



# FANRPAN

## Policy Brief



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### Policy and Institutional Arrangements for Managing Risk for Crop Production and Post-Harvest Handling in Disaster-Prone Areas of Zimbabwe

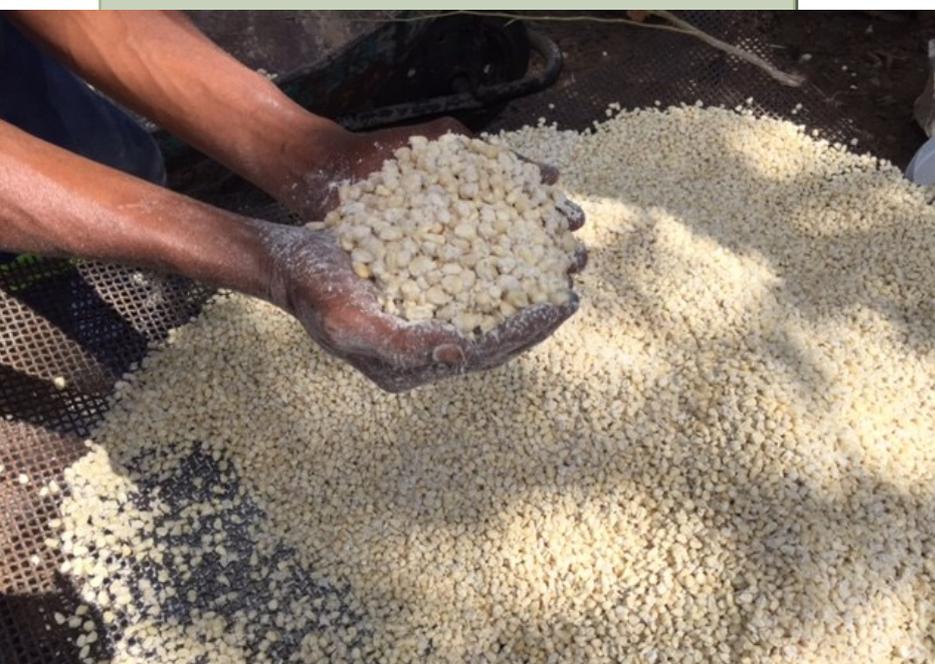
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#### Policy Recommendations

- *Develop a national climate change policy*
- *Develop and strengthen complementary and supportive policies*
- *Establish good governance and institutional structures that are well synchronized and coordinated*
- *Strengthen post-harvest management issues such as value addition and market linkages*
- *Follow a balanced approach to risk and crisis management*
- *Participatory policy formation processes*
- *Simplifying policy documents for easy understanding by stakeholders*
- *Enhancing climate change adaptation*
- *Increasing research, extension and education on climate change*
- *Promotion of specialization by agro-ecological regions in the country*
- *Promotion of specialization by agro-ecological regions*

#### Introduction

Agriculture in Zimbabwean is now predominantly driven by smallholder farmers. 90% of the farming land is in the hands of smallholder farmers practicing mixed crops and livestock production systems. Approximately, 20% of the total area in the country lies in high rainfall regions of between 700-1050 mm/year, where the potential for rain-fed agriculture is high. Rainfall in the bulk of the country (80%) is in the range of 650-450mm/yr. The bulk of the land falls in areas where there are incidences of drought and dry spells and the potential for rain-fed agriculture is limited (FAO, 2006). The predominance of rain-fed crop production makes the country vulnerable to the adverse effects of rainfall variations and climate change, which, for example, may reduce production of rain-fed crops and contribute to increased food insecurity. There is evidence of the synergies between economic performance, droughts and agricultural growth. Unpredictable climatic variables combined with biological factors (for example, pests and diseases), and market variables undermine crop production. Climate change poses risks for food security, health and nutrition in Zimbabwe due *inter alia* to threats from post-harvest losses (PHL) and production challenges related to the climate.



According to FAO, PHL for grain remain a major concern to many of the smallholder farmers in Zimbabwe. PHL are estimated at 20- 30% in storage alone and may be as high as 40% when including field, transportation, handling and processing losses. These statistics are based on estimates with detailed scientific estimates still to be done. Without coherent strategies towards climate risk management in crop production and Post Harvest Management (PHM), the Government will continue to be confronted by increased expenditure on social welfare, health, distribution and consumption related subsidies on food production.

## *Climate risks in crop production*

Under climate risks in crop production and PHM, sustainable agriculture and economic development can only be attained with mainstreaming strategies to reduce the negative effects of climate change. Practical management systems are strongly dependent on good governance, strong institutions, policies and processes that are critical for successful climate risk management. Elements of governance include policy development, formal and informal legislation, regulation and enforcement, institutional structures, decision making processes – including stakeholder consultation, as well as the quality of relations among stakeholders. Institutions provide frameworks for policy and legislative action. The ability of a given institution and/or organization to fulfil its mandate depends not only on power relationships, source of mandate and political “rightness or acceptability” but also on the capacities of the individuals representing consortia of stakeholders.

Existing national, regional, continental and cross-sectorial institutional, policy, research and developmental structures are among the strengths of Zimbabwe’s climate risk management framework for crops. However, challenges remain with regard to (i) weak governance processes; (ii) capacity limitations; (iii) insufficient harmonization and coordination across the diversity of stakeholder and levels of institutions involved; and (iv) a lack of policy focus on Post-harvest handling (PHH) issues, such as value addition and market linkages. Furthermore, agricultural related disaster risk management in the country has been criticized for being biased towards crisis management at the expense of risk management. The agriculture sector, as a result, has moved from one disaster to the next without reducing the risks or the impacts.

## *Post-harvest handling (PHH) in climate risk area*

Food security, health and nutrition are under threat from post-harvest losses and production challenges related to climate change. Post-harvest losses, estimated to amount to 20 - 30 % in storage alone, can be as high as 40 % when including field, transportation, handling and processing losses. In most smallholder farming areas of the country, grain production is characterized by one year of good production followed by two or three years of deficit, which underlines the need for effective PHM strategies. PHL may occur during harvesting, handling, processing and transport when crop is scattered, dispersed or crushed and the grain may be subject to bio-deterioration. PHL due to bio-deterioration may start as the crop reaches physiological maturity, i.e. when crop moisture contents reach 20-30% and the crop is close to harvest. It is at this stage, while the crop is still standing in the field, that storage pests may make their first attack and when unseasonal rains can dampen the crop resulting in some mould growth. A key issue is the

weather conditions at the time of harvest. Most small-scale African farmers rely on sun drying to ensure that their crop is sufficiently dry for storage. The crop will not be dried sufficiently and losses will be high if weather conditions are too cloudy, humid or wet. Successful drying alone is not a remedy against all PHL since insects, rodents and birds may attack well dried grain in the field before harvest and/or invade drying cribs or stores after harvest. The uncertainty associated with climate change poses risks to PHM caused by imperfectly predictable climatic variables together with biological (for example, pests and diseases), and even market variables.

Post-harvest losses for food are a global issue of increasing concern for different stakeholders such as governments, farmers, food processors and handlers, as well as consumers. PHL is terminal and includes loss of all the other resources that went into production of the food, e.g. fertilisers, pesticides, labour and machinery use. Development, adaptation and adoption of post-harvest technologies by smallholder farmers who are the majority of agricultural producers can significantly contribute to food security and improvement in rural livelihoods. It, therefore, is critical that PHL reduction and value addition measures are addressed in order to better respond to climate change uncertainty. Without coherent strategies towards climate risk management in PHH, the Government of Zimbabwe and the world at large is and will be confronted by increased expenditure on social welfare, health, distribution and consumption related subsidies on food.

## *Policy environment for Post-Harvest Management (PHM)*

As in any other development intervention, a favourable policy environment and efficient support services are critical in post-harvest management processes. In recognition of this, the Ministry of Agriculture, Mechanization and Irrigation Development, in collaboration with developmental partners, is in the process of developing a draft policy on PHM policies, storage infrastructure and hermetic facilities. These efforts fall under a technical cooperation project by the Food , Agriculture Organisation - FAO (funding and technical support), Plan International and The International Maize and Wheat Improvement Center (CIMMYT). Zimbabwe has various legislative instruments governing post-harvest processes in agriculture within the Ministry of Agriculture, Mechanization and Irrigation Development and across other relevant ministries. A critical concern in PHH is that most post-harvest practices are informal, non-documented, short-term, ad-hoc and fragmented. For instance, the agro-processing of maize in the rural areas is generally done through local hammer mills, which are informal in nature and produced mainly straight-run maize meal. For urban consumers, the Grain Marketing Board (GMB) sells maize to millers located in urban areas, which produce mainly roller meal and super refined meal.

A number of policy implementation challenges still undermine local agro-processing and mechanization initiatives (Mfote, 2004). These challenges include the lack of adequate financial resources, shortage of skilled and experienced staff, lack of coordinated policy and planning, limited importation incentives, inappropriate technology, and a lack of collateral security. The government departments responsible for farm machinery and agro-processing equipment lack adequate financial resources to enable them to implement mechanization policies. The departments are also not in a position to upgrade their technology or conduct participatory research and development activities.



## Policy recommendations

In order to strengthen sustainable climate risk management for climate resilience in crop production and post-harvest management in Zimbabwe, the following are recommended:

- **Develop a national climate change policy:** There is a need to develop a national climate change policy in addition to the current response strategy that is being finalized. The proposed policy should align with regional and international climate related developmental policies. The national policy should form the basis for sector specific climate change policies; such as on agriculture, drought and irrigation, and climate risk management in crop production and PHM.
- **Develop and strengthen complementary and supportive policies:** To support the proposed national climate change policy at sector levels, there is a need for a sustainable agricultural risk management policy. This would require an interface with national agriculture development efforts, water policy and water management plans, trans-boundary management programmes, national biodiversity action plans and sustainable environmental management programmes and other related sectors.
- **Establish good governance and institutional structures that are well synchronized and coordinated.** Climate risk management requires strong policy and institutional coordination mechanisms for effective planning, resourcing and implementation of relevant programmes. A well-defined policy and institutional framework will define the roles and responsibilities of various players concerning risk and vulnerability assessments, adaptation planning, resource mobilization, and technical programme support and impact measurement at different levels.
- **Strengthen post-harvest management issues such as value addition and market linkages:** A balanced approach to dealing with issues of crop production and PHM that co-exist in an interdependent cycle is recommended for attainment of crop production objectives of food security, health and nutrition.
- **Follow a balanced approach to risk and crisis management:** Risk management and crisis management are activities that are interdependent in the same disaster management cycle. Risk management focuses on pre-disaster activities such as mitigation and prevention, preparedness, prediction and early warning. Crisis management consists of post-disaster activities such as impact assessment, response, recovery and reconstruction activities. All of these activities build on each other and a balanced approach should be considered to ensure the successful implementation of all aspects.
- **Participatory policy formation processes:** The persistent disconnect between community needs and the policy process has been the Achilles heel of many African rural agrarian development approaches. Extension service efforts have, for instance, usually been top-down from the national or regional authorities, regional development agencies, non-governmental organizations (NGOs) or international development organizations. Adaptation provides a revolutionary frontier on which grassroots participation must begin to influence national policies. It provides the primacy for not only involving frontline local communities but also building on their indigenous perennial effort in adapting to changing climate. Therefore, policy outcomes should include the identification of the most vulnerable groups; articulation of unique local vulnerabilities; identification of locally-relevant resilience-building options; enhancement of micro- and macro-level enabling conditions for adaptation; building local adaptation awareness; and engaging local stakeholders who are the potential implementers of any adaptation project.
- **Simplifying policy documents for easy understanding by stakeholders:** Agricultural and other policy documents in general are published in English which is difficult to understand by all stakeholders given that the majority of the farming community are smallholder farmers with low formal education levels and not English speaking. The various regulatory documents should be presented in a simplified way by converting to vernacular to ensure that they are understood by all stakeholders.

- **Enhancing climate change adaptation:** The issues of adaptation are broad requiring a variety of complementary skill and competencies for a wide range of stakeholders and actors. Policy considerations should encourage applying a combination of existing and emerging capabilities towards implementing adaptation initiatives. Awareness creation, information generation and dissemination, extension and education are priority areas where capacity building for climate change adaptation is required. Teaching of climate change adaptation and related courses should be institutionalised within the formal and informal education sectors. Technical backstopping for new adaptation technologies should be provided to households.
- **Increasing research, extension and education on climate change:** Sustained scientific research is required to enable the prediction of the impacts of climate change with more confidence, as well as to advance adaptation strategies and mitigation options. Development and implementation of the most appropriate resource management strategies and technologies are critical to combat the impacts of climate change on the agricultural sector. Education on climate change and related subjects at all levels thus becomes an integral component of developing or enhancing human resources capacity to combat climate change. Creating a vibrant research system that is capable of generating new knowledge and insights, will make successful adaptation possible with a stronger extension framework in place.
- **Promotion of specialization by agro-ecological regions in the country:** Zimbabwe's agro-ecological features are defined through its five distinct agro-ecological regions. . These five regions cover the whole geographical space of the country and each region is suitable for specific crops and livestock production systems. Given this agro-ecological diversity, the country can intensify specialization of specific agricultural activities in suitable areas and facilitate exchange between the different regions instead of the current mixed farming systems. For instance, drier regions of the country can intensify specialization in livestock, game ranging and small grains productions more suitable in those areas, while wetter regions specialize in water demanding crops such as maize, wheat, fruits, and horticulture. This will minimize

the risks of production failures, allowing the country to produce more and consume more through exchange.

- **Index based insurance:** The Government could consider initiating innovative pilot transaction in crop production that transfers the financial risk of climate risks to the local/international risk markets, such as those being piloted in Malawi. This will involve purchasing a weather derivative contract from international finance institutions such as the World Bank, which will be connected to a leading reinsurance company within or outside the country. The climate risk management instrument will be aimed at strengthening specific crops, such as maize markets, in the country and providing protection against price and production shocks for food security. The transaction will provide predictable and early financing, in the form of a pay-out, in the event of a severe national drought. The contract will be based on rainfall measurements and does not depend on actual national maize production in the country. As such, payments can be triggered as soon as the contract ends, rather than waiting for the harvest assessments.

#### Further Reading

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The Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN) is an autonomous regional stakeholder driven policy research, analysis and implementation network that was formally established by Ministers of Agriculture from Eastern and Southern Africa in 1997. FANRPAN was borne out of the need for comprehensive policies and strategies required to resuscitate agriculture. FANRPAN is mandated to work in all African countries and currently has activities in 17 countries namely Angola, Benin, Botswana, Democratic Republic of Congo, Kenya, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe.

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