
LESSONS LEARNED

IMPLEMENTATION OF A SOVEREIGN RISK MANAGEMENT AND INSURANCE MECHANISM

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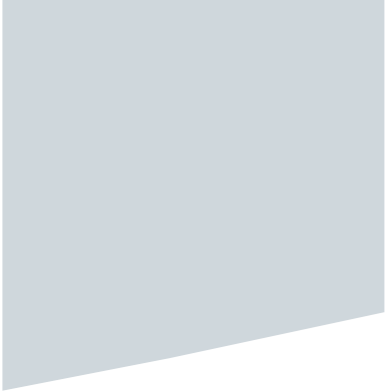


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BACKGROUND

In 2012, the African Risk Capacity was established by Treaty as a Specialised Agency of the African Union (AU) with the mandate to help Member States improve their capacities to better plan, prepare and respond to extreme weather events and natural disasters, thereby building the resilience of vulnerable populations. By linking early warning systems with contingency planning and supported by risk information and innovative financial mechanisms (currently parametric insurance), the goal was to enable governments to provide targeted responses to disaster in a more timely, cost-efficient, objective and transparent manner, thereby reducing the costs to governments and loss of livelihoods. This was based on the fundamental rationale that responding earlier to a disaster before it develops into a crisis is financially more efficient and saves lives.

To date, the ARC Establishment Agreement has been signed by 32 African Union Member States. In 2014 ARC Agency launched its financial affiliate, the African Risk Capacity Insurance Company Limited (ARC Ltd) to manage the risks taken on through underwriting a pool of weather and other disaster insurance coverages for participating sovereigns. Owned by its Members, ARC Ltd is constituted of those countries that pay a premium to secure coverage through ARC Ltd and thus far, the governments of Germany and the United Kingdom (through KfW German Development Bank on behalf of BMZ and the United Kingdom's Department for International Development (DFID) respectively) who have jointly committed US \$200 million in risk capital to ARC Ltd.

Since its inception in 2014, ARC Ltd has launched four drought risk pools with 8

countries having secured drought coverage through ARC Ltd over this period (Burkina Faso, Gambia, Kenya, Malawi, Mali, Mauritania, Niger and Senegal). Over the course of the four risk pools, ARC Ltd has made payouts of over USD \$34 million to Member States affected by drought. These resources have been used to support response to over 2 million people and almost 1 million cattle, and demonstrated the ARC proof of concept. ARC's operations have yielded very important lessons that have been critical in informing the development of the institution and its engagement with Member States.

The purpose of this report is to share some of the main lessons learned by the ARC Group (ARC Agency and ARC Ltd) over the course of its establishment and operations over the years. This is both at an institutional level in terms of its governance and operations and including in its engagement with its Member States through its risk management capacity building programme, structuring of insurance contracts and implementation of payouts and monitoring and evaluation initiatives.

These lessons and experiences have been critical in defining how ARC, as a continental and sovereign level mechanism, has sought to improve its operations and administration over time and in line with the broader transformative vision of the AU. Though not exhaustive, the lessons outlined in this document provide critical insights into the operations of the ARC mechanism, its contextual strengths, weaknesses, successes and challenges, and the structures and initiatives being established to inform its continuous improvement.

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STRATEGIC OBJECTIVES

The ARC Strategic Framework 2016 – 2020 outlines ARC's vision, mission, strategic objectives, areas of thematic focus and principles of engagement for the stated period. Within the framework, the ARC Vision, Mission and Goals are identified as follows:

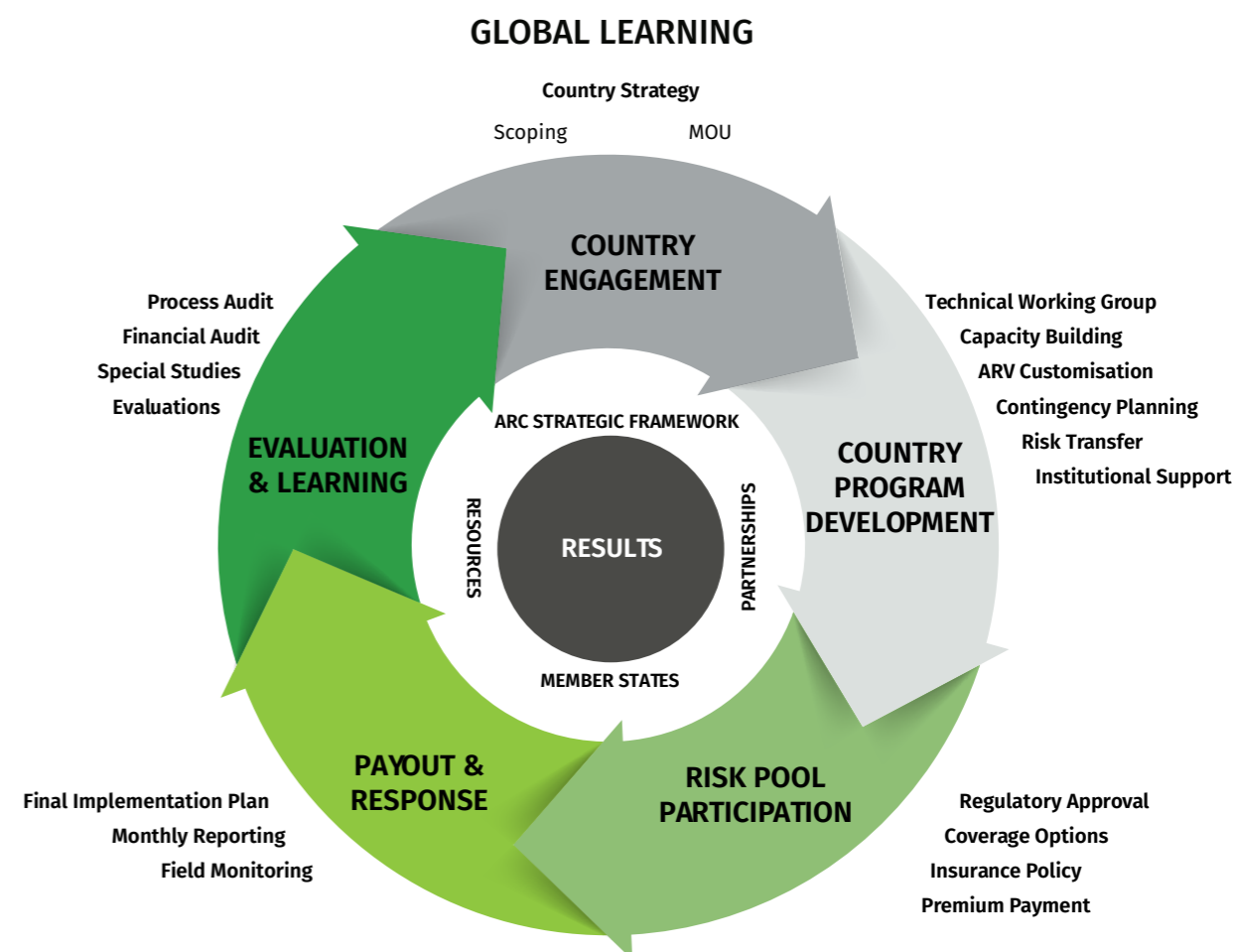


THE ARC LEARNING CYCLE AND PROCESSES

To achieve these objectives, ARC, over the years, has established a strong and well embedded learning process in its operations and a component of which naturally includes a results tracking and reporting framework. This has included embedding learning opportunities in its:

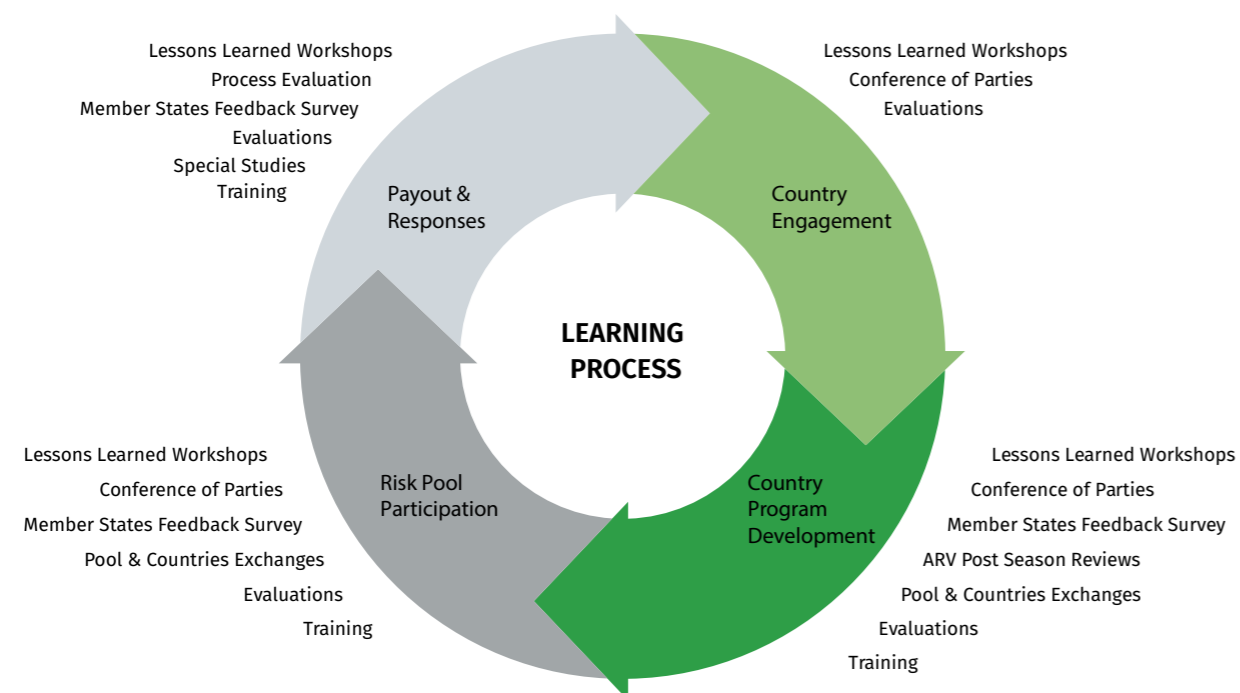
- Country engagement (Country programme development and implementation, risk pool participation, payout implementation and monitoring and evaluation);
- Partnerships development and management; and
- Donor relations and resource mobilisation efforts.

The experiences garnered through the learning cycle have informed all aspects of the work of the institution and given birth to some of the associated successes and innovation that have placed ARC as a leader in the disaster risk financing space.



The ARC learning cycle consists of various components centred on providing platforms for Member States and partners to engage on issues of disaster risk financing through:

- Structured programmes of country to country and region to region exchanges and technical training (i.e. through very focused lessons learned workshops where East and Southern African countries can exchange with their West and Central African counterparts and likewise exchanges between risk pools i.e. ARC and the Caribbean Catastrophe Risk Insurance Facility).
- ARC annual Conference of Parties (CoP) where countries report to each other on their activities and set the direction for the institution;
- Independent technical evaluations and Member State feedback surveys;
- Donor evaluations;
- Post season technical reviews of *Africa RiskView* performance and country engagement processes;
- Mid-Implementation Review Mechanism when there have been payouts made by ARC Ltd;
- Process and Financial Audits where payouts have been made by ARC Ltd;
- Hosting and facilitating knowledge building sessions with development and humanitarian partners; amongst many other efforts.



KEY LESSONS LEARNED

Over the years, many lessons have been learned through the ARC learning cycle. Although not exhaustive, the following section of this report focuses on some of the major lessons learned.

INSTITUTIONAL, GOVERNANCE, ADMINISTRATION AND POLICY ENGAGEMENT

Member State ownership is essential in driving awareness, demand and political support for engagement around risk management and insurance.

The political grounding of ARC within the African Union (AU) as a Specialised Agency has been invaluable in sensitising AU Member States on the need for better disaster risk management and financing frameworks and the need to develop in-country capacities to deliver on this mandate.

It has also provided a legitimate central point for countries to independently:

■ Define the institutional governance, structure and administration framework to execute on this goal (Per the ARC Establishment Agreement and its reference to the Administration and institutional Framework of the ARC which shall consist of three organs: the Conference of Parties, the Governing Board and the Secretariat);

■ Reinforce their commitment to purpose;

■ Build consensus on priorities for the institution;

■ Establish a platform for accountability, through providing for reporting and exchange opportunities between Member States on the development of the ARC mechanism and its associated priorities; and

■ Coordinate ARC's work with other on-going and inter-related initiatives at the continental and regional level.

There is a need for greater education and awareness building around disaster risk financing and associated concepts.

In a context of strained resources and where discussions around allocation of resources can be a contentious issue, in some contexts disaster risk financing can be viewed as a distraction from what is perceived as more fundamental risk reduction efforts.

This points to the continued need for sensitisation around the critical role of risk financing in also managing risk and response efforts within the risk management cycle and in building preparedness.

The implementation of a risk financing facility such as ARC is a long term commitment and requires considerable investment in capacity building, development of analytical tools, education and awareness raising, commitment of risk capital etc.

The experiences of ARC have demonstrated that insurance in the African context at the sovereign level cannot be a standalone given the broader vision and development

goals regarding the role of insurance in supporting resilience building. The science and politics of implementation of the mechanism is complex. As an example, a lack of insurance knowledge and culture and sometimes trust, in many countries across the continent is a hindrance to the development of the market, be it at micro, meso or macro scale.

It is therefore necessary for risk financing initiatives which are emerging in developing country contexts such as those on the African continent, to be backed with significant capacity building support in order to ensure:

■ The appropriate expertise is being developed in Member States to support the short, medium and long term goals of countries;

■ To ensure that appropriate and informed decisions are being made regarding the development of appropriate country risk financing systems, tools and instruments.

The implementation of ARC requires a multidisciplinary network of actors. This can make implementation operationally and technically demanding.

Given the nature of ARC's work and its capacity building efforts, which extend beyond the provision of an insurance tool, a multidisciplinary network of actors is required to support informed decision making by Governments and in ensuring that these efforts are mainstreamed into government processes. Each ARC in-country Technical Working Group (TWG), which is the central point for ARC's capacity building efforts, focus on three core ARC work streams - *Africa RiskView* Customisation, Operations Planning and

Risk Transfer. The TWGs in countries always include a number of experts drawn from a variety of communities of practice. These include expertise ranging from agro-meteorologists, economists to social protection specialists etc. All of these parties are essential for effective risk management and ensuring a coordinated dialogue on the specific risk being addressed in the context of broader government and development concerns and agendas.

Coordination of these experts on a consistent basis can be challenging given competing demands, and limited expertise in most countries. Ensuring accessibility of information given the varying levels of expertise is also an important factor for consideration in building consensus on risk.

There is a need for shared analysis and inclusive dialogue around risk.

Although ARC has supported progress towards developing such shared analysis and dialogue around risk, this remains a significant concern in terms of the work of the institution.

This lack of coordination and inclusive

dialogue around risk is driven by a multiplicity of factors ranging from:

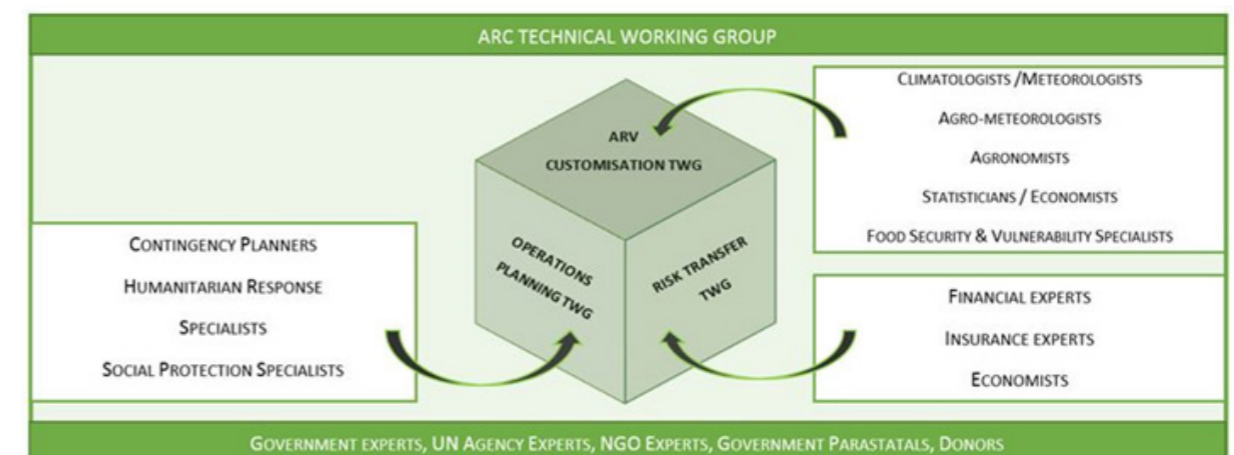
■ Political sensitivities, vested interests and institutional competition and administrative bureaucracies which can dampen coordination and cooperation efforts; to

■ Novelty of risk management approaches in the disaster management community and a deficiency of requisite skills to support such discussions.

Insurance is not a silver bullet and there is a need for expectation management regarding the ARC mechanism.

Despite the successes of ARC, there is a need for continued active discussion and awareness building around the limitations of the mechanism. This is directly linked to building understanding around risk financing and the tools and options that governments should be seeking to harness.

ARC's country led approach and package of early warning and contingency planning linked to insurance can be a powerful



vehicle for early, national action. However ARC's insurance products are not designed to cover the whole cost of any disaster response, rather a percentage of the expected costs and triggering enough to enable prompt first-responder action by the government (which, if implemented well, will ultimately reduce the overall response cost by stabilising a situation and mitigating – through timely first assistance – the impact of an event on those affected). Therefore, governments will always need additional funding sources or the support of partners to complete the needed response interventions, above and beyond what an ARC payout can do. The critical difference is that with ARC the remaining costs and needs to be addressed are clearer and are known quickly.

It is therefore important that communication around the role of insurance is contextualised in a broader framework in which insurance is simply a tool amongst many others that governments should seek to utilise. This understanding needs to be cultivated not only within Member States but also amongst partners in the disaster risk management and humanitarian space. Dialogues that promote singular approaches stand the risk of undermining the very risk management efforts and strategies needed to manage very complex risks faced by African sovereigns.

Implementation of insurance mechanisms such as ARC require a robust and on-going communication strategy.

Given the institutional structure of ARC but yet its public private dimension and the multiplicity of actors involved in its execution and also its novelty in the disaster risk management space, there is a need for proactive communication with stakeholders

at all levels.

This is essential in order to build understanding of the mechanism and its purpose and how it fits into a broader disaster risk management and financing framework and also in maintaining the visibility of the institution. Communication engagement should include:

- *At National Parliamentary Level:* Given the important role played by Parliaments in driving political support in building a culture of risk management, targeted communication tailored to this constituency is essential in driving leadership around the linkages between proactive risk financing and disaster management and broader national development goals;

- *At Heads of State Level:* Heads of States have an important role to play in setting policy direction and tone. Targeted communication at this level serves as an important reminder in cultivating such a shift in policy.

- *Among Financial, Technical and Academic Partners and Civil Society:* These partners can range from international organisations to civil society to technical and academic institutions that are all actively working on various aspects of building effective risk management systems in Member countries. Sensitisation around the work of ARC is essential in avoiding duplication and also in helping country coordination efforts and identification of synergies where relevant.

Integrating ARC into national frameworks and strategies for sustainability is essential.

The ARC experience to date has highlighted the importance of regime changes in driving

policy and the challenges this can pose in terms of continuity of participation in the ARC risk pool and also continuity as a consistent public policy instrument to support better management of risk.

To manage this reality, there is need to further deepen the linkages between ARC and existing national systems and programmes to ensure sustainability and continuity in view of political changes. To support this effort ARC has initiated discussions around the development of public policy frameworks to support broader awareness raising and action in terms of embedding risk management into public policy processes and linkages with other active programmes in country.

This has included deepening of partnerships with Regional Economic Communities (RECs) and other development finance organisations such as the African Development Bank (AfDB) who often play an important role in driving public policy developments and also investment priorities in Member countries.

Donors play a critical role in driving the development of risk financing systems and tools.

Donors play an important role in the establishment of risk financing mechanisms such as ARC. This role includes:

- Catalytic investment in development of public goods which can help spur innovative solutions;

- Encouraging and directing a collective approach and alignment on issues of risk management. This can, however, be a challenge as sometimes there might be differences even within specific Donor institutions regarding the role of

disaster risk financing vis a vis support for traditional humanitarian interventions or other initiatives being supported by the same Donors;

- Working with countries and partners to bridge discussions on broader issues such as addressing the humanitarian response/development cusp which can prove to be a challenging space for the cultivation of mechanisms such as ARC which seek to limit the reliance on the traditional humanitarian system;

- Reinforcing the principles of accountability in the operations of the mechanism; and

- Supporting awareness raising, education and advocacy.

There is an increasing appetite in the public and private sector for contextually appropriate products and tools for managing risk.

Over the years, ARC's engagements with its Member States have demonstrated that there is an increasing recognition in countries that the traditional status quo of depending on humanitarian intervention to fund disaster response is not adequate or sustainable.

ARC Member States are increasingly requesting:

- Capacity building that is geared towards not simply being end-users/consumers of products and tools but also producers and developers of these tools and innovation solutions;

- Need for informed analytics for ACTION and DECISION MAKING and

support around building understanding of associated trade-offs;

- More comprehensive information on the quantitative financial impacts of disasters;

- Development of systems to make evidence based informed decisions and opportunities for leveraging private financial markets using quantitative outputs; and

- Support in developing system for monitoring and evaluating disaster risk financing strategies.

To develop fit-for-purpose insurance products and programmes for clients, technical and market expertise needs to be brought in-house.

ARC, through both Agency and Ltd, has set a new standard for how an emerging country insurance programme is conceived, designed and then interacts with the market and private sector entities. The ARC programme and its inaugural insurance product were fully developed in-house at the United Nations World Food Programme (WFP) to ensure both were fit-for-purpose and as unique as the needs of ARC member states themselves – needs which traditionally had been responded to by WFP through humanitarian assistance. By bringing the required product design and market experience to the design team at WFP, and fully utilizing the unique insights, operational experience and in-house information WFP has on the countries within which it operates, ARC was designed to respond to the disaster risk management needs of its members with a bespoke offering designed specifically for them, while ensuring from the outset that whatever was designed could be placed at scale in the international reinsurance

markets. This allowed ARC to fully control its programme on behalf of its membership and create an innovative much-needed insurance product by leveraging in-house data and country working relationships. This independence kept costs at a minimum and, through ARC Ltd, allowed ARC members to work as a group and take advantage of market conditions in a cost effective and flexible manner.

ARC continues to work in this way, believing the best products and insights are developed in-house by working closely with its membership, rather than fully developed by third parties. As a result of this in-house philosophy, the *Africa RiskView* modelling platform is revolutionary in the way it has brought transparency and accessibility to risk modelling, as well as its ability to perform multiple functions via a single modelling methodology, including risk profiling, early warning and indexing/triggering for parametric insurance products. It is unique, and it has laid a marker for what catastrophe risk analytics platforms for public-sector risk management can and should look like. The drought module defines the level of accessibility as well as the multi-function nature of the *Africa RiskView* platform. Most noteworthy is the extent to which country technical engagement is possible in designing and testing a specific and unique model which both works appropriately for a given country, and has the inherent buy-in of in-country technicians and officials.

While *Africa RiskView's* drought module was designed and implemented from the ground up by ARC, and is based purely on public-domain science, modelling techniques developed and tested in the UN system, and data freely available in the public domain for other perils full replication of the precedent set by the drought module has proven to be impossible. Instead ARC has found a way to balance practical

reality with a level of independence, maintenance cost management and the unwavering requirements of the ARV platform for transparency and accessibility and to perform accurately and robustly for risk assessment, early warning (where appropriate) and parametric insurance triggering. By outsourcing the complex pieces of risk modelling or model building that are not cost efficient to develop or produce in-house, ARC continues to retain control of the area of product and programme design it knows best – country customization and feedback based on in-depth country technical engagement – to develop products fit-for-purpose for its membership.



OPERATIONS

WORK STREAM 1: AFRICA RISKVIEW CUSTOMISATION

Quality of input data into the Africa RiskView model is important

Africa RiskView is the technical engine of the ARC risk pool and underpins ARC Ltd's insurance policies and is the core engine for the risk management products of ARC Agency including risk assessment and early warning. ARC's entire country engagement process and the structuring of in-country technical working groups is centered on ensuring that countries have a full grasp of the Africa RiskView model and are able to customise it to fit a consensus of the historical drought impacts on a country.

The experiences of ARC over the years has demonstrated the importance of the customisation process and the associated assumptions and inputs into the model which inform the risk profile for the country. The experiences of ARC through the performance of the model in capturing the poor 2015/16 agricultural season in Malawi aptly demonstrated this critical point.

CASE STUDY: MALAWI'S 2015/16 INSURANCE PAYOUT

Malawi purchased an insurance policy with ARC for its 2015/16 crop season, during which time the country faced a severe drought. Although funding through ARC is designed to be delivered swiftly in such cases, a payout was not immediately triggered. ARC's payouts are based on the output of Africa RiskView, the open risk modelling platform developed by ARC and customised specifically for each country and crop season in close cooperation with an in-country government team. In the case of Malawi, the customised Africa RiskView model indicated far lower numbers of drought-affected people compared with the actual impact of the drought on the ground. Immediately recognising there was an issue, ARC initiated a technical review process to identify the causes.

As part of its thorough review, the ARC team conducted a number of field

There is a need for constant updating of the Africa RiskView model input parameters and associated customisation and a continuous improvement of the software platform.

As with all models, there is a need for constant review and update of input parameter and technical improvement of the methodology and the software as better and more information is gathered.

Over the years the drought module of the

Africa RiskView platform has performed well in capturing the performance of agricultural seasons which countries have secured insurance coverage for with ARC Ltd and has been tried, tested and used to underwrite 4 drought risk pools.

Through an extensive learning process, this has resulted in significant improvements in the tool and also strengthening of the country model customisation ability. Some of the many measures undertaken by ARC over the years to improve the performance of Africa

missions and meetings with the Malawi technical working group and other partners in-country. ARC also commissioned the Centre for Agricultural Research and Development (CARD) at the Lilongwe University of Agriculture and Natural Resources in Malawi to carry out an independent household survey and conduct farmer focus groups to determine potential sources of the discrepancy.

It was determined that farmers had been growing a different variety of maize in significant and increasing amounts in the recent past than initially selected as the reference crop in Malawi's customisation of Africa RiskView. It also was determined that the out-of-date information on farming practices prevented the model from accurately replicating conditions on the ground at the end of the season. Using incorrect critical information in the model resulted in inaccurate output from Africa RiskView.

Based on these findings, the Africa RiskView customisation was revised to reflect the most recent farming practices. The result

was an assessment that aligned with the drought's actual food security impact on the ground. Once Malawi's insurance coverage information was adjusted to be consistent with the corrected customisation, a payout of USD 8.1 million was triggered to the Government of Malawi, based on the magnitude and severity of the drought event and the amount of insurance coverage purchased by the government, as is the case under all of ARC's parametric insurance policies.

ARC's Africa RiskView model performed as it was designed to and, when informed by accurate data, was able to correctly capture the situation on the ground. ARC has since worked with the Government of Malawi and all its other Member States to ensure that the best possible crop and other critical data is available in order to properly reflect the reality on the ground in order to assess risk in the most precise way.

RiskView and enhance quality assurance processes around the customisation of the model included the following:

- Completion of a full due diligence evaluation of the *Africa RiskView* software to ensure its accuracy and that the all model outputs can be replicated in preparation for taking ARC Ltd's drought insurance portfolio to the reinsurance market.

- Implementation of an annual review of the *Africa RiskView* customisation for each country participating in a launched drought risk pool. This is undertaken in close collaboration with the expert technical teams within the various governments and with external partners, and the lessons learned are incorporated into ARC's model and processes.

- Adjustments were also introduced to provide more accurate estimates of how the drought conditions translate into impact on the ground. Some of these included:

- Introduction of the possibility of using a set of reference crops in order to improve the model's ability to take into account more specific sub-national contexts;

- Introduction of multiple sowing criteria to better take into account dry-spells and replanting;

- The possibility for the Technical Working Groups to also test different sub-national boundaries and test *Africa RiskView* estimates at different levels of aggregation, different graphic display options;

- Significant improvements to the batch processing capabilities to speed up the simulations required for the customisation and show the sensitivity of the outputs to inputs;

- Development and implementation of an approach for ensuring the quality of the country-level customisations. This approach includes:

- Enhancement of the Terms of Reference (ToR) of the country Technical Working Groups to include additional expertise, civil society amongst others, in order to bring greater rigour to the evaluation of the customisation work, before finalisation at the country level;

- The introduction of a quality assurance checklist to guide country *Africa RiskView* customisations;

- Joint review process with ARC Ltd of country customisations; and

- Increase in coding staff and server resources to facilitate more rapid progress on software coding and development needs, including fully incorporating the tropical cyclone and river flood models into *Africa RiskView* and further development of existing functionality and features of the current drought model to support in-country customisation.

- Establishment of the Customisation Review Committee (CRC) to make sure all customisation follow a consistent approach and the same quality standards ensuring that the model reflects up to date agricultural practises and can reproduce drought events of the past correctly.

- Completion of a first phase robustness and sensitivity analysis of *Africa RiskView* in collaboration with the Disaster Risk Financing & Insurance Program team from the Finance & Markets Global Practice of the World Bank. Some preliminary results showed that, while some variability in the model estimates is expected and depends on the year-to-year variations of rainfall distribution and the implicit nature of *Afri-*

ca RiskView's drought model, the remaining part should be managed, and explained.

The analysis identified specific areas of the model where uncertainty can be better understood, controlled and reduced and country engagement around these issues. ARC is currently extending the robustness and sensitivity analysis to all customised projects and their components (agricultural and rangelands) and will use such approach systematically with the Technical Working Groups during the customisation process.

Future follow-up studies using also different methodologies of testing the robustness and sensitivity of *Africa RiskView* will be undertaken in the coming year to build on this body of work and improve the model.



GOING FORWARD

USE OF MULTIPLE REFERENCE CROPS FOR DIFFERENT AREAS IN A COUNTRY

The possibility of using various reference crops for different areas of the country, to incorporate the different drought resistance levels in countries and expanding to perennial crops such as cocoa.

IMPROVING THE ABILITY OF THE MODEL TO CAPTURE DRY SPELLS

Although this is already possible in *Africa RiskView* there is a need for further research and review of this functionality with the model. Additionally, examining the WRSI model with respect to detecting dry spells has been prioritised and is part of ARC's R&D plan for *Africa RiskView's* drought model improvement.

MODEL THE IMPACT OF CONSECUTIVE DROUGHTS

While up to date vulnerability data can signal the increased vulnerability and therefore the higher number of people potentially affected by drought, so far the compounding effect of multiple years drought is not captured by the drought index. Further researches are needed to investigate how the drought index and its benchmark can incorporate previous year(s) drought.

IMPROVING FURTHER UNDERSTANDING AROUND WATER HOLDING CAPACITY (WHC)

The soil reserve is taken into account in the WRSI component of the *Africa RiskView* drought model, by using the WHC. In most customisations, generic WHC values derived from FAO are used. A better understanding of WHC will be a research priority for insured countries.

<p>DEVELOPMENT OF HIGHER RESOLUTION PRODUCTS</p> <p>The focus of this effort will be on rainfall as this would support improvements in agro-meteorological information in-country and allow <i>Africa RiskView</i> to ingest new products as they are developed. ARC is part of a research consortium that will be investigating these issues and will also continue to strengthen its engagement with the African Centre of Meteorological Applications for Development (ACMAD) for incorporation of seasonal forecasts into the <i>Africa RiskView</i> modelling platform.</p>	<p>IDENTIFYING ALTERNATIVE SOURCES OF VULNERABILITY DATA</p> <p>One of the main ARC R&D initiatives in the coming year in this regard will be to investigate the potential use of anonymised mobile phone records to proxy the impact of drought on households (with UN Global Pulse, Orange and CSE in Senegal). This will be an experimental study to investigate whether mobile phone data can be used for this objective, and if near-real time data is available in a reliable manner for such a methodology to be deployed.</p>	<p>IMPROVING THE VULNERABILITY PROFILING</p> <p>For the moment <i>Africa RiskView</i> estimates the direct impact of drought including in the calculation of people affected by drought those that are directly involved in income generating activities that are sensitive to drought. Those suffering the indirect effect, i.e. those people that would be affected by, for instance, the price increase due to drought and the consequent production shortage, or those that do not have access to a developed market system that would ensure food to be available in drought affected areas, are not included in the calculation.</p>	<p>POSSIBILITY TO SELECT DIFFERENT DROUGHT INDEXES OTHER THAN WRSI</p> <p>For instance NDVI or VCI or new remote sensing products such as soil moisture or actual evapotranspiration for those countries where it is more significant or already widely used in their internal early warning systems.</p>
<p>REAL-TIME POTENTIAL EVAPOTRANSPIRATION</p> <p>Evapotranspiration data are currently a static parameter in <i>Africa RiskView</i>. Having it available in real-time would be an important improvement as, among other benefits, would allow the model to also take into account the influence of temperatures, wind speed and humidity variations on the water requirements of the crops.</p>	<p>REPORTING FUNCTIONALITY</p> <p>ARC produces monthly and seasonal publications, including the monthly <i>Africa RiskView</i> Bulletin, that provides updates on the progression of agricultural and pastoral seasons in countries that participate in the ARC programme, as well as mid-season and end-of-season reports which compare the modelled estimates against external sources and information from the ground, to guide the ground-truthing process during and after the end of each insured season. An improvement in the coming year will be the inclusion of more automatic reporting documents within <i>Africa RiskView</i>.</p>		

There is a need for continued and active Research & Development on new products and tools to address the expressed needs of Member States.

As understanding of ARC develops, there has been a corresponding increase in interest expressed by countries for new products and tools. As examples, Member States have directly requested ARC to begin working on developing new tools and products to address other hazards which they currently face and see as a priority. These have included:

RIVER FLOOD MODEL

The Atmospheric and Environmental Research Inc. (AER) has developed a pan-African Flood Extent Depiction (AFED) measure for ARC with historical daily data starting in 1992 using a consistent methodology in real-time. The model will be used by ARC to:

- Develop a river flood index for ARC Member States; and
- Underpin index-based river flood insurance contracts issued by ARC Ltd.

The development process for this model has been challenging and technically complex but ARC has been able to develop a historical AFED dataset, together with automated near real-time AFED processing streams, producing Africa-wide daily updates of AFED. This is a significant achievement for the continent, with AFED generally showing a good performance when compared with documented large river flood events, though an in-depth validation of flood events visible in AFED is required for each country to establish AFED’s spatial and temporal accuracy and to determine the minimum detectable flood size for each river basin.

TROPICAL CYCLONE MODEL

Tropical cyclones are a major hazard in the Southwest Indian Ocean (SWIO) region. The (small) island developing states of Madagascar, Mauritius and the Comoros are the most exposed, with the coastal areas of Mozambique and southern Tanzania (including Zanzibar) also at some risk and Seychelles lying at the edge of the active cyclone zone.

The first phase of modelling work for ARC’s Tropical Cyclone model was completed in the first half of 2015. The second and main phase of modelling commenced in late-July 2015 and was complete in early-2016. Key outputs of this work were:

- Event footprint maps (wind and storm surge), historical and simulated;
- Probabilistic hazard maps (based on simulated track set);
- Exposure database;
- Historical event modelled losses and comparison with historical data; and
- Probabilistic modelled loss event set for all SWIO AU Member States

The methodology replicates that used for the most recent hurricane model updates for the Caribbean and Central America by the Caribbean Catastrophe Risk Insurance Facility (CCRIF) for hurricane and earthquake parametric insurance in that region.

Further research and development work is being undertaken to possibly incorporate rainfall impacts associated with these events into the model. Again this represents progress being made by ARC in addressing the needs and concerns of its Member States and development of tools and products to meet this demand.

OUTBREAK AND EPIDEMICS

In response to demand from ARC's Member States, following the Ebola crisis in 2015, ARC's Outbreak and Epidemic (O&E) parametric insurance product is being designed to provide coverage for disease outbreaks with a focus on enabling and incentivising early country-led response.

The ARC O&E programme was launched in September 2016. Since then the necessary technical work has commenced and part of which includes the development of a methodology for indexing and modelling national outbreak and epidemic risk and which will eventually be used to underpin parametric insurance contracts to ARC Member States.

ARC has also established strong relationships with technical partners such as the African Union's Social Affairs team and the AU Centre for Disease Control and Prevention (AU-CDC) and is also working with the World Health Organisation (WHO) Regional Office for Africa, specifically the Health Security and Emergency Team, and World Bank Pandemic Emergency Facility (PEF) team to forge technical and strategic collaborations to ensure complementarity of work.

EXTREME CLIMATE FACILITY

The ARC Agency was specifically requested by African Union Conference of Ministers of Finance in March 2014 to develop a proposal for a mechanism by which African states can gain access to financing to respond to the impacts of increased climate volatility.

Research and Development activities were formally launched on an Extreme Climate Facility (XCF) by ARC in September 2014. XCF is envisioned as a data-driven, multi-year financial vehicle that will track the frequency and magnitude of extreme climate shocks in Africa through an Extreme Climate Index

(ECI) and provide additional climate adaptation funds for countries already managing their current weather risks through ARC Ltd in the event that extreme heat, droughts, floods or cyclones increase in occurrence and intensity across the continent. Technical work has already commenced on this initiative.

There is a need to ensure greater level of understanding and ownership of *Africa RiskView* by the in-country Technical Working Groups.

There is a need to ensure a greater level of understanding and ownership of *Africa RiskView* by the in-country Technical Working Groups. High turn-over of government officials, competition for limited experts on various projects and programmes, limited expertise, challenges with identifying the right experts and, in some instances, low morale among some experts can create challenges in ensuring consistency in engagement around *Africa RiskView*.

Given this reality ARC has been actively exploring alternative training methods to support such engagement. This has included steps towards developing e-learning training options, country exchanges, courses within academic institutions which officials can be certified for thereby directly contributing to certified skill enhancement.

Such options are being explored not only in terms of boosting current government expert capacities but cultivating a stream of such expertise for the future.



Strengthening of partnerships with African technical and academic institutions is a priority.

Given the challenges with capacities in many Member States there is a need to develop partnerships with technical and academic institutions on the continent to support such technical expertise. This approach will be crucial not only in addressing an immediate need in many countries but also again act as a source of true capacity building for Members going forward.

To this end ARC has started the process of actively engaging and developing Memorandums of Understanding and associated work plans with some of the regional tech-

nical and academic institutions to support this effort as well as the institutionalisation of an ARC internship programme to build exposure to risk management and financing concepts.

WORK STREAM 2: CONTINGENCY PLANNING

There are political implications associated with the declaration of a disaster and this can have implications for fast-tracking response implementation.

For many African countries there are sensitive political considerations around the declaration of a disaster and specifically drought events given recent history with the term “famine” on the continent and an association with the failure of a government to act.

This presents a real challenge to ARC’s communication and operations around drought events in country. The policies structured by

governments are based on pre-defined parameters, which although might match the occurrence of a significant event, may not coincide with thresholds or political narratives around declaration of “drought”/disaster events.

For example, in 2014 payouts were triggered after the bad 2014 agricultural season in Senegal, Niger and Mauritania. These payouts were triggered on “drought insurance” policies based on thresholds set by the countries themselves but this did not always match the political narrative in these countries regarding the need to declare a disaster. Given the nature of the ARC mechanism as an early warning and financing tool,



although financing was triggered based on predefined parameters being met, it did not occur in a context where drought had been declared. As a result, in some instances this limited the ability to use fast-track procurement processes to initiate response actions.

Despite this challenge, the ARC payouts of 2014 demonstrated that there is generally a willingness in governments to find procedural ways around this complex issue. In one ARC payout case, the Secretariat officially wrote a letter expressing the importance of meeting the ARC deadlines to the Government and this was sufficient for technicians to make an argument for expedited processes.

Different actors perceive the urgency of a disaster differently and this can impact speed of response.

In the absence of outward signs of a drought such as livestock deaths, starvation or acute malnutrition, it can be difficult to define an emergency and communicate urgency around it. In the first few months after harvest, there is often food available in a country and there are often no major price increases detected or disruptions in cross-border trade of commodities.

Through the ARC payout experience, it became clear that in some instances officials who are motivated to deliver relief before a crisis is allowed to develop, were met with a lack of understanding, particularly among finance officials, as to why effecting funds transfers to the implementing agencies was so crucial and time sensitive.

However, the ARC mechanism has emerged as a means through which this gap is being filled as officials who traditionally might not be engaged around issues of disaster

response and the critical role of early response in reducing impact of disasters have become increasingly sensitised to their role in facilitating more timely response and in identifying solutions.

Transfer of funds off budget cycle is procedurally extremely difficult.

The ARC Contingency planning and payout experience in 2014/15 demonstrated that financial budgeting and accounting rules can sometimes impede funding flows from Central Treasury to implementing agencies or partners.

To facilitate earlier release of funds and faster implementation, officials generally preferred direct transfer of funds to the implementing agency. The ARC payout experiences to date demonstrate the effectiveness of such an approach where the fastest implementation occurred where funds were directly transferred to the implementing agency.

Although special accounts in the Central Bank has been suggested as an alternative, there has been a general consensus amongst implementing agencies and line ministries that such an approach has historically not proven to be efficient.

Coordination with partners can have both positive and negative consequences.

On the one hand, it is possible that governments could lose the value of early intervention if constrained by partners’ financing, targeting and delivery timelines. On the other hand, sometimes government resources alone are not enough and could result in smaller rations, operations of shorter

duration, or fewer households assisted if not fully coordinated with other humanitarian actors.

Striking a balance is one requires constant communication between countries and partners.

ARC payouts empower governments to take a lead role in coordinating response efforts with humanitarian actors.

In countries where ARC payouts were triggered there was generally an observation of governments taking a leading role in coordinating response efforts with partners.

Although the direct benefits of such observations are not directly tangible, they represent progress in the context of the AU's objective in the establishment of ARC for African governments to take greater ownership in managing response to disasters.

Accurate and timely reporting on payouts can be difficult to obtain.

Much of the initial information exchanged between ministries regarding procurement and funds transfer is not available publicly. Thus, the flow of funds, once in country, proved difficult to track. Often, as ARC government coordinators are based in the capitals and operations are in the field, they must rely on simple reports from sentinels/field stations of figures with no accompanying analysis, performance/impact indicators or reasons for discrepancies in planned versus actual service delivery. Much information is derived from informal relationships and contacts between individuals in the Secretariat and countries.

Despite this challenge, ARC is moving towards development of easier and standardised reporting templates to facilitate more effective communication and sharing of information on payout implementation. Additionally, the inclusion of the need for interim narrative and financial report on progress made during payout implementation should help to address some of these challenges. The interim report, although an additional requirement, will not obviate from the submission of a final response implementation completion report and financial statement which countries are already required to provide.

There is a need for flexibility and efficiency in advising on and approving changes to the FIPs.

In any operation, there will always be adjustments that may be required based on the realities on the ground. Through this process it is critical that there is constant contact and dialogue with country counterparts in order to pre-empt possible challenges to successful FIP implementation, advise and agree on solutions, and obtain the requisite approvals from ARC leadership in a timely manner – understanding the guidance and intent of the Governing Board in approving the FIPs – allowing operations on the ground to move forward smoothly and quickly.

Despite challenges in reporting, Government interventions following ARC payouts have all largely matched interventions as outlined in their FIPs.

The ARC process audits assess a country adherence to pre-defined SOPs for the implementation of response activities in line with ARC's eligibility and implementation criteria

for activities identified in their FIPs. The FIP is one of the most important reference documents for the audit.

Throughout the audit process it became clear that the quality of the FIP and robustness of the document have implications on the implementation and its monitoring.

Despite challenges in reporting, where there have been payouts, Government interventions all largely matched intervention as outlined in their FIPs (geographic coverage, targeting process, nature of intervention and implementation modalities). This successful outcome required constant communication between ARC and Member States.

Areas for improvement which were identified through this process included:

- Need for constant updating of a FIP on receipt of payout to reflect as close as possibly the situation on the ground, time permitting;
- Need for timely formal communication regarding possible deviations from the implementation plan;
- Need for countries to provide better description of the early warning information that triggered the payout and any further assessments that informed the choice of interventions outlined in the FIP;
- Inclusion of timelines for the completion of audits in the SOPs given key measure of compliance; and
- Ensuring greater consistency in the FIPs across the board.

There was a variation in implementation timelines for interventions following ARC

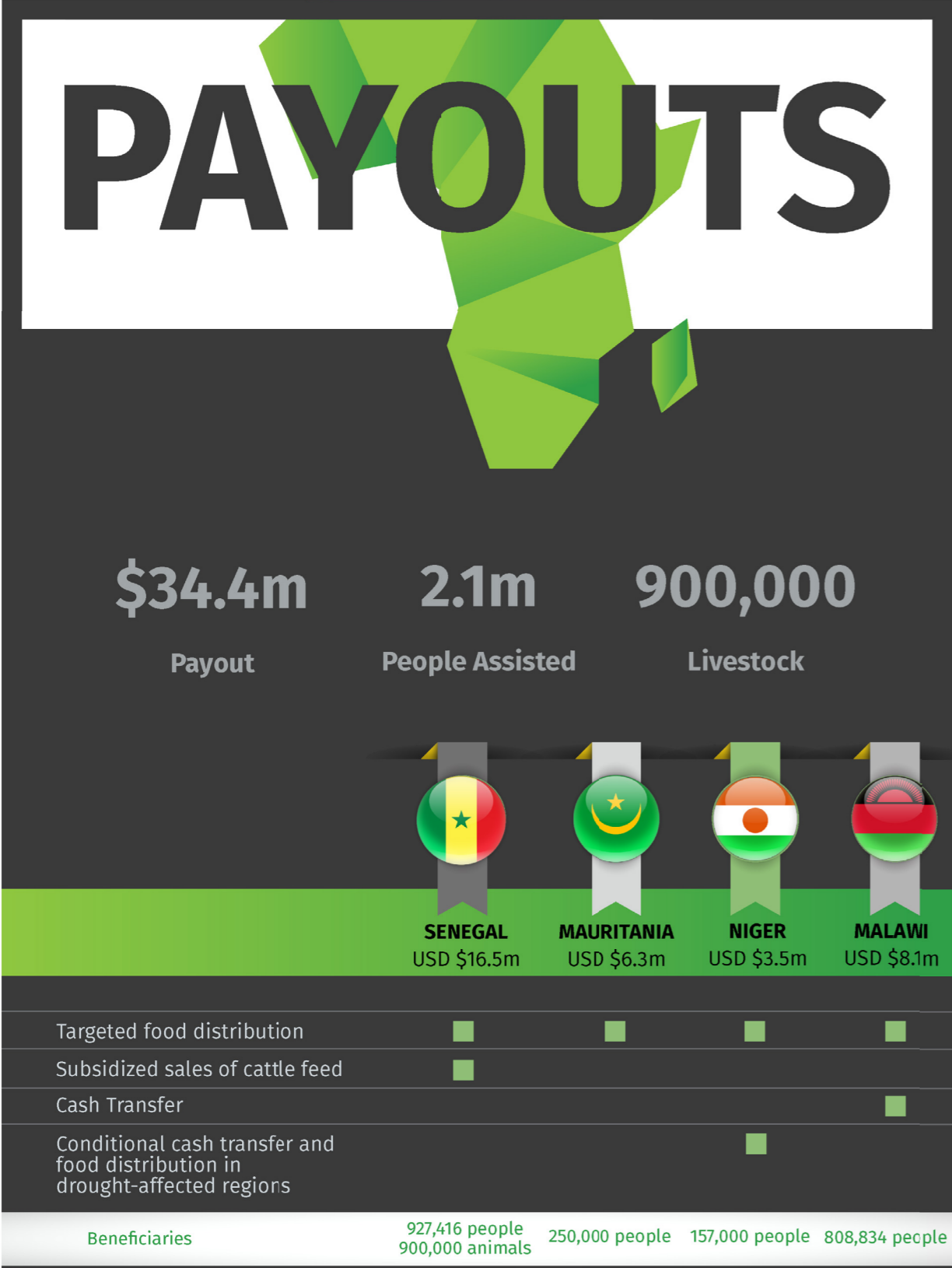
payouts. Despite this, and to date, all ARC payout funded response activities have still been implemented earlier or in line with traditional humanitarian response timelines.

A review of compliance against the FIPs Standard Operating Procedures revealed that most interventions experienced variations concerning timelines. Significant delays in the implementation of the programme, in particular the food distribution, were observed. This was caused by the retention of ARC funds within the National Treasury (both in Senegal and Niger following the 2014/2015 payout) and the inability to transfer these funds to government departments responsible for implementation in a timely manner. Even though the ARC transfer arrived early, the blockage of funds within the National Treasury caused delays in some activities implementation.

Based on this experience, the process audit stated that the transfer of funds to the National Treasury is strongly discouraged for future ARC payouts. Alternative options were presented for the management of ARC payouts. These included:

- Transfer of payout directly to individual accounts of the three main implementing Government structures: CSA, SE/CNSA, and DEPA (in Senegal's case).
- Use of a special account at a private financial institution under the supervision of the Ministry of Economy and Finance (in Senegal's case).
- Transfer the funds in a specific account managed directly by CCA (in Niger's case).

Despite this challenge, most of the ARC 2014/2015 payout funded response activities were still implemented earlier or in



line with traditional humanitarian response timelines.

Going forward and in line with the process audit recommendations, any transfer of funds to non-Treasury accounts will still need to undergo all necessary due diligence and authorisation processes accorded within the FIP development process before for ARC Ltd can transfer funds to any account.

Consideration needs to be given to diversification of food commodities for distribution.

For future implementations, ARC will encourage the inclusion of additional commodities, such as beans, sugar or fish, in addition to rice and oil, in the free food distribution to allow dietary diversity.

Food coupons could be explored as an option to facilitate households' acquisition of different foods when needed and to mitigate difficulties related to transporting large quantities of rice at a time.

The intervention can be further diversified by including food for work rather than free food distribution. Communities are ready and able to work on small scale water resource development and conservation projects. Livestock related interventions such as the provision of subsidised livestock feed and health could also be considered where these interventions are not already being provided by government or are being provided but the coverage is insufficient. This could include further linkages between ARC insurance and the scalability elements of existing social safety net programmes.

Such an approach is already in employed in a number of ARC Member States i.e. in Kenya where the ARC policy is structured to feed in to the scalability aspects of the existing

Hunger Safety Net Programme (HSNP).

Opportunities exist for further improvement to the FIP Standard Operating Procedures (SOPs).

Ultimately the process audits are assessing the countries adherence to pre-defined SOPs for the implementation which are in line with ARC's basic eligibility criteria for activities. This requires that specific attention be paid to these SOPs:

- SOPs should be updated and completed to reflect new timelines after the insurance payout has been effected.

- Only SOPs that are relevant to the FIP and country context should be selected from the list of generic ARC SOPs. Additional SOPs related to the country context may need to be included.

- Appointing someone to follow up on SOP deadlines would increase compliance. The ARC in country focal point could be in charge of following up on the SOPs, issuing reminders and ensuring that those responsible and aware of their responsibilities be held accountable.

There is a need for a more robust Monitoring and Evaluation Process and corresponding strengthening of Government Monitoring and Evaluation systems.

Monitoring by ARC of the three ongoing operations in 2015 was very challenging given the time constraints of those involved in implementation and the need for the country to communicate often with ARC Agency. Changes to how ARC approaches monitoring with countries during implementation are

being considered. These include:

- Developing a structured reporting template once the FIP has been prepared, tailored to the intervention(s) in question to ensure more rigorous and detailed reporting;

- Requesting Government to submit a more detailed interim narrative progress and financial report as well as the final completion report and financial statement on completion of programme implementation. This may help reduce the reporting burden on ARC Member States and enable higher quality reporting;

- Clearly defining communication, coordination and reporting arrangements amongst the key actors involved;

- Need for training on monitoring and evaluation for key government officials and in particular the ARC Government Coordinators; and

- Creation of standard reporting templates for the supervision missions and after each supervision visit the government officials should quality assure all the reports and compile a single summary report.

There is a need for mechanisms to provide support for countries if Monitoring and Evaluation Processes show that there has been a deviation from an approved FIP.

In 2013, the ARC CoP adopted the Compliance Rules outlining the process to be undertaken if a country did not comply with its approved FIP. These rules were designed to be implemented after payout implementation had been completed. However, it became clear during the implementation of ARC's first payouts, in response to the 2014

drought in the Sahel, that ARC also needed rules that would guide ARC Agency's response to FIP deviations during implementation.

- It is important to provide feedback and support to countries that are deviating during implementation so that they can remedy the situation, rather than waiting until the implementation has finished and simply reprimanding countries.

- A system was needed to ensure that ARC Agency's actions were consistent for all countries and situations, and so that ARC Agency staff could have a clear understanding of the types of situations that should be escalated to the Board.

- The Mid-implementation Review Mechanism (MRM) was adopted by the Board to provide this framework. Using the MRM in the context of future payout implementations will help ARC Agency to further refine it to be better responsive to country needs.

Defining clear channels of communication is important for efficiency in implementation of payouts.

In designing the FIP, communication channels should be reviewed and clarified. Some countries have multi-layered, heavy structures in place and informal communication becomes the preferred option preventing careful documentation and follow up.

When the FIP is prepared it would be useful to map internal and external communication needs, including timelines and deadlines for follow up or submission of reports. A strategy should map out and specify:

- Which type of information should be

communicated to whom and within which timeframe;

- Which entity/level/person reports to whom including deadlines for communication information or submitting reports;

- Identify focal points at each level, in charge of following up on reporting; and

- Identify a Focal Person (ARC GC) responsible for ensuring that the right people receive the right information at the right time.

Mapping an organogram of key coordination mechanisms implicated in the ARC structure in each country along with updated contact lists for each Committee would be a first step in this direction. Brief terms of reference (ToRs) should be set out for each committee and the frequency of meetings specified. Minutes of meetings should be carefully recoded.

Such an approach will also be essential in safeguarding against inefficiencies in the system where chains of accountability can be weakened through too many or unclarified tiers of communication and assigned responsibilities.

Early media engagements in country can support better monitoring of payouts.

Anecdotal evidence suggests that announcements of the imminent payouts during the Secretariat's FIP preparation missions to both Mauritania and Senegal through local broadcast media and radio outlets – especially in local languages – allowed suppliers to prepare to bid during the procurement processes.

In Mauritania, an informal campaign among

local journalists was initiated to inform potential beneficiaries that relief would be coming and also to track the FIP implementation in country.

Africa RiskView was actively used for early objective targeting of affected communities.

Although all three countries have their own early warning systems, mid-season assessments, and targeting methods, *Africa RiskView* confirmed or guided the choice of geographical areas for early intervention, which is often determined by less objective methods.

Currency fluctuations present a real risk and such fluctuations must be managed.

Countries develop their Operations Plans, FIPs, and accompanying budgets for the use of ARC Ltd insurance payouts in their local currency. However, when ARC Ltd makes an insurance payout, it is calculated and transferred to the country in US dollars, which must be converted to local currency when disbursed to the government's line ministries for implementation. Changes to the rate of exchange between a country's local currency and US dollars may result in a country receiving a higher (positive currency fluctuation) or lower amount of local currency (negative currency fluctuation) than is accounted for in the budget of the FIP.

Negative Currency Fluctuations

When a country is exposed to negative currency fluctuations that will impact the activities already planned in its FIP, the country can decide to lower its operations cost, including reducing the size or the length of the activities. The country may also wish to

reduce the number of selected activities in its FIP to accommodate the actual amount of funds received. This process is actively documented and reported to the Secretariat.

Positive Currency Fluctuations

When a country receives a higher amount in local currency than was anticipated as result of positive currency fluctuation, it shall use the surplus to fund activities (the **Additional Activities**) that are in keeping with the principles of ARC. The country is able to adjust the FIP to address the immediate needs of the affected populations in timely manner by increasing the size or length

of activities, or adding another activity that was contemplated in the Operations Plan. Alternatively, if modifying the FIP is not possible, a country may choose to implement an Additional Activity based on an activity that was included in the country's approved Operations Plan. If neither of these options is possible, the country may use some or all of the surplus to fund increased investment in other activities such as risk management or food security activities that are in keeping with the principles ARC. In such cases, countries provide the Secretariat with a description of the Additional Activities undertaken using the surplus funds.



WORK STREAM 3: RISK TRANSFER

Despite interest in ARC insurance products, countries face a number of challenges in mobilising premium and ensuring consistent participation in the insurance pool.

Despite their significant interest in accessing parametric insurance coverage from ARC Ltd, one of the major barriers countries face in ensuring their participation in the ARC Ltd pool is mobilisation of premium funds in the early years of participation.

In the traditional natural disaster response universe, African sovereign budgets and response systems are often by-passed as international humanitarian actors both finance and execute assistance. The cost of natural disaster risk, in both direct losses and impact on economic development, is thus not recognised in most national financial systems, and budgetary provisions to manage risk for resiliency against such costs are not made.

Beyond the aforementioned, mobilising premium and ensuring consistent participation in the insurance pool is further impeded by:

FISCAL CONSTRAINTS

Premium payment is often not prioritised by governments who are facing, in some instances, unprecedented fiscal constraints. As a result of this, although there is a recognition of the value of ARC insurance, governments have to make difficult trade-offs and often are unable to pay their premiums given other pressing needs.

PAYMENT FATIGUE

There is a sense of fatigue for countries to pay premium from their own resources when they have not received payouts in prior years. This is an issue that also speaks to the need to continue to work on the development of a culture and associated discipline required for efficient risk management. It is an issue which is exacerbated by the moral hazard presented by the traditional humanitarian response system.

POLITICAL INSTABILITY

Civil unrest often leads to inaction and changes in government. For ARC, this results in a loss of momentum and a need to repeat key activities that would lead countries to an improved risk management system including financing through ARC insurance. In addition, elections have often disrupted the normal decision-making processes in government and can be a major challenge on the continent.

SHIFTING PRIORITIES

ARC's programme creates consensus around the importance of index-based weather insurance and the need for better disaster risk financing mechanisms. Consensus is built through working with policymakers and technicians. However, a change in decision makers results in policy changes and a shift in government priorities. A potential shift in a sovereign's approach to building disaster resilience can reduce appetite for ARC products.

There is a need for premium financing support for ARC Member States.

Disaster risk financing instruments are a critical piece of a holistic risk management approach and through ARC, African governments can already take out insurance in exchange for a premium.

In ARC's insurance pools to date, all participating national governments have paid premiums from their own budgets. However, based on ARC's extensive discussion with government officials, integrating premium into national fiscal strategy, including integration into the portfolio with IFIs, is essential to ensure sustainability of these payments and the growth of ARC's comprehensive risk management footprint.

ARC's comprehensive approach assists countries in early warning and preparedness, and provides a highly cost-efficient and innovative mechanism to finance country-led rapid response. But sovereign African states, most of which are amongst the least developed in the world, require support in building risk management financing and resiliency planning into annual budgetary processes, as the true long-term benefits to sustainable development are recognised.

Premium financing to support governments as they seek to build out their risk management capacities, is increasingly a topic of discussion. Precedent for such support exists and has been highly effective. The Caribbean Catastrophe Risk Insurance Facility (CCRIF), the first sovereign risk pool, has one least developed country (LDC) client, Haiti, whose premium has been fully funded by donor grants (including IDA, Canada and the Caribbean Development Bank (CDB)) for all 10 years of its participation. The four other IDA-eligible participating states in the Caribbean each received concessional financing which covered 3.5 years of premium

payments; all of these countries have subsequently maintained coverage, paying premium from their own budgets, at or close to that obtained with the financed premiums since the inception of the facility in 2007. CDB also provided concessional financing for 8 eligible countries for one policy year. CCRIF's recent expansion into Central America is supported by availability of concessional financing for the two IDA-eligible states in that region. Likewise, the Pacific Risk Pool (PCRAFI) is in the third year of its pilot phase. Premiums for all five of the initial participants were fully grant-supported for the first year and have been almost fully supported for all four subsequent years.

There is a need for continued insurance-related risk education and strengthening of Insurance regulator capacities.

With the emergence of new insurance products and tools such as parametric insurance, there is a need to invest heavily in education and awareness around insurance and risk.

In parallel, offices of insurance regulators must also be strengthened and better equipped to understand these newly emerging tools and ensure they are being appropriately deployed.

There is no one size fits all disaster risk financing framework/approach.

Despite the need for all countries to develop sustainable and well structured risk financing systems, there is no one-size-fits all approach.

The risks faced by each country differ and particularly so in the unique social, political and development context or reality in

a country. Taking these issues into consideration and as part of a broader approach of a government will be the driving force in defining what the country specific risk financing structure will look like and how countries will seek to harness instruments such as the parametric insurance coverage offered by ARC.

African Risk Capacity

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