Session 13:
Institutional Arrangements for Agriculture Insurance
Mongolia Index Based Livestock Insurance Program – Case Study and lessons learned
Mongolia’s livestock is a key part of the economy and highly vulnerable to winter storms (dzuds)

- Agricultural contribution to GDP was significant, but shifted due to economic diversification:
  - 13% of its GDP (2022), down from ~40% at its peak (1995)
- Livestock subsector dominates agriculture sector (87% of agriculture GDP):
  - employs 1 in 4 Mongolian workforce and supports half the population (3.5 m.)
- 5 species (number of animals as of 2023):
  - sheep (29.4 m.), goat (24.6 m.), horse (4.8 m.), cattle (5.3 m.), and camel (0.5 m.)
- Livestock vulnerable to a dzud (a Mongolian term for a severe winter marked by the huge loss of livestock)

Dzuds disasters in Mongolia

1944-45
8.76 m. animals, or 32.2% of national herd died

1967–68
2.6 m. animals, or 11.9% of the national herd died

1999–2002 successive
11 m. - one third of the national herd was lost, costing $200 m.

Increase in the poverty rate
from approximately 30% in 2000 to over 40% in 2004

2010
Over 50% of herders affected by extreme weather, 75,000 herders lost more than half their livestock

The World Bank and Mongolia designed and piloted IBLI program to help herders cope with livestock mortality

**CHALLENGE/ PROBLEM**

- To create a market that is substantial to adequately pool risk across a small, sparsely populated population
- Even where insurance is available, usually only wealthier population segments can afford it, increasing income disparity
- Insurance historically faced challenges including moral hazard. Herders lacked incentive to minimize the impacts of dzuds due to government payouts based on their individual losses
- Government faced significant contingent liability

**SOLUTION / INTERVENTION**

- Pilot and scale-up the Index-Based Livestock Insurance (IBLI) Program
- Build institutional capacity, and legal framework for a sustainable Index-Based Livestock Insurance Program.
- Limit moral hazard through index-based livestock insurance, as losses based not on the individual herder’s losses but region’s (area = county called “soum”) livestock mortality.
- Balance risk retention and risk transfer for affordability; Herders retain small losses that do not affect the viability of their livelihoods, while large losses are transferred to the private insurance industry, and only the final layer of catastrophic losses is borne by the Government.
Institutional arrangements

Pilot & Scaleup Stage

- **World Bank**
- **Ministry of Finance**
- **Ministry of Agriculture**
- **Livestock Insurance Indemnity Pool**
- **PIU regional units**
- **Private insurance co.**
- **Herders**

**Create awareness and support sales**

**AgRe**

- **State budget covers Mid-year loss assessment costs**
- **Remained an SOE**
- **AgRe is to take over the functions of the PIU**

Sustainability – Beyond Project

- **Government of Mongolia**
- **Ministry of Finance**
- **AgRe**
- **Private insurance co.**
- **Herders**

- **Manages the IBLI pool to absorb shocks**
- **Replaced IDA Contingent Debt Facility**

**Create awareness**

**Continue to serve and sell**

**IBLI Law passed in 2014**

Note: *broadened its business scope in 2018 to include additional reinsurance lines of business such as property, motor, aviation, liability and personal accident, ** Two National Banks also offer the product
# Product design and trigger mechanisms

<table>
<thead>
<tr>
<th>Livestock loss</th>
<th>Type of response</th>
<th>Function</th>
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<tbody>
<tr>
<td>Below the trigger point (approximately &lt; 6%)</td>
<td>None</td>
<td>Herders retain livestock losses below the trigger point, which do not affect viability of their livelihoods</td>
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</tbody>
</table>
| Trigger point (approximately +6%) | Livestock Risk Insurance (LRI) (replaced the Base Insurance Product (BIP)) | • Herders purchase LRI for a premium from private insurance companies  
• Insurers pay claims when mortality rates meet the trigger point,  
• Trigger point is viable financially for insurance companies.  
• Premium is based on the risk, which depends on the species and location |
| Exhaustion point met (approximately > 30%) | Disaster Response Product (DRP) (replaced by the GCC during the 2009/2010 insurance cycle) | • Government provided coverage to herders who purchased the BIP or who just purchased the DRP and covered 100% of livestock losses greater than the exhaustion point  
• DRP was too complex and fiscally unsustainable hence discontinued |
| Government Catastrophic Coverage (GCC) | | • GCC stops/caps losses incurred by insurers at 105% of premiums, keeping the cost of insurance low  
• Demonstration effect created appetite and crowded in private international reinsurance market  
• Only herders who purchased LRI policy are covered  
• GoM prearranged a Contingent Debt Facility (CDF) from WB to finance this layer. |

Source: Kate DeAngelis, World Resources Institute (2013)
IBLIP risk pooling to minimize the risk of insolvency among insurers, and risk layering to cost-effectively meet the cost of claims.

**Risk Layering Approach Under IBLIP**

- **Insurance Pool**
  - Managed by PIU
  - Commercial premium (during sales period)
  - Risk premium (at the end of sales period)
  - Surplus share (at the end of season)

- **Government Catastrophic Coverage (GCC)**
  - Stop loss treaty triggered at claims above 105% of premium
  - Initially funded by US$5m. Contingent Debt Facility from World Bank
  - Transferred to reinsurance market 2012-14

- **Government Reserve**
  - Social insurance (attaching at a 25% mortality rate)

- **Livestock Index Insurance Pool**
  - Commercial insurance (attaching at a 6% mortality rate)

- **Contribution into the reserve from herders without commercial insurance for DRP contribution**

**Herders**

- Initially funded by US$5m.
- Contingent Debt Facility from World Bank.
- Transferred to reinsurance market 2012-14.
Project implementation had two phases, engaging diverse stakeholders, to ensure sustainable long-term success

<table>
<thead>
<tr>
<th>GOVERNMENT</th>
<th>INSURANCE COMPANIES</th>
<th>HERDERS</th>
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<tbody>
<tr>
<td>- Livestock data collection</td>
<td>- Seven insurance companies sold the base insurance product (BIP), contacted 68% of the herders in the pilot area</td>
<td>- The herders could make informed decisions on purchasing the BIP and DRP</td>
</tr>
<tr>
<td>- Program definition and pricing</td>
<td>- Provided 100% of the contractual payments to the Livestock Insurance Indemnity Pool and into the LRI reserves</td>
<td>- 83% of herders were aware of product offering (50% face-to-face engagement)</td>
</tr>
<tr>
<td>- PIU setup</td>
<td></td>
<td>- 14% purchase of BIP</td>
</tr>
<tr>
<td>- Government commitment to disaster response product (DRP)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
IBLIP helped the herders to respond to shocks better and faster

Insurance companies are active and 8-20% of herders are purchasing insurance every year

Reaching national coverage

<table>
<thead>
<tr>
<th>Year</th>
<th>Ratio to the total herder households</th>
<th>Number of insured household herders</th>
</tr>
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<tbody>
<tr>
<td>2006</td>
<td>9%</td>
<td>2,422</td>
</tr>
<tr>
<td>2007</td>
<td>13%</td>
<td>3,705</td>
</tr>
<tr>
<td>2008</td>
<td>14%</td>
<td>4,047</td>
</tr>
<tr>
<td>2009</td>
<td>16%</td>
<td>5,628</td>
</tr>
<tr>
<td>2010</td>
<td>11%</td>
<td>6,977</td>
</tr>
<tr>
<td>2011</td>
<td>9%</td>
<td>10,909</td>
</tr>
<tr>
<td>2012</td>
<td>10%</td>
<td>15,988</td>
</tr>
<tr>
<td>2013</td>
<td>13%</td>
<td>19,445</td>
</tr>
<tr>
<td>2014</td>
<td>10%</td>
<td>14,331</td>
</tr>
<tr>
<td>2015</td>
<td>7%</td>
<td>10,317</td>
</tr>
<tr>
<td>2016</td>
<td>12%</td>
<td>18,738</td>
</tr>
<tr>
<td>2017</td>
<td>15%</td>
<td>24,148</td>
</tr>
<tr>
<td>2018</td>
<td>20%</td>
<td>33,719</td>
</tr>
<tr>
<td>2019</td>
<td>19%</td>
<td>32,337</td>
</tr>
<tr>
<td>2020</td>
<td>17%</td>
<td>28,527</td>
</tr>
<tr>
<td>2021</td>
<td>19%</td>
<td>34,709</td>
</tr>
<tr>
<td>2022</td>
<td>15%</td>
<td>27,456</td>
</tr>
<tr>
<td>2023</td>
<td>19%</td>
<td>35,703</td>
</tr>
</tbody>
</table>

Payout of US$340 k to 1,783 herders
Payout of US$275 k to 2,117 herders
Cumulatively, in 10 insurance cycles over 10 years, a total 93,700 herders purchased index-based insurance, paying US$405 m. in premiums, and a total 16,545 herders received payout of US$160 m.

After insurance payouts herders who received a payout restocked a larger number of livestock and more rapidly than those without

Source: World Bank ICR P088816, AgRe Sales Report 2017; Data provided by Mongolian Re
IBLIP enhanced income levels and good behavior ... + impact

Household level impact

- **Net income increased** for insured herder between 7% to 4% in two assessed soums\(^1\)
- **Improved risk management (reduced impact of livestock loss) and productivity;**
  - Herd value is higher for the **insured** harder than for the **uninsured** herder (i.e., 12-19% higher in Jargalant soum)
- The **benefits of IBLI payouts increase** with the **amount of coverage** herders choose for their livestock
- The **insured herder is less exposed to low incomes** than the uninsured herder\(^2\), when 100% of the livestock value is insured

Insurance market development impact

- **Sustainable non-subsidized national insurance market**
- **Agriculture Reinsurance (AgRe) Co. evolved into a sustainable** multi-line reinsurer
- Mongolian Re (AgRe) assets have grown by **128% (43% in $US value)**, reaching MNT 60.3 billion ($US ~19 m.) in 2022, from MNT 26.4 billion ($US 13 m.) in 2015
- **IBLI total premium revenue** has grown for **25% in CAGR\(^3\)** from 2006 to 2023, reaching MNT 4.9 billion ($US 1.4 m.)

Source: World Bank ICR P088816; Mongolian Re Annual Report 2022, Mongolian Re shared data on IBLI; World Bank staff interview with Mongolia Re representatives

Note: 1) 7%, 6%, and 4% for a 30%, 50%, and 100% animal value coverage level in Jargalant and 5%, 6%, and 7% in Bumburgur soum; 2) 95-90% confidence level 3) Compound Annual Growth Rate
Mongolia’s livestock insurance has grown into a stable market

### Non-Life Written Premium in 2022

- **Total:** 250,901 Mnt m.
- **Property:** 30%
- **Liability:** 11%
- **Construction & Eng.:** 43%
- **Motor:** 10%
- **Marine, Aviation & Transit:** 2%
- **Surety, Bonds & Credit:** 0%

### Property Written Premium [Mnt m.]

- **Crop**
  - 2013: 1,799
  - 2014: 1,374
  - 2015: 1,313
  - 2016: 1,774
  - 2017: 2,329
  - 2018: 3,463
  - 2019: 3,846
  - 2020: 3,479
  - 2021: 3,922
  - 2022: 3,912

- **Livestock**
  - 2013: 25,628
  - 2014: 32,267
  - 2015: 40,884
  - 2016: 31,793
  - 2017: 36,699
  - 2018: 42,000
  - 2019: 43,343
  - 2020: 49,538
  - 2021: 65,491
  - 2022: 71,544

### Loss Ratio

- **Crop**
  - 2013: 7%
  - 2014: 9%
  - 2015: 2%
  - 2016: 10%
  - 2017: 493%
  - 2018: 920%
  - 2019: 37%
  - 2020: 11%
  - 2021: 12%
  - 2022: 56%

- **Livestock**
  - 2013: 0%
  - 2014: 0%
  - 2015: 0%
  - 2016: 6%
  - 2017: 8%
  - 2018: 6%
  - 2019: 0%
  - 2020: 11%
  - 2021: 17%
  - 2022: 0%

- **Other**
  - 2013: 0%
  - 2014: 0%
  - 2015: 0%
  - 2016: 6%
  - 2017: 8%
  - 2018: 6%
  - 2019: 0%
  - 2020: 11%
  - 2021: 0%
  - 2022: 10%
Lessons learned

**Awareness of Consumers**

Investing in IBLIP promotion activities as a public good increased understanding, awareness and trust by herders and was essential for take-up and achievement of development objectives

- Failure to maintain awareness and promotion due to budget cuts since end of the WB funded project has compromised uptake
- Kazakh populations in the western provinces effectively reached through relevant project materials translated into Kazakh
- Use of local newspapers and the Governor’s office to communicate effectively and monitor progress

**Domestic Market Development**

- Project supported insurers in building sales and distribution channel
- Insurance regulator key member of steering committee and licensed insurance agents in the countryside
- Productive study tours to create reinsurers’ awareness and appetite (Swiss Re and Scor, Hannover Re – including general reinsurance for other product lines)
- Enabling environment through a quality assurance mechanism, investment in reliable time-series data system; agriculture and national census offices capacitated to conduct national livestock survey, which was used more broadly for effective accounting and risk management
- Establishing a legal and institutional framework for the IBLIP to generate trust in the IBLI products among herders and investment by the private insurance industry

Source: World Bank ICR P088816, World Bank staff interview
Lessons learned

Cost Management at Different Aspects

Risk layering helped ensure cost effective and sustainable solution

- **An IDA Contingent Credit Facility (CDF) provided catastrophe protection.** In 2005, a major dzud that led to the loss of 30 percent of the national herd triggered the payment of US$1.1 million. The CDF maintained the viability of the program when it was tested most severely.

- **Retention of low layer of risk by herders** helped ensure affordability.

- **Implementation of risk reduction mechanism to prevent fund misuse:** highly prescriptive development credit agreement that aimed to contain the risk of any misuse of the project funds.

- **Loss assessment costs** are managed by the National Statistical Office and is covered through the state budget.

Monitoring & Evaluation, and Improvements

Robust M&E was implemented to track progress as well as address implementation challenges and revision of product.

- **The baseline survey revealed** that experienced herders were more reluctant to alter their risk management strategies, and therefore less willing to buy IBLI products, resulting in **altering promotion strategy based on age**.

- **Low offtake among some minorities resulted in using a different communication channel strategies** through the aimag’s local newspaper, with **additional monitoring on performance** to the PIU.

Source: World Bank ICR P088816
DRF for Agriculture and Climate Resilient Livelihoods

Thank You

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Disaster Risk Financing & Insurance Program

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