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THE ROLE OF GOVERNMENT, PRIVATE SECTOR, AND INSURANCE IN FOSTERING RESILIENT AGRICULTURE

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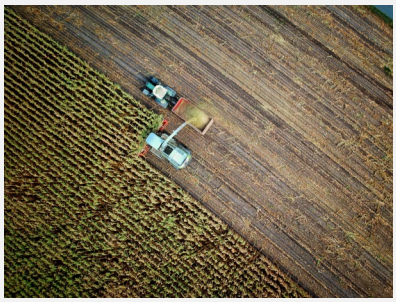

It is widely known that agriculture remains one of the most important economic sectors for many African countries. According to the IMF, agriculture in Africa employs more than half of the labor force and provides a livelihood to small-scale farmers. Furthermore, as per the Africa Agriculture Status Report 2020, smallholder farms constitute approximately 80% of all farms in Sub-Saharan Africa and employ around 175 million people.

For most African countries, agriculture contributes anywhere between 20 – 60% of their Gross Domestic Product (GDP) and about 30% of the value of their exports. There is significant variation in the relative contribution of agricultural sectors, depending on the size of African economies. For instance, in Botswana and South Africa, agriculture's contribution to GDP is below 3%, whereas in Chad, agriculture contributes to more than 50% of its GDP. In Kenya, the economy is significantly dependent on the agriculture sector which directly contributes to about 34% of the GDP and, indirectly, a further 27% through manufacturing, distribution, and other service-related sectors.

According to a 2020 report done by McKinsey on the risks to Africa's agriculture, it is surmised that, due to the pre-dominantly manual farming methods employed in Africa, vulnerability of farmers to the ever-increasing effects of climate change will only be exacerbated. The consensus is that Africa's agriculture must become more resilient, which the Food and Agriculture Organization (FAO) defines as "the ability to prevent disasters and crises as well as to anticipate, absorb, accommodate, or recover from them in a timely, efficient and sustainable manner." As outlined in the Africa Agriculture Status Report, 2021, insurance and reinsurance form a significant pillar in resilience and sustainability by reducing both system-wide and spatially co-variant risks, protecting productive assets and safeguarding farmers from financial instability. This article will seek to unwrap the existing and anticipated risks facing farmers, types of agriculture insurance available, other government and private-sector-led interventions at mitigating farmer losses, the current and potential roles to be played in cultivating resilience, and hurdles that need to be overcome to realize wide adoption.

Overall, agriculture faces five types of risk: production, asset, market, financial and human/personal risks. Production risks are factors that affect the quantity and quality of production i.e., pests and diseases, drought/famine, floods, loss of crops or livestock and lack of adequate human labor. Asset risks are those related to theft, fire, and other damages, or losses to property. Market risks include

price reductions and fluctuations on both inputs and/or outputs while financial risks are those risks associated with the possible increase in interest of business loans and/or insufficient liquidity or loss of equity due to rising costs of production or costs of living. Lastly, human/personal risks are factors related to human health (e.g., accidents, illnesses, and death) that threaten farming activities.

Most farmers are vulnerable to production and financial risks, which impact both the quantity and quality of production. Additionally, farmers' financial risks tend to be linked to the overall performance of the economy with medium and large-scale farmers more likely to be affected in the event of poor economic performance. Agricultural risks not only affect farmers but affect the entire agribusiness value chain by generating negative impacts for a variety of stakeholders including government, financial institutions, input suppliers, distributors, traders, processors, and consumers.

Worryingly, increasing temperatures and sea levels, changing precipitation patterns and more extreme weather conditions are threatening the economy at large and more specifically sensitive sectors such as agriculture. A predictable way climate disasters affect agriculture is through low production, causing direct economic loss to farmers. Adverse consequences of climate change will be concentrated in regions with relatively hot climates. The African Climate Policy Centre projects that the GDP in the five African subregions will experience significant challenges arising from a global temperature increase with the continent's overall GDP expected to decrease by 2.25% to 12.12%, with West, Central and East Africa exhibiting a higher adverse impact than Southern and North Africa.

Agriculture insurance forms a key strategy in creating resilient agricultural systems by not only addressing farm risks but also indirectly incentivizing farmers to embrace modern production practices with greater potential for better and higher quality yields. Broadly, there are four categories of agricultural insurance with different coverage options: asset insurance, business property insurance, personal insurance, and liability insurance. Asset insurance covers farm equipment, livestock, and crop related losses, while business property insurance covers farm structure insurance and, in some cases, homeowner's insurance. Personal insurance covers the farmer's medical, life, and workers' compensation. Liability insurance covers general and product liability, as well as commercial vehicle liability.

It is widely known that the penetration of agricultural insurance in Africa is still extremely low, oftentimes it being unavailable, or in its infancy. In low and middle-income countries, agricultural insurance penetration is less than 0.3% of agriculture's GDP. However, agriculture insurance adoption has been growing steadily over the years, evidenced by the increase in agricultural insurance uptake. Furthermore, the number of farmers who have benefited from agriculture insurance compensation continues to increase. In Malawi, 65,000 farmers received cash payouts from an agricultural insurance programme led by the United Nations World Food Programme (WFP) after drought and pests destroyed crops during the 2020/21 farming season, it was one of the largest crop index insurance payouts ever on the African continent, amounting to USD 2.4 million. Likewise, farmers in Ethiopia, Kenya, Malawi, Senegal, and Zambia who participated in the R4 Resilience Initiative - launched by WFP and Oxfam America - received insurance payouts totaling USD 1.5 million to compensate for weather-related crop losses. In Kenya, more than 5,000 maize farmers in Nandi County received compensation of Kes 12 million (USD 100,000) for crop losses during the 2021 season. This payment was made by APA Insurance on behalf of Kenya Agriculture Insurance Group (KAIG) in partnership with Pula, it was the first-time farmers in the region had received compensation for losses due to climate change.

To truly unlock the agricultural insurance industry's potential, the government must play a key leadership role in developing data, ensuring outreach, risk financing, reinsurance, legislation, and regulation amongst others:

I. **Developing data**: The government can play a vital role in collecting, auditing, and managing insurance-quality data, as well as making it available for private insurers.
II. **Ensuring outreach**: The government should increase outreach and ensure that agricultural insurance reaches a larger scale (with subsidies widely used to this effect).
III. **Risk financing**: The government can retain a portion of its risk for mature agricultural insurance schemes and develop incentives to ensure that each level of risk is managed using the appropriate instrument.

I. **Reinsurance**: The government can support insurers in obtaining reinsurance for agricultural risks at a reasonable price since agricultural shocks can be huge. Moreover, the government can provide the private sector with reinsurance at an affordable price.
II. **Legislation and regulation**: The government can make appropriate adjustments to legal and regulatory frameworks for insurance companies to create an enabling environment for sustainable agriculture insurance. (e.g., reviewing capital and reinsurance requirements for insurance companies underwriting agricultural risks).

Although a significant stakeholder, the success of agricultural insurance is not the exclusive responsibility of governments. Social enterprises and agriculture support organizations, for example, are an important channel through which agricultural insurance can be offered since they maintain grass-roots networks and a wealth of experience in dealing with smallholder farmers and rural communities. Self-help groups and other savings groups could also be used as a platform for group-based agriculture insurance. Additionally, financial institutions could provide more affordable loans to insured farmers, to help purchase extra farm inputs, extra land, more livestock, to meet their harvesting and marketing costs, and finance other social development needs. This would certainly incentivize agricultural insurance uptake.

Furthermore, local, and international research organizations, learning institutions, development partners, farmer organizations and other private sector agencies could collect agricultural insurance data and make it publicly available. Technology companies could develop innovative products mediating trust between farmers and insurers, while also enhancing product quality, pricing, and claim settlement processes. Advanced scientific modeling techniques accounting for effects of weather variables and potential risks could lead to more accurate forecasting models. Other technologies, such as drones, can be used to collect data and determine damages, thus reducing the cost of in-person farm visits. Mobile technology to locate, register, and pay farmers via mobile money, reducing the cost of sales teams and payout distribution mechanisms could also be used. This would further assist in overcoming the hurdles of complex application processes and high transaction costs related to premium payment and claims payout (which could discourage insurance uptake). Mobile technology could also be leveraged to create awareness by providing product information through mobile learning and digital videos that could be accessed by users at any time.

With research suggesting that small-holder farmers will be the most impacted from climate change, micro insurance presents one of the most effective ways to mitigate agricultural risks to these small-scale farmers. Index based micro insurance could be used to cover lesser amounts of land (less than half an acre) for an affordable premium, made possible by replacing key features and transactions of a traditional insurance model with technology-based solutions.

Index based insurance involves coverage based on an easily measured environmental condition, (an 'index') that is related to agricultural production losses. Some of the possible indices are, growing season rainfall (weather-based index), vegetation levels (satellite-based index) and average regional yield losses (area yield index). Insured farmers get a payout only if the index falls above, or below a pre-specified threshold.

In traditional agricultural insurance, assessing smallholder farmers' losses can be a serious logistics problem since it requires claims assessors to visit farms scattered across vast areas. Unlike traditional agricultural insurance, index-based agricultural insurance is less expensive and more accessible. Index-based agricultural insurance can help small-scale farmers and pastoralists increase their resilience to weather shocks while encouraging investments that could later create pathways for increased productivity. Additionally, this product promotes economic development by acting as a safety net when disasters occur. Index-based agricultural insurance overcomes two key problems in relation to traditional agricultural insurance besides accessibility and high costs: adverse selection and moral hazard.

Agriculture and Climate Risk Enterprise Ltd (ACRE), a registered insurance surveyor in Kenya and one of the largest micro-insurance providers in Africa, together with other partners signed an agreement supporting development of an insurance scheme for Kenya's smallholder farmers. This project works closely with the Ministry of Agriculture, Livestock and Fisheries as part of insurance strategy for smallholder farmers. It combines the implementation of soil moisture index insurance and a picture-based loss verification tool. By

introducing these technological innovations, the costs of loss verification are minimized to make agricultural insurance more attractive, accessible, and affordable to smallholder farmers. This product is distributed to farmers as a micro-insurance product and by 2021, 16,000 farmers in Kenya were already enrolled.

Accompanying individual smallholder farmer covers, group-based agriculture insurance allows a group of farmers to buy insurance together. Due to the oftentimes remote nature of smallholder farms, the sale and servicing of insurance to them individually may be difficult, thusly, farmers can be placed in groups of risk categories according to different criteria (e.g., production techniques employed, credit history, and assets). Group-based insurance products therefore have the potential to ease both information and liquidity constraints which will help increase uptake. A key consideration with this type of agricultural insurance, however, is how payouts are distributed, with compensation either being distributed proportionally (according to premium contribution), or in favor of those in the group worst affected.

To expand the potential reach of agricultural insurance to smallholder farmers, the consensus is that insurance products should be attractive, accessible, and affordable. Products such as index-based agricultural insurance, group-based agricultural insurance and technology-driven agricultural insurance products should be adopted to encourage insurance uptake in rural areas. Pairing digital innovations with agricultural insurance could help smallholder farmers easily access insurance at affordable premiums by reducing transaction costs.

Inasmuch as the above are factors that could grow agricultural adoption, there are several characteristic challenges hindering its expansion in African markets. Firstly, agricultural shocks present a difficult risk to insurers. For instance, many of the crop related risks are brought about by weather and natural conditions which are often unpredictable. Furthermore, these risks are realized over a large geographical area, making it difficult for insurers to diversify. Moreover, widespread animal diseases may affect pastoralists, generating several knock-on effects. A large agricultural risk portfolio is therefore susceptible to major losses.

Secondly, since some governments provide emergency aid to farmers in the case of crop failures or other agricultural disasters – with disaster payments not an established resilience programme per se, more so an emergency response to specific loss events, and since these disaster payments serve the same purpose as insurance – they could have the unintended consequence of discouraging farmers from taking agriculture insurance.

Another challenge facing agriculture insurance is limited access to international reinsurance markets. Contrastingly, reinsurers report that reinsurance capacity is available for agricultural programs that are professionally designed and generate enough premium volume to cover operating costs and expected losses. However, for nascent and modest markets, this acts as a hindrance, as the premium threshold requirements may be beyond reach. Since international reinsurance markets not only provide reinsurance but also technical expertise in such a niche line of business, local markets suffer a double disadvantage.

Coincidentally, with agricultural risk assessment being complex (particularly on the impact of natural events on crops/livestock), a lack of historical data on agricultural risks and the randomness of risk occurrence prevent proper risk modeling, leading to inadequate pricing of insurance products. With insurance companies having limited experience in agricultural insurance, paired with the complexity of the risk class, highly specialized skills are required, which could disincentivize insurer investment.

Lastly, and inescapably, in developing economies such as Kenya and most of Africa, low farmer incomes will unquestionably inhibit the development of agricultural insurance. Not only do many smallholder farmer populations in these regions exhaust most of their incomes for necessities such as food and education, but for those who do buy insurance, health and life insurance are usually given priority. To mitigate this, assuming insurance premiums become more affordable, as much as smallholder farmers should be allowed to pay premiums either via premium financing or flexible intervals (to match their farming cycles), it is important that financial institutions increase farmers' access to credit. As insurance reduces the risk of loan default in the event of catastrophic production losses, it is both in the farmer's and lending institution's best interest to take up insurance, resultantly, insured farmers could even enjoy reduced borrowing costs due to their lower risk.

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Agricultural insurance is often mischaracterized as farmers simply insuring their potential harvest against losses. This is undoubtedly a simplified narrative. In reality, agricultural insurance is an intricate multi-stakeholder organized risk mechanism that not only embeds resilience into a significant economic sector but also allows sensitive agricultural sectors to stave off the accelerating effects of climate change. With the odds slowly turning against our favor with the fast-encroaching consequences of climate change and with such a broad and all-encompassing value chain that crisscrosses Government, Insurance, Finance, Technology and Agriculture, the time is ripe for all of us to converge, collaborate, innovate and hopefully, secure Africa's agriculture.

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