



LEGS

Livestock Emergency Guidelines and Standards

Livestock Insurance

A Discussion Paper for the Livestock Emergency Guidelines and Standards (LEGS)

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EXECUTIVE SUMMARY

This Discussion Paper analyses the impact of livestock insurance schemes on the livelihoods of communities affected by crises and makes recommendations on the relevance of livestock insurance to LEGS and for the next edition of the LEGS Handbook. The paper discusses two livestock insurance systems: traditional systems (including both conventional systems and traditional social insurance schemes) and emerging livestock insurance schemes such as loan-based schemes and Index-Based Livestock Insurance (IBLI).

The systems of social insurance schemes traditionally used by herders, particularly in East Africa, are becoming less effective and increasingly overwhelmed by the ever-growing needs of destitute livestock keepers. Traditional insurance companies provide coverage solely for commercial livestock farms, viewing smallholders as uninsurable. In some countries, governments and NGOs facilitate loans tied to insurance schemes for small livestock farmers. In both cases, payouts are made on case-by-case assessments of individual clients' loss. Conversely, IBLI makes payouts based on external indicators and principally targets formerly uninsurable pastoral/agro-pastoral groups.

IBLI in Mongolia uses *dzud* (extreme cold weather) as an external indicator expressed by herd mortality levels. In this specific case, herders cover the costs of up to 10% of livestock mortalities, while insurance companies make payouts when herd mortality levels exceed 10% but up to a maximum of 30% (i.e. for 20% of mortality losses). Losses of above 30% are covered by the Government. Payouts are intended for livestock replacements.

IBLI in Kenya and Ethiopia uses a different external index – i.e. the Normalized Difference Vegetation Index (NDVI) based on satellite imagery readings of forage greenness, and sub-divides its operational areas into geographic insurance units sharing similar risks. Premium rates vary by insurance units, and payout is triggered at the 20th percentile of historic index levels – i.e. when forage scarcity exceeds 80%. IBLI Kenya/Ethiopia makes payouts before animals die, in amounts that enable herders to buy feed, water and veterinary services

IBLI targets households that have a critical number of livestock to avoid them falling into destitution e.g. in Mongolia 200 animals. In Mongolia, banks offer interest discounts on loans if herders purchase insurance; and in Kenya and Ethiopia incentives include premium subsidies ranging from 10 to 100%. Government/NGO sponsored loan-tied insurance schemes also apply premium subsidies and/or discounts on loan interest rates.

The major challenge for IBLI is sustaining the profitability of insurance companies while making the system attractive enough for herders to buy annual premiums. This concern in Mongolia, for example, restricted the liability of insurance companies for indemnities to 20% of mortality losses, and herders received only two payouts (totaling \$615,700) between 2006 and 2015, while insurance companies amassed profits of US\$100 million – which implies that herders have been financing insurance companies with \$10 million per year. Such details are not available for IBLI Kenya and Ethiopia but herders receive payouts only if forage scarcity exceeds 80%. The payment they receive depends on the specific index readings in the payout months consisting of a proportion rather than the full indemnity amount. At the lowest, herders may only receive 5% of the full indemnity level for which they are insured. Insurance companies have also become adept at increasing premium rates without a matching increase in indemnity levels e.g., in 2017/18, the premium rates in Borana, Ethiopia varied between 7.27% and 11.11%, while for a new IBLI project in Eastern Ethiopia (with lower drought frequency than Borana), the premium rate in 2020 was raised to 16.15%.

IBLI is an experimental intervention that currently falls outside the realm of LEGS. Only two projects have been running for over 10 years with fluctuating numbers of policy holders from one year to another. Some IBLI projects are designed to last for five years or less and the continuity of such projects is questionable when the subsidy stops. As a result, the sustainability and increased adoption of insurance schemes can only be asserted when a representative proportion of livestock keepers become policy holders, which will take some years to prove. Insurance companies are disproportionately benefitting (although they have to remain profitable) from premiums they collect compared to the proportion of indemnities they payout to policy holders. To summarize, current evidence suggests that it is too early to advocate for including IBLI, or loan + insurance schemes, into the LEGS Handbook at present.

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ABBREVIATIONS

<i>ARID</i>	Kenya Agency for Rangeland Information and Development in Kenya	<i>ILRI</i>	International Livestock Research Institute
<i>BDT</i>	Bangladesh Taka	<i>LEGS</i>	Livestock Emergency Guidelines and Standards
<i>C4ED</i>	Centre for Evaluation Development	<i>MFI</i>	Micro-Finance Insurance
<i>CIFA</i>	Community Initiative Facilitation and Assistance	<i>NDVI</i>	Normalized Difference Vegetation Index
<i>CRF</i>	Co-Variate Fund	<i>NGO</i>	Non-Governmental Organization
<i>DFID</i>	Department for International Development	<i>PKSF</i>	Palli Karma-Sahayak Foundation
<i>FAO</i>	Food and Agricultural Organization	<i>PO</i>	Partner Organisations
<i>FMD</i>	Foot and Mouth Disease	<i>PSNP</i>	Productive Safety Net Programme
<i>GIC</i>	General Insurance Corporation	<i>SIPE</i>	Satellite Index Insurance for Pastoralists in Ethiopia
<i>IBLI</i>	Index-Based Livestock Insurance	<i>TLU</i>	Tropical Livestock Unit
<i>IDRA</i>	Insurance Development and Regulatory Authority	<i>WB</i>	World Bank
		<i>WFP</i>	World Food Programme

INTRODUCTION

This paper was commissioned to assess livestock insurance schemes and explore what evidence exists regarding the effective implementation of livestock insurance schemes to support the livelihoods of communities affected by crisis. The paper analyses the impact of these schemes on livelihoods, based on the LEGS livelihoods objectives, and makes recommendations on the relevance of livestock insurance to LEGS and the next edition of the LEGS Handbook. The paper discusses two livestock insurance systems – ‘traditional’ systems and emerging livestock insurance schemes. Supporting case studies from Kenya, Bangladesh, Sudan and Mongolia are also provided. The paper is the result of a cross-section of documents consulted from a number of countries and information obtained from key persons in Ethiopia. Simple definitions of technical terms are provided in the footnotes.

I. ‘TRADITIONAL’ LIVESTOCK INSURANCE SYSTEMS

I.1 Conventional Livestock Insurance Systems

Commercial livestock farms (dairy, beef, poultry, etc.) that require substantial capital investments and operational expenses are insurance policy holders in many cases. Like other high capital businesses, commercial livestock owners are also ‘risk averse’ and make provisions for potential losses arising from a variety of causes. Secondly, such farms require bank loans either for investment or operational expenses for which they have to put up collateral¹ guaranteed by insurance policies. In either case, holding insurance policies is an unavoidable part of the business in commercial livestock farms. Conventional insurance companies in general, and the limited livestock insurers in particular, provide insurance policies mainly for commercial livestock farms because of the scale of the business, lower operational and administrative costs, and ease of access for selling policies or verifying claims. In addition, local insurance firms are authorized by reinsurance companies² for issuing such policies. Of note, such insurance companies also provide multiple insurance policies (life and non-life), of which livestock insurance is only one product.

¹ Security pledged for the repayment of a loan.

² Reinsuring companies consist of umbrella companies (located in Europe or the USA) providing protection for local insurance companies in cases of catastrophic losses. Local insurance companies operate on limited capital basis and need to reinsure themselves for unexpected losses. Reinsuring companies include: e.g. SwissRE (Switzerland), SCOR (France), etc.

The types of insurance coverage provided to commercial livestock farms vary by company policies. Farm owners have to choose from a bundle of available policy options with the premium rising as more options are included in the bundle. The range of insurable animals may include cattle, sheep and goats, pigs, poultry and buffaloes, depending on the case. For example, policy options by AgriChoice Farm Insurance in South Africa include either insuring individual animals (for higher value animals of specific dollar amounts) 'if they can be identified in whatever manner'; or a blanket policy, in which all farm property (including livestock, equipment and buildings) are covered; and/or insuring livestock as a herd (such as 100 head of Holstein cattle). AgriChoice's website claims to protect losses from accidental shootings, attacks by dogs or wild animals (except for sheep), earthquakes, electrocution, floods, loading and unloading accidents, and sudden and accidental collisions causing death. Yet, the policy does not cover disease, old age and death by natural causes for which a separate livestock mortality insurance would be required³. The Stanbic Bank livestock insurance policy in Zimbabwe also claims to cover losses due to accidental death, diseases of a terminal nature, emergency slaughter (on advice of a recognized veterinary surgeon) and theft of livestock for dairy and beef cattle, poultry, sheep and goats⁴. UAP Old Mutual's website in Kenya also claims to provide coverage for accidental death due to lightning; internal/external injury on location or during transit, fire, windstorm, snake bites, diseases of terminal nature, emergency slaughter on vet's advice, calving complications, theft of livestock and epidemics. 'What is not covered' by UAP's policy (for which the insuree does not receive indemnity) includes the following: for the first 10% of livestock loss for each and every loss, for the first 20% of the loss for theft, for famine (drought), malnutrition and poisoning, impotence and infertility, prior disease and deformities, and, any death due to neglect and husbandry practices. The website also states that 'in the event of theft, the insurance requires a period of six weeks for recovery before settlement of losses'⁵.

Analysis - Mainstream insurance companies view smallholders as uninsurable for a variety of reasons: low to very low premium rates; prohibitive administrative costs due to the dispersion of such farmers when selling policies and verifying claims, as traditional insurance requires that the insurers monitor the activities of their clients and verify the truth of their claims on a case by case basis. More importantly, livestock mortalities caused by drought, conflict and other similar causes which are the main concerns of smallholder livestock farmers, are not insurable. Equally important, such insurers do not know, or cannot quantify, the risks associated with smallholder livestock producers. For example, a Fintrac newsletter in Zimbabwe states that 'the few players in the livestock insurance sector primarily focus on large-scale commercial farms, though 90% of the cattle in the country are owned by smallholder farmers'⁶. To summarize, the target groups of LEGS fall outside the lens of conventional insurance companies, whether they are sedentary farmers or mobile herders. Recently, however, influential reinsurance companies, like SwissRE, are closely watching developments in countries such as India, where government-subsidized insurance schemes for small livestock farmers are creating the kind of business volume they are interested in to reinsure – but, not to sell policies locally.

1.2 Indigenous Social Insurance Schemes⁷

Mobile herders of East Africa have been practicing an elaborate system of risk management strategies for centuries through social insurance schemes. These strategies are triggered from the time drought becomes imminent, through the drought cycle, and in the post-drought phases. Case Study 1 provides an example of post-drought social insurance practiced by the Gari community in North-East Kenya.

3 <https://www.nationwide.com/business/agribusiness/farm-insurance/optional-coverages/type/livestock>.

4 <https://www.stanbicbank.co.zw/zimbabwe/business/products-and-services/Insure-what-matters/bancassurance/Livestock-Insurance>

5 <https://www.uapoldmutual.com/images/brochure/Livestock-Brochure.pdf>

6 <https://www.fintrac.com/project-activities-zimbabwe>

7 Social insurance schemes in this context include social protection and welfare systems.

Case study I – Traditional social insurance schemes in Northeast Kenya

Robdoon - Over the course of a period of days, elders will discuss what collective action should be taken. Such action may be the transfer or lending of livestock to assist 'poor' clan members or to arrange with other clans/ people for the use of pasture outside of the drought-affected area and migration.

Zakad - While not a drought relief strategy per se, *zakad* requires people to give 2.5% of their wealth to the poor. In the case of livestock ownership, this follows an established schedule. For example, the owner of 40 shoats would be required to give one shoa. Likewise, the owner of 5 camels would be required to give one shoa. If 30 cattle are owned, a bull of three years might be given. The number of livestock given increases in direct proportion to the number of animals owned.

Orge - This literally means 'unborn calf'. In practice, it is the loan of a bull for slaughter to those without. This loan will be repaid sometime in the future when a bull is born to the recipient. It benefits both parties, as a bull given during drought is likely to die.

Other loan animals - Other loan animals given in difficult times are likely to be camels or donkeys if they can be spared. These are vital to surviving drought as they may be employed as beasts of burden, either ferrying water or shifting to areas less impacted by drought.

Irb (restocking) - *Irb* may be a response to disease, drought or livestock raids and is usually in the form of shoats as these provide the fastest milk production. For the longer term, camels and cattle may also be given. This assistance is only given to family men who have lost livestock through misfortune in the recent past, to help them begin again. It is not given to those who have lost their animals through mismanagement or to young men to help them get started. It may even be extended to members of the larger clan who migrate into the area because of conflict, disease or drought elsewhere. The number of animals that are given varies, depending upon the resources of the supporting community and perceived need of the individual. Traditional restocking targets specific individuals who are most capable of managing livestock resources, increasing herd size and thus providing social and food security for themselves and other members of the community in the future. In this respect, it is not a purely philanthropic undertaking, instead concentrating on ensuring the future wellbeing and security of the community as a whole. Restocking may also occur over time as families who have lost their livestock continue to work for patrons and are given livestock each year as payment, with additional livestock provided through the practice of *zakad*. Livestock may also be given to elders, as a sign of respect. Source: Chris Pratt (2002)

Across the border in Ethiopia, the Boran pastoral community has been practicing a similar social insurance scheme for centuries known as *Busa Gonofa* (BG). BG is supported by the Boran's elaborate traditional administrative Gada system which oversees impartial application to needy families. The system even goes to the extent of prioritizing recipient families according to their needs. In writing about the resilience of this system, even during the 1890's Great Rinderpest Outbreak, Waktole and Oba (2009) state that '*despite the extermination of cattle, the collapse of the pastoral economy and human population, the practice of pawning children the wiping-out of entire families and, most critically, the crisis of social identity, societal responses enabled the revival of those social institutions that coordinated recovery and the redistribution of resources. , the social and ritual re-organization of*

the Gada, and the revival of social institutions that re-created social harmony and promoted pastoral economic recovery'.

Sadly, these once robust social insurance traditions are becoming less effective, primarily due to recurrent crisis (drought, conflict, population pressure), but also because of political, development and social change processes. Writing about the gradual erosion of this system in North-East Kenya, Pratt (2002) underlines that '*the processes of urbanization, development, formal education and changing religious ideologies have all contributed to the decreasing practice of 'traditional' early warning systems and coping strategies. Because this knowledge is in many cases preserved as an oral tradition, the increasing absenteeism of youth from pastoral communities and the decreasing practice of 'traditional*

knowledge pose a threat to the continued existence of this body of experience. This is cause for concern because the number of emergency responses available to communities has been reduced'.

These social insurance systems have not yet totally disappeared and may not even disappear, but they are becoming less effective. A study on pastoral dropouts in Borana (Desta et al. 2008) highlights the challenges facing BG. According to a focus group of pastoral dropouts:

'BG still exists and is important to maintain the peace of Borana. No one can imagine Borana without a functioning BG. Yet, BG has been overburdened by the magnitude of the current problem. The frequency of drought occurrence is increasing, more people are losing their livestock, and more people are becoming destitute and forced to claim for BG support. On the other hand, the number of people who can contribute to BG is dwindling. Under such difficult circumstances, BG can't support everybody. Nevertheless, everybody who meets the criteria for BG support has the right to claim but he may not be the one selected to be restocked at a given year. Moreover even if one is approved by the clan to be restocked, it takes quite long time before he receives the contribution and the person may not get adequate number of livestock from the BG contribution to sustain his livelihood.... What most do these days is, they put their claim to the clan and in the meantime look for other income generating alternatives in urban or within the same area to support their family'.

These views are also shared by focus groups of practising pastoralists according to this study.

Catley and Aklilu (2013) also confirm that BG presently provides only one fifth of the household support needed compared to the past and now it takes years before a household can receive this support due to a long list of intended beneficiaries.

To summarize, indigenous social insurance systems are overwhelmed by the ever-growing needs of destitute livestock keepers. Whether emergent insurance models can revamp these practices at some point in the future remains to be seen.

2. EMERGING LIVESTOCK INSURANCE SCHEMES

Emerging livestock insurance schemes focusing on small herders, sedentary livestock farmers and cooperatives consist of, at least, the following variants.

2.1 Loan-tied and/or Government-subsidized Livestock Insurance Schemes

India - According to FAO (1992), 'among Asian developing countries, perhaps, India has the most comprehensive rural insurance scheme including livestock', which was exclusively run by the Government's General Insurance Corporation (GIC) until the 2000 liberalization that brought private insurance companies to the fore. A GIC insurance policy led to the coverage of all loan-financed animals from the time of purchase. In India, the number of insured livestock per year increased, for example, from a mere 30,000 in 1974 to 18.2 million in 1989-90 or to 23 million if those that remained insured prior to and throughout this period were included.

According to the Department of Animal Husbandry and Dairying website⁸, as of 2008/9, livestock insurance has been implemented in 100 new districts under a 'scheme policy' through the Integrated Rural Development Programme or other subsidized schemes. The 'scheme' is restricted to cross-bred cows and buffaloes yielding 1,500 litres of milk or more per lactation period and does not extend to animals covered under other insurance schemes. Premium rates are tagged at a maximum of 4.5% for annual policies or 12% for three years plus additional premiums of 0.85% for permanent total disablement and 1% for transit beyond 80 km⁹. Under such a 'scheme', the Government subsidizes 50% of the insurance premium for two animals per household for high yielding dairy cattle (from 2 years at first calving up to 10 years), buffaloes (from 3 years at first calving up to 12 years) and for indigenous/first crossbred female calves from four months to 32 months or first

8 Government of India, Ministry of Agriculture (2019). Livestock Insurance Scheme. Department of Animal Health, Dairying and Fisheries.

9 Of the market or agreed value of the animal.

calving whichever is closer. The 'scheme' policy covers livestock death due to surgical operations, famine or diseases contracted prior to commencement of risk¹⁰ on a pre-agreed value basis, and for permanent disablement at 75% of the sum insured. Premium rates for 'non-scheme policy' vary from 4-6% plus an additional 1% for permanent total disablement and 1% for transit beyond 80 km. This policy covers all types of cattle and buffaloes belonging to the same age groups as for 'scheme' animals. Indemnity¹¹ covers the sum insured or market value before illness in the event of death and is restricted to 50% for animals dying when pregnant for less than four months; indemnity of 50% if death occurred during the dry period; and indemnity limited to 70% for total disablement for drought-affected animals.

However, despite an increase in the number of insured animals, a closer review by Singh (2015) sheds light on how this initiative has not been as effective as the micro-insurance schemes¹² in India or Bangladesh. To begin with, 95% of the scheme and 80% of the non-scheme policies are credit linked – i.e. farmers have to take out bank loans to buy high yielding animals to qualify for insurance. Secondly, while the average term of both insurance policies is 1-3 years, the loan repayment period is limited to one year despite the high prevalence of foot and mouth disease and haemorrhagic septicaemia, and to a lesser extent, black quarter and anthrax. Singh adds that the prevalence of various diseases is the biggest risk in India in terms of treatment cost, profit loss and the need to purchase milk or meat if one's animals are affected. A second risk is associated with shortage of fodder given that farmers in one area depend on pasture and in other areas on supplied fodder; the availability of which varies significantly depending on the prevailing monsoon season. Singh also remarks that focusing on one insurance product aimed at boosting milk production only does not make sense given the diverse agro-ecological systems of India. However, recent

developments are improving the situation and Singh believes that non-banking Micro Finance Insurance (MFI) agencies have increased in number to 10,553 providing credit to over 30.5 million clients with 40% of the lending portfolio going to the dairy sector as of 2015, and providing additional services such as training farmers on best practices, risk management and monitoring the health of animals to minimize default. Self Help Groups of India also make up the largest microfinance model in the world, with 97 million households and 7.4 million bank credit-linked groups, which are highly regarded by local communities. Their outreach across the country and close linkage between micro-finance and micro-insurance makes them ideal for the distribution of livestock insurance in India. The Indian Dairy Cooperative Network also includes 177 milk unions in 346 districts and over 133,000 village level societies with a total membership of 14 million farmers. The cooperative provides its members with additional services such as cattle feed, artificial insemination and veterinary care. All these risk management services also address the interests of insurers. Yet, regulations in India permit mobile phone transactions only if linked to a registered bank account. While this protects clients, it does exclude the approximately 50% of Indian adults who do not have access to a bank. Most of these people live in low income rural areas.

10 This would not be covered by private insurance companies. It shows that the Government is keen to help.

11 Compensation for loss or damage; reimbursement.

12 Micro insurance schemes provide insurance coverage for uninsurable households by mainstream insurance companies.

Case study 2 – Credit-Linked Insurance Schemes

Bangladesh – The Insurance Development and Regulatory Authority of Bangladesh (IDRA) operates under the Ministry of Finance, which oversees and regulates both life and non-life policies for the State-owned General Insurance Company and 43 other non-life insurance companies. In 1990, the Government set up a 'not for profit organization' under the title of Palli Karma-Sahayak Foundation (PKSF), which acts as a second-tier organization providing financial and non-financial services to its 203 active NGO MFIs operating as Partner Organizations (POs).

In 2013, 14 POs started a pilot livestock insurance for a beef fattening programme in which 124,669 cattle belonging to 112,821 borrowers of micro-finance loans were insured. The loan cycle was set to between 6-10 months with a premium structure of 0.7% of the value of the cattle plus a 20 Taka paravet service fee paid at the start of the loan and a further 0.3% fee in the event of a borrower's death. Achievements of the pilot scheme included a reduction in cattle mortality from a national average of 5.43% to 0.33% (due to enhanced paravet services). The total premium collected under this pilot scheme was US\$233,609 with a pay-out of US\$98,561 for 408 claims. Given that the POs were operating without reinsurance, setting up a Co-variant Risk Fund (CRF)¹³ was recommended to the Government as an alternative to reinsurance to cover this drawback (source: Karim, A. 2015).

Sudan – In 2010, the Savings Bank became an exception in giving loans to poor pastoralists in Sudan for production purposes. For example, in Gedarif State, 50 poor pastoralists from each of the 23 pastoral villages were selected by the village chief and the State's Pastoral Union to benefit from a livestock credit scheme set up by the Savings Bank. The amount of loan allocated for each beneficiary was 1,500 Sudanese Pounds (SP) with a repayment period of 18 months (with possible extension up to 24 months) at an interest rate of 6% per annum. The loan scheme was guaranteed by the village chief and the State's Pastoral Union, including the insurance premium coverage at 5% of the value of the loan. The loan was not disbursed in cash to the beneficiaries, but they were allowed to buy the animals they chose in the market up to the loan ceiling. Most beneficiaries bought, on average, 15 young ewes, although a few in the dairy sector bought cows. Interviewed pastoral focus groups were confident to repay back the loan in 24 months' time, if not in 18, based on the following parameters:

- Annual double lambing enables the loan stock to produce 30 offspring in the first year (15 females and 15 males) and 45 offspring (23 females and 22 males) at the end of the second year.
- Net gains were calculated at 69 offspring after accounting for 8% mortality, which would include 14 mature male sheep (aged one year and above) and 20 lambs (six to nine months old) commanding a price range of between 200 to 220 SP and 100 to 120 SP respectively.
- Pastoralists explained that the net income would enable them to repay back the loan with interest after accounting for veterinary, feed and water costs which were incurred during the two-month summer season. (source: Aklilu and Catley 2010).

¹³ In insurance terms, this is a measure of the association between two random risks (total liability), equal to the expected value of the product of the deviation from the mean of the two risks. In a simple language, a co-variant risk fund enables local insurance companies to pass on excess liabilities (i.e. the deviation from the mean) to reinsurance companies in case of catastrophic losses.

Analysis: – Both case studies and the practices in India demonstrate that loan + insurance schemes are ideal for a good proportion of LEGS target groups – consisting of smallholder sedentary farmers, agro-pastoralists and also pastoralists in limited cases. It is important to note that such schemes are aimed at adding value, with major requirements of fodder and water availability (also processed feed), access to veterinary services and market outlets. Riverine areas where agro-pastoralists grow fodder (e.g. Mendera, Garissa, Dolo, Gode, Gedarif, the wadi valleys of Darfur and Kordofan and spate-irrigated areas in Somaliland) are ideal locations for such schemes because of market access. The scheme could also be extended to fodder growers to enable them to achieve two or three harvests a year. In good years, pastoralists can also benefit from loan + insurance through the natural growth of animals (particularly shoats) when pasture is available for 3-4 months (lessons can be drawn from the Pastoral Risk Management (PARIMA) Project, the precursor of Index-Based Livestock Insurance (IBLI), and from the Gedarif case study). This scheme should be promoted for increased household income and improved nutrition, but care has to be taken in selecting ideal locations and in negotiating a reasonable loan repayment period with lending agencies. The main advantage of such schemes is letting borrowers operate with peace of mind, as the insurance coverage minimizes their losses.

2.2 Index-Based Livestock Insurance

2.2.1 The World Bank - Mongolia

IBLI was launched in Mongolia in May 2005 through World Bank (WB) financing in three pilot *aimags* that was subsequently scaled up nationally to cover 21 *aimags* and 330 *soums* by 2016. The system employs index-based approaches to *dzud* (extreme cold weather). However, losses are based on an index not linked to the *dzud* event itself but to livestock mortality levels, based on the assumption that a household requires a minimum of 200 animals to stay out of destitution. The index combines self-insurance, market-based insurance and social insurance. Herders retain small losses that do not affect the viability of their business through self-insurance¹⁴, while larger losses are transferred to the private insurance industry (market-based insurance)¹⁵, and only the final layer of catastrophic losses¹⁶ is borne by the government¹⁷. The insurance would pay out to individual herders whenever the mortality rate in the local district (*soum*) exceeded a specific threshold. What made this approach possible was the availability of 33 years of data on adult animal mortality for all *soums* and for the five major species of animals (cattle and yaks, horses, sheep and goats). According to the WB, this data provided the basis for developing actuarial information. As is the case with WB projects, IBLI was launched with the full participation and approval of the government on the concept, design and implementation modalities of the project. As a result, the project benefitted by mobilizing all relevant government agencies and the private sector with the necessary technical support provided by Bank staff and external experts.

14 According to Global AgRisk (undated), policy holders retain herd losses of up to 10% - i.e. the insurance kicks in only if mortality levels rise above 10%.

15 Global AgRisk puts the range between 10 and 30% herd losses. Herders get paid for 20% of mortality levels, as they retain the first 10% of the loss.

16 This event is triggered by herd losses of above 30%.

17 According to AgRisk (undated), these thresholds or risk products were based on 32-year (1971-2002) data from the National Statistics Office for 325 *soums* for five species – which indicated, on average, mortality rates exceed 10 percent about in about one in every 10 years for all species. Mortality rates beyond 30 percent are a 1 in 100-year event for most species. However, recent data shows cattle and yak mortality rates of above 30 percent are a 1 in 30-year event. In fact, mortality rates of above 10% happened in 2008 and 2009, challenging the reliability of the above parameters.

In Mongolia, around 2,400 policies were sold in all 56 pilot *soums* in the 2006 sales year; over 3,700 policies were sold in 2007, in 2008, 4,047 policies were sold with premiums totalling approximately US\$120,000 and in 2009, 5,654 policies with total premiums of US\$136,000 were sold. These increases have occurred despite the low level of claims and indemnity payments (prior to 2008 economic crisis), and also with a declining cashmere price in 2008 and 2009, which limited the cash available to herders. Yet, the WB IBLI pilot successfully passed two viability tests in 2008 and 2009 when high mortality rates triggered significant indemnity payments (in 2008, US\$340,000 was paid to 1783 herders, and in 2009 2,117 herders received payments amounting to US\$275,700 in total). Of note, in addition to \$12.7 million allocated for direct IBLI disbursements by the WB, support components were also well-financed (compared to ILRI's IBLI) – for example, \$0.962 million for public awareness and promotion; \$0.675 million for institutional capacity building; \$0.395 million for monitoring and evaluation; and \$2.027 million for project management component allowing the set up and functioning of Project Implementation Units in all programme locations (World Bank 2016).

Achievements made in consolidating the sustainable operationalization of insurance companies in Mongolia consist of the project continuously learning from experience, and amending and fine-tuning its approach. Initially the Project Implementation Unit trained agents directly to sell IBLI, then they used the 'training of trainers' model to facilitate expansion to all 21 *aimags*. Over the life of the project, 2,454 insurance agents were licensed and group policies¹⁸ were then sold to multiple herders. After the programme gained experience it successfully purchased reinsurance from the international markets. It then established an equalization reserve¹⁹, and finally, the Agricultural Reinsurance (AgRe) company was established as a sustainable entity to manage the IBLI programme going forward (Climate and Development Knowledge Network 2013).

Insurance policies were sold through 5-7 private companies who were involved from the outset in key decision-making processes including agent training and risk sharing arrangements. Continuous support was provided by the project to these insurance companies, such as, building their knowledge in a new area of insurance down to *aimag* level staff and the establishment of a risk pool; and by developing an effective reinsurance strategy to protect insurance companies against catastrophic risk. These steps ensured strong engagement from the private sector, as well as profitability of the business through which participating companies earned profits of US\$ 100 million between 2006 and 2015, while average premiums collected grew by 28% per year. The process culminated with the establishment of AgRe and the commitment of capital to the amount US\$15 million, following which AgRe secured a reinsurer license from the Financial Regulatory Commission (World Bank 2016). Figure 1, (on the left) compares the numbers of insured herders as a percentage of the total numbers of herders in the country. Figure 2, (on the right) compares the value of premiums paid against loss ratios. As the graph indicates, the profit accrued by insurance companies was the result of minimal livestock losses beginning in 2010.

¹⁸ Group Policies enable individuals in the group to get discounted premium rates. Insurance companies like this since they do not deal with policy holders on individual basis, saving on administrative costs.

¹⁹ \$15 million was set aside as an equalization reserve, a little above the total amount of insurable sum for livestock. The reserve was then transferred to AgRe, after it was licensed as an agricultural reinsurance company. The reserve will cater for losses of insurance companies in case of huge indemnity payments.

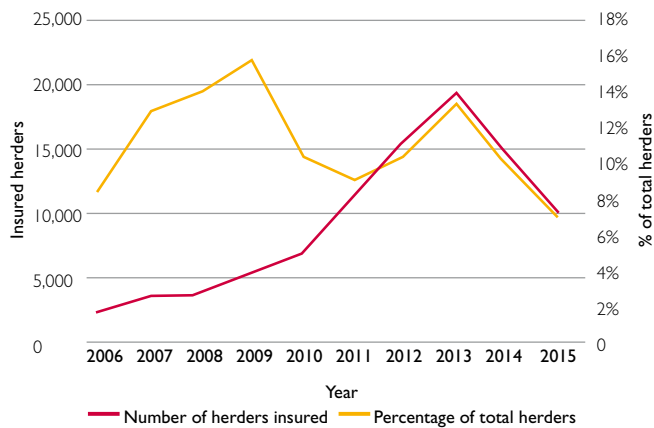


Figure 1. Evolution of No of insured herders

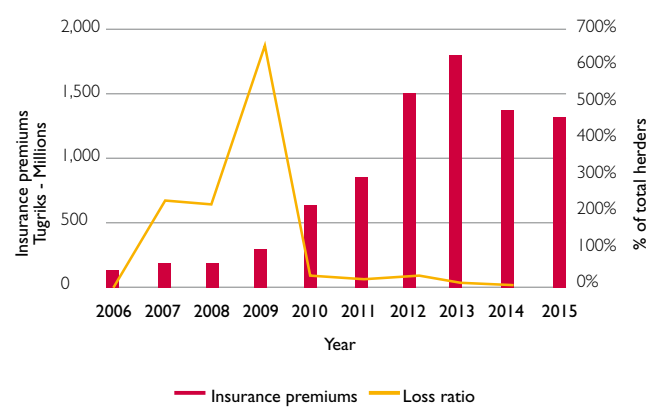


Figure 2. Premium collected and loss Source: World Bank 2016

Case Study 3 – Impact of IBLI in Mongolia

Since the beginning of the IBLI programme, ten insurance cycles were implemented, and indemnity was provided for nine years. Cumulatively over the life of the project 93,700 herders purchased the insurance, paying US\$405 million in insurance premiums, and 16,545 received indemnity payments totalling US\$160 million. Annual monitoring reports show that 8.5%-15.5% of herders in *aimags* covered by the project bought the IBLI every year. The main outcome observed after the pay-outs from the 2010 *dzud* was a more rapid restocking of herd size for herders who received a pay-out, helping insured herders to recover their herd size faster than uninsured herders. Herders who purchased IBLI in 2009 and received indemnity payment in autumn 2010 had a higher herd size in 2011, 2012, and 2013, compared to herders who did not purchase the IBLI. In 2011, insured herders owned on average 15 to 16% more livestock than uninsured households; in 2012 they owned between 22% and 27% more livestock; and in 2013, they owned about 17% more. Increased financial awareness had a 'spill-over' effect by supporting the expansion of rural credit, savings and insurance markets. Reportedly, 80% of insured herders had a formal loan compared to only 72% of the non-insured herders. From 2006, current accounts were opened for all herders who purchased insurance, giving herders access to savings. Furthermore, banks offered interest discounts on loans if herders purchased insurance, leading to 5,561 herders borrowing US\$815 million over the life of the project, and receiving a total discount (due to interest reduction) of US\$ 20 million.

Findings of an independent evaluation by the Center for Social excellence in 2014/2015 from a sample of 599 insured households and FGDs: Converting the total livestock of herders to a sheep unit, herd size increased by 24% for insured herders, and by 19% for non-insured herders over the study period; the number of horses and cattle (which are higher quality animals) increased at a higher rate for insured herders. However, the growth rate of sheep flocks was smaller among insured herders. There was no significant difference in the growth rate of camels or goats. Insured households were more likely to purchase five of the eighteen types of assets than uninsured herders. Insured herders were 1.62 times more likely to purchase a water pump for a well, 1.27 times more likely to purchase a satellite dish, 1.30 times more likely to purchase a refrigerator, and 1.42 times more likely to purchase a home or an apartment. Insured households had 6% more access to bank loans, 6% more use of livestock as collateral, and 6% more likely to have taken a loan over the past five years²⁰ (source: World Bank 2016).

Analysis – As presented in Figure 1, the number of insured herders grew steadily between 2006 and 2010 rising sharply in 2011, peaking in 2012 and then declining as of 2013 until 2015. The sharp growth in 2011 and 2012 was the result of substantial pay-outs made in 2009 and 2010 attracting more herders to buy policies. The decline, as of 2013, was because of minimal livestock mortalities since 2010 which did not trigger significant pay-outs (Figure 2). Unfortunately, data was not available on trends since 2015 for informed assessment on whether the achievements are still on-going or slowing down. Meanwhile, all reviewed documents do not mention if the WB IBLI was subsidized or not and because there is no mention of this, one has to assume that premiums were not subsidized. Premium rates, on the other hand, were not disclosed including data on insured herders' wealth group and gender.

Regardless, there are some issues of concern. Ten percent of livestock mortalities are retained by herders. When mortality rates reach 30%, insured herders get indemnities for only 20% of the losses, as herders have to retain the first 10% loss. The project design seems to be skewed to benefit insurance companies to keep them afloat fearing liquidity problems, while making the government responsible for losses of more than 30%. Secondly, despite accepted parameters that over 10% herd mortality happens only once in ten years, mortalities of such magnitude happened in 2008 and 2009, two years in a row, challenging the validity of this assumption. The third concern is basing the index on mortality levels, which implies that indemnities are paid not before but after the death of animals. Herders may purchase replacement animals or use the indemnity to meet other needs, whereas pay-outs before the death of animals could have enabled saving core breeding animals, at least. The programme has succeeded in building a solid financial base for livestock insurance companies and a local reinsuring firm, but this was done by pushing liabilities to the government in cases of catastrophic losses and by limiting indemnities to 20% of losses for insured households. Though the target groups consist of mobile herders – which fall under the target groups of LEGS - the design of the overall insurance policy must be viewed with caution for recommendation.

2.2.2 International Livestock Research Institute – North Kenya and South Ethiopia

IBLI was launched by the International Livestock Research Institute (ILRI) in Marsabit county of Kenya in January 2010. Since then, it has been expanded to include Isiolo and Wajir (August 2013), Garissa (January 2015) and Mandera (January 2015) in Kenya, and the Borana region of Ethiopia (July 2012). In both Kenya and Ethiopia, the index is based on Normalized Difference Vegetation Index (NDVI) satellite imagery that gives an indication of the level of forage or level of 'greenness' (Kunow 2016). The Agency for Rangeland Information and Development in Kenya (ARID Kenya 2018) elaborates on this approach. *'The index on which the insurance contract is written is the predicted area average mortality rate, defined as a function of the NDVI. Because NDVI data are available in real time, the predicted mortality index can be updated continuously over the course of the contract period. We express the index in terms of percentage predicted mortality instead of NDVI in order to expressly link the index to the insurable interest of contract holders.'* The index emanates from a longitudinal research outcome, which established that pastoral households in Northern

Kenya (and also Southern Ethiopia) tend to tip into destitution or, at least face very severe and long term consequences, if their herd size dips below the critical threshold – i.e. between 8 and 16 Tropical Livestock Units (TLUs). This threshold represents a marginal line, above which herders may survive and/or thrive in the system, and below which herders may risk *'irreversible asset losses'*. IBLI's main objective is in protecting *'vulnerable but presently non-poor households'* from such *'irreversible asset losses'* (Chantararat et al 2013).

IBLI differs from traditional insurance systems in three fundamental ways. Unlike traditional insurance, which makes pay-outs based on case-by-case assessments of individual clients' loss realizations, index-based insurance pays policyholders based on an external indicator that triggers payment to all insured clients within a geographically defined space. Secondly, the external index is reliable and inexpensively available, and cannot be manipulated by the insured or the insurer, as the data source determines when the index has reached the 'strike contract'²¹. Thirdly, the gains from index-based insurance come at the cost of 'basis risk'. Nathan et al (2015) elaborate this imperfect correlation:

21 The point at which indemnity payment is triggered.

'Index insurance policies make indemnity payments according to index readings, rather than actual losses experienced. The indices are intended to reflect area-average losses, but necessarily do so with error. Heterogeneity between individuals within an index area can result in un-indemnified losses²² even if an index perfectly tracks average losses. The differences between insurable losses and indemnity payments, called basis risk²³, is a chief weakness of index insurance. The basis risk faced by IBLI insured households is substantial. In Marsabit, IBLI covers 62-77% of the herd mortality risk that households face. The remaining basis risk is partially due to index error, or differences between predicted and area-average livestock mortality rates.'

Keno et al (2018) also provide an example where herders in Hidhaboke, Borana, Ethiopia, had to relinquish indemnities for drought-induced losses in March of 2015 mainly because the satellite imagery was taken in January/February of same year:

ILRI's IBLI in North Kenya and Southern Ethiopia applies two sales windows per year – in August/September and January/February to cover the long rain/long dry and short rain/short dry seasons. Pay-outs happen either in August or February. Pastoralists have options for purchasing policies either for one or both seasons; for one or a mix of the four species. At its launch in 2010, IBLI sold 1,979 contracts for a total premium value of \$46,597 with the value of total livestock insured reaching \$1,193,080. Since then a steady increase of policy purchases has been reported by many. ARID Kenya (2018) attributes this to: *'subsequent IBLI innovations and mobile phone diffusion that have decreased transaction costs with increased efficiency in pay-out processing and premium collections.'* The report cites that, *'as of June 2014, more than 5,000 IBLI-linked mobile phone policies were issued, with five of the thirty three micro insurance services achieving a scale of greater than 1 million policies.'* Although not reported, this was facilitated through donor funding that filled the gap between what herders paid for premiums (known as consumer price) and the actual premium rate received by insurers (known as market price). For example, in Upper Marsabit (a drier area), insured households pay a 'consumer premium price' of 5.5% of the value of a TLU while insurers receive a market premium of 9.2% of the TLU value (a subsidy of 3.7%). Similarly, in Lower Marsabit (less dry area), the consumer premium price was 3.25%, while insurers receive 5.25% of the TLU value (a 2% subsidy). It cannot be ruled out also that additional subsidies could have been provided through other agencies. In any case, insured households retain 15% of the predicted herd mortality losses and insurance companies start pay-outs only when

the predicted mortality levels reach above the 15% strike contract (see footnote 21).

In Borana, IBLI uptake was slow in the first two years – 627 households in 2012 and 509 households in 2013 and then sharply increased as of 2014. In 2017/18, the number of insured households grew to 2,962 and the number of insured animals rose to 14,017. This growth is attributed to demonstrated evidence of pay-outs beginning 2014 and a 35% premium subsidy provided by a local NGO (CIFA) for cash-strapped groups then. On the other hand, adaptation of IBLI by gender provides a mixed picture. According to ARID Kenya (2018), *'IBLI policyholders in North Kenya predominantly renew or buy additional policies in 90% of the cases; only 4% neither renew nor buy additional policies; in three quarters of cases policyholders are women; and in just over half of all cases they are heads of household.'* This may indicate women are the predominant policy holders in Kenya, though it is not clear if women were specifically targeted. Conversely, a study on gender differences for demand in IBLI in Borana found no significant differences between male and female-headed households (Bageant and Barrett 2015). Data was not available on policy holders' wealth groups in either Kenya or Ethiopia.

In Northern Kenya UAP insurance (re-insured by SwissRE) and Equity Bank were the only companies directly engaged with IBLI in 2010²⁴. Since then APA Insurance, in particular, and also Takaful Insurance of Africa, have emerged to be the key players. In addition, Safaricom is reported to be collaborating with commercial insurance companies to launch the first mobile-insurance product, allowing mobile-based financial services for subscription, withdrawal, premium purchases and also pay-outs by text. Kenya's technical edge in mobile finance is likely to provide a boost for IBLI expansion. Conversely, things are entirely different in Ethiopia, as mobile-based financial services are almost non-existent. For example, the Oromia Insurance Company is the only one engaged in issuing IBLI policies in Borana where pastoral cooperatives and unions act as sales agents, who may not be as effective as motivated individuals. However, the company appears committed and is hoping to generate profits in the future²⁵.

22 Losses not covered by insurance.

23 The difference between the amount the insurance policy is supposed to pay and what is actually paid for the loss

24 UAP was underwriting the risk and Equity Insurance provided extension, publicity and sales services through its point of sales branches linked to the Hunger Safety Net Programme of DFID.

25 Interview with Getaneh Erena, Oromia Insurance Company official, on June 5, 2020

ARID Kenya (2018) reports that 87% of IBLI policy holding households have been able to reduce distress sales of livestock by almost 50% although the specific measures taken by such households are not identified. Though not reported, reductions in distress livestock sales signify the potential impact of IBLI in maintaining the supply/demand equilibrium and in stabilizing livestock prices even in the midst of a drought. Decreases in distress sales also imply a reduction in potential dropouts. Other benefits mentioned include 'having a peace of mind' and using pay-outs for food and medicine purchase and payment of school fees. Nathan et al (2015) list the favourable impacts of IBLI from sample household evaluation as providing *'strong positive impacts on ... indicators of well-being, especially pronounced in the midst of drought events; the marginal benefit/cost ratio of IBLI substantially exceeds that of unconditional cash transfers; and purchasing full IBLI coverage for all the seasons in the data costs, on average, the equivalent of 1.1% of herd size. In exchange, IBLI sharply improves the likelihood of herd survival rates – increasing, on average, by 45.1%'*. In Borana, pay-outs of over \$521,000 were made to beneficiaries between 2017 and 2019 (Zewde and Wako 2020). Keno et al (2018) estimate these pay-outs increase household expenditure on feed by 1,943 birr; on veterinary drugs by 928 birr and on weekly feed consumption by 46 birr (other factors remaining constant). Focus group discussion participants of this study also highlighted that IBLI pay-outs allowed them to maintain core reproductive animals they prefer to keep rather than replacement animals, which they consider to be of inferior quality²⁶.

2.2.3 World Food Programme – Somali Region, Ethiopia

In October 2017, the World Food Programme (WFP) also launched a similar weather-index insurance scheme in the Somali Region of Ethiopia for pastoralists covering the *gu* (long rain/long dry) and *deyr* (short rain/short dry) seasons. The WFP project enrolls Productive Safety Net Programme (PSNP) beneficiaries only. WFP's IBLI builds on and is closely linked to the PSNP through which beneficiaries receive livestock insurance premiums for contributing their labour for 'creation and rehabilitation of community disaster risk reduction assets' – such as, ponds, access roads, bush clearing, small scale irrigation, etc. Individuals benefitting from pay-outs in the project period (5 years) are 'expected' to purchase their own policies in the post-project period. WFP's approach is similar to its index-based crop insurance in Northern Ethiopia, where PSNP beneficiaries have reportedly started paying for premiums. Though the project targets households with 5-11 TLUs, WFP pays premiums for only 5 TLUs at a premium rate of \$80 with the value of insured livestock at \$400 per household. So far, premiums have been paid for 15,500 households and WFP plans to cover 70,000 households by around 2022. WFP engages a consortium of four insurance companies, which are reinsured by SCOR of France. The first pay-out was triggered in late 2019 amounting to \$435,324 for 4,673 beneficiaries (WFP 2019). Similar to ILRI, pay-out is done before animals die²⁷. WFP has managed the lowest strike contract with the insurance companies in which insured herders retain the cost of only 2% of predicted mortality losses. Meanwhile, findings from Centre for Evaluation Development (C4ED 2019) on WFP's IBLI state that *'.....on a positive note, the programme has increased the likelihood that beneficiaries would rely on veterinary medicines and services to cope with drought. Positive effects of the project are more evident at the community level since IBLI public work activities differ from the standard PSNP public works and have contributed to improved water and pastureland availability, as well as social cohesion. In general, a relatively large willingness to pay for livestock insurance is reported, but this only applies to roughly half of the beneficiary households. The other half is not willing to pay anything'*. However, the assessment on willingness to pay could be biased as the evaluation was carried out before the first indemnity was paid.

26 Initially, indemnities were paid after death of animals; this was changed later (interview with Zewde Y, ILRI, on 4 June 2020).

27 Interview with Awol Adem, WFP IBLI, on 16 June 2020.

Analysis – One clear benefit of ILRI's and WFP's approaches is in triggering indemnities before animals die. This enables households to save core reproductive animals and to access extra cash or meat if they decide to sell or slaughter other animals they want to cull from the herd for any reason. Secondly, unlike traditional insurance companies, IBLI indemnities cover all insured households in the index-bound geographic area. In addition, the index cannot be manipulated by any party. Obviously, index readings of area average losses result in causing a basis risk, i.e. a difference between insurable losses and indemnity payments. These differences mean that some households receive lower indemnities while others benefit and receive higher pay-outs due to the idiosyncratic nature of households at community levels. This is not likely to change under the weather index system. Yet, compared to Mongolia's 20% indemnity rate, IBLI insured households in both Kenya and Ethiopia receive indemnities of up to 77% for predicted mortality losses. IBLI's uptake has partly been stimulated by subsidies of varying levels but also by substantial reductions in transactional and operational costs, particularly in Kenya. Though current data is not available on ILRI's IBLI subsidy levels, we can assume a substantial reduction, given that the programme has been running for ten years. CIFA, for example, has phased out all subsidies in Borana. This indicates that IBLI is firmly entrenched on the ground, although annual fluctuations in the numbers of insured households are expected. Other crucial data that is missing from the literature is a breakdown of insured households by wealth groups and gender. This could have provided information on which of the LEGS target groups, if any, are actually benefitting. In this regard, WFP's IBLI targets poor household groups that have already been identified and embraced by PSNP. Payment for premiums in labour has also contributed to improvements in community assets (such as fodder availability) and social cohesion. WFP's beneficiaries also enjoy the lowest contract strike enabling them to get indemnities for predicted mortality losses of above 2%. What remains to be seen is if they will continue purchasing policies after the project is phased out. Obviously, some will continue and others may not. At the least, they will benefit from the various community assets provided by the project and their own labour. Whatever wealth groups of pastoralists and farmers are involved in livestock insurance schemes, one thing is certain - indemnity payments are likely to keep them afloat and prevent them from sliding into a less fortunate situation than they were in before. Some may even improve their circumstances. Though insured households currently make up a very small proportion of total herders in Kenya and Ethiopia, they possibly represent a group that is not likely to seek external aid from agencies during and post-emergency phases. However, more evidence (data) is required to establish this assumption.

Implications for LEGS/Conclusion

IBLI is held in high regard by donors (e.g. DFID, AusAid, SIDA, SwissAid), the WB and other bilateral institutions, WFP and other UN agencies, increasing numbers of national governments, ILRI, numerous NGOs, and think-tank groups, signifying its importance as a variant safety net approach. IBLI's modus operandi varies between and within countries subject to rules and standards set by major actors. Similarly, the modalities of loan-tied insurance schemes also vary by project and country. Other variants of IBLI and loan + insurance schemes could also emerge in countries which introduce such systems in the future. For example, Zimbabwe, Nigeria and Senegal are planning IBLI.

IBLI and loan + insurance schemes are complementary to LEGS in two different ways. ILRI's and WFP's IBLI pay-outs before animals die are aimed at saving livestock assets (asset protection) in ways that are similar to LEGS intervention measures (provision of feed, water, shelter and veterinary services). WB's IBLI is aimed at asset replacement (restocking) as pay-outs are made after the death of animals. IBLI can therefore be regarded as a proactive measure for saving and/or replacing livestock assets. A loan + insurance scheme, on the other hand, transcends from asset protection into asset building. It is aimed at profit making through added value, service provision, etc. for increasing income and the nutritional status of households. It is, as such, a pre-emptive measure. It is unclear if the loan + insurance schemes fall within the current mandate of LEGS, but one cannot deny their complementarity when looking at the bigger picture of poverty alleviation for livestock dependent households.

The final question is if either IBLI or loan + insurance schemes or both can be incorporated in the next edition of the LEGS Handbook, and promoted more widely through the LEGS programme. The available evidence suggests it is too early to do so for the following reasons:

- Present insurance policy holders of both schemes represent a very small proportion of the total livestock producers in each of the countries reviewed in this paper. Preliminary assessment findings do not also provide details on critical indicators that are of relevance, such as the wealth and gender status of those insured. These shortcomings do not provide necessary and

sufficient information for LEGS for formulating guidance notes and intervention standards on livestock insurance schemes.

- Available evidence, so far, indicates annual variations in the numbers of policy holders – i.e. increasing following pay-outs and decreasing in normal years. Where we see a stable or an increasing trend is in cases that fully subsidize premium rates (WFP's IBLI). Even in such a case, one cannot be certain if present beneficiaries will buy up policies once the project is phased out. As a result, the sustainability and increased adoption of insurance schemes can only be asserted when a representative proportion of livestock keepers become policy holders. This will take some years to prove.
- Whereas LEGS provides guidance in standardized format, both IBLI and loan + insurance schemes employ different approaches in terms of interest and premium rates; premium subsidy levels; variations in indemnity coverage and contract strike levels including pay-outs before or after death of animals. Loan repayment periods also vary by projects for loan + insurance schemes. Standardizing these different approaches is nearly impossible at this time.
- Livestock insurance schemes are managed by private insurance companies, whose primary motive is profit making. One cannot be certain that they are not going to dictate predatory policies a few years after the current project initiators/ sponsors (WB, ILRI and WFP) leave the scene. One cannot also rule out insurance companies defaulting on indemnities in case of catastrophic losses. Given such uncertainties, it would be unwise for LEGS to promote livestock insurance schemes at this early stage.

However, it is worth noting that the status of livestock wealth can change dramatically in pastoral settings. For example, conflicts have driven wealthy pastoralists into destitution in a very short time in Darfur, South Sudan (Young et al. 2005; Aklilu et al. 2016), where a new class of youth warriors have become wealthy through looting. Defaults in livestock export payments have impoverished many pastoralists in Sudan. Disease outbreaks, droughts and floods change the status of households in significant terms. The implications of livestock insurance schemes should be viewed from these and other perspectives in the long run.

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