



BACKGROUND PAPER

Weather Index Insurance and Transforming Agriculture in Africa: Challenges and Opportunities

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Background

At the national level, natural disasters such as droughts and floods reduce income and impact economic growth. It is estimated that low-income countries could suffer an average decline of more than 5% in per capita income as a result of a catastrophic natural disaster¹. In Africa a moderate drought event could have an estimated adverse impact of 4% on the annual GDP of Malawi, for example, with even larger impacts for bigger events. Furthermore, they divert public spending and lead to disruptions to other critical country programmes, as limited budget resources are often reallocated in emergency response before international assistance arrives. At the community level production fails and poor households are often forced to adopt short-term survival strategies in the face of a shock that can undermine their long-term resilience, food security and economic capacity. Farmers wanting to invest in their farms for the next year are constrained in their access to finance and better yielding inputs and technologies as risk-averse lenders and agribusinesses limit their exposure to potential risky clients. This systemic weather risk therefore impacts all levels and inhibits actions that could contribute to the transformation of agriculture in Africa.

Insurance not only is a shock absorber for farmers and other actors in the agricultural value chain, it also enables access to credit and hence is an integral part of financial inclusion, and it enables/protects investments in better inputs and technologies which increase productivity. The different forms of insurance also reduce the government's budget exposures to agricultural risks. One of the reasons why it's difficult to scale up pilot agricultural schemes in Africa is that they're not part of a broader agricultural transformation agenda or a national agricultural risk management framework. And, where such programs exist, but insurance is not explicitly recognized to be part of, it's very difficult to push it separately.

Once we have the consensus that farmer's access to insurance – as well as producer's in the entire agri value chain - is critical to boost productivity, there has to be a strategy in place on how to reach farmers at scale so it makes most sense to discuss which insurance product is most appropriate/feasible in a given situation. Also important are the incentives/infrastructure/regulation the government provides to support agricultural insurance. If part of an overall national agricultural transformation agenda/risk management agenda, insurance is more likely to reach scale. Good product design is a pre-requisite but not sufficient alone.

For years the use of insurance has been discussed as a potential solution to mitigate these impacts of weather risk. In the past ten years in particular the use of weather indexes to insure agricultural investments or to support disaster risk financing for African governments has been researched, discussed, and tested. Because of the flexible nature of these index-based insurance instruments, versus traditional agricultural insurance products, a wide variety of applications have been identified and in some cases put into practice. These various approaches have created significant opportunity for weather index instruments but also significant debate and, at times, confusion

¹ Standard and Poors Financial Services LLC, Storm Alert: Natural Disasters Can Damage Sovereign Creditworthiness.

around the most appropriate applications of these products. Based on the work to date, this panel will attempt to both highlight the key opportunities in Africa for index-based weather products and to bring further clarity to how the use of index-based weather insurance can help to transform agriculture in Africa. It will discuss the synergies between the various products and seek to identify the priority areas for investments that can unlock their much-discussed potential for the continent.

Products

Weather index-based insurance products use an underlying index to determine losses due to a specified event. Unlike traditional insurance that looks at actual observed losses to indemnify the policyholder, the index acts as a proxy for losses. In almost all cases the index is based on weather data and the damage associated with weather is determined by the index's deviation from historical weather patterns. This reliance on objective data rather than on-ground observation as the key indicator of a payout allows for a cost efficient and objective assessment of loss. It also allows quick payout to the policyholders and transparency in application.

Weather index insurance is definitely an important agricultural insurance product, but not the only one. It's very well suited in some situations – sometimes the only feasible solution - but in other situations there are better insurance solutions. The spectrum of agricultural insurance solutions is broad, from traditional indemnity based products (eg multi-peril crop insurance) to different forms of index insurance (weather, satellite-based vegetation indices, area yield-index).

Widespread use of index-based weather insurance-like products first began in the late 1990s to support applications in the energy industry. Energy companies began looking at ways to manage the financial impact of volatility in energy demand for heating and cooling due to unseasonable weather. To meet this demand, insurers and other financial actors began offering index-based products that would payout when temperature was above or below normal. These early applications showed the efficiency of an index-based approach to transfer risk and to smooth and manage the volatility of earning streams. These pioneering applications also opened the door for the development of an endless portfolio of similar products which now span a wide range of industries. Agricultural applications quickly followed, most notably in India in 2003 and, in 2004, work on these products in Africa began.

Applications

While there is no single way to categorise the variety of applications of index-based weather insurance on the continent, one can loosely group the different approaches being used into macro-, micro-, and meso-level weather insurance.

Insurance for Individuals: Micro. In this broad categorisation, index-based weather insurance at the micro level is the use of index based products for direct sale to individuals i.e. farmers. These farmers can commercial farmers or smallholders that can transform into commercial farmers, but insurance to poorer farmers has also been considered. The products essentially means that the individual clients are the direct policyholder. This requires that the product being sold matches the specific risk profile of the policyholder since that policyholder would likely both pay for the

insurance and be compensated directly in case of losses. Micro-level index-based weather insurance policies are therefore often sold at the local level and the product design requires significant ground-truthing with policyholders to insure that the policy being sold adequately predicts losses on the ground (the potential mismatch between the index and what has actually happened on the ground is known as “basis risk”). These policies can be, and have been, retailed through a wide variety of channels including direct sales from insurance companies, agribusinesses, input suppliers, and banks among others. There have been a large number of small pilot programmes in Africa to test these products and determine how to best utilise these products to the benefits of policyholders. In most cases these programmes are yet to reach scale although some are showing promising results as they work to overcome some of the key constraints in designing and implementing these products. These include the quality of the index as a representation of losses, the need for significant investment for product design along with the willingness and ability of clients to pay.

Insurance for Businesses and Financial Institutions: Meso. Weather index insurance at the meso-level includes the use of institutions and businesses to protect their own investments. Just as farmers are exposed to the weather, banks, services providers, and traders that deal with farmers also face this same exposure. Their ability to manage risk allows them to stay in business in the face of defaults and volatility in volumes of agricultural goods delivered, loans repaid and services utilised. These clients are often looking at policies that cover a larger geographical spread and more extreme events than direct buyers. While there are still challenges to implementation at the meso-level, some of the technical challenges are diminished and the costs of retailing significantly reduced as clients are companies rather than individuals. Policies can be sold to larger entities and these clients can often better absorb potential basis risk due to their greater financial capacity.

Insurance for Governments: Macro. Macro or sovereign-level index insurance is the use of index-based products by governments – local, national and sub-national – to allow them to manage liquidity constraints in times of disaster or to respond to the needs of their constituents, which increase due to weather variability and its impacts on their food security, lives and livelihoods. In Africa, in most cases, work on weather index insurance at the sovereign level has focused on assisting governments in responding to humanitarian needs as a result of extreme weather variability. This type of insurance was first tested for drought in 2006 and 2008 by the Governments of Ethiopia and Malawi through facilitation by the United Nations World Food Programme and the World Bank respectively. More recently, the African Risk Capacity (ARC) was established as a Specialized Agency of the African Union in 2012 and since 2014 has been working with African Member States to insure their drought risk through ARC’s financial affiliate ARC Ltd. These macro products directly insure governments, but a significant amount of upfront work is required to make them effective. In order to be able to access ARC’s insurance, for example, governments must integrate these products into their disaster operations by developing contingency plans as to how payouts will be used, conduct technical work to design an index that accurately predicts governments’ needs, and, finally, pay a premium in order to enter into the contract. The ARC Agency provides capacity building to countries to help them complete these requirements and join the ARC Ltd insurance pool.

Weather Index Insurance and Transforming Agriculture in Africa

This panel will seek to explore what potential these three general categories of index insurance have for transforming agriculture in Africa and for engaging the private sector in this space. At the micro-level, it is widely hypothesised that farmers who are protected by insurance will have better access to finance, greater resilience to shocks, and access to higher cost, higher yielding inputs that will increase incomes. At the meso-level, the belief is that these products will allow banks to operate more efficiently and service providers to extend their reach and reduce rates. While much of the academic literature has explored these hypotheses, the ability of these products to deliver these outcomes will be based both on increasing the scale at which they are used but also through robust research and analysis of the use of these products on households and the agricultural sector. With significant innovation currently in the micro and meso field both the number and scope of products being tested is also growing. This panel will discuss if it is possible for micro and meso-level applications to reach greater scale and how the impacts on agriculture can be discerned.

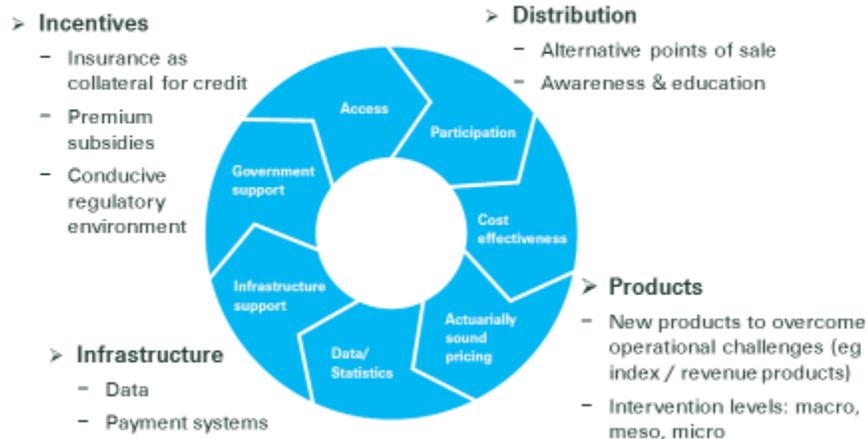
In the case of sovereign-level index insurance the African Risk Capacity – the only sovereign programme that is current operational on the continent – insured four governments (Kenya, Mauritania, Niger and Senegal) against drought in its first year of operation and nine (Burkina Faso, Kenya, Mali, Malawi, Mauritania, Niger, Senegal, The Gambia and Zimbabwe) in its second. In its first year of operations three of these four governments received payouts from ARC due to poor rainfall in the Sahel which have been used to assist 1.3 million drought affected people. ARC is actively working to expand its risk pool and by 2020 hopes to insure up to 30 countries with USD 1.5 billion in insurance coverage against drought, floods and cyclones.

While ARC's insurance pays out directly to governments, the use of these payouts is almost always targeted at the poorest of the poor in rural areas. The premise of ARC's value proposition to Member States is that assisting countries in reaching those vulnerable and affected – usually poor or subsistence farmers – quickly and effectively ahead of traditional humanitarian aid can help prevent asset depletion and protect livelihoods. In turn this means they can continue investing in their agricultural activities and increase their chances of joining or remaining productively involved in the economic sector. Budgeted, planned and timely responses at the national level, like those facilitated by ARC, could also help mitigate the larger-scale macro-economic impacts of disasters such as drought as identified above.

It is clear that the value of macro-level insurance such as ARC is dependent on how payouts are used by the government to assist affected populations or mitigate the other impacts of the disaster. As ARC's experience grows, and the impacts of its operations can be fully assessed, there will have a better understanding of the benefits of this earlier and more effective interventions for the poorest, not only in terms of their livelihoods and economic productively, but also on the agricultural sector as a whole and on broader development. The panel will discuss what is known now in terms of these benefits now and what the additional expected impacts could be for agriculture and how these larger scale macro programmes relate to and could support micro- and meso-level schemes.

Following are three slides that shows what is needed for a sustainable agricultural insurance scheme, robust financial risk management, and a global picture of index insurance

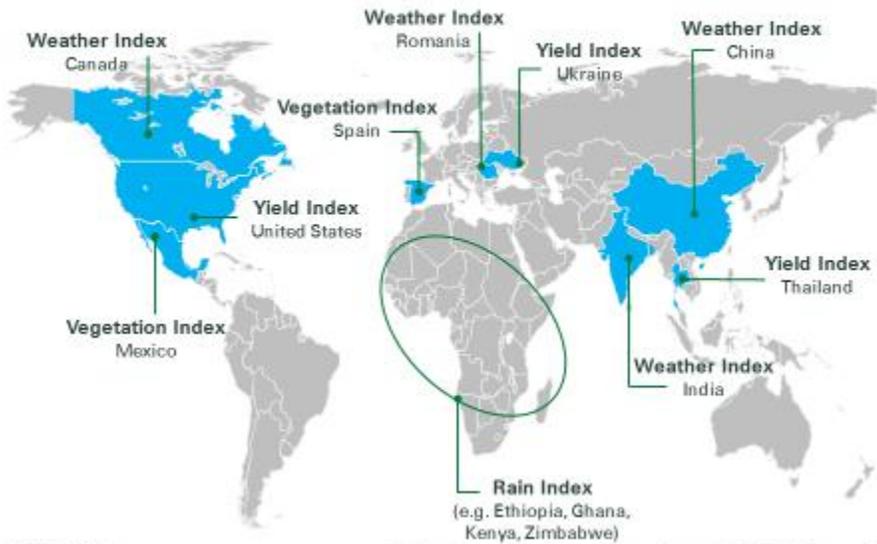
What is needed for a sustainable agricultural insurance scheme?



Collaboration among all stakeholders in the value chain is needed to create robust financial risk management

- **Producers, grain handlers, traders and processors:**
bundling their offerings with financial services, including insurance.
- **Insurers and reinsurers:**
developing new products, which are easy to understand and allow transparent, fast and fair loss settlement.
- **Banks:**
providing better credit conditions for farmers who are using insurance as collateral for bank loans.
- **Governments and NGOs:**
raising awareness and providing basic infrastructure and incentives for insurance

Overview on the global situation on index insurance (examples)



Reference Material

IFAD. 2011. *Weather Index-Based Insurance in Agricultural Development: A Technical Guide*. Rome: International Fund for Agricultural Development.
http://www.ifad.org/ruralfinance/pub/wii_tech_guide.pdf

World Bank. 2011. *Weather index insurance for agriculture: guidance for development practitioners*. Agriculture and rural development discussion paper; no. 50. Washington, DC: World Bank. <http://documents.worldbank.org/curated/en/2011/11/15643352/weather-index-insurance-agriculture-guidance-development-practitioners>

Ghesquiere, Francis and Mahul, Olivier. 2010. *Financial protection of the state against natural disasters: a primer*. Policy Research working paper; no. WPS 5429. Washington, DC: World Bank. <http://documents.worldbank.org/curated/en/2010/09/12788964/financial-protection-state-against-natural-disasters-primer>

Clarke, Daniel J. and Hill, Ruth Vargas. 2013. Cost-benefit analysis of the African Risk Capacity facility. IFPRI Discussion Paper 1292. Washington, D.C.: International Food Policy Research Institute (IFPRI) <http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/127813>

Key Leading Questions for the Panel

1. How can index-based weather insurance at all three levels help the transformation of agriculture in Africa?
2. What are the key factors in scaling up index-based weather insurance for farmers, lenders, agribusinesses and the agricultural sector as a whole?
3. How can sovereign-level disaster risk management, including index-based insurance, support investment in agriculture directly and indirectly?

Panel Participants

Introduction: **Mr. Mohamed Beavogui**, Director General, African Risk Capacity Agency

Micro perspective: **Mr. Mathieu Dubreuil**, Programme Coordinator, R4, Senegal

Meso perspective: **Ms. Rose Goslinga**, Founder, PULA Advisors, Kenya

Macro perspective: **Mr. Bouh Ould Sid' Ahmed**, Technical Adviser to the Minister of Finance of Mauritania

Market perspective: **Mr. Israel Muchena**, Assistant Director, Underwriting & Marketing, Africa Re

Facilitation: African Risk Capacity

This panel is being facilitated by the African Risk Capacity (ARC), a global leader in sovereign disaster risk financing. The ARC was established as a Specialised Agency of the African Union (AU) in November 2012 to help Member States improve their capacities to better plan, prepare and respond to extreme weather events and disasters and to assist food insecure populations. ARC through its Secretariat provides Member States with capacity building services for early warning, contingency planning and risk finance.

In late 2013 the Agency established a financial affiliate called ARC Insurance Company Limited (ARC Ltd). ARC Ltd is a specialist hybrid mutual insurance company that issues policies to governments, and which aggregates and transfers risk to the international market. ARC Ltd provides financing in form of index-based weather insurance to African governments to execute pre-approved contingency plans in the event of severe disasters. In order for a country to purchase an insurance policy through ARC Ltd and thus become a member of the company, the country must demonstrate through a peer review process its ability to effectively use potential payouts.

With a USD 200 million initial capital commitment provided by the governments of Germany (KfW) and the United Kingdom (DFID), ARC Ltd issued drought insurance policies totalling USD 129 million for a total premium cost of USD 17 million to a first group of African governments – Kenya, Mauritania, Niger and Senegal – in May 2014, marking the launch of the inaugural ARC pool. Due to a poor rainfall season in the Sahel during the 2014/2015 season three of these four first countries received a payout from ARC Ltd to be used for the implementation of pre-approved contingency plans designed to reach those in need. Five additional countries joined the next pool in May 2015 for a total sum insured of USD 190m and a premium of USD 26 million. ARC aims to reach up to 30 countries with drought, flood and cyclone coverage totalling USD 1.5 billion in sum insured by 2020.

The panel will be moderated by Dr. Joanna Syroka, Director of Research and Development of the ARC Agency.