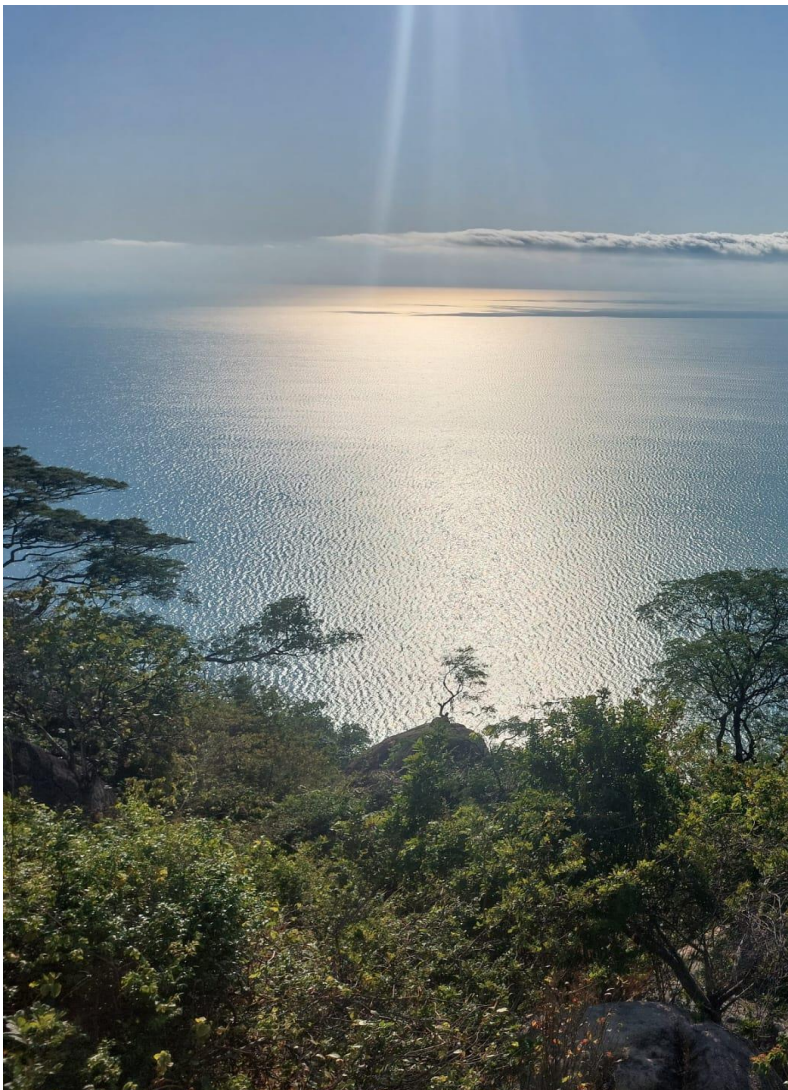




krutham
An Intellidex Company

**Scaling insurance
for climate
resilience in Africa**
*Insights from
Malawi*



Commissioned by





About Krutham

Krutham, is a leading research and consulting firm that specialises in the financial sectors of emerging markets. Its analysis is used by companies, investors, stockbrokers, regulators, policy makers and companies in South Africa and around the world. It has offices in Johannesburg, London and Boston.

This report was commissioned by the African Climate Foundation (ACF). It was produced independently by Krutham and the contents represent the views of Krutham and its analysts.

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List of abbreviations

AADRF	African-Arab Disaster Response Fund	NAP	National Adaptation Plan
ACCF	Africa Climate Change Fund	NASFAM	National Smallholder Farmers Association of Malawi
ACF	African Climate Foundation	NCCMP	National Climate Change Management Policy
ACRIF	Africa Climate Risk Insurance Facility	NDC	Nationally Determined Contributions
ADP	Agricultural Development Programme	NDSI	Nairobi Declaration on Sustainable Insurance
AfDB	African Development Bank	NGO	Non-Governmental Organization
AFI	Alliance for Financial Inclusion	NRS	National Resilience Strategy
ARC	African Risk Capacity	NSO	National Statistical Office
ARDMAC	Agricultural Development and Marketing Corporation	NTCCC	National Technical Committee on Climate Change
ARIP	Adaptation and resilience investment platform	NWP	Net Written Premiums
ARV	Africa Risk View	OECD	Organisation for Economic Co-operation and Development
AYII	Area Yield Index Insurance	PBG	Performance-Based Grant
CAGR	Compound Annual Growth Rate	PISU	Pension and Insurance Supervision Unit
Cat-DDO	Catastrophe Deferred Drawdown Option	PPP	Public-Private Partnership
CCA	Climate Change Adaptation	PPPC	Private-Public Partnership Commission
CERF	Central Emergency Relief Fund	RBM	Reserve Bank of Malawi
CSI	Corporate social investment	RCRF	Regional Climate Risk Fund
CSO	Civil Society Organisation	REPAIR	Regional Emergency Preparedness and Access to Inclusive Recovery Replanting Guarantee
DCCMS	Department of Climate Change and Meteorological Services	RPG	Special Climate Change Fund
DFI	Development Finance Institution	SCTP	Social Cash Transfer Programme
DFID	Department for International Development	SGR	Strategic Grain Reserve
DoDMA	Department of Disaster Management Affairs	SNIID	Social Network for Index Insurance Design
DRF	Disaster Risk Financing	UNCDF	United Nations Capital Development Fund
DRM	Disaster Risk Management	UNDRR	United Nations Office for Disaster Risk Reduction
DRR	Disaster Risk Reduction	UNEP	United Nations Environment Programme
EM-DAT	Emergency Events Database	VSLAs	Village Savings and Loan Associations
ESG	Environmental, Social, and Governance	WFP	World Food Programme
FAO	Food and Agriculture Organisation	WII	Weather Index Insurance
FARMSE	Financial Access for Rural Markets Smallholders and Enterprises	YII	Yield Index Insurance
FEWS NET	Famine Early Warning Systems Network		
FFA	Food For Assets		
FY	Fiscal Year		
GCF	Green Climate Fund		
GDP	Gross Domestic Product		
GWP	Gross Written Premiums		
HII	Hybrid Index Insurance		
IAIS	International Association of Insurance Supervisors		
IFRS	International Financial Reporting Standards		
IMF	International Monetary Fund		
KAIP	Kenya Agricultural Insurance Programme		
KLIP	Kenya Livestock Insurance Programme		
LoCAL	Local Climate Adaptive Living Facility		
MCCCI	Malawi Confederation of Chambers of Commerce and Industry		
MFEPD	Ministry of Finance, Economic Planning and Development		
MMPI	Malawi Maize Production Index		
MVAC	Malawi Vulnerability Assessment Committee		
MWK	Malawian Kwacha		

Executive summary

Climate change impact

Malawian economy, society and environment

Malawi ranks among the top five countries most affected by extreme weather events globally.

- 73% of Malawians live in climate disaster-prone areas.
- The country has experienced a 0.2°C mean annual temperature increase since 1971, with predictions of further warming of 1.03°C by 2040.
- Between 2010-2024, Malawi faced 18 major floods, one landslide, five major storms and four severe droughts, affecting more than 22 million people.

Climate change and the insurance sector

- Highly exposed to physical risks from extreme weather events.
- High exposure to agricultural sector losses, which employs 80% of workforce.
- Concentrated risk among a small pool of affluent individuals and businesses.
- Rising claims ratios, particularly in fire insurance that covers climate-related perils.

Malawi's insurance landscape

- Nascent insurance market, with low penetration (1.9%) and insurance density (\$4.82 per capita).
- Limited capacity for climate risk management, with only one reinsurer which creates reliance on international reinsurance companies that exposes the sector to currency and global market risks.
- Limited risk pooling due to low market penetration (5% of adults have formal insurance).
- Opportunities exist in digital transformation, government-supported technological advancements, and microinsurance diversification.
- Partnerships with fintech and mobile operators are extending access to underserved populations, and innovations in products like comprehensive health insurance signal potential for growth.

Strengths

- Growing insurance sector with 52.3% increase in gross written premiums (2019-2023)..
- Expertise in climate-risk products, especially weather-index insurance schemes.
- Strong digital transformation initiatives through partnerships with mobile operators and fintech companies.
- Effective reinsurance arrangements helping manage catastrophic risks.

Challenges

- One of the lowest insurance penetration rates in sub-Saharan Africa at 1.9%.
- Only 0.84% of agricultural workers have formal insurance coverage.
- Limited domestic reinsurance capacity with only one local provider.
- High dependence on international reinsurance markets.
- Affordability issues due to high reinsurance costs and premium rates.

Insurance sector participation in climate resilience

- Some insurers are investing in smart agriculture projects, while others are involved in disaster relief efforts.
- Malawi's climate policy landscape prioritises adaptation and resilience, with the Public-Private Partnership Act (2022) providing a mechanism for collaboration. However, implementation of PPPs is hindered by capacity gaps in both sectors, while challenges in quantifying long-term benefits and aligning projects with investment cycles limit the development of bankable adaptation initiatives.
- A multi-stakeholder approach is needed to catalyse insurers' engagement in adaptation and resilience in Malawi, addressing capacity gaps, developing innovative financial solutions, and establishing robust impact measurement.
- Opportunities exist for insurers to engage in adaptation through investment platforms such as the Adaptation and Resilience Investment Platform (ARIP) and by leveraging existing regulatory frameworks.

Recommendations

Scaling pathways for insurance as a climate risk management tool:

- **Leverage National Smallholder Farmers Association of Malawi 's(NASFAM)** network to deliver climate information and insurance, develop group policies with climate data for premium discounts on climate-smart practices, and implement a “pay-at-harvest” model supported by premium subsidies from the Ministry of Finance to alleviate farmers' liquidity constraints.
- **Collaboration** between ministry of Agriculture and Agricultural Development and Marketing Corporation (ARDMAC) **to distribute bundled insurance with drought-resistant seeds**, certified by local research institutions. This could be accompanied by risk management tools, including climate information services like seasonal forecasts and weather alerts.

Infrastructure resilience

- **Enhance climate risk data sharing:** Form a dedicated unit led by Department of Disaster Management Affairs (DODMA) to comprehensive asset registries for critical and rural infrastructure, focusing on climate-vulnerable areas. Develop implementation frameworks for sustainable management of infrastructure assets.
- **Integrate climate services:** Expand weather station network and coordinate data sharing between Department of Climate Change and Meteorological Services (DCCMS), agricultural services and insurers.

Mobilising insurance capital for adaptation investments

- **Embed impact metrics in national policy:** Integrating insurance mechanisms into Malawi's National Adaptation Plan (NAP) and Nationally Determined Contributions (NDC) can provide a basis for impact metrics for investors by establishing a clear policy framework that aligns insurance products and

investments with national adaptation goals, facilitating the measurement of effectiveness in enhancing climate resilience and securing international funding support.

- **Strengthen innovation:** Establish regular innovation forum for insurers, develop regulatory sandbox for testing new insurance products, and update regulations for index insurance.
- **Leverage platforms such as ARIP and Africa Climate Risk Insurance Facility for Adaptation (ACRIFA)**, focused on adaptation and resilience, to mobilise resources and coordination to support some of the proposed recommendations.

Introduction

Climate change in Malawi: impact and vulnerabilities

Malawi is among the top five countries most affected by extreme weather events across the globe (Eckstein et al., 2021), with approximately 73% of Malawians living in areas prone to climate-related disasters (Changwanda & Clayton, 2024). While this vulnerability stems partly from the country's geographical profile that creates distinct climatic zones, climate change has intensified these challenges. The country has documented a mean annual temperature increase of 0.2°C since 1971, with climate models predicting further warming of 1.03°C by 2040 and 1.34°C by 2050 across 125 models (Detelinova et al., 2023; Irish Aid, 2018; Red Cross Climate Centre, 2021).

The impact of climate-related disasters on Malawi's economy and society is substantial. Between 2019 and 2024, the country was hit by two droughts, several floods and five major cyclones (EM-DAT, 2024). The most recent Cyclone Freddy (2023) caused unprecedented destruction including damage to 50,000 houses, 36 roads and the displacement of 659,000 people (CDP, 2023; Changwanda & Clayton, 2023; FEWS NET, 2023). The agricultural sector, which forms the backbone of Malawi's economy, bore significant losses with more than two million farmers affected and damages totalling \$1bn (Changwanda & Clayton, 2024).

The growing frequency of extreme weather events has trapped Malawi in a cycle of response and partial recovery, exacerbated by limited fiscal space and reliance on international aid that typically favours relief over rehabilitation (Changwanda & Clayton, 2023; Marchal, 2021).

Climate change and the insurance sector

Climate change impacts the insurance sector primarily through physical and transition risks. Physical risks arise from direct climate change effects like extreme weather events that damage property and infrastructure. In contrast, transition risks are associated with the global move towards a low-carbon economy (IAIS, 2021). Given Malawi's low carbon emissions, the insurance industry's exposure to transition risks is limited.

However, physical risks, which increase claim frequency and severity, pose a significant threat to the sector's sustainability.

Several factors contribute to this:

Figure 1: Insurance penetration and insurance density

Insurance penetration

- The contribution of insurance premiums to a country's economy.
- Expressed as a percentage of the GDP
- Measures the extent to which insurance services are used within an economy.

Insurance density

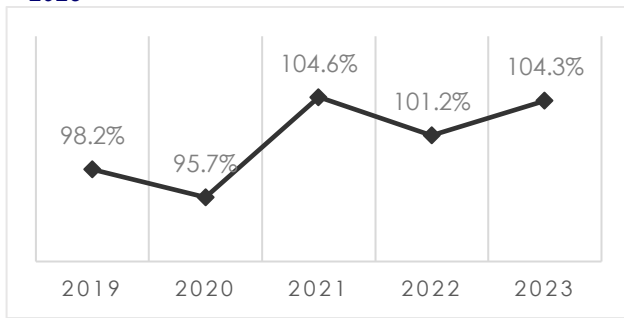
- Measures the average per capita spending on insurance in a given country or region.
- It is calculated as the ratio of **gross written premiums** to the **population**.
- Reflects how much, on average, individuals in a country spend on insurance products annually.

First, insurance penetration in Malawi is low. Only 5% of Malawian adults have formal insurance, and 1% use informal mechanisms (FMT, 2023). The insurance penetration rate is 1.9%, with an insurance density of \$4.82 per capita (FMT, 2023; Swiss Re, 2024; Umali, 2024). The average insurance density for Africa is \$50 per capita, illustrating the country's small insurance market.

Second, the small size of the insurance market creates a paradox in climate risk management – while a smaller customer base might suggest reduced exposure, it concentrates risk among a restricted pool of affluent individuals and businesses whose climate-related claims can be substantial. The restricted risk pool undermines geographical and risk-type diversification, while fewer premium-paying customers are available to absorb losses (Suarez et al., 2007).

Third, since 2019 the insurance market has struggled to remain profitable. Over the past three years, the combined ratio for general insurance has exceeded 100%, indicating that premium income has been insufficient to cover expenses (Registrar of Financial Institutions, 2023).

Figure 2: Combined ratio for general insurance, 2019-2023



Source: Registrar of Financial Institutions (2023)

Climate risks in Malawi are primarily addressed through two types of insurance: fire insurance for businesses and households, and miscellaneous insurance, which includes crop and livestock coverage. Although gross written premiums (GWP) for these classes have grown, so have reinsurance costs, leading the industry to retain more risk due to limited local reinsurance capacity, with only one reinsurer, Emeritus Reinsurance (UNCDF, 2023).¹

The sector operates under a compulsory reinsurance cession rule, requiring insurers to use local reinsurance options before turning to international markets. However, given the limited domestic capacity, most climate-related risks are ultimately transferred abroad. This dependence on international markets exposes the local industry to currency exchange fluctuations and global market shifts, potentially impacting the affordability and availability of climate risk insurance, particularly in vulnerable sectors like agriculture.

Implications and opportunities

Despite the challenges facing Malawi's insurance industry, there are opportunities for growth. The COVID-19 pandemic accelerated digital transformation, creating new distribution channels and enhancing operational efficiencies. Collaborations between insurers, mobile network operators, and fintech companies are effectively extending insurance access to underserved rural populations, complementing the traditional dominance of brokers who hold 80% of the

market share (FMT, 2023; Hougaard et al., 2022; UNCDF, 2023).

Government initiatives such as the National ICT Master Plan and the Digital Economy Strategy have laid the groundwork for advancements like the Insurance Association of Malawi's automated motor vehicle insurance system. This system has reduced processing times, decreased operational costs, and improved fraud detection (Hettinger & Nyirenda, 2021; Mzungu, 2023).

Opportunities also exist within Malawi's microinsurance sector that has traditionally been dominated by credit-linked life insurance. While the product range is less diverse compared to countries like South Africa and Kenya, new initiatives signal a shift towards diversification and innovation. For example, VisionFund's comprehensive health insurance product, covering outpatient, inpatient, and specialist care, demonstrates the potential to address broader market needs (VisionFund, 2023). Both public and private entities, such as the Small Enterprise Development of Malawi and Pride Malawi, are actively contributing to the sector's development, supported by government-backed financial inclusion programmes like the Financial Sector Technical Assistance Project (FMT, 2023). Public and private entities, such as the Small Enterprise Development of Malawi and Pride Malawi, are actively developing the sector, supported by government-backed financial inclusion programmes like the Financial Sector Technical Assistance Project (FMT, 2023).

This report examines how climate change presents both opportunities and challenges for Malawi's insurance sector. It explores the growth of climate-related insurance products while considering the increasing severity and correlation of climate risks. The aim is to identify pathways for strengthening financial protection against climate risks, particularly for Malawi's 3.1 million smallholder farmers who remain vulnerable to climate shocks.

¹ GWP is the total direct and assumed premium written by an insurer before any deductions for reinsurance and ceding commissions.

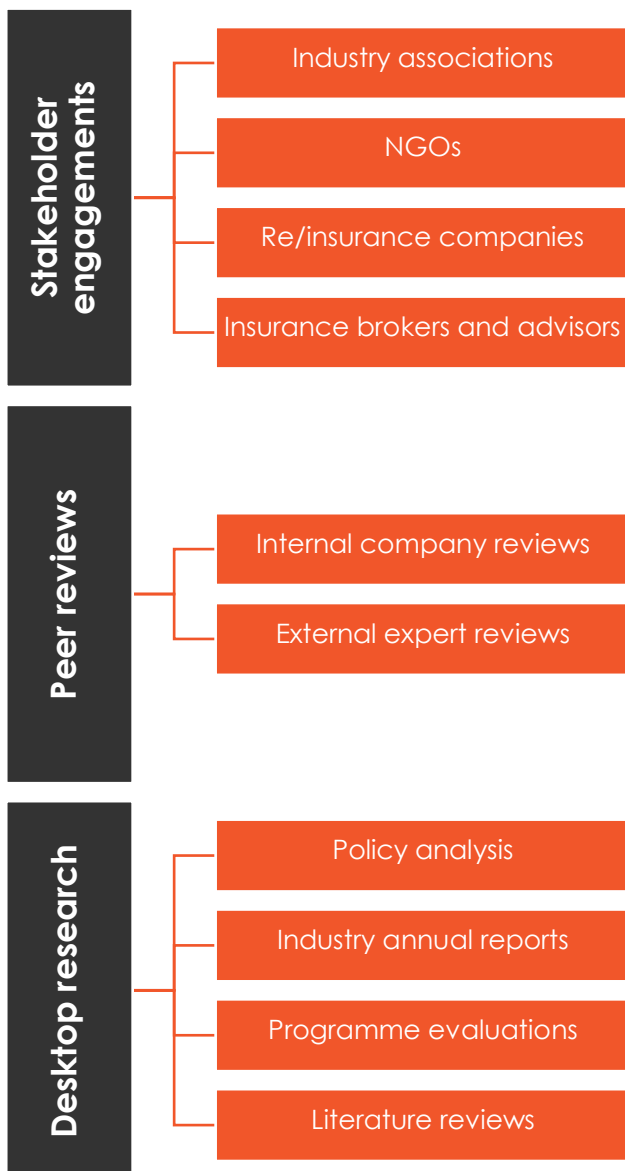
Methodology

The findings and recommendations discussed relied on:

- Extensive desktop research examining existing literature, policy documents and market data
- Stakeholder engagements with insurance companies, regulators, industry associations as well as NGOs working on climate resilience
- Peer reviews by independent experts to ensure the robustness of our findings.

The research took place over a period of eight months and also benefitted from insights at this year's COP 29 in Baku, Azerbaijan.

Figure 3: Methodology



The report is organised into four main sections:

The first section looks at Malawi's broader climate and disaster risk financing strategies, identifying strengths and weaknesses. It explores how incorporating insurance into climate resilience financing can bridge funding gaps, incentivise disaster risk reduction, and support adaptation efforts (see *Error! Reference source not found.*).

The second section discusses the country's insurance industry focusing in particular on the capacity of non-life primary insurers and reinsurers to underwrite climate risk. It also maps existing insurance products that provide cover against climate-related disasters, identifying key strengths, including innovative products (see **Malawi's insurance landscape**).

The third section looks at how insurance companies are contributing to climate resilience through their investment portfolios and ESG/corporate social investment (CSI) initiatives and how these actions align with the country's climate resilience policy agendas. It identifies the main barriers that need to be addressed to strengthen participation among not only the insurance industry but the private sector as a whole (see **Insurance sector's participation in adaptation**).

The report concludes with actionable and strategic recommendations that aim to offer a framework for integrating insurance into climate resilience. These recommendations balance immediate priorities, like addressing funding gaps, with long-term goals, such as fostering innovation and resilience-building (see **Recommendations**).

Climate and disaster risk financing in Malawi

Malawi's approach to disaster risk management faces significant funding challenges that limit its effectiveness in addressing climate-related threats. The government's current expenditure of MWK117bn (\$70.2m) on climate-related initiatives represents less than 1% of the national budget as of 2020 (Ministry Of Natural Resources, Energy, and Mining, 2020).² The allocation for disaster risk reduction (DRR) is particularly constrained at MWK3.9bn (\$2.3m) annually, falling far short of the estimated annual DRR costs of MWK1,983bn (\$1.2bn) (UNDRR, 2022).

Given these funding constraints, it is necessary to look at how the Malawian government is currently managing these challenges and these strategies can be strengthened. The government uses various financial instruments to manage disasters, including both preventive (ex-ante) and reactive (ex-post) measures, but these have proven inadequate for addressing the scale of climate-related challenges (World Bank Group, 2022). While the contingency budget line is available for unforeseen events, its efficacy is limited. It is capped at 2% of total budget expenditure and lacks specific allocation for disaster response.

Recognising these limitations, Malawi has developed a Disaster Risk Financing Strategy and Implementation Plan (2019-2024) to advocate for more robust financial allocations. However, persistent challenges remain, such as maintaining strategic grain reserves and coordinating emergency responses effectively (MFEPD, 2019).

This section examines four key approaches to climate and disaster resilience financing in Malawi. It assesses the feasibility and potential impact of these strategies within the Malawian context:

- Risk reduction: reducing risk through DRR efforts and adaptation investments.
- Risk retention: opportunities and limitations to risk absorption capacity.
- Reliance on external funding

- **Risk transfer:** leveraging insurance for climate risk management.

By exploring these strategies, the discussion lays the groundwork for a detailed examination of insurance market development in subsequent sections, thus connecting current challenges to potential solutions.

Climate finance landscape

To reduce its vulnerability against climate and disaster risk, Malawi needs to mobilise investments in adaptation and DRR measures. Malawi's annual adaptation funding needs are estimated at MWK38,289bn (\$23bn) for the period to 2040, which translates to MWK1,914bn (\$1.5bn) annually (AFDB, 2023). Based on the latest available data, Malawi receives around MWK423bn (\$253m) in climate finance annually, which represents a MWK1,491bn (\$895m) shortfall (CPI, 2022).

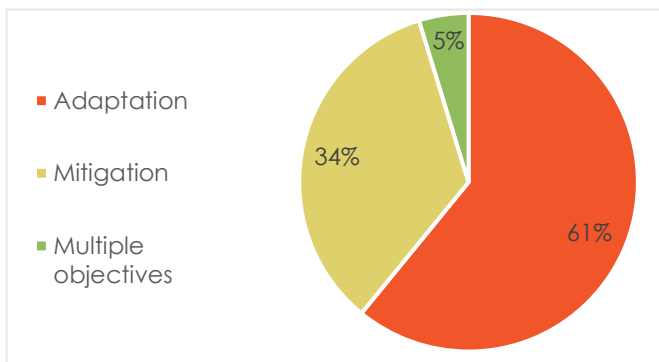


A significant portion of Malawi's climate finance—approximately 61%—is allocated to adaptation, amounting to around MWK257bn (\$154m) and a third towards mitigation (CPI, 2022). Despite this focus on adaptation, a financing gap of 69% persists, as the country requires approximately MWK826bn (\$495m) annually for adaptation (Chapagain et al., 2023). In 2021, the agriculture sector received the most adaptation funding in Malawi, totalling MWK71bn (\$42.6m) in 2021 (CPI,

² Based on an average USD and Malawian Kwacha (MWK) of 0.0006 or 1USD=MWK826.45. Date of conversion: 31 Aug 2024.

2022). Disaster risk reduction received approximately MWK27bn (\$16.2m).

Figure 4: Climate finance end-uses, Malawi



Source: CPI (2022)

The majority of climate finance in Malawi comes from multilateral development finance institutions (DFIs), contributing MWK193bn (\$115m) out of a total of MWK432bn (\$259.2m) in 2021 (CPI, 2022). The government contributed MWK116bn (\$69.6m, nearly a third of the total climate finance flows that year. However, these amounts fall far short of what is needed to meet the country's adaptation and disaster risk reduction requirements.

Several factors contribute to this shortfall, including constraints in fiscal space, difficulties in translating adaptation projects into bankable ventures, and limited institutional capacity for project implementation (Detelinova et al., 2023; Maluleke, 2024).

When natural disasters damage critical infrastructure such as small-scale irrigation systems, immediate responses typically focus on emergency repairs rather than implementing more resilient solutions. This creates a dual burden: communities face immediate service disruptions and increased vulnerability to future disasters. Addressing these challenges requires a strategic shift towards more proactive and holistic resilience planning.

Additionally, analyses on the benefits to cost ratio for adaptation in African countries reveal significant returns in investment. In the absence of a Malawi-focused benefits to cost ratio, a UNDRR (2024) showed that strengthening early warning systems has a benefit ratio of 3 to 1; improving roads 5.5 to 1 and DRM 3.9 to 1.

External donor reliance

Malawi's reliance on external funding for disaster risk management and climate adaptation is both a necessity and a challenge. The country's limited fiscal capacity means that external donors play a crucial role in providing the financial resources needed to address climate-related threats. Official development assistance (ODA) to Malawi averages \$1bn per annum, which constitutes about 20-25% of the country's GDP (Chinsinga, 2021). This substantial support underscores the importance of international aid in sustaining Malawi's development and disaster response efforts.

However, this dependence on external funding comes with significant drawbacks. A significant issue is the timing of donor funding for disasters, which often prioritise immediate emergency response over long-term recovery and preparedness. As **Figure 5** shows, 91% of timing of humanitarian funding is allocated to emergency response, while only 5.6% supports recovery activities and 3.8% goes to disaster preparedness (Weingärtner & Spencer, 2019). Several structural challenges in Malawi reinforces this funding pattern:

- **Recovery costs are often underestimated, particularly in housing and infrastructure sectors.** Limited institutional capacity, both within government and among external stakeholders, hampers effective recovery coordination. Additionally, the segregation of donor funding into distinct humanitarian and development categories creates artificial barriers to comprehensive disaster management (Marchal, 2021).
- **Donor inflexibility** further complicates this issue. Many donors segregate their funding into distinct humanitarian and development categories, creating a disconnect between emergency response and recovery activities. For example, the Central Emergency Relief Fund (CERF) funds are designated for immediate relief and cannot be used for recovery projects. This inflexibility undermines funding for recovery efforts, making it challenging to mobilise necessary funds after disasters.

A recovery funding gap leads to significant delays in implementing essential recovery activities, particularly major infrastructure repairs, undermining the recovery of affected

communities. Furthermore, the government's inability to effectively mobilise domestic resources and the absence of specific budget lines for disaster management result in ad hoc funding mobilisation, leaving NGOs, CSOs, donors and UN organisations to often lead disaster management efforts (Marchal, 2021).

Despite the problems external reliance present, it does provide crucial immediate support during disasters, offering resources that far exceed the government's limited fiscal capacity. Yet, it can perpetuate vulnerabilities in the country's climate and disaster risk management system as a preference for highly visible emergency response projects creates a significant recovery funding gap that undermines long-term resilience building.

The consequences of this approach are evident in recent disasters. Following events such as Cyclone Freddy, damage to critical infrastructure remains unaddressed for extended periods. Communities face a dual burden: immediate service disruptions and increased vulnerability to future disasters. The focus on emergency response over recovery (5.6%) and preparedness (3.8%) perpetuates a cycle of crisis response that undermines long-term resilience building.

While external assistance provides crucial immediate support that exceeds the government's fiscal capacity, the current system's emphasis on visible emergency response projects

transfer through insurance, to complement existing donor support and enable more predictable, comprehensive disaster risk management.

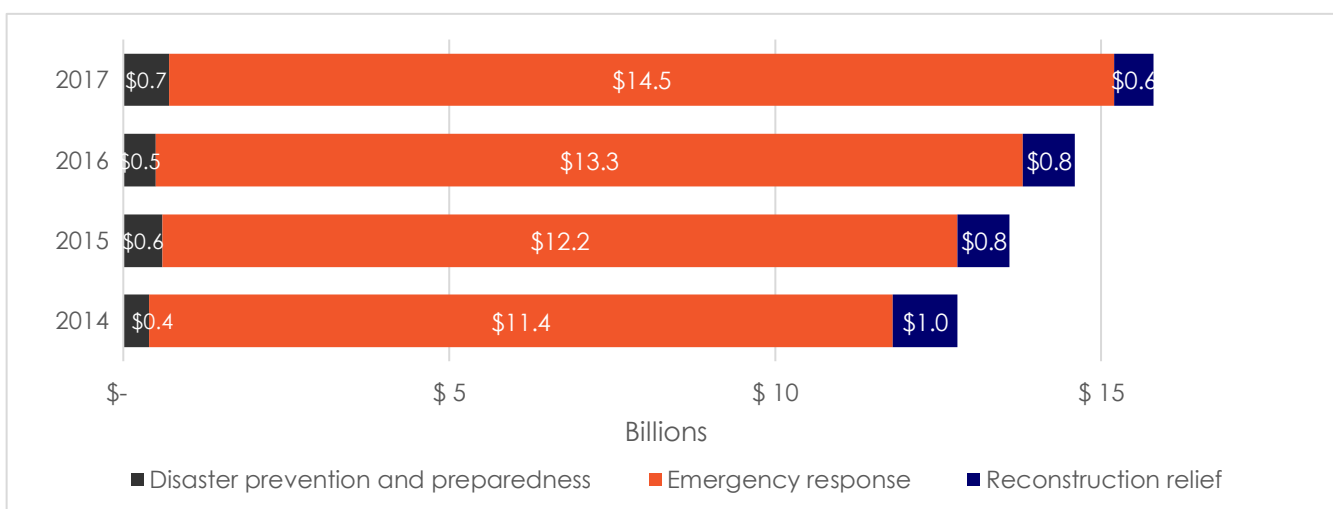
Strengthening risk retention

Malawi's approach to absorbing climate-related shocks relies on various financial instruments across government, business, and household levels. The government currently relies on ex-ante disaster financing instruments:

- **A contingency budget line** that cannot exceed 2% of the total expenditure budget and can be used for other unforeseen situations beyond disasters.
- **A Catastrophe Deferred Drawdown Option (Cat-DDO)** provided by the World Bank, which provides immediate liquidity to countries following a natural disaster or public health emergency.
- **A strategic grain reserve (SGR)** that maintains both physical grain stocks and necessary funds to counteract market failures and secure national food requirements (MFEPD, 2019).

Despite these efforts, Malawi's disaster risk financing (DRF) strategy faces significant limitations, particularly in risk transfer mechanisms. This is a result of the following:

Figure 5: Timing of humanitarian funding in USD billions, 2014-2017



Source: Weingärtner & Spencer, 2019

creates a significant recovery funding gap. This structural weakness suggests the need for more sustainable financing mechanisms, particularly risk

Cat-DDOs for disaster financing

Cat-DDOs provide a pre-arranged line of credit accessible immediately after a disaster, offering countries quick liquidity when they face financial constraints.

- Drawdown trigger: Funds become available upon a drawdown trigger, usually a state of emergency declaration by the country.
- Drawdown period and renewal: The initial period is three years, renewable up to four times for a maximum of 15 years, with a revolving feature allowing re-withdrawal of repaid amounts.
- Repayment terms: Defined at withdrawal, with policy limits such as a 35-year final maturity and 20-year ARM.

Cat-DDOs offer immediate liquidity and cost efficiency, reducing the need for budget reallocations or high-cost debt that could impede development. However, unlike insurance, Cat-DDOs are loans with interest that must be repaid. Although rates are concessionary, they are variable, potentially affecting budget planning (Clarke et al., 2015; World Bank Group, 2021).

Ex-post borrowing is extremely limited by the government's current fiscal challenges and mounting debt obligations. The country has a domestic primary deficit of 3% of GDP in 2023/24 and a domestic debt service burden of 5%, while foreign reserves have been depleted, causing critical shortages of essential commodities (Zucker-Marques, 2023). This has led to debt restructuring negotiations that only covers one-third of Malawi's external debt (IMF, 2023). These financial constraints give the government little leeway to respond to emergencies without returning to debt distress.

Budget reallocations have a troubling trade-off, as they require the government to postpone or cancel social programmes to address immediate disaster needs. This creates a cycle where long-term development goals are compromised for short-term emergency responses, ultimately undermining the country's resilience.

The absence of public asset registries and insurance for infrastructure complicates informed decision-making regarding risk assessment and transfer strategies (MFEFD, 2019). Although the government aimed to establish a public asset management policy and insure 1% of public

assets by 2023, progress updates are unavailable. This lack of infrastructure planning results in substantial unplanned expenditures during disasters, disrupting essential services such as energy, water, transport, health, and education. Consequently, long-term planning and resilience-building efforts are compromised, reinforcing the country's reliance on reactive measures and external assistance.

Climate and disaster risk management funding for sub-national governments is fragmented. Most resources are allocated centrally during emergencies, leaving local authorities without specific funds for climate initiatives. **The Department of Disaster Management Affairs (DoDMA) lacks a dedicated budget line** in national accounts, forcing reliance on discretionary allocations from various ministries for disaster risk reduction funding (UNDRR, 2024). While there has been an increase in funding for disaster risk management (DRM) and the introduction of the Performance-Based Grant (PBG) in FY21/22, these funds remain discretionary and not specifically targeted at climate objectives. As a result, climate and DRM funding remains fragmented and often managed off-budget, primarily supported by development partners and executed through separate projects rather than integrated into government systems. This off-budget approach, originally due to low confidence in government financial management, is unsustainable and undermines government accountability in the long run (World Bank Group, 2022).

Risk transfer through insurance

The limitations of adaptation funding, internal risk absorption capacity and external donor reliance point to the urgency for alternative disaster risk financing mechanisms in Malawi. Risk transfer through insurance represents a potentially vital complement to existing approaches, offering more predictable and timely funding for both disaster response and recovery needs.

The government previously held sovereign insurance with the African Risk Capacity (ARC) for drought coverage in 2016/17. However, this was discontinued due to model design flaws due to (Reeves, 2017). Despite this setback, Malawi has demonstrated renewed interest in insurance products. For instance, recent developments in 2023 and 2024 highlight this shift, as Malawi

received insurance payouts from ARC following an El Niño-driven drought (ReliefWeb, 2024). These payouts were part of the World Bank-supported social cash transfer programme (SCTP). Locally known as Mtukula Pakhomo, the SCTP is a non-conditional safety net for the most vulnerable, ultra-poor Malawians. The programme's integration of drought index insurance, which relies on pre-defined triggers such as rainfall levels and secondary indicators tracking food security, marks a significant strategic advancement (FAO, 2023).

The incorporation of a **dual trigger mechanism** can be seen as an attempt to prevent the basis risk problem the government experienced in 2015. The trigger levels for the primary trigger vary from district to district to ensure that the mechanism responds to droughts that happen on average once every three years. If the primary triggers are not met but there is concern that drought conditions prevail, a secondary trigger based on an evidence review is used ((FAO, 2023). Although the programme is in its early stages, future plans include scaling coverage for climate-related shocks beyond droughts, such as floods and pests and diseases.

The effectiveness of insurance programmes hinges on their implementation, as evidenced by a cost-benefit analysis of ARC. This analysis revealed that when payouts were delayed, every \$1 invested resulted in just \$0.40 in welfare benefits. Conversely, rapid disbursement through pre-arranged delivery channels could have yielded up to \$1.90 in benefits (Kramer et al., 2020; Ward et al., 2022). This stark contrast underscores the importance of efficient delivery mechanisms, such as state-contingent welfare schemes, to maximise benefits.

However, the SCTP in normal circumstances targets only 10% of households by design (1.2 million individuals), even though 20.5% of people live in ultra-poverty. In 2022/23, the scalable mechanism was extended to cover an additional 100,000 households (approximately 425,000 individuals) in six out of Malawi's 28 districts (World Bank, 2023). Despite these extensions, the regular and scalable mechanisms collectively reach only 9% of the country's population.

While insurance offers promise, several limitations have to be noted. Insurance cannot prevent the loss of lives or assets and may not always be the

most cost-effective or affordable option (Warner et al., 2009). This is particularly relevant in Malawi, where high exposure to climate risks, incomplete risk information, and high transaction costs pose challenges to traditional insurance mechanisms. Nevertheless, when integrated with other financing strategies and risk reduction measures, insurance can play a vital role in building resilience.

In the broader context of Malawi's disaster risk management framework, insurance could help address several critical gaps. It could provide more reliable and rapid funding compared to donor assistance, potentially bridging the significant recovery funding gap that currently sees 91% of humanitarian funding directed to emergency response with only 5.6% supporting recovery efforts. Furthermore, insurance mechanisms could offer protection for public assets and infrastructure, addressing the lack of systematic coverage that leaves essential services vulnerable during disasters. Well-designed insurance products could help break the cycle of reactive crisis management by providing predictable funding for both immediate response and longer-term recovery needs.

The development of suitable insurance products is key to this strategy. Traditional insurance products often fail to meet the needs of low-income and underserved populations, emphasising the necessity for innovative approaches that combine insurance with comprehensive risk management strategies (Le Quesne et al., 2017).

The potential of insurance as a risk transfer mechanism for Malawi must be evaluated within the context of the country's existing insurance sector. While insurance offers promising solutions for addressing the identified gaps in disaster risk management, its effectiveness depends heavily on the sector's capacity to develop and deliver appropriate products. Malawi's insurance industry has shown encouraging growth and expertise in climate-risk products, particularly weather-index insurance schemes (UNCDF, 2023). However, the sector faces significant challenges, including low market penetration and the mounting pressures of climate change on its business model. Understanding these dynamics is crucial for assessing how insurance can effectively contribute to Malawi's climate resilience strategy.

The following section examines the current state of Malawi's insurance sector, analysing its growth trajectory, market structure, and capacity for managing climate risks. This analysis encompasses recent developments in climate-related insurance products, the regulatory environment, and ongoing digital transformation initiatives that could enhance the sector's ability to serve vulnerable populations. By evaluating these elements, we can better understand both the opportunities and constraints in leveraging insurance as a tool for climate risk management in Malawi.

Malawi's insurance landscape

Malawi's insurance sector has shown substantial growth, with Gross Written Premiums (GWP) increasing from MWK54.7bn (\$32.8m) in 2019 to MWK83.4bn (\$50.4m) in 2023 (Registrar of Financial Institutions, 2023). The industry is estimated to grow at an expected compound annual growth rate (CAGR) of more than 15% during 2024-2028 (GlobalData, 2023).³

The market is divided into two main segments – life insurance and general insurance. General insurance (health, motor vehicles, property and liability insurance) dominates the market (FMT, 2023). General (non-life) insurance dominates the market, accounting for 80% of GWP in 2022/23 (Registrar of Financial Institutions, 2023). The industry comprises eight general insurers, five life insurers and one reinsurer, with NICO Insurance leading the general insurance market, holding 34.9% of gross premiums and 30.49% of total assets in 2023.

Despite its growth, the sector faces significant challenges due to Malawi's climate vulnerabilities, which expose it to physical risks, as mentioned earlier (**see *Climate change and the insurance sector***). The industry has developed expertise in climate-risk products, such as weather-index insurance, but structural limitations – such as its small size, low penetration rate and limited

climate risk management capacity – threaten long-term viability. Climate change has already led to rising premiums, potentially widening the protection gap.

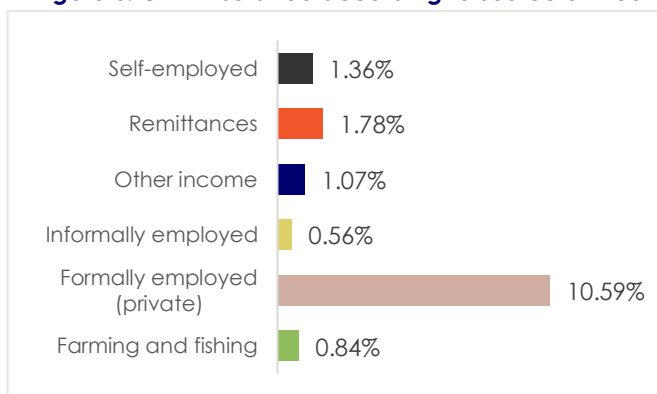
This issue is most pronounced in agriculture, a sector employing 80% of the workforce and contributing 30% to GDP. Alarmingly, as Figure 6 shows, 0.84% of individuals in farming and fishing held formal insurance as of the 2014 FinScope survey. Gender is a contributing factor here, as 60% of the smallholder agriculture sector is comprised of women (Mphezu, 2019). Women Despite their substantial involvement, female farmers in Malawi face numerous challenges that affect their productivity and economic outcomes. These challenges include limited access to land, credit and insurance, as only 2.12% of women own formal insurance compared to 6.96% of men (FinScope, 2014).

This section delves into a more detail on the performance of fire and miscellaneous products, followed by how the industry's regulatory guidance on climate risk management, before focusing on subsidised climate risk insurance programmes.

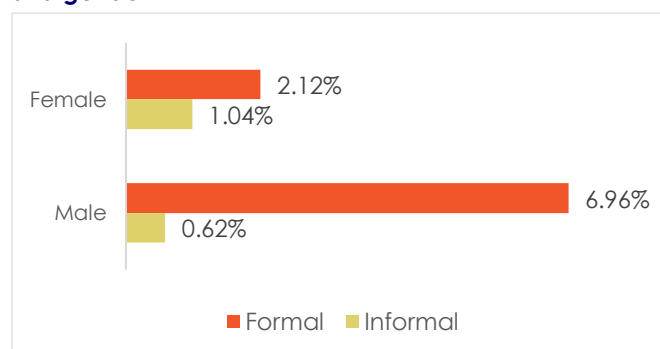
Climate risk coverage

Table 1 outlines the regulatory definition of fire and miscellaneous insurance. Most companies in Malawi offer fire insurance products that cover

Figure 6: Own insurance according to source of income and gender



Source: FinScope (2014)



³ CAGR is a metric that calculates the mean annual growth rate of an investment or value over time, assuming the growth compounds each year. It provides a smoothed rate that shows

what an investment would have returned if it had grown at a steady rate, making it particularly useful for comparing different investments or tracking performance over multiple years.

risks such as floods, storms, and fires, or allow these risks to be added (CIC Malawi, 2024; Government of Malawi, 2017; NICO, 2021). Recent cyclones have led to increased premiums, driven by insurers' adjustments to internal risk models and rising reinsurance costs. Additionally, insurers are retaining more risk in the fire insurance class. As shown in Figure 7, the retention rate has increased from 22% in 2019 to 32% in 2023. Although beneficial for profitability, this exposes insurers to climate-related losses, risking financial stability during major climate events. Between 2019 and 2023, net claims in fire insurance rose by 108%, compared to 62% in miscellaneous insurance, highlighting the losses from cyclones.

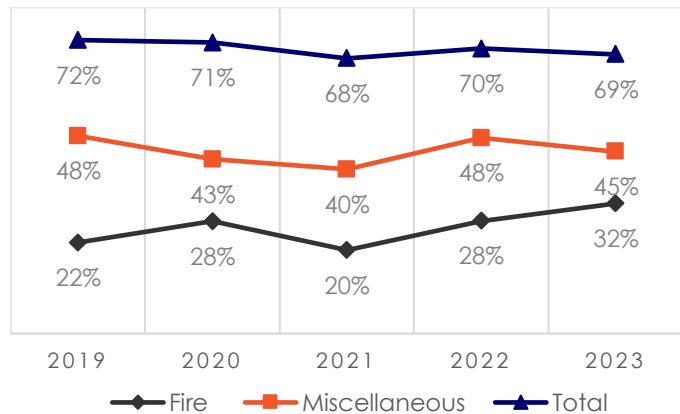
In contrast, risk retention rates for miscellaneous insurance, including agricultural coverage, have remained stable, even though growth in gross and net written premiums has lagged behind the fire class (see Figure 8). This highlights the challenges of managing correlated climate risks present in fire insurance, where events like floods or droughts can trigger simultaneous claims across multiple policyholders (Registrar of Financial Institutions, 2023).

Climate-related events can trigger widespread losses across multiple policyholders, creating correlated risks that are challenging to manage. Malawian insurers mitigate some challenges by ceding more fire risk to reinsurers, but high reinsurance costs undermine affordable climate-related products, especially for smallholder farmers and rural populations vulnerable to climate change.

Key challenges for Malawi's insurance sector in managing climate risks include:

- **Reliance on international reinsurance:** The lack of local reinsurance capacity limits Malawi's ability to retain climate risk within its own economy. This dependence makes Malawian insurers vulnerable to global reinsurance market fluctuations and may lead to higher premiums, which could hinder the accessibility

Figure 7: Risk retention ratio for fire and miscellaneous class, 2019-2023



Source: Registrar of Financial Institutions (2023)

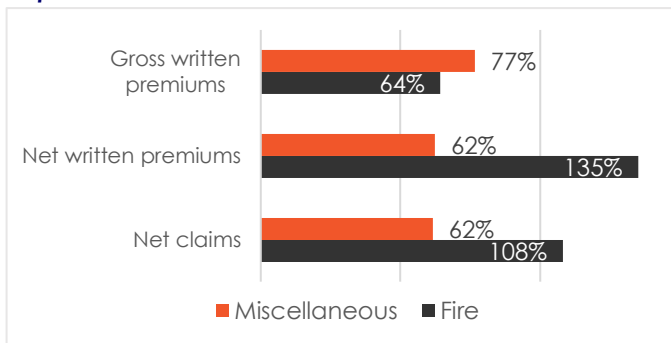
of climate risk insurance products for low-income populations.

- **Affordability and accessibility of climate risk insurance:** High reinsurance costs, particularly for miscellaneous insurance, may increase the cost of premiums for end consumers. This could impact the uptake of climate risk insurance, especially for vulnerable groups like smallholder farmers who might struggle to afford higher premiums.
- **Pressure on insurers' financial stability:** The high retention rate in fire insurance exposes insurers to potential financial strain from climate-related events that trigger significant fire-related losses. While this segment is currently profitable, increased frequency and intensity of climate events could erode these profit margins, affecting the sector's resilience.

In conclusion, while reinsurance plays a crucial role in enabling Malawi's insurance sector to manage climate risks, the limited domestic reinsurance capacity and reliance on international markets create both opportunities and vulnerabilities

Table 1: Definition of fire and miscellaneous insurance (2017 Insurance Directive)

Class of business	Definition	Sub-class of business
Fire - domestic	Fire insurance covers losses or damage to property caused by fire, explosions, storms and similar hazards typically associated with fire coverage. This insurance operates as a standalone product rather than as an add-on to other insurance types.	Building
		Household (content)
		Comprehensive package cover
Fire – industrial and commercial		Buildings
		Contents
		Plant and equipment
		Loss of profit from fire
		Industrial all risks
Miscellaneous	Miscellaneous insurance serves as a catch-all category for insurance contracts that don't fit neatly into other standard classifications. This category specifically encompasses bond insurance, livestock coverage, and crop insurance, among other specialised products.	Cash-in-transit
		Goods-in-transit
		Fidelity guarantee
		Burglary
		Bonds
		All risks
		Others

Figure 8: Percentage growth in gross and net written premiums and net claims between 2019 and 2023

Regulatory landscape

Malawi's insurance industry operates under two primary legislative frameworks: the Insurance Act of 2010 and the Financial Services Act of 2010 (Government of Malawi, 2010, 2014). The Reserve Bank of Malawi (RBM), through its Pension and Insurance Supervision Unit (PISU), serves as the primary regulator (UNCDF, 2023). The Registrar of Financial Institutions (RFI), headed by the RBM Governor, implements the supervisory framework, including licensing, registration and regulatory guidelines on, for instance, climate risks (Registrar of Financial Institutions, n.d.).

Supervisory regime⁴

In June 2024, the RBM implemented a risk-based supervision (RBS) framework, replacing the traditional compliance-focused approach (Mangazi, 2024; Sabola, 2023). This shift moves away from fixed capital requirements towards a risk-sensitive model prioritising insurer safety and policyholder protection (Beyers et al., 2020; Cohen, 2018).

The RBS framework establishes a structured partnership between insurers and supervisors for risk management (A2ii, 2015), emphasising:

- Comprehensive risk assessment across insurance, strategic, operational, and market dimensions.
- Enhanced governance and accountability.
- Specific oversight responsibilities for management and boards.
- Holistic risk assessment and customer value (Deloitte, 2014; Mangazi, 2024).

⁴ A **supervisory regime** in insurance refers to the comprehensive framework and system of oversight that regulatory authorities use to monitor and control insurance companies' operations and ensure their compliance with regulatory requirements. This encompasses both prudential supervision (focusing on financial stability and solvency) and conduct supervision (addressing market behaviour and consumer protection). The regime typically operates through three fundamental pillars: quantitative

requirements for capital adequacy and solvency, qualitative requirements for governance and risk management, and reporting and disclosure obligations. Insurance supervisors are tasked with ensuring that insurers maintain adequate capital reserves, appropriate reinsurance arrangements and proper business operations that comply with statutory provisions (A2ii, 2015, 2017).

The RBS framework strengthens insurers' ability to measure and manage climate-related challenges through:

- Clear responsibilities for climate risk management at board and management levels.
- Integration of climate considerations into risk assessments and financial planning.
- Improved risk identification and monitoring capabilities.
- Cross-border and cross-sectoral supervisory cooperation (Barsulai, 2021; Matsuo, 2021).

However, full implementation of this framework in Malawi might take some time, as RBS requires sophisticated risk assessment tools and a deep understanding of risk management practices, which may be limited due to a shortage of supporting infrastructure and actuarial skills. Furthermore, a risk-sensitive regime must be carefully designed and regulated and insurance companies might struggle to adapt to increased complexity and potential costs associated with a risk-sensitive regime.

International guidance and local implementation

The Reserve Bank of Malawi, as a member of the International Association of Insurance Supervisors (IAIS), operates within global insurance supervision standards through the Insurance Core Principles (ICPs). While the RBM has not issued specific climate risk guidance, its membership positions it to adopt international best practices in climate risk supervision (IAIS, 2024c).

The IAIS has prioritised climate risk through several key initiatives. In 2021, its application paper with the Sustainable Insurance Forum established guidelines for climate risk supervision. Four subsequent consultations have addressed: climate risk integration in supervisory frameworks, consumer protection in catastrophe products, strengthening risk management practices, and developing reporting frameworks (IAIS, 2023a, 2023b, 2024a, 2024b).

The recent launch of the RBS framework in June 2024 aligns with IAIS's ongoing consultations on climate risk integration, suggesting the RBM's

readiness to incorporate international best practices into its supervisory approach (Mangazi, 2024). However, implementation will likely need to be phased and proportionate, considering local market conditions and supervisory capacity. The emphasis on supervisory guidance and practices, rather than strict rules, provides flexibility in adaptation while maintaining alignment with international standards.

Microinsurance and index-insurance regulations

Malawi's approach to microinsurance regulation differs from regional peers. While South Africa has established a dedicated microinsurance framework and Kenya maintains tiered licensing requirements, Malawi integrates microinsurance within its broader microfinance framework through the Financial Services Act and Microfinance Act of 2010 (Registrar of financial institutions, 2024). The RBM classifies microinsurance as a non-deposit-taking service, requiring MWK100m (\$60,000) minimum capital compared to Kenya's tiered system of KES50m (\$39,000) for microinsurers and KES600m (\$4.7m) for general insurers (Registrar of financial institutions, 2024).⁵

In 2019, the government issued the inclusive insurance directive, which encourages the development of accessible and affordable insurance products for underserved communities, mandating simplified processes and flexible payment options (Government of Malawi, 2019).

Index insurance products in Malawi currently operate under the general (non-life) insurance framework and are classified as miscellaneous insurance.

Sector trends and regulations: what does this mean for climate risk management?

This discussion identified some strengths that can be leveraged to scale the use of insurance for climate risk management as well as some gaps that have to be addressed.

Strengths that can be leveraged:

⁵ Conversion rate: KES 1 = \$0.0078, converted 30 August 2024

The RBM's shift towards a risk-based supervisory regime provides a strong foundation towards incorporating climate risk considerations in the business models and operations of the insurance industry. The RBM's IAIS membership can provide access to technical assistance to smooth this transition.

Risk retention: Increased risk retention of the fire insurance segment, coupled with a growth in GWP, means that the premium income stays within Malawi, potentially supporting local climate resilience initiatives.

Digitalisation: The digitalisation of insurance offers promising pathways for scaling climate risk insurance through:

- Government-led digital initiatives.
- Mobile money partnerships.
- Automated insurance systems.

This digital infrastructure could particularly benefit parametric insurance products that rely on data and automated triggers.

Microinsurance: The emerging microinsurance sector provides a potential vehicle for expanding climate risk coverage to vulnerable populations, supported by existing regulatory frameworks and government backing.

Distribution channels: While the concentration of the insurance market among few players inhibits innovation, it also creates potential for scaling solutions through these companies' established distribution networks.

Challenges to be addressed

Climate risk management: The contrasting performance of miscellaneous and fire insurance segments alongside a heavy reliance on reinsurance indicates that insurers experience difficulties developing accurate climate risk pricing models. This can be attributed to limited historical data and rapidly changing climate conditions. However, reliance on reinsurance, especially international firms, translates to premium outflows from the local economy and subjugate the industry to international reinsurance market fluctuations.

Index insurance regulations: Index insurance is generally more affordable and tailored to cover climate-related risks, yet its growth is hindered by

regulatory uncertainties. This absence of dedicated regulations can deter innovation and market development as insurers face potential compliance risks without clear guidelines.

Infrastructure access: Despite regulatory efforts to promote accessible and affordable insurance products for underserved communities, infrastructural constraints severely limit the reach and effectiveness of microinsurance services, especially in rural areas.

Climate and disaster risk insurance landscape

Malawi's experience with climate risk insurance provides valuable lessons for implementing parametric insurance in developing economies. With agriculture employing much of the population and facing significant climate risks, Malawi has been an early adopter of weather-based insurance in Africa (UNCDF, 2023). Its engagement spans sovereign and micro-level initiatives, with both challenges and innovations.

At the macro level, programmes like African Risk Capacity (ARC) highlight challenges in model design and basis risk, targeting the most vulnerable groups (in farmer typology, [see cover note](#) and Figure 9). Meso-level insurance, delivered through cooperatives and farmer associations, serves market-oriented farmers, while micro-level schemes bundle insurance with risk management services for smallholders. Micro-level programmes similarly target farmer groups one to three and have demonstrated the potential of bundling insurance with complementary risk management services.

This section examines Malawi's climate risk insurance at three levels: macro programmes such as ARC and the Malawi Maize Production Index, meso initiatives like the Mthangati weather index and NASFAM, and micro schemes including

by addressing barriers to scaling insurance in Malawi, focusing on infrastructural and institutional challenges.

Macro-level insurance programmes

Malawi has implemented three significant macro-level insurance programmes: the Malawi Maize Production Index (MMPI), the African Risk Capacity (ARC) drought insurance, and the Regional Emergency Preparedness and Access to Inclusive Recovery (REPAIR) Programme. Each represents different approaches to sovereign risk management, with varying degrees of success.

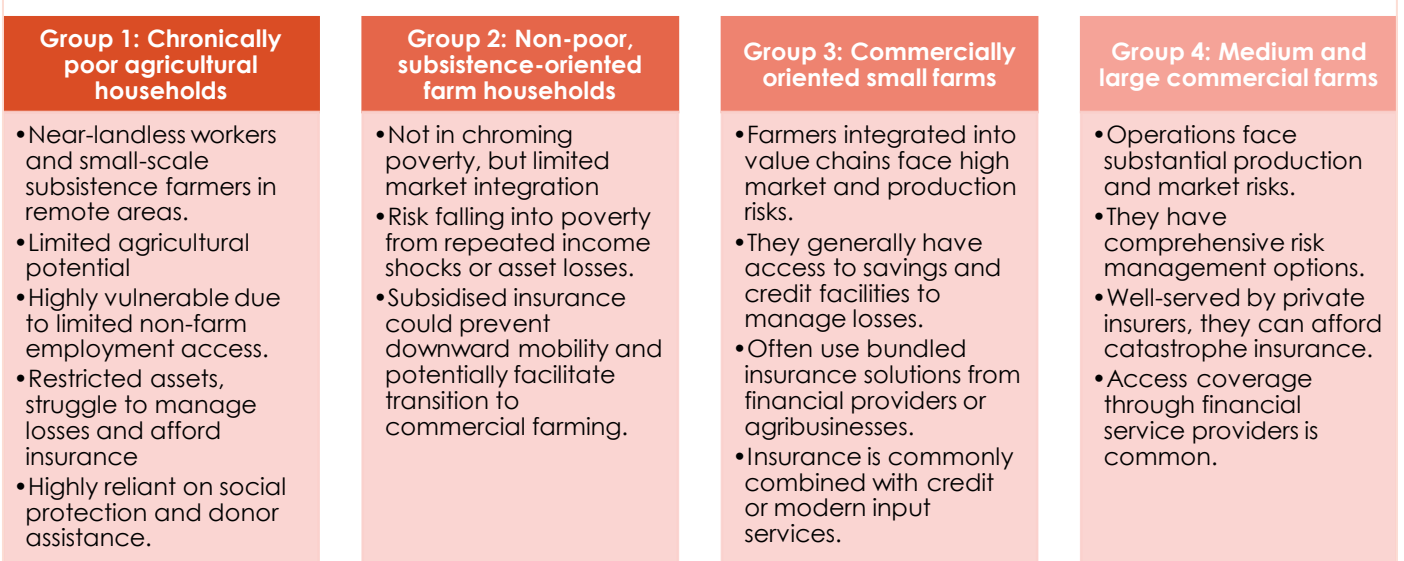
Malawi Maize production index (MMPI) (2008-2010)

In October 2008, Malawi implemented a national level drought risk management programme that formed part of its Agricultural Development Programme (ADP), supported by the World Bank and DFID (Hellmuth et al., 2009). The programme was developed as a nationwide protection mechanism based on the MMPI. The index was constructed using data from weather stations operated by the Malawi Meteorological Office throughout the country (Hess & Syroka, 2005). The maize production index uses a water balance crop model that connects rainfall patterns to expected maize yields (TNH, 2008). The model specifically considers:

- Timing of rainfall during the growing season.

- Amount of precipitation.

Figure 9: Farmer typology



Source: Kramer et al (2023)

the One Acre Fund and R4 Initiative. It concludes

- Distribution of rainfall.
- Data from multiple weather stations across the country (about 20-23 stations).

The index demonstrates strong correlation with actual maize production as it captures the impact of early-, mid-, and late-season drought on maize harvest. The system was designed to activate when the index fell 10% below the historical average, providing a maximum payout of \$5m. A key innovation was that payments were triggered by rainfall measurements rather than actual maize production, allowing for rapid payouts in April instead of waiting for harvest assessments in June (Hellmuth et al., 2009).

In terms of its financial structure, the programme was designed as a weather derivative contract that transferred the financial risk of severe national drought to the weather reinsurance market, with the World Bank acting as the intermediary, while the premium was covered by DFID (Abousleiman & Mahul, 2012).

The government planned to use any payouts strategically by purchasing options to cap maize import prices before actual imports were needed. This approach would protect against price spikes if major imports became necessary later in the year. The strategy was designed to encourage private sector participation in responding to domestic shortages through commercial imports.

The programme was renewed twice, in September 2009 and 2010 in 2010. However, its effectiveness was limited by several factors: payouts only occurred in cases of severe nationwide drought, leaving localised droughts uncovered, and the programme's sustainability was compromised by its reliance on donor-funded premiums.

ARC Drought Insurance (2015-Present)

In 2015, the Malawian government purchased a drought insurance policy from the African Risk Capacity (ARC) with a premium of \$4.7m. The policy was designed to trigger a payout if a drought affected more than 1.39 million people and response costs exceeded \$58.58m, with coverage up to \$30m. In April 2016, following an El Niño-induced drought, the president declared a state of emergency. Assessments by the UN's FAO and WFP indicated that 6.5 million people would face food shortages from April 2016 to March

2017, affecting 24 of the 28 districts. (Reeves, 2017).

Despite its innovative use of satellite data, ARC's model faced scrutiny for its accuracy. The Africa RiskView (ARV) software, which uses satellite-based rainfall data and agronomic models, estimated that only 20,594 people were affected, compared to the FAO and WFP's assessment of 6.5 million. This discrepancy meant that no payout was triggered (Johnson, 2020, 2021; Reeves, 2017). Initially, the model's inaccuracy was attributed to its use of a long-cycle maize variety as a reference crop, while most farmers had switched to short-cycle hybrids. Later assessments revealed that both maize varieties suffered similarly due to a dry spell during flowering, suggesting deeper flaws in the model. The model also failed to account for higher temperatures and increased evapotranspiration, indicating that inaccurate assumptions about maize varieties were not the only issue.

The model's attempt to isolate the impact of low rainfall from other factors further complicated matters. Independent evaluations highlighted that Malawi's food security crisis was due to multiple factors, including past climate disasters, corruption and policy decisions (e-Pact, 2017). These issues not only directly affected household food security but also influenced food prices.

After seven months of consultations and external pressure, ARC approved an \$8.1m policy exception payout to Malawi. Although ARC adjusted its model, similar issues persisted in other countries such as Mauritania in 2017, where inaccurate data led to another extra-contractual payout (Johnson, 2020).

Malawi's experience with ARC drought insurance highlights various types of basis risk associated with index insurance. For instance, temporal and product basis risk was manifested in the inaccurate assumptions about crop varieties correlated to the weather variable – rainfall – in the short-cycle maize planting season. Additional basis risk occurred due to the model rainfall isolation attempts that disregarded the compounding effects of previous droughts, floods and other factors such as food price increases due to poor harvests.

ARC improvements

Following this experience, ARC implemented substantial reforms, including:

- Development of a Malawi-specific drought risk model in 2019.
- Shift to subnational risk aggregation in 2021.
- Enhanced oversight through a Technical Working Group.
- Implementation of regular model parameter reviews.

These improvements proved effective, as demonstrated by the successful \$14.2m payout in 2022, which achieved a 97% cash assistance target rate (Charlot & Mwamlima, 2024).

This case highlights the need for formal mechanisms to adjust model parameters to reflect actual conditions. Basis risk funds – financed through donor contributions, government allocations and international development agencies – act as safety nets against insurance shortfalls.

Managed by stakeholders including insurance providers and agricultural organisations, these funds ensure payouts when yields fall below thresholds even if indices fail to trigger payments. For example, Ethiopia's R4 Resilience Initiative used basis risk funds to provide more payouts than automatically triggered insurance (BASIS I4, 2013; WFP, 2016).

Basis risk funds, accompanied by a review process to decide whether or not to make a payout, has been proven to be essential in farmer-level schemes, especially for drought. The review process typically involves technical committees comprising agricultural experts, meteorologists,

As mentioned earlier, the Malawian government is reconsidering sovereign insurance as an ex-ante disaster risk financing instrument through the REPAIR programme. This programme aims to o strengthen financial and operational preparedness for climate-related shocks in Eastern and Southern Africa. It will establish a Regional Climate Risk Fund (RCRF) with pre-arranged financial instruments to enable swift responses to shocks of varying severity and frequency (World Bank, 2024).

The RCRF will operate through three distinct layers: reserves for moderate and frequent shocks, contingent financing for severe and less frequent shocks, and parametric insurance for catastrophic climate events placed in international markets. The fund will be managed by ARC, ensuring strong governance and higher returns on capital through expert reserve management. A key feature of the programme is its ability to generate cost savings by pooling countries to access financial markets, while ensuring that participating countries retain access to their own funding regardless of shocks in other countries.

The World Bank approved the programme in July 2024 with implementation planned in the following phases:

- **Phase 1** implementation will start with Comoros, Madagascar, and Mozambique.
- **Phase 2** is scheduled to commence around July 2025 in Malawi, Angola, Eswatini, Lesotho, and Zimbabwe.
- **Phase 3** is planned to begin one year later in

Table 2: Comparison of marco-insurance products

Programme	Period	Key features	Farmer target group	Outcomes
MMPI	2008-2010	Weather derivative, rainfall-based triggers	Two and three	Limited by national-level focus
ARC	2015-Present	Satellite data, refined model parameters	One and two	Improved after 2019 reforms
REPAIR	2025-Future	Three-layer risk management, regional pooling	Two and three	Implementation pending

and community representatives who assess actual ground conditions against index readings to determine payout decisions (Reeves, 2017).

REPAIR Programme (2025-)

July 2026 and will include Burundi, Democratic Republic of Congo, Seychelles and Zambia.

This programme can play a significant role in strengthening Malawi's climate resilience in future disasters by mitigating the risks that threaten the

country's food and livelihood security as well as economic stability.

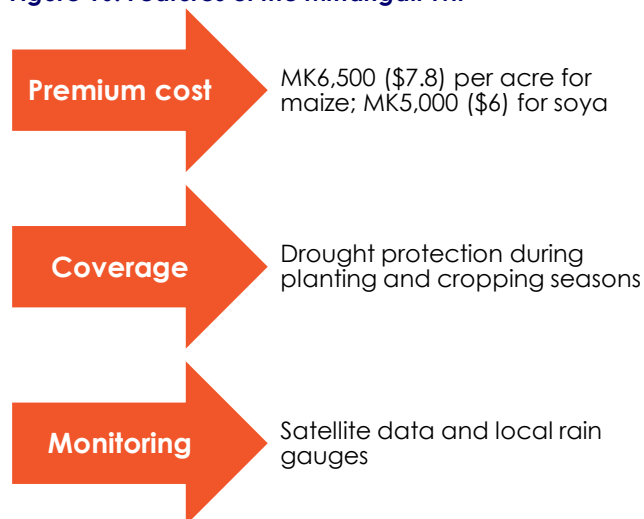
Meso insurance programmes

Meso-level climate insurance in Malawi operates through intermediaries such as banks, microfinance institutions, and agricultural cooperatives, targeting smallholder farmers. This approach offers administrative cost efficiencies while protecting loan portfolios against catastrophic climate risks (UNCDF, 2023). Indeed, this type of insurance potentially represents a significant opportunity to scale climate insurance, as research suggests farmers prefer group-based meso-level schemes over microinsurance products (Makaudze, 2018). Two significant programmes have been implemented in Malawi: the Mthangati Weather Index Insurance and the NASFAM initiative.

Mthangati Weather Index Insurance (2018-2022)

The Mthangati programme emerged through the INVEST Co-op initiative, operating in three districts: Lilongwe, Dowa, and Mchinji. (Sivel, 2023). The programme structured coverage through agricultural cooperatives, with the following key features:

Figure 10: Features of the Mthangati WII



The Mthangati Insurance Programme was structured at a meso level, with coverage offered via agricultural cooperatives rather than directly to individual farmers. In this model, the cooperative itself acted as the insured entity, and farmers registered for coverage through their cooperative rather than independently. This setup meant that farmers were primarily accountable to

their cooperative, which served as the intermediary with the insurance provider.

Programme results

The programme trained 5,614 women and 12,464 men on the availability and benefits of the Mthangati insurance product. However, uptake remained low, with only 120 women and 54 men enrolling in the scheme, representing around 1% of those trained (Sivel, 2023). The higher enrolment rate among women was likely due to the programme's focus on food crops, which are traditionally managed by women, as well as the availability of insurance through Village Savings and Loan Associations (VSLAs) where women comprise the majority of members.

Despite plans to scale up to 41 cooperatives and expand coverage to include excessive rain, the programme encountered difficulties such as low enrolment, with only about 1% of targeted farmers participating. This, coupled with budget cuts from the donor, ultimately led to the programme's discontinuation (Sivel, 2023).

While affordability and limited appreciation of the benefits of insurance might have contributed to low enrolment rates, a contributing factor could also have been the eligibility criteria. For instance, eligible participants need to be a member of a cooperative and own or rent the land that they cultivate. While programme evaluations have not listed this as a major contributor to low enrolment, it is worth noting that only about 1% of landholders obtain land through purchase (de Satgé, 2021). The majority of land access is through customary law – both rentals and land hold – obtained through local chiefs or inherited patrilineal systems.

NASFAM Index-Based Insurance (2005-2008)

The World Bank and NASFAM developed this programme to enhance smallholder farmers' access to credit while managing drought risks. This insurance scheme initially launched in four districts: Kasungu, Nkhonkhotakota, Lilongwe North and Chitedze. The programme measures risk based on rainfall data collected from local meteorological stations, offering coverage to farmers within a 20-30km radius of each station. By 2008, the programme had achieved some scale, with 2,600 farmers purchasing policies worth \$2.5m (Sadler & Mahul, 2012).

Structure and implementation

- The index insurance programme operates across multiple levels, with rainfall thresholds used to trigger payouts. These thresholds are tailored to critical crop growth stages, namely:
 - 60mm of rainfall during establishment and vegetative growth.
 - 160mm during flowering and pod formation.
 - 100mm during the pod filling and maturity stages.
- These contracts were bundled with loans that enabled farmers to buy certified seeds, with the insurance covering the loan amount if weather-related conditions led to poor yields. Payouts were automatically sent to the banks upon reaching the threshold, thus ensuring loan repayment for drought-affected farmers (Sadler & Mahul, 2012).

Outcome

In 2005, the programme's launch saw **892 groundnut farmers purchasing insurance policies at a total premium of \$36,600**. By mitigating weather-related risks, the insurance encouraged banks to lend to insured farmers, who then invested in higher-quality seeds. This combination of credit and insurance provided the farmers with an opportunity to pursue higher-yield farming practices. In 2007, the programme expanded to include cash crops by 2007. By 2008, the number of participating farmers had increased to 2,600, with policies valued at \$2.5m.

Lessons from meso-level implementation

Programme design

- Bundle insurance with credit access and agricultural support services.
- Establish clear trigger mechanisms based on local conditions.
- Design flexible eligibility criteria considering local land tenure systems.

Implementation challenges

- Limited uptake despite extensive training.
- Land tenure requirements restricting participation.
- Sustainability concerns without donor support.

Success factors

- Integration with existing financial services.
- Clear payment triggers and automated processes.
- Strong institutional partnerships.

This analysis suggests that successful meso-level insurance requires careful consideration of local contexts, particularly land tenure systems and affordability constraints. Future programmes could focus on sustainable funding models and flexible eligibility criteria while maintaining strong institutional partnerships.

Micro-level climate insurance programmes

Micro-level insurance in Malawi has evolved through various pilot programmes, primarily implemented through partnerships between the government, multilateral donors, and local insurers. Two major initiatives stand out: the One Acre Fund and the R4 Rural Resilience Initiative, both of which bundle insurance with comprehensive risk management services.

One Acre Fund

The One Acre Fund, a social enterprise, is a significant agriculture production input financier in Malawi. It has taken an integrated climate risk management approach in its insurance product offerings. This approach is based on three pillars:

- **Resilience building:** One Acre Fund supplies inputs on credit worth 9,000 kwacha, which farmers repay over the course of the season. Given the significant climate vulnerability and the lack of common irrigation practices, One Acre Fund provides guidance to farmers on the use of fertiliser and planting patterns for high-value cash crops. These crops are crucial for generating the income needed to repay the loans, ensuring farmers can achieve financial stability while improving their resilience to climate challenges.
- **Crop diversification:** To reduce risks of total crop failure, One Acre Fund's model includes climate-smart agriculture methods to diversify crops for different end uses. During stakeholder engagements, this strategy included a mix of high value crops, one medium value crop and one staple crop for food security. This also protects farmers against market fluctuations, where if the price of one

price drops, farmers can still rely on income from other crops.

- **Social safety nets and assets:** This pillar entails building up assets to help farmers cope in the face of shocks and includes measures to improve environmental health for fields and planting trees to resist erosion. It is also in this pillar where their insurance products come in.

The delivery of the insurance products follows the RCC model discussed in the Kenya case study where the insurance payout goes towards loan repayments. Once loans are repaid, the insurance payout is in cash. Furthermore, these loans are taken out in groups, where failure to meet repayment terms disqualifies farmers from the programme in the next season.

The insurance products provided by the One Acre Fund include:

- Yield index insurance (YII), which covers all risks that affect yield and is therefore not limited to drought. For this product, representatives physically visit the farm to assess conditions. The triggers for YII are based on the average yields of the past five years.
- Weather index insurance (WII) that covers droughts and floods and where the triggers are based on the amount of water availability. These triggers are specific to crop planting cycles and are broken down into windows that define the water requirements for each growth stage. WII relies on remote sensing data to accurately assess water availability and determine payouts, ensuring a precise and efficient response to weather-related risks.

By 2023, the programme reached 510,600 farmers (109,400 direct, 401,200 via partnerships), achieving a 51.2% average yield increase. Long-term participants show notable improvements in food security, with veteran clients 52% more likely to maintain food reserves during lean seasons and demonstrating 25% higher asset accumulation over 3-5 years. (Malawi, 2023).

The One Acre Fund's integrated approach in Malawi can be compared with several similar initiatives in Kenya, particularly ACRE Africa's programmes and the Kenya Agricultural Insurance Programme (KAIP). Table 3 outlines how they compare.

R4 Rural Resilience Initiative

R4 Rural Resilience Initiative

Another prominent bundled insurance programme is the WFP's R4 Rural Resilience Initiative. Similar to the One Acre Fund, this initiative bundles insurance with climate risk

Table 3: Comparison of One Acre Fund with microinsurance programmes in Kenya

	One Acre Fund (Malawi)	ACRE Africa (Kenya)	KAIP (Kenya)
Coverage Type	YII & WII bundled with inputs	RPG and hybrid index insurance	Yield index with 20% threshold
Distribution	Direct and partnership	Seed companies and mobile	Aggregators
Farmer group	Two and three	Two and three	Two and three
Scale	510,600 farmers (16.5% of smallholders)	1.2M clients, three countries	0.75M farmers (20% of smallholders)
Bundling	Inputs, training and market access	Seeds & mobile payments	Premium subsidies and input loans

management strategies (WFP, 2023). This initiative expands the WFP's food assistance for assets programme that addresses immediate food needs through cash, voucher or food transfers while promoting the building or rehabilitation of assets that will improve long-term food security. The R4 integrates four risk management strategies:

Risk reduction: Households with limited cash can pay insurance premiums by participating in asset creation or by adopting improved agricultural practices. These activities, which include building water and soil conservation infrastructure, improve resilience and increase productivity by enhancing natural assets available to farmers. Farmers can also qualify for insurance by adopting conservation agriculture, growing drought-resistant crops or engaging in financial

education and post-harvest loss management training. In Malawi, risk reduction activities are built into the WFP's Food Assistance for Assets (FAA) initiative.

Risk transfer is facilitated by providing vulnerable farmers access to agricultural insurance, focusing on index-based products. These products include:

- **Weather index insurance:** Uses weather indices like rainfall levels, measured by weather stations or satellites, to trigger insurance payouts. This method is advantageous as it does not require in-field yield assessments and can quickly compensate farmers for adverse weather conditions like droughts or excessive rainfall.
- **Area yield index insurance:** Provides coverage against various risks that affect an entire area's yield, such as pests and diseases. This insurance type uses end-of-season crop sampling to determine losses, offering a payout timeframe that, while longer than WII, is still quicker than traditional methods.
- **Hybrid index insurance (HII)** combines the features of WII and AYII, offering protection against a range of risks that cause low yields, including unpredictable weather and crop diseases.
- **Index-based livestock insurance:** Uses vegetation indices, such as the normalised difference vegetation index, to measure pasture availability. If vegetation levels fall below historical averages, the insurance triggers payouts that help with livestock maintenance, such as purchasing supplementary feed or veterinary services.

In the 2022/23 period, WFP collaborated with PULA and local partners to insure 26,386 farmers, including a significant number of women-headed households, with area YII, which is the main insurance product operating in Malawi under this initiative. Despite a 24% drop in participation due to administrative challenges, the scheme paid out \$1.2m following Cyclone Freddy (WFP, 2024).

The design of WII product follows the social network for index insurance design (SNIID), a participatory approach that combines local farmers' and experts' knowledge to develop tailored insurance products. In each village, a design team of community leaders and

representatives determines specific insurance needs and timing through discussions and economic risk simulations to gauge farmers' preferences for coverage and payout frequency and financial education trainings (Adegoke, et al., 2017).

Risk retention facilitates financial resilience through group savings and social protection integration. Group savings can be lent to individual participants with certain needs, acting as a self-insurance mechanism for the community or targeted at particular savings groups. Several NGOs are exploring ways to integrate insurance products with village and savings loan associations (VSLAs) in several African countries, including Malawi (AFI, 2019; CARE, 2023; Hansen, 2012; Pienach & Luginaah, 2024; Reeves, 2017). The WFP has integrated VSLAs and microinsurance in its integrated risk management approach, where they cooperate with microfinance institutions to both establish and support VSLAs. In 2023, WFP supported around 2,149 VSLAs to support the economic independence of their members (WFP, 2024).

Promoting prudent risk-taking: Smallholder farmers often avoid investing in productive inputs or hiring labour due to vulnerability to external shocks, preferring low input-output systems that ensure stable, albeit low, income. Microfinance institutions might restrict investments due to the high perceived risk of default in poor seasons. With improved food security and a stronger asset base through the R4 Initiative, farmers can increase savings and stocks, using them along with insurance as collateral to secure credit for investing in productive assets like seeds, fertilisers and new technologies. Insured farmers are more likely to take risks with investments knowing that financial risks from climate-related shocks are minimised (WFP, 2023, 2024).

The initiative has a well-defined scaling plan for each country in which it operates. In the first year, a dry run involves consulting farmers and local experts, completing an initial index design, conducting economic research games and intensive capacity development at both farmer and institutional levels. In the second year, the programme is rolled out to several thousand farmers, followed by further refinement and scaling in subsequent years. The dry-run strategy allows the project to test insurance products and understand farmer preferences in a controlled

environment before commercial distribution (Adegoke, et al., 2017).

Comparison: R4Resilience and One Acre Fund

The R4 Initiative and One Acre Fund demonstrate different approaches to bundled insurance, each with distinct outcomes. While R4 reached 26,386 farmers in Malawi in 2022/23, compared to One Acre Fund's broader reach of 510,600 farmers, the R4 Initiative offers a more comprehensive social protection framework.

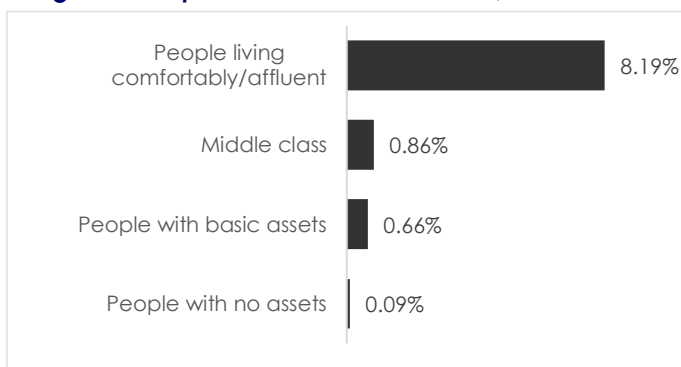
Impact metrics

The R4 Initiative's effectiveness is demonstrated

Table 4: Comparison of R4 Initiative and One Acre Fund

Feature	R4 Initiative	One Acre Fund
Approach	Social protection-focused	Commercial sustainability-focused
Payment Model	Labour/assets for insurance	Credit-based premiums
Scale	26,386 farmers	510,600 farmers
Support Services	Food assistance, VSLAs, asset building	Input credit, training, market access

Figure 11: Population that has insurance, based on assets



Source: FinScope (2014)

through several key outcomes:

- Successful payout of \$1.2m following Cyclone Freddy.
- Enhanced food security through integration with food assistance programmes.
- Improved household resilience through 2,149 active VSLAs.

Participants show higher likelihood of maintaining children in school and retaining household assets. The R4 Initiative's "Insurance-for-Assets" mechanism makes it more accessible to the poorest farmers, who can pay premiums through labour rather than cash (WFP, 2018). This contrasts with One Acre Fund's credit-based model which, while reaching more farmers, may exclude the most vulnerable who cannot take on credit risk (One Acre Fund, 2022). The R4 Initiative's more holistic but smaller-scale approach reflects its focus on building comprehensive resilience among the most vulnerable populations, while One Acre Fund's model prioritises scalability and financial sustainability.

Barriers to scaling

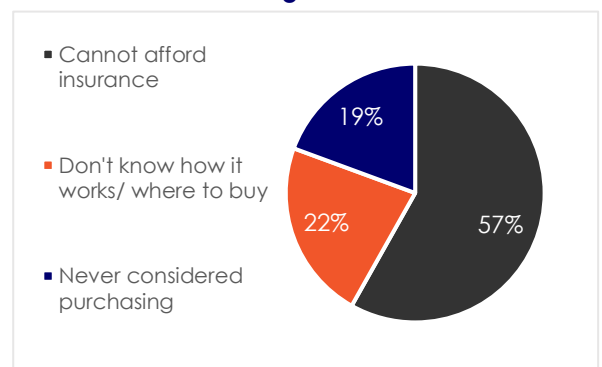
While Malawi's insurance infrastructure has some of the critical components to use insurance for climate resilience purposes, several barriers undermine the potential to reach scale. These barriers pertain to physical infrastructure, market composition and regulatory limitations.

This section looks at these barriers, focusing on their interconnections and the implications they entail for leveraging insurance for climate risk management and resilience.

Infrastructural barriers

Malawi's infrastructure presents interconnected

Reasons for not having insurance



challenges that affect the scaling of climate risk insurance programmes, spanning weather monitoring systems, digital infrastructure and physical connectivity.

Weather monitoring infrastructure

Automated weather stations are essential for weather index insurance (WII) because they

provide the accurate, localised data needed to assess weather conditions and trigger payouts. As of 2018, only 26 out of Malawi's 78 weather stations were automated, with many poorly positioned near airports rather than rural farming areas, increasing basis risk by failing to capture conditions on farmers' plots (Makaudze, 2018). The standard 20km coverage radius of these stations proves too broad for precise data collection, while the lack of robust historical records and comprehensive weather variables undermines effective product development.

Digital infrastructure

Malawi is one of the least electrified countries across the world, with only 18% of the population having access to electricity (11.4% provided by the grid network and 6.6% provided through off-grid energy solutions) (CESET, 2020). This particularly affects rural areas, where 80% of the population resides.

Other infrastructure

Besides electricity, other infrastructural barriers such as inadequate roads linking urban and rural areas as well as poor communication networks undermine market development and innovation. These systems are also vulnerable to damage from climate-related disasters, as evidenced by Cyclone Freddy. The lack of disaster recovery funding means that damaged infrastructure can significantly disrupt insurance operations, from claim processing to relief delivery. This creates a complex cycle where infrastructure limitations both restrict insurance access and complicate the delivery of insurance benefits when they are most needed.

Market constraints

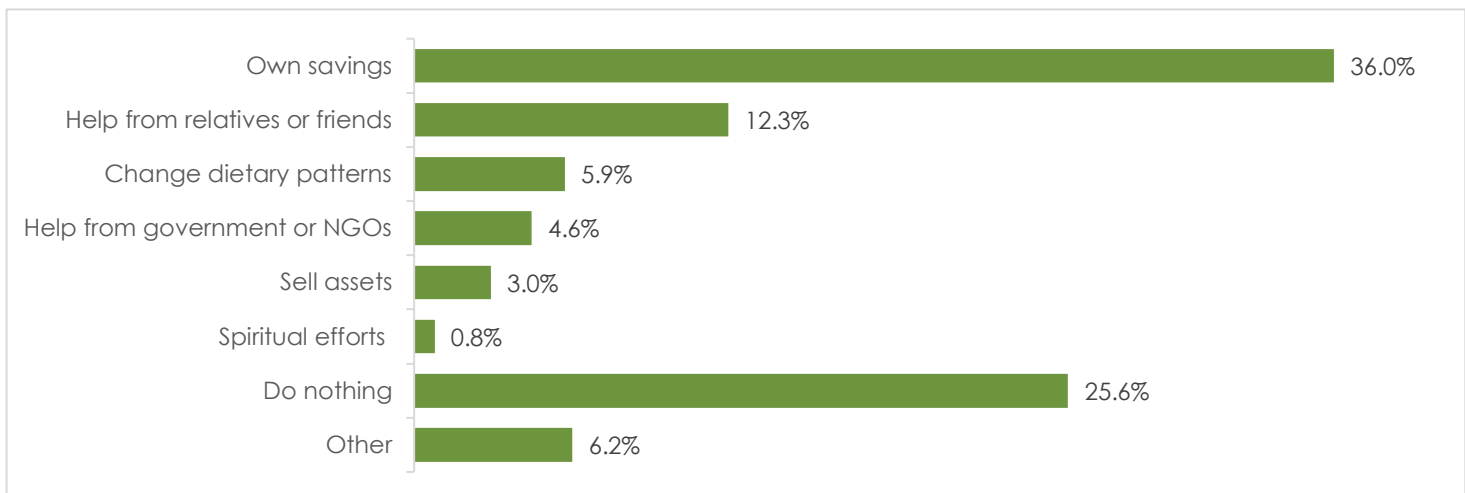
Malawi's insurance market faces some constraints that affect the development and scaling of climate risk insurance. These pertain to low insurance uptake, skills shortages as well as the sector's market concentration among a few companies.

Low insurance uptake

This is a significant constraint, exacerbated by infrastructural barriers as well as macroeconomic barriers that affect affordability. For instance, the inability to afford insurance is the main reason why adults do not own insurance, according to the 2023 FinScope Consumer Survey (FMT, 2023).

The industry's exposure, as mentioned earlier, is therefore concentrated among wealthy households and those who are privately employed (see Figure 6). As Figure 11 shows, insurance penetration is below 1% among those with no assets, basic assets and the middle class and more than 8% among affluent households (FinScope, 2014).

In response to livelihood shocks, such as harvest loss, most households rely on their own savings and almost 26% do nothing, as Figure 12 shows. The reliance on personal savings or inaction as primary coping strategies leaves the majority of households, especially low- and middle-income groups, highly vulnerable to climate-related shocks. This low insurance uptake limits the potential of the insurance sector to support widespread resilience, as the lack of financial protection perpetuates cycles of poverty and economic instability following climate events.

Figure 12: Household coping strategies in response to shocks

Source: NSO Malawi (2020)

Skills shortage

Another issue, which is common among many sub-Saharan African countries, is a lack of technical insurance skills such as actuarial and underwriting skills, due to difficulties in retaining skilled labour (Hougaard et al., 2022). These skills shortages extend to other areas relevant for innovation, such as technical skills in IT as well as subject expert knowledge on climate-related risks (Hougaard et al., 2022; Surminski et al., 2022).

The Digital Malawi Project has identified digital literacy and advanced ICT skills as significant gaps, which exacerbate a skills gap for insurance as the industry is experiencing rapid digitalisation that requires skills that traditional education has not fully addressed (IIG, 2024). Furthermore, in the context of climate change, insurers need professions who can understand and interpret climate data, model future scenarios and design appropriate products that account for changing weather patterns. This skills gap undermines the industry's ability to develop tailored products that can meet the needs of Malawi's agricultural producers – both small and large commercial farmers. A 2020 financial inclusion study found that agricultural insurance products are limited and often adapted from other regions, failing to address the unique climate risks Malawian farmers face (UNCD, 2020). Most existing products focus on drought, with significant gaps in coverage for losses from intense floods, which are frequent in Malawi. This misalignment between demand and supply is not confined to smallholder farmers, even large-scale commercial farmers have shown

limited interest in taking up existing agricultural insurance products (UNCD, 2020).

This also points to the urgency for the insurance industry to conduct market research to gain a deeper understanding of the needs, conditions, perceptions and experiences of both large scale and underserved market segments (Hougaard et al., 2022).

Furthermore, expanding coverage in the agricultural insurance sector would require increased risk appetite from insurers. Yet, in the absence of risk-sharing capacity in terms of reinsurance as well as the high risk of agricultural loss claims, insurers have remained relatively risk averse. For instance, Makaudze (2018) found that insurers prefer to provide coverage for cash crops over food crops as cash crops like tobacco, tea and sugar typically have established market prices, guaranteed buyers, and formal marketing channels, making them less risky to insure. However, this counters the government's agricultural programmes and interest to scale insurance coverage to food crops, specifically staple maize and social protection schemes.

Where to from here?

The barriers and implementation experiences discussed **above** point to requirements for successful climate insurance programmes in Malawi.

Implementation

Experience from MMPI, ARC, and REPAIR demonstrates that successful parametric insurance requires:

- Multiple data sources beyond weather stations
- Robust validation systems
- Established basis risk funds
- Technical review committees

The contrasting reach of One Acre Fund (510,600 farmers) and R4 Initiative (26,386 farmers) reveals that commercial sustainability and bundled approaches are crucial for achieving scale.

Future development pathways

Effective scaling requires simultaneous attention to supply and demand factors. On the supply side, industry-wide capacity building in climate risk modelling and product design is essential, given the concentration of technical expertise among few insurers. The R4 Initiative's SNIID approach demonstrates the importance of incorporating local knowledge into product design.

Three viable pathways emerge for future expansion:

Technology-enabled solutions

- Digital distribution channels to reduce costs.
- Integration with existing financial services.
- Focus on mobile-first solutions where infrastructure allows.

Institutional partnerships

- Leverage agricultural cooperatives and VSLAs.
- Strengthen public-private partnerships.
- Develop risk-sharing mechanisms through reinsurance.

Social protection integration

- Align with existing government programmes.
- Target vulnerable populations through SCTP.

- Create flexible products for different income levels.

However, the success of these pathways is contingent on elements such as investment in both physical infrastructure and technical capacity, flexible product design to adapt service offerings to local conditions, including land tenure systems and agricultural practices as well as sustainable funding model that balance commercial viability with social protection objectives to ensure long-term sustainability.

Insurance sector's participation in adaptation

The preceding sections have explored how insurance mechanisms transfer climate risks from Malawian households, enterprises, and government entities to insurers and reinsurers. However, it is equally important to examine the broader potential of the insurance sector in addressing climate change impacts. Insurance companies hold a unique position in the economy, combining expertise in risk management with substantial investment capacity. Their contributions to climate adaptation extend beyond risk transfer, offering multiple pathways to enhance climate resilience. This section examines these roles and their potential application in Malawi.

Insurers and manage approximately one-third of the world's investment capital (Carpenter & Wyman, 2023). By integrating climate risk assessments and resilience criteria into their investment strategies, insurers can align their portfolios with climate resilience objectives. This approach not only protects their financial interests but also signals the importance of adaptation to the broader market. Key areas of focus could include investments in climate-resilient infrastructure, sustainable agricultural projects, and enterprises with strong adaptation strategies (Bice et al., 2023; CISL, 2016). For a vulnerable country like Malawi, where the adaptation finance gap is 69%—equivalent to approximately MWK826bn (\$495.6m) annually—such investments could play a pivotal role in closing the funding shortfall (Chapagain et al., 2023).

However, this investment role requires careful consideration of multiple factors. Insurers must balance their desire to support adaptation with their regulatory obligations and fiduciary duties to maintain solvency and meet policyholder obligations (Golnaraghi, 2018). Their investment strategies are necessarily liability-driven and constrained by various internal and external factors. Despite these challenges, there remains significant untapped potential for insurers to expand their contribution to adaptation finance, with estimates suggesting this could present a £71bn (\$88bn) (Bice et al., 2023).

To unlock this potential, new financial products and vehicles may be needed to incentivise

greater insurer participation in adaptation finance. These innovations should enable insurers to invest in resilience-building projects in ways that align with their risk mandates and appetite, ensuring their continued financial stability while expanding their role in addressing climate change impacts.

Prioritising climate resilience within their own investment portfolios

At the most direct level, insurers can engage in adaptation and resilience by incorporating these considerations into their own investment portfolios. This includes investing in projects that explicitly enhance climate resilience, such as infrastructure projects, sustainable agriculture as well as environmental conservation projects. Alternatively, climate resilience can be integrated into portfolio management, such as resilient asset selection and risk management (CISL, 2016). For instance, Old Mutual Investment Group in Malawi has made two strategic investments in Malawi's agriculture sector that incorporate climate resilience (Old Mutual, 2023). These include:

- Jacoma Estates, located at Tropha Estates in Northern Malawi, which produces macadamia nuts, chilli and paprika across nearly 900 hectares, employing 900 full-time workers and collaborating with 5,400 community outgrowers. It includes a fully irrigated farming system, the implementation of climate-smart agricultural practices, efficient irrigation infrastructure to improve yields and programmes to help smallholders better manage resources and protect against extreme climate events (Kiernan, 2017).
- Gala Nuts Macadamia represents a significant climate-resilient agricultural investment, operating across 2,050 hectares with more than 1,400 hectares under irrigation (Old Mutual, 2023). The operation demonstrates a comprehensive approach to climate resilience through sustainable farming methods, year-round irrigation systems and climate-smart agricultural techniques. The venture creates significant social impact by providing more than 1,000 permanent jobs and working with 200 outgrowers, thereby supporting rural development and creating economic resilience through its outgrower schemes.

While specific examples of such direct investments are limited, other insurance companies are

indirectly incorporating climate resilience into their investment practices by adopting international sustainability reporting standards, such as IFRS S1 and IFRS S2. Other insurers such as NICO and Britam are also incorporating climate-related considerations into their portfolio and risk management approaches. For instance, Malawi's largest general insurer NICO has started to implement IFRS S1 and IFRS S2, which requires specific climate-related disclosures on risk and opportunities (NICO, 2023).

The company has acknowledged the impact of climate change on its operations, specifically recent cyclones, which caused significant damage to property and disrupted various supply chains.

However, local insurance companies' engagement with adaptation and resilience initiatives through direct investments appear limited, which can be a result of several factors such as regulatory mandates as well as a lack of a bankable project pipeline. This points to the need for the industry, in collaboration with global associations such as IAIS and the United Nations Environment Programme (UNEP), to develop context-relevant adaptation and resilience metrics (UNEP, 2024).

Regulatory authorities – the RBM through PISU – could encourage, as financial institutions adopt IFRS standards, including quantifiable adaptation goals in their ESG frameworks complemented by specific, measurable targets. These could include metrics such as the number of smallholder farmers covered by climate risk insurance, the total value of resilience-focused investments, and the percentage of their portfolio allocated to climate-resilient assets. For example, they could set targets similar to existing programmes in the country, such as aiming to insure 20,000 farmers annually or establishing a minimum portfolio allocation for climate-resilient agricultural investments like the successful Jacoma Estates and Gala Nuts Macadamia projects. This approach would provide concrete, measurable objectives while building on proven successful initiatives in the Malawian context.

Explanation: IFRS S1 and S2

IFRS S1 and S2 are global sustainability disclosure standards issued by the ISSB. S1 establishes the general sustainability reporting framework, while S2 addresses climate-related disclosures, covering physical and transition risks. The standards require reporting across governance, strategy, risk management, and metrics, with mandatory greenhouse gas emissions reporting.

Adaptation and resilience coverage

The treatment of adaptation and resilience in these standards is relatively limited and indirect compared to their focus on emissions reduction and transition risks. Under IFRS S2, companies must disclose:

- Physical risks (both acute and chronic)
- Climate resilience plans
- Business model adaptation strategies
- Financial impacts of adaptation measures

As such, there are no specific requirements for adaptation metrics. While comprehensive in their approach to emissions and transition risks, the standards lack robust frameworks for measuring and reporting adaptation effectiveness, with no standardised metrics or benchmarks for assessing resilience measures. The reporting framework often treats adaptation as secondary to mitigation efforts, providing insufficient guidance for resilience planning and no specific disclosure templates for adaptation initiatives. Furthermore, the standards show notable gaps in integration, particularly in connecting adaptation measures to financial reporting and physical asset resilience.

Promoting societal resilience to climate risk

The insurance sector has the capability to serve as a catalyst for societal resilience by leveraging its core competencies in multiple ways. Apart from providing insurance, they can influence policy development by sharing valuable risk insights with governments and local authorities, while simultaneously creating market incentives through premium adjustments that encourage climate-adaptive behaviours. Their involvement extends to practical support through risk mitigation services, infrastructure guidance and specialised assessment models that help communities and businesses better understand and prepare for climate-related challenges (CISL, 2016).

One example of a local insurance company engaging in these activities is NICO insurance, which provided financial assistance to communities affected by Cyclone Freddy (NICO, 2023). Furthermore, while not directly related to climate resilience, through their Agency Banking arm called "Bank Pafupi" and their partnership with Financial Access for Rural Markets Smallholders and Enterprises (FARMSE), NICO has prioritised increasing the availability and visibility of banking services while educating local communities about the benefits of formal banking. This strategy has shown impressive results, with their agent network growing from 1,441 agents in December 2022 to 2,444 agents by the end of 2023.

However, examples of insurers providing risk data and assessments to strengthen disaster risk reduction is limited. Here, the example of Santam's demonstrates how insurers can take a proactive role in building societal resilience to climate risks through strategic partnerships and targeted investments. By supporting 82 municipalities and reaching more than 12 million people, the programme shows how insurers can move beyond their traditional role of risk transfer to actively enhance local government capacity for disaster risk management (Santam, 2023; Surminski et al., 2022). The initiative combines practical support such as donating money, to firefighting equipment to eThekweni Municipality, with knowledge transfer through risk management expertise and planning tools. This comprehensive approach, which includes collaborations with research institutions and developing climate risk assessment tools such as the Green Book, demonstrates how insurers can leverage their risk expertise to strengthen institutional capacity. This model of insurer engagement in building climate resilience could be particularly relevant for countries such as Malawi, where insurers could play a similar role in strengthening local

government capacity for climate risk management.

To facilitate insurers' engagement in adaptation and climate resilience, supportive climate regulations are crucial. These regulations can help guide private sector⁶ actions on these issues and standardise adaptation metrics and resilience targets in climate vulnerable sectors.

Regulatory landscape for private sector participation in adaptation

Malawi's adaptation efforts are guided by several key regulatory documents that outline private and public sector responsibilities in addressing climate change impacts.

Core policy framework

The National Adaptation Plan (NAP) of 2020 serves as the cornerstone of Malawi's adaptation efforts, establishing fundamental guidelines for climate resilience through sustainable resource management (Government of Malawi, 2020). Working in concert with the NAP, the National Climate Change Management Policy (NCCMP 2016) implements sectoral integration of climate considerations through the National Technical Committee on Climate Change (NTCCC) (Government of Malawi, 2016).

Implementation mechanisms

The Disaster Risk Financing Strategy (DRF) 2018-2024 creates practical pathways for private sector engagement by establishing mechanisms for:

- Sovereign disaster risk financing instruments
- Private risk transfer solutions
- Enhanced insurance industry frameworks (MFEPD, 2019).

The National Resilience Strategy (NRS) 2018-2030 complements these efforts by focusing on

- Private associations and cooperatives.
- Entrepreneurs and farmers.
- Non-governmental agencies involved in business activities.

This broad definition encompasses all profit-oriented entities that are not part of the public sector or government.

⁶ The private sector in this context encompasses a diverse range of non-governmental entities engaged in economic activities for profit. This includes:

- Companies of various sizes, from large multinational enterprises to small and medium-sized enterprises (SMEs) and individual business owners.
- Financial institutions such as banks and investors.
- Insurance companies.

agricultural resilience and risk reduction through public-private partnerships (DoDMA, 2018).

Furthermore, the **updated Nationally Determined Contributions (NDC) (July 2021)** (Government of Malawi, 2021) specifically promotes private sector involvement in climate adaptation in the following ways outlined in Table 5

Table 5: NDCs and private sector participation in adaptation

Area	Focus	Area
Investment	Climate-resilient infrastructure	Investment
Innovation	Weather index insurance	Innovation
Technology	Sustainable farming practices	Technology

Financial mechanisms

Adaptation and disaster regulatory frameworks are also supported specific mandates and mechanisms to mobilise adaptation finance. For instance, the DRF strategy specifically targets the insurance industry to: i) strengthen legal frameworks; ii) increase insurance penetration, specifically among farmers and; iii) developing private risk instruments for households and businesses as well as public assets.

This has been complemented by **National Climate Change Investment Plan (2013-2018)** which established resource mobilisation strategies, investment incentives and support for sustainable technologies and afforestation (Ministry of Environment and Climate Change Management, 2013).

Given the emphasis on PPPs as a key mechanism for private sector engagement in adaptation efforts, it is crucial to examine the regulatory framework governing these partnerships in Malawi. The Public-Private Partnership Act No.23 of 2022 serves as the cornerstone legislation in this area.

PPP regulation

The PPP Act emphasises the need to strengthen the efficiency and effectiveness of infrastructure and service delivery through increased private sector participation. It builds on the 2011 PPP Policy framework and establishes a more detailed and legally binding framework for PPPs.

A key element of the 2022 PPP act is the enhanced role of the **Private-Public Partnership Commission (PPPC)**. The PPPC serves as the central body responsible for facilitating and implementing PPPs in Malawi. (PPPC, 2024). It develops guidelines on best practices for PPP projects and provides technical support to contracting authorities in identifying, initiating and developing these partnerships. This includes conducting feasibility studies and assessing project viability in conjunction with contracting authorities. (World Bank, 2023). Overall, the Act establishes a comprehensive legal and regulatory framework for PPPs, with clear guidelines for PPP selection and strong coordination mechanisms among stakeholders (EIU, 2017).

The **Malawi Confederation of Chambers of Commerce and Industry (MCCCI)** is another significant player in the regulatory and institutional landscape that can be leveraged to facilitate PPPs and private sector participation in adaptation projects. Recognised as the apex business association in Malawi, MCCCI represents the interests of the private sector across all industries (MCCCI, 2024).

Barriers undermining adaptation investment

Although the PPP Act No. 23 of 2022 establishes a framework for collaboration, the implementation of PPPs remains limited (World Bank Group, 2021). In 2018, the country's PPP capital stock was less than 0.1% of GDP, which was significantly lower than the average of sub-Saharan African countries (4.5%) (IMF, 2018). The PPP implementation gap is driven by, among others, insufficient capacity to manage, monitor and enforce long-term concession contracts for existing PPPs.

Capacity gaps

Public sector: Capacity gaps in the public sector, significantly undermine PPPs in climate resilience projects. These capacity gaps include a lack of skilled personnel to negotiate PPP contracts and understand the complexities of risk sharing, financial structuring and aligning interests among different partners.

Private sector capacity challenges include the fact that a significant portion of private businesses are informal, with limited opportunities and incentives to scale their operations. There are only

a few large firms that capture economic opportunities in most sectors (World Bank Group, 2021). This limits the pool of companies with PPP experience that can participate in adaptation efforts.

Insurance sector engagement: Research with stakeholders reveals minimal engagement from relevant public authorities with the insurance sector. The limited participation from local insurers suggests significant barriers to scaling up climate-resilient investments. Two key challenges emerge: the need for clearer regulatory frameworks that encourage climate-resilient investments while maintaining financial stability, and the limited availability of bankable projects that meet both climate resilience and investment criteria.

Business case development

The development of bankable adaptation projects presents significant challenges, unlike mitigation efforts which typically generate clear revenue streams through activities like selling electricity or carbon credits. Adaptation projects rarely produce direct financial returns, with benefits often being intangible, long term and challenging to quantify or monetise. This makes it difficult to calculate returns on investment. Furthermore, these projects typically operate on longer timeframes, extending beyond typical investment cycles, and are often smaller-scale and context-specific, making them less attractive to large investors (Dinshaw & McGinn, 2019; OECD, 2023).

A key barrier is the absence of clear, practical frameworks for measuring climate resilience impacts that resonate with investors. While various frameworks exist, such as the Adaptation and Resilience Impact Measurement Framework developed by ARIC, the inherently localised nature of adaptation projects means that vulnerability and resilience manifest differently across various contexts, sectors and geographical locations.

Insurers can contribute to addressing these challenges through multiple approaches. They can assist in developing and refining impact measurement frameworks that capture the localised nature of adaptation and align with industry standards. Additionally, insurers can work with government agencies and development partners to develop new financial instruments and risk-sharing mechanisms that incentivise

investment in adaptation. By collaborating with stakeholders to establish common metrics and methodologies, insurers can help build a stronger case for investment in adaptation projects.

Opportunities

Investment platforms

The establishment of ACRIFA with its \$1bn target for concessional capital presents a transformative opportunity for Malawian insurers. This can be complemented by initiatives such as the Local Climate Adaptive Living Facility (LoCAL), which provides performance-based climate resilience grants and supports climate-smart investments at the local level. The key challenge lies in connecting these high-level financing mechanisms with local implementation, requiring innovative approaches to develop bankable projects and build technical capacity within the insurance sector. For Malawian insurers, this means moving beyond traditional insurance products to actively participating in market development, particularly in areas like sustainable agriculture and infrastructure resilience, while leveraging international partnerships and technical assistance to strengthen their risk assessment capabilities.

Leveraging regulatory frameworks

The regulatory landscape presents several strategic opportunities and pathways for insurers to engage in climate adaptation and resilience in Malawi. The comprehensive policy framework, particularly through the Disaster Risk Financing Strategy and National Resilience Strategy, creates a clear mandate for the insurance sector's participation in climate resilience building. Furthermore, the institutional framework, particularly through the MCCCCI and NTCCC, offers established channels for insurers to engage in policy dialogue and partnership development. This could facilitate the creation of innovative insurance products that align with national adaptation priorities while maintaining commercial viability.

Overall, catalysing insurers' engagement in adaptation and resilience in Malawi requires a multistakeholder approach that leverages the institutional frameworks provided by the PPP Act and MCCCCI, addresses capacity gaps, develops innovative financial solutions and establishes robust impact measurement frameworks. By

working collaboratively with government agencies, development partners and other private sector actors, insurers can play a vital role in building climate resilience and supporting sustainable development in Malawi.

Recommendations

Malawi's experience with climate risk insurance highlights both the opportunities and barriers in using insurance as an adaptation tool. Initiatives such as weather index insurance and bundled agricultural products show promise, yet their impact is limited by issues such as inadequate weather data, low financial inclusion and regulatory gaps. The following recommendations focus on practical solutions to these barriers by leveraging existing institutions and technology.

Climate risk insurance scaling pathways

Bundling insurance

Kenya's Kilimo Salama programme, developed by ACRE Africa, shows the value of bundling insurance with essential agricultural products. By offering insurance through scratch cards in seed packages, farmers were encouraged to invest in additional inputs, expanding cultivation. Malawi could adapt this model, with the Ministry of Agriculture partnering with the Agricultural Development and Marketing Corporation (ADMARC) to distribute bundled insurance products, focusing initially on drought-resistant seeds. This approach requires:

- **Local research institutions** could certify climate-resilient seed varieties suited to Malawi's agro-ecological zones, ensuring bundled insurance supports proven resilient inputs.
- The Department of Climate Change and Meteorological Services (DCCMS) could link bundled insurance to automated weather stations in key regions to reduce basis risk.
- **Insurance products could be integrated with climate information services** to provide farmers with comprehensive risk management tools. This would include access to seasonal forecasts, weather alerts and farming advisories alongside insurance coverage, enabling farmers to make informed decisions about planting times, crop selection and risk mitigation strategies.

Meso-insurance: NASFAM and cooperative engagement

The research showed that many farmers prefer group-based meso-level insurance, which could be further explored. The advantages of reduced administrative costs, lower default rates and enhanced bargaining power make this approach promising. However, lessons could be drawn from the Mthangati experience to improve implementation. In particular, this would require capacity building for agricultural cooperatives, focusing on financial management and risk assessment capabilities as well.

For strengthened distribution, NASFAM could act as an intermediary by:

- Using their network to deliver climate information and insurance to smallholder farmers, providing resources on climate risks and acting as a liaison between insurers and farming communities.
- Developing group policies that integrate climate data, such as weather forecasts and rainfall data, to create accurate, relevant insurance products.
- Creating incentive structures through premium discounts for farmers who adopt climate-smart practices based on seasonal forecasts. This could include reduced premiums for farmers who implement drought-resistant farming techniques, use climate-resilient seed varieties or follow recommended planting schedules based on climate forecasts.

Payment solutions: Pay-at-harvest

A key innovation in payment mechanisms is the implementation of a "pay-at-harvest" model, which has proven successful in other African markets like Kenya. This approach allows farmers to defer premium payments until after harvest, addressing critical liquidity constraints that often prevent insurance uptake. NASFAM's experience with contract farming makes them well-positioned to manage this payment model effectively, integrating insurance with their existing arrangements.

To support broader adoption of this approach, the Ministry of Finance could implement a structured premium subsidy programme:

- Initial 50% premium subsidy.
- Gradual reduction over five years.

- Permanent subsidy provision for the most vulnerable farmers, identified through the Unified Beneficiary Registry.

The IAM's involvement from the outset will be crucial in establishing clear guidelines for payment processes and claims triggers, ultimately building trust among farmers and other insurance customers.

Leveraging digital growth

The growth of digital insurance distribution channels, specifically mobile money infrastructure, can be leveraged to scale insurance access in Malawi:

The RBM, alongside PISU and the IAM, could take the lead in coordinating partnerships between insurance providers and mobile money operators, specifically Airtel Money and TNM Mpamba. These partnerships could leverage existing ones or establish entirely new arrangements. They would serve two important functions:

- Premium collections through digital channels.
- Facilitate efficient claim disbursements through mobile money networks.

To support this integration, the Malawi Communications Regulatory Authority (MACRA) needs to develop appropriate regulations that would enable mobile network operators to act as insurance agents. This regulatory framework would support the development of mobile-based insurance products while leveraging existing mobile money networks for financial transactions.

Leveraging the insurance industry for resilient infrastructure

From an insurance industry perspective, infrastructure protection is crucial as it enables more accurate risk assessment and pricing while reducing the likelihood of catastrophic losses. Here, the country can draw inspiration from South Africa's Partnership for Risk and Resilience Programme (P4RR) by incentivising the insurance industry to share climate risk data with public sector planning bodies to strengthen disaster resilient policymaking and planning.

This recommendation focuses on forming a structured PPP that would strategically involve the insurance sector, local government and critical ministries to enhance climate adaptation. By

establishing integrated systems for infrastructure protection, insurance coverage and climate data services, a sustainable framework can be established that leverages private sector resources and aligns with national adaptation priorities.

To do this, a coordinating body within DoDMA, could be established. This group would serve as the central coordinating body for resilience-focused partnerships across the country's infrastructure sector.

The coordinating body's primary mandate would encompass overseeing strategic collaborations between insurers, municipal authorities and the Ministry of Transport and Public Works. This coordinated approach aims to address the significant vulnerabilities in Malawi's public infrastructure sector, particularly concerning climate-related risks. The unit would be specifically tasked with focusing on climate-vulnerable infrastructure, with particular emphasis on water and road systems, which have proven especially susceptible to climate-related disasters such as flooding and cyclones.

To complement these efforts, the IAM could assemble a taskforce to work alongside this coordinating body to ensure that the sector's expertise is leveraged in risk-prone areas. This collaboration could ensure participation from other industry associations, such as building and construction, to strengthen risk assessments.

To ensure effective implementation, the coordinating body within DoDMA, together with the insurance team, could launch pilot projects across five carefully selected districts, encompassing both urban centres such as Lilongwe and rural areas. This balanced approach would help capture diverse climate vulnerabilities and infrastructure challenges across different geographical contexts. The pilot programme would serve as a testing ground for resilience strategies before wider implementation, allowing for refinement of approaches based on practical experience and local conditions.

Asset management and registries

A key priority for DoDMA coordinating body and the insurance taskforce could be the development of a comprehensive asset registry. Climate and disaster risk planning is significantly undermined by the absence of public asset

registries, which complicates informed decision-making about risk assessment and transfer strategies. This gap leads to significant unplanned expenditures when disasters strike, particularly affecting critical public buildings and infrastructure.

This registry would serve as the foundation for systematic risk assessment and management, particularly focusing on public infrastructure susceptible to climate impacts such as flooding. It could prioritise two areas:

Critical infrastructure

- Comprehensive documentation of water and road infrastructure, which are particularly vulnerable to climate impacts.
- Standardised risk assessments focusing on flooding-vulnerable assets.
- Integration of climate risk data into infrastructure planning decisions.

Rural infrastructure management

- Systematic cataloguing of rural road networks.
- Assessment of last-mile delivery infrastructure.
- Integration with existing public-private partnership frameworks.

To effectively implement and maintain these comprehensive asset registries, robust public-private partnership frameworks are essential. While coordinating body can lead the development of these registries, their long-term success depends on structured collaboration between public and private stakeholders.

PPP frameworks for resilience

Partnerships between the public and private sector focusing on infrastructure resilience need to go beyond simple data sharing to establish clear operational protocols and implementation mechanisms that ensure sustainable management of both critical and rural infrastructure assets. This entails:

Robust institutional arrangements to ensure smooth collaboration between stakeholders. This includes clearly defined roles and responsibilities between public and private partners, alongside formal coordination mechanisms between DoDMA, the insurance taskforce and other relevant stakeholders. Standardised processes for information sharing and decision-making, supported by clear governance structures for joint

projects, would provide the foundation for sustainable partnerships.

Technical collaboration, which entails protocols for sharing risk assessment methodologies and creating joint technical working groups focused on infrastructure resilience planning. These groups would work to develop standardised approaches to climate risk assessment while designing effective mechanisms for knowledge transfer between insurance experts and public sector engineers. This technical alignment ensures consistency in approach and maximises the expertise of both sectors.

Implementation frameworks that ensure effective execution and continuous improvement of partnership initiatives. This includes developing clear project selection criteria for infrastructure resilience initiatives and establishing robust monitoring and evaluation systems for joint projects. Importantly, mechanisms for scaling successful pilot projects could be incorporated from the outset, alongside feedback loops that enable continuous improvement of partnership approaches. This approach to implementation helps ensure that successful initiatives can be effectively replicated and scaled across different regions and contexts.

Data infrastructure

To support these PPP frameworks, it is vital to strengthen the climate data infrastructure. This could entail:

Modernising weather monitoring systems: The Department of Climate Change and Meteorological Services (DCCMS) could take the lead in modernising weather monitoring systems, leveraging the existing Modernised Climate Information and Early Warning Systems (M-CLIMES) project. The DCCMS should expand its network of automated weather stations, hydro stations and lake-based weather buoys to cover all 28 districts, prioritising the most climate-vulnerable regions first.

Centralised data management: To ensure data standardisation and accessibility, the National Statistical Office could establish a centralised database for climate and agricultural data. This database could be designed with open APIs to allow insurers and other stakeholders secure access to relevant information. The Department of Agricultural Extension Services could work with DCCMS to implement a standardised approach

to agricultural data collection across all districts, ensuring consistency and comparability.

Integration with asset registry: To support evidence-based decision-making for infrastructure protection, this data system can be linked to the asset registry and enable real-time monitoring of climate impacts on critical infrastructure.

Funding resilience infrastructure

To fund the above recommendations, Malawi can leverage existing mechanisms and international climate finance. The Local Development Fund, already established as an intergovernmental fiscal transfer mechanism, could be adapted to create a matching fund programme between government and private insurers. This adaptation would align with Malawi's current climate finance landscape where multiple international funding sources, including the Global Environment Facility and African Development Fund, could supplement domestic resources.

For each Kwacha invested by insurers in risk assessment and resilience measures, government funding would match the amount through a combination of international climate finance and domestic resources. This structure could tap into existing funding channels such as the Least Developed Countries Fund, Adaptation Fund and the emerging National Climate Change Fund, while also leveraging the World Bank's Climate Toolkits for Infrastructure PPPs framework to structure the partnerships effectively.

The Ministry of Finance could further strengthen this initiative by introducing tax incentives for insurers who invest in preventative infrastructure measures, mirroring South Africa's successful renewable energy incentive schemes. While Malawi currently spends only about 1% of GDP on climate-related initiatives, this approach would help maximise the impact of limited resources by catalysing private sector investment.

Regulatory and policy framework recommendations

Insurance and the adaptation policies

To strengthen the role of insurance in Malawi's climate adaptation, these mechanisms could be

strategically embedded within Malawi's broader climate resilience framework through:

- **Integration with NAP and NDC:** Insurance mechanisms need to be explicitly incorporated into Malawi's NAP and NDCs to ensure coherent policy implementation. This would also help secure international funding and technical support while creating a stronger policy framework for insurance sector development.
- **Proactive resilience tool:** Insurance should be positioned as a forward-looking instrument that helps communities prepare for and adapt to climate risks, rather than just responding to disasters after they occur. This shift in approach could enable better risk management and encourage preventive measures, ultimately reducing the financial impact of climate-related events.
- **Explicit role of parametric insurance:** Parametric insurance products should be embedded within both NAP objectives and NDC adaptation targets, providing agricultural communities with faster, more predictable payouts while protecting rural households and critical infrastructure from climate impacts. This comprehensive integration would help reduce crop vulnerability, enhance food security and identify where tailored products like weather index insurance can directly contribute to national resilience goals.
- **Climate insurance coordination:** The National Technical Committee on Climate Change (NTCCC), which already coordinates climate-related activities across government departments, could expand its mandate to include insurance sector coordination. This would involve:
 - Adding the IAM as a member of the NTCCC.
 - Creating a dedicated working group within the NTCCC focused on climate risk financing and insurance.
 - Establishing formal data-sharing protocols between DCCMS, DoDMA and insurance providers through existing NTCCC frameworks.
 - Using the NTCCC's established channels to facilitate regular dialogue between climate scientists, disaster management experts and insurance professionals.

This unit would enable effective collaboration between insurers and climate-focused agencies, ensuring insurance products remain relevant as climate risks evolve.

Index insurance regulation

To support the growth of climate risk insurance in Malawi, regulatory authorities could develop a dedicated framework for index insurance products, moving beyond the current practice of regulating them under the general insurance framework. This framework should establish clear guidelines for product design, consumer protection and contract enforceability, addressing the unique characteristics of index insurance that often fall outside traditional insurance definitions. The framework could draw on successful models from other jurisdictions while being tailored to Malawi's specific context and needs.

The regulatory framework can prioritise three key areas:

First, establishing clear standards for index design and trigger mechanisms to ensure products effectively address climate risks while remaining commercially viable.

Second, implementing robust consumer protection measures that address the specific challenges of index insurance, such as basis risk and payment disputes.

Third, creating a streamlined approval process that encourages innovation while maintaining appropriate oversight.

These measures would provide insurers with the regulatory certainty needed to develop new products while protecting consumer interests.

To implement this framework effectively, the RBM could consider establishing a dedicated unit for index insurance supervision, supported by capacity building programmes for both regulators and insurers. This approach would help balance the need for innovation with prudential oversight, ultimately making index insurance more accessible and affordable for farmers and other vulnerable groups exposed to climate risks. The framework could also include provisions for regular review and adjustment based on market developments and lessons learned from implementation.

Related to the above, RBM and PISU could tailor microinsurance regulations to facilitate the sector's growth. This could focus on three areas:

1. Proportionate regulations for innovative products:

- Develop specific regulatory frameworks that balance innovation with consumer protection.
- Create simplified compliance requirements that reflect the lower risk profile of microinsurance products while maintaining adequate oversight.
- Enable new product categories beyond traditional credit-linked life insurance.
- Establish clear guidelines for product design and distribution that accommodate innovative delivery channels.

2. Mobile-delivered microinsurance:

- Enable mobile network operators to act as insurance agents through appropriate regulatory frameworks.
- Create guidelines for digital distribution and claims processing.
- Establish consumer protection measures specific to mobile-delivered insurance.
- Set standards for data protection and digital payment systems.

3. Agricultural microinsurance partnerships:

- Facilitate collaboration between insurers and the Ministry of Agriculture for product development.
- Enable integration with existing agricultural extension services.
- Support the development of products tailored for smallholder farmers.
- Create frameworks for premium subsidies and risk-sharing arrangements.

Innovation support

The insurance industry's supervisor, PISU, could actively collaborate with IAM to foster innovation within the sector. This partnership can focus on identifying and addressing barriers to innovation, as well as exploring new opportunities for product development and distribution for climate risk insurance. To achieve this, regular innovation forum can be held, where insurers present new ideas and discuss regulatory challenges.

Furthermore, PISU must leverage its position to engage in broader government coordination structures to address structural constraints affecting the insurance market. Specific actions include:

- Using its position in intergovernmental forums to highlight how digital infrastructure can boost insurance reach and resilience goals.
- Developing Memoranda of Understanding with regulators such as the Malawi Communications Regulatory Authority for cooperation on insurance innovation.
- Ensuring insurance topics are consistently on agendas in government forums, such as National Planning Commission meetings.
- For short-term coordination, PISU could initiate informal roundtable discussions with other regulators or host a conference on financial sector innovation with a focus on insurance.

Finally, PISU could prioritise regulatory updates, especially for index insurance, where lack of a clear framework limits scaling. A regulatory sandbox for testing new insurance products, especially mobile microinsurance, would further support innovation in the sector.

Additionally, the recently established Adaptation and Resilience Investment Platform (ARIP) – a partnership between the Government of Malawi and the African Climate Foundation – can be leveraged for the implementation of some recommendations. This platform is designed to mobilise resources and provide technical support for projects that address climate change impacts, particularly in sectors vulnerable to climate risks such as agriculture and infrastructure. It can play a coordinating role between different agencies and government departments or facilitate dialogues with funders and technical partners to strengthen the country's capacity to manage climate-related risks through partnerships and resources.

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