Session 9: Deep dive into Livestock Insurance

DRF for Agriculture and Climate Resilient Livelihoods

March 6th, 2024
Muldersdrift, South Africa
By the end of this session, you should understand more about

What is livestock indemnity insurance, and what is needed for it to work for small-scale producers

What is the role of index-based livestock insurance (IBLI): for who and in what environments

How IBLI works

How IBLI can be incorporated into a programme and country experiences of this

Outline

Landscape of livestock insurance

Livestock indemnity insurance
- What and why
- Implementation considerations

Index-based livestock insurance (IBLI)
- What and why
- Design and implementation considerations
- Kenya case
Globally c.17% of agricultural insurance premium value is for livestock (Swiss Re, 2019), but it is growing.

Indemnity-based livestock insurance - Named Peril Accident and Mortality Cover is the most widely available product.

IBLI is expanding for climate risks: mainly in Sub-Saharan Africa, Mongolia, Uruguay, and the USA.
Livestock insurance in sub-Saharan Africa

13 countries have indemnity insurance; 8 countries have IBLI.

Indemnity-based livestock mortality insurance for medium-large commercial dairy cattle producers is well established in South Africa, Egypt, Kenya and Sudan.

Some countries are now offering livestock mortality insurance to small-scale livestock producers e.g. Senegal, Rwanda, as part of government supported schemes.

IBLI for pastoralists started with pilots in Ethiopia in 2012 and Kenya in 2010 and now IBLI programs are having bigger reach in the region.
2. Livestock indemnity insurance
Indemnity based livestock insurance. What is it?

- **Asset replacement**
- **Protection against livestock mortality due to variety of named perils** e.g. fire, flood & windstorm, landslide, snake bite
- Other specialist covers in N.America & Europe for large commercial herds e.g. business interruption; blood stock
- **Animals must be maintained in a named location**

- **Asset protection** (with some exceptions)
- **Feed not animal replacement**
- Most common product: based on the weather or vegetation index typically covering loss of pasture due to rainfall deficit
- **Suited for pastoralists**
Preconditions for indemnity-based livestock insurance

**Product design & rating**
- Time-series livestock mortality data

**Loss notification & assessment**
- Loss notification systems & procedures for policyholders to report losses within 24 hours.
- Cost-effective loss inspection procedures (vet/para vet or approved loss inspector)

**Eligibility and enrolment**
- Required livestock husbandry, feeding & sanitary practices met
- All insured animals must be clearly and individually identifiable
- Veterinary pre-inspections
- Animals must be vaccinated against diseases as required
- All eligible animals must be declared and insured

Challenges in your country?
Indemnity based livestock insurance
Challenges for small-scale producers

- Many small producers cannot meet pre-conditions for insurability
- Many low & middle income countries lack support to livestock sector: sufficient vet staff for pre-inspections, health certification, vaccination, and loss assessment
- Does not cover unvaccinated diseases - especially epidemic diseases
- Lack of national animal tagging or livestock registration systems
- Lack of livestock mortality databases
- International reinsurers unlikely to (re)insure without data and robust health measures (vaccination), disease monitoring, reporting, and control measures

African markets with indemnity livestock insurance experience for small-scale producers, e.g.
- Rwanda dairy
- Lesotho mohair/wool – pilot
- Senegal
- Sudan

Enabling factors?
Solutions: the importance of mortality data
The Georgia case

IFAD-financed microinsurance project implemented by MicroInsurance Centre @ Milliman

**Aim**
to support insurers to improve livestock indemnity insurance product offer for small-scale dairy producers in Georgia (with 3 to 20 dairy cows)

**Challenge**
- Lack of risk data → insurers’ believed mortality rates too high (10-15% p/a)
- Insurers’ offer = unaffordable, very limited cover, or unavailable to these farmers

**Action**
- Short, practical dairy cow mortality study gathered vital data
- Georgian Farmers’ Association (GFA) conducted phone interviews
- 2 months: interviewed 820 farmers
Solutions: the importance of mortality data
The Georgia case

Findings
Dairy cow death rate = 1.6% per year
Accident or illness rate = 0.8% per year

Results
New insurer underwriting product at 2.9% (2.4% pure risk premium + uncertainty loading of 0.5%) + expenses = overall 29% reduction in the price of insurance

Lessons
Access to farmer contact information: well-maintained database and/or NGOs, cooperatives, or value chain actors
Involve a trusted local stakeholder to collect data: farmers more willing to provide data and information
Involve insurers before and after data collection
Leverage the results beyond insurance to improve risk management, reduce risk and cost of insurance. E.g. disease prevention or treatment

Source: based on IFAD and MicroInsurance Centre @ Milliman, 2022
Solutions: using mobile application for enrolment in indemnity livestock insurance
The case of Gujarat, India

Challenge

- Paper-based livestock enrolment systems are costly & time consuming = higher premiums
- Enrolment open to moral hazard (e.g. registering old barren cows as young high value cows)

Solution

- Mobile app for enrolment under the livestock insurance program offered by HDFC ERGO General Insurance
- Enrolment data and animal identification photographs administered by vets & transferred electronically to central server for approval and policy issuance

Results

- Tagging & enrolment time reduced from 20-30 minutes → 5 minutes in some cases
- Reduction in errors, elimination of paper documentation, improvements in loss ratio assumptions = net premium rate reduction of c.1.25%
- Claims settlement time reduced from 15-20 days to 2-3 days = improved trust among cattle owners.

Mobile enrolment process steps:

1. Vet officer tags each animal and takes 5 photographs
2. Register cattle owner and details of all animals
3. Enter value of each cattle – agreed by farmer & vet
4. Premium payable is automatically calculated by software
5. Premium Payment Method recorded
6. Data transmitted to insurer central server for underwriting and placement

Based on: Nair, S, 3ie, 2020. Evaluating the efficacy of an app-based livestock insurance scheme in Gujarat, India; and Stutley, C in Rural and Agriculture Finance Programme
Indemnity-based livestock insurance: summary

For small-scale producers, indemnity-based livestock insurance requires an enabling environment for livestock development as well as for insurance.

Biggest constraints in most African countries:
- No national livestock registration systems or national databases for livestock
- Livestock mortality data not available at local level let alone individual producer level
- Vet services are understaffed and lack resources to conduct pre-inspections, vaccinations, post-mortem inspections

Indemnity insurance is not feasible for pastoralists, but can be suited for small-scale producers linked to value chains

Technology and data can reduce costs and build cost efficiencies:
- RFID tagging in Rwanda
- New frontier: AI facial recognition in India and Pakistan
4.1 Index-based Livestock Insurance

What is IBLI in a nutshell?
THE STORY OF IBLI
WHAT ARE THE BENEFITS OF IBLI

Field-level assessments too costly and can be manipulated, and this causes delays

Early response is key to herders making good risk management decisions

Satellite data provides an objective, transparent, robust and timely data source. This is also normally free

Payments can be made in anticipation of drought

It is cheaper to keep animals alive, than to restock after the drought (IBLI moved from asset replacement to asset protection)

The end-result is that IBLI can be cheaper for insurers to operate than traditional indemnity-based insurance and more applicable in certain situations

Current Market Prices

- Current cost of a cow in Kenya is around KES 75,000
- Reducing to KES 14,500 after a serious drought, when condition is poor
- Cost to keep a cow alive during poor season KES 16,820

<table>
<thead>
<tr>
<th>ANNUAL COST OF KEEPING ANIMAL ALIVE DURING DROUGHT</th>
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<tr>
<td><strong>TYPE</strong></td>
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<tr>
<td>CAMEL</td>
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<td>COW</td>
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<td>SHEEP</td>
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<td>GOAT</td>
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Source: DRIVE project pictorial book
STRONG EVIDENCE BASE FOR IBLI

1. When a shock happens, IBLI provides income smoothing and a reduction in harmful coping
   - Helps maintain production and income levels [Matsuda et al., 2019]
   - Reduces distress livestock sales [Jansen and Carter, 2019, Jensen et al., 2017]
   - Minimizes herd losses [Jansen and Carter, 2019, Noritomo and Takahashi, 2020]
   - Reduces the cutting of food consumption [Jansen and Carter, 2019]
   - Lowers child labor [Son, 2021]

2. IBLI increases productive investments
   - The risky nature of agriculture may make risk averse farmers reluctant to invest [Boucher et al., 2008, Emerick et al., 2016]
   - Being insured (irrespective of claim payments) leads to increases in:
     - Veterinary expenditure [Jensen et al., 2017, Matsuda et al., 2019]
     - Milk production [Jensen et al., 2017, Matsuda et al., 2019]
     - Children’s education [Barrett et al., 2024]

3. Long-run effects, 10 years after introduction
   - Herd composition changes: a substantial reduction in smaller animals (e.g., goats) towards larger animals (especially camels).
   - A substantial increase in educational attainment.
   - A tripling of the share of current children studying full time.
   - The former two are robust to controlling for potential social spill overs.

CAUTION NEEDED: A sustainable insurance market is only possible if products truly generate welfare
We need good quality products to avoid farmer situation whereby farmer pays a premium, invests, loses their crop and investment, and, due to basis risk does not receive a claim payment.
4.2 IBLI Product Design

Technical features of IBLI in Kenya
THE POWER OF A SATELLITE DATA

Kenya’s NDVI vs. 20-year median (2015-2019)

Used For:
- Validating UAIS Through Spatial Aggregation
- Validating Seasons (Wet / Dry)
- Spatial and temporal data use for assessing risk and for pricing insurance
- Used as the data input for indices for insurance payouts

NDVI data: dry months

Focus group discussions identifying dry months

https://learning.fews.net/course/view.php?id=24
SEASONAL COVERAGE PERIOD

- IBLI product is designed to protect against failure of the long season and short season rains, which means that animals enter the dry season undernourished and in poor condition.

Clear dry and wet seasons identified allowed definitions of insurance contracts (coverage period, sales windows, time of payouts) specific to pastoralists’ needs. Payouts are made at the end of each cover period in August and February to enable pastoralists to buy in fodder and feed.
INDEX DESIGN BASED ON DIFFERENCE FROM ‘NORMAL’

Satellite data used to generate the Normalised Vegetative Difference Index (NDVI), a good measure of the nutritional quality of pasture.

Total sum insured a proportion of the cost of keeping an animal alive (accounting for affordability) – around $140 per TLU.

### Severity | Forage Availability | Cum. NDVI (%) Range | Insurance Payouts
--- | --- | --- | ---
Green | Good / above normal | 65-100 | None
Yellow | Sufficient / normal | 45-65 | None
Orange | Scarce / below normal | 25-45 | Proportional Payout
Red | Serious drought condition | 5-25 | Maximum Payout
Black | Severe drought condition | 0-5 | Maximum Payout
ENABLING FACTORS FOR SUCCESS

Operational assessment of country readiness considers range of supply- and demand-side factors

<table>
<thead>
<tr>
<th>Technical</th>
<th>Operational</th>
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<tr>
<td>Dominance of extensive rangelands (drought impact on livestock as animals reared on open rangeland/grasslands)</td>
<td>Importance of livestock for the economy</td>
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<td>Sufficient forage production and natural pasture</td>
<td>Financial awareness / literacy of pastoralists</td>
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<td>Clear seasonality</td>
<td>Risk market infrastructure</td>
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<td>Reliable data available to monitor conditions speedily</td>
<td>Effective distribution channels incl. ability to identify pastoralists</td>
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<td>Unit areas of insurance should consider migratory patterns of the insured</td>
<td>Demand for IBLI</td>
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Source: A regional approach to drought index-insurance in Intergovernmental Authority on Development (IGAD) countries. Volume 2.
4.3 IBLI in Practice

The Case of Kenya
EVOLUTION OF IBLI IN KENYA

- **Launch of first asset replacement contract in Marsabit, Kenya**
- **First Sharia compliant product payout in Wajir**
- **Severe drought triggers widespread IBLI payouts**
- **Severe drought triggers KLIP payouts for over US$7 million**
- **Launch of asset protection contract**
- **Full transition to asset protection contract**
- **Design of DRIVE launched in 2022 Transition from macro- to micro-level and targeting productive groups**

Source: Adapted from Lessons Learned from Implementing the KLIP
LESSONS LEARNED

Success factors

- Government leadership & commitment
- Strong product design
- International TA and engagement with local stakeholders
- Demand side enablers: investment in awareness creation at all levels
- Policy coherence: part of multi-layered government drought risk management approach

Challenges

- Reliance on premium subsidies
- Commitment of insurers to market growth
- Duplication of support to beneficiaries (insurance + cash transfer)
- Lack of ground data (rangeland biomass) for validation
- Lack of clear processes & systems for accurate registration & efficient payouts
- High loss ratio in 2016-17
- Awareness raising of pastoralists requires more financing
- Overlap with other drought response mechanisms
- Low investment in M&E and impact measurement
- Difficulties to scale-up beyond targeted safety-net beneficiaries/graduate them from 100% premium subsidies

Recommendations

- Create clearly defined private sector role, with checks, balances & incentives beyond 100% premium subsidies
- Invest in ground data collection efforts
- Design robust registration and payout channels prior to launch of insurance scheme – leverage existing financial services & infrastructure
- Ensure strong coordination with other government-led drought risk management approaches
- Consider more efficient distribution channels
- Invest more in creating capacity and awareness at all levels
- Conduct rigorous impact assessment & CBE during scheme design to support M&E

Source: Based on Lessons Learned from Implementing the KLIP and Evidence note available here
To enhance pastoralists’ access to financial services for drought risk mitigation, include them in the value chains, and facilitate the livestock trade in the Horn of Africa.

$360.5 Million total project cost

1. **Package of financial services for climate resilience ($179 Million)**
   - Support the provision of an integrated package of financial services to build climate resilience

2. **Livestock Value Chains and Trade Facilitation ($181.5 Million)**
   - Better include pastoralists in the livestock value chain and facilitate trade in the Horn of Africa

**Current DRIVE Countries:**
- Ethiopia
- Kenya
- Somalia
- Djibouti

**Implemented by:**
- IDA (Global Risk Financing Facility)
- National agencies
SUMMARY
When is IBLI suitable and what are its challenges?

Where does IBLI make sense
- Asset protection
- Droughts leading to loss of pasture and grazing area
- When preconditions of insurability cannot be met – use of index limits anti-selection or moral hazard hence more attractive for re/insurers
- More affordable cover – lower claims processing costs = cheaper
- For rapid payout
- Easier to bundle and deliver at scale
- Pastoral herds with mixed livestock: camels, cattle, sheep, goats (based on TLUs)
- Can be used for micro, meso, macro levels

Challenges
- Cannot be implemented in areas of mixed cropping and livestock grazing
- Very high start-up costs
- Requires homogeneous rangelands to work best
- Subject to basis risk
- Difficult to explain
Thank you

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5-8 March 2024
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