

# **Index Based Livestock Insurance in Northern Kenya: Experience and way forward**

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## **Background**

Drought is the most pervasive hazard, natural or otherwise, encountered by households on a widespread level in the arid and semi-arid lands (ASALs) of northern Kenya and southern Ethiopia. Several pastoralist households in ASALs are regularly hit by increasingly severe droughts. These households rely solely or partly on livestock, which means that the resulting high livestock deaths have devastating effects, rendering them amongst the most vulnerable populations in Kenya and Ethiopia.

It is against this background that the International Livestock Institute together with its technical partners at Cornell University and University of California Davis developed an Index Based Livestock Insurance (IBLI) product following two years of comprehensive research that was aimed at designing, developing and implementing market-mediated index-based insurance products to protect livestock keepers - particularly in the drought prone arid and semi-arid lands (ASALs) – from drought-related asset losses.

The commercial sale of Index Based Livestock Insurance (IBLI) was launched in Marsabit, Northern Kenya in January 2010. At the time, UAP Insurance Company was the underwriter while Equity Insurance Agency was the Insurance agent. Swiss Re offered Reinsurance for the product. The product has gone through various adjustments since it was launched and is currently being implemented by APA Insurance Company in Marsabit and Isiolo counties. In Marsabit, CARE Kenya is supporting in the implementation while World Vision International is supporting the implementation in Isiolo County. In Wajir County, an Islamic compliant version of IBLI is currently being implemented by Takaful Insurance Company with support from Mercy Corps. The sale of IBLI contracts in Isiolo and Wajir commenced in August of 2013.

The approach is also being piloted in the Borana region of Southern Ethiopia where Oromiya Insurance Company is the underwriter. These areas have been targeted as the pastoralist communities that reside here depend on livestock as their primary source of livelihood and drought-related deaths of their livestock is the biggest risk they face. This piece focuses on the Northern Kenya project experience with more information on the wider program agenda available at [www.ilri.org/ibli](http://www.ilri.org/ibli)

## **The product**

Like any insurance product, IBLI aims to compensate clients in the event of a loss. Unlike traditional insurance, which makes pay-outs based on case-by-case assessments of individual clients' loss realisations, index-based insurance pays policy holders based on an external indicator that triggers payment to all insured clients within a geographically-defined space

Based on satellite data known as Normalised Difference Vegetation Index (NDVI) that provides estimated readings of forage availability, the IBLI product being implemented in Kenya pays out when forage scarcity is predicted to cause livestock deaths in an area. As livestock in pastoral production systems depend almost entirely on available forage for nutrition, NDVI serves as a strong indicator of the vegetation available for livestock to consume. Using data on livestock mortality that the Arid Lands Resource Management Program has been collecting monthly since 2000, a statistical relationship between livestock mortality and forage availability was modelled. Known as a response function, this relationship allows

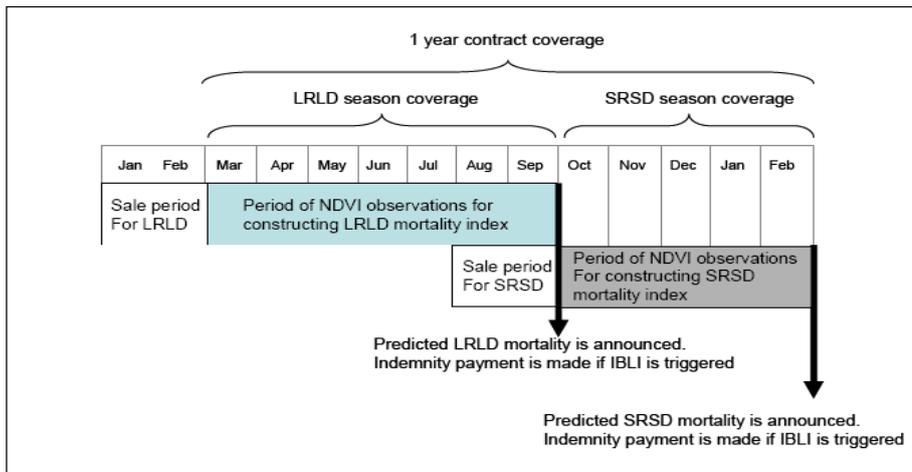
area-average livestock mortality rates to be predicted from the freely available and regularly updated NDVI data. This predicted livestock mortality serves as the index upon which insurance payments are based.

### Construction of the index

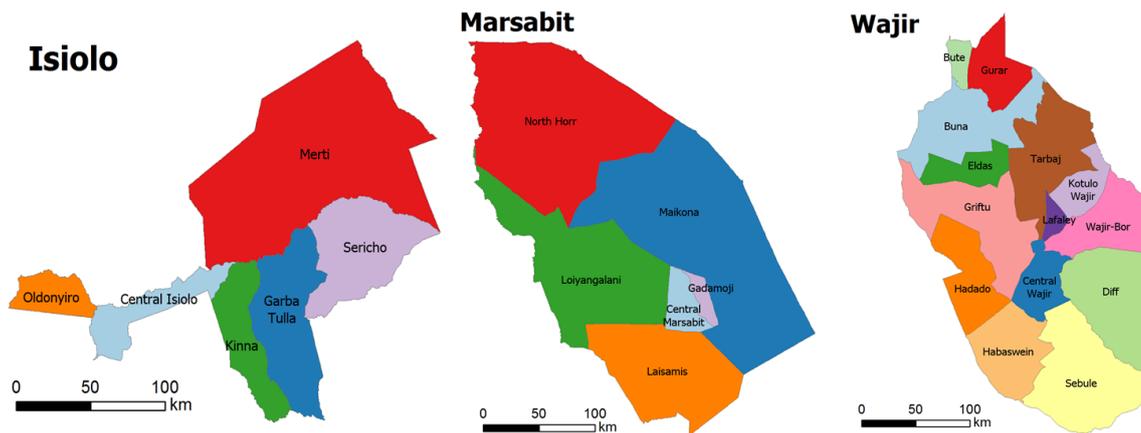


The product only covers the insured’s against the risk of drought related livestock deaths. The insurance contract covers the livestock for one year but has two potential pay-out periods. These are at the end of both the long dry and the short dry seasons in March and October. The index is measured per division, meaning that the pay-outs will be made as per the divisional index readings. Clients are only allowed to purchase this insurance in a two-month buying window prior to the rainy seasons. This is because at this time they are unable to predict what the weather conditions will be for the next season. The below figures show both the temporal coverage structure of IBLI as well as the counties and divisions it currently covers.

### Temporal Coverage of IBLI



### Spatial Coverage of IBLI in Kenya as of August 2013



Pastoralists pay different premiums depending on the division where their animals are located. The premiums also depend on the level of risk coverage the client chooses. The contract has a strike level which is the level of predicted mortality above which the insurance starts to pay-out. Two different strike level contracts are available in Marsabit and Isiolo and pastoralists are allowed to choose. There is a 10% and 15% strike contract. Lower strike levels signify more risk coverage which means they cost more than the higher strike level contracts. For 15 % strike level contract, the premiums range from 4.9% to 8.1% of the value of the animals each year depending on how drought-prone their division is deemed to be. Suppose, for example, that the strike level is 15 per cent. For a 10% strike contract, the premiums range from 8.9% to 14.2% of the value of the animals each year depending on how drought-prone their division is deemed to be. In Wajir, only the 15% contract, which is less costly, is initially on offer.

For a 15% contract, if the predicted mortality index at the pay-out period reads 35%, the insured will receive 20% (35–15) of the value of their insured livestock as indemnity payment while for a 10% strike contract, if the predicted mortality index at the pay-out reads 35%, the insured will receive 25% (35–10) of the value of their insured livestock as indemnity payment.

The value of the livestock in the different location is predetermined in advance for ease of logistics. This is done in consultation with the community representatives. The livestock covered under this scheme are cattle camels, goats and sheep. The four livestock types will be transformed into a standard livestock unit known as a Tropical Livestock Unit (TLU). TLU is calculated as follows:

- 1 Cattle = 1 TLU.
- 1 Camel = 1.4 TLU.
- 1 goat/sheep = 0.1 TLU.

In Marsabit and Isiolo the value of a TLU is set at Kshs 20,000 while in Isiolo the value of a TLU is set at Kshs 25,000.

### The impact so far

So far 4,000 pastoralists have brought one year contracts over a 4 year period. This is an indication that there is interest and demand for IBLI, but that uptake will need to increase to sustainably support provision. Uptake by women has been considerably higher than expected. In the first sales window, 48% of clients were women, while across time the average is 40%. Although women were not preferentially targeted, in CARE areas links were made with the predominantly female savings and loan groups which

were targeted for more extension. This phenomenon is being studied further. Whether relatively high uptake for women (given that they often do not have ownership rights of the livestock) is because women have more liquid cash through petty trade and small stock, are more willing to learn about and adopt new innovation or play a more active role in financial decision-making in the household requires further exploration.

That the IBLI contract triggered payments to all active clients in October 2011, and in 2 of the 5 covered divisions of Marsabit in March 2012 as well as 1 out of the 5 in March 2013, was a milestone for the project and a practical indication of its precision in predicting area-average livestock mortality. The community's trust in the product was also improved as it was paying out when the conditions were bad.

While the commercial sustainability of IBLI has yet to be attained, considerable social and welfare benefits for pastoralists has already been established. To ensure a rigorous and comprehensive evaluation of the IBLI product, ILRI carried out a survey of over 900 households in Marsabit in October 2009 to create a baseline of information upon which IBLI impacts across a range of key livelihood indicators can be assessed and evaluated. These households have been re-surveyed annually ever since.

Initial analysis of the data indicates that IBLI can have considerable and significant welfare benefits. Comparing uninsured households with insured households, insured households experience: a 33% drop in the likelihood of substantially reducing their nutritional intake; a 50% drop in distress sales of livestock assets; and 33% drop in their food aid reliance. While these are only initial results, they are quite indicative of the potential welfare impacts of IBLI. The social and economic value of a product that can generate results as suggested is considerable.

Going forward the research agenda will look carefully at the logic of offering IBLI products as part of a wider development-based social safety package that seeks to improve the incentives of investment in livestock by capturing part of the risk and also to stem the tide of persons forced into poverty due to livestock asset losses that are not captured. There could be a strong justification for targeted support to IBLI for certain segments of the society that are most vulnerable to losses of productive assets and also those who are likely to increase their investments considerably if part of the risk is managed.

### **Challenges, lessons learnt and way forward**

Consumer education to catalyze informed demand is one of the biggest challenges for the IBLI product. The communities in the target areas are largely illiterate, making the conventional educational tools very difficult to use. The situation is further compounded by the fact that these communities have had little or no prior experience with insurance. The team is forced to start by first explaining the concept of insurance before zeroing down to the particular features of the IBLI product under consideration. The team has used insurance simulation games, edutainment videos, radio programs, plays and cartoon strips as education tools quite successfully. Our experience has shown that creative extension methods can be successfully developed and fielded to capture the essence of complex IBLI products and that pastoralist and agro-pastoralist populations with little or no education can grasp these ideas. However the cost of regular and consistent extension campaigns in sparsely populated areas with poor radio and communication coverage is prohibitive, yet pastoralists regularly insist that the need repeated interaction to grow confidence in their understanding.

Infrastructure deficiency is also a challenge in the implementation of IBLI. These areas have very underdeveloped road networks making accessing the potential clients very difficult and expensive. All these increase the cost of delivering the product, particularly as the low population densities means that one must cover large areas to access a relatively small number of potential beneficiaries. The poor telecommunications infrastructure also means that innovations like mobile money or information provision that vastly reduce transactions costs cannot be optimally deployed. Indeed, the cost-effectiveness and density of the sales and information delivery platforms servicing the sales region are critical to the commercial viability and overall success of the product.



(Sales agent using phone-based application to

transact IBLI)



(Sales agent using point of sales device to

transact IBLI)

Given the challenges of the target area, the jury is still out on whether the product can be entirely commercially viable without any subsidy support – whether it be in product development, knowledge transfer or even in premium support. However, given the interest, and the current level of demand, and the potential of leveraging ICT and other infrastructure and policy developments to reduce the transactions costs of delivery and to increase demand, it still seems very likely that some level of commercial success is possible.

While the product has come a long way, and key lessons are already being captured and addressed, there is still much to be done to ensure the long-term sustainability of the IBLI product, and set a solid, evidence-based foundation for better scale up. In addition, there is also compelling logic for the targeted provision

of IBLI as a productive safety net in a larger social support program. More research and analysis is required to best understand the conditions under which a fully commercial product is possible and where complementary support from government may be both necessary and optimal. Complementing the research agenda, and a key part of the scaling up and out process, is a considerable effort at building implementation capacity across the various key players in the supply chain, working with regulatory institutions to develop a policy framework for effective index-insurance provision, and deepening extension delivery to ensure informed uptake. Over the next three years of the program, ILRI is working jointly with its partners, to arrive at an outcome in which informed pastoralists are purchasing IBLI products provided by a capacitated insurance industry within a supportive policy and institutional environment. Ultimately IBLI aims to contribute to increasing the resilience of pastoral populations.