



#### EDITORIAL

*Asia Briefs are aimed at informing development practitioners and the public about new developments in, and the results and impacts of, Swiss development cooperation in Asia. In particular, the briefs will highlight past and present efforts to achieve aid effectiveness through collaborations with Swiss agencies and local partners. The knowledge gained from these experiences will further enhance our efforts to halve poverty in Asia by 2015.*

*Pradeep Itty, Head, East Asia Division*

#### EMPOWERING HERDERS TO CO-MANAGE PASTURES

Mongolia's pastureland, which accounts for four-fifths of the country's 1.5 million square kilometre area and is the backbone of rural economy, is not in good shape. Experts estimate that 70-80% of pastureland is degraded. While climate change is thought to be a contributing factor, overgrazing is the primary cause, and this has primarily been due to the opening up of access to pastureland after the 1990 transition which saw pasture go from being a state-controlled resource to a common resource. Livestock numbers are currently at an all-time high, at 56 million head, and there are about 170,000 herder households throughout the country, which is the equivalent of a third of the population and which is twice that of 1990.

This so called “tragedy of the commons” has been mirrored throughout the world in areas where open access has been granted to such resources as forests, pastures, fish stocks and waterways. While full privatisation of the land has proven a successful countermeasure in some countries, it is not feasible in Mongolia, where livestock requires mobility in order to balance the variability of the available fodder. One method that has borne results in different parts of the world is the establishment of clearly defined user rights and the collective user management of resources.

Fostering collective action among herders for the management of pasture resources is one of the main focus areas of the Swiss-Mongolian partnership to preserve Mongolia's Green Gold. The main approach being taken is facilitating the formation of Pasture-User Groups (PUGs) comprised of herders who have received the right to manage pastures in their traditional grazing areas by the local government. This includes designating seasonal pasture rotations and developing technical and organisational pasture-management plans. PUGs are autonomous bodies supported by local governments, and receiving technical advice and financial support for their start-



Nomadic herder families in their autumn camp, Telmen soum of Zavkhan aimag in western Mongolia.

up. Herder communities have embraced the concept, and there has been a growing demand for assistance to form such groups. The PUGs have demonstrated that herders can develop and implement effective and sustainable pasture-management plans.

In the pilot period from 2004 to 2008, the Swiss-Mongolian partnership facilitated the formation of 400 PUGs involving 10,000 herder households (6% of all herders). And the benefits have been myriad. Those herders involved in PUGs have been able to jointly establish community-development revolving funds, create reserve pastures and wells, fence and irrigate hay fields, and participate in skills-development training. In those four years, 40 revolving funds were set up (with 50% external contributions) that granted small loans totalling MNT 588 million (CHF 580,000) to 2240 herder households for income-generation projects. In the same period, herders have agreed to set aside 450,000ha for reserve pastures; 900 herders were involved in the rehabilitation of an irrigation system over 6500ha of land that resulted in an up to eight times increase in hay yields; and 21 wells were rehabilitated, providing 300 households with access to 13,000ha of new pastureland.

The PUG-System has also been recognized by a study conducted by international experts as the most promising system to reduce the pressure on Mongolia's pastures. The system forms the basis for the new pasture land law giving common user rights to local herding communities currently awaiting discussion in parliament.

In the coming years, Green Gold will scale up the collective action approach, extending the concept to an additional 40 soums (districts) with around 2000 PUGs (covering about 30% of all herders in Mongolia) in western Mongolia in order to ensure the long-term preservation of the country's pastureland.

# PASTURELAND – THE BACKBONE OF MONGOLIA’S RURAL ECONOMY

## MONGOLIA’S PASTURES THREATENED

The effective management of Mongolia’s pastureland has significant implications for the nation’s economy, society and culture. About 80 percent of the country’s 1.5 million square km total land area is used as pasture for nomadic livestock herding, which accounts for 80 percent of Mongolia’s agricultural output and which generates about a quarter of the Gross Domestic Product. About 180,000 households, or roughly one-third of the 2.8 million population, are dependent on herding for their livelihoods.

For countless centuries, nomadic herding has been a way of maintaining livelihoods in harmony with the fragile ecological environment. Mongolia is located in a geographic transition zone where the Siberian taiga forest, the Central Asian steppe, the high Altai Mountains and the Gobi Desert converge, and where temperatures plummet to -40C in winter and rise to +35C in summer. The average annual precipitation is only 230mm.

Traditionally, herders have practiced the age-old technique of pasture rotation, taking into consideration the growth phases of vegetation and the level of regeneration from previous grazing. This, in combination with the maintenance of livestock numbers that conform to the carrying capacity of pastures, has formed the basis of the sustainable management of pastureland in Mongolia.

However, in the two decades since Mongolia’s transition from a centrally planned economy to a market economy this practice has largely fallen by the wayside and the number of livestock has exceeded the overall carrying capacity of pastureland by more than 30 percent. This has primarily been the result of the post-transition privatisation of livestock and the granting of open access to pastureland, which prompted many herders to increase their livestock numbers.



Degraded pasture land due to over grazing and wind erosion, Bumbugur soum of Bayankhongor aimag.

The situation has been exacerbated by a doubling of the number of herders – most of whom were people who found themselves unemployed in the wake of the closure of state enterprises and who turned to herding as a source of food and income.

Adding to the pressure on the land created by people and livestock are the ongoing effects of climate change. Mongolia is becoming warmer and drier and is experiencing more irregular patterns of precipitation. Meteorological records indicate that from 1940 to 2000, the average temperature increased nationally by +1.6C, and by +3.6C in the mountainous western region which lies furthest from the moderating influence of the Pacific Ocean. Drought has also increased significantly in the past 60 years, with the worst in the consecutive summers of 1999 to 2002 affecting half of Mongolia’s territory. Added to this, up to 24 percent of all rivers, springs and lakes ran dry from 1990 to 2007.



Herder and sheep flock facing grim future - Winter pastureland, Duut soum of Khovd aimag

# ACHIEVEMENTS OF THE MONGOLIAN-SWISS PARTNERSHIP TO PRESERVE MONGOLIA'S GREEN GOLD

## PASTURE REHABILITATION

Many pastures have been overgrazed, vegetation cover has been reduced and edible plants have been replaced by those that are less nutritious. Some pastures may have already reached the point of no return. Within the Mongolian-Swiss partnership, three different techniques for rehabilitation and the reintroduction of species in different ecological zones were examined. Priority was given to low-cost methods that were affordable to herders.

### a) Resting degraded pastures for regeneration

The fencing of pastures has enabled farmers to clearly see the effects of overgrazing, with vast differences visible in the plant communities growing on either side of the fence. This comparison proved particularly convincing as the only difference between the two areas was in their management. The demonstration offered strong motivation to herders to adapt their pasture-management strategies to the capacity of the land.

At the pilot sites, this pasture-resting technique has produced the following results:

- A 15-35 percent increase in vegetation cover in 3.5 years, which translates into higher productivity and less risk of erosion by wind and water;
- An increased awareness about the importance of resting periods as a prerequisite for sustainable pasture management; and
- A demonstration of the regenerative capacity of degraded pastures.

Based on these results, all PUGs have adopted pasture-management plans that allow for the resting of degraded areas, which will be subsequently reintegrated into future pasture rotations.

### b) Seasonal rotational grazing

Mongolians have long relied on the seasonal rotation of pastureland. However, breaking with this tradition has increased the negative impacts on pastures. Trials conducted with partnership support illustrated that reduction in the time herders stayed at one pasture allowed for longer resting periods which in turn produced higher yields and improved fodder availability. For example, if herders reduce time stayed in winter camping from an average of 310 days to 200 days the winter pastures produces yields of 130-280kg/ha, compared with 70-80kg/ha on pastures that had shorter resting times.

These findings also prompted the Administration of Land Affairs, Geodesy and Cartography to formalise the inclusion of seasonal grazing and resting periods in soum land-management plans.

### c) Over-seeding

Extensive over-seeding trials have revealed that it is extremely difficult in the harsh Mongolian conditions to re-establish key grasses and legumes once they have been lost from severely degraded pastures. The main problem hampering regrowth is the very dry and hot climate during summer, which kills nearly all the germinating seedlings. This is combined with competition from established secondary plant communities which suppress the seedlings.

These findings have led to the conclusion that preventing pastureland degradation at the outset is the key task. This conclusion has been accepted as a guiding principle in discussions on Mongolia's draft Pastureland Law.



Area fenced for hay production and reserve pasture for weak or new born animals and their mothers.

## IMPROVING FORAGE AND HAY PRODUCTION

The establishment of forage seed resources has been one of the key areas for the partnership. For the past three years, the project has assisted the Forage Producers' Association in the production of annual and perennial forage seeds. Seeds for the multiplication of perennial species were primarily collected from the country's native vegetation to ensure that the species were adapted to the arid climate. As a result of the initiative, herders and agricultural companies were able to seed 806ha of land, which produced 2500 tonnes of green forage in 2008, an increase of more than 20 percent on the previous year.

Hay production was widespread in traditional herding systems and during the socialist era, but in post-transition it has been abandoned entirely or its scope has been significantly reduced in many areas. Among the PUGs supported by Mongolian-Swiss partnership, 20,000ha of pastureland were fenced off for use as reserve pasture and hay-producing areas.

## IMPROVING PASTURELAND MONITORING

At present, Mongolia is investing large amounts of money and manpower in a nationwide pastureland monitoring system. However, the methods used for measurements in the field are insufficient according to international standards and, more importantly, fail to consistently provide appropriate and precise information needed for decision-making at the local and national levels.

Switzerland in partnership with the Institute of Meteorology and Environmental Monitoring, the Institute of Geo-Ecology and the Mongolian Academy of Science, is planning to introduce a short-term Rangeland Health Assessment System and modifications to current long-term monitoring methods. The main focus is on aligning the system with international standards in order to ensure that soil, vegetation, water, air and pastureland ecosystems are balanced and sustained. The short-term assessment of pastureland health will help to raise awareness and enable timely policy changes. A high-quality long-term monitoring system will help to foster a better understanding of the causes of pastureland degradation and allow for the design of appropriate rehabilitation and prevention methods. It can also provide the information needed for the assessment of the carrying capacity of pastures to ensure the sustainable use of Mongolia's rangeland resources.

## TRAINING LOCAL EXPERTS

The Mongolian-Swiss partnership also invests in the revitalisation of the local scientific research to make it more relevant for the problems that Mongolia's pasturelands are facing. Indeed, the availability of skilled local experts is a prerequisite for the project's sustainability. To date, more than 30 young researchers have been involved in field experiments and in the evaluation of research data. This new generation of researchers has shown great initiative and commitment to their work, and many are now associated with or working on research projects for improved pasture management. In 2008, they formed a Union of Young Range Scientists, which they are using as a platform to share knowledge and experience in relation to the latest technology and research projects being carried out in Mongolia.

## STRENGTHENING THE LEGAL AND POLICY ENVIRONMENT

Efforts by herders in PUGs to collectively manage their pastureland are now well established at the local level. However, the absence of national legislation stipulating the extent of their rights and authority, their duties and responsibilities and the forms of pasture control and tenure has left them with limited legal power. The legal environment is challenging because the transition from a command economy to

a liberal market economy requires the enacting of many new laws and regulations, which takes a considerable period of time when government resources are limited. To facilitate the process, Switzerland has provided assistance in the development of a legal framework for herders' pasture-management organisations.

Locally, the most significant contribution has been in training soum authorities in the principles and benefits of community-based pasture-management practices. As a result, soum authorities and citizens' representatives have encouraged herding households to form PUGs in order for them to take the lead in pastureland planning and management.

Forums were also held among herders, during which regulations for better grazing practices were discussed. Community leaders then shared the results of the discussions, along with their knowledge and experiences, at local and regional workshops.

In relation to national legislation, the Mongolian Parliament appointed a working group to draft a new law on pastureland, and sought participation from persons that have worked in the frame of the Mongolian-Swiss partnership. As part of the working group, the project has been able to submit proposals and make recommendations based on the experiences and best practices of the PUGs. On completion, the draft Pastureland Law was submitted to Parliament for consideration, where it is currently awaiting discussion.

Technical, methodological and financial support was also provided to the Administration of Land Affairs, Geodesy and Cartography for the development of a legal context that allowed for the participation of PUGs in developing soum pasture-management plans. As a result, a methodology for soum annual land-management plans was developed in collaboration with the Administration of Land Affairs, Geodesy and Cartography, the United Nations Development Programme and the Mongolian Centre for Policy Research.

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