



RESEARCH PROGRAM ON  
Roots, Tubers  
and Bananas



## Technical Report

# Gender Situational Analysis of the Cassava Value Chain in Western Uganda and Strategies for Gender Equity in Postharvest Innovations

*Expanding Utilization of Roots, Tubers and Bananas  
and Reducing Their Postharvest Losses*



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A broad alliance of  
research-for-development  
stakeholders & partners



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## Executive summary

This report provides a strategy for gender mainstreaming into the 'Extending the Shelf-life of Fresh Cassava Roots for Increased Incomes and Postharvest Loss Reduction' one of the four sub-projects of the 'Expanding Utilization of RTB and Reducing Their Postharvest Losses' project (RTB-ENDURE) implemented in Uganda. The main purpose of this strategy is to ensure that both men and women benefit from interventions for reducing postharvest losses, promoting innovative products and marketing innovations in the cassava value chain.

The report is structured as follows: Section I provides a background of the sub-project's research activities and implementation area while Section II outlines the methodology of the study. Section III analyzes gender constraints that may deter male and female farmers and trader from adopting postharvest innovations as well as taking advantage of the emerging marketing opportunities. Section IV analyzes the perceived level of empowerment which farmers have across five selected domains. Finally, in Section VI, the paper suggests evidence-based mechanisms and a gender strategy to enhance the uptake and utilization of recommended improved technologies and practices along the value chain. The report also provides strategic direction to enable value chain actors to engage effectively, competitively and sustainably in the identified market opportunities. The report may be of interest to researchers and policy makers working on postharvest issues in Uganda and other countries in Sub Saharan Africa.

Market chain actors engaged in the fresh cassava roots value chain in Uganda face high risks mostly related to the short shelf life of the crop. Once harvested, the roots start deteriorating in just 48 hours. This narrow marketing window disadvantages the farmers who are paid low prices which may not be commensurate to the investment they put in. Farmers try to counter such risks by passing them on to the next actors in the chain – for example by selling live gardens, but nonetheless the high losses incurred act as a disincentive for investment in improved production processes. The cassava sub-project is thus conducting a market led research to reduce postharvest losses through processing of the roots. The sub-projects is experimenting two models: a farmer led and an entrepreneur based processing units with the aim of curtailing postharvest losses, enhancing quality and promoting value added products so as to increase margins for cassava producers and traders. The project seeks to address a number of constraints faced by the various actors.

Key constraints highlighted by farmers:

*Access to farming equipment:* female and male farmers mentioned challenge in accessing equipment especially during land opening. The proposed solutions included access to financing mechanisms and also strengthening farmer owned savings and credit schemes to ease access to credit which will be used to procure equipment like heavy duty tarpaulins, wheelbarrows and cassava value addition equipment.

*Diseased planting material/limited access to quality seed:* While male and female farmers all faced this challenge; women had limited options to address given their mobility constraints. Proposed solutions included linkages to research institutions to access quality seed, training and setting up mother gardens in the communities.

*Access to reliable markets:* Buyers were noted to be very undependable especially where farmers sold fresh roots (as opposed to live gardens). Male farmers shared on the huge losses they encounter when buyers do not turn up, while women faced constraints in accessing reliable

market information and inability to sell beyond the farm gate. Proposed solutions included strengthening of marketing committees, collective marketing, adding value to cassava and support to access distant markets.

*Shortage of money:* Women were the ones who mentioned this issue most, and associated it to drudgery during production since they are often unable to pay for hired workers. Lack of money was also mentioned to be a major cause of domestic violence. Suggested solutions included capitalizing cassava SACCOs so as to improve women's access to finance, couple counselling and introduction of alternative income generating activities.

*Bad weather conditions/climate change:* climate change was noted to have caused changes in the farming cycles which affected production plans. Female farmers observed that the community had played a role through deforestation, and thus proposed re-afforestation, access to improved drying technologies and sensitization on effects of climate change.

Key constraints highlighted by the entrepreneur:

*Handling large volumes of roots that don't meet processing requirements:* a large amount of roots may not qualify for the treatments for shelf-life extension, especially at the beginning. Proposed solutions included processing the rejects in lower value dry products and training farmers on good agricultural practices; among others. Other constraints envisaged included limited access to inputs, credit and limited skills to develop a gender responsive human resources policy.

Access to postharvest and marketing innovations:

Many of the farmers interfaced were eager and excited to engage in the proposed postharvest and marketing innovations. Female farmers had better knowledge about the innovations and were keen to participate, though they foresaw a few challenges including transporting roots that may restrain their engagement. Male farmers had very limited knowledge about the innovations. Overall, though both male and female farmers had limited knowledge on the marketing innovations, they expressed willingness to participate though women had doubts if they would be able to access and have control over the potential benefits from them. Therefore, the project's gender team initially developed a draft strategy which was then shared with the cassava sub-project team members for validation in a workshop. The validated strategy is presented in Section V of this report.

## 1. Introduction

Cassava is the second most important staple crop in Uganda after banana, and the country is the sixth largest producer of the crop in Africa (FAOSTAT, 2012). As such it is a major source of food and income for many smallholder farmers. It is estimated that over 75% of the rural population grow cassava. In 2008/9, Uganda produced close to 2.9 million tons of cassava on small landholding ranging from 1-5 acres (UBOS, 2014). Productivity per acre is quite low but has slowly improved over time as a result of research and development initiatives. According to Forsythe et al. (2016), cassava is still largely regarded as a ‘woman’s crop’ because it is classified as a low value crop with marginal input requirements grown mostly for food security. However, over time, this perception is changing and cassava has been prioritized as one of the strategic commodities to contribute to transforming Uganda’s economy (MAAIF, 2015). Currently, over 75% of rural producers now grow cassava and the crop cuts across all wealth categories who grow it for food and income (Ocittip’Obwoya et al., 1986; Fermont, 2009). The country also hosts the Cassava Regional Center of Excellence which champions research to boost cassava commercialization efforts in the country and the region as a whole.

Given the growing trends of urbanization, industrialization and regional trade; the demand for cassava has grown over the years (ITC, 2012). According to a value chain study conducted by Kilimo Trust (2012), traders are failing to meet market demand for both fresh and processed cassava. However, while trade in processed and semi-processed cassava is growing relatively fast; fresh cassava trade is still low (*ibid*). A major constraint to increasing volumes of traded fresh cassava is the rapid Postharvest Physiological Deterioration (PPD) which in many cases is observed as early as 48 hours after harvest (Wenham, 1995). Needless to say chain actors face very high losses in the marketing of fresh cassava roots. Furthermore, poor harvest and postharvest handling practices increase risks of losses incurred by chain actors (Collinson, 2003). Other challenges constraining the sub-sector include diseases which have greatly affected the volumes produced and traded in the past years. This is further compounded by bulkiness of the crop and poor marketing infrastructure. Yet the crop has enormous potential for transforming lives of smallholder farmers and traders engaged in its production and trade given the growing demand of fresh and processed cassava within Uganda and neighboring countries (MAAIF, 2015).

Interventions to address PPD are thus likely to contribute to the growth of the cassava sub-sector for the benefit of female and male chain actors and chain supporters in the country. However, it is important that the needs of both male and female actors are analyzed and understood so as to ensure that the planned interventions meet their aspirations.

## BACKGROUND

“Extending the Shelf-life of Fresh Cassava Roots for Increased Incomes and Postharvest Loss Reduction” is one of the four sub-projects being implemented the “*Expanding Utilization of Roots, Tubers and Bananas and Reducing Their Postharvest Losses*” (RTB-ENDURE) project. The sub-project aims at introducing, testing, validating and assessing the efficacy of two postharvest treatments, namely high Relative Humidity (RH) and waxing technologies, to extend the shelf-life of fresh cassava roots so as to benefit producers, traders and consumers along the entire value chain in Uganda. Additional research is also being conducted to identify conducive pre-harvest practices and best-bet marketing models that will promote increased utilization of the treated cassava roots. The expected project outcomes include:

- 1) Decreased postharvest losses and increased shelf life of Fresh Cassava Roots (FCR)
- 2) Increased income from FCR and its products, for rural producers and other value chain actors
- 3) Strengthened participation of women in higher and more profitable nodes of the value chain
- 4) Increased equitable distribution of benefits between men and women in the community.

IITA heads project implementation in collaboration with CIAT, NARO, IIRR, Makerere and Kyambogo Universities as well as the private sector.

The current study therefore sought to understand the following:

1. What factors can constrain male and female farmers and traders from fully utilizing the proposed technologies (RH, waxing, pruning; among others)
2. What factors can prevent the chain actors from taking advantage of the emerging marketing opportunities (e.g. access to improved retail outlets and export markets)?

The study is expected to come up with strategies for:

1. Mechanisms and gender-based strategies that can enhance the uptake and utilization of recommended innovations and practices along the fresh cassava roots value chain;
2. Enabling male and female value chain actors to engage effectively, competitively and sustainably in the identified market opportunities.

## **GENDER AND ACCESS TO MARKETS**

In most agricultural based livelihood systems, enhanced market access is regarded as one of the ways a family or a community can use to improve its quality of life and fight the vicious cycle of poverty. Markets and new market opportunities are therefore seen as drivers of innovation which could lead to greater benefit for all actors in the chain (Pyburn & Woodhill, 2013). In the recent past, there have been a number of advocates for ‘sustainable and inclusive agri-business’. Inclusive business development has been defined as ‘the inclusion of both men and women, as well as people from vulnerable social categories in the community’ and by others as ‘participation of smallholders in the value chains’ (Verhart et al, 2012; Pyburn & Woodhill, 2013; Vorley et al., 2015). The major reasons for advancing this paradigm include the quest for sustainability, consumers’ increasing demand for fairness or ‘responsible businesses’ as well as the realization that this can open up new business opportunities for female as well as male actors.

This brings to the table the question of who has access to remunerable markets and benefits thereof? Research findings elsewhere acknowledge that women play critical roles in production, marketing and processing of agricultural and food related products (UNCTAD, 2011; Uhder et al., 2013,). However, the type and nature of markets that women access may depend on a number of issues including distance to the market, access to market intelligence, formalities and barriers to entry; among others (Handschuch and Wollni, 2015, Mudege et al., 2015). Additionally, control of benefits from sales considerably depends on power relations at household level (Forsythe et al., 2016). Inadvertently, gender is a determining factor in “who does what, who has what, who decides and who has power” (UNICEF, 2011) and thus the need to study and analyze the gender dynamics in cassava production, processing and marketing at



household and community level so as to ensure that the interests of all members are addressed (Meinzen-Dick et al., 2011).

## **GENDER AND ACCESS TO TECHNOLOGY**

In cassava value chains, technologies have been introduced to address the drudgery associated with production and postharvest handling. Such technologies include ridge planting, improved processing using flash drier technologies; among others. The aforementioned technologies require that new or improved agricultural practices are taken up, often coupled with others (e.g., mechanization) to guarantee the expected benefits. However, many farmers, especially women, are unable to adopt the entire technology 'packages' due to lack of funds, technical expertise or support and limited availability of additional labor sometimes required by the technology (Maerere et.al., 2007; Mboya, 2005). Though women may appreciate a technology many are forced to partially adopt technology packages and often do not fully benefit from it (Kroma, 2002). In instances where the technology has been adopted, spin-off effects may outweigh the benefits for women as in the case of higher labor and time costs due to intense management (Qaim, 1999). Beuchelt and Badstue (2013) further note that most solutions advanced for addressing food insecurity have a high technology bias with insufficient attention given to gender and social disparities. As noted by Pyburn (2014), women's capacity to develop, adapt and put technologies into use are less recognized than men's, and this exclusion negatively affects not only women but the entire innovation system. On the other hand, women-led technological innovations have been noted to be more institutional in nature (e.g., at group or association level) and it is argued that, by including women, the benefits are likely to be both in the realm of technological and institutional innovations (UNCTAD, 2011).

Gender relations and household dynamics related to who makes decisions on which crops to plant and who makes management decisions related to the family farm or a particular crop may determine technology adoption. In this regard it has been observed that, women's time is less valued and farmers are more likely to adopt technologies that saves men's time (Doss, 2001). Yet, as argued by Ognulana (2004), female farmers can easily adopt innovations that can enhance their economic status if their constraints to access and use the technology (e.g., information and ease of utilization) are taken into consideration.

## **CONTEXT ANALYSIS OF THE RESEARCH AREA**

Kyenjojo district is located in Western Uganda in Toro region and was carved out of Kabarole district in 2000. The district is bordered by Kibale District in the north, Kyegegwa District in the east, Kamwenge District in the south and Kabarole District in the west. According to UBOS (2014) the population in 2013 was projected at 412,000 of which 48% is of productive age. 96% of the population is rural based and depends on agriculture for livelihood. The district enjoys a mild climate with a bimodal rainfall pattern. The major crops grown include tea and coffee for income, while cassava, beans and pineapples are food crops that are also now increasingly grown for income. In 2008, cassava accounted for 16.4% of the total crops grown in the district with an output of 38,552 MT reported in 2008/9 (MAAIF, UBOS 2014). One of the main challenges reported in the District statistical abstract is the inability to add value to crops sold to other districts or even countries. Other than tea, most crops in the district are sold in their raw/semi raw form. This greatly affects the revenue generated in form of income for the people and taxes for the local government. From the social perspective, the literacy levels in 2009



were 62% for people over 18 years of age. However, in the district women have higher levels of illiteracy compared to men. As a result, women have limited access to and benefit from development information and training which in turn affects the level at which they adopt new technologies or access services like credit. Financial services are fairly spread with each sub-county having at least one SACCO. There are high levels of gender based violence (GBV) in the district as it tops other criminal offences in terms of prevalence.

Kabarole district is also located in Western Uganda and borders Ntoroko District in the north, Kibaale District in the northeast, Kyenjojo District in the east, Kamwenge District to the southeast, Kasese District to the south, the Democratic Republic of the Congo to the southwest and Bundibugyo District, across the Rwenzori Mountains to the west (IFPRI, 2014). According to the last population census of 2014, the population stands at 469, 236. The district is one of the major producers of cassava in the region with an estimated 51,000MT produced in 2008/09 (UBOS 2014).

## 2. Methodology

This report is based on the qualitative component of the gender baseline study in which analysis of fresh cassava root production, postharvest handling, consumption and trade in Western Uganda was conducted. The study took place in Rwibare parish, Kyenjojo District and Kichwamba parish, Kabarole District in order to identify gender based constraints and opportunities along the fresh cassava value chain. Rwibare and Kichwamba were selected for this study since they host the pilot areas where the Cassava sub-project partners are trialing various postharvest innovations in the framework of the RTB-ENDURE project. In the result section, we present our results under Rwibare 1 and 2 to reflect the fact while all the respondents from Kyenjojo District were drawn from the same locality; they were interviewed on different dates.

The study used sex disaggregated Focus Group Discussions (FGD) with farmers and an interview with one male entrepreneur who will be hosting the pilot processing plant. In total six FGDs were conducted, i.e., three with female farmers and three with male farmers and were attended by a total of 71 farmers (39 F, 32 M).

### THEORETICAL UNDERPINNINGS

This study uses a Social Relations Approach to understand the ability of women to adopt technologies as well as to engage in marketing. This approach states that 'inequality is caused by structural and institutional forces through: Rules – how things get done; Activities – what is done; Resources – what is used and/or produced; People – responsibilities, other inequalities, who is in/out; Power – who decides, whose interests (New Zealand AID, 2012). Therefore, the study adopted tools that allowed researchers to look at who does what, who has access to what resources, what are the rules and power differences between men and women and how these can affect adoption of postharvest technologies as well as ability to benefit from resulting new market opportunities.

In order to understand gender responsiveness and appropriateness of a given technology, it is necessary to understand the roles of men and women in agricultural related processes, the gender relations that shape what men and women can do so to understand whether they will be

able to take advantage of the new technology. As part of this analysis the qualitative study employed two tools. The first one, the 'Gender Constraints Analysis' tool (Terrillon et al., 2013), which was used in both study areas, allowed farmers and traders to discuss gender division of roles and responsibilities along the fresh cassava value chain and identify related gender based constraints. The second one, 'Comparison of the five dimensions of men's and women's empowerment' tool (hereafter, referred to as the Comparison Tool), which was only used in Rwibare, is loosely based on the Women Empowerment in Agriculture Index (WEAI) tool (Feed the Future Initiative, Agri Pro Focus, 2013). The original tool was developed by Feed the Future to track the change in women's empowerment levels that occurs as a direct or indirect result of a value chain development intervention. It is an aggregative index that measures five domains of empowerment for both men and women in the community (using communal perceptions) and at household level (individual perceptions). It compares men and women and, therefore, it provides an indication for the degree of gender parity in the household.

According to Golla et al. (2011), a woman is economically empowered when she has both: a) access to resources: the options to advance economically; and b) agency: the power to make and act on economic decisions. The Comparison tool allowed farmers to discuss and assess the level to which they had access to different productive resources including decision making power, access to information and services that would allow them to adopt and benefit from new technologies; and the power or ability to make economic decisions related to investments in agriculture.

## TOOLS AND DATA COLLECTION

Kroma (2002) suggest that it is critical to understand the relationship between men and women and how this relationship is shaped by gender ideologies operating with certain cultural, social and economic contexts in order to develop technologies that can benefit women. 'Through gender analyses, it becomes possible to show that men and women may have separate, yet interdependent spheres of activities that shape and determine women's access to agricultural technologies and other services to support their productive as well as reproductive activities'.

The Gender Constraint Analysis tool enabled identification of the different activities that men and women are engaged in, the resources they need at each stage and also the constraints they face during production, postharvest management and marketing. Respondents were then asked to prioritize three key constraints, analyze the underlying cause and consequences and suggest potential actions that can be taken to address these constraints.

The Comparison tool is, as explained earlier, an adapted version of the WEAI tool. The original version of the WEAI is in line with Social Relations approaches in the sense that it 'measures women's empowerment relative to men within their household' across five domains including production, resources, income, leadership and time. IFPRI (2012:3) defines the five dimensions as below:

- Agricultural production: sole or joint decision-making over food and cash-crop farming, livestock and fisheries as well as autonomy in agricultural production.
- Resources: ownership: access to and decision-making power over productive resources such as land, livestock, agricultural equipment, consumer durables and credit.
- Income: sole or joint control over income and expenditures.
- Leadership: membership in economic or social groups and comfort in speaking in public.

- Time: Allocation of time to productive and domestic tasks and satisfaction with the available time for leisure activities.

The Comparison tool adopts a simplified approach and is subjected to participants from the same farmer groups, trader associations or communities in single sex groups. We adapted and modified a set of indicators and attributes developed by Agri Pro Focus and identified a weight for each domain. Participants were then asked to score each attribute on a scale of 0 to 5 where zero would mean the participants have no power to make decisions or be engaged in a particular attribute; and the reverse is true for a score of 5.

A two phased approach was used. Farmers were first asked to vote in private for each attribute. The score for a single domain was obtained by calculating the simple average of the scores given to all attributes of the given domain. An empowerment score was then obtained by calculating the weighted average of the scores obtained for each domain. Once individuals cast their vote, they would then discuss with the rest of the group and agree on a community score (reflecting the status for men or women in the community) and give reasons for the score. Focus group facilitators captured the votes as well as the reasons raised for the level of involvement in each domain. While the empowerment score is calculated as the weighted average of the scores for the domains, the Comparison tool also gives researchers and program implementers the ability to dig into each domain to understand the dynamics involved in order to develop relevant strategies.

We took this approach to understand what happens at the micro-level (within the households) and meso-level (within the communities) as these can affect the ability of men and women to adopt and benefit from selected technologies. The Comparison tool was critical because it allowed researchers to analyze whether farmer suggested strategies and solutions in the Constraint Analysis tools also took into account the different resources and services that farmers had access to. We adopted qualitative tools for developing elements of the strategy because they allowed for deeper analysis as to how gender relations interact and influence adoption and benefit thereof of the technologies. Additionally, qualitative approaches allow researchers to go deeper into people's experiences as well as household and community dynamics (Slater, 2010) which also affect ability of men and women to adopt and benefit from innovations.

## **STUDY PARTICIPANTS RECRUITMENT**

Recruitment of FGDs participants in Rwibare was done through the Chairperson of the Rwibare Farmers Association, the farmer group that will be piloting the proposed shelf-life extension technologies for FCR. All the group members were targeted since they were selected by IITA and its partners to pilot various technologies under the RTB-ENDURE cassava sub-project. The group Chairperson assisted the research team to identify and recruit an equal number of male and female participants for the FGDs. In Kichwamba, recruitment was done with assistance of IITA and IIRR partners who worked with the sub-county agricultural officer to identify male and female farmers who will potentially supply the processing plant which will be run by the sole entrepreneur. Farmers were informed that participation was voluntary and refusing to participate in the study would not result in any penalization. While farmers in Rwibare responded to both the Gender Constraint Analysis tool and the Comparison tool, because of time constraints, the farmers in Kicwhamba were not subjected to the Comparison tool.

### 3. Results

In this section, we present the results from the study in a three parts: the first part focuses on the gender division of labor; associated constraints and potential solutions as reflected in the analysis of gender based constraints in production, postharvest management and marketing for male and female farmers. The second part focuses on a similar though less comprehensive analysis with the processor/entrepreneur; while in part three we present findings of the comprehensive analysis of women farmer's economic empowerment across the five domains highlighted in Section 2 above; in relation to men's empowerment.

#### GENDER BASED CONSTRAINTS IN PRODUCTION PROCESSES

##### *Site selection*

Both male and female farmers indicated that they engage in this activity. Where the family owns the land, selection is done based on land fertility and on the variety of cassava that will be planted. Where land has to be rented, men mostly are responsible for this though women may also participate.

##### **Constraints related to site selection**

Declining fertility was identified as a major limitation, while some areas are rocky and hence would not be suitable for cassava production. Female farmers in Kichwamba also shared the lack of knowledge in identifying good land and also the fact that land suitable for cassava production was not easily accessible. With regards to renting land, high rental costs were mentioned by both men and women.

*The costs of hiring land are high and when we compute the costs we realize that we don't get any profits (Men FGD participant Rwibare 1)*

*You may want to rent land to produce cassava but the owner wants a lot of money which you don't have (Women FGD participant, Kichwamba)*

Farmers could thus be forced to grow cassava in marginal areas given the high costs of renting land, while for others this could be a barrier to participating in the enterprise.

##### **Land preparation and ploughing**

Land preparation and ploughing involves a number of activities including clearing the bush, slashing, first and second ploughing; among others. Both men and women indicated that they participate in these activities, though men shared that they were more engaged in labor intensive land preparation and ploughing activities like slashing, uprooting tree stumps, uprooting and burning couch grass; and first ploughing. At times, men hired labor to support these activities as elaborated below:

*When preparing the land sometimes we have to slash and this is done by men.*

*Sometimes our husbands don't do the work but they hire some people who are often men who then can come and help us (Women FGD participant, Rwibare 2)*

However, some women in Rwibare indicated that they worked harder than men and did the bulk of the activities. Women noted that male youth were either not interested in cassava farming or where in school therefore did not provide much help during this time.

### **Constraints related to land preparation**

Drudgery was the most commonly cited constraint by both male and female farmers. This was associated to lack of funds to hire laborers coupled with distant locations of some cassava gardens. Other constraints mentioned include lack of equipment, stony land which further complicates removal of tree and shrub roots during land preparation as elaborated below.

*As women we find it hard and tiresome to clear the bush so sometimes the season may finish before you are done (Women FGD participant, Rwibare 1)*

*It is a must you have to remove the roots of shrubs and trees because if you don't when you are harvesting the cassava roots will break and get damaged. (Women FGD participant Rwibare 1)*

*The land may be hard and stony and it takes a long time to plough yet we don't have money to hire laborers. We also face the challenge of having to buy new hoes because once they hit a rock they become unusable. (Men FGD participant Rwibare 1)*

Interventions to reduce drudgery associated to these labor intensive activities would thus be of great benefit to both male and female farmers. Appropriate technology (e.g. ox drawn ploughs) could be a potential solution in addressing these constraints.

Women and men also raised health and safety related concerns related to land preparation:

*Another challenge we face is insect bites – a fire ant called weyimire causes fever (participants, men Rwibare 1)*

*We just use our hands and not gloves that's why our hands have callouses. Our hands are too hard even when pierced with thorns we won't feel it (group laughter) (Women FGD participant Rwibare 2).*

It is clear from the above that although women are aware of the need to use some protective clothing such as gloves they do not. Additionally, men mentioned fever resulting from insects that bite them during land preparation but they were also not aware of solutions to address this.

### **Selecting varieties to plant and sourcing cassava stems**

Where the cassava stems were sourced locally, women were responsible for this activity and they indicated they got the stems from neighbors for free. Men, on the other hand, were responsible for sourcing new high yielding varieties from distant areas. Sometimes women can also identify good varieties in distant areas (e.g. at a relatives's place) but the husband would be the one to pick them up. These roles are further elaborated below:

*Men are not usually around but even when they are they do not want to look for the stems. Others are not bothered because they consider this to be a responsibility for women (Women FGD participant Rwibare 2)*

*Both the woman and man source for the cuttings but if the woman identifies it in a far place the husband picks it up. Sometimes we source the seed from as far as Hoima so you need to have transport. But you have to take care not to damage the buds during transportation. (Men FGD participant Rwibare 2)*

Since cassava was a woman's crop, women felt that men were reluctant to look for planting material. On the other hand, because of lack of transport as well as mobility norms, men felt that it was their duty to transport cassava stems when located in a distant location. It is however not very clear why men and women's responses regarding male participation in sourcing planting material differed.

Participants were also asked to identify their varieties of preference and why they preferred them in an effort to discern if there were any differences in roles associated to procuring them and whether they were attributed to gender. With regards to what they consider to be good varieties, men concurred with women on one variety (*Bufumbo*) but their choice differed from that of the women on other varieties— men preferred Nyaraboke and Bukalasa while women preferred Kirimumpale. Women mentioned that one needs knowledge to be able to identify cassava types or varieties that are suitable for fresh consumption and processing into flour.

*How do you identify good quality cassava stems for planting? We look for the good ones that can be cooked and make good flour.*

*We (have to be careful when selecting stems because we) have cassava that we can't even take for processing. There is also a type which is bitter when cooked. Then another type whose flour cannot make good cassava based posho (local stiff porridge) because it does not mix well.*

*We do not know the names of the bitter varieties nor of the one that does not make good posho but we know that it was brought here by NAADS (Women FGD participant Rwibare 2).*

Men preferred sweet varieties because they matured fast and were thus good for food and commerce. But women mostly preferred varieties that could be harvested over a longer period of time.

*We have Kirimumpale and Bufumbo - they are the most preferred because they are long lasting (in the ground). We can take a long time harvesting for food and also some for selling. We don't like the varieties that mature in 6 months because we just eat and finish them very fast. We also lose their seed very fast (participant, Women FGD Rwibare 1).*

Women also mentioned additional reasons such as food security since they can keep the aforementioned varieties on the ground for longer, and could also thus access planting material from these varieties for a much longer period. As noted before women had greater responsibility compared to men for ensuring that the family had sufficient cassava planting material.

*Nyaraboke* was also preferred by men though the challenge was that the stems had to be sourced from far. However, women also indicated that they prefer varieties with stems that last long but with roots that mature early.

## Constraints related to sourcing and selecting cassava stems

Spreading disease (especially Cassava Mosaic Virus - CMV) was considered to be the greatest limitation to sourcing cassava stems and was mentioned by both men and women. Women in particular mentioned the lack of knowledge to identify diseased stems which further compounds the problem.

*Sometimes when we go to harvest we find the leaves are wilted but we can't tell whether the plant was infected or not. So if you take it and it is infected that can cause problems. (Women FGD participant Rwibare 1)*

*We do not have the knowledge to identify infected planting material. It is only at harvest when you realize the roots are few and the yield is reduced. Some plants may not have any roots at all. Then your family will suffer from hunger and poverty since the roots will be few and other plants will have no roots at all (Women FGD participant Kichwamba)*

*When the stems are infected you cannot get stems to plant in the next season. So you will have shortage of planting material. (Women FGD participant Rwibare 2).*

Thus among farmers lack of capacity to identify diseased planting material was a threat to cassava production and productivity. If farmers failed to protect their cassava gardens against pests and diseases that could also limit their ability to having enough planting material since they mostly depended on farm saved materials. There is thus need to be very cautious when identifying a seed source since the consequences can have a far reaching effect. Training in identification of disease free cuttings as advocated for by women could be an optimal way of addressing these challenges. There may also be need for more formalised diseases detection and early warning systems especially for symptomless diseases such as CMV that farmers cannot identify by visual inspection alone.

Other constraints mentioned include scarcity of good high yielding varieties, theft, high transport costs and limited funds and cultural beliefs which deter farmers from sharing stems.

*Some farmers don't want to share seed because they believe that if you cut the stems the cassava will go bad so we are forced to go to distant places (Women FGD participant Rwibare 1)*

*You can find someone with a big garden of cassava - when he goes to church he may come back and find that all the cassava stems are cut. (Women FGD participant Rwibare 2)*

Cultural beliefs are important in influencing distribution of planting material in villages. There is therefore need to understand the cultural beliefs that restrict movement of planting material and also to develop seed sharing mechanisms that minimize the spread of diseases. For example, it may be possible that use of contaminated knives to harvest the crop may spread certain diseases and virus to uninfected plants (as noted in the case of Banana in Uganda, Mayanja et al., 2015). Therefore, it may also be possible that use of contaminated equipment to cut the cassava stems may infest plants leading to cultural beliefs that limit sharing of planting material. Thus changing beliefs in this respect may require more than just communication for behaviour change but also introduction of farmer managed mechanisms that reduce the risk of spreading diseases from farmer to farmer.



## **Planting**

The most common way of planting was reported to be on a flat seed bed where holes are dug and one or two stem cuttings placed in them after which they are covered with soil. This was reported to be done by women and female youth. Most men acknowledged that this was a women's role.

*Men do not do that at all. They do not help us because they were not seeing the benefits. But because of these trainings they are more interested because they have been taught how to cultivate this cassava and get profit. (Women FGD participant Rwibare 1)*

*Girls help their mothers - they are very easy and they listen (Women FGD participant Rwibare 2)*

*Planting and covering is done mostly by women. Men and youth are also engaged but to a limited extent. (Men FGD participant Kichwamba).*

Some men however insisted that they now participate in planting

*We work together with the wife, I may dig the hole and the wife places in the cutting. Children also contribute a lot. (Men FGD participant, Rwibare 1).*

After planting, male farmers explained that they do gap filling for some plants that may not have emerged with vigour and for those plants that are diseased. This at times would necessitate them to source for fresh seed. Farmers further explained that sometimes gap filling had to be done over and over again which was cumbersome.

From the above, it is clear that planting is mostly a women's role. The girl child is also trained from a young age to support this chore unlike the male child as seen from the fact that male youth have more freedom to engage in enterprises of their choice. Men participate mostly in gap filling and this could be attributed to their mobility which enables them to quickly source seed to fill the gaps.

### **Constraints in planting**

Women mentioned drudgery as one of the major constraints experienced in planting. This was further exacerbated in the dry season as soils are harder to till and tree roots difficult to remove.

*It is tiresome because sometimes we have to carry the stems from this area to the area where the garden is. Sometimes the garden is very far and we have to carry the stems on our heads. (Women FGD participant Rwibare 1).*

Furthermore, women cited and lack of funds to pay for labor and limited access to stems as another limitation especially in the peak season when the demand for labor and stems was high.

*Labor is expensive – we pay 5,000 for a 5-hour day. Laborers are also few because some are cultivating their own gardens so they don't have time to work on other people's gardens. They just set aside a short time maybe when they need money for something (Women FGD participants Rwibare 2)*

*We lack money for labor. Secondly, when it is too dry we cannot plant because if you do so the stems dry up. Scarcity of stems is also a big limitation (Women FGD participant Rwibare 2).*

Thus the most crucial constraints were drudgery and limited access to labor which was also costly. While in the past women were the ones who experienced the bulk of the constraints related to planting, men are now likely to appreciate these constraints given that they face similar challenges during ridging, a practice required to make the roots suitable to the shelf-life extension treatments

## **Weeding**

On average, weeding is done three to four times before the crop is harvested. The first time involves removal of weeds and earthing-up, and is mostly done by women with support from casual laborers. In Rwibare, slash weeding is done the second and third time by men and the male youth while in Kichwamba second weeding is the responsibility of women but with support from men. Slash-weeding is done to protect the roots as the hoe could easily injure them. Selective stem removal is also done as part of monitoring and needs a skilled eye to identify and remove diseased and dry stems; and is mostly done by men but women also engage in the activity as further elaborated below:

*Culturally slashing is for men. Women did not learn to do it properly. That's what we know that slashing and cutting is for men. We cannot bear the slashing. (Women FGD participant Rwibare 1)*

*During weeding we have to hire labor to ensure that the season does not end before we complete the task (Women FGD participant, Rwibare 1)*

*First weeding and topping up soil on the stems is mostly done by women. They also do the second weeding but men and youth participate too. (Men FGD participant, Kichwamba).*

## **Constraints in weeding**

Men recognized that weeding is a burdensome task to the women which results in back aches and other body pains.

*The women suffer a lot - Their backs hurt a lot. Dew from the cassava and thorns injure their hands (Men FGD participant, Rwibare 1)*

*In the rains the weeds grow again very fast. We suffer from back ache. The arms get swollen. Weeding is a very tiring job (Women FGD participants, Kichwamba).*

*Men don't engage a lot in weeding because it hurts their backs (Men FGD participant, Rwibare 2)*

*Is that why they leave this chore to women? You know men have a lot of other chores they have to do so that's why they don't engage in weeding (participant 1). No... it is because weeding is back breaking that's why men don't want to do it. (Men FGD participants, Rwibare 2).*

Both men and women acknowledge that weeding is back-breaking and repetitive stress can lead to back problems. This is why men are not interested in weeding and leave the task to women. Thus approaches that seek to increase the production of cassava also need to explore ways to reduce the drudgery associated with weeding. Other constraints mentioned include injuries from thorns and snakebites which were regarded as a common accidental occurrences during weeding.

Women shared that during the rainy season, weeds grow again after very short intervals which increases their workload. Labor demand was worsened by the fact that female farmers often did not have money to hire labor. In other cases, hired labor was often not skilled and damaged the cassava roots with long term effects on the yield. Delayed weeding due to lack of labor also increased rodent damage and reduced root yield:

*Couch grass is very hard to remove. You have to use a hoe and if you are not careful you can cut the cassava if you are not careful. If you damage the roots, you reduce the yield (Women FGD participant, Rwibare 1)*

*When you delay weeding or slashing the weeds, it affects the roots. The roots will not grow big but will remain small (Women FGD participant, Rwibare women1)*

*Sometimes we lack time for second weeding because it may be at a time when we have other crops to look after. Yet we lack money to hire laborers. We then find that rodents have eaten the roots. (Women FGD participant, Rwibare 2).*

Clearly, weeding is a monumental task for women that needs to be done in a timely manner since delays may lead to reduction in yields and quality. While men appreciate the challenges women face during this task, very few appear ready to support them.

## **GENDER BASED CONSTRAINTS IN POSTHARVEST MANAGEMENT AND MARKETING**

### ***Identifying buyers***

Men were responsible for identifying a market/buyer and negotiating the price, a point which women conceded to.

*The men is the head of the family so we have to respect our husbands to take over that part. (Women FGD participant, Rwibare 2).*

Women however shared that lately they had started cultivating own cassava gardens and though men could be entrusted to identify buyers for them; they would have to hand over the proceeds to the wives.

*When we are digging sometimes we have two gardens: one can be personal for the woman only and the other is for the family. .... when the man finds buyers for cassava in my own garden; after he sells all the money has to be given to me since it is my garden. (Women FGD participant, Rwibare 1).*

Thus identifying buyers for the cassava was majorly a man's role; regardless of the final recipient of the proceeds. The situation was different though where the household head was a

widow. Both men and women revealed that sometimes it takes a bit of time to identify a reliable buyer.

*Sometimes it takes a bit of time to identify a reliable buyer. You may bring a buyer who turns into a nightmare. He may cheat you, take your produce and deceive you the money is in Kampala. You go up to Kampala and he runs away from you. (Men FGD participants. Rwibare 1)*

*The buyer may also deceive you that he is coming to buy but doesn't show up (participant, Men FGD Rwibare 2).*

Identifying reliable buyers is thus not an easy task and farmers have to be very cautious and take time to cultivate a relationship with buyers to reduce risks of theft and losses.

## **Harvesting and postharvest management**

### **Harvesting**

Harvesting depends on the variety – the shorter maturing ones take eight months and are usually for food security while the longer maturity varieties which may take up to two years are for food and income. Roles thus differ depending on what the cassava is intended for. All family members participate in harvesting cassava for food. In cases where piece-meal harvesting is done, this is usually the responsibility of women. When harvesting is for sale, both men and women are involved except where 'live gardens' are sold. In the latter case, the sale and supervision is usually done by men. Where harvested fresh cassava roots are sold to the buyer, men work closely with casual laborers to harvest, bag and transport the roots to the point of sale. Women take on the role of preparing food for the harvesting team, but sometimes they also assist in collecting and bulking the roots in a central place. When roots are harvested for the purpose of making cassava flour, the husband digs up the roots and takes them home. Sometimes the man carries the cassava on the head which is difficult. However, if one planted on ridges, this makes it easier since the garden has paths which makes it possible to use a wheelbarrow.

*When it's time for harvesting we all wake up as a family to harvest everyone participate (Women FGD participant, Rwibare 1)*

*Harvesting for food is done by women – they don't face any constraints because this is an easy task (Men FGD participant, Rwibare 2)*

*Harvesting for the market: we all participate. The man digs out the cassava and the wife collects the roots in a central place. Before the training we would harvest without a lot of care and the cassava would get badly damaged but now we are aware of the effects of poor harvesting techniques (Men FGD participants, Rwibare 1)*

*In this village we sell a whole garden at the same time. So when the person comes with a car to buy the men climb on the track and go to do the harvesting (Women FGD participant, Rwibare 2).*

Thus harvesting roles and extent of participation are related to intended use: when the cassava is for household consumption women are the ones that carry out the harvesting but they also participate in harvests destined for the market – though in this case men are also heavily

involved. This could be related to the fact that men are very interested in the proceeds that will flow into the household after the cassava is sold.

### **Constraints related to harvesting**

Lack of skills and knowledge of when best to harvest was one of the constraints mentioned by both men and women. Men specifically cited the need to closely supervise laborers as they handled the harvest poorly leading to high losses.

*Some people cut the roots which lead to losses because that can even hinder you from selling. Some people may not even know how to harvest (Women FGD participants, Rwibare 2)*

*The cassava gets damaged very easily e.g. the casual laborers may cut it or even throw it down and spoil it. Some casual workers leave a lot of roots unharvested in the garden thus leading to losses. Some roots are broken during packaging. (Men FGD participants, Rwibare 2).*

Another challenge cited by the men was poor weather conditions especially rain which made the roads impassable; while on the flip side women underscored the disadvantages of prolonged drought in relation to rendering the cassava unpalatable.

*Bad weather conditions: sometimes we get a buyer and we set a day to harvest and for them to pick up the cassava. And then it can start raining the whole day and we cannot harvest (Men FGD participants, Rwibare 1)*

*Some types of cassava become bitter if there is a drought. The soil type also matters – you can plant the same variety in different parts of your garden. When you harvest, some is bitter. But there are also varieties that are bitter (Women FGD participant, Kichwamba).*

Women also cited theft of harvested roots as another limitation; while men mentioned drudgery and agreed that women needed a lot of support during this activity since it was seen to be back breaking.

*Petty thefts – they (casual workers) who are uprooting hide the cassava in the bushes. Some of the laborers who are hired to transport the cassava from the garden steal (Women FGD participant, Rwibare 2)*

*This is a very tough task that requires a lot of energy and support from casual laborers. The women work very hard and this is a very tough time for them (Men FGD participants, Rwibare 1).*

Given the importance of harvesting on final root quality, it is crucial that farmers learn how and when to harvest as this is one of the important steps that determine if a root will be suitable for shelf-life extension treatment or not. Simple equipment can aid women in harvesting and reduce the drudgery they face while also improving the quality of the harvested roots.

## **Peeling and Drying**

Peeling is almost entirely a woman's roles, while chopping and drying are activities that men also engage in, especially in situations where labor is expensive or scarce. Peeling, chopping and drying are mostly done to reduce losses of fresh cassava roots, especially when marketing becomes a challenge say like in the rainy season. The dried cassava is used for both food and income generation.

### **Constraints related to drying**

Unsuitable weather conditions were the most commonly cited constraint. Women shared that sometimes it rains for three consecutive days right after they have prepared cassava for drying. In such cases, the cassava develops moulds and gets spoilt. Other constraints included lack of peeling and drying equipment as elucidated below.

*.... others do the drying on the bare ground because they do not have tarpaulins. The cassava becomes dirty and after grinding the flour contains soil and sand (Women participants, FGD Rwibare 1)*

*Poor quality of chips (difficult to sell) are mainly due to diseased plants and poor processing (Men FGD participant, Kichwamba).*

While drying is a good strategy to cope with the rapid deterioration of fresh cassava roots, when it is not properly done the end product presents risks to the farmers and other end-users. Hence the need for training and technical support to improve drying.

## **Processing**

Once the cassava is dry, farmers shared that they mill it into flour either by pounding it using a mortar and pestle or by taking it to a grinding mill. Women are responsible for pounding– and this is usually for home consumption; while men are in charge of taking the chips to the mill as well as packaging of the flour. Women also mentioned that a few of them process and sell fried cassava chips.

### **Constraints related to processing**

Women mentioned drudgery associated with pounding cassava with a mortar and pestle as well as other associated constraints like illnesses associated to the workload while engaging in this activity. Other challenges mentioned included physical losses due to spillages.

*It is tiresome to pound; we make losses because when we are pounding some of the cassava falls on the ground. It also takes a lot of time – for example it takes two to four days to grind 20kgs. It is really hard work. (Women FGD participants, Rwibare 2).*

Women mentioned that they often did not have money to take their cassava to the grinding mill thus making cassava flour making an arduous process.

However, although women stated that using mills to grind cassava into flour would be easier, they faced challenges with limited milling capacity and adulteration. These constraints are further elaborated below:

*When we take the cassava for processing at the grinding mill we get a problem – sometimes you find someone finished milling his maize and then you put in your cassava immediately. When eating you find cassava mixed with maize (Women FGD participants, Rwibare 1).*

Another limitation mentioned by women was thefts which occurred at the mill, especially where children were tasked to take the cassava for milling.

*Due to scarcity of grinding mills you find a lot of people at the mill. We take the cassava and leave it there. So when we go back home we send the children to go and pick the flour but on checking; you find that the flour (quantity) is not what you expected (Women FGD participant, Rwibare 2).*

Other challenges cited were lack of transport and high costs of milling.

While processing locally at home was considered to be very hard work, women were also wary of the malpractices at the local grinding mills, which discouraged them and thwarted the potential to sell flour on a larger scale.

### **Storage**

Storage of fresh cassava roots was done by women but on a short term basis – mainly for roots harvested from gardens that were far from their homes; as elaborated below:

*In case we are harvesting for consumption we harvest a few, bring them home, place them in a pit and cover with some soil. We take them out when we want to eat. We can only keep it there for 24 hours and not more. If you wait for two days, you find it rotten. (Women FGD participants Rwibare 1).*

Thus while farmers were trying to find innovative ways to store roots, they could only do it on small scale due to the high rate of deterioration. The proposed shelf-life extension techniques would thus not only earn farmers income, but could also save women the time spent on walking to harvest roots for food every other day.

### **Selling**

As mentioned earlier, farmers may opt to sell live cassava gardens, fresh cassava roots or dry cassava chips. Men are usually in charge of selling, receiving as well as handling the proceeds. Men in Rwibare shared that they can allow the women to sell cassava chips because they are aware of the volume to be sold and hence the likely proceeds, which may not be the case for fresh cassava roots. In Kichwamba, men estimated that they use 40% of the production for fresh food. Of the 60% sold, only 18% is sold fresh form and the rest sold in dried/processed form. Women also mentioned that they make a few sales of fresh cassava – in this case they carry the cassava on their heads to the market, or sell it to middlemen at the farm gate.



From the discussions held with men, trust between spouses was a major issue in deciding who is responsible for handling proceeds from sales. While a few conceded that they jointly discuss with their spouses on this issue, the majority shared that women are now demanding for a share since they are now aware of their rights. These issues are further elaborated below:

*The wife can be allowed to sell cassava chips by the husband if she is not a 'thief' – a thief is the one who underreport the actual price fetched. Wives who are thieves get married with an ulterior motive e.g. to get money to build a house at their parents homes*

*How can you identify a wife who is a thief? You know naturally women have more needs than the husband e.g. cosmetics. When they need a lotion, they will tell the husband it costs less e.g. 4000 and say – 'buy it for me it is not expensive' yet the actual price of the lotion is 9000. This is how you tell the wife is a thief: where does she get this extra money to top up?*

*In the past, women were not like that – as you have noted the men had the rights over the cash. But ever since this gender thing came, women now think they are the same as men. And these people who came to sensitize them changed their mentality so now they feel they must get access to all these things. So they must find a way to get these things e.g. by underreporting sales. (Men FGD participants Rwibare 1).*

Women on the other hand were of the view that men are responsible for selling because of their role as head of family, but women can negotiate on how to use the proceeds.

*The money is received and handled by the man. But the wife may also keep the money on behalf of the man. She can't however spend it without permission from her husband. (Men FGD participants Rwibare 1)*

*It is the man to look for the buyers and agree on the last price. After that the man sells, because he is the head of the family and we respect him. After the buyers are gone we try to look for them to sit down and see if we can also get some money. (Women FGD participants Rwibare 1)*

*Men want money that's why they come in. When the money comes in they pick interest and they start ordering where the money should go and what it should be used for. (Women's FGD participants, Kichwamba).*

A few women shared that they have own gardens and decide on how to use the money from their sales, while widows have responsibility over the sales but may consult household members.

*In the community where we live there are different types of families. In some families women have land which they inherited from the family home. They can sell that land and then buy a plot close to the husband's home. There she has full control. But with the man's land she has little control. Others can also get the land after working hard: when they get income they buy plots. Maybe two out of ten women can have their own plots (Women FGD participants Rwibare 2).*

In a few cases though, both male and female participants conceded that though spouses have differing needs, the best way would be to discuss and agree jointly on how to spend the proceeds.

*But if you are transparent and declare sales and planned expenditures the wife won't behave like that. (Women FGD participants Rwibare 2)*

*We first sit down and discuss about it because we have different needs. A woman may want to buy a nice sofa set in the house and the man wants to buy land so if the woman has her own plot of land she can sell and buy what she wants and the man can also sell his cassava and buy what he wants. (Women FGD participants Rwibare 1).*

Thus selling and apportioning of proceeds is still largely under the man's realm. While this is slowly changing in some households, trust amongst couples largely comes into play especially in declaration of proceeds from sales. Having separate gardens could address this, as well as continuous sensitization on benefits of including women in selling and sharing of proceeds.

### **Constraints related to selling**

Men cited unreliable buyers and poor quality roots as some of the major constraints they faced during selling cassava.

*If the buyer runs away from you, you go home empty handed and the wife won't be convinced. She will say you spent the money on your concubines so there is a lot of quarrelling and disagreement in the home. (Men FGD participants Rwibare 2).*

Unreliable buyers thus led to losses of income to which the men attributed domestic quarrels and general disagreements in the home as the wives would not be convinced that the husbands would have actually lost the money due to an unscrupulous buyer.

Lack of buyers was cited as another serious challenge faced by men and was attributed to poor state of roads especially during the rainy season.

*Sometimes it rains before the buyer picks up the cassava. He then can't come to pick it up because the roads are impassable so you end up losing a lot because after three days it ferments. You try to recoup your losses by drying and making flour from the cassava. (Men FGD participants, Rwibare 2).*

For the women, a number of constraints were cited major of which was limited ability to ferry their produce to the trading center; yet the price offered for cassava at the farm gate was much lower.

*Transport is a limitation: sometimes when the buyers find the cassava here (in the trading center) I can earn 50,000/ per bag but if the buyers go to the village they can pay 10,000 for a whole sack. So if you transport it close to the center you earn more. (Women FGD participants Rwibare 1).*

Women in addition mentioned buyers using tampered weighing scales and, lack of transport. Women from Kichwamba further mentioned low prices offered for cassava flour in comparison

to fresh roots as a major constraint; yet the cost of producing flour was much higher than the fresh roots.

From the foregoing, it is clear that men and women faced different constraints which may not only lead to losses in income but also to domestic misunderstanding. For women, lack of mobility greatly affects the prices they earn for their produce.

### **Youth involvement**

Women mentioned that the female youth were usually supportive and helped out with production tasks. They further shared that male youth did not support them and neither were they interested in cassava production.

*When male youth are asked to go to the garden they refuse to go. But sometimes they are doing other work while some are at school. If they could see benefits from cassava maybe they will be interested. (Women FGD participants Rwibare 1)*

*Young men usually participate in cultivation of maize not cassava. Maize here grows very fast and matures earlier than cassava so they want fast income that's why they engage in maize. Young men do not have skills in cassava planting or cultivation. (Women FGD participants Rwibare 1).*

Women thus appeared to sometimes bear the brunt of the work especially in cases when there was no hired labor to support them. The alternative would be male youth who apparently are not interested in cassava because of the long gestation period. This would call for sensitization of youth on the potential benefits from the cassava enterprise as their engagement would not only alleviate the workload burden from women, but would ensure continuity of the enterprise in the future.

With regards to processing, women shared that while youth are not involved in production activities, they are actively involved in taking cassava to the grind mill – but nonetheless the time the youth devoted to cassava activities in general was considered limited. This was associated to several reasons including being at school, engagement in off farm activities while other regard farming as a dirty business.

*When boys grow up they go and look for work to get money: selling petrol, they learn mechanics or work at maize grinding machines.*

*Girls on the other hand can go to teach at nursery, work at restaurants or in hotels*

*Youth are not interested because they want to look smart. Farming is dirty business*

*The youth have not yet been sensitized on the value of cassava. Many people here think that cassava is just for consumption but they do not know that you can actually do business and earn income from cassava (Women FGD participants Rwibare 2).*

As the leaders of tomorrow, both male and female youth need to be sensitized and attracted to agriculture and more specifically to the cassava farming and value addition. This will not only

provide for continuity for future generations but will also enable exploiting emerging market opportunities.

## EXPLORING CONSTRAINTS AND THEIR MITIGATION FOR THE SOLE ENTREPRENEUR

In an interview with the entrepreneur who will be hosting the cassava pack-house in Kabarole, he identified the following potential constraints to his operations:

**Handling large volumes of roots that do not meet processing requirements:** a large amount of roots may not qualify for the treatments, especially at the beginning. The processor suggested ways of mitigating this by:

- Working closely with the farmers (suppliers) to monitor the quality and age of the roots, and also training them in good agronomic practices (e.g. pruning).
- Procuring a mill to add value to rejections by processing into chips when the business takes off.
- Search for information about growth and dynamics of cassava fresh markets in Uganda – one source would be the cassava market study report prepared by the sub-project partners
- Seek support to strengthen market linkages from Ministry of Trade and Chambers of Commerce though this is likely to be limited.

**Access to favorable credit:** though this was a challenge he indicated, he was reluctant to access credit due to unfavorable terms and his risk aversion. He preferred to start small and then grow.

**Linkage to local government for improved access to inputs:** though this may not be a serious constraint given that he is in the business of input service provision, he recognized the need to link up with local government, extension service providers, Multi Stakeholders Innovation Platform and, of course, farmers for improved service delivery.

**Lack of a gender responsive human resource policy:** given the nature of work at the pack-house, the entrepreneur will have to employ both male and female workers. He will need guidance in developing a policy that safeguards the health and well-being of the employees taking in cognizance the nature of work to be done (e.g. peeling manually), working hours, remuneration, leave of absence, among others.

**Finalizing the Business plan:** Though IIRR is working on the draft plan, it will need to be improved by using the data obtained after the first trials under commercial operations which could take a while. He also expressed interest in exploring the opportunity to (complementary) run the pack-house on service basis; which may need to be factored into the plan.

## PRIORITIZING THREE MAJOR CONSTRAINTS AND SUGGESTED SOLUTIONS FOR FARMERS

FGD participants were asked to review the constraints they had shared in the first part of the exercise, prioritize and rank the three most important ones that should be addressed in a bid to enable them to take advantage of the potential market opportunities that could arise during the project. They were also tasked to suggest potential solutions to the prioritized constraints. One group however prioritized two constraints only.

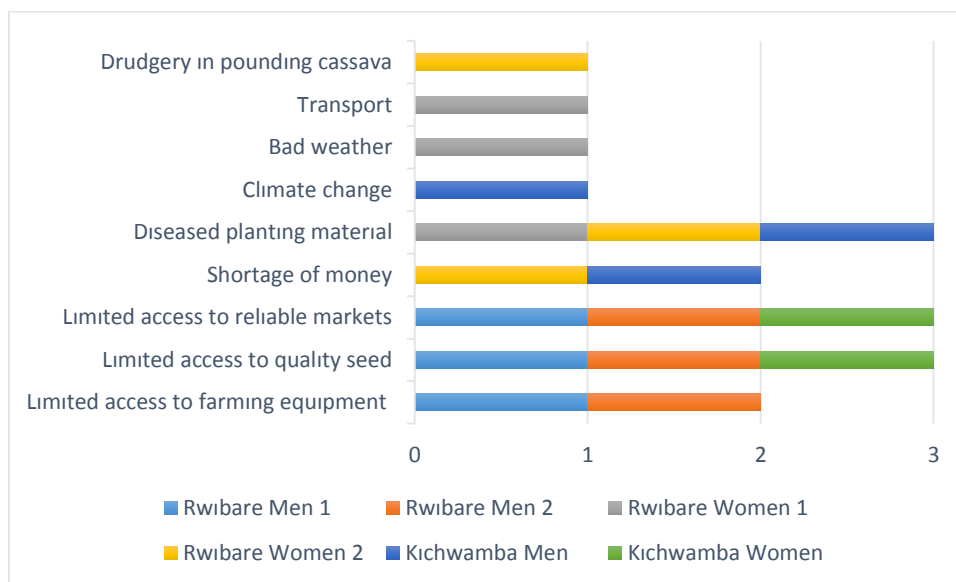


Figure 1: Major constraints to cassava production and marketing by sex and location

Figure 1 shows the major constraints that need to be addressed to improve cassava production and marketing as prioritized by male and female farmers attached to the two pilot plants.

The major constraints prioritized include seed/planting material related issues (mentioned 6 times - by all groups), limited access to reliable markets and marketing infrastructure (mentioned 4 times – twice by women’s groups and twice by men’s groups), limited access to farming equipment (mentioned twice - by men’s groups only), shortage of money and weather related issues (mentioned twice each – once by a men and women’s groups).

From the prioritized issues above, access to quality planting material was a unifying constraint that may need to be given immediate attention, as participants noted that it affected the quality of food and the level of income obtained from cassava sales. In addition to quality seed, men from Rwibare prioritized access to markets and farming equipment, the former also being a major constraint for women in Kichwamba.

Women from Rwibare 2 are the only ones that prioritized drudgery in pounding cassava, and judging from the findings in the previous discussion; this was a matter of serious concern for them. Given these findings, the strategy will propose ways of ensuring that women and men benefit from postharvest technologies and marketing of cassava, for instance by proposing inclusive and hands-on training in using the proposed shelf life extension technologies,

business planning and market linkages.

### **Farmer suggested solutions to prioritized constraints**

Below is reported what the farmers suggested as solutions to the constraints they had prioritized.

#### Access to farming equipment:

- Improved access to credit facilities like MFIs for working capital
- Strengthen internal saving mechanisms and pool resource to procure equipment like heavy duty tarpaulins, wheelbarrows and cassava value addition equipment.

*We can approach an MFI to give us credit since we are already organized. With working capital, we can solve this problem which nearly all the farmers here in Rwibare face. (Men FGD participants Rwibare 1)*

#### Diseased planting material/limited access to quality seed:

- Linkages to research institutes so that farmers can get improved seed to be multiplied and shared within in the group.

*We depend on our old farm saved seed which is not very productive. Yet there is seed out there which can yield in a short time, but we find it very difficult to access*

*Even the new varieties that have been introduced recently have pests and diseases. We do not know what brings the diseases whether it's the soil or what we are not sure (Women FGD participants Rwibare 1&2).*

- Information and training on what farmers can spray in order to control the diseases
- Training on how to identify diseased stems and on good practices to limit spread of diseases.

#### Access to reliable markets:

- Strengthen farmer groups' marketing committee so that they improve their bargaining ability and identify reliable buyers
- Adding value to cassava e.g. through drying cassava and making quality flour

*Our cassava rots from the home/farm because once you harvest it deteriorates very fast if you fail to sell it. Yet we don't have means to add value to it e.g. drying it (Women FGD participants Rwibare 2).*

- Groups should start collective marketing, and learn how to make marketing plans.
- NGOs need to help to get good market for cassava
- Access to distant markets which can offer better prices.

### Shortage of money:

- Capitalizing cooperative societies that cultivate cassava so that they can help the women. Women can get that money and be engaged also in buying and selling cassava instead of working with middlemen who steal from us sometimes

*We utilize groups but there is not enough money in our group. You can find that you have 100 000 and you are 15 women in the group and you find that everyone wants money.*

- There is need for sensitization of families and couples to learn to work together so that they can both benefit from marketing and also reduce domestic violence. When men are sensitized they will engage more in the cultivation of cassava which would also help women.

*Domestic violence: when someone lacks money there is always confusion at home. When she has no money she will call the man to come and help in the garden so that they can expand the garden. When he refuses they start quarrelling and fighting and the wife can be beaten. In 6 out of 10 families there is domestic violence because of this*

*We can learn about good farming methods in a group. You cannot dig a large garden by yourself but if you belong to a digging group they can come to help you and you can expand your garden and when you sell you can make more money. (Women FGD participants Rwibare 1)*

- Educative skills to enable farmers engage in other projects.
- Support to set up demonstration plots.

### Bad weather conditions/climate change

- Planting trees

*Most of the forest were cut down so that brought the changes in the weather conditions. We used to know our seasons. Since the weather changed we have to wait for the rains to come and when the rains don't come we do not plant. (Women FGD participants Rwibare 2).*

- Sensitizing people on how to protect the environment
- Access to drying technologies to reduce high losses faced in the rainy season.

### Transport

- Advocate for good roads



- Training on how to preserve cassava so that even when buyers delay to buy farmers can keep the crop for sale at later date and at a good price.

*Lack of transport means that you may fail to find buyers. Need ready market...If we have a farmer group and we produce in large quantities then traders whether they want or not will be forced to drive to the village to pick the cassava (Men FGD participants Rwibare 1).*

## **GENDER EVALUATION OF TECHNOLOGIES INTRODUCED BY THE PROJECT**

### **Ex-ante review and level of awareness of the proposed technologies**

A discussion was held to obtain an ex-ante review of the level of awareness of the proposed shelf-life extension technologies, their implication as well as potential opportunities and challenges male and female farmers may face. In Rwibare, female farmers appeared to be more aware/conversant with the proposed technologies than male farmers. The men were more aware of the improved pre-harvest practices (ridging, planting and pruning) and a few had already commenced with ridging in their own. The women however were aware of the postharvest treatments that will be undertaken as further elaborated below.

### **Good Agricultural Practices**

#### **Ridge planting**

Ridge planting is a technique introduced by the sub-project and demonstrated on the group garden. A few male farmers indicated that they had already adopted the practice. In households where ridging had been adopted, both the husband and wife engage in the activity. Female farmers shared that men were quicker to adopt ridging than women because it was labor intensive and also because men anticipated higher yields and financial returns from practicing ridging.

*Some men have adopted ridging. The wife supports the husband to do the ridging. (Men FGD participants Rwibare 1).*

Men's interest in ridging could also be further attributed to their ability to invest and experiment with new practices and technologies.

*Ridging takes a lot of time so you need casual labor. This further increases production costs since every stage you have to invest. (Men FGD participants Rwibare men 1)*

*If you don't have a tape measure the ridges are hard to make in the way they should be. They are hard to make during the dry season because the soil is hard (Men FGD participants Rwibare men 2).*

Men also revealed that ridging is a very difficult task especially in the dry weather and requires the support from casual laborers who are expensive and at times difficult to find. Men are thus

more likely to adopt ridging faster than women given the labor intensity involved. One woman, though of the opinion that ridging is labor demanding, was willing to take it up.

Women also mentioned that they had been trained on a number of good agricultural practices including ridging, spacing and pruning among others. They mentioned that they had already tried out ridge planting in their groups, but have not in their individual gardens. However, they were aware of the advantages of ridging, but shared that they would need support from men to be able to adopt ridging given the labor it requires.

*The method that we heard involves planting the cassava stems in ridges but those ridges have to be large. - When it's time to uproot we just pull up the stems, we do not have to dig...*

*Since we did it as a demonstration we first want to see the outcome and if it works we can adopt it. People want to know more.*

*Our old practice is easier and less tiring than ridging. Ridging has an advantage though – it makes harvesting easy because the cassava faces one side only. (Women FGD participants Rwibare 1).*

Some women mentioned that men were not yet supporting them to make the ridges yet they are labor intensive and they lacked funds to pay laborers to undertake the activity. They were however optimistic that the men were likely to support them in the future once they realize the financial benefits that could be derived from ridging.

What about the ridges: if you are not being helped now what will happen when you start ridging?

*Men are profit oriented. If they learn of a method that gives more profit and that there is a market they can help because they will see that there is a lot to benefit. (Rwibare women 1)*

*In my case I think it's easy because you don't have to do a lot ... you clear the land, cultivate and make ridges. With this method you just slash and you make ridges without removing the grass so it cuts out some processes. When it comes to the time of harvest you just uproot so you don't get tired (Rwibare women 1).*

Though a group demonstration plot has been set up and the project implementation partners have trained farmers on a number of occasions on GAP, some of the FGD participants had not yet been exposed to the practices. This conforms to adoption patterns where farmers usually want to confirm if the technology works and also provides value for money before investing time and other resources in adopting it.

### **Pruning**

Pruning was a relatively new technology that was recently introduced by the sub-project and is greatly appreciated by the farmers, mostly the women. Women shared that pruned cassava was much 'sweeter' than un-pruned cassava and the children liked it.

*When we get the cassava for consumption we have to cut the stems 7 days before harvesting. The one that you prune it is sweeter and softer than the one which you do not prune. (Women FGD participants Rwibare 2).*

The women explained that they are the ones who do the pruning but have also taught their children to prune cassava. However, the boys are reluctant to engage in pruning. Female participants in the Rwibare 2 FGD were aware of these two technologies and their benefits, and most had already adopted pruning.

*When we tell the boys to go pruning they refuse to go. When they go they do it badly. (participant Women FGD Rwibare 1).*

Encouraging early female adopters is thus likely to have a positive push on adoption of GAPs like pruning.

### **Constraints to pruning**

Limited knowledge on how to carry out pruning especially by the laborers was the constraint cited most.

*You find someone wanting to remove the excess foliage but they end up accidentally destroying the whole plant. It is mostly hired laborers who make this mistake (participant, Women FGD Rwibare 1)*

Other constraints mentioned were lack of machinery and difficulty to harvest pruned cassava.

*There are some small machines that can be used to prune but because we do not have them so we use hands and end up making mistakes and destroying the whole plant. (Women FGD participants Rwibare 1)*

*We use pangas but sometimes we can cut our fingers by accident. (Women FGD participants Rwibare 1)*

*Pruned cassava is hard to uproot and women find it especially difficult (Men FGD participant, Rwibare 1).*

From the above, it is evident that new technologies even when popular may take sometime to diffuse and be used in the right way, which calls for continuous farmer to farmer training to enhance the learning process.

### **The cassava processing plant**

Women were aware that a processing plant will be established but were not very sure of how it will operate. Some mentioned that it will be drying cassava for export while others were of the view that they would have to first peel their cassava before taking it for processing. All of them were however sure that the processed cassava would be exported.

## **Technology for extending the shelf-life of cassava**

### **Waxing**

Only one women's group was aware of the technology and its importance so the facilitator briefly shared the waxing process and its potential benefits to the farmers. Women in Rwibare mentioned that they had heard about the technology but could not explicitly describe what it was. They were however willing to embrace it as explained below.

*The method we heard requires getting the cassava and packing it in crates and then it is taken abroad. Another one we heard of getting is a machine that grinds only cassava*

*We have just heard of it but it has not yet come to this village. If it comes we will welcome it.*

Farmers appreciated the technology but highlighted a potential challenge of the Cassava Brown Streak Disease – where one can only tell the root is affected after cutting it open. This may affect both the quality and quantities available for waxing, as well as the sustainability of the process since consumers will be disappointed and stop buying the processed roots. However, they appreciated the fact that waxing would help in extending the marketing period, increase their bargaining power and prices attained and thus reduce physical and economic losses hitherto experienced. They also expressed enthusiasm on the possibility of job creation at the cassava plant, and identified roles they could undertake. When asked how they will benefit from marketing when men are currently in charge, they indicated that they will discuss this issue with their husbands.

### **High relative humidity**

Very few farmers were aware of this technology but after a quick brief about it, they were of the view that it was relatively easy to do. The facilitator however had to stress the fact that only undamaged roots will be preserved using the two methods.

## **Market opportunities for processed cassava**

The farmers discussed the potential market opportunities that they can harness once the processing plant was operational:

- We can work as a group to supply quality roots to the market. We will mobilize and sensitize people/farmers on what have to be done and only those who agree are the ones we will register for the group
- We are willing and have been waiting for an opportunity like this. This is what we want and we will be able to meet the prerequisites to access new markets.

However, they also highlighted potential challenges that may bar them from taking advantages of new and expanded markets such as:

- Limited access to quality seed

- We may get a challenge in accessing tools like hoes, pangas and rakes which may deter our production capacity.

In Kichwamba, the facilitators shared an overview of the proposed sub-project and the technologies that will be undertaken at the processing plants after which discussion were held on likely implications, opportunities and challenges for the farmers as given below.

### **Implications of the proposed shelf-life technology for male farmers:**

Farmers would have to undertake a number of improved practices including ridging, sourcing and planting recommended varieties (which will be identified after the laboratory trials in NARO) as well as pruning. Farmers may also have to identify a market to sell roots that will be rejected by the processor.

### **Opportunities:**

Some of the opportunities shared included better/higher prices for the fresh roots, as well as higher yields as a result of accessing high quality planting materials from research. This would imply a more secure market given their quality produce and also the ability to secure a supply contract from the processor; and thus higher incomes.

### **Challenges:**

A number of perceived challenges were mentioned by the farmers in relation with the potential market opportunity. The major challenge was lack of clarity on the price that the processor will offer for their roots – and whether it would be competitive given the additional activities they would have to undertake to ensure supply of quality roots. Secondly, fear of the uncertainty about performance of the new varieties from research was also voiced, as well as high costs of labor associated with ridging. Another challenge highlighted was the fear that the buyer may not turn up which would lead to a missed opportunity to sell to someone else yet the plants would need to be harvested immediately since they have been already pruned.

Farmers also highlighted the potential high risks related to this new venture if they stepped in as individuals – yet if a contract were presented; it was likely that it would be signed by the men hence posing a risk of negating the women. They thus suggested that collective contracting would be a much better option, but this would have to be approached with caution and done progressively, once farmers had a better understanding of how the business will evolve. Lack of clarity of the business model was another challenge cited. High losses were anticipated from roots rejected by the processor: for instance, if sorting and grading is done by the pack house owner, his team is bound to select only the best roots suitable for the shelf-life extension treatments and the “rejected” roots are left to farmers. In turn, they may find challenges in drying large amounts of cassava, particularly in the rainy season (they may incur losses whose value may be even higher than the extra revenue generated by selling good roots at higher price).

## 4. Women and men's empowerment in cassava production and marketing

In the second part of the FGDs, the facilitators used the Comparison tool (see Section 2) and participants undertook a scoring exercise with an aim of estimating their current levels of empowerment along five domains: agricultural production, resources, income, leadership and time. In this section we present the main findings followed by a brief discussion on the implications of the perceived levels of empowerment. This analysis will help us to validate strategies suggested by farmers as well as interrogate how the social, economic and political context that male and female farmers find themselves in may promote or deter adoption of the proposed cassava postharvest innovations.

### INPUT INTO PRODUCTION DECISIONS

#### *Ability to make production related decisions*

As explained earlier, participants undertook two forms of scoring: individual and communal. From the individual scores on the ability to make decision related to production, female farmers from Rwibare 1 perceived they had greater ability than men to make decisions in six of the eight attributes. On the other hand, women in Rwibare 2 perceived they had greater ability than men to make decisions in four of the eight attributes. Women explained that although the husband has the right to make the final production decisions, it was rare for a woman to propose something and the husband declines, which may explain the higher scores attained (Figure 2).

*Most of the household heads (the husband) decide about the allocation of land. If a husband refuses a woman can't allocate land. **But if you are saying a husband can refuse why are you giving women a 4?** It's rare to find a man who refuses a woman to allocate land. Some women have the ability to express their opinion to a man (Women FGD participants Rwibare 1)*

*Most of the time we consult our husbands before allocating so that we reach an agreement. Out of 10 families 6 make joint decision (Women FGD participants Rwibare 2).*

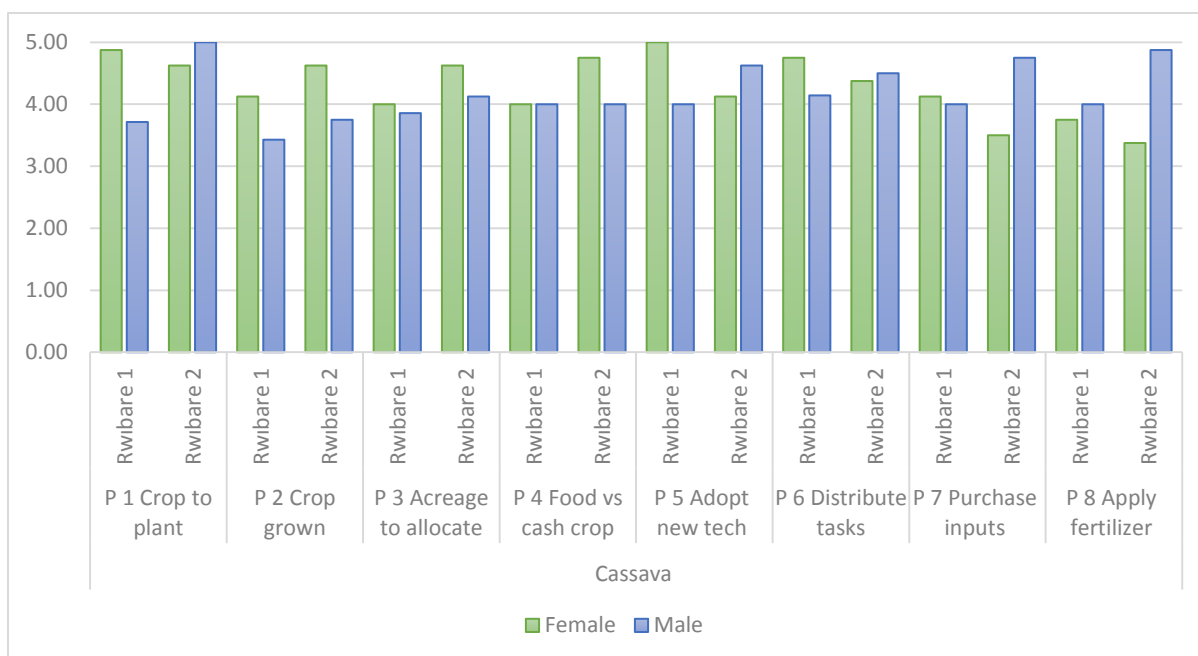
Men on the other hand shared that most of these decisions are made jointly with the wife, except for technical issues like fertilizer application or growing large acreage of crops for commercial purposes.

*Most men discuss and agree on the variety to plant with the wife because they are going to till the land together (Men FGD participants Rwibare 1)*

*.... This involves food security and the woman is responsible. If you don't involve her you are likely to face hunger – food is her office (Men FGD participants Rwibare 2)*

*I have never seen a woman using a spray pump (Men FGD participants Rwibare 1)*

*If the crop is to be grown on a large scale there is even no need for the woman to know. If the woman gets to know, she would discourage you. (Men FGD participants Rwibare 2).*



**Figure 2: Extent to which male and female farmers perceive ability to make production related decisions**

However, with regards to purchase of inputs, there were mixed opinions with each gender considering themselves to be responsible. Men argued that they are mobile and hence purchase the inputs, while women claimed that they are the ones who take care of the home and hence have the responsibility to do so.

*You can also see this is obvious – a man is the one who moves around and has time to identify what to buy. The woman is always at home – in the kitchen. When will she get time to buy such things? A man could even buy these on credit which a woman can't (Men FGD participants Rwibare 1)*

*Most women buy the input themselves and equipment. Sometimes we get from NGOs. Most men do not have time. It is our responsibility to take care of the home, men will not. If you do not buy hoes where are you going to get equipment to farm and get food for the children and get money to pay for fees? (Women FGD participants Rwibare 1).*

Thus while women are able to make a number of production related decisions, they conceded that whenever a major decision had to be made, the man would still have the final say. Women



are also proactive in sourcing varieties to plant, allocating labor but have less ability in use of high resource inputs like fertilizer, which could be attributed to the capital outlay.

### Ability to make marketing related decisions

Women from Rwibare 1 generally perceived that they had greater ability than men to make decisions related to cassava marketing, while in Rwibare 2, the reverse was true. The reasons advanced in the case of women included the fact that one had a right to decide depending on how much effort they put in – as mentioned by women from Rwibare 1. Men from Rwibare 2 on the other hand argued that they were the ones who searched for buyers and had better negotiating powers (Figure 3).

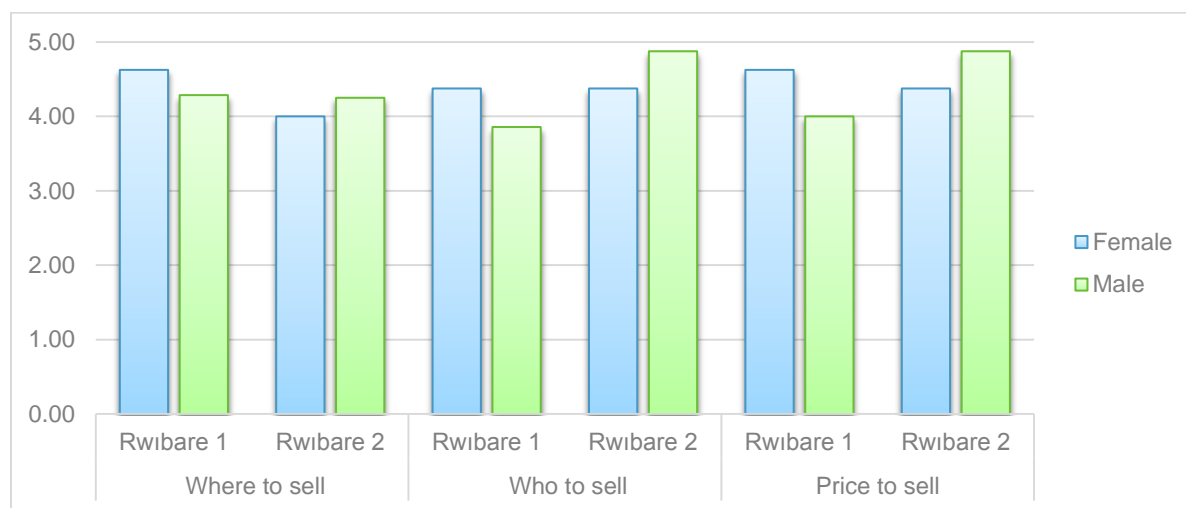


Figure 3: Extent to which male and female farmers perceive ability to make marketing related decisions

*We decide and choose where to sell because it is us who cultivate the cassava so we decide. Men are not involved. We have the power according to how much you participated in cultivation of the crop. If we cultivate together I calm down and the man is the one who sells. But if I cultivate on my own the crop is mine and it's upon me to sell where I want. (Women FGD participants Rwibare 1)*

*The man is the one who searches for buyers (Men FGD participants Rwibare 1).*

Since there was no consensus on this issue and in view of the results presented in Figure 3 above, we can conclude that men in Rwibare 2 have slightly greater ability to make marketing decisions as compared to women, and the reverse is true for Rwibare 1.

On closure of a purchase deal, some women disclosed that at times they had to contend with trust issues with their spouses, which curtailed their ability to negotiate and bring a purchase deal to fruition.

*Sometimes after deciding on the buyer, you take him home but the husband can be upset thinking that the buyer wants to have an affair with me (Women FGD participants Rwibare 1).*

Women from Rwibare 1 shared that they had no say and did not participate in buyer identification and price negotiation – they depended entirely on the husband to do so and would just wait for whatever proceed he declared.

*We can't decide. Sometimes we dig together with the husband and then he goes alone to look for the buyer. He will negotiate with the buyer and when he comes home with the buyer he can say that the buyer gave me 300 shillings per kg. But maybe he received 500 shillings. So he will give you 300/kg and keep the rest. (Women FGD participants Rwibare Women 1).*

Women from Rwibare 2 however reported to be faring better, and shared that this had been achieved as a result of sensitizing their husbands. However, men from Rwibare 1 reiterated the importance of joint decision making as elaborated below.

*For us whose husbands are sensitized we can decide who to sell to but those in the village who are not sensitized their wives can't take part in this decision (Women FGD participant, Rwibare 1)*

*You have to discuss with your wife – this is an important issue that requires joint decision making (Men FGD participant, Rwibare 1).*

For women to make a foray in the market, it is thus important to continuously sensitize their spouses on the benefits of empowering women to participate in markets and equity in sharing of resources in a household.

## **ACCESS TO PRODUCTIVE RESOURCES**

### **Ownership of assets**

In Rwibare 1, women perceived to have greater ownership than men over land and all other assets except transport. In Rwibare 2, on the other hand, women perceived to have greater ownership only over livestock (Figure 4). With regards to land, some women expressed the ability to own it in their own.

*If that land was given to me by my parents, I have full ownership. Most ladies in this village have bought land and they have full ownership. But if you find the man already with the land then you will have little power (Women FGD participant, Rwibare 1)*

#### **Do they buy when they are already married?**

*Yes, and men can't take that land now because the land titles are put in our names by the sellers. (Women FGD participants Rwibare 1).*

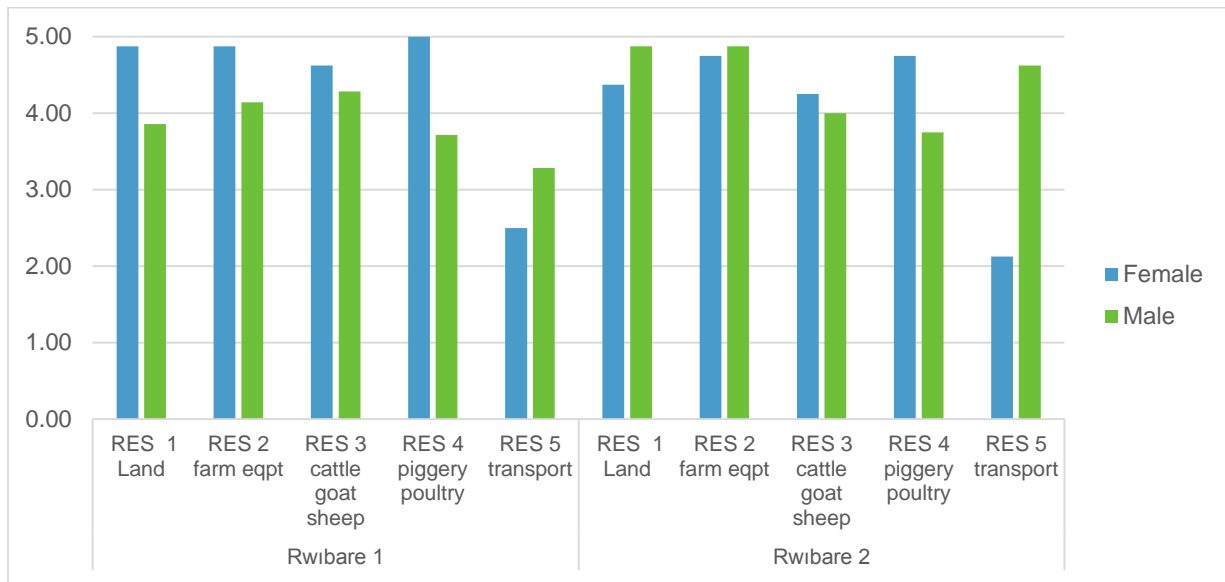


Figure 4: Extent to which male and female farmers perceive ownership of various assets

However, some women shared that it was still hard for a woman to own land while still married to a man.

*A woman finds it hard to buy land .... she will get the money, give it to her husband and when the husband buys the land he puts it in his name and yet he is not the owner of the money. (Women FGD participants Rwibare 1)*

*Sometimes women want to buy land but the husband will say 'you cannot buy land when you are still under my house. If you want to do that go back to your father's house and buy there'. So women find it hard not to respect their men; and won't buy (Women FGD participants Rwibare 2)*

*Men don't want women to buy land because they can't sell it off when the woman has not signed. Also if he wants to get a loan from the bank and use the land as collateral he has to make sure the woman has signed before he can get the loan (Women FGD participants Rwibare 2).*

Men on the other hand shared that while the land belongs to the family, the title has to belong to the man.

*The land is for both the husband and wife, but the title is in the man's names (Men FGD participants Rwibare 1).*

While some women had been able to register progress toward acquisition and ownership of land, more still needs to be done especially towards sensitizing men about the importance of

women being landlords in their own right. Such progress for women would further promote female entrepreneurship as they would not only have a say on production but also on future investment and even access to credit among others.

With regards, to animals, men clarified that they own the cows, but would like to be informed when small animals are being disposed off. Women shared that they are the ones who mostly use the farm equipment but both men and women will participate in its purchase and acquisition. As explained earlier, men had control over means of transport.

*You can sell pigs if you bought them yourself. If you rear it the man does not even want to know but a goat is considered more useful than a pig. Pigs are regarded as dirty so men do not even want to come near them. (Women FGD participants Rwibare 1)*

*Sometimes we buy the bicycles on our own. But if a neighbor wants to borrow the bike he will not come to me who bought the bike but will go straight to my husband. (Women FGD participants Rwibare 1)*

*Culture or tradition dictates that most assets belong to the man: get out fathers chair, the children belong to the man, and so naturally the bike belongs to him (Men FGD participants Rwibare 1).*

Hence while some women have managed to change norms on ownership of assets like land, tradition still favors men and they automatically perceive that everything of considerable value in the home belongs to them. This may affect access to and decision over resources by many women and calls for sensitization for effective behavioral change.

### **Decision to purchase, sale or transfer of assets**

All women unanimously shared that while they had less powers to dispose of assets, they had the ability to purchase them (Figure 5).



*Figure 5: Extent to which male and female farmers perceive to have the ability to purchase or dispose off assets*

*With purchase I can tell my man what to buy if we have money (Women FGD participants Rwibare 2)*

*The woman could also contribute towards acquisition of new assets (Men FGD participants Rwibare 1)*

*These days the woman would chase the buyer out of the land if she was not consulted. We sit down to discuss if the wife does not agree the husband cannot sell (Men FGD participants Rwibare 1).*

Women are thus increasingly getting more empowered to purchase and have a say in the disposal of assets, a change that has been ushered in by government policy which change is being enforced at the local level.

### **Access to services**

This section focuses on access to financial, extension and business development services.

#### **Financial services**

As with previous domains, women in Rwibare 1 perceived to have greater access than men to financial services, whereas in Rwibare 2, women shared that they had more access than men only to SACCOS and MFIs; though group lending was still a more accessible option for the women than MFIs (Figure 6). On the other hand, men were very active in group lending in Rwibare 2, but seemed to bar their women to participate due to insecurities related to their dominance in the home. Generally, SACCOS and group lending were the most accessible services for both men and women which could be attributed to the fact that the group was running a SACCO, but also due to the formal nature of banks and MFIs which have stiffer terms of access.

For women however, they faced additional challenges related to existing gender norms that not only render them disadvantaged since it is hard for them to own collateral, but also having to seek permission from the husband before accessing loans. Women also shared that men 'fear' women with money which further curtails their ability to get sizeable loans for investment. Additionally, even where women are able to access loans, they may not be allowed to use the money for their own investment needs while in instances where they can utilize the loan as they wish, they may lack the capacity to fully utilize the loans. These issues are further explained below:

*Some (women) do not have land titles which are needed when borrowing money. Others are stopped by their husbands. Most men are scared that if women go to these lending group and make a lot of money they will stop listening to them. Men fear women with a lot of money. (Women FGD participants Rwibare 1)*

*Some men take the money from the women so the women will not benefit but they have to pay back (Women FGD participants Rwibare 2)*

*Some women take a lot of money and end up failing to pay back the money then the financial institutions take their land (Women FGD participants Rwibare 1).*

This thus calls for sensitization of men on the need to allow their wives to access and utilize individual loans for investment; while at the same time points to the need for financial literacy to enable better utilization of loan; otherwise women risk losing the little assets they possess.

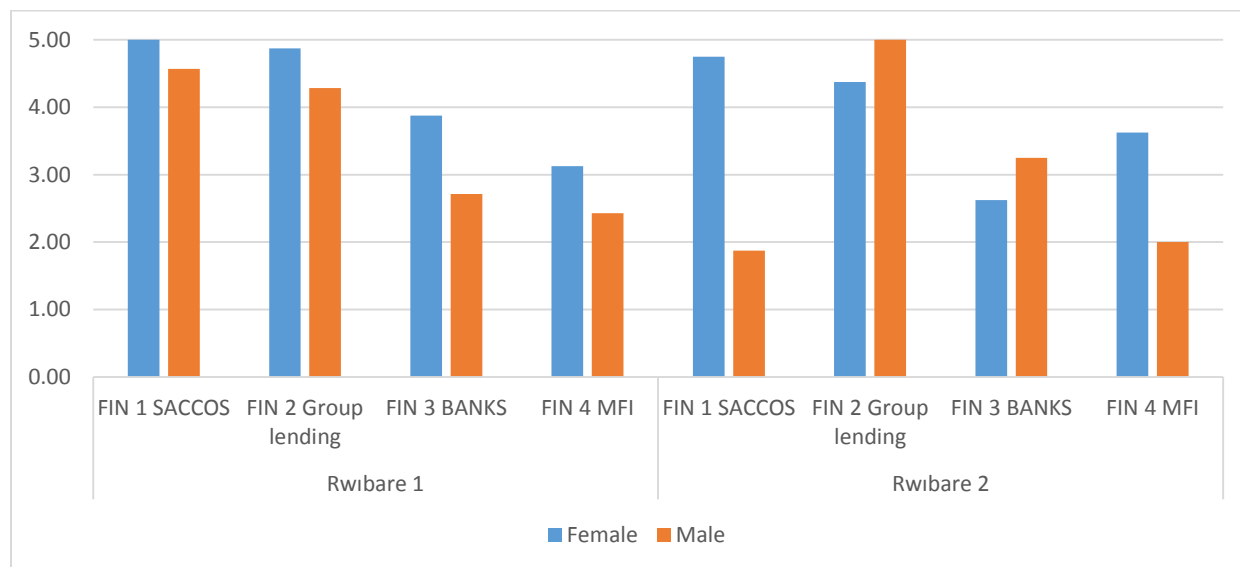


Figure 6: Extent to which farmer perceive access to financial services

Besides group lending, some farmers were also able to access MFIs like BRAC, but banks were generally not easily accessible for both male and female farmers and hampered their ability to invest in cassava business. For female farmers, the challenge as expressed in the first part of the results was access to sizeable loans due to a host of issues including lack of collateral and limited group savings.

### **Extension and business development services for farmers**

In Rwibare 1, male farmers perceived lower access to extension services than women, except in the area of training domain while those in Rwibare 2 perceived higher access to services like demonstration plots and farmer field schools than women (Figure 7).

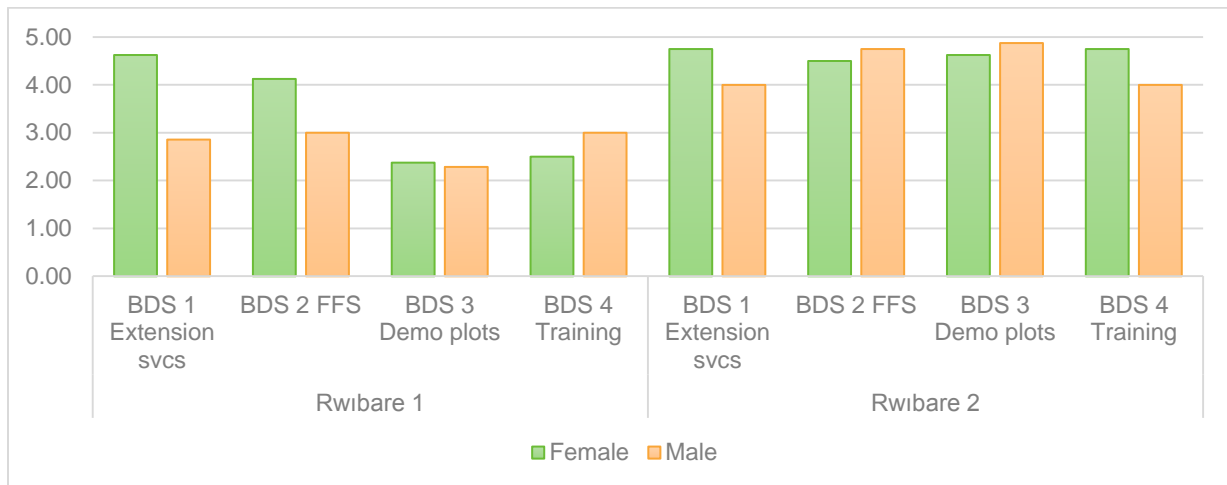
*Extension services are rare and the staff are mostly office based. Farmer field schools do not exist (Men FGD participants Rwibare 1)*

*We go to other areas but we do not have a demonstration plot in this area. So we are requesting to get the demonstration plots. (Women FGD participants Rwibare 1).*

In Rwibare 2, farmers were generally appreciative of the support from local leaders and spoke well of them. However for women, they had to seek permission from their husbands to attend trainings and sometimes missed out.

*In this area our leaders are active on the ground so they go around asking us to go for trainings and they also encourage us to put in practice what we have learnt. (Male farmers, Rwibare 2)*

*We have to please our husbands a lot to get permission to go (Female farmer, Rwibare 1).*



*Figure 7: Extent to which farmer perceive access to extension services*

Female farmers were appreciative of the group plot which had been established by the Cassava-sub project and requested for similar support from the local government. They further noted that it is mostly women who attend the training, and attributed their enhanced empowerment from such exposure.

*NAADS never comes practically to our area. They have many radio programs but rarely come down to the ground.*

*It is women who go mostly for the training because we want to see, learn and practice (Women FGD participants Rwibare 1)*

*Women who come and attend meetings their eyes are open but those women who do not attend any training they just remain in the village they do not have the power. The man can just go and sell all the crops for food and she cannot do anything she is just there watching. (Women FGD participants Rwibare 2)*

*Councilors and NGOs like JESE offer such training. In a year we may receive training once (Men FGD participants Rwibare 2).*

While extension services were not that easily accessible to farmers, male farmers exhibited apathy in attending trainings at the local level because they were not interested and did not associate any benefits from them as compared to those offered at the sub-county and district

level. In addition, some men may still bar their wives from attending. Given the role that capacity building and knowledge enhancement plays in strengthening agribusinesses, the sub-project partners may have to seek partnerships with similar minded partners in improving access to these services for female and male farmers.

## CONTROL OVER USE OF INCOME

Other than leisure, women in Rwibare 1 generally perceived that they had greater ability to make decisions on expenditure arising out of cassava than men (Figure 8). Men shared that in 7 out of 10 homes, men discuss and agree with their wives on how to apportion proceeds from cassava to various expenditure items. They also revealed that unlike in the past, they now prioritize fees, food and health when budgeting for expenditure.

*When we cultivate we make sure that we keep some of the income so that we can pay fees. We also pay fees and keep some money for other things (Men FGD participants Rwibare 2)*

*School fees is the priority expenditure item for most families here. Men have now started paying school fees. In the past however they would blow money on alcohol (Men FGD participants Rwibare 2).*

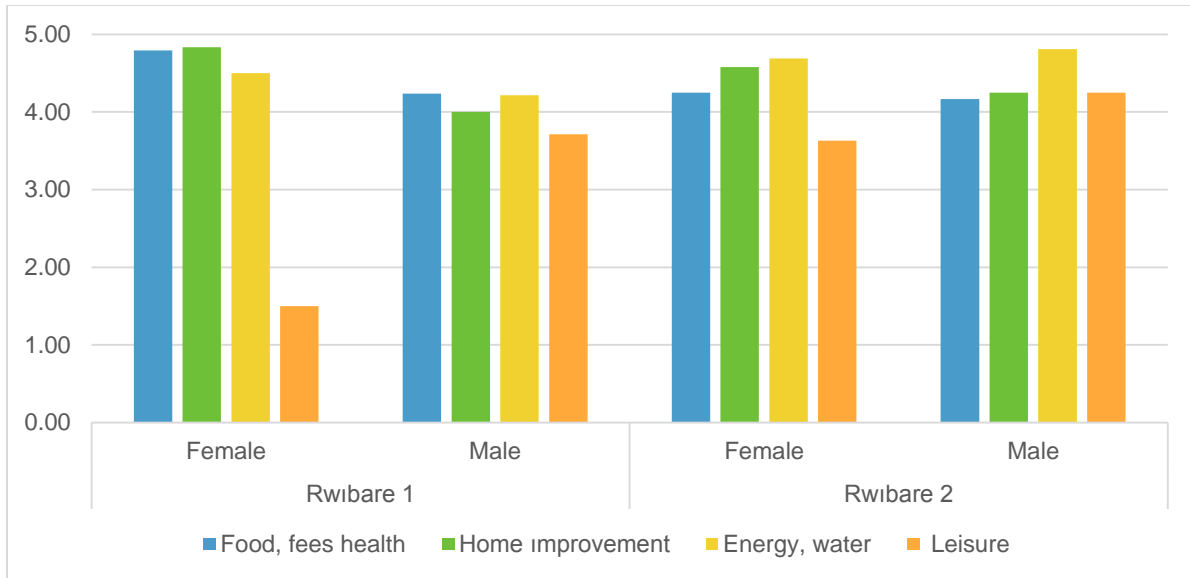
Women on the other hand opposed this view – many participants mentioned that men no longer meet their manly obligations in the home, and the women have to struggle to make ends meet.

*Women contribute a lot to the food because we dig a lot, work hard in our fields so that we can have food for our children. If we are able to sell we use that money to buy food. (Women FGD participants Rwibare 1)*

*Men do not bother about school fees. They may sell crops and use the money on other things. When the time to pay school fees come the money is not there (Women FGD participants Rwibare 2).*

Since school fees is a major expenditure, it is clear that men need to be encouraged to undertake this responsibility as they used to do in the past.





*Fig 8: Extent to which farmers perceive ability to make decisions on expenditure from cassava income*

Men indicated that they are jointly responsible for health care with the wives. Women disagreed with this and shared that they invest a lot in cleanliness to avoid sickness since they are the ones that are responsible for the health bills.

*It is women who pay. When a child is hospitalized, she/he may get well and discharged when the man has not even stepped once in the hospital. We get the money through selling our produce or group lending. (Women FGD participants Rwibare 1).*

Men also shared that they now take home improvement as a priority following the trainings that have been received. However, while women welcomed this change, they noted that they have to be vigilant and exercise caution in this area to ensure that funds are well utilized.

*These days there has been a lot of sensitization on home improvement. Trainings stress the need for this since it can lead to dissolution of marriages (Women FGD participants Rwibare 2)*

*We buy clothes as a motivational reward for the family so that they can work harder next season (Men FGD participants Rwibare 1)*

*You sit down and decide how much we spent together with the husband. (Women FGD participants Rwibare 1)*

*If you control the income for home improvement, you have to go with the husband (shopping) so you control how much he is spending so that he does not use all the money buying expensive things that you may not even need. (Women FGD participants Rwibare 1).*

Fuel was noted to be an important priority item and men mentioned that they provide for it, to which some women agreed. However, other women disagreed with this and explained that this responsibility has been shunned by men. They further noted that no one buys water in their area, however the responsibility of fetching water is left to women and children.

*Some men help in buying fuel and paying the bills. (Women FGD participants Rwibare 1)*

*It is us who know that the paraffin remaining and whether it will suffice or not. We have to spend money on this. We get the money from growing and selling beans and cassava (Women FGD participants Rwibare 2).*

With regards to leisure, most women connected it with the occasional good meals which they buy as a reward for the hard work they do. They were quick to note that they rarely have money to spend on other leisure activities not only because of lack of funds but also because the husbands would not allow them to. Some women also shared about the general selfishness of men since they never take their wives along for leisure, and instead may waste the family resources on questionable leisure activities.

*After digging I go home and rest. If I go for leisure time I go buy porridge (millet porridge) after which I go home and sleep (Women FGD participants Rwibare 1)*

*I go and buy a few kilos of meat; we eat we celebrate (Women FGD participants Rwibare 1)*

*We do not have money for leisure activities. If you use income on leisure you can be beaten by your husband. (Women FGD participants Rwibare 1)*

*How can someone go for karaoke and you go dancing and sing for people. How can a woman do that? (Group laughter) (Women FGD participants Rwibare 2)*

*Out of 10 maybe you can find one husband who will allow the wife to go for leisure activities (Women FGD participants Rwibare 1)*

*Most men are selfish and go alone for leisure activities and rarely inform their wives on where and how much they spend on leisure. (Women FGD participants Rwibare 2).*

While some change has been noted in the way men now apportion money towards household expenditure and family well-being, many women noted that there is still room for improvement. Most women noted that they have been able to meet these expenditures through petty sales of cassava and from group lending. Joint planning for proceeds from cassava, especially as the enterprise grows is essential to ensure that women, children and men benefit from the enterprise.

## COMMUNITY LEADERSHIP

Women scored highly with regards to membership and leadership of farmer organizations a fact that men attested to as seen below:

*Most groups are led by women. This is because they are trusted and will be careful with the group resources. They won't attempt to divert group resources like men would do. But when men are nominated, they won't hesitate to stand for leadership, because they are more literate and confident (Male farmers, Rwibare 2)*

*Women are committed so they are involved in organizations and get leadership. Now can you see that in this organization we are mostly women but men are also free to join? (Male farmers, Rwibare 1).*

Men commended women for steering farmer organizations in the area and attributed it to their high levels of commitment and trustworthiness.

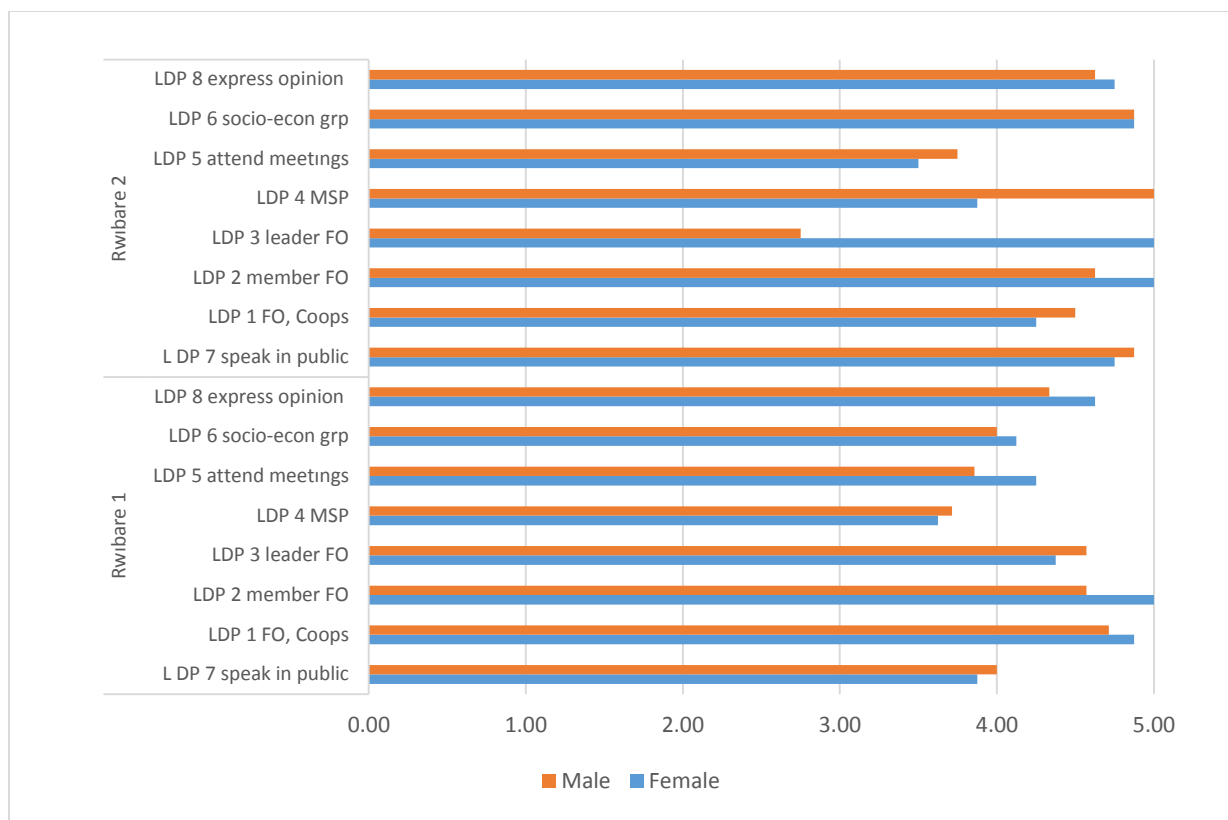
In Rwibare 1, women perceived that they were more vigilant in attending meetings than men. In both locations. However, they scored slightly lower than men in public speaking and ability to express their opinions in public.

Men were in agreement with this view and mentioned that many women still do not attend meetings and when they do; they are seen but not heard.

*Most women are not educated so they fear to be laughed at. Those who stay behind and do not attend meetings and training they are afraid to speak but not us (Women farmers, Rwibare 1).*

Functional Adult Literacy (FAL) classes could thus be a way of changing the negative perception women have of themselves thus creating a more confident female cadre that can eventually contribute to development in the area.

Both men and women mentioned that multi-stakeholder platforms were not popular in their area (Figure 9).



*Fig 9: Extent to which farmers perceive ability to participate in leadership activities*

It is encouraging to see that women can now actively participate in group activities and take up leadership positions as well as have the ability to express their opinion. Men also need to be encouraged to engage more actively in community group meetings, as they can be better informed when they represent fellow farmers at the district and sub-county level. However, more effort needs to be made to increase the number of women who can confidently represent others at higher forums.

## TIME ALLOCATION

### ***Agricultural production activities***

All participants mentioned that they are heavily engaged in agriculture, since it is their main source of livelihood (Figure 10).

*We clear the land, do most of the activities and supervise the labor. (Women FGD participants Rwibare 2)*

*This is our major occupation and source of income so we spend a lot of time doing agricultural activities. In the off-season, men participate in off-farm jobs. (Men FGD participants Rwibare 1).*

Men however had the ability to engage in off-farm work especially in the off-season which could be attributed to their mobility. This provides them with more networks and hence the ability to identify other jobs to supplement their income unlike women.

### **Reproductive activities**

Women mentioned that they are the ones responsible for nearly all these activities. They further shared that children support them in carrying out these chores but only during holidays. Men hardly engaged in any of these activities.

*Sometimes children are not at home and we also fetch the water (Women FGD participants Rwibare 1).*

Women thus are burdened given their triple role in the family and community at large (i.e. reproduction production and caregiver roles) and experience time poverty.

### **Community activities**

Men shared that they were quite active and participated a lot in community activities, while women mentioned that this was hard for them given the work load they have in other areas.

*When we are called for community activities very few go, even when we are called to build schools because women are always busy in the home and garden (Women FGD participants Rwibare 1)*

*Men are vigilant and they participate a lot in community activities like clearing roads, repairs in schools and churches. (Men FGD participants Rwibare 2)*

Men thus play an important role in participating in activities that improve the community well-being, and should be encouraged to spread this effort in reproductive activity so as to ease the burdens women face.

## Leisure

Women in Rwibare 1 clearly indicated that time for leisure is almost inexistent in their lives given the workload they have (Figure 10).

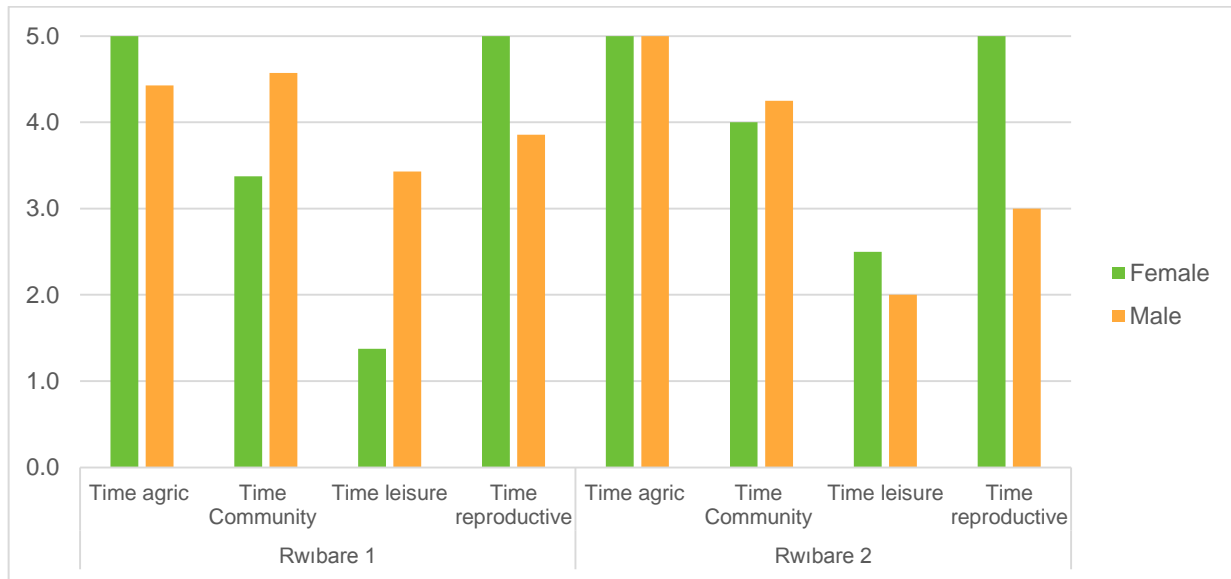


Fig 10: Extent to which farmers perceive ability to allocate time to various activities

Men on the other hand acknowledged that they always reserve some time to relax and wind, though some overdo it to the extent of compromising the family's well-being.

*Men here really enjoy their leisure time. Some of them disappear immediately after selling the produce and will only go back home after they have spent all the money. Then they will start again from scratch. (Women FGD participants Rwibare 1)*

*We do not have time we are always in our gardens. We also do not have money to waste on leisure activities. (Women FGD participants Rwibare 2)*

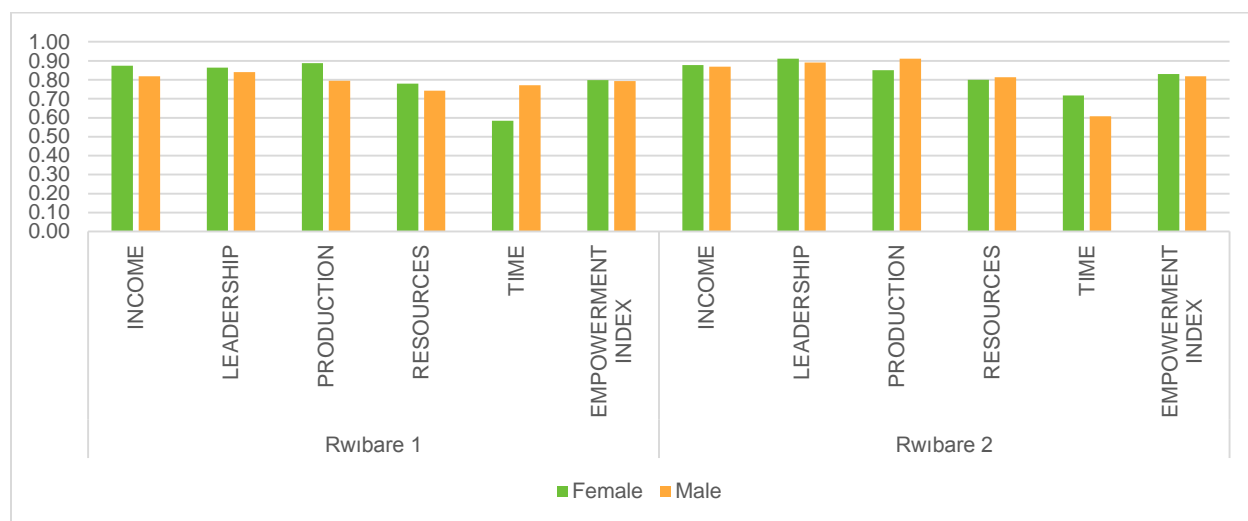
*Our men refuse us to go for leisure (Women FGD participants Rwibare 1)*

*It is only town women who have time for leisure activities (Women FGD participants Rwibare 1).*

Women were time constrained to the extent that they related leisure activities to women who reside in urban areas since they would not be perceived to have as heavy a chore schedule as they do. However, everyone needs to relax and unwind if they are to be continuously productive; and leisure offers a good way to do so.

## COMPREHENSIVE SCORE ON EMPOWERMENT PERCEPTION BY MEN AND WOMEN FARMERS

Comprehensive scores presented in Figure 11 show that nearly all of the farmers perceived themselves to be empowered, except male farmers in Rwibare 1 who fell short by a very small margin. Borrowing from the WEAI scale, a person is considered to be empowered if they score 0.8 and above. Female farmers from Rwibare 2 were the most empowered followed by male farmers from the same location. Amongst female farmers, the largest contributors to disempowerment were time. The greatest contributors to their empowerment on the other hand was leadership in Rwibare 2 and ability to make decisions on production inputs in Rwibare 1.



*Fig 11: Overall perceived empowerment scores by sex and location*

For the male farmers, leadership, the ability to make decision related to production and how to use income were the greatest contributors to their empowerment; while time was the most disempowering domain.

This implies that strategies must be designed to assist male and farmers to access labor saving technologies especially to aid their production and postharvest activities. For women, this matches earlier findings where they expressed drudgery being a limiting factor in most of the cassava activities they undertook. Such strategies would have to be differentiated by sex to meet the roles, responsibilities and varying needs of women and men.

## 5. Discussion

Gender analysis is critical in research and development given that it clarifies how male and females roles interact which is useful in designing of targeted strategies to improve efficacy and effectiveness of development interventions (Poats, 1991). This study has clearly demonstrated the gender division of roles in cassava production, postharvest practices and marketing as well as the constraints male and female actors face in their quest to meet consumer demands. As such, it provides a better understanding of the resource distributions needs and capabilities of the female and male farmers as well as the existing inequalities and power relations in the farming households that could deter adoption of the proposed postharvest innovations. To further augment these issues; we will base our discussion of four themes:

### *Gender based opportunities and constraints in cassava production:*

As affirmed by Waigumba et al (forthcoming); there is a large demand for fresh and processed cassava in Uganda and the neighboring countries. However, as findings from this study indicate, currently production of cassava is dominated by smallholder female farmers primarily for food but also for income who may not be able to meet the latent demand.

Commercialization efforts hence require increased participation and investment by male farmers. However, commercialization should not make female actors 'invisible' as seen during upgrading the processed cassava chains in West Africa (Adebayo et al; 2003). Taking the example of the GAPs and value-addition technologies which the sub-project is promoting, results clearly show that women have quickly adopted those that are more practical and less capital intense; like pruning. Men on the other hand are experimenting with ridging even though it is labor and capital intensive. Though both technologies are beneficial, ridging is likely to increase yields and hence more economic benefits for the farmers which implies that female farmers' productivity may lag behind. There is thus need to support women in their quest to adopt such technologies as this would ensure that both their practical and strategic gender needs are met (CEDPA, 2000). Efforts should also be made to ensure women's improved access to inputs such as high quality planting material and labor saving technology as well as extension services; among others. Given their limited mobility, bringing such services closer to the community will boost the production capability of both women and men and hence their ability to produce more for the market.

### *Participation in proposed postharvest innovations:*

Female farmers had a better grasp of the proposed technologies (waxing and RH); and indicated that they will not only supply cassava to the plant but will provide paid labor and also participate in the day-to-day running of the farmers owned processing plant. However, they are likely to face a challenge of transporting and delivering their fresh roots to the plant in a timely manner given the short window before PPD sets in. They may have to depend heavily on men in this aspect given that they are the ones that own the means of transport. In instances where



women fail to deliver on time, they are likely to suffer economic losses since they may be forced to search for alternative markets and sell at a discount. Given that women are usually risk averse (Laven et al, 2012), they may eventually not be able to sell as much fresh roots as the men and thus miss out on this business opportunity. However, if harvesting and sorting/grading in the field supervised by the plant manager(s) (since they will have to ensure that pruning and harvesting is done properly and in a timely manner); this may mitigate transport constraints and related losses for the women.

With regards to paid labor, this needs to be clearly laid out in the operations manuals of the processing plants to ensure favorable employment terms in times of workload and remunerative wages for women and men. Timely payments may assist women to cover transport costs for their fresh roots hence reducing losses. Women need to be represented at all levels of operation and management of the processing plant, since, as stated by Kabeer (1999), empowerment is not given; it must be self-generated. However, as argued by Mudege et al (2015) and in line with the study results, women need to acquire skills to effectively participate and contribute towards the smooth and profitable running of the plant. This thus calls for gender responsive training in pack-house operation, financial literacy and other aspects of management for female and male farmers that will comprise the management committee.

#### *Access to agricultural financing and credit*

In light of the projected financials needed to move the innovations from proto-type to commercial scale, the farmer association will need to access agricultural credit jointly (for the processing plant operations) and individually (for their individual cassava enterprises). Both male and female farmers indicated that they could not easily access banks but however the female farmers further stated that they can only get small loans due to lack of collateral while others were now credit averse having failed to service previous loans. Shortage of investable income was also noted to lead to domestic violence (Mayoux, 2010). This will thus call for development of individual (or household) strategies to enable farmers' source and access loans to address cash flow shortages that are currently deterring them from procuring the necessary inputs and equipment, hiring labor to ease drudgery and investing in pre- and postharvest recommended practices. It is thus suggested that tailored and phased business trainings are offered to fit both low and medium investment enterprises so as to ensure that women can engage and benefit. The association members will also need to be sensitized about the association business plan so as to get a clear understanding of the financial status and prospects of the business.

#### *Access to remunerative markets*

Currently women usually sell at the farm-gate and as such are mostly price takers with limited ability to negotiate for better terms of trade; while men are able to access market intelligence and source for buyers from various locations. It is thus important to increase women's participation in cassava marketing especially given the expected increased commercialization promoted by the project's interventions. A multi-pronged strategy that includes capacity

development and building trusted buyer-seller linkages needs to be explored with cognizance of the varying levels of literacy and exposure to markets; but also in light of the existing gender norms in the society (Forsythe et al; 2016). Elsewhere, examples abound of the negative repercussions of women economic empowerment on the household (e.g. increased domestic violence) and society especially where gender norms were not taken into consideration in designing these interventions (Kabeer, 2008 GIZ, 2016). The comment by the female cassava farmers on 'men fearing women with money' further shows the need to integrate gender in the marketing training sessions; to allow for increased participation in markets and equitable access to benefits accruing from cassava sales by women. Another important issue to note is the fact the processed cassava may not have a local market. In fact, the marketing outlets that the sub-project is targeting include supermarkets and institutions in urban and peri-urban areas that are likely to have a high demand for the cassava. Women are thus likely to take the back seat in the marketing of processed cassava given their limited mobility, and would have to trust the male members to handle most aspects of sales and marketing. While this is likely to be disempowering, women need to be encouraged to monitor sales on a regular basis. Having access to market intelligence and the knowledge of how to decipher such information would be highly beneficial. Women could also take charge of marketing roots that do not meet the quality specifications for processing, and processed roots that may fall short of the market requirements. Communication for behavioral change targeted at men to allow more participation of women in the market could be another useful strategy. Allowing women to physically go to the market but also participate in common decision making would enable them to strengthen their marketing skills and thus obtain a foray into wider markets.

The proposed strategy (presented in the next section) to add value to cassava; a low income 'women's' crop, is a welcome initiative as it is also likely to increase income for women. Though all the women participants perceived themselves to be empowered and eager to participate in this technology, it is important to note that perceptions and adoption of modern technologies are sometimes accompanied by cultural factors that may affect how men and women embrace the technologies. It has been noted, for instance, that the new technological innovations tend to benefit men more than women, lessening the workload of the former and increasing the activities carried out mostly by women, such as harvesting and processing (Quisumbing and Pandolfelli, 2008). Others have also argued that technology is highly gendered, based on access to specific resources (Kakooza et al., 2005; Buvinic and Mehra, 1990; Nompumelelo et al., 2009 in Kingiri; 2005). Nevertheless, social dynamics embedded in technological processes are still far too often overlooked in many gender and technology studies. In the case of proposed cassava technologies for example, ridging and pruning roots are likely to increase the workload of women. Thus the need to advance technological 'packs' to complement and further improve the core technology; for example availing low cost equipment on credit basis to aid harvesting of pruned cassava (since it has been indicated that harvesting of pruned cassava is more difficult).

Promoting gender equality is thus an important part of a development strategy that seeks to enable all people, women and men alike, to escape poverty and improve their standard of living (Word Bank, 2001). In conclusion, it is therefore important to continuously be cognizant of the fact that while men and women differ in their access to and control over the different elements

embedded in the empowerment domains of focus in this study; efforts should be made to decrease this gap as this will spur their ability to harness the available market opportunities and thus provide benefits to both women and men.

## 6. Gender strategy and plan

Activity	Gender Responsive	Gender Transformative	Relevance	Who is responsible	Proposed timeline
<b>Issue: Limited access to quality disease free planting material</b>					
<p>Increased access to planting materials of the desired varieties using various techniques including:</p> <ul style="list-style-type: none"> <li>- Rapid multiplication</li> <li>- Establishment of mother gardens</li> </ul>	<ul style="list-style-type: none"> <li>· Develop and use gender sensitive farmer selection and recruitment protocols</li> <li>· Male and female farmers participate in seed multiplication training offered by extension officers and project partners</li> </ul>	<ul style="list-style-type: none"> <li>· Women farmers purposively selected to host mother gardens</li> <li>· Women host farmers trained and supported with IEC materials for sensitizing other farmers</li> <li>· Female and male host farmers trained in business planning and financial management</li> <li>· Gender modules integrated in farmer training initiatives</li> </ul>	<ul style="list-style-type: none"> <li>· Approach mostly relevant to Kyenjojo which has higher disease pressure.</li> </ul>	<p>IITA, NARO, IIRR</p>	<p>May to October planting season</p> <p>June/2016 for the training and use of IEC materials</p>
<p>Encourage farmer groups to undertake collective action in sourcing good quality farming equipment to ease drudgery in production</p>	<ul style="list-style-type: none"> <li>· Collective input purchase activities supported in farmer groups and include both men and women</li> <li>· Train women and men farmers on labor saving technologies to reduce drudgery in production activities</li> <li>· Link farmer groups to technology development experts</li> </ul>	<ul style="list-style-type: none"> <li>· Linking female and male farmers to appropriate financial services to enable them procure equipment</li> <li>· Support establishment of agro-input kiosks that are located within the production area</li> </ul>	<ul style="list-style-type: none"> <li>· Startup capital for procurement of inputs like farm tools, chemicals</li> <li>· Financial linkages are in place</li> </ul>	<p>IITA, NARO, IIRR Farmer group committees</p>	<p>July 2016</p>

Issue: Poor agricultural practices (GAPs) in production and processing leading to low productivity					
Encourage farmers to adopt recommended practices that will ensure production of quality roots for increased shelf-life treatments	<ul style="list-style-type: none"> <li>· Train male and female farmers in GAPs (planting, ridging, pruning, harvesting)</li> <li>· Employ adult learning methods in training curricula (hands-on practicals, less theory, use of IEC materials)</li> <li>· Cost sharing for faster adoption (cash &amp; in-kind)</li> </ul>	<ul style="list-style-type: none"> <li>· Consult female farmers on appropriate times for training to ensure they participate</li> <li>· Use both male and female trainers</li> <li>· Learning visits (e.g. farmers from Kichwamba could go for a learning visit in Rwibare). Encourage youth to participate in such activities</li> </ul>	<ul style="list-style-type: none"> <li>- Gender responsive approaches already in place</li> <li>- Consultation for time of training and learning visits are very relevant</li> </ul>	IITA, NARO, IIRR Farmer group committees	<p>May 2016 on consultation for training time for female participants</p> <p>Aug 2016 for learner visits</p>
Sensitize farmer groups to undertake environmentally friendly practices as a way to cope and mitigate effects of changing weather conditions	<ul style="list-style-type: none"> <li>· Strengthen linkages with similar minded organizations operating in the area e.g. JESE</li> </ul>	<ul style="list-style-type: none"> <li>· Source and provide IECs with simplified instruction on good practices e.g. tree nursery bed establishment, planting trees, mulching, soil and water conservation trenches</li> </ul>	<ul style="list-style-type: none"> <li>· IECs already in use, like manuals &amp; user guides have been developed</li> </ul>		
Reduce drudgery in on-farm processing of roots that cannot be sold as FCR (peeling, drying, pounding)	<ul style="list-style-type: none"> <li>· Strengthen existing savings and credit management schemes (SACCO) to enable them provide loans to members for procuring labor saving technologies (e.g. grinding mills)</li> </ul>	<ul style="list-style-type: none"> <li>· Train women farmers in financial literacy using simple teaching aids and IEC materials</li> <li>· Identify a credit service provider who can tailor a loan product to women farmers' needs and link farmer groups to the service providers</li> </ul>	<ul style="list-style-type: none"> <li>· Strategies are relevant here</li> <li>· To obtain hand gloves</li> <li>· Procure cassava choppers</li> </ul>	Farmer group committee  Entrepreneur	<p>July 2016</p> <p>June</p>

Establishment and management of cassava processing factory (group owned)	<ul style="list-style-type: none"> <li>· Ensure fair representation of female and male at all levels of management</li> <li>· Capacity strengthening to ensure management have skills to run factory</li> <li>· Skills development in PH techniques for male &amp; female</li> </ul>	<ul style="list-style-type: none"> <li>· Ensure working environment is sensitive to female worker's needs – simple HR guide</li> <li>· Ensure women participate in drafting &amp; operationalizing factory management protocols</li> </ul>	<ul style="list-style-type: none"> <li>· Strategies relevant</li> </ul>	<ul style="list-style-type: none"> <li>· Project partner implementers</li> </ul>	June 2016
<b>Issue: Limited linkages to reliable markets for FCR &amp; processed cassava</b>					
Capacity development gender responsive business planning and marketing	<ul style="list-style-type: none"> <li>· Equal participation of female &amp; male farmers in business training</li> <li>· Hands on in marketing tools e.g. Rapid Market Assessment to identify buyers</li> </ul>	<ul style="list-style-type: none"> <li>· Ensure female farmers are trained and engage in business negotiations</li> <li>· Adapt &amp; operationalize module on h/hold cooperation &amp; decision making in all training modules</li> <li>· Link female &amp; male farmers to reliable buyers (e.g. cassava processor)</li> <li>· Encourage youth to grow &amp; supply FCR to factories</li> </ul>	<ul style="list-style-type: none"> <li>· Strategies relevant</li> </ul>	<ul style="list-style-type: none"> <li>· Project partner implementers</li> </ul>	June 2016

<p>Sensitize male and female farmers on importance of market intelligence and how to utilize the information to inform marketing decisions</p>	<ul style="list-style-type: none"> <li>· Access to timely market intelligence for female &amp; male farmers – in user friendly modes</li> </ul>	<ul style="list-style-type: none"> <li>· Encourage use of a weight based pricing system and ensure female farmers are sensitized on how to use it</li> </ul>	<ul style="list-style-type: none"> <li>· Relevant especially the weight based pricing system</li> </ul>	<p>Project partner implementers</p>	<p>June 2016</p>
<p>Sensitization and training of farmer households on the need for good gender relations and collaborative decision making at household level</p>	<ul style="list-style-type: none"> <li>· Integrate gender responsive sessions in farmer training,</li> <li>· Encourage farming households to visualize the existing gender norms and relations in their homes</li> <li>· Improve farmer extension linkages</li> <li>· Men and women farmers and association members should equally participate in learning visits</li> <li>· Learning visits should be well structured to provide for practical take away learning tips for both men and women</li> <li>·</li> </ul>	<ul style="list-style-type: none"> <li>· Strengthen linkages with gender transformative programs.</li> <li>· Encourage couples to attend such trainings or sensitization sessions</li> <li>· Explore utilization of tested approaches for sensitizing men e.g. the men campfire approach</li> </ul>	<ul style="list-style-type: none"> <li>· Strategies needed but are outside project scope activities</li> <li>· However, shall encourage gender responsive approaches.</li> </ul>		



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**ANNEX 1: Guide questions for the comparison of the five dimensions of men's and women's economic empowerment tool**

<b>Domain</b>	<b>Sub-domain</b>	<b>Guide questions</b>
<b>Production</b>	<b>Input into productive decisions</b>	<p><b>To which extent are decisions made on the following:</b></p> <ul style="list-style-type: none"> <li>• What variety to plant? What crop to grow? What acreage to allocate?</li> <li>• Allocation to food crops vs. cash crops</li> <li>• Adoption of new technologies/practices</li> <li>• Distribution of tasks/ labor Purchase of inputs/ equipment</li> <li>• Application of chemical/ fertilizer</li> </ul>
	<b>Autonomy in production</b>	<p><b>To which extent are men/women deciding</b></p> <ul style="list-style-type: none"> <li>• Where to sell</li> <li>• Who to sell to</li> <li>• What price to sell</li> </ul>
<b>Resources</b>	<b>Ownership of assets</b>	<p><b>To which extent are the following assets owned</b></p> <ul style="list-style-type: none"> <li>• Land</li> <li>• Farm Equipment</li> <li>• Cattle, goats and sheep</li> <li>• Pigs and poultry</li> <li>• Means of transport: bicycle, motorcycle car</li> </ul>
	<b>Purchase, sale or transfer of assets</b>	<p><b>To which extent is there decision-making power to sell or transfer above-mentioned assets?</b></p>
		<p><b>To which extent is there decision-making power to purchase new assets?</b></p>
<b>Access to services</b>	<p><b>To which extent is there access to financial services:</b></p> <ul style="list-style-type: none"> <li>• savings and credit cooperatives (SACCOs)</li> <li>• group lending</li> <li>• banks</li> <li>• MFIs</li> </ul> <p><b>To which extent is there access to business development services (BDS), such as:</b></p> <ul style="list-style-type: none"> <li>• Extension services</li> <li>• Farmer field schools</li> <li>• Demonstration plots</li> </ul> <p><b>Trainings</b> (record-keeping, business planning, leadership, etc.)</p>	

<b>Income</b>	<b>Control over use of income</b>	<b>To which extent is there decided on expenditures</b> related to: <ul style="list-style-type: none"> <li>• Food</li> <li>• Education/ children’s school fees</li> <li>• Home improvement</li> <li>• Health care</li> <li>• Clothing</li> <li>• Household utensils 3</li> <li>• Energy (fuel, electricity, other)</li> <li>• Water</li> <li>• Leisure</li> </ul>
<b>Leadership</b>	<b>Group member</b>	<ul style="list-style-type: none"> <li>• The extent of involvement in farmer organizations, cooperatives, committees</li> <li>• The extent of membership in above-mentioned organizations</li> <li>• The extent of leadership positions in above-mentioned organizations</li> <li>• The extent of involvement in multi-stakeholder platforms?</li> <li>• The extent of involvement in meetings at sub-county, district level?</li> </ul>
	<b>Speaking in public</b>	<ul style="list-style-type: none"> <li>• The extent of active participation in socio-economic groups</li> <li>• The level of comfort when speaking in public</li> <li>• The ability to express opinion</li> </ul>
<b>Time</b>	<b>Work load</b>	<ul style="list-style-type: none"> <li>• The extent of participation agricultural production activities crops</li> <li>• The extent of participation in reproductive activities</li> <li>• The extent of participation in community activities</li> </ul>
	<b>Leisure</b>	<b>To which extent is there time for leisure activities?</b>