Index Based Livestock Insurance in Northern Kenya and Southern Ethiopia

Protecting pastoralists against the risk of drought related livestock mortality

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ASAL residents, particularly in Northern Kenya and Southern Ethiopia, confront harsh and volatile environments.

- Livelihoods are primarily livestock-based

- High level of risk:
  - Droughts, Diseases, Conflict

- Low levels of capacity – Infrastructure Deficient – Few Alternative Livelihood Opportunities
Pastoralist Risk Management CRSP (PARIMA), Kenya Adaptation to Climate Change in Arid Lands (KACCAL): Among its many lessons, we learn that....

.....Pastoralists are very vulnerable to widespread forage scarcity

Causes of Livestock Mortality

Marsabit District

Borana Zone

.... livestock mortality due to forage scarcity is by far the biggest risk.
Insurance and Agricultural Development

- Risk and shock of livestock mortality due to drought imposes considerable economic and welfare costs on pastoralists

- Sustainable insurance can mitigate this risk and shock

- But can insurance be sustainably offered in the ASALs?

- Conventional insurance cannot be sustainable, especially in remote pastoral area such as Marsabit and Northern Kenya
  - Transactions costs
  - Moral hazard/adverse selection
Index Based Insurance

- New innovation in insurance avoids problems that make traditional insurance unprofitable for small and remote clients:

- Policy holders paid based on external “index” that triggers indemnity payouts to all insured clients

- Suited for risks affecting a large number of people simultaneously and for which a suitable index exists.

- Advantages
  - No transactions costs of measuring individual losses
  - no moral hazard as no single individual can influence index.
  - Adverse selection does not matter as payouts do not depend on the riskiness of those who buy the insurance

- Disadvantage
  - Problem of “basis” risk (gap between each individual’s actual loss and the index)
An innovative insurance scheme designed to protect pastoralists against the risk of drought related livestock deaths.

Based on satellite data on forage availability - NDVI, this insurance pays out when forage scarcity is predicted to cause livestock deaths in an area.

**IBLI PILOT**

First launched in Northern Kenya in Jan 2010. Sold commercially by local insurance company UAP with reinsurance from Swiss Re.

Ethiopia pilot to be launched in Aug 2012.
Implementing IBLI in Northern Kenya: The Marsabit pilot

- IBLI contracts sold for three periods. Contract sales;
  - Jan/Feb 2010 – 1979 Contracts
  - Jan/Feb 2011 – 647 Contracts
  - Aug/ Sep 2011 – 518 Contracts

- Improved product implementation
  - Improved extension tools and channels
  - Better delivery platforms

- Trust in the product
  - 1st payout October 2011
  - Widespread agreement with the livestock mortality rates predicted by the model.

- Impact assessment studies to check if Index Insurance delivers the social and economic benefits it promises
  - Baseline survey October 2009
  - 2 Repeats in October 2010 and October 2011.
Implementing IBLI in Southern Ethiopia: The Borana pilot

Activities

• Design a Livelihood Focused and Demand-Driven Product
  • Testing a different model: Offers indemnity payments based directly on
  triggered cumulative deviation of NDVI from the long term average
  • Possibility of rewards for climate change adaptation activities

• Investigate Alternative Contract Structures

• Develop Financial Educational Tools for Informed, Sustainable
  Demand

• Impact Evaluation
  • Baseline survey
  • Follow up surveys
It is feasible to design index-based livestock insurance contracts attractive to both pastoralists to individually purchase and to commercial financial institutions that must market, sell and underwrite the products.

- Pastoralists bought the insurance
- Commercial Insurance Company, Insurance Agent and Reinsurance company involved

There appears to be considerable demand for IBLI

- More than 3,000 pastoralists have purchased the IBLI contract
- More than 600 of them receive indemnity payments after the drought in October 2011

Extension for informed decisions: Creative education tools can help pastoralists to rapidly grasp the IBLI concept.
Lessons and Challenges from the Pilot

• Cost effectiveness and density of delivery channels is critical for success and commercial viability.
  • Successive improvements in ICT infrastructure has been used for product delivery - premium collection and indemnity payments – leading to generalized market development

• Private-Public Provision
  • Challenges in the varied incentives of private partners stressing copyright and profit and partner public institutions (such as ILRI) interested in identifying, testing and scaling innovative solutions that leverage the market to enhance livestock related-livelihoods of the poor.
IBLI contracts to be designed for Seven (7) other districts in Northern Kenya

- The proposal for funding for this presented to the EU and DFID and has been approved
- Grant agreement to be signed before the end of April

ILRI will not pilot the contracts in the new districts but it will;
- Develop and design contracts
- Develop institutions, policies and capacities necessary to provide sustainable IBLI services across the industry.
  - Regulation - Information dissemination
  - Marketing and extension
- Develop Meso and Macro Level Index-Based Products.
  - Index based Early warning systems
  - Index based famine insurance
Thank you

For more information please visit:

www.ilri.org/ibli
The risk and the index

- Risk: Drought related Livestock Mortality
- Index: Predicted livestock mortality
- Need to model a relationship between the risk to be insured and the indicator (NDVI) → The Response Function
- Need for a measure that is:
  - Highly correlated with livestock mortality
  - Reliably and cheaply available for wide range of locations
  - Historically available

DATA
- Livestock Mortality
- NDVI

Response Function

Index
- Predicted Livestock Mortality
2. Geographical clustering

- Estimate separate response functions for distinct geographic clusters due to differences in herd composition, grazing ranges, water access, etc.

- Upper Marsabit (Chalbi)

- Lower Marsabit (Laisamis)
3. Contract trigger level

- The IBLI contract has an index strike point that triggers indemnity
  
  - Contract strike level for Marsabit is 15%
  
  - Trade off: Higher Strike → Lower Risk Coverage → Lower Cost
The Marsabit pilot: contract features

4. Contract premiums

- Consumer premiums for 15% Strike Contracts in Marsabit, providing annual coverage with two potential payout periods are;

<table>
<thead>
<tr>
<th>Contract Cluster</th>
<th>Consumer Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Marsabit</td>
<td>5.5%</td>
</tr>
<tr>
<td>Lower Marsabit</td>
<td>3.25%</td>
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</tbody>
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- Consumer premium rates not total market premium rates which are 9.2% in upper and 5.4% in lower.

- 40% premium subsidy provided by Global Index Insurance Facility - GIIF
5. Insurable units and valuation

- To arrive at a value for the insured herd, the livestock types have been transformed into a standard livestock unit - Tropical Livestock Unit (TLU). 1 TLU = 1 cattle = 0.7 camel = 10 goats/sheep

- Using average prices for livestock across Marsabit we have arrived at a set price per TLU insured of Kshs. 15,000

- To insure 1 TLU for a year costs;
  - Kshs 825 in Upper Marsabit
  - Kshs 487.5 in Lower Marsabit
6. Temporal structure of the IBLI contract

- **LRLD season coverage**
  - Prior observation of NDVI since last rain for LRLD season
  - Period of continuing observation of NDVI for constructing LRLD mortality index
  - Sale period for LRLD
  - Predicted LRLD mortality is announced.
  - Indemnity payment is made if triggered

- **SRSD season coverage**
  - Prior observation of NDVI since last rain for SRSD season
  - Period of NDVI observations for constructing SRSD mortality index
  - Sale period for SRSD
  - Predicted SRSD mortality is announced.
  - Indemnity payment is made if triggered

- **1 year contract coverage**
  - Sale period
  - Period of NDVI observations for constructing SRSD and LRLD mortality index
  - Indemnity payment is made if triggered

- **Seasonal Phases**
  - Short Rain: Oct, Nov, Dec
  - Short Dry: Jan, Feb
  - Long Rain: Mar, Apr, May, Jun, Jul, Aug, Sep
  - Long Dry: Oct, Nov, Dec