Index-based Livestock Insurance Project, Mongolia

Dr. Jerry Skees
President, GlobalAgRisk, Inc.
The H.B. Price Professor of Policy and Risk
University of Kentucky

Slides Prepared in Collaboration with Mongolia PIU

BACKGROUND: About Mongolia

- **Capital city:** Ulaanbaatar, founded in 1639
- **Territory:** 1,566,500 sq. km
- **Location:** Northern Asia, between China and Russia (landlocked)
- **Population:** 2.6 million
- **Political system:** Mongolia is a parliamentary republic
- **Legislature:** Parliament, uni-cameral with 76 members elected for four years
- **State structure:** Territory of Mongolia is divided administratively into aimags (21) and the capital city; aimags are subdivided into soums; soums into bags; and the capital city into districts; districts into khoroo
- **Language:** Mongolian
- **Religion:** Buddhism
BACKGROUND

Livestock Sector in Mongolia

- Agricultural sector: 22% of national GDP in the Mongolian economy
- Livestock sector: 87% of agricultural GDP
- Livestock husbandry supports ½ of the population, particularly in rural areas
- Shift from collectivized farming to family-based herding during the 1990 and 1997: the number of herding households doubled to 230,000
- Current number of herder households = 170,000

BACKGROUND

Livestock Sector in Mongolia

However, in 1999 and 2002, extreme climatic events caused high rates of livestock mortality, jeopardizing rural livelihoods

- Frequent droughts and severe winters/springs (known as dzuds) caused loss of 1/3 of the national herd
- 81,000 households lost ½ of their livestock
- 12,100 households lost ALL livestock
- GDP growth dropped to 1.1%
Situation with Livestock Insurance in 2005

- Today, very little livestock insurance being sold in Mongolia
- Livestock risks considered to be uninsurable due to very large risk
- Herders dissatisfied with past failures in paying indemnities / low animal values on insurance
- Lack of local branches to offer insurance in the countryside / poor contracts

Needs for New Livestock Insurance

- Since 1995, three attempts of the Government to create and implement mandatory livestock insurance have failed due to lack of feasibility and expected high administrative cost
- The index-based livestock insurance (IBLI)
  - Is linked to the direct outcome from dzud — high livestock mortality
  - Provides incentives to continue to manage herds by herders
  - Low administrative cost for ICs
  - Secures indemnity payments to insured
  - Pays out whenever the mortality rate in the local region (soum) exceeds a specific threshold
Performance to Consider

1. Insurance or free aid should not reward poor managers
2. Insurance must be affordable for a large number of herders and others at risk when major livestock losses occur
3. Insurance must be sustainable and profitable for emerging private insurance companies

Performance to Consider (cont’d)

4. First products should focus on the most significant covariant risk
5. Proper role for government should be carefully identified
6. Insurance should work in harmony with other initiatives, including the vast array of emergency assistance that is provided
Classic Problems with Insurance

- Herders will always know more about their risks than either an insurance company or government (imagine trying to find the animals!)

- Asymmetric information creates significant problems for any design
  - Adverse selection
  - Moral Hazard
  - Fraud
  - Covariant Risk

Indexing Mortality Rate of Adult Animals at the Soum Level

Incentives

- Some herders may have no loss but have incurred both real cash cost as well as tremendous personal sacrifice to save their animals
- They could work with their neighbors formally or informally to share these benefits (collective action / micro finance / mutual insurance)
Why Index Insurance

- Mortality index gives the right incentives
- Transparent system
- Removes much covariant risk and opens market for private innovation
- Eliminates moral hazard and adverse selection problems
- Makes it more likely that reinsurers will come to Mongolia

Project’s Development Goal

The development objective of the IBLI project would be to ascertain the viability of index-based livestock insurance in Mongolia

To be achieved by

- Developing and piloting IBLI program in three provinces of Mongolia; and
- Building institutional capacity and legal framework for the prospective replication and scale-up of IBLI nationwide

The IBLI project is implemented by the Government of Mongolia with financial assistance from IDA, World Bank, Japanese Government and FIRST Initiative from September 2005 to December 2009
Immediate Objectives of the Pilot

- Learn if herders are willing to pay premiums at commercial rates for IBLI
- Learn if insurance companies are willing to take risk and have the capacity to organize sales of IBLI
- Gauge the interest of international reinsurance community in sharing the risk during the pilot program
- Aid capacity building in insurance sector, both with private companies and with regulators
- Make certain program is maintained with integrity and with as few problems as possible regarding misunderstandings with stakeholders
- Develop new approach for responding to catastrophic risk inside Government of Mongolia: How to use this new approach in broader context of disaster assistance both from government and from donor community

Long-Run Policy Goals

- Risk management approach to improve the financial sector and the market
- Social approach for extreme and catastrophic livestock losses
- Structured plans to finance large losses before they occur
- Policies that promote good management practices for herders, including appropriate stocking rates
**Pilot Aimags**

- Implementation planned for 3 provinces: Bayankhongor, Khentii and Uvs
- Provinces chosen by considering geographical dispersion (different types of climate and terrain), agro-climatic variation, and relative risk (low correlation of livestock losses)

![Map of Mongolia with provinces highlighted]

**IBLI Design**

**Extensive Promotion and Public Awareness Campaign**

- TV campaign on both the value of insurance and the livestock insurance
- Radio campaign
- Face-to-face education in the countryside
- Newspapers and other public outlets to get to the countryside

![Playing cards arranged in an arch]
IBLI Design

Risk Management — Base Insurance Product (BIP)

- Voluntary participation
- Sold by approved commercial insurance providers
- Participating insurance companies pool their risk
- Index insurance based on animal mortality rates in each soum
- Government of Mongolia provides reinsurance to participating insurance companies
IBLI Design

Social Solution — Disaster Response Product (DRP)

- Offered by the Government of Mongolia
- Voluntary participation
- Herders pay small fee to register their animals
- Provides monetary compensation to herders when soum losses reach catastrophic level
- Not a complete solution to dealing with catastrophic risk

IBLI Design

Layers of the Risk

- Disaster Response Product
- Base Insurance Product
- Retained by Herders

100% Mortality

30% Mortality

7% Mortality
IBLI Design

How the BIP Works

- Herders pay a premium based on number of animals reported (Can insure between 30% and 100% of the value of their animals)
- Premium rates vary by species and soum, based on relative risk and the threshold mortality level
- Example: Herder has 100 sheep valued at US$50/sheep
- Value insured = US$5,000
- Mortality rate is 20%
- Payment rate is 20% - 7% or 13%
- Indemnity = .13 x US$5000 = US$ 650

Differences in Relative Risk
(All Livestock Species)
IBLI Sales

IBLI Sales

Sales season runs from April 1 through July 10

- 3 insurance companies in 2006 (4 in 2007) selling in all 56 soums of 3 pilot aimags
- 150 certified agents
- Joint insurance fund — Livestock Insurance Indemnity Pool
- IBLI Software with Portfolio Risk Assessment and MIS components
- Face-to-Face Public Campaign, TV/radio advertisement, printed promotional materials

IBLI Sales 2006/2007

2006 Sales Result

<table>
<thead>
<tr>
<th>Total insured herders: 2412</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bayankhongor aimag: 949 herders (8.3%)</td>
</tr>
<tr>
<td>Uvs aimag: 1184 herders (12%)</td>
</tr>
<tr>
<td>Khentii aimag: 279 herders (4.2%)</td>
</tr>
</tbody>
</table>

| Total livestock insured: 292000 heads (5.5%) |

| Total premium collected: 85.5 million MNT (about USD 74 thousand) |
| BIP risk loaded premium: 83.3 million |
| DRP administrative fee: 2.2 million |

2007 Sales Result

<table>
<thead>
<tr>
<th>Total insured herders: 3705</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bayankhongor aimag: 1708 herders (14.7%)</td>
</tr>
<tr>
<td>Uvs aimag: 1431 herders (14.2%)</td>
</tr>
<tr>
<td>Khentii aimag: 566 herders (7.9%)</td>
</tr>
</tbody>
</table>

| Total livestock insured: 589000 heads (9.5%) |
| Herders purchasing in year 1: 835 (35%) |

| Total premium collected: 129.1 million MNT (about USD 110 thousand) |
| BIP risk loaded premium: 121.1 million |
| DRP administrative fee: 7.9 million |
Financial Linkages

- Hedge default risk due to catastrophic events
  - Hedge rural lending portfolios
  - Index insurance purchased by NBFI
- Delivery point for variety of financial services
  - Index insurance sold at bank/NBFI branches
- Clears the path for market innovation
  - Development of more tailored insurance products

NGO Linkages

- Complement to risk mitigation activities
- Could be used to organize mutual insurance for herder groups
- Supports risk management objectives
- Mechanism for smoothing herder income
- Structured, objective disaster payments
- Targeted payments
Weather Insurance Products Require Special Financing

- Protect insurance companies from high financial exposure when selling BIP
- Ring-fence BIP from other lines of insurance so that potentially large losses do not impact other lines of insurance or the overall insurance sector
- Allow insurance companies to collectively pool their risk to gain from the aggregate spatial diversification of all sales
- Pre-finance all potential indemnities payments that must be made by the pool

Livestock Insurance Indemnity Pool

- World Bank Contingent Debt Facility
- Reinsurance premiums
- Herders' insurance premiums net of reinsurance premium
- GIC

Livestock Insurance Indemnity Pool

Government reinsurance stop loss

World Bank Contingent Debt Facility

Reinsurance premiums

Herders' insurance premiums net of reinsurance premium

GIC
## IBLI Financing Structure

<table>
<thead>
<tr>
<th></th>
<th>Tranche 1</th>
<th>Tranche 2</th>
<th>Tranche 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insurance Premium</td>
<td>LIIP Account Equal to 105% of Risk-Loaded BIP Premium</td>
<td>BIP Reinsurance Reserve</td>
<td>Catastrophe Reinsurance Reserve</td>
</tr>
<tr>
<td></td>
<td>GIC</td>
<td>Net GIC</td>
<td></td>
</tr>
<tr>
<td>Insurers’ GIC Paid into LIIP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Start of Sales Season</td>
<td>Account Settlement After Close of Sales Season</td>
<td>Final Secure Accounts to Finance All Contingent Claims</td>
</tr>
</tbody>
</table>

### Capital Invested and Returns to Risk for the Insurance Company

- Capital invested from the insurance company is the GIC
- All analysis in the Portfolio Software uses this as the base for considering the risk-return from that capital
- GIC is the capital at risk for the insurer
- GIC is only a portion of the total LIIP — Interest is earned on the total value of the LIIP until the indemnity payments are made
Herder Lenders Have Access to Lower Interest Rates

- Lenders to herders provided lower interest rates and more credit to those purchasing BIP.
- Need to link BIP and lending:
  - Will lower delivery cost
  - Premium can be paid with loan
  - Opens to way to protect loans
- Portfolio Risk:
  - In 2001, less than 5% of herders had loans
  - Today, 70% of herders have loans
Activities to Strengthen the Project

Capacity Building

- National statistics office
- Insurance companies
- Lenders
- Promotion and public awareness
- Management information system
- Ongoing dialogue with government

Thank you!

For more information please visit the PIU Website at www.iblip.mn
Project Implementation Unit
Ulaanbaatar, Mongolia
Fax: 976-11-331154
E-mail: info@iblip.mn
or
jerry@globalagrisk.com