

# Building Resilience to Extreme Weather: Index-Based Livestock Insurance in Mongolia

*World Resources Report Case Study*

KIRSTEN LUXBACHER, CONSULTANT, WORLD RESOURCES INSTITUTE  
ANDREW GOODLAND, WORLD BANK

With special thanks to Robin Mearns and Jerry Skees

Suggested Citation: Luxbacher, Kirsten and Andrew Goodland. "World Resources Report Case Study. Building Resilience to Extreme Weather: Index-Based Livestock Insurance in Mongolia." World Resources Report, Washington DC. Available online at <http://www.worldresourcesreport.org>

## INTRODUCTION

In the grassy steppe pastures of Mongolia, herding is the life-blood of the economy. About 44 million head of livestock were counted in the 2009 census, including cattle, sheep, yaks, goats, horses, and camels (National Statistical Office 2009). Many Mongolians depend upon these livestock as a source of food, income, and wealth (Mahul & Skees, 2007, 2). Herding also frequently serves as a social safety net that individuals utilize to keep from falling into extreme poverty when they lose their jobs or have no other viable sources of income. Over the years, people from all walks of life and backgrounds have turned to herding because they felt they had no other means to support themselves (van Hoeflaken & Nyamaa, 2007, 27). Currently, about 40 percent of the nation's

workforce is employed in the livestock sector, primarily in rural areas ("Mongolia Livestock Sector", 2008, ii). This reliance on herding leaves many rural households and the Mongolian economy in general vulnerable to shocks that affect livestock populations. Such shocks are not uncommon as the nation's climate is harsh and its weather is highly

variable (changing greatly both daily and seasonally). This vulnerability to climatic events and natural hazards is connected to the extensive production system that predominates the sector, under which herders graze their animals over large swaths of grassland with limited shelter. This has led the livestock-herding sector to be characterized as "low input—high risk—low output" (Goodland, n.d.).

### Box 1: Key Facts – Mongolia

*Government Type:* Parliament

*Capital:* Ulaanbaatar

*Population:* 2,789,210 (National Statistical Office, 2011)

*Aimags (provinces):* 21

*Soums:* districts within the *aimags*

*Dzuds:* severe winter weather conditions

The culmination of these uncertainties and vulnerabilities periodically leads to catastrophes within the sector. Most recently, in the 2009/ 2010 herding season, severe winter weather conditions, referred to locally as *dzuds* (see Box 2), caused the deaths of 9.7 million head of livestock and amounted to about USD 477 million in financial losses (Yadamsuren, 2010).

### Box 2: Dzuds and Climatic Risks to Livelihoods

Dzuds are severe winter conditions that are characterized by one or more of the following: very low temperatures, wind, snow, and ice that prevent livestock from accessing pastures or receiving sufficient food and fodder (Sayed, 2010). More extreme dzuds are often preceded by dry summers and low pasture availability, meaning animals are not in good condition going into winter. Dzud events are complex and hard to predict because there is no predetermined set of factors or weather conditions that when present will lead to a dzud. Livestock losses resulting from dzuds are also varied. If a dzud is quick and sudden, losses will occur immediately. However, if the severe winter conditions are more long lasting, losses will accumulate throughout the winter and spring (GlobalAgRisk, Inc., 2010, 38). In the future, it is likely that climate change will increase the variability and risks associated with these events.

Uncertainty around forecasting dzuds and their severity makes preparing for them very difficult for herders. High rates of livestock mortality are often difficult to prevent during an event even if adequate pastoral risk management strategies (such as winter shelters, fodder crop production and storage, among others) are in place (Mahul, *et al.*, 2009).

The financial losses from dzuds are also tremendous. For example, in the winters of 2000-2002, dzuds decimated Mongolia's livestock herds. Over 11 million animals died over this period (Mahul, *et al.*, 2009). The total value of these animals amounted to over US\$200 million (GlobalAgRisk, Inc., 2010, 37). Herders owning less than 100 head of livestock (typically poorer herders) were particularly hard hit. Many of these households left herding (van Hoeflaken & Nyamaa, 2007, 12). Considering these factors, it should not come as a surprise that a 2004 national survey found that the rural poverty rate had increased to 43.2 percent and exceeded the urban poverty rate of 31.2 percent—a reversal from the period before the dzuds (PID Appraisal Stage, 2005, 4).

In addition to the threat that dzuds pose to Mongolia's herders, several climatic trends have been observed across the country that present long-term challenges to the nation's environment and society. For example, from 1940 to 2004 the mean temperature has increased by 1.9 degrees Celsius. Regional rainfall has also varied with an increase in some areas and decrease in others. Moreover, in the period from 1990-1997, the number of the country's water sources declined by 20-24 percent. This is linked to the increasing desertification of land that was once arable (Yadamsuren, 2010). Desertification and pasture degradation in Mongolia can be attributed to its transition to a free market economy in the 1990s. At this time, the number of herders and heads of livestock increased substantially and there was a switch to a more sedentary style of herding (for more see: *A Guide to World Resources 2000-2001*). The culmination of these factors has caused over-grazing and soil degradation (World Resources Institute, 2000, 220).

In an effort to mitigate the devastating affects of these *dzuds*, the Government of Mongolia is attempting to transition from relying on *ex post* funding to *ex ante* management of the risk. More risk management strategy for its livestock sector that it hopes will reduce reliance on donors and international development banks for post-disaster relief funding when a natural disaster occurs. It is also trying to increase transparency in the disaster financing. Ideally, an effective comprehensive risk management strategy includes advanced planning, targeted resource application, and the availability of funds when needed (Mahul & Skees, 2007, 3-4). In this way, the government is also transitioning from a reactive to proactive approach to addressing natural disasters. One component of this strategy is the Index-Based Livestock Insurance Project that aims to help herders cope with significant herd losses and transfer some of the risks involved in livestock herding. The project was launched on a trial basis in 2006, with the assistance of the World Bank and the Japanese government (and now receives co-financing from the Swiss and Korean governments), in three of the nation's *aimags* (provinces). Along with another World Bank-supported government initiative, the Sustainable Livelihoods Program,<sup>1</sup> the Index-Based Livestock

Insurance Project is introducing the concept of risk layering<sup>2</sup> to the Mongolian livestock-herding sector. Thus far, its results have been received as promising, and the project is scheduled to be expanded nationwide by 2012.

## A BRIEF HISTORY OF MONGOLIA'S LIVESTOCK HERDING SECTOR

Mongolia's livestock sector was collectivized during the socialist period. At this time the government developed various policies and practices to support the sector. One example is the annual livestock census that has been conducted by the National Statistical Office since the 1920s (Skees & Mearns, 2009, 91). This process is still in place and is regulated by various laws and by-laws (Mahul & Skees, 2007, 12). Another example is livestock insurance. In 1963, the government made livestock insurance compulsory for all collectively herded livestock. This was traditional indemnity-based insurance—meaning that when an animal from a collective died due to an extreme event, it was replaced physically or monetarily by the government (Project Implementing Unit, 2009, 12).

The Government of Mongolia transitioned from a socialist to a democratic, free market system in the early 1990s. The restructuring of the nation's economic and political systems had several important impacts on the herding sector. First, herding shifted from a collectivized to a family-based enterprise. Second, a lack of jobs in urban areas sparked migration back to rural areas and the

---

<sup>1</sup> The Sustainable Livelihoods Program is another ongoing project in Mongolia, supported by the World Bank and currently co-financed by the European Union and Japanese government. It originated out of a need to address the insecurities and vulnerabilities facing Mongolia's rural population caused by the transition to a free market economy in the 1990s. At this time the gap between urban and rural poverty widened. This was largely due to the privatization of state-owned enterprises and collectives that caused high rates of unemployment and an increased uptake of self-employment ventures, such as herding, that are impacted by seasonal variation (Mearns, 2004, 128). The Government of Mongolia, with international development partners, is addressing this issue through the Sustainable Livelihoods Program. The program's aim is to increase livelihood security and sustainability in rural areas through pastoral risk management,

---

community initiatives, microfinance, and capacity building (Sustainable Livelihoods Program, n.d.).

<sup>2</sup> Risk layering is a term used in reinsurance markets that categorizes risks according to layers of losses. These layers are defined depending on the risk and the circumstance to which it is being applied (Barnett, et al., 2008, 1774).

increased uptake of herding. Third, government support of livestock insurance ceased. While this was predominantly for economic reasons, it ultimately signaled the transfer of risk from the government to individual herders (Swift, 2007, 4). These first two impacts and mild weather conditions led to a doubling in the number of herding households and the growth of the livestock population from 25 million to 31 million in the period from 1990-1997 (National Statistical Office 1991 & 1998). This growth of the livestock population increased pressure on Mongolia's grazing lands. It was not until the *dzuds* of 2000-2002 that herd growth was temporarily halted. However, this was short lived, as herd numbers were able to steadily increase in the 2000s. The *dzud* during the 2009/2010 winter again reduced herd numbers. As is evidenced in these fluctuating population statistics, Mongolia's livestock sector has a tendency to go through boom and bust periods depending on meteorological conditions ("Mongolia Livestock Sector", 2008, v).

## HERDING IN MONGOLIA TODAY

The economic importance of herding has begun to diminish in recent years as other sectors, in particular mining, have surpassed it. However, it still makes up about 20 percent of the country's Gross Domestic Product (GDP).

Both large- and small-scale households are engaged in herding ("Mongolia Livestock Sector", 2008, ii). The occupation is family-centric and household members collaborate on labor-intensive tasks. Many herders also incorporate remittances and the ability to stay with family members in Ulaanbaatar and other towns into their livelihood strategies (van Hoeflaken & Nyamaa, 2007, 27).

Since the transition to a free market system, the disappearance of many government sponsored jobs and a lack of emerging opportunities has caused Mongolians to increasingly use herding as a social safety net. In this sense, for many, it is an occupation that they can fall back on when they have no other options (van Hoeflaken & Nyamaa, 2007, 20 & 27).

### Box 3: Mongolian Herding Household Classifications

1. **Wealthy:** over 500 head of livestock in an extensive system (6 percent of herding households) or use of smaller herds and intensive production
2. **Fulltime with 200-500 animals:** 25 percent of herding households
3. **Fulltime with fewer than 200 animals:** Includes 2 categories, households with 100-200 animals (30 percent of herding households) and households with less than 100 animals (39 percent of herding households)
4. **Periodic:** typically maintain fewer than 200 animals and come in and out of the sector based on economic conditions
5. **Part-time:** maintain herds of less than 200 animals that they may or may not own, and supplement their income with other sources

Source: ("Mongolia Livestock Sector", 2008, iii and Van Hoeflaken and Nyamaa, 2007, 11)

## REDUCING RISK THROUGH INSURANCE

The inability of traditional pastoral risk mitigation strategies to be effective during a severe *dzud* event illustrates the need for developing an improved and more comprehensive risk management strategy in

Mongolia. This would better enable herders to prepare for *dzuds* and recover after a disaster occurs. Index-based mortality livestock insurance is one of several strategies being utilized in Mongolia in the hopes that this will be achieved.

Index-based livestock insurance differs from traditional indemnity-based insurance in that payouts are based upon an index of correlated or aggregated parameters rather than actual individual losses. Indices used include rainfall and temperature (for crop production) or, in the case of Mongolia, livestock mortality rates. In rural areas, index-based insurance can have several advantages over traditional indemnity insurance. For one, it lowers transaction costs because the insurance company does not have to visit with a farmer or herder to assess losses. It also

reduces the occurrence of adverse selection and moral hazard (for example, a herder letting a significant number of his herd die in order to collect on a policy). Lastly, index insurance potentially has a much quicker turn around in payouts because they are based on objective data (in this case a mortality index), not loss assessments. This enables producers to rebound from disasters more quickly. A potential weakness associated with index-based insurance is that it is vulnerable to basis risk. Basis risk occurs when the index and actual individual losses and insurance

payouts do not match. This causes imbalances between payouts and losses and if it continually occurs an insurance scheme will not be viable (Hellmuth, *et al.*, 2009, 3-4).

Due to the economic and political transition, very little livestock insurance was available in the 1990s. As a result, when the *dzuds* of 2000-2002 hit, very few herders were covered. The severe losses catalyzed the Government of Mongolia to bring livestock risk management back to the forefront of national policy discussions. At the same time herders and insurance companies were becoming skeptical of livestock insurance. Herders considered it a bureaucratic procedure and did not trust that insurance companies would honor their policies. Insurance companies on the other hand, considered

#### Box 4: Overview of Proposed Insurance Schemes

***Traditional Indemnity-Based Insurance:*** Most common form of insurance. Payouts are given based upon individual loss assessments after an event occurs. Determined to be ineffective due to the high transaction costs of covering animals spread across vast areas, moral hazards (including failure to protect livestock and falsely reporting animal deaths), adverse selection problems and an immature private insurance market.

***Weather-Based Index Insurance:*** In this type of insurance meteorological data is tracked and payouts occur once a predetermined threshold associated with a meteorological event has been surpassed. Determined to be impractical because of the complexity of *dzud* events and shortcomings in meteorological data to support the development of weather-based index insurance.

***Index-Based Mortality Insurance:*** Insurance that uses population statistics to determine livestock losses over a predetermined period of time. Once losses surpass a predetermined threshold, payouts are triggered. Determined to be the best option for Mongolia because it reduces administrative costs and involves less moral hazard and adverse selection.

livestock insurance to be a risky endeavor because high rates of livestock mortality can bring about a shortage of funds to pay indemnity payments and lead to bankruptcy (Project Implementing Unit, 2009, 11).

To assist with its revitalized discussions on pastoral risk management and livestock insurance, in 2001 the Government of Mongolia turned to the World Bank for guidance. This resulted in the emergence of the Sustainable Livelihoods Program that aims to promote and protect rural livelihoods, including through the promotion of pastoral risk management strategies. As part of this program, the World Bank conducted a feasibility study into the viability of different insurance strategies. This study, conducted in 2001, focused on three different insurance types: individual or traditional indemnity-based insurance, weather-based index insurance and mortality-based index insurance (see Box 4).

## RESULTS OF FEASIBILITY STUDY

The World Bank's feasibility study concluded that index-based mortality insurance would be the best option for Mongolia because it gives herders the incentive to protect their herds as payouts are based upon aggregate livestock mortality by *soum* (rural district) and not the climatic event itself.

Additionally, the availability of good quality data on livestock mortality from the National Statistical Office made it possible to develop actuarial information. At the initiation of the project, data from the National Statistical Office was used to establish a 33-year time series on adult livestock mortality in all *soums* for cattle, horse, sheep, camels, and goats (PID Appraisal Stage, 2005, 3).

In 2004, the Government of Mongolia passed a new insurance law that included a provision for index-based livestock insurance. By doing so it gave support to the findings of the conclusions of the feasibility study (Mahul & Skees, 2007, 3). The following year, the government and the World Bank entered into a credit agreement and initiated the Index-Based Livestock Insurance Project (Mahul, *et al.*, 2009). The project is financed with funds from the governments of Japan, Switzerland, and Korea.

## MONGOLIA'S SOLUTION: INDEX-BASED LIVESTOCK INSURANCE PROJECT

The Index-Based Livestock Insurance Pilot Project is part of the Government of Mongolia's effort to develop a comprehensive approach to risk management. While the Sustainable Livelihoods Program looks at the lowest layer of risk in the herding sector, index-based insurance focuses on the middle and top layers of risk. In this way, it can be classified as a proactive effort by the Government of Mongolia to address the uncertainties of *dzud* events before they occur by providing herders with a tool to help manage various layers of risk (see Box 5).

### Box 5: Layers of Risk

**Bottom Layer of Risk:** High frequency, low consequence. Losses from these events can be managed by herders themselves with individual or group-based risk management activities.

**Mezzanine (Middle) Layer of Risk:** Less frequent and more severe risks. These events are potentially insurable and risk can be transferred to the private insurance market.

**Top Layer of Risk:** Low frequency, high severity risks. These events occur about once every thirty years or more. The effects of this type of risk are catastrophic. As a result, these losses are typically covered by the government.

The project uses mortality rates that are collected and maintained bi-annually by the National Statistical Office. During the pilot phase (2006-2009) the Index-Based Livestock Insurance Project consisted of two insurance products: the Base Insurance Product (BIP) and the Disaster Response Product (DRP). It was revised in the 2009/2010

insurance cycle. The Base Insurance Product has been renamed Livestock Risk Insurance (LRI). The Disaster Response Product was discontinued. For herders with insurance to receive full coverage under their policies (which was previously available under the Disaster Response Product), the Government Catastrophic Coverage (GCC) was introduced. For a summary of these products see Box 6.

insure. This is based upon the aggregate value of that species in their herd, meaning that a herder can choose one amount for his goats, another for his sheep, and so on. Most herders are currently choosing to insure about 30 percent of the estimated value of their herd (Skees & Mearns, 2009, 91).

The financial arrangements backing up these products are also innovative. The project has

#### Box 6: Summary of Insurance Products

**Base Insurance Product (BIP) / Livestock Risk Insurance (LRI):** A commercial product sold by private insurance companies. Payouts are triggered when livestock mortality rates in a *soum* reach between 6 percent and 30 percent.

**Disaster Response Product (DRP):** A social safety net for herders, this product is offered and financed by the Government of Mongolia. Payouts are triggered when livestock mortality rates in a *soum* exceed 30 percent. During the pilot project, all herders who bought the Base Insurance Product were automatically enrolled in the Disaster Response Product. Herders who did not want to purchase the Base Insurance Product could pay a small fee to enroll in the Disaster Response Product. The product has been discontinued under the Project although the government is currently discussing how to take it forward.

**Government Catastrophic Coverage (GCC):** Brought in to replace the Disaster Response Product for policyholders, it covers losses in excess of 30 percent. It differs from the Disaster Response Product in that it is only available to herders who have purchased Livestock Risk Insurance and it only covers the value of the livestock insured.

Sources: (Skees & Mearns, 2009, 91; Mahul, et al., 2009; “Mongolia Index-based Livestock”,

established a Livestock Insurance Indemnity Pool (LIIP), which helps to mitigate the significant amount of risk that commercial insurance companies are taking up by carrying the Livestock Risk Insurance product. The fund is administered by the Project Implementation Unit. The

The Base Insurance Product/Livestock Risk Insurance is a market-based product. It is intended to bring a profit to companies selling it. The Disaster Response Product and Government Catastrophic Coverage, on the other hand, are safety net programs backed by the government (Mahul & Skees, 2007, 5).

The rates for the Livestock Risk Insurance vary from *soum* to *soum* and from species to species based upon historical mortality data from each *soum* (PID Concept Stage, 2009, 1). When purchasing policies, herders select the percentage of the value of their herd, by species, that they would like to

Livestock Insurance Indemnity Pool allows insurance companies carrying the Base Insurance Product/Livestock Risk Insurance to pool their risk by depositing herders’ premiums into the fund until it is time to make payouts. At this time, insurance settlements are paid out of the Livestock Insurance Indemnity Pool to herders and the money left over is distributed among the participating insurance carriers based upon their contributions to the pool. In this way, the Livestock Insurance Indemnity Pool ensures that even if an insurance carrier goes bankrupt, herders’ policies will be honored. The Government of Mongolia offers reinsurance for situations when insurance losses exceed the Livestock Insurance Indemnity Pool’s reserves. The

Government's financial exposure is covered by a Contingent Debt Facility, financed by the World Bank.

## IMPLEMENTATION

The Index-Based Livestock Insurance Project is overseen by a Project Steering Committee that is based at the Ministry of Finance and chaired by the State Secretary of Finance. The Project Steering Committee is made up of representatives from various government ministries and agencies. The Project Implementing Unit is the implementation arm of the Project Steering Committee. Under the project, capacity has been built within the various entities involved in its implementation including local governments, insurance companies, insurance agents, the Financial Regulatory Commission, the National Statistical Office, and banking and financial institutions. The project also supports a comprehensive advertising and education campaign for herders to promote awareness and understanding of index-based livestock insurance (Project Implementing Unit, 2009, 18-24). These outreach activities include television advertisements and programs, print advertisements, radio dramas and advertisements, face-to-face education, and promotional materials such as calendars, playing cards, posters, manuals, pamphlets, and newspapers (Project Implementing Unit, 2009, 40-48). In assessments after the 2006/2007 and 2007/2008 seasons, it was found that large numbers of herders were reached through face-to-face trainings. This method was also found to be effective for targeting herders who had not yet received information on index-based insurance (Project Implementing Unit, 2009, 38-42).

At the request of the Government of Mongolia, the pilot project initially entered into a three-year trial period in three *aimags* that were chosen based upon their low correlation of risk (Project Implementing Unit, 2009, 15). Insurance sales begin in mid-March and end in mid-July. The timing of the sales season

has been set to avoid adverse selection (i.e. buying the product based upon the likelihood of extreme weather events). July was selected as the cut-off month because herders are able to use summer grassland conditions as a parameter in determining herd condition in the winter. Payments are typically made in the following summer period from late July to early August (Skees & Mearns, 2009, 91). The first sales season took place in 2006 and covered the period from December 2006 to June 2007 (Project Implementing Unit, 2009, 37). The project's performance targets were to be present in 80 percent of pilot *aimags* and purchased by five percent of herders by the end of the pilot period that was originally scheduled for June 2011 (Operations Policy and Country Services, 2010). In 2009, the project was extended until 2014 and the scale-up to nationwide coverage commenced. A fourth *aimag* was added in 2009, and in 2010 a further five *aimags* were added. In 2011, five more *aimags* will have the insurance and nationwide coverage is scheduled for 2012.

## ACCOMPLISHMENTS AND CHALLENGES TO OVERCOME

In June of 2010 the Index-Based Livestock Insurance Project had completed four full insurance cycles (see Table 1 for summary). The first season was quite mild, but high rates of livestock mortality in the 2007/2008, 2008/2009 and 2009/2010 seasons triggered both the Base Insurance Product and, particularly in 2008/2009 and 2009/2010, the Disaster Response Product and resulted in a large number of indemnity claims. When put to the test, these mechanisms proved to be effective and all eligible herders received the indemnity payments owed to them. However, these three successive years of losses by insurance companies led to several design modifications of the product, most

notably a stop loss<sup>3</sup> at the *aimag* level to limit commercial losses from high mortality rates in a single *aimag* (“Mongolia Index-based Livestock”, 2008, 5). Additionally, during the scale-up for the 2010/2011 season, several modifications were made to the product design. As previously elaborated upon, the Base Insurance Product is now Livestock Risk Insurance and the Disaster Response Product has been discontinued and replaced, for policyholders only, by Government Catastrophic Coverage. This was done for two reasons. One, there had been little uptake of the Disaster Response Product aside from the automatic qualification when purchasing Base Insurance Product. Two, once scaled up, the Disaster Response Product would have left the Government of Mongolia open to large financial exposure due to its responsibility to act as reinsurance provider for the Base Insurance Product and to make full payouts for Disaster Response Product losses (PID Concept Stage, 2009, 3). It is hoped that these modifications will ultimately lead to the sustainability of the insurance.

In addition to this challenge, a decline in the price of cashmere in 2008 and 2009 reduced herder incomes. This could have implications for the insurance in the future if the trend continues and herders cannot afford to invest in policies. For now, however, insurance sales have continued to grow in spite of this price decline, indicating that herders see index-based insurance as an important investment (“Mongolia Index-based Livestock”, 2008, 5).

Further challenges have also been noted. This includes inefficiencies in the way that the insurance is sold (currently this is by insurance agents who have to cover very large areas). It has been suggested that instead of this method, insurance could be offered at bank branches or services could be offered via mobile phone. There is also a need

for technical improvements in data collection and technical capacity building in the insurance industry (Mahul, et al., 2009).

Despite these challenges, the Index-Based Livestock Insurance Project’s performance has exceeded expectations. The insurance products are available in 100 percent of pilot *soums* and 83 percent of herders in these *soums* are aware of the products. The Summary of Insurance Cycles table below also illustrates that sales of the Base Insurance Product and Livestock Risk Insurance have continuously exceeded the original target of five percent (Operations Policy and Country Services, 2010). From the beginning of the project in 2006 through 2010, a total of 3.2 million head of livestock were insured by the project (Yadamsuren, 2010). However, it is important to note that most of these herders purchase policies that cover only a fraction of the estimated value of their herd. This has typically been about 30 percent, indicating the need for more educational efforts on risk management strategies for herders (Mahul & Skees, 2007, 27).

Another positive outcome is that insurance companies have been willing to carry the product. During the pilot period, the target of two to six participating insurance companies was set and met. In 2006 the product was sold by three companies and in 2007 and 2008, it was sold by four companies (“Mongolia Index-based Livestock”, 2008, 5). Additionally, an international reinsurance company has entered the Mongolian market for the 2010/2011 insurance cycle. Attracting international reinsurance signifies confidence in the design of the insurance products and project.

Another favorable outcome is that Mongolia’s banks appear to have more confidence in herders covered by index-based mortality livestock insurance products than those without. Since the initiation of the project, banks have offered insured

<sup>3</sup> A stop loss refers to when insurance coverage is initiated once claims reach a preset threshold.

herders loans at decreased interest rates (Project Implementing Unit, 2009, 45).

**Table 1: Summary of Insurance Cycles**

	2006/2007 Season	2007/2008 Season	2008/2009 Season	2009/2010 Season	2010/2011 Season
Aimags	3	3	3	4	9
Number of Insurance Companies	3	4	4	4	4
Number of Insurance Policies Sold	2,222	3,034	3,281	4,289	6,977
% of Herders in Participating Aimags with Insurance	7.81%	10.55%	11.32%	12.09%	10.5%
Insurance Premium in Mongolian Tugrik (in millions) <sup>4</sup>	8.4	120.8	131	181	416

In 2010, the Index-Based Livestock Insurance Project received USD 10 million in additional financing from the World Bank and the governments of Korea and Switzerland through 2014. These loans and trust funds will be used to finance the scaling-up of the project. More specifically, the majority of this money will fund the Contingent Debt Facility and to provide technical assistance for product design and modification, promoting the product, and setting the project's structure for the future. As part of the scale-up, the Index-Based Livestock Insurance Project will be implemented nationwide by 2012.

## CONCLUSIONS

The importance of the herding sector to Mongolia's rural economy and society makes it impossible to ignore the risk posed by *dzuds*. Addressing the uncertainty and risk of the sector is a priority, period. However, it was ultimately the *dzuds* of 2000-2002 that catalyzed the Government of Mongolia to develop a comprehensive risk management strategy for its livestock-herding sector. The event illustrated that traditional indemnity-based insurance was ineffective and unable to transfer risk within Mongolia's herding sector. This paved the way for the World Bank's feasibility study and a greater openness among policy-makers to try the new approach offered by index-based insurance.

<sup>4</sup> Exchange rate: USD 1.00 ≈ 1,245.00 MNT (OANDA, March 6<sup>th</sup>, 2011)

During the pilot phase of the Index-Based Livestock Insurance Project, lessons were learned and refinements made. These revisions continue as the project faces several hurdles that need to be overcome in the long-term in order for the insurance to be fully sustainable into the future. Included in this is a sustainable institutional framework, the capacity to operate the insurance program, and the willingness of insurance companies and herders to participate (PID Concept Stage, 2009, 3). This

being said, it has proven to be a soundly designed and functioning insurance project. When triggered, payouts have been made to all qualifying policyholders. The *dzud* of the 2009/2010 season was a major challenge for the project. Ensuing seasons will determine if the modifications made will be able to sustain the project into the future. Right now, they look poised to do so.

## REFERENCES

- Barnett, Barry J., Christopher B. Barrett, and Jerry R. Skees. "Poverty Traps and Index-Based Risk Transfer Products." *World Development* 36.10 (2008): 1766-1785.
- GlobalAgRisk, Inc. "GlobalAgRisk Projects in Vietnam, Peru, and Mongolia: Four Case Studies." GlobalAgRisk, Inc., Feb. 2010.
- Goodland, Andrew. *Mongolia Livestock Sector: Challenges and Options*. N.d. Presentation.
- Hellmuth, Molly E., Daniel E. Osgood, Ulrich Hess, Anne Moorhead, and Haresh Bhojwani (eds). *Index insurance and climate risk: Prospects for development and disaster management*. Spec. Issue of *Climate and Society* 2 (2009).
- Mahul, Olivier, Nathan Belete, and Andrew Goodland. "Innovations in Insuring the Poor: Index-based Livestock Insurance in Mongolia." *Focus 17, Brief 9, December 2009*. International Food Policy Research Institute: 2009.
- Mahul, Olivier and Jerry Skees. "Managing Agricultural Risk at the Country Level: The Case of Index-Based Livestock Insurance in Mongolia." *Policy Research Working Paper 4325*. World Bank, 2007.
- OANDA Currency Converter. Website. 6 Mar. 2011.
- Operations Policy and Country Services. *Status of Projects in Execution FY10 SOPE: East Asia and Pacific Region: Mongolia*. World Bank, 3 Oct. 2010.
- Project Implementation Unit. *Index Based Livestock Insurance Project: Summary Report on Implementation 2005-2008*. Ulaanbaatar: Project Implementation Unit, 2009.
- Mearns, Robin. "Sustaining Livelihoods on Mongolia's Pastoral Commons: Insights from a Participatory Poverty Assessment." *Development and Change* 35.1. (2004): 107-139.

- National Statistical Office of Mongolia. *Mongolians Statistical Yearbook*, Ulaanbaatar: National Statistical Office of Mongolia, 1991, 1998, 2009.
- National Statistical Office of Mongolia. *Mongolian Population Clock*. National Statistical Office of Mongolia. 29 Jan. 2011. Website. 29 Jan. 2011.
- Sayed, Arshad. “Dzud: a slow natural disaster kills livestock—and livelihoods—in Mongolia.” World Bank Blogs. 31 Jan. 2010. Website. 10 Dec. 2010.
- Skees, Jerry and Robin Mearns. “Livestock insurance in Mongolia.” *Index insurance and climate risk: Prospects for development and disaster management*. Spec. Issue of *Climate and Society* 2 (2009): 90-94.
- Swift, Jeremy J. “Case Study: Institutionalizing Pastoral Risk Management in Mongolia: Lessons Learned.” Rome: United Nations Food and Agriculture Organization, 2007.
- Van Hoeflaken, Maaike and N. Nyamaa. “Livestock Sector Study Working Paper 1A: Herder Livelihoods Profiles—Herder Typologies.” June 2007.
- World Bank. “Mongolia Index-based Livestock Insurance Project, Project Paper Data Sheet.” World Bank, 18 Jan. 2010.
- World Bank. “Mongolia Livestock Sector Study: Volume 1—Synthesis Report.” World Bank, 2008.
- World Bank. “Project Information Document (PID) Appraisal Stage.” World Bank, 10 Mar. 2005.
- World Bank. “Project Information Document (PID) Concept Stage.” World Bank, 2 Feb. 2009.
- World Bank Project Records.
- World Bank. “Mongolia—Sustainable Livelihoods Program.” World Bank. May 2010. Website. 1 January 2011.
- World Resources Institute. *A Guide to World Resources 2000-2001: People and Ecosystems: The Fraying Web of Life*. Washington, DC: World Resources Institute, 2000.
- Yadamsuren, Ulziibold. *Index Based Livestock Insurance Project Mongolian Case*. Conference on Agriculture, Food Security and Climate Change. The Hague, The Netherlands, 3 November 2010. Presentation.