DRF for Agriculture and Climate Resilient Livelihoods

March 6th, 2024 Muldersdrift, South Africa

Session 9:

Deep dive into Livestock Insurance





Outline



Landscape of livestock insurance

- Livestock indemnity insurance
- What and why Implementation considerations



What and why

Design and implementation considerations

Kenya case

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

Disaster Risk Financing & Insurance Program

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Global landscape of livestock insurance

Global presence of livestock insurance



— Key Takeaways -

- Globally c.17% of agricultural insurance premium value is for livestock (<u>Swiss Re, 2019</u>), 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?



Preconditions for indemnity-based livestock insurance

Challenges in your country?

Product design & rating

Time-series livestock mortality data



- 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

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 \rightarrow 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

Premium For Dairy Cow Insurance (% Of Sum Insured)



Source: based on IFAD and MicroInsurance Centre @ Milliman, 2022

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



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:

- Vet officer tags each animal and takes 5 photographs
- **Register** cattle owner and details of all animals
- Enter value of each cattle agreed by farmer & vet
- Premium payable is automatically calculated by software
- Premium Payment Method recorded
- **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

Disaster Risk Financing & Insurance Program

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: Al 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

ANNUAL COST OF KEEPING ANIMAL ALIVE DURING DROUGHT

TYPE		VALUES
CAMEL	R	24,029/=
cow		16,820/=
SHEEP	A-H	1,682/=
GOAT	T	1,682/=

Source: DRIVE project pictural book

STRONG EVIDENCE BASE FOR IBLI



- 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 [Janzen and Carter, 2019, Jensen et al., 2017]
- Minimizes herd losses [Janzen and Carter, 2019, Noritomo and Takahashi, 2020]
- Reduces the cutting of food consumption [Janzen and Carter, 2019]
- Lowers child labor [Son, 2021]



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]
- 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.



Disaster Risk Financing & Insurance Program 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



Disaster Risk Financing & Insurance Program 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 DIFFERNCE 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



		N/C	
Severity	Forage Availability	Cum. NDVI (%) Range	Insurance Payouts
Green	Good / above normal	65-100	
Yellow	Sufficient / normal	45-65	None
Orange	Scarce / below normal	25-45	
Red	<i>Serious</i> drought condition	5-25	Proportional 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

Technical		Operational	
	Dominance of extensive rangelands (drought impact on livestock as animals reared on open rangeland/grasslands		Importance of livestock for the economy
	Sufficient forage production and natural pasture		Financial awareness / literacy of pastoralists
۲۵۲ ۲۵۹	Clear seasonality	Ē.	Risk market infrastructure
	Reliable data available to monitor conditions speedily	ژ آ	Effective distribution channels incl. ability to identify pastoralists
	Unit areas of insurance should consider migratory patterns of the insured		Demand for IBLI
			Legal and regulatory insurance environment
			Finance available for premiums
			Interest from domestic insurers to sell

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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 Practise The Case of Kenya





EVOLUTION OF IBLI IN KENYA



WORLD BANK GROUP Source:

LESSONS LEARNED



- 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

$\begin{bmatrix} @ \\ & \end{bmatrix}$ Challenges

- Reliance on premium subsides
- 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

DRIVE – A REGIONAL PROGRAM SUPPORTING PASTORAL ECONOMIES IN THE HORN OF AFRICA

HORN OF AFRICA	Project Objective	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		
	Project Financing	\$360.5 Million total project cost	у	
Current DRIVE Countries:	Component Structure	Implemented by: Implemented by:	/:	
		2 Livestock Value Chains and Trade Facilitation (\$181.5 <u>Million</u>) Better include pastoralists in the livestock value chain and facilitate trade in the Horn of Africa	y :s	



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

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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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