Analysis of Indicators and Measurement Tools Used in Zambia to Assess Impact of Agricultural Extension Programs on Gender Equity and Nutrition Outcomes

Mulako Kabisa and Rhoda Mofya-Mukuka

Key Points

1. Zambia has several local and international organisations implementing agricultural extension interventions with a primary focus on improving gender equity and nutrition.

2. The main measurement tools used by the projects to assess the impact of agricultural extension interventions on gender equity and nutrition are the Women Empowerment in Agriculture Index (WEAI), Women Asset Ownership Index (WAOI), anthropometric indices, and dietary scores such as Individual Dietary Diversity Score (IDDS), Minimum Dietary Diversity for Women (MDD-W), Minimum Acceptable Diet for Children (MAD-C), Food Consumption Score (FCS), and Household Hunger Scale (HHS).

3. Apart from the FTF projects that have adopted all the five components of the WEAI, the majority of the projects, depending on their design, focus only on selected components. This makes it difficult to comprehensively measure the impact of agricultural extension interventions on women empowerment and gender parity in agriculture (where the complete tool is intended).

4. Understanding of impact measurement tools is largely limited among project staff, hence the need to build capacity even for the staff that are not directly involved in the monitoring and evaluation of impact of interventions. This is important even for projects that engage outside organisations to carry out impact monitoring and evaluation.

5. Some projects are being implemented without baseline studies which makes it difficult to set targets and indicators to measure their impact.

6. A number of projects focus more attention on monitoring the activities of the projects while impact analysis is not emphasised. It is important that all indicators at all stages of the monitoring and evaluation process are monitored in order to explain why or how some targets may or may not be achieved.

INTRODUCTION: With 40% child stunting rates, Zambia is one of the countries with the highest levels of malnutrition in the world. The majority of the rural households survive on diets that lack nutrients critical for maintaining a healthy body. Typically, households consume cereals and dark green vegetables while proteins are largely missing (CSO/MoA/IAPRI 2015; Benhammouche and Odegnibio 2015). Currently, the global population average of undernourishment is 11.3% and 23.8% in Africa, yet according to the 2016 Global Hunger Report, the Global Hunger Index (GHI) for Zambia is 47.8%, which is among the three highest rates of in the world. This is in spite of the country generally producing a national surplus of staple foods successively (Chapoto et al. 2015; Mofya-Mukuka and Mofu 2016). While there have been significant efforts by Government and other stakeholders to enhance agricultural productivity, poor nutrition and high levels of poverty continue to plague the country, particularly the rural communities (Benhammouche and Odengibo 2016). The Zambia Living Conditions Monitoring Survey (LCMS) report (CSO 2015) shows that about 54.4% of the Zambian population is
poor, with rural poverty estimated at 76.6%; and women and children are disproportionately affected by poverty and poor nutrition due to vulnerabilities stemming from their physiology and socio-economic characteristics. According to the FTF baseline survey for Zambia, only 40.3% of the women are empowered (Feed the Future Feedback 2013:51). There is strong evidence of linkages between gender inequality and poor nutritional status of households (Malapit and Quisumbing 2016; Malapit et al. 2015; Herforth et al. 2016). Reducing gender inequality in Zambia remains a principle developmental challenge (Zambia Country Analysis 2015) and it provides an opportunity for improving gender equity leading to improved nutrition outcomes through agricultural interventions.

Zambia has both private and public, and local and international organizations delivering pluralistic agricultural extension messages on nutrition and gender. The Ministries of Agriculture (MoA), and Fisheries and Livestock (MFL) play a key role in providing public extension services and they work with non-governmental organisations (NGOs) on various extension programs.

Documenting impact is core for program interventions as they give context specific constraints that can be considered during implementation or design of future programs. Several measurement tools have been validated and internationally accepted but whether these measurement tools have been adopted in Zambia and how they are being applied in the Zambian context is a question that this study seeks to explore.

Box 1. Definition of Terms

**Indicator:** “A quantitative or qualitative variable that provides reliable means to measure a particular phenomenon or attribute.” (USAID 2009).

**Survey/Measurement Tool:** “Systematic collection of information from a defined population through interviews or questionnaires.” (USAID 2009).

**Measure:** “An assessment of the size, amount, or degree of something, collected using an instrument or device marked in standard units.” (Oxford 2009).

Two recently developed measurement tools to assess intervention impacts on gender outcomes are the Women Empowerment in Agriculture Index (WEAI) and the Women Asset Ownership indicators. For measuring impacts on nutrition, dietary diversity scores and anthropometric indicators are commonly used in many parts of the world.

This policy brief highlights agricultural interventions and measurement tools used in Zambia to assess the impact of agricultural extension on gender equity and nutrition outcomes. The brief is guided by the following research questions:

- What agricultural extension interventions on gender equity and nutrition outcomes exist in Zambia?
- Which measurement tools are used to collect data and monitor impact of these interventions?
- What are the main challenges faced by the organizations in measuring the impact of their interventions? and
- How can measuring of impact of agricultural interventions improve in Zambia?

**DATA AND METHODS:** The study applied qualitative methods of research to assess the indicators and measurement tools used by different organizations to measure the impact of agricultural extension programs on gender equity and nutrition outcomes. This was done through interviews with project managers and/or their monitoring and evaluation specialists. Where available, project documents were reviewed to understand project designs, implementation, and impact assessment methods. At least an estimated 75% of the public and private interventions in Zambia, which are focused on promoting gender equity and nutrition outcomes through agricultural extension, were included in the study.

Table 1 shows the organizations and projects included in the study and the type of institution they represent.

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1 Defined as a five domain of empowerment score (5DE score) of 80% or more.
Table 1. Organizations Interviewed

<table>
<thead>
<tr>
<th>Institution</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>Ministry of Agriculture, National Food and Nutrition Commission (NFNC)</td>
</tr>
<tr>
<td>Development Partners (Agriculture)</td>
<td>Food and Agriculture Organization of the United Nations (UNFAO), World Food Programme (WFP), Irish Aid, United States Agency for International Development (USAID), African Development Bank (AfDB)</td>
</tr>
<tr>
<td>Development Partners/Projects</td>
<td>Nutri-Aid Trust, International Development Enterprise (iDE)</td>
</tr>
<tr>
<td>Non-Governmental Organizations</td>
<td>Concern Worldwide, Catholic Relief Services (CRS), CARE International, World Vision, International Institute for Tropical Agriculture (IITA), WorldFish, Harvest Plus, Programme Against Malnutrition (PAM), Profit+, SNV, Heifer International</td>
</tr>
</tbody>
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Source: Authors.

FINDINGS: For impact on nutrition and food access, measurement tools commonly used in Zambia to assess impact of agricultural extension interventions include the Dietary Diversity measurements (Household Dietary Diversity Scores (HDDS), Minimum Dietary Diversity for Women (MDD-W), Individual Dietary Diversity Scores (IDDS), Minimum Adequate Diet for Children (MAD-C), and the Food Consumption Scores (FCS)). It should be noted that HDDS is not meant to measure micronutrient adequacy but give an indication of household economic access to food (FAO 2010).

Anthropometric measurements are also commonly applied in Zambia as an indication of the nutritional status of individuals. The indices used for children are the Weight for Height, Height for Age, Weight for Age, and the Mid-Upper Arm Circumference (MUAC). Common measurements used for adults are the Body Mass Index (BMI) and MUAC.

Figure 1 shows the number of projects and the type of impact measurement tool used to monitor the impact of agricultural interventions on nutrition and food access.

Challenges Experienced by Projects When Using Some Measurement Tools:

1. Some measurement tools are costly, particularly the use of the complete WEAI, as a result many projects use only some of its components.
2. Obtaining adequate sample size particularly for children below the age of two is difficult because of the year-to-year variations in children falling under this category.
3. Getting inaccurate information from the...
respondents continues to be a challenge particularly in cases were the respondents know what is expected and base their responses on the right thing to do rather than what is obtaining in their household.

4. Where external organizations are engaged to assess impacts of interventions, project staff focus only on monitoring activities without consideration of monitoring and evaluation plans.

5. There is poor coordination between the evaluators and project staff.

6. The monitoring and evaluation components of the project are frequently underfunded making quality data collection very difficult.

CONCLUSIONS/RECOMMENDATIONS: The last five years in Zambia has seen an increase in projects that offer agricultural extension with a focus on gender equity and nutrition outcomes. This has particularly been with the support of the United States Government Feed the Future programme. This policy brief reviews the measurement tools used in Zambia to monitor the impact of agricultural extension interventions on gender equity and nutrition outcomes.

The study found that mostly, the FTF projects are using measurement tools as they were designed to be used in Zambia. Many projects use components of the measurement tools even where the tool is supposed to be used in its entirety. Measurement tools whose components are commonly used are the Women Empowerment in Agriculture Index (WEAI) and Women Asset Ownership Index.

Most of the challenges related to the adoption of the validated measurement tools; funding constraints to monitoring and evaluation activities; and knowledge gaps among the project staff. Where impact assessment is carried out by external organizations, there is a lack of buy-in among the project staff. This tends to negatively affect effective activity implementation and quality of data collected during the implementation process. In addition, given the evidence of the link between gender inequality and undernutrition, using sub-sections of measurement tools (where the complete tool is intended) makes it difficult to accurately measure the level of gender equity.

How Can Impact Monitoring of Agricultural Interventions on Gender Equity and Nutrition Be Improved in Zambia?

1. Building capacity on nutrition and gender impact measurement tools among project staff even those that are not directly responsible for monitoring and evaluation should be a priority to enable project staff to, not only understand the tools, but to apply them appropriately.

2. There is need to develop a general monitoring and evaluation framework for Zambia to guide the use of some indicators, specifically for measuring the impact of agricultural extension on gender and nutrition outcomes.

3. Coordination of measuring of impact among different organizations with similar interventions should be encouraged. The use of a general monitoring and evaluation framework should be coordinated.

4. The NFNC, given its coordination role, would be key in facilitating implementation of approved impact indicators.

REFERENCES


ABOUT AUTHORS

Kabisa is a Research Assistant and Mofya-Mukuka is a Research Fellow with the Indaba Agricultural Policy Research Institute (IAPRI).

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