



GENDER ROLES, RELATIONSHIPS AND SOCIAL EQUITY IN POST-HARVEST MANAGEMENT IN MOZAMBIQUE

Introduction

This Policy Brief on Gender Roles, Relationships and Social Equity in Post-Harvest Management of Grains in Mozambique addresses the following issues: (i) A summary of the gender roles and relationships and social equity practices related to Post-harvest Management (PHM) of grains; (ii) The identification of gaps, challenges, opportunities, and potential improvements in the

existing PHM policy frameworks, looked at through a gender and social equity lens; (iii) Available PHM innovations, tools, or mechanisms that can be scaled up to improve the gender and social equity balance in Mozambique; and (iv) Good practices on improved participation of female smallholder farmers and marginalized social groups in PHM.

Key Recommendations

1. Gender and other general policies in the agricultural sector should be revised to reflect clear priorities for lowering post-harvest losses (PHL).
2. Crop scientists should be trained and crop-specific PHM research infrastructure should be developed so that PHM can be included as a research component for all crops.
3. Academic and research units should be located in the field, close to the farmers, so that researchers and/or university students are closer to the beneficiaries.
4. PHM programs, projects, and activities must include information and technology development and dissemination relevant to the end-users, including women, children, the youth, and poorer farmers.
5. PHL should be reduced by increasing access to carts/wheelbarrows and their respective repair kits and to draught animals, repairing critical sections of rural roads, and increasing farmers' access to bags/sacks that are not infested and in good condition.
6. Reduce PHL along the value chain from farm to plate by extending innovations to some of the socially perceived "female-roles" of PHM.
7. Development and dissemination of PHM innovations must also be part of policies, strategies, and practices to promote a better workload distribution by increasing male participation in labour-demanding PHM activities culturally assigned to women.
8. Since women in polygamous marriages and single mothers are easier to work with when it comes to promoting investment in PHM improvements due to their decision-making power in the households, they should be given priority in work plans.
9. Prioritize female farmers in PHM capacity-building initiatives, because they are the ones who deal with most of the PHM activities.
10. Local tools manufacturers should benefit from incentives to lower the cost for the development of manufacturing, processing, and packaging equipment to make them accessible to women and the poor.

In Mozambique, 3 801 259 smallholder farmers practice agriculture. This constitutes 99.3% of all farms in the country. Around 28% of the farms are women-headed, whilst 50% are headed by the youth (10 to 39 years old) and 15% are headed by the elderly (60 plus years old). The majority of farmers are illiterate, with a greater percentage of female farmers being illiterate than male farmers (INE, 2011).

Grains are the basis for food security in Mozambique. Maize is cultivated by the majority (72%) of smallholder farmers, followed by black-eyed peas/cowpeas (46%) and peanuts (43%). Pigeon peas, sorghum, rice, cowpeas, common beans, and millet are cultivated by a quarter or less of the number of smallholder farmers (INE, 2011). Despite the importance of grain for the Mozambican farmers' food security, grain production is constrained by, among others, the following issues: (i) inadequate post-harvest handling of the produce; (ii) high post-harvest losses due to both pests and physical deterioration of the products in storage; (iii) lack of adequate storage infrastructures; (iv) limited access to electricity, and (v) poor rural roads and post-harvest management (PHM) infrastructure.

Rembold et al. (2011) have estimated grain losses in Mozambique (maize, sorghum, millet, and rice) to be as high as between 19% and 21.6%. Average loss figures for cereals in sub-Saharan Africa were estimated at 16.4% to 22.4% for maize, 9% to 13.6% for wheat, 12% to 12.5% for sorghum, 10.9% to 12.5% for millet, and 11% to 11.1% for rice. Estimations for sorghum and millet losses for Mozambique are 6%, indicating that these crops are less susceptible to storage pests. A 10% loss for rice was recorded for Mozambique by Cugala et al. (2012).

In various countries, quantitative losses in grains occur along the value chain, from the farm gate to the plate. The greatest percentage of losses, however, occur during storage, followed by losses at harvesting and drying (4% to 17%), threshing and shelling (1% to 7%), winnowing (3% to 5%), transport from the field to storage (1% to 3%), and transport from the store to the market (1%) (Rembold et al., 2011). Despite PHL occurring all along the value chain, PHM activities tend to focus only on storage. Qualitative losses not only result in a reduction in the nutritional value of the harvests but may also pose serious risks to human health (e.g. aflatoxin contaminations).

Gender Roles, Relationships and Social Equity Practices

In Mozambique as in many other African countries, in addition to other social and reproductive roles, the majority of PHM activities are performed by adult and young women and children. The women and children perform these activities with their bare hands, without the help of tools and equipment.

Processing tools and equipment must be available for use if men are to be more involved in PHM activities. For example, AGRA (2014) reports that men and boys became more involved in harvesting activities when ox-carts were available for use during harvesting. However, the loading of the ox-carts in the field and the maize into the granary, as well as the winnowing and cleaning of the grains, were still carried out by women. On the other

hand, men offloaded the ox-carts at the homesteads and applied chemical pesticides to the grains, as they were seen to be more knowledgeable than women in this regard.

In addition, men are dominant in the bulk marketing of the harvests and are seen as the managers of the "farm venture", overseeing storage management, stock taking and control over revenues from sales. Women are excluded from bulk marketing of cash crops, because they are perceived as weak negotiators. In addition, they do not have the time to travel long distances and stay away from home for long periods to look for better prices. Data from Malawi indicate that men were involved in 70% of marketing work, but only performed 10% of the processing work, whilst

90% of the processing work was done by women (AGRA, 2014).

Among other duties, women are responsible for putting food on the table and for fetching water

and wood. In these roles, women and children conduct the most physically strenuous and health-threatening PHM activities, leaving them with little time to devote to other activities like learning new skills.

Gaps, Challenges, Opportunities and Potential Improvements

Gaps

There are missed opportunities to uplift the PHM agenda in Mozambique in all policies, programs, and plans related to agriculture and gender policy in the agricultural sector. In fact, they fail to integrate and budget purposefully for PHM looked at through a gender and social equity lens. These policies, programs, and plans prioritise increased crop production much more than they do PHL, and this while the management of post-harvest losses would be more cost-effective and environmentally sustainable than increased production.

Incentives are lacking to develop manufacturing, processing, and packaging equipment in the Mozambican market that can be made available at an affordable price to especially women and the poor. Such incentives could be in the form of reduced import tax, VAT reduction/exemption, or the establishment of a local industry-led research institution.

Both men and women must change their attitudes regarding collaboration, cooperation, and mutual respect of individual objectives, to avoid instances where PHL innovations and policies only benefit male farmers. As such, men and women must learn the advantages of joint decision-making and joint management of family revenues.

Challenges

Mozambique faces shortages in the number of qualified PHM research personnel and lacks research on PHM. In addition, there is a lack of coordination between the research agenda and farmers' needs.

A further challenge is the weak link between research and the public, private, NGO, and farmer development programs. Further compounding the problem is the lack of PHM service providers and the lack of training in PHM.

Infrastructural issues, such as poor roads and the lack and high cost of electricity in rural areas, as well as weak marketing channels and high farmer illiteracy levels, constrain PHM of grains from a gender and social equity perspective. Cultural beliefs and norms reduce access of women to assets, knowledge, and time to devote to learning activities. Furthermore, resistance to change by both women and men are worsened by women themselves being tied to traditional customs.

Opportunities

The Mozambican ministries dealing with Agriculture, Science, and Technology and Industry and Trade already have their own policies that in one way or another deal with PHM. These policies can be further sharpened in order to be specific and respond fully to PHM issues from the field to the plate with gender and social equity in mind.

As per experiences from Mozambique and elsewhere, low-cost improvements to some existing PHM systems may be a powerful tool to promote pro-poor and gender-sensitive PHM practices in a sustainable way, while respecting local culture and traditions. Likewise, availing low-cost hand shelling, harvesting, milling, and grating tools can ease the burden on women and the poor, allow them more "spare" time for learning and trading crops, and prevent them from being

exposed to harmful elements (dust, rain, sun, etc.).

Better coordination of the research agenda with farmer needs can be enhanced through a closer relationship of students from agricultural/industrial high schools and higher education institutions with on-farm activities (internships at household level to identify constraints to PHM practices and develop solutions such as tools or mechanised PHM equipment).

Polygamy, a local cultural practice in patrilineal social groups in Mozambique, can be used to improve the impact of PHL reduction since women in polygamous marriages have decision-making power, full control, and less interference from their husbands on the use of revenues resulting from crop production.

The same is true for single mothers. These social groups should thus be prioritized in women empowerment programs, plans, and activities, since they can more easily invest in PHM improvements.

Government and their development agencies are currently engaged in promoting diverse PHM activities mainly focused on the dissemination of improved storage facilities such as the Gorongosa type barn, the metal silos, and superbags. The same initiatives can be used to extend the activities to gender and social equity on PHM along the value chain, from the field to the plate.

Information sharing and dissemination on gender and social equity in PHM in Mozambique can greatly benefit from (i) PHM activities developed by World Vision (Mozambique) along the value chain; (ii) Existence of multi-stakeholder learning teams on agriculture; and (iii) Radio broadcast coverage of around 70% of the Mozambican population. Use of vernacular languages either in radio broadcasts or in training materials adjusted to the African context, can improve suitability of approaches.

A study conducted in Mozambique indicates a vast potential for private sector involvement in the business of PHM tools, with the silo and hermetic bag prices able to go up seven and three times respectively, without compromising the feasibility of the technology.



Integrated Postharvest Management Model, Mozambique

Source: FANRPAN

Available Innovations, Tools and Mechanisms

PHM innovations that protect farmers from climatic hardships and strenuous workloads can be pro-women/youth and pro-poor and should be part of small-scale agricultural development policies for Mozambique, while promoting gender and social equity in PHM programs.

To improve their chances of social acceptance, the innovations must automate segments of the PHM value chains where women, children, and the youth usually face the most strenuous workloads. Furthermore, potential beneficiary groups (mainly women, the youth, and the elderly) must participate in the product-design stage of PHM innovation development in order to accommodate their practical needs, including fitting them within the local context, practices, and culture.

A good starting point to develop innovations that are gender- and socially-relevant and sensitive is by improving the farmers' traditional PHM systems at low-cost and low technical complexity levels. These include improved handling and storage hygiene as well as improved tools, supported by improved technical capabilities of local artisans.

Examples of improvements to traditional technologies in Mozambique are the bamboo silo and the high clay improved barn (both protecting against rats and chickens) and the Raffia bags with or without Actellic 2% (against pests).

Examples of improved storage technologies that have been tested and approved with potential for Mozambique (Nampula and Cabo Delgado) are metal silos and superbags.

Regarding other areas of PHM, examples from elsewhere with potential adaptability in Mozambique are (i) shellers and threshers; (ii) dryers; (iii) storage structures; (iv) grinders; (v) tools and mechanisms against animal and pest attacks; (vi) information dissemination tools and mechanisms; and (vii) improved transportation tools (carts, wheelbarrows, etc.).

The tools need to be designed to specifically meet the user requirements for women, the youth, the elderly, and the poor. That is, the tools need to be easy to assemble, affordable, durable, free from engines, and potentially aligned with customs of the average Mozambican farmers.

Good Practices

Gender and social equity

Policies, programs, and projects for improved PHM must consider the strategic and practical needs of both men and women to balance the distribution of workloads. Simple/medium level, time and energy-saving PHM technologies can promote the equitable division of labour since they can increase the participation of men in roles culturally assigned for women.

Structural modifications/adaptations to grains storage tools that benefit women (reduced

construction and maintenance requirements; multiple crop storage capacity) can result in improved control over grain usage by women. The cultural context in which the technology is to be used is also very important.

Men and women must be trained on collaboration, cooperation, and mutual respect of individual objectives so that women empowerment can be achieved. In such an endeavour, cultural norms and religious beliefs of

the “inferiority” of women to men are to be carefully addressed. PHM tool design must consider gender sensitivity by mainstreaming gender in training of artisans so that they are

aware of differences in roles played by men and women farmers and design the tools to satisfy preferences of both men and women.

Post-harvest loss reduction technology

Innovations must fit within the local context and practices and bring about attractive returns to farmers if they are to be successful. Technologies that demand high initial costs must be accompanied by affordable credit systems. Poorer farmers will adopt cheaper post-harvest tools

(e.g. hand threshers and grinders, tripe bags, hermetic drums) and improved grain handling practices or existing traditional storage structures with improvements against rats and insect attacks, as well as against the high humidity levels of grains.

Policy issues on post-harvest loss reduction

A systematic long-term approach for disseminating PHM technologies must (i) involve multi-institutional collaboration in technology development and transfer; (ii) invest considerable time for farmers to be able to evaluate and adopt new technologies; and (iii) develop strong follow-up activities to ensure that the tools are being correctly made and used.

considerations must be widened at the farmer, private sector, and policy levels. Such awareness can be achieved by (i) mainstreaming post-harvest modules into the curriculum of agricultural colleges; (ii) building farmer and private sector capacity through informal as well as formal training and information-sharing; and (iii) harnessing the power of ICT’s (radio, newspaper, television, and video).

Awareness on the benefits of post-harvest improvements under gender and social equity

Conclusion

Currently, women, the youth, children, the elderly, and poorer farmers experience more hardships as compared to men regarding PHM practices. They are exposed to higher workloads and health-threatening risks, more difficulties in participating in learning and information dissemination activities, as well as in bulk marketing of surplus crops. As a result, gender and social inequities prevent those farmers from benefitting from existing policies and practices towards improvement in PHM in a balanced way.

This document concludes that the government of Mozambique should create an enabling environment that elevates the PHM agenda to the same level as the crop production/productivity agenda. More inclusive policies, programmes, and activities that respond to the interests of women, men, the youth, children, the elderly, and the poorer farmers, are to be implemented. Concrete good PHM practices, innovations, tools, or mechanisms that can be scaled up to improve the gender and social equity balance in Mozambique, are to be disseminated.



Shelled maize grains
Source: Helvetas

References

- AGRA (2014). Establishing the status of post-harvest losses and storage for major staple crops in eleven African countries (Phase II). Alliance for a Green Revolution in Africa: Nairobi, Kenya.
- Cugala, D.; Tostão, E.; Affognon, H. & Mutungi, C. (2012). Post-harvest losses in Africa – Analytical review and synthesis: the case of Mozambique. ResearchGate, Technical Report, December 2012.
- FANRPAN (2016). Reuniao de Revisao e Planificacao do Projecto. Programa Global de Segurança Alimentar (SDC), Projecto de Gestão Pós-Colheita na África Sub-Sahariana, Nampula, Novembro de 2016.
- INE (2011). Censo Agro-Pecuário 2009-2010: Resultados Definitivos - Moçambique. Instituto Nacional de Estatística.
- Irénio, B.B.; Lipinga, J.C., Perar, T.A. (2016). Resultados do ensaio de avaliação de 5 tecnologias de Armazenamento do Grão de Milho nas Províncias de Cabo Delgado e Nampula, Junho.
- Munhamo, C. (2017). Returns to investment in PHM: Benin and Mozambique. The 1st ALL Africa Post Harvest Congress & Exhibition, 28th-31th March 2017, Safari Park Hotel, Nairobi Kenya.
- Rembold, F.; Hodges, R.; Bernard, M.; Knipschild, H. and Léo, O. (2011). The African Post-harvest Losses Information System (APHLIS), JRC Scientific and Technical Reports. <http://publications.jrc.ec.europa.eu/repository/bitstream/111111111/15877/1/lbna24712enc.pdf>
- Zvomuya, F. (2014). Weak post-harvest policies in Mozambique major cause of food insecurity. <http://africagreenmedia.co.za/weak-post-harvest-policies-in-mozambique-major-cause-of-food-insecurity>

This publication is part of the regional project “Postharvest Management in Sub-Saharan Africa”, which is funded by the Swiss Agency for Development and Cooperation and implemented in a consortium between HELVETAS Swiss Intercooperation and the Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN), with the African Forum for Agricultural Advisory Services (AFAAS) and AGRIDEA as associated partners.



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

**Swiss Agency for Development
and Cooperation SDC**



HELVETAS
Swiss Intercooperation



ENTWICKELUNG DER LANDWIRTSCHAFT UND DES LÄNDLICHEN RAUMS
DEVELOPPEMENT DE L'AGRICULTURE ET DE L'ESPACE RURAL
SVILUPPO DELL'AGRICOLTURA E DELLE AREE RURALI
DEVELOPING AGRICULTURE AND RURAL AREAS

About FANRPAN

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.

FANRPAN Regional Secretariat

141 Cresswell Road, Weavind Park 0184, Private Bag X2087, Silverton 014, Pretoria, South Africa
Telephone: +27 12 804 2966. Facsimile: +27 12 804 0600. Email: policy@fanrpan.org . Website: www.fanrpan.org

Copyright © 2018 by the Swiss Agency for Development and Cooperation (SDC)