



A regional approach to drought index-insurance in Intergovernmental Authority on Development (IGAD) countries—  
Operational and technical feasibility assessment



RESEARCH PROGRAM ON Livestock

# A regional approach to drought index-insurance in Intergovernmental Authority on Development (IGAD) countries —Operational and technical feasibility assessment

## Executive summary

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This is the executive summary of a report organized in three Volumes: Operational feasibility assessment (Volume I), IGAD countries annexes (Volume II), technical feasibility assessment (Volume III).

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# Executive summary

**This report assesses the operational and technical feasibility of a regional index-based livestock insurance (IBLI) program for pastoralists located in the Intergovernmental Authority on Development (IGAD) region.**<sup>1</sup> This desk study has been prepared by the International Livestock Research Institute (ILRI) under the Drought Index-insurance for Resilience in the Sahel and Horn of Africa (DIRISHA) research program. The work has been supported by the United Kingdom Foreign, Commonwealth and Development Office (FCDO).

## The problem

**Pastoralists are a key population group and economic factor in the Greater Horn of Africa.** In the eight IGAD countries, up to one fifth of the total population – or 50 million people – is made up of pastoralists or agro-pastoralists. Their main source of livelihood is the rearing of livestock, mostly in open grazing rangelands in semi-arid areas. In most IGAD countries, livestock contributes more than one third of agricultural gross domestic product

(GDP) and in Djibouti and Somalia more than 80% of agricultural GDP. Pastoralism is the main source of meat and milk products in most IGAD countries.

**However, pastoralists suffer from widespread poverty and are severely exposed and vulnerable to recurrent droughts.** Pastoralists belong to the poorest segments of society in the IGAD countries. Their resilience to droughts is low and their exposure high. In severe drought years, millions of head of livestock die from starvation due to depleted forage, diseases and lack of water, pushing millions of people into food insecurity. As severe droughts rise in frequency and severity across the region, pastoralists find themselves in a poverty trap.

## Index-based livestock insurance as a potential solution

**Index-based livestock insurance (IBLI) is a tested tool to build the drought resilience of pastoralists.** IBLI is an insurance approach whereby livestock-owning policyholders receive payouts based on an index.<sup>2</sup> In the Horn of Africa, IBLI has been specifically designed to benefit pastoralists. The Normalized Difference Vegetation Index (NDVI) for rangeland areas, calculated from satellite imagery, is processed to derive an index of the relative availability of forage. When drought causes the index to fall below a pre-agreed threshold, policyholders in the affected area receive an

<sup>1</sup> Djibouti, Eritrea, Ethiopia, Kenya, Somalia, South Sudan, Sudan and Uganda.

<sup>2</sup> For the purposes of this study, 'IBLI' is used as a generic term to describe satellite-index-based insurance products for livestock holders. This definition thus refers to the technical design of the insurance product and is free from any assumptions about its potential policyholder, purpose, or the marketing and sales and delivery channels used. Thus, IBLI has been used to describe the names of specific livestock micro-level index insurance schemes in Mongolia, Kenya and Ethiopia. IBLI – as per the definition in this study – can also describe other types of programs, targeting e.g. meso- or macro-level clients pursuing commercial or non-commercial objectives.



insurance payout that enables them to purchase animal fodder or veterinary services to keep their animals alive despite the adverse conditions.

**Since 2010, IBLI has been implemented in different forms in Kenya and Ethiopia.** Four programs need to be differentiated. (i) The first IBLI program was launched in Kenya's Marsabit County in 2010. It was started as a 'micro-level' program, in other words as a program that sold policies to individual pastoralists and was aiming to be commercially sustainable. Pastoralists were charged the actuarially fair price based on the expected claims payouts but did not receive any other form of direct premium subsidy. (ii) This was followed by the introduction of micro-level IBLI in southern Ethiopia in 2012, which again charged pastoralists the actuarially fair premium price. (iii) After first experiences could thus be gathered, the Government of Kenya decided to use public resources to purchase IBLI on behalf of vulnerable pastoralists to protect them against drought. This 'modified macro-level' program, under which payouts are made directly to the pre-identified and registered beneficiaries, was called the Kenya Livestock Insurance Programme (KLIP) and was launched in 2015. The Government of Kenya fully financed the premiums for 5 tropical livestock units (TLUs) belonging to these vulnerable pastoralists. (iv) Finally, the modified macro-level approach was also adopted in Ethiopia. In 2018, the World Food Programme (WFP) in conjunction with the Government of Somali Region in Ethiopia launched the Satellite Index Insurance for Pastoralists in Ethiopia (SIPE) program. Through SIPE, WFP purchases IBLI coverage for vulnerable pastoralists in the region.

**This study has reviewed the IBLI-based schemes in Kenya and Ethiopia to highlight a number of lessons learned that should feed into the design of any new IBLI initiative in the IGAD region.** The micro-level IBLI and modified macro-level KLIP and SIPE programs have made major payouts to pastoralists during severe drought seasons in 2011/12, 2014/15 and between 2016/17 and 2018/19. Various scientific evaluations of the programs have shown that they are successful in helping insured pastoralists cope with the effects of drought shocks and protect their herds during shock years. Thus, there is proof of concept that the product works. However, the programs have experienced a series of major challenges, and any future IBLI program should ensure to address these carefully. Lessons learned include the need for the following.

- **Stronger linkages between macro- and micro-level IBLI programs.** The existing micro-level programs have struggled hard to reach scale despite significant subsidization of their operational costs by donors over 10 years and a great deal of experimentation to address the challenges. One remedy could be to operate the macro- and micro-level schemes – which are underwritten by the same insurers – more as one, rather than as separate schemes. This could boost scale significantly. Opportunities include the following. (i) **Governments should consider buying multi-year (rather than annual) modified macro-level insurance contracts** to support the building of micro-level distribution channels. As the insurers are the same for both types of programs, insurers are thus provided with a longer planning horizon and can invest more in micro-level distribution networks. (ii) In addition, **incentives or conditions should be established encouraging insurers to invest more in micro-level distribution** – e.g. by allocating subsidies for the macro-level program proportionally to the number of micro-level policies sold. Insurers could also be required to invest a certain share of the macro-level premium they receive into distribution infrastructure. (iii) **A clear beneficiary graduation strategy from fully funded modified macro-level programs should be established from the start.** This can help facilitate a gradual transition of beneficiaries into micro-level voluntary IBLI, which requires individual financial contributions. (iv) **Awareness creation and financial literacy education as provided under the modified macro-level program can also benefit usage of the micro-level program.** This has been evidenced for KLIP.
- **New micro-level distribution channels.** So far, the micro-level policy programs have operated at a major financial loss. The unit costs of IBLI promotion, awareness and education, policy issuance, and premium collection with individual pastoralists have exceeded the premium generated from each micro-level policy sale. In order for micro-level IBLI programs to operate at a commercial profit, they will require new and more cost-effective ways of marketing and delivering cover to clients. Of the options analysed in this study, the potential for meso-level insurance may hold the greatest promise. This entails selling policies to risk aggregators such as pastoralist cooperatives, rural finance institutions or livestock services organizations (e.g. providing veterinary, drug, feed supplement services). Meso-level IBLI sales have been talked about time and again but have not been attempted so far. Meso-level sales also offer



the potential of de-risking lending to pastoralists and thus of boosting investments in pastoral value chain upgrades. However, expectations should be kept low: so far, none of the many ways in which micro-level sales have been attempted has proven commercially sustainable.

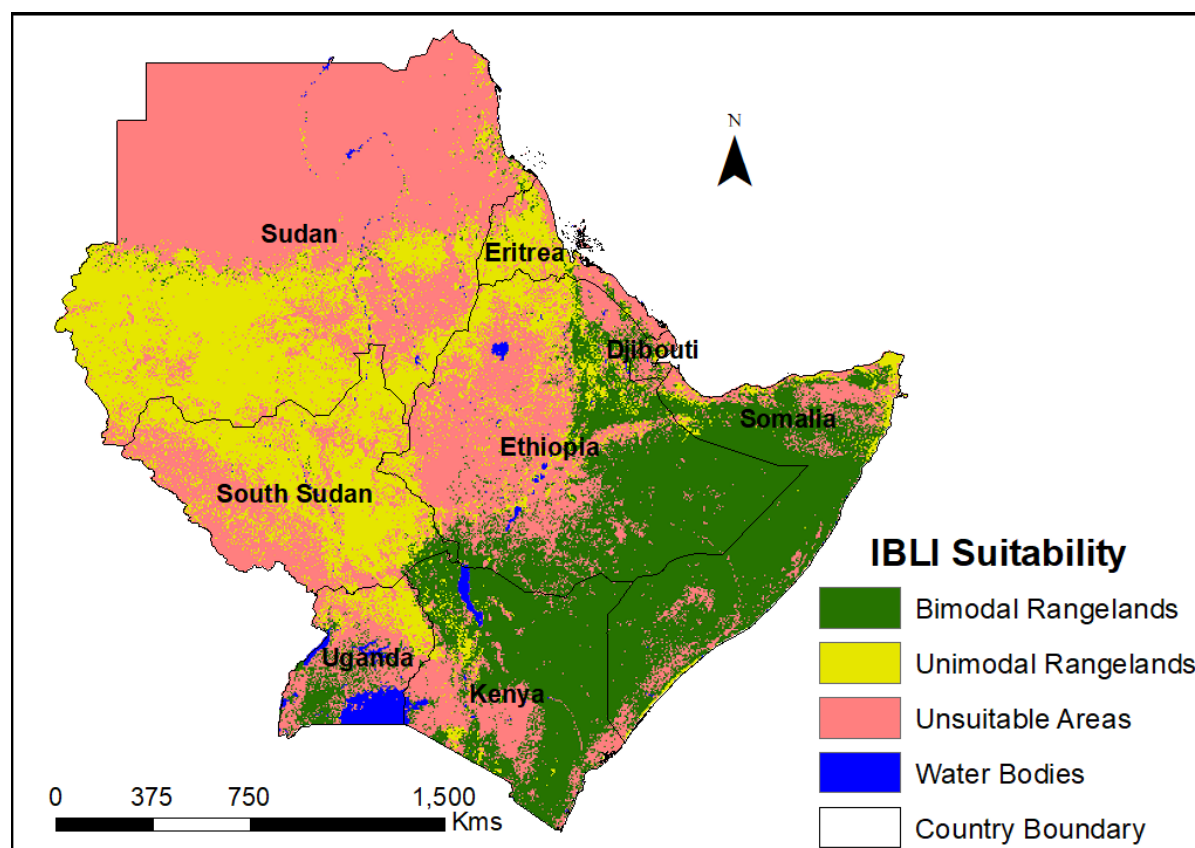
- **Parallel investments in resilience building and markets.** Insurance by itself cannot build drought resilience and protect livelihoods. On the one hand, building resilience requires broader investments. These include investments in risk information (e.g. probabilistic drought risk assessments), risk reduction (e.g. improved natural resource management practices) and preparedness building (e.g. live animal offtake markets). Insurance is only one of many needed elements for a comprehensive risk management framework. On the other hand, IBLI requires certain elements to function well. Not only is there a need for more concerted financial literacy and insurance training for pastoralists, but systems for targeting and registering pastoralists also need improving. There also needs to be a strengthening of private sector markets for fodder and feed supplements as well as veterinary services. Without these, pastoralists receiving a payout are unable to use it to support their animals.
- **Following a cluster implementation approach.** Given the challenges of implementing IBLI across the IGAD region, a future regional IBLI program might initially focus on selected regions where livestock input and output services are more developed. Some such 'clusters' have already been identified by IGAD. There, certain minimum requirements are more likely to already be in place, such as the existence of fodder markets and pastoralists' access to them, a minimum level of financial inclusion among pastoralists, and minimum average herd sizes among pastoralists to ensure the usefulness of IBLI.
- **Investment in beneficiary registries.** There are only a few existing registries of pastoralists in the IGAD region. Beneficiary registration is likely to be a major challenge in any regional IBLI initiative. Policymakers could thus consider investing in the development of pastoralist household registries in the target regions following the example of the Hunger Safety Net Program (HSNP) in Kenya. Such investments will yield significant positive externalities for social protection and policy planning.
- **Alignment with other pastoral development initiatives.** Across the IGAD region there is a large number of disaster risk financing and drought resilience-building programs targeted at pastoralists. Any future IGAD regional IBLI approach should be closely integrated with these existing approaches to ensure complementarity and make use of operational economies of scale where possible.

## Regional IBLI operational and technical assessment: key findings

**There is a strong rationale to implement IBLI at the regional level, accompanied by interest from IGAD governments.** Implementing one regional IBLI scheme to build drought resilience for pastoralists across IGAD countries rather than many separate ones in each country could lower start-up and operational costs through shared product design and infrastructure, create a larger market and thus attract greater private sector interest, harness risk diversification benefits and savings on the costs of purchase of reinsurance, and contribute to promoting peace in the region. Interest from IGAD governments is strong. A major conference on drought index insurance for pastoralists was held in Addis Ababa, Ethiopia, in June 2019 and attended by senior government officials from the IGAD countries. Following this conference, major interest was expressed by the governments in developing a regional IBLI approach.

**The technical feasibility assessment indicates that IBLI product design is feasible in about 53% of the IGAD region and that about 51% of the total livestock population could be insured (Figure E1).** With reference to the IGAD total land area, Ethiopia and Sudan have the highest proportion of suitable area (23% and 24%, respectively) followed by Somalia (18%) and Kenya (15%). However, in terms of the proportion of the national herd that could be covered by IBLI, Somalia has the largest share (85%), followed by Eritrea (75%) and South Sudan (62%).

Figure E1. Extent of the IGAD region where IBLI design is suitable. The area is classified based on the typical seasonality of vegetation production into unimodal (one season) and bimodal (two seasons) regions. Source: Authors



**A preliminary assessment of the key operational elements for a regional IBLI initiative shows mixed levels of readiness across the IGAD region.** Key findings of this study are given in Table E1 and show the following.

- Insurance markets are relatively well developed in Kenya, Ethiopia, Sudan and Uganda, but insurance penetration in all countries is still very low both for life and non-life insurance. There are effectively no insurance markets in Somalia and South Sudan. This poses a major challenge for introduction of IBLI in these countries.
- In Kenya, Uganda and Sudan, the governments are highly committed to promoting access to agricultural insurance, particularly for small-scale farmers, and the governments are therefore financing premium subsidies to make cover more affordable.
- Insurance distribution channels are weak in all rural areas in the region. In countries with experience in agricultural insurance, such as Kenya, Ethiopia, Sudan and Uganda, insurers increasingly invest in rural distribution networks, often with linkage of insurance to crop credit and inputs. Distribution channels for pastoralists, however, are less well developed, which poses a challenge particularly for micro-level IBLI sales.
- The overall degree of financial literacy and awareness of IBLI among pastoralists is low across all IGAD countries except for Kenya and Ethiopia, where some successes have been achieved via the existing IBLI programs. In Sudan and Uganda, a low share of herders is aware of and purchases traditional livestock insurance. The introduction of IBLI countries without previous agricultural insurance provision will need to be accompanied by major IBLI awareness and educational campaigns.
- In countries with an important pastoral sector, there appears to be strong buy-in and demand by governments to participate in some form of regional IBLI.

Table E1: Preliminary assessment of country readiness for IBLI across key operational elements in IGAD countries. DJI=Djibouti, ERI=Eritrea, ETH=Ethiopia, KEN=Kenya, SOM=Somalia, SSN=South Sudan, SDN=Sudan, UGA=Uganda. Source: Authors

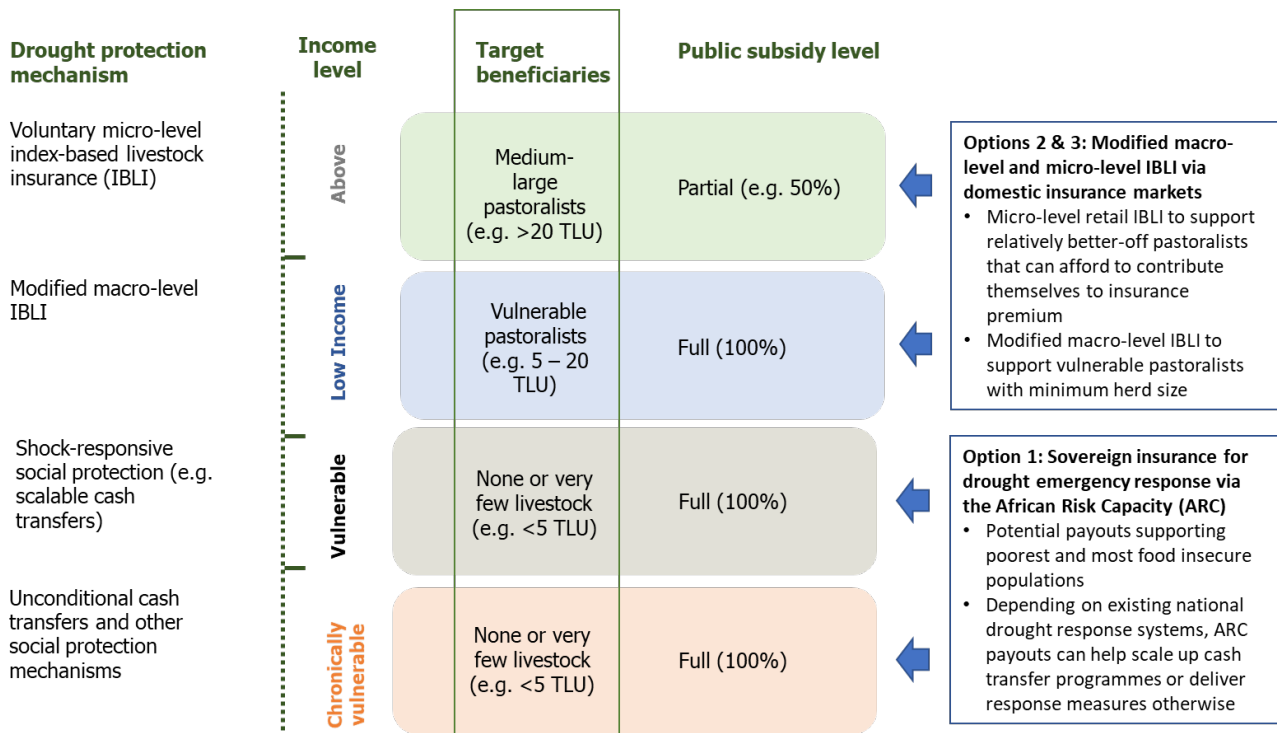
Operational elements	Level of readiness							
	DJI	ERI	ETH	KEN	SOM	SSN	SDN	UGA
Importance of pastoral livestock for economy	●	●	●	●	●	●	●	●
Impact of drought on livestock	●	●	●	●	●	●	●	●
Pastoralist demand/supply for livestock insurance	n.a.	n.a.	●	●	n.a.	n.a.	●	●
Effective micro-level distribution channels	●	●	●	●	●	●	●	●
Existing pastoralist beneficiary registries	●	●	●	●	●	●	●	●
Pastoralist financial literacy	●	●	●	●	●	●	●	●
Legal and regulatory insurance environment	●	●	●	●	●	●	●	●
Insurance market development	●	●	●	●	●	●	●	●
Interest from insurers in IBLI	●	n.a.	●	●	●	n.a.	n.a.	●
Finance available for premiums	●	●	●	●	●	●	●	●
Interest from government stakeholders in IBLI	●	●	●	●	●	●	●	●

● = low    ● = medium    ● = high    n.a. = not available

# Regional IBLI approach: structuring options, advantages, and disadvantages

**This study identifies and discusses three structuring options of how the IBLI approach could be used for a regional program.** They target different sections of the population at risk as summarized in Figure E2 and described below.

Figure E2: Structuring options for using the IBLI approach in a regional program. Source: Adjusted from World Bank Group 2016<sup>3</sup>



- Option 1. Sovereign insurance for drought emergency response via the African Risk Capacity (ARC).**<sup>4</sup> The principal objective of Option 1 would be to speed up the financing of drought emergency response for the poorest and most food-insecure populations. Sovereign drought insurance, as offered by ARC, can be a cost-effective way to achieve this. The implementation of Option 1 would be relatively straightforward. ARC has recently developed with ILRI a rangeland insurance product specifically targeting pastoralists. It already operates in the region. ARC pools risk across countries and has a panel of major international reinsurers backing the program. The roll-out would thus require relatively few investments in on-the-ground systems and procedures. Major drawbacks include that ARC would compete with the existing private sector rather than build local markets. Furthermore, in its current structure, it provides payouts to governments rather than pastoralists directly. For this latter point, in an alternative Option 1b, ARC could provide insurance payouts directly to pre-registered pastoralists. This, however, has not been implemented in any ARC country so far.

<sup>3</sup> World Bank Group 2016. Kenya: toward a national crop and livestock insurance program. Background report. <https://openknowledge.worldbank.org/bitstream/handle/10986/24444/Kenya000Toward000background0report0.pdf?sequence=1&isAllowed=y> (accessed on July 4, 2021).

<sup>4</sup> The African Risk Capacity (ARC) is a Specialized Agency of the African Union established to help African governments improve their capacities to better plan, prepare, and respond to extreme weather events and natural disasters.

2. Option 2. Modified macro-level and micro-level IBLI via domestic insurance markets. Option 2 would aim to achieve two objectives: (i) protect vulnerable populations who own a minimum amount of livestock (e.g. 5 TLU) against the impacts of drought; and (ii) build micro-level IBLI markets that can operate sustainably with only partial subsidies. For this, Option 2 proposes for each IGAD country to follow the basic approach used in Kenya and Ethiopia, i.e. to combine a modified macro-level IBLI scheme with a micro-level IBLI scheme, with some adjustments for improved effectiveness. Regional benefits could be obtained by pooling risk across countries for reinsurance purposes, creating an IBLI index data management infrastructure, standardizing IBLI product design and rating, appointing a single entity to monitor the index during the season and act as calculation agent, and standardizing financial literacy and IBLI awareness and training programs. Major drawbacks include that countries with low insurance market development may take many years to reach a point where their industries are ready to participate in such a program. It may also be difficult to facilitate local insurers' agreements to pool risk regionally for reinsurance.
3. **Option 3 (hybrid). Modified macro-level and micro-level IBLI via domestic insurance markets supported by regional insurance capacity** where needed. Like Option 2, this option would aim to protect vulnerable pastoralists and build local IBLI markets. It would be structured as Option 2 with the difference that in countries with low insurance market development and no experience to date in underwriting IBLI, an external regional insurer could act as direct insurer or co-insurer with the local market. This would also enable countries with weaker insurance market development to participate.

**To choose the most appropriate structuring option for a regional IBLI approach, policymakers will have to weigh policy objectives and operational considerations carefully.** Trade-offs to consider are listed in *Table E2*. Key takeaways include the following.

- **Option 1 would be much easier to implement than Options 2 and 3.** Arguably, the easiest way to implement an IBLI solution in the IGAD region would be to purchase sovereign insurance for each participating country through ARC. For this, needed infrastructure and products already exist and operational considerations are kept to a minimum as policies do not need to be retailed to individual pastoralists.
- **Only Options 2 and 3 support the development of domestic private insurance markets.** Of the options explored, only private sector markets can lower the drought-related financial burden on the public sector in the long term.
- **For the foreseeable future, it is unlikely that any IBLI initiative will be able to operate with no or only partial public support.** All options that were explored for this study will require long-term financial support from the public sector. This is by definition the case for Option 1 and the modified macro-level schemes under Options 2 and 3, as these are all 100% publicly subsidized. However, this is also the case for micro-level IBLI under Options 2 and 3 – international best practice shows that only agricultural insurance schemes that are at least partially publicly subsidized (e.g. at 50% of premium rates) tend to reach scale. In addition, the IBLI experience in Kenya and Ethiopia shows that stand-alone micro-level IBLI is unlikely to gain significant traction – sales costs are simply too high.

Table E2: Trade-offs of different regional options for index-based livestock insurance. Source: Authors

	Options			Comments
	1	2	3	
<b>Lead objectives</b>				
Protect the poorest and most food-insecure (<5 TLU)	●	●	●	Option 1 (ARC) aims to improve the financing of emergency response measures for food insecure populations, i.e. benefits the poorest and most vulnerable. Options 2 and 3, through IBLI, target only pastoralists who own a minimum amount of livestock, i.e. who are relatively better off.
Protect vulnerable pastoralists (>5 TLU)	●	●	●	Option 2 and 3 propose to support vulnerable low-income pastoralists (owning herds e.g. sized 5–20 TLU) through modified macro-level IBLI and relatively better-off pastoralists (owning herds of e.g. >20 TLU) through partially subsidized micro-level commercial IBLI.
Build commercial IBLI insurance markets	●	●	●	Option 1 provides insurance coverage through an regional insurer, local markets are excluded. Options 2 and 3 work through local insurance markets. Option 3 may empower local insurers the most, as external insurance capacity is used to complement and strengthen local capacity.
<b>Operational considerations</b>				
Overall ease of implementation	●	●	●	Although not all IGAD countries have signed on to ARC (Option 1), it is a solution that is ready for implementation. Options 2 and 3 will require that responsible institutional structures be tasked or created and we recommend that this include a multi-stakeholder Board at the centre, as well as a technical Secretariat for implementation. Of the three options, Option 3 is likely the most complicated to operationalize because besides local insurers, a regional insurer would need to underwrite a share of risk in countries with low insurance market development.
Overall ease of technical design and servicing	●	●	●	Option 1 has a ready product and implementation design. For Options 2 and 3, product design could build on existing IBLI programs. However, the operational design would need to be conceived from the beginning.
Operationality of required stakeholders	●	●	●	For Option 1, the needed institutions exist already. For Options 2 and 3, appropriate stakeholders would need to be found or created for a series of tasks, including for overall political guidance (e.g. through a central multi-stakeholder Board), technical design and implementation (e.g. through a technical Secretariat), policy distribution and underwriting (local insurers), and calculation agent services (e.g. through a third-party service provider).
Ease of channelling donor support	●	●	●	Should donors wish to provide financial support to the regional scheme, this would be easiest through Option 1 given its relatively lean structure. For Options 2 and 3, an entity would need to be tasked with receiving and managing potential donor funds. This could for example be done through the implementing Secretariat.
Commercial sustainability	●	●	●	All three Options explored here would require continued public sector financial support. The amount required per potential IBLI beneficiary would likely be lower for Options 2 and 3, as they include the development of micro-level voluntary commercial markets. These would be aimed at operating, over time, with only partial premium subsidies (e.g. 50%).
Direct insurance payouts to beneficiaries	●	●	●	As ARC is structured at the moment, insurance payouts through Option 1 are made to the respective government which then launches an appropriate emergency response. There is an option of modifying the ARC approach (elaborated as Option 1B in the report) to provide direct payouts to pastoralists, this has, however, not been done in ARC countries thus far. For Options 2 and 3, the underwriting insurers make direct payouts to pastoralists.
Insurance distribution systems and staffing requirements	●	●	●	Operating at the national government level, Option 1 has a standing functional modus operandi for product sales. For Options 2 and 3, sophisticated commercial micro-level IBLI sales systems targeting pastoralists in remote areas are required. Experience in Kenya and Ethiopia from the last 10 years has shown that such systems tend to be complex to operate and their cost tends to be very high. Building and operating such systems will likely be more complex and costly still in countries with lower insurance market development to start with.
Ease of achieving regional risk pooling	●	●	●	For Option 1, regional risk pooling is achieved through ARC being a single entity. For Options 2 and 3, achieving regional risk pooling would be achieved by insurers from different countries agreeing to transfer a share of risk to reinsurance together. Achieving that agreement could be facilitated by the Secretariat but may be difficult depending on insurers' preferences.

	Options			Comments
	1	2	3	
<b>Lead objectives</b>				
Basis risk <sup>5</sup>	●	●	●	Basis risk for Option 1 is mitigated by the fact that ARC targets relatively large areas and leaves the allocation of payouts to the receiving government. Micro-level IBLI as under Option 2 and 3 targets individual pastoralists raising the risk of trigger mismatch with the situation on the ground.
Ease of IGAD country participation	●	●	●	For Option 1, currently, only Djibouti, Kenya and Sudan have signed the ARC memorandum of understanding. However, this is a relatively low hurdle to overcome for current non-signatory countries. For Option 2, some countries with particularly low insurance market development (e.g. Djibouti, Eritrea, South Sudan) may be unable to join the scheme for many years as they lack needed private sector capacity. For Option 3, this could be mitigated by participation of an external regional insurer. In some countries, such as Eritrea, participation will however remain unlikely for the foreseeable future.

Option 1: Sovereign insurance; Option 2: Local markets-led approach; Option 3: Hybrid

● = Advantage/easy   ● = Medium/medium   ● = Challenge/difficult

5 "Basis risk is the difference between an index and the shock that the index is supposed to be a proxy for." (Centre for Disaster Protection 2020). See also glossary in Annex



## Next steps

### **As immediate next steps, stakeholders may consider the following points.**

1. The project team could present key results of this study to IGAD governments, pastoral organizations, donors, development partners, insurers and reinsurers.
2. IGAD governments and donors could then decide on whether to take this initiative to the next phase (project preparation phase 6–12 months).
3. Should such a decision be positive, IGAD governments and donors could appoint a public-private and multi-stakeholder steering committee and technical working group charged with building on the findings and recommendations of this study to plan and design a regional IBLI 5- to 10-year implementation plan and budget (program preparation phase). The parties would need to establish an operational budget for this program preparation phase.
4. The steering committee and technical working group would first clearly define the objectives, scope and intended structure of the regional IBLI initiative, including roles and responsibilities of the involved stakeholders.
5. The steering committee and technical working group would then invite international reinsurance brokers to submit proposals for a regional IBLI insurance and reinsurance program (which may draw on one or more of the structural options set out in this study).
6. The steering committee and technical working group would commission a formal study by a suitably qualified international organization into the costs and benefits of alternative disaster risk financing approaches (cost-benefit analysis).
7. The steering committee and technical working group would commission a study by a suitably qualified international organization to design a monitoring and evaluation, quality assurance and impact assessment strategy.
8. The steering committee and technical working group would also work closely with the insurance regulators and private insurance associations in each of the eight IGAD countries to identify interest and support from private local insurers and regional and international reinsurers.
9. During the project preparation phase, it is assumed that the steering committee and technical working group would work closely with interested international development banks that may be willing to finance this regional IBLI initiative if a strong demand is signalled by the IGAD governments.
10. A workshop would be held at the end of the project preparation phase for approval by the key public and private stakeholders and for agreement on the formation of the multi-stakeholder board and technical secretariat which would respectively coordinate overall policy and implementation of the regional IBLI program. It is probable that key members from the steering committee and technical working group may wish to join the board and secretariat, respectively.

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