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Weathering the storm

Climate risks and insurance markets in Kenya, Malawi and South Africa

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Intensifying climate shocks have caused economic losses from natural catastrophes in Africa to grow, reaching US$14.65 billion between 2019 and 2023. Beyond immediate disasters, systemic threats—from collapsing agricultural yields to biodiversity loss—jeopardise food security and economic stability.

Insurance has emerged as a critical resilience tool, offering financial protection, stabilising budgets and incentivising risk reduction. Initiatives like the African Risk Capacity and parametric agricultural schemes demonstrate their potential, yet challenges such as affordability gaps, low penetration and fragmented climate data persist.

In 2024, Krutham completed a research project to explore the viability of insurance-based climate resilience strategies across Kenya, Malawi and South Africa. Key findings reveal that all three face escalating climate pressures disrupting agriculture, water resources and infrastructure. While insurance holds transformative potential, its effectiveness depends on inclusive design, affordability and integration with national adaptation plans.

Current insurance product programmes are hampered by accessibility barriers, underdeveloped risk-transfer markets and scaling challenges. Digital innovation offers scalable solutions, including mobile-based products and satellite-driven index insurance. Success requires prioritising four areas: modernising climate data infrastructure to reduce basis risk, fostering public-private partnerships for blended financing, catalysing private investment through incentives like resilience-linked bonds and enabling regulatory reforms to support inclusive, parametric products. By addressing these priorities, governments and insurers can unlock insurance's dual role as a financial safety net and catalyst for systemic climate adaptation.

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About this brief

This brief synthesises findings from a 2024 study, commissioned by the African Climate Foundation (ACF) to assess the viability of using insurance as a tool for climate risk management and resilience in three diverse African contexts: Kenya, Malawi and South Africa.

The findings were further explored in a dedicated webinar examining regional implementation challenges and opportunities.

Access the webinar here and full reports here.

Introduction

Recent extreme weather events in Africa underscore the continent's vulnerability to climate change and the urgent need for resilience measures. In 2023, economic losses from natural catastrophes in Africa reached US$14.65bn, a dramatic 262% increase from $4.05bn in 2019.[1] Additionally, fatalities rose by 300%, with 10,912 lives lost in 2023 compared with 2,723 in 2019.

Africa faces severe long-term climate challenges that will see recent events exacerbated and vulnerabilities more exposed unless action is taken now and at scale. Otherwise, there are clear threats to sustainable development, with projections indicating significant agricultural yield reductions, systemic risks to productivity and substantial economic losses by mid-century.[2] These risks are exacerbated by a significant adaptation funding gap, estimated at 5.3% of GDP. This gap undermines the ability of economic actors, governments, businesses and communities to build climate resilience and risks perpetuating existing cycles of vulnerability.

In this context, insurance has emerged as an important potential tool for managing climate risks by providing financial protection and recovery support post-disaster, quantifying and pricing climate risks and facilitating access to credit and investment opportunities.[3] This has led to several initiatives in the global South that integrate insurance into climate and disaster risk management strategies. Insurance is not, however, a panacea for climate resilience in Africa and its role in Africa's climate resilience landscape remains complex and contested – given underlying vulnerabilities. While it offers considerable benefits – including rapid financial relief, incentives for risk reduction and economic stabilisation for vulnerable communities – several fundamental challenges limit its effectiveness. To unlock its transformative capacity, insurance must be integrated into broader climate strategies through innovative public-private partnerships, targeted subsidies and regulatory support for scalable, demand-driven solutions.

What can Kenya, Malawi and South Africa teach us about climate-resilient insurance?

Mobile platforms, digital services and fintech partnerships

Digital growth is spurring innovative solutions that can be leveraged to scale insurance to underserved markets in Kenya, Malawi and South Africa. In **Kenya**, the widespread adoption of mobile technology, driven by platforms like **M-Pesa**, has facilitated the expansion of mobile-based microinsurance products. InsurTech solutions such as **Pula** and **Acre Africa** leverage mobile payments, remote sensing and AI-driven risk assessment to enhance accessibility and affordability of agricultural and climate risk insurance. For instance, **picture-based insurance (PBI)**, which has been tested in Kenya, shows significant promise to expand insurance uptake among smallholder farmers.[4]

In **Malawi**, where insurance penetration remains low, digital innovation plays a crucial role in expanding access. Mobile money platforms are increasingly being integrated with microinsurance schemes, enabling low-income populations to afford and access coverage. Initiatives such as **parametric weather index insurance**, supported by satellite and remote sensing technology, reduce reliance on traditional indemnity-based models, allowing for quicker and more transparent payouts.

In **South Africa**, a more mature insurance market and digitalisation enhance product customisation and efficiency. Advanced **data analytics, AI and blockchain** are streamlining underwriting and claims processes, while mobile-first solutions are expanding coverage to previously uninsured segments.

Digital platforms also enable partnerships between insurers, fintech firms and government agencies, driving innovation in climate risk insurance and public-private insurance schemes.

Across all three countries, digital transformation is making insurance more accessible, scalable and responsive to emerging climate and economic risks.

Picture-based insurance

PBI assesses and verifies losses in agricultural settings. Farmers can use mobile devices to capture and submit images of their crops, providing verifiable records of their agricultural activities. These images are analysed to monitor the condition of crops and assess potential damage due to adverse weather events or other risks.

Beyond its immediate benefits, PBI presents an opportunity to strengthen insurance accessibility through digital scalability and community participation.

The model's reliance on local champion farmers equipped with smartphones ensures wider outreach and enhances trust within farming communities. By integrating PBI with other digital financial services, such as mobile money and advisory platforms, insurers can further improve access and affordability.

The role of premium subsidies

Subsidised insurance premiums are a vital mechanism to expand access to climate risk insurance, in Malawi and Kenya particularly.

In Kenya, the government has implemented premium subsidies in several agricultural insurance programmes, such as the Kenya Livestock Insurance Programme and the Kenya Agricultural Insurance Programme. These programmes are either fully subsidised for the most vulnerable households or partially subsidised for more commercially oriented pastoralists. Similar insurance schemes have been implemented in Malawi, often supported by international donors. Unlike Kenya and Malawi, there are no subsidised insurance schemes in South Africa, despite the country's well-developed private insurance sector. Yet, the country's extensive social welfare system, which includes grants and public works programmes, provides a strong foundation for integrating climate-responsive insurance solutions.

Scaling climate insurance: pathways through barriers to impact

Penetration-affordability

Insurance penetration: Kenya: 2.4%; Malawi: 1.9%; South Africa: 11.3% (2.2% non-life coverage).

Reinsurance costs and limited risk-pooling drive high premiums.

A lack of awareness and trust hampers adoption.

Infrastructure gaps and risk modelling

Lack of climate data and historical loss data causes pricing and product design challenges.

Weather stations often do not meet WMO standards.

Lack of broadband access in rural areas.

Basis risk

Area yields ignores individual farm damage.

Satellite vs farm-level rainfall mismatch.

Regulatory barriers to innovation

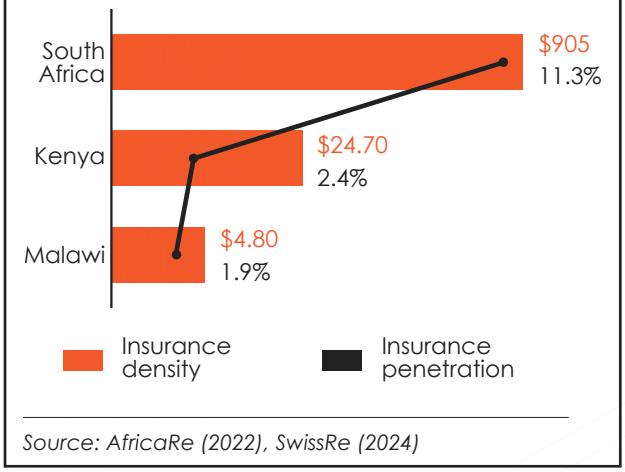
Difficulties for microinsurers to meet capital/solvency requirements.

Lack of dedicated legal framework for parametric insurance.

The penetration-affordability deadlock

Low insurance penetration and affordability are fundamental problems, with penetration rates as low as 2.4% in Kenya and 2.5% in Malawi. While South Africa has one of the highest insurance penetration rates globally, this is dominated by life insurance with a penetration rate of 9.1% compared with 2.2% for non-life insurance. High premiums, driven by reinsurance costs and limited risk-pooling, make insurance inaccessible to low-income populations, while a lack of awareness further hampers adoption.

Insurance penetration and density



Source: AfricaRe (2022), SwissRe (2024)

Infrastructure for risk modelling

Inadequate infrastructure such as weather stations and unreliable digital connectivity in rural areas undermine the accuracy of risk modelling and distribution of insurance products. Additionally, insurance markets face significant data gaps, such as localised, historical loss data as well as localised climate risk assessments, which create challenges for accurate pricing and product design.

Basis risk in index insurance

Basis risk occurs when payouts fail to correspond with farmers' actual losses. This discrepancy arises because index insurance relies on external indicators, such as weather patterns or area-wide yields, rather than assessing individual farm conditions. Research suggests that the likelihood of farmers experiencing losses without receiving compensation ranges between 16% and 36%, making it a significant concern for effective risk management.[5]

Regulatory gaps undermine innovation

These barriers arise from inconsistent, underdeveloped or restrictive frameworks that constrain market growth and innovation.

Stringent capital requirements, regulatory uncertainty and limited supervisory capacity impede the expansion of microinsurance and InsurTech solutions, creating obstacles for insurers seeking to develop affordable and accessible products. The lack of dedicated regulations for index-based insurance further hampers innovation, as insurers encounter difficulties with product approval, pricing models and claims validation. Moreover, regulatory costs and compliance burdens prove prohibitive for microinsurance providers, diminishing their capacity to serve vulnerable populations.

Pathways forward: scaling insurance for climate resilience

To effectively scale insurance as a tool for climate resilience in Africa, stakeholders must address existing barriers, leverage emerging opportunities and work collaboratively to create inclusive and innovative solutions.

Below are actionable pathways across three key domains:

1. Policy and governance

- **Strengthen government-led initiatives:** The insurance industry, in collaboration with the government and/or development funders should launch publicly supported insurance programmes, such as subsidised agricultural schemes, to strengthen insurance coverage for vulnerable populations. These initiatives should integrate climate adaptation goals into national policies, including national adaptation plans.
- **Leverage public-private partnerships (PPPs)**: Industry associations (eg, Association of Kenyan Insurers and the International Association of Insurance Supervisors), together with regional associations (eg, African Insurance Organisation) should fast-track the development of reporting frameworks to mobilise private capital for climate resilience interventions. This includes regional risk-pooling mechanisms (eg, African Risk Capacity), infrastructure and subnational catastrophe funds. Governments can incentivise private sector participation through tax benefits and blended finance models.
- **Refine regulatory frameworks:** Insurance supervisors could expand regulatory sandboxes to test innovative products, distribution channels and incentives that align with climate targets and mandate data-sharing between stakeholders to reduce basis risk.

2. Technology and innovation

- **Scale digital distribution platforms:** Re/insurance companies should consider scaling partnerships with mobile network operations to streamline premium collection and claims processing, as seen in Kenya's Kilimo Salama programme. There is also a need to prioritise rural digital infrastructure investments to expand reach.
- **Strengthen data infrastructure:** Meteorological agencies, alongside re/insurance companies need to mobilise funding to upgrade weather monitoring systems, integrate satellite data and create centralised climate data platforms to improve risk modelling and product design.
- **Develop context-specific products:** Re/insurers, technical advisors and donor funders ought to prioritise the development of context-specific products that cater to a region's climate vulnerabilities.

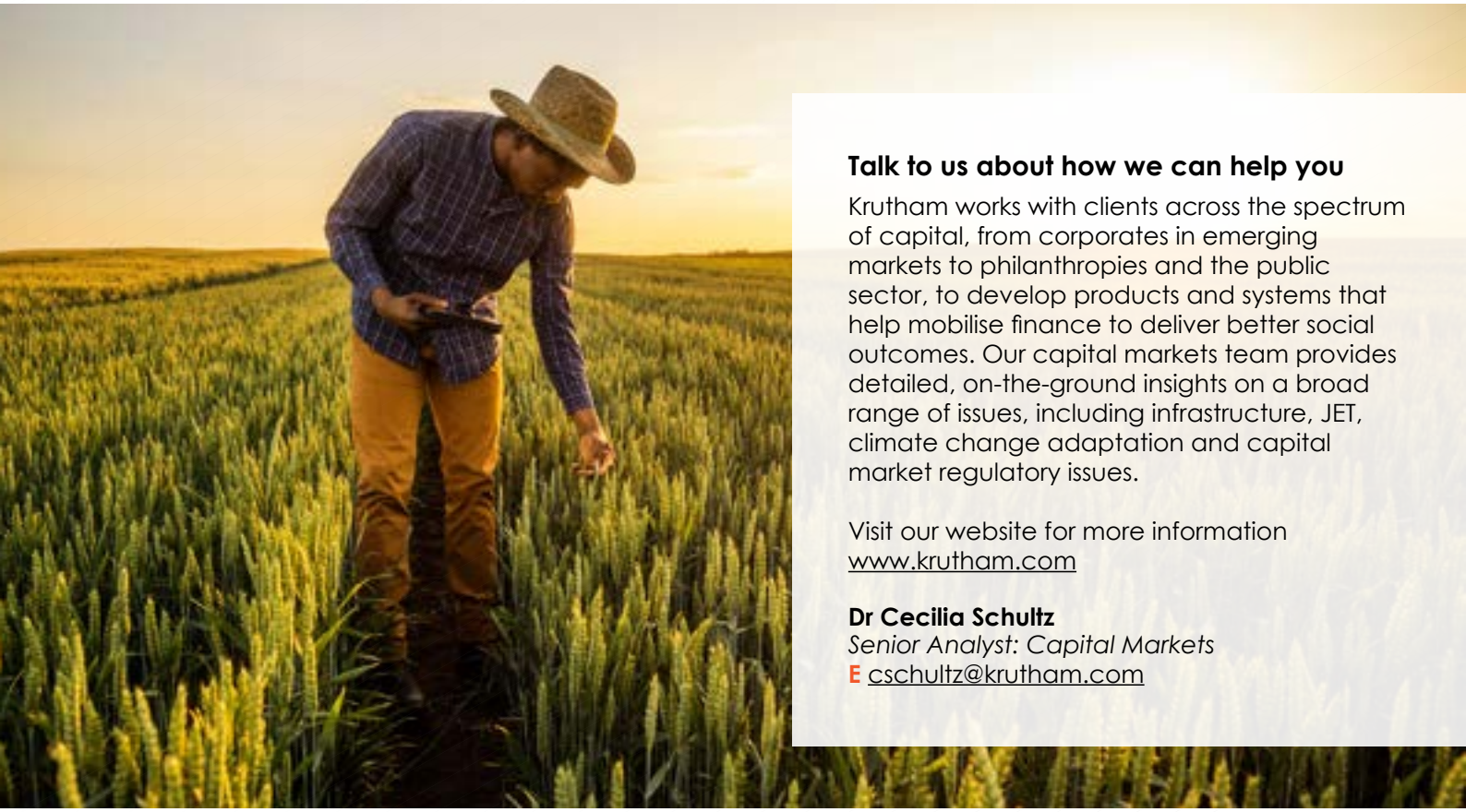
For instance, in agriculture, parametric insurance, "pay-at-harvest" schemes and bundled solutions (eg, insurance with agricultural inputs) can be expanded to address affordability and resilience gaps. Dedicated basis risk funds can improve trust by aligning payouts with the amounts actually lost.

3. Community engagement and capacity building

- **Leverage cooperative networks:** Insurance providers need to prioritise distribution channels that beneficiaries trust. Examples include meso-insurance schemes that leverage agricultural cooperatives and savings and credit cooperatives (SACCOs). These schemes offer advantages of greater trust among vulnerable communities, reduced administrative costs, lower default rates and greater bargaining power.
- **Prioritise affordability:** Regulators, insurers and donors need to implement targeted premium subsidies for low-income groups and promote mobile-based solutions to lower costs. Kenya's partnerships between insurers and mobile operators offer replicable models.

Cross-cutting priorities

- **Align insurance with social protection:** Insurers, government agencies and funders can integrate climate risk coverage into existing welfare programmes to protect vulnerable groups.
- **Foster regional collaboration** between private insurance companies, regulatory/ industry associations, government agencies and international organisation to develop shared data infrastructure and harmonise regulatory standards to enable cross-border risk pooling.
- **Monitor and evaluate:** Donors, brokers, insurers and mobile network operators can collaborate to assess the impact of insurance on reducing climate vulnerability and use insights to refine products on a regular basis.



Talk to us about how we can help you

Krutham works with clients across the spectrum of capital, from corporates in emerging markets to philanthropies and the public sector, to develop products and systems that help mobilise finance to deliver better social outcomes. Our capital markets team provides detailed, on-the-ground insights on a broad range of issues, including infrastructure, JET, climate change adaptation and capital market regulatory issues.

Visit our website for more information
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