviews, it was found that most migrant households usually kept a small number of livestock (usually about fifty sheep and one or two cows) in friends' or relatives' herds, which could become the basis for resuming pastoralism in the future. Social factors such as education and medical care played important roles for some migrant households, depending on the household demographic structure. There were successful migrants from the pastoral areas who operated small businesses such as restaurants and shops, but they had moved to the city before the ecological resettlements. Jobs were difficult to find and most were temporary, short-term and seasonal, which created more stress for urban living. Although most single actions can hardly cause a response from the state, cumulative and intensified actions may turn into pressure on local

government and lead to policy changes, since maintaining social stability is the prime task of local government.

In this case study area only a few rural-urban migrations occurred before ecological resettlement. Migration was gradually taken up as a temporary or long-term type of household strategy. Migration decisions and actions are affected by the household demographic and socio-economic factors. It is common to find in migration research that young people prefer to leave rural areas and to settle down in cities. Families with more than one child take resettlement as a chance for their children's better future. Many families with children of school age chose to move to the city, both to benefit from the policy of giving education to resettled people's children and to take better care of them. Movement was a short-term solution to economic constraint for many families. To reach the goal of getting more people resettled, the local government has some room to negotiate terms, though such flexibility is also dependent on other conditions.

While development is apparently and dominantly framed in ecological resettlement projects, the environmental dimension tends to be marginalized in practice. First of all, among the motivations for pastoral households to move, environmental factors are not a significant reason for most pastoralists. As mentioned above, a few households migrated before the implementation of ecological resettlement projects, due to the losses caused by natural hazards. For them, disasters and rangeland degradation caused by drought were important reasons to give up pastoralism and migrate to city Q. Nevertheless, most interviewees of the second ecological resettlement did not think rangeland degradation was an important reason for them to move, though they mentioned at the same time that their movement could let their rangelands rest as a side benefit. To what extent rangeland degradation drove people to leave is not evident in this case. Even when there is a cause-effect process, the relationship is not linear. Instead, environmental factors work through reducing production bases and incomes, which induce migration actions. This is in line with the findings of most empirical studies on environmental migration, which conclude that although migration happens on a larger scale in environmentally degraded areas, socio-economic considerations are still the major driving force (see findings of Foresight Report 2011). In the cases where pastoral households could not make a living by herding and moved to city Q because their contracted rangelands were severely degraded, they still believe that the rangelands can regenerate in a few years and they are ready to return any time. Migration decisions are rarely made due to environmental concerns. Instead, social and economic incentives are the most important reasons to move with the resettlement project.

## **Conclusion**

The micro-level approach of this study provides insights which are not apparent in most macro-oriented studies, reports and assessments of rangeland degradation and resettlement programmes. The state's determination and ambition in implementing green development has been channelled into environmental and social engineering in the form of projects. The practice of ecological resettlement in this case demonstrates that the grand nature of policy at the state level leaves much space for the regional and local levels of government to interpret, plan and manipulate. Ecological resettlement projects were combined with the local development agenda towards economic restructuring, promotion of non-farming activities and urbanization. The gap between state policy and local practices is more than a reflection of a gap in implementation. To local politicians, moving pastoralists is primarily a political and economic mission. The main incentives for local politicians come from the financial inputs and politician performance evaluation. Environmental policies are locally received by the affected people with tensions, confrontations, resistance, negotiations and compromises. The affected households' choices in this study were generally structured by the agenda of the local implementation of ecological resettlement projects, but they also sought to choose from the limited options in a way that would sustain or improve their situations. They had different capacities to negotiate, depending on social, political and cultural factors.

While the developmental dimension is apparently and dominantly framed in ecological resettlement projects, the environmental dimension tends to be marginalized in practice. Pastoral households were motivated to move for social and economic incentives and needs, but few were primarily driven by rangeland degradation or for the sake of restoring the rangeland. A negative consequence of the current ecological resettlement approach is that, while people are moved out of the rangelands, the environmental concern of pastoralists for better rangelands tends to change from a cultural and internalized one into an economic and externalized one. Formally, ecological resettlement is the way to adapt to environmental degradation. However, there is a fundamental gap between the government's thinking and that of the pastoralists on the problems, causes and solutions.

The consequences and outcomes of ecological resettlement depend on the scope and reality of the opportunities and incomes in non-farm activities. A positive prospect might be related to the young generation's better adaptation to urban life. On the other hand, the benefit for the environment depends on strict enforcement of grazing bans. Because of the high cost of monitoring, it is unlikely that the local administrative agencies are ready to do this. If funding is provided from higher levels, the local government could be expected to enforce the bans more strictly, though through a debatable approach of fencing. The mode of ecological resettlement has been driven by policy and justifies people's

expectations to be helped and assisted throughout the process. The government has to come up with new ways to intervene in creating job opportunities and growth through administrative orders. The strong role of the state in determining the direction and means of development is reflected in the pastoralists' uncertainty about the future and their ability to control their future. It is not a reversible process but a transforming one. Resettlement is not a smooth process, but instead a back-and-forth process. Further policies for addressing problematic consequences of ecological resettlement projects can relieve some consequences, but the conundrum remains difficult to solve.

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## Notes

1. According to the data in 2007, the population is 1,016,800 (4.23 per cent of that of Inner Mongolia), including 297,600 Mongols (6.92 per cent of the total Mongolian population of Inner Mongolia, and 29.27 per cent of the regional total population). Data of Xilingol League from Bulletin of Xilingol League Economy and Social Development 2007, released by Bureau of Statistics of Xilingol League on 11 April 2008. Data of Inner Mongolia from Bulletin of Inner Mongolia Economy and Social Development 2007, released by Bureau of Statistics of Inner Mongolia Autonomous Region on 13 August 2008.
2. Nowadays there are around 78.8 million ha of natural grassland in the Inner Mongolia Autonomous region, which is about 68.8 per cent of its administrative territory. Figures from China's Environment State Bulletin 2005.
3. Most households' herds are mainly composed of small and productive livestock including sheep and goats, and a small number of large livestock such as cows. Since horses and camels are not economically profitable and require large pastures and more labour, and since their value as means of transport is limited nowadays, it is often only a few households in a village that are specialized in raising such animals.
4. See 'The Situation of Beijing-Tianjin Sand Source Control Programme' on the central government's website. Original source: The State's Forestry Bureau at [http://www.gov.cn/ztl/fszs/content\\_650497.htm](http://www.gov.cn/ztl/fszs/content_650497.htm), published on 15 June 2007, and last accessed 23 April 2012.



5. The four zones are Enclosure and Grazing Ban Zone, Sandy Land Treatment Zone, Fencing and Rotational Grazing Zone, and Returning Farmland to Forest and Grass Zone.
6. The total amount of national investment reached 45.8 million yuan, and the treatment area reached 541,390 *mu* by 2008. However, other actions besides ecological resettlement are included, such as afforestation, construction of warm barns, irrigation works and waste water treatment.
7. 1 hectare = 15 *mu*.

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