CHAPTER 4

POVERTY AND BIODIVERSITY

Improving Poverty Reduction and Conservation Outcomes in the Grassland Ecosystem of Mongolia

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Introduction

Mongolia is home to the world's last and largest example of an essentially intact temperate grassland ecosystem. Only 1% of Mongolia is considered arable land, while about 34% of Mongolia's people depend directly on livestock production (most as traditional nomadic pastoralists) and an additional 26% indirectly do so. The annual per capita gross domestic product (GDP) is approximately $600, with 40% of the country's 2.7 million people living at or below the poverty line. Poverty reduction must integrate the unique economic and environmental needs of the people who inhabit the steppe (temperate grassland ecosystem) and depend on its resources for their survival.

Mongolia's unique grassland ecosystem and poverty reduction

Mongolia's extensive grazing system functions over large areas, typically thousands to tens of thousands of square kilometers. The nomadic movements of pastoralists and wildlife in search of scarce resources cover areas larger than even the largest protected areas and communal management units. Thus, a substantial percentage of the human and wildlife populations depend directly on a fragile natural resource base. Past and present transhumant pastoralism is a direct and historically successful result of coping with this delicate balance. Unfortunately, traditional livelihoods are imperiled by overgrazing, particularly around *soum* (county) centers; a wide range of animal diseases, including some that are zoonotic (i.e., transmissible to humans); and limited access to water for livestock. The ability to foster a multiuse landscape that allows traditional nomadic pastoralists to preserve their livelihoods without destroying the natural resource base on which they depend will determine, in part, the success of a conservation and development strategy for the steppe.

The Mongolian countryside provides significant natural resources that buffer poor rural populations from the worst effects of low cash incomes. In the Eastern Steppe, wild game and fish account for 13% of the average annual household protein consumption, according to household surveys. Market sales of game meat and furs also provide supplementary cash income, with sales totaling approximately $180,000 per year (observed at just three provincial town markets) (Scharf and Enkhbold, 2002). The Siberian marmot, hunted for both meat and fur, is the most economically important species. However, trade in Mongolian gazelle, gray wolf, and red and corsac fox also contributes a significant part of the mix. Many of the skins and higher-value animal products, such as those used in traditional medicines, are exported to the provinces of the People's Republic of China (PRC) bordering the Inner Mongolia Autonomous Region.

However, available evidence suggests that wildlife populations are decreasing dramatically largely due to overexploitation. For example, the range of the Mongolian gazelle is now only about 25–30% of that observed in the 1950s, and the population is thought to be in serious decline (Lhagvasuren and Milner-Gulland, 1997; Zahler et al., 2004a). The same applies to Siberian marmot populations (Reading et al., 1998). A further decrease in wildlife will likely jeopardize food security and increase poverty in Mongolia by limiting opportunities for subsistence hunting. At the same time, this disruption of wildlife populations threatens the stability of the last relatively intact grassland in Eurasia.

Institutional context

Rural communities in Mongolia are suffering the consequences of the rapid national change from a centralized to a market economy. The closure of state factories in rural areas, which has meant a loss of jobs, appears to have set in motion a vicious cycle. More poor people have been driven back to the land, increasing pressure on natural resources and further limiting the economic viability of rural livelihoods. The quality of suitable rangeland for livestock has been compromised in many areas. These factors have combined with the limited rural business opportunities, in general, and the inexperience of the relative newcomers in livestock husbandry and in marketing local products to further complicate the challenge of promoting economic growth based on dwindling natural resources.

More than a decade after the dissolution of state-owned grazing regimes and the adoption of the 1994 land law, herding systems remain in flux. How changing land tenure systems will interact with increasingly prevalent market forces is unclear. However, with many absentee herd owners and the trend toward land privatization, sedentarization, and the subdivision of formerly communal rangelands are likely outcomes. As livestock production becomes more sedentary, stocking rates rise (increasing the potential for rangeland degradation), disease interactions intensify among livestock and between livestock and wildlife, and the movements of livestock and wildlife are restricted to the detriment of both.

High unemployment and poverty are primary concerns of local governments. Young people (15–35 years old) make up 50–60% of the population in the region. Many are unable to attend school, and more than half are unemployed. Meanwhile, without the state-run factories to purchase wool, hide, bones, and other products, herders are finding that they cannot sell some of their products. Lacking business acumen and investment resources, herders are unable to capitalize small-scale enterprises and transport systems to replace the defunct centralized system. They also lack knowledge to effectively negotiate prices for their products, and no government help is available to improve their marketing skills.

Mongolia's national economic needs, as well as strong external demand (most notably from the PRC), are driving oil, coal, gas, mineral, and wildlife exploitation in the region. While these resources could serve development and poverty reduction goals, there is also the risk that they will be depleted by distant commercial interests with little benefit accruing to local populations. Development efforts in Mongolia must take into consideration the systemic links between poverty, disease, environmental degradation, and unsustainable use of resources. The development of a comprehensive conservation and natural resource management plan to preserve the integrity of the Eastern Steppe, its wildlife, and the unique traditional nomadic culture of its people is overdue.

Three of the most critical components of the Mongolian economy that have direct connections with biodiversity conservation are livestock, development (including the transport and mining sectors), and wildlife consumption and trade. These drivers are investigated in this case study through specific examples that highlight how Mongolia's economy and natural resource base are tightly linked—and why conservation, development, and economic production must be considered as interdependent.

The livestock–wildlife–human health interface

With 2.7 million people and 33 million domestic animals, Mongolia is, indeed, a "land of livestock." More than half of Mongolia's population depends directly or indirectly on livestock production, which constitutes 30% of GDP. Therefore, the successful management of animal husbandry in the face of societal and economic changes is fundamental to Mongolia's future development, as well as the preservation of its traditional nomadic cultures. A persistent and growing concern is the threat of diseases: those that can pass between wild and domesticated animals, and those that move from animals to people (zoonoses).

Livestock production and wildlife conservation often are linked wherever domestic and wild animals come into contact. Several factors make this link particularly strong in Mongolia. The country's aridity and latitude result in highly variable intra- and inter-annual climate and resource availability. Pastoralists and wildlife respond to this variability by moving opportunistically across long distances to track ephemeral resources, often sharing the same pastures. Livestock and wild grazers have similar requirements that often lead them to the same resources and into physical contact. In some cases, they come into conflict with each other.

A wide range of animal diseases exist in Mongolia, including bovine tuberculosis, brucellosis, foot-and-mouth disease (FMD), Johne's disease, plague, and several parasites that are transmissible among wildlife, humans, and their livestock (Erbright et al., 2003; Lee et al., 1999; Zoljargal et al., 2001). These diseases might harm the health and productivity of humans, livestock, and wildlife, impairing economic development and ecological sustainability. The livelihoods of the rural poor are most severely impacted by disease—human and animal.

Continuing outbreaks of FMD illustrate the complexity of wildlife–livestock–human interactions in Mongolia. FMD is a highly contagious viral disease of ruminants that causes vesiculation of oral mucosa and skin of the feet (Thomson et al., 2001). After the 1970s, FMD had not been reported in Mongolia until an outbreak in domestic cattle and sheep during the winter of 2000–2001. A serological survey of FMD in Mongolian gazelles, which are sympatric with livestock throughout their range, found no evidence of exposure in 1998–1999 (Deem et al., 2001). However, after FMD appeared in livestock in 2001, a second serological survey found extensive FMD exposure in gazelles (Nyamsuren et al., 2006). FMD reappeared in livestock in Mongolia in 2002 and 2004. Whether gazelles can transmit FMD back to livestock is unknown, although livestock appear to be able to spread the virus to gazelles.

The presence of FMD has dramatic consequences for poverty reduction and conservation efforts in Mongolia. When a herd becomes infected with FMD, it significantly reduces livestock production. Moreover, market access is extremely limited for FMD-infected countries since live animals cannot be traded between FMD-infected and FMD-free countries, and the export of livestock products is heavily restricted (James and Rushton, 2002). During the last outbreaks in Mongolia, the Government imposed strict quarantines in affected areas, thus disrupting the traditional nomadic lifestyle of herders. Other FMD-control measures, including culling of affected animals and vaccination, cause further economic hardship. FMD threatens gazelles directly by causing catastrophic mortality (Sokolov and Lushchekina, 1997). The disease also has indirect impacts by triggering drastic, if misplaced, calls for "control" measures, such as culling and the disruption of gazelle migrations that are necessary for gazelle survival during the winter (Leimgruber et al., 2001).

Institutional responses required to tackle livestock–wildlife–human disease challenges

The intersection between government policies and land-use practices that affect disease transmission among people, livestock, and wildlife should be further examined. No one within the Government of Mongolia is responsible for integrating the policies and programs related to disease surveillance and livestock management with efforts focused on wildlife. (Mongolia is certainly not unique in this regard.) Relationships between livestock and wildlife are particularly intense. Improvements in the health of domestic animals likely will improve prospects for healthier wild animals and vice versa: this will ideally lead directly to healthier local people. It is essential to directly monitor community, livestock, and wildlife health parameters, such as the prevalence of zoonotic and animal diseases (e.g., FMD) in susceptible species over time and space; the number of disease outbreaks and types (i.e., by determining the causative pathogen) per year in wildlife under observation; and the incidence of marmot-related plague in hunters.

Stakeholder activism to improve conservation and reduce poverty: experiences from the Millennium Road and the Onggi River Movement

Development projects in Mongolia often have focused on regional growth with little consideration for environmental impacts, local communities, or poverty reduction. Inadequate environmental impact assessments (EIAs), combined with a lack of monitoring, repeatedly have led to environmental problems that directly and negatively affect local communities. This can result in increased poverty rather than improved economies. Two examples, a road and a mine, illustrate this point. The benefits in these cases often have been more likely to accrue to government officials and foreign interests than the local populace. The Millennium Road and Onggi River Movement (ORM) examples presented in this section highlight the need for greater stakeholder involvement in the planning process. They also underscore the need to incorporate stakeholder concerns regarding potential negative effects on the environment and on local economic structures.

THE MILLENNIUM ROAD

The people of the Eastern Steppe critically need transport networks. Much of the country is served by

dirt tracks, meaning hours or even days are required to transport goods to and from the countryside. Paved roads are practically nonexistent, and those that do exist are expensive to maintain due to the severe Mongolian climate and the long distances that must be covered to serve small numbers of people. For more than a decade, the PRC and Mongolia have been pursuing ways to improve regional economic cooperation and cross-border relations. Bilateral discussions, held since the early 1990s, produced trade and economic cooperation agreements at the subregional level between the local governments. However, these accords lacked adequate public notice and comment. A prime example is the Millennium Road project, which was initiated to ease transportation costs and increase herders' access to markets.

In the Eastern Steppe region of Mongolia, the Millennium Road was planned as a simple straight line running between the east and the west. Little attention was paid to the ramifications of the road's straight-line route on market access for rural people, or the potential environmental consequences of this route through the relatively pristine Eastern Steppe region and across the migratory paths of several hundred thousand Mongolian gazelles.

A bridge extending from the Millennium Road through the Nomrog Strictly Protected Area (SPA) also was planned. However, this plan directly contravened Mongolian law. Local government initiatives drove the proposed location of the Nomrog Bridge without adequate public consultation or stakeholder participation. A recent survey found that (i) about 71.4% of residents of the town of Sumber were opposed to the Nomrog Bridge; (ii) about 52.4% thought they would not benefit from this bridge; (iii) about 76.2% estimated that its adverse impact would be significant; (iv) about 76.2% strongly opposed degazetting (removing protected status) of part of the Nomrog SPA; and (v) about 80.9% designated the existing bridge near the city of Sumber as a more favorable cross-border route.

Although one argument made in favor of the bridge was economic, the location was inappropriate for large-scale commercial use, and a more suitable commercial link would be farther north. The proposed bridge over the Nomrog River was more remote compared to the existing bridge near Sumber—the most populated center in the vicinity—and its remoteness and construction would not bring economic benefits to the inhabitants of Sumber. Instead, cross-border trade would benefit the PRC much more than Mongolia.

The Nomrog SPA hosts a number of IUCN Red Book (rare or endangered) species that could be threatened further as a result of development plans. The proposed bridge and road infrastructure almost certainly would lead to a huge increase in poaching from the PRC side—where Mongolian gazelles have been almost annihilated—due to easier access. The infrastructure and transport plans would fragment the habitat of the gazelle population and limit their ability to migrate, contributing to a decline in their numbers. Migration is a critical aspect of gazelle behavior in the harsh winters and during spring, when the animals often must travel long distances to find adequate grazing, escape deep snows, or find safe locations to give birth.

Another argument in favor of the road and bridge was the potential increase in economic benefits from tourism. However, Nomrog SPA does not have the legal mandate or capacity to accommodate an increase in the number of tourists without compromising the level and standard of environmental protection.

The Government of Mongolia considered a border-crossing access bridge over the Nomrog River, the successful result of years of bilateral dialogue between Mongolia and the PRC that was now threatened by opposition. Not only were local communities not asked to contribute to the technical assessment process, some individuals who were invited to share their viewpoints were actually denied permission to do so by the Dornod *aimag* (province) government. At least one individual was threatened with the loss of her job if she attended the public meeting. A Choibalsan-based biology teacher—who made a public statement against the construction of the Nomrog River Bridge at the Eastern Steppe Biodiversity Project–World Wide Fund for Nature (WWF) National Forum on Protected Areas in Mongolia (November 2002)—was intimidated by her school district officials, who received telephone calls from the Dornod aimag government. These retributive actions are a violation of basic political rights and have reinforced the view that the development of civil society in Mongolia is not assured yet.

However, local stakeholder inputs finally may have been incorporated into plans for the road, which is still being built. The resulting alternative route presents a simple, elegant solution that could improve herders' access to local markets and facilitate the transport of market goods—a critical need for poverty reduction—without threatening the steppe ecosystem upon which the vast majority of people on the Eastern Steppe depend directly. The alternative route in the

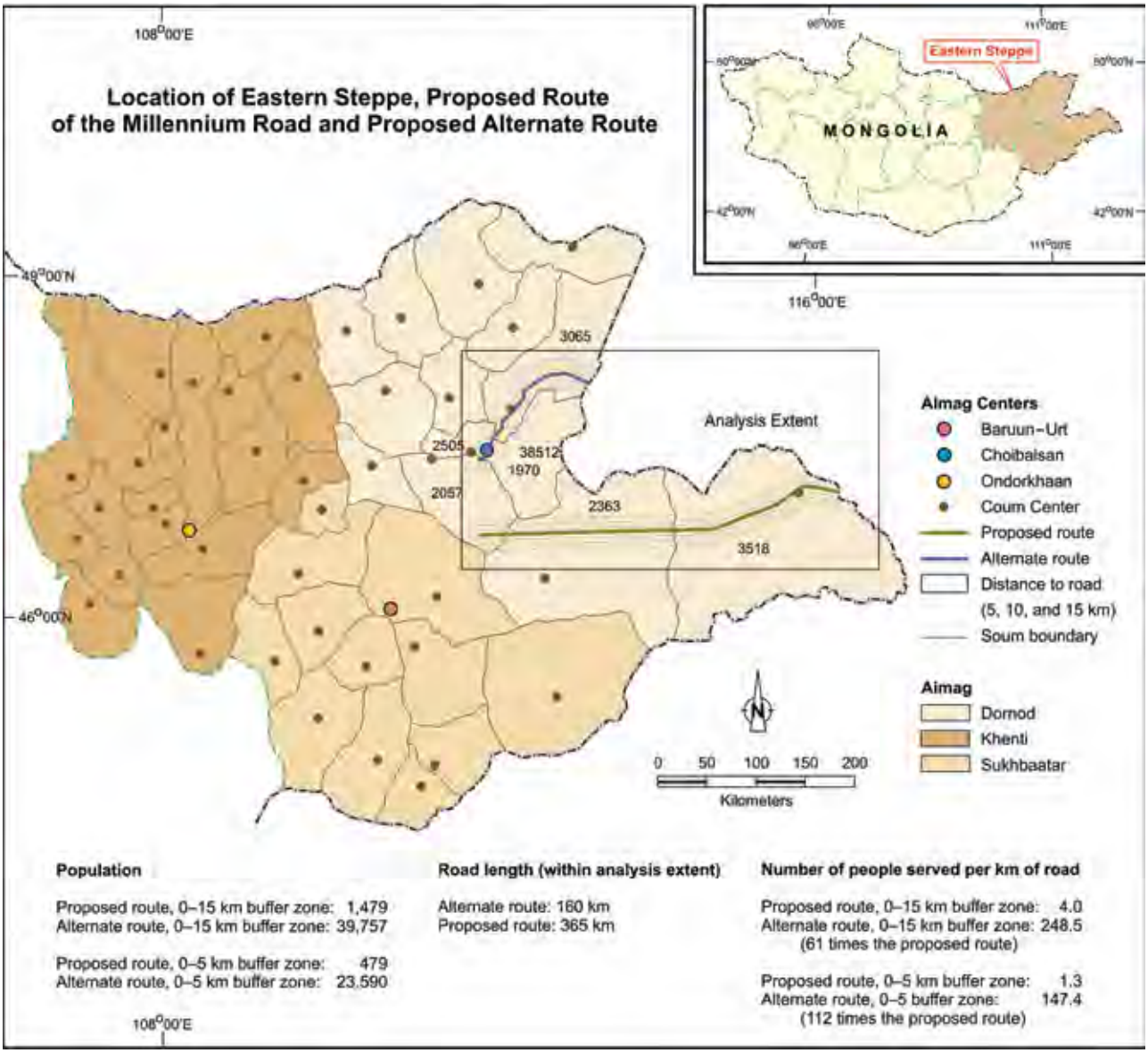
east includes the economic hub town of Choibalsan, ensuring this center would not be doomed to economic neglect. Furthermore, the alternative route would avoid the gazelles' migration path and, thus, would be more compatible with gazelle life cycles than the original planned route. Using geographic information systems, the Wildlife Conservation Society found that the alternative route would serve 26–50 times more people than the officially proposed route and would require 205 kilometers (km) less road to be built. The alternative route, thus, offers a win–win solution that makes environmental and economic sense.

The Nomrog Bridge situation remains unresolved, however. Despite international and local outcry, as well as a pullout by international funding agencies, a recent agreement between local Mongolian and PRC officials has resurrected the bridge plan—this time with funding from the PRC. Yet, if the residents of the Eastern Steppe are to receive real ecotourism benefits, PRC ecotourists need to be channeled into Dornod population centers. To ensure this happens, the river road from Kholonbuir Prefecture should use the existing bridge over the Khalghol River near Sumber as the international border point and gateway for PRC tourists.

THE ONGGI RIVER MOVEMENT

Mining has become one of the largest and fastest-growing industries in Mongolia. It constitutes more

Map 6



Source: Wildlife Conservation Society.

than 8.6% of GDP and 56% of exports. Mongolian mineral resources include gold, platinum, uranium, copper, zinc, oil, and natural gas. Mining is the fastest opportunity for Mongolia to acquire foreign exchange and lift itself out of poverty. While Mongolia has significant geological potential for such export earnings, current trade in raw minerals does not maximize the benefits for Mongolia, and more consideration needs to be given to increasing local value added in trade. Current trends raise concerns that local populations will receive few benefits, while bearing many of the deleterious effects on health and the environment, including sediment loading, heavy metal poisoning, water extraction, and morphological changes that have resulted in the drying of a number of water courses.

Placer mining—the most common method of extracting gold deposits—has exacerbated river pollution greatly through increased loading of sediment particles and nutrients at numerous sites in Mongolia. Officially, 28 river basins in eight aimags are "heavily polluted," and some parts of the rivers are "damaged irreversibly." Recently, hard rock gold mining practices—which use highly toxic agents such as cyanide and mercury that persist in the environment for long periods—have increased rapidly. Chemical spills might wipe out biodiversity within the immediate river ecosystems and have significant impacts on areas, animals, plants, and humans downstream.

In addition to the serious pollution caused by mining activities, water extraction and morphological changes to rivers associated with these activities can have dramatic repercussions. In some locations across Mongolia, they have caused the drying of several small rivers and severe water shortages for local people and livestock.

During the last decade, gold has been exploited in easily accessible areas. However, mining activities recently have expanded into pristine and protected areas. Although these protected areas are unique and offer invaluable opportunities for environmental protection and biodiversity conservation, pressure is growing to degazette many of them. The Ministry of Nature and Environment recently produced proposals to degazette more than 10% of Mongolia's protected areas to allow the mining sector greater access.

With Mongolia's weak regulatory structure and lax taxation laws, exploitation of mineral resources largely benefits the country's wealthiest citizens and foreign nationals affiliated with mining corporations. Local people generally are left with low-paying jobs and a degraded quality of life caused by pollution and loss of traditional sustainable jobs. The EIA process, including decision making and contract awarding, is inadequate, as are the quality and enforcement of EIA findings. Mining development will continue to be unchecked unless these EIA processes and procedures are amended to be clear, transparent, accountable to public scrutiny, and accompanied by strong compliance and enforcement provisions.

On the headwaters of the Onggi River, mining has silted streambeds, lowered water tables, and polluted entire watersheds with a variety of hazardous chemicals (including mercury). Downstream ecosystems and local communities have been seriously damaged as a result. In a response unprecedented for Mongolia, local communities along this river created one of the country's first locally driven environmental nongovernment organizations (NGOs). Local stakeholders, who found their health and livelihoods at risk from the uncontrolled development of upstream mining, created the ORM.

ORM consists of 3,000 rural citizens (many of them nomadic herder families) who support restoration of the Onggi River. They have temporarily halted the operations of three gold mines polluting the river and the associated Red Lake. In a Mongolian first, ORM has filed court cases against the companies involved, which has been a key factor in raising national awareness about this and other environmental matters. ORM's community-driven efforts can be replicated in other locations across Mongolia as a catalyst for change. Further, these efforts can demonstrate how local communities, the private sector, and government agencies can work together to maintain and even improve local livelihoods and environmental conditions.

Unsustainable wildlife hunting and trade

Wildlife species provide numerous economic benefits to local people in Mongolia, including serving as a source of protein and income from the trade of meat, fur, and animal parts used in medicinal markets. For poor people, the availability of wildlife can be crucial to economic and even physical survival. Wildlife provides food and reduces the need to slaughter livestock for consumption, so that instead livestock can provide benefits, such as milk and wool for personal use and for trading against other essential products and items, as well as serve as a combination of savings, wealth, and insurance. When wildlife becomes scarce, the impact is most dramatic on the poor and marginalized rural people.

Mongolia's transition in the early 1990s from a relatively strong, Soviet-dominated economy with strict controls over hunting and trade to a struggling free market economy has resulted in a dramatic increase in illegal hunting and trade. A range of wildlife species have declined rapidly due to a faltering economy, increased reliance on trade with the PRC, porous borders, and little funding or will for law enforcement (Wingard and Zahler, 2006). Much of this hunting is for local trade or consumption, although illegal international trade threatens some species in Mongolia. Evidence suggests that this threat is growing and spreading to new species. Three examples illustrate the unsustainable illegal hunting and trade pressure in Mongolia (Zahler et al., 2004b).

The Mongolian saiga antelope (*Saiga tatarica mongolica*) is a distinct subspecies found in the southwestern part of the country. The population of Mongolia's subspecies of saiga antelope has declined catastrophically from more than 5,000 to less than 800 (an 85% drop) in the last 5 years. The lucrative Chinese medicinal market for saiga horn is driving this collapse. Hunting is focused on the horned males, which has skewed sex ratios and exacerbated the population decline (Milner-Gulland et al., 2003). The saigas' breeding system has been disrupted, undermining its ability to recover from population declines. The extremely low numbers of saiga remaining in Mongolia make them especially susceptible to stochastic events, such as icy winters, that could cause mass mortality and potentially drive the subspecies to extinction. Circumstantial evidence suggests that middle-class people—those with vehicles and money for fuel—are the primary actors in the illegal trade of saiga horns.

Mongolia's red deer (*Cervus elaphus sibiricus*) were once common throughout much of the country. Unfortunately, the number of red deer also has declined catastrophically across Mongolia. A 1986 government assessment estimated the population size at approximately 130,000 in an area of 115,000 square kilometers (km^2). The most recent population assessment in 2004 showed that only 8,000–10,000 red deer inhabit 15 aimags of Mongolia—a 92% decline in just 18 years. While habitat loss might play a small role, illegal poaching is the primary reason for this dramatic decline. Much of the poaching and subsequent trade is directed toward the international medicinal market, including harvesting for antlers ($60–100 per kilogram), male genital organs ($70–80), fetuses ($20–50), and females' tails ($50–80).

Mongolia is home to the world's largest mountain sheep, the argali (*Ovis ammon*). Foreign hunters seek these animals because of their impressive size and long, spiraling horns. Argali are declining in Mongolia, primarily due to an increase in poaching for horns and meat (for export to the PRC), predation by domestic guard dogs, and competition with domestic livestock. Government figures estimated 50,000 argali in Mongolia in 1975 and 60,000 in 1985. By 2001, only an estimated 13,000–15,000 remained—a 75% decline in just 16 years. Despite being listed as a threatened species in Mongolia and internationally, argali trophy hunting remains legal in Mongolia. The number of licenses has been increasing, reaching 80 in 2004. Trophy hunting is a lucrative business, with companies offering hunts for $25,000–50,000. Although laws exist for the return of revenues to local governments for conservation initiatives, they are not followed. As a result, this program is surrounded by controversy as manifested by growing local opposition, accusations of corruption in the media, and a US lawsuit.

Illegal and unsustainable hunting has become the major threat to wildlife in the past decade in Mongolia. Despite adequate available habitat, some wildlife species are being driven rapidly to the brink of extinction. The recent increase in poaching in Mongolia stems from a combination of strong demand for wildlife products in Asian markets; large numbers of unemployed people struggling to make a living; and poor enforcement or lack of implementation of existing laws and policies on resource use, wildlife trade, and redistribution of trophy hunting revenues.

Institutional responses to address the hunting and trade challenge

Successfully addressing the unsustainable hunting problem will require a blend of programs: (i) social development to provide alternative livelihoods for poachers; (ii) better regulation of commercial and trophy hunting, including openness and transparency, external review, and oversight; (iii) improved use of legal disincentives and incentives; (iv) reform and vast improvement of law enforcement; and (v) creation of some form of national wildlife agency. However, such responses also should be linked to a social development plan that provides alternatives for poor people who turn to illegal practices to survive.

Local people—who depend directly and indirectly on Mongolia's wildlife resources—will be critical to the success of any wildlife management or

conservation program. Recognizing this need, the Government has begun to formulate policies and laws that simultaneously enable communities to engage in conservation and have a stake in Mongolia's resource base. For the moment, proposals have remained focused on forestry, although this could be expanded to include other resources. Unfortunately, only a few Mongolian legal specialists are involved in efforts to promote sustainable community-based natural resource management, and no institution at the national level is fully committed to the concept yet. Mongolia's communities currently have the right to form local organizations and gain access to resources. The development of local organizations, such as herder cooperatives for resource management, including local management of hunting, might be the best hope for Mongolia's wildlife crisis.

Conclusions

The broad scale of human impacts on nature in Mongolia has begun to jeopardize the life support systems on which the poorest disproportionately depend, threatening to eliminate future, more sustainable options for natural resource management. Wildlife, water, and rangeland for livestock—all critical inputs to the rural economy—are under pressure in many parts of Mongolia today.

All development, poverty reduction, or conservation efforts in Mongolia also must consider transboundary effects and other pressures on natural resources that originate outside the country. The influence of the PRC, which has a population nearly 500 times that of Mongolia and is one of the fastest-growing economies in the world, threatens to overwhelm Mongolia's efforts to determine its own future. External demand should be perceived and channeled as a positive force to generate foreign exchange earnings and investment, and business development in Mongolia. Whether most effects to date have been positive remains unclear, however. Many decisions apparently have been made in view of short-term gains rather than long-term environmental sustainability and local needs. Mongolian national agencies, working with the support of international development agencies, lenders, and local stakeholders, should consider carefully how to optimize the flow of benefits to create long-term economic opportunities for the Mongolian population. International processes also must be secured to enable the transboundary management of migratory wildlife populations (e.g., gazelles) to ensure that hunters across the border do not exploit and, thus, potentially negate improved Mongolian wildlife policies.

Biodiversity conservation alone cannot reduce poverty in Mongolia. However, poverty reduction efforts that do not adequately consider conservation and sustainable natural resource use will not be successful in the long term. Mongolia's unique environmental conditions, historic culture of nomadic pastoralism, low human population, and high poverty rates make the country a distinctive test for linking poverty reduction and conservation on an ecosystem scale. Domestic political will, coupled with strong international donor support for holistic approaches, can allow Mongolia to achieve the economic modernization it needs and raise living standards, while protecting the natural resource base that remains the backbone of traditional Mongolian culture and livelihoods.

Poverty Reduction, Forests, and Conservation in Viet Nam: Understanding the Trade-offs

William D. Sunderlin and Huynh Thu Ba

Summary

This case study assesses the possibilities of improving rural livelihood while reversing the loss of forest resources in Viet Nam. A review of the literature yields a mixed answer. As in many other developing countries, livelihood in Viet Nam has been improved in part through the massive conversion of forests to other uses. Why then should a reversal of the loss of forests be expected to improve livelihood? The answer is that the continuation of some forest conversions, combined with forest protection and restoration, can contribute to the maintenance and improvement of livelihood. One of the great challenges that policy makers face is knowing how to distinguish between these two uses of resources, and how to manage them optimally.

Introduction

Viet Nam has made great strides toward eliminating poverty in the last 20 years. In the mid-1980s, seven of 10 Vietnamese lived in poverty. Ten years later, this proportion had been halved (World Bank in Viet Nam, 2000). From 1993 to 2002, poverty in Viet Nam decreased from 58% to 29% (ADB et al., 2003).

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