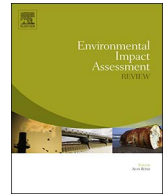




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Systemising gender integration with rural stakeholders' sustainability impact assessments: A case study with three low-input upgrading strategies

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ABSTRACT

Participatory action research across food value chains (FVC) can help stabilise the food security of subsistence farmers by implementing upgrading strategies (UPS). These strategies can be assessed ex-ante and ex-post for their potential social, ecological and economic sustainability impacts.

UPS implementation, however, often entails gender-specific changes and challenges in a farmer's social life, economy and environment that either were not perceived and anticipated beforehand or are not followed up during UPS implementation. Before and during their implementation, therefore, UPS need to be entirely understood and assessed by both genders in terms of their potential social, ecological and economic sustainability impacts.

This article conceptualises a systematic framework for integrating gender in sustainability impact assessments and presents gender-based assessment differences in three low-input UPS in Tanzanian FVC. We conducted ex-ante and ex-post impact assessments using nine food security criteria developed earlier by the authors following the Framework of Participatory Impact Assessment (FoPIA). Sustainability impact assessments—to a greater extent than expected—differed to various extents between the genders for a) different food security criteria, b) different sustainability dimensions (economic, social, and environmental), c) different points in time (T0, T1) of assessments, d) different implemented UPS, and e) different members within the groups of female and/or male stakeholders.

The results demonstrate the substantial importance of integrating female-male segregated assessments and perceptions before and while implementing food-securing UPS. We anticipate that integrating these assessments and perceptions as regular components will lead to better gendered social learning for both scientists and stakeholders and a holistic understanding of complex local food systems.

1. Introduction

Most of Africa's agricultural commodities are produced by poor smallholders (IAASTD, 2009). Several development initiatives have focussed on enhancing agricultural production and overall food security. However, the Sahel food crisis of 2011 and 2012 demonstrated the need for better integration of entire food systems and the development of location-specific strategies. Research and development (R & D) projects have often been top-down and researcher-oriented while including only a few disciplines, thus limiting their success. More recent R & D projects have encompassed entire food systems (CGIAR, 2012; Millennium Villages, 2013), food value chains (Graef et al., 2014; Gomez et al., 2011), and local and regional participatory stakeholder

inclusion while targeting specific socio-cultural, ecological and economic environments (Grimble and Wellard, 1997; König et al., 2013).

To reduce negative impacts and enhance livelihoods, the possible impacts of these R & D projects should be assessed both before (ex-ante) and after (ex-post) their implementation (König et al., 2013; Morris et al., 2011). This can be done using sustainability impact assessments that channel decision-making towards sustainability (Bond and Morrison-Saunders, 2011; Morrison-Saunders et al., 2014), while methodologically linking food security issues and the sustainability of upgrading strategies (UPS) with the local setting (Schindler et al., 2016a, 2016b). Using ex-ante impact assessments, the adverse side effects of UPS that are invisible to the organisations implementing R & D can be discovered during the planning process (EIARD, 2003; Helming

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et al., 2011; Millstone et al., 2010). If carried out in a participatory action research (PAR) context (Bradbury-Huang, 2010), the impact assessment activities and interactions involving researchers and stakeholders enable and promote recurrent UPS adaptations and various types of social learning (Blackmore, 2007). Brydon-Miller et al. (2003), however, warn that the feasibility of PAR is limited in a large-scale multidisciplinary and multicultural context.

Ex-ante impact assessments have increased in importance because they allow funding organisations to control beforehand whether their funds are likely to be well spent (Hulme, 2000). Ex-post impact assessments can be used for participatory co-learning, monitoring and evaluating implemented UPS, and for adapting them to local requirements when needed (Bradbury-Huang, 2010; Graef et al., 2014; König et al., 2013; Mayoux and Chambers, 2005). They can be done at a specific point in time or in intervals both during and after UPS implementation.

However, in implementing UPS, it is important to incorporate gender considerations so that UPS can be adapted to the needs of men and women in the FVC (FAO, 2011; Okonya and Kroschel, 2014; Polar et al., 2015). As shown in various studies, R & D does not necessarily result in greater gender equality (Arora-Jonsson, 2014; Polar et al., 2015) and more efficient resource management (Ochola et al., 2010). According to Arora-Jonsson (2014) each context requires “efforts to define what gender is”. Mayoux and Chambers (2005) emphasise in their “impact assessment agenda for pro-poor development and improving practices” that both genders must participate to prioritise their livelihood affairs. Female farmers in sub-Saharan Africa, who have labour market participation shares of 60–80% in the agricultural sector (Emerole et al., 2014; FAO, 2011; Mnimbo et al., 2015), are likely to be more concerned about the implementation of a new R & D project than men, particularly if it entails a potential increase in the labour required, because women in developing countries tend to work far more hours than men (FAO, 2009; Tsikata and Yaro, 2014). Many studies (FAO, 2009, 2011; Mayoux and Chambers, 2005; Mnimbo et al., 2015, 2017) emphasise gender differences in rural lives, experiences, needs and priorities and their variations depending on age, ethnicity, disability, income levels, and marital status. They recommend applying gender-focussed analysis frameworks that answer questions about influencing factors such as “What is getting better? What is getting worse? Who does/has/needs what? What does an innovation deliver to narrow the gender gap?” (Ochola et al., 2010).

Targeting female-male differences in knowledge, perception, and impact assessments of UPS for enhancing food security, therefore, is of utmost importance not only at the local implementation level of non-scientific FVC stakeholders (Grimble and Wellard, 1997) but also at the level of scientific experts and extension staff (Bradbury-Huang, 2010, 2013; Croppenstedt et al., 2013; Graef and Uckert, 2016). Whereas Arora-Jonsson (2014) found gender and gendered research as being only partially transformative, Bradbury-Huang (2013) drew a picture of more holistic post-patriarchal science in PAR that results in “partnership between women and men, scholars and practitioners, university faculty and community stakeholders”.

How can this gender perspective be included in a systematic way in ex-ante and ex-post impact assessments of food security? This study advances the previous participatory and methodological work of Schindler et al. (2016a, 2016b) that, based on gender-balanced focus group discussions, identified the locally relevant food security criteria and indicators to be assessed and that developed a “methodological approach used for ex-ante UPS sustainability impact assessments based on the Framework for Participatory Impact Assessment (FoPIA)” (Morris et al., 2011). Schindler et al. (2016c), found that the obvious differences “between stakeholders’ and researchers’ knowledge can enhance the quality of impact assessments if they are used in a complementary way (Bradbury-Huang, 2010).” Schindler et al. (2016a, 2016b, 2016c) did not present a systematic gender-segregated differentiation, but underlined that “assessment rounds be organized

separately for male and female participants” (Schindler et al., 2016a), because gender roles and respective feedback narratives in the rural context differed largely. Graef and Uckert (2016), focusing exclusively on scientists’ expertise and perceptions, found gender-specific differences in ex-ante suitability assessments depending on the type of UPS and food security criteria assessed. However, they did not reach general conclusions about fields of male and female expertise, their social roles, and their perceptions. In the same study context, Mnimbo et al. (2017) found significant differences in crop and UPS preferences between youth, women and men and recommended that a “site-specific gendered analysis ... in agricultural value chains should be completed prior to introducing an intervention”.

This study adds to and combines previous sustainability impact assessment and gender studies by providing a) a gendered analysis on UPS implementations assessed by stakeholders for their impacts on food security and b) by performing this analysis both ex-ante before implementation and ex-post 14 months after implementation. These are suggested as components of gender analysis frameworks (Ochola et al., 2010). We hypothesised that differences would exist in assessments, a) between the genders, b) between the points in time of assessments, and c) in changes in male-female perception over time. The objective of our work was to verify the hypotheses and investigate other specific differences, for instance, in UPS and/or food security criteria assessed. We applied this gendered analysis with respect to social, environmental, and economic aspects of villages in rural Tanzania.

2. Methods

2.1. Study area, food systems, and local social context

This study was carried out in four rural Tanzanian villages located in two agro-climatically differing regions of Tanzania: the predominantly sub-humid (600–800 mm) Morogoro Region and semi-arid (350–500 mm) Dodoma Region, together representing most of the variability in Tanzanian farming systems (USAID, 2008). In the sub-humid Morogoro region, which has both food-insecure and food-secure areas, food systems are primarily based on maize, legumes, sorghum, rice, and horticulture. Land pressure in that multi-ethnic region is high. In the mainly food-insecure semi-arid Dodoma region, food systems depend more on sorghum and millet, and often include livestock (Mnenwa and Maliti, 2010; Liwenga, 2003). In this mono-ethnic region, the land pressure is medium to high.

The main criteria for selecting the four villages included the following: a) similar climates; b) differing market access; c) differing rainfed cropping systems, possibly integrating livestock; d) village sizes of 800–1500 households, and e) high number of stunted children below 5 years of age as an indicator of food insecurity (Graef et al., 2014). Agriculture is the overly dominant pillar of the villages’ economy and provides employment to most of its citizens, who are primarily rural poor smallholder farmers, with a (very) few millers, traders and food processors.

Generally, women experience more challenges in their multiple roles, such as reproduction and food production and preparation (Mnimbo et al., 2015). Income-generation strategies preferred by men are much different from those preferred by women and youth, and they are closely linked to access to and ownership of land and other resources and participation in income-generating activities. Generally in the study villages men take over all of the important decisions in the household including what crops to produce, how much to sell, when and where to sell (Mnimbo et al., 2017). The women consider themselves to be inferior to men, for instance, a women said “*here in Chamwino our men do not do most of the land tilling like we women do but they make all the important decisions including taking the income accrued from the crop produce, it doesn't matter if he participated during the production or not*” (female focus group participant at Ilolo village in March 2014). In the Dodoma region due to the patrilineal society like Gogo,

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