

Platform
for Agricultural
Risk Management

Managing risks
to improve farmers'
livelihoods

Knowledge Management



Agricultural Risk Management: practices and lessons learned for development

Publication

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AGRICULTURAL RISK
MANAGEMENT

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2017

Written by:

Gaëlle Perrin PARM Consultant





Foreword

Agricultural risk management: lessons and practices for development benefited greatly from inputs from the members of an ad-hoc Technical Committee: Federica Carfagna, African Risk Capacity (ARC); Ilaria Firmian, International Fund for Agricultural Development (IFAD); Alessandra Garbero, IFAD; Åsa Giertz, World Bank (WB); Gideon Onumah, Natural Resources Institute (NRI)/AGRINATURA; Mariam Soumare, New Partnership for Africa's Development (NEPAD). Inputs from members of the PARM Secretariat, in particular from Carlos Arce, Massimo Giovanola and Ilaria Tedesco were also valued.

The Platform for Agricultural Risk Management (PARM) is grateful to the project managers for the drafting of the case studies: Guilia Baldinelli, Rupsha Banerjee, Fabio Bedini, Federica Carfagna, Danush Dinesh, Ilaria Firmian, James W. Hansen, Ekhosuehi Iyehen, Desire Kagabo, Arun Khatri-Chhetri, Gideon Onumah, Norbert Tuyishime, Manoj Yadav, and Hijaba Ykhanbai.

The PARM Secretariat would also like to acknowledge the members of its Advisory and Steering committees for the useful comments on the draft of this publication.

This publication represents the outcome of a workshop that took place at the Headquarters of the IFAD on 25 October 2017. The success of this event depended on contributions from all participants, and we would like to thank them for participating and sharing their experiences with such passion.

About the Platform for Agricultural Risk Management (PARM)

The Platform for Agricultural Risk Management (PARM) is an outcome of the G8 and G20 discussions on food security and agricultural growth. PARM is a four-year multi-donor partnership between the European Commission (EC), the French Development Agency (AFD), the Italian Development Cooperation (DGCS), German Cooperation (BMZ/KfW) and IFAD in strategic partnership with NEPAD and other development partners to make risk management an integral part of policy planning and implementation in the agricultural sector.

PARM has the global mandate to contribute to sustainable agricultural growth, boost rural investment, reduce food insecurity, and improve resilience to climate and market shocks of rural households through a better management of risks. PARM plays the role of knowledge broker and facilitator to: enable the integration of agricultural risk management (ARM) into the policy planning and investment in the agricultural sector; enhancing national stakeholders' awareness and capacities to manage agricultural risks; improve the generation, access, sharing of knowledge and strengthen synergies with partners on ARM related issues, develop methodologies for risk analysis and adoption of holistic risk management strategies.



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List of acronyms

AFD	Agence Française de Développement
AGRA	Alliance for a Green Revolution in Africa
AICI	Agriculture Insurance Company of India
ANGRAU	Acharya N. G. Ranga Agricultural University
ARC	African Risk Capacity
ARM	Agricultural Risk Management
ASAP	Adaptation for Smallholder Agriculture Programme
BMZ	German Federal Ministry for Economic Cooperation and Development
CCAFS	Climate Change, Agriculture and Food Security Research Programme
CCRIF	Caribbean Catastrophe Risk Insurance Facility
CGIAR	Consortium of International Agricultural Research Centers
CIAT	International Centre for Tropical Agriculture
CIDA	Canadian International Development Agency
CIMA	Inter African Conference of Insurance Markets
CIRAD	Centre de coopération internationale en recherche agronomique pour le développement
CPF	Confédération Paysanne du Faso
CSV	Climate-Smart Village
CTA	Technical Centre for Agricultural and Rural Cooperation
DFAP	Development Food Aid Programme
DFID	Department for International Development
EAFF	East Africa Farmers Federation
ENACTS	Enhancing National Climate Services
ESA	European Space Agency
FAO	Food and Agricultural Organization of the United Nations
FARMAF	Farm Risk Management for Africa
GCF	Green Climate Fund
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
IBLI	Index-Based Livestock Insurance
ICRAF	World Agroforestry Centre
IFAD	International Fund for Agricultural Development
IFI	International financial institution
ILRI	International Livestock Research Institute
IRI	International Research Institute for Climate and Society
IRRI	International Rice Research Institute
KLIP	Kenya Livestock Insurance Programme
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries of Uganda
MVIWATA	Mtandao wa Vikundi vya Wakulima
NEPAD	New Partnership for Africa's Development
NRI	Natural Resources Institute
OA	Oxfam America



OIC	Oromia Insurance Corporation
PAFO	Pan Africa Farmers' Organisation
PARM	Platform for Agricultural Risk Management
PICSA	Participatory Integrated Climate Services for Agriculture
PRISM	Philippines Rice Information System
PROPAC	Plateforme sous-Régionale des Organisations Paysannes d'Afrique Centrale
PSTF	Premium Support Transition Facility
R4	Rural Resilience Initiative
RAB	Rwanda Agriculture Board
RIICE	Remote sensing-based Information and Insurance for Crops in Emerging economies
ROPPA	Réseau des Organisations Paysannes et Professionnelles Agricoles
SACAU	Southern African Confederation of Agricultural Unions
SDC	Swiss Agency for Development and Cooperation
SIDA	Swedish International Development Agency
TIA	Takaful Insurance of Africa
TNAU	Tamil Nadu Agricultural University
UN	United Nations
USAID	United States Agency for International Development
WB	World Bank
WFP	World Food Programme
WUR	Wageningen University & Research
ZNFU	Zambia National Farmers Union



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Executive summary

While the importance of managing risks in agriculture is now widely recognized and various initiatives at different levels have recently been designed and implemented with the technical support from various stakeholders, including international financial institutions (IFIs), there is a need to learn from those experiences. This publication aims at formalizing lessons learned, to identify and improve strategies to cope with the risks, and share those lessons among agriculture risk management (ARM) practitioners. It is based on the outcomes of a workshop held on 25 October 2017 at the headquarters of IFAD, and on the analysis of 10 case studies selected by a Technical Committee after an open call for proposals. The publication identifies basic criteria and guidelines for better design of ARM initiatives based on the holistic approach to ARM and proposes a collection of practices and lessons from selected case studies.

What makes a good agricultural risk management initiative?

Key pillars for the implementation of the holistic approach to agricultural risk management

An agricultural risk is an uncertain event from any origin that results in a loss or damage in agricultural production and productivity and/or its associated agricultural income¹. Risks in agriculture stem from various sources, from unpredictable extreme weather events to market disruptions or unplanned policy or institutional changes, and agricultural stakeholders are often not ready to and recover from such shocks. They can be covariant (systemic), that is, affecting either whole countries and communities, or idiosyncratic, affecting individual farmers or businesses. The frequency and severity of risks determine the importance of various risk management strategies (risk mitigation, risk transfer, and risk coping) and the roles played by stakeholders in risk management. For instance, farmers can manage frequent but less severe risks, while the government is best equipped to deal with catastrophic risks. The holistic approach to agricultural risk management looks at all risks and their interaction to design comprehensive ARM strategies that contribute to resilience building.

Although ARM is highly contextual, five key pillars can be applied when designing or implementing an initiative to ensure sustained management of agricultural risks.

- **Risk assessment and prioritization.** At the inception of an initiative for ARM, the assessment and prioritization of risks is a key element. Risks should be identified, analysed, and prioritized based on their severity, and frequency and in consultation with main players and stakeholders.
- **Tools identification and implementation.** A wide variety of tools can be used to manage risks. The identification of the appropriate tools should ensure that the tools are fitting with the risks prioritized, that the responsibility for implementing them is clear, and that they are sustainable and accessible at a reasonable price to be effectively used.
- **Access to information and capacity building.** Access to information and capacity building are two cross-cutting components to be integrated in any ARM initiative. Information is crucial to plan ahead and make business decisions and to design risk management tools along agricultural value chains, but timely, accurate and usable information is often not available to farmers, policy makers and service providers. Capacity building of farmers, extension workers, transporters, aggregators, processors, off-takers, financial service providers, and/or policy makers, empowers them to choose in an informed manner what available risk management options are suitable for them.
- **Partnerships and policy integration.** Because agricultural risks are varied in nature, managing them requires multidisciplinary action at various levels. Partnerships between public and private sector actors are crucial to create synergies and effectively manage risks. The integration of ARM into policies enables better coordination and sustainability.
- **Monitoring and evaluation.** ARM is a continuous process, and instruments and strategies need to be constantly updated to fit the context. Monitoring and evaluation are therefore necessary to allow for this adaptation and learning.

¹ An agricultural risk is differentiated from trends and constraints by the uncertainty of its nature.

Drawing lessons from the field: promising practices for agricultural risk management

Ten promising practices have been selected by a technical committee composed of experts in ARM to showcase the diversity of agricultural risks and tools. They are implemented in Africa and Asia by a wide variety of actors: research institutes, development partners, non-governmental organizations, farmers associations and the African Union. They were designed in reaction to various types of risks, related to weather and climate, market and infrastructure or institutional and policy settings. Some are targeted to governments, other to farmers, showcasing the different levels of responsibility and capacity while managing risks.

For each case study, a short description is presented, and key lessons are proposed by the project managers in charge of their design and/or implementation. In addition, good practices and issues to consider are put forward, to allow for learning and analysis. The case studies are grouped into five categories:

- Using information to reduce information asymmetry risks;
- Transferring risks: insurance for agricultural risk transfer;
- Integrating smallholders in value chains to mitigate market and price risks;
- Creating appropriate institutional frameworks to reduce institutional risks;
- Integrating tools to manage weather risks.

Mainstreaming the holistic approach to ARM into policy and practices for better design and investment

Mainstreaming the holistic approach into policies and practices of governments, technical partners, donors and the private sector is needed to create and sustain an environment in which investments contribute to the management of agricultural risks and, at the same time, better management of risks triggers more and better investment in agriculture. Indeed, agricultural risk management should not be self-standing, but integrated in the development of strategies and the implementation of activities linked to the agricultural sector, to achieve broader development objectives.

The integration of ARM into policies and practices requires a truly multidisciplinary approach, that is reaching across ministries or departments, and carrying out policy dialogue is essential to convey the needs and use the strengths of the variety of stakeholders involved in managing agricultural risks, whether they are from the public or the private sector. For successful partnerships, accountability and institutionalization of public-private cooperation are key elements to consider. The integration of the holistic approach to ARM into the standard practices of donors and technical partners can also enable them to better achieve and sustain their development objectives.

For example, the Government of Uganda, in partnership with the Platform for Agricultural Risk Management and the New Partnership for Africa's Development has started to apply the holistic approach to ARM and has integrated some elements linked to the management of agricultural risks into national policies, following a country-wide risk assessment and the identification of tools related to information systems and plant pests and diseases.



Background

While the importance of managing risks in agriculture is now widely recognized and various initiatives at different levels have recently been designed and implemented with the technical support from various stakeholders, including international financial institutions (IFIs), there is a need to learn from those experiences. In fact, only few lessons have been formalized to identify and improve strategies to cope with the risks, and though most reviews/evaluations have been limited to specific risks or areas of intervention, they need to be shared among ARM practitioners.

In this context, the Platform for Agricultural Risk Management (PARM) - in collaboration with its partners - raised the need to foster the exchange of knowledge and bring together the experience available on ARM in developing countries, with the objective to identify and develop practices and lessons learned as guidance for policy makers and rural development practitioners to strategically design, implement and mainstream ARM in their activities.

This publication has been developed together with the workshop "*Agricultural Risk Management: practices and lessons learned for development*" held on 25 October 2017 at the Headquarters of the International Fund for Agricultural Development (IFAD). The purpose of the workshop was to bring together practitioners involved in designing, implementing or evaluating programmes and policies related to agricultural risk management, in order to define a set of methodological guidelines and measures for good ARM practices, and to learn from the opportunities and challenges of existing initiatives.

The workshop was designed to foster a community of practice on the topic, and enable good practices that have emerged to become part of a knowledge base for improved working practices on agricultural risk management. It brought together around 70 professionals from United Nations agencies, international financial organizations, governments, research institutes, farmers' organizations, non-governmental organizations and the private sector. As agricultural risk management brings together many activities, experts from varied technical backgrounds shared their experiences in designing and implementing different types of projects, from the promotion of traditional farming practices to the design of innovative insurance programmes or the mainstreaming of agricultural risk management into national policies.

This publication was developed with the objective of sharing knowledge on existing practices and guiding further investments, programmes and policies in this field. To this end, the PARM Secretariat developed in the spring of 2017 a Call for Proposals, which was widely circulated, in order to collect case studies from any interested party. 40 proposals were received on 30 September 2017, the deadline indicated in the Call for Proposals. Initiatives were then assessed by a Technical Committee comprising of experts in Agricultural Risk Management from leading institutions² on the following criteria: existence of a risk assessment phase in the design; appropriateness of the tools implemented with regards to the risks identified; emphasis on capacity building and access to information; strength of partnerships and integration of activities into existing policies, innovation, robustness of the monitoring and evaluation and knowledge management systems, and current potential/possibility to scale-up.

Based on this assessment, ten case studies were selected to be featured in this publication, as they demonstrate excellent design and/or impact in the field of agricultural risk management. During the workshop, participants worked on the case studies with their project managers/representatives, in order to analyse them and start defining key pillars to take into account when designing ARM projects. The outcomes of these discussions were then consolidated by the PARM Secretariat and the Technical Committee, and enriched through a review of the existing literature, to arrive at this publication.

² Members of the Technical Committee were: Federica Carfagna, African Risk Capacity; Ilaria Firmian and Alessandra Garbero, IFAD; Åsa Giertz, World Bank; Gideon Onumah, Natural Resources Institute (NRI)/AGRINATURA; Mariam Soumare, New Partnership for Africa's Development (NEPAD).



Eighteen additional case studies were selected from the Call for Proposals to be showcased in the workshop, and they are listed in Annex A. More information about the workshop and these initiatives can be found in the [Workshop Reports](#).

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This publication is intended to be neither exhaustive nor prescriptive, but rather illustrative, showcasing selected good practices to inform practitioners in the field of agricultural risk management: the tools presented here are used for identifying the conditions and components of potential interventions in ARM for smallholders. The experiences and views expressed in the case studies are those of the authors, reflecting personal accounts of project implementation processes. The conclusions drawn from the case studies and the key pillars for the design of ARM initiatives can and should be updated and refined when more experience on this topic is gathered and clearer lessons learned emerge.



Approach to the publication

Farming is a risky business. Farmers make crucial decisions for their activities every day, often facing uncertainty regarding weather conditions, access to markets, regulatory changes, or even their own health. The risks to which farmers are exposed also affect other stakeholders whose livelihoods depend on agriculture, including traders, processors, financiers and others.

Managing risks, however, can allow for new opportunities and ensure the sustainability of investments in agriculture, with governments and agricultural value chains stakeholders developing and implementing appropriate risk management strategies and tools. Agricultural risk management can play a key role in increasing the resilience of farmers, agricultural value chains, and the agriculture sector as a whole.

There are multiple ways to identify, design, and implement agricultural risk management policies, strategies, and tools; and the task of doing so can be very complex. The holistic approach to agricultural risk management focuses not on specific risks or tools, but sees the management of agricultural risks as a system, including a wide range of risks and solutions for all stakeholders participating in agricultural supply chains. It puts a particular emphasis on the interactions between various risks, tools, and government roles and responsibilities. Using this approach, a methodology has been developed to assess risks, develop adequate tools and integrate them into policy and strategies. When this is achieved, agricultural stakeholders are empowered to sustain and grow their incomes and livelihoods.

The application of the holistic approach to agricultural risk management requires that this conceptual framework be shared among all stakeholders involved, following a systematic process understood and approved by all. Assessing and managing agricultural risks is indeed complex: risks are present at different levels (macro, meso or micro) and thus should be handled by different actors; risks can be correlated, which adds to the complexity in managing them; and there exists a wide variety of sources of risks and of tools. Above all, managing agricultural risks is a highly context-specific endeavour, which makes it information and knowledge intensive. Moreover, there has been little knowledge gathering and transfer of capacity on this topic so far, thereby reducing the possibilities for learning from previous experiences.

This publication is intended for policymakers and practitioners to learn from ARM initiatives to guide their work on this topic. It aims to fulfil two main objectives:

- Identify basic criteria and guidelines for better design of ARM initiatives based on the holistic approach to ARM
- Develop a collection of practices and lessons from selected case studies based on the identified ARM criteria.

The purpose of this publication is not to evaluate the merits of the different approaches implemented in the case studies, but to offer broad guidance on what criteria and guidelines can be useful and practical based on the PARM holistic approach to risk management and the experiences available.

In the first part, we will define what agricultural risks are, and how the holistic approach to agricultural risk management is defined conceptually, before proposing key pillars to guide the design of ARM initiatives. In the second part, ten selected case studies are presented and analysed, to provide concrete examples of actions implemented by various actors. The last part focuses on the integration of ARM practices into policies and processes, an essential step for the sustainability of agricultural risk management.



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Part I



Part 1. **What makes a good agricultural risk management initiative? Key pillars for better design**

What are agricultural risks?

A risk is the probability of an event to be harmful, involving exposure to danger or loss of something of value, which can impede the achievement of the objectives of individuals or organizations. An agricultural risk is an uncertain event³ from any origin that results in a loss or damage on agricultural production and productivity, and/or its associated farm household income. Agricultural value chains stakeholders also face constraints and trends, which are to be differentiated from risks. Constraints are known factors that restrict or limit the actions can be undertaken, and cause suboptimal performance in agriculture. On the other hand, trends refer to medium or long-term changes in an agricultural environment, irreversible or not, which can be analysed and anticipated. For example, bad roads leading to a market are a constraint for farmers, who may have to go to another location to sell their production, thereby losing time or missing out on business opportunities. The progressive reduction in precipitation, due to climate change, represents in some countries a trend, and farmers have to adapt their behaviour to this changing context, by shifting cultivation patterns or diversifying their activity. A sudden fall in commodity prices, however, is a risk, as farmers cannot know in advance if or when it might happen, or what its consequences will be. The concept of risk includes three elements: uncertainty, probability, and potential to cause losses.

Risks in agriculture stem from various sources, from unpredictable extreme weather events to market disruption or unplanned policy or institutional changes. These risks can be covariant (systemic), that is, affecting large population groups or regions, or affecting individual farms or households (idiosyncratic). Moreover, risks do not have the same potential negative impacts, or the same frequency. Usually, for each type of risk, a low impact event is more frequent than a large impact one. Some risks, such as natural disasters, have very low probabilities of materializing, but when they do, they have catastrophic consequences. These three distinct types or risks correspond to three risk layers, each requiring appropriate action at a different level.

³ Agricultural risk by its uncertain nature in this context is differentiated from trends, challenges and constraints.

Figure 1: List of risks by sources and types⁴

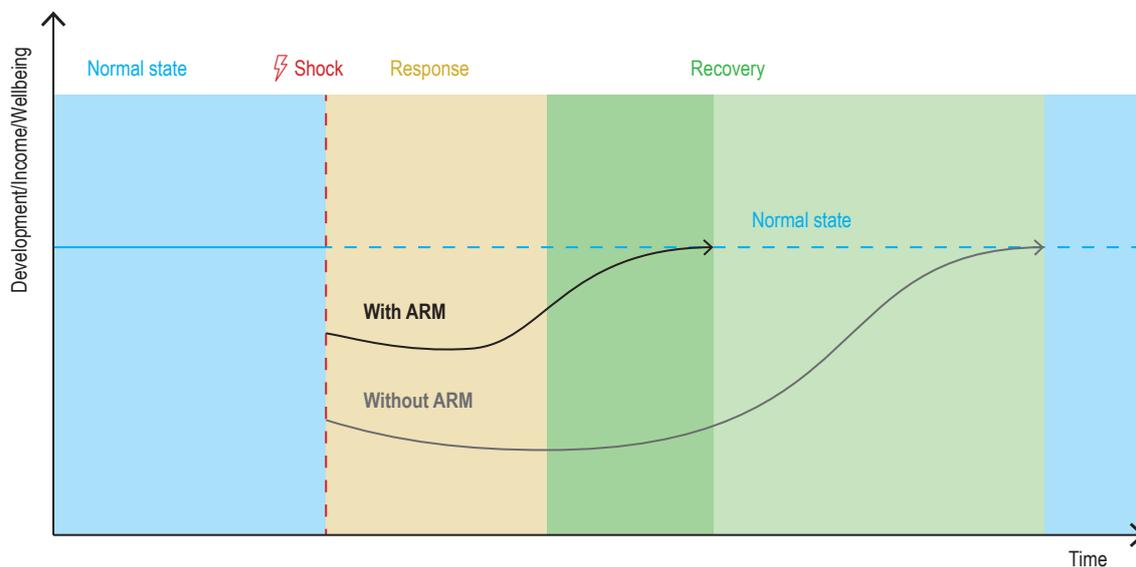
 Risk	Factors	Examples
 Weather risks	<ul style="list-style-type: none"> - Rainfall variability (a shortfall or excess) - Temperature variability 	<ul style="list-style-type: none"> - Hailstorms - Strong winds - Floods - Droughts - Hurricanes - Typhoons - Wildfire
 Natural disasters	<ul style="list-style-type: none"> - Extreme events 	<ul style="list-style-type: none"> - Earthquakes - Volcanic activity - Wildfire - Landslides
 Biological and environmental risks	<ul style="list-style-type: none"> - Outbreaks - Poor water sanitation - Poor safety and quality control for food 	<ul style="list-style-type: none"> - Crop pests - Livestock diseases - Contamination
 Market-related risks	<ul style="list-style-type: none"> - Change in supply/demand for inputs/ outputs - Price variability of inputs/outputs - International market instability - Variability in production - Time delays - Changes in production standards and trade tariffs 	<ul style="list-style-type: none"> - Price volatility - Market supply and demand volatility
 Management and operational risks	<ul style="list-style-type: none"> - Lack or inadequacy of information and knowledge 	<ul style="list-style-type: none"> - Poor management of farming practices and decisions - Inability to adapt to changes - Equipment breakdowns
 Financial risks	<ul style="list-style-type: none"> - Uncertainty on financial markets - International market instability - Lender's willingness to provide funds 	<ul style="list-style-type: none"> - Rising interest rates - Difficulty in debt repayment - Non-availability of credit
 Policy and political risks	<ul style="list-style-type: none"> - National and local institutional instability - Policy changes affecting the value chain 	<ul style="list-style-type: none"> - Political upheavals - Riots - Regulatory changes - Malfunction in market access
 Infrastructure risks	<ul style="list-style-type: none"> - Absence or malfunctioning of infrastructures 	<ul style="list-style-type: none"> - Difficulties in access to provision of services for transport, energy, communication networks, etc. - Physical disruption of infrastructure - Regulatory changes
 Labour and health risks	<ul style="list-style-type: none"> - Changes in the household and farming workforce context and ability to work 	<ul style="list-style-type: none"> - Illness - Injury - Divorce - Death

4 Source: Platform for Agricultural Risk Management. (unpublished). *Capacity Development Manual*.

Why and how should agricultural risks be managed? The holistic approach to ARM for increased resilience

Agricultural risk is the principal cause of transient food insecurity and disruption to agricultural value chains. Crop failure is often the biggest shock faced by rural households and perhaps also the biggest poverty trap. Lack of agricultural risk management capacities and plans lead to situations wherein successive shocks progressively erode stakeholders' assets and capacities to recover and to sustain their livelihoods, thereby reducing countries' abilities to plan sustainable development paths. ARM contributes to building resilience of agricultural systems at the household, community and country levels, strengthening the ability of stakeholders along agricultural value chains to anticipate risks, absorb, or recover from them in a timely, efficient and sustainable manner, through advance planning of solutions that limit negative consequences of shocks (Figure 2). Effective ARM allows for the absorption of disturbance and the reorganization of activities following a shock. In that sense, ARM can be seen as one of the building blocks of resilience, looking specifically at risks related to agriculture, and empowering stakeholders to better plan for and face a variety of shocks.

Figure 2: Shock-recovery-shock cycles for agricultural value chains stakeholders, with or without ARM.

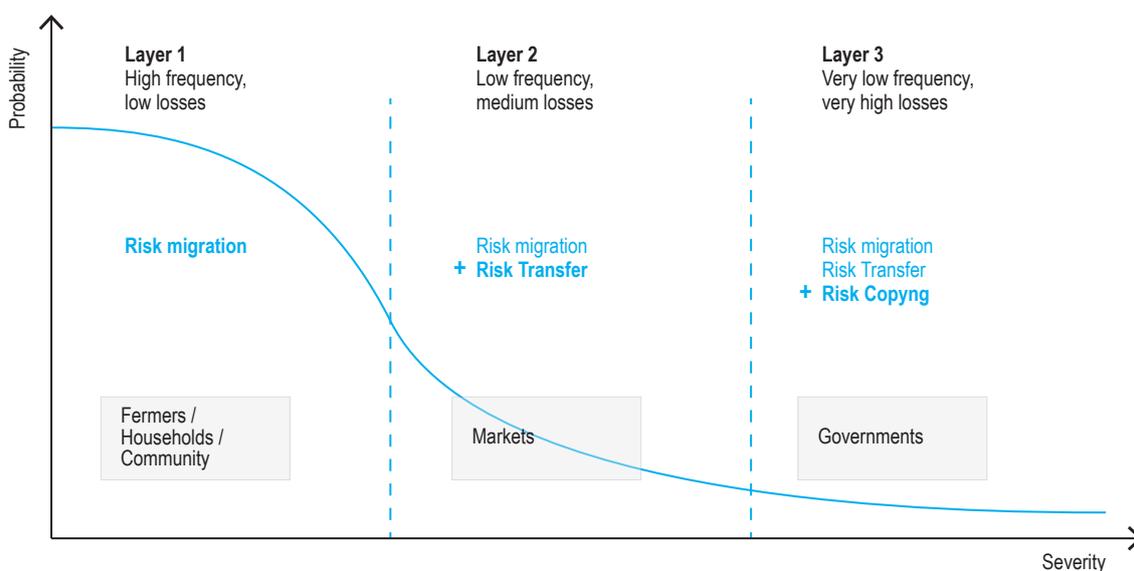


Moreover, agricultural risk management can, if well designed and implemented, improve women's livelihoods, and lead to the reduction of gender inequality. In particular, women farmers are more vulnerable to agricultural risks than men, because they do not have access to the same options for dealing with shocks. In some cases, women's access to specific areas, markets, services (credit, information, extension services) are limited, and they might not own or own less productive assets than their male counterparts, even when they are the primary agricultural worker of the household. In addition, because they are most frequently responsible for caring for and feeding the family, women have to put in place efficient coping strategies linked directly to their own and their family's health. Investing in women's agricultural risk management strategies is therefore crucial to strengthen resilience of vulnerable households. However, while doing so, the voices of women and their specific needs should be prioritized within their own context, to make sure that they have access to information, technology, and markets. Moreover, the instruments put in place should not represent an additional burden or too high of an investment of time and resources, since women's agricultural labour is often already undervalued. Going beyond the gender perspective, it is important to not consider farmers as a homogeneous group but to take into account the specificities (age, size of farm, type of activities...) of individuals and households when analysing agricultural risk management options.

Effective risk management typically requires a combination of measures, some designed to remove underlying constraints and others designed to address the risk directly. The holistic approach to agricultural risk management does not just look at ex-post impact mitigation factors, but rather at how to mitigate/prevent risks, minimize their impacts, and deal with the consequences of the shocks. As such, a variety of tools and measures are available and complementary to address agricultural risks, and the holistic ARM methodology can also easily be integrated along broader development interventions. Risk management practices, which should be planned in advance, can be divided into three categories, according to the level of risks that they address, as illustrated in Figure 3:

1. **Risk mitigation** strategies (ex-ante) aim at reducing the impact of a risk or the severity of the losses. They can be undertaken directly by the farmers or at community level, and include climate smart agriculture, income diversification, irrigation systems, etc. Though these measures are implemented by farmers, their availability and accessibility might depend on support from governments, as public goods providers.
2. **Risk transfer** strategies (ex-ante) are put in place for residual risks whose effects cannot be completely mitigated. Risk transfer tools allow for the transfer of the potential financial consequences of a risk to a willing third party, often for a fee, such as in the case of insurance. These strategies often require the intervention of private actors (banks, insurance companies) in their design and operation, programmes accessed by farmers and other actors within the agricultural value chains. Whether such programmes/services can be sustainably accessed by farmers and other vulnerable actors within the agricultural value chains is an important challenge to be taken into account.
3. **Risk coping** (ex-post). For risks that cannot be mitigated or transferred, coping mechanisms are necessary to enable farmers to recover once the shock has happened. These include social protection programmes, specific disaster compensations (cash or in-kind). Although they are used once the risk has materialized, they need to be planned in advance, and are the main responsibility of governments, which are increasingly aware of the need to design risk financing strategies to cope with unpredictable expenses caused by agricultural risks and natural disasters.

Figure 3: Risk layers and main management responsibilities⁵



⁵ Adapted from World Bank. (2016). *Agricultural Sector Risk Assessment: Methodological Guidance for Practitioners*. Washington: World Bank Group.

A context-specific endeavour but common elements: key pillars for better design

When designing or implementing an ARM initiative, considering the specificities of the context is necessary. Any approach needs to be adapted to the particular circumstances of the country, supply chain, socio-economic context and geographic location. For example, strategies to reduce risks of post-harvest losses will be different based on the crops cultivated, on the distance from the farmers' field to the market, on the climate and on the existing solutions, for example on whether community warehousing is practiced or not.

Nonetheless, despite the diversity of contexts and approaches to managing risks, some generic steps and basic guidelines emerge from field experiences as evidence of the holistic approach to ARM. They represent different components that need to be taken into account to design effective ARM strategies regardless of the type of risk or tool addressed, and can be used by practitioners as some sort of a checklist for better design. These pillars were developed based on a collaborative process, building on the experience of the Platform for Agricultural Risk Management and its partners, and validated by experts and practitioners during the workshop held on 25 October 2017⁶. For each pillar, some good practices and issues to consider are specified, to enable successes to be emulated and pitfalls to be avoided.

This publication proposes five key pillars that should be considered to either design an initiative aiming to strengthen a holistic approach to ARM, or to integrate an ARM component in a project with broader development objectives. They are:

4. **Risk assessment and prioritization;**
5. **Tools identification and implementation;**
6. **Access to information and capacity building;**
7. **Partnerships and policy integration;**
8. **Monitoring and evaluation.**

1. Risk assessment and prioritization

In order to design and implement an initiative to manage agricultural risks, risks have to be well identified and assessed. In this process, it is important to distinguish the identification of risks from their analysis and evaluation.

The initial step is indeed to **identify the major risks** in the area of interest. They can be linked to (i) agricultural production (drought, floods, crop pests and diseases, livestock diseases); (ii) agricultural markets and trade (input/output prices, feed, counterparty risk, wages, land rental); and (iii) policies, regulations, and logistics (trade policies, taxes, market reforms, logistic disruptions). The frequency and impact of the different risks can be analysed at various levels, from the national level to the level of smallholder farmers, depending on the objective of the risk assessment. The **risk analysis** involves understanding how the risks affect stakeholders' incomes and livelihoods, their sources, and, to the extent possible, estimating their impact and frequency for the various stakeholders participating in the agricultural supply chains. For smallholders, it is particularly important to take into account the characteristics of households, and in particular gender differences in facing and responding to risks. The identification of existing ARM policies, tools and strategies is equally importantly, as well as the assessment of stakeholders' capacity to manage risks. This first step also highlights possible interactions between different tools -how they reinforce or crowd out each other-, as well as of institutional and policy gaps.

Once agricultural risks are identified and analysed, together with existing risk management strategies, the risks should be prioritized. This is crucial to enable rational and evidence-based decision-making on priority investment areas, and to identify which tools and policy instruments could be used to effectively improve

⁶ For more information on the links between this Publication and the workshop of the 25 October 2017, see the Background section.

ARM. Risks should be prioritized based on their frequency, their severity (and on the potential impacts of a worst-case scenario), and in the stakeholders' capacity to manage them. This can be done by plotting the identified risks in a risk prioritization matrix, which shows different levels of risks (colour coded) influencing output and income volatility (Figure 4). Moreover, because risks change over time, this risk classification should be periodically updated. The identification, analysis and prioritization of risks should be undertaken in partnership with the main stakeholders targeted by the risk assessment.

Figure 4: The risk prioritization matrix for risk assessment⁷

Frequency	Severity				
	Very High	High	Medium	Low	Very Low
Very High	●	●	●	●	●
High	●	●	●	●	●
Medium	●	●	●	●	●
Low	●	●	●	●	●
Very Low	●	●	●	●	●



Good practices

- Identifying all risks, even if only a certain type of risks will be analysed in depth.
- Identifying the stakeholders affected by these risks and understanding how these risks affect them, taking into account their characteristics (age, gender, etc.).
- Assessing the frequency and severity of risks at the level of analysis (farm, supply chain, geographical area, sector).
- Assessing stakeholders' capacities to manage risks.
- To quantify risks, using a historical data on a long-term period or, if not available, developing a qualitative analysis.
- Estimating the potential economic impact of the assessed risks developing different scenario (worst cases).
- Involving stakeholders in the risk assessment and prioritization in order to ensure their engagement across the process (risk analysis, tools identification...).
- Defining clear roles and responsibilities to manage the risks and tools prioritized at the macro, meso and micro levels.



Issues to consider

- The sources, quantity, quality and accuracy of data.
- The scale of the level of risk aggregation under assessment: local, regional or national assessments will not yield the same results, given that aggregation masks risks at lower levels of aggregation.
- The difference between risks, trends and constraints.
- Gender differences in impact of and responses to shocks.
- Compounding factors that can exacerbate or mitigate the impact.
- Risks causality, interaction and correlation.

⁷ Source: Platform for Agricultural Risk Management. (2015). *Terms of Reference for the Risk Assessment Studies*. Rome: Platform for Agricultural Risk Management.

2. Tools identification and implementation

Following the identification and prioritization of the risks, adequate strategies should be chosen to address them. Because agricultural risks are so diverse, different types of tools can be implemented. The applicable risk management instruments depend on the identified frequency and severity of risks. Often a combination of tools is the best option, with capacity development and the development of information systems – two cross-cutting ARM instruments – completed by a third tool (or more) focused on the specific risk(s) prioritized. The tools can be grouped into three broad categories: risk mitigation, risk transfer and risk coping mechanisms⁸.

Risk mitigation tools include on-farm and off-farm tools, such as climate-smart agriculture practices, vaccinations, irrigation, warehousing, production diversification, or asset and income diversification. These instruments aim at retaining risk at the farm/business level by limiting the negative impacts of shocks, at reducing some underlying risk management constraints, and, in some cases, at preventing risks themselves. Governments play an important role in the provision of public goods to assist in mitigating risks for small holder farmers, particularly in the form of research and extension services, weather and price information systems, vaccination campaigns, and importantly in capacity development.

Risk transfer tools are mostly related to market based financial tools. Contract farming, commodity exchanges and futures markets are examples of market-based ARM tools, using the market structure (contracts) to transfer potential liabilities from one party to another, thereby providing stability and certainty regarding stakeholders' expected incomes. Agricultural insurance, whether peril-based or index-based, enables farmers to transfer a portion of their risks to a third party, in exchange for a fee. However, in order for risk transfer tools to be fully effective, the necessary risk mitigation measures have to be put in place, as they should only cover residual risks. If this is not the case, risks transfer mechanisms do not function, as the frequency of non-mitigated risks, higher than if risks are mitigated, leads to an increase in the costs of risk transfer tools, making them difficult to access for most farmers.

Risk coping strategies are the measures undertaken to absorb the impact of shocks. The first strategy put in place by stakeholders is to utilize their savings or sell their own assets to cushion the effects of the shocks. In the event they were not able to build up saving previously, they often resort to borrowing, selling labour, migration, and ultimately reducing consumption. Out of these behaviours, the latter are typical signs of a fall into a poverty trap. However, governments play a key role in setting up coping mechanisms to prevent vulnerable households from falling into poverty. Public food grain reserves, disaster assistance programmes, social protection and scalable safety nets represent tools that can be used and/or reinforced in case of a shock. For such public-sector coping mechanisms to work, governments need to design risk financing strategies.

Standardizing a process to identify and prioritize solutions is not as easy and straightforward as identifying and prioritizing risks. If risks are contextual, solutions and the decision-making processes leading to the adoption of one set of tools rather than another also depend on institutional strengths, financial constraints, and the political economy. However, risk management does not start from scratch, as all stakeholders are already involved in agricultural risk management. Implementing a holistic agricultural risk management strategy requires the identification of gaps in current interventions and the design of a coherent bundle of solutions addressing the main underlying causes of risk.

An important factor to be considered is therefore the context and the applicability of tools. For example, income diversification will be easier to achieve if the local economy is to some extent diversified and offers other livelihoods opportunities than farming. In some countries, community warehousing is already used extensively, and therefore represents a good tool to empower farmers to reduce post-harvest losses and access credit with their warehousing receipts, as the practice is already accepted and known by the communities. The role of local and national authorities in creating an enabling environment is crucial, as policy choices influence what tools are accessible and favoured by which stakeholders, with significant variability depending on various factors such as geographical location, size of the farm or business, type of agricultural activities undertaken, gender, age and other social characteristics.

⁸ Source: Platform for Agricultural Risk Management. (unpublished). *Capacity Development Manual*.

Moreover, the level and type of risk will determine the roles played by the public and private sectors. While it is necessary for the government to handle catastrophic level risks, which have very large impacts that go far beyond farmers or communities' abilities to mitigate, transfer or cope with them, more frequent but less severe shocks can be either managed by the stakeholders themselves or through the market, by mitigating or transferring the risks.

Finally, tools should be subjected to a cost-benefit analysis, to truly understand how their impact in terms of risk management compares to the costs borne either by stakeholders in the case, for example, of government subsidized tools. This is crucial as it determines the choices made by the stakeholders dealing with finite resources to invest on ARM, and the take-up and effective use of the tools by farmers and other stakeholders (especially the private sector), which also impacts the sustainability of the tools and overall strategy put in place. The interaction between the selected tools should also be taken into account, to foster synergies and coherence while limiting redundancies.

Figure 5: List of tools based on their objectives and level of implementation⁹

	Farm level	Community level (sharing risk)	Government level
Risk mitigation (ex-ante)	<ul style="list-style-type: none"> - Diversification of production and income sources - Climate smart agriculture - Irrigation - Prevention of pests and diseases 	<ul style="list-style-type: none"> - Food crop sharing - Common property resources - Social reciprocity - Rotating Savings/credit - Water resource management 	<ul style="list-style-type: none"> - Agricultural policies - Disaster prevention - Agricultural innovation systems - Agricultural information systems - Physical food reserves - Price guarantee stabilization funds - Input subsidies
Risk transfer (ex-ante)	<ul style="list-style-type: none"> - Insurance - Contract farming - Financial hedging tools (options) 	<ul style="list-style-type: none"> - Insurance and risk pooling - Contract farming - Commodity exchange and warehousing 	<ul style="list-style-type: none"> - Insurance and risk pooling - Social protection - Public insurance
⚡ Shock -----			
Risk coping (ex-post)	<ul style="list-style-type: none"> - Food buffer stocks - Sales of assets - Reallocation of labour, off-farm labour - Borrowing - Migration 	<ul style="list-style-type: none"> - Rotating savings/ credit 	<ul style="list-style-type: none"> - Disaster relief - Cash transfers - Food aid

⁹ Source: Platform for Agricultural Risk Management. (2016). *Agricultural Risk Management Tools: Resource for the e-learning Curriculum Course on "Agricultural Risk Assessment and Management for Food Security in Developing Countries"*. Rome: Platform for Agricultural Risk Management. This graph does not intend to be exhaustive, but to show the diversity of tools available at various levels.



Good practices

- Considering the context
- Strengthening existing tools that have proven to be successful
- Checking the applicability of new tools in the context and its acceptance by stakeholders to ensure its uptake by stakeholders and the sustainability
- Doing a cost/benefits analysis of the potential tools
- Monitoring the implementation and the functioning of each tool



Issues to consider

- Validating the conditions for replicability
- When possible, designing clear indicators to measure the results of each individual tool, to understand better the results of the combination of tools implemented
- Factoring planned and unplanned costs of the tools' implementation

3. Access to information and capacity building

In managing risks, timely access to information and capacity building is essential for agricultural stakeholders, as well as for extension workers or policy makers to make informed decisions and progressively enhance their skills and agricultural risk management techniques. Regardless of the tools being put in place, these should be considered as key cross-cutting requirements.

Timely access to information, whether linked to weather events, market prices or policy decisions, is crucial for people involved in agricultural value chains to plan their activities. Information has to be considered an input that is as important for making farming activities profitable as physical inputs like seeds and fertilizers. It can be of various nature, and related to production, weather, inputs, prices, pests or diseases, access to/cost of finance, etc. Because information sources are diverse, their accuracy, accessibility and cost vary tremendously, which means that attention should be paid to ensure which kind of information is usable, used and how, and that the costs to acquire information are not higher than the potential costs incurred from not accessing it.

Information can be collected by the stakeholders themselves, at the level of their own farm/business, to understand and review past decisions and their outcomes. However, this information often needs to be completed by other types of information, going beyond the farm, accessed through farmers' organizations, value chain actors, extension services, the media (newspapers, radios), dedicated systems such as specialized websites or mobile-based applications. Yet even in a scenario where all stakeholders have perfect access to useful information, the very nature of risks is their uncertainty and sudden changes or shocks cannot be predicted. Having access to information can nevertheless help plan mitigation and responses to shocks.

Another essential cross-cutting feature of agricultural risk management is capacity development, to improve the knowledge and management capacity of agricultural risks among producers, value chain stakeholders and governments. Capacity development should be undertaken after a thorough needs assessment, targeted to its audience, and, if needed, in partnership with local, national or international research centres or universities, and on-governmental or international organizations involved in training activities. As various stakeholders, from farmers themselves to private and public-sector representatives are involved in ARM, capacity development can be targeted to different groups of actors. First, stakeholders along the supply chains themselves (i.e. farmers, processors, input providers, financial intermediaries, exporters), community members as well as farmers organization representatives, should be a key target audience, as they are directly responsible to implement risks management strategies. Second, service providers, extension workers, or non-governmental organizations and civil society actors represent key secondary targets, as they are in direct contact with stakeholders and provide them with advice on to design their ARM strategies, and, in some case, specific services or products to do so. Third, policy makers and government officials can gain from learning about ARM to be able to integrate it into policies, or to implement existing policies with the holistic approach to ARM in mind.

**Good practices**

- Identifying existing information systems and areas for possible cooperation and/or integration
- Assessing the quality of available data
- Identifying data needs of stakeholders and obstacles to accessing this data
- Identifying the key stakeholders for capacity development
- Assessing the capacity development needs of each target group
- Adapting the material taught to the specific needs and role of the various stakeholders
- Linking theoretical knowledge with practical experiences and know-how

**Issues to consider**

- Knowing what type of data is being collected, what type can be collected and who is collecting it
- Determining the price that stakeholders are willing to pay for information- compared to the costs of setting-up or strengthening an information system
- Keeping in mind that information is strategic- there might be specific reasons why information is not shared by farmers, governments, or private sector actors
- Integrating the high turnover rate of government officials and international staff into capacity development strategies
- Assessing possible synergies but also consistency with other trainings available in an area, to make sure that the target audience has incentives to participate in the activities and that time is utilized effectively
- Planning for follow-up and application of the concepts learned during capacity development

4. Partnerships and policy integration

Holistic agricultural risk management is not a specific topic for action, but also a way of thinking and of conceptualizing synergies and partnerships across varied sectors. Partnerships are therefore a central element of an ARM system, and the role of the government, particularly the integration of ARM into policies, is also essential, as it can provide the right framework to ensure sustainability and send a positive signal to investors and private sector actors.

Partnerships enable the coordination of actors who might be looking at different types of risks, or developing tools or policies to fulfil broader development objectives. They can enable the pooling of resources and the design of activities that are better adapted to existing frameworks and activities, while avoiding duplication of work, or worse, the implementation of contradicting instruments. This is particularly important as agricultural risk management often requires coordinated action at different levels, and by stakeholders with different objectives and operating methods, such as governments and local authorities, farmers organizations, extension services, financial institutions and market actors, research centres and universities, development partners, etc.

The integration of ARM in national policies is a key element for the sustainability of activities and for building strong and efficient partnerships. This integration should ensure that sectoral policies do not contradict or have negative impacts on one another, and that policy coherence is achieved. Moreover, the process of integrating ARM into policies raises the awareness of decision-makers on issues affecting stakeholders, thereby contributing to shaping the political agenda in favour of agricultural, trade, and environmental policies that enable effective agricultural risk management, in a virtuous circle. At the same time, the mainstreaming of ARM into these sectoral policies can make them more sustainable, by integrating risk management thinking into new operations and guiding actions from the private sector and development partners.



Good practices

- Identifying local actors already engaged in ARM and finding out their needs and possible complementarities with their work
- Building partnerships with different types of actors for enhanced effectiveness and sustainability
- Working with various ministries or with an inter-ministerial body/ positioning ARM as a cross-cutting issue
- Finding a key resource person with successful experience in implementing ARM to promote it within the country/specific context
- Synchronizing ARM proposals with government budgeting and planning



Issues to consider

- Defining clearly the roles and responsibilities in partnerships
- Ensuring coherence at different levels and between the action of different actors (government, development partners)

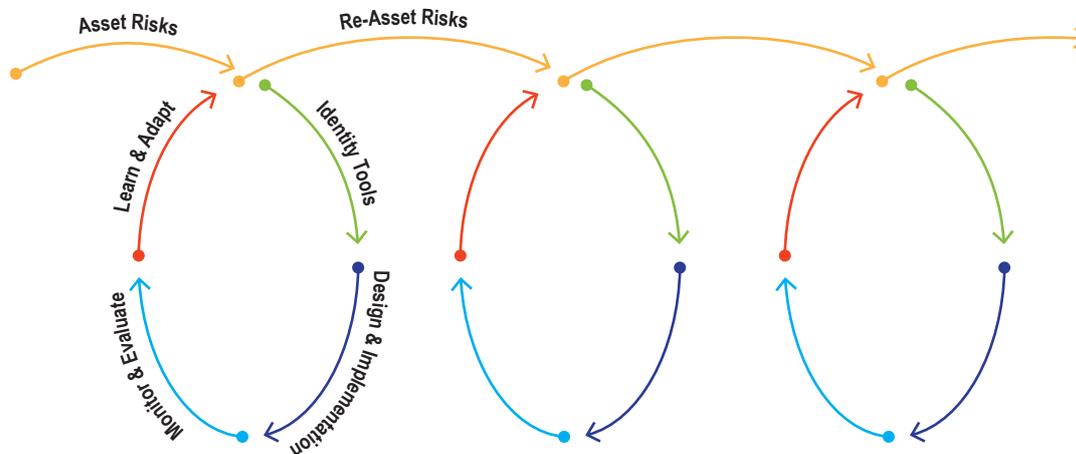
5. Monitoring and evaluation

Unlike other types of interventions, direct results or impacts of ARM tools are not easily established, as knowing how stakeholders would have faced a shock without ARM in place is difficult. In addition, managing risks should be a continuous process, informed by the knowledge gathered about the exposure and the resilience on the ground to the specific risk during shocks, about previous shocks and on the existing mitigation, transfer and coping mechanisms. Monitoring and evaluation is therefore very important to learn and adapt strategies and instruments, and the definition of clear indicators backed-up by solid information is crucial.

Monitoring the implementation of tools should ensure that these are accessible, effective, and implemented by the right stakeholders. It should also enable adaptation in the case of changes in the context, or if the results of the risk assessment are updated. For the efficiency of an ARM strategy, it is essential to keep monitoring the risks and to ensure that information derived from the risk assessment and tool implementation is adequately reported and updated. For example, if pests and disease emerged as major risks, and pesticides are used at farm level, farmers should monitor how useful and effective the pesticides are on the crops under cultivation, and redefine the risk prioritization decisions for pests and disease in the event that this risk changes. Moreover, longer term trends or changes in the context can impede farmers' ability to use the existing resources and increase their vulnerability. This process requires regular reporting, and clear performance indicators set when the ARM strategy is designed.

The evaluation of an ARM strategy, whether immediately ex-post or to look at the longer terms impacts, aims at determining whether the intervention has succeeded in strengthening the ARM capacities of agricultural value chain stakeholders. This evaluation is important, as it enables progress and potentially the comparison between several ARM initiatives based on their costs and benefits. The evaluation of public policies related to agricultural risk management is also necessary to guide government action.

Figure 6: Intervention cycle for ARM



Good practices

- Building a M&E system from the inception of the initiative (identify a baseline): defining clear indicators, timing and responsibility for data collection
- Collecting age and sex-disaggregated data to assess the effectiveness of the tool(s) for different groups
- Raising awareness of stakeholders on the importance of record keeping and monitoring
- Consider external factors to contextualise impact
- Repeating risk assessments, compare results with previous ones, and adjust strategies and tools.



Issues to consider

- Developing a qualitative approach for some activities that are difficult to monitor quantitatively (e.g. capacity building)

These five key pillars: risk assessment and prioritization; tools identification and implementation; access to information and capacity building; partnerships and policy integration; and monitoring and evaluation, have been defined through a collaborative process, stemming from the experiences of PARM and its partners. The next part of this publication will propose the application of these pillars to selected case studies.



PARM
PLATFORM FOR
AGRICULTURAL RISK
MANAGEMENT



Part II



Part II. Drawing lessons from the field: promising practices for agricultural risk management

Though the conceptual framework of agricultural risk management and the need for capacity strengthening in this field have been well defined, there has so far not been any attempt at gathering insights from past and present initiatives in a structured manner. This is what this part aims to achieve. Through this collection of promising practices, readers will be able to learn from field experiences, and to better understand the key criteria for better design of agricultural risk management initiatives.

The ten case studies have been selected by a group of experts in the field, to showcase a wide diversity of agricultural risks and of agricultural risk management tools. Following an open call for proposals by the PARM Secretariat, this group of experts – the Technical Committee¹⁰ – assessed the 40 proposals received on the basis of the following criteria, linked to the key pillars for agricultural risk management:

1. Risk assessment: How has the risk been identified? Have frequency and severity of the risk been assessed?
2. Tools identification and implementation: Do the tools in place seem adequate to address the risk(s) identified?
3. Access to information and capacity building: Is access to information part of the initiative?
4. Partnership and policy integration: Is the initiative promoting partnerships for ARM? Is it integrated into policy or using existing policies to strengthen its impact?
5. Innovation: How innovative is the initiative? Is it ground-breaking or are there benchmarks available to assess it against?
6. M&E and Knowledge management component: How does the initiative currently measure or plan to measure the level of its results? How does it document its results and impact?
7. Current potential, possibility to scale-up and sustainability: Could the initiative be applied on a larger scale? Would the tools require significant changes to be applied on a different scale? Would the accessibility or cost-efficiency of the initiative be diminished if it is implemented on a larger scale?
8. General assessment on ARM potential/impact: How would you assess the overall effectiveness of the initiative and its potential impact? If the initiative is risk-specific, is it or could it be easily integrated into a holistic framework? If the initiative has a holistic approach, does it fail to take into account some risks?

These initiatives are implemented in Africa and Asia by a wide variety of actors: research institutes, development partners, non-governmental organizations, farmers associations and the African Union. They were designed in reaction to various types of risks, related to weather and climate, market and infrastructure or institutional and policy settings. Some are targeted to governments, other to farmers, showcasing the different levels of responsibility and capacity while managing risks.

In this section, the case studies are grouped according to the type of tool(s) that they implement to manage agricultural risks, in the following five sections:

- Using information to reduce information asymmetry risks
- Transferring risks: insurance for agricultural risk transfer
- Integrating smallholders into value chains to mitigate market and price risks
- Creating appropriate institutional frameworks to reduce institutional risks
- Integrating tools to manage weather risks

10 Members of the Technical Committee were: Federica Carfagna, African Risk Capacity; Ilaria Firmian and Alessandra Garbero, International Fund for Agricultural Development; Åsa Giertz, World Bank; Gideon Onumah, Natural Resources Institute/AGRINATURA; Mariam Soumare, New Partnership for Africa's Development.



Using information to reduce information asymmetry risks

Information is one of the main raw material for agricultural risk management (ARM). Without it, it is very difficult to assess the likelihood and severity of different risks, to prepare for shocks, to improve resilience, or to manage or transfer the risk to others. Information from different sources on markets, climate and weather, diseases, inputs and technologies is necessary to manage risks. Moreover, information systems play a broader role for agriculture, for good business practices, to improve livelihoods, increase productivity and ensure efficient value chains. Risk management is among the most information intensive aspects of agriculture, because of the deep information needs in terms of disaggregation in the space and evolution and changes over time.

Information systems are significantly evolving, in terms of the type and amount of information that is and can be gathered, but also in terms of who collects and hosts the information and who can access it. New forms of data collection, such as satellite, sensor, geospatial data collection, and increased access through mobile devices make it easier than ever to gather data and inform inhabitants of remote places – many of them smallholder farmers. The information now has to be used by the insurance industry to develop new products and fill information gaps; by financial institutions to manage the risks from the agricultural sector; by farmers to improve their resilience and enhance their investments in the farm and in the household; and ultimately by governments to better design policies.

The two case studies demonstrate the power of information for managing risks, and propose ways in which information is brought directly to farmers, through partnerships at the local level. With this information at hand, farmers are empowered to manage their agricultural risks.

Adaptation for Smallholder Agriculture Programme: harnessing climate information in Mali and Rwanda

Danush Dinesh, Global Policy Engagement Manager, Consortium of International Agricultural Research Centres (CGIAR) Research Program on Climate Change, Agriculture and Food Security (CCAFS) and Ilaria Firmian, Environment and Climate Knowledge Officer, IFAD.



Quick facts



Risks addressed

- o **Weather and climate-related** risks, including droughts, floods and rainfall variability.
- o **Market risks**, including access to inputs, quality of inputs, output prices.
- o **Access to finance.**
- o **Infrastructure risks**, including post-harvest losses and storage risks.



Tools used

- o Climate-smart agriculture
- o Crop and enterprise diversification
- o Asset- and income-based strategies
- o Access to climate, production and market information
- o Farm business advice
- o Capacity building and experience sharing



Location

Global. As of 30 September 2017, the programme had a portfolio of 42 projects approved in 41 countries. This case study focused on programmes in **Mali** and **Rwanda**.



Number of people benefiting

8 million poor smallholder household members to see their climate resilience increased by 2020.

- o In Rwanda: 155 000.
- o In Mali: 78 750.



Expected results

- o **Mali:** The project increases the capacity of smallholder farmers to collect, analyse and disseminate climate information through access to seasonal weather forecasts in partnership with Mali Météo
- o **Rwanda:** the project facilitates a better understanding of how the changing agro-climatic conditions affect harvest and post-harvest operations in Rwanda in order to ensure resilience of the rural infrastructure and related investments, in collaboration sister state institutions such as Rwanda Meteorological Agency and Rwanda Agriculture Board to deliver the planned climate services intervention activities.



Timeframe

- o Programme d'amélioration de la productivité agricole in **Mali: 2014-2018** (midterm review in 2016)
- o Climate Resilient Post-Harvest and Agribusiness Support Project in **Rwanda: 2014-March 2019** (midterm review in March 2017).



Implemented by

- o In Mali: **Mali Météo, with local radios to disseminate climate information.**
- o In Rwanda: **Rwanda Climate Services for Agriculture project, Rwanda Agricultural Board.**



Funded by

International Fund for Agricultural Development (**IFAD**).

- The Adaptation for Smallholder Agriculture Programme (ASAP) is a global programme of the International Fund for Agricultural Development (IFAD), which invests in climate resilience among small-scale farmers. Since 2015, it has established a Learning Alliance with the CGIAR Research Program on Climate Change, Agriculture and Food Security to support the knowledge needs of the Adaptation for Smallholder Agriculture Programme, and to harvest lessons of relevance to the wider agriculture for development community.

- As part of the Adaptation for Smallholder Agriculture Programme, several projects focus on reducing climate risks through climate information. In Rwanda, as part of the Climate Resilient Post-Harvest and Agribusiness Support Project, farmers are provided climate information which reduces post-harvest risks and losses. The project also enhances the capacity of organizations to access funding from commercial lending for integrating climate-smart features in warehouse construction and other post-harvest infrastructure. The identification and promotion of crop and forage varieties that mature earlier and are more tolerant to floods is another activity which helps reduce risks. In Mali, the Programme d'amélioration de la productivité agricole au Mali, provides climate information and supports smallholder farmers to access information, tools, training and technologies, thus helping build resilience to climate change.



Key pillars



Good practices/Strengths



Issues to consider/Challenges



1. Risk assessment

The risk assessments were differentiated by regions, undertaken through document review and working groups – a participatory process.

Initially, only climate-related risks were considered and assessed, but the focus was then adjusted to include market-related risks

	2. Tools identification and implementation	Information systems was identified as a crosscutting tool because of existing actions and partnerships.	-
	3. Access to information and capacity building	-	Usability for farmers has to be improved both in terms of packaging of information and dissemination modes
	4. Partnerships and policy integration	The projects were designed to strengthen existing partnerships, in collaboration with local specialize meteorological bodies	-
	5. Monitoring and evaluation	Combine standard procedures for M&E with innovative research and KM through CGIAR partnership-result studies	-



Key lessons

1. Focus on practical solutions related to climate constraints to improve support to farmers.
2. Provide information in appropriate formats for each audience. In Rwanda, Meteo Rwanda in collaboration with the Rwanda Climate Services for Agriculture project are producing web-based agro-climatic information that are used for institutional and technical level decision-making, however, the information has not yet been re-packaged for improved rural farmer usability.
3. Provide greater emphasis on capacity building and training. In Mali, women were not involved in weather information collection. There is a need to train women and provide them with the necessary equipment so that they can better participate and benefit from this activity. It appeared that also male farmers needed more training on interpreting weather information for agricultural calendar adjustment.
4. Create new and complementary products and services as part of project activities. In Mali, this would include: synchronising local radios with national radio for weather information broadcast, as well as translating the information in all major local languages. In addition, the broadcasting time should be adjusted to better suit farmers' schedule (i.e. 7h:00 in the morning and 19h00 in the evening when farmers come from the fields. Currently the only use of mobile is limited to call local radio or meteo and extension agents for data transmission by farmers in charge of rain gauges and it's not free call. A 'green line' should be created to improve dissemination and accessibility of this information.



What next?

All the activities on climate information in Mali and Rwanda are conducted in close partnership with national meteorological services and thus strengthen their capacity in view of ensuring sustainability of the activities at the end of the projects. Minimising the costs incurred by national meteorological services is an important condition for scaling up. The creation of complementary services engaging private sector partners, such as telephone companies, would help ensuring the sustainability of the initiative. Investing in capacity building of farmers, including on the maintenance of rain gauges, and looking at training of trainers opportunities is also important in the long term.



Learn more

- About the Programme d'amélioration de la productivité agricole, Mali:
<https://www.ifad.org/documents/10180/bff22a3a-e88f-4293-a05d-8fff17356964>
- About the Climate Resilient Post-Harvest and Agribusiness Support Project, Rwanda:
<https://www.ifad.org/documents/10180/9b8e5ec4-afbf-4b6d-bf6a-006a01160445> https://cgspace.cgiar.org/bitstream/handle/10568/80178/CCAFS_WP193.pdf

Climate services for Agricultural Risk Management: training and access to information sharing for increased resilience in Rwanda

James W. Hansen, Ph.D., Climate Services and Safety Nets Flagship Leader, CGIAR Research Program on Climate Change, Agriculture and Food Security and Desire Kagabo, Ph.D., Project manager, International Centre for Tropical Agriculture (CIAT) -Rwanda.



Quick facts



Risks

- o **Weather and climate risks**, including droughts and rainfall variability.



Tools used

- o Training and participatory processes for reviewing existing farm and livelihood strategies in light of local climate risks, and adapting farm management based on seasonal climate forecasts.
- o Agricultural drought risk analysis and early warning system.
- o Access to climate information.



Location

Rwanda (nation-wide).



Number of people benefiting

Objective: **750 000 people**. Midway through the project, 52 776 farmers have been trained and it is estimated that each trained farmer shares information with more than ten community members.



Expected results

Sustained capacity and governance to provide climate services that improve risk management for Rwanda's farmers and agricultural sector institutions.



Timeframe

March 2016 – September 2019.



Implemented by

International Centre for Tropical Agriculture (CIAT), Rwanda Meteorological Agency (Meteo-Rwanda) and Rwanda Agriculture Board (RAB) in partnership with international technical partners: International Research Institute for Climate and Society (IRI), International Livestock Research Institute (ILRI), World Agroforestry Centre (ICRAF), and University of Reading. National partners include the Ministries of Agriculture, Environment and Local Government; and a number of media companies, development non-governmental organizations and community-based organizations. Coordinated by the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)



Funded by

Rwanda Mission of the U.S. Agency for International Development (USAID/Rwanda).

The CGIAR Research Program on Climate Change, Agriculture and Food Security is working with partners to develop methods and capacity to provide climate services that enable farmers, government and institutional decision-makers to understand, anticipate and management climate-related risks in Rwanda. At the level of national government, the development of new climate information products and tools are meant to support early warning and management of drought risk, and planning (e.g., seed procurement and distribution) and recommendations related to the onset of the two rainy seasons and the timing of planting. At the farm level, the range of risk management decisions includes: seasonal adjustments for choice of crops, cultivars and production technology; timing of planting and other field operations; management of livestock feeding and health; and in a few cases fundamental changes in household livelihood strategy in response to increased understanding of the local climate and its associated risks. Capacity to deliver climate services to rural communities and support their use is being developed by training agricultural extension staff, development on-governmental organizations and volunteer Farmer-Promoters to adapt and apply the PICSA (Participatory Integrated Climate Services for Agriculture) approach, developed by University of Reading – as one of several communication channels. Work with the national meteorological service (Meteo-Rwanda) builds on the International Research Institute for Climate and Society-led ENACTS (Enhancing National Climate Services) initiative, and involves the development of high-quality merged gridded historic datasets and an expanding suite of derived online “Maproom” products. The initiative is partnering with the United Nations (UN) Global Framework for Climate Services to develop sustained climate services governance.



Key pillars



Good practices/Strengths



Issues to consider/Challenges



1. Risk assessment

Reconstructing historic climate data enables objective risk analysis. Perceived risks were incorporated into household baseline survey.

Initially, only climate-related risks were considered and assessed, but the focus was then adjusted to include market-related risks



2. Tools identification and implementation

Extended existing tools to enable provision of climate information, and to support rural communities to understand and use information.

-



3. Access to information and capacity building

Research may offer innovations that increase capacity to provide useful services without over-taxing human resources.

Institutional and policy buy-in are crucial for capacity development investments to sustain.

**4. Partnerships and policy integration**

-

Effective climate services require formalized cross-agency partnerships and enabling policy.

**5. Monitoring and evaluation**

Well-designed baseline survey enables progress to be monitored.

-

**Key lessons**

1. Developing climate services that support agricultural risk management requires substantial investment in capacity in three key areas:
 - Supply side: National meteorological service capacity to provide locally relevant information tailored to the needs of farmers, often addressing historic data gaps;
 - Demand side: National agricultural research and extension system capacity to translate, communicate, and build farmers' capacity to understand and act on climate information;
 - Institutional and governance arrangements to sustain co-development of services beyond a project's lifespan.
2. Involving applied climate and agricultural research institutions, which are well grounded in climate services, improves the prospects of finding scalable solutions to supply- and demand-side capacity challenges.
3. Climate research provides viable options for filling data gaps and generating locally relevant information without overextending their limited human resources.
4. Climate services for farmers benefit from a mix of delivery channels that includes participatory communication facilitated by trained intermediaries.
5. Mainstreaming climate services in agriculture requires strong partnership between agricultural and meteorological agencies and their associated Ministries, and enabling governance.
6. Getting high-level political buy-in early is important for ensuring sustainability at the end of a project.

**What next?**

In order to develop the policy and governance arrangements needed to sustain climate services after project funding ends, the initiative is partnering with the World Meteorological Organization-led Global Framework for Climate Services to facilitate the development of a national climate services framework and action plan.

Developing sustained institutional capacity is a major focus of the initiative. This includes supporting education at the M.Sc. level for 6 staff members from Meteo-Rwanda and 3 from the Rwanda Agriculture Board. With the training provided, the development of a high-resolution merged gridded historical database, and the degree of automation, Meteo-Rwanda is expected to be able to maintain the provision of a greatly expanded suite of online information products tailored to the needs of the agriculture sector with existing human resources. While the initiative has trained close to a thousand intermediaries in participatory climate information communication and planning processes, we anticipate that sustainability will require a policy change that formalizes climate services climate services within the mandate of Rwanda's agricultural extension service. More generally, sustained provision of climate services that are useful to the country's agriculture sector will require policy support and enabling institutional arrangements, across several line ministries (Agriculture and Animal Resources, Environment, Local Government, Disaster Management and Refugee Affairs);



and allocation of financial resources. Support for the Global Framework for Climate Services-led national climate services framework process aims to achieve the policy support and institutional arrangements needed to sustain agricultural climate services at scale.



Learn more

- <https://ccafs.cgiar.org/building-climate-services-capacity-rwanda>

Transferring risks: insurance for agricultural risk transfer

Agricultural risks are characterized by their frequency and severity, that is, by how often a shock might occur, and by how much damage it may cause. In general, the most frequent risks along the agricultural value chain lead to low losses, and therefore can be dealt through risk mitigation practices such as climate-smart agriculture or income diversification. For less frequent and more damaging risks, mitigation strategies are not sufficient. This is where risk transfer strategies become relevant and options such as agricultural insurance should be explored. While agricultural insurance products are widely available and used in North American and European countries, it has not been the case in developing countries, and particularly in Africa. This is due to several reasons, ranging from the amount of information required at all stages of delivery (from avoiding adverse selection and moral hazard to estimating losses and pay-outs), to the technical complexity associated with developing new insurance products, and the lack of awareness and understanding on how insurance works by potential end-users.

However, many pilots have been successful and agricultural insurance, whether indemnity-based or index-based, is now increasingly being offered in developing countries, and can range from products offered by private companies to insurance schemes implemented by governments. These tools are a one component in the development of an agricultural risk management strategy within the agricultural value chain and be it at the micro-small farmer, cooperative or sovereign level.

The three case studies which were selected showcase a diversity of risk transfer approaches, with a focus on insurance. While they all rely on collecting quality information, using a combination of different techniques, including remote-sensing, these three initiatives have very different objectives and targets. From insuring governments against catastrophic losses, to providing information integrated into national insurance schemes for farmers, and developing innovative indexes to design new insurance products. These innovative insurance initiatives demonstrate the dynamism required in the development of risk transfer mechanisms which match the needs in developing countries.

The African Risk Capacity: insuring African governments against natural disasters

Federica Carfagna, acting R&D Manager & Vulnerability Analyst, African Risk Capacity and Ekhosuehi Iyahen, Director, Policy & Technical Services, African Risk Capacity



Quick facts



Risks

Weather risks, including droughts, floods, rainfall variability and tropical cyclones.



Tools used

Early Warning through Africa Risk View, ARC's foremost modelling tool, Financing through weather-index insurance, contingency planning and capacity building.



Location

Africa Union (AU) Member States of which 33 countries are signatory to the ARC Establishment Treaty at the AU.



Number of people benefiting

About **10 million** Africans through indirect sovereign level insurance coverage (2014-2017).



Expected results

ARC has set out to provide insurance coverage to 22 countries by 2020.



Timeframe

-



Implemented by

- o Governments (through in-country technical working groups, premiums, and implementation of pay-outs when triggered),
- o Donors who provided the risk capital for the insurance company and have supported the capacity building work undertaken by the ARC Agency with its Member States.
- o Local and International NGOs and international organisations, often actively involved in the in-country technical working groups and/or as implementing partners when pay-outs are triggered and response activities rolled out.
- o Private sector - through reinsurance capacity provided to the ARC Insurance Company on an annual basis.



Funded by

Premium from Member States, Donor funding from DFID, KfW, USAID, Rockefeller Foundation, Agence Française de Développement (AFD), CIDA, SIDA, SDC.



The ARC concept is based on the fundamental rationale that responding to a disaster before it develops into crises is financially efficient, more economical, and saves lives and livelihoods, as US \$1 spent on early intervention through ARC saves nearly US \$4.5 spent after a crisis is allowed to evolve. Such an approach is critical in building resilience of countries and communities and is integral to the development of effective and efficient risk management systems. The ARC approach involves linking early warning systems (through its risk modelling platform Africa RiskView) with contingency planning and supported by modern financial mechanisms (specifically insurance) to enable governments to provide targeted responses to disasters in a more timely, cost-effective, objective and transparent manner, and linked to on-ground action.

Financing is provided through weather-index insurance. Its specific purpose is to finance early response to specific disasters once policies have been triggered. For **contingency planning**, ARC works with its Member States to develop contingency plans that are linked to pre-defined financing (insurance) to aid more effective and timelier response to disasters. This approach is focused on (i) identifying already existing response programmes in line with the ARC contingency planning eligibility criteria (ii) identifying opportunities for strengthening and scaling up national level disaster response programmes and safety net schemes. Given the AU Mandate to the institutions, ARC actively provides platforms for exchanges on its 3 work streams, for **capacity building and experience sharing**. These exchanges are facilitated (i) within countries through the establishment of in-country technical working groups which constitute government and non-governmental stakeholders (ii) cross country exchanges through workshops, in country visits/exchanges and through regional platforms as facilitated by the Regional Economic Communities (RECs) (iii) continental exchanges through the ARC annual Conference of Parties, AU summits etc. and (iv) international exchanges with other risk management and pooling initiatives e.g. the Caribbean Catastrophe Risk Insurance Facility (CCRIF).

	Key pillars	Good practices/Strengths	Issues to consider/Challenges
	1. Risk assessment	Climate risks, more specifically drought was chosen because of its impact on African countries and its potential impacts linked to the structure of their economies.	-
	2. Tools identification and implementation	-	<ul style="list-style-type: none"> - Basis risk - Large amount of information and analysis for the development of models and adaptation to national contexts.
	3. Access to information and capacity building	Capacity building of governments is included in the intervention.	-



4. Partnerships and policy integration

As an AU Specialised Agency with a very specific mandate, ARC defines the institutional governance structure and administration framework to execute on its goal; Builds consensus on priorities for the institution; Establishes a platform for accountability through providing for reporting and exchange opportunities between Member States; ARC also actively engages continental, international and REC's on issues of risk evidenced by MoU with AfDB, ECOWAS, Inter African Conference of Insurance Markets (CIMA), etc

ARC recognises the importance of partnership and policy integration and has made efforts to build out this component. Through policy, ARC is clarifying the misconception that ARC insurance will cover all the risk associated with disasters and that it is not mutually exclusive from other investments to be made in terms of managing risk.



5. Monitoring and evaluation

Monthly monitoring with countries and partners for implementation; in-county process evaluation to assess pre-developed contingency plans; Process and financial audits also conducted after a pay-out. Annual beneficiary assessments and Donor reviews

Given the novelty of the mechanism and the time it takes for insurance benefits to be seen, ARC is undergoing a 10-year evaluation process with DFID to tease out the contribution of the ARC mechanism to improved risk management in its Member States.



Key lessons

Although not exhaustive, some broad lessons to be learned from the implementation of the ARC mechanism include the following:

1. Member State ownership is essential to driving awareness, demand and political support for engagement around risk management and insurance. There is need to integrate ARC into national frameworks and strategies for sustainability.
2. A facility such as ARC requires considerable investment in capacity building, development of analytical tools, education and awareness raising, commitment of risk capital, multidisciplinary human resource, rolling Research & Development on new products and tools to meet Member State differences.
3. Continued shared analysis and inclusive dialogue around risk is highly important.
4. Expectation management on what Disaster Risk Financing needs can be met through insurance.
5. There is increased appetite in the public and private sector for contextually appropriate risk management products and tools.
6. More robust Monitoring & Evaluation processes internally and for governments' systems.
7. Measures to address the Premium Financing challenge by African countries are imperative.



What next?

Owing to demand from ARC Member States, ARC recognises the need for the development of other perils insurance products, namely river floods, tropical cyclones, excessive rainfall, outbreaks & epidemics and extreme climate.

Furthermore, despite the recognition of the value of the ARC-led insurance mechanism, there remain significant challenges hindering country participation. Traditionally, 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 factored into national budgets. Efforts at achieving this by government officials is further halted by issues such as Fiscal Constraints, Political Instability, Shifting Priorities etc. These realities have led to ARC developing a Premium Support Transition Facility (PSTF) with its Member states and development partners, to provide premium financing through soft loans and grants over a period of 5 years as countries build premium into budgets and strengthen their national public risk management systems. The precedence for such transition support exists, in the Caribbean, Central America, Asia and the Pacific where premium financing was provided to ensure the consistent engagement of governments in the risk pools as premium was built into the natural budgeting processes.



Learn more

- http://www.africanriskcapacity.org/wp-content/uploads/2017/10/ARC_LessonsLearned.pdf
- <https://ccafs.cgiar.org/building-climate-services-capacity-rwanda>

Index-based livestock insurance: an innovative response to droughts in Kenya and Ethiopia

Rupsha Banerjee, Ph.D., Scientist - Institutions and Innovations, International Livestock Research Institute (ILRI), Nairobi, Kenya.



Quick facts



Risks

Weather risks, specifically droughts.



Tools used

- o Climate-smart agriculture
- o Asset- and income-based strategies
- o Weather index insurance
- o Social protection and productive safety nets
- o Access to climate, production and market information
- o Capacity building and experience sharing



Location

Arid and semi-arid lands of **Kenya** and **Ethiopia**.



Number of people benefiting

Over **20 000 pastoral households**: 12 000 in Kenya and 8 000 in Ethiopia.



Expected results

- o Reduction in distress sales of livestock during drought situations.
- o Access to other essential services such as feed, vaccination, fodder, water and other financial services.
- o Improved nutritional status of individuals at household levels.
- o Better herd management.
- o Sustainable scaling of the project beyond the current sites within a public-private partnership.



Timeframe

Phase I: 2011-201, Phase II: 2012-2016, Phase III: 2017 onwards.



Implemented by

Takaful Insurance of Africa (TIA), APA Insurance, State Department of Livestock – Government of Kenya, Oromia Insurance Corporation (OIC).



Funded by

World Bank, Technical Centre for Agricultural and Rural Cooperation (CTA), University of California Davis, World Food Programme, USAID Feed the Future. In the past, funded by: European Union, DFID, World Bank, Development Food Aid Programme (DFAP), Kenya Markets Trust, 3ie and USAID.

The Index-Based Livestock Insurance (IBLI) works towards improving the resilience of pastoralists to drought-related losses of their key productive asset i.e. livestock. The design of the product relies on low cost, accessible and reliable data of pasture availability through satellite imagery of the earth's surface, to evaluate the state of the pasture and apply it to the design of an insurance product targeting drought-vulnerable pastoralists in Northern Kenya and the Borena region in Southern Ethiopia. The initiative has heavily invested in market and capacity building, building standardized extension manuals and tools, designing marketing campaigns, developing mobile-based sales transactions platforms for increased cost-efficiency and improved knowledge management. Most of the research in this project is demand driven and need based from the private sector who are underwriting this product. So far, the Index-Based Livestock Insurance has been adopted by the Kenyan Government as the Kenya Livestock Insurance Programme (KLIP). The International Livestock Research Institute is currently leading the development of a concept note to guide the Ethiopian government's investments in agricultural financial solutions beyond the Borena region. In Kenya, the government was encouraged to launch the Kenya Livestock Insurance Programme and support the scaling of Index-Based Livestock Insurance due to the International Livestock Research Institute's research demonstrating a range of positive impacts at the household level and increased value for money for government. The model of sustainability thus rests on the development of institutional public-private partnerships that supports smart subsidies, promotes private investment, and works towards informed demand and increase the efficiency of service delivery.

	Key pillars		Good practices/Strengths		Issues to consider/Challenges
	1. Risk assessment	Based on primary and secondary data collection, drought prioritized because of potential catalytic effect on other risks	Availability of reliable secondary data is usually a challenge which requires extensive studies and research- which can be both capital and human intensive.		
	2. Tools identification and implementation	Innovative insurance based on geographical context: vast area with sparse population	The issue of basis risk will always persist; it is therefore important to keep in mind the different agro-ecological features and methods of ground truthing while designing the contract		
	3. Access to information and capacity building	Coupling of research and capacity building activities	A high level of illiteracy makes penetration and capacity building challenging. High transaction costs for extension and education		
	4. Partnerships and policy integration	The Index-Based Livestock Insurance integrated into national Kenyan policies	In most cases there are issues of competing expectations i.e. what the product can do and what the commercial underwriters expect. Therefore, one should choose partners who are aware and aligned with the vision of such a product and the target clients.		
	5. Monitoring and evaluation	Analysis of sales data and having mechanisms in place to get feedback from clients through evaluation studies	It is not always possible to carry our extensive ex-ante and ex-post impact assessments because of the costs attached with such exercises. Therefore, innovative methods such as the use of digital technologies such as the use of text messages and interactive voice responses can be used to informed demand among the clients.		



Key lessons

Key lessons for delivering technologies or services through a public – private partnership and scaling in pastoral regions:

1. Selecting and managing partners from different backgrounds who are willing to adapt and recognize the challenges that come as part of working in pastoral areas.
2. Identifying new research questions that support the uptake of the technology and packaging the research and the research findings in a manner that excites and keeps interest of market/development partners
3. Folding in research questions that arise during the implementation of the project back into its research pipeline.
4. Developing non-traditional skill sets within the project team that range from pure science/technical researchers to action/participatory researchers and development practitioners as bridging agents between research and implementation.
5. Creating a project structure that couples research, implementation, testing, trouble shooting, market and capacity development and fostering a culture that enables innovation and creativity.
6. For every technology to be adopted, there is a need for institutional and process innovation throughout the lifecycle of the technology.



What next?

The Index-Based Livestock Insurance's exit strategy is a public-private partnership model for scale with the International Livestock Research Institute being a technical support. This has already started happening, where the insurance companies now brand the Index-Based Livestock Insurance as their product, and the government partnering with the private sector to implement this product. Ethiopia also seems promising with the Government being very interested to take up this product at a national level. For scaling up and replicability, there needs to be an understanding of the local environment (agro-ecological, socio- economic and institutional) in order to customise the tools and contracts towards implementation. The Index-Based Livestock Insurance is set to expand into the Afar and Somali regions in Ethiopia and has been commissioned to carry out an initial feasibility study in Uganda. Moreover, it is expected that the Kenya Livestock Insurance Programme will be scaling to 100,000 households over 14 counties by 2020. There is considerable interest from other regions beyond East Africa for implementing this model of insurance both within the African continent and also from South Asia. The objective is now to improve the supply chain for the product through institutional and process innovations as part of expanding beyond the existing project sites.



Learn more

• <https://ibli.ilri.org>



Remote sensing-based Information and Insurance for Crops in Emerging economies (RIICE): providing information to strengthen private and public insurance schemes

Manoj Yadav, Project Advisor, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.



Quick facts



Risks

- o **Weather and climate risks**, including droughts and floods.
- o **Agriculture portfolio risk management** for governments and insurance companies.



Tools used

Generation of crop production information i.e. area and yield.



Location

Cambodia, India (Tamil Nadu, Odisha and Andhra Pradesh), Philippines (Philippines Rice Information System -PRISM), **Thailand, Vietnam, and Indonesia**. Please note that the information provided in the rest of the document pertains to the state of Tamil Nadu, India where the project has been operational since 2012.



Number of people benefiting

22,547 farmers have been paid prevented sowing claims by the Agriculture Insurance Company of India, a project partner institution, during the 2016-2017 main cropping season



Expected results

Governments and other stakeholders use the crop / yield information system in agricultural and disaster risk management policies, strategies, and action plans to strengthen food security and to transfer risks to the insurance sector.



Timeframe

Phase I: 2012-2015, Phase II: 2015-2017, Phase III: 2017-2019.



Implemented by

Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GmbH), Tamil Nadu Agricultural University (TNAU), Agriculture Insurance Company of India (AICI), Swiss Re, Department of Agriculture, Odisha, and Acharya N. G. Ranga Agricultural University (ANGRAU), Guntur, Andhra Pradesh.

Technical partners: International Rice Research Institute (IRRI), and Sarmap SA.



Funded by

Swiss Agency for Development and Cooperation (SDC) and German Federal Ministry for Economic Cooperation and Development (BMZ). Odisha State Government and Andhra Pradesh State Government funded to develop and implement remote sensing based rice monitoring system.

Rice is one of the most widely grown crops in India and its availability is equated with food security. Agriculture insurance as a means to achieve food security has shown considerable promise. However, it is beset with several challenges which mostly revolve around the availability of transparent and timely information regarding several aspects of production like area under cultivation and yield in a particular administrative unit.

Remote sensing-based Information and Insurance for Crops in Emerging economies (RIICE) is a Public Private Partnership between the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, the Swiss Agency for Development and Cooperation, the International Rice Research Institute (IRRI), Sarmap and Swiss Re supporting crop insurance coverage for small-holder rice farmers in Cambodia, India, Indonesia, Thailand, and Vietnam. Initiated in 2012 in Tamil Nadu, India, the initiative actively collaborates with the state Government, local technical partner institution and insurers towards establishing technology based insurance solutions. To reduce the vulnerability of smallholder farmers engaged in rice production using crop insurance, this initiative makes use of satellite data to generate information like rice area statistics, mid-season rice yield forecasts and end-of season yield estimates down to the village level. Insurance companies use these forecasts to be able to respond considerably more transparently and quickly, thereby securing the livelihoods of small-holder rice farmers. Sustained engagement with the Government towards creating a conducive policy environment which allows the project based deliverables to be used by insurers in portfolio monitoring and claim administration in case of imminent losses

	Key pillars	 Good practices/Strengths	 Issues to consider/Challenges
	1. Risk assessment	Data collection by the project partner, a local agricultural university with sound knowledge of local agronomic conditions and field presence.	Based on data starting from 2013 till date.
	2. Tools identification and implementation	Effective remote sensing based information system for crop insurance requires rigorous ground truthing and validation. The corresponding processes and protocols must be carefully designed keeping in mind the local ecological conditions.	Limited to rice only. This focus is to explore other crops amenable to remote sensing and develop similar solutions for identified crops.
	3. Access to information and capacity building	Satellite data from European Space Agency (ESA) made available for free of charge and the data acquisition over project areas has been assured till 2030. Development of in-country capacity to make use of remote sensing data is critical to the sustainability of the initiative. This has been achieved through extensive training and knowledge transfer mechanism as part of the project.	Procurement of high resolution satellite imagery comes with high cost and some degree of uncertainty over acquisition. In-country capacity building should be an integral part of the key objectives of the project.



4. Partnerships and policy integration

It is important to include all stakeholders i.e. the government as well as the insurance sector while designing and implementing the project.

Stakeholder engagement requires time and hence should be embedded in the project since its inception.



5. Monitoring and evaluation

The project has an Outcome Monitoring process in place which regularly captures the progress of the project across its stated Outputs and Indicators on a quarterly basis. The results are regularly placed with the donors to meet the reporting commitment and maintain up to date communication.

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Key lessons

1. Technology must be tried and tested for its accuracy, consistency and suitability in providing reliable and timely information before it can be presented to the Government/users for application. The engagement with the Department of Agriculture, Government of Tamil Nadu began in late 2015 and led in the following year to pilot the technology in the 2016-17 cropping season and its extension in the 2017-18 season.
2. Effective stakeholder engagement is critical, so that the dialogue is not lost in the scientific complexities but caters to the needs and requirements of policy makers and farmers alike to benefit them the most.
3. Apart from effective stakeholder engagement, priorities and (economic) interests of various stakeholders like farmers, insurers and the government must be in harmony and addressed effectively so that farmers benefit in the long run.
4. Provision of know-how transfer and technical advisory to decision-makers is key to technology adoption through capacity building.



What next?

The current phase of the project (Phase III) aims at integrating the project deliverables within the existing crop insurance architecture. This entails a shift in the donor funded technology application to market or government financed operational model and is expected to be achieved by end of 2019.

The outcomes of the project are readily scalable and replicable as demonstrated through its uptake from two other state governments in India i.e. Odisha and Andhra Pradesh along with development other countries where the initiative is operational. Once the initial ground truthing and validation is carried out and the results meet the quality standards, the information generated can be easily applied in the context of crop insurance. This holds true for rice crop as it has been the focus crop since the project inception.



Learn more

• <https://www.asean-agrifood.org/projects/rice/>

Integrating smallholders into value chains to mitigate market and price risks

The market can be a source of risks: from price variations, information asymmetry between buyers and sellers and physical barriers preventing access by farmers, especially smallholder farmers, who do not always manage to sell their produce at a price that enables them to sustain their livelihood. A farm may be highly productive, but if the farmer is not able to market the produce as efficiently as possible by getting remunerative prices and minimize/mitigate possible market risks, it will not achieve financial success in the long run.

Market tools are available which can significantly improve the risk management capacities agricultural value chain stakeholders, enabling them to secure access to the market and get the best possible price with minimum risk. Three types of tools clearly stand out: contract farming (which may involve production or marketing contracts), commodity exchanges and warehouse receipts systems.

There are several types of contractual arrangements between small-scale producers and commercial stakeholders, like marketing or production contracts, and out-grower schemes, or collective marketing practices. They enable farmers to be sure that they will be able to sell their produce, in some cases at a specific agreed-upon price. Commodity exchanges provide platforms for multiple buyers and sellers to trade commodity-linked contracts on the basis of rules and procedures set by the exchange. This leads to more accurate and transparent pricing, as well as efficient marketing. More advanced commodity exchanges include trade futures contracts, allowing farmers to transfer part of their price risks to willing parties.

A warehouse receipt system often involves a formal agreement between storage facility operator and a named depositor for storage of a specified commodity. The agreement specifies the quality and quantity of the commodity held in a secure storage environment. The document, called the warehouse receipt or silo certificate is a certificate of deposit and ownership of the stored commodity. It can then be used by the depositor as collateral to obtain financing from a lending institution or input supply.

The two case studies presented in this section show how the power of the market can be harnessed to benefit farmers, either through an aggregation platform led by a farmers' organization, or through a combination of market, financial tools and information systems.

eGranary: a virtual aggregation platform to empower East African farmers

Norbert Tuyishime, East Africa Farmers Federation.



Quick facts



Risks

- o **Weather risks** including droughts, floods and rainfall variability
- o **Market risks** including access to inputs, quality of inputs and output prices
- o **Infrastructure-related risks** including post-harvest losses, transportation and storage



Tools used

- o Climate-smart agriculture
- o Crop and enterprise diversification
- o Agricultural insurance



- o Weather index insurance
- o Agricultural finance and microfinance
- o Contract farming
- o Access to climate, production and market information
- o Farm business advice
- o Capacity building and information sharing



Location

Kenya and **Uganda**. To be expanded to **Rwanda** and **Tanzania**.



Number of people benefiting

Over **27 000 farmers** are registered on the platform in Kenya.



Expected results

More than 100,000 farmers are empowered through the use of technology, market access and access to affordable financial services.



Timeframe

Started in 2016.



Implemented by

East Africa Farmers Federation (EAFF), in partnership with the Alliance for a Green Revolution in Africa (AGRA), the United Nations Food and Agriculture Organization (FAO) and Mobile Decisioning Holdings Ltd (a fin-tech company).



Funded by

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eGranary is a virtual aggregation platform that provides the following 5 services at a go - access to markets, access to certified seed and fertiliser, affordable credit, agriculture insurance and extension services. It intends to make agriculture data available on time for decision making at the farmer level, investors level and to influence policy, as well as to make farmers more bankable by de-risking their operating environment and building their capacity.

The East Africa Farmers Federation (EAFF) has signed a supply contract and sub-contracted it members, providing a floor price linked to the cost of production. By providing a predictable market and predictable prices, farmers have an incentive to get into the program. Farmers receive certified inputs, advice on when to plant, and benefit from a weather and multi-peril crop insurance which is bundled with the in-kind loan of inputs, to be repaid by instalments. The East Africa Farmers Federation monitors the crops and provide drying services and a place to store harvested crops. A post-harvest loan is also available for farmers, and after the final evaluation by the off-taker, farmers are paid via mobile money.

	Key pillars		Good practices/Strengths		Issues to consider/Challenges
	1. Risk assessment	The process involved several meetings with the leadership and the Chief executive officers of the various member organizations.	The extent to which farmers are vulnerable to the risks; Existing solutions.		
	2. Tools identification and implementation	It was inevitable to embrace mobile technology for the purposes of achieving aggregation of farmers to access the services (markets, financial services such as credit and insurance, and agriculture extension services. There was need to ensure that the platform was robust enough to be used by small-scale farmers.	Mobile penetration, ease of use, simplicity in questions asked, tailor made for target value chain, Cost to access and to utilize the tool; revenue streams and potential for sustainability.		
	3. Access to information and capacity building	The initiative enhances the capacity of farmers in financial literacy, agronomy and structured trade so that through the e-Granary they can access loans and simultaneously access market through collective marketing. The system has a call centre that enables farmers to get responses to all inquiries in addition it has built in text-message features that enables us to send farmers relevant information depending on the time of the season	High cost of reach individual farmers through conventional trainings; Willingness to pay for the information;		
	4. Partnerships and policy integration	Link to private sector as service providers, with the East Africa Farmers Federation bringing collective bargaining power to farmers	Managing expectations of each partner; the analytics from data collected and how to use it for policy lobbying		
	5. Monitoring and evaluation	Monitoring on a quarterly basis based on the number of registered farmers, the number of loans given and the rate of repayment	Cost of verifying data accuracy by a third party; Overlapping cropping cycles.		

Key lessons

1. The East Africa Farmers Federation safeguards individual farmers and provides them with bargaining power facing big corporations.
2. The bundling of insurance with other services means that the initiative is able to insure farmers that would have been reticent to subscribing to insurance on its own. Finally, the information and communications technology component of the initiative allows for good penetration and ease of use by the farmers.



3. Lack of complete transaction history both financial and productive i.e. from planting to harvest is a major impediment for financial institutions to be able to make decisions on the credit worthiness of the farmers. Most farmers don't keep accurate up-to-date records of their farming activities which means that there is a need to concentrate on going through a complete production cycle with farmers and keeping records.
4. Terms and conditions of contracts with the insurance providers need to be very clear for all parties involved. The insurance premiums need to be paid immediately after the planting and an assessment done so that the underwriter will not refuse to cover the crop.



What next?

1. Bringing in more financial partners so that more farmers can be reached.
2. Continuous training of farmers on record keeping at individual and group levels, on good post-harvest practices among other topics;
3. Creating loan accounts for the farmers and develop credit scores as the condition for accessing post-harvest loan
4. Improving and re-structuring the platform to integrate payment via mobile, data archiving per crop season, generating reports in different formats, etc.
5. Rolling-out eGranary in Kenya and Uganda, with possible expansion to Tanzania and Rwanda



Learn more

- http://www.eaffu.org/index.php?option=com_content&view=article&id=154&Itemid=727

The Farm Risk Management for Africa (FARMAF) Project: promoting market-based tools for Agricultural Risk Management

Gideon Onumah, Ph.D., Agricultural Economist/Rural Finance Specialist, Natural Resources Institute.



Quick facts



Risks

- o **Weather risks**, including droughts and rainfall variability
- o **Market risks**, including access to inputs, output prices
- o **Access to finance**
- o **Infrastructure risks**, including post-harvest losses and storage



Tools used

- o Agricultural insurance (both indemnity-based and weather-index insurance)
- o Agricultural finance and microfinance
- o Collective marketing
- o Reliable market information systems (providing access to climate, production and market information)
- o Commodity exchange
- o Warehouse receipt systems
- o Public food grain reserves



Location

Burkina Faso, Tanzania and Zambia.



Number of people benefiting

About **175,000 farmers** directly benefited in the three target countries. However, as the tools promoted are being scaled up nationally, it is possible that over 3 million farmers will be impacted the medium term (i.e. next five years).



Expected results

- o Existing identified ARM tools (as listed above) improved and scaled up to enhance access.
- o ARM tools which are missing and/or can be complementary to existing ones developed.
- o Capacity of farmers' organisations and national stakeholders built for purposes of implementing actions.
- o Enabling policy and regulatory environment for the tools created and maintained through effective policy advocacy by empowered farmers.



Timeframe

2012-2016



Implemented by

- o Farmers' organizations: Pan Africa Farmers' Organisation (PAFO, continental organisation), East Africa Farmers Federation (EAFF), Réseau des Organisations Paysannes et Professionnelles Agricoles (ROPPA, West Africa), Plateforme sous-Régionale des Organisations Paysannes d'Afrique Centrale (PROPAC, Central Africa), Southern African Confederation of Agricultural Unions (SACAU), Confédération Paysanne du Faso (CPF) of Burkina Faso, Mtandao wa Vikundi vya Wakulima (MVIWATA) of Tanzania, and Zambia National Farmers Union (ZNFU) of Zambia.
- o Agrinatura institutes: Centre de coopération internationale en recherche agronomique pour le développement (CIRAD) of France, Natural Resources Institute, University of Greenwich (NRI) of the United Kingdom and Wageningen University & Research (WUR) of the Netherlands.



Funded by

European Union, Agrinatura

The Farm Risk Management for Africa (FARMAF) Project promoted scaling-up and/or development of market-based agricultural risk management tools, including crop insurance, which was interlocked with production financing schemes; reliable and more informative market information systems; and structured output marketing systems including warehouse receipt systems on different scales (commercial operations in Tanzania and Zambia and small-scale inventory credit or Warrantage in Burkina Faso) as well as exchange-based trading systems.

	Key pillars		Good practices/Strengths		Issues to consider/Challenges
	1. Risk assessment	<p>Prioritization of risks and selection of tools to be promoted was led by the participating national farmers' organizations.</p>	<p>The prioritization was based on farmers' perceptions and not robust risk assessment.</p>		
	2. Tools identification and implementation	<p>A menu of identified ARM tools (as listed above) was produced through action research by the Agrinatura institutes. The national farmers' organizations, in consultation with national stakeholders prioritised tools to promote taking into account the national context. Implementation was led by the national farmers' organizations and involved participation by government and private service providers. Implementation strategy involved "building on" existing tools (improving and scaling up as well as developing complementary tools) rather than duplicating. Private sector service provision prioritised to ensure sustainability.</p>	<p>Government role was of strategic importance, especially in creating and maintaining enabling policy and regulatory environment. However, this was quite often difficult to secure.</p>		
	3. Access to information and capacity building	<p>The interactive action research and capacity building helped empower farmers' organizations whilst also creating space for further innovations with the promoted tools.</p>	<p>Building capacity to drive implementation can be time consuming.</p>		
	4. Partnerships and policy integration	<p>Strong partnerships between farmers' organizations and research centres as well as engagement with both public agencies and the private sector (as service providers) yielded significant mutual gains for all parties.</p>	<p>Multiplicity of partnerships can create management challenges.</p>		
	5. Monitoring and evaluation	<p>Agrinatura and regional farmers' organizations led in monitoring implementation of actions, complemented by annual peer review sessions and a robust impact assessment, in particular in Burkina Faso.</p>	<p>Attribution can be a challenge when multiple tools are being assessed.</p>		



Key lessons

1. Market-based farm risk management tools can be developed and *made accessible to smallholder farmers* in developing countries. These tools include crop insurance; warehouse receipt systems; structured contract-based marketing systems; enhance market information systems and even commodity exchanges.
2. Smallholder farmers and others gain optimum benefits from these tools, including better access to pre-harvest finance at competitive interest rates if the tools are developed as a package of complementary tools rather than as totally bespoke initiatives. Differences in the national context need to be factored into the design and implementation of ARM development projects.
3. Building on existing initiatives made it possible to bring about important innovations including: introducing trade-friendly quality assurance system in the operation of Warrantage in Burkina Faso which enabled smallholder farmers to sell directly major buyers in quality-sensitive market segments and earn significant incremental income. It was also demonstrated that grain storage can bring about benefits beyond household food security and include increased household income gained through investing in livestock fattening and in cash crop production from financing secured with stored grains.
4. To the extent possible, one should prioritise financially viable private service provision rather than project-tied and subsidised delivery. This is mutually beneficial to private service providers as they gain from available technical capacity to innovate, which they may not have and/or not be incentivised to invest in because of the free rider problems.
5. Partnerships between farmers' organizations and research organisations have to be fostered to facilitate demand-driven research-to-use solutions. Giving a lead role to farmers' organisations is crucial in assuring ownership which makes it possible for them to embed ARM development programmes in their agenda. Active involvement of governments, private actors and civil society organisations in the design and implementation of ARM development projects can be crucial.
6. It is important to recognise variability in the technical capacity of key stakeholders to undertake project activities. This has to be addressed through effective capacity building. For example, private service providers often lack internal research and development capacity and therefore require assistance in innovating in response to context-specific challenges;
7. Policy and regulatory challenges can significantly impede sustainable development of ARM tools and need to be prioritised. However, addressing them often takes a long time.

Two planned results could not be attained in full were:

- Promoting viable commodity exchanges which trade futures contracts in Tanzania and Zambia - occurred because the supportive policy actions delayed implementation of required actions; and
- Significantly scaling up use of warehouse receipts systems for grain marketing and financing in Tanzania - to match the scale for export crops e.g. coffee and cashew. Disabling policy actions such as ad hoc imposition of restrictions on exports into regional markets undermined the business case for private uptake of this option.



What next?

As service provision is primarily private sector-led, there is potential for sustainability beyond the life of the project in the three target countries. However, to ensure that actions implemented under the pilots are taken forward, in all three countries, the national farmers' organizations have incorporated the ARM development programmes in their strategic development plans. There are also efforts by the national farmers' organizations to incorporate lessons in ARM development programmes initiated by national governments (as is the case in Burkina Faso and also Zambia) and to actively pursue policy and regulatory reforms which can improve the effectiveness and access by smallholder farmers to the promoted ARM tools (as is happening in Tanzania and Zambia).



The participating national farmers' organizations continue to collaborate with governments and donors in scaling up the tools which have been promoted in the three target countries. Regional farmers' organizations and the Pan Africa Farmers' Organisation are also involved at different levels in encouraging replication of this approach. It is recognised however that the national context has to be taken into account in any attempt to replicate it.



Learn more

• <http://www.farmaf.org/en/>

Creating appropriate institutional frameworks to reduce institutional risks

In addition to climate or market-related risks, stakeholders along agricultural value chains live and work in a given region, country, town or village, and face constraints and risks related to their institutional and political contexts. Policy risks refer to regulatory and operational decisions by governments or government entities, as well as salient changes to actors or institutions for political reasons. They can curtail supply chain participation and disrupt physical, financial or information flows; unexpectedly alter the 'rules of the game' for supply chain entry and activity; or create uncertainties about the sustainability of supply chain activities due to political variables.

For example, a government can unexpectedly decide to cut subsidies for a type of fertilizer or insurance, to alter the conditions of eligibility to social protection schemes, or to shift funding away from extension services. Facing these risks, measures can be taken to reinforce laws or policies to ensure continuity in government action despite political changes, or to develop stable value chains and information systems.

The case study presented in this section shows how negotiations championed by community leaders can lead to new institutional arrangements to face specific risks and constraints.

JASIL: community-based natural resource management for Mongolia's herders

Hijaba Ykhanbai, JASIL Mongolia and Guilia Baldinelli, International Land Coalition.



Quick facts



Risks

- o **Weather risks**, including extreme climate events, rainfall variability and soil degradation.
- o **Policy and institutional risks**, including land policies.



Tools used

- o Community-based natural resources management
- o Access to climate, production and market information
- o Farm business advice
- o Capacity building and experience shared programme



Location
Mongolia.



Number of people benefiting

54 community leaders have signed co-management contracts **at the district level**, while **42 community leaders and 2 830 community members** have established agreements **at the local level**.



Expected results

- o Co-management is effective strategy for overcoming the 'tragedy of the commons' when all the stakeholders support than can receive both short term and longer-term results
- o Co-management supports sustainable livelihood opportunities of local communities
- o Community based Co-management is important for adaptation to climate change and for reducing natural resource degradation
- o Collaborative Learning has contributed significantly to building the capacity of stakeholders at all levels.
- o Implementation of participatory action research stimulates the interest of local stakeholders to carry out joint learning activities, which integrate their local and indigenous knowledge
- o Co-management allows for the building of stronger links and trust between the local people and government organizations.



Timeframe

2000 -2011, weather forecast data support at present.



Implemented by

JASIL.



Funded by

-

The 200,000 herder households of Mongolia – representing more than 20% of the population – manage around more than 45 million livestock heads. Most of these nomadic and semi-nomadic herders move on a seasonal basis, in pursuit of pastureland. Pastureland is owned by the state but herders can access the land and its resources as a public good. The Land Law of Mongolia, approved in 2002 and amended in 2004, only allows herders to use pastureland and does not permit its allocation or long-term lease. However, public land is overused and degraded.

In order to curb this resource degradation and to strengthen the traditional production system of the pastoralists, JASIL, with a wide diversity of stakeholders, developed and implemented a novel approach for community-based natural resource management of the pasturelands. Herding families enter into contract with community leader and with the local government, in order to define science-based contracts for the seasonal use and management of pastureland, which include guidelines on the carrying capacity of the plots which are demarcated in a participatory way. This management tool is inclusive and empowers all stakeholders to actively participate in ecosystem management, along with local authorities. Moreover, when implemented at large scale, it can be an effective approach for adaptation to climate change and reduction of natural resource degradation.

	Key pillars	Good practices/Strengths	Issues to consider/Challenges
	1. Risk assessment	The risk assessments undertaken through project evaluation document, as participatory process.	During the implementation only economic and climate-related risks were considered, but now also need to focus on political and legal changes needs to include possible risks
	2. Tools identification and implementation	Tool identified based on good practices implemented in other context and specificities of the context (land ownership rules)	Under the on-going legal and policy changes to ensure coherence at different levels and between the action of different actors (government, local communities, etc.)
	3. Access to information and capacity building	Trainings improved capacity at all levels. Access to info improved, need more actions.	Future need for community members to access on all socio-economic info and from other side need to fill gap info and data on pastoralism
	4. Partnerships and policy integration	Partnership approach, which led to updates in Land, Pasture and Forest laws to include community-based natural resource management	Integrated pasture and forest management at all levels.
	5. Monitoring and evaluation	Planning, monitoring and evaluation is practiced	Land Monitoring Indicators

Key lessons

1. It is possible to imbue traditional pastureland management methods with scientific innovations and experiences from other countries. This process led to the formalisation of traditional rights and to a significant increase in herders' incomes.
2. The government is and remains an important stakeholder in the co-management of pastureland, as the success of the co-management depends greatly on a supportive legal framework, policies and actions of the state.
3. In creating co-management contracts, it is important to include all stakeholders: the local governments, the communities, and the individual community members. While decision making around pastureland is often conflictual because many stakeholders are involved and both individual and collective interests are at stake, co-management strengthens the links and trust between the local people and the decentralised governmental administrations.
4. More reviews and corrections need to be made in terms of legalising co-management of natural resources in Special Protected Areas, and to take into account the migration of herders from one area to the other during episodes of severe winter weather.

Expected results were fully implemented for community based forest and natural resources use and protection. However expected results on community based pasture land use are requiring more time, because the effort to improve legal and regulatory support to formalize co-management contracts at national level has not yet reached full scale.



What next?

JASIL in collaboration with other stakeholders in the country working to create more favourable legal support for community based pasture management in the country, by approving the Draft of Pasture Law or related Articles to Land Law. JASIL is also testing how information and communications technology can improve the effectiveness of the community-based natural resource management in environmental and economic terms, for example by disseminating weather forecast data.

These experiences now applicable for other regions and provinces of Mongolia, as well for countries where pasture land is state owned and nomadic and semi-nomadic pastoral agriculture is practicing.



Learn more

- <http://www.landcoalition.org/en/regions/asia/member/jasil>

Integrating tools to manage weather risks

The holistic approach to agricultural risks management sees agricultural risks as a system, and promotes an integrated approach, looking at all risks present and prioritizing them. Once the main risks are identified, the design of an integrated risk management strategy is possible, with the use of several complementary tools to address the risks.

While previous examples have demonstrated some risk management initiative that focused on a particular risk, this section aims to showcase examples that are closer to the holistic approach to ARM, integrating the key pillars for better design: identification of risks, implementation of tools, access to information and capacity building, partnerships and policy integration, and monitoring and evaluation.

The two case studies of this section showcase the integration of several tools to manage climate risks. From farming practices to insurance or diversification, these case studies demonstrate the power of using an integrated approach to tackling agricultural risks, and the impact of strong partnerships and engagement of local stakeholders, which account for a large part of the successes of the initiatives.



The climate-smart village approach: Framework of an integrative strategy for scaling up adaptation options in agriculture

Arun Khatri-Chhetri, Ph.D., Agri-System Economist, CGIAR Research Program on Climate Change, Agriculture and Food Security.



Quick facts



Risks

- o **Weather risks**, including droughts, floods and rainfall variability;
- o **Biological and environmental risks**, including livestock diseases and plant pests and diseases;
- o **Market risks**, including access to inputs, quality of inputs and output prices;
- o **Access to finance**.



Tools used

- o Climate-smart agriculture
- o Crop and enterprise diversification
- o Asset- and income-based strategies
- o Agricultural insurance
- o Weather-index insurance
- o Agricultural finance and microfinance
- o Access to climate, production and market information
- o Farm business advice
- o Capacity building and experience sharing



Location

India, Nepal and Bangladesh.



Number of people benefiting

17 695 households, a number that will increase greatly as national and state governments, as well as a private company, ITC Limited, are implementing Climate-Smart Village approaches across Nepal and various Indian states (Haryana, Bihar, Maharashtra, Madhya Pradesh, Rajasthan, Uttar Pradesh, Punjab).



Expected results

- o 29 Climate-Smart Agriculture Technologies are implemented through the Climate-Smart Village approach, among them 15 technologies have greenhouse gas mitigation potential and 18 technologies can provide benefits to women farmers,
- o 17,695 households have adopted multiple Climate smart agriculture technologies and practices in three countries (India, Nepal and Bangladesh) in the Pilot Climate Smart Villages.
- o Currently, the government of Haryana in India is implementing the results in 500 villages with a focus on resource conserving machinery, and sensors for optimizing fertilizer use and reducing greenhouse gas emissions. State Governments of Bihar, Maharashtra, Madhya Pradesh and Telangana in India have also proposed to finance the use of this approach for building resilience in agricultural systems in thousands of villages. ITC Limited, a multi-business private company of India is also implementing this approach to help agriculture-dependent communities in its outreach areas. ITC Limited is building 2000 Climate Smart Villages in 6 six states (Madhya Pradesh, Maharashtra, Rajasthan, Bihar, Uttar Pradesh and Punjab) in India.

- o Similarly, the Government of Nepal has started implementing the Climate Smart Village approach as a part of the climate adaptation program in 14 climatically most vulnerable districts in 7 States (2 districts in each state). Regular communication and engagement with national and sub-national level policy makers and implementers, policy dialogues and workshops, and periodic visits of Climate Smart Village sites has created awareness about this approach in the region.



Timeframe

Started in 2012.



Implemented by

CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), National and sub-national government, farmers and farmers groups and private sector.



Funded by

CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), National and sub-national government, farmers and farmers groups and private sector.

The Climate-Smart Village (CSV) is an approach to agriculture research for development, that tests technological and institutional options for dealing with climatic variability and climate change in agriculture using participatory methods. It aims to scale-up and scale-out the appropriate options and draw out lessons for policy makers from local to global levels. The approach incorporates evaluation of climate-smart technologies, practices, services and processes relevant for local climatic risk management and identifies opportunities for maximising adaptation gains from synergies across different interventions and recognising potential maladaptation and trade-offs. It ensures that these are aligned with local knowledge and link into development plans. This approach is under implementation in Asia, Africa and Latin America in diverse agro-ecological settings. It incorporates climate smart technologies, practices, services and processes relevant for local climatic risks management and aligned with current adaptation policies/plans and village development programs. The focus is generally on a basket of synergistic options, rather than on single technologies. Major initiatives include:

- Strategic design of land use options including priority crops, technologies and practices based on agro-ecological analysis and farmer typologies;
- Promoting climate-smart technologies and maximizing synergies among interventions;
- Providing value-added weather information services including weather insurance to farmers;
- Facilitating community partnership for knowledge sharing and implementation of climate-smart agriculture;
- Scaling-out through outreach activities like farmers' fairs and videos;
- Scaling-up through on-going government schemes, policies, and programs, and private corporate social responsibility programs.

	Key pillars	Good practices/Strengths	Issues to consider/Challenges
	1. Risk assessment	Participatory, through baseline surveys and working groups with farmers, extension workers, private sector and civil society organizations. Backed-up by historical climate data. Participatory prioritization of climate smart interventions based on crop and cropping system	Very local level observed historical climate data are not available for every location
	2. Tools identification and implementation	Using existing, context-specific tools for climate change adaptation and mitigation	-
	3. Access to information and capacity building	Important focus on evidence generation and research for development	-
	4. Partnerships and policy integration	Work to generate greater evidence of climate smart agriculture effectiveness in a real-life setting and facilitating co-development of scaling mechanisms towards landscapes, subnational and national levels.	Consolidation and convergence among the governments' programs at the local level
	5. Monitoring and evaluation	Based on economic, environmental, social, institutional and "human well-being" criteria	-

Key lessons

1. Integration of global and local knowledge through the climate smart villages approach can have a large positive impact on adaptation and mitigation of climate change in agriculture with better targets;
2. This approach promotes strong partnership at local level among government, private sector, research organizations and farming communities which can facilitate integration and convergence of adaptation and mitigation programs;
3. This approach also promotes synergies among the climate smart technologies, practices and services.
4. Though this approach generates a strong evidence base for climate change adaptation and mitigation through its collaborative and participatory research, it is a knowledge intensive approach which requires considerable level of efforts to design and implement, including in capacity building



What next?

The Climate Smart Village approach aims at scaling-up through policy and institutional change/reform at national, sub-national and local levels, and through the development of business and institutional models of the Climate Smart Village approach applicable for government and private sectors. Next steps therefore include engagement with policy makers at different scales and the development of Climate Smart Village scaling-out schemes in collaboration with key stakeholders.



Learn more

- <https://ccafs.cgiar.org/climate-smart-villages#.WehdBa3pNE4>

The Rural Resilience Initiative: linking interventions against climate risks

Fabio Bedini, Coordinator, Rural Resilience Initiative, World Food Programme.



Quick facts



Risks

- o **Climate-related shocks** and stresses affecting smallholder agriculture.



Tools used

Asset creation and improved resource management (risk reduction), micro-insurance (risk transfer), livelihoods diversification and microcredit (prudent risk taking), and savings (risk reserves)



Location

Ethiopia, Kenya, Malawi, Senegal, Zambia, Zimbabwe.



Number of people benefiting

55 000 in 5 countries **in 2017**, target of **500 000** in 10-15 countries **in 2020**.



Expected results

- o Vulnerable smallholder farmers improve their food security and livelihood resilience to climate-related shocks and stresses through an integrated risk management approach that includes market based instruments to mitigate vulnerability
- o Governments and partners include integrated risk management approaches into their strategies and programs to better address the challenges related to climate change;
- o Sustainable commercial markets for insurance and rural finance products are strengthened.



Timeframe

2009 - 2022.



Implemented by

Global strategic partnership between Oxfam America and the World Food Programme. Implemented at the local level by governments and non-governmental organizations, as well as private sector actors.



Funded by

- o Past partners: USAID, Swiss RE, Cargill and Rockefeller Foundations, France Ministry of Foreign Affairs
- o Current partners: Swiss Agency for Development and Cooperation (SDC), Sweden, Norway and ELMA relief foundation
- o Expected new partners in 2018: Canadian International Development Agency (CIDA), KFW and Green Climate Fund (GCF)

The initiative: risk assessment, tools identification and design

The World Food Programme (WFP) and Oxfam America (OA) officially launched the R4 Rural Resilience Initiative (R4) in 2011 to enable vulnerable rural households to increase their food and income security in the face of increasing climate risks through a combination of four risk management strategies: improved resource management through asset creation (risk reduction), insurance (risk transfer), livelihoods diversification and microcredit (prudent risk taking) and savings (risk reserves). The strength of this initiative is to create bridges which reinforce the impact of actions to build resilience and better manage climate and agricultural risks.

The Rural Resilience Initiative has broken new ground in the field of integrated climate risk management by enabling the poorest farmers to receive crop insurance in exchange for investing in asset creation and improved resource management, building into either existing government social safety nets, the WFP's Food Assistance for Assets program or the FAO's Conservation Agriculture program. To ensure long-term sustainability, the initiative contributes to the creation of rural financial markets, by building local capacity and gradually transitioning farmers to pay for insurance in cash. In addition, it builds synergies with other relevant resilience oriented tools and programs, such as the WFP's Purchase for Progress which supports smallholder farmers' access to markets. In some countries, the Rural Resilience Initiative is also incorporating climate services for agriculture, offering farmers real-time weather information to help them take more informed decisions.



Key pillars



Good practices/Strengths



Issues to consider/Challenges



1. Risk assessment

Major criteria for selecting implementation Countries were recurrent droughts or extensive dry spells during critical crop development stages preventing large numbers of rural households from escaping food insecurity. Risks are then identified and prioritized at the national and sub-national level before more local risk assessments for the design of insurance products are carried out

National capacity on Disaster Risk Reduction.
Availability of data (climate shocks)

	2. Tools identification and implementation	Existing tools, programs, and systems are reviewed in each country before new tools and partnerships are explored	Scalability of tools, localized initiatives, capacity of local partners
	3. Access to information and capacity building	The World Food Programme is a trusted and deliver-oriented national partner with a recognized expertise in operating at scale and building capacity of Governments	Lack and/or bad quality information on climate and other risks at country level, Local skills to develop and manage climate risk management tools
	4. Partnerships and policy integration	Blending of public and private interests for increased sustainability, support of national systems	Time to build ownership by local stakeholders
	5. Monitoring and evaluation	Process and participants satisfaction is regularly monitored through light surveys. Overall progress is measured through socio-economic and food security indicators. Measurements of resilience have been tested in Malawi and Kenya with satisfactory/promising results. A specific monitoring system with dedicated indicators has also been put in place for the micro-insurance component.	Local data collection and analysis capacity



Key lessons

1. Insurance is not a fits-all solution. It has to be contextualised and bundled with other risk reduction tools and services. Its added value lies in the rapid transfer of resources to farmers affected by a shock and in its potential to unlock investment that provides opportunities for growth in non-shock years. In order to keep the insurance premium at affordable levels, it is essential to focus on the worst events and manage the more frequent risks with other tools.
2. Achieving a systematic transition process from vulnerable food insecure to resilient and productive households requires a clear exit strategy and multi-year resources. It also requires a systematic process to transfer capacity & responsibility to local public and private stakeholders.
3. In order to offer a progressive path to develop commercial services, the value-proposal is a set of adapted and integrated interventions impacting positively household's and community capacity to face shocks.
4. This approach requires a high initial investment, and the complexity of the components calls for strong coordination mechanisms.
5. Understanding contextual success factors and bottlenecks to scaling up is leading to more realistic plans for expansion.



What next?

JASIL in collaboration with other stakeholders in the country working to create more favourable legal support for community based pasture management in the country, by approving the Draft of Pasture Law or related Articles to Land Law. JASIL is also testing how information and communications technology can improve the effectiveness of the community-based natural resource management in environmental and economic terms, for example by disseminating weather forecast data.

These experiences now applicable for other regions and provinces of Mongolia, as well for countries where pasture land is state owned and nomadic and semi-nomadic pastoral agriculture is practicing.



Learn more

- <http://www.landcoalition.org/en/regions/asia/member/jasil>

Lessons learned

The holistic approach to agricultural risk management, rather than a topic, is a way of thinking about sustained livelihood enhancements of agricultural value chains stakeholders, taking into consideration the risks, trends and constraints that characterize specific environments. While the initiatives featured in this publication have not been designed or implemented following this approach specifically, they all bring some insights on different conditions for a holistic agricultural risk management. Some of the initiatives develop very precise and scientific risk assessments or modelling, while other focus on developing capacities and use participatory approaches to identify risks and tools to manage them. Some harness the power of technology and innovation, and others emphasize the linkages between actors, interventions and programmes.

Yet, even though these initiatives are implemented in different contexts to address varied risks through an array of tools, the good practices and issues to consider that they highlight are, for the most part, similar. Project managers underline the importance of participatory processes, partnerships between different types of actors, from the public and private sectors, contextual analysis of risks, tools and policies, and capacity development. They also provide advice and point to challenges related to the availability and quality of accessible and timely information, one of the key components of any ARM strategy, and to the time required to build and formalize. Moreover, they emphasize the importance of looking at the context and risks, beyond the intervention's scope to ensure, and of conducting cost-benefits analysis of the tools envisioned to ensure the sustainability of ARM strategies.

These lessons show the relevance of the five pillars described in PART I of this publication: risk assessment and prioritization; tools identification and implementation; access to information and capacity building; partnerships and policy integration; and monitoring and evaluation. Out of these, the importance of policy and the role of governments in promoting the holistic approach stand out as important conditions for encouraging investments in the agricultural sector. In addition, the need for more evidence to guide practices and foster learning, another similarity found in the lessons learned, points to the need for more dissemination of information and results of ARM initiatives. These topics will be addressed in PART III of this publication.



PARM
PLATFORM FOR
AGRICULTURAL RISK
MANAGEMENT



Part III



Part III. Mainstreaming the holistic approach to ARM into policy and practices for better design and investment

Mainstreaming the holistic approach into policies and practices of governments, technical partners, donors and the private sector is needed to create and sustain an environment in which investments contribute to the management of agricultural risks and, at the same time, better management of risks triggers more and better investment in agriculture. Indeed, agricultural risk management should not be self-standing, but integrated in the development of strategies and the implementation of activities linked to the development of the agricultural sector, to achieve broader development objectives.

Through efficient mainstreaming of ARM into policies, whether at the regional, national or local level, broader development objectives will be easier to achieve and to sustain, and investments in the agricultural sector –whether private or public- will not be lost. However, the management of agricultural risks is a highly contextual process, and cannot be achieved through a single intervention, which means that the involvement of governments and their partners should be continuous, to adapt strategies and ensure that risks are managed. In this situation, governments take responsibility for managing the residual risks that individual stakeholders cannot, through disaster management plans and dedicated budgets, while empowering farmers and market actors to manage less severe risks, through an enabling environment with clear regulations and policies that support the development of ARM tools and guide investments.

In order for the successful integration of ARM into policies, it is important that ARM is truly seen as a multi-sectoral issue, and that it is integrated not only in policies of the Ministry of Agriculture, but also in sectoral policies related to trade, environment, finance, disaster risk reduction, social protection, etc. This can be achieved through formal cooperation at the high-level, between Ministers, but the creation of multidisciplinary, inter-ministry working groups in which technical staff can work on the content and the coherence of specific interventions.

Policy dialogue is essential from the risk assessment phase to the implementation, to ensure that all stakeholders needed to achieve cooperation and results for ARM are aware of its benefits, and have incentives to participate in the process. Here, identifying a national champion for promoting ARM in or close to the government is crucial to build and maintain the issue on the political and technical agendas for policy making. In order to get this engagement and to effectively include ARM into policies, capacity strengthening of both high and middle-level government officials is essential, to make the opportunities of an ARM approach tangible.

Engagement of the private sector is also a key element of agricultural risk management, as private and public-sector actors play complementary roles in ensuring the implementation and sustainability of tools and stakeholders' strategies. The deliberate integration of ARM into policies can send a positive signal and create an enabling environment to attract the private sector. Further investments, guided by policies and investment plans, will then reinforce agricultural risk management across the country.

At least two key elements are required for building successful partnerships between public and private actors. The first is **accountability**, both from the private sector towards the government and the other way around. It is indeed crucial that businesses engage in the process lead by the government and invest in the countries' priority development areas, but governments should also be relied upon to deliver on their commitments regarding the provision of certain services, the building of infrastructure, or the maintaining of a stable policy and regulatory framework. A second element for success is the **institutionalisation of the public-private cooperation**, through the development of dedicated communication and working channels. Regular meetings between government and private sector representatives, as well as the creation of business associations, can enhance coordination and allow for planned action and a better investment climate.

In the process of strengthening agricultural risk management, donors and technical partners also play a key role. They can provide information and technical expertise on existing risks, possible tools and lessons from intervention in similar contexts, and, through their financial support, strengthen government action, pool resources and thereby facilitate further investments.



Finally, the development of more thorough risk analysis at the inception of project design and throughout the implementation of initiative undertaken by donors and technical partners, through the mainstreaming of the holistic approach to ARM in design and implementation principles, can also lead to sustained success and attainment of broader development objectives. Indeed, by implementing “agricultural-risk-proofed” projects, development partners ensure that their action is rooted in the local context, adaptive to changes and contributing to the strengthening of ARM capacities both on the field and within their institution.

In practice: mainstreaming the holistic approach to ARM into policies in Uganda¹¹.

Applying this integrated approach is not easy, but some recent experiences offer insights on potential paths for the mainstreaming of agricultural risk management into policies. The case of Uganda is one of them. Though the policies are too recent for an evaluation of their implementation to be conducted, the integration of ARM into policies, following a holistic risk assessment and the identification of appropriate tools, opens new possibilities for sustainable investment that will truly benefit farmers and increase the resilience of the agricultural sector.

The Government of Uganda, through the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), has been actively engaged, at least since 2011, in a process to mainstream Agricultural Risk Management into its policy framework and to develop investment plans for its stakeholders. The Platform for Agricultural Risk Management (PARM), in partnership with the New Partnership for Africa's Development (NEPAD) and other development actors, has supported the Government in strengthening this ARM process since 2014, through a holistic approach. Following a thorough risk assessment study undertaken in the country, the Government of Uganda, has integrated ARM policies into its Agriculture Sector Development Plan. From the risk assessment, crop pest and diseases were found as the main source of losses with very high average severity and frequency, and potential large losses in the case of an extreme scenario. Post-harvest losses and price risk followed as main risks in terms of their quantitative impact.

The Centre for Agriculture and Biosciences International, a leading institution on plant health and development has therefore developed a comprehensive Plant Health Investment plan for Uganda of USD 24 million in five years to upgrade the Ugandan Plant Pest management system, building cost-efficient information systems to detect and monitor plant pests and diseases, improving the access to pest management services and strengthening the capacity of the Government, to monitor, analyse and combat the threat of plant pests and diseases. In addition, an innovative public-private partnership to enhance access to information and risk analysis for farmers and their service providers was developed by FIT Uganda as a private agri-business consultant and developer, and AgriRiskAnalyser as a developer of a risk assessment software solution. The proposal is called Financial Information and Risk Management and foresees to complement a private information system for financial institutions, service providers and farmers to provide risk profiles of farmers in a holistic manner, combining farmer business information with information about climate, market and disease risk exposure. Finally, a partnership on ARM capacity building with Makerere University and the extension services of the Ministry of Agriculture, Animal Industry and Fisheries was developed to gather a pool of knowledge and expertise and provide trainings on a holistic ARM, in particular to the extension services and services providers.

This process, which was developed following the key pillars for agricultural risk management, was possible due to the high-level of engagement of the government, and is leading the way for more investments further strengthening of ARM in the country. Once the policies are implemented, the evaluation of their results and impacts will enable the strengthening of ARM strategies and the redefining of policies to contribute further to the resilience-building of farmers.

¹¹ Source: Platform for Agricultural Risk Management. (2017). *Uganda Final Report*. Rome: Platform for Agricultural Risk Management.

Conclusion

This publication set out to identify basic criteria and guidelines for better design of ARM initiatives, based on the holistic approach to ARM, and to develop a collection of practices and lessons from selected case studies. Part I outlined the conceptual basis of the holistic approach to ARM, looking not only at individual risks or stakeholders, but rather at all risks – and their interactions-, and all stakeholders involved in agricultural value chains, from farmers to service providers or policy makers. In order to operationalize this approach and guide either the design of ARM initiatives or the integration of ARM as part of programmes with broader development objectives, five key pillars were developed through a collaborative approach, building on the experiences of PARM, its partners, and the participants in the workshop held on this topic on 25 October 2017. They are as follows: risk assessment and prioritization; tools identification and implementation; access to information and capacity building; partnerships and policy integration; and monitoring and evaluation.

Although this publication introduced this set of pillars for the first time, the analysis of diverse promising practices (Part II) clearly highlights the relevance of these guidelines for analysing and designing initiatives to strengthen risk management capacities of agricultural value chains stakeholders. The integration of ARM into policies and standard operating practices appears like an important area to ensure sustainability and further strengthening of ARM capacities, as was described in Part III. Developing this integration and the partnerships necessary to pursue long-term, coordinated action for ARM will require considerable investment, in terms of financial resources but also in terms of time and political commitment. However, the example of Uganda shows how ARM can be integrated into national policies, in line with the holistic approach. The next step, the implementation of these policies, will be crucial for effective risk management throughout the country.

Agricultural risk management represents a promising approach to improve livelihoods of all actors involved in agricultural value chains, while contributing to achieve broader development objectives – connecting the dots between individual interventions. This publication hopefully represents one of many future attempts at gathering and disseminating knowledge on agricultural risk management practices.

Main takeaways

- The need for agricultural risk management is now widely agreed-upon, but its operationalization does not yet follow a systematic approach.
- Five pillars for the better design of ARM initiatives emerge from experiences undertaken in the field so far:
 - Risk assessment and prioritization;
 - Tools identification and implementation;
 - Access to information and capacity building;
 - Partnerships and policy integration;
 - Monitoring and evaluation.
- Mainstreaming ARM into policies and practices is a key element for the sustainability of ARM interventions and to channel more investments into the agricultural sector. However, the implementation of such policies is complex, as ARM is a multi-sectoral endeavour requiring coordination of various stakeholders.



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Annex



A. A mapping of ARM initiatives

As an Agricultural Risk Management framework comprises many different types of interventions, a large number of programmes and initiatives integrate components related to Agricultural Risk Management, or contribute to building resilience of agricultural value chains. The initiatives presented below were selected by the PARM Secretariat after an open Call for Proposals. This list is therefore not meant to be exhaustive, but rather to showcase the diversity of initiatives and approaches currently implemented.

Using information to reduce information asymmetry risks

Agro-met tools, Food and Agriculture Organization of the United Nations

Increasing availability and accessibility of weather and agrometeorological information allows farmers to prepare for variability in weather, time their planting and harvesting and better understand their cropping systems. The purpose of the project is to present this information in the most user-friendly way possible and also combine weather data with country and region-specific crop data to make useful and specific recommendations. The close collaboration with national agencies and services in Africa and Macedonia facilitates the involvement of a great number of farmers, in the vision of a country-driven approach. In Rwanda and Senegal, a weather and agro-meteorology smartphone application and a text-message system have been developed. In Macedonia, a website has been developed with weather/ climate information and agrometeorological information such as crop disease, soil water and irrigation.

Digital inclusion, Food and Agriculture Organization of the United Nations

The initiative focuses on the development of four apps that will help improving agricultural services and availability of local content. It will make useful data, information and statistics available and accessible as digital services to the rural poor. It is initially developed for use in two countries in Sub-Saharan Africa: Senegal and Rwanda. The applications are: "Cure and Feed your livestock", "e-Nutrifood", "Weather and Crop calendar", and "AgriMarketplace".

EMPRES Global Animal Disease Information System, Food and Agriculture Organization of the United Nations

EMPRES Global Animal Disease Information System (EMPRES-i) is a web-based application designed to support veterinary services by facilitating the organization and access to regional and global disease information. Timely and reliable disease information enhances early warning and response to transboundary and high impact animal diseases, including emergent zoonoses, and supports prevention, improved management and progressive approach to control. EMA-i is a mobile app that allows for transmission of data directly from the field to the EMPRES-i database.

Plantwise - Centre for Agriculture and Biosciences International (CABI)

Plantwise works to help farmers lose less of what they grow to plant health problems. Working closely with national agricultural advisory services we establish and support sustainable networks of plant clinics, run by trained plant doctors, where farmers can find practical plant health advice. Plant clinics are reinforced by the Plantwise Knowledge Bank, a gateway to practical online and offline plant health information, including diagnostic resources, best-practice pest management advice and plant clinic data analysis for targeted crop protection.



Transferring risks: insurance for agricultural risk transfer

Agricultural Index Insurance - Feed the Future Innovation Lab for Assets & Market Access

The Innovation Lab for Assets & Market Access has piloted a number of index insurance products, including most notably the Index Based Livestock Insurance project in Kenya and Ethiopia, but also area yield insurance for cotton farmers in Mali and Burkina Faso and bundled insurance with improved maize seed for farmers in Mozambique and Tanzania. The Innovation Lab for Assets & Market Access activity is primarily a research activity, focused on developing innovations in index insurance and understanding farmer barriers to on-farm investment. The IL documents and shares lessons learned to assist project developers and policymakers design high-quality insurance products that protect farmers and increase resilience.

Bima Maono Climate and agro-insurance, KfW and VisionFund International

VisionFund International's climate & agro-insurance scheme Bima Maono consists of crop (and limited livestock) insurance and is part of an integrated agricultural-development and financing programme, supported by KfW's InsuResilience Investment Fund. Starting in Tanzania, Bima Maono shall be rolled out to at least seven African countries. Crop insurance is extended on the back of agricultural lending (usually input loans) and supported by advisory on improved farming techniques. The insurance scheme is a hybrid of weather index and multi-peril crop insurance (flood, drought, pests and disease), the former up to the germination phase, the latter up to harvesting and based on expected yield shortfall (actual vs. expected yield, determined by agronomists), developed by ACRE Africa. Additionally, VisionFund is implementing a portfolio level climate index natural catastrophe scheme, called ARDIS in 5 African and 2 Asian countries to provide a funding mechanism to maintain the supply of credit to communities affected by disasters.

CADENA - a Programme of the Mexican Government

CADENA (Componente de Atención a Desastres Naturales en el Sector Agropecuario y Pesquero) is a Mexican governmental programme that offers macro-level crop and livestock catastrophe insurance programs to small-scale, vulnerable farmers, through a public-private collaboration mechanism. It is operated by the Mexican Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food. The CADENA program contains two main components: (i) the catastrophe agricultural insurance programs for farmers, livestock producers, aquaculture farmers, and fishermen, and (ii) in states where catastrophe agricultural insurance is not provided, a continued direct support that involves compensation payments to farmers for climatic disasters.

Picture-based insurance, IFPRI

Picture-based insurance is an innovative crop insurance product that we are currently piloting in the states of Punjab and Haryana in India. Using a smartphone app, insured farmers take pictures periodically of the same section of their insured plots, from land preparation to harvest. These geo-referenced pictures are uploaded to the cloud to serve as input for loss assessment. In the pilot phase, insurance pay-outs were determined by agronomic experts. Combining the data from these loss assessments with objectively measured yields and self-reported damage, developing algorithms are currently developed that estimate indices of crop damage based on geo-referenced pictures for low-cost automated loss assessment for insurance purposes.

Replanting Guarantee, ACRE Africa

The Replanting Guarantee Product is an input replacement insurance product that covers the risk of adverse weather conditions like insufficient rainfall at the sensitive germination phase. In the event of the insured event, drought or insufficient rains, compensation is sent to the registered farmers via their mobile money wallets. This enables farmers to purchase another bag of input, example - seed, to salvage a season.

Weather Risk Management Facility, World Food Programme / International Fund for Agricultural Development

Since 2008, the International Fund for Agricultural Development has partnered with the World Food Programme through the joint Weather Risk Management Facility. Through this partnership, it has built experience in design and implementation of agricultural index insurance, and engaged in research, knowledge management and capacity enhancement. The Weather Risk Management Facility sees agricultural insurance as a tool to both protect and promote smallholder agricultural production and rural livelihoods.

Integrating smallholders in value chains to mitigate market and price risks

Commodity exchange trading in Ethiopia, Agricultural Transformation Agency

Commodity Exchange trading, by creating certainty regarding the quality, quantity and location of commodities to be traded, reduces transaction costs, which may be in the form of: cost of sourcing produce for traders and processors as well as the cost of accessing markets for farmers, especially for premium quality produce. Exchange trading improves collection and dissemination of market information to all players. The warehouse receipt system, which may be developed to underpin commodity exchange trading (as a delivery mechanism), ensures that agricultural produce is stored in well-run facilities, thereby reducing post-harvest losses. That system also makes it possible for producers, who so desire, to defer sale during the harvest season, when prices are low and to gain from seasonal price increase. It also allows smallholder farmers to aggregate – sometimes facilitated by inventory finance and sell directly to processors and large traders, rather than through intermediaries.

Integrated grain value chain lending and insurance, Feed the Future Senegal

Since 2012, the Senegal National Agricultural Bank (CNCAS), the National Agricultural Insurance Company, small scale farmer unions and local rice mills are implementing an integrated lending mechanism that links in-kind farmer loan re-imbursments to miller lines of credit by resorting to grain collateral management mechanisms. The Farmer loan performance is also secured through the bundling of an agriculture insurance product. The system rests on an information technology based inventory and farmer tracking tools, the development of adapted insurance products, the improvement of rice quality and the introduction of quality testing protocols at farm level, the mainstreaming of certified seed and best practices etc.

Creating appropriate institutional frameworks to reduce institutional risks

Disaster Risk Management Support, African Development Bank

The disaster risk management support initiative aims to enhance the resilience and response to climate shocks in Burkina Faso, Chad, The Gambia, Mali, Mauritania, Madagascar, Niger and Senegal by improving the management of natural disaster risk and adaptation to climate change. More specifically, the initiative strengthens the technical capacity of the eight countries to evaluate climate-related risks and costs, and elaborate subsequent mitigation measures at both national and sub-national levels; and develops specialized financing mechanisms within each country to use in the planning, preparation and rapid response (including disbursement of emergency funds) to address climate disasters at national and local levels.

Integrating tools to manage weather risks



ANADIA: Adaptation to climate change, disasters prevention and agricultural development for food security, IBIMET

ANADIA is a training and research for development project, implemented in Niger since 2013 and funded by the Italian Agency for Development Cooperation. The objective of ANADIA is to contribute to a sustainable agriculture, adapted to climate change and less vulnerable to climatic extremes in Niger. ANADIA aims to strengthen the capacity of stakeholders at national, regional and local level to mainstream climate change adaptation and disaster risk reduction in decision making from national to farm scale”.

Assisted Natural Regeneration, International Fund for Agricultural Development

Assisted natural regeneration is a simple, low-cost forest restoration method that can effectively convert deforested lands of degraded vegetation to more productive forests. The method aims to accelerate, rather than replace, natural successional processes by removing or reducing barriers to natural forest regeneration such as soil degradation, competition with weedy species, and recurring disturbances (e.g., fire, grazing, and wood harvesting). Within the framework of a support from the Global Environment Facility to implement a programmatic approach for sustainable land management, Assisted Natural Regeneration was part of the initiatives put in place in the rural areas of the Maradi region in Niger.

Farming with Indigenous Micro Organisms, South Asia Rural Reconstruction Association

Many traditional farming communities and indigenous peoples have over generations developed agricultural systems that are productive and environmentally sustainable. Such traditional farmers domesticated thousands of crop species and millions of plant varieties, mostly grown without agrochemicals. While traditional agricultural knowledge and practice has in many places been lost or atrophied, such small diversified farming systems offer promising models for promoting biodiversity, conserving natural resources, sustaining yield without agrochemicals, providing ecological services and lessons for resilience in the face of environmental and economic change. The initiative blends indigenous micro-organisms technologies with Indian traditional farming practice to increase the resilience of farmers.

Hydroponic grass, MAVIM

In Maharashtra (India), the regions of Marathwada and Vidarbha had been facing severe drought conditions for 3 - 4 years. Scarcity of green fodder affected animal health and milk production resulting in distress sale of cattle. To prevent this, MAVIM introduced Hydroponic Grass and Azola cultivation among farmers under the Micro Livelihoods Plans as part of the Tejaswini Rural Women Empowerment Programme. Due to availability of hydroponic grass and Azola, fat ratio in the milk was maintained and milk production also increased. Micro Livelihoods Plans members could retain their animals.



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