



The wrong model for resilience:

How G7-backed drought insurance failed Malawi, and what we must learn from it

May 2017

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The author would like to express gratitude to all the ActionAid Malawi colleagues who supported this research, including the tireless drivers, Ellen Bauleni, Swaleyi Lamba and Edward Phiri. In particular, he would like to thank Chikondi, Elyna John, Martha Khonje, and the staff of the local rights programmes and their local partners in Chiradzulu, Machinga, Nsanje and Rumphi districts, without whose efforts this report and many far more important achievements would not have been possible. He also thanks all those who gave their time to talk to him during the research.

COVER PHOTO: Women like **Faidas Katumbi** are shouldering the burden of climate risk

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Executive summary

The G7-backed African Risk Capacity (ARC) drought insurance policy was an **experiment that failed Malawi, and in particular its women**, in the face of a drought that need not have become a disaster. The insurance, for which Malawi paid US\$5 million (m), failed to deliver on its promise of timely assistance, which 6.7m food-insecure Malawians so sorely needed, due to **major defects in the model, data and process** used to determine a pay-out. After the declaration of a national emergency in April 2016, uproar at ARC's decision that no pay-out was warranted was eventually followed by agreement in November to pay Malawi \$8m. But this payment, made only in January 2017, was **too little, too late** and effectively represented an economic loss to Malawi¹. In the meantime, the Government was left pursuing conventional means of raising money to buy food for its hungry citizens, with the total drought response costs estimated at \$395m.

This technical failure has brought home to Malawian policymakers and stakeholders the more fundamental **poor value for money** of the drought insurance model so strongly promoted by the G7, the World Bank and other powerful development actors, and how their scarce resources could better be spent. **Not one of the government officials with key roles in climate risk management or other expert national stakeholders we spoke to would choose to renew the insurance policy.** Instead, they would use the money for no-regrets adaptation and resilience-building options that are proven to work but severely under-resourced. They would invest in making their **social protection** system more integrated, scalable, adaptive and universal; or supporting more **climate-resilient, sustainable agriculture** and more **irrigation**; or adequately resourcing **decentralised disaster risk reduction (DRR)** and enhancing the network of **weather stations**; or saving at least some of the money each year in a **contingency fund** for disasters.

The women farmers we spoke to additionally called for more **inclusive extension services** and more **training in how to run their popular village savings and loans schemes (VSLs)** and potentially grow them into cooperatives. They were unfamiliar with insurance and wary of financial institutions. They were already using a form of risk management through the emergency fund in their VSLs, but needed support to expand this.

Based on our research, we make the following recommendations:

1. **The G7, World Bank, Insurance Development Forum, ARC and others promoting the expansion of climate risk insurance markets for the poor and vulnerable should pause and reconsider this quest** in the face of a lack of evidence of its equity and effectiveness and indications that it may be exacerbating inequality and vulnerability. ARC's African members should be recognised for their solidarity and leadership in stepping up to fill a gap in international support for adaptation and DRR, but encouraged to hold inclusive, evidence-based discussions to design a more appropriate African model for building resilience and addressing loss and damage (L&D).
2. **Governments and development partners** should instead promote a **rights-based, equitable, effective and empowering alternative model for climate risk financing**: namely, supporting development of **cooperatives**, backstopped by **adaptive, scalable social protection systems** plus an equitably and predictably financed **global mechanism for social protection and early response to crises**². Social protection and agricultural support should be adapted and aligned to help rural people living in poverty, particularly women, organise themselves into cooperatives and use these to foster climate-resilient, sustainable, diversified agriculture and livelihoods, including through member-owned savings, loans and, after attaining sufficient capacity, insurance schemes.
3. **The Global Platform on Disaster Risk Reduction, the UNFCCC, and the G7 and G20 Summits** should send a strong signal that **insurance is not a quick fix** for the broken development, adaptation and humanitarian finance systems. Instead, rich nations should prioritise provision of **grants** to enable poor and climate vulnerable countries to deliver **integrated national plans** for implementation of the Paris climate agreement, Sendai Framework for DRR, and Sustainable Development Goals (SDGs). Such plans must transform agricultural, rural finance, social protection, early warning and crisis response systems, hence reducing L&D.

Introduction

As a result of inadequate efforts from rich countries to reduce greenhouse gas emissions, we are already living in a world 1°C warmer than pre-industrial times: and climate change is affecting women living in poverty first and worst. This is a graphic tale of how an international attempt to support these people failed abysmally.

In 2015, the Government of Malawi purchased a drought insurance policy for the 2015/16 agricultural season from the African Risk Capacity (ARC) Insurance Company Ltd, costing almost US\$5m dollars. This decision was taken amidst a global wave of enthusiasm for climate insurance generated by the World Bank and the G7, with support from the insurance industry. Malawi then experienced severe drought across almost all of its districts, induced by a record El Niño, supercharged by climate change. This resulted in 6.5m people being assessed in May 2016 as requiring food assistance by the Government of Malawi with the support of UN agencies and NGOs.³ However, a pay-out from the drought insurance policy was not automatically triggered, as the model used by ARC calculated that only 20,594 people had been affected by the drought.

This report tells the story of Malawi's experience of the drought and its ARC insurance policy, based on focus group discussions and interviews with a wide range of Malawians, from rural communities to government officials and other stakeholders, as well as the ARC Secretariat, caught up in the drought that need not have become a disaster. The government officials we spoke to were senior officials with responsibility for providing advice and information to inform decisions made with respect to ARC insurance and associated policies from within the Ministry of Finance, Economic Planning and Development, the Department of Disaster Management Affairs, the Ministry of Agriculture, Irrigation and Water Development, and the Department of Climate Change and Meteorological Services. We also spoke to key local government officials in Rumphu and Mchinji districts, experts from the National Smallholder Farmers' Association of Malawi (NASFAM) and the Lilongwe University of Agriculture and Natural Resources, and staff from ActionAid's Local Rights Programmes and their local partners in Chiradzulu, Machinga, Nsanje, and Rumphu. Focus group discussions incorporating participatory research methodologies were held with rural communities in Nsanje and Rumphu. These sought to understand the perspectives of the communities – and in particular the women – on climate and disaster risks, their decision-making regarding agriculture and livelihoods, and the steps they had taken to build resilience to droughts, climate change and other disaster risks; on support provided to them by the government, NGOs and other development actors regarding agriculture, climate change adaptation, disaster risk reduction (DRR) and social protection; and on the impacts of the recent drought and other disasters. (The communities were asked about their experience with, and views about, various forms of insurance, but not specifically about ARC, since they knew nothing about it.) Our interviews and discussions took place in the time between the initial ARC decision not to make a pay-out and the revised decision in November 2016 to pay Malawi \$8m: ARC and the Government of Malawi officials then had the opportunity to provide feedback on the draft report, which was taken into account in its subsequent revision, as were developments after the eventual ARC payment. The report is also informed by in-depth secondary research.

The report analyses what went wrong with the ARC insurance policy and why; it then draws lessons and makes recommendations for the UNFCCC, the G7, G20 and all those involved in the promotion, design and implementation of climate and disaster risk insurance, including in the context of implementation of the Sendai Framework for DRR, the Paris climate agreement, and the Sustainable Development Goals (SDGs).

Part I: Malawi's climate vulnerability and policy context

Malawi is one of the poorest and most vulnerable countries in the world, a Landlocked and Least Developed Country, and ranked 173rd out of 188 countries in UNDP's 2014 Human Development Index (HDI),⁴ with its HDI depressed by 32.9% due to inequality.⁵

Malawi is particularly vulnerable to disasters such as droughts and flooding, increasingly frequent and intense due to climate change, because of its heavy reliance on rain-fed agriculture. More than 80% of Malawians are smallholder farmers with access to an average of just 0.23ha of land (the average in sub-Saharan Africa is 0.40ha).⁶ This small landholding means many people living in poverty have to work on estates – mainly tobacco, upon which 75% of the population is reported to rely directly or indirectly.⁷ In addition to its plantation-based economy, another colonial legacy is the dominance of maize in Malawi's diet: previously sorghum and millet – naturally more drought-tolerant than maize⁸ – were the staples.⁹ Malawi's population of around 17m is growing at 3% per year.¹⁰

Many Malawian smallholders experience food insecurity each year due to the impact of poor weather conditions on their ability to produce enough food and resultant high food prices. Women smallholders are especially vulnerable to food insecurity due to their unequal access to land and credit and their disproportionate burden of labour, including farming, and unpaid care work.

The Government of Malawi has an extremely limited budget, burdened by high levels of debt servicing, high inflation and, for the last few years since a corruption scandal known as Cashgate due to poor social accountability, the withdrawal by donors of budget support. In 2016, Malawi's external debt payments were projected to be \$197m, amounting to over 18% of government revenue.¹¹ NGOs and development agencies play a major role in the country: ActionAid in particular empowers grassroots women's associations, among these the Coalition of Women Farmers

(COWFA). There are also organisations active in the agricultural sector such as the National Smallholder Farmers' Association of Malawi and the Farmers' Union of Malawi. But the efforts of these organisations cannot replace coordinated policies backed with adequate State resources and capacity. Furthermore, the government cannot control the priorities of these projects, nor their coherence. Given Malawi's dependence on aid, we were told by a senior government official that donors held great power over its government with respect to its policies and budget.

Malawi's 2015 harvest was severely affected by both flooding and drought.

The Malawi Vulnerability Assessment Committee (MVAC) estimated that 2.8m people experienced acute food insecurity during the 2015/16 lean season. In June 2016, the Government of Malawi wrote that the response operation "left us in a vulnerable position—our [Strategic Grain Reserve] is virtually exhausted, fiscal space is limited, and the countries that make up our traditional sources of imports are themselves being pressed on food security and are increasingly reluctant to export."¹² Hence both the poor weather of the previous season and the fact that neighbouring countries were also affected by poor weather increased Malawi's vulnerability to a poor harvest in 2016.

Malawi has a number of policies aimed at reducing its food insecurity and/or climate vulnerability. Primary among these is the **Farm Input Subsidy Programme (FISP)**,¹³ through which the Government provides coupons for subsidised fertiliser and seeds to a certain fraction of smallholders. Malawi has a long history of providing agricultural input subsidies. These subsidies were scaled down, and grain reserves sold off, around 2000 after pressure from the World Bank and the IMF, which some suggest contributed to thousands of deaths and millions suffering hunger after droughts in 2001/02 and 2004/05.¹⁴ After these episodes, in 2005/6, a new Malawian government introduced a scaled-up subsidies programme, in the form of FISP, offering a 75% subsidy on fertiliser and seeds for 2.8m farmers.⁹ This helped to boost harvests, and allowed Malawi to become a net exporter of maize to other countries in southern Africa.^{9,14}

However, the success of FISP was dependent on good rains, and its Green Revolution technologies – synthetic fertiliser and hybrid seeds – have led to soil degradation and a vicious cycle of debt for many farmers living in poverty in Malawi¹⁵ and in other countries in which ActionAid works.¹⁶ Now an ‘Evergreen Revolution’ is required,¹⁷ and there is growing recognition in Malawi that climate-resilient, sustainable agricultural practices – such as using manure and mulching – need to be promoted more, including through FISP. FISP is indeed increasingly seen as in dire need of revision, since climate change and lack of foreign currency (needed to import fertiliser) have rendered it significantly less useful. It also continues to be marked by malpractice in the distribution chain.¹⁸ Furthermore, in 2015/16, even after recent reductions in the level of subsidy and number of beneficiaries (to 1.5m), FISP still accounted for one fifth of total social expenditure.¹² Its reining in is again the subject of discussions with the IMF.¹⁹

The agricultural practices adopted depend heavily on **agricultural extension services**, which in Malawi are mainly delivered through government extension officers and NGOs. The women farmers we spoke to mentioned the shortage of face-to-face time with extension workers as a key concern.

Malawi has several **social protection programmes** targeting the poor and vulnerable. **Unconditional cash transfers** are provided to the ultra-poor and labour-constrained in some areas. These are showing some signs of positive impact²⁰ but, according to some of those overseeing the schemes, are simply not sufficient in magnitude to represent a realistic potential path from poverty. **Public works programmes** are targeted, in principle, at the ultra-poor who are fit and healthy, and are increasingly becoming a good example of integrated social and environmental protection, with works focussing in many areas on catchment conservation measures and tree planting. Those enrolled in such programmes are eligible for government training to help them set up Community Savings and Investment Promotion cooperatives (COMSIPs). In this case, a potential graduation pathway exists through COMSIP members developing these into self-

sustaining cooperatives. However, this path is blocked by inadequate resources for training of COMSIP members, with some reportedly having to pay government officials for the training. Other programmes include school feeding.

While not a part of public policy, **village savings and loans schemes** (VSLs) are very popular in Malawi and successful within their limits. One government official suggested there might be billions of Malawi kwacha (millions of dollars) circulating in VSLs nationally. They generally comprise up to around 20 members who contribute funds thereby buying a stake in the scheme. Members then take out small loans for a few months, paying interest rates agreed by all members (often around 10–20% per month). The whole scheme is generally folded after around a year, at which point members cash in their stakes. Women farmers made great use of the schemes and cited positive impacts in terms of their ability to pay school fees, buy agricultural inputs and make other small investments. But they stated that they needed more training on financial management and how to grow the VSLs into longer-lasting vehicles and potentially cooperatives. Some mentioned that the schemes also had special emergency funds, in which money was set aside in case of personal crises like bereavements or sickness – representing an informal form of risk management.

The Department of Disaster Management Affairs is responsible for **DRR** policy and coordinates the development and implementation of cross-sectoral Food Insecurity Response Plans in response to MVAC assessments. The activity of its district level officers is hampered by a lack of resources, which means they are dependent upon NGOs undertaking DRR projects and involving them in these. We were informed that the legal and administrative aspects of a decentralisation process to provide more resources and responsibility to the district councils will shortly have been rectified, though clearly there will be competition for the budget.

The Government of Malawi had some prior experience with **climate risk transfer**, having purchased derivative contracts from the international market to hedge against drought risk to maize production during a four-year scheme

supported by DFID and the World Bank. This scheme never paid out in spite of droughts, since it used a national average drought index, and drought in one part of the country was always combined with sufficient rainfall elsewhere to prevent the average crossing the threshold.

The World Bank also supported **weather risk insurance** for growers of cash crops (mainly tobacco and groundnuts). In the first phase (2005-7), groundnut farmers were asked to buy insurance to obtain a bank loan for inputs. Nine out of 1,707 groundnut farmers received pay-outs (which went directly to the bank). Research showed that farmers were much less willing to buy an insured loan for the purchase of hybrid seeds (with premiums that fairly reflected risk) than they were to buy the uninsured loan for the same package, and that the farmers' decision to purchase the insured loan increased with their wealth. There were problems in the scheme that led those involved to believe it could only work for commodities with stronger supply chains, such as tobacco.²¹ Subsequently, multinational tobacco giant Alliance One and the Opportunity International Bank of Malawi decided that the bank would take out the insurance directly to cover part of their tobacco loan portfolio. It seems that the high value of these cash crops, and particularly of tobacco, (as compared to maize) and the contract farming model made this scheme viable; high input cost was another condition for the crop selection. This kind of insurance scheme is essentially a loan protection scheme for banks, which reinforces an unsustainable agricultural model in which smallholders take out loans each year for high-input cash crop production, with some additional credit made available to them for high-input maize production.²² Other attempts to introduce insurance to smallholders never got off the ground, as farmers did not want to pay the premiums or – for an early hail insurance scheme – because insurance companies suffered heavy losses.²³ Insurance companies did not want to offer insurance for maize only, since they deemed this too risky.²¹

Against this backdrop, in 2015 the Government of Malawi purchased a **drought insurance policy** from ARC (see Box 1). The terms of this policy were that in return for premiums of \$4.7m, in

the event of a drought that – according to ARC's model, Africa RiskView (ARV) – affected more than 1.39m people, with a response cost over \$58.58m, Malawi would receive a proportion of the excess response cost over this threshold up to a maximum pay-out of \$30m.

There is scope to further strengthen and align these policies across agriculture, social protection, climate change adaptation and DRR, and the Government and other development actors in Malawi are engaged in some activity to this end. This includes the development of a harmonised database of beneficiaries for the social protection programmes, including FISP. Implementation of international policy frameworks, particularly the preparation of Malawi's **National Adaptation Plan** (NAP), may stimulate this progress. But there are already **ongoing domestic policy processes** that would allow for such integration and coherence and, given the right conditions, the transformation of agriculture towards a more resilient model: principally the development of the Third Malawi Growth and Development Strategy, the next phase of the Agricultural Sector-Wide Approach project (ASWAp II), the next social protection programme and the National Resilience Plan.

BOX 1: The African Risk Capacity (ARC) – what it is and how it works

ARC was established in 2012 as a specialised agency of the African Union (AU) to provide disaster risk financing instruments to build the resilience of member states to extreme weather events and protect the food security of their populations. The ARC Insurance Company Limited is a financial affiliate of ARC, incorporated in Bermuda as a ‘hybrid mutual’ Class 2 insurance company.

ARC’s Conference of the Parties comprises 32 African countries. Of these, the first to take out insurance, for the 2014/15 rain seasons, were Kenya, Mauritania, Niger and Senegal. The last three of these received pay-outs, totalling \$26m in return for \$8m in premiums (see Part III.C for discussion). The next year, the Gambia, Malawi and Mali joined these countries in purchasing insurance. No pay-outs were initially triggered, though an eventual payment for Malawi is discussed in this brief. For the 2016/17 season, Malawi and Kenya did not renew their policies, while Burkina Faso joined; no pay-outs were triggered.

Pay-out decisions are made on the basis of ARC’s model, *Africa RiskView*, which uses satellite-based rainfall data to estimate whether the water requirements of a reference crop for a given country have been satisfied. Where these are not met, it uses static information about population vulnerability to estimate the number of people affected by the shortfall. It then converts this into a response cost. A pay-out is triggered if the estimated response cost at the end of the season exceeds a threshold agreed in the insurance contract.²⁴

ARC membership also includes its contributors of returnable ‘development capital’. The United Kingdom and Germany are the principal financial backers through what are effectively twenty-year interest-free loans. **At their 2015 Summit in Germany, the G7 endorsed ARC as exactly the kind of initiative they wanted to help meet their InsuResilience target** of extending climate risk insurance to 400m people in the most vulnerable developing countries.²⁵

African solidarity and climate leadership, yes; but climate justice, no

ARC Insurance Company Ltd operates as a not-for-profit, but transferred more than half of its \$192m of drought insurance risk for the 2015/16 policy year to profit-seeking international reinsurance²⁶ companies, including Munich Re.²⁷ According to Willis Re, who were the brokers of this deal, there was “significant appetite for this risk” from the market, and **ARC’s request for reinsurance was “three times over-subscribed”**.²⁸ While by pooling their risks, ARC members obtain reinsurance at a lower cost than they would individually, it is these reinsurance companies who ultimately benefit from the G7 support.

Simon Young, then CEO of ARC Insurance Company Ltd, stated in a 2015 interview: “[T]he states are largely paying their own premium (only about 20% of 2014/15 premium is donor-funded, and then only indirectly)... If one considers that drought response in sub-Saharan Africa has traditionally been funded almost entirely by donors, it is actually quite remarkable that countries are willing to both meet our contingency planning and other requirements and pay a premium from their own budgets – but that is what is happening and it really demonstrates the commitment of African nations to step up to the plate in building resilience against climate hazards, in the face of increasing uncertainty due to global climate change, a phenomenon in which they have played almost no role in causing.”²⁹

ARC premiums incorporate the costs of paying back the returnable capital used for setting up and running ARC, as well as reinsurance costs. The African Development Bank has requested that rich nations pay the premiums for ARC members.³⁰ However, we believe that such funding, while an improvement on the current situation in which African countries use their scarce resources to pay for climate risk caused by rich nations: i) would be better spent on climate-resilient, sustainable agriculture and social protection; and ii) would still represent a climate injustice, since it is effectively a subsidy for wealthy reinsurance companies, many of which hold huge investments in fossil fuels and other high-emission sectors.

Part II: The 2015/16 drought – two versions of events

Version 1

In April 2016, the President of Malawi declared a state of emergency in the wake of the drought induced by an El Niño event super-charged by climate change and the resulting crop failure.³¹ In May 2016, MVAC, involving the participation of the UN's Food and Agriculture Organization and World Food Programme (WFP), assessed that 6.5m people would not be able to meet their annual food requirements between April 2016 and March 2017 and were in need of food assistance.³ MVAC stated that 24 of the country's 28 districts were affected with "annual food deficits ranging from 3 to 9 months".³² WFP reported: "There is a particularly urgent need for funding for Malawi to ensure that food stocks can be procured, transported and pre-positioned before seasonal rains start in November, making many roads in remote areas impassable."³³ In July 2016, the Government of Malawi, again with the support of the UN system and NGOs, estimated the Food Insecurity Response plan cost at \$395m, with a funding gap (at that time) of \$304m.³⁴ WFP bought a certain amount of maize, and NGOs did what they could to provide humanitarian assistance. But the impacts of the drought across the country included blackouts (due to dependence on hydropower) and no water supply through most of the day. The food shortages pushed already high inflation even higher and drained foreign exchange reserves.³⁵ In the villages, women and children bore the brunt of the impacts: 58.8% children nationally were sick two weeks prior to the MVAC survey undertaken in May, while 22.0% had diarrhoea.³⁶ See Box 2 for some perspectives from women in the villages.

Also in May the Minister of Agriculture told the press: "Prices for maize, the nation's staple crop, have in recent months gone up more than 60 percent above the 3-year average for this time of the year, making it increasingly difficult for many people to buy food." The minister said that in total, the country is projecting 1.2m tonnes of maize will be needed to avert the growing hunger

situation this season.³⁷ **This was the time when speedy access to an insurance pay-out and international supplies of maize could have indeed helped avert a disaster.**

Version 2

However, ARC's calculations put the number of people whose food security was affected by the drought at 20,594: hence no pay-out was triggered. (The ARV model found these 20,594 people to be in the Lilongwe and Dedza districts, in the Central region of the country, not the South, which MVAC's field studies showed to be the worst affected area.)

This left the Government of Malawi looking around for over \$300m, including money to buy maize to feed its hungry citizens – showing the huge gap in the humanitarian funding system that the ARC drought insurance failed to fill. Indeed, due to the inherent expense of insurance, ARC and similar sovereign risk pooling mechanisms are designed only to provide a small proportion of the required post-disaster finance needs, and any potential benefit is heavily dependent on the timeliness of their pay-outs.

The quest for climate insurance justice

The lack of a pay-out was picked up by the media and civil society, who had hitherto hardly been involved in the discussion on the ARC insurance policy, around May 2016. They then put pressure on the Government of Malawi. The Government held discussions with ARC and was eventually able to secure at least a relatively small pay-out of \$8.1m, a decision which was made public on 15 November³⁸ (after a draft of this report had been shared with ARC and leaked to its major financial contributors). This result was achieved after national researchers from Lilongwe University of Agriculture and Natural Resources (LUANAR) indicated that the assumption about the type of maize planted – agreed between ARC and the Government of Malawi in the customisation of ARV – was wrong. Using the more realistic information resulted in the figure of 20,594 people affected changing to 2m. Improving other assumptions and data would be likely to further increase this figure, though the model also contains gaps that mean it cannot take into account all the

significant real-world effects of a drought that result in hunger (see Part III). Regarding the nature of the process that led to the decision to make a payment, here again there are two versions of events. One senior government official we spoke to told us the ARC Secretariat had turned down their request to review the decision not to make a pay-out and that the Government then had to make their case to the ARC Board. The Nation newspaper reported on 20 September that Minister Gondwe told them that a payment of \$4m had been agreed, suggesting a process of bartering between the Government of Malawi and ARC. We were also told that, in addition to the ARC pool members and financial contributors, the World Bank was involved in the discussion and tried to persuade ARC to make a pay-out so as not to damage the reputation of climate insurance. ARC on the other hand told us there was no negotiation, simply an agreement to change the reference crop in the policy. They also confirmed,

however, that there was no pre-determined process for review of pay-out decisions.

Sowing seeds of drought intolerance

The assumption used in the ARV model was that “local” or open-pollinated varieties of maize, with maturation times of 120–140 days, had been planted across Malawi. We understand the LUANAR researchers indicated that in fact 60% of maize planted was early-maturing hybrid maize, with a maturation time of just 90 days. This uptake of the “improved” hybrid maize made the impact of the drought much worse. The shorter growing period effectively meant more of a gamble on the weather, since there was no chance for later rains to compensate for dry-spells coinciding with the period when the maize most needed water. This raises questions about the value and effectiveness of the very visible donor-funded projects in the country to develop and market improved seeds.

BOX 2: Perspectives from women farmers

Women farmers in Rumphidistrict (in the North of the country) and Nsanje (in the South: the district most affected by the drought) told us about the impacts of the drought on them. Some had been forced to take up sex work to be able to buy food for their children. Luckier ones had gone back to working on nearby estates to earn cash.

They also told us that there are several interventions in social protection and agriculture that have proved effective, but whose funding is not enough to allow more women to benefit from them.

The women generally liked the public works programme (PWP). But it does have its problems, they told us, including the fact that the men named as beneficiaries tend not to do the work and ask the women to do it for them, so the women end up working from 4 to 9 a.m. on the PWP and then having all their unpaid care and work burden to do after this.

The women tended to think that the Farm Input Subsidy Programme (FISP) should be replaced with universal subsidy of fertiliser

prices. The old targeting scheme was unfairly implemented and caused some friction in the villages between those selected and those not. The new one was also very flawed, with the randomly selected beneficiary names frequently belonging to people who lived in different villages, did not need the FISP coupons, or were dead.

On seed varieties, people use the local varieties because they have proved to be more drought resistant than the hybrid varieties but people prefer the hybrid varieties when the rains are good as they are higher-yielding. Their seed choice is guided by government extension officers and NGOs, subject to an eventual government decision on which seeds are included in the FISP package. Extension messages on the radio aren't easy to act upon – they want more face-to-face time with an expert. Given a choice, the women would use manure, as crops using manure survive heat more than fertilisers, as they have seen in the past two years. All the women loved the goat pass-on scheme, which helped provide the manure they used for their fertiliser. They were keen to have more irrigation, and better pumps, since the treadle ones they had were hard work to use.

Mary Kasambala from Rumpi says *“the government and other stakeholders should ensure there are more extension services provided and also there should be farmer-led interventions and social protection programmes that are led by farmers because these interventions assist us – especially this year and last year where we have experienced El Niño events that have affected the crop yield and increased our vulnerabilities.”*

The women we spoke to do not access loans from banks, but other wealthier groups such as tobacco clubs³⁹ do, and can therefore access inputs. They don't want to deal with banks, because their interest rates are higher and they demand more paperwork than the village savings and loans schemes (VSLs). VSLs are a simple, low cost, transparent, safe and convenient livelihood strategy. It is a locally-owned approach to microfinance that thrives outside registered microfinance institutions.

Dorothy Chiambe of Kaiwale village in Traditional Authority Chikulamayembe explains the process:

“As members of a VSL, we save from our own income. We agree on how much to save each time we meet. Our accumulated savings then form a loan fund from which we can borrow, at an agreed interest rate, to meet our different needs and small-scale business aspirations. We share the accumulated savings, in proportion to the amount each member saved, after an agreed period, at a time when money is scarcest. Usually the

most critical time is soon after the rains have started, when we are still waiting for the new harvest but our earlier supplies have finished.”

“VSL means that my family's hungry gap has reduced from six months to two months of the year,” says Florence Nkhonjera, of the same village. “VSL means that I am now economically empowered, as I am generating income from the sale of my harvest and from my vegetable business. Together as COWFA [the Coalition of Women Farmers] we have also championed a land rights campaign, and as a result I now have my own piece of land that I control. Together with the VSL this means I now have control over these productive resources.”

The women did not know about insurance – whether purchased from companies or developed within cooperatives – and would need time to hear about these concepts and discuss them. They fear ‘what if there is no disaster, do we then get our money back?’ After learning what insurance is, they say they already have something similar in the form of the emergency funds in their VSLs, which they use to save something for a funeral or other major expense. But in Nsanje, the women told us that their VSLs had been drained dry and many women (who were not COWFA members) were plunged deep into debt. What they would like is training on how to manage the VSLs better and how to develop them into something that would support bigger investments and allow them to save more so the next drought or flood does not hurt them so hard.

Women in Nsanje district reflect upon how to improve their climate resilience

PHOTO: JONATHAN REEVES/ACTIONAID



Part III: Why did the ARC insurance policy go wrong for Malawi, and what lessons can we learn?

The insurance policy, for which Malawi paid \$4.7m, failed to provide the timely assistance that 6.7m food-insecure Malawians so sorely needed due to **major defects in the model, its customisation, and the (lack of) process** for making the decision about a pay-out, **and more fundamentally in the insurance ‘model’ itself**, as a mechanism for addressing the climate and disaster risk, particularly drought risk, faced by the poor and vulnerable in developing countries. In this section, we analyse these defects and underlying issues that contributed to the drought becoming a disaster.

A. A BLACK BOX MODEL

The ARV model at the heart of the ARC insurance scheme is a “black box” – it is complex and opaque and **not conducive to a participatory, transparent and accountable decision-making process**. The decision about a pay-out is based on modelled numbers of affected people and response costs that are not directly comparable to the actual numbers of hungry people and response costs (see below). Consequently, the pay-out decision cannot easily be scrutinised and must simply be taken “on trust” by the vast majority of stakeholders; indeed, even the government experts who liaise with ARC have repeatedly requested further capacity building (on top of the already fairly lengthy process) to improve their understanding and customisation of the model⁴⁰ – this is not good practice and may deal a fatal blow to confidence in the scheme. Indeed, even in May 2017, six months after the announcement of the decision to make a payment to Malawi, we could still find no publicly available detailed analysis of the ARV-modelled impacts of the drought in Malawi, such as the number of people estimated to have been affected or how different input data or assumptions would affect this number.

Furthermore, there is **no planned mechanism to revise decisions to reflect the reality on the ground**, nor a **basis risk fund**⁴¹ to allow for pay-outs where ARV clearly misses a real drought-induced crisis. Basis risk is one of the major reasons for the failure of index-based agricultural micro-insurance (i.e. insurance sold to individuals),⁴² but ARC told us they did not think it would be an issue at the national level. A basis risk fund, with an associated process for review of a decision not to make a pay-out, has been shown to be essential in farmer-level schemes (particularly for drought insurance).⁴³ From a commercial perspective, a basis risk fund might generally be considered to undermine the insurance product. This is because determining pay-outs on the basis of a pre-determined threshold in an index that the farmer buying the insurance cannot influence is a design feature intended to remove moral hazard – i.e. the risk that the farmer will adopt risky farming practices in the knowledge that a harvest failure will be compensated for by an insurance pay-out – and adverse selection – i.e. the insuring of farmers at too great a risk of insured losses. However, in the context of a development finance mechanism aimed at helping the poor and vulnerable to manage climate risk (which ARC and the other G7-backed insurance schemes that should contribute to its InsuResilience initiative are supposed to be)⁴⁴, this argument is not valid. (Indeed, increased “entrepreneurial” risk-taking is precisely the stated aim of many insurance schemes promoted by development agencies for the poor.¹⁶) The problem is that insurance is not an appropriate mechanism for this context – a trigger-based contingency fund (to which rich nations contribute) would be far more appropriate (see Parts IV and V).

The delay in the eventual payment made to Malawi hugely devalued the payment. Malawi’s ARC operations plan indicates the value of the policy was to be had through providing assistance to households in the critical three months after harvest: an ARC pay-out was expected, in the event of a significant drought, in May 2016 in order to enable food distribution to start by August 2016.⁴⁵ However, the ARC process did not allow this to happen, and in spite of a UN-backed assessment of the drought-induced food emergency in May 2016, the deficient ARC

process meant that no payment was made until January 2017. The nature of the discussions between ARC and the Government of Malawi between May and November 2016 is discussed above in Part II. The index-based design of ARC and lack of a basis risk fund or similar review process is crucial here. As evidence of this, the German government stated publicly in early November that they were adamant that no precedent should be set that might allow for future negotiation of pay-outs after agreed conditions had not been met, adding that in fact even at this time (one week before the press release about the payment, and a month after we had been informed of the agreement to pay Malawi \$8m), no final decision on a Malawi pay-out had been made.⁴⁶

B. GAPS AND ERRORS

The ARC Secretariat told us (and then stated in their press release of November 2016³⁸) that their technical review of the Malawi case led them to conclude that there was nothing wrong with the ARV model. However, we are of the view that the model – which seeks to represent the complex causal relationship between drought and food insecurity response costs – requires too many assumptions and contains potentially significant scientific gaps. Selling insurance policies based on this model is therefore an experiment upon which the lives and livelihoods of the poor and vulnerable are gambled. Just as after a plane crash, ARC, the Government of Malawi and others, including us, have probed the black box for clues as to why the disaster came about. The four most critical findings regarding the technical design, customisation and use of the ARV model in the Malawi case seem to be:

- i. **a mistaken assumption that “local” rather than short-cycle hybrid maize was predominantly planted was the main factor that led to no pay-out being triggered in the first place (with other factors contributing to the eventual payment being so small);**
- ii. **the model was not set up to take into account compounding effects of previous droughts, floods or other factors contributing to vulnerability to shocks, meaning the insurance policy had least**

value when it was most needed: when people were most vulnerable;

- iii. **the model does not take into account the impact on food security of increases in food prices due to poor harvests; and**
- iv. **the model does not factor in the impact of the stage in the crop’s growing period at which a shortfall in the crop’s water requirements due to a dry-spell occurs or the impact of the actual temperature on water use for crop growth.**

We explore these and other relevant factors below.

Dubious assumptions in parametrisation of the model

- **Farmers mainly planted hybrid, not local, maize:** As mentioned in Box 1, ARV calculates the extent to which the water requirements of the maize were satisfied over its growing period. The length of this growing period is therefore critical, and varies with maize varieties: hybrid varieties have been developed that mature much more quickly than the open pollinated (or “local”) ones. While earlier investigation by ARC suggested that changing the type of maize planted from local to hybrid varieties increased the number of people affected, but still not by enough to trigger a pay-out,⁴⁷ eventually ARC have stated that this was the critical issue that resulted in the eventual decision to make a pay-out.³⁸ Apparently **using the more accurate information obtained from LUANAR – namely that 60% of maize planted was short-cycle hybrid – changed the number of people affected from just over 20,000 to 2m, hence crossing the threshold for a pay-out.** ARC stated that data were not available at the time of parametrisation to enable those involved (including the Government) to know that the historic data being used were now out of date as a result of a change in maize varieties used. This change should not have been surprising given the strong messages in favour of hybrid maize that the Government and development partners have been putting out in the country. In an interim analysis, ARC suggested that

the mistake may have come about due to their focus on fitting the model to match the outcomes of historic droughts rather than to reflect the current reality.⁴⁷ In any case, both the high level of data requirements of the ARV model and the lack of participation of rural communities in its customisation appear to be critical failures. A more participatory, bottom-up climate risk reduction model, empowering of people living in poverty and vulnerable to climate shocks, would be much more effective. The fact that ARV shows that planting so-called “improved” hybrid maize rather than open-pollinated varieties – with the specific rainfall patterns experienced by Malawi – resulted in hunger for so many more Malawians is also shocking in itself and highly significant for the food security sector – as discussed below.

- **The sowing criterion:** ARV assumed that maize would be planted and start to grow once a ten-day period with 20mm of rainfall occurred, even if this was followed by an immediate dry-spell. In a closed-door presentation prior to the final decision to make a payment to Malawi, ARC conceded this was a risky assumption.⁴⁷
- **Soil conditions:** ARV assumes that 95% of the rain is absorbed by the soil. However, it is not at all certain that this holds true when heavy rains fall onto very dry soil. ARV calculates the extent to which the water required by the maize is met by comparing estimated rainfall with estimated water requirements over each ten-day period in the crop growing period. It assumes a uniform **water holding capacity** of 50mm, meaning that if there is more rain than required in a ten-day period, up to 50mm of the excess rain get “carried over” to the following ten-day period. ARC acknowledged in their interim analysis that **recent droughts and/or floods may have affected these soil characteristics in affected areas.**⁴⁷
- **The benchmark reference period:** The Malawian ARC policy was taken out to provide a pay-out for a drought of a severity with a probability of occurring on average once in five years. However, ARV applied this condition by

comparing the 2015/16 rainfall to the median of the last five seasons only. Since most of the past five years experienced less rainfall than the historical average, this resulted in ARV deeming rainfall to have been lower than its reference for “normal” only in two districts. This is important since ARV only went on to estimate the number of people affected by a drought in these two districts for the purposes of determining whether the threshold for a pay-out had been met. Using even a ten-year period would increase the number of districts where ARV deems rainfall to be abnormally low, and therefore the estimated number of people affected.⁴⁷

- **Assessing adequacy of rainfall in ten-day periods not daily:** It is also possible that the comparing total rainfall and water requirements over ten-day periods rather than on a daily basis may introduce significant errors. Even if it did not affect the outcome in this case, the fact that it could in another case and yet there is no mechanism for exploring the implications for a pay-out of varying this and other methodological choices in the model – or comparing the results of ARV with different models – and using this sensitivity analysis to inform a pay-out decision is worrying from the perspectives of both technical rigour and fairness.

Gaps in the model

- **Inadequate consideration of compounding, interacting and indirect effects:** Part of the discrepancy between ARV’s modelled numbers of people affected and response costs and the figures estimated by MVAC arises because ARV tries to isolate the impacts of the “abnormally” low rainfall in the present season from all other factors. In so doing, it does not seek to include people whose food security is affected because of a factor other than a drought: for example, a flood or pest. Nor did ARV take into account the fact that the country had not recovered from last season’s drought: the Government of Malawi and ARC could have agreed to try to do this, though to do so would have implied additional expense. It is feasible that some of MVAC’s 6.5m (later 6.7m) people were indeed

made hungry by the compounding effect of one drought after another, or because the drought combined with other factors to affect their harvest. But excluding from the insurance policy these people means **the policy has least value when it is most needed: when people are most vulnerable**. ARV also omitted indirect effects on food security such as the impact of crop failure on food prices – which would affect the food security of all net consumers, whether they grow maize or not. This is a very significant effect, since frequently the rural poor engaged in agriculture are themselves net consumers of food,⁴⁸ while increases in food prices also negatively impact the food security of the urban poor. This effect will in general be excluded by ARV unless governments are able to provide ARC with more sophisticated analysis of the relationship between deficits in crop water requirements and the number of food insecure.

- **Impact of temperature on water stress:** The ARV model does not factor in the impact of the actual temperatures experienced on evapo-transpiration, though according to ARC, by accelerating evapo-transpiration, the high temperatures experienced in Malawi's drought would have resulted in a higher water stress than the model estimated.⁴⁷
- **Impact of timing of water deficits due to dry-spells:** ARV compares estimated water availability during each ten-day period with a value of the crop's estimated water requirement that varies with the stage in its growing period. However, it does not then take into account the difference in impact on crop growth of the timing of a given deficit relative to these water requirements. The USA's National Drought Mitigation Center's 'Drought Basics' states that "[a] good definition of agricultural drought should be able to account for the variable susceptibility of crops during different stages of crop development, from emergence to maturity."⁴⁹ ARC acknowledged in their closed-door presentation that this is an issue that they were unable to address due to lack of available information.⁴⁷ In other words, there was an important known unknown in the model.

Possible constraints on the Government's choices

- **Rainfall data:** We were told the Government of Malawi was only given a choice of three sets of satellite data to estimate rainfall, whereas their experts wanted to use actual rainfall data from rain gauges. The system of weather stations and rain gauges in Malawi is indeed in need of upgrading, and investment in improving this system prior to (or rather than) investing in ARC would have multiple benefits to Malawi. Providing more farmers with rain gauges and trusting them to provide readings from these to national meteorological authorities would also be more empowering and enable them to build resilience by taking better-informed farming decisions.
- **Regionalisation:** Senior officials and experts from across the Government said they knew from past experience with insurance and weather derivatives that they wanted separate insurance for different regions of the country, and may have prioritised coverage for high-risk regions, but their requests did not meet with acceptance. (ARC say the issue was brought up but not thoroughly discussed.) Kenya did in fact buy separate ARC insurance (with independent triggers) for arid and semi-arid lands. As with many of these potential choices, the financial constraints arising from inherent expense of the insurance model and the lack of funds available to ARC members mean that ultimately Malawi was unlikely to benefit from very useful protection under any variation of the ARC policy (see the following section).

An imperfect model and a perfect storm

We finish this brief analysis of the ARV model and its application for Malawi with some words from ARC's behind-closed-doors presentation,⁴⁷ in reference to the water requirements satisfaction index (WRSI) upon which the ARV model depends:

"A model like the WRSI is imperfect by nature. In fact, none of these limitations are specific to Malawi, so it seems that usually (in other countries, and for previous years in Malawi) the inaccuracies resulting from these limitations

more or less cancel each other out, while in this particular case the magnitude of the discrepancy is a result of a “perfect storm” (i.e. all inaccuracies pushing in the same direction).

If all this [i.e. rectifying mistaken assumptions, errors and gaps mentioned above] doesn’t eventually result in a revised estimate that seems more plausible, it might be necessary to consider alternative modelling approaches (not WRSI). However this would be a whole different story...”

C. POOR VALUE FOR MONEY

The ARC insurance policy resulted in an effective economic loss for Malawi; but it represented poor value for money even if it worked as it should have, and was the wrong option in the first place.

Malawi paid premiums of \$4.7m, and eventually managed to secure a payment of \$8.1m (received only in January 2017), compared to the total response cost estimated by the Government of Malawi (with the UN) at \$395m. Given that late response is much more costly than early response, the lateness and smallness of this eventual payment means that Malawi effectively made an economic loss from the ARC policy.¹ However, even if ARV had triggered a pay-out and the payment had been received in line with ARC’s expected schedule, clearly the sum represents only a very small part of the drought response finance needs – this is a point which should always have been clear to those involved in the mechanism, but which is perhaps not communicated effectively to the wider audience.

A small contribution at best

Our calculations from ARC data⁴⁷ indicate that the pay-out is calculated at around 27% of the excess response cost (as modelled by ARV) over the agreed “attachment point” of \$58.58m, up to a maximum pay-out of \$30m. This means that the pay-out represents between zero and 18% of the total modelled response cost only. According to its ARC operations plan, this maximum pay-out (applicable only when the total modelled cost reaches about \$170m) would provide for food assistance to 1.1m people and social transfers in the form of cash or food to up

to 200,000 people. The Government of Malawi would be expected to find the \$58.58m plus around 73% of the modelled response costs over this threshold, plus any additional response cost above that calculated by the ARV model, between itself and the international community. A pay-out of \$8.1m would indicate a modelled response cost of \$88.58m, as compared to the estimated response cost of \$395m: i.e. the insurance only pays out 9% of modelled costs and 2% of actual estimated costs. (The reasons for the difference between modelled and actual response costs are explained above.)

A high risk of losing money

The expected frequency of pay-outs for the policy purchased (according to the operational plan) is once every five years. ARC state that had Malawi purchased the insurance policy for 2014/15, they would have had a \$15.6m pay-out⁴⁷ (yet MVAC assessed far fewer people as in need of food assistance after that season’s harvest than after the next’s: 2.8m compared to 6.7m). It is now less likely that future droughts will trigger pay-outs, since (as discussed above) ARV only counts the people affected where the WRSI is lower than the median of the last five years. So were they to continue renewing the insurance policy, over a total of five years Malawi could easily expect to pay premiums of \$24m and receive just the \$8.1m they eventually received this year. (In fact they have decided not to renew it.) More coverage would mean higher premiums. While three of the four countries that took ARC drought insurance for 2014/2015 received pay-outs that season, they did not in the following season or (for those that renewed) the subsequent season either; they are quite likely to end up paying in more than they get out over a few seasons because after a bad drought, the benchmark for subsequent pay-outs is raised.

The poverty premium

We note that it should be clear to potential ARC risk pool members that there is no expectation in the ARC scheme (as in any insurance scheme) that each country gets back the money they put in over the course of five or so years. However, firstly, given Malawi’s high level of climate vulnerability, low level of resources to respond to

this vulnerability and almost zero responsibility for causing climate change, and given that this is an African Union initiative supported by G7 members and other development partners, it seems unconscionable that Malawi could so easily end up losing money through participating in it. This is, though, how insurance works: you pay a premium for poverty. With climate insurance, you pay a climate vulnerability premium on top of the poverty premium, as the higher climate risk that poor countries face but did not create makes their insurance more expensive.

Never the right financial mechanism for regular droughts

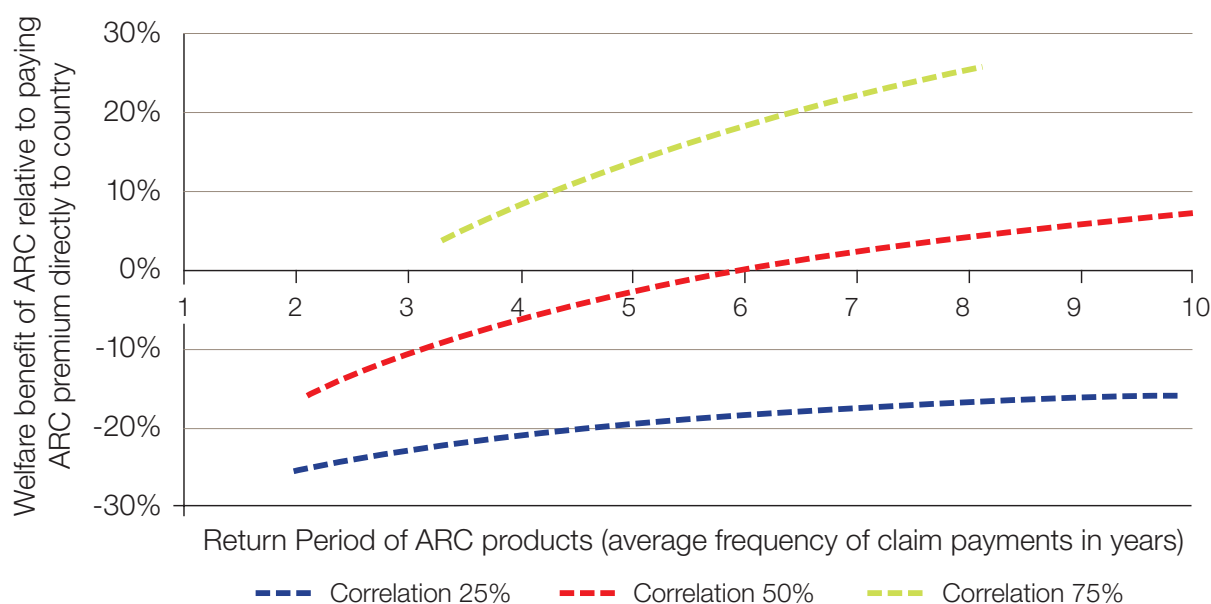
Secondly, even if Malawi's premiums were paid by development partners, the value for money of such support in the face of the proven or promising no-regrets alternatives is highly questionable. In response to a draft of this report, ARC commented that the economic case for ARC and climate risk insurance in general was well studied and pointed to the cost-benefit analysis (CBA) of ARC that was done, at ARC's request, by Clarke and Hill⁵⁰. A careful analysis of this CBA is very revealing and begs the question why countries and other development partners decided to invest in ARC (though even a quick read of the summary sounds a loud warning bell). The authors conclude: "Insurance is not the right financial mechanism for managing recurrent losses such as those that are expected to occur once every five years or less, on average. For such events a regular budget allocation is more appropriate." Yet once every five years is precisely the frequency of severe droughts that ARC is being used to insure against (in all of its policies to date).

Furthermore, Clarke and Hill go on to argue that it can be expected that governments will opt to buy insurance for droughts occurring too regularly for insurance to be even potentially suitable: "Countries will most likely want to deliver assistance to target beneficiaries more frequently than once every five years; across the six countries [that they included in their CBA, including Malawi] we consider assistance is provided almost every other year. However, this does not mean that insurance is the right mechanism to fund those recurrent liabilities;

annual or multi-year budget allocations or a line of credit have the potential to be much more cost-effective in the medium term. These points have been extensively documented both in general (for example, Gollier 2003) and specifically for sovereign disaster risk management schemes (Cummins and Mahul 2008; Ghesquiere and Mahul 2007), but they are worth reiterating. [...] If ARC specifies a minimum attachment point, for example by stating that countries cannot opt for insurance policies that trigger more than once every five years, on average, the experience of CCRIF suggests that it is likely that all member countries will select the minimum attachment point for political economy reasons."

More precisely, Clarke and Hill find that for average pay-out frequencies higher than once in six years, ARC will represent worse value than giving the amount spent on premiums to the governments (given that actually the African countries are paying the premiums themselves, this is equivalent to them putting the money in a contingency fund). This finding holds true if the overall cost of delivering \$1.00 of pay-out is \$1.50, which was the specification they used based on information from ARC: see Figure 1.⁵⁰ However, subsequent more detailed analysis of ARC's set-up and running costs suggested the overall cost of delivering \$1.00 would in fact be \$2.00.⁵¹ At this cost, Clarke and Hill explain that ARC would represent worse value for money than budget support even if ARV modelling matched drought response needs perfectly:⁵² the evidence does not provide confidence that it will get close to this. Available data on actual costs so far are incomplete, but indicate that the specification used by Clarke and Hill in this part of their CBA was not conservative.⁴⁰

Figure 1: Sensitivity of welfare benefit of ARC to claim payment frequency (Clarke and Hill 2013)
(for a premium multiple of 1.5)



Potential benefits of ARC are overstated and miscredited: social protection systems should be prioritised

The first part of Clarke and Hill's CBA shows that ARC offers worse value for money under realistic specifications than the African governments keeping the premiums in a contingency fund. In the second part, they explore the potential benefits of using ARC pay-outs for different early response mechanisms relative to a scenario that no one is advocating: maintaining the current broken, slow, "begging bowl" humanitarian response system as it is. They present these relative benefits under generous assumptions, including that ARC's running costs are much lower than they had assumed realistic in their earlier analysis. They highlight the finding that any potential economic benefits of a hypothetical highly-efficient ARC, as compared to a typical current slow emergency response, are highly dependent upon the timeliness of pay-outs and the existence of adequate functioning social protection systems (or safety nets) at the national and sub-national levels, which can be used to distribute cash and/or food once an ARC pay-out is made.

However, firstly, quite apart from the hugely delayed Malawi payment, two of the other three pay-outs made by ARC to date also failed to meet

the target timeframe of "120 days from payment triggering to first contact to assist affected communities".⁴⁰

Secondly, no country joining ARC's risk pools has an adequate shock-responsive and adaptive social protection system. (Kenya and Ethiopia appear to have made good progress towards such a goal;⁵³ Malawi has started the journey.) Indeed, the most cost-effective means assessed of making use of ARC pay-outs is to use the pay-out to cover increased government expenditure on state-contingent, self-targetting social protection schemes, of a kind that does not exist in Africa. Establishing such systems and ensuring they are appropriately targeted, integrated with other policies and initiatives including agricultural subsidies and extension services, and accountably managed should be a priority over investing in premiums-based insurance mechanisms (see Part IV). Given the current situation, the more favourable scenarios for ARC compared even to the current tardy emergency response system are not applicable. This being the case, the CBA indicates that if food rather than cash transfers are favoured after a drought (which is common where there is a lack of locally available food), ARC may result in fewer needy households receiving food assistance than they would through the current slow response system: these relative losses are

significant when realistic assumptions on set-up and running costs are made.

In light of the above, it seems that ARC in fact offers poor value for money compared to alternatives. Those citing favourable figures regarding ARC's cost-effectiveness do not pay sufficient attention to the inherent costs and necessary pre-conditions highlighted by Clarke and Hill, the hidden costs such as the escalating capacity-building needs, and the feasible alternatives. They inappropriately credit ARC with the potential benefits of well-targeted scalable social protection systems and assume that ARC countries have other mechanisms in place to deal with droughts and other threats to food security not covered by ARC. Furthermore, mechanisms, such as contingency funds or changes in agricultural practices, which can address various other risks, such as those of pests⁵⁴ and flooding, in addition to drought risk, have the potential to be more cost-effective than a mechanism that can only provide support for losses due to drought. Clarke and Hill acknowledge that their CBA overstates the value-for-money of ARC compared to direct budget support in this regard and others.

Additionally, proponents of ARC and climate risk insurance in general often argue that such schemes can (and do) reduce (rather than merely transfer) risk by incentivising improved behaviours, and that ARC does this through requiring the approval by peers of contingency plans as a condition for accessing its insurance. Indeed, the CBA factors in assumed improvements in the targeting of beneficiaries as a result of these required contingency plans. However, the Malawi plan, for example, simply refers to existing mechanisms for post-emergency food and cash distribution that it intends to use in the event of an ARC pay-out. There is no reason to believe that preparing this contingency plan has reduced Malawi's drought risk.

Experience with weather-based insurance from other countries and at various scales also indicates poor value for money. For example, data from eight years of India's Weather-Based Crop Insurance Scheme shows that farmers received pay-outs amounting to only 40% of the money paid to insurance companies in premiums and subsidies, of which 60% came from the farmers

and 40% from the government.⁵⁵ There is also evidence that provides legitimacy to concerns that climate insurance schemes may exacerbate inequality and vulnerability, with the more powerful and wealthier groups gaining from insurance rather than the weakest and poorest.⁵⁶

So why was the decision made to buy the insurance?

Experts in key roles in the Government of Malawi told us that they advised that it was not a good idea to purchase the insurance, since it did not represent value for money over the alternatives. Malawian officials told us they went into the discussions with ARC with the understanding that the World Bank would pay the premiums, whereas this turned out not to be the case. Having gone so far down the line, those taking the decision felt they should follow the advice of the World Bank and G7 members, who had told them they needed insurance. It is clear that some of these external actors were promoting ARC because they saw it as a way to get African countries to pay for their own climate protection.⁴⁰

Better, proven alternatives exist and are under-funded

Malawi has now had confirmation that the insurance offers very poor value for money and that there are better, proven adaptation and resilience-building options sorely needing investment (see Boxes 2 and 3). Everyone from the women farmers in the villages to the government officials on Capital Hill has their view on how better the money used for premiums could be spent. These better alternatives comprise measures to tackle the structural vulnerability of Malawi's food system to climate change, measures to strengthen social protection and graduation from poverty and vulnerability, contingency funds and reducing the national debt burden.

D. NOT JUST THE WRONG INSURANCE MODEL, BUT THE WRONG AGRI-FOOD SYSTEM MODEL TOO

The fact that the widespread planting of hybrid, so-called "improved" maize, rather than open-

pollinated varieties meant the drought resulted in far greater crop failure and hunger highlights the tragic failure of both major investments by development partners in maize improvement projects and the drought insurance model to help the food security of poor Malawians.

We witnessed in our research a growing realisation on the ground and in government that aspects of climate-resilient sustainable agriculture – particularly use of manure and conservation agriculture in areas prone to drought but not excessive rainfall – are more suitable for Malawi than the dominant model of agriculture that locks poor farmers into dependence on high-cost, mainly imported inputs. But also an acceptance that certain key aspects of agricultural policy are just “political” and cannot be changed (at least not at all easily). For instance, we heard evidence, corroborated by independent sources, that rich “donor” nations (in which multinational seed companies are based) told the Government of Malawi it could not remove subsidies for seeds from FISP, in spite of pressure from the IMF and others to reduce expenditure on this programme. At least one of these donors also made its future financial support contingent upon adoption of rules that would make it inevitable that at least half of the subsidised seeds came from foreign companies.

The right model for feeding Malawi is contested, and there are vested interests. There is therefore a need for more collaborative research to ensure an evidence-based debate, which can inform reform of FISP and other national policy processes, including its NAP. In this broader discussion, it will also be essential to consider how to ensure equitable and secure access to a sufficient area of land, which is an urgent requirement to make smallholder farming a viable business and make any form of input subsidy programme effective. It is also absolutely critical that both crops and diets are diversified to become more climate-resilient.

The opportunity must now be taken to transform Malawi’s agriculture and food system through agroecology and sustainable irrigation, with farmer-driven learning and extension in collaboration with public research institutes, and support for cooperatives and other forms of smallholder self-organisation, including COWFA.

Part IV: A no-regrets, rights-based alternative model for climate risk management

Based on our findings from Malawi, as well as experience and evidence from other countries, we propose a three-tier climate risk management framework, which goes well beyond the currently dominant models of climate insurance and builds on what works.

An equitable and effective climate risk management model that works for the poor should be based on cooperatives and other forms of self-organisation supporting climate-resilient, sustainable agriculture and livelihoods, backstopped by rights-based, adaptive, scalable national social protection systems and an equitably financed mechanism for global social protection and early response to crises.²

- i. **First, cooperatives and other community-based organisations can be vehicles for building resilience through facilitating a transition to diversified food systems based on agroecological principles,⁵⁷ collective learning, bargaining power and market access, and women’s economic empowerment.**
 - The popularity of VSLs combined with their evident limitations (e.g. they are small and often short-lived) suggests that these should be the starting point for developing more sustainable member-owned associations (such as cooperatives) for savings, loans and – building on the emergency accounts within some VSLs – eventually insurance, when the members can afford this component. This requires support for capacity building and might benefit from federation of cooperatives up to district and national levels to develop the scale and capacity required to offer such products to their members.⁵⁸ A crucial feature of such cooperative insurance is that any excess funds remain inside the cooperative.⁵⁹ Such schemes will need to be backstopped by national and international finance to be

able to cope with major covariate risks such as extreme weather events (see tiers ii and iii, set out below).

- To strengthen sustainable natural resource management, cooperatives might be usefully established at catchment, or even “landscape”, level and embrace farmers of any crops and livestock, rather than just being established for a specific crop or irrigation system.

ii. Second, positive impacts of domestic social protection programmes indicate that what is needed is their integration (including with input subsidy programmes), scaling up and incorporation of climate services to make them adaptive and scalable. This can be done by:

- enhancing use of seasonal forecasts to inform inputs selected for subsidy programmes and advice provided by extension services, including that given as part of cash transfer and public works programmes;
- ensuring that subsidised inputs and extension messages are compatible with a transition to agroecology-based climate-resilient, sustainable agriculture and with most likely climate change scenarios;
- incorporating climate vulnerability assessments into the targeting methodology for social protection schemes;
- scaling up social protection (including input subsidy) programmes rapidly in response to early warning signals, making use of national and international contingency finance (see below), and channelling additional transfers to pre-identified social protection beneficiaries in those areas identified as vulnerable through climate vulnerability or food insecurity assessments – consideration should be given to using cooperatives and other community-based organisations as conduits for such transfers and for identifying target beneficiaries.

iii. Third, above this national structure, there will be a need for international backstopping for major crises: an equitable and effective model would be a global mechanism for social protection and early response to crises, as outlined in recommendation iii in Part V below.²

- This mechanism should work in conjunction with a global finance mechanism for loss and damage associated with climate change (L&D), which would equitably mobilise and appropriately disburse the funds required for L&D.⁶⁰
- Contributions should be made on the basis of capacity to respond to and historic responsibility for climate change.

BOX 3: The five-million dollar question

“How would you use the money Malawi spent on ARC insurance premiums to build drought resilience?”

“I wouldn’t buy an insurance policy. I don’t think it is value-for-money.”

We put the five-million dollar question to a range of key national figures in the Malawian government, agriculture sector and academia. Here is what they said:⁶¹

“I would use the money to support the National Resilience Plan we are developing. This covers all sectors and includes: crop and dietary diversification; catchment management; and flood reduction through dyke construction etc.”

“The main problem is lack of access to inputs, so I would use the money to scale up the Farm Input Subsidies Programme to reach more vulnerable people, particularly with improved seeds.”

“Proper coordination of social protection programmes is more important. There are social protection programmes that could build resilience and a lot could be done to improve coordination and reap synergies between them and to scale them up in times of crisis.”

“I would also put some of the money – say US\$2mn – each year into a contingency fund.”

“We should also invest in irrigation: it could result in low water levels in drought years, but would still help.”

“We should spend the money on a pilot project to use water from Lake Malawi for smallholder irrigation and on the capacity building and infrastructure required to support food production. We have a huge natural resource endowment that we have under-utilised. Gone are the days when we should be relying on rain-fed agriculture – agriculture is our main economic sector.”

“I would use the money for rainwater harvesting. I would build dams, targeting high-risk areas first.

“We should go to the communities and ask them what they would like to do. Ask them where they would like to be in ten years and develop plans for getting there. They would then monitor the implementation themselves.”

“Personally, I would work with the prisons, buy them the right equipment, partner them with agricultural university graduates and help them to produce food on the under-utilised land they have.”

“I would use the money to write down some domestic debt.”

Part V: Recommendations for the international community

There are indications that Malawi's experience with ARC has sparked a renewed determination to take its destiny into its own hands, albeit with the continued need for support from development partners. Some of the options for building drought and climate resilience suggested by officials we spoke to as more cost effective than insurance are now being driven forward. On 23 November 2016, the country's President announced plans to take water from Lake Malawi to the hinterland, in part to feed irrigation for smallholder and commercial farming.⁶² The country has also developed a holistic National Resilience Strategy aimed at breaking the cycle of food insecurity in Malawi. Other countries should learn the same lesson from Malawi's experience by prioritising investments in social protection, agriculture and infrastructure over gambling on the weather.

Below we set out recommendations for the G7 and the international climate and disaster risk reduction processes, including insurance-specific initiatives. ActionAid will continue to engage in dialogue with the Government of Malawi and Malawian stakeholders regarding more specific lessons for the country.

- i) **The G7 InsuResilience initiative with its target of extending climate insurance to 400m people in poor and vulnerable countries is reinforcing an ill-informed rush to roll out insurance, overlooking better alternatives and causes of structural vulnerability.**
 - a. **The G7, ARC, the Insurance Development Forum and other climate risk insurance initiatives** should shift their focus from extending sovereign risk pooling and selling climate insurance to governments and citizens of poor and vulnerable countries to supporting a no-regrets, rights-based, community-owned alternative.
 - b. This alternative should be rooted in the development of cooperatives, building on the popularity of VSLs, backstopped by adaptive, scalable national social protection systems, plus a global not-for-profit backstopping mechanism, as part of a global social protection and crisis response mechanism equitably and predictably financed by rich nations, and disbursed to the extent feasible through existing funds.
 - c. **The G7** should rapidly re-orientate its **InsuResilience initiative** towards comprehensive climate risk reduction and ensure that in its efforts to help meet **SDG target 1.5** (building the resilience of the poor and vulnerable), rights-based, adaptive social protection (**SDG target 1.3**) is central.
 - d. **The G7** should also ensure that its support for agriculture accelerates a transition to diverse agri-food systems based on agroecological principles with sustainable irrigation, smallholders' self-organisation, equitable access to natural resources (**SDG target 1.4**), and farmer-led research into climate-resilient crop varieties and agricultural practices that do not lock them into dependence on costly external inputs.
- ii) **Regional sovereign risk pooling mechanisms – ARC, CCRIF and PCRAFI – and the Insurance Development Forum⁶³:**
 - a. must not simply present insurance options to poor and vulnerable country governments in rapid pursuit of the G7 target;
 - b. must instead allow an informed, inclusive, country-driven appraisal of each nation's priorities in building its own comprehensive climate risk reduction system, considering all options but prioritising structural over superficial sticky-plaster solutions;
 - c. should collaborate with others more expert in social protection and rural development, for example, as well as opening themselves up to more meaningful and representative civil society participation;

- d. should, if and where insurance is deemed appropriate by developing country governments, introduce basis risk funds to ensure the poor do not lose out due to inadequacies in the monitoring and modelling used to trigger pay-outs in index-based schemes; and
- e) should adopt and transparently apply a set of principles and criteria for ensuring that their solutions are equitable, effective, country-owned, community-driven and accountable: see ActionAid (2016)⁶⁴ and Bond (2016)⁶⁵.

iii) An equitably and predictably financed global social protection and early crisis response mechanism:

- a. African nations, and other developing countries, if they decide to take up climate risk insurance, should not be expected to pay the majority of the premiums, as is currently the case in ARC. Neither, however, should inappropriate forms of insurance be taken up just because the premiums are to be paid by development partners.
- b. Climate change means that droughts and other extreme weather events are becoming more frequent and intense: this means the cost-effectiveness of insurance will diminish further. However, scientists' greatly improved ability to forecast El Niño and La Niña events means they should not be allowed to become disasters. This will require a coordinated response across climate, development and humanitarian actors and financing mechanisms.
- c. A more equitable and effective alternative to the current piecemeal financing arrangements would be a global mechanism for social protection and early crisis response, adapted from the proposal by De Schutter & Sepúlveda (2012),⁶⁶ which would support countries in establishing rights-based social protection systems and respond rapidly to early warning triggers by providing funds to scale these up before crises become disasters – rich

nations should make contributions based on capacity and responsibility for climate change. The necessary capital could be accumulated through regular assessed contributions over several years prior to full operationalisation of the facility. The mechanism should coordinate the raising and disbursement of sufficient finance for social protection and early crisis response, but use existing funds, including the Green Climate Fund and the Adaptation Fund, to the extent feasible. Additional funding for L&D will be necessary, and new and innovative finance sources can be used to generate sufficient funds.⁶⁰

- d. The reorientation of existing regional mechanisms could be a first step towards such a global mechanism. Pooling risks globally, and across a wider range of perils, would bring costs down further.⁶⁷

iv) All countries should now take the time to undertake inclusive, participatory, evidence-based assessment of the most equitable and effective climate risk reduction options, and develop their own position on the role of different types of insurance and of the alternatives that might be more worthy of investment. This process must not be omitted due to external actors setting the agenda or timetable.

v) Adaptation finance in the UNFCCC and climate funds:

- a. **In the climate change process, governments should send a strong signal that insurance is not the answer to the huge adaptation finance gap.**⁶⁸ Instead, rich nations must commit to immediate action to fill this gap primarily with grants to support poor and climate-vulnerable countries develop and implement National Adaptation Plans that tackle structural vulnerability to climate change through transforming agri-food, social protection, rural finance and DRR systems and enabling diversified, resilient livelihoods. Such plans should be inclusive, bottom-up and integrated with national plans

to implement the SDGs and the Sendai Framework for DRR.

- b. **The Green Climate Fund, Adaptation Fund, LDC Fund and other funds for adaptation and sustainable development** should channel support at scale to member-owned associations such as cooperatives and women farmers' coalitions (with due accountability, directly through their apex structures or indirectly through governments) to enable them to fulfil their potential to be forces for community-owned resilience building, building on members' experience with VSLs.

Green Climate Fund, to establish L&D funding streams, which should operate in coordination with its own and other funding streams for adaptation, social protection, and crisis response.

vi) L&D finance in the UNFCCC:

- a. **The UNFCCC's Warsaw International Mechanism (WIM) and Standing Committee on Finance (SCF)** must expand the focus of L&D finance discussion beyond premiums-based insurance schemes and strengthen its connection to the social protection discussion, seeking integrated solutions to climate and disaster risk financing.
- b. **The UNFCCC** should ask SCF, with WIM, to propose a definition of L&D finance and make it clear that in general support for climate and disaster risk insurance schemes is not adaptation finance, but rather a mix of humanitarian and L&D finance (depending on the level of attribution to climate change of the disaster).
- c. **WIM** should also initiate a process to identify the scale of L&D finance required and set L&D finance targets on top of the \$100bn per year for mitigation and adaptation from 2020. These L&D finance targets should be dependent upon adaptation finance provided. Targets for adaptation finance should also be defined, which in turn are dependent upon temperature rise projections and therefore mitigation effort (i.e. scaled-up mitigation effort is required to reduce adaptation finance needs).⁶⁰ The UNFCCC should request certain funds serving the Paris Agreement, such as the

Endnotes

1. Early response to droughts is more cost-effective than late response. Indeed, ARC suggests that it is four times more cost-effective. Applying this ratio would mean that for Malawi to be fully compensated for not having the \$5m they spent on ARC premiums available in April 2016, a payment made in January 2017 would need to be around \$20m, and that the payment of \$8m would represent an economic loss of around \$12m. More conservative ratios would still imply a net loss. In fact, Malawi could have invested the money in resilience-building options that would have returned additional benefits and greater value for money than early response.
2. See Recommendations in Part V: rather than proposing a new fund, we recommend a mechanism responsible for the global coordination of efforts to: i) provide the support needed to establish adequate adaptive and scalable social protection systems in all developing countries; and ii) develop and implement trigger-based early response to scale these systems up in light of a crisis, with disbursement of these funds through existing channels to the extent feasible. Adaptive social protection refers to social protection that supports adaptation to climate change. Scalable (or shock-responsive) social protection refers to social protection systems (and the safety nets in these) that can be easily scaled up in response to need in crises. The global mechanism we propose should coordinate across existing funds, including those for social protection, adaptation, humanitarian response, and L&D: L&D is a climate policy term referring to both permanent and repairable damage due to climate change.
3. This initial estimate was increased to 6.7m after a further assessment in October 2016: <https://www.mbc.mw/index.php/radio-2/item/3368-malawi-president-prof-arthur-peter-mutharika-s-address>.
4. <http://hdr.undp.org/en/data>
5. <http://hdr.undp.org/en/countries/profiles/MWI>
6. <https://www.wfp.org/countries/malawi>
7. <http://amabhungane.co.za/article/2016-06-20-malawi-struggling-to-kick-the-tobacco-habit-but-companies-keep-it-hooked>
8. <http://www.fao.org/docrep/u3160e/u3160e04.htm>
9. <https://www.grain.org/article/entries/4075-unravelling-the-miracle-of-malawi-s-green-revolution>
10. <http://reliefweb.int/report/malawi/republic-malawi-20162017-food-insecurity-response-plan>
11. <https://www.imf.org/external/pubs/ft/dsa/pdf/2016/dsacr16182.pdf>
12. <https://www.imf.org/external/np/loi/2016/mwi/060216.pdf>
13. <https://www.soas.ac.uk/cedep/research/malawi-subsidies/>
14. <http://jubileedebt.org.uk/countries/malawi>
15. <http://acbio.org.za/running-to-stand-still-small-scale-farmers-and-the-green-revolution-in-malawi/>
16. Isakson, S. R. (2015). Derivatives for Development? Small-Farmer Vulnerability and the Financialization of Climate Risk Management, *Journal of Agrarian Change*, 15(4), 569–580. doi: 10.1111/joac.12124
17. <http://59.160.153.185/library/sites/default/files/an-evergreen-revolution.pdf>
18. <http://www.nyasatimes.com/agriculture-minister-admits-fisp-facing-challenges/>
19. <http://www.imf.org/en/News/Articles/2016/09/29/PR16435-Malawi-IMF-Staff-Holds-Review-Mission>
20. <https://www.researchgate.net/publication/304323277>
21. http://siteresources.worldbank.org/DEC/Resources/Insurance_Credit_and_Technology_Adoption_Malawi.pdf
22. <http://www.inclusivebusinesshub.org/wp-content/uploads/2016/05/Demandsideperspectiveshealthandagriculture.pdf>
23. <http://documents.worldbank.org/curated/en/878641468278963208/text/775850BRI0Mala0Box0342041B00PUBLIC0.txt>
24. http://www.africanriskcapacity.org/wp-content/uploads/2016/12/ARV_ARVBulletinOct16_EN.pdf
25. http://www.africanriskcapacity.org/documents/350251/844579/ARCLtd_Pool2Announcement_EN_150706_Final.pdf
26. Reinsurance is insurance for insurance companies.
27. <http://www.munichre.com/en/media-relations/publications/company-news/2015/2015-07-06-company-news/index.html>
28. [http://www.willisre.com/Media_Room/Press_Releases_\(Browse_All\)/2014/20140515_Willis_ARC_Ltd_Release/](http://www.willisre.com/Media_Room/Press_Releases_(Browse_All)/2014/20140515_Willis_ARC_Ltd_Release/)
29. <http://www.artemis.bm/blog/2015/02/20/interview-where-next-for-african-risk-capacity-dr-simon-young/>
30. <http://www.environmentnigeria.com/africa-climate-risk-gets-institutional-support/>
31. <https://malawi24.com/2016/04/13/malawi-food-crisis-worsens-mutharika-declares-state-of-disaster>
32. <https://www.wfp.org/content/malawi-national-food-and-nutrition-security-forecast-april-2016-march-2017>
33. <http://www.wfp.org/news/news-release/wfp-begins-unprecedented-emergency-food-relief-operation-drought-hit-malawi>
34. <http://reliefweb.int/report/malawi/republic-malawi-20162017-food-insecurity-response-plan>
35. <http://www.nyasatimes.com/malawi-economic-growth-stunted-highly-finance-minister-gondwe/>
36. See endnote 32 for URL of MVAC report, which also states that “[t]he dry spells resulted in permanent wilting of crops in some districts such as Chikwawa, Mangochi, Nsanje and Neno”.
37. <http://www.reuters.com/article/us-malawi-drought-idUSKCN0YG178>
38. <http://www.africanriskcapacity.org/2016/11/14/press-release-malawi-to-receive-usd-8m-insurance-payout-to-support-drought-affected-families/>
39. Farmers' clubs are a form of association, in which individual farmers group themselves to improve their access to finance, other inputs and markets (http://pdf.usaid.gov/pdf_docs/Pnadh849.pdf).
40. See DFID annual reviews of ARC, 2014/15 and 2015/16, available here: <https://devtracker.dfid.gov.uk/projects/GB-1-203469/documents>.

41. Basis risk is the difference between the pay-out triggered (or not) by a peril in a parametric or index-based insurance scheme and the actual damage experienced by the insured. A basis risk fund is a back-up mechanism to ensure that damage is (at least partially) paid for even when the parameter or index used in the scheme does not reach the pre-determined threshold for a pay-out. Basis risk often occurs due to inadequate data or monitoring systems or poorly designed indices.
42. See Greatrex et al. (2014), *Scaling up index insurance for smallholder farmers: Recent evidence and insights*, CCAFS. See also the reference in endnote 16 of this report.
43. See http://documents.wfp.org/stellent/groups/public/documents/communications/wfp284831.pdf?_ga=1.181612647.1597397264.1477685231, which shows that in 2015, the R4 Initiative in Ethiopia paid out more from the basis risk fund than through automatically-triggered insurance pay-outs. See also <https://basis.ucdavis.edu/publication/insuring-against-weather-addressing-challenges-basis-risk-index-insurance-using-gap>.
44. and also for a macro-level weather-based index that does not offer differentiated pricing for individual farmers according to their specific farming practices or other relevant behaviours
45. <http://www.africanriskcapacity.org/documents/350251/639347/Malawi+Operations+Plan+Final+-+EN.pdf>
46. Statement by Frank Fass-Metz, BMZ, Germany, at Marrakech climate conference side-event, 8 November 2016
47. Malawi 2015/16 end-of-season analysis: review of the customisation. Presentation given by ARC to the Food Security and Risk Management Technical Working Group, Lilongwe 18 August 2016
48. See for example M. B. Ndulo (2011). *The Food and Financial Crises in Sub-Saharan Africa Origins, Impacts and Policy Implications*, CABI.
49. <http://drought.unl.edu/DroughtBasics/TypesofDrought.aspx>
50. Clarke, D. and Hill, R. V. (2013). Cost-benefit analysis of the African Risk Capacity facility. IFPRI Discussion Paper 1292. Washington, D.C.: International Food Policy Research Institute (IFPRI) <http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/127813>
51. See DFID business case for supporting ARC, available here: <https://devtracker.dfid.gov.uk/projects/GB-1-203469/documents>.
52. They state: "First, as can be expected, the relative welfare benefit of ARC decreases as the overhead of ARC, as measured by the premium multiple, increases [...]. For a sufficiently high enough premium multiple, the relative welfare benefit from ARC is negative. For example, even if the index perfectly captures the need, if the premium multiple is greater than 2 then the welfare gain from giving countries the money directly is bigger than the welfare gain of giving money through ARC. This is because, even if ARC offers a perfect targeting of money, half of the premium is being spent on overhead such as administration, research and development, reinsurance overhead, and brokerage fees, and only half of the premium actually goes toward claim payments."
53. http://www.opml.co.uk/sites/default/files/Shock_responsive_social_protection_Literature%20review_EN.pdf
54. Malawi's maize was severely damaged by an army worm infestation in early 2017.
55. http://www.aicofindia.com/AICEng/Pages/Business_Profiles_Tenders/BusinessProfilesWBCIS.aspx
56. See, for example: Isakson (2015), as cited in endnote 16; Taylor, M. (2016). Risky Ventures: Financial Inclusion, Risk Management and the Uncertain Rise of Index-Based Insurance, in Susanne Soederberg (ed.) *Risking Capitalism (Research in Political Economy, Volume 31)*. Emerald Group Publishing Limited, pp.237 – 266. <http://www.emeraldinsight.com/doi/abs/10.1108/S0161-723020160000031013>; Da Costa, D. (2013). The 'rule of experts' in making a dynamic micro-insurance industry in India. *The Journal of Peasant Studies*, 40(5), 845–865, <http://dx.doi.org/10.1080/03066150.2013.857659>
57. See <http://www.ipes-food.org/how-to-leave-industrial-agriculture-behind-food-systems-experts-urge-global-shift-towards-agroecology>.
58. See the example of India's Self-Employed Women's Association, e.g. in Churchill, C. & Matul, M., ed. (2012). *Protecting the Poor: a Microinsurance Compendium, Vol. II*. ILO & Munich Re Foundation.
59. In 1977, UNCTAD passed a resolution endorsing cooperative insurance, on the basis of its suitability for the low-income segments of developing countries. See Churchill, C., ed. (2006). *Protecting the Poor: a Microinsurance Compendium*. ILO and Munich Re Foundation.
60. See <https://www.bond.org.uk/resources/finance-for-loss-and-damage> and <http://www.climatenetwork.org/publication/can-bond-joint-submission-strategic-workstream-loss-and-damage-action-and-support>.
61. We have anonymised the responses, since they do not necessarily represent official positions.
62. <https://www.mbc.mw/index.php/radio-2/item/3368-malawi-president-prof-arthur-peter-mutharika-s-address>
63. The Insurance Development Forum has set itself the task of delivering the G7 target in the climate-vulnerable V20 countries, with 300m to be covered indirectly through macro-insurance and 100m directly through micro-insurance.
64. <http://www.actionaid.org/2016/05/ten-concerns-about-climate-and-disaster-insurance-schemes-and-one-rights-based-alternative>
65. https://www.bond.org.uk/sites/default/files/resource-documents/deg_climate_risk_insurance_august_2016.pdf
66. http://www.ohchr.org/Documents/Issues/Food/20121009_GFSP_en.pdf
67. We note that ARC is also in the process of expanding into pandemics and outbreaks, while at the same time the World Bank is developing a global pandemic insurance facility – these mechanisms, if they continue, would all need to be connected eventually for maximum effectiveness.
68. See ActionAid International (2015). *Mind the Adaptation Gap*. <http://www.actionaid.org/publications/mind-adaptation-gap>.

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