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Realizing Inclusive SAI: contextualizing indicators to better evaluate gender and intergenerational inequity in SAI processes and outcomes – cases from Southern and Western Africa

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ABSTRACT

Despite increasing sustainable agricultural intensification (SAI) investments, indicators for detecting gender and intergenerational inequities in SAI costs and benefits sharing often remain overgeneralized, theoretical, or locally irrelevant. We examine the relative value of, and how to, customize standard SAI indicators to detect such inequities in specific socio-cultural contexts to enhance data collection for evidence-based decision making in fostering gender/youth inclusive SAI. Using focus-group discussions and key informant interviews among farmers and diverse government, NGO, private sector, and academic stakeholders in two districts in Malawi and three in Ghana, we assess the perceived roles, differentiated needs/priorities of men, women and youth, and the sharing of SAI burdens and benefits within farming households. We investigate what context-appropriate questions to ask, to whom, and how, to collect reliable information on indicators of SAI-investment inequities. Results illuminate context-specific, gendered and intergenerational factors shaping access to and ownership of productive resources, household decision making, SAI participation, and appropriateness of selected indicators. Combining farmers' and local field-expert' perspectives offers practical insights for customizing inequity indicators. Findings highlight advantages of local contextualization of SAI indicators, including insights on appropriate data-collection approaches that challenge orthodox survey/quantitative methods for detecting and assessing gender/age inequities to foster inclusive SAI.

KEYWORDS



Sustainable agricultural intensification (SAI); gender inequity; youth inequity; participatory contextualization; SAI indicators; Malawi; Ghana

Introduction

In response to increasing pressures from rapid population growth and the need to produce sufficient food while mitigating environmental degradation, Pretty et al. (2018) attest to growing progress in increased investments in sustainable agriculture intensification, SAI. While some studies acknowledge gender and intergenerational inequities in SAI (Zurek et al., 2015) and the inequitable sharing of its costs

and benefits (Snyder & Cullen, 2014; Zimmerer et al., 2015), there is insufficient context-specific evidence to support efforts to address inequities that arise from SAI investments.

Some gender narratives and interventions in Africa are based on misleading assumptions, received wisdom and stereotypes about women and gender relations and struggles (Droga, 2011; Doss et al., 2018). Common myths include: (i) inflating (to 70%) women's proportion of the global poor population (Chant,

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2006); (ii) simplifying and overstating (to 60–80%) the share of food produced by women (Doss, 2014); (iii) uncritically emphasizing and/or underestimating women's land *ownership* (1–2% globally) while mostly ignoring joint land ownership (Doss et al., 2018); and (iv) essentializing narratives that women are inherently better environmental stewards than men (Meinzen-Dick et al., 2014). These myths pose the risk of underrating the real challenges that many women face in accessing productive resources (land, finances, information and others), and consequent loss of opportunities relative to men. Another implication is ignoring differentiated but complementary gender roles within Africa's socio-cultural realities (Hudson-Weems, 1993; Nightingale, 2006; Torri, 2010), and overburdening women by promoting practices which bring unrecognized new labour demands on them (e.g. climate smart agriculture).

Moreover, gender is not the only factor shaping social norms, roles and relationships that are important in SAI production. Specifically, a unitary focus on women's needs as if they are isolated from their households, communities and institutions neglects and can upset important gendered power relations, and lead to conflict (Doss et al., 2018). It is important to consider multiple dimensions of identity while making sense of unique gendered experiences, as Crenshaw (1991) illustrates through the gender analytical concept of 'intersectionality.' Age, for instance, intersects with gender to produce differentiated, context specific outcomes and impacts (Crenshaw, 1991; Nash, 2008; Winker & Degele, 2011). Thus, different generations might have varying priorities and levels of influence within their communities. The growing focus on the youth and their issues, for example, might neglect specific challenges that older generations might face, and lead to ineffective policy and programme/project formulations in SAI production and processes that fail to leverage the different complementary but shifting roles of adult and young men and women adequately. Inadequate attention to such gender intersectionality with age and other factors can undermine understanding of the real, context specific needs, preferences and priorities of women, men, and the youth, and increase the risk of reproducing or worsening inequities in the sharing of SAI costs and benefits.¹

Data that are not contextually appropriate often lead to misinterpretations that can reinforce existing simplistic gender narratives (Doss et al., 2018). Answers to standardized questions not only rarely

reflect what researchers think they do (Yount et al., 2019); they can also obscure or render unrecognizable the different realities of men, women, male and female youth (Cho et al., 2013). Moreover, the data-collection process (types of question asked, how, and research methods used) influences the quality of data collected and capacity to capture the experiences and perspectives of men, women and the youth effectively. Household-survey methods traditionally used in gender analysis often fail to grasp the context-specific factors that shape outcomes. Further, standardized survey questions are sometimes inadequate, contextually inappropriate, and not always addressed to the right person who can provide reliable information for evaluating gender inequities in SAI investments and barriers to inclusion (Doss et al., 2018; Fisher et al., 2010). Barriers include socio-cultural factors that undermine participation in decision making at household level and limit access to productive resources for women and the youth within their communities. Thus, women in most rural African contexts typically do not make the major household decisions, and have limited access to household finances (Van Houweling et al., 2012).

Despite widespread recognition that sensitizing men to include women and their opinions in household decision making is an essential part of empowering women, the indicators for the needed analytical depth to guide corrective decision making are not adequately deployed. Conventional gender-assessment indices tend to focus narrowly on individual women and their status relative to men (Morgan, 2014). While participatory gender-focused research in agricultural development in Africa has been going on for over two decades, much of it remains in the grey literature and little has focused on SAI.

Recent laudable efforts to develop gender sensitive criteria for SAI, such as the Sustainable Intensification Assessment Framework (SIAF, Musumba et al., 2017; Smith et al., 2017), highlight – rather than obviate – the need for practical approaches to guide implementation of such theoretical frameworks. The SIAF provides a holistic, technology centred, and systematic analytical framework that allows interdisciplinary cooperation and comparison across space and time based on sets of SI indicators structured into five domains. Although the framework has a social domain centred on gender-equity indicators, there remains a need to enhance the gender dimension, and to customize the indicators to specific contexts in order to move the framework from theory to

practice. Emerging scholarship on cognitive interviewing recognizes such challenges of making data collection on gender inequities more context appropriate. For instance, Hannan et al. (2019) specifically target making the WEAI data-collection framework more participatory by changing the survey questions on women's empowerment. The WEAI is a major data-collection tool for measuring women's empowerment and inclusion in agriculture to aid decision-making in project/programme management and policymaking. Malapit et al. (2019) adapt the WEAI to produce a new project-level WEAI (pro-WEAI) that includes some qualitative indicators and sub-indicators under three main domains of intrinsic, instrumental, and collective agency. We seek to contribute to such work through a participatory contextualization of SAI indicators of gender and age-based inequities more as a sensitizing concept or device (Bowen, 2006) that can aid the design of locally appropriate or customized indicators as well as data collection methods, instruments and practice, than a means to propose alternative research methods.

The objectives of this study are to: (1) assess locally perceived intra-household patterns and signs of gendered and intergenerational inequities in sharing SAI benefits; (2) customize standard SAI indicators of gender and youth inequities to specific socio-cultural contexts in sites in Ghana and Malawi using a participatory indicator development approach, and (3) assess the qualitative comparative advantage of conducting such customization in terms of the quality of information. The research contributes to assessing and enhancing the localized relevance and effectiveness of a selected set of SAI gender and youth (in)equity indicators developed under the SIAF to inform decision making on gender and age-inclusive SAI.

The next section presents a brief literature review on participatory indicator development (PID) generically, and in relation to gender and youth inclusion in SAI, highlighting some gaps in locally relevant indicators. We then describe the data-collection methods and analysis. In the results section we first present locally perceived indicators of existing gender and youth inequities in SAI benefits sharing. Second, we articulate the indicator customization process and outcomes, organized under four themes – productive resources, agency/empowerment, capacity, and achievement in wellbeing. We finally discuss the findings, focusing on the benefits of contextualizing SAI indicators for gender and youth inclusion, and then conclude.

Materials and methods

Conceptual framework: customization of SAI indicators and the participatory indicator development (PID) approach

There is much published literature on developing standardized, cost-effective indicators with comparability within and across countries (Rasmussen et al., 2017), and on data-collection instruments to assess gender inequity (Dookie et al. 2013). However, there is little on customizing these indicators to specific contexts in agriculture. There is even less research on indicators of intergenerational inequity and its intersectionality with gender in agriculture. Several gender-specific and youth-specific efforts to contextualize indicators (Owen & Goldin, 2015) highlight the advantages and challenges of existing PID experiences (e.g. Dijkstra & Hanmer, 2000; Fraser et al., 2006; Freebairn & King, 2003; Hochfeld & Bassadien, 2007; King et al., 2000). They also touch on the contentious concept and definition of the household in different settings and their potential implications on research findings (e.g. Beaman & Dillon, 2012; Netting, 1993; Randall et al., 2015).

Agricultural contexts vary in space and time and across ecological, social, economic, cultural and political dimensions. So do gender and age-based relations and manifestations. For instance, patriarchy dominates most communities and shapes access to productive resources and decision making, but conditions vary from place to place (Stearns, 2015) and at different scales (international, national, sub-country, and household). In Malawi, as in much of sub-Saharan Africa, patrilineal and matrilineal kinship systems influence who has access to and control over land and other productive resources, often to the disadvantage of women in patrilineal communities and men in matrilineal areas (Peters, 1997; Ngwira n.d.; Rukuni, 2016). However, who wins or loses is not straightforward (Kerr, 2005), and changes such as growing privatization of production and consumption can alter/weaken kinship relations. Assessing how benefits from SAI initiatives are distributed among men and women will require nuanced understanding of these social, spatial and temporal variations. Furthermore, research interest on youth in agriculture has focused on factors affecting youth participation (Naamwintome & Bagson, 2013; Van Gyampo & Obeng-odoom, 2013) and the challenges that they face (Naamwintome & Bagson, 2013; IFAD, 2015). There is little research done at the intersection

of youth/age and gender, complicated by disparities in the definition of youth (Durham, 2000, 2004; Mapila, 2014). With the increasing investments both in SAI and on empowering the youth, it is imperative to develop localized indicators of gender and youth inclusion in SAI.

As pointed out earlier, efforts to measure such gendered dynamics have largely depended on standardized, largely quantitative indicators, such as the UNDP Gender Inequality Index for assessing socio-economic dynamics (Dijkstra and Hanmer, 2000), the SIAF (Musumba et al., 2017; Smith et al., 2017), or the Women Empowerment in Agriculture Index, WEAI (Meinzen-Dick et al., 2019). The WEAI, in particular, holds some strengths, including its structured, consistent nature that allows comparability of measurement of gender dimensions within and across projects/programs, and its potential to uncover impacts of disparities in empowerment, health, nutrition and other factors (Malapit et al., 2015). Seeking information on the influence of household and non-household members on decision making, and encouraging tool adaptation to specific contexts are other WEAI strengths. However, critiques of such standardized indicators include numerical reductionism; lack of flexibility; and top-down and expert-driven development with inadequate consideration of the interests of local resource managers and communities, gender, and age-based, and other context-specific social inequities and factors (Fraser et al., 2006; Hochfeld & Bassadien, 2007). There are also challenges in translating the indicators into practice (Hochfeld & Bassadien, 2007). Even the WEAI has been criticized for treating 'men and women in the household as if they were individuals acting alone for their own benefit' (Underwood et al., 2014, n.p.), and for failing to adequately capture women's experiences through their own narratives (Yount et al., 2019).

The participatory indicator development (PID) approach provides a process to develop indicators that are more appropriate and context-focused to reflect the gender issues identified by diverse local stakeholders (Guijt, 1998; Fraser et al., 2006; Reed et al., 2008). PID provides a platform that integrates the participation of outside researchers or experts, farmer communities, and diverse other local stakeholders. PID can enhance understanding of local definitions and perceptions of key concepts, and factors that affect implementation. The literature reveals a spectrum from purely bottom-up processes in which locals build the indicators through co-development

with researchers at all development stages (rare), to a customization process where expert-produced indicators are contextualized to local conditions (Hochfeld & Bassadien, 2007; Fraser et al., 2006). Thus, PID lies at the intersection of indicator development and empowerment of research participants through engaged discussions (Chambers, 1994; Hochfeld & Bassadien, 2007). It also helps to capture often-neglected farmer knowledge (King et al., 2000). For instance, the ecological basis of many indicators provided by local farmers often bears out, and local stakeholders tend to provide more holistic indicators that emphasize qualitative social dimensions (Reed et al., 2008).

A PID approach also accommodates theoretical perspectives aimed at raising the voices of the excluded, including investigating knowledge distortions that expunge legitimate women's experiences (Longino, 1993; Gouws, 1996). By the 'explicit, self-conscious application of values within scientific practice' (Gergen, 1988, p. 92), indicators and data-collection methods derived from a PID process can substantially decrease inadvertent male bias. Although women's and other local stakeholders' knowledge and perspectives are not necessarily always sound and unquestionable relative to that of researchers, government facilitators, NGO, and other non-local stakeholders' (Reed et al., 2008), 'a blend with stakeholders' knowledge and local experience enhances the questions of indicators' applicability and practicability' (Roy et al., 2013, p. 672). To be sure, recent advances in participatory research go beyond PID to allow participants to perform the data coding rather than outsiders, for instance by using the qualitative software SenseMaker (Van der Merwe et al., 2019). However, ensuring that indicators can be used in cost-effective data collection under resource-challenged settings is a major consideration for our research.

The use of participatory mixed methods in evaluation research is well developed, yet quantitative survey-based methods tend to dominate. While quantitative indicators and methods can provide useful quantifiable data and cross-comparability on SAI benefit sharing by gender and age, qualitative indicators and participatory data-collection techniques are uniquely suited to unearthing detailed contextual information and local perceptions that help to explain local behaviour (Fraser et al., 2006; Mohan et al., 2017). However, on their own, qualitative methods and data are admittedly not ideal in cases where generalizability is critical because qualitative results tend to be

applicable to particular contexts. A PID process ensures the capture of relevant qualitative social dimensions, which local participants tend to emphasize, along with quantitative data, which researchers and experts tend to prioritize using mixed methods. Examples include the use of mixed methods in Malawi on gender inclusive monitoring and evaluation of climate services (Gumucio et al., 2018), and on legume adoption and nutrition (Kerr et al., 2007). Ultimately, the PID approach we used helps to address known methodological challenges in developing gender-sensitive indicators – striking a balance between expert-led, often standardized approaches and a participatory process basing indicator formulation on unspecified research values, and feasibility under resource-scarce conditions (Hochfeld & Bassadien, 2007).

Although there is growing recognition of the value of PID-based indicators to uncover context-specific realities in sustainable agriculture, its application in assessing gender inequalities in SAI-intervention planning and monitoring remains scarce. Rare examples include PID use in climate-change risk assessment (Asare-kyei et al., 2015), on sustainability (Fraser et al., 2006; Rosenstro & Kylo, 2007; Yegbemey et al., 2014), on the effectiveness of adaptation interventions (Mohan et al., 2017), and in agricultural trade-off analysis (Kanter et al., 2018). Hochfeld and Bassadien (2007) used a hybrid PID process to develop a gender-sensitive approach for a small family-health service NGO in South Africa.

Seeking to fill the identified gaps, we applied the PID approach to customize a set of gender SAI indicators developed under the SIAF. The process has several advantages: (1) avoiding mistakes arising from uncritical acceptance of orthodox and overgeneralized assumptions about women in agriculture; (2) localization of often neglected and underdeveloped equity-based indicators; and (3) enhancing the collection of context-appropriate and relevant information to understand the changes that are needed to achieve enduring equity in agricultural interventions.

Study sites

We selected study districts and sites focusing on areas where the Africa RISING (AR) agriculture project was implemented in northern Ghana and central Malawi. We purposively chose district sites that collectively captured wide diversity along major axes of social

and climate/agroecological diversity that might influence gender and youth equity in SAI.

For Malawi, we selected matrilineal Dedza district because the farmer and multi-stakeholder platforms established under the AR project were more active than in Ntcheu (the other AR district). We deliberately added the largest patrilineal district in Malawi, Mzimba (in northern Malawi) to also capture perspectives from a patrilineal kinship system. Land-inheritance systems can shape differential access to land (e.g. Doss et al., 2018; Peters, 2010). In matrilineal systems, land is inherited through the woman's/wife's side and men marry into the wife's village. In patrilineal areas, land passes down the male side and women marry into the husband's village. Mzimba district also had active farmer-discussion platforms. For the next lower scale level, we purposively selected Golomoti and Champhira Extension Planning Areas (EPAs) within Dedza and Mzimba, respectively. The sites also represent different agro-ecological zones, with Golomoti being in a drier area than Champhira (Figure 1 – left panel).

For Ghana, we selected two of the three AR regions that showed the most cross-region contrast based on our criteria – Northern Region and Upper East Region. On social aspects, women in the Upper East Region are generally considered as farmers in their own right, often with their own pieces of farmland, whereas those in the Northern Region are largely considered farm hands working alongside men in agricultural production (Apusigah, 2009). Climatically/agroecologically, the Northern Region lies in the Sudan savanna zone, with slightly higher annual rainfall and a longer major growing season than the Upper East Region, which lies within the Guinea Savanna. Different climatic/agroecological factors can affect crop choice, cropping strategy, and associated gender relations (Doss, 2002). Moreover, religion can also influence levels and quality of rights enjoyed by women (Wanyeki, 2003). Thus, picking one district in predominantly Christian Upper East Region and two in Islam-dominated Northern Region helps to capture and interrogate potential differential impacts of contrasting social conceptualizations, religion, and biophysical condition on SAI outcomes. We further selected two communities per selected district. These were Tingoli and Cheyohi in Tolon-Kumbungu District, and Duko and Tibali in Save-lugu-Nanton District, in Northern Region; and Nyangua and Gia in Kassena-Nankana District in Upper East Region (Figure 1 – right panel).

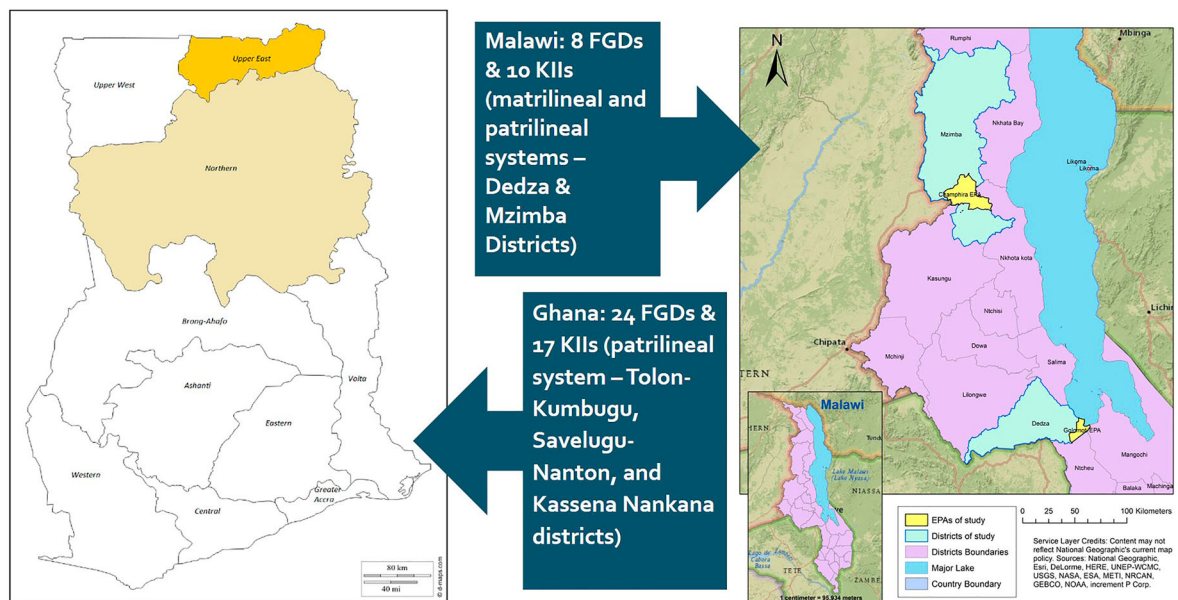


Figure 1. Maps of sampled regions in Ghana (left) and study sites and communities in Malawi (right).

Data collection and analysis

We conducted Focus Group Discussions (FGDs), Key Informant Interviews (KIIs), and literature review to collect data to contextualize indicators of gender and youth inequities in Malawi and Ghana in 2017 and 2018. Qualitative methods help to unpack micro and meso-scale dynamics and processes, and local perceptions that shape social dynamics of sustainability (Fernández-Kelly, 2012; King et al., 2000). KIIs and FGDs are particularly useful in PID to uncover local knowledge, experiences and perspectives of local project implementers on the technical side and local community members, and capture hard-to-quantify but important factors, e.g. agency or women’s empowerment (Fraser et al., 2006; Hochfeld & Bassadien, 2007; Meinzen-Dick et al., 2019). KII sample sizes and numbers of FGDs varied, reflecting the point at which saturation was reached in terms of new information added. Specifically, we conducted eight FGDs in Malawi, each targeting 10–15 participants, and ten KIIs. In Ghana, we carried out 24 FGDs, each targeting 3–11 participants and 17 KIIs. Local technical experts selected for the KIIs were key stakeholders identified during a previous stakeholder-analysis study and during the FGDs. They included district and sub-district agriculture, gender, youth, nutrition and related extension agents, NGOs, project managers, private sector actors, and civic

leaders who interact with farmers on a regular basis and have useful local perspectives and knowledge to offer. The sampling strategy is detailed in Appendix 1.

We collected information on local perceptions and experiences of SAI dynamics related to gender and youth (in)equity, including roles, needs, and priorities of men, women and youth within farming households. We also examined the sharing of SAI costs and benefits through participatory FGD activities and exercises. For the selected SAI indicators, we explored their relevance, appropriateness, and who and how to ask questions to collect information for the associated metrics. We analyzed our research data with Nvivo Pro qualitative analysis software version 11 using multi-step axial coding to derive themes differentiated by gender and age. To gain data familiarity and a sense of the recurrent themes, we first explored the data using text inquiries, text search tools, and word clouds. We also built a mental map based on the principal questions asked and variables collected. These became the major/parent thematic nodes we started the coding process with, standardized for both study countries. Using a randomly selected dataset from Malawi, we binned the data into these initial major nodes. Throughout the progressive coding of the information from each FGD and KII, we expanded the node structure by creating new child and grandchild nodes representing emerging sub-themes and sub sub-themes uncovered, respectively. We used the

remaining FGD and KII transcripts to confirm and validate the overall node structure. This process helped to fuse some nodes together and to split some when the data diverged, to form new sub-themes and sub sub-themes when needed. Research team members discussed and reviewed the codebook iteratively among to enhance comparable analysis across sites and countries. We exported binned data from the software to a Microsoft Word document for a critical content analysis of the structured themes and extraction of illustrative excerpts. The current paper presents a subset of these results. Overall, we sought to capture farmers' and local field experts' voices and experiences through thematic characterization, quotes and anecdotes. Both data collection and analysis focused on in-depth content analysis and contextualization.

Results

The customization process enhanced understanding of how gender and youth inequities manifest within the different socio-cultural contexts. Because most informants deemed the sharing of the benefits from agriculture investments as the most potent avenue for detecting gender and youth inequities in SAI, we

first sought to disentangle who within the household (women, men, and male and female youth) benefits from these improvements and how, and what the indicators are for such benefitting or absence thereof. Insights from community members (FGDs) and local experts (KII responses) in Malawi and Ghana revealed similar clues of overall household benefits.

Second, we describe findings on contextualizing standard SAI indicators on gender and intergenerational inequities to the sociocultural contexts of our study sites and elaborate on the comparative value of such age and gender-differentiated customization. We organize these findings into four categories of gender and intergenerational inequities in SAI: productive resources, agency/empowerment, capacity, and achievements based on an adapted framework (Figure 2) for the social domain of the SIAF manual (Musumba et al., 2017, p. 153). Instead of going through all the indicators considered individually, we emphasized indicators that emerged as important in KIIs and FGDs, and as having the most potential for customization from the PID process and in adjustments to data collection. Specifically, we focus on gender and intergenerational inequities associated with land rights (access, use, and control), ownership of and

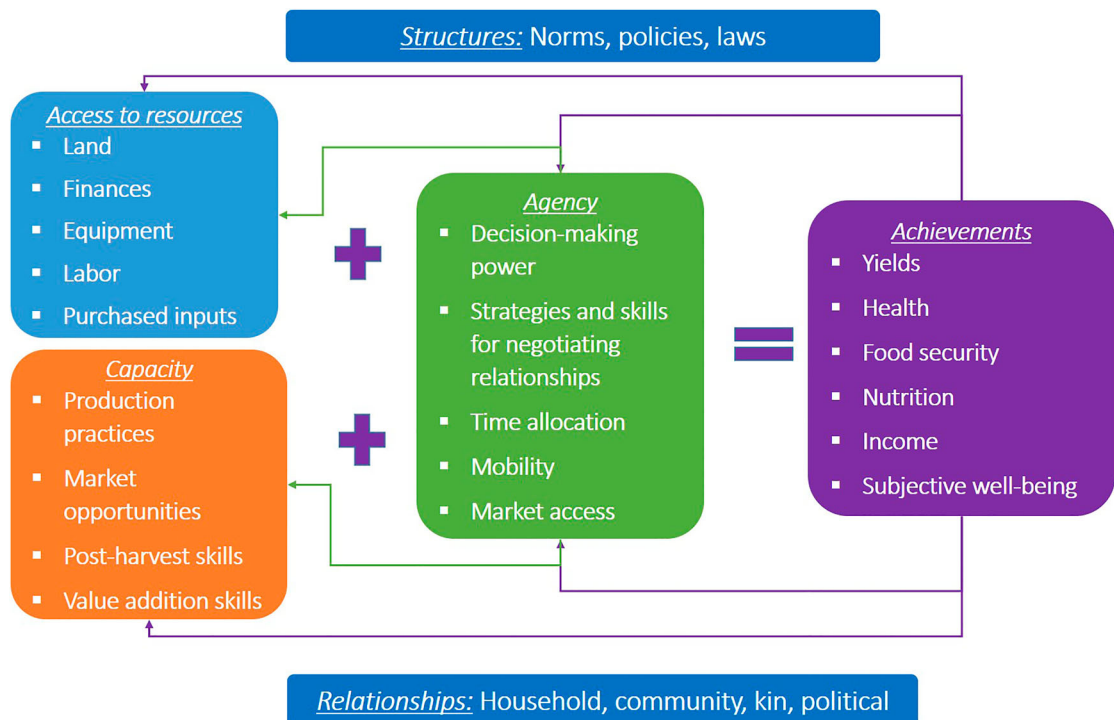


Figure 2. Organizing framework for presenting the customized indicators based on an earlier adaptation of the empowerment and equality in agriculture (Hemminger et al. 2014, based on Kabere 1999).

decision making on livestock and crops and their management, access to extension services, social capital (e.g. group participation), time use, and for Malawi only, children's nutrition and food-security status.

Local perceptions of indicators and patterns of gendered and intergenerational inequities in sharing SAI benefits

FGD and KII data showed that household benefits sharing from SAI was differentiated by gender and age. Perceived indicators of benefits for women included asset ownership, active involvement in agriculture projects, having non-farm employment or income from trades, acquisition/ownership of technological items or gadgets such as mobile phones, and having all-year-round food availability. Improved house quality, health status of family members, physical appearance (clothes, looks, health) of respondents and their children, and ability to meet the education needs (costs) of children, were also important. Buying new assets (e.g. motorbikes or livestock), improving the quality of their house (with metal roofs, cured bricks, cement floors), ability to purchase agriculture inputs and pay school fees for children, dressing smartly, provisioning the family well, and spending time at home denoted men benefitting from SAI benefits. Men in Ghana additionally included all-year-round food self-sufficiency, marrying more wives, acquiring chieftaincy titles, and supporting other family members financially to undertake rites of passage. They also highlighted paying for daughters' education. Perceived signs for male and female youth benefitting in Malawi included uninterrupted school attendance, resources to establish small businesses, non-dependence on informal piecework (*ganyu*), and in Ghana meeting costs of marriage rites, having sufficient food and nutrition, being healthy, and having good clothing. One important gender difference in Ghana was the emphasis of male youth on being able to afford modern modes of transportation such as motorbikes. [Table 1](#) summarizes some features of women, men and the youth benefitting or not from SAI improvements from Ghana, and illustrates the range and relative importance of the benefit indicators.

On the sharing of SAI benefits, some age and gender-based disparities stood out as main locally-perceived centres/loci of inequity. They included inequitable participation in agricultural projects, produce marketing, decision making on agriculture

activities and other household aspects; differential roles in agricultural activities by crop, and access to land; and women's agency to mitigate some of the inequities. For instance, key informants pointed out that lack of participation of young males and females in projects is an indicator that they would not benefit from the projects. Whoever (men, women or the youth) made the decision to grow a particular crop or raise a particular livestock type, and more importantly, whoever made the decision to sell or conducted the selling tended to benefit more than other household members did. This is often men. However, some (five) local experts in the Upper East Region contended as inconceivable the possibility that only patriarchy benefit from SAI within a (polygamous) household while other members do not. The quotes below illustrate their point but this view appeared to reflect inconsistencies between local norms and values of an idealized family on one hand and reality on the other:

It is not possible. Benefits accrued would be shared among all wives; men would provide working capital out of the tangible benefits to all wives. (Male R4D member, Kassena Nankana Municipality)

This is just not possible. Benefits are shared and all young people will be given part of food or clothing or enjoy improvements in housing, transportation or whatever. (Female, Department of Agriculture employee, Kassena Nankana Municipality)

Men's traditional role as heads in most households reinforced SAI inequities in their favour, and either undermined women's roles in decision making or youth benefits after harvest. The following quotes illustrate this:

The husband, for example, will take all the cowpeas the household harvested to the market for sale. The money realized from the cowpea sales will be spent on purchasing beer. The husband will even spend nights out until the money is finished and then he will return home. ... Such husbands do not involve their wives in decision making on use of the money and on household expenditures. (ASP members, Golomoti –Dedza)

For instance, when a girl child like me asks for school fees, they would respond that school is not good for girls and it is better for us to get married so that we start doing our own things. There are real problems for the youth, especially girls. (Female Youth, Champhira – Mzimba)

In contrast, in some contexts, women wielded more power traditionally than men wield. Some women proactively negotiated for powers in decision-

Table 1. Summary of features of women, youth, and men benefitting or not from SAI improvements in Ghana.

Features	Northern Region (Frequency)	Upper East Region (Frequency)	Total ^a
<i>Features of benefit</i>			
Women			
Children's needs	21	9	30
Clothing	13	14	29
Healthy looking skin	6	11	17
Secondary Employment	19	0	19
Participation in financial schemes	4	0	4
Building houses	3	0	3
Acquiring phones	2	0	2
Food security	0	11	11
Speaking up in public	0	2	2
Youth			
Mechanized means of transport	21	13	34
Building houses	10	7	17
Consumer items	5	12	17
Marriage	12	5	17
Changed appearance	5	12	17
Livestock	8	0	8
Provide for family of origin	3	0	3
No migration	2	0	2
Grow non-traditional cash crop	1	0	1
Men			
Housing improvements	14	10	24
Food security	16	4	20
Taking on more wives	8	5	13
Providing for wives	0	6	6
Providing for wives and children	0	10	10
Public speaking	0	10	10
Mechanized means of transport	6	5	11
Livestock	8	0	8
Chieftaincy	7	0	7
Consumer items	6	0	6
Provision of children's education	6	0	6
Support for extended family	4	0	4
Leisure	3	0	3
Self-employment	1	0	1
<i>Features of no benefit</i>			
Women			
Having to share a spouse	1	0	1
Unequal housing improvements	1	0	1
Personal needs unmet	1	0	1
Struggle for food	0	10	10
Dress shabbily	0	7	7
Women's demeanour	0	6	6
Hunger	0	3	3
Extra-marital liaisons	0	3	3
No shares in agricultural proceeds	0	2	2
Youth			
Poor food	1	7	8
No support for rites of passage	1	0	1
Dis-interest in state of fathers' farms	1	0	1
No support for educational pursuits	0	4	4
Anger	0	4	4

The frequencies refer to the number of times that a response or theme came up during all the FGDs. Therefore, the total does not refer to the number of focus groups^a. Data Source: PID FGDs Data – Ghana.

making or for independent production to attain some economic autonomy. Thus, in matrilineal Dedza, women owned land and some controlled decision making on marketing. A man in Dedza, and a male youth in Mzimba (Malawi) commented as follow:

Yes, a woman is controlling all the money and a man has no chance to access the money. [...] A man will go to the market to sell the agro-produce and on return home; the woman will demand to be given all the money since the woman has more power than the man [...]. (ASP member, Golomoti, Dedza)

You just know that the family is being ruled by the woman. Whenever there are contributions in the community, for example at the church, the man cannot contribute until he asks the woman. [...] Another thing is that nowadays almost every person has a cell phone as a means of communication compared to previous years when the post office was the main means of communication. You find in this case that the woman has a cell phone while the man has no phone. (Male Youth, Champhira, Mzimba)

Some women negotiated for joint intra-household decision-making powers on various agricultural and non-agricultural activities to mitigate the inequities Table 2 illustrates the gender and age-differentiated decision-making roles for Malawi. Explanations for such successful negotiations include ensuring that family needs, such as raising money for children's school fees, were met and that individual benefits accrue to them (women).

Yes, we discuss with the women to grow maize and soya beans in one field for sale so that we will get money for children's school fees. [...] Yes, despite the fact that men own land, women contribute to decision making regarding the use of that land and sale of farm produce and livestock. [...] Yes [we also include children] because culture here recognizes children as property owners and hence, we need them to participate in decision making regarding the sale of livestock. (ASP member, Champhira – Mzimba)

FGDs revealed a perceived increase of cases in which women negotiated for access to intra-household land, or borrowed, rented or bought land outside the household to cultivate their own (cash) crops independently. In doing so, they sought to respond to the inequitable benefit sharing despite their labour contribution and to gain income for self-use and for the family. The ensuing (mostly temporary) land splitting to allow women's autonomous farming was reported in both patrilineal Ghana regions and Malawi's Mzimba district where men control the land, and in matrilineal Dedza where women's nominal control over land appeared not to shield them from men's tendency to monopolize agricultural proceeds within the household. The following quotes are illustrative of this apparent proactive trend, including an anecdote of a husband acknowledging his role in such an unfair practice:

Couples share the land or divide the field where each one does his/her own cropping while still married. [...] Yes, it happens in our villages and it depends on couples' agreements. (Male respondent, Golomoti – Dedza)

As a family, you can decide to grow soybeans for sale but after harvesting, the husband decides to go to the market

to sell alone without consulting the wife and the cash is not shared with the wife. In disappointment the wife decides to farm on her piece of land, alone. (ASP member, Golomoti – Dedza)

I was oppressing my wife when it comes to sharing benefits realized from the farm sales. Consequently, we shared the lands. The part of the land (field) that I farm, I control it and the part that my wife farms belongs to her. (Man, Golomoti – Dedza)

Negotiating for land for autonomous farming required considerable bargaining power for women, especially in patrilineal societies. Informants in Malawi perceived the level of such intra-household bargaining power to be associated with years of marriage. Many perceived a woman in an older marriage to have earned more intra-marital confidence, and to be less inclined to seek to impress the husband in the image of the ideal feminine. She was also less tolerant of working for the husband's benefit as farm work became more arduous with advancing age, and after years of learning lessons the hard way.

[This does happen in] older families and the reasons [are] similar to what you have explained. After a long experience of their husbands selling the agricultural produce and not sharing the money fairly with their wives, a woman decides to rent her own field and cultivate it on her own. [And yes], because she has learnt it the hard way and she feels she is better off benefiting more from agriculture when she cultivates her own field. (Female Youth, Champhira – Mzimba)

However, while it is easy for older couples to decide to split pieces of land in matrilineal settings, for young women, bargaining for equitable benefits from their labour and land ownership is not straightforward. Societal norms also weighed against women. As attested by a female youth in matrilineal Dedza, the fear of losing a husband to other women prevented some women from enforcing claims of land ownership and insisting on the need to benefit from it. In contrast, the practice of paying bride price in patrilineal Mzimba (Malawi) was claimed as a positive cultural force that enhanced the integration, social capital, and negotiating power of women within their husband's villages, over time. It is also important to differentiate negotiated agency from default agency related to women being left in charge of agricultural production and decisions following the emigration of their spouses. In Mzimba (Malawi), where many young men went to work in South Africa, such emigration had emerged as a virtual rite of passage into adulthood for them.

Table 2. Gendered decision-making patterns on some key SAI-related activities in Malawi.

Type of crops	Who decides in Dedza?				Who decides in Mzimba?			
	Man	Woman	Youth	Joint (Both men & women)	Man	Woman	Youth	Joint (Both men & women)
<i>Agriculture-related decision making</i>								
1. Crop management (growing and managing fields with cash and food crops)								
Food crops	Overall	x	xxx	-	xx	xxx	-	xx
	Maize	xx	xx	-	xxx	-	-	xxx
	Ground nuts	x	xxx	-	-	xxx	-	xx
	Pigeon pea	x	xxx	-	-	-	-	xxx
	Rice	-	-	-	xxx	-	-	-
	Soya (bean)	x	xxx	-	-	xx	xxx	-
	Sweet potato	-	-	-	-	xx	xxx	-
	Irish potato	-	-	-	-	xxx	-	xxx
	Beans	-	xxx	-	-	x	xxx	-
	Millet	-	-	-	-	x	xx	-
	Cassava	-	-	-	-	xx	x	-
	Vegetables	-	-	-	-	x	xx	-
	Tomatoes	-	-	-	-	xx	x	-
Cash crops	Overall	xxx	x	-	x	xxx	x	-
	Ground nuts	xxx	-	-	xx	-	x	-
	Cow peas	xxx	-	-	xx	-	-	-
	Cotton	xxx	-	-	-	xxx	-	-
	Cassava	-	-	-	-	xxx	-	-
	Tobacco	xxx	-	-	-	xxx	-	-
	Pigeon pea	-	xxx	-	-	-	-	xxx
	Beans	xxx	-	-	xx	xxx	x	-
	Soya (bean)	xxx	xx	-	-	xx	x	-
	Sweet potato	xxx	-	-	-	xx	x	-
	Vegetables	-	-	-	-	xxx	xx	-
	Paprika	-	-	-	-	xxx	-	-
	Sunflower	-	-	-	-	xxx	xx	-
	Maize	-	-	-	-	xx	x	-
	Irish potato	-	-	-	-	xx	xx	-
	Tomatoes	-	-	-	-	xxx	xx	-
	Onions	-	-	-	-	-	xxx	-
	Sugarcane	-	-	-	-	xxx	-	-
	Millet	-	-	-	-	-	xx	-
2. Crops sales								
	Cotton	xxx	-	-	-	xxx	-	-
	Soya beans	xxx	xx	-	-	-	xxx	xxx
	Cow peas	-	xxx	-	-	-	-	xxx
	Groundnuts	-	xxx	-	-	xxx	xx	-
	Tobacco	xxx	-	-	-	xxx	-	-
	Tomato	xxx	xxx	-	-	-	xx	-
	Vegetables	xxx	xxx	-	-	-	-	-
	Sunflower	-	-	-	-	-	xx	xxx
	Maize	-	-	-	-	xxx	xx	-
	Cassava	-	-	-	-	xxx	-	-
	Pigeon peas	-	-	-	-	-	-	xxx
	Beans	-	-	-	-	xxx	xx	-
	Onions	-	-	-	-	xxx	-	-
	Cabbage	-	-	-	-	xxx	-	-
	Sweet potato	-	-	-	-	-	xxx	-
	Market search	xxx	-	xxx	-	xxx	-	xxx
3. Sales of Livestock and Livestock Products								
	Cattle	xxx	-	-	-	xxx	-	x
	Goats	xxx	-	-	-	xxx	-	x
	Sheep	xxx	-	-	-	xxx	-	-
	Pigs	xxx	x	-	-	xxx	-	x
	Chickens	x	xxx	-	-	x	xx	x
	Eggs	-	xxx	-	-	-	-	xxx
	Guinea fowl	x	xxx	-	-	-	-	-
	Market search	xxx	-	xxx	-	xxx	-	xxx
	Milk	xx	xxx	-	xx	-	xxx	x

(Continued)

Table 2. Continued.

Type of crops	Who decides in Dedza?				Who decides in Mzimba?			
	Man	Woman	Youth	Joint (Both men & women)	Man	Woman	Youth	Joint (Both men & women)
<i>Other household decision-making aspects</i>								
4. Purchase of agriculture-related items								
Fertilizer	xxx	xx	-	xxx	xxx		-	xxx
Treadle pump	xxx	x	-	-	xxx	xx	-	xx
Seeds	xx	xxx	-	xxx	xxx		-	xxx
Pesticides	xxx	x	-	-	xx			xxx
Hoes	x	xxx	-	xx			-	xxx
Ox cart	xxx	x	-	-	xxx	xx	-	
Axe	xxx	x	-	-	xx			xxx
Chemicals					xx	xxx	-	
Sprayers					x	xx	-	xx
Watering cane					xx			xxx
5. Purchase of non-agriculture-related items								
Bicycle	xxx	x			xxx	xx		x
Phone	xxx	x	xx	xxx	xx			xxx
Radio			-	xxx	xxx			xx
Television					xxx			
Iron sheets								xxx
Utensils	-	xxx	-		-	xxx		
Clothes		xx	-	xxx	-	xxx	-	
Mats	-	xxx	-					
Sofa sets					xxx			
Food (extra after harvest)	-	-	-	xxx	x	xx	-	xxx
Key								
xxx	Make most decisions							
xx	Contributes to some extent to the decision making							
x	Contribute very little to decision making							
-	None							
Blank	Non-applicable							

Source: PID FGDs Data – Malawi.

Insights on contextualizing gender and youth inequity indicators in Ghana and Malawi

The participatory contextualization of gender and youth inequity indicators uncovered similarities and peculiarities across locations. It revealed the suitability of data-collection questions, highlighted some questions for indicators that local communities and experts considered sensitive, unacceptable, or irrelevant within the context, and elicited suggestions to reframe and improve questions, with implications for the selection of appropriate research methods. We summarize in Table 3 the local perceptions on indicators of all four categories of indicators for Ghana and Malawi.

Productive resources

The PID process revealed context-specific nuances on issues of access to productive resources, particularly land (access, ownership, and quality), asset ownership including livestock, and available human and social

resources. In both Malawi and Ghana, local communities and experts generally considered questions on land-related indicators on gendered land *access* germane to uncovering gender and intergenerational inequities but reported local sensitivity to questions on gendered *land ownership*. The kinship-system type regulating customary land inheritance and socio-cultural norms and practices tended to have some influence.

Many informants (both men and women) in both the matrilineal and patrilineal sites considered questions on gendered ownership of land, and intra-household allocation of land parcels based on quality or fertility, culturally controversial and even inappropriate. In patrilineal sites, men generally deemed such questions a challenge to their authority and privilege while some women also considered them a potential source of conflict in gendered conjugal and community power relationships. Land ownership, access, and sometimes land quality were recognized as important dimensions of land rights within SAI. However, there was near consensus that although

men owned and controlled land in the patrilineal societies, women generally had adequate (though admittedly declining) access to land, a customary right further reinforced by the dowry custom. Thus, land access, not ownership, was viewed locally as the immediately important land-rights issue for inclusive SAI. The following two quotes clarify this sensitivity over land access and ownership, and the third on gendered and quality-based ownership:

According to our culture, land belongs to a man, but a woman benefits because the land belongs to her husband and she can decide to go and cultivate anytime she wants to do so. Our culture pays *lobola* [bride dowry], and in so doing the woman becomes part of the man's clan, which means the land also belongs to her. (Female Mzimba DAECC member)

'... to ask who owns each field, I don't think it is appropriate; [...] 'Most of us are used to cultivating fields inherited from our husbands' clan; so there is no problem at all' (Female youth, Champhira, Mzimba).

However, ... , where you want to understand whether it's the woman or a man who cultivates the infertile land, I am really skeptical if that's a good question to ask here in Mzimba. (Mzimba DAECC member)

These sentiments were not universal. A small number of women argued that answers to such questions asked by outsiders could serve as the basis for transforming their communities. 'It is even the outsiders who will bring new ideas to the family', suggested a woman in Northern Ghana.

In contrast, questions on land ownership and on intra-household gendered allocation based on land quality were generally considered appropriate and less sensitive in Malawi's matrilineal site. Most male and female community and expert informants in Dedza – where women nominally have ownership rights and stronger tenure security than men – deemed all the land-related questions locally appropriate. Common justifications were that the questions would yield information on sources of the land parcels, how they are divided among family members, who uses or controls what parcels, and how efficiently they are used in relation to land-quality/crop matching. However, informants in Dedza highlighted growing strains in the matrilineal land-inheritance system as population continues to grow. This leads to increasing sub-division of available land and subsequent passing down of smaller land parcels; growing land scarcity; and consequent increasing cases of land renting and buying – the very argument for the promotion of SAI.

Despite the sensitivity associated with some land-related indicators, there was some agreement that questions of both gendered land ownership and access linked to quality were relevant for assessing SAI inclusion and were important to ask in both Ghana and Malawi. Some local farmers and experts were of the view that the question of land quality would be suitable if modified to focus on gender-neutral aspects/metrics of land quality, or if rephrased into a third-party perspective to impersonalize them. Some informants suggested alternative framing of questions focusing on efficiency arguments, such as asking whether land-fertility status was used to allocate land parcels to particular crops and members of the household. Data collectors could then infer the gender dimensions of ownership/control from answers to questions on who had primary responsibility for particular crops. Additionally, more clarity on the objectives of the data collection would reduce resistance.

As for information sources, local stakeholders generally recommended asking both the male household head and spouse (if not a single-headed household), separately, to allow candidness and avoid conflict:

The approach should be to ask the couple separately so that you get some reliable information. Because if you ask them together, the moment you leave, fights ensue and someone is packing. (Dedza DAECC member)

Context mattered, however. The man was almost universally deemed the most appropriate person to ask in patrilineal households although the female manager might provide the most reliable answers. Dependent youth were generally not considered reliable information sources.

Findings reflect a tendency among women and the youth, both groups often marginalized, to ensure that their opinions and interests were made visible, not suppressed. Women and the youth tended to be more open on the contested inequity indicators for measuring gendered and intergenerational land rights. Women generally sought more transparency than adult men did on such questions/metrics. A minority of young people also linked the questions to the shared production of knowledge among locals and experts, resulting in local benefits. Among these predominantly poor rural communities, the local expectation that the research findings would ultimately help in their socioeconomic development was widespread, even among local experts.

Table 3. Summary notes on the participatory customization of the SAI indicators of the social domain in Malawi and Ghana.

Parameters Indicators		Suitable or Not		Better or alternative ways suggested		Reliable person	
		Malawi	Ghana	Malawi	Ghana	Malawi	Ghana
Productive resources – Land and land rights	Land access and ownership rights	Controversial with no consensus. Some expressed reluctance. Others were OK.	Yes – Appropriate	Alternative suggestions provided: Ask men or women separately. Or ask each family member what land they own and control	NONE	Context-driven: men in patrilineal system and women in matrilineal systems – or both men and women, but separately	Men
	Land quality and productive value	Yes – Suitable	Yes – Appropriate if the aspect of influence on access if not evoked	Alternative suggestions provided: request to make it flexible and to not compare men's and women's land fertility	NONE	Both men and women, but separately. Youth also may be reliable	Men
	Influence of land quality on land access and rights		Yes – But controversial from women's perspective. Women (of polygamous settings) oppose this question as it may affect household dynamics (revealing gendered hierarchy)		NONE		Men
Productive resources – Crops & Livestock management and ownership	Crops and farm management (Malawi).	Yes – Suitable	Seemingly not suitable	Recall period on farm activities and crops-related operations should be limited to one or two months after the end of the growing season. Ideally should be during the prevailing rainy season.	There is no bold distinction and absolute rules between these two types of crops.	Both men and women, but separately. Youth also were mentioned. But, in general, men (if not possible to perform separate interview)	The household head (patriarch) or the first wife. But, in general, anybody can answer correctly
	Crops distinction (cash crops versus food crops) and farm management (Ghana)						
	Livestock ownership and decision-making patterns	Yes – Suitable	Yes – Suitable. But some contended it is inappropriate because livestock is a family property	More contextual clues provided: phrase the question as a way to understand the cultural practices concerning each category of livestock, who owns them and who controls them in terms of management, but not directly raise any aspect of gender equity in decision making over livestock.	NONE	Every member of the household. Women mostly preferred for reliable information	Males of the household

Capacity/Access	Access to markets information	Yes – Suitable	Yes – Appropriate	NONE	NONE	Men; more involved. Also, the Individual whose phone is registered with the Agriculture Commodity Exchange (ACE)	Women and Youth
	Access to extension information and services	Yes – Suitable	Yes – Appropriate	NONE	NONE	Either a man or a woman, or even the youth	Head of the household, the eldest son, or the wife (as last recourse). Also, any adult member of the community
	Access to markets	-	Yes – Appropriate, but not useful (everybody has access to market)	-	NONE	-	The patriarch, the wife or eldest son
	Market participation	Yes – Suitable	Yes – Suitable	NONE	NONE	Men, more involved	Head of the household, the eldest son, or the wives (as last recourse).
	Access to financial credits and loans	Yes – Suitable	Yes – Suitable. But slightly controversial in the Northern Region (deemed intrusive)	Avoid starting the interview with such a question; make clear to the farmers that the purpose of enquiring is not to police and arrest delinquent borrowers	Privacy is key to getting accurate information.	Women mostly preferred	Loans providers (rural banks or women's village savings and loans) Women who have taken loans themselves
Agency/ empowerment (Decision Making, time allocation, and social capital supported access to productive resources)	Overall decision-making	Controversial and complex issue. Many participants were reluctant because of its cultural sensitivity (mainly in north); few deemed it appropriate.	-	Ask family members separately. Simulate asking for another family.	-	Either men or women	-
	Decision making for the purchase of new items	Yes – Suitable	-	NONE	-	Both men and women, together. Men are more indicated	-

(Continued)



Table 3. Continued.

Parameters Indicators	Suitable or Not		Better or alternative ways suggested		Reliable person	
	Malawi	Ghana	Malawi	Ghana	Malawi	Ghana
Decision-making related to family's croplands management	-	Slightly controversial. Many deemed it appropriate. However, some participants argued it is a private matter.	NONE	NONE	-	The household head
Other household decision-making and ownership		Yes – Suitable in Upper East Region. Slight resentment in Northern Region (polygamy setting) as it may upset family dynamics		NONE		The household head or the eldest son. Rarely the wives. In such case, the first wife in particular
Use and control of income and wage salary	Yes, but few opposition	Yes – Caveat that wrong answers would be mostly provided	NONE	NONE	Both men and women, but separately. Men mostly preferred	The person directly involved in earning and using the income
Time allocation and labour division for farm activities	Yes – Suitable	Yes – Caveat is that it will not be exact because people do not time themselves	More contextual clues provided: time spent on an activity for a specific crop is related to either its social or economic value. Questions of time allocation would be appropriate if asked with a short time lag/recall period, such as days, a week, or a month. For question related to food eaten, recall period should be no longer than a week. One day is ideal.	Ask per activity such as the planting season or the growing season.	Both men and women, but women mostly preferred	Each individual household member
Time allocation and labour division for livestock management	Yes – Suitable		More contextual clues provided: need to clearly define what 'taking care of' means. Relevant to proceed by livestock types, such as for cattle, for goats, for sheep, for pigs, etc.	The best time to ask was at the end of the year to account for new births.	Women mostly preferred	
Participation in collective action groups	Yes – Suitable	-	NONE	-	Every member of the household. Women mostly preferred for reliable information	-

Achievement:	Social cohesion indicator	Yes – Suitable	NONE	Every member of the household.
Nutrition, food security, health	Men and women's health status using health passports	Controversial with no clear agreement	Should be explained clearly, especially the underlying reasons.	Women mostly preferred for reliable information
	Children's nutrition/ food security status using health passport	Yes – Suitable	NONE	Women mostly preferred
		Yes	NONE	Women mostly preferred
				Medical personnel (nurses in local health centres)
				Health centres
				Medical personnel (nurses in local health centres)

Source: PID Data – Malawi and Ghana.

Second, asking questions on gendered and inter-generational household decision making was generally considered important and appropriate, although some questions were considered contentious or inappropriate (Table 3). In Ghana, informants affirmed suitability of such questions but only if men and women are asked separately, and after the purpose of the data collection and potential immediate (e.g. monetary gifts) and long-term (research-derived) benefits to the community are explained clearly. Questions on gendered decision making on crops and livestock management and sale were generally uncontroversial, if asked for each specific crop or livestock type. Some informants suggested rephrasing questions for some indicators to avoid resistance arising from fear of or embarrassment from exposure of negative aspects of gender inequity in decision making and livestock ownership. In Malawi, some informants suggested asking more generically how each asset, including livestock, was acquired, and who controls or manages it; and to impersonalize the questions beyond the household by couching them as cultural practices and treating them by asset category.

There were other insights for indicator customization from both countries. They included being cautious with questions deemed locally sensitive by one group without suppressing the voices of other groups (especially women and youth), and ensuring that the target/respondent was indeed a farmer. Informants emphasized specificity by crop/livestock type and cautioned against using the broad categories of cash and food crops in relation to decision making because some crops are grown both for food and for cash. Even food-production roles were gendered. In northern Ghana, for instance, men tended to grow tubers and women vegetables, while shea-nut (for shea-butter) production in the Savannah zones is almost exclusively a women's economic activity.

Agency and empowerment

Communities in Ghana and Malawi affirmed the importance of seeking information on social capital, SC (leadership, participation in groups, social cohesion) or collective agency, as most participating members considered it important in empowering individual farmers and in the sharing of SAI benefits and burdens. Local experts rated SC metrics as moderately to highly suitable in assessing parity in SAI benefit sharing. In this section, we focus on indicator customization for instrumental collective agency (decision-making on agricultural production, resources

ownership and control, control over income, and time allocation) and intrinsic agency (intra-household relations).

Most prominently for Malawi, participation in collective action groups, group leadership, and high levels of community cohesion emerged as major boosts to the SC needed to access productive resources. First, community members and local experts considered participation in agriculture-related groups, generically, important to access productive resources because Malawi uses the group approach as the core of its agricultural extension system. Farmer groups are used as the main conduit to farmers (both men and women) for external agricultural inputs, including improved seed, fertilizers, micro-credit, new technologies and extensions services. Further, training from projects, schemes and other providers are done through these farmer groups. The value of membership in such groups was clear and uncontested:

'People who participate in community groups benefit more than people who do not belong to any community group' (district extension officer, Dedza); 'people who participate in several groups benefit [even] more, for instance, they are able to access loans and sell their produce in bulk at better prices,' and 'people who hold leadership positions benefit more than those who are just members [as] every opportunity falls in the hands of leaders first before spreading to other members'. (Senior Irrigation Engineer, Dedza)

Second, participation in women's Village Savings and Loans (VSL) groups, specifically, emerged as a critical indicator for women's economic empowerment through assured access to locally saved intra-group credit. VSL and similar savings groups were considered an essential entry point to mitigate adverse gender and age-based inequities in accessing SAI benefits. Women use the revolving credit to advance their individual and family welfare directly or through investments in agriculture or other businesses.

We access things easily that improve our lives and farming skills, unlike those who do not participate in clubs. Those that are not participating cannot access a treadle pump because they give them out through clubs. Yes, because the benefit of being in a club is that you access loans and other extension services easily. For those in village savings and loans [groups], they are able to get a loan and use it, for example, for contract labor in your farm. (community member, Golomoti – Dedza)

Informants in both countries indicated the need to ask men, women, and the youth, separately, for reliable

information. As an illustration, one young male in Mzimba indicated that some young men in the area had accessed higher education opportunities through group participation in projects.

Findings also affirmed the gendered and age-dependent nature of time allocation to agricultural and related activities, and burden sharing, often to the disadvantage of women in aggregate; hence, the need to collect information on it. Informants in both countries also underscored the value of the time-allocation indicator as a proxy for agency, the uneven burden (costs) imposed by SAI investments, efficiency in time use by household members, and as an indicator of the availability of time for new SAI interventions. Collecting information from men, women, male and female youth was emphasized.

Informants in both countries highlighted the need for a brief recall period for information sought – within 1–2 months after harvest for most agricultural activities. For livestock, asking right at the end of the season was recommended. For a nutritional record of food consumed, most recommended no more than a week after the food was eaten to avoid memory decay. Alternatively, informants suggested giving selected farmers custom logs to record times spent on each agricultural activity or to record daily food intake (type, amount, timing) for specified desired periods. While this is already part of good survey and participatory research practice, it is not done often or systematically, and the recall periods imposed do not always match what the farmers indicate were the most appropriate.

Capacity – access to markets, market information, and extension services

Access to extension services and market information was gendered and age-dependent in both countries. Reliable information sources to detect gender/age inequities were men, women, and the youth, asked separately. Men tended to dominate information on markets and access to extension services although such access was generally limited for Malawi sites. Limited mobility might give an advantage to women on accessing extension services, though only a single community member mentioned it:

Women have more access because they spend more time at home than men, so extension information is easily passed through them. (ASP member, Golomoti –Dedza)

Findings also underscore the need to be specific about the agricultural activity in question. The youth were

important in sourcing information from the radio, mobile and other electronic sources, and from distant markets, justifying collection of indicator information from them, too. Higher levels of education help the youth to understand such information and related technologies better.

Achievement – nutrition, food security and health

We examined the suitability of indicators for assessing achievements in wellbeing, gender inequity in men's and women's health, children's nutrition, and food-security status. Community members and local experts in both countries rated nutrition/food security status indicators as the most suitable among all others (Table 3). Informants generally considered collecting information on the nutritional status of under-five children, men, women and youth from the medical-record book (health passport – Malawi) appropriate, but not about other health conditions/diseases. Reasons included perceived poor linkage between health and agriculture, and privacy concerns (e.g. over revelation of HIV/AIDS status). Informants suggested having health personnel in the data-collection team to collect the health information from medical-record books, and providing a clear explanation of the reasons for data collection to mitigate confidentiality concerns. Women emerged as the most reliable information source for the nutrition and health indicators because of their caregiving roles.

Discussions

What is the comparative qualitative advantage of customizing standard social indicators of SAI to detect context-appropriate gender and intergenerational inequities in the sharing of SAI benefits and burdens? This question guides our discussion of findings.

First, findings problematize the traditional survey method and its reliance on the now-contested notion of a unitary, nuclear, male-headed farming household composed of close family members who share strong bonds and an unspoken social contract to cooperate together (Netting, 1993). The findings confirm the common local reality of a more flexible, internally differentiated household of related individuals with looser bonds, and differences across diverse area/country contexts. Local farmers and experts highlighted the need for alternative data-collecting methods that allow interviewing the

appropriate, generally multiple (men, women, the youth), members of the household to collect reliable and holistic information. Women's locally perceived tendency to seek more transparency and be more trustworthy than men in providing candid information on sensitive issues that illuminate inequities favouring men illustrate that the traditional practice of collecting information only from household heads risks concealing and reinforcing, rather than uncovering, the gender and age-based inequities.

Findings from other studies affirm these local concerns and the call for interviewing multiple household members. Fisher et al. (2010) found that the accuracy of answers given by household heads (predominantly male) was unreliable and could mislead policy interventions in Malawi. In rural Tanzania, a 'lack of intra-household accord' meant that 'husbands and wives interviewed separately frequently disagree with each other on who holds authority over key farming, family, and livelihood decisions' (Anderson et al., 2017; Djurfeldt et al., 2018). Inadequacies of the traditional definitions of a household (Beaman & Dillon, 2012; Randall et al., 2015) further lend support for the suggested alternatives.

PID findings also challenge standard assumptions about land rights, including the privileging of data collection on land *ownership* indicators over land *access*, and support collecting gender- and age-segregated information on land *access* and *quality* as well *ownership*. Findings further suggest caution in asking questions on land ownership because of associated sensitivity in some contexts. Significantly, local stakeholders considered land access and quality more relevant as indicators than outright ownership, as Doss et al. (2018) suggest. Informants in the patrilineal sites of both countries generally perceived women to have reasonable access to agricultural land whereas adult and young males in matrilineal Dedza appeared to fare less well in accessing land from wives and female relatives. In Ghana, informants urged for going beyond technical standard questions on land access by including metrics on the quality of land that women and men access in order to capture nuanced gender differences. In both countries, respondents suggested enhancements to standard household interview conduct. These include using different or additional research methods that allow strategies such as seeking information on land ownership from non-household members (e.g. clan or traditional leaders), using open-ended questions, or impersonalizing questions.

Doss et al. (2015) also recognize the need for new, locally-relevant metrics on land rights that include both individual and joint ownership, and using ancillary documentation to enhance information quality.

Women's negotiated access to autonomous cultivation to earn personal income emerged as a growing practice and significant measure of their agency and empowerment. The perceived higher frequency of this gender-inequity corrective strategy among older couples highlights the need for collecting age-specific information. As with findings from studies in Ghana and elsewhere (e.g. Malapit et al., 2019; Meinzen-Dick et al., 2019; Schroeder, 1999), local insights highlighted the positive multiplier effect when women gain in economic autonomy from such independent agricultural production. Women's quality of life and that of their families and communities also consequently improve. Women also gain intrinsic agency (Malapit et al., 2019) via intra-household power to bargain for other rights.

PID findings show the importance of collecting not only information on social capital (collective agency) indicators, but also specifically on the type of organization that women, men and the youth participate in. In Malawi, membership in savings and loans (VSL) groups emerged as exceptionally empowering for women economically by giving them access to small loans from local group savings. Further, participation in farmer groups/clubs provided access to external productive resources (farm inputs, micro-credit and others), and extension services and information. The pro-WEAI tool includes questions on group membership and membership in influential groups, but the developers acknowledge the need for additional collective-agency indicators (Malapit et al., 2019). Local informants deemed the additional SC indicators that we included (social cohesion, holding leadership positions, and level of social support) appropriate and relevant, a potential contribution into the WEAI.

Given the near-consensus that the activity of crop and livestock marketing, particularly who makes the decision to sell and who performs the selling, influenced SAI benefits sharing, an indicator on relative levels of mobility by women, men and youth would be important to add to inequity indicators because some respondents cited it as influencing market participation. Another significant finding was the surprisingly high levels of shared/joint intra-household decision-making reported (Table 2). However, this might also suggest the need for a

clear definition of *joint decision-making* when asking questions lest it be confused with *joint management*.

Findings on age segregation showed that the youth are generally neglected in decision-making, access to land and finances, participation in SAI projects and benefits sharing, and in equity analyses, despite the many strengths they can bring. This underlines the locally-recognized importance of collecting information from youth directly while adhering to research ethics and recognizing cost-benefit implications that might need further analysis. Young women were doubly disadvantaged by both age and sex, as evident in their relative exclusion in decision-making processes and their limited access to productive resources. While definitions and perceptions of who the youth are varied across sites, they influenced who is excluded or not from decision making and access to resources, and require clarity in indicator definition and data collection. Notably at all the sites, adult respondents expressed the importance of the youth for sustaining agriculture into the future. Collecting information on youth engagement in agricultural entrepreneurship, non-traditional cash crops, irrigation and activities involving use of modern technologies (e.g. mobile phones and the Internet to access information and services), emerged as important in capturing the youth's energy, creativity, and positive contributions, as well as patterns of inequity that drive their exclusion. The knowledge gained can reveal entry points for enhancing youth engagement and benefits from SAI investments. The PID process revealed the need to adopt an intersectional approach that combines youth and gender analysis despite potential challenges associated with it (Grünenfelder & Schurr, 2015). We address the youth and their engagement in SAI in a separate publication.

Despite significant agreement on perceived patterns of gender and age-based inequities, on the suitability of indicators/questions, who to ask and how, some cross-country differences that underscore the value of PID emerged. For instance, on marketing agricultural products, women dominated in Ghana and men in Malawi. Differences in perceptions of land ownership and access reflected cultural differences surrounding gender norms and relations. In particular, the kinship system mattered. Whether a respondent lived under a matriarchal or patriarchal system appeared to influence his/her views on the suitability of some indicators/questions, particularly on land issues. For instance, men and women in matrilineal Dedza were relatively more accepting of transparency

on questions of gendered analysis of land quality than in patrilineal Mzimba and Ghana where the questions were more roundly considered unsuitable. As expected, men in Dedza also tended to express land insecurities more than in the patrilineal sites. These findings illustrate the importance of the PID process to guard against male bias, making reductionist assumptions, and using overly generalized indicator questions in data collection, especially as local situations continue to change.

On process, findings also highlight the need for PID to combine the views of external researchers with those of diverse local stakeholders, including community members and field experts or programme/project implementers who are expected to use the indicators. Different stakeholder groups often provided unique but complementary contextualization perspectives, creating a holistic picture of reality. Thus, responding farmers in Ghana deemed inconceivable the situation where patriarchs benefitted from SAI gains while women or the youth did not, although five local experts cited manifestations of that very occurrence. Interviewing only farmers might have provided incomplete/incorrect information. While the idea is to have metrics that capture the widest range of possible answers based on the realities of a particular site, contextualization can also raise the common issue of researcher positionality and subjectivity about whose views (local experts, farmers, or the researchers) they assign more validity to within the PID process. Further, local farmers' views are not always necessarily 'correct.' There is need to plan and use triangulated data collection to guard against taking erroneous or incomplete information as fact, and against reinforcing respondent perspectives that internalize or socialize gender norms, which might not be in women's or men's strategic interests. Triangulation helps to guard against the temptation to accept uncritically that because local farmers said that something is sensitive or inappropriate, then we should not collect data on it, even if the data can help to uncover gender inequities. Rather, the PID process we used provides not only a sensitizing device to anticipate how potential respondents view particular questions, but also practical insights on how locally-sensitive questions might be rephrased and data-collection methods adjusted to allow the ethical collection of accurate information for indicator metrics with minimal respondent discomfort.

Ultimately, the PID process illustrated that there was no single 'right' way to customize SAI indicators

to local contexts. The PID approach revealed different ways to frame some indicators from diverse perspectives (of local experts, farming communities, and researchers), locations, and times. It can provide guidance to researchers, decision makers, project managers, and donors wishing to collect data to guide decision making on fostering equitable benefits- and cost-sharing from SAI investments among men, women, male and female youth. Ensuring data collected captures relevant local cultural specificities to detect inequities in gender and youth benefits from SAI is of the utmost importance. Our study also contributes to emerging scholarship on improving survey questions on women's empowerment through cognitive interviewing (e.g. Hannan et al., 2019; Malapit et al., 2019).

Conclusion

We used KIs and FGDs to capture local community and expert views on intra-household patterns and signs of gendered and intergenerational inequities in sharing SAI benefits; to customize standard SAI indicators of gender and youth inequities to local contexts in Malawi and Ghana using a PID approach; and to assess the comparative advantage of conducting such customization in terms of the quality of information. The goal is to contribute to making SAI investments more inclusive. Standard quantitative indicators tend to miss important local dynamics that drive gender/age inequities, making them of limited local relevance.

First, the PID approach uncovered locally-specific indications and patterns of intra-household inequities in the sharing of SAI benefits among men, women, and youth in both countries, often in favour of men over women and youth, adults over youth, and male over female youth. Inequitable participation in produce marketing, decision making (especially on crop/livestock choices, selling and marketing, and on household expenditures), and in agricultural projects were perceived as main centres/loci of inequity, revealing potential areas of focus for SAI gender/age equity indicators and interventions. Findings also revealed women's agency to mitigate such inequities in both countries, notably negotiating for intra-household (sometimes extra-household) land access for autonomous cash-crop cultivation to earn personal income and some economic autonomy (mostly among older couples), and for joint intra-household decision making on agricultural activities and other

issues. These context-specific differences, including men dominating agricultural produce marketing in Malawi and women in Ghana, the influence of kinship systems on gendered and intergenerational access to land, and in some aspects of gender/age inequity, affirm the differential impacts of SAI on these groups and illustrate the value of indicator customization.

Second, the PID approach showed the potential to enhance indicators and data-collection approaches for locally relevant and high quality information to inform decision making on gender and age-based SAI inequities. It yielded practical insights on the context-appropriateness of indicators and associated questions, who and how to ask questions, and alternative ways to phrase some questions or collect data. The PID process not only helped to identify inequity indicators that are locally sensitive or controversial—often those that challenge men’s authority or benefits, indicators/questions on gendered land rights and household expenditures, and on adult health—but also offered insights on how to deal with some of them. Suggestions included generalizing questions (e.g. using a third-party voice), better explanation of data-collection objectives, collecting information from knowledgeable ancillary sources, and interviewing multiple household members (men, women, and male and female youth), preferably separately. Combined, community and expert perspectives offered holistic practical insights for the customization of inequity indicators to inform evidence-based decision making to foster gender and youth inclusive SAI.

Finally, while acknowledging the qualitative and sample-size limitations, the study contributes to knowledge and practice by providing practical insights to enhance data collection, and can serve as a sensitizing concept to guide the design of locally appropriate and relevant indicators of gender and intergenerational inequity in SAI, and that of data-collection methods and instruments. It contributes to works that problematize conventional data-collection approaches dominated by household survey methods and the orthodox practice of collecting such data primarily from household heads. The PID process instead affirmed the emerging conclusion that in order to get holistic and reliable information, one needs to interview multiple members of the household (men, women, male and female youth). Further, given the underdevelopment of indicators and tools for assessing youth inequities, the PID

process points to the need for an intersectional approach that integrates age differentiation into gender analysis to detect both gender and youth inequities (Grabowski et al., [this issue](#)). More broadly, findings show the value of using a PID approach to contribute to translating SAI indicators from theory – such as the Sustainable Intensification Analytical Framework – into practice and to emerging scholarship on the notion of cognitive interviewing to enhance gender analysis in agriculture.

Note

1. We use the phrase costs and benefits to capture broadly and qualitatively both the burdens or disadvantages and advantages for men, women, and the youth arising from SAI investments; not in reference to formal economic cost-and-benefit analysis, which also has its silences and poorly supported claims (Kabeer, 1994).

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Appendix 1

Table A1. Summary of the sampling for Focus Group Discussions (FGDs) and Key Informant Interviews (KIs) in Malawi.

Research Areas Data collection types	Dedza – Central Malawi (Matrilineal)	Mzimba – Northern Malawi (Patrilineal)
Focus Group Discussions (8)	1 FGD at District level with Technical agricultural officers from DAECC ^a – Mixed gender 1 FGD at sub-District level with Farmers' Associations from Golomoti ASP ^a – Mixed gender 2 FGDs at local level with individual smallholder farmers of Golomoti community, one with Men and one with Women	1 FGD with Technical agricultural officers from DAECC – Mixed gender 1 FGD with Farmers' Associations from Champhira ASP – Mixed gender 2 FGDs with individual smallholder farmers of Kazinjilira community, one with Youth Male and one with Youth Female farmers
Key Informants Interviews (10)	5 KIs with: <ul style="list-style-type: none"> • Agriculture Gender Roles and Extension Support Services Officer • District Agricultural Development Officer • Senior Irrigation Engineer • District Crops Officer, • Livestock Development Officer 	5 KIs with: <ul style="list-style-type: none"> • District Nutrition officer • District Agricultural Development Officer • District Crops Officer • Methodology Extension Officer, • District Youth Officer

^aDAECC = District Agricultural Extension Coordinating Committee; ASP = Area Stakeholder Panel.

Table A2. Summary of the sampling for Focus Group Discussions (FGDs) and Key Informant Interviews (KIs) in Ghana.

Research Areas Data collection types	Northern Region Tolon-Kumbugu District	Savelugu-Nanton District	Upper-East Region Kassena Nankana District
Focus Group Discussions (24)	1 FGD in Cheyohi Community with: Chief (traditional leader), Magazia (traditional women's leader), and Assembly Man (authority of modern political structure) 3 FGDs Cheyohi Community with farmer groups: <ul style="list-style-type: none"> • one with 10 Men farmers • one with 8 Women farmers • one with 9 youth farmers (6 males, 3 females) 	1 FGD in Duko Community with: Chief (traditional leader), Magazia (traditional women's leader), and Assembly Man (authority of modern political structure) 3 FGDs Duko Community with farmer groups: <ul style="list-style-type: none"> • one with 10 Men farmers • one with 9 Women farmers • one with 8 youth farmers (5 males, 3 females) 	1 FGD in Gia Community with: Chief (traditional leader), Magazia (traditional women's leader), and Assembly Man (authority of modern political structure) 3 FGDs Gia Community with farmer groups: <ul style="list-style-type: none"> • one with 10 Men farmers • one with 10 Women farmers • one with 10 youth farmers (5 males, 5 females)
	1 FGD in Tingoli Community with: Chief (traditional leader), Magazia (traditional women's leader), and Assembly Man (authority of modern political structure) 3 FGDs Tingoli Community with farmer groups: <ul style="list-style-type: none"> • one with 9 Men farmers • one with 11 Women farmers • one with 8 youth farmers (6 males, 2 females) 	1 FGD in Tibali with: Magazia (traditional women's leader) and Assembly Man (authority of modern political structure) 3 FGDs in Tibali with farmer groups: <ul style="list-style-type: none"> • one with 10 Men farmers • one with 9 Women farmers • one with 9 youth farmers (5 males, 4 females) 	1 FGD in Nyangua Community with: Chief (traditional leader), Magazia (traditional women's leader), and Assembly Man (authority of modern political structure) 3 FGDs Nyangua Community with farmer groups: <ul style="list-style-type: none"> • one with 10 Men farmers • one with 10 Women farmers • one with 10 youth farmers (5 males, 5 females)

Key Informants Interviews (17)	5 KIIs with:	5 KIIs with:	7 KIIs with:
	<ul style="list-style-type: none">• Women in Agricultural Development Officer• Veterinary Officer• Agricultural Extension Officer #1• Agricultural Extension Officer #2• Management Information Systems Officer	<ul style="list-style-type: none">• Nutrition Officer• Women in Agricultural Development Officer• Retired Director of Agriculture, MoFA• Management Information Systems Officer• Veterinary Officer	<ul style="list-style-type: none">• Two (2) Farmer Representatives• Women in Agricultural Development Officer• Cooperative Officer• Assemblyman• Planning Officer• Management Information Systems Officer
