

ROADMAP FOR INTEGRATED CLIMATE RISK MANAGEMENT

*Drought Risk
in Ghana's
Agricultural Sector*

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EXECUTIVE SUMMARY

Natural disasters and their associated damages severely impact people around the world every year. Increases in exposure and vulnerability at a global level, linked to the multiple concurrent trends such as climate change, population growth and globalisation of supply chains are making it imperative to find strategies to manage disasters more holistically.

Integrated Climate Risk Management (ICRM) is an approach to dealing with the risk and manifestation of climate-related disasters. It is characterised by a holistic perspective with regards to the various components of risk management. ICRM differs from previous concepts in the disaster management paradigm that focused almost exclusively on response, and didn't pay significant attention to opportunities to reduce the incidence or potential impact of climate disasters.

This roadmap is developed from work undertaken on ICRM through the "Promoting Integrated Mechanisms for Climate Risk Management and Transfer" project ("ICRM project") implemented by the Deutsche Gesellschaft für International Zusammenarbeit (GIZ) GmbH and the Munich Climate Insurance Initiative (MCII). In Ghana, the ICRM project is working across three Workstreams within the agriculture sector: (1) sovereign drought risk insurance, (2) building capacities for risk prevention and risk reduction and (3) the development of insurance products for commercial agricultural actors.

Workstream 2 aims to reduce risk and increase preparedness by increasing knowledge and shifting behaviour with regards to agricultural practices to accommodate the nature and frequency of disasters. Workstreams 1 and 3 are ex-ante financing (risk transfer) activities. While Workstream 1 aims to transfer risk for low frequency high impact disasters which would affect large number of farmers in a similar way (covariate risk), Workstream 3 deals with the risk of higher frequency disasters which may have a significant impact on individual households and businesses but have a lower impact at scale.

Currently, there are significant barriers to establishing risk transferring mechanisms such as climate insurance in the agriculture sector in Ghana. The roadmap suggests actions and recommendations that could be followed by specific actors to address these barriers in a manner that considers and integrates risk management principles. The actors for which actions are recommended include: The National Disaster Management Organisation (NADMO), Ministry of Finance (MoF), Ministry of Food and Agriculture (MoFA), National Insurance Commission (NIC) & Ghana Insurance Association (GIA), and the Ghana Meteorological Agency (GMet). Actions are recommended by actor in a proposed implementation plan, and include a timeline and a cost of implementation. The recommendations include: the development of a drought management portal; the provision of access to finance and financial products for farmers and agricultural businesses; educating agricultural communities about appropriate coping mechanisms and risk transfer solutions; the establishment of markets for agricultural insurance; and the provision of timely weather data. The recommendations are intended as first steps that could be taken to scale up risk transfer within an integrated climate risk management framework.

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LIST OF ABBREVIATIONS

| | |
|---------------------|--|
| ARC | African Risk Capacity |
| ARV | Africa Risk View |
| BoG | Bank of Ghana |
| CSA | Climate-Smart Agriculture |
| EPA | Environmental Protection Agency, Republic of Ghana |
| EWS | early warning system |
| FAO | UN Food and Agriculture Organisation |
| FASDEP | Food and Agriculture Sector Development Policy |
| GAIP | Ghana Agricultural Insurance Pool |
| GIRSAL | Ghana Incentive Risk Sharing Agricultural Lending |
| GIZ | Deutsche Gesellschaft für International Zusammenarbeit |
| GMet | Ghana Meteorological Agency |
| ICRM | Integrated Climate Risk Management |
| ICRM project | “Promoting Integrated Mechanisms for Climate Risk Management and Transfer” project |
| INDC | Intended Nationally Determined Contribution |
| MCII | Munich Climate Insurance Initiative |
| MESTI | Ministry of Environment, Science, Technology and Innovation, Republic of Ghana |
| METASIP | Medium Term Agriculture Investment Plans |
| MoF | Ministry of Finance and Economic Planning, Republic of Ghana |
| MoFA | Ministry of Food and Agriculture, Republic of Ghana |
| MoGCSP | Ministry of Gender, Children and Social Protection |
| NADMO | National Disaster Management Organization, Republic of Ghana |
| NCCP | National Climate Change Policy, Republic of Ghana |
| NDPC | National Development Planning Commission, Republic of Ghana |
| OPM | Oxford Policy Management |
| UNFCCC | United Nations Framework Convention on Climate Change |

Introduction

1



1.1 PURPOSE

This document provides guidance and technical support to policymakers involved in the identification, management and reduction of climate risks, and the impact of climate-related disasters, in Ghana's agricultural sector.

The roadmap discusses specific practical interventions and policy ideas that could be applied as part of a broader national or sectoral strategy for sustainable agricultural development. The focus is primarily upon the experiences and lessons learned from the "Promoting Integrated Mechanisms for Climate Risk Management and Transfer" project ("ICRM project") that is funded by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, Federal Republic of Germany and implemented by the Deutsche Gesellschaft für International Zusammenarbeit (GIZ) GmbH.

It is also relevant to Ghana's climate change and disaster risk management policy objectives and commitments at the national level, with respect to key international agreements such as the Paris Agreement of the United Nations Framework

Convention on Climate Change (UNFCCC) and the Sendai Agreement on Disaster Risk Reduction.

The primary audience for the roadmap is policymakers working in this thematic area, particularly within National Disaster Management Organisation (NADMO), Ministry of Food and Agriculture (MoFA), Ministry of Finance and Economic Planning (MoF), and the Environmental Protection Agency (EPA), among others.

Representatives of the primary audience have been involved in the drafting process of the roadmap. They have provided strategic and technical inputs to inform the content of the document through a formal peer review process and other meetings and coordination channels.

A potential secondary audience is the wider set of stakeholders working on climate risk management within and outside Ghana, particularly drought risk in the agricultural sector, and/or those interested in learning about the application of an ICRM approach.

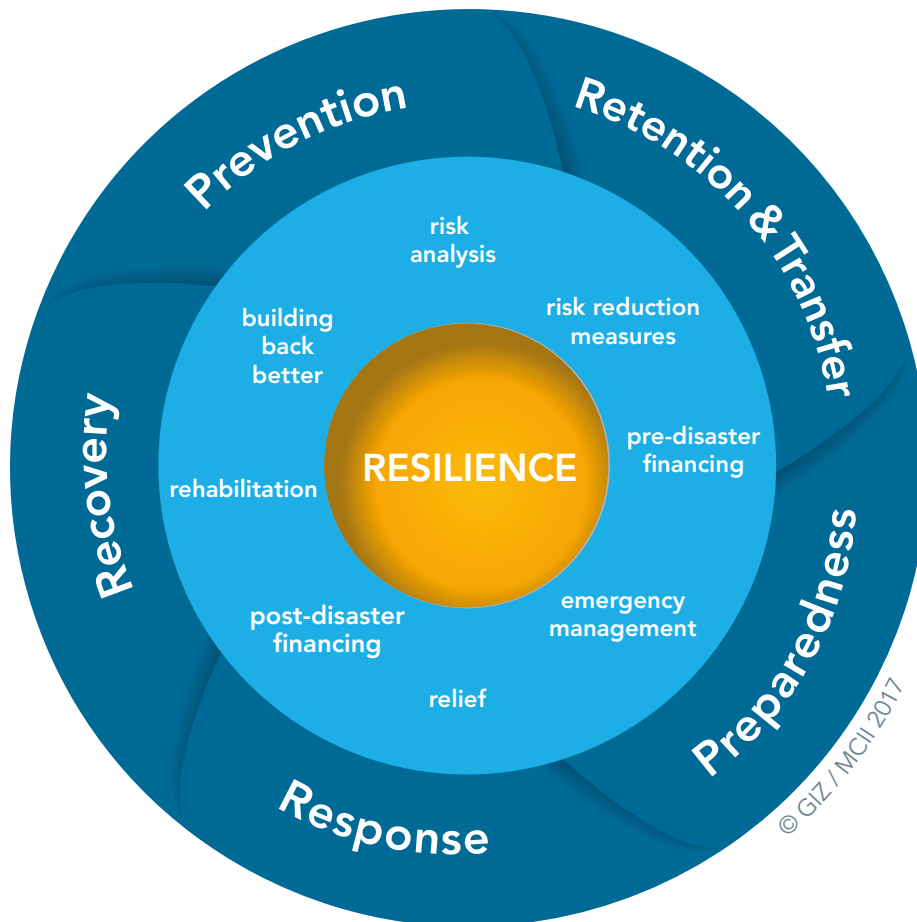
1.2 INTEGRATED CLIMATE RISK MANAGEMENT

Integrated Climate Risk Management (ICRM) is an approach to dealing with the risk and manifestation of climate-related disasters. It is characterised by a holistic perspective with regards to the various components of risk management, namely:

- Prevention of disasters and of new disaster risk Retention and Transfer of the remaining ('residual') risk
- Preparedness for inevitable disaster impact
- Respond to a disaster in order to protect people and assets and mitigate losses
- Rebuild and reconstruct the affected area in line with the principle of build back better

Figure 1 depicts the ICRM approach. The outer circle shows the five areas of DRM. The key emphasis of integrated approaches is upon treating these aspects as integrated and overlapping. The middle circle provides more detail on the types of activities that should be implemented at each stage. Resilience, in the centre of Figure 1, represents the system's capacity to absorb and recover from hazardous events, and is the variable that is enhanced by successful integrated disaster and climate risk management (Gonsalves et al 2011). In disaster risk management, the system can include social, economic, physical, natural and human capital.

FIGURE 1: Integrated climate risk management cycle



ICRM differs from previous concepts in the disaster management paradigm that focused almost exclusively on response, and didn't pay significant attention to opportunities to reduce the incidence or potential impact of climate disasters. The imperative to broaden this perspective comes from increases in exposure and vulnerability at a global level, linked to the multiple concurrent trends such as climate

change, population growth and globalisation of supply chains (MCII 2017). A further advantage of the ICRM approach is that it enables alignment of the DRM agenda, as exemplified in the Sendai Framework on Disaster Risk Reduction, with the climate change and sustainable development agendas, codified at a global level by the Paris Agreement and Sustainable Development Goals respectively.

1.3 ROADMAP APPROACH

GIZ has been supporting the application of the ICRM approach in Ghana through the “Promoting Integrated Mechanisms for Climate Risk Management and Transfer” (ICRM) project. The project has focused on the agricultural sector, looking mainly at drought risk though with some attention paid to floods. There are three workstreams, each of which focuses on a specific piece of the ICRM cycle:

1. **Sovereign drought risk insurance:** Supporting the Government of Ghana in the accession process to the African Risk Capacity.
2. **Building capacities for risk prevention and risk reduction:** Undertaking climate-smart agriculture pilots in two districts in Northern and Volta regions.
3. **Support the development of the agricultural insurance market:** Including a market study, that includes a gap analysis and lessons learned.

This roadmap was commissioned as a means of a) synthesising experiences and lessons learned from these interventions for a policy audience, and b) situating the results of the project within the broader policy and risk management context in Ghana.

The roadmap draws from three main sources of evidence:

1. Data and reports generated through the implementation of the ICRM project in Ghana, along with other related GIZ projects.
2. Academic literature and ‘grey’ literature¹ selected for the specific purpose of corroborating or adding to information from other sources. A list of references is provided at the end of this document.
3. Focus group discussions and semi-structured interviews with key project stakeholders. The main venue for this was a workshop held in Accra in June 2018 (→ see Annex A). Additionally, four interviews were conducted (→ see Table 1).

The roadmap draft went through two rounds of peer review, one before and one subsequent to the workshop.

Table 1: Key informant interviews

| Name of interviewee | Organisation | Interview topic |
|---------------------------|--------------|---|
| Baba Adam | GIZ | Climate-smart agriculture activities under the ICRM project. |
| Raúl Fernández | MCH | Micro-insurance for farmers; WorldCover experience. |
| Charlotte Norman | NADMO | ARC contingency planning; disaster risk financing in Ghana. |
| Dr. Emmanuel Tachie-Obeng | EPA | Ghana’s domestic institutional arrangements and ongoing activities relating to the UNFCCC and Green Climate Fund. |

¹ Academic literature includes peer-reviewed journal articles and publications. ‘Grey’ literature refers to a range of other types of publication that are not independently peer-reviewed but are assumed to meet certain quality standards e.g.: reports published by research institutions and think tanks, project reports and documentation published by donor organisations, publications of multilateral or bilateral institutions.

Agriculture and drought risk in Ghana

2



This section provides background and context to the roadmap.

2.1 ECONOMIC CONTEXT

Macro-economic context

Agriculture is an important economic sector in Ghana. It is the main source of employment for 54.4% of the labour force and represents 27% of the country's GDP (Achaw 2017). Projections suggest that agricultural sector growth will decline over the coming years, from 6.1% in 2017 to 3.2% in 2019 and 3.5% in 2022 (Economist Intelligence Unit 2018). Reasons for this include currency depreciation, price conditions in the global cocoa market, and the relatively weak quality of the cocoa tree stock.

In general, Ghana faces key constraints to boosting its agricultural productivity. These include sub-optimal sector coordination, low yields, weak market linkages, high post-harvest losses, and low access to finance (AGRA 2017). In recent years, for most crops, growth has come from increases in the area harvested rather than productivity gains, and indeed, crop yields are consistently lower than achievable yields (Martei and Kwayisi 2016; USAID 2011). Mechanisation levels are very low, as are agricultural investments generally.

The Government of Ghana is committed to improving the economic performance of the agricultural sector. Doing so is part of the country's overall economic growth strategy.

Agriculture, livelihoods and poverty

Beyond its contribution to the national economy, agriculture plays a critical role as a source of livelihood and food security for Ghana's rural population.

Agriculture is predominantly practiced on smallholder, family-operated farms. About 90% of the farms are 2 hectares or less in size (smallholders). Cropping systems in Ghana are highly diverse. Most smallholder farmers combine strategies to meet food security and cash flow needs. Traditional cropping systems are dominated by cereals, usually combining one or two crops in a field (USAID 2011).

There is a strong linkage between agriculture and poverty, where the five northern regions (Upper West, Upper East, Northern Region, Savannah Region, North East Region) have both the highest rates of agricultural employment and the highest rates of poverty. Other regions, too, demonstrate similar links between agriculture and poverty, or high potential thereof. They are also the most drought prone areas of the country, as discussed below. Smallholder farmers face numerous challenges that jeopardise their economic security and prevent productivity increases. Insecure land tenure, dependence on rainfed agriculture, poor storage and post-harvest management, lack of access to credit are all problems faced (Achaw 2017; Martei and Kwayisi 2016). It is widely recognised that agricultural policy has a key influence upon poverty reduction and economic development targets.

2.2 POLICY AND INSTITUTIONAL CONTEXT

Agriculture

A National Climate Smart Agriculture and Food Security Plan for 2016 – 2020 was developed by the Ministry of Food and Agriculture (MoFA) through a series of consultations at national and sub-national level. The Plan specifies actions that can be taken at all levels, recognising that decisions about whether and how to pursue climate-smart agriculture (CSA) are largely at the discretion of district-level government. The Plan proposes that climate-smart planning be incorporated with mainstream agricultural planning; so, districts identify their potential and comparative advantage in agriculture, and identify and match climate-smart actions accordingly.

This plan is intended to complement and feed into the overarching policy framework for the sector, which is the Food and Agriculture Sector Development Policy (FASDEP II) 2008, as well as Medium Term Agriculture Investment Plans (METASIP). Also relevant to risk management in agriculture are the flagship projects unveiled by recent governments with the aim of increasing productivity and creating jobs (AGRA 2017). These include the “Planting for Food and Jobs” and “One District One Factory” programmes.

Mainstreaming climate change into agricultural policy and planning

Climate change is the responsibility of the Ministry of Environment, Science, Technology and Innovation (MESTI). Various other institutions are involved in policy-making and implementation, including national and regional committees which bring stakeholders together from across technical areas for the purposes of oversight and coordination.

The flagship document for climate change in Ghana is the National Climate Change Policy (NCCP), adopted in 2012. The NCCP identifies

“agriculture and food security” and “disaster preparedness and response” to be two of five key policy areas. Actions envisaged under these areas include:

- The “**agriculture and food security**” area calls for research and capacity building in climate smart agriculture, the application of best practices and climate change in general as well as the institution of risk transfer mechanisms, such as insurance, for example against weather risks or harvest failure.
- The “**disaster preparedness and response**” area calls for actions to promote the capacity of NADMO, support of livelihood activities, and the enhancement of the awareness of financial instruments to protect investments and assets such as insurance schemes.

The National Climate Change Master Plan for 2015 – 2020 provides details for the implementation of the NCCP, setting out actions and timelines. The Master Plan observes that “planning for the development of agriculture in Ghana has focused on increasing productivity and production; there has been little focus on addressing climatic constraints” (MESTI 2015 p xxvi). It proposes that climate change should be mainstreamed in the agricultural sector by tying proposed adaptation and mitigation measures to specific programmes within METASIP. The Master Plan also specifically mentions CSA and proposes various implementation methods.

Ghana has also prepared a Nationally Determined Contribution (GH-NDC) in line with its commitments under the Paris Agreement of the UNFCCC; this document aligns closely with the aforementioned policy and plan but is of a narrower scope. Its 20 mitigation programmes and 11 adaptation programmes include “agriculture resilience building in climate vulnerable landscapes” and “early warning and disaster prevention” (Republic of Ghana 2015).

Drought risk management

The National Disaster Management Organisation (NADMO) was established in 1996 under the Ministry of the Interior with responsibility to manage disasters and emergencies. NADMO has traditionally focused on disaster response, in line with the emphasis in Act 927 in which it originated. In 2016 however, Act 927 was updated and broadened NADMO's mandate to cover more preventative activities with response. Following this, NADMO created various departments (including a Climate Change Department) with a strong focus on pursuing risk reduction and prevention.

NADMO has an important role as a coordinator of action on DRM, working across government. A NADMO official interviewed stated that fulfilling this role is very hard, given the resistance of other government entities to external influence in their activities and given the profusion of plans, policies, strategies and activities that have been undertaken relating to DRM that have never been coordinated. Only in the area of disaster response is NADMO's coordinating role appreciated; there is much ground to be gained with respect to prevention and risk reduction.

NADMO operates at the national and sub-national level. District-level disaster management committees include a multi-stakeholder membership, with the intention being that line Ministry repre-

sentatives can lend inputs and enable coordination in activities that concern them. These committees prepare plans which are submitted to NADMO centrally for comment and approval.

With respect to DRM, Ghana has several reference documents including a National Disaster Management Plan, a National Contingency Plan and a National Action Plan for Disaster Risk Reduction. While these documents represent important building blocks, they are high-level and generic, without specific consideration and proposed courses of action for specific hazard types (e.g.: drought) (Donga and Owusu 2017).

Recently, NADMO published a National Drought Management Plan which sets out ex ante and ex post drought management activities, comprising not just drought response but also capacity building, research and education components to institutionalise better drought management approaches over time. Prior to this plan, the most relevant information was provided in the National Action Programme to Combat Drought and Desertification, which sets out analysis, preventative and remedial actions (EPA 2003). While comprehensive, the document was very outdated by the time of publication of the Drought Management Plan, and it lacks a clear definition of drought, focusing on desertification with the assumption that the recommended actions will also benefit drought-prone areas (Donga and Owusu 2017).

2.3 DROUGHT RISK AND HISTORICAL DAMAGE

The country has six Agro-Ecological Zones (AEZs). Drought is a major risk in four of these zones, three of which are savannah and one a forest-savannah transitional zone. Even in coastal and transition zones, drought is an emerging risk. Other types of hazards, including biological perils (pests) and natural hazards (bushfires) are also significant, and can be linked to drought. For policymakers, it is important to take a macro perspective that appreciates how different hazards interlink and can compound one another.

Drought incidence is not well-documented, and until recently droughts and dry spells have not been recognised as significant problems (Donga and Owusu 2017). NADMO (2017) provides information about the number of individuals assisted for only three drought events, in 1983, 1997 and 2007. Some more detail relating to localised droughts is provided by official drought declarations at district level; according to NADMO (2017), 20 official drought declarations were made at district level between 2007 and 2013.

In general, however, the availability of data demonstrating the occurrence and impacts of droughts across the country is very limited; and particularly data that would enable

comparison over time. Awareness of drought has been increasing as a result of climate change projections that predict considerable increases in exposure – discussed below.

2.4 CLIMATE CHANGE PROJECTIONS

Available temperature data indicates a warming climate in Ghana. Since 1960 for Ghana as a whole, mean annual temperature rose by 1 degree Celsius. Going forward, temperature projections vary across different stimulation models, but, there is consensus that they are likely to rise especially in the northern parts of the country (Adam 2016). MESTI (2012) projects increases of 0.6, 2.0 and 3.9 degrees Celsius under a conservative climate change scenario for 2020, 2050 and 2080 respectively. This is anticipated to have a major impact on crop production systems.

Models generally see far less agreement on future precipitation amounts or timing - and are therefore subject to considerable doubt (Adam 2016; USAID 2011). In general, precipitation is inherently vulnerable from year to year, making identification of long-term trends difficult. However, it is clear that rainfall patterns in Ghana have become increasingly unpredictable. The major rainy season in the Guinea and Sudan

Savannah zones has become shorter. Projections indicate greater prevalence and greater severity of both drought and heavy rainfall occurrences.

Evidence from observation and experience tends to support these projections. Drought is most common in northern Ghana where the regions experience short rainy seasons and long dry seasons. In northern Ghana, the adverse effects of climate change and variability is noticeable through erratic rainfall patterns, soil erosion, drought, low soil fertility, early cessation of rainfall, among others (Adam 2016). A baseline and vulnerability assessment undertaken for the ICRM project in two districts, one in the Northern Region and one in the Volta Region, showed the variety of risks facing rural communities. They were especially vulnerable to droughts and high temperatures as well as to erratic rainfalls and floods, bushfires, windstorms and both, early on-set and early cessation of rain.

2.5 VULNERABILITY OF THE AGRICULTURAL SECTOR TO CLIMATE CHANGE

The impact of climate change on smallholder agriculture mainly manifests in increasing variability of rainfall, resulting in recurrent and longer dry spells that delay and shorten the growing seasons. In addition, rainfall is becoming more intense resulting in flash floods that destroy crop lands and cause land degradation due to erosion (MESTI 2015). These impacts can in turn lead to further indirect impacts that directly contravene Ghana's developmental objectives, such as hunger and malnutrition, unplanned migration and ecosystem degradation (NADMO 2018).

Climate change scenarios in Ghana reveal significant decline in the production of food staples in the country, due to drought, high temperatures, windstorms and floods among other factors (Adam 2016). Adam (2016) cites simulations showing that, in most parts of sub-Saharan Africa, staple crops are experiencing huge yield losses. This has impacts for farmer revenue and also food security. Stutley (2010) finds that based on an 18-year period, Ghana can expect to lose about 5.5% of the value of the production of its 8 main food crops, on average, per year. This can rise significantly in bad years; such as 12.2% in 1992.

Donga and Owusu (2017) interviewed members of two communities in the Northern Region, who cite a range of challenges faced alongside dry spells. Herbicidal pests and army worm have had a significant impact on yields; further issues include inadequate availability of tractors for ploughing, reduced availability of farmland, reduction in soil fertility, irregular income affects ability to buy inputs and tractor service on time.

The residents of Ghana's northern savannah zones are used to unpredictable rainfall and periodic drought, and have developed coping mechanisms to deal with climate variability over time. Coping strategies commonly used to reduce vulnerability include planting mixtures of crops and cultivars adopted to different moisture conditions, using landraces resistant to climate stresses and mulching or water conservation. However, major drought events have been shown to overpower these household and community-level coping strategies (USAID 2011).

It is important to recognise the various factors that contribute to vulnerability, beyond exposure to climatic hazards. Desertification and land degradation are major issues, particularly in the north. Socio-economic factors are also very significant, and generally tend to be heightened in the northern regions. These factors include land tenure insecurity and availability, agricultural input supplies, technology access, market access, credit access and variable prices (Stutley 2010; USAID 2011).

Women, migrants and unconnected landless farmers are the most vulnerable. They often face higher barriers and are the first ones to be affected due to their lack of access to recourses and their social standing.

Piloting an Integrated Climate Risk Management approach

3



3.1 INTRODUCING THE ICRM PROJECT

The ICRM approach and the ICRM project are introduced in Section 1.2. As previously mentioned, the three workstreams of the project are as follows:

1. **Sovereign drought risk insurance:** Supporting the Government of Ghana in the accession process to the African Risk Capacity
2. **Building capacities for risk prevention and risk reduction:** Undertaking climate-smart agriculture pilots in two districts in the Northern and Volta regions, and building capacity of NADMO and MoFA staff at national and sub-national level
3. **Supporting the development of the agricultural insurance market:** Including a market study, that includes a gap analysis and lessons learned

Workstream 2 aims to reduce risk and increase preparedness by increasing awareness and capacity, and shifting behaviour in agricultural practices to accommodate the nature and frequency of disasters.

Workstreams 1 and 3 are ex-ante financing (risk transfer) activities. While Workstream 1 aims to transfer risk for low frequency, high impact disasters which would affect a large number of farmers in a similar way (covariate risk), Workstream 3 deals with the risk of higher frequency disasters which may have a significant impact on individual households and businesses but have a lower impact at scale.

Pilot site selection

Pilot site selection for the ICRM project in Ghana is based on a set of criteria developed through a consultative process with the project's partners. These criteria were based on indicators such as poverty rankings, ecological zone classification, drought and flood disaster impacts, and

agricultural productivity. These were complemented by secondary data and information from relevant institutions as well as through several reconnaissance visits to the proposed districts. Through the Baseline and Vulnerability Analysis Study (GIZ Ghana 2017) ten communities in each of the two selected districts (South Tongu, Volta Region; and Zabzugu, Northern Region) were chosen to pilot resilience-building initiatives in order to generate evidence for future replication and adoption by partners.

Within the ICRM project, site-based work is as follows:

- CSA pilots are being carried out in two districts: South Tongu in the Volta Region and Zabzugu in the Northern Region. The project works with ten communities in each district.
- Assessment of drought vulnerability to inform the development of the National Drought Management Plan in the two pilot districts.

Capacity building

The ICRM project also organized capacity building programmes for NADMO staff at the national and sub-national level. A national expert was contracted to train selected national staff in a training of trainers' workshop. These participants in turn became trainers for the sub-national staff to be resource persons for community level trainings. This aims at enhancing the institutional capacity of communities to contribute to national level targets for Ghana set in the Sendai Framework and other international conventions on climate change and disaster risk reduction. Additionally this capacity building aims to stimulate the exploration of new forms of financing, risk transfer, and risk reduction approaches for Ghana's agriculture sector as part of a broader integrated risk management mechanism.

Community level


At the community level training and advocacy workshops have been organized led by NADMO, as iterated below;

- Training of NADMO District Volunteer Groups on community level adaptation and risk management measures
- Advocacy and training workshop for all Chiefs, opinion leaders and leaders of Community Based Organizations on disaster risk management and adaptation measures against flood and drought – to identify community climate change advocacy champions
- Workshop on climate change and disaster preparedness planning for district disaster management committees, heads of decentralized departments in pilot districts

3.2 ICRM ANALYSIS

This section demonstrates the application of an ICRM framework to support the identification of gaps and corresponding activities to better manage risk in Ghana's agricultural sector. The tables listed below proceed through each stage

of the ICRM cycle, highlighting some of the main gaps and activities that have been identified through project activities and based on the information sources described in Section 1.

|  PREVENT | |
|---|--|
| Gap | Action |
| <p>Inadequate risk data, particularly forecasts, communication and links to compliance.</p> <p>Part of the problem is insufficient number of weather stations, and shortcomings in analysis of meteorological data.</p> | <ul style="list-style-type: none"> • Consider including climate risk assessments into business compliance frameworks, such as Environmental Impact Assessments. • Assess adequacy of meteorological data collection and analysis for drought forecasting purposes. Consider actions to improve quality and coverage of meteorological data, including infrastructure and technology development, and commitment of resources (for maintenance and ongoing data analysis, as well as installation). • Clearly define and plan for NADMO to fulfil its mandated function of collecting, storing and managing risk data. • Establish, maintain and disseminate Drought Management Portal as per Drought Management Plan (NADMO 2018). |
| <p>Limitations in knowledge and technologies for climate risk management in agriculture.</p> | <ul style="list-style-type: none"> • Research into climate-smart agricultural inputs practices, that recognises geographical and socio-cultural diversity (eg: of seed systems). This could include seed cultivars, irrigation systems and post-harvest management systems. • Improve quality of climate risk data collection and analysis. |
| <p>Limitations in farmer awareness and capacity prevents uptake of CSA techniques.</p> | <ul style="list-style-type: none"> • Educate agricultural communities about climate change, including accessing forecast data. • Training on climate-smart agriculture techniques that help to reduce impacts of climate shocks and build resilience of crops, soil, water over time. • Demonstration farms for capacity building of CSA techniques. • Information about financial benefits of CSA vs conventional techniques. |
| <p>Inadequate access to financial resources that would enable farmers to adopt risk reduction strategies.</p> | <ul style="list-style-type: none"> • Use public funding to enable and/or incentivise uptake e.g.: subsidisation of climate-sensitive seeds. • Improve financial access and inclusion in all agricultural areas e.g.: access to credit and savings accounts. • Explore risk transfer as a means of smoothing financial impacts of shocks. |
| <p>High vulnerability of subsistence agriculture requires diversification to non-agricultural incomes.</p> | <ul style="list-style-type: none"> • Diversify incomes to include activities that are less exposed to climate shocks and/or have different exposure patterns e.g.: bee keeping. |



RESIDUAL RISK

| Gap | Action |
|--|--|
| Lack of insurance market penetration in vulnerable regions, and lack of insurers' interest in engaging smallholder farmers. | <ul style="list-style-type: none"> • Reduce risks for lenders e.g.: through GIRSAL. • Promote insurance market growth nationally through appropriate regulation and incentives. • Encourage Incentives for risks transfer. |
| Lack of appropriate insurance products to respond to climate risks. | <ul style="list-style-type: none"> • Create technical support partnerships / learning arrangements with other firms. • Public incentives to stimulate product development. • Collect and analyse on demand and willingness-to-pay for new products. |
| Lack of understanding / trust of insurance mechanisms in general, and index-linked and price-linked schemes in particular. | <ul style="list-style-type: none"> • Awareness-raising and information provision for potential clients. Education, public awareness and capacity building are all encouraged in the Drought Management Plan (2018). This plan cites a range of potential communication channels including national newspapers, dedicated newsletters, community durbars, folk media, and participatory learning and action approaches. • Clarity around basis risk, and how such risk can be mitigated or absorbed. • Explore innovative technologies for training, learning and communication e.g.: online platforms, mobile phones. |
| Lack of willingness-to-pay for premiums, on the part of smallholder farmers. | <ul style="list-style-type: none"> • Awareness-raising and information provision for potential clients. • Explore other markets where financial incentives for insurance are greater e.g.: commercial agribusinesses. |
| Limited options for insuring large co-variate shocks, resulting in high financial exposure both for public and household-level finances. | <ul style="list-style-type: none"> • Explore risk transfer options, including reinsurance or CAT bonds. • Invest in prevention, reduction and preparedness to avoid the incidence and impact of catastrophic risk. |



PREPARE

| Gap | Action |
|--|---|
| Shortcomings of existing early warning systems (EWS) to forecast disasters and needs. Limitations in extent and quality of information about drought risks. | <ul style="list-style-type: none"> • Continue to undertake research and innovation to improve EWS for drought. • Establish technical partnerships with institutions exposed to global best practice on drought forecasting and EWS. • Support regional and global initiatives to strengthen drought forecasting and EWS. • Establish, maintain and disseminate Drought Management Portal as per Drought Management Plan (NADMO 2018). |
| Lack of comprehensive plans and resources in place to enable preparedness. | <ul style="list-style-type: none"> • Ensure dissemination and incentives to implement the drought response activities proposed in the Drought Management Plan (NADMO 2018). • NADMO to continue to further disseminate, coordinate and develop technical and policy guidance on preparedness. • Ensure adequate resources, including though stimulating private sector financing. |

| Gap | Action |
|--|--|
| Inadequate coordination between institutions implicated in preparedness. | <ul style="list-style-type: none"> Strengthen role of NADMO as coordinator of preparedness actions around government. Follow implementation guidelines established in the Drought Management Plan (2018), which highlight the roles of institutions and the flow of decision-making (and resulting action) between them. |
| High financial exposure to shocks. | <ul style="list-style-type: none"> Develop comprehensive DR financing strategy that sets out roles of risk retention, and risk financing. Transfer (some) risks to reduce financial exposure and improve liquidity. |



RESPOND

| Gap | Action |
|---|--|
| Inadequate financial resources available to implement rapid response. | <ul style="list-style-type: none"> Ensure dedicated resources set aside for response, based on a needs assessment. Develop coordinated plan for government rapid response, that takes a holistic perspective on all available resources. Transfer risk through reinsurance, bonds or similar methods that ensure rapid disbursement in case of a disaster. |
| Inadequate coordination between institutions. | <ul style="list-style-type: none"> Strengthen role of NADMO as coordinator of early response actions. Establish coordination plans in advance (i.e.: in preparedness phase) – the Drought Management Plan sets out a clear protocol and set of roles and responsibilities for institutions in the different stages of drought response (NADMO 2018). |
| Inadequate systems and processes in place to deliver rapid support to people who need it. | <ul style="list-style-type: none"> The systems for food and cash transfers are in place and operational. Test their ability to function at scale in case of covariate shocks, and ensure monitoring in place to monitor function over time. |
| Negative coping mechanisms employed, such as child migration, restrictions on consumption, removing children from education, pursuing new sources of income that violate human rights and dignity, etc. | <ul style="list-style-type: none"> Ensure that systems are in place to channel resources quickly to vulnerable households, thus avoiding negative coping mechanisms. Ensure rapid response is linked to longer-term strategies for recovery and resilience. Awareness-raising around the negative impacts of coping mechanisms, for instance of child migration upon child wellbeing. |



RECOVER

| Gap | Action |
|---|--|
| Lack of tracking and follow-up to ensure response leads to recovery, and to monitor vulnerability over time. | <ul style="list-style-type: none"> Systems in place to monitor affected persons' status – to ensure progress, and to ensure action is taken when risk of crossing thresholds arises. Ensure that data is communicated through appropriate channels and to appropriate persons. |
| Transition away from emergency support is not graduated but sudden, risking fall-backs. | <ul style="list-style-type: none"> Ensure that planning for recovery is linked to response, and in turn to broader frameworks for poverty reduction, economic opportunity and development. |
| Recognition that humanitarian support may be needed for a longer period depending on the impact of the shock on household assets. | <ul style="list-style-type: none"> Rigorous vulnerability assessments and monitoring to track progress over time. Rigorous targeting system for aid ensures supplies reach the most needy the most quickly. Drought-vulnerable communities provided with developmental support e.g.: alternative livelihoods. |

Residual risk

4



4.1 EXPLANATION OF RESIDUAL RISK

Residual risk is the risk that remains after prevention and mitigation activities have been undertaken. There are different ways of managing residual risk. Where the risk-bearer chooses to retain their risk, they may pursue a risk financing strategy. This could include 'ex ante' measures, in which finance is raised prior to a disaster actually occurring (i.e. precautionary savings and reserves, or arrangements for contingent credit facilities) or 'ex post' measures (i.e. reallocations of normal spending to cover post-disaster needs, borrowing and loans).

Risk transfer is an alternative to risk retention whereby the risk, or a portion of it, is passed onto a third party. That third party would be responsible for assuming some or all of the costs should a disaster occur. Therefore, risk transfer reduces the financial exposure of the risk-bearing entity, whether that is an individual, a business or a government. Risk transfer can either be direct or indirect.

- **Direct risk transfer** is where the at-risk entity (individual, household, business) enters directly into an agreement with a risk-bearing entity (such as an insurance or reinsurance company). An example in the context of the ICRM project is the support aimed at the development of insurance products developed for smallholder and commercial scale farmers.
- **Indirect risk transfer** involves an intermediary institution in between the entity whose risk is being transferred and the entity bearing that risk. An example in the context of the ICRM project are the sovereign risk insurance products offered by ARC.

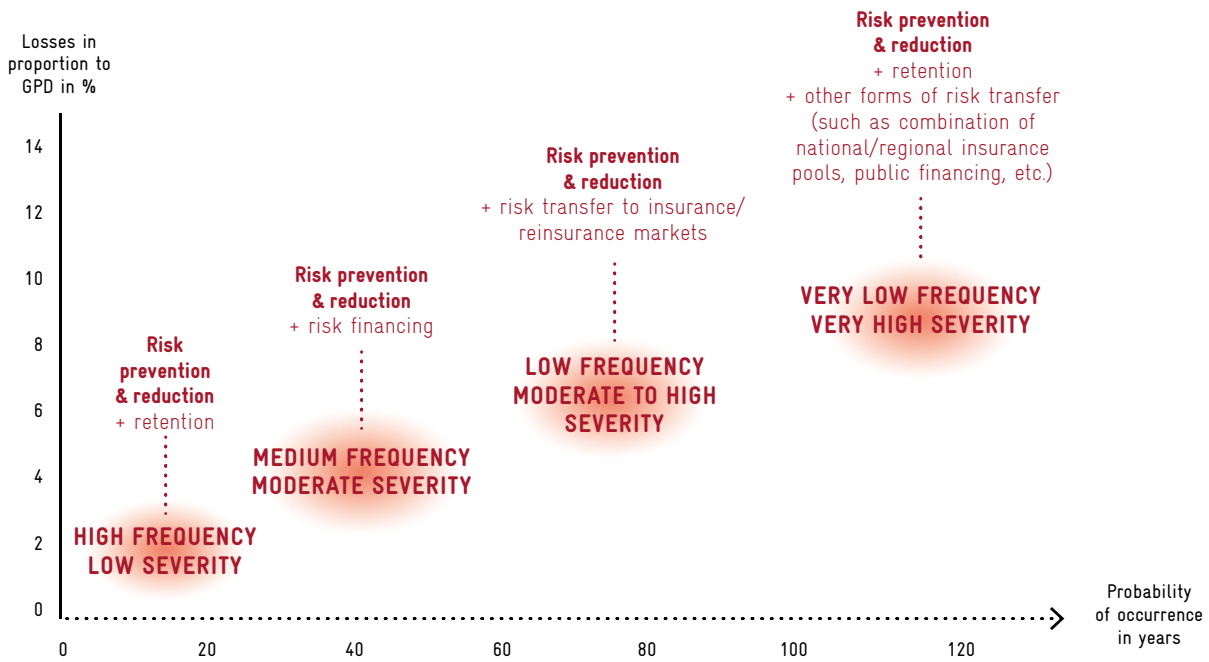
Two of the three workstreams of the ICRM project are ex-ante financing (risk transfer) activities (i.e.: ARC, and commercial insurance for agricultural companies). Sections 4.3 and 4.4 provide a description of these activities. First, Section 4.2. proposes a strategic framework for understanding what type of approach to residual risk management might be appropriate depending on the intensity and frequency of the risk in question.

4.2 A STRATEGIC FRAMEWORK FOR MANAGING RESIDUAL RISK

The different approaches to dealing with residual risk mentioned above are more or less appropriate in different circumstances. Figure 2 below sets out a typology that can help to identify what types of financing instrument may be appropriate for managing residual risk in different scenarios characterised by the frequency and severity of the risk. Table 2 explores the implications of the above typology above for the context of drought risk in Ghana.

The National Drought Management Plan (NADMO 2018) provides a description of funding sources available for drought risk management, and drought management. The options outlined are the national budget, development partner funding, drought risk insurance (citing specifically the African Risk Capacity and the Drought Financing Facility), and a drought fund which would be funded through a levy on water bills.

Figure 2 Mapping strategies for residual risk management



Source: Warner et al (2012)

TABLE 2: Identifying risk management strategies for drought risk

| Type of drought | Strategy | Ghana context |
|---|--|--|
| FREQUENCY: High SEVERITY: Low | <ul style="list-style-type: none"> • These types of shocks can typically be absorbed within a typical household or government budget. Hence, the risk should be retained by the risk bearer without any particular risk financing strategy in place. • Risk prevention and reduction activities should be carried out to reduce the likelihood and impact of shocks. | <ul style="list-style-type: none"> • This type of shock should be managed through the normal coping and adaptive practices of farming households. Risk transfer and risk financing is likely to be economically irrational, especially for poorer households for whom changes in financial practices can have significant developmental trade-offs. • Risk prevention and reduction activities would include livelihood diversification and climate-smart agriculture techniques. |
| FREQUENCY: Medium SEVERITY: Medium | <ul style="list-style-type: none"> • These types of shocks will have a larger fiscal impact that may stretch the financial absorptive capacities of households. They are not large enough for risk transfer to be economically rational, however. Other risk financing strategies should be applied, such as establishing savings, credit and loan facilities. • Risk prevention & reduction activities should be applied as above. | <ul style="list-style-type: none"> • Legislation in Ghana requires district assemblies to set aside a portion of their common fund to manage emergencies. NADMO has recently been working to refine the definition of what these funds can be used for, to bring activities more in line with an integrated DRM approach. This 'pot' of public resources provides an important example of ex-ante public risk financing. • At the household level: not all rural households will be able to access formal financial services. Lack of collateral is a significant issue, along with physical access. Therefore, broadening financial inclusion is an imperative for risk management. Less formal schemes such as micro-loan and micro-credit facilities may also be solutions in the interim. • Risk prevention and reduction activities would include livelihood diversification and climate-smart agriculture techniques. |
| FREQUENCY: Low SEVERITY: Medium-High | <ul style="list-style-type: none"> • These shocks have a significant impact that is likely to be highly disruptive to household budgets. The risk financing strategies discussed above are unlikely to be sufficient to cope with the financial implications of these shocks. Hence, risk transfer becomes an appropriate solution. Risk transfer helps to smooth the impacts of shocks upon liquidity and therefore on negative coping mechanisms. Depending upon the nature of the risk and its value, risk will be transferred either to insurance or reinsurance companies, through direct or indirect modalities. • Risk prevention & reduction activities should continue. These larger shocks have financial implications either way (i.e.: risk transfer requires premium payment), and risk reduction is therefore an economically rational strategy. | <ul style="list-style-type: none"> • In Ghana, climate change is increasing the prospect of extreme events and, therefore, medium-high – very high frequency shocks. The size of smallholder household budgets, and typical lack of financial safety nets, mean that these types of shocks can have severe developmental impacts. While micro-agricultural insurance markets are on the rise in Ghana, there remain substantial challenges to be confronted on both supply and demand side (see Section 4.4). There are significant barriers to market development, meaning that public support to enabling conditions will likely be necessary in the short-medium term. |

| Type of drought | Strategy | Ghana context |
|--|--|---|
| FREQUENCY: Very low SEVERITY: Very high | <ul style="list-style-type: none"> • These types of rare shocks are covariate, affecting people across a large area in a similar way. The financial risk for insurers is therefore high, and reinsurance is a necessity. While frequency is low, and as such several policy periods may expire without a pay-out, the catastrophic nature of the risk involved can make insurance an economically rational solution. • Risk prevention and reduction activities should continue, as above. | <ul style="list-style-type: none"> • While catastrophic climate shocks are rare overall, they have and do occur in Ghana – and climate change is likely to increase their frequency and severity. The rainfall variations that occur in Ghana are not equivalent to drought patterns experienced in dryer regions such as the Sahel, however given their impacts on livelihoods and wellbeing they qualify as potentially catastrophic risks. Recognising this, Ghana has been exploring a sovereign insurance policy for drought risk with ARC (see Section 4.3). This is a relatively new type of approach to managing catastrophic climate risk in developing countries, and it represents significant challenges as well as potential opportunities. |

4.3 IN DEPTH: SOVEREIGN REINSURANCE

As indicated in Figure 2, risk pooling and sovereign risk insurance is intended to apply to very low frequency, high severity events. The African Risk Capacity (ARC) is an index-based weather risk insurance pool for African Union countries, currently only drought. ARC was created in 2012 and has initiated successive annual risk pools.

Countries who wish to join the ARC risk pool must become signatories of the ARC Treaty and then acquire a Certificate of Good Standing. This certificate confirms their completion of certain pre-requisites for the risk pool, including a capacity-building programme, customisation of the risk model (Africa RiskView) and preparation of a contingency plan which elaborates the strategies, guidelines and activities that will guide the usage of a potential ARC pay-out. Importantly, the plan must show how funds reach vulnerable populations within a specific timeframe, so as to constitute early response.

Ghana became a signatory to the African Risk Capacity in January 2016 and it has now acquired a Certificate of Good Standing with the ARC Agency, signalling that the technical preparation for an ARC policy has been completed. The recommended technical solution is for a policy covering drought risk in the maize harvest, with a maximum pay-out of USD15m, with an annual premium of USD0.5m - USD1.0m based on an assumed 1-in-5 year event severity. Discussions about how to finance the premium, and final approval to make the payment, must occur at the political level. Currently², the topic under discussion is how to finance the premium payment for an annual harvest season. If, and once, this issue is resolved, the decision to take out a policy requires approval from parliament. The window to buy a policy for the 2018 – 2019 harvest season is closing, and the more likely scenario appears to be purchasing for the subsequent 2019-2020 season.

Contingency planning

ARC stipulates that policy-holders must prepare an “operational plan” detailing how a pay-out will be spent, before a policy can be taken out. Ghana has duly prepared such a plan under the leadership of NADMO. The plan sets out the total need following three drought scenarios and explains how much of that need will be met through the insurance pay-out. It also describes the coordination and implementation mechanisms for drought response. As these are well-established in Ghana, an ARC pay-out would work through existing structures, with NADMO responsible for overall coordination, and both targeting and delivery of food and cash to beneficiaries carried out with MoGCSP with established local suppliers.

The ARC contingency plan speaks specifically to the use of an ARC pay-out. As such, it is limited in its scope. It relates only to actions implemented within the first 120 days following the pay-out, which is intended to represent rapid response but not go into longer-term response and recovery. It also applies only to then three northern regions of the country, as it was decided that the policy should relate only to these. Finally, as the pay-out is triggered once the attachment point is reached, it is important that actions are also designed to respond prior to this point i.e.: even earlier response than the pay-out itself.

4.4 IN DEPTH: AGRICULTURAL MICROINSURANCE

Agricultural insurance is a recent development in Ghana. While the country has a competitive and growing non-life insurance market with a wide range of property and casualty insurance products, agricultural insurance has lagged behind. In 2010, “no insurance company [had] underwritten a retail market crop or livestock insurance product” (Stutley 2010).

The Ghana Agricultural Insurance Pool (GAIP) is Ghana’s first professionally-recognised national agricultural insurance initiative. GAIP was officially established in 2011 as a coinsurance pool involving 17 non-life insurance companies and 2 reinsurers. Its first three products were weather index insurance for small-scale farmers, poultry multi-peril crop insurance and multi-peril crop insurance, both for commercial farmers.

GAIP is recognised as a trailblazer in Ghana’s agricultural insurance market, introducing a number of agricultural insurance products to market. It is also credited with helping to address some of the capacity gaps in the market (Achaw 2017).

However, there have been significant challenges experienced. These are shown clearly in the take-up and claims figures. Achaw (2017) reports that in 2012 and 2013 agricultural insurance take-up recorded a negative growth rate. Where 3073 clients were enrolled when the GAIP project started in 2011, 5785 were enrolled in 2016 – an increase of less than 40%. In terms of claims, the average claims ratio since GAIP started is 19.2%; however, there has been significant variation, with no claims paid in 2011 and 2016.

A review undertaken by GIZ Ghana (2016) concludes that assumptions about small-scale farmers’ demand for insurance products were overestimated. This conclusion is based upon fieldwork undertaken in the Kintampo district. According to research findings, premiums are perceived to be unaffordable, and farmers often perceive an ability to self-insure (for instance, diversification), and therefore have little demand for risk transfer. Limited understanding of insurance, particularly complicated index insurance products, is a further factor limiting take-up.

Operational challenges experienced by GAIP may also contribute to the limited reach and uptake. Achaw (2017) identifies lack of inadequate human resourcing, insufficient products on offer, and limited establishment of distribution partnerships with potential risk aggregators (e.g.: rural or community banks, input suppliers, cooperatives and microfinance institutions) as some of them.

Insurance for commercial agricultural businesses

Agribusinesses are perceived to be an important potential market for agricultural insurance; their profile, compared to smallholder farmers, suggests that insurance might be more in-demand and more appropriate a risk management solution. GIZ has supported GAIP to analyse demand for risk transfer options in the cassava and rice value chains. This analysis presents the following findings for cassava (GIZ Ghana 2016):

Cassava needs 5–7 rainy days at a specific stage in its growing cycle; if a dry spell occurs then, irreparable damage occurs. The vulnerability of the crop to dry spells at a specific stage of its growing cycle, raises the potential relevance of insurance.

There appears to be greatest demand for area-yield insurance. This is because the main perceived risk for cassava is bush fires, for which area-yield insurance is most appropriate. There is also demand for weather risk index insurance linked to rainfall or evapotranspiration parameters. This demand reflects the risks posed to cassava by dry spells at crop establishment phase and water logging at maturity phase. A final possibility is price-indexed insurance. While less demand was evident, this might be due to the novelty and complexity of this type of product, making it hard to understand.

The agricultural insurance market going forward

Until recently GAIP was the only effective operator in the agricultural insurance market in Ghana. The National Insurance Commission has recently taken a more active stance to broaden the market, including proposing an amendment to legislation on insurance (Act 724) to ensure specific mention of agricultural insurance. As a result, more actors are entering the market, such as WorldCover which has established a presence in three northern regions of the country with its drought index insurance product.

Implementation plan

5



This section outlines recommendations for next steps in supporting drought risk management and its impacts on the agricultural sector in Ghana. This “implementation plan” was developed based on the gap analysis in section 3, which was itself informed by a stakeholder workshop. To reach this plan, the objectives of key actors were anticipated, and actions and processes to meet those objectives were prioritised. Five sets of actors are considered: NADMO, MoFA, MoF, NIC and GIA, and GMet. The objectives are based on the actions and suggestions from the gap analysis.

This is a preliminary exercise to suggest immediate next steps, which should be complemented with a more comprehensive implementation plan. This plan would require a more in depth, lengthy, consultation with all relevant stakeholders and would follow-on from this starting point.

Also, this plan should be considered as complementary (rather than as a duplication) with other documents that set out suggested actions relating to drought risk management. These include the Drought Management Strategy (NADMO 2018) which has a detailed list of actions (and leading/ supporting institutions) relating to training, capacity-building and public awareness on drought risk management.

Actor 1: National Disaster Management Organisation (NADMO)

| Activity | Responsible | Timeline | Cost estimate (EUR) | |
|---|--|---|---------------------------|--------|
| Objective 1: Drought Management Portal (DMP) is operative | | | | |
| 1 | Initial data collection and processing | NADMO (+ institutions/ organisations collecting data) | 2-4 months | 12,500 |
| 2 | Integration of risk assessment tool | NADMO | 1-2 months | 9,000 |
| 3 | Educate target groups about DMP | NADMO | 2-3 months, repetitively | 10,000 |
| 4 | Constantly monitor and improve data collection practices | NADMO (potentially in collaboration with GSS/GMet) | On going | 4,800 |
| Objective 2: NADMO's role as coordinator of climate risk management is strengthened | | | | |
| 1 | Further strengthen institutional capacity | NADMO (+ Development Partners) | 2-6 months | 25,000 |
| 2 | Establish coordination plans | NADMO | 4-6 months | 25,000 |
| 3 | Ensure systems are in place to channel resources quickly to vulnerable households to avoid negative coping mechanisms (effective targeting) | NADMO (+ involved Ministries/ institutions) | 1 month | 9,200 |
| 4 | Test existing contingency and coordination plans | NADMO (+ involved Ministries/ institutions) | 1-3 weeks (for each plan) | 5,000 |
| 5 | Ensure rapid response is linked to longer term strategies for recovery and resilience | NADMO | 1 month | 2,000 |
| 6 | Ensure that planning for recovery is linked in response, and in turn to broader frameworks for poverty reduction, economic opportunity and development | NADMO (+ involved Ministries/ institutions) | 2 months | 2,000 |
| Objective 3: A comprehensive concept on options for large co-variate shocks is implemented | | | | |
| 1 | Explore risk transfer options (e.g. sovereign insurance/ ARC, CAT bonds, etc.) | NADMO, MoF | 2 months | 2,500 |
| 2 | Design an investment plan for impact limiting measures for catastrophic risks (prevention, reduction and preparedness) | NADMO, MoF, MoFA | 1 month | 1,500 |
| Objective 4: Early Warning System | | | | |
| 1 | Support regional initiatives to strengthen drought forecasting and early warning systems | NADMO (+GMet, GSS, Development Partners) | On going | 10,000 |
| 2 | Continuously monitor developments and innovations to update EWS | NADMO (+GMet, GSS) | On going | 10,000 |

Actor 2: Ministry of Finance (MoF)

| | Activity | Responsible | Timeline |
|--|---|---|----------------------|
| Objective 1: Access to finance and financial products (e.g. insurance) for farmers and agricultural businesses has improved | | | |
| 1 | Reduce lender's risk | MoF, Bank of Ghana (BoG) (e.g. through GIRSAL) | 2-6 months, on going |
| 2 | Identify needs and options for financial products | MoF (potentially in collaboration with MoFA) | 1-2 months |
| 3 | Create incentives for agricultural lending and other financial instruments | MoF, BoG (e.g. through GIRSAL) | 2-6 months, on going |
| Objective 2: Develop a comprehensive macro disaster financing strategy | | | |
| 1 | Define risk transfer options, incl. reinsurance or contingent credit, CAT bonds for less frequent higher loss risks | MoF (+ NADMO) | 2 months |
| 2 | Develop a disaster risk financing strategy for the government | MoF | 2 months |

Actor 3: Ministry of Food and Agriculture (MoFA)

| | Activity | Responsible | Timeline |
|---|--|--|-----------------|
| Objective 1: Agricultural communities are educated about appropriate coping mechanisms and risk transfer solutions | | | |
| 1 | Establish sufficient demonstration farms for capacity building on CSA vs. conventional activities | MoFA | Up to 12 months |
| 2 | Sensitisation about climate change and usage of weather data | MoFA (+ NADMO, GMet, Development Partners) | 3-6 months |
| 3 | Sensitisation about adaption measures, incl. negative coping mechanisms | MoFA (+ NADMO) | 3-6 months |
| 4 | Drought vulnerable communities are being provided with developmental support, e.g. alternative livelihoods | MoFA (+ NADMO) | 2-3 months |

Actor 4: National Insurance Commission (NIC) and Ghana Insurance Association (GIA)

| Activity | Responsible | Timeline | |
|--|---|-----------------------|---------------------------|
| Objective 1: The market for agricultural insurance is growing | | | |
| 1 | Establish a promotive regulatory environment | NIC | Up to 12 months |
| 2 | Incentivise provision and uptake of risk sharing/ transfer options | NIC, GIRSAL/ BoG, MoF | Up to 6 months |
| 3 | Sensitisation/ awareness raising measures to increase understanding of and trust in different types of insurance mechanisms | NIC, GIA | Regularly |
| 4 | Promote innovative technologies for distribution as well as consumer education | GIA, NIC | On going |
| 5 | Create technical support partnerships/ learning arrangements in the insurance industry | GIA | 1 month/ regular exchange |

Actor 5: Ghana Metereological Agency (GMet)

| Activity | Responsible | Timeline | |
|--|--|--|-------------|
| Objective 1: Quality weather data are being made available in a timely manner | | | |
| 1 | Increase number of weather stations/ research additional sources (e.g. remote sensing) | GMet | 5-10 months |
| 2 | Maintain existing weather stations | GMet | On going |
| 3 | Collect, process and provide data to stakeholders/ drought management portal | GMet (potentially in collaboration with GSS) | On going |

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Annex A – Ghana workshop summary

The workshop occurred on the 28th June 2018 at the Accra City Hotel.

The agenda for the workshop was structured to focus mainly on group discussion, thereby maximising opportunities to gather information from participants. Topics for group discussions were:

- Insurance policy and regulatory framework
- Risk prevention and risk reduction in agriculture
- Risk transfer within a disaster risk financing framework
- Planning for preparedness and early response

There were 25 participants in total at the workshop.

Institutions represented were as follows:

| Category | Institutions |
|-----------------------------|---|
| Government | Ministry of Finance, Bank of Ghana, Ministry of Food and Agriculture, National Insurance Commission, National Disaster Management Organisation, Environmental Protection Agency |
| Private / financial sector | Ghana Agricultural Insurance Pool, WorldCover |
| Research institution | University of Ghana |
| Project delivery/management | GIZ, OPM |

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About ACRI+

ACRI+ is implemented by MCII and GIZ and financed by BMU and is part of the Promoting Integrated Mechanisms for Climate Risk Management and Transfer programme (ICRM), implemented by GIZ.

About GIZ

The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH offers customized solutions to complex challenges. GIZ is an experienced service provider and assists the German government in achieving its objectives in the field of international cooperation. GIZ offers demand-driven, tailor-made and effective services for sustainable development.

About MCII

The Munich Climate Insurance Initiative (MCII) was launched in April 2005 in response to the growing realization that insurance-related solutions can play a role in adaptation to climate change, as advocated in the Framework Convention and the Kyoto Protocol. This initiative brings together insurers, experts on climate change and adaptation, NGOs and policy researchers who intend on finding solutions to the risks posed by climate change. MCII provides a forum and gathering point for insurance-related expertise on climate change impact issues. MCII is hosted at UNU-EHS in Bonn, Germany.

www.climate-insurance.org/projects/advancing-climate-risk-insurance-acri

www.giz.de

www.climate-insurance.org



On behalf of:



Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety