

Final Report

**Implementing Mongolia's Land Law:
Progress and Issues**

**A Research Project of the Central for Asian Legal Exchange (CALE),
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by

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INTRODUCTION AND BACKGROUND

Temperate grasslands are among the most imperiled ecosystems on earth (The Nature Conservancy 2007), and Mongolia supports the largest relatively intact expanse of such grasslands on the globe (Mongolia Web 2007). Over a third of the nation's population depends directly or indirectly on extensive livestock husbandry for its livelihood, and Mongolia maintains a tradition of mobile pastoralism that incorporates many herding practices that have been used for centuries (Fernandez-Gimenez 1999, Humphrey and Sneath 1999). In 1990, Mongolia began a sudden transition from 70 years of socialist government and a command economy to a democratic system of government and a market economy. This economic "shock therapy," had a number of consequences, including an increase in poverty and wealth disparities among herding households (Mearns 2004, Nixon and Walters 2006), urban-rural migration resulting in a growing number of herding households competing for pasture resources, loss of access to basic social services (education, health and veterinary care), declining terms of trade for herders, and lack of access to markets (Fernandez-Gimenez 2001, Fernandez-Gimenez 2002, Fernandez-Gimenez et al. 2007). One of many institutional changes that resulted from this transition was the collapse of the socialist herding collectives and with them, the formal institutions that governed pasture allocation and use. These economic, social and institutional factors led to reduced pastoral mobility and increasing year-round grazing of crucial winter and spring reserve pastures, which combined with several years of drought in turn resulted in increasing pasture degradation and more frequent and severe conflicts over pasture. Various solutions to these problems have been proposed or attempted, including a number of community-based pasture management projects that aim to improve herders' livelihoods and pasture management practices simultaneously (Morton et al. 2002, Ykhanbai et al. 2004, Mau and Chantsalkham 2006). Some observers believe that formal and exclusive individual or collective property rights over pasture are an essential prerequisite to improved management (GISL 1998, Center for Policy Research 2004, Bakei No Date, Dorligsuren No Date).

Pastureland Law

In 1994 the Mongolian Parliament (Ikh Khural) passed a Law on Land, which contained provisions pertaining to the use and management of pasturelands. A further revision of the law was passed in 2002. The most recent law allows for possession of winter and spring campsites, but as yet there is no provision for pasture possession. Other related laws have been passed, including amendments to the Environmental Protection Law that allow for the establishment of "nukhurlel" or natural resource user groups with rights to use, manage, and conserve specific natural resources. This law specifically excludes pasture, but nonetheless sets a precedent for community rights to manage natural resources. Currently, a pastureland law has been drafted and was scheduled for introduction to Parliament in the fall of 2007; however it now appears that it will be introduced in the fall of 2008 instead. This law specifically provides for the possession of pasture by herder communities or user groups.

Community-based Natural Resource Management

Community-based natural resource management (CBNRM) is management of natural resources such as rangelands by groups of local resource users for the economic and social benefit of these groups and the ecological sustainability of the resources (Western and Wright 1994, Child and Lyman 2005a). These decentralized environmental governance institutions take many forms,

from informal and customary resource use practices and norms, to more formal arrangements carried out by legally constituted and recognized organizations. There is also a range of levels of local control from complete control by local groups, to various forms of “co-management,” under which authority for decision-making and management is shared by local, regional and/or national government and the local resource user group.

Public and scholarly attention to community-based management institutions has grown over the past several decades (McCay and Acheson 1987, Feeny et al. 1990, Bromley 1992, Western and Wright 1994, Agrawal and Gibson 2001, Ostrom et al. 2001, Russell and Harshbarger 2003, Child and Lyman 2005a), but many of these institutions have existed for centuries, if not millennia (Feeny et al. 1990, Ostrom 1990). In the past two decades, however, many new organizations have formed or been formalized, often building on pre-existing local institutions (Child and Lyman 2005b). This groundswell of activity worldwide has raised many questions about the effectiveness of these institutional forms, as well as the factors that contribute to their success or lack of success under different ecological, social, political and economic conditions (Agrawal 2001, Agrawal and Chhatre 2006). While much scholarship has been conducted on community-based management institutions, customary and contemporary, significant challenges remain in evaluating social and ecological outcomes and developing empirically-based and rigorously testable theories of community-based management (Conley and Moote 2003, Agrawal and Chhatre 2006).

Since 1999, Mongolia has become a *de facto* testing-ground for community-based rangeland management, with the establishment of over 2000 “herder groups” and “pasture user groups,” facilitated by over 12 different donor and NGO-sponsored programs (Mau and Chantsalkham 2006). Most of these projects aim simultaneously to enhance pasture management and productivity, while improving herders’ livelihoods through increased education, capacity-building, livestock improvement and marketing, and/or livelihood diversification opportunities. Because the ability to implement pasture management improvements is closely linked to institutions of pasture access and control, many of these projects are also intimately involved in implementing pastureland provisions of the Land Law, and strengthening herder and local, regional and national governments’ knowledge of and capacity for implementing the law. Although many projects have conducted internal project evaluations or issued reports (Morton et al. 2002, Center for Policy Research 2004, Ykhanbai et al. 2004, Batjav et al. 2006, Mau and Chantsalkham 2006, Sandagsuren et al. 2006), there have been few attempts to coordinate learning and research across projects (Mau and Chantsalkham 2006). Further, no work that we know of has examined specifically the role of community-based pasture management groups in implementing Mongolia’s Land Law.

RESEARCH GOAL AND OBJECTIVES

The goal of this research is to describe the status of implementation of the Mongolian Land Law and specifically its pastureland provisions, and the effects of implementation on Mongolian herders and the rangelands on which they depend. Under this broad goal, we identified the following five research objectives:

- 1) Compare implementation of the law in differing ecological zones (e.g. Steppe and Mountain steppe), in which the differing ecological conditions are expected to influence the appropriateness and effectiveness of pasture possession provisions.
- 2) Describe the knowledge, attitudes and perceptions of different actors (e.g. national-level policy makers, aimag and sum land officers, bag governors, local and national NGO staff, and herders) with respect to the Land Law's pastureland provisions, their roles relative to implementation, and the factors that constrain or facilitate successful implementation.
- 3) Describe the role of organized herders groups in the implementation of the Land Law (e.g. co-management groups organized with assistance from GOs and NGOs such as SDC, UNDP).
- 4) To the extent possible, assess the ecological and socio-economic impacts of the pastureland provisions of the Land Law in differing ecological zones.
- 5) Conduct exploratory/preliminary research comparing socio-economic and ecological conditions in adjacent areas with and without organized herder groups.

RESEARCH QUESTIONS AND HYPOTHESES

Five primary research questions and 11 associated hypotheses guided our investigation. Due to the evolving nature of the research design, we were not able to test all of the listed hypotheses. For example, we were unable to compare project and non-project sum.

1. How does progress towards implementation of pastureland provisions differ among ecological zones?

Hypothesis 1: Possession contracts over winter and spring campsites and hayfields are more likely to have been granted in the more mesic and productive areas, than more arid areas, because of the more constant and predictable conditions for plant growth in the more mesic areas. In more arid areas, a more mobile, flexible and opportunistic management approach is necessary to survive, and this approach, in turn, is perceived as incompatible with formal possession.

Hypothesis 2: There is an inverse relationship between the average seasonal and annual distance moved and the implementation of pasture possession contracts. For the same reasons described in hypothesis 1, where herders are more mobile, they are less likely to implement pasture possession contracts, because they are perceived to limit mobility.

Hypothesis 3: There are more conflicts over and greater resistance to pastureland possession contracts in arid areas compared to mesic area. *Alternative Hypothesis:* Because of movement of herders to more mesic areas, and resulting shortage of pasture, these areas experience greater conflict than more arid areas.

Hypothesis 4: Possession contracts over pasture are more likely to be granted to individual households or khot ail in mesic areas, and to larger groups of herders in more arid areas.

- 2A. What do different actors know about the current land law's pastureland provisions, what are their attitudes towards it, and how do they perceive its ecological and socio-economic impacts on herders and the land?

Hypothesis 5: We expect to see differences in knowledge and understanding of the law between herders, local officials, and national officials. In addition, we expect that all stakeholders will be more knowledgeable about the Law than they were in 1999.

Hypothesis 6: Herders in different ecological zones will differ in their perceptions of the law's impacts on their well-being and the health of the land.

- 2B. How do different actors perceive their roles and responsibilities with respect to implementation of the pastureland provisions of the land law?

- 2C. What do different actors perceive as the primary barriers to effective implementation, and factors that would facilitate implementation?

- 3A. What role have NGO/donor-organized or supported herder groups played in the implementation of the pastureland possession provisions of the land law?

Hypothesis 7: Herders and local government officials in project sums will be more knowledgeable about the Land Law and will have greater awareness of their rights and responsibilities under the law.

Hypothesis 8: Members of formally organized herder groups are more likely to have obtained formal possession contracts over campsites, hayfields, and pasture than unorganized herders.

- 3B. What are the factors that facilitate or impede organization of herder groups to possess and manage pasture?

Hypothesis 9: Based on past research, we expect that lack of mutual trust and lack of local leadership and/or capacity are key impeding factors in organizing herder groups for pasture possession and management.

4. How do herders, local officials and project staff perceive the effects of the Law on herders' well-being and pastureland conditions?
5. What are the short-term social and ecological impacts of herder groups that formally possess and manage pasture?

Hypothesis 10: Herder group members will have higher levels of social capital than non-members.

Hypothesis 11: Herder group members will perceive more improvement in management and social conditions than in ecological conditions.

METHODS

Study Sites and Overall Sampling Strategy

The study sites were selected to represent contrasting ecological zones and sums where pastureland co-management projects had been implemented by the Swiss Agency for Development and Cooperation Green Gold (SDC-GG) and UNDP Sustainable Grasslands (UNDP-SG) programs, two of the major donor-sponsored community-based rangeland management programs currently operating in Mongolia. In each ecological zone, we selected at least 1 sum in which each of these programs was helping to organize co-management projects. We attempted to select sum where we would be able to sample both herders who participated actively in the projects, and non-participating herders. In some sum, such as Ikh Tamir, all herders in theory belong to a pasture user group. However, some herders did not identify themselves as members of such groups, and in some cases they were not aware that such groups existed in their territory. In Mandal Sum's Tunkhel Bag, we expected that no herders would belong to herder groups, since the UNDP-SG project, though active in the Sum, was reportedly not active in that bag. However, we encountered 3 households in our sample who identified themselves as members of a UNDP-SG sponsored herder group. Thus, all sites included both member and non-member households, although there were only 3 non-members in the Ikh Tamir sample, and only 3 members in the Mandal sample.

Due to the limited timeframe for completing field research, we selected sites within a 1-day drive of Ulaanbaatar. Thus, these sites may not represent conditions in similar ecological zones located farther from the nation's capital.

Table 1. Location of Study Sites

	Steppe Zone	Mountain or Forest Steppe
SDC Green Gold	Ondorshireet Sum, Tuv Aimag	Ikh Tamir Sum, Arkhangai Aimag
UNDP Sustainable Grasslands	Sant Sum, Uverkhangai Aimag	Bayangol & Mandal Sum, Selenge Aimag

Site Characteristics

Table 2 summarizes key ecological, demographic and institutional information for each of the 5 study sites.

Table 2. Characteristics of the 5 study sites. Data sources include interviews and surveys of sum officials and project staff and the Atlas of Mongolia (for precipitation).

	Ondorshireet	Sant	Ikh Tamir	Bayangol	Mandal, Tunkhel Bag only
Ecological Zone	Steppe	Steppe	Mountain-steppe	Forest-steppe	Forest-steppe
Mean annual precipitation	~200mm	~200mm	~300mm	~300mm	~350mm
Sum land area (1000 ha)	272	256.8	484.6 (138.3 forest)	196	Not available
Human population (year)	1931 (2007)	3540 (2006)	5585 (2007)	5200 (2007)	3587 (2007)
Herding households	360 (2007)	950 (2007)	1205 (2007)	350 (2007)	189 (2006)
Head of livestock (2005)	72,437	177,932	161,028	60,531	15,473
Project	SDC-GG	UNDP-SG	SDC-GG	UNDP-SG	UNDP-SG
Type of group	kheseg	1 kheseg 5 NGOs 2 new	14 kheseg	2 informal 4 cooperatives 2 NGOs	unknown
# of herder groups/pasture user groups in sum	9	8	14	8	unknown
Group size (households)	~50	16-17/bulig 30-50/kheseg	~50	8-15	unknown

Data Collection

We used a mixed-method approach to collect data. To understand the status of land law implementation; the structure, function and role of co-management projects in land law implementation; and to gain insight into the meanings of pasture “use,” “possession,” and “ownership” to herders, officials and project staff, we conducted semi-structured interviews with national, regional and local government officials, project staff, and herders. In total, we formally interviewed 1 national and 1 aimag official, 4 national project staff, 11 local officials, 5 local project staff, and 14 herders. Additional informal interviews were conducted opportunistically. Formal interviews lasted from 20 minutes to several hours. Most formal interviews were digitally audiorecorded, transcribed, and translated into English. Interviews conducted by Dr. Fernandez-Gimenez were conducted through a translator and notes were recorded in English. Interviews conducted by Mr. Kamimura or Dr. Batbuyan alone were conducted in Mongolian.

Table 3. Interviews conducted.

	Officials	Project Staff	Herders (includes group leaders)
Ondorshireet	2	1	2
Sant	4	2	4+
Ikh Tamir	2	1	4+
Bayangol	1	1	3
Mandal	2	0	1+
Aimag & National	2	4	---
TOTAL	13	9	14

We conducted a review of project and related documents to improve our understanding of the formal legal environment for pasture management, instruments and agreements for implementing co-management, and current discussions that reflect the views of various stakeholders on future directions for pastureland laws and for co-management. Documents included current national laws and proposed legislation, locally implemented co-management agreements and herder group by-laws, project documents (e.g. evaluation reports), and documents issued by committees or individuals making recommendations for revisions of the pastureland provisions Land Law or development of new pastureland legislation. Many documents exist in official English translations (e.g. national laws, project reports, policy recommendations). Mongolian language documents (e.g. local agreements and by-laws, and draft national legislation) were translated into English for review. However, these translations are not official translations of legal documents.

In order to compare herders' knowledge and attitudes about the Land Law, as well as their pastoral mobility, pasture management practices, and socio-economic characteristics, between herding households that participate in pasture co-management projects, and those that do not participate, and between ecological zones, we conducted a face-to-face survey of herding households at each study site.

Within each study sum 1-2 bag (subdistricts) were selected for study based on discussions with the project staff and local government in each sum. In making these (subjective) selections, we sought to survey members of groups that were well-established (where possible), and groups that were perceived as "successful" and "less successful" by project staff. Within the study bag, surveyed households were selected using stratified random sampling. First, all herders were ranked by wealth using a participatory wealth ranking technique (Grandin 1988), whereby at least 3 herders in each study bag were asked to sort all households in their bag into several piles based on their perception of the household's living standards. The ranks of the 3 informants were then averaged to generate one wealth rank for each household. All herders in the bag were then divided among 4 wealth groups based on the household's average rank. Due to time constraints, wealth ranking was not conducted in Bayangol Sum.

In addition to stratifying the sample by wealth, we also identified which households were listed as official members of the existing herder groups or pasture user groups in the study bags. We then randomly selected an equal number of members and non-members from each wealth group to survey. In some instances, no households in some wealth groups were listed as herder group

members, making it impossible to have a balanced sample with representation from all wealth groups in both the member and non-member samples. To locate the selected households, we asked knowledgeable herders to map the physical location of each household. If we were unable to locate a selected household, we attempted to survey the next closest household with the same membership and wealth characteristics.

The household survey was based on a survey used in similar research in Jinst and Bayan-Ovoo Sums, Bayankhongor Aimag, in 1995, 1999 and 2006. The survey for this research was modified to include additional questions about herders' knowledge and attitudes towards the existing land law, as well as opinions about a potential future pastureland law; questions to measure structural and cognitive social capital of all respondents; and questions specifically for herder group members about social capital among group members and members' perceptions of group effectiveness.

Measures of community social capital were based on questions from the Adapted Social Capital Assessment Tool (SASCAT), which have been tested in a number of different cultural settings in the developing world (Krishna and Shrader 2000, De Silva et al. 2006). These questions assessed three dimensions of social capital: cognitive-bonding, structural-bonding and structural-bridging. We did not include measures of cognitive bridging social capital in the survey. Cognitive social capital refers to trust, shared values and goals, and norms of reciprocity, while structural social capital refers to connections or networks among community members. Bonding social capital is thought to be most important for "getting by," particularly coping with stressful life events and changes, while bridging social capital is useful for "getting ahead," such as increasing access to financial resources or social or political influence. Bonding social capital refers to relationships among closely affiliated individuals such as family members or close friends and associates. Bridging social capital denotes relationships between individuals that are often separated by social roles or positions, such as the relationship between a herder and a government official.

Questions about herder group efficacy and social capital were modified from a survey of community-based collaborative groups in the Western USA, conducted in 2005 (Wagner and Fernandez-Gimenez In Press).

The survey was pre-tested on 5 households in Ondorshireet Sum, Tuv Aimag, and revised. After administration in Bayangol Sum, Selenge Aimag, the survey was slightly revised again before it was implemented in the remaining study areas. Survey data from Ondorshireet were not analyzed since the surveys were a pre-test.

Table 4. Surveys conducted by respondents' membership or non-membership in herder groups.

	Members	Non-Members
Sant	15	16
Ikh Tamir	11	5
Bayangol	5	6
Mandal	2	10
TOTAL	33	37

Table 5. Surveys conducted by respondents' wealth rank. Wealth ranking was not done in Bayangol Sum.

	WG 1 (wealthiest)	WG 2	WG 3	WG 4 (poorest)
Sant	8	5	10	8
Ikh Tamir	0	6	6	4
Bayangol	NA	NA	NA	NA
Mandal	4	3	4	1
TOTAL	12	14	20	13

Analyses

When independent variables were categorical (ecological zone and herder group membership) and response variables were continuous (mobility metrics), we used two-way analysis of variance with ecological zone and group membership as between-subjects factors. When response variables were categorical (knowledge of land law) or ordinal (social capital items), we used Chi-square analyses to assess the association between independent and response variables. For herder group members, we compared levels of social capital within herder groups to social capital levels within the larger community for 3 social capital measures using paired t-tests.

We developed a bonding social capital scale to simplify assessment of social capital. First, we conducted a principal components analysis of all potential items. All items except one ("I really feel I am part of this community") were highly correlated with the first component. Chronbach's alpha with this item deleted was .855. We retained 8 items in the final scale.

RESULTS

Our results are presented in three sections. In the first section we review the current and proposed legislation related to pastureland possession. In the second, we present the results of our household survey, which we used to test several of the hypotheses put forth earlier in the report. In the second section, we present short case studies of each study site based on a synthesis of our interview data, document review, and field observations. The case studies are structured to first provide a brief summary of the situation in each sum, followed by a more detailed description of the implementation of the land law, including local perceptions of pasture possession, and an account of herder groups and pasture user groups.

Current and Proposed Legislation

We have reviewed the 1994 and 2002 Land Laws elsewhere (Fernandez-Gimenez and Batbuyan 2004, Fernandez-Gimenez and Khishigbayar 2005, Fernandez-Gimenez et al. 2007), and will therefore will focus on a brief assessment of the new proposed pastureland legislation. A comprehensive review and recommendations regarding Mongolia's proposed Pastureland Law was released on January 10, 2008, after much of this report was prepared (Hannam 2008). In his evaluation, Hannam assesses the draft law in a three-step process by 1) examining the individual legal elements of each article in the law, 2) comparing the draft against standard essential elements for pastureland law, and 3) comparing the structure and elements of the proposed law with standard generic legal and institutional elements for pastureland law (p. 59). However, Hannam's report does not concern itself greatly with the substantive detail of pasture possession

and protection provisions, such as the advantages and drawbacks of collective possession or pasture fencing as a means of implementing protection. In this section we provide a much briefer critique of the pastureland possession provisions of the July 20, 2007 version of the law. One important caveat regarding our analysis is that it was based on an informal and not an official English translation. In some instances, it was difficult for the team to discern the intent of the articles, and it was not clear whether this was due to problems with the translation, or confusing language in the original.

The proposed Law of Mongolia on Pastureland (version of July 20, 2007), provides for possession of winter and spring pastures (Article 4.1.3) by herder groups only, and sets out the conditions for, and rights and responsibilities associated with possession. Among the positive aspects are the requirement for a pasture management plan and the requirement that the herder community reside in the same location as the possessed land (Article 13.2.3), seemingly eliminating the potential for absentee land possessors. However, Article 20 of the Draft Law, which regulates transfer and “pledge” (mortgage?) of a certificate of pastureland possession right, appears to authorize possession by entities other than herder communities through the process of transfer. The law also requires that possessors maintain or improve the condition of soils and vegetation, and carry out pest and rodent control at their own expense (Article 18.2.4). The law prohibits grazing numbers of livestock in excess of a defined carrying capacity, as well as hay making in areas vulnerable to soil erosion and desertification, creating new roads without authority, and mining or digging without permission (Article 25).

While there are a number of positive aspects of the law, it also has some serious shortcomings, in our view. The law does not define possession or distinguish possession from use or common use, two other terms used in the draft legislation. These terms are defined in the Land Law, but it would be useful to restate their definitions here. The law states that land that is not possessed is available for common use. The law allows for (Article 18.1.2), and may require (Article 18.2.3), that possessors fence their pasture¹. Article 18.2.3 also includes language that could be interpreted to mean that irrigation and well-digging are universal requirements of possession. It does not state whether it is the responsibility of the possessor to exclude outsider livestock, or the responsibility of all livestock owners to respect possession rights of others and keep their livestock from entering pasture possessed by others. Article 22.2.1 is not at all clear and appears to say that possessed land whose ecological conditions do not improve, or get worse, over the period of possession can be taken out of possession. While we support the apparent intent behind this article, it is important to consider the ecological limitations of the land. Some land may take a very long time to recover. Alternatively, the land may have crossed a threshold that makes restoration to “historic” conditions unrealistic. Similarly, changing climatic conditions, or fluctuations such as long-term drought, may also constrain recovery. Article 23.1 is unclear. It appears to indicate that any land not possessed is available for common use. However it does not specify who may access and use this common use land; herders from the bag or sum where the land is located only? Or any herder? Will common use land also be subject to the same management planning provisions as possessed land?

¹ The informal translation of the law we commissioned indicated that fencing was required (Article 18.2.2, but the translation in the Hannam report, did not state that fencing is required, only that possessors are obligated to “restore, irrigate, and improve conditions of pastureland and dig wells in pastureland.”

This combination of provisions would seem to set Mongolia on the same course as that taken by China with the individual household responsibility system. Even though Mongolia's possession rights would be vested in herder communities rather than individual households, the proposed law could create a situation in which communities possess and fence some lands, which may be well managed and restored, while community members and others overgraze the open access "common use" lands, leading to accelerated degradation of lands that are not allocated for possession. While feasible means of monitoring and controlling access to possessed lands are needed, fencing may not be the best solution, due to the expense of construction and upkeep (which may eliminate some groups from being candidates to possess lands). In addition, fencing blocks both livestock and wildlife migrations.

In his recent report, Hannam (2008) also recommends a number of other areas for improvement in the draft law, including: clarity on "legal entities"; greater specificity on procedures for possession, and for determining the size, location and duration of possession; standards for restoration (in article 13.4); and need for clear goals and objectives for the legislation with focus on ecological sustainability.

Views on the need for formal pasture possession, and the mechanisms for legislating possession, differ among various policy-makers and other opinion leaders in the public and NGO sectors. Here, we draw on documents written by individuals involved with pasture possession legislation in various ways, to highlight some of the contrasting views.

MP A. Bakei is Chairman Standing Committee of the state great Khural on Environment, Food and Agriculture and author of a paper titled "Issues of Enhancement of the Legal Environment for Pastureland Relations" (Bakei No Date) In his paper, Mr. Bakei asserts that "many difficulties and uncertainties use to occur mainly due to ambiguousness/impreciseness of issues regarding how the common use of pasture could be regulated" (p.3). Among the ambiguities he highlights are the lack of clarity on possession of pastureland, the failure to address pasture adjacent to cropland, and the failure to address large areas of pasture that are not classified as agricultural lands. Mr. Bakei suggests a separate law addressing pasture and haylands specifically may be needed, and points to the 2002 Chinese legislation as an example of a law that authorizes collective ownership of pasture. Other alternatives include clarifying the pastureland provisions of the existing land law or developing a separate law on agricultural land with specific provisions dealing with pasture.

Mr. Bakei's paper also compares the strengths and weaknesses of pasture use and possession. The advantages of pasture use are unlimited free use, flexibility for herders in emergencies, and no apparent limits on trekking, migration or movements of livestock. The disadvantages of use he cites include unsystematic use of pasture and difficulty in regulating "relations over pastureland," lack of incentives to invest in improvements or engage in intensive livestock production. The advantages of possession are seen as an increase in herders' sense of responsibility for pastureland and commitment to invest in protecting and improving the land. In addition "pasture is put into economic turnover," which may refer to the development of a market in land. The disadvantages to possession cited by Mr. Bakei are the negative

consequences to herders during climatic emergencies (owing to lack of flexibility and mobility), increased conflicts between herders, and difficulties in migrating and moving livestock.

Dr. Dorligsuren is Program Coordinator, Green Gold Pasture Management Program and expresses his views on possession in a paper titled “Pasture Management Issues” (Dorligsuren No Date). Dr. Dorligsuren views pasture possession as essential to restoration and sustainable management of pastures. In areas of high population concentration and where lands have already been overgrazed and degraded, he advocates for long term possession with the potential to rent or sell possession rights. He sees this reform as an essential prerequisite to more intensive livestock husbandry. In more remote rural areas, more traditional forms of collective pasture use are appropriate with long term possession rights granted to individuals or groups.

Various donor-supported projects and NGOs express a range of philosophies and views with respect to pasture possession and management. The Centre for Policy Research (CRP), the main implementing contractor for the WB-funded Household Livelihood Improvement Project, favors possession and views many of the current problems as a result of lack of “ownership” by herders of any land other than their campsites (Center for Policy Research 2004). In addition, CRP is of the philosophy that the current situation leads to too great a responsibility for land care on the part of local governments, when incentives should be in place for herders to care for and improve the land (p.28 of report). “The lack of strict statements in the Land Law on the rights of herders to possess and use pastures creates and interest among herders to compete for best portions of and accelerates a shift of land use to a practice of common use. Therefore, issues of protection and improvement of grazing land has been removed being responsibly and care of herders as they remain falsely as the duty of local governments.”

In a recent editorial (Enkhamgalan 2007), the principal of CRP, Mr. Enkhamgalan, expressed his view that provisions for possession are urgently needed in order to avert widespread pasture degradation and the resulting loss of livelihoods, and to foster innovation and productivity among herders. According to Enkhamgalan, customary institutions are no longer effective due to the dramatic increase in the number of herding households, the incentives for unlimited herd growth, and the lack of natural boundaries to distinguish traditional seasonal pastures in most areas of the Gobi, steppe and mountain-steppe. Enkhamgalan is clear that the version of possession that he advocates is not “dividing pastures into allotments, fencing and seeing whether herders can survive or not in one place.” (p.4) Rather, he advances a vision of pasture possession that is highly decentralized, where implementation is left to local communities (sum and bag) in accordance with local conditions and traditions. He suggests that pastureland possession, “should be based on the traditional informal possession or user rights of winter, spring camps and hand wells at the khot ail level and seasonal pastures and the neighborhood group level.” He further states that, “Making herders’ groups as a legal body to formally possess pastureland resources is a practical way to avoid conflicts not raising the sensitive issues of identifying and marking boundaries across households or khot ails.” (p.4) The legal framework he proposes is the simple addition of one clause to the existing land law.

In contrast, staff of the New Zealand Nature Institute and Initiative for People Centered Conservation expresses a more cautious view of possession, in the context of protected area

management (Sandagsuren et al. 2006). Based on several pilot projects implemented and evaluated by these groups, a recent paper concluded that, if a community managed area regulation is developed, “it should focus more on protection that is based on regulatory enforcement of mobility and pasture use, rather than fenced areas with fixed sizes and boundaries, in order to avoid unequal access to resources.” (p.14)

Hannam (2008) advocates for a formal tenure system, including a land cadastre, but recognizes that formal tenure does not necessarily equate with private property. It is appropriate, in his view, for the state to maintain ownership and control of pastureland resources in Mongolia, and to allocate them for possession, use and management by herder communities and intensive livestock production entities. He supports and recommends avenues for strengthening community and stakeholder involvement in possession and management, and highlights the need for the proposed legislation to include specific procedural guidelines and criteria. He stresses that successful implementation will require an implementation plan; substantial increases in government financial and staff support for land administration, ecological assessment and monitoring systems, and related professional and public education; and a gradual, phased approach to implementation over 10-15 years.

Key Findings from Household Survey

Characteristics of Survey Respondents

Ninety-four and 85% of respondents in the steppe and mountain-steppe, respectively, were born in the sum where they currently reside (and were surveyed), while 96% of the forest-steppe respondents were born in a different sum.

Table 6. Characteristics of household survey respondents.

	Steppe	Mountain-steppe	Forest-steppe
	Mean (Standard Error)	Mean (Standard Error)	Mean (Standard Error)
% of respondents born in sum	94%	85%	4%
Years of herding experience	23.3 (2.4)	17.0 (2.8)	14.3 (1.3)
Age of household head	42.2 (2.2)	39.8 (2.9)	54.0 (3.5)
# of household members living at home	4.3 (.2)	3.8 (.4)	3.5 (.3)
Total # of livestock owned (sheep forage units)	352 (46)	334 (71)	339 (66)
Total livestock income (1000s Tg)	2894.3 (356.2)	1986.4 (468.9)	4161.9 (1322.2)
Total non-livestock income (1000s Tg)	459.9 (176.5)	237.1 (80.3)	933.6 (178.9)
Net income (1000s Tg)	1556.4 (336.2)	1007.2 (384.1)	3343.2 (1085.6)

Mobility

Mobility varied significantly among respondents from different ecological zones, with the primary differences being between the forest-steppe respondents and those from the steppe and mountain steppe. Herders from the steppe and mountain-steppe moved more often and farther and used more different camps than herders in the forest-steppe (Table 7). *Otor* was most common in the mountain-steppe (75% of households) and steppe (65%), compared to the forest-steppe where only 9% of surveyed households reported *otor* movements in the past 2 years.

Table 7. Comparison of mobility across ecological zones using a 2-way ANOVA with ecological zone and herder group membership as factors. F and P values are reported for the ecological zone effect only.

	Steppe (n=31)	Mountain-steppe (n=16)	Forest-steppe (n=20)	F P
	Mean (SE)	Mean (SE)	Mean (SE)	
Total moves (over 18 months)	6.03 (0.597)	7.50 (0.421)	3.9 (0.580)	6.323 0.003
Ave moves per year	3.05 (0.309)	3.75 (0.224)	2.12 (0.290)	4.939 0.010
Total distance (km)	146.1 (25.9)	133.8 (28.4)	40.5 (7.7)	5.556 0.006
Ave distance per move (km)	19.5 (2.6)	17.8 (3.3)	9.7 (1.8)	3.826 0.027
Total camps	4.9 (0.5)	4.3 (0.3)	2.7 (0.3)	6.357 0.003
% moves by vehicle	86.2 (6.5)	25.7 (5.7)	81.8 (8.0)	17.734 0.000
% moves by horse or ox cart	10.3 (5.7)	73.4 (6.3)	13.4 (6.9)	24.678 0.000

Pasture Management

Seventy-one percent of all surveyed households reserved winter pasture, with no significant difference among ecological zones. Reservation of spring pasture was significantly more frequent in the mountain-steppe (79% of households) and forest-steppe (75%) than the steppe (35%) ($X^2=9.993$, $P=0.007$). Thirty-three percent of all households reported grazing winter pasture out of season and 30% grazed spring pasture in other seasons, regardless of ecological zone. Trespassing on reserved winter or spring pasture was most commonly reported in the steppe (76% of respondents), followed by the forest steppe (48%) and was least common in the mountain-steppe (38%) ($X^2=5.655$, $P<0.059$). Ninety percent of all households reported cutting hay, with slightly higher rates of haymaking in the mountain-steppe (100%), than the steppe (90%) and forest-steppe (83%).

Implementation Status of Pastureland Provisions of the Land Law

Article 54 of the 2002 Law on Land provides for joint possession of winter and spring nomadic campsites by khot ail and authorizes sum and bag governors to regulate seasonal movements and carrying capacity (stocking rate). The law also authorizes fencing and use of pasture for intensive

livestock production. The law does not authorize pasture possession, but does allow collective use of summer and autumn pastures by khot ail and bag, and mandates that spring and winter pastures be protected from out-of-season grazing (in summer and autumn). The law does not state whether winter and spring pastures are to be used collectively or possessed individually or collectively. Article 55 addresses the rational use and protection of hayfields and authorizes use and possession of hayfields by individuals, companies or organizations.

Campsite and Hayfield Possession

We found that 84% of surveyed households owned a winter or spring shelter (with no significant difference among ecological zones), and 46% and 13% held a possession license over their winter or spring campsite, respectively. Contrary to our hypothesis, possession contracts over winter camps were most common in the steppe zone (65% of households), followed by the mountain-steppe (40%), and forest steppe (23%) ($X^2 = 9.301$, $P = 0.010$). Spring campsite possession was most common in the mountain-steppe (27% of households), with only 10% of forest-steppe and 8% of steppe households holding spring campsite possession licenses, but these differences were not statistically significant ($X^2 = 3.115$, $P = 0.211$). Possession contracts over hayfields were significantly more frequent in the forest-steppe (53% of households), than in the mountain-steppe (6%), or steppe (0%) ($X^2 = 23.6$, $P < 0.000$). The overall rate of hayfield trespass was 33%, with no significant differences among ecological zones.

Over all ecological zones winter and spring camp possession contracts were most commonly held by individual households (74% and 72%), with 26% and 28%, respectively, held by khot ail. Contrary to our hypothesis, there were no differences among ecological zones in the holders of these possession rights.

Conflicts over Pasture

More herders in the mountain steppe reported conflicts, with 63% of respondents in that zone reporting at least some conflicts in the past 5 years, although this rate did not differ significantly from the other zones. Over all zones, the majority of respondents (57%) reported no conflicts over pasture in the past 5 years.

Knowledge and Attitudes Towards the Land Law

More respondents in the mountain-steppe (79%) and forest-steppe (82%) supported pasture possession than in the steppe, where only half of the surveyed herders responded that pasture possession was a good thing ($X^2 = 5.051$, $P = 0.080$). Support was strongest for possession of spring pasture (87% of respondents), followed by winter pasture (80%), summer pasture (50%), and fall pasture (43%).

When asked about their knowledge of the current land law, 49% of all respondents reported that they did not know who, *according to current law*, regulates seasonal movements and carrying capacity. Twenty-seven percent responded (correctly) that either the sum or bag governor or both together regulate these things, according to the law. Nine percent thought that authority to regulate movement and stocking rates lay with herders and seven percent said it was the responsibility of the sum land officer. Nine percent believed that the law did not specify who is responsible for regulating movement and livestock numbers.

When asked *who in reality* currently regulates movement, 70% of respondents reported that herders themselves did and 11 % said the bag governor did. Fifty percent said that in reality herders themselves regulated stocking rates, 15% said stocking rates were regulated by the bag governor and 11% said that no one regulates stocking rates. There were a wide range of responses that were infrequently selected, including some combination of sum and bag governor, the bag governor together with herders, and the bag governor together with the kheseg leader. For both of these questions, herders in the steppe zone were significantly more likely to respond that herders themselves regulated movements and carrying capacity, while a greater proportion herders in the mountain-steppe reported that the bag governor regulated them (for movements: $X^2=34.654$, $P=0.010$; for stocking rates $X^2=35.627$, $P=0.008$).

We also asked herders their opinion about *who should* ideally regulate movements and carrying capacity. The overwhelming majority (61%) responded that the sum administration together with herders should regulate carrying capacity, with 16% responding that herders themselves should do this and 13% responding that the sum administration alone should regulate carrying capacity. About half of the respondents (53%) felt that movements should be jointly regulated by the administration and herders together. A significant minority of respondents (34%) felt that herders alone should do this, and only 6% felt that the sum administration should regulate movements alone. Similarly, half of the respondents (50%) felt that herders and the administration together should protect winter and spring pastures from out-of-season grazing, while 34% felt this was herders' responsibility and 10% believed that the sum administration alone should be responsible. For this question, herders in the steppe zone were significantly more likely to respond that herders alone should protect pastures from out-of-season grazing (52%) compared with 31% of mountain-steppe herders and 13% of forest-steppe herders ($X^2=14.177$, $P=0.077$).

Herders were also asked who (what entity) should legally possess winter and spring pastures. Thirty-four percent felt these seasonal pastures should be possessed by khot ail, 25% said they should be possessed by individual households, and 16% believed they should be possessed in common by all herders. Thirteen and a half percent felt they should be possessed by either kheseg (pasture user groups) or bulig (herder groups). Four and a half percent felt they should be possessed by all bag herders and 3% by all sum herders.

Perceptions of Pasture Conditions and Herder Well-being

Most respondents perceived that herders' living standards had improved since 2002 (80%), with only 3% of respondents perceiving a decline in herder well-being, and 17% perceiving no change over the past 5 years. Non-members of herder groups were slightly more likely to have reported a perceived decline in living standards than members. In contrast, 62% of all respondents perceived that pasture conditions had declined since 2002, although members had a slightly more optimistic view of pasture conditions than non-members ($F=2.750$, $P=0.102$), primarily in the forest-steppe.

The Role of Herder Groups in Pasture Management and Land Law Implementation

We expected that herder group members would be more knowledgeable about the land law, that the land law would be implemented to a greater extent where herder groups were active, and that this would be reflected in herders' mobility and pasture management. We expected that herder

group members would be more supportive of pasture possession than non-members because they would be more aware of the potential benefits of exclusive collective rights to use and manage pasture.

Herder group members were slightly more knowledgeable about the current law, with slightly fewer responding that they did not know who regulates carrying capacity and movements under the current law, and significantly more responding correctly to the question ($X^2=10.842$, $P=0.093$). Members and non-members did not differ in their opinions about the current reality of the law's implementation or who should implement the stocking rate and movement provisions in the future. Contrary to our expectations, members and non-members also did not differ in their attitudes towards pasture possession or who should possess pasture.

We expected that implementation of the land law would be more advanced in sums where herder groups were active, and among members of those groups. However, we found no differences between members and non-members in rates of shelter ownership or the proportion that held possession contracts over winter or spring campsites or hayfields.

Members of herder groups were significantly more mobile than non-members across all ecological zones, although the difference was greatest in the steppe zone for all mobility metrics. Herder group members moved more often (total moves: $F=3.358$, $P=0.072$), farther (total distance: $F=4.146$, $P=0.046$), and used more different camps ($F=3.063$, $P=0.085$) than non-members. Herder group members were also more likely than non-members to make otor moves ($X^2=5.672$, $P=0.017$). Herder group members were more likely to reserve winter pasture ($X^2=3.676$, $P=0.055$) and spring pasture ($X^2=5.632$, $P=0.018$) than non-members, although there was no difference in the rates of out-of-season grazing or trespassing.

Social Capital

In this survey we piloted a number of social capital measures, in part because both theory and empirical evidence from other countries suggests that social capital is positively associated with successful collective action as a facilitating factor and as an outcome. Accordingly, we expected to find a positive association between various measures of cognitive and structural social capital, and herder group membership. Given the large number of new migrants to the forest-steppe study sites, we also expected social capital to be lower among respondents in that ecological zone than in the other zones.

Cognitive bonding social capital (CBSC) differed significantly among ecological zones and between members and non-members in herder groups, based on the Cognitive Bonding Scale. As expected CBSC was lowest in the forest-steppe (and highest in the steppe zone) ($F=6.934$, $P=0.002$). Herder group members had significantly higher cognitive bonding social capital than non-members ($F=3.032$, $P=0.017$).

Structural bridging social capital was assessed by the number of local and national groups that the respondent belonged to, levels of assistance received from local and national groups, and whether or not the respondent met with a local government official within the past year. Herder group members were significantly more likely to have met with a local official during the past

year than non-members (X^2 4.294, $P=0.038$). Members also belonged to more local ($F=88.495$, $P=0.000$) and national groups ($F=4.001$, $P=0.049$), and were more likely to report receiving support from local groups ($F=13.697$, $P=0.000$).

Herders from different ecological zones differed in the level of support received from local groups, with steppe herders reporting the highest levels, followed by the forest-steppe herders, and mountain-steppe herders reporting no such support ($F=10.041$, $P=0.000$). However, mountain-steppe herders were significantly more likely to belong to national groups than herders from the other two zones ($F=3.326$, $P=0.42$). There were no differences among zones in likelihood of meeting with local government officials within the past year.

Structural bonding social capital was assessed by whether the respondent had worked together with community members to accomplish a common goal within the past year, and whether they received assistance from family or friends. Herder group members were significantly more likely to have worked together to reach a common goal than non-members ($X^2=8.334$, $P=0.004$). There were no differences between members or non-members or among ecological zones in levels of assistance from family and friends. There was no difference among ecological zones in whether respondents worked together for a common goal.

For herder group members, we compared cognitive social capital among group members with social capital among all community members. Herder group members reported significantly higher levels of honesty ($t=-2.179$, $P=0.037$) among group members compared to other community members. However, there was no difference in how members responded to the questions “group members help each other out” and “community members help each other out” ($t=0.373$, $P=0.712$), or perceptions of trustworthiness of group members compared to community members ($t=-1.305$, $P=0.201$).

Perceptions of Herder Group Effectiveness

Members of herder groups and pasture user groups differed by region in their perception of the effectiveness of these groups for all effectiveness measures. Overall, members of groups in the steppe had more positive perceptions of the process and outcomes of participation, and members of groups in the mountain-steppe had more negative perceptions. Members from the forest steppe region also held primarily positive perceptions, but not as uniformly as members from the steppe region.

More members perceived social benefits than ecological benefits to community-based pasture management. Seventy-eight percent of members agreed somewhat or strongly with the statement “the community is better off now than before the herder group was organized,” and 16% disagreed with the statement. In contrast only 59% agreed somewhat or strongly that “the pasture is better off now than before the herder group was organized” and 27% disagreed.

Case Studies of Land Law and Herder Groups in 5 Study Sites

1. Ondorshireet Sum, Tuv Aimag—Steppe Zone

(Interviews with: Green Gold Project Coordinator, Sum Governor, Bag Governor, Kheseg leader)

Undereshireet Sum, Tov Aimag is located in the steppe zone approximately 200 km from Ulaanbaatar along the Tuul River. The sum was perceived as severely degraded by the local leaders with whom we spoke. They also reported many conflicts over pasture, particularly with herders from neighboring sum and aimag. The main focus of conflicts appears to be out of season grazing of winter and spring pastures. One reason for this was an old merger with a neighboring sum.

Land Law Implementation

Officially, the sum has granted possession contracts only over winter and spring camps (351 campsites of 1.12 ha in size). The sum governor also reported that the sum had experimented with granting pasture possession rights to individual households for a term of 3 years, but that this experiment had “bad results.” The governor had hoped that granting pasture possession rights would encourage herders to build permanent structures and stay in one place, but the pasture conditions were poor and therefore herders moved elsewhere.

In Ondorshireet, the Green Gold project coordinator saw pasture possession by herders as “a way for herders to feel ‘ownership’ over the land,” and viewed the Green Gold project as a test to see whether “possession improves pasture condition and yield.” However, he seemed to favor possession of small pieces of land by individual households, and did not address the issue of collective possession by all members of a kheseg.

When asked whether the sum regulated carrying capacity or seasonal movements, the sum governor said that they were just starting this now with the Green Gold project. The sum governor was skeptical about the concept of pasture possession, and felt that collective possession by groups of herders was the only possible way that it could be successful. In his words, “ ‘Pasture possession’ is a big, big issue because our sum’s pasture is very degraded and for it to be improved it would be a big thing. This pasture degradation is not because of livestock overgrazing, but from natural disasters, I believe.”

When asked what size of group should hold pasture possession rights, the kheseg leader stated, “If it’s just one household, it won’t work. If groups of herders hold rights it might work.... Not only certain pasture. Better to give all seasonal pasture to groups such as a kheseg or bag.” The leader also recognized the need to regulate carrying capacity within the fixed boundaries of the kheseg, even if this meant slaughtering or selling animals.

Herder Groups

SDC has been active in the sum since April 2007, working to organize herders into pasture user groups (kheseg). According to the Green Gold project coordinator in the sum, the territory of Ondorshireet has been divided into 9 kheseg, with 5 kheseg located in the first bag, and two each in bag 2 and bag 3. At the time of our interview, approximately 20% of the sum herders were “cooperating” with the project. Initially, the project staff was told that “all herders must belong,”

but not all herders were included in the project. The decision whether or not to join is voluntary, and it is reportedly difficult to convince all herders to participate, although this is the implicit goal.

Herders and the land officers together delineated the boundaries of the kheseg (pasture units). The Green Gold project coordinator stated that the purpose of the kheseg is to improve pasture management, and that dividing pasture into kheseg will facilitate appropriate use of distinct seasonal pastures. However, the coordinator was not very clear on the relationship between creating kheseg and improving management, nor was he able to articulate what “good management” meant. He did say that prior to the creation of the kheseg herders seldom discussed pasture management issues with each other. He felt that the division into kheseg could increase communication.

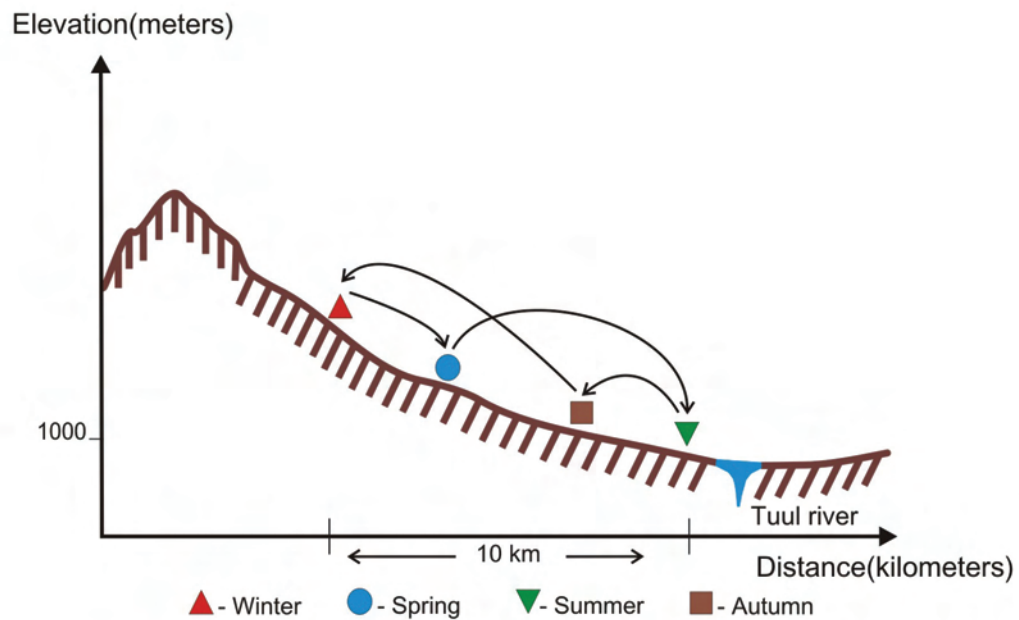
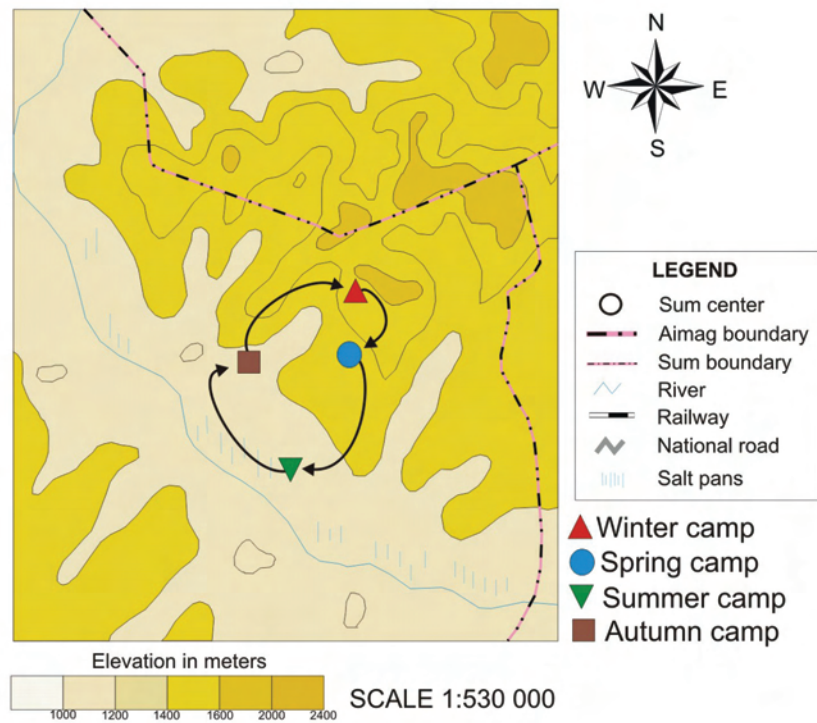
The sum governor reported that most herders agreed with the kheseg concept, but that some were opposed because they perceived that it limited movement. When asked whether the kheseg arrangement would help prevent trespassing by outsiders, the sum governor recounted that the sum had passed a local resolution to require a payment (per head per day) from outside herders, but it was rejected by the Ministry of Justice. When further asked whether the livestock health law could be used to discourage outsiders, the sum governor recounted that both the health law and laws against theft of livestock provide means for local governments to require from visiting herders a certificate describing each animal’s characteristics and a way to grant formal permission of access to outsiders. Finally, the governor said, that he “didn’t have the heart to prevent people from coming in a disaster.”

The bag governor felt that one of the major advantages of the kheseg system was that it would, “protect pasture from other herders from other bags and sums,” because they wouldn’t need to take herders from outside sums unless they had made an agreement with the sum or aimag government.

According to the leader of the first bag’s first kheseg, the kheseg boundaries are based on the location of winter camps and pastures. “During winter, winter camps are separate in 2 khesegs, but in summer herders go between and the kheseg are mixed together.” The kheseg leader thought that kheseg boundaries might become more fixed as the project evolved. According to the kheseg leader, all households that live within the kheseg boundaries are automatically members, therefore membership includes some herders from other bag. We don’t have the right to expel herders from other bag or kheseg. When asked about how they handled outsiders during a disaster, he reported, “It’s very difficult. When they come, they come. There is no way to send them away. During this time the pasture is gone. Other herders and our herders--everybody is a loser. There is a lot of competition.”

When asked if there was any way to resolve this, the kheseg leader said, “I hope herders stay in their own bag or aimag territory. If they cannot stay in their own territory, then all of Mongolia will be in a difficult situation because of herders coming to eat. In the end, if there is no pasture, there will be no livestock for herders.”

Figure 1. Seasonal movement pattern of herders in Ondorshireet Sum



The sum governor also referred to a past attempt to organize herder groups in the sum facilitated by the Centre for Policy Research (CPR). This project also attempted to establish spatially fixed groups, but “after a little while people realized didn’t stay in one place.”

Summary of Ondorshireet Case

Ondorshireet is facing issues typical of sums in the steppe region, especially those located relatively close to Ulaanbaatar. Pasture conditions are perceived as poor and conflicts over pasture are increasing. With respect to the SDC GG project, the project and the concept of pasture user units and groups were very new in Ondorshireet and understanding and attitudes towards pasture possession, and the kheseg system, were varied among local officials.

2. Bayangol Sum, Selenge Aimag

(Interviews with UNDP Sustainable Grasslands Project staff, Sum Parliament Chairman, herder group leader, several other herders)

Bayangol Sum, Selenge Aimag is located in the relatively well-watered and fertile forest-steppe zone. The Kharaa River runs through the sum and forms its southern border on the east side of the sum. A railroad line also bisects the sum, which has an active sum center along the main highway between UB and the Russian border. Zuun Kharaa, a large town with and center of Mandal Sum, directly to the east and south of Bayangol, is located near the eastern boundary of the sum. The first bag of Bayangol Sum had many newcomers, herder migrants from various aimag in western Mongolia, primarily Gobi Altai and Uvs aimag. The main industries, in addition to livestock husbandry are crop agriculture and mining. Mining in the sum includes a large Canadian-run company and 6 Mongolian-owned mining or ore processing businesses.

The UNDP Sustainable Grasslands project has been active in the sum since 2003, and 8 herder groups have been formed with 83 member households, including 2 nonofficial groups, 4 cooperatives and 2 NGOs. In the 3rd bag, the main focus of our survey and interviews, the bag is divided into 4 groups and UNDP SG staff reported that 90% of herders in the bag participate in herder groups. The main management issue in this bag was overuse of summer pastures located along the Kharaa River. As a result of the project, herders in these groups have decided to defer grazing on the river pastures on the north side of the river between May 20-July 20. This schedule was proposed by the herder group members, but formalized in a resolution by the sum governor. The resolution specified the boundaries and time for the resting period and signs were posted along the road bounding the area with information on this resolution. Herders take turns monitoring the deferred pasture and chasing out livestock. According to the leader of one of these herder groups, “Once the governor’s resolution is issued, all herder families move out, but some livestock occasionally graze on that resting pasture. To prevent this we put ourselves in control of this. Last summer we decided to take turns to watch the pasture according to a certain schedule. For two months in summer, we have been resting the pasture. In our Sevsuul group we have 12 households and we take turns. From one end of the rested area to the other is 6 km, and one herder from one household is the guard each day and goes from one side to the other guarding the area. The Manktai group also joins us in watching the land from their side.”

According to the UNDP SG staff, some herders located on the railroad side of the river wish to increase commercial marketing of their livestock products using the access to the rail line. These households are not motivated to move, but with the new plan in placed, they are compelled to move.

Two groups were located in the first bag. UNDP SG staff reported that although one of the groups had “a very good understanding of how to use their pasture,” herders from outside the groups graze the group’s reserve pasture, causing arguments between member and non-member herders. It appears that many of these conflicts are between recent arrivals (migrants from other parts of the country) and long-term residents. According to one long-term sum resident, “This is the most difficult question discussed in the sum But the most difficult thing is there is not policy or law to send them away.”

Land Law Implementation

Winter camp possession licenses have been granted to individual herding households, but possession of pasture has not yet occurred. 809.4 ha of hay-cutting land have been allocated to 43 households with 3-year possession contracts. The possession contracts are short-duration and families must demonstrate that they are actively investing to improve or “take care of” these lands (e.g. with fertilizer, fencing or irrigation) or their possession license may not be renewed.

Based on his experience with hayfield possession, the sum parliament chairman was skeptical about the feasibility of pasture possession. “Pasture possession can’t work for Mongolian people. They don’t have the mentality. When a herder possesses a hay cutting area, they care for it and protect it a lot. If another herder takes even a small part [of this allotted area] they get very angry. Imagine if this was pasture.”

The leader of the Sevsuul herder group was in favor of pasture possession by the group, but conceded that in a drought or dzud, members would still need to move elsewhere, out of the group’s possessed territory. When questioned about what the group would do if other herders wanted to use their possessed land during a disaster, he responded “If our pasture is good, we would allow entry, but only within our carrying capacity, which would keep the pasture in good condition.” If the group was already at their maximum carrying capacity, the leader said that the sum staff should organize the outsiders to move to another area. When we inquired what if the outsider was a close relative of his (his mother in law), he responded “It would be hard and I think we will have to do something...”

Another herder from a different bag was living in a permanent house, but had his large herders placed with 3 different assistant herders who moved them from place to place. This man was in favor of pasture possession because it “would make it easier for herders to organize pasture.”

Herder Groups

Groups were organized in part on the basis of well users. The farthest herder who uses a given well defined the outer boundary of the group, spatially and socially.

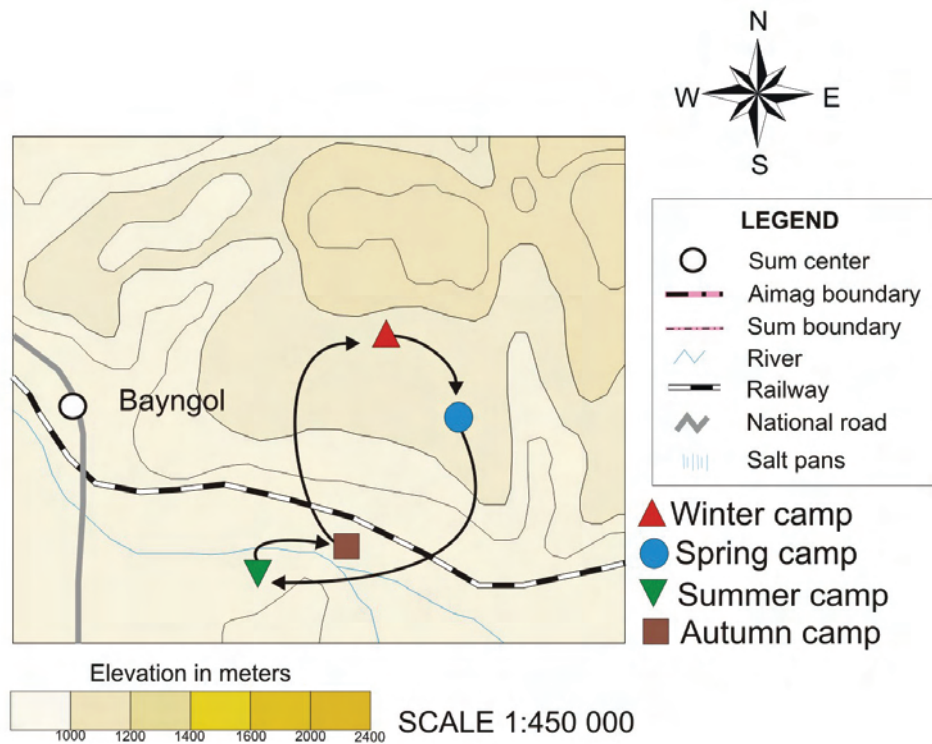
As part of the UNDP SG project a Sum pasture Co-management Committee “Khamtiin Menejment Khoroo” has been established, which includes herder representatives, local government officials and SG project staff. According to the sum parliament chairman, the CMC members are voluntary and work without incentives. This advisory group makes recommendations to the sum parliament. According to the parliament chairman, “The CMC does not make decisions, but it facilitates to make well-informed decisions. It is just impossible for the Sum governor or sum parliament chairman to know what is really required for the pastureland improvement and what would be the right place to develop water points. We can identify whether the idea benefits one person or whether it benefits the whole community. If it is in the community’s interest, then we have to do something about it.” In addition to making decisions about herder groups’ proposals for improvements such as new wells, the CMC assists in settling disputes over pasture and participates in training programs through the UNDP SG project.

In addition to planning and implementing a new seasonal pasture rotation with deferred use of summer pastures on the north side of the river, the project has supported various experiments in pasture improvement, including mowing and burning and reseeding to reduce the cover of *Artemisia adamsii* (sharilj). One group of herders is planning to use an abandoned field to plant grasses from which they will harvest seed for further restoration use. The project has also established 7 monitoring plots, including 3 fenced exclosures. Two plots are located in the upland winter pastures (including an exclosure) and 2 (including one exclosure) in the summer “ders” pastures near the river. An additional set of paired plots was established in an area infested with “sharilj”. One plot was established at some distance from areas of heavy livestock use as a “reference” plot.

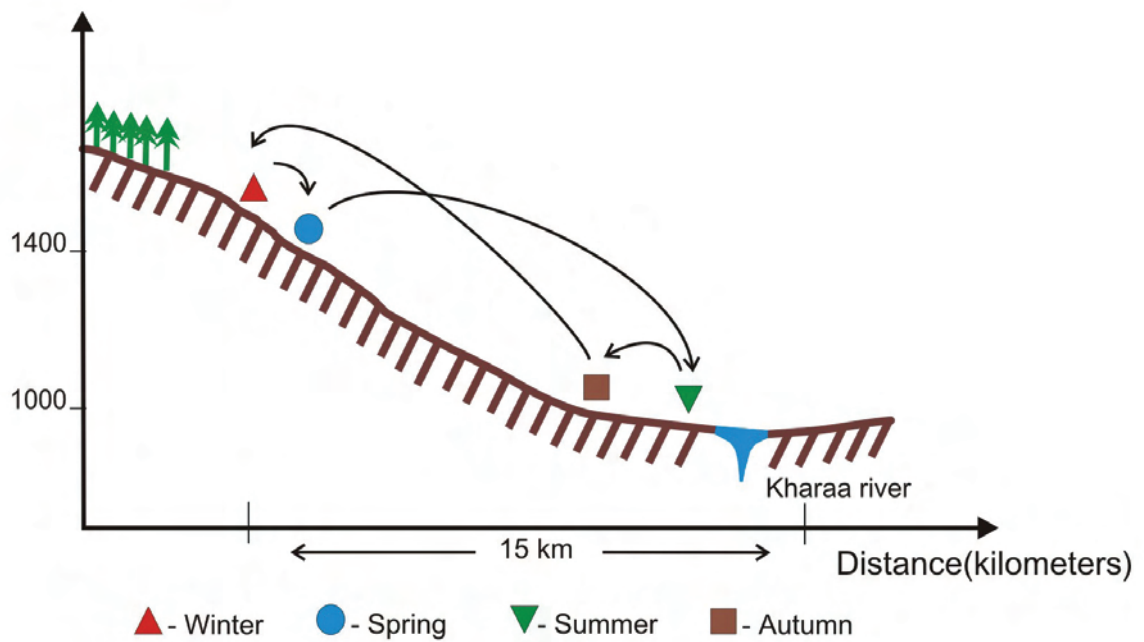
Bayangol Summary

Overall, the Bayangol case study illustrates both successes and challenges related to herder groups’ role in pasture management. The Sevsuul group in the 3rd bag (and perhaps others in that bag) appeared quite successful in regulating use of seasonal pastures with strong support of local government, which passed a resolution formalizing the internal pasture deferral rule developed by the group. Herders took turns monitoring the resting pastures daily to prevent livestock from entering the area. Although at least some herders favored pasture possession by the group, they articulated the problems that might occur if this forced them to confine their movements to the possessed area, or if they were faced with difficult decisions about allowing access to outsiders during climatic disasters. Herders in another bag experienced increased conflicts in conjunction with the organization of herder groups, in part due to the many recent immigrants to the bag from other parts of Mongolia. In this case, group members were unable to effectively prevent non-members from grazing reserved pastures. In addition, some non-members may have felt excluded from participation in the groups.

Figure 2. Seasonal movement pattern of herders in Bayangol Sum



Elevation(meters)



3. Sant Sum, Uvurkhangai Aimag

(Interviews with: Sum vice governor, tamagiin governor, UNDP SG staff (2), bag governor, bulig leader, bulig members, other herders)

Sant Sum, Uvurkhangai Aimag is located in the steppe zone, with its southern boundary incorporating vegetation typical of the transition between the steppe and gobi desert-steppe region. Sant is approximately 400 km from Ulaanbaatar and 100 km east of the aimag center, Arvaikheer. The Sant sum center was bustling with activity and new construction, and included a school, several stores and a hotel. Sant has 4 bags and we concentrated our surveys and interviews in 2 of the 4, Tsakhiurt Bag (2nd Bag) in the northeast corner of the sum and Tsarig Bag in the northwest portion of the sum. Local herders and administration perceive the pasture conditions in Sant to have declined significantly in the past decade due to a combination of overuse and drought. Indicators of these changes include a change in plant species composition and diversity, with a loss of typical Mongolian steppe species (*Cleistogenes* spp., *Stipa* spp.) and an increase in *Allium polyrrhizum*. Some herders also mentioned wind erosion leading to loss of soil and exposed plant roots.

Herders in Sant followed (modified) traditional movement patterns for this region of Mongolia. Winter and spring camps are located in the steppe region or in the transition zone between the steppe and gobi. During summer, herders migrate further north, towards the northern edge or the steppe zone or into the Khangain mountain-steppe region. Autumn is spent midway between the summer and winter camps. The average distance per move was 20 km, with some herders covering as much as 150 km between camps during the year. Herders in Tsakhiurt bag had their winter and spring camps within the bag, and moved to summer and fall pastures outside their sum boundaries. In turn, they experienced problems with herders from Dundgobi (a different aimag) entering their winter and spring pastures during the summer.

Land Law

Winter and spring campsites have been allocated and formally possessed since 2002. Possession of campsites is vested in khot ail. Pasture possession has not been widely implemented but the sum tamagiin governor reported that the sum is experimenting with group possession contracts over winter and spring pasture in Sonor Bulig, one of the herder groups established by UNDP SG in this sum, where 12,000 ha are possessed by the group. Several other groups have fenced small (1 ha) plots of pasture, which they possess.

The Tsakhiurt Bag governor described the process of regulating seasonal movements through a seasonal bag meeting where herders discuss and decide when and where to move. Movement is regulated by the bag governor, who visits neighboring bag leaders and informs them of his herders' intentions to move. The two governors negotiate and make a deal. If they do not agree, they resort to the sum governor for assistance.

The Tsakhiurt Bag governor (as well as other officials and herders interviewed) reported problems with herders from Dundgobi coming to graze in his bag when his herders have moved north for the summer. According to the UNDP SG project leader, "As you can see, when member herders try to use pasture in an orderly way and move in the summer and fall to rest

their winter and spring pastures, herders from other areas come and eat the reserve pasture. It is a really big problem.” In this case the Dondgobi sum governor came to Sant and asked for permission. They came to an agreement that the Dondgobi herders could come provided they did not graze near winter shelters and that they left by a certain date (in mid-July) allowing pastures time to regrow before the local herders returned for winter.

The bag governor was not in favor of pasture possession, but if it were to happen felt that possession at the group level would be preferable to the individual or khot ail level.

One herder group leader felt that, “[Possession] is not useful for us. Even if we possess the land, people come in. We’re able to do more as a group. With possession more difficult problems will face us. It is difficult because it will prevent otor and seasonal movement.” This apprehension that pasture possession would limit movement was shared by many herders interviewed in Sant, as illustrated in the following quotations from herder interviews:

“Yes, we would like to have pasture possession rights, but if everyone has possession rights it would limit our movement and our otor. ... If we possess pasture, then we have to have an intensive livestock system. Must change to an intensive system, and that is difficult for us. So we don’t think it is suitable to possess pasture.” “Yes, [possession] would protect us from those people [herders from outside]. But if we have a dzud or drought some year, what will we do if all land is possessed?” Others were opposed to possession because they felt it would create more conflicts.

Another herder felt differently. “If land is not possessed herders go everywhere and many herders go one place and eat everything. Land possession is useful because when land is possessed when other herders come with their livestock, we could charge them or send them away.” This herder felt that possession by groups of related households would be best, because “They know and understand each other better than people who are not relatives.”

Yet another felt that possession should be at a large scale—the sum or aimag—in order to insure that herders can move to better pastures in a disaster. Also, it would create problems if some herders possessed land and others did not. Therefore, it would be best to possess pasture collectively at a fairly large spatial scale. On the other hand, the same herder stated, “If we are able to possess land it would be easier to keep others out, or they would need permission.”

The UNDP SG project leader reported that the project had surveyed herders about their attitudes towards pasture possession. According to the UNDP staffer, most herders would agree to possession of winter and spring pastures, but not summer and fall. She also discussed a potential agreement among 9 neighboring sums to create a khushuu-like territory. The project staffer felt that the herder group was the most appropriate entity to hold pasture possession rights.

Herder Groups

Sant Sum is home to 8 herder groups, including 4 smaller groups (Kholboo, Bomba, Khundiinzaraa, and Erdene-Oboo) involving 15-20 households and 4 larger groups or kheseg, involving all the households within one bag. Only one of these 4 newer groups, Sonor Bulig (35-50 households in size), is on the UNDP project list. According to the Tsakhiurt bag governor,

within each khesege herders were organized informally into smaller herder groups (bulig) along both kinship and territorial lines.

According to the Tsakhiurt bag governor, before the project, “Animals grazed in any direction and were not herded. Now, each family systematically rotates pasture around each camp. ... Before this strategy, each family lived separately. Now they are camping together and agree to send animals in one direction and try to preserve the area for next time.” [speaking of within-season rotations] The group has also fenced an area for use as emergency pasture in case of dzud.

At least one interviewed herder had initially been a herder group member and later dropped out of the group because he felt that it was being run primarily to benefit the leader and his family.

One herder group leader stated the purpose of the group “to become a group and work as a group to improve the pasture and use it in a scheduled way.” He confirmed that all group members decide together on the timing of moves and all move at the same time. When questioned about the problem of herders coming from elsewhere to graze their reserved pastures, he responded, “We can’t send them away. There is no way to solve the problem. No means to send them away.” Other herder members also clearly articulated the purpose of their group with respect to improving the condition of pastures.

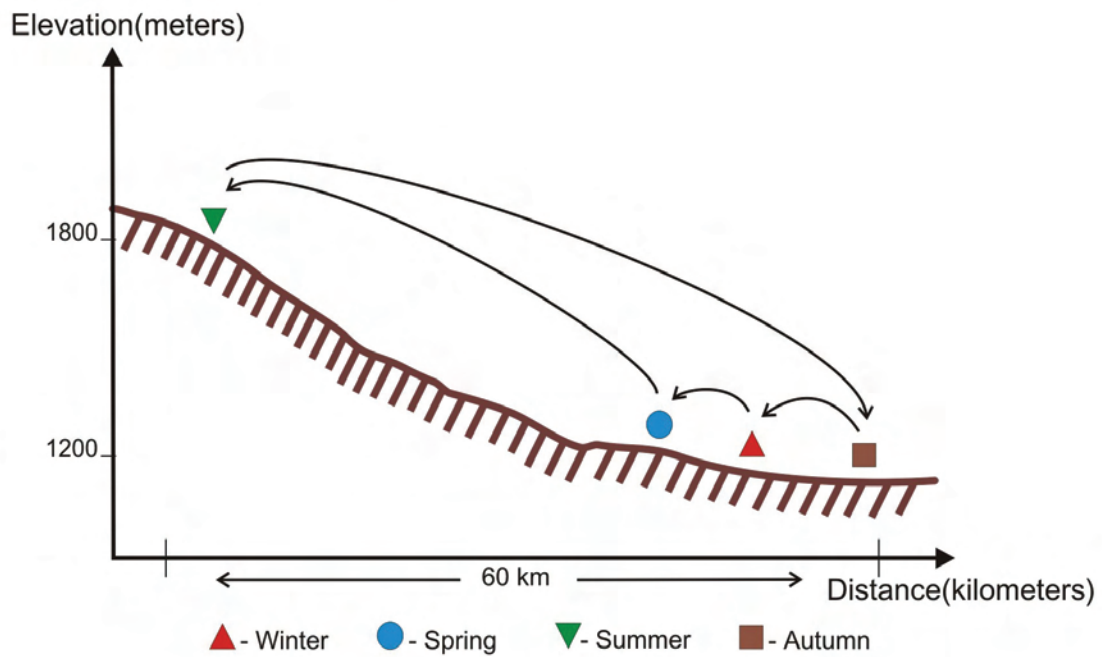
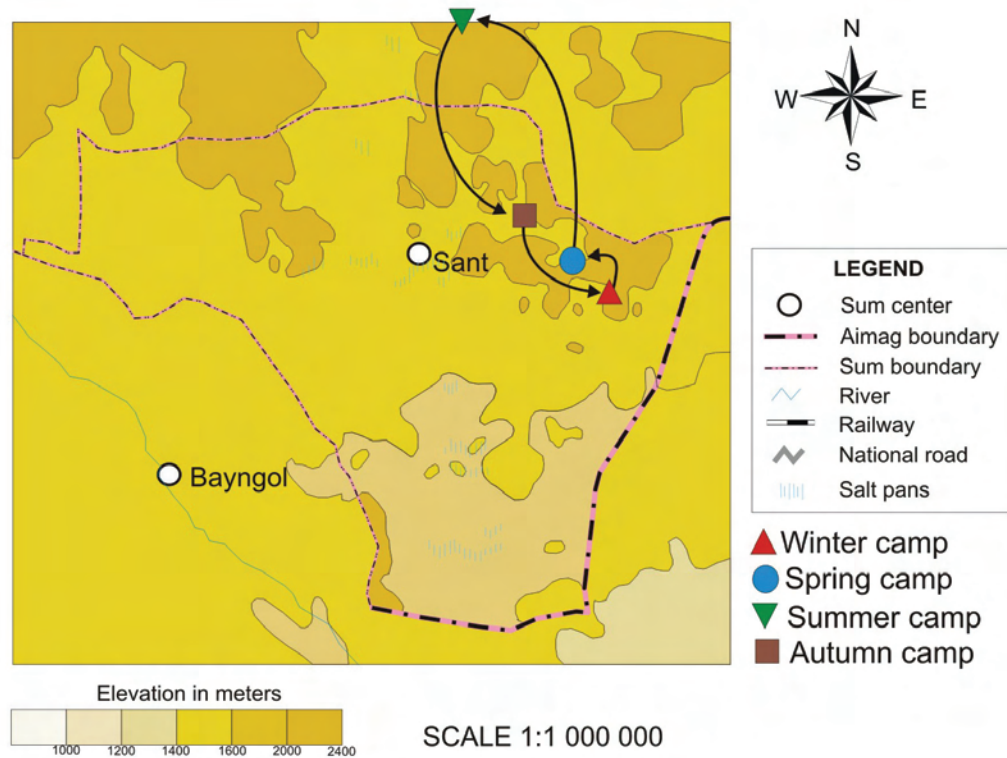
A member of a different herder group in Sant (Kholboo) also recounted how herders within the group reached agreement about the timing and direction of seasonal movements. According to this member, the group leader is responsible for enforcing the collective decision, but there were no violations of the decision. This member described the process of deciding where to move and negotiating for access to forage in another sum with the aid of the sum administration. “[There is] no situation when someone is left behind. When they all agree, everyone follows. Some people stay, but they have a duty with agriculture. In advance, the group visits the place where they plan to move and negotiates with the local herders. The group informs the local Sant Sum administration and the Sum administration officially informs the other Sum governor.”

According to the Sum vice governor, the biggest challenge of the project was getting herders to understand the point of the project, and not just seeing it as a source of funding to meet personal needs. When asked if all herders should belong to a group, she responded, “It is a very useful thing. If there were another project with the same strategy, the next time herders will accept it quickly.” But when asked if herders could organize into groups on their own, she said, “Mostly herders are very busy and independently organizing a group by themselves is very difficult. They have the Mongolian mentality of wanting to have someone direct them (tell them what to do).”

The tamagiin governor felt that the herder groups had had a beneficial impact on herders’ ability to work together, and to some extent, their well-being. She pointed out that some groups were composed primarily of well-off herders to begin with, although others came from more varied backgrounds.

Like Bayangol Sum, Selenge Aimag, Sant Sum had a Pasture Co-management Committee to assist in decision-making.

Figure 3. Seasonal movement pattern of herders in Sant Sum



Summary of Sant Sum

Sant Sum is a good example of the problems facing much of the steppe region of Mongolia, which has been stressed by drought in recent years. Herders in the sum have successfully organized into a number of herder groups, clearly understand the purpose of the groups with respect to improving pasture management through increased rotation and resting of seasonal pastures, and have developed among themselves plans to ensure movement of group members away from winter and spring pastures during summer and fall. The local bag and sum administration assists in negotiating access to forage in neighboring bag or sum. However, by moving to other territories during summer, Sant herders potentially create problems in those sum, and at the same time herders from Dundgobi are moving moving north and grazing Sant's resting pastures. The bag governor described the process for negotiating use by outsiders, but it was not clear whether these agreements were monitored and enforced so as to limit negative impacts on the resting pastures. In addition, though most members interviewed perceived benefits of herder groups, some herders had dropped out of groups, or were not certain of the benefits. Most herders did not perceive that pasture conditions had responded to the changed management, but attributed this to continuing drought rather than the ineffectiveness of the management strategy

Herders and local officials expressed ambivalence about pasture possession. Most perceived that it could provide herders with benefits of exclusive rights to graze, enabling them to prevent trespassing by outsiders more effectively. At the same time, they feared it would limit their own mobility and flexibility to move elsewhere during severe weather conditions.

4. Ikh Tamir Sum, Arkhangai Aimag

(Interviews with Sum tamagiin governor, bag governor, kheseg leader, SDC Green Gold project coordinator, other herders)

Ikh Tamir is a large sum in Arkhangai Aimag where the SDC GG project has been active since 2005. Ikh Tamir is divided into 6 bags, which in turn have been organized into 14 kheseg or pasture user units, by the SDC GG project. The western portion of the sum comprises a remote high-mountain area dominated by yak husbandry, while the eastern portion is more typical mountain-steppe and steppe lands favoring a mix of cattle, sheep, horses and goats.

In Ikh Tamir's northeastern bag, where we conducted our field study, the current movement pattern involves winter and spring camps located in different mountain valleys and summer camps along the Ikh Tamir River. Some herders also make otor movements to other sum to fatten their animals at salt licks. In contrast to the other study areas, a large proportion of herders in Ikh Tamir continue to use traditional modes of transportation (primarily ox carts) to move between camps. Historically, summer camps were located along other rivers that were tributaries to the Ikh Tamir, but these rivers have recently dried up and disappeared, contributing to the problem of year-round grazing around the remaining wells and natural springs. Local officials and the kheseg leader described problems in the recent past (post-negdel-2005) with herders failing to vacate their winter and spring camps until very late (or at all), leading to out of season grazing (or sometimes year-round grazing) of reserve pastures. As a result of the project and the formation of herder groups and pasture use contracts, herders are now resting their winter and

spring pastures, but the shortage of wells and natural springs and streams means that summer pastures along the Ikh Tamir River are overcrowded and herders from one kheseg are often grazing in the territory of a different kheseg or bag, creating new conflicts. The GG coordinator reported that most of the current conflicts were over summer pastures, due to the shortage of water points. Most of the conflicts are between herders of neighboring bag or sum. “It’s the most challenging issue and we have a lot of problems and disputes. During drought herders have to move out from their summer pasture to other bag or kheseg pastureland. Herders get unhappy when other herders move into their summer pasture.”

The bag leader also described trespassing by herders from another sum during the winter. “There are some instances, where herders just move in from Tariat Sum and spend the winter in our area. We asked them to leave a couple of times and they said they will stay for 5-6 days, but they spent over 2 months.”

Land Law

Although the sum’s vice governor reported that no campsites had been allocated for possession, a number of herders surveyed reported that they held possession contracts.

According to GG coordinator (who is also the NGO leader), khesegs have formal pasture use contracts. This contract allocates pasture to the kheseg to use appropriately and specifies how the land will be managed, including the timing and location of seasonal movements and the duration of resting periods for winter and spring pastures. As described by the NGO leader, “the contract also provides details on how many kheseg herders with how many livestock will be grazing their livestock during winter or summer based on their own customary campsites and grazing patterns.” Penalties for grazing in haycutting areas are also specified.

According to the NGO leader, prior to the formation of the kheseg and the development of the pastureland use contracts, there was no mechanism to regulate movement during drought. “Now kheseg leaders and bag governors discuss this issue together and start somehow to regulate this kind of movements. At the moment we do not have any regulatory legal acts governing this type of activities, but only the contract serves as guidance.”

When asked whether the Land Law gives local government the authority to regulate movements, the NGO leader replied, that although the provision exists, the penalty for out of season grazing is very small (one lamb or 30,000 Tg), with is not a sufficient incentive to prevent violations. “They just keep grazing on the land because it is much more profitable for them to pay a small penalty and at the same time fatten their animals.”

The bag leader reported that he, together with the kheseg leader and sum administration were responsible for monitoring seasonal movements. According the bag governor, the Sum governor could issue a penalty and fine for disobeying a sum resolution. “The herder who decided to stay will have one or two reminders and then they will be charged. There was a case 2 years ago, when one family did not move and was charged twice. Next year this family moved out the first.” In some cases herders themselves are using traditional methods of penalty. For example, herders will occupy the campsite of the herder who did not move, showing that it is their turn to

use his pasture. In addition, the kheseg leader felt that when herders that did not move saw that the livestock of herders who moved was in much better condition, this was an added incentive. “The livestock and offspring of those herders who made movements did very well in terms of quality and reproduction. So this was a good demonstration for those who left.”

We also had a long discussion with the bag governor about his perception and understanding of pasture possession. In his view, hayfields may be “owned” by herders, but “possession is use as a community. Pastureland is not given to ownership. ...In means that we possess the pastureland without any written law. It could be possible to possess, but not own it. The pasture could be possessed as a community or as a group, but not as an individual. The sum would be too large a territory. I consider it more relevant to possess as a group or kheseg. For example, possession of the pastureland around with winter and spring pasture would likely to be good. For example, in our pasture we have 8 households or 16 people who would possess the valley. Our valley would be considered as medium territory valley.”

A similar interview was conducted with the kheseg leader. In his view, “There is a misinterpretation of the word “possession.” Most herders think it means private ownership. My understanding is that possession means that others who want to use the land can come and stay. Other herders think it means they can’t stay.” When we clarified that in our usage, possession means exclusive use rights and asked his opinion of possession under this definition, he responded as follows. “It is wrong. For example, my brother married a woman from another sum. His mother in law cannot stay alone there, so she comes with her daughter and husband here and I can’t turn them away. It is difficult to have an exclusive right. A lot of horses come from other sums. What should we do, send them away?” When asked what he would do if herders from another bag or sum came and grazed his kheseg’s reserve pastures during the summer, he responded that if the violators were from within his kheseg, he would ask that they move within a few days. If the violator were from a different kheseg, he would send them away immediately.

The GG coordinator and NGO leader was opposed to pasture possession, saying, “If they give land possession to herders, there will be a war. They are not ready yet.”

Herder Groups

SDC began working in Ikh Tamir in 2005. Initially they helped to organize about 30 smaller herder groups or *bulig* but later changed their strategy to focus on 14 larger, territorially-based pasture user units or *kheseg*. According to the GG coordinator in the sum, the main reason for this change in strategy was the “restrictive allocation of pastureland to each household and restricted movement,” which made it “complicated to have rotational grazing in a smaller area.” Each kheseg has its own regulations and by-laws, and its own leader. In addition, there is a sum-wide NGO, Arvijan Saijirah, which implements the GG project. Each kheseg has a formal pastureland use contract between the sum governor, bag governor, Arvijan Saijirah NGO and the kheseg.

The bag governor described the creation of the kheseg physical boundaries as follows: “Our kheseg boundaries were established on the basis of the bag territory. We all were involved in

mapping our kheseg boundaries. ... According to my knowledge our kheseg area is about 20km in length and 10km wide.” The kheseg leader we interviewed also described the drawing of boundaries as a collective process of discussion within the community. Kheseg membership was determined by the location of winter and spring camps within the physical boundaries of the kheseg. In addition, according to the kheseg leader, “traditional and customary relationships were also considered in dividing the herders.”

Although in theory all herders residing within the kheseg are members, some herders were not aware that the kheseg existed or did not consider themselves members. Others were unhappy with the level of information, leadership or opportunities for participation provided. According to one herder we interviewed, “When the kheseg’s director was selected by herders he doesn’t have enough knowledge to direct herders. So this is just a test, not permanent. There is no training or meetings for members. They don’t organize meetings for herders.” This same herder complained about lack of information about laws, and felt that this led to criminal behavior such as livestock theft, illegal tree cutting and hunting rare animals.

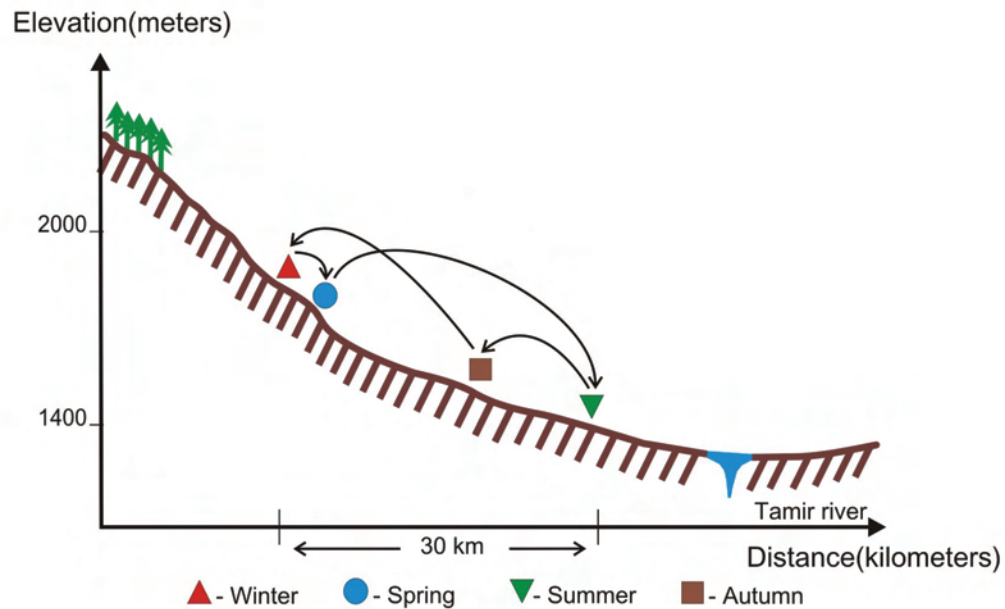
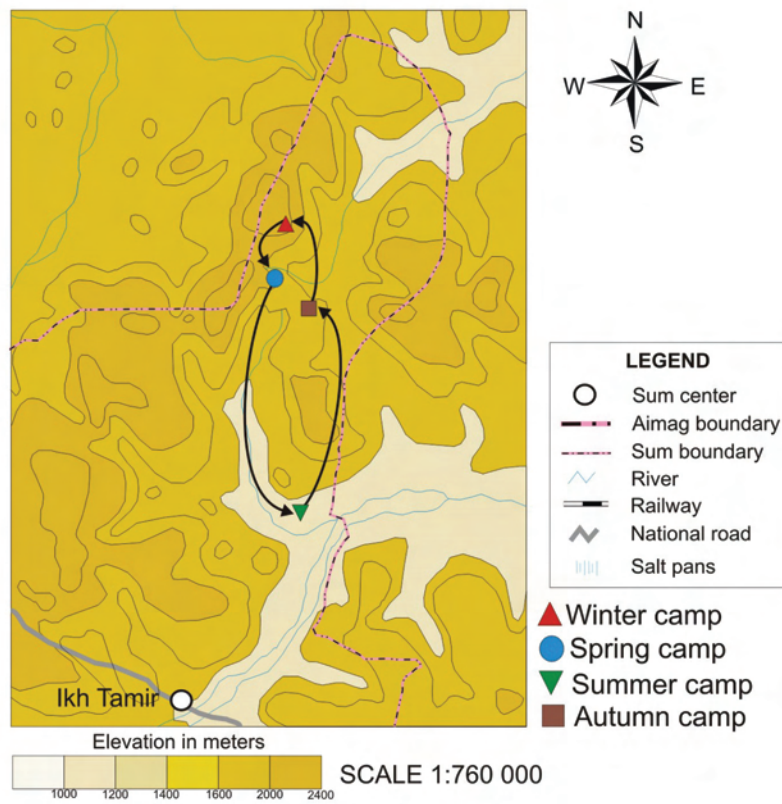
The kheseg leader felt that the kheseg was an appropriate social scale (about 50 households). More households were difficult to organize. The first priority for the kheseg was to determine its labor capacity, so that they could plan improvement projects, such as well construction, based on available labor.

Ikh Tamir Summary

Ikh Tamir has been the site of ongoing experimentation with the form and scale of herder groups, moving from the smaller bulig to the larger kheseg in the course of the SDC GG project. Some UB-based SDC program staff perceived that the initial creation of herder groups increased conflicts over resources in some parts of Ikh Tamir. Our interviews confirmed this. The project has been somewhat successful in organizing herders into kheseg, and enforcing movements away from winter and spring pastures, but the new movement pattern towards the Ikh Tamir River in summer has created new conflicts with neighboring kheseg and bag. In addition, there continue to be some conflicts over kheseg members and outsiders grazing reserve pastures out of season. The khesegs are quite new and some herders did not know about them or felt that they had not had an adequate opportunity to learn about or participate in their formation.

It was unclear whether campsites had been allocated for possession in Ikh Tamir. Understanding of the official legal definition of pasture possession was weak in Ikh Tamir, even among local leaders charged with implementing the Land Law, such as the bag leader and kheseg leader. Specifically, there was confusion over the distinctions among ownership, use and possession, and whether possession denoted exclusive rights or simply rights of access and harvest (without the right to exclude others). However, khesegs do have formal pasture use contracts and management plans as a result of the SDC GG project. As in the other study areas, it appears that local officials are taking a more active role in negotiating cross-boundary agreements between kheseg, bag and sum, although it appears that there is still a fair amount of unregulated out of season and cross-boundary grazing.

Figure 4. Seasonal movement pattern of herders in Ikh Tamir Sum



5. Tunkhel Bag, Mandal Sum, Selenge Aimag

(Interviews with bag governor, vice governor)

Tunkhel Bag in Mandal Sum is located 40 km north of Ulaanbaatar in a series of forested steep mountain valleys. The Kharaa River runs through the bag and the bag center is a large and bustling community with its own administrative building, schools and shops. The community is served by the railway, and is home to a wood-processing company. Unlike many of the other study sites, most residents in this bag are not herders, although there are approximately 200 herding households in the bag. Also unlike most of the other study sites, water, pasture and hayfields are productive and abundant in this bag and local officials did not perceive a shortage of resources or a decline in resource conditions. According to the bag governor, the main challenge for herders was predation by wolves. Like Bayangol Sum, this area of Mandal Sum has experienced an influx of herders who migrated from the western region of Mongolia. The vice governor expressed concern that the increase in the local herding population could lead to pasture shortages in the future.

In Tunkhel Bag herders generally move between 2 camps, a winter/spring camp located up one of the 3 main valleys in the bag, and a summer/fall camp located along the river closer to the bag center. During hay-cutting season, herders may move part of the household to a camp next to their hayfield, which are often located up the valleys near to the winter camps. In this area, many households had constructed permanent houses at their winter campsites. Owing to the relative abundance of forage and water, no conflicts over pasture or water were reported in Tunkhel.

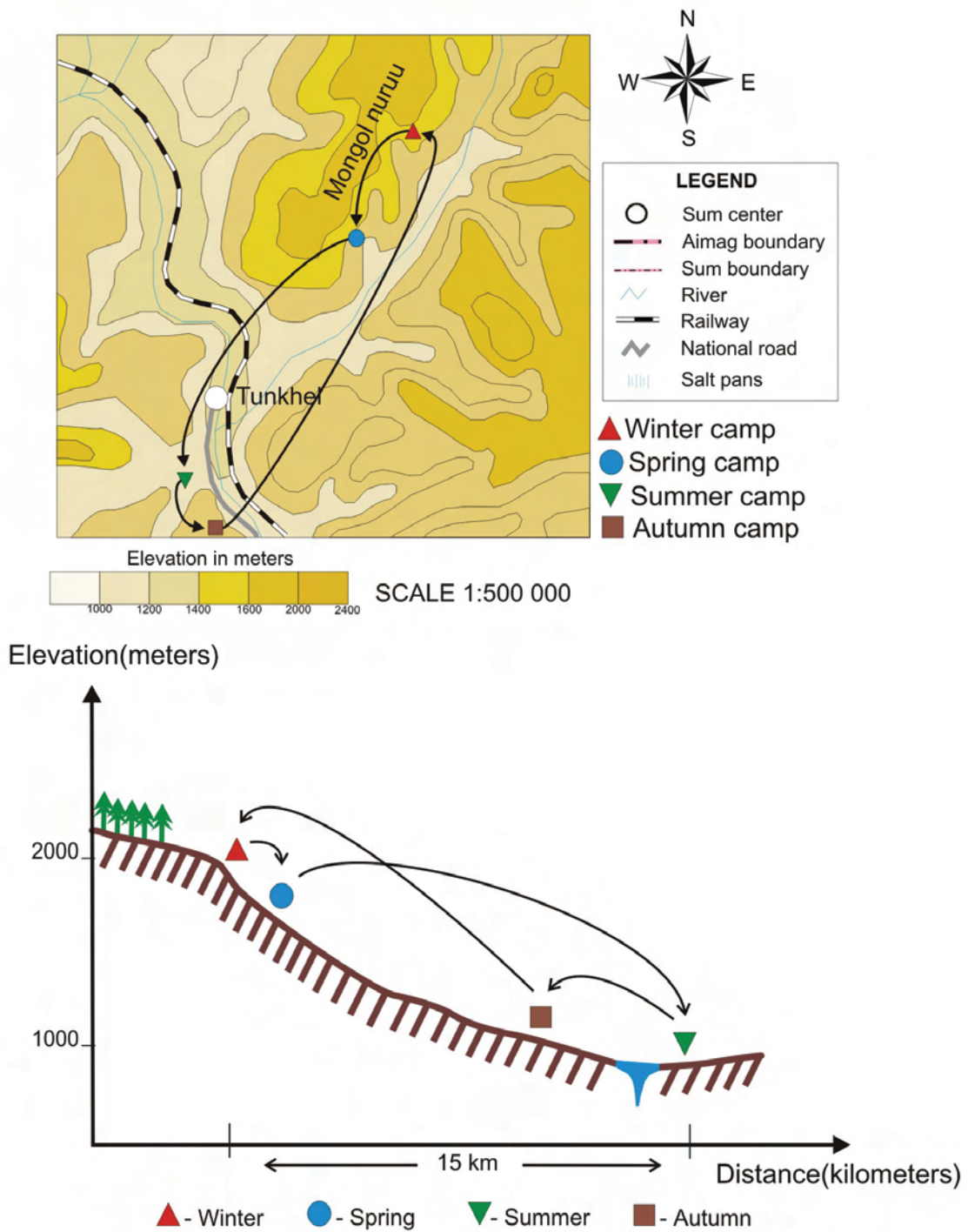
Land Law

According to the vice governor of the bag possession licenses over winter or spring campsites have been granted to 30% of herding households. The vice governor stated that formal possession over hayfields has not been granted but the bag has a formal process for allocating hay-cutting areas on an annual basis. Each year, herders make a written application for the hay-cutting area they desire, including a sketch map that shows the location of the plot. To avoid arguments, the plot must not overlap with any other herders' customary hay-cutting area. The bag governor said that formal possession licenses had been granted to hayfields. In his view, this area is suitable for more intensive and sedentary livestock husbandry and farming.

Herder Groups

The vice governor was not aware of any projects assisting in the formation of herder groups within Tunkhel Bag. However, in the course of administering surveys in the bag, we encountered several households that were members of a herder group established with the assistance of the UNDP SG project, which is active in other bag within Mandal Sum.

Figure 5. Seasonal movement pattern of herders in Tunkhel Bag



DISCUSSION

Land Law and Pastureland Possession

Knowledge and Attitudes Towards the Land Law

Compared to our research on the Land Law in 1999 (Fernandez-Gimenez and Batbuyan 2004), local officials were more knowledgeable about the Land Law, its provisions, and their responsibilities under the law in 2007, than they were in 1999. Herders also were more aware of the law, although their understanding of it was not always accurate. In our survey nearly half of all respondents reported that they did not know who, according to the law, is responsible for regulating seasonal movements and carrying capacity. As discussed below (Perceptions of Possession), both herders and local officials hold varying perceptions of the concept of possession, which are often at odds with the legal meaning of the term in the Land Law. Most respondents perceived that herders themselves currently regulate movements (70%) and stocking rates (50%), and a majority of respondents supported joint regulation or co-management by herders and local administration.

Status of and Strategies for Implementation

Campsite and Pasture Possession

Most surveyed households owned a winter and/or spring shelter, but only 46% held a possession license over a winter campsite. Contrary to our hypothesis, campsite possession was most common in the steppe, followed by the mountain-steppe and forest steppe. Hayfield contracts were far more common in the forest-steppe than the other 2 ecological zones and were absent from the steppe. Possession rights were most often held by individual households, although one quarter to one third were held by khot ail.

Although pasture possession has not been formally authorized by law, in some areas *de facto* possession rights appear to exist. We saw these primarily in areas where herder groups were active and where these groups had developed a pasture management plan and entered into pasture use contracts with local governments and their sponsoring NGO. Although these rights may not be defensible as exclusive rights, they seem to have been effective in giving participating herders the “sense of ownership” that project proponents referred to in interviews as a necessary prerequisite for good stewardship. Some local governments (e.g. Ondorshireet) had experimented with mechanisms for conveying more formal possession rights to groups, without success. A number of herder groups had fenced small areas of pasture (seen in Sant, Bayangol, Ikh Tamir), as emergency reserve areas or demonstrations of pasture restoration and productivity when rested. Again, although the groups did not have formal possession over these small areas, they had *de facto* possession of these lands and in most cases effectively excluded others from their use. We did hear of instances (in Ikh Tamir), where these fences had been cut by disgruntled herders, however (Batjav et al. 2006).

Regulating Seasonal Mobility, Reserve Pastures and Carrying Capacity

Much attention is focused on pasture possession and issues related to various rights to land and resources, often overlooking other key pastureland provisions of the Land Law. Other important provisions include those that authorize local government to regulate seasonal mobility and

carrying capacity (stocking rate) and protect winter and spring reserve pastures from out of season grazing (2002 Land Law Article 54.1 and 54.2) within their administrative units. The law also authorizes local governments to negotiate agreements for cross-border use with each other in the case of natural disasters (Article 54.8), to designate sum and aimag-level emergency reserve pastures (Article 54.9), and to settle disputes over pastureland use (Article 54.10). Although most survey respondents perceived that herders themselves made most of the decisions regarding mobility and stocking rate, in our case studies we encountered a number of instances in which local governments, often working closely with newly established herder groups, played an important role in regulating movements, protecting reserve pastures, negotiating cross-border use agreements, and managing conflict. For example, we documented several cases where a herder groups agreed upon a seasonal rotation and the local government helped to formalize and enforce the agreement by passing a local ordinance. Out of season grazing by herders from other districts or aimag remained a challenge in several of the case study areas (Sant and Bayangol, for example), but here again local governments were working towards negotiated agreements with neighboring jurisdictions to balance the ethic of access and reciprocity with the need to protect and restore key resources. While neither herders nor local governments felt that they could entirely exclude “outsiders,” in some cases they managed to limit the duration of the visitors’ stay. For example, in Sant, herders from Dundgobi were told they must leave before mid-July, in order that winter pastures could re-grow before Sant herders returned in autumn. Similarly, in Bayangol, both local herders and those from the neighboring sum were prohibited from grazing a portion of the summer pastures before the middle of July, to allow them the opportunity to recover from previous overgrazing. We did not encounter any instances in which local government or herder groups had regulated carrying capacity, but it was clear that the concept of carrying capacity was familiar to most herder group members and some clearly expressed the idea that the total number of livestock within the group’s territory would ultimately be limited.

Roles of National and Local Government and Herder Groups

The role of the national government in implementing the Land Law is to provide the legal framework (via legislation and implementing regulations), and the professional training and administrative staff to implement the law. The two donor-funded projects that we investigated (UNDP SG and GG) also played important roles at the national, regional and aimag levels by providing training and support for implementation of the land law. For example, the GG project held a number of training workshops to help train aimag and sum land management staff on the law. The project also assisted in the preparation of long term Sum Land Management Plans. The plan that we observed, prepared for Ikh Tamir Sum, included extensive GIS maps of pasture capacity and degradation, for example.

Local government and herder groups both play important roles in implementing the current 2002 Land Law, although formal responsibility for implementation lies with the government. We have already described some of the ways that local governments and herder groups are working together to develop and enforce more sustainable pasture use patterns. In our survey, we found that herder group members were slightly more knowledgeable about the law, but that members and non-members did not differ in their perceptions of the current law’s implementation, their views on who should regulate pasture management in the future, or their opinions of pasture possession. Members and non-members also did not differ in rates of shelter ownership or

possession of campsite licenses. Herder group members did differ importantly from non-members in their mobility and pasture management practices, suggesting that herder groups play a potentially important role in modifying the behavior of their members and encouraging beneficial management practices.

Perceptions of Possession (A. Kamimura)

The concept of “possession” perceived by herders and local officials has multiple meanings and usages, and was confusing to us. When we interviewed local officials, some of them used the term “possession” without distinguishing between formal and informal or between possession and use. When asked about the state of formal possession of hayfields in her bag, the vice-governor of Tunkhel bag answered as herders possessed hay-cutting fields that they had possessed for a long time, the meaning of which would be stated more correctly as the sum government grants herders to possess their long used hayfields. Thus some herders and local officials appear to feel little gap between formal and informal possession in reality. Formal possession is supposed to be almost no more than informal possession which is based on the state of their present and customary use, but only authorized by the local government.

The ambiguity and confusion are caused partly by the inconsistency of “possession” in the Mongolian legal structure. While “possession” and the right of possession in the Civil Code, which follows the German Code, arise directly from the intention to possess a thing and the state of keeping the thing under the person’s control (Article 89), possession in the Land Law is legally based on a certificate of the right once it is granted by the local government.

Moreover, in the proposed Pastureland Law, the certificates can be transferred and mortgaged, which means that it will be possible to sell them, even if the conditions for sale are limited and sales are not direct. When asked what will happen in the case where a herder group member dies and his son who lives in the city claims to his father’s portion of the group’s pasture possession right as his successor, a bag governor of Ikh-Tamir sum answered, “It will be a big problem. The new law should regulate such a case.” The draft of the proposed Pastureland Law permits pasture possession only for herding (Article 4.1.3), but does not restrict the transfer and mortgage, as long as the land use remains grazing.

Pasture possession, according to herders’ perceptions, is not necessarily an individual private or exclusive right. When asked what form would be better for pasture possession if the new law permits it, the bag governor answered at first that “public possession” will be better. As mentioned above (p. 28), a kheseg leader in Ikh Tamir expressed his opinion on pasture possession that others who want to use the land can come and stay if for a short time. His opinion is common among Mongolian herders. It may be understood as follows: they have used their pastures for a long time, and so they have an appropriate control over the pastures (i.e. possessing them) and a priority of access rather than an exclusive use right (Kamimura, unpublished data).

Such a perception of pasture possession corresponds to the mobility and flexibility as well as the reciprocal ethic to help people in need, particularly in a natural disaster. Some herders expressed a fear that pasture possession would limit their own mobility and flexibility to move elsewhere

during severe weather conditions (p. 25). Mr. Lundenjantsan, Chairman of the Parliament, reported that although he himself was in favor of the possession of even summer and autumn pasturelands, the new Pastureland Law would not be passed through the Parliament in the near future because over 80% of PMs, most of whom were elected from rural districts, took a stand against pasture possession. Some herders from Dundgovi aimag stated that pasture possession would cause a civil war in Mongolia.

Most herders feel that mobility and flexibility is the only option for them to survive in a severe weather condition. There might be three alternatives proposed to herders: hay stock system such as existed in the socialist period and intensive livestock farms, which are very expensive and limited in area, respectively, and the reservation of otor pastures among sums and aimags, which did not appear to work during the zud in 1999-2001.

Attitudes Towards Possession

In our survey, 65% of respondents overall supported the concept of pasture possession, although, as discussed above, respondents may not all have the same understanding of this term. As hypothesized, support for possession was significantly stronger in the mountain-steppe and forest-steppe zones than in the steppe zone. Although this is what we expected, it appears to contradict the observed pattern of more frequent campsite possession in the steppe zone than in the other two zones in this study. A greater proportion of respondents supported winter and spring pasture possession by khot ail (34%) or individual households (25%), than larger groups. Only 13.5% supported possession by bulig or kheseg. These responses may challenge the proposed pastureland legislation that provides for “herder community” possession of pastures. On the other hand, interviews with herders and local officials conveyed more ambivalence and nuanced perspectives on possession, and the appropriate entities to hold possession rights.

Overall, while a majority of survey respondents viewed pasture possession positively, many herders and local officials expressed reservations about the practical process of implementation and its consequences for herders and rangelands. Most of those interviewed perceived the benefits of exclusive possession rights for individuals or groups, namely the legal authority to exclude non-possessors from grazing a particular territory, enabling herders to more effectively manage their reserve pastures. However, herders also feared that possession would limit their flexibility and mobility, especially their ability to access pasture outside of the area designated for their possession. When we discussed the issues of group membership and the “social boundaries” associated with possession, some herders seemed to have an unnecessarily rigid view of these social boundaries. For example, many were concerned that relatives from other districts would be prevented from moving into their area to live with them. There seemed to be little understanding of the possibility for herder groups (or herding communities under the proposed law) to devise their own rules for membership, which could contain provisions and criteria for admitting new members.

Herder Groups

Formation and Participation

Two main approaches were taken by the 2 donor-facilitated herder group projects included in our study (SDC-GG and UNDP-SG). The UNDP-SG project (Bayangol, Mandal, Sant) solicited

proposals from potential herder groups organized primarily on the basis of a combination of kinship and shared use of key resources such as wells or winter pastures. These groups were usually fairly small, encompassing from 8 to a maximum of 20 households. Often more groups in a particular sum requested assistance than the project was able to support, and a subset of groups was selected by the project staff for financial support and training. Criteria for selection included evidence of management goals that would improve pasture conditions, and not only benefit member households economically.

In contrast, the SDC-GG project focused on territory as the basis for delineating *kheseg*. In Ikh Tamir, the project initially worked on the smaller herder group model, but this did not work well, and was abandoned for the *kheseg* approach. According to this approach, an entire sum or bag was divided into territorial units or *khesig*, “pasture user units,” using a participatory process that engaged bag and sum leaders, project staff, and herders. Herders whose winter camps and pastures lay within a designated territory were then automatically considered members of that *kheseg*. Initially, membership was to be mandatory, but project staff quickly realized that this was not possible, and said that membership was voluntary, but the goal was complete participation.

Each of these models for delineating membership and territory has its strengths and weaknesses. The social grouping model (UNDP-SG) relies on herders to form their own working groups based on existing social relationships and patterns of resource use. These groups tend to be relatively small, and their modest size and preexisting social network may facilitate communication and reduce transaction costs. However, there is the potential for such groups to be dominated by elite and “high capacity” herders, who are effective organizers and able to capture project resources, while potentially excluding poorer or less able herders. We also heard reports of some such groups being dominated by a single extended family and complaints that the benefits of group membership flowed primarily to the group leader’s close kin. Another significant potential weakness of this approach is that the member households are often spatially intermixed with non-member households, making it difficult to achieve a good match between social and spatial boundaries for resource management.

The main conceptual strength of the territorially-based model (SDC-GG), is that membership is, in theory, defined by locality of residence and resource use, facilitating a better match between spatial and social boundaries of pasture user groups and units. The challenge of this model is that *kheseg* tend to be much larger (40-100 households), members often do not share close kinship or other social ties, and hence communication is more difficult and transaction costs higher. In addition, although some herders participate in delineating *kheseg* boundaries, the majority who do not participate experience the formation of the *kheseg* as a top-down imposition of a new administrative structure. Critical levels of “buy-in” and motivation to participate may therefore be lacking.

Effectiveness

It is still early to judge the effectiveness of herder groups, particularly those established since 2005. However, our survey suggests that herder group members perceive positive outcomes, particularly in areas where groups have been established for a longer time (Sant, Bayangol). In

general, social benefits are observed sooner than ecological benefits, and this is born out in herders' responses to our survey. As discussed above, our survey also provides strong evidence that group members use more desirable management practices than non-members. We cannot attribute causality to this relationship, but it suggests that herder groups may have a positive influence on the management activities of their members. Our interviews support this assertion. More research is needed to assess the ecological benefits of herder groups.

Key Issues Moving Forward

We conclude with a summary of four key issues that will need to be addressed in the near future as Mongolia moves forward with pastureland reform and continues to develop multi-scale institutions for pasture resource management.

Appropriate Spatial and Social Scale for Pasture Possession and Management

Our investigation of attitudes towards the existing Land Law and the proposed Pastureland Law, and our survey and case studies of herder groups and kheseg highlight the significant challenges to identifying the appropriate spatial and social scales for pasture possession and management in Mongolia. Further, they demonstrate the importance of good correspondence between the social boundaries that define group membership and the spatial boundaries that define the territory managed and used by a specified group.

To sum up, the smaller the social scale (i.e. number of group members), the lower the transaction costs of reaching agreements and communicating among group members. However, a small social scale implies a small territory, which may limit mobility and flexibility, especially in times of disaster. In addition, in practice the correspondence between small kinship-defined groups and the territory they use is often poor and the interspersed of many households who are not part of the group throughout the group's territory renders exclusion and coordinated management impossible. A larger territorial extent makes managing movement easier, by facilitating mobility, flexibility and access to diverse resources and habitats. In addition, the larger group would allow for greater social mobility and flexibility within the group, a better reflection of the fluid social organization of Mongolian pastoralists. However, a larger spatial scale implies a group with more members, which increases the transaction costs associated with communication and reaching agreements, as well as the eventual costs of monitoring and enforcement. Conceptually, the territorially-defined kheseg has great appeal, but practically this approach is still being tested. In our study sites, especially Ikh Tamir, there were significant communication problems within and among kheseg that called into question their long-term effectiveness.

Although many survey respondents preferred winter and spring pasture possession at the household or khot ail scale, we continue to view this option with some concern. If formal possession over pastures is granted, some level of collective rights holder would seem most appropriate for the Mongolian setting, preferably at a community level (i.e. kheseg) rather than khot ail (herding camp). The current progress of some herder groups has demonstrated that members of a group are capable of planning for and managing their own pastures and obtaining high levels of compliance from their own members. Thus, there is a basis for the expectation that exclusive group-level possession rights would result in beneficial and productive management of collectively-held pastures. We emphasize that our evidence for successful group-level collective

action is based on a small number of case studies and our conclusions must therefore be considered tentative. Additional research on a larger (and preferably randomly selected) sample of herder groups/pasture user groups is needed to assess the performance of these groups with respect to developing and enforcing group-level collective action arrangements for pasture management.

Institutions to Facilitate Flexibility and Security: Cross-boundary Pasture Use Agreements

A second major challenge is development of institutions that meet herders' two primary and conflicting needs simultaneously: 1) the need for secure tenure in order to protect winter and spring grazing reserves from out of season grazing (by group members or outsiders), and 2) the need for flexibility and mobility, in order to access essential forage outside one's traditional territory in case of a natural disaster. Pasture possession would provide a means of meeting the requirement for tenure security, but could undermine herders' ability to meet their second need—for flexibility and mobility to access remote pastures outside their home territory. For this reason, most herders and local officials we interviewed ultimately felt it was more important to preserve flexibility and mobility than to ensure security. Apart from the ethic of open access and reciprocity that permeates the culture of the steppe, there may be other ways to help ensure that flexibility and mobility are maintained without violating herders' security.

Administrative boundaries have been a significant factor in Mongolia since at least the Manchu reign (Fernandez-Gimenez 1999), when herders were confined to their natal khoshuu and forbidden from roaming across the khushuu boundaries without express permission. Today, herders are free to use pasture within their bag and sum, as long as they respect the "customary" use rights of others, such as the designated winter and spring pasture areas. As our case studies illustrated, many herders move seasonally across bag, sum and even aimag boundaries in search of better pastures. Our case studies also showed the problems that such movements create for the implementation and enforcement of sustainable grazing management practices and for successful collective action. Nevertheless, our case studies also indicate that local government is playing an increasingly important role in negotiating cross-boundary agreements that permit flexibility while protecting security. One way this has been achieved is to allow outsiders access to local pastures, but to limit the duration of use. This is clearly a compromise, but one that respects the strong cultural norm of reciprocity and its underlying moral economy, while providing some protection for local winter and spring (and sometimes summer) pastures and opportunity for re-growth. However, even when such agreements are reached, they are not always enforced. One area that could benefit from additional research and institutional strengthening is cross-boundary pasture use arrangements. It would be useful to investigate the variety of arrangements currently in use, their success or limitations in providing for both flexibility and security, and the mechanisms through which these arrangements are negotiated, implemented and enforced. It is unlikely that a "one size fits all" policy is appropriate for such arrangements, but such investigations could provide a repertoire of potential tools and approaches that localities may use, and suggest areas for appropriate legislation or rule-making to strengthen local government capacities to develop successful cross-boundary arrangements that meet the needs of herders from each administrative unit.

In Bayangol and Mandal Sum, Selenge Aimag, many herders have emigrated and settled permanently in new locations, thousands of kilometers from their home sum, creating obstacles for successful collective action, since these herders often were not considered local residents even when they had been in the area for 5 years or more. In some cases these recently arrived herders were excluded from project activities, although they used the same pasture areas. This created animosity and conflict, and prevented successful establishment and functioning of herder groups. These circumstances seem to call for a different set of policies to limit or guide patterns of migration within the country. It is not difficult to see the allure of Selenge to herders from Western Mongolia, when the income from livestock sources is double and from non-livestock sources triple that of herders from poorer areas. Yet unregulated migration may lead to significant conflicts and overuse of pastures in the receiving areas. Under Mongolia's relatively young democracy and new found civil rights and freedoms, both herders and government officials are reluctant to suggest that internal migrations must be limited and herders' freedom to move controlled. These situations call for a different kind of policy dialogue than the cross-boundary agreements described above. Yet these long-distance and semi-permanent relocations are also an important topic for further research and policy development.

Strategies to Improve Pasture Management and Condition: Possession vs. Managing Mobility and Land Use

Although estimates of the extent of pasture degradation vary, and the various potential causes of degradation are a subject of debate, most observers agree that degradation has increased in the past decade, and that improved management and restoration of damaged pastures are desirable goals. The question is how best to facilitate good management and improve pasture conditions? Many of the donor-supported community-based pasture management projects appear to be premised on the notion that secure and exclusive rights to pasture vested in individuals or groups are a necessary precondition for improved pasture management, and consequently, for improved pasture conditions. There are two primary flaws in this argument. The first is the assumption that the only way to achieve coordinated collective action by a group of resource users is to provide them with formal rights over the resources they manage. Like many herders and officials, we agree that pasture possession would likely strengthen exclusive rights and more effectively limit incursions from non-member herders. However, we believe that possession is not necessary to achieve coordinated collective action among members. Indeed, we observed coordinated action in the absence of possession rights in several of our case study sites. The second flaw is the assumption that grazing management is the primary driver of pasture conditions, and that improvements in grazing management will necessarily result in improved pasture conditions. While grazing practices are likely an important contributing factor in pasture conditions across much of Mongolia, weather and other factors may also play significant roles. In addition, it is possible that some sites are so damaged that they have crossed a degradation threshold and changes in grazing alone will do little to change pasture conditions.

We have discussed and critiqued the "tenure of the commons" argument outlined above elsewhere (Fernandez-Gimenez 2002), and suggested several possible alternatives, including the co-management of seasonal movements by herders and local government. In places where herder groups have had some success, this model appears to be working. Thus, we continue to suggest that in the absence of formal and exclusive rights to pasture, that development of alternative

institutions to facilitate and enforce implementation of sustainable management practices is the most likely path towards success. Such institutions will not be “one size fits all,” but will need to be crafted on a case by case basis by local herders and government together. To prevent undermining successful local collective action arrangements, it is essential that local governments also negotiate careful cross-boundary agreements, as discussed above.

Equity, Participation, and Governance in Herder Groups

Our conclusions thus far rely a great deal on the potential for local herder groups, pasture user groups, and “herder communities” to solve collective action problems and develop effective and enforceable plans to manage mobility, rest seasonal pastures, and implement other actions to restore pastures and improve herders’ livelihoods. The formation and function of these groups was not the primary focus of our research. Yet our case studies suggest that for community-based pasture management in Mongolia to reach its potential, careful attention must be paid to several aspects of these groups. Who is able to participate, and how is participation sought? How are the benefits distributed within and among herder groups and the larger population? How are decisions made within the groups? How are leaders chosen? And how is accountability maintained?

To date, most herder groups have started with the assistance of donor organizations or regional or national NGOs. It is not clear whether herders have the interest or capacity to form such groups in the absence of the training and other incentives provided by supporting organizations, such as access to revolving loan funds. Several herders interviewed in this study mentioned that the training they received in how to form and operate a group was one of the most valuable benefits for them. Even those groups that have been successful in the existing programs may not persist after the support is gone. When we asked project staff and local government officials about the sustainability of these efforts, they also expressed similar concerns. Some spoke of the “lack of initiative” among herders and the rural Mongolian mentality of waiting “to be told what to do,” an apparent legacy of the socialist era.

POLICY RECOMMENDATIONS

Concern about pasture conditions is well-placed, especially in view of the escalating livestock population in Mongolia. However, it is not clear that pasture possession legislation is the best or only route to sustainable grazing management. If Mongolia’s climate becomes more arid, as predicted under several climate change models (Yu et al. 2003, Dai et al. 2004), flexibility, mobility, and opportunistic management will be even more important to sustainable grassland management and herder livelihoods. We urge policy-makers, donors and NGOs to consider a range of policy options to strengthen the institutional framework for pastureland management. These options include:

1. **Strengthen, coordinate, and evaluate efforts to build local government and herder organization capacity for grazing/mobility management.** Such capacity-building should build on successful existing donor/NGO-sponsored efforts and focus on both governmental and non-governmental organizations and institutions. Where we observed successful collective action at the local level, it included rule-making and enforcement by herder

groups, reinforced by local government decree. Our survey indicated strong herder support for joint management and regulation by herders and local government. In addition, this approach is aligned with existing legislation under the Land Law, which authorizes local government (sum and bag) to regulate carrying capacity and seasonal movements. Because many of the non-governmental initiatives for local management are facilitated by various donors and NGOs, we strongly encourage continued support by the donor community as well as increased cross-organizational learning, information exchange, and coordination of capacity-building activities. Well-structured, scientifically conducted evaluation research would facilitate learning from these diverse local initiatives.

2. **Strengthen local and aimag government capacity to establish and enforce cross-boundary agreements, including appropriate penalties for violations.** Unregulated cross-boundary pasture use and associated conflicts emerged as a key issue in our case studies, and often undermined otherwise successful local collective action. Locally negotiated cross-boundary agreements are essential to maintain mobility and flexibility while ensuring that key resources such as winter and spring pastures are protected from out of season use. Our case studies documented several instances of cross-boundary agreements, but these agreements were not consistently honored or enforced. There is a need for model agreements that can be adapted to local circumstances, as well as authorization to impose appropriate penalties, and increased capacity for effective enforcement of these agreements.
3. **Explore options to regulate long-distance and permanent or semi-permanent migration/relocation of herding households.** Policy-makers should consider whether some type of action can be taken to regulate permanent or semi-permanent relocation of herding households. We observed that some highly productive regions, such as Selenge Aimag, are host areas for a large number of herders relocating from drought- or zud-stricken areas in western Mongolia. Such large-scale relocations threaten the potential for successful collective management of grazing in the host regions, particularly when the status of newcomers is ambiguous or they are excluded from project activities and benefits.
4. **Carefully evaluate options for formal pasture possession, and consider an experimental pilot pasture possession program.** Our results suggest that formal pasture possession may not be essential for successful collective action to implement sustainable pasture management, particularly if local capacity to manage mobility and develop and enforce cross-boundary agreements is strengthened. It appears that many of the same ends may be achievable through alternative institutional arrangements that emphasize local management of mobility and negotiated cross-boundary agreements. Until the issues of the appropriate spatial and social scales for pasture possession have been resolved, we are reluctant to advocate for tenure formalization through pasture possession licenses. We fear that if it is passed prematurely, the loss of flexibility and potential for unanticipated negative ecological and social outcomes may outweigh the possible benefits of pasture possession legislation. Our findings suggest that there will not be a “one size fits all” resolution to these issues in Mongolia, making uniform national legislation on pasture possession a challenge. One potential policy option would be to authorize pilot pasture possession projects on an

experimental basis in contrasting ecological regions, with careful monitoring and evaluation to assess the strengths and weaknesses of possession at various spatial and social scales.

FUTURE RESEARCH DIRECTIONS

Our recommendations for future research flow from the results reported in this document, and the policy recommendations outlined above. We propose a research program with the following elements:

- Continued observation of implementation of the pastureland provisions of the current Land Law, including further exploration of herders' and government officials' understanding of "pasture possession," and their attitudes towards possession.
- A national-scale study including both strategically selected case studies and a large stratified random sample study of existing community-based rangeland management experiments to compare the performance of groups in different ecological zones, of differing spatial and social scales, and different institutional design elements (see policy option 1 above) with respect to:
 - Participation, governance, and equitable access to/distribution of benefits
 - Institutional arrangements including local collective action and cross-boundary agreements reached, implemented, and enforced, and the role of local and regional governments in these arrangements.
 - Social outcomes including social capital and community capacity developed, conflict reduced, and changes in household well-being.
 - Economic outcomes including increased access to markets, supplemental or alternative income sources developed, and household income levels.
 - Changes in management behavior/practices including agreement and enforcement of seasonal movement patterns, otter movements, reduction/elimination of out-of-season grazing, and regulation of the number, kind or class of livestock grazed.
 - Ecological outcomes including changes in primary production, vegetation cover, species/functional group composition, erosion, and hydrologic function
- Study of cross-boundary use, its benefits and drawbacks, and existing models for cross-boundary agreements (see policy option 2 above).
- Evaluation of experimental pasture possession pilot projects (see policy recommendation 4 above).

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